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# CSI Codes - Specialty Detail

## Division 1 - General Requirements

General Contractor	1001
General Contractor- Airports	1002
General Contractor- Churches	1003
General Contractor- Commercial	1004
General Contractor- Design/Build	1005
General Contractor- Heavy/Highway	1006
General Contractor- Industrial Maintenance	1007
General Contractor- Industrial	1008
General Contractor- Institutional	1009
General Contractor- Pre Engineered Buildings	1010
General Contractor- High Rise Office	1011
General Contractor- Low Rise Office	1012
General Contractor- High Rise Apartments	1013
General Contractor- Low Rise Apartments	1014
General Contractor- Waste Water Treatment	1015
General Contractor- Construction Manager	1016
General Contractor- Facilities Manager	1017
General Contractor- Historical Renovation	1018
General Contractor- Tenant Finish	1019
General Contractor- Interior Finish	1021
General Contractor- Farm Buildings	1024
General Contractor- Health Care Facilities/Services	1025
General Contractor- Hangar & Maintenance	1026
General Contractor- Industrial & Commercial	1030
General Contractor- Custom Built Homes	1031
General Contractor- Residential Multi Family	1032
General Contractor- Retail	1033
General Contractor- Other Specialty Construction	1040
Construction Management/Coordination Firm	1060
Project Scheduling	1310
Engineering Services	1330
Construction Documentation	1380
Quality Control Services	1400
Temporary Facilities	1500
Portable Toilets	1505
Temporary Utilities	1510
Security Services	1520
Construction Aids	1525
Temporary Controls	1560
Project Identification and Signs	1580
Construction Equipment	1600
Construction Tools	1630
Construction Cleaning Services	1710
Insurance and Bonding	1905

## Division 2 - Site Construction

Site Work Supplier	2010
Aggregate Manufacture Supplier	2040
Demolition	2050
Hazardous Material Removal	2055
Off-site Transportation and Disposal	2060
Cement	2065
Site Preparation	2100
Earthwork Supplies	2105
Geosynthetics	2107
Dewatering	2140

Excavation Support & Shoring Systems	2150
Soil Stabilization	2240
Soil Treatment	2280
Tunneling	2300
Man Hole Covers	2315
Piling	2350
Caissons/Drilled Piers	2380
Railroad Work	2450
Marine Work	2480
Marine Diving	2485
Asphalt Paving	2510
Asphalt Paving Concrete Materials	2513
Unit Pavers	2515
Base Courses	2516
Concrete Paving	2520
Curbs	2525
Athletic Paving & Surfacing	2530
Pavement Marking	2580
Site Utilities Pressure Piping	2600
Water Wells	2670
Sewerage and Drainage	2700
Septic Systems	2710
Restoration of Underground Pipelines	2760
Ponds and Reservoirs	2770
Site Improvements	2800
Fences & Gates	2830
Landscaping and Irrigation	2900

## Division 3 - Concrete

Concrete Contractor	3010
Concrete Supplier	3050
Concrete Formwork	3100
Concrete Reinforcing	3200
Reinforcing Steel	3210
Cast In Place Concrete	3300
Cement Supplier	3310
Ready-Mix Concrete	3320
Concrete Placing and Finishing	3345
Concrete Curling Supplier	3346
Grout	3347
Special Finish Concrete	3350
Specially Placed Concrete	3360
Precast Concrete	3400
Site Cast Precast Concrete	3460
Precast Concrete Specialties	3480
Cementitious Decks	3500
Concrete Restoration and Cleaning	3700

## Division 4 - Masonry

Masonry	4200
Brick Masonry Supplies	4331
Mortar & Masonry Grout	4332
Reinforced Unit Masonry	4333
Washed Sand & Gravel	4336
Stone	4400
Masonry Restoration and Cleaning	4500
Special Masonry Installations	4550

# CSI Codes - Specialty Detail

## Division 5 - Metals

Structural Metal Erection	5010
Basic Metal Materials and Methods	5050
Structural Framing	5100
Millwright	5105
Rigging	5110
Structural Steel	5120
Steel Joists	5210
Metal Decking	5300
Cold Formed Metal Framing	5400
Load Bearing Metal Studs	5410
Miscellaneous Metal Fabrications	5500
Metal Handrails & Railings	5520
Gratings and Floor Plates	5535
Metal Castings	5560
Ornamental Metal	5700
Expansion Control	5800
Metal Restoration and Cleaning	5900

## Division 6 - Wood and Plastics

Wood And Plastic Fastenings	6090
Rough Carpentry	6100
Structural Wood Components	6130
Prefabricated Structural Wood	6170
Finish Carpentry/Architectural Woodwork	6200
Lumber	6300
Countertops	6415
Plastic Fabrications	6600
Wood and Plastic Restoration and Cleaning	6900

## Division 7 - Thermal and Moisture Protection

Waterproofing/Dampproofing	7100
Insulation	7200
Exterior Insulation and Finish Systems	7240
Fireproofing	7250
Shingles	7310
Roofing Tiles	7320
Preformed Roofing and Cladding/Siding	7400
Roofing Supplier	7405
Membrane Roofing and Sheet Metal	7500
Roof Specialties	7700
Skylights	7800
Firestopping	7840
Joint Sealers	7900

## Division 8 - Doors and Windows

Metal Doors and Frames	8100
Special Metal Doors and Frames	8120
Wood and Plastic Doors	8200
Special Doors	8300
Access Doors	8305
Sliding Doors	8310
Overhead and Coiling Doors	8330
Folding Doors and Grilles	8350
Entrances, Storefronts, Glazing and Curtain Wall	8400
Metal Windows	8500
Wood and Plastic Windows	8600

Special Windows	8650
Hardware	8700

## Division 9 - Finishes

Basic Finish Materials And Methods	9050
Ceiling Suspension	9120
Lath and Plaster	9200
Drywall	9250
Tile and Terrazzo	9300
Acoustical Treatment	9500
Wood Flooring	9550
Stone & Masonry Flooring	9600
Cultured Marble	9610
Soft Flooring	9650
Carpet	9680
Special Flooring and Floor Treatment	9700
Paint Removal	9790
Special Coatings	9800
Painting and Wall Coverings	9900
Wall coverings	9950
Sandblasting	9980

## Division 10 - Specialties

Chalkboards and Tackboards	10100
Compartments and Cubicles	10150
Louvers, Vents and Screens	10200
Wall and Corner Guards	10260
Access Flooring	10270
Specialty Modules	10280
Fireplaces and Stoves	10300
Prefabricated Exterior Specialties	10340
Flagpoles	10350
Identifying Devices	10400
Pedestrian Control Devices	10450
Lockers	10500
Fire Protection Specialties	10520
Protective Covers	10530
Postal Specialties	10550
Partitions	10600
Operable Partitions	10650
Storage Shelving	10670
Exterior Sun Control Devices	10700
Telephone Specialties	10750
Toilet and Bath Accessories	10800
Scales	10880
Wardrobe and Closet Specialties	10900
Miscellaneous Specialties	10950

## Division 11 - Equipment

Maintenance Equipment	11010
Bank, Security and Vault Equipment	11020
Ecclesiastical Equipment	11040
Library Equipment	11050
Theater and Stage Equipment	11060
Instrumental Equipment	11070
Mercantile Equipment	11100
Commercial Laundry and Dry Cleaning Equipment	11110

# CSI Codes - Specialty Detail

Vending Equipment	11120
Audio Visual Equipment	11130
Service Station Equipment	11140
Air Compressor	11145
Parking Control Equipment	11150
Loading Dock Equipment	11160
Solid Waste Handling Equipment	11170
Detention Equipment	11190
Water Supply and Treatment Equipment	11200
Dam, Hydroelectric, and Irrigation Project	11280
Fluid Waste Treatment and Disposal Equipment	11300
Food Service Equipment	11400
Residential Equipment	11450
Unit Kitchens	11460
Darkroom Equipment	11470
Athletic, Recreational and Therapeutic Equipment	11480
Industrial and Process Equipment	11500
Laboratory Equipment	11600
Planetarium and Observatory Equipment	11660
Medical Equipment	11700
Mortuary Equipment	11780
Navigation Equipment	11850
Miscellaneous Specialty Equipment	11900

## Division 12 - Furnishings

Artwork	12100
Manufactured Casework	12300
Medical Casework	12335
Residential Casework	12390
Window Treatment	12500
Landscape Partitions and Components	12610
Furniture, Furniture Systems, and Furniture	12620
Rugs and Mats	12670
Multiple Seating	12700
Systems Furniture	12750
Interior Plants and Planters	12800

## Division 13 - Special Construction

Air Supported Structures	13010
Integrated Assemblies	13020
Special Purpose Rooms	13030
Sound, Vibration, and Seismic Control	13080
Radiation Protection	13090
Nuclear Reactors	13100
Pre Engineered Structures	13120
Pools	13150
Ice Rinks	13160
Kennels and Animal Shelters	13170
Site Constructed Incinerators	13180
Liquid and Gas Storage Tanks	13200
Digestion Tank Covers and Appurtenances	13230
Oxygenation Systems	13240
Sludge Conditioning Systems	13260
Utility Control Systems	13300
Industrial and Process Control Systems	13400
Recording Instrumentation	13500
Transportation Control Instrumentation	13550

Solar Energy Systems	13600
Wind Energy Systems	13700
Building Automation Systems	13800
Fire Suppression and Supervisory Systems	13900

## Division 14 - Conveying Systems

Dumbwaiters	14100
Elevators	14200
Moving Stairs and Walks	14300
Lifts	14400
Vehicle Lifts	14450
Material Handling Systems	14500
Chutes	14560
Tube Systems	14580
Hoists and Cranes	14600
Turntables	14700
Scaffolding	14800
Transportation Systems	14900

## Division 15 - Mechanical

Basic Mechanical Materials And Methods	15050
Industrial Process Piping	15230
Mechanical Insulation	15250
Fire Protection	15300
Plumbing	15400
Heating, Ventilating, and Air Conditioning (HVAC)	15500
Heating Boilers And Accessories	15510
Process Piping & Equipment	15800
Controls	15950
Testing, Adjusting, and Balancing	15990

## Division 16 - Electrical

Basic Electrical Materials And Methods	16050
Electrical Contractor	16100
Site Electrical Distribution	16300
High Voltage Distribution, Switching and Protection	16320
Industrial Electrical Work	16400
Lightning Protection Systems	16670
Communications	16700
Alarm Systems	16750
Fiber Optic Cabling	16800
Controls	16900
Testing	16950

## Division 20 - ABC Miscellaneous

Accounting	20100
Consulting	20200
Attorney	20300
Developer	20400
Engineer	20500
Architect	20600
Business Services	20700
Insurance	20800
Bonding	20805
Banking	20810
Supplier	20900
Cement Based Underlayment	203450

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## *CSI Codes - Specialty Detail*

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Construction Reports	201000
Construction Employment Firm	201100
Advertising	201200
Internet Services	201300
Timberline Software	201400
Chapter Lobbyist	201500
Environmental Services	201600
Labor Staffing Services	201800
Arborist	202010
Dumpster Service/Rolloff/Transfer Station	20202020
Employee Benefits	20202030
Financial Planning	20202040
Prevailing Wage Benefit Plans	20202050
Printing & Reproduction	20202060
Online Planroom	20202070
Automotive Dealership	20202080
Safety Services	20202090
Signs	20202100

# Division 1

## General Requirements

### Estimating Tips

While General Requirements items are not directly referred to on the plans, they are an inherent part of the construction process. A thorough review of the plans is required in order to determine the quantities associated with General Requirements items, both construction aids such as scaffolding and equipment needs, and administrative overhead.

Many of the items that comprise the General Requirements, such as scaffolding and the hookup and dismantling of temporary power, are not production-related and sometimes are mistaken as having no real cost. A review of the plan will help to identify and account for these items in the quantity take-off. Any experienced contractor can testify to the fact that there is a definite cost to the administration of a project.

### The Project Schedule

Drafting a schedule is a necessity, whether for a simple office building, residential or a complex multi-story tower hotel. Drafting and revising a schedule are the only means of determining both how long the project will last and what the time-sensitive General Requirements expenses will be.

### The Construction Manager and Other Field Staff

The contractor is advised to include a cost for the salary of the field construction manager to manage the project. Some projects require that the same construction manager be present from commencement to completion, to provide a sense of continuity. In that case there is little creativity involved in determining the cost. Additional field or office personnel may be indicated in the specifications. Expenses such as travel may be part of the cost of such personnel.

### Clean-up and Debris Removal

There are two basic classifications of clean-up-*general*, which is ongoing for the duration of the project, and *final* which entails the final cleaning of the premises prior to occupancy by the owners. The contractor must calculate the man-hours and resources needed to perform the general cleanup over the length of the project, including such costs as dumpster rental and removal, and storage of the dumpster in the street. It is important to note the associated costs of constructing and dismantling such items as ramps and chutes.

Final cleaning tends to be more specialized, requiring buffing and vacuuming equipment not usually considered part of the general contractor's typical work, and may be performed by a company normally provides these services.

### **Project closeout & Demobilization**

Project closeout is bringing the project to final completion. It includes the submission of as-built drawings, warranties maintenance and operational instructions and literature; the removal of contractor equipment; and the punch list. All of these items represent a definite cost to the contractor and should be carried in the bid. These items tend to be manpower-intensive and should not be overlooked.

### **Temporary Facilities**

Temporary Facilities include costs such as those associated with a field office, particularly the expenses incurred in the set-up, removal, and rental of trailer. Also in this category are monthly expenses for equipment such as telephone, fax, copy machine, and blue-printing machine. The contractor must also calculate the cost of such services as temporary light and power, air conditioning, and water services for both the field office & the project itself.

This involve determining how long the field office will be needed, and at what point the permanent utilities will be available to the building. Other items classified as temporary facilities are portable toilets; temporary barricades; and pest control; staging and platforms; cranes and hoists; and project signs. The cost of most of these items is related to the amount of time needed and can be predicted by reviewing the schedule.

### **Testing and Inspection**

Many specifications require the testing and inspection of completed work. Testing often takes place in the field as the work is in progress. Soil and concrete testing are examples of such testing services. The cost of these services is commonly assumed by the contractor. The cost for the services can be calculated based on the frequency of inspection as indicated in the specs or as stipulated by code requirements.

### **Submittals and Samples**

Specifications often require that literature and samples be submitted for approval. Some contractors might think this is a redundant. This may be redundant, since the submittals are materials specified by the designer, but it is simply one item in a series that insure the project is built as designed. The contractor must take into account the cost of purchasing required samples.

### **Permits and Fees**

The category of permits and fees deals almost exclusively with the costs imposed by the local municipality. Included are such items as building permit; assessments for the connection of sewer; water, or storm drainage lines to main line.

# **DIVISION 01 : GENERAL REQUIRMENTS**

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
<b>010 000</b>	<b>DIRECT OVERHEAD RUNNING COSTS:</b>									
<b>010 100</b>	<b>DIRECT OVERHEAD COSTS:</b>									
<b>010 110</b>	<b>CONSTRUCTION STAFF AT SITE:</b>									
<b>010 112</b>	<b>FIELD STAFF</b>									
010 112-0100	Construction manager or superintendent, Unique & large jobs.	Man Month		20,000	48.42%				29,683	
010 112-0120	Construction manager or superintendent, jobs between 50 & 100 million SR	Man Month		15,000	50.88%				22,631	
010 112-0140	Construction manager or superintendent, jobs less than 50 million SR	Man Month		10,000	55.79%				15,579	
010 112-0200	Field Architect. Engineer, unique & large jobs	Man Month		18,000	49.24%				26,863	
010 112-0220	Field Architect. Engineer, jobs between 50 & 100 million SR	Man Month		12,000	53.33%				18,400	
010 112-0240	Field Architect. Engineer, jobs less than 50 million SR.	Man Month		8,000	59.48%				12,758	
010 112-0300	Field Civil Engineer, Unique & large jobs.	Man Month		18,000	49.24%				26,863	
010 112-0320	Field Civil Engineer, jobs less than 50 millions.	Man Month		12,000	53.33%				18,400	
010 112-0340	Field Civil Engineer, jobs less than 50 million SR.	Man Month		8,000	59.48%				12,758	
010 112-0400	Field Electrical Engineer, Unique & large jobs	Man Month		15,000	50.88%				22,631	
010 112-0420	Field Electrical Engineer, Unique & large jobs	Man Month		10,000	55.79%				15,579	
010 112-0440	Field Electrical Engineer, jobs less than 50 millions SR.	Man Month		6,500	63.73%				10,643	
010 112-0500	Field industrial Engineer, Unique & large jobs	Man Month		16,000	50.26%				24,042	
010 112-0520	Field industrial Engineer, jobs between 50 & 100 million SR.	Man Month		11,000	54.45%				16,990	
010 112-0540	Field industrial Engineer, jobs less than 50 millions SR.	Man Month		7,000	62.11%				11,348	
010 112-0600	Field Mechanical Engineer, Unique & large jobs.	Man Month		15,000	50.88%				22,631	
010 112-0620	Field Mechanical Engineer, jobs less than 50 millions.	Man Month		10,000	55.79%				15,579	
010 112-0640	Field Mechanical Engineer, jobs less than 50 million SR.	Man Month		6,500	63.73%				10,643	
010 112-0700	Field Quantity Surveyor	Man Month		5,000	50.17%				7,508	
010 112-0800	Field Surveyor	Man Month		3,500	52.65%				5,343	
010 112-0900	Guards	Man Month		550	107.80%				1,230	
010 112-1100	Laboratory Material Testing Engineer	Man Month		12,000	53.33%				18,400	
010 112-1200	Laboratory Technicians	Man Month		4,000	51.20%				6,048	
010 112-1300	Laboratory Laborer	Man Month		550	107.80%				1,230	



## DIVISION 01 : GENERAL REQUIRMENTS

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
010 112-1400	Plants Manager	Man Month		8,000	46.12%				11,690	
010 112-1500	Plant, Electrical power, Operators	Man Month		2,200	59.51%				3,509	
010 112-1600	Plant, Networks Maintenance	Man Month		1,900	62.42%				3,086	
010 112-1700	Plant, Water Supplies Drivers	Man Month		1,200	74.90%				2,099	
010 112-1800	Stores Manager	Man Month		2,000	61.35%				3,227	
010 112-1900	Store Keepers	Man Month		1,400	70.06%				2,381	
010 012-2000	Store Drivers	Man Month		1,200	74.90%				2,099	
010 112-2100	Workshop Manager	Man Month		8,000	46.12%				11,690	
010 112-2200	Workshop Mechanic	Man Month		3,500	52.65%				5,343	
010 112-2300	Workshop Drivers	Man Month		1,200	74.90%				2,099	
<b>010 114</b>	<b>PROJECT MANAGER:</b>									
010 114-0100	PROJECT MANAGER LARGE OR UNIQUE PROJECTS	Man Month		25,000	46.94%				36,735	
010 114-0120	PROJECT MANAGER MEDIUM SIZE JOBS UP TO 100 M	Man Month		18,000	49.24%				26,863	
010 114-0140	PROJECT MANAGER, PROJECTS LESS THAN 50 M	Man Month		12,000	53.33%				18,400	
010 114-0160	Project Manager Secretary	Man Month		2,500	53.33%				3,932	
<b>010 116</b>	<b>PROJECT MANAGER SUPPORTING STAFF:</b>									
010 116-0100	Accountant	Man Month		4,500	50.07%				6,753	
010 116-0200	Accountant Aid	Man Month		3,000	54.58%				4,638	
010 116-0300	Computer Operators.	Man Month		3,500	52.65%				5,343	
010 116-0400	Claims Manager.	Man Month		15,000	50.88%				22,631	
010 116-0500	Draftsman, shopdrawings	Man Month		2,500	57.29%				3,932	
010 116-0600	Drivers	Man Month		1,200	74.90%				2,099	
010 116-0700	Engineer, Architect., Shopdrawings & Materials Approval	Man Month		10,000	55.79%				15,579	
010 116-0800	Engineer, Civil, Shopdrawings & Materials Approval	Man Month		7,000	62.11%				11,348	
010 116-0900	Engineer, Electrical, Shopdrawings & Materials Approval	Man Month		7,000	62.11%				11,348	
010 116-1000	Engineer, Mechanical, Shopdrawings & Materials Approval	Man Month		7,000	62.11%				11,348	
010 116-1100	Engineer, Planning	Man Month		8,000	59.48%				12,758	
010 116-1200	Engineer, Structural, Shopdrawings & Materials Approval	Man Month		7,000	62.11%				11,348	

## DIVISION 01 : GENERAL REQUIRMENTS

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
010 116-1300	Expediter	Man Month		2,000	61.35%				3,227	
010 116-1400	File Keeper	Man Month		1,500	68.13%				2,522	
010 116-1500	Office Service, Laborers	Man Month		550	107.80%				1,182	
010 116-1600	Procurement Manager	Man Month		3,000	54.58%				4,638	

### 010 200 CONSULTANT/ OWNER OH EXPENSES:

### 010 221 CONSULTANT/OWNER REPRESENTATIVE OFFICES:

010 221-0100	Office cleaning consumables	Man Month				10			10	
010 221-0200	Drinking water supplies.including tea service.	Man Month				22			22	
010 221-0300	Electrical power supply,city connected.at 875 KWH per man month.	Man Month							175	
010 221-0400	Electrical Power Supply,on-site generation.at 875 KWH per man month.	Man Month							263	
010 221-0500	Equipment Maintenance,computers, copiers, printers,.etc. jobs more than 20 million SR.	Month							200	
010 221-0600	General Water Supplies.at 4.5 CUM per man month.	Man Month							25	
010 221-0700	Offices Service laborers	Man Month		550	114.91%				1,182	
010 221-0800	Supplies, stationary, & computers supply	Month							700	
010 221-0900	Telephone & Fax bills- Local & In Kingdom Long distance calls Average	Month							2,000	

### 010 224 CONSULTANT ACCOMODATION & SERVICES:

010 224-0100	Cars Insurance, consultant staff	Car Month							125	
010 224-0200	Cars Insurance, Owner's representative, "if required".	Car Month							167	
010 224-0300	Cars Maintenance & fuel, Consultant staff	Car Month							300	
010 224-0400	Cars Maintenance & fuel,Owner's representative. "if required"	Car Month							400	
010 224-0500	Consumables,housekeeping. "if housing required"	Man Month				12			12	
010 224-0600	Cook for Consultant Kitchen " If housing provided"	Man Month		3,500	52.65%				5,343	
010 224-0700	Cook assistant " If housing provided"	Man Month		750	95.21%				1,464	
010 224-0800	Drinking water supply to consultant housing. " if housing required".	Man Month				24			24	
010 224-0900	Electrical power supply per Person,city connected, Monthly, at 1200 KWH per man month"if housing required	Man Month							240	
010 224-1000	Electrical Power Supply,on-site Generation. at 1200 KWH per man month"if housing required"	Man Month							360	
010 224-1100	Housekeeping,cleaing staff. Assume 1 Laborer for every 6 staff persons." If housing provided"	Man Month		550	114.91%				1,182	

## DIVISION 01 : GENERAL REQUIRMENTS

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
010 224-1200	Water Supply city connected, per person, Monthly. at 8 CUM per person. "if housing required"	Man Month							44	
010 224-1300	Water supply per person, on-site delivery,Monthly."if housing required"	Man Month							67	
<b>010 300</b>	<b>CONTRACTOR SITE OVERHEAD EXPENSES:</b>									
<b>010 310</b>	<b>CONTRACTOR OFFICES:</b>									
010 310-0100	Office cleaning consumables	Man Month				12			12	
010 310-0200	Drinking water supplies.	Man Month				20			20	
010 310-0300	Electrical power supply,city connected.at 625 KWH per man month.	Man Month							125	
010 310-0400	Electrical Power Supply,on-site generation.at 625 KWH per man month.	Man Month							188	
010 310-0500	Equipment Maintenance,computers, copiers, printers,.etc. jobs more than 20 million SR.	Month							350	
010 310-0600	General Water Supplies.at 4.5 CUM per man month.	Man Month							25	
010 310-0660	Offices Service laborers	Man Month		550	114.91%				1,182	
010 310-0700	Office Supplies, stationary, & computers supply	Month							1,500	
010 310-0800	Office, Engineering Drawings supply	Month							1,000	
010 310-0900	Office telephone & Fax bills- Local & Long distance calls Average	Month							3,000	
010 310-1000	Office, travel expenses from site to main office, if applicable cost depends on site location and class of travel. Assume an average of 2 trips monthly.	Trip								
<b>010 340</b>	<b>CONTRACTOR STAFF ACCOMODATION :</b>									
010 340-0100	Cars Insurance,contractor staff.	Car Month							125	
010 340-0200	Cars Maintenance & fuel, Contractor staff.	Car Month							350	
010 340-0300	Consumables,housekeeping, for all campuses, Average.	Man Month							7	
010 340-0400	Cooks for all contractor campuses	Man Month		3,500	52.65%				5,343	
010 340-0500	Cook assistants	Man Month		750	95.21%				1,464	
010 340-0600	Drinking water, contractor campuses	Man Month				24			24	
010 340-0700	Electrical power supply per Person,city connected, Monthly, all campuses at 575 KWH per man month.	Man Month							115	
010 340-0800	Electrical power supply per Person, on-site generation, Monthly, all campuses at 575 KWH per man month.	Man Month							173	
010 340-0900	Housekeeping,cleaning staff. Assume 1 Laborer for every 12 staff persons." If housing provided"	Man Month		550	114.91%				1,182	

## DIVISION 01 : GENERAL REQUIRMENTS

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
010 340-1000	Land rental,contractor full campuses,if applicable.Less than 100 persons,Assume 40 m2/person;100 to 200 person 30m2;More than 200 persons 20 m2.Cost Varies with location. Example:180 persons,36 months, within 50 KM from site in Riyadh	Man Month SQM	194,400.00				4		4	729,000
010 340-1100	Labor transportation from of -site labor campuses to site within 50 KM trip distance.	Man Month	6,480.00	13	74.90%		23	5	28	182,412
010 340-1200	Water Supply city connected, per person, Monthly. at 8 CUM per person.	Man Month							44	-
010 340-1300	Water supply per person, on-site delivery,Monthly.	Man Month							67	-
<b>010 400</b>	<b>ENVIROMENTAL &amp; SAFETY:</b>									
<b>010 410</b>	<b>ENVIROMENTAL &amp; SAFETY MEASURES EXPENSES:</b>									
010 410-0100	Ambulance insurance	Month							250	-
010 410-0200	Ambulance maintenance & fuel	Month							300	-
010 410-0300	Doctor, "general practice" in remote sites	Man Month		9,000	45.56%				13,100	-
010 410-0400	First aid expenses average	Man Month							15	-
010 410-0500	Medicine consumables for remote sites	Man Month							35	-
010 410-0600	Sewer, Septic tank(s) contents removal, all campuses & construction area pits. Assumed 0.15 cum daily per person.	Man Month							36	-
010 410-0700	Progressive site clean-up. Based on site area.assume monthly at 0.028 Hour/SQM. Consider actual cleaning area equals to uncovered site area.	Month Sqm					0	0	0	-
<b>ANALYSIS</b>	<b>TOTAL SITE AREA M2</b>		<b>120,000</b>	<b>COVERED AREA M2</b>		<b>56,000</b>	<b>ACTUAL SITE CLEANING AREA</b>		<b>64,000</b>	
	<b>ITEM</b>	<b>UNIT</b>	<b>DAILY PROD.</b>	<b>QTY</b>	<b>MANHRS</b>	<b>LABOR COST</b>	<b>EQ.HRS</b>	<b>EQ. COST</b>	<b>RATE/HR</b>	
	<b>PROGRESSIVE SITE CLEAN -UP PER DAY:</b>	<b>SQM</b>	<b>150,000</b>	<b>1</b>						
	<b>EQUIPMENT OPERATOR</b>			<b>8</b>	<b>0.00005</b>	<b>0</b>			<b>11</b>	
	<b>TRUCK DRIVER</b>			<b>8</b>	<b>0.00005</b>	<b>0</b>			<b>9</b>	
	<b>DUMP TRUCK</b>			<b>8</b>			<b>0</b>	<b>0</b>	<b>36</b>	
	<b>SHOVEL 1.7 CUM BUCKET</b>			<b>8</b>			<b>0</b>	<b>0</b>	<b>52</b>	
	<b>TOTALS PER DAY</b>				<b>0.0001</b>	<b>0</b>	<b>0</b>	<b>0</b>		
	<b>WORKING DAYS PER MONTH</b>	<b>26</b>								
	<b>TOTAL PER MONTH</b>				<b>0.0026</b>	<b>0</b>	<b>0</b>	<b>0</b>		

**DIVISION 01 : GENERAL REQUIRMENTS**

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
	TOTAL LABOR	0.03	EXAMPLE	SITE AREA M2	64,000					
	TOTAL EQUIPMENT	0.12		JOB TIME	36.00	MONTH				
	TOTAL PER SQM MONTHLY	0.15		TOTAL COST	338,457.60	MONTHLY	9,402	DAILY RATE	362	
010 400-0800	Progressive Buildings clean-up, Based on build-up area.assume monthly 0.09 Hour/SQM labor and 0.005 HRS/SQM equipment. Actual cleaning period is 50% of project time.	Month Sqm					0	0	0	
ANALYSIS	TOTAL BUILD - UP AREA " BUILDINGS AREA "		48,000	JOB TIME MONTHS		36	ACTUAL BUILDING CLEANING TIME			18
	ITEM	UNIT	DAILY PROD.	QTY	MANHRS	LABOR COST	EQ.HRS	EQ. COST	RATE/HR	
	PROGRESSIVE BUILDING CLEAN -UP PER DAY:	SQM	10,000	1						
	EQUIPMENT OPERATOR			1	0.0001	0				
	TRUCK DRIVER			1	0.0001	0				
	COMMON LABORER			32	0.0032	0				
	DUMP TRUCK			1			0	0		
	SHOVEL 1.7 CUM BUCKET			1			0	0		
	TOTALS PER DAY				0.0034	0	0	0		
	WORKING DAYS PER MONTH	26								
	TOTAL PER MONTH				0.09	1	0	0		
	TOTAL LABOR	0.61	EXAMPLE	SITE AREA M2	48,000.00					
	TOTAL EQUIPMENT	0.23		CLEANING TIME	18.00	MONTH	AT 50%OF PROJECT DURATION			
	TOTAL PER SQM MONTHLY	0.84		TOTAL COST	723,340.80	MONTHLY	40,186	DAILY RATE	1,546	

**DIVISION 01 : GENERAL REQUIREMENTS**

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
<b>010 420</b>	<b>INSURANCE</b>					<b>Contract Values</b>				
010 420-0100	Builders all risk type insurance, percent of contract value.	% Job Value	0.250%			45,000,000			45,000,000	112,500
010 420-0200	Builders equipment insurance, percent of total on-site equip. value	% Eq. Value	0.650%			45,000,000			45,000,000	292,500
010 420-0300	Builders risk standard Insurance, percent of contract value	% Job Value	0.150%			45,000,000			45,000,000	67,500
010 420-0400	Employees Medical insurance, See Manpower OH costs Div. 010058	Man Year								
010 420-0500	Employees social security insurance, See manpower OH costs Div. 010058	Man Month								
<b>010 440</b>	<b>JOB CONDITIONS &amp; PRICE ESCALATION:</b>									
010 440-0100	Escalation to mid - point of construction for jobs over than 2 years, consider 1.5 % annually of the total direct cost every extra year.	% -years	1.500%							
010 440-0200	Labor shortage at site location, add 10 % to labor cost value.	Percent	10.000%							
010 440-0300	Restricted sites to reach, lack of working space add 3 % of labor & material cost value.	Percent	3.000%							
010 440-0400	Shortage of subcontractors at site location, add 10 % on specific subcontracts.	Percent	5.000%							
<b>010 500</b>	<b>GENERAL OVERHEAD COSTS:</b>									
<b>010 520</b>	<b>MARK - UP:</b>									
010 520-0200	Overtime work to complete job within assigned construction period required. To compute month rate, Use corresponding % from table to multiply by labor & equip. cost. Example: 30 months contract time, 36 completion needed time, 20,000 labor & equip.	Month Percent	0.32				14,000,000	6,000,000	20,000,000	6,432,000
<b>TABLE FOR CALCULATION OF OVERTIME</b>										
COMPLETION TIME		CONTRACT TIME	MONTHS OVERTIME	%	TOTAL %					
24		20	4.00	7.50%	0.3					
36		30	6.00	5.36%	0.3216					
40		36	4.00	4.17%	0.1668					
45		40	5.00	3.75%	0.1875					
<b>010 560</b>	<b>OVERHEAD COSTS LABOR:</b>									
010 560-0100	Engineer average wage, overhead costs, housing not included, percent of Basic Salary	%	40.830%							
010 560-0200	Laborer overhead costs, housing not included, percent of laborers Basic Wages.	%	68.000%							

**DIVISION 01 : GENERAL REQUIREMENTS**

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
010 560-0300	Skilled Laborer average overhead costs ,housing not included, percent of Basic Wages.	%	44.450%							
010 560-0400	Special Skilled worker overhead costs, a housing not included, percent Of Basic Wages	%	38.350%							
010 560-0500	For staff & labor Housing See DIV. 015									
<b>010 570</b>	<b>GEN. CONTRACTOR OVERHEAD ON SUBCONTRACT PRICE:</b>									
010 570-1000	Overhead on subcontractors price	%	15.000%				5,000,000		5,000,000	750,000
<b>010 580</b>	<b>UNSEEN EXPENSES:</b>									
010 580-0100	Site unseen overhead expenses such as mail, express mail, E-mail, work delays due to weather conditions.... etc. Percent of direct cost @	%	3.000%			45,000,000			45,000,000	1,350,000
<b>010 590</b>	<b>PROFIT: <i>Depending on Project size</i></b>									
010 590-0100	General contractor profit on subcontractors prices	%	10.000%			5,000,000			5,000,000	500,000
010 590-0200	General contractor profit Minimum of project total	%	10.000%			40,000,000			40,000,000	4,000,000
010 590-0300	General contractor profit Average of project total	%	15.000%			40,000,000			40,000,000	6,000,000
010 590-0400	General contractor profit Maximum of project total	%	20.000%			40,000,000			40,000,000	8,000,000
<b>010 600</b>	<b>BONDS &amp; GURANTEES:</b>									
<b>010 620</b>	<b>PERFORMANCE BONDS: ASSUME 1.25% OF JOB DIRECT COST FOR FINANCING CHARGES &amp; GUARANTEES</b>									
010 620-0100	Bid Bond, at 0.0001 of contract value monthly. Example:job value 45 million & bond duration for 8 months									
010 620-0200	Financing charges, at 0.015% percent per month for every allowed one million overdraft.Example: contractor overdraft 4.5 million, construction period 30 months, finance charges will be									
010 620-0220	Financing charges, material letter of credits, at 0.9 % of contract value									
010 620-0400	Performance bond									
<b>010 640</b>	<b>GURANTEES:</b>									
010 640-0300	Final handover guarantee bond, percent of bond value									
<b>010 700</b>	<b>PERMITS &amp; UTILITY FEES &amp; TAXES:</b>									
<b>010 720</b>	<b>PERMITS:</b>									
010 720-0100	City permit fees if applicable	SQM								

## DIVISION 01 : GENERAL REQUIRMENTS

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## DIVISION 01 : GENERAL REQUIRMENTS

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
010 925-0220	Average sample testing, building trades at site and in outside laboratory, at 0.55 % of contract value	Percent	0.550%			45,000,000			45,000,000	247,500
010 925-0300	Sample testing Outside Laboratory within city limits.Average building materials.	Test					350		350	-
010 925-0300	Sample testing Outside Laboratory within city limits.Average soil testing materials.	Test					400		400	-
<b>010 945 FACTORY INSPECTION &amp; TESTING , OUTSIDE KINGDOM:</b>										
010 945-0400	Consultant/owner, attending factory test,outside Kingdom, priced according to number of visits & country of destination.Example Owner Rep., Engineer & contractor representative for 5 days to USA, first class travel.Assume for this trip 15 day trip	Day Trip	15.00			6,000			6,000	90,000
010 945-0500	Foreign expertise testing, coming from outside the kingdom, including residency & travel. Example: From USA , travel J class, for 3 days visit, assume travel time days.	Day Trip	3.00			13,008			13,008	39,024
<b>010 965 FACTORY INSPECTION &amp; TESTING , IN KINGDOM:</b>										
010 965-0400	Owner/ Consultant attending factory test, in Kingdom, to be priced according to number of visits & City of destination.	Trip	0.06							
<b>011 100 INDIRECT RUNNING OVERHEAD EXPENSES:</b>										
<b>011 205 CONTRACTOR MAIN OFFICE OH EXPENSES:</b>										
011 205-0100	Accounting/Legal & data processing, average percent of annual TO	% Of TO	0.85%							
011 205-0200	Cars for staff, maintenance, fuel & insurance,average percent of annual TO	% Of TO	0.30%							
011 205-0300	Engineering & planning department, Salaries, percent of annual TO.	% Of TO	2.50%							
011 205-0400	Estimation department, Salaries, average percent of annual TO	% Of TO	0.50%							
011 205-0500	General Manager Office Salaries,minimum 3000000 SR.	% Of TO								
011 205-0520	General Manager Office Salaries,maximum 750000 SR.	% Of TO								
011 205-0600	Procurement department, Salaries, average percent of annual TO	% Of TO	0.50%							
011 205-0700	Publicity expenses, minimum 50000 SR	LOT	-							
011 205-0720	Publicity expenses, maximum 200000 SR.	LOT								
011 205-0800	Recruitment & iqama expenses, staff.	% Of TO	0.05%							
011 205-0900	Rental & utilities, main office, minimum 150000 SR.	% Of TO								
011 205-0920	Rental & utilities, main office, minimum 750000 SR.	% Of TO	750,000							
011 205-1000	Staff medical insurance, average percent of annual TO	% Of TO	0.40%							

## DIVISION 01 : GENERAL REQUIREMENTS

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
011 205-1100	Staff incentives & profit Sharing, average percent of annual TO	% Of TO	0.70%							
011 205-1200	Telephone, Fax & telex bills, average percent of annual TO	% Of TO	0.25%							
011 205-1300	Travel Expenses, staff, average percent of annual TO	% Of TO	0.35%							
011 205-1400	Zakat expenses, average percent of annual TO	% Of TO	0.02%							
011 205-1500	Rule of thumb & using above %, main office expenses for less than 5M SR annual turnover	% Of TO	15.50%							
011 205-1600	Rule of thumb & using above %, main office expenses from 6M To 10M SR annual turnover	% Of TO	12.55%							
011 205-1700	Rule of thumb & using above %, main office expenses from 15M to 30M SR annual turnover	% Of TO	8.90%							
011 205-1800	Rule of thumb & using above %, main office expenses from 35M to 50M SR annual TO	% Of TO	8.00%							
011 205-1900	Rule of thumb & using above %, main office expenses from 65M to 80M SR annual TO	% Of TO	7.50%							
011 205-2000	Rule of thumb & using above %, main office expenses over 85M SR annual turnover	% Of TO	7.25%							

### 015 MOBILIZATION

#### 015 100 CARS:

015 100-0100	Consultant cars, deluxe, Depreciated cost,5 years, Example for 30 month construction period.	Man Car Month						30,000	30,000	-
015 100-0200	Consultant cars, Medium size, Depreciated cost,5 years.	Man Car Month						22,500	22,500	-
015 100-0300	Contractor cars, deluxe, Depreciated cost,5 years.	Man Car Month						30,000	30,000	-
015 100-0400	Contractor cars, Medium, Depreciated cost,5 years.	Man Car Month						22,500	22,500	-
015 100-0500	Contractor cars, Small, Depreciated cost,5 years.	Man Car Month						15,000	15,000	-
015 100-0600	Contractor workshop & plants cars, Pick-up, Depreciated cost,5 years.	Man Car Month						26,250	26,250	-

#### 015 200 TEMPORARY CONSTRUCTIONS:

#### 015 205 ACCESS ROAD & RAMPS:

015 205-0200	Access road, including clearing,100 mm compaction & 200 mm fill.	SQM					2	4	5	-
015 205-0300	Access road, including clearing,100 mm compaction & 200 mm selected fill.	SQM				6	2	4	11	-
015 205-0400	Access road, including clearing,100 mm compaction & 200 mm fill with 1.5 Kg prime asphalt coat & 025 kg/m2 asphalt tack coat	SQM				9	2	4	15	-
015 205-0500	Access road, including clearing,100 mm compaction & 200 mm fill with 1.5 Kg prime asphalt coat, 0.25 kg/m2 asphalt tack coat & 50 mm asphalt	SQM				40	3	5	48	-
015 205-0600	Access road, periodic maintenance.	Month SQM					2	1	2	6

## DIVISION 01 : GENERAL REQUIREMENTS

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
015 205-0700	Dirt surface parking, including clearing & 200 mm fill layer	Car							300	
015 205-0800	Dirt, surface parking periodic maintenance	Month Car							252	
015 205-0900	Sheltered dirt parking space	Car							2,300	
015 205-1000	Sheltered asphalt parking space	Car							2,880	
015 205-1100	Access ramp, concrete	SQM							60	
015 205-1200	Access ramp, gravel fill, 100 mm deep.	SQM							8	
<b>015 210 CONSULTING/OWNER ENGINEER SITE OFFICES:</b>										
015 210-0100	Offices,Masonry & concrete deck, based on 15 SQM per person of the staff, including meeting rooms & office support area.20 % material salvage value.	Man Month				258	94		352	
015 210-0200	Offices,Masonry & corrugated deck, based on 15 SQM per person of the staff, including meeting rooms & office support area. 25 % material salvage value.	Man Month				219	73		292	
015 210-0300	Offices, Prefabricated units,15 SQM per person including meeting rooms,offices & support areas. Depreciated at 60 months.	Man Month				200	21	5	226	
015 210-0400	Office computer network. Depreciated cost at 36 months, Monthly	Month station				135	6	0	140	
015 210-0500	Office equipment, Copiers, typewriters ...etc, Depreciated cost at 36 months, Monthly	Month				1,667	1	1	1,668	
015 210-0600	Office software, depreciated cost at 36 months	Month							1,250	
015 210-0700	Office standard furniture per person. Depreciated cost at 36 months, Monthly	Man Month				42	1	0	43	
<b>015 215 CONSTRUCTION WORKSHOPS &amp; PLANT DEPRECIATED COST AT 36 MONTHS</b>										
015 215-0100	Equipment maintenance workshop, minimum of 16 SQM for jobs up to 10MSR, including tools, maint. equipment & employees facilities.	Month				142	56	135	333	
015 215-0200	Equipment maintenance workshop, 1 SQM/1MSR for jobs 15MSR to 50 MSR, including tools, maintenance equipment & employees facilities.Example for project of 45 MSR. & 36 months constr.	Month SQM MSR	1,620.00			10	4	18	31	50,703
015 215-0300	Equipment maintenance workshop, 0.75 SQM/1MSR for jobs 65MSR to 85 MSR, including tools, maintenance equipment,& employees facilities.Example for project of 72 MSR.	Month SQM MSR				10	4	18	31	
015 215-0400	Equipment maintenance workshop, 0.65 SQM/1MSR for job over 100 MSR including tools, maintenance equipment & employees facilities., Example: contract value 225 MSR	Month SQM MSR				10	4	18	31	
015 215-0500	Concrete Batching plant, remote sites, Assume 0.025 SQM per GSQM of build - up area. Eq. cost depreciated for 72 months.	Month SQM MSR	67,500			1	0	6	7	498,825

## DIVISION 01 : GENERAL REQUIREMENTS

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
015 215-0600	Construction workshop, for emergency generators at 20 sqm,generators shelter included with generators.depreciated at 36 months.	Month SQM	20			4	3	73	80	1,603
015 215-0700	Joinery & steel workshop, minimum 40 m2, or 1.5 m2 per 1000 m2 build up area, plus 60 m2 open area.Example For 36 months construction period.	Month SQM GSQM	1,440			4	3	10	18	25,397
015 215-0800	Masonry Plant For Remote sites, 0.05 sqm open area per GSQM of build - up area.Example: A project of 75,000 m2 will require 3750 m2 of open area & closed area.Eq.cost depreciated for 72 months.	Month SQM GSQM	135,000			1	0	3	5	628,425
015 215-0900	Duct workshop, minimum 20 m2, or 1 m2 per 1000 m2 build up area, plus 60 m2 open area	Month SQM GSQM				6	1	17	23	
<b>015 220 CONTRACTOR CAMPUSES ON-SITE/OF-SITE</b>										
015 220-0100	On-site labor camp, 6 SQM per person, including support area, masonry and concrete deck.depreciated at 36 months with 20% salvage value on material.	Man Month				94	38		132	
015 220-0200	On-site labor camp, 6 SQM per person, including support area, masonry and corrugated deck. depreciated at 36 months with 25 % salvage value on material.	Man Month				75	29		104	
015 220-0300	On-site labor camp,8 SQM per person, including support area, prefabricated units, including support area. Depreciated at 60 months.Monthly.	Man Month				107	7	1	115	
015 220-0400	Labor camp furniture, depreciated cost at 36 months, Monthly.	Man Month				21	0	0	21	
015 220-0500	On-site skilled labor camp, 8 SQM per person, including support area, masonry and concrete deck. depreciated at 36 months with 20% salvage value on material..	Man Month				124	50		174	
015 220-0600	On-site skilled labor camp, 8 SQM per person, including support area, masonry and corrugated deck. depreciated at 36 months with 25% salvage value on material..	Man Month				100	39		139	
015 220-0700	On-site skilled labor camp,10 SQM per person, including support area, prefabricated units, including support area. Depreciated at 60 months.Monthly.	Man Month				133	8	2	143	
015 220-0800	Skilled labor camp furniture, depreciated at 36 months, Monthly.	Man Month				25	0	0	26	
015 220-0900	On-site staff camp, 14 SQM per person, including support area, kitchen, dining baths, sitting, Masonry and concrete deck. depreciated at 36 months with 20% salvage value on material.	Man Month				229	88		316	
015 220-1000	On-site staff camp, 14 SQM per person, including support area, masonry and corrugated deck. depreciated at 36 months with 25 % salvage value on material.	Man Month				190	68		258	
015 220-1100	On-site staff camp,18 SQM per person, including support area, prefabricated units, including support area. Depreciated cost, Monthly.	Man Month				240	15	3	258	

## DIVISION 01 : GENERAL REQUIREMENTS

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
015 2201200	Staff camp furniture, depreciated cost, Monthly.	Man Month				38	0	0	38	
015 22013400	On-site senior staff camp, 28 SQM per person, including support area, masonry and concrete deck. depreciated at 36 months with 20% salvage value on material..	Man Month				482	175		657	
015 220-1400	On-site senior staff camp, 28 SQM per person, including support area, masonry and corrugated deck. depreciated at 36 months with 25% salvage value on material..	Man Month				408	136		544	
015 220-1500	On-site senior staff camp, 30 SQM per person, including support area, prefabricated units, including support area. Depreciated cost, Monthly.	Man Month				400	25	5	430	
015 220-1600	Staff camp furniture, depreciated cost, Monthly.	Man Month				42	0	0	42	
015 220-1700	Of-site labor campus, for land rent see DIV. 010340									
015 220-1800	For utilities installation to Contractor housing campus See DIV. 015290									
015 220-1900	For Running overhead Expenses, Contractor housing campus See DIV. 010340									

### 015 225 CONTRACTOR CAMPUS SUPPORTING FACILITIES:

015 225-0100	General public toilets over the site, 0.15 SQM per person, including pit. Example site with 800 persons for 36 months construction period..	Man Month	28,800.00			2	1		3	80,928
015 225-0200	Health care facility for remote sites, masonry walls & concrete deck, average 40 m2, including utilities & furnished, depreciated cost at 36 months.	Month SQM	1,440			23	6	9	38	54,490
015 225-0300	Pray area "mosque", open sheltered, average 0.5 SQM per person, at 40% prayers, including utilities Example for 400 persons site, 36 months construction.	Man Month	14,400		1440	4	1	0	5	68,270
015 225-0400	Recreation area, covered, sports playground, 0.08 SQM/person. Example: For over 500 labors campuses & 36 months construction..	Man Month	18,000	64		1	1	0	2	35,280
015 225-0500	Recreation area, open, sports playground, 0.25 SQM/person. Example: For over 500 labors campuses & 36 months construction..	Man Month	18,000	15		0	0	0	1	9,774
015 225-0600	Storage, covered, Cement storage area, minimum of 100 SQM for jobs less than 50 M SR. Example: For 36 months Construction period.	Month SQM	3,600			8	2		10	34,498
015 225-0620	Storage, covered, Cement storage area, minimum of 200 SQM for jobs more than 55 MSR & less than 90 M SR.	Month SQM				8	2		10	
015 225-0640	Storage, covered, Cement storage area, minimum of 300 SQM for jobs more than 100 MSR.	Month SQM				8	2		9.58	
015 225-0700	Storage area, covered, minimum of 30 SQM for jobs less than 10 M SR.	Month SQM				8	2		10.55	
015 225-0720	Storage area, covered, average of 1 SQM /1 M SR for jobs Up to 100 M SR.	Month SQM MSR				8	2		10.55	
015 225-0740	Storage area, covered, average of 0.85 SQM /1 M SR for jobs over 125 M SR.	Month SQM MSR				7	2		8.97	

## DIVISION 01 : GENERAL REQUIREMENTS

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
015 225-0900	Storage laydown open Area; Fenced, 100 SQM minimum for jobs less than 10 M SR. Material cost depreciated.	Month SQM	3,600			1	0		0.94	3,384
015 225-1000	Storage laydown open Area; Fenced, 10 SQM/1MSR for jobs up to 100 MSR	Month SQM MSR				1	0		0.94	-
015 225-1100	Storage laydown open Area; Fenced, 8 SQM/1MSR for jobs over 125 MSR	Month SQM MSR				1	0		0.94	-
015 225-1200	Storage, Special, Covered, For jobs over 100 MSR, or speciality jobs, average 0.40 M2/MSR Example for 125 million project at 36 months construction period quantity will be:	Month SQM MSR	1,800						0.94	-
015 225-1220	Storage, Special for furniture, Covered, For speciality jobs, Furnished, average 2.00 SQM/1MSR	Month SQM MSR							0.94	-
015 225-1300	Stores offices, average of 0.15 SQM /1 MSR, jobs up to 100 MSR, furnished.	Month SQM MSR				14	5		18	-

### 015 230 CONTRACTOR SITE OFFICES:

015 230-0100	Offices based on 15 SQM per person of the staff, including meeting rooms & office support area. Masonry & concrete Deck	Man Month				258	94		352	-
015 230-0200	Offices based on 15 SQM per person of the staff, including meeting rooms & office support area. Masonry & corrugated Deck	Man Month				219	73		292	-
015 230-0300	Offices, Prefabricated units, 12 SQM per person including meeting rooms & offices support areas. Depreciated cost, monthly	Man Month				267	35	8	310	-
015 230-0400	Office computer network. Depreciated cost, Monthly	Month station				135	6	0	140	-
015 230-0500	Office equipment, Copiers, Drawing copiers...etc, Depreciated cost, Monthly	Month				3,750	4	1	3,755	-
015 230-0600	Office software	Month							-	-
015 230-0700	Office standard furniture per person. Depreciated cost, Monthly	Month person				33	0	0	34	-

### 015 235 FENCING:

015 235-0100	Barricades, barrel reflectorized	EA							200	-
015 235-0200	Barricades, barrel, with flashers.	EA							325	-
015 235-0300	Barricades, barrel, with Steady burn light.	EA							350	-
015 235-0400	Fence, wood and corrugated steel, 2 meters high, Quantity based on lot size. 25% salvage material cost. Example: For a site lot area 40,000 SQM , Perimeter Fence Approx.	LM	1,000			30	10		40	40,000
015 235-0500	Fence, chain link including steel angles, 2 meters high, 25 % salvage on material cost. Quantity based on lot size. Same Example Line 015235-0400	LM	1,000			45	15		60	60,000
015 235-0600	Fence gate, 6m wide.	EA							1,500	-
015 235-0700	Fence gate, 1m wide	EA							450	-

## DIVISION 01 : GENERAL REQUIRMENTS

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
015 235-0800	Fence vehicle gate, with 2 manual arm reflectorized barrier.	EA							2,000	-
015 235-0900	Guard house Kiosk, masonry block.	SQM				10	4		14	-
<b>015 240 NOTICE BOARDS &amp; SIGNS:</b>										
015 240-0100	Project Main Sign, approx. 3m x 2 m. Assume at least 3 signs per site unless shown otherwise.	EA							4,200	-
015 240-0200	Direction & notice signs, Quantity depends on project land size. Assume as minimum requirement 5 signs, or assume 1 sign each 10000 SQM for large lot area sites.Material salvage value 25 %	EA							40	-
015 240-0300	Traffic signs, Quantity depends on project land size, Assume minimum of 6 signs or 1 sign every 5000 m2 uncovered area of the site lot area.material salvage value 25%	EA							69	-
015 240-0400	Warning signs, Quantity depends on project size. Assume 1 sign every 1000 m2 of build up area and temporary facilities areas.Assume also 1 sign every 5000 m2 of site lot area.Material salvage value 25 %	EA							125	-
<b>015 250 SITE CLEANING</b>										
015 250-0100	Cleaning & levelling mobilization site; per SQM of mobilization camp area.	SQM							2	-
<b>015 260 SITE SECURITY MEASUTES:</b>										
015 260-0100	Fire extinguishers, stores, offices, campuses & construction area, depends on project size. Assume minimum of 1 every 500 SQm area.	EA							225	-
015 260-0200	Water Tanker for fire fighting.including operation & maintenance.	Month							6,000	-
015 260-0300	Sand buckets, construction area, Depends on project size.	EA							75	-
015 260-0400	Security guards, depends on project size, minimum of 3 per site.included in section 010112, Field Staff.	Man Month		550	123.59%				-	-
<b>015 300 TEMPORARY UTILITIES:</b>										
015 300-0100	temporary emergency generators depends on site power consumption needs. Assume 0.75 KW per person, To cover all site temporary facilities loads & spare power, depreciated monthly, Example a site of 800 persons, for 30 months construction period requires:	Man Month KW	18,000			16	20	2	38	-
015 300-0200	Temporary electrical distribution, depends on site area & distributed power based on 0.75 KW per Person. For site areas less than 100,000 SQM. 30 % Material salvage value.For same Example Line 015300-0100	Man KW	600			315	100		415	-
015 300-0220	Temporary electrical distribution, depends on site area & distributed power based on 0.75 KW per Person. For site areas more than 100,000 m2 & less than 300,000 m2. Material cost depreciated.For same Example Line 015300-0100	Man KW	600			455	150		605	-

# **DIVISION 01 : GENERAL REQUIRMENTS**

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
015 300-0240	Temporary electrical distribution, depends on site area & distributed power based on 0.75 KW per Person. For site areas more than 400,000 m2. Material cost depreciated. For same Example Line 015300-0100	Man KW	600			578	180		758	
015 300-0300	Temporary septic tank, per person of manpower (MP) force. assume 0.1 Cum per person, Capacity based on 15 days storage.Example for 400 persons tank capacity for 15 days will be 80m3.	CUM Person	600			160	30		190	
015 300-0400	Temporary sewer lines, per CUM Discharge and mobilization camp site, for campuses area site up to 5000 m2 & 200 persons approx..	CUM Person	300						950	
015 300-0420	Temporary sewer lines, per CUM Discharge and mobilization camp site, for campuses area site more Than 5000 m2 & as example 500 persons approx..	CUM Person	750						521	
015 300-0500	Temporary water storage tanks for Campus. assume 0.15 Cum per day per person of MP force, for 2 days storage. Example for 300 person campuses.	CUM Person	90			265	70	20	355	
015 300-0600	Temporary water lines, per CUM of Distributed water and mobilization campuses site area. Example for site area up to 5000 m2 & 200 persons.	CUM Person	60			1,458	365		1,823	
015 300-0600	Temporary water lines, per CUM of Distributed water and mobilization campuses site area. Example for site area more than 5000 m2 & 500 persons.	CUM Person	150			1,050	263		1,313	
015 300-0800	Temporary water storage for construction, Assume 2 CUM steel tank per 1500 SQM of build-up Area. material cost depreciated.Example: required for 15,000 m2 build-up area, 10 tanks required	CUM GSQM	20			938	140		1,078	
015 300-0900	GSM telephone sets for Senior contractor construction staff.	Man Month							222	
015 300-1000	Temporary Telephone & fax lines including wiring. 25 % salvage value	Line							850	
<b>015 400 CONSRUCTION AID</b>										
<b>015 405 SAFETY :</b>										
015 405-0100	Safety nets,100 mm mesh with supports, average.	SQM							50	
015 405-0500	Weather Station, average depreciated cost with 30 % material salvage, monthly	Month	1						408	408
<b>015 440 SCAFFOLDING: 30% MATERIAL SALVAGE VALUE</b>										
015 440-0200	Scaffolding exterior wall, steel,tubular, depreciated SQM cost. Quantity depends on area of exterior walls & building Shape & height. Complete with framing,catwalks,bridges, ladders	SQM Month				8	2		10	
015 440-0300	Scaffolding interior wall up to 5 meter high, tubular steel, including planks, supports,base & accessories.	SQM Month				5	1		6	



## DIVISION 01 : GENERAL REQUIREMENTS

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
015 440-0320	Scaffolding, Hand winch for masons, 30 meter long, 9 meter high	EA							583	
015 440-0400	Staging swing, 225 Kg capacity, 0.6 m wide, 7 m long, hand operated, 20 m steel cable type, depreciated cost. Example erected for 10 months	Month	10			350	50	60	460	4,600
015 440-0500	Staging swing lightweight, 100 Kg capacity, 0.6 m wide, 7 m long, hand operated, 60 m steel cable type, depreciated cost. Example erected for 18 months	Month	18			282	22	27	331	5,955
015 440-0600	Staging swing lightweight, 100 Kg capacity, 0.6 m wide, 7 m long, powered electric operation, 90 m steel cable type, depreciated cost. Example erected for 24 months	Month	24			875	33	50	958	23,000

## 015 500 CONSTRUCTION EQUIPMENT

### 015 520 CONSTRUCTION EQUIPMENT: RENTAL OR OWN

015 520-0100	Construction equipment rental <i>See Div. 016406 thru 016490</i>									
015 520-0200	Construction equipment owned, for depreciated value <i>See Div. 016406 thru 016490</i>									

### 015 535 MOBILIZATION/DEMOBILIZATION CONTRACTOR OWNED EQUIPMENT:

		Unit	Qnty	Crew Structure						
015 535-0100	Transportation within city limit approx. 120 km round trip, small building const. jobs up to 20 million SR	Day	4	1.000 Driver 1.000 Equip. Operator 1.000 Cane 50 Ton 1.000 Truck 15 Ton 1.000 Flatbed Truck			175	1,743	1,918	7,672
015 535-0200	Transportation within city limit approx. 120 km round trip, building const. jobs from 25 million SR to 80 Million SR	Day	7				175	1,743	1,918	13,426
015 535-0300	Transportation within city limit approx. 120 km round trip, building const. jobs from 100 million SR to 175 Million SR	Day	11				175	1,743	1,918	21,097
015 535-0400	Transportation within city limit approx. 120 km round trip, building const. jobs over 200 million SR	Day	15				175	1,743	1,918	28,769
015 535-0500	Transportation outside city limit approx. 1000 km round trip, small building const. jobs up to 20 million SR	Day	7				175	1,743	1,918	13,426
015 535-0600	Transportation outside city limit approx. 1000 km round trip, building const. jobs from 25 million SR to 80 Million SR	Day	10				175	1,743	1,918	19,179
015 535-0700	Transportation outside city limit approx. 1000 km round trip, building const. jobs from 100 million SR to 175 Million SR	Day	14				175	1,743	1,918	26,851

**DIVISION 01 : GENERAL REQUIRMENTS**

CSI CODE	ITEM DESCRIPTION	UNIT	QNTY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQ. COST	TOTAL UNIT COST	TOTAL COST
015 535-0800	Transportation outside city limit approx. 1000 km round trip. building const. jobs over 200 million SR	Day	18				175	1,743	1,918	34,523
015 535-0900	Transportation outside city limit approx. 1800 km round trip. small building const. jobs up to 20 million SR	Day	9				175	1,743	1,918	17,261
015 535-1000	Transportation outside city limit approx. 1800 km round trip. building const. jobs from 25 million SR to 80 Million SR	Day	12				175	1,743	1,918	23,015
015 535-1100	Transportation outside city limit approx. 1800 km round trip. building const. jobs from 100 million SR to 175 Million SR	Day	16				175	1,743	1,918	30,687
015 504-1200	Transportation outside city limit approx. 1800 km round trip. building const. jobs over 200 million SR	Day	20				175	1,743	1,918	38,359
<b>015 565</b>	<b>MOBILIZATION/DEMOBILIZATION RENTED EQUIPMENT:</b>									
015 565-0100	For mobilization/demobilization rented equipment; see Div. 016406 thru 016490 cost built-in within the monthly rental rate for each equipment.	Day								

**TOTAL LOADED SALARY INCLUDES UN-WORKING DAYS PAID, SUCH AS HOLIDAYS, FRIDAYS, VACATION.. ETC.**

LABOR COSTS IN SAUDI RIYALS:		AVERAGE	OVERHEAD	MONTHLY	LOADED	AVERAGE	BASIC SALA	ALLOWANCES	INSURANCE	TICKETS		COMPENSATION				
CODE	CRAFTSMAN	MONTHLY	AVG %	% OF BASIC	LOADED COST	COST ANNUAL	BASIC SAL.	MONTHLY	HOUSING	LIVING	MEDI- CAL	GOSI	LEAVE PAY	PAID VA- TION	IQAMA	
E-0010	PROJECT MANAGER LARGE OR UNIQUE PROJECTS	27,332.64	32.93%	46.94%	36,735.42	440,825.00	18,333.33	25,000.00	6,250.00	-	316.67	625.00	1,000.00	1,343.75	2,083.33	116.67
	PROJECT MANAGER MEDIUM SIZE JOBS UP TO 100 M			49.24%	26,862.50	322,350.00		18,000.00	4,500.00	-	316.67	450.00	1,000.00	979.17	1,500.00	116.67
	PROJECT MANAGER, PROJECTS LESS THAN 50 M			53.33%	18,400.00	220,800.00		12,000.00	3,000.00	-	316.67	300.00	1,000.00	666.67	1,000.00	116.67
	PROJECT MANAGER SECRETARY			57.29%	3,932.29	47,187.50		2,500.00	625.00	-	79.17	62.50	250.00	140.63	208.33	66.67
	Construction manager or superintendent, Unique & large jobs.	22,631.25	33.72%	48.42%	29,683.33	356,200.00	15,000.00	20,000.00	5,000.00	-	316.67	500.00	1,000.00	1,083.33	1,666.67	116.67
	Construction manager or superintendent, jobs between 50 & 100 million SR			50.88%	22,631.25	271,575.00		15,000.00	3,750.00	-	316.67	375.00	1,000.00	822.92	1,250.00	116.67
	Construction manager or superintendent, jobs less than 50 million SR			55.79%	15,579.17	186,950.00		10,000.00	2,500.00	-	316.67	250.00	1,000.00	562.50	833.33	116.67
	Field Architect, Engineer, unique & large jobs	19,340.28	34.51%	49.24%	26,862.50	322,350.00	12,666.67	18,000.00	4,500.00	-	316.67	450.00	1,000.00	979.17	1,500.00	116.67
	Field Architect, Engineer, jobs between 50 & 100 million SR			53.33%	18,400.00	220,800.00		12,000.00	3,000.00	-	316.67	300.00	1,000.00	666.67	1,000.00	116.67
	Field Architect, Engineer, jobs less than 50 million SR.			59.48%	12,758.33	153,100.00		8,000.00	2,000.00	-	316.67	200.00	1,000.00	458.33	666.67	116.67
	Field Civil Engineer, Unique & large jobs.	19,340.28	34.51%	49.24%	26,862.50	322,350.00	12,666.67	18,000.00	4,500.00	-	316.67	450.00	1,000.00	979.17	1,500.00	116.67
	Field Civil Engineer, jobs less than 50 millions.			53.33%	18,400.00	220,800.00		12,000.00	3,000.00	-	316.67	300.00	1,000.00	666.67	1,000.00	116.67
	Field Civil Engineer, jobs less than 50 million SR.			59.48%	12,758.33	153,100.00		8,000.00	2,000.00	-	316.67	200.00	1,000.00	458.33	666.67	116.67
	Field Electrical Engineer, Unique & large jobs	16,284.38	35.52%	50.88%	22,631.25	271,575.00	10,500.00	15,000.00	3,750.00	-	316.67	375.00	1,000.00	822.92	1,250.00	116.67
	Field Electrical Engineer, Unique & large jobs			55.79%	15,579.17	186,950.00		10,000.00	2,500.00	-	316.67	250.00	1,000.00	562.50	833.33	116.67
	Field Electrical Engineer, jobs less than 50 millions SR.			63.73%	10,642.71	127,712.50		6,500.00	1,625.00	-	316.67	162.50	1,000.00	380.21	541.67	116.67
	Field industrial Engineer, Unique & large jobs	17,459.72	35.09%	50.26%	24,041.67	288,500.00	11,333.33	16,000.00	4,000.00	-	316.67	400.00	1,000.00	875.00	1,333.33	116.67
	Field industrial Engineer, jobs between 50 & 100 million SR.			54.45%	16,989.58	203,875.00		11,000.00	2,750.00	-	316.67	275.00	1,000.00	614.58	916.67	116.67
	Field industrial Engineer, jobs less than 50 millions SR.			62.11%	11,347.92	136,175.00		7,000.00	1,750.00	-	316.67	175.00	1,000.00	406.25	583.33	116.67
	Field Mechanical Engineer, Unique & large jobs.	16,284.38	35.52%	50.88%	22,631.25	271,575.00	10,500.00	15,000.00	3,750.00	-	316.67	375.00	1,000.00	822.92	1,250.00	116.67
	Field Mechanical Engineer, jobs less than 50 millions.			55.79%	15,579.17	186,950.00		10,000.00	2,500.00	-	316.67	250.00	1,000.00	562.50	833.33	116.67
	Field Mechanical Engineer, jobs less than 50 million SR.			63.73%	10,642.71	127,712.50		6,500.00	1,625.00	-	316.67	162.50	1,000.00	380.21	541.67	116.67
	Field Quantity Surveyor	2,502.78	33.41%	50.17%	7,508.33	90,100.00	1,666.67	5,000.00	1,250.00	-	79.17	125.00	250.00	270.83	416.67	116.67
	Field Surveyor	5,342.71		52.65%	5,342.71	64,112.50		3,500.00	875.00	-	79.17	87.50	250.00	192.71	291.67	66.67
	Guards			107.80%	1,142.92	13,715.00		550.00		100.00	79.17	13.75	250.00	37.50	45.83	66.67
	Laboratory Material Testing Engineer			53.33%	18,400.00	220,800.00		12,000.00	3,000.00	-	316.67	300.00	1,000.00	666.67	1,000.00	116.67
	Laboratory Technicians			51.20%	6,047.92	72,575.00		4,000.00	1,000.00	-	79.17	100.00	250.00	218.75	333.33	66.67
	Laboratory Laborer			107.80%	1,142.92	13,715.00		550.00		100.00	79.17	13.75	250.00	37.50	45.83	66.67
	Plants Manager			46.12%	11,689.58	140,275.00		8,000.00	2,000.00	-	79.17	200.00	250.00	427.08	666.67	66.67
	Plant, Electrical power, Operators			59.51%	3,509.17	42,110.00		2,200.00	550.00	-	79.17	55.00	250.00	125.00	183.33	66.67
	Plant, Networks Maintenance			62.42%	3,086.04	37,032.50		1,900.00	475.00	-	79.17	47.50	250.00	109.38	158.33	66.67
	Plant, Water Supplies Drivers			74.90%	2,098.75	25,185.00		1,200.00	300.00	-	79.17	30.00	250.00	72.92	100.00	66.67
	Stores Manager			61.35%	3,227.08	38,725.00		2,000.00	500.00	-	79.17	50.00	250.00	114.58	166.67	66.67
	Store Keepers			70.06%	2,380.83	28,570.00		1,400.00	350.00	-	79.17	35.00	250.00	83.33	116.67	66.67

PERCENT =

0.70

TOTAL ACTUAL ANNI

257

Store Drivers			74.90%	2,098.75	25,185.00		1,200.00	300.00	-	79.17	30.00	250.00	72.92	100.00	66.67
Workshop Manager			46.12%	11,689.58	140,275.00		8,000.00	2,000.00	-	79.17	200.00	250.00	427.08	666.67	66.67
Workshop Mechanic			52.65%	5,342.71	64,112.50		3,500.00	875.00	-	79.17	87.50	250.00	192.71	291.67	66.67
Workshop Drivers			74.90%	2,098.75	25,185.00		1,200.00	300.00	-	79.17	30.00	250.00	72.92	100.00	66.67
PROJECT MANAGER SUPPORTING STAFF:															
Accountant			50.07%	6,753.13	81,037.50		4,500.00	1,125.00	-	79.17	112.50	250.00	244.79	375.00	66.67
Accountant Aid			54.58%	4,637.50	55,850.00		3,000.00	750.00	-	79.17	75.00	250.00	166.67	250.00	66.67
Computer Operators			52.65%	5,342.71	64,112.50		3,500.00	875.00	-	79.17	87.50	250.00	192.71	291.67	66.67
Claims Manager			50.88%	22,631.25	271,575.00		15,000.00	3,750.00	-	316.67	375.00	1,000.00	822.92	1,250.00	116.67
Draftsman, shopdrawings			57.29%	3,932.29	47,187.50		2,500.00	625.00	-	79.17	62.50	250.00	140.63	208.33	66.67
Drivers			74.90%	2,098.75	25,185.00		1,200.00	300.00	-	79.17	30.00	250.00	72.92	100.00	66.67
Engineer, Architect, Shopdrawings & Materials Approval			55.79%	15,579.17	186,950.00		10,000.00	2,500.00	-	316.67	250.00	1,000.00	562.50	833.33	116.67
Engineer, Civil, Shopdrawings & Materials Approval			62.11%	11,347.92	136,175.00		7,000.00	1,750.00	-	316.67	175.00	1,000.00	406.25	583.33	116.67
Engineer, Electrical, Shopdrawings & Materials Approval			62.11%	11,347.92	136,175.00		7,000.00	1,750.00	-	316.67	175.00	1,000.00	406.25	583.33	116.67
Engineer, Mechanical, Shopdrawings & Materials Approval			62.11%	11,347.92	136,175.00		7,000.00	1,750.00	-	316.67	175.00	1,000.00	406.25	583.33	116.67
Engineer, Planning			59.48%	12,759.33	153,100.00		8,000.00	2,000.00	-	316.67	200.00	1,000.00	458.33	666.67	116.67
Engineer, Structural, Shopdrawings & Materials Approval			62.11%	11,347.92	136,175.00		7,000.00	1,750.00	-	316.67	175.00	1,000.00	406.25	583.33	116.67
Expediter			61.35%	3,227.08	38,725.00		2,000.00	500.00	-	79.17	50.00	250.00	114.58	166.67	66.67
File Keeper			68.13%	2,521.88	30,262.50		1,500.00	375.00	-	79.17	37.50	250.00	88.54	125.00	66.67
Office Service, Laborers			107.80%	1,142.92	13,715.00		550.00		100.00	79.17	13.75	250.00	37.50	45.83	66.67
Procurement Manager			54.58%	4,637.50	55,850.00		3,000.00	750.00	-	79.17	75.00	250.00	166.67	250.00	66.67
Cook			52.65%	5,342.71	64,112.50		3,500.00	875.00	-	79.17	87.50	250.00	192.71	291.67	66.67
Cook Assistant			95.21%	1,464.06	17,568.75		750.00	187.50	-	79.17	18.75	250.00	49.48	62.50	66.67
General Practitioner * Doctor*			45.56%	13,100.00	157,200.00		9,000.00	2,250.00	-	79.17	225.00	250.00	479.17	750.00	66.67

**DIVISION 01 : GENERAL REQUIRMENTS:**

				CONTRACTOR OWNED EQUIPMENT			RENTAL	
CSI CODE	EQUIPMENT DESCRIPTION:	UNIT	QTY	OPERATION COST SR	EQUIPMENT DEPRECIATED COST (SR)/ DAY	EQUIPMENT DAILY COST INCLUDING OPERATION	COST (SR) PER DAY	RENTAL COST (SR) PER
016 CONSTRUCTION EQUIPMENT								
016 406 CONCRETE EQUIPMENT:								
016 406-0200	Concrete <b>Cart</b> , 0.28 CUM, walking operator.			-	3.00	3.00		
016 406-0300	Concrete <b>Cart</b> , 0.28 CUM, riding operator.			4.50	35.00	39.50		
016 406-0500	Concrete <b>Core drill</b> , electric, 25mm to 200mm bit diameter.	EA	1	2.50	48.00	50.50	100	
016 406-0600	Concrete <b>Core drill</b> , electric, 200m to 600mm bit diameter.	EA	1	3.50	68.80	72.30	200	
016 406-0700	Concrete <b>Floor finisher</b> , gas, riding trowel, 1.2m diameter.	EA	1	7.50	25.00	32.50		
016 406-0800	Concrete <b>Floor finisher</b> , gas, manual,4 blades, 1.2m diameter.			2.50	9.00	11.50		
016 406-0900	Concrete <b>Float</b> , hand operated (Bull Float), 1.2 m wide.			0.50	5.50	6.00		
016 406-1000	Concrete & terrazzo <b>Grinder</b> , floor, electric.			4.50	40.00	44.50		
016 406-1200	Concrete & mortar <b>Mixer</b> , gas, 0.28 CUM.			5.00	30.00	35.00		
016 406-1300	Concrete & mortar <b>Mixer</b> , 0.45 CUM.			8.00	35.00	43.00		
016 406-1400	Concrete <b>Mixer</b> , gas, stationary, tilt drum, 1.5 CUM.			20.00	120.00	140.00		
016 406-1500	Concrete <b>Pump</b> , truck mounted, 100 mm line, 24 m boom.			27.50	750.00	777.50	1200	
016 406-1600	Concrete <b>Pump</b> , truck mounted, 127 mm line, 34 m boom.			35.00	900.00	935.00	1300	
016 406-1700	Concrete <b>Saw</b> , manual, gas, 20 HP			7.00	45.00	52.00		
016 406-1800	Concrete <b>Saw</b> , self- propelled, gas, 30 HP			16.25	105.00	121.25		
016 4061900	Concrete <b>Vibrator</b> , electric, 2 KW			1.25	3.00	4.25		
016 406-2000	Concrete <b>Vibrator</b> , gas, 7.5 HP			3.20	8.00	11.20		
016 406-2100	Concrete <b>Transit mixer</b> , hydraulic drive, 250 HP, 6 CUM, rear or front discharge.			107.00	175.00	282.00	0	0
016 406-2200	Concrete <b>Transit mixer</b> , hydraulic drive, 285 HP, 9 CUM, rear or front discharge.			127.00	271.00	398.00	0	0
016 408	EARTHWORK EQUIPMENT:					-		
016 408-0100	<b>Aggregate Spreader</b> , self-propeled type, 2.4 to 3.6 m wide			3.50	80.00	83.50		
016 408-0200	<b>Auger</b> , truck mounted, vertical drilling, to 7.6 m deep.			60.00	410.00	470.00		
016 408-0300	<b>Auger</b> , horizontal boring machine, 300 mm to 1.2 m, 65 HP			70.00	500.00	570.00		

**DIVISION 01 : GENERAL REQUIRMENTS:**

				CONTRACTOR OWNED EQUIPMENT			RENTAL	
CSI CODE	EQUIPMENT DESCRIPTION:	UNIT	QTY	OPERATION COST SR	EQUIPMENT DEPRECIATED COST (SR)/ DAY	EQUIPMENT DAILY COST INCLUDING OPERATION	COST (SR) PER DAY	RENTAL COST (SR) PER
016 408-0400	Backhoe with attachments, diesel hydraulic, crawler mounted, 0.57 CUM.			75.30	356.00	431.30	400	
016 408-0500	Backhoe with attachments, diesel hydraulic, crawler mounted, 0.76 CUM.			95.53	382.00	477.53	450	
016 408-0600	Backhoe with attachments, diesel hydraulic, crawler mounted, 1.5 CUM.			146.00	525.00	671.00	500	
016 408-0700	Backhoe with attachments, diesel hydraulic, crawler mounted, 1.9 CUM.			198.44	746.00	944.44	800	
016 408-0800	Backhoe with attachments, diesel hydraulic, crawler mounted, 2.6 CUM.			203.00	818.00	1,021.00	1000	
016 408-1000	Backhoe - loader, with attachments, wheel type,0.57 CUM capacity, up to 60 HP.			62.50	205.00	267.50	350	
016 408-1100	Backhoe - loader, with attachments, wheel type, 0.95 CUM capacity, up to 80 HP.			79.00	273.00	352.00	400	
016 408-1200	Backhoe - loader, with attachments,wheel type 1.30 CUM capacity, up to 110 HP.			91.50	320.00	411.50	500	
016 408-2000	Compactor, roller, 2 drum, 900 Kg, operator walking.			9.00	40.00	49.00		
016 408-2100	Rammer compactor, gas, 450 Kg			1.50	9.00	10.50		
016 408-2200	Vibrating plate, gasl, 600 mm x 900 mm 900 kg.			2.51	8.00	10.51		4000
016 408-2300	Hammer, pavement demolition, diesel 600 Kg.			16.55	49.00	65.55		
016 408-2400	Hammer, pile driving, air, 33 kilojoule, 110 beats/ minute.			9.00	63.00	72.00		
016 408-2500	Hammer, pile driving, diesel, 60 kilojoule.			20.00	95.00	115.00		
016 408-2600	Roller, tandem, diesel, up to 1 ton.			10.25	51.00	61.25		
016 408-2700	Roller, tandem, vibratory, 12 HP, gas, 1.8 ton.			14.75	56.00	70.75		7300
016 408-2800	Roller, tandem, diesel, 10 ton.			24.00	65.00	89.00		12360
016 408-2900	Roller, tandem, vibratory steel drum, pneumatic tire, diesel, 13 ton.			25.00	110.00	135.00		15240
016 408-3000	Shovel, front attachment, mechanical, 0.57 CUM.			54.00	257.00	311.00	400	
016 408-3100	Shovel, front attachment, mechanical, 1.1 CUM.			84.00	337.00	421.00	500	
016 408-3200	Shovel, front attachment, mechanical, 2.3 CUM.			120.00	341.00	461.00	900	18900
016 408-3300	Tractor, crawler, with bulldozer, torque converter, diesel, 75 HP.			73.00	290.00	363.00	400	
016 408-3400	Tractor, crawler, with bulldozer, torque converter, diesel, 140 HP.			115.00	494.00	609.00	700	
016 408-3500	Tractor, crawler, with bulldozer, torque converter, diesel, 200 HP.			153.00	579.00	732.00	800	
016 408-3600	Tractor, crawler, with bulldozer, torque converter, diesel, 400 HP.			294.00	1,227.00	1,521.00	1100	

**DIVISION 01 : GENERAL REQUIRMENTS:**

				CONTRACTOR OWNED EQUIPMENT			RENTAL	
CSI CODE	EQUIPMENT DESCRIPTION:	UNIT	QTY	OPERATION COST SR	EQUIPMENT DEPRECIATED COST (SR)/ DAY	EQUIPMENT DAILY COST INCLUDING OPERATION	COST (SR) PER DAY	RENTAL COST (SR) PER
016 408-3700	<b>Tractor</b> , crawler, with bulldozer, torque converter, diesel, 700 HP.			473.00	1,975.00	2,448.00		
016 408-3800	<b>Tractor loader</b> , wheel, torque converter, 4x4, up to 1.0 CUM, 65 HP.			68.00	250.00	318.00		
016 408-3900	<b>Tractor loader</b> , wheel, torque converter, 4x4, up to 1.3 CUM, 100 HP.			127.00	330.00	457.00		
016 408-4000	<b>Tractor loader</b> , wheel, torque converter, 4x4, up to 2.3 CUM, 170 HP.			151.50	685.00	836.50		
016 408-4100	<b>Tractor loader</b> , wheel, torque converter, 4x4, up to 4.0 CUM, 270 HP.			256.45	900.00	1,156.45		
016 408-4200	<b>Tractor loader</b> , wheel, torque converter, 4x4, up to 5.3 CUM, 375 HP.			373.50	1,150.00	1,523.50		
016 408-4300	<b>Trencher</b> , chain, boom type, wheel type, diesel, 1.2 m deep, 300 mm wide.			28.00	104.00	132.00		
016 408-4400	<b>Truck</b> , dump, 25 ton			107.00	223.00	330.00	400	
016 408-4500	<b>Truck</b> , dump, 15 ton			88.00	178.00	266.00	300	
<b>016 420</b>	<b>GENERAL EQUIPMENT:</b>					-		
016 420-0100	<b>Air compressor</b> , diesel engine, rotary screw, 0.28 m3/s, with accessories.			25.00	43.00	68.00		4330
016 420-0200	<b>Air compressor</b> , diesel engine, rotary screw, 0.35 m3/s, with accessories.			30.00	55.00	85.00		4710
016 420-0300	<b>Pneumatic nailer</b> with accessories			0.50	28.00	28.50		
016 420-0400	<b>Electric Cable Winsh</b> , with accessories & 100 set rollers straight, 10 rollers angle			20.00	109.00	129.00		
016 420-0500	<b>Electric Cable Trailer</b> , 7.5 ton			0.50	26.00	26.50		
016 420-0600	<b>Electric Cable Trailer</b> , 10 ton			0.50	32.00	32.50		
016 420-0700	<b>Distributor</b> , asphalt, trailer mounted, 11 CUM, diesel, 38 HP.			16.25	450.00	466.25		
016 420-0800	<b>Drill</b> , rotary hammer, electric, 38 mm diameter.			1.00	20.00	21.00		
016 420-0900	<b>Emulsion sprayer</b> , 250 liter, gas engine, 5 HP.			1.75	35.00	36.75		
016 420-1000	<b>Forklift</b> , wheeled, 4 wheel drive, diesel, 1.8 ton, 8.5 m lift.			50.00	122.00	172.00	400	7500
016 420-1100	<b>Generator</b> , gas engine, 10 KW			16.36	50.00	66.36		
016 420-1200	<b>Generator</b> , diesel engine, 300 KW			160.00	100.00	260.00	600	
016 420-1400	<b>Level</b> , laser type, for pipe laying, self leveling.				350.00	350.00		
016 420-1500	<b>Mixer</b> , plaster & mortar, powered, 0.28 m3, 9 HP			2.25	38.00	40.25		
016 420-1600	<b>Paint sprayer</b> , 0.008 m3/s			0.25	30.00	30.25		

**DIVISION 01 : GENERAL REQUIRMENTS:**

				CONTRACTOR OWNED EQUIPMENT			RENTAL	
CSI CODE	EQUIPMENT DESCRIPTION:	UNIT	QTY	OPERATION COST SR	EQUIPMENT DEPRECIATED COST (SR)/ DAY	EQUIPMENT DAILY COST INCLUDING OPERATION	COST (SR) PER DAY	RENTAL COST (SR) PER
016 420-1700	Pump, submersible, electric, 50 mm, 7.6 liter/s			1.25	40.00	41.25		
016 420-1800	Pump, submersible, electric, 100 mm, 35 liter/s			4.25	55.00	59.25		
016 420-1900	Pump, submersible, electric, 150 mm, 100 liter/s			16.50	150.00	166.50		
016 420-2000	Sandblaster, portable, open top, 0.17 m3 capacity.			0.50	32.00	32.50		
016 420-2100	Sander, floor.			0.50	30.00	30.50		
016 420-2200	Sander, edger.			0.50	20.00	20.50		
016 420-2300	Saw masonry, table mounted, 356 mm diameter, 5 HP.			4.25	35.00	39.25		
016 420-2400	Steam cleaner, 750 liter/hour.			2.50	45.00	47.50		
016 420-2500	Truck, pickup, 0.7 ton, 4 wheel drive.			15.00	60.00	75.00		
016 420-2600	Welder, electric, 300 amps			43.00	95.00	138.00	200	5000
<b>016 460</b>	<b>LIFTING AND HOISTING EQUIPMENT:</b>					-		
016 460-0100	Crane, climbing, 31 m jib, 4.65 ton, 1.37 m/s			110.00	600.00	710.00		
016 460-0300	Crane, tower, static, 40 m high, 32 m jib, 2.8 ton capacity at 2 m/s.			115.00	1,000.00	1,115.00		
016 460-0400	Crane, crawler, cable, 0.57 m3, 18 ton, at 3.65 m/s			110.00	550.00	660.00		
016 460-0500	Crane, crawler, cable, 1.15 m3, 36 ton, at 3.65 m/s			165.00	900.00	1,065.00		
016 460-0600	Crane, crawler, cable, 1.50 m3, 45 ton, at 3.65 m/s			180.00	1,000.00	1,180.00		
016 460-0700	Crane, truck mounted, cable operated, 8x4, 36 ton at 3.65 m/s.			170.00	615.00	785.00	800	
016 460-0800	Crane, truck mounted, cable operated, 8x4, 55 ton at 3.65 m/s.			187.00	790.00	977.00	1200	
016 460-0900	Crane, truck mounted, cable operated, 8x4, 75 ton at 3.65 m/s.			235.00	1,000.00	1,235.00	1500	
016 460-1000	Crane, truck mounted, cable operated, 8x4, 100 ton at 3.65 m/s.			270.00	1,400.00	1,670.00	5000	
016 460-1100	Crane, truck mounted, cable operated, 8x4, 150 ton at 3.65 m/s.			375.00	1,750.00	2,125.00		
016 460-1200	Crane, truck mounted, hydraulic, 25 ton capacity.			120.00	450.00	570.00		
016 460-1300	Crane, truck mounted, hydraulic, 50 ton capacity.			180.00	650.00	830.00	1200	
016 460-1400	Crane, truck mounted, hydraulic, 75 ton capacity.			200.00	1,000.00	1,200.00	1500	
016 460-1500	Hoist, chain type, overhead, manual, 9 ton.			0.25	20.00	20.25		
016 460-1600	Hoist and single tubular tower, 2 ton, 30 m high.			16.25	175.00	191.25		



**DIVISION 01 : GENERAL REQUIRMENTS:**

				CONTRACTOR OWNED EQUIPMENT			RENTAL	
CSI CODE	EQUIPMENT DESCRIPTION:	UNIT	QTY	OPERATION COST SR	EQUIPMENT DEPRECIATED COST (SR)/ DAY	EQUIPMENT DAILY COST INCLUDING OPERATION	COST (SR) PER DAY	RENTAL COST (SR) PER
016 460-1700	Jack, hydraulic, 90 ton			0.10	12.00	12.10		
016 460-1800	Jack, hydraulic, climbing with 15 m jackrods & control consoles, 27 ton			0.10	80.00	80.10		
016 460-1900	Jack, hydraulic, climbing with 15 m jackrods & control consoles, 45 ton			0.10	120.00	120.10		
016 460-2000	Jack, hydraulic, climbing with 15 m jackrods & control consoles,110 ton			0.10	300.00	300.10		
<b>016 490</b>	<b>WELLPOINT EQUIPMENT:</b>					-		
016 490-0100	Combination jetting & wellpoint pump , 60HP. diesel.			8.50	160.00	168.50		
016 490-0200	Wellpoint pump, diesel powered, 200 mm, 40 HP.			18.00	180.00	198.00		
016 490-0300	Wellpoint pump, diesel powered, 250 mm, 75 HP.			22.00	200.00	222.00		
016 490-0400	Wellpoint pump, diesel powered, 300 mm,100 HP.			35.00	300.00	335.00		
016 490-0500	Wellpoint pump, diesel powered, 300 mm,175 HP.			40.00	350.00	390.00		

# ANALYSIS OF MANPOWER DIRECT & INDIRECT COSTS

NOTE: VACATION PAY INCLUDED WITH 257 YEARLY WORK DAYS

HOUSING INCLUDED IN MOBILIZATION.

COSTS IN SAUDI RIALS:	OVERHEAD	LOADED COST	BASIC SALARY	ALLOWANCES		INSURANCE		COMPENSATION			
CRAFTSMAN	% W/O HOUSING	MONTHLY	AVG/MONTH	HOUSING	LIVING	MEDICAL	GOSI	TICKETS	LEAVE PAY	VAC. PAY	IQAMA
ALUMINIUM WORKER	37.98%	1,793.708	1,300.00	-	100.00	91.67	26.00	125.00	63.54	-	87.50
ASBESTOS WORKER	37.98%	1,793.708	1,300.00	-	100.00	91.67	26.00	125.00	63.54	-	87.50
BRICKLAYER	44.82%	1,549.525	1,070.00	-	100.00	91.67	21.40	125.00	53.96	-	87.50
BRICKLAYER HELPER	76.86%	1,034.617	585.00	-	100.00	91.67	11.70	125.00	33.75	-	87.50
CARPENTER, ROUGH	47.52%	1,475.208	1,000.00	-	100.00	91.67	20.00	125.00	51.04	-	87.50
CARPENTER, FINISH	40.63%	1,687.542	1,200.00	-	100.00	91.67	24.00	125.00	59.38	-	87.50
CEMENT FINISHER	44.82%	1,549.525	1,070.00	-	100.00	91.67	21.40	125.00	53.96	-	87.50
COMMON LABORER	81.36%	997.458	550.00	-	100.00	91.67	11.00	125.00	32.29	-	87.50
DRIVER, TRUCK	50.40%	1,406.200	935.00	-	100.00	91.67	18.70	125.00	48.33	-	87.50
DUCT FABRICATOR	39.65%	1,724.700	1,235.00	-	100.00	91.67	24.70	125.00	60.83	-	87.50
DUCT FITTER	38.73%	1,761.858	1,270.00	-	100.00	91.67	25.40	125.00	62.29	-	87.50
EQUIPMENT OPERATOR, LIGHT	47.52%	1,475.208	1,000.00	-	100.00	91.67	20.00	125.00	51.04	-	87.50
EQUIPMENT OPERATOR,HEAVY	41.51%	1,655.692	1,170.00	-	100.00	91.67	23.40	125.00	58.13	-	87.50
ELECTRICIAN, NORMAL	41.51%	1,655.692	1,170.00	-	100.00	91.67	23.40	125.00	58.13	-	87.50
ELECTRICIAN, SPECIALIST	35.71%	1,899.875	1,400.00	-	100.00	91.67	28.00	125.00	67.71	-	87.50
ELECTRICIAN, LINEMAN	38.73%	1,761.858	1,270.00	-	100.00	91.67	25.40	125.00	62.29	-	87.50
ELEVATOR WORKER	35.47%	2,032.083	1,500.00	-	-	91.67	30.00	250.00	72.92	-	87.50
ENGINEER	41.00%	7,050.000	5,000.00	1,250		91.67	100.00	250.00	270.83	-	87.50
FOREMAN, LABOR	44.82%	1,549.525	1,070.00	-	100.00	91.67	21.40	125.00	53.96	-	87.50
FOREMAN, TECHNICAL, SKILLED	32.51%	2,080.358	1,570.00	-	100.00	91.67	31.40	125.00	74.79	-	87.50

# ANALYSIS OF MANPOWER DIRECT & INDIRECT COSTS

NOTE: VACATION PAY INCLUDED WITH 257 YEARLY WORK DAYS

HOUSING INCLUDED IN MOBILIZATION.

COSTS IN SAUDI RIALS:	OVERHEAD	LOADED COST	BASIC SALARY	ALLOWANCES		INSURANCE		COMPENSATION			
	% W/O HOUSING	MONTHLY	AVG/MONTH	HOUSING	LIVING	MEDICAL	GOSI	TICKETS	LEAVE PAY	VAC. PAY	IQAMA
CRAFTSMAN											
GLAZER	37.98%	1,793.708	1,300.00	-	100.00	91.67	26.00	125.00	63.54	-	87.50
HELPER	76.86%	1,034.617	585.00	-	100.00	91.67	11.70	125.00	33.75	-	87.50
HVAC WORKER	38.73%	1,761.858	1,270.00	-	100.00	91.67	25.40	125.00	62.29	-	87.50
MARBLE FIXER	37.98%	1,793.708	1,300.00	-	100.00	91.67	26.00	125.00	63.54	-	87.50
MASON	44.82%	1,549.525	1,070.00	-	100.00	91.67	21.40	125.00	53.96	-	87.50
MECHANIST	37.14%	1,830.867	1,335.00	-	100.00	91.67	26.70	125.00	65.00	-	87.50
PAINTER	47.52%	1,475.208	1,000.00	-	100.00	91.67	20.00	125.00	51.04	-	87.50
PILE DRIVER	30.93%	2,186.525	1,670.00	-	100.00	91.67	33.40	125.00	78.96	-	87.50
PIPE FITTER	38.73%	1,761.858	1,270.00	-	100.00	91.67	25.40	125.00	62.29	-	87.50
PLUMBER	41.51%	1,655.692	1,170.00	-	100.00	91.67	23.40	125.00	58.13	-	87.50
ROOF WORKER	42.60%	1,618.533	1,135.00	-	100.00	91.67	22.70	125.00	56.67	-	87.50
SPRINKLER INSTALLER	37.98%	1,793.708	1,300.00	-	100.00	91.67	26.00	125.00	63.54	-	87.50
SHEET METAL WORKER	35.71%	1,899.875	1,400.00	-	100.00	91.67	28.00	125.00	67.71	-	87.50
SKILLED LABORER	34.30%	1,974.192	1,470.00	-	100.00	91.67	29.40	125.00	70.63	-	87.50
STEAM FITTER	37.98%	1,793.708	1,300.00	-	100.00	91.67	26.00	125.00	63.54	-	87.50
STEEL FIXER REINFORCEMENT	46.12%	1,512.367	1,035.00	-	100.00	91.67	20.70	125.00	52.50	-	87.50
STEEL STRUCTURAL FIXER	40.63%	1,687.542	1,200.00	-	100.00	91.67	24.00	125.00	59.38	-	87.50
SURVEYOR	33.05%	2,175.408	1,635.00	-	-	91.67	32.70	250.00	78.54	-	87.50
SUPERVISOR	29.67%	2,424.900	1,870.00	-	-	91.67	37.40	250.00	88.33	-	87.50

# ANALYSIS OF MANPOWER DIRECT & INDIRECT COSTS

NOTE: VACATION PAY INCLUDED WITH 257 YEARLY WORK DAYS

HOUSING INCLUDED IN MOBILIZATION.

COSTS IN SAUDI RIALS:	OVERHEAD	LOADED COST	BASIC SALARY	ALLOWANCES		INSURANCE		COMPENSATION			
	% W/O HOUSING	MONTHLY	AVG/MONTH	HOUSING	LIVING	MEDICAL	GOSI	TICKETS	LEAVE PAY	VAC. PAY	IQAMA
CRAFTSMAN											
TILE LAYER	44.82%	1,549.525	1,070.00	-	100.00	91.67	21.40	125.00	53.96	-	87.50
TILE LAYER HELPER	76.86%	1,034.617	585.00	-	100.00	91.67	11.70	125.00	33.75	-	87.50
WELDER	38.73%	1,761.858	1,270.00	-	100.00	91.67	25.40	125.00	62.29	-	87.50

# Example Project

This Appendix provides detailed information for the 5 star hotel building example project. It is 16 floors containing 496 guest rooms, one first floor, and one ground floor with a basement parking garage.

The 10,000 square meter site is in a suburban area in Riyadh city with good access and sufficient material storage area. The site will require clearing. An open ditch crosses the rear of the site, requiring construction of a concrete pipe drainage system, and trenches for electrical and telecommunication systems to best utilize the site. Leveling the site for the building will require removal of a low knoll.

## **The project involves the following:**

- 1) 16 floors for guest rooms (496 rooms) of total 46,446 square meter
- 2) One ground floor of total 5144 square meter
- 3) One first floor of total 5144 square meter.  
The height of each floor 3.20 meter
- 4) Basement parking garage of total 160 car parking

## **Cost estimating parameter:**

<b>Bare Cost:</b>	SR 3,352 per square meter (excluding furniture)
<b>Project Total Direct Cost:</b>	SR 155,690,000 including SR 66,000,000 for subcontracting work
<b>General Contractor Cost:</b>	SR 89,690,000 as total of the following:
<b>a) Material Cost:</b>	SR 72,648,900 and that equal to 81.0% of the general contractor cost.
<b>b) Labor Cost:</b>	SR 13,453,500 and that equal to 15.0% of the general contractor cost.
<b>c) Equipment Cost</b>	SR 3,587,600 and that equal to 4.0% of the general contractor cost.
<b>Contract Duration:</b>	36 Months.

**EXAMPLE FOR APPLYING GENERAL REQUIRMENTS:****BUILDING: 5 STAR HOTEL - FURNITURE NOT INCLUDED****BUILDING DATA ASSUMPTIONS:**

<b>ASSUMPTION</b>	<b>AREA</b>	<b>FLOORS</b>
GUEST FLOORS		16
PUBLIC FLOOR EACH M <sup>2</sup>	5,144	2
BASEMENT M <sup>2</sup>	5,833	1
TOTAL BUILD - UP AREA	46,446	
NUMBER OF ROOMS	496	
DIRECT COST MATERIAL - GENERAL CONTRACTOR	72,648,900	
LABOR DIRECT COST GC	13,453,500	
EQUIPMENT COST GC	3,587,600	
TOTAL DIRECT COST GC "GENERAL CONTRACTOR"	89,690,000	
TOTAL DIRECT COST SUBCONTRACTORS	66,000,000	
TOTAL DIRECT COST	155,690,000	
CONSTRUCTION PERIOD IN MONTHS	36	
<b>MANPOWER:</b>		
TOTAL MANHOURS	1,960,000	
EXPECTED PEAK NUMBER OF LABORS	699	
EXPECTED AVERAGE NUMBER OF LABORS	350	
CAMPUSES DESIGNED FOR	500	
AVERAGE NUMBER OF SKILLED WORKER	275	
NUMBER OF COMMON LABORERS	200	
NUMBER OF FORMANS, INSPECTORS	25	
SITE AREA	10,000	
FOOT PRINT AREA	5,144	
FURNITURE NOT INCLUDED	21,000,000	MSR

DIVISION 01 : GENERAL REQUIRMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
010 000	DIRECT OVERHEAD RUNNING COSTS:									
010 100	DIRECT OVERHEAD COSTS:									
010 110	CONSTRUCTION STAFF AT SITE:									
010 112	FIELD STAFF									
010 112-0100	Construction manager or superintendent. Unique & large jobs.	Man Month	33	20,000	48.42%				29,683	979,550
010 112-0120	Construction manager or superintendent. jobs between 50 & 100 million SR	Man Month		15,000	50.88%				22,631	0
010 112-0140	Construction manager or superintendent. jobs less than 50 million SR	Man Month		10,000	55.79%				15,579	0
010 112-0200	Field Architect. Engineer, unique & large jobs	Man Month	24	18,000	49.24%				26,863	644,700
010 112-0220	Field Architect. Engineer, jobs between 50 & 100 million SR	Man Month		12,000	53.33%				18,400	0
010 112-0240	Field Architect. Engineer, jobs less than 50 million SR.	Man Month		8,000	59.48%				12,758	0
010 112-0300	Field Civil Engineer, Unique & large jobs.	Man Month	12	18,000	49.24%				26,863	322,350
010 112-0320	Field Civil Engineer, jobs less than 50 millions.	Man Month		12,000	53.33%				18,400	0
010 112-0340	Field Civil Engineer, jobs less than 50 million SR.	Man Month		8,000	59.48%				12,758	0
010 112-0400	Field Electrical Engineer, Unique & large jobs	Man Month	30	15,000	50.88%				22,631	678,938
010 112-0420	Field Electrical Engineer, Unique & large jobs	Man Month		10,000	55.79%				15,579	0
010 112-0440	Field Electrical Engineer, jobs less than 50 millions SR.	Man Month		6,500	63.73%				10,643	0
010 112-0500	Field Industrial Engineer, Unique & large jobs	Man Month		16,000	50.26%				24,042	0
010 112-0520	Field Industrial Engineer, jobs between 50 & 100 million SR.	Man Month		11,000	54.45%				16,990	0
010 112-0540	Field Industrial Engineer, jobs less than 50 millions SR.	Man Month		7,000	62.11%				11,348	0
010 112-0600	Field Mechanical Engineer, Unique & large jobs.	Man Month	30	15,000	50.88%				22,631	678,938
010 112-0620	Field Mechanical Engineer, jobs less than 50 millions.	Man Month		10,000	55.79%				15,579	0
010 112-0640	Field Mechanical Engineer, jobs less than 50 million SR.	Man Month		6,500	63.73%				10,643	0
010 112-0700	Field Quantity Surveyor	Man Month	30	5,000	50.17%				7,508	225,250
010 112-0800	Field Surveyor	Man Month	25	3,500	52.65%				5,343	133,568
010 112-0900	Guards	Man Month	108	550	107.80%				1,143	123,435
010 112-1100	Laboratory Material Testing Engineer	Man Month	16	12,000	53.33%				18,400	294,400
010 112-1200	Laboratory Technicians	Man Month	32	4,000	51.20%				6,048	193,533
010 112-1300	Laboratory Laborer	Man Month	32	550	107.80%				1,143	36,573
010 112-1400	Plants Manager	Man Month	36	8,000	46.12%				11,690	420,825
010 112-1500	Plant, Electrical power, Operators	Man Month	36	2,200	59.51%				3,509	126,330
010 112-1600	Plant, Networks Maintenance	Man Month		1,900	62.42%				3,086	0

[illegible]



DIVISION 01 : GENERAL REQUIRMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
	ILLUSTRATIONS AND ASSUMPTIONS:									
	FOR THIS PROJECT CONSULTANT STAFF WILL BE MINIMUM OF 15 PERSONS		PERSONS	15						
	UTILITIES PROVIDED AT SITE .... NEGLECT CITY CONNECTIONS		OFFICE LABORER	2						
010 221-0100	Office cleaning consumables	Man Month	540			10			10	5,400
010 221-0200	Drinking water supplies.including tea service.	Man Month	540			22			22	11,880
010 221-0300	Eelectrical power supply,city connected.at 875 KWH per man month.	Man Month KWH							175	0
010 221-0400	Electrical Power Supply,on-site generation.at 875 KWH per man month.	Man Month	540						263	141,750
010 221-0500	Equipment Maintenance,computers, copiers, printers..etc. jobs more than 20 million SR.	Month	36						200	7,200
010 221-0600	General Water Supplies.at 4.5 CUM per man month.	Man Month	540						25	13,365
010 221-0700	Offices Service laborers	Man Month	72	550.00	107.80%				1,143	82,290
010 221-0800	Supplies, stationary, & computers supply	Month	36						700	25,200
010 221-0900	Telephone & Fax bills- Local & In Kingdom Long distance calls Average	Month	36						2,000	72,000
010 224	CONSULTANT ACCOMODATION & SERVICES:									
	ILLUSTRATIONS AND ASSUMPTIONS:									
	ASSUME 2 CARS ONLY FOR CONSULTANT PM & CM,		CARS	2						
	NO CARS PROVIDED FOR OWNER REPR.		CARS	-						
	SINCE SITE IS LOCATED IN RIYADH NO HOUSING IS PROVIDED.									
010 224-0100	Cars Insurance,consultat staff	Car Month	72						125	9,000
010 224-0200	Cars Insurance,Owner's representative, "if required".	Car Month	-						167	0
010 224-0300	Cars Maintenance & fuel, Consultant staff	Car Month	72						300	21,600
010 224-0400	Cars Maintenance & fuel,Owner's representative. "if required"	Car Month	-						400	0
010 224-0500	Consumables,housekeeping. "if housing required"	Man Month				12			12	0
010 224-0600	Cook for Consultant Kitchen " If housing provided"	Man Month		3,500.00	52.65%				5,343	0
010 224-0700	Cook assistant " If housing provided"	Man Month		750.00	95.21%				1,464	0
010 224-0800	Drinking water supply to consultant housing. " if housing required".	Man Month				24			24	0

DIVISION 01 : GENERAL REQUIRMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
010 224-0900	Electrical power supply per Person,city connected, Monthly, at 1200 KWH per man month"if housing required"	Man Month							240	0
010 224-1000	Electrical Power Supply,on-site Generation. at 1200 KWH per man month"if housing required"	Man Month							360	0
010 224-1100	Housekeeping,cleaing staff. <b>Assume 1 Laborer for ever 6 staff persons."</b> If housing provided"	Man Month		550.00	107.80%				1,143	0
010 2241200	Water Supply city connected, per person, Monthly. at 8 CUM per person. "If housing required"	Man Month							44	0
010 2241300	Water supply per person, on-site delivery.Monthly."if housing required"	Man Month							67	0
<b>010 300 CONTRACTOR SITE OVERHEAD EXPENSES:</b>										
<b>010 310</b>	<b>CONTRACTOR OFFICES:</b>									0
	<b>ILLUSTRATIONS AND ASSUMPTIONS:</b>									
	<b>COTRACTOR STAFF TOTAL MANMONTH IS THE TOTAL SHOWN ABOVE.</b>									
	<b>UTILITIES FOR OFFICES AT SITE, FOR CAMPUS AT RENTED LAND ALL PROVIDED BY GC.</b>									
	<b>ASSUME 3 COMMON LABORERS TO SERVE CONTRACTOR STAFF</b>		LABORERS	3						
	<b>SINCE PROJECT LOCATED IN RIYADH NO FLIGHTS ARE ALLOWED FOR STAFF TRIPS.</b>									
010 310-0100	Office cleaning consumables	Man Month	456			12			12	5,472
010 310-0200	Drinking water supplies.	Man Month	456			20			20	9,120
010 310-0300	Eeectrical power supply,city connected.at 625 KWH per man month.	Man Month							125	0
010 310-0400	Electrical Power Supply,on-site generation.at 625 KWH per man month.	Man Month	456						188	85,500
010 310-0500	Equipment Maintenance,computers, copiers, printers..etc. jobs more than 20 million SR.	Month	36						350	12,600
010 310-0600	General Water Supplies.at 4.5 CUM per man month.	Man Month	456						25	11,286
010 310-0660	Offices Service laborers	Man Month	108	550.00	107.80%				1,143	123,435
010 310-0700	Office Supplies, stationary, & computers supply	Month	36						1,500	54,000
010 310-0800	Office, Engineering Drawings supply	Month	25						1,000	25,000
010 310-0900	Office telephone & Fax bills- Local & Long distance calls Average	Month	36						3,000	108,000

DIVISION 01 : GENERAL REQUIRMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
010 310-1000	Office, travel expenses from site to main office, if applicable.cost depends on site location and class of travel. Assume an average of 2 trips monthly.	Trip	-						40	4,000
<b>010 340</b>	<b>CONTRACTOR STAFF ACCOMODATION :</b>									
	<b>ILLUSTRATIONS AND ASSUMPTIONS:</b>									
	<b>ASSUME CARS ONLY FOR CONTRACTOR ENGINEERS</b>	CARS	2							
	<b>TOTAL NUMBER OF ENGINEERS AT SITE = 12</b>									
	<b>TOTAL MANMONTHS FOR CARS = STAFF NUMBER X DURATION OF STAFF AT JOB.</b>									
010 340-0100	Cars Insurance,contractor staff.	Car Month	207						125	25,875
010 340-0200	Cars Maintenance & fuel, Contractor staff.	Car Month	207						350	72,450
010 340-0300	Consumables,housekeeping. for all campuses, <b>Average.</b>	Man Month	13,040						7	91,278
010 340-0400	Cooks for all contractor campuses	Man Month	30	3,500.00	52.65%				5,343	160,281
010 340-0500	Cook assistants	Man Month	85	550.00	107.80%				1,143	97,148
010 340-0600	Drinking water, contractor campuses	Man Month	13,040			24			24	312,952
010 340-0700	Electrical power supply per Person,city connected, Monthly,all campuses at 575 KWH per man month.	Man Month							115	0
010 340-0800	Electrical power supply per Person, on-site generation, Monthly, all campuses at 575 KWH per man month.	Man Month	13,040						173	2,249,341
010 340-0900	Housekeeping,cleaing staff. <b>Assume 1 Laborer for ever 12 staff persons."</b> If housing provided"	Man Month		550.00	107.80%				1,143	0
010 340-1000	Land rental,contractor full campuses,if applicable.Less than 100 persons,Assume 40 m2/person;100 to 200 person 30m2;More than 200 persons 20 m2.Cost Varies with location. Study Case:350 persons,36 months, within 50 KM from site in Riyadh	Man Month SQM	252,000				4		4	945,000
010 340-1100	Labor transportation from of -site labor campuses to site within 50 KM trip distance.	Man Month	12,584	13.00	74.90%		22.73	5	28	354,230
010 340-1200	Water Supply city connected, per person, Monthly. at 8 CUM per person.	Man Month							44	0
010 340-1300	Water supply per person, on-site delivery,Monthly.	Man Month	13,040						67	869,311
<b>010 400</b>	<b>ENVIROMENTAL &amp; SAFETY MEASURES EXPENSES:</b>									0
010 400-0100	Ambulance insurance	Month	32						250	8,000

DIVISION 01 : GENERAL REQUIRMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
010 400-0200	Ambulance maintenance & fuel	Month	32						300	9,600
010 400-0300	Doctor, "general practice" in remote sites	Man Month	-						-	0
010 400-0400	First aid expenses average	Man Month	13,040						15	195,595
010 400-0500	Medicine consumables for remote sites	Man Month	13,040						35	456,388
010 400-0600	Sewer, Septic tank(s) contents removal, all campuses & construction area pits. Assumed 0.15 cum daily per person.	Man Month	13,040						36	469,428
010 400-0700	Progressive site clean-up, Based on site area.assume monthly at 0.028 Hour/SQM. Consider actual cleaning area equals to uncovered	Month Sqm	174,816				0.03	0	0	26,224
010 400-0800	Progressive Buildings clean-up, Based on build-up area.assume monthly 0.09 Hour/SQM labor and 0.005 HRS/SQM equipment. Actual cleaning	Month Sqm	836,028				0.02	0	0	223,115
<b>010 420</b>	<b>INSURANCE</b>					<b>Contract Values</b>				
010 420-0100	Builders all risk type insurance, percent of contract value.	% Job Value	0.25%			155,690,000			155,690,000	389,225
010 420-0200	Builders equipment insurance, percent of total on-site equip. value	% Eq. Value	0.65%			3,587,600			3,587,000	23,316
010 420-0300	Builders risk standard Insurance, percent of contract value.	% Job Value	0.15%			0			-	0
010 420-0400	Employees Medical insurance, See Manpower OH costs Div. 010058	Man Year	-						900	0
010 420-0500	Employees social security insurance,See manpower OH costs Div. 010058	Man Month								0
<b>010 440</b>	<b>JOB CONDITIONS &amp; PRICE ESCALATION:</b>									
010 440-0100	Escalation to mid - point of construction for jobs over than 2 years, consider 1.5 % annually of the total direct cost every extra year.	% -years	1.500%					155,690,000	155,690,000	2,335,350
010 440-0200	Labor shortage at site location, add 10 % to labor cost value.	Percent	0.00%				13,453,500		13,453,500	0
010 440-0300	Restricted sites to reach,lack of working space add 3 % of labor & material cost value.	Percent	0.00%					155,690,000	155,690,000	0
010 440-0400	Shortage of subcontractors at site location, add 10 % on specific subcontracts.	Percent	0.00%				66,000,000		66,000,000	0
<b>010 500</b>	<b>GENERAL OVERHEAD COSTS:</b>									
<b>010 520</b>	<b>MARK - UP:</b>									0
	<b>ILLUSTRATION AND ASSUMPTIONS</b>									
	AS JOB TIME IS 36 MONTHS & ESTIMATED COMPLETION IS 36 MONTHS,OVERTIME WORK IS N/A									

DIVISION 01 : GENERAL REQUIREMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
010 520-0200	Overtime work to complete job within assigned construction period required. To compute month rate, Use corresponding % from table to multiply by labor & equip.cost.	Month Percent	-	NOT APPLICABLE			13,453,500	3,587,600	17,041,100	0
<b>010 560</b>	<b>OVERHEAD COSTS LABOR:</b>									
010 560-0100	Engineer average wage,overhead costs, housing not included, percent of Basic Salary	%	0	included in labor cost						0
010 560-0200	Laborer overhead costs, housing not included, percent of laborers Basic Wages.	%	1	included in labor cost						0
010 560-0300	Skilled Laborer average overhead costs ,housing not included, percent of Basic Wages.	%	0	included in labor cost						0
010 560-0400	Special Skilled worker overhead costs, ahousing not included, percent Of Basic Wages	%	0	included in labor cost						0
010 560-0500	For staff & labor Housing See DIV. 015									0
<b>010 570</b>	<b>GEN. CONTRACTOR OVERHEAD ON SUBCONT.PRICE:</b>									
010 570-1000	Overhead on subcontractors price	%	15.00%	CALCULATED IN SUMMARY			-		-	0
<b>010 580</b>	<b>UNSEEN EXPENSES:</b>									
010 580-0100	Site unseen overhead expenses such as mail, express mail, E-mail, work delays due to wether conditions.....etc, Percent of direct cost @	%	0.00%	NOT APPLICABLE					155,690,000	0
<b>010 590</b>	<b>PROFIT: Depending on Project size</b>									0
01590-0100	General contractor profit on subcontractors prices	%	10.00%	CALCULATED IN SUMMARY					-	0
01590-0200	General contractor profit Minimum of project total cost	%	10.00%	CALCULATED IN SUMMARY					-	0
01590-0300	General contractor profit Average of project total	%	15.00%	CALCULATED IN SUMMARY					-	0
01590-0400	General contractor profit Maximum of project total	%	20.00%	CALCULATED IN SUMMARY					-	0
<b>010 600</b>	<b>BONDS &amp; GURANTEES:</b>									
<b>010 620</b>	<b>PERFORMANCE BONDS: ASSUME 1.25% OF JOB DIRECT COST FOR FINANCING CHARGES &amp; GUARANTEES</b>									
010 620-0100	Bid Bond, at 0.0001 of contract value monthly. Example:job value 144,000,000 million & bond duration for 8 months			APPROX.CONTRACT VALUE						0
010 620-0200	Financing charges, at 0.012% percent per month for every allowed one million overdraft.Example: contractor overdraft 4.5 million, construction period 36 months, finance charges will be	1.2500%		155,690,000						1,946,125
010 620-0220	Financing charges, material letter of credits, at 0.9 % of contract value									0
010 620-0400	Performance bond									0
<b>010 640</b>	<b>GURANTEES:</b>									

DIVISION 01 : GENERAL REQUIREMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
010 640-0300	Final handover gurantee bond, percent of bond value									0
010 700 PERMITS & UTILITY FEES & TAXES:										
010 720 PERMITS:										
010 720-010 0	City permit fees if applicable	SQM		NOT APPLICABLE					-	
010 740	UTILITY CONNECTION FEES:								-	0
010 070-0200	Electrical connection fees if applicable	KVA		PAID BY OWNER				150	150	0
010 070-0220	For high voltage SCECO installed equipment , " if Applicable" Add	KVA		PAID BY OWNER		1,000			1,000	0
010 070-0300	Water & sewer connection fees if applicable	CUM		PAID BY OWNER					-	0
010 760 TAXES:										
010 760-0100	Taxes for foreign contractors. Percent of Contract Value	Percent	0	NOT APPLICABLE					-	0
010 760-0200	Taxes for joint ventures. Percent of Contract Value pending JV structure. Example 60% foreign, 40% local.	Percent	0	NOT APPLICABLE					-	0
010 760-0300	Zakat for local contractors; See DIV. 010046 Main Office Overhead.									0
010 800 SUBMITTALS,PHOTOGRAPHS:										
010 820 SUBMITTALS:										
010 820-0100	Shopdrawings & material Submittals, See Div. 010116									0
010 820-0200	Site area survey; if required, at 150 sr per 1000 sqm of site area	SQM	10,000					0	0	1,500
010 820-0300	Site soil testing, if required, See also DIV. 020120 - Site works	Bore	20						300	6,000
010 820-0400	Site topography survey & property line survey.	SQM	10,000					1	1	0
010 840	PHOTOGRAPHS									0
010 840-0500	Progress photographs 10 shots, 4 prints size 200x250 mm, average	Month	33					800	800	26,400
010 840-0600	Video if requested	Month	-					300	300	0
010 900 QUALITY CONTROL:										
010 905 SITE MANAGMENT:										
010 905-0100	Construction managment, other than contractor staff iv if required. In this case, contractor managment staff iv. 010112 shall be adjusted accordingly. Minimum 5% of contract value.	Percent	5.00%	NOT APPLICABLE					-	0

DIVISION 01 : GENERAL REQUIRMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
010 905-0120	Construction management, other than contractor staff if required. In this case, contractor management staff iv. 010112 shall be adjusted accordingly. <b>Maximum 7% of contract value</b>	Percent	7.00%	NOT APPLICABLE					-	0
010 905-010 0	Contractor Management Staff, See DIV. 010112								-	0
010 905-0300	project planning management, if outside contractor staff at 0.075 % of contract value	Percent Month		NOT APPLICABLE					-	0
<b>010 925</b>	<b>TESTING:</b>									0
010 925-0200	Sample testing at site, See DIV. 010112			LAB. INCLUDED						0
010 925-0220	Average sample testing, building trades at site and in outside laboratory. at 0.55 % of contract value	Percent	0.55%			155,690,000			155,690,000	856,295
010 925-0300	Sample testing Outside Laboratory within city limits.Average building materials.	Test		LAB. INCLUDED			300.00		300	0
010 925-0300	Sample testing Outside Laboratory within city limits.Average soil testing materials.	Test		N/A ROADS CONSTRUCTION			400.00		400	0
<b>010 945</b>	<b>FACTORY INSPECTION &amp; TESTING , OUTSIDE KINGDOM:</b>									0
010 945-0400	Consultant/owner, attending factory test,outside Kingdom, priced according to number of visits & country of destination.Example Owner Repr., Engineer & contractor representative for 5 days to USA, first class travel.Assume for this trip 15 day trip	Day Trip	-	INCLUDED IN SUB-CONTRACT		6,000			6,000	0
010 945-0500	Foreign expertise testing, coming from outside the kingdom, including residency & travel. Example: From USA , travel J class, for 3 days visit, assume travel time days.	Day Trip	-	INCLUDED IN SUB-CONTRACT		13,008			13,008	0
<b>010 965</b>	<b>FACTORY INSPECTION &amp; TESTING , IN KINGDOM:</b>									0
010 965-0400	Owner/ Consultant attending factory test, In Kingdom, to be priced according to number of visits & City of destination.	Trip		INCLUDED IN SUB-CONTRACTORS						
<b>011 100</b>	<b>INDIRECT RUNNING OVERHEAD EXPENSES:</b>									0
<b>011 205</b>	<b>CONTRACTOR MAIN OFFICE OH EXPENSES:</b>									0
										ANNUAL TURNOVER
011 205-0100	Accounting/Legal & data processing, average percent of annual TO	% Of TO	0.85%			64,870,833			64,870,833	551,402
011 205-0200	Cars for staff, maintenance, fuel & insurance.average percent of annual TO	% Of TO	0.30%			64,870,833			64,870,833	194,613
011 205-0300	Engineering & planning department, Salaries, percent of annual TO.	% Of TO	2.50%			64,870,833			64,870,833	1,621,771
011 205-0400	Estimation department, Salaries, average percent of annual TO	% Of TO	0.50%			64,870,833			64,870,833	324,354
011 205-0500	General Manager Office Salaries,minimum 300000 SR.	LOT								0

DIVISION 01 : GENERAL REQUIRMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
011 205-0520	General Manager Office Salaries,maximum 750000 SR.	LOT	750,000							750,000
011 205-0600	Procurement department, Salaries, average percent of annual TO	% Of TO	0.50%			64,870,833			64,870,833	324,354
011 205-0700	Publicity expenses, minimum 50000 SR	LOT	-			64,870,833			64,870,833	0
011 205-0720	Publicity expenses, maximum 200000 SR.	LOT	200,000			64,870,833			64,870,833	200,000
011 205-0800	Recruitment & iqama expenses, staff.	% Of TO	0.05%			64,870,833			64,870,833	32,435
011 205-0900	Rental & utilities, mainn office, minimum 150000 SR.	% Of TO				64,870,833			64,870,833	0
011 205-0920	Rental & utilities, mainn office, minimum 750000 SR.	% Of TO	750,000			64,870,833			64,870,833	750,000
011 205-1000	Staff medical insurance, average percent of annual TO	% Of TO	0.40%			64,870,833			64,870,833	259,483
011 205-1100	Staff incentives & profit Sharing, average percent of annual TO	% Of TO	0.70%			64,870,833			64,870,833	454,096
011 205-1200	Telephone, Fax & telex bills, average percent of annual TO	% Of TO	0.25%			64,870,833			64,870,833	162,177
011 205-1300	Travel Expenses, staff, average percent of annual TO	% Of TO	0.35%			64,870,833			64,870,833	227,048
011 205-1400	Zakat expenses, average percent of annual TO	% Of TO	0.02%			64,870,833			64,870,833	12,974
011 205-1500	Rule of thumb & using above %, main office expenses for less than 5M SR annual turnover	% Of TO	15.50%							0
011 205-1600	Rule of thumb & using above %, main office expenses from 6M To 10M SR annual turnover	% Of TO	12.55%							0
011 205-1700	Rule of thumb & using above %, main office expenses from 15M to 30M SR annual turnover	% Of TO	8.90%							0
011 205-1800	Rule of thumb & using above %, main office expenses from 35M to 50M SR annual TO	% Of TO	8.00%							0
011 205-1900	Rule of thumb & using above %, main office expenses from 65M to 80M SR annual TO	% Of TO	7.50%							
011 205-2000	Rule of thumb & using above %, main office expenses over 85M SR annual turnover	% Of TO	7.25%							
<b>015 MOBILIZATION</b>										
<b>015 100 CARS:</b>										0
015 00-0100	Consultant cars, deluxe, Depreciated cost,5 years,	Man Car Month	2					30,000	30,000	60,000
015 00-0200	Consultant cars, Medium size, Depreciated cost,5 years.	Man Car Month								0
015 00-0300	Contractor cars, deluxe, Depreciated cost,5 years.	Man Car Month	2					30,000	30,000	60,000
015 00-0400	Contractor cars, Medium, Depreciated cost,5 years.	Man Car Month	4					22,500	22,500	90,000
015 00-0500	Contractor cars, Small, Depreciated cost,5 years.	Man Car Month	3					15,000	15,000	45,000
015 00-0600	Contractor workshop & plants cars, Pick-up, Depreciated cost,5 years.	Man Car Month	3					26,250	26,250	78,750



DIVISION 01 : GENERAL REQUIRMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
<b>015 200</b>	<b>TEMPORARY CONSTRUCTIONS:</b>									
<b>015 205</b>	<b>ACCESS ROAD &amp; RAMPS:</b>									
			ASSUMED							0
015 200-0200	Access road, including clearing,100 mm compaction & 200 mm fill.	SQM					1.50	4	5	0
015 200-0300	Access road, including clearing,100 mm compaction & 200 mm selected fill.	SQM	500			6	1.50	4	11	5,500
015 200-0400	Access road, including clearing,100 mm compaction & 200 mm fill with 1.5 Kg prime asphalt coat & 025 kg/m2 asphalt tack coat	SQM				9	2.00	4	15	0
015 200-0500	Access road, including clearing,100 mm compaction & 200 mm fill with 1.5 Kg prime asphalt coat, 0.25 kg/m2 asphalt tack coat & 50 mm asphalt	SQM				40	3.00	5	48	0
015 200-0600	Access road, periodic maintenance.	Month SQM	18,000			2	0.995	2	4	71,910
015 200-0700	Dirt surface parking, including clearing & 200 mm fill layer	Car	-						300	0
015 200-0800	Dirt, surface parking periodic maintenance	Month Car	-						160	0
015 200-0900	Sheltered dirt parking space	Car	14						2,300	32,200
015 200-1000	Sheltered asphalt parking space	Car	-						2,880	0
015 200-1100	Access ramp, concrete	SQM	60						60	3,600
015 200-1200	Access ramp, gravel fill, 100 mm deep.	SQM							8	0
<b>015 210</b>	<b>CONSULTING/OWNER ENGINEER SITE OFFICES:</b>									
015 210-0100	Offices,Masonry & concrete deck, based on 15 SQM per person of the staff, including meeting rooms & office support area.20 % material salvage value.	Man Month	-			258	93.75		352	0
015 210-0200	Offices,Masonry & corrugated deck, based on 15 SQM per person of the staff, including meeting rooms & office support area. 25 % material salvage value.	Man Month	-			219	72.92		292	0
015 210-0300	Offices, Prefabricated units,15 SQM per person including meeting rooms,offices & support areas. Depreciated at 60 months.	Man Month	576			200	20.83	5	226	130,078
015 210-0400	Office computer network. Depreciated cost at 36 months, Monthly consider 8 stations	Month station	288			135	5.55	0	140	40,438
015 210-0500	Office equipment, Copiers, typewriters ...etc, Depreciated cost at 36 months, Monthly	Month	36			1,667	0.69	1	1,668	60,049
015 210-0600	Office software, depreciated cost at 36 months	Month	36						1,250	45,000
015 210-0700	Office standard furniture per person. Depreciated cost at 36 months, Monthly	Man Month	576			42	0.55	0	43	24,555
<b>015 215</b>	<b>CONSTRUCTION WORKSHOPS &amp; PLANT DEPRECIATED COST AT 36 MONTHS</b>									
015 215-0100	Equipment maintenance workshop, minimum of 16 SQM for jobs up to 10MSR, including tools, maint. equipment & employees facilities.	Month				142	55.55	135	333	0

DIVISION 01 : GENERAL REQUIRMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
015 215-0200	Equipment maintenance workshop, 1 SQM/1MSR for jobs 15MSR to 50 MSR, including tools, maintenance equipment,& employees facilities.Example for project of 45 MSR. & 36 months constr.	Month SQM MSR				10	3.82	18	31	0
015 215-0300	Equipment maintenance workshop, 0.75 SQM/1MSR for jobs 65MSR to 85 MSR, including tools, maintenance equipment,& employees facilities.	Month SQM MSR				10	3.82	18	31	0
015 215-0400	Equipment maintenance workshop, 0.65 SQM/1MSR for job over 100 MSR including tools, maintenance equipment & employees facilities., Example: contract value 225 MSR	Month SQM MSR	101			10	3.82	18	31	3,168
015 215-0500	Concrete Batching plant, remote sites, Assume 0.025 SQM per GSQM of build - up area. Eq. cost depreciated for 72 months.	Month SQM MSR	-	NOT APPLICABLE		1	0.14	6	7	0
015 215-0600	Construction workshop, for emergency generators at 20 sqm.generators shelter included with generators. depreciated at 36 months.	Month SQM	720			4	2.78	73	80	57,698
015 215-0700	Joinery & steel workshop, minimumm 40 m2, or 1.5 m2 per 1000 m2 build up area, plus 60 m2 open area .Example For 36 months construction period.	Month SQM GSQM	2,508			4	2.78	10	18	44,234
015 215-0800	Masonry Plant For Remote sites, 0.05 sqm open area per GSQM of build - up area.Example: Aproject of 75,000 m2 will require 3750 m2 of open area & closed area.Eq.cost depreciated for 72 months.	Month SQM GSQM		NOT APPLICABLE		1	0.28	3	5	0
015 215-0900	Duct workshop, minimumm 20 m2, or 1 m2 per 1000 m2 build up area, plus 60 m2 open area	Month SQM GSQM	1,672			6	0.69	17	23	38,853
015 220	CONTRACTOR CAMPUSES ON-SITE/OF-SITE									
ILLUSTRATION AND ASSUMPTIONS										
AVERAGE NUMBER OF LABORERS			LABORER	200						
015 220-0100	On-site labor camp, 6 SQM per person, including support area, masonry and concrete deck, depreciated at 36 months with 20% salvage value on material.	Man Month				94	37.50		132	0
015 220-0200	On-site labor camp, 6 SQM per person, including support area, masonry and corrugated deck. depreciated at 36 months with 25 % salvage value on material.	Man Month	7,200			75	29.16		104	749,952
015 220-0300	On-site labor camp.8 SQM per person, including support area, prefabricatedunits, including support area. Depreciated at 60 months.Monthly.	Man Month				107	6.67	1	115	0
015 220-0400	Labor camp furniture, depreciated cost at 36 months. Monthly.	Man Month	7,200			21	0.28	0	21	153,992

[illegible]



DIVISION 01 : GENERAL REQUIRMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
015 230-0100	Offices based on 15 SQM per person of the staff, including meeting rooms & office support area. Masonry & concrete Deck	Man Month				258	93.75		352	0
015 230-0200	Offices based on 15 SQM per person of the staff, including meeting rooms & office support area. Masonry & corrugated Deck	Man Month				219	72.91		292	0
015 230-0300	Offices, Prefabricated units, 12 SQM per person including meeting rooms & offices support areas. Depreciated cost, monthly	Man Month	456			267	34.72	8	310	141,228
015 230-0400	Office computer network. Depreciated cost, Monthly, BASED ON 12 STATIONS	Month station	432			135	5.55	0	140	60,653
015 230-0500	Office equipment, Copiers, Drawing copiers...etc, Depreciated cost, Monthly	Month	36			3,750	4.16	1	3,755	135,175
015 230-0600	Office software	Month	36						1,250	45,000
015 230-0700	Office standard furniture per person. Depreciated cost, Monthly	Month person	456			33	0.42	0	34	15,575
<b>015 235</b>	<b>FENCING:</b>									0
015 235-0100	Barricades, barrel reflectorized	EA							200	0
015 235-0200	Barricades, barrel, with flashers.	EA	10						325	3,250
015 235-0300	Barricades, barrel, with Steady burn light.	EA							350	0
015 235-0400	Fence, wood and corrugated steel, 2 meters high, Quantity based on lot size. 25% salvage material cost. Example: For a site lot area 10,000 SQM, Perimeter Fence Approx.	LM	-			30	10.00		40	0
015 235-0500	Fence, chain link including steel angles, 2 meters high, 25 % salvage on material cost. Quantity based on lot size. Same Example Line 015235-0400	LM	500			45	15.00		60	30,000
015 235-0600	Fence gate, 6m wide.	EA	1						1,500	1,500
015 235-0700	Fence gate, 1m wide	EA	2						450	900
015 235-0800	Fence vehicle gate, with 2 manual arm reflectorized barrier.	EA	1						2,000	2,000
015 235-0900	Guard house Kiosk, masonry block.	Man Month	108			10	3.88		14	1,476
<b>015 240</b>	<b>NOTICE BOARDS &amp; SIGNS:</b>									
015 240-0100	Project Main Sign, approx. 3m x 2 m. Assume at least 3 signs per site unless shown otherwise.	EA	3						4,200	12,600
015 240-0200	Direction & notice signs, Quantity depends on project land size. Assume as minimum requirment 5 signs, or assume 1 sign each 10000 SQM for large lot area sites. Material salvage value 25 %	EA	5						40	200
015 240-0300	Traffic signs, Quantity depends on project land size. Assume minimum of 6 signs or 1 sign every 5000 m2 uncovered area of the site lot area. material salvage value 25%	EA	6						69	413

DIVISION 01 : GENERAL REQUIREMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
015 240-0400	Warning signs, Quantity depends on project size. Assume 1 sign every 1000 m2 of build up area and temporary facilities areas.Assume also 1 sign every 5000 m2 of site lot area.Material salvage value 25 %	EA	48						125	6,056
<b>015 250</b>	<b>SITE CLEANING</b>									
015 250-0100	Clearing & levelling mobilization site; per SQM of mobilization camp area.	SQM	5,600						2	11,200
<b>015 260</b>	<b>SITE SECURITY MEASURES:</b>									
015 260-0100	Fire extinguishers, stores, offices, campuses & construction area, depends on project size. Assume minimum of 1 every 500 SQm area.	EA	90						225	20,250
015 260-0200	Water Tanker for fire fighting.including operation & maintenance.	Month	36						6,000	216,000
015 260-0300	Sand buckets, construction area, Depends on project size.	EA	12						75	875
015 260-0400	Security guards, depends on project size, minimum of 3 per site.included in section 010112, Field Staff.	Man Month		550.00	107.80%				-	
<b>015 300</b>	<b>TEMPORARY UTILITIES:</b>									
015 300-0100	temporary emergency generators depends on site power consumption needs. Assume 0.75 KW per person, To cover all site temporary facilities loads & spare power.depreciated monthly. Example a site of 500 persons, for 36 months construction period requires:	Man Month KW	20,250			16	20.00	2	38	764,438
015 300-0200	Temporary electrical distribution, depends on site area & distributed power based on 0.75 KW per Person. For site areas less than 100,000 SQM, 30 % Material salvage value.For same Example Line 015300-0100	Man KW	563			315	100.00		415	233,438
015 300-0220	Temporary electrical distribution, depends on site area & distributed power based on 0.75 KW per Person. For site areas more than 100,000 m2 & less than 300,000 m2. Material cost depreciated.For same Example Line 015300-0100	Man KW				455	150.00		605	0
015 300-0240	Temporary electrical distribution, depends on site area & distributed power based on 0.75 KW per Person. For site areas more than 400,000 m2. Material cost depreciated. For same Example Line 015300-0100	Man KW				578	180.00		758	0
015 300-0300	Temporary septic tank, per person of manpower (MP) force. assume 0.1 Cum per person, Capacity based on 15 days storage.	CUM Person	1,049			160	30.00		190	199,241
015 300-0400	Temporary sewer lines, per CUM Discharge and mobilization camp site, for campuses area site up to 5000 m2 & 200 persons approx..	CUM Person	-			250	104		354	0

DIVISION 01 : GENERAL REQUIRMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
015 300-0420	Temporary sewer lines, per CUM Discharge and mobilization camp site, for campuses area site more Than 5000 m2 & as example 500 persons approx..	CUM Person	1,049			110	83		193	202,387
015 300-0500	Temporary water storage tanks for Campus. assume 0.15 Cum per day per person of MP force, for 2 days storage.	CUM Person	210			265	70.00	20	355	74,453
015 300-0600	Temporary water lines, per CUM of Distributed water and mobilization campuses site area. Example for site area up to 5000 m2 & 200 persons.	CUM Person							950	0
015 300-0600	Temporary water lines, per CUM of Distributed water and mobilization campuses site area. Example for site area more than 5000 m2 & 500	CUM Person	210						521	109,268
015 300-0800	Temporary water storage for construction, Assume 2 CUM steel tank per 1500 SQM of build-up Area. material cost depreciated.Example: required for 15,000 m2 build-up area, 10 tanks required	M3 GSQM	62						-	0
015 300-0900	GSM telephone sets for Senior contractor construction staff.	Man Month	72						222	16,000
015 300-1000	Temporary Telephone & fax lines including wiring. 25 % salvage value	Line	12						850	10,200
<b>015 400 CONSTRUCTION AID</b>										
<b>015 405</b>	<b>SAFETY :</b>									0
015 405-0100	Safety nets,100 mm mesh with supports, average.	SQM	458						50	22,912
015 405-0500	Weather Station, average depreciated cost with 30 % material salvage, monthly	Month	18						408	7,350
<b>015 440</b>	<b>SCAFFOLDING: 30% MATERIAL SALVAGE VALUE</b>									0
015 440-0200	Scaffolding exterior wall, steel,tubular, depreciated SQM cost. Quantity depends on area of exterior walls & building Shape & height. Complete with framing,catwalks,bridges, ladders	SQM Month	104,900			8	0.92		9	960,534
015 440-0300	Scaffolding interior wall up to 5 meter high, tubular steel, including planks, supports,base & accessories.	SQM Month	1,080			5	0.56		5	5,744
015 440-0320	Scaffolding, Hand winch for masons, 30 meter long, 9 meter high	EA	1						583	583
015 440-0400	Staging swing, 225 Kg capacity,0.6 m wide,7 m long, hand operated, 20 m steel cable type, depreciated cost.Example erected for 10 months	Month	10			350	50.00	60	460	4,600
015 440-0500	Staging swing lightweight, 100 Kg capacity,0.6 m wide,7 m long, hand operated, 60 m steel cable type, depreciated cost.Example erected for 18 months	Month				282	22.22	27	331	0
015 440-0600	Staging swing lightweight, 100 Kg capacity,0.6 m wide,7 m long, powered electric operation, 90 m steel cable type, depreciated cost.Example erected for 24 months	Month	-	NOT APPLICABLE		875	33.33	50	958	0

DIVISION 01 : GENERAL REQUIRMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
0										
015 500	CONSTRUCTION EQUIPMENT.									
015 520	CONSTRUCTION EQUIP. RENTAL OR OWN									
015 520-0100	Construction equipment rental See Div. 016406 thru 016490									0
015 520-0200	Construction equipment owned, for depreciated value See Div.016406 thru 016490									0
015 535	MOBILIZ./DEMOLIBIZ. CONTRACTOR OWNED EQUIPMENT:	Unit	Quantity	Crew	Structure					0
015 535-0100	Transportation within city limit approx. 120 km round trip. small building const. jobs up to 20 million SR	Day		1,000 Driver 1,000 Equip. Operator 1,000 Cane 50 Ton 1,000 Truck 15			175.43	1,743	1,918	0
015 535-0200	Transportation within city limit approx. 120 km round trip. building const. jobs from 25 million SR to 80 Million SR	Day		NOT APPLICABLE			175.43	1,743	1,918	0
015 535-0300	Transportation within city limit approx. 120 km round trip. building const. jobs from 100 million SR to 175 Million SR	Day	11				175.43	1,743	1,918	21,097
015 535-0400	Transportation within city limit approx. 120 km round trip. building const. jobs over 200 million SR	Day		NOT APPLICABLE			175.43	1,743	1,918	0
015 535-0500	Transportation outside city limit approx. 1000 km round trip. small building const. jobs up to 20 million SR	Day		NOT APPLICABLE			175.43	1,743	1,918	0
015 535-0600	Transportation outside city limit approx. 1000 km round trip. building const. jobs from 25 million SR to 80 Million SR	Day		NOT APPLICABLE			175.43	1,743	1,918	0
015 535-0700	Transportation outside city limit approx. 1000 km round trip. building const. jobs from 100 million SR to 175 Million SR	Day		NOT APPLICABLE			175.43	1,743	1,918	0
015 535-0800	Transportation outside city limit approx. 1000 km round trip. building const. jobs over 200 million SR	Day		NOT APPLICABLE			175.43	1,743	1,918	0
015 535-0900	Transportation outside city limit approx. 1800 km round trip. small building const. jobs up to 20 million SR	Day		NOT APPLICABLE			175.43	1,743	1,918	0
015 535-1000	Transportation outside city limit approx. 1800 km round trip. building const. jobs from 25 million SR to 80 Million SR	Day		NOT APPLICABLE			175.43	1,743	1,918	0
015 535-1100	Transportation outside city limit approx. 1800 km round trip. building const. jobs from 100 million SR to 175 Million SR	Day		NOT APPLICABLE			175.43	1,743	1,918	0



DIVISION 01 : GENERAL REQUIRMENTS:										
CSI CODE	ITEM DESCRIPTION	UNIT	QUAN- TITY	UNIT SALARY	% SALARY OVERHEAD	UNIT MATERIAL COST	UNIT LABOR COST	UNIT EQUIPMENT COST	TOTAL UNIT COST	TOTAL COST
016504-1200	Transportation outside city limit approx. 1800 km round trip. building const. jobs over 200 million SR	Day		NOT APPLICABLE			175.43	1,743	1,918	0
015 565	MOBIILIZATION/DEMOLIBIZATION RENTED EQUIPMENT:			NOT APPLICABLE						0
015 565-0100	For mobilization/demobilization rented equipment; see Div. 016406 thru 016490 cost built- in within the monthly rental rate for each equipment.	Day		NOT APPLICABLE						0

## OVERHEAD COSTS:

	<b>TOTAL DIRECT COSTS</b>	<b>155,690,000</b>
	<b>ITEM</b>	<b>COST (SR)</b>
<b>1</b>	<b>OVERHEAD DIRECT COSTS:</b>	
	CONSTRUCTION STAFF	9,140,091
	CONSULTANT OFFICES & ACCOMMODATION	389,685
	CONTRACTOR OFFICES & ACCOMMODATION	5,616,278
	ENVIRONMENTAL	1,388,350
	INSURANCES	412,541
	JOB CONDITIONS & ESCALATION TO MD POINT COST.	2,335,350
	UNSEEN EXPENSES	0
	BONDS, FINANCING AND GUARANTEES	1,946,125
	OTHERS.. PERMITS, PHOTOGRAPHS .. ETC	890,195
	TOTAL OVERHEAD DIRECT COSTS:	22,118,614
	PERCENT	14.21%
<b>2</b>	<b>OVERHEAD INDIRECT COSTS:</b>	
	HEAD OFFICE	5,864,708
	PERCENT	3.77%
	TOTAL OVERHEAD DIRECT COSTS:	27,983,322
	PERCENT	17.97%
<b>3</b>	<b>MOBILIZATION&amp; &amp; DEMOBILIZATION</b>	<b>7,424,185</b>
	PERCENT	4.77%
	TOTAL OVERHEADS & MOBILIZATION	35,407,507
	PERCENT OF DIRECT COST	22.74%

Description	Material	Labor	Equipment	Subcontracts	Total
DIRECT COST	72,648,900.00	13,453,500.00	3,587,600.00	66,000,000.00	155,690,000.00
OVERHEAD DIRECT COST	10,321,106.07	1,911,315.94	509,684.25	9,376,508.12	22,118,614.38
OVERHEAD INDIRECT COST	2,736,621.16	506,781.70	135,141.79	2,486,162.86	5,864,707.50
MOBILIZATION AND DEMOBILIZATION	3,464,313.00	641,539.45	171,077.19	3,147,255.61	7,424,185.25
Subtotal	89,170,940.24	16,513,137.08	4,403,503.22	81,009,926.59	191,097,507.12
PROFIT AT 10% ON SUBCONTRACTORS, 15% GC	13,375,641.04	2,476,970.56	660,525.48	8,100,992.66	24,614,129.74
TOTAL BID	102,546,581.27	18,990,107.64	5,064,028.70	89,110,919.24	215,711,636.86
MULTIPLIER TO BE USED	1.412	1.412	1.412	1.350	1.386

# Division 2

## Site Work

### Estimating Tips

#### 020 Sub-surface Investigation &

##### Demolition

Estimator shall obtain all available information concerning soil type. A site investigation is mandatory to reveal all site conditions, looking in particular for hazardous waste, stream beds, prior dumping, site restrictions and access, flood plains and all other factors that would strongly influence construction methods and costs. As any ground penetration has some risks, test pits, and knowledge gathered tend to control such risk.

Demolition usually is executed by speciality contractors if explosives method is involved. Estimator shall consider in costing building demolition all factors that may affect the cost such as work space, rubbish handling, temporary bracing or shoring, dust control, security measures, hauling distance and costs of any required permits.

#### 021 Site Preparation & Excavation

##### Support

Site visit will determine the extent and scope of work required for the site preparation. The estimator shall focus on plantation at site if any, dumped material, need for haul roads, access, storage of material, limited site size and access problems or any forced restrictions that may result in lower productivity rates, estimator shall also consider all security measures for isolated sites to prevent theft and damage by adding fencing or increase the number of guards.

#### 022 Earthwork

As there are many factors that affect productivity rates of earthworks, no productivity rate shall be considered as 100% accurate. This book includes many items concerning earthworks in different types of soils as well as different type of equipments. We did our best to be very close to an accurate estimate by considering most of the factors that affect this operation. When preparing the bid, estimators shall focus on the following major factors: soil type, water content, dewatering, any required bracing or sheeting to excavation banks, hauling distance. Estimator shall choose the proper economical piece of equipment having best efficiency verses lower cost. Estimator shall be aware of the following factors that affect equipment efficiency, productivity and costs.

Swing angle of equipment - Ideal is 45 degree, for 90 degree swing efficiency could reach to 80% while for 120 degree it may reach 70%.

*Cut Depth:* Choose the proper equipment to do job accordingly.

*Soil Type:* Items in the book highlights this factor, Ideal equipment efficiency is for a sandy soil, if the soil is sand and gravel equipment efficiency is reduced to 90%, while efficiency could be as low as 20% for a poorly blasted rock.

*Degree of Equipment Operation:* Time of equipment service, operator activity, weather factors, project restrictions, etc.. are some key factors affecting efficiency. Stockpile Distance and length of drag as well as maneuvering conditions. Site topography and volume of work Excavation management planning. Others such as specification control requirements, actual slope requirements, distress means and maximum allowable slope and slope configuration requirements. All productivity rates in this book are based on a bank measure.

#### 025 Paving & Surfacing

Good management planning for placing the base course and asphalt layers will result in cost savings for any repair work due to the climate conditions.

#### 026 Piped Utilities

Good planning for proper timing of piped utility excavation will result in the best productivity for other construction items. Contractor must always keep an easy access to different parts of site, material flow and labor movement to maintain good productivity. Contractor shall carefully study the site topography, buildings distribution, planned utilities & investigate all discrepancies that may affect productivity and costs.

#### 029 Landscaping

Establishing a work plan, scheduled properly will reduce maintenance cost and will guarantee better growth of plants. Contractor shall focus on soil conditions and plant watering requirements as well as the maintenance staff required. Maintenance cannot be excluded from any project, because of different plants specified to be planted in different seasons. Contractor must consider all types of plants specified, scheduled planting plan, needed maintenance time, staff and watering requirements during the construction period.

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>020</b>	<b>SUBSURFACE INVESTIGATION &amp; DEMOLITION</b>					
<b>020 120</b>	<b>STANDARD PENETRATION TESTS</b>					
<b>020 123</b>	<b>BORING:</b>					
020 123-0100	Boring job,mobilization & demobilization,average 40 km within city limits	Job	1.00 Skilled Foreman 2.00 Building Laborers 1.00 Light Equip. Driver 1.00 Flat Truck W/Auger 1.00 Truck 3 Ton	2.000	16.000	8.000
020 123-0300	Boring,auger holes in earth,no sample, 100 mm	LM		16.000	2.000	1.000
020 123-0400	Cased boring in earth,with samples, 65 mm			13.000	2.462	1.231
020 123-0500	Cased boring in earth,with samples; 100 mm			8.000	4.000	2.000
020 123-0600	Drilling in rock no sampling		1.00 Skilled Foreman 1.00 Building Laborer 1.00 Light Equip. Driver 1.00 Crawler Type Drill 100 mm 1.00 Air Compressor 600 CFM with 15m Air Hose 75 mm dia	9.000	2.667	1.778
020 123-0700	Drilling in rock with / casing & Sampling		*	7.500	3.200	2.133
<b>020 125</b>	<b>DRILLING,CORE:</b>					
020 125-0100	Drilling core, in 200 mm concrete slab, including layout & setup, diameter 25 mm	EA	0.125 Skilled Foreman 2.000 Skilled Laborer 1.000 Laborer 1.000 Core Drill Large	42.500	0.588	0.188
020 125-0150	Drilling core, in 200 mm concrete slab, including layout & setup, diameter 25 mm			27.730	0.902	0.288
020 125-0300	Drilling core, in 150 mm concrete slab, including layout & setup, diameter 76 mm			37.220	0.672	0.215
020 125-0750	Drilling core, in 200 mm concrete slab, including layout & setup, diameter 150 mm			25.710	0.972	0.311
020 125-0950	Drilling core, in 200 mm concrete slab, including layout & setup, diameter 200 mm			23.420	1.067	0.342
020 125-1100	Drilling core, in 150 mm concrete slab, including layout & setup, diameter 250 mm			28.520	0.877	0.281
020 125-1110	Drilling core, in 200 mm concrete slab, including layout & setup, diameter 250 mm			20.230	1.236	0.395
020 125-1200	Drilling core, in 200 mm concrete slab, including layout & setup, diameter 400 mm			9.770	2.559	0.819
020 125-1790	Core drilling in 200 mm prestressed hollow core plank, including layout & setup, diameter 25mm			36.000	0.694	0.222
020 125-1810	Core drilling in 200 mm prestressed hollow core plank, including layout & setup, diameter 76 mm			30.000	0.833	0.267
020 125-1850	Core drilling in 200 mm prestressed hollow core plank, including layout & setup, diameter 150 mm			24.000	1.042	0.333
020 125-1850	For core drilling horizontally add to above items.				15%	15%

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>020 128</b>	<b>TEST PITS:</b>					
020 128-0100	Test Pit, Hand Digging, Light Soil	CUM	1.00 Common Laborer 1.00 Tool Set	3.500	2.286	2.286
020 128-0120	Test Pit, Hand Digging, Heavy Soil	"	"	1.750	4.571	4.571
<b>020 550</b>	<b>SITE DEMOLITION</b>					
<b>020 554</b>	<b>SITE DEMOLITION:</b>					
020 554-0020	Remove masonry existing catch basin or manhole, up to 3 m deep	EA	0.125 Labor Foreman 2.000 Building Laborers 1.000 Light Equip. Operator 1.000 Backhoe loader, 50 HP	4.500	5.556	1.778
020 554-0080	Remove reinforced concrete existing catch basin or manhole, up to 3 m deep			3.500	7.143	2.286
020 554-0130	Store catch basin or manhole cover at site storage			14.000	1.786	0.571
020 554-0700	Remove only chain link, 3 meters high			175.000	0.143	0.046
020 554-0900	Remove fire hydrants, thrust blocks and sore at site.		0.125 Labor Foreman 2.000 Plumbers 1.000 Equip. operator 1.000 Common laborer 1.000 Backhoe 50 HP 2.000 Tool sets	4.000	8.250	6.000
020 554-1400	Remove stone wall with mortar, disposal plied on Site	CUM	0.250 Labor Foreman 4.000 Building Laborers 1.000 Equip. operator, light 1.000 Equip. operator, heavy 1.000 Air compressor, 250CFM w/ 4 air Tools & Hoses 1.000 Mechanic 1.000 F.E Loader, 1.9 M3	20.000	2.900	0.800
020 554-1710	Pavement Removal, Bituminous; 75 mm Thick			175.000	0.331	0.091
020 554-1900	Remove concrete pavement, 100mm thick; mesh reinforced			97.500	0.595	0.164
020 554-1900	Remove concrete pavement, 150mm thick; mesh reinforced			65.000	0.892	0.246
020 554-1900	Remove concrete pavement, 200mm thick; mesh reinforced			48.750	1.190	0.328
020 554-2200	Remove concrete pavement, 200 mm To 600 mm thick, reinforced			4.880	11.885	3.279
020 554-2500	Remove curbs pavement, concrete; reinforced	LM	0.125 Labor Foreman 2.000 Building Laborers 1.000 Light equip. operator 1.000 Backhoe, loader 50 HP	60.000	0.417	0.133

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
020 554-2600	Remove curbs, granite	LM	0.125 Labor Foreman 2.000 Building Laborers 1.000 Light equip. operator 1.000 Backhoe, loader 50 HP	100.000	0.250	0.080
020 554-2960	Pipe removal,concrete, no excavation, 600 mm			30.000	0.833	0.267
020 554-3500	Railroad track removal, ties & track			12.000	2.083	0.667
020 554-5500	For congested sites or small quantities,removal add to above items			1.800	13.889	4.444
020 554-5600	Disposal of removed material 32 KM round trip	CUM	0.125 Equip. operator 1.000 Truck Driver 0.125 Shovel, 1.7 M3 1.000 Dump Truck, 10 Ton	28.000	0.321	0.321
<b>020 600</b>	<b>BUILDING DEMOLITION</b>					
<b>020 604</b>	<b>BUILDING DEMOLITION:</b>					
020 604-0012	Demolition large urban steel buildings including 32 KM haul	CUM	0.25 Labor Foreman 3.00 Building Laborers 2.00 Equipment Operator 2.00 Truck Drivers 1.00 Hydraulic Crane 23 Ton 1.00 F.E Loader, T.M 1.91 CUM 2.00 Dump Trucks 10 Ton	525.000	0.110	0.061
020 604-0050	Demolition large urban concrete buildings including 32 KM haul			375.000	0.155	0.085
020 604-0500	Small buildings, no salvage included - steel bldg.			420.000	0.138	0.076
020 604-0600	Small buildings, no salvage included concrete building			320.000	0.181	0.100
020 604-0800	Small buildings, no salvage included wood building			352.000	0.165	0.091
<b>020 616</b>	<b>EXPLOSIVE DEMOLITION:</b>					
020 616-0010	Explosive demolition,not including disposal haul to 32 km - concrete building	CUM	0.25 Skilled Foreman 8.00 Skilled Workers 2.00 Building Laborers 1.00 Equipment operator 2.00 Heavy Truck Drivers 1.00 F.E. Loader, T.M 2 CUM 2.00 Dump trucks 16 ton	450.000	0.236	0.053
020 616-0200	Explosive demolition,not including disposal haul to 32 km - masonry building			450.000	0.236	0.053
020 616-0420	Disposal of removed material 60 KM round trip		0.125 Equip. operator 1.000 Truck Driver 0.125 Shovel, 1.7 M3 1.000 Dump Truck, 10 Ton	14.000	0.643	0.643
<b>020 700</b>	<b>SELECTIVE DEMOLITION</b>					
<b>020 702</b>	<b>CEILING DEMOLITION:</b>					
020 702-1000	Demolition ceiling plaster on concrete ceiling	SQM	2.00 Laborers 2.00 Power Tools	45.000	0.356	0.356
<b>020 706</b>	<b>DOOR DEMOLITION:</b>					

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
020 706-0220	Demolition exterior door, in masonry wall, double leaf 44 mm, 1.8 m X 2.1 m	EA	1.00 Laborer 1.00 Tool Set	5.000	1.600	1.600
020 706-0240	Demolition hollow metal, exterior door, in masonry wall, double leaf 44 mm, 1.8m X 2.1m			3.000	2.667	2.667
020 706-3400	Demolition Roll-up or overhead door			1.600	5.000	5.000
020 706-3600	Demolition Revolving door, 1.2 meter			0.800	10.000	10.000
<b>020 708</b>	<b>ELECTRICAL DEMOLITION:</b>					
020 708-0160	Demolition of galvanized rigid steel conduit,exposed 50 mm to 100 mm	LM	1.00 Electrician 1.00 Tool Set	40.000	0.200	0.200
020 708-0609	Demolition copper busduct 3000A		2.00 Electricians 2.00 Tool Sets	6.000	2.667	2.667
020 708-1570	Demolition transformer,3phase, 750 kVA		1.00 Electrician 1.00 Tool Set	0.500	16.000	16.000
020 708-2260	Removal fluorescent lighting fixture, 600 mm x 1200 mm, 4 lamps		*	15.000	0.533	0.533
<b>020 714</b>	<b>FRAMING AND CONCRETE DEMOLITION:</b>					
020 714-1060	Concrete Beams, or columns, reinforced, disposal removal to 32 km off site	CUM	0.25 Labor Foreman 3.00 Building Laborers 2.00 Equipment Operator 2.00 Truck Drivers 1.00 Hydraulic Crane 23 Ton 1.00 F.E Loader, T.M 1.91 CUM 2.00 Dump Trucks 10 Ton	6.500	8.923	4.923
020 714-2080	Steel framing beam, columns, girders, stored on site storage	TON	*	8.000	7.250	4.000
<b>020 716</b>	<b>GUTTING:</b>					
020 716-0500	Gutting building interior,including disposal,residential buildings,average	SQM	0.125 Labor Foreman 2.000 Building Labors 1.000 Truck Driver 1.000 Dump Truck 10 Ton	25.000	1.000	0.320
020 716-0600	Gutting building interior,including disposal,commercial buildings,average	..	..	20.000	1.250	0.400
<b>020 718</b>	<b>HVAC DEMOLITION:</b>					
020 718-0150	Demolition air conditioning package unit,rooftop	EA	0.125 Skilled Foreman 2.000 Steamfitters 1.000 Laborer 2.000 Tool Sets	0.250	100.000	64.000
020 718-1500	Demolition ductwork, 750 mm high, 900 mm wide	LM	1.000 Laborer 1.000 Tool Set	15.000	0.533	0.533
020 718-1540	Demolition ductwork, 750 mm high, 1.8 m wide	*	..	12.000	0.667	0.667
<b>020 724</b>	<b>PLUMBING DEMOLITION:</b>					

## Division 02 : SITE WORK

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## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>021 144</b>	<b>STRIPPING:</b>					
021 144-0010	Stripping top soil to 150 mm deep, and stock piling, sandy loam soil, with 200 HP dozer, normal conditions	CUM	1.00 Equip. operator 1.00 Building Laborer 1.00 Dozer, 200 HP	1400.000	0.011	0.006
021 144-0200	Stripping top soil to 150 mm deep, and stockpiling, sandy loam soil, with 200 HP dozer, adverse conditions			700.000	0.023	0.011
021 144-0200	Stripping top soil to 150 mm deep, and stockpiling, clay dry and soft soil, with 200 HP dozer normal conditions			1000.000	0.016	0.008
021 144-0600	Stripping top soil to 150 mm deep, and stockpiling, clay dry and soft soil, with 200 HP dozer, adverse conditions.			500.000	0.032	0.016
021 144-0200	Stripping top soil to 150mm deep, and stockpiling, very hard soil, with 320 HP dozer, adverse conditions.	↓	↓	800.000	0.020	0.010
<b>021 200</b>	<b>STRUCTURE MOVING</b>					
<b>021 204</b>	<b>MOVING BUILDINGS:</b>					
021 204-0040	Move & set on ready foundation, prefabricated building 7.3 m wide, 12 m long	EA	0.125 Labor Foreman 1.000 Equip. operator 4.000 Building Laborers 1.000 Crane 23 Ton 1.000 Platform Trailer	1.000	41.000	16.000
<b>021 400</b>	<b>DEWATERING</b>					
<b>021 404</b>	<b>DEWATERING:</b>					
021 404-0100	Excavate drainage trench, 600 mm wide, 900 mm deep, with backhoe loader	LM	1.00 Eqpt. Oper. (med.) 1.00 Laborer 1.00 Backhoe Loader, 35 kW	120.000	0.133	0.067
021 404-1400	Re-lay, corrugated metal pipe, including excavation 1m deep, 450 mm diameter (18")		0.125 Labor Foreman 2.000 Building Laborers 1.000 Light Equip. Operator 1.000 Backhoe loader, 50 HP	50.000	0.500	0.160
021 404-1700	Lay, corrugated metal pipe, including 300 mm collar gravel and 1 m deep excavation, pipe 300 mm diameter, 16 ga			30.000	0.833	0.267
021 404-1900	Lay, corrugated metal pipe, including 300 mm collar gravel and 1 m deep excavation, pipe 450 mm diameter, 16 ga			24.000	1.042	0.333
021 404-2000	Lay, corrugated metal pipe, including 300 mm collar gravel and 1 m deep excavation, pipe 600 mm diameter, 16 ga	↓		20.000	1.250	0.400
021 404-2100	Sump hole pit construction, including excavation and gravel	CUM	↓	31.580	0.792	0.253
<b>021 440</b>	<b>WELLPOINTS</b>					
<b>021 444</b>	<b>WELLPOINTS:</b>					
021 444-0400	Wellpoints, pump operation, 4 shifts, 6 hours each, 24 hours daily	DAY	0.500 Skilled Foreman 4.000 Skilled Workers 1.000 Tools Set	1.000	36.000	8.000

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
021 444-0700	Complete well point installation, including first month operation for 24 hrs daily, fuel. 30 m long header 150 mm dia., at 1.5 m o.c., ground water level at 2.4 m, excavation depth 8.5 meters.	LM HEADER	0.500 Skilled Foreman 4.000 Skilled Workers 0.500 Truck Driver 1.000 Common laborer 0.500 Auger Drill 0.500 Bed Truck 0.500 Tools Set	1.350	35.556	8.889
021 444-1000	Complete well point installation, including first month operation for 24 hrs daily, fuel. 80 m long header 200 mm dia., well points 50 mm dia, at 1.5 m O.C, ground water level at 2.4 m, excavation depth 8.5 meters			2.760	17.391	4.348
021 444-1300	Complete well point installation, including first month operation for 24 hrs daily, fuel. 160 m long header 200 mm dia., well points 50 mm dia, at 1.5 m O.C, ground water level at 2.4 m, excavation depth 8.5 meters			3.910	12.276	6.138
021 444-1500	Complete well point installation, including first month operation for 24 hrs daily, fuel. 220 m long header 200 mm dia., well points 50 mm dia, at 1.5 m O.C, ground water level at 2.4 m, excavation depth 8.5 meters			4.460	10.762	5.381
021 444-1600	Complete well point installation, including first month operation for 24 hrs daily, fuel. 300 m long header 200 mm dia., well points 50 mm dia, at 1.5 m O.C, ground water level at 2.4 m, excavation depth 8.5 meters			4.010	11.970	5.985
<b>021 610</b>	<b>SHEET PILING</b>					
<b>021 614</b>	<b>SHEET PILING:</b>					
021 614-0300	Sheet piling steel,including wales, 130 kg/m2; 6m deep excavation, left in place	MET.TON	0.500 Skilled Foreman 4.000 Pile Drivers 1.000 Equip. Oper. Light 1.000 Equip. Oper Heavy 1.000 Crane,36 metric ton 0.625 Vibratory Hammer & Gen. 0.5000 Bed Truck	9.120	5.702	1.864
021 614-0400	Sheet piling steel,including wales, 130 kg/m2; 6m deep excavation, including pull out			7.160	7.263	2.374
021 614-0600	Sheet piling steel,including wales, 156 kg/m2; 7.6m deep excavation, including pull out			9.850	5.279	1.726
021 614-1000	Sheet piling steel,including wales, 185 kg/m2; 12 m deep excavation,including pull out			9.040	5.752	1.881
021 614-1200	Sheet piling steel,including wales, 107 kg/m2; 4.5 m deep excavation,including pull out	SQM		62.140	0.837	0.274
021 614-1500	Sheet piling steel,including wales, 130 kg/m2; 6 m deep excavation,left in place			72.280	0.719	0.235
021 614-1600	Sheet piling steel,including wales, 130 kg/m2; 6 m deep excavation, including pull out			56.570	0.919	0.301
021 614-1800	Sheet piling steel,including wales, 156 kg/m2; 7.6 m deep excavation, left in place	MET.TON		80.570	0.645	0.211
021 614-1900	Sheet piling steel,including wales, 156 kg/m2; 7.6 m deep excavation, pull & salvage	SQM		63.480	0.819	0.268
021 614-2000	Sheet piling steel,including wales, 185 kg/m2; 12 m deep excavation, including pull out			56.570	0.919	0.301

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
021 614-3910	Wood.solid sheeting,including wales,braces and spacers,pull & salvage, 2.4 m deep, 0.6 m wide excavation		0.125 Foreman 1.000 Laborer 1.000 Pile Driver 0.500 Truck Driver 1.000 Air Compressor 354 L/s W/ attachments 0.500 Truck 3 Ton, Handling	13.930	1.508	0.861
021 614-4000	Wood.solid sheeting,including wales,braces and spacers,pull & salvage, 3 m deep, 1.2 m wide excavation			13.270	1.583	0.904
021 614-4200	Wood.solid sheeting,including wales,braces and spacers,pull & salvage, 4.3 m deep, 1.8 m wide excavation			11.550	1.818	1.039
021 614-4300	Wood.solid sheeting,including wales,braces and spacers,pull & salvage, 5.3 m deep, 1.80 m wide excavation			10.040	2.092	1.195
021 614-4500	Wood.solid sheeting,including wales,braces and spacers,pull & salvage, 6.0 m deep, 2.40 wide excavation			8.030	2.615	1.494
021 614-4570	Wood.solid sheeting,including wales,braces and spacers, left in place, 4.90 m deep, 1.80 m wide excavation			18.710	1.122	0.641
021 614-4590	Wood.solid sheeting,including wales,braces and spacers, left in place, 6.00 m deep, 2.40 m wide excavation			14.310	1.468	0.839
021 614-6000	Wood. solid sheeting for basement excavation, including wales, braces and spacers, pull & salvage , 4.90 m deep, excavation			4.370	4.805	2.746
021 614-6200	Wood. solid sheeting for basement excavation, including wales, braces and spacers, pull & salvage , 6.00 m deep, excavation			3.890	5.398	3.085
<b>021 680</b>	<b>SLURRY WALL</b>					
<b>021 684</b>	<b>SLURRY TRENCH:</b>					
021 684-0050	Slurry trench excavated slurry trench in wet soils backfilled with 21 MPa concrete, no reinforcing steel, average	CUM	0.125 Labor Foreman 4.000 Laborers 1.000 Cement Finisher 1.000 Equip. Operator 2.000 Gas Engine Vibrators 1.000 Hyd. Crane, 23 metric ton	5.000	9.800	4.800
<b>021 400</b>	<b>DEWATERING:</b>					
<b>021 420</b>	<b>Sand Drains</b>					
<b>021 440</b>	<b>Well Points</b>					
<b>021 460</b>	<b>French Drains</b>					
<b>021 480</b>	<b>Relief Wells</b>					
<b>021 500</b>	<b>SHORING &amp; UNDERPINNING:</b>					
<b>021 520</b>	<b>Shores</b>					
<b>021 530</b>	<b>Needle Beams</b>					
<b>021 540</b>	<b>Grillage</b>					
<b>021 560</b>	<b>Underpinning</b>					

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
021 580	Slabjacking					
021 600	EXCAVATION & SUPPORT SYSTEMS:					
021 620	Cribbing & Walers					
021 640	Soil & Rock Anchors					
021 640	Anchor Tieback Systems					
021 660	Ground Freezing					
021 670	Reinforced Earth					
021 680	Slurry Wall Construction					
021 700	COFFERDAMS:					
021 720	Double Wall Cofferdams					
021 740	Cellular Cofferdams					
021 760	Piling With Intermediate Lagging					
021 780	Sheet Piling Cofferdams					
022	EARTHWORK:					
022 100	GRADING					
022 104-0010	Site excavation & fill,see div.022-200					
022 104-0020	Fine grading see div.025-122					
022 200	EXCAVATING,BACKFILLING & COMPACTING					
022 204	BACKFILL:					
022 204-0010	Backfill by hand light soil	CUM	1.00 Common Laborer 1.00 Tool Set	10.000	0.800	0.800
022 204-0100	Backfill by hand heavy soil	CUM	1.00 Common Laborer 1.00 Tool Set	7.000	1.143	1.143
022 204-0300	Backfill light soil by hand & compaction in 150 mm layers, hand tamp, soft soil		"	5.830	1.372	1.372
022 204-0400	Backfill light soil by hand & compaction by roller		1.00 Common Laborer 1.00 Equip. operator 1.00 Tools Set 1.00 Roller Compact, 1000 kg.	15.560	1.028	1.028
022 204-0600	Backfill light soil by hand & compaction by vibrating pate		1.000 Common laborer 1.000 Equip. operator 1.000 Tools set 1.000 Gas engine vibrating plate	13.330	1.200	1.200
022 208	BACKFILL STRUCTURAL:					
022 208-2000	Backfill from existing stockpile,no compaction,by 75 Hp dozer; 15 Lm haul, sand & gravel	CUM	1.00 Equip. Operator 0.05 Building Laborer 1.00 Dozer, 75 HP	373.000	0.032	0.021

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
022 208-2020	Backfill from existing stockpile,no compaction,by 75 Hp dozer; 15 Lm haul, common earth			315.000	0.038	0.025
022 208-2040	Backfill from existing stockpile,no compaction,by 75 Hp dozer; 15 Lm haul, clay earth			280.000	0.043	0.029
022 208-3340	Backfill from existing stockpile,no compaction,by 75 Hp dozer; 100 Lm haul, clay earth			106.000	0.113	0.075
022 208-4000	Backfill from existing stockpile,no compaction,by 225 Hp dozer; 15 Lm haul, sand & gravel		1.00 Equip. Operator 0.05 Building Laborer 1.00 Dozer, 225 HP	987.000	0.012	0.008
022 208-4020	Backfill from existing stockpile,no compaction,by 225 Hp dozer; 15 Lm haul, common earth			854.000	0.014	0.009
022 208-4040	Backfill from existing stockpile,no compaction,by 225 Hp dozer; 15 Lm haul, clay earth			752.000	0.016	0.011
022 208-4400	Backfill from existing stockpile,no compaction,by 225 Hp dozer; 100 Lm haul, sand & gravel			316.000	0.038	0.025
022 208-6000	For Compaction See Div. 022226					
022 208-6010	For Trench Backfill See Div. 022254 & 258					
<b>022 212</b>	<b>BORROW:</b>					
022 212-4070	Borrow common earth, shovel, 2 CUM bucket,no haul,bank measure	CUM	0.250 Equipment Operator 2.000 Truck Drivers 0.500 Common Laborers 2.000 Dump Truck 0.250 Power shovel, 2 m3 bucket	500.000	0.044	0.036
022 212-7020	Borrow topsoil or loam from stockpile,shovel, 2 CUM bucket,no haul,bank measure	"	"	1100.000	0.020	0.016
<b>022 226</b>	<b>COMPACTION:</b>					
022 226-5000	Compaction by riding, vibrating roller, 150 mm lifts, 2 passes, more than 300 cum	CUM	1.000 Equip. operator 1.000 Truck Driver 0.500 Building Laborer 1.000 Vibratory drum roller, 100 HP 1.000 Water Tanker .25 M3	1500.000	0.013	0.011
022 226-5020	Compaction by riding, vibrating roller, 150 mm lifts, 3 passes			1000.000	0.020	0.016
022 226-5040	Compaction by riding,vibrating roller, 150 mm lifts, 4 passes			750.000	0.027	0.021
022 226-5060	Compaction by riding, vibrating roller, 300 mm lifts, 2 Passes			3000.000	0.007	0.005
022 226-5080	Compaction by riding, vibrating roller, 300 mm lifts, 3 passes			2000.000	0.010	0.008
022 226-5100	Compaction by riding,vibrating Roller, 300 mm Lifts, 4 Passes			1500.000	0.013	0.011
022 226-6200	Compaction by towed vibrating roller, 150 mm I Lifts, 2 passes	CUM	1.00 Equip. Operator 1.00 Truck Driver 0.50 Building laborer 1.00 Sheepfoot Roller, 300 HP 1.00 Water Tanker, 25M3	750.000	0.027	0.021

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
022 226-6220	Compaction by towed vibrating roller, 150 mm I Lifts, 4 passes			375.000	0.053	0.043
022 226-6260	Compaction by towed vibrating roller, 300 mm I Lifts, 2 passes			3000.000	0.007	0.005
022 226-7500	Compacting,vibrating roller, 600 mm wide,150 mm lifts, 2 passes			1600.000	0.013	0.010
022 226-7540	Compacting,vibrating roller, 600 mm wide,150 mm lifts, 4 passes			800.000	0.025	0.020
022 226-7640	Compacting,vibrating roller, 600 mm wide,300 mm lifts, 4 passes			1600.000	0.013	0.010
022 226-8600	Compaction by rammer tamper, 300 to 450 mm, 200 mm lifts, 2 passes		1.00 Building Labor 1.00 Gas Engine, Power Tool	100.000	0.080	0.080
<b>022 230 DRILLING:</b>						
022 230-0010	Drilling Hole Only 50 mm for Rock Bolts, hard rock,Average	LM	0.125 Blast foreman 1.000 Equip. Operator Light 1.000 Common Laborer 1.000 Crawler Type Drill,102mm 1.000 Air Compressor 283.2 L/s with 15m Hoses, 76 mm dia.	35.000	0.486	0.457
022 230-0100	Drilling only in open rock face by,jackhammer, easy rock.			85.000	0.200	0.188
022 230-0110	Drilling only in open rock face by,jackhammer, moderate rock			70.000	0.243	0.229
022 230-0120	Drilling only in open rock face by,jackhammer, dense rock			30.000	0.567	0.533
<b>022 234 DRILLING &amp; BLASTING:</b>						
022 234-0100	Drilling & blasting only,in open rock face, moderate rock,over 1000 CUM	CUM	0.125 Blast foreman 1.000 Equip. Operator Light 1.000 Truck Driver 2.000 Common Laborer 1.000 Crawler Type Drill,102mm 1.000 Air Compressor 283.2 L/s with 15m Hoses, 76 mm dia. 1.000 Bed Truck	89.420	0.369	0.268
022 234-0120	Content, capacity, reduction could be between 15 % to 60 % less than sand soil			94.020	0.351	0.255
022 234-0140	Drilling & Blasting only, in open rock face, dense rock, over 1000 cum			65.270	0.506	0.368
022 234-1300	Drilling & blasting only,in open rock face, moderate rock,over 1000 CUM, deep hole method			26.830	1.230	0.895
022 234-1900	Drilling & blasting only,in open rock face, moderate rock,over 1000 CUM, restricted areas			6.720	4.911	3.571
<b>022 238 EXCAVATING, BULK BANK MEASURE:</b>						
022 238-0200	Excavation only, bulk bank measure, by crawler excavator, hydraulic, self-propelled, 0.76 cum capacity in common earth.	CUM	1.00 Equip. Operator 1.00 Hydraulic Excavator 0.76 cum	308.000	0.026	0.026
022 238-0210	Excavation only, bulk bank measure, by crawler excavator, hydraulic, self-propelled, 0.76 cum capacity in soft earth.			362.000	0.022	0.022
022 238-0220	Excavation only, bulk bank measure, by crawler excavator, hydraulic, self-propelled,2.29 cum capacity in common earth.			262.000	0.031	0.031

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
022 238-0300	Excavation only,bulk bank measure,by backhoe,hydraulic,crawler Mtd. 2.29 CUM capacity in common earth		1 Equip. Operator 1 Hydraulic Excavator 2.29 CUM	926.000	0.009	0.009
022 238-0360	Excavation only,bulk bank measure by Wheel Mtd. excavator 0.57 m3 capacity in common earth		2 Equip. Operator 1 Hydraulic Excavator 0.57CUM	186.000	0.043	0.043
022 238-0380	Excavation only,bulk bank measure by Wheel Mtd. excavator 0.57 m3 capacity in heavy soil and stiff clay		↓	158.000	0.051	0.051
022 238-0500	Excavation only, bulk bank measure, by crawler clamshell excavator, hydraulic, 0.76 cum capacity in common earth.		1.00 Equip. Operator 1.00 Clamshell Excavator 0.57cum	212.000	0.038	0.038
022 238-0520	Excavation only, bulk bank measure, by crawler clamshell excavator, hydraulic, 0.76 cum capacity in sand and gravel earth		↓	239.000	0.033	0.033
022 238-0540	Excavation only, bulk bank measure, by crawler clamshell excavator, hydraulic, 0.76 cum capacity in soft earth		↓	250.000	0.032	0.032
022 238-0700	Excavation only, bulk bank measure, by crawler clamshell excavator, hydraulic, 1.15 cum capacity in common earth		1.00 Equip. Operator 1.00 clamshell Excavator 1.15cum	320.000	0.025	0.025
022 238-3750	Excavation only, bulk bank measure, by Power Shovel, 0.57 M3 capacity in M3		1.00 Equip. Operator 1.00 Shovel 0.57 cum w/attachment 0.57 cum	290.000	0.028	0.028
022 238-3760	Excavation only, bulk bank measure, by Power Shovel, 0.57 M3 capacity in soft soil		↓	341.000	0.023	0.023
022 238-3770	Excavation only, bulk bank measure, by Power Shovel, 0.57 M3 capacity in heavy soil or stiff clay		↓	247.000	0.032	0.032
022 238-3900	Excavation only, bulk bank measure, by Power Shovel, 1.15 M3 capacity in common earth		1.00 Equip. Operator 1.00 Shovel 1.15 cum w/attachment 1.15 cum	582.000	0.014	0.014
022 238-3920	Excavation only, bulk bank measure, by Power Shovel, 1.15 M3 capacity in wet clay soil & sticky		↓	320.000	0.025	0.025
022 238-3940	Excavation only, bulk bank measure, by Power Shovel, 1.15 M3 capacity in poorly blasted rock soil		↓	291.000	0.027	0.027
022 238-3960	Excavation only, bulk bank measure, by Power Shovel, 1.15 M3 capacity in well blasted rock soil		↓	437.000	0.018	0.018
022 238-4200	Excavation only, bulk bank measure, by Power Shovel, 1.90 M3 capacity in common earth		1.00 Equip. Operator 1.00 Shovel 1.90 cum w/attachment 1.90 cum	962.000	0.008	0.008
022 238-4220	Excavation only, bulk bank measure, by Power Shovel, 1.90 M3 capacity in heavy soil or stiff clay		↓	818.000	0.010	0.010
022 238-4240	Excavation only, bulk bank measure, by Power Shovel, 1.90 M3 capacity in well blasted rock soil		↓	722.000	0.011	0.011
022 238-4300	Excavation only, bulk bank measure, by Power Shovel, 2.29 M3 capacity in common earth	↓	1.00 Equip. Operator 1.00 Shovel 2.29 cum w/attachment 2.29 cum	1158.000	0.007	0.007
022 238-4500	Excavation only, bulk bank measure, by Power Shovel,3.25 M3 capacity in common earth	CUM	1.00 Equip. Operator 1.00 Shovel 3.25 cum w/attachment 3.25 cum	1644.000	0.005	0.005
022 238-4520	Excavation only, bulk bank measure, by Power Shovel,3.25 M3 capacity in common earth with rocks		*	1069.000	0.007	0.007
022 238-4600	Excavation only, bulk bank measure, by Power Shovel,4.00 M3 capacity in common earth		1.00 Equip. Operator 1.00 Shovel 4.00 cum w/attachment 4.00 cum	2022.000	0.004	0.004

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
022 238-4620	Excavation only, bulk bank measure, by Power Showel,4.00 M3 capacity in wet sticky clay earth.			1112.000	0.007	0.007
022 238-4640	Excavation only, bulk bank measure, by Power Showel,4.00 M3 capacity in poorly blasted rock earth			1011.000	0.008	0.008
022 238-800	Loading Excavated Material On Trucks & Hauling Material To 32 Km Round Trip		0.250 Equip. Operator 2.000 Truck Drivers 0.500 Common laborer 2.000 Dump Truck 15 ton 0.250 Power Showel, 2 m3 Bucket	128.000	0.172	0.141
022 238-8100	Loading Excavated Material On Trucks & Hauling Material To 64 Km Round Trip			66.870	0.329	0.269
022 238-8000	Loading Excavated Material On Trucks & Hauling Material To 80 Km Round Trip			53.980	0.408	0.333
<b>022 242 EXCAVATING BULK DOZER,OPEN SITE:</b>						
022 242-2000	Excavating only & haul in pile by dozer 75 HP, 15 meters haul, sand & gravel	CUM	1.00 Equip. Operator 0.50 Laborer 1.00 Dozer 75 HP	350.000	0.034	0.023
022 242-2020	Excavating only & haul in pile by dozer 75 HP, 15 meters haul, common earth	"	"	306.000	0.039	0.026
022 242-2040	Excavating only & haul in pile by dozer 75 HP, 15 meters haul, clay earth	CUM	1.00 Equip. Operator 0.50 Laborer 1.00 Dozer 75 HP	214.000	0.056	0.037
022 242-2440	Excavating only & haul in pile by dozer 75 HP, 90 meters haul, clay earth		"	41.000	0.293	0.195
022 242-4000	Excavating only & haul in pile by dozer 200 HP, 15 meters haul, sand and gravel		1.00 Equip. Operator 0.50 Laborer 1.00 Dozer 225 HP	823.000	0.015	0.010
022 242-4020	Excavating only & haul in pile by dozer 200 HP, 15 meters haul, common earth			720.000	0.017	0.011
022 242-4040	Excavating only & haul in pile by dozer 200 HP, 15 meters haul, clay earth			658.000	0.018	0.012
022 242-4220	Excavating only & haul in pile by dozer 200 HP, 45 meters haul, common earth			219.000	0.055	0.037
022 242-6000	Excavating only & haul in pile by dozer 700 HP,15 meters haul, sand & gravel		1.00 Equip. Operator 0.50 Laborer 1.00 Dozer 700 HP	4704.000	0.003	0.002
022 242-6010	Excavating only & haul in pile by dozer 700 HP,15 meters haul, common earth			4116.000	0.003	0.002
022 242-6020	Excavating only & haul in pile by dozer 700 HP,15 meters haul, clay earth			1254.000	0.010	0.006
022 242-6030	Excavating only & haul in pile by dozer 700 HP, 45 meters haul, sand & gravel			784.000	0.015	0.010
<b>022 250 EXCAVATING STRUCTURAL:</b>						
022 250-0010	Excavating hand pits, to 2 Meter Deep, Sandy Soil	CUM	1 Common Laborer 1 Tool set	4.500	1.778	1.778
022 250-0100	Excavating hand pits, to 2 meter deep, heavy or clay soil			3.500	2.286	2.286
022 250-0150	Excavating hand pits, to 2 meter deep, sandy soil,wet			2.250	3.556	3.556
022 250-020 0	Excavating Piers, to 1.8 meter deep, heavy or clay soil.			3.000	2.667	2.667



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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
022 250-1550	Excavating hand pits in rocky area using air compressor		0.125 Labor Foreman 2,000 Laborers 1,000 Air Compressor 118 L/s with Hoses & Accessories	10.000	1.700	0.800
022 250-1580	Loading hauling trucks by labor from stockpile.		1 Common Laborer 1 Tool set	8.000	1.000	1.000
022 250-2050	Machine excavation for spread,raft footings ,elevator pits and small building foundation,common earth,hydraulic backhoe 1.15 M3		1 Equip. Operator 1 Hydraulic Excavator 1.15 CUM	163.000	0.049	0.049
022 250-2090	Machine excavation for spread,raft footings ,elevator pits and small building foundation,sand & gravel,hydraulic backhoe 1.15 M3			183.000	0.044	0.044
022 250-3030	Machine excavation for spread,raft footings ,elevator pits and small building foundation,clay or blasted rock,hydraulic backhoe 1.15 M3			123.000	0.065	0.065
022 250-0800	Trimming foundation & pit bottoms and sides.	SQM	1 Common Laborer 1 Tool set	20.000	0.400	0.400
022 250-9026	For Hauling See 022266					
<b>022 254</b>	<b>EXCAVATING TRENCH OR CONTINOUS FOOTING: No Sheetting Or Dewatering Included:</b>					
022 254-0062	Excavating trench up to 1.2 meter deep, 0.57 M3 hydraulic backhoe,common earth	CUM	1 Equip. Operator 1 Hydraulic Excavator 0.57 CUM	232.000	0.034	0.034
022 254-0110	Excavating trench 1.20 to 2.00 meter deep, 0.57 M3 hydraulic backhoe,common earth			186.000	0.043	0.043
022 254-0500	Excavating trench 2 to 3.00 meter deep, 0.57 M3 hydraulic backhoe,common earth			140.000	0.057	0.057
022 254-0610	Excavating trench 2 to 3.00 meter deep, 1.15 M3 hydraulic backhoe,common earth		1 Equip. Operator 1 Hydraulic Excavator 1.15 CUM	350.000	0.023	0.023
022 254-1000	Excavating trench 3 to 4.00 meter deep, 1.15 M3 hydraulic backhoe,common earth		1 Equip. Operator 1 Hydraulic Excavator 1.15 CUM	306.000	0.026	0.026
022 254-1030	Excavating trench 3 to 4.00 meter deep, 2.29 M3 hydraulic backhoe,common earth		1 Equip. Operator 1 Hydraulic Excavator 2.67 CUM	648.000	0.012	0.012
022 254-1310	Excavating trench 4 to 6.00 meter deep, 1.15 M3 hydraulic backhoe,common earth		1 Equip. Operator 1 Hydraulic Excavator 1.15 CUM	268.000	0.030	0.030
022 254-1330	Excavating trench 4 to 6.00 meter deep,2.29 M3 hydraulic backhoe,common earth		1 Equip. Operator 1 Hydraulic Excavator 2.29 CUM	567.000	0.014	0.014
022 254-1400	Excavating trench by hand with pick & shovel, 2 meter deep, light soil.		1 Common Laborer 1 Tool set	4.500	1.778	1.778
022 254-1700	For tamping backfilled trenches, air tamp add		1 Building Laborer 1 Gas Engine, Power Tool	35.000	0.229	0.229
022 254-1900	For tamping backfilled trenches, by vibrating plate add			30.000	0.267	0.267
022 254-2100	For trim sides & bottom of trench,common earth			20.000	0.400	0.400
022 254-3000	Backfill trench, F.E. loader, wheel Mtd. 0.76 M3 bucket, average haul area 30 meters	CUM	1 Equip. Operator 1 F.E. Loader, W.M 0.76 CUM	251.000	0.032	0.032
022 254-4000	For Backfill With Dozer See Div. 022208					
022 254-4010	For Compaction Of Backfill See Div. 022226					
<b>022 258</b>	<b>EXCAVATING UTILITY TRENCH:</b>					
022 258-0350	Excavating utility trench,common earth with chain trencher, 12 HP, 150 mm wide, 450 mm deep	LM	1 Equip. Operator 1 Trencher,Chain, 12 HP (9 KW)	140.000	0.057	0.057

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
022 258-0700	Excavating utility trench,common earth with chain trencher, 12 HP, 200 mm wide, 600 mm deep			125.000	0.064	0.064
022 258-0750	Excavating utility trench,common earth with chain trencher, 12 HP, 200 mm wide, 900 mm deep			75.000	0.107	0.107
022 258-1350	Backfill utility trench 150 mm wide, 450 mm deep,by hand including compaction		1 Building Laborer 1 Gas Engine, Power Tool	148.000	0.054	0.054
022 258-1700	Backfill utility trench 200 mm wide, 600 mm deep,by hand including compaction		*	83.000	0.096	0.096
022 258-1750	Backfill utility trench 200 mm wide, 900 mm deep,by hand including compaction	LM	1 Building Laborer 1 Gas Engine, Power Tool	56.000	0.143	0.143
022 258-2150	Excavating utility trench,common earth with chain trencher,operator riding, 40 HP,150 mm wide, 600 mm deep		1 Equip. Operator 1 Trencher,Chain, 40 HP (30 KW)	245.000	0.033	0.033
022 258-2600	Excavating utility trench,common earth with chain trencher,operator riding, 40 HP, 200 mm wide, 1200 mm deep		1 Equip. Operator 1 Trencher,Chain, 40 HP (30 KW)	185.000	0.043	0.043
022 258-4000	Excavating utility trench, common earth with ditching M/C, 135 HP, crawler, 400 mm wide, 2400 mm deep.		1 Equip. Operator 1 Ditching Trencher, 135 HP	185.000	0.043	0.043
<b>022 262 FILL:</b>						
022 262-0010	Spread fill dumped material, by dozer, no compaction	CUM	1 Equip. Operator 0.5 Laborer 1 Dozer 200 HP	700.000	0.017	0.011
022 262-0100	Spread fill dumped material, by hand, no compaction		1 Common Laborer 1 Tool set	6.500	1.231	1.231
022 262-0190	Spread fill dumped material from a stockpile with dozer, 300 HP, 90 m haul		1 Equip. Operator .5 Labor 1 Dozer, 300HP (224KW)	666.000	0.018	0.012
022 262-0500	Gravel fill compacted under floor slabs, 100 mm deep		1 Labor Foreman 4 Laborers 1 Equip. Operator 1 Tandem Roller 4.5 Ton	750.000	0.064	0.011
022 262-1300	Alternate pricing method,for gravel fill per M3,gravel fill compacted under floor slabs, 300 mm deep			75.000	0.640	0.107
022 262-1500	For Fill Under Exterior Paving See Div. 022308					
<b>022 266</b>	<b>HAULING: Avg Speed 40 Km/Hr, Highway Hauler. Bank MeasureIncluding Loading</b>					
022 266-0100	Hauling excavated or borrow material, 4.58 M3 dump truck,swell factor 20%, round trip 10 Km	CUM	1.000 Truck Driver 0.125 Equipment Operator 0.500 Truck Driver 1.000 Dump Truck 5 CUM CAP. 0.125 Shovel, Bucket 2.92 CUM	37.000	0.351	0.243
022 266-0230	Hauling excavated or borrow material, 4.58 M3 dump truck,swell factor 20%, round trip 24 Km			19.500	0.667	0.462
022 266-0250	Hauling excavated or borrow material, 4.58 M3 dump truck,swell factor 40%, round trip 50 Km			15.500	0.839	0.581
022 266-0545	Hauling excavated or borrow material, 9.17 M3 dump truck,swell factor 20%, round trip 10 Km			83.000	0.157	0.108
022 266-0570	Hauling excavated or borrow material, 9.17 M3 dump truck,swell factor 20%, round trip 50 Km			42.000	0.310	0.214

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
022 266-1245	Hauling excavated or borrow material,15.28 M3 dump truck,swell factor 20%, round trip 10 Km		1.000 Truck Driver 0.250 Equipment Operator 0.500 Truck Driver 1.000 Dump Truck 5 CUM CAP. 0.250 Shovel, Bucket 2.92 CUM	298.000	0.047	0.034
022 266-1250	Hauling excavated or borrow material, 15.28 M3 dump truck,swell factor 40%, round trip 24 Km			145.000	0.097	0.069
022 266-1255	Hauling excavated or borrow material,15.28 M3 dump truck,swell factor 20%, round trip 32 Km			112.000	0.125	0.089
022 266-1270	Hauling excavated or borrow material,15.28 M3 dump truck,swell factor 20%, round trip 50 Km			74.000	0.189	0.135
022 266-1280	Hauling excavated or borrow material,15.28 M3 dump truck,swell factor 40%, round trip 50 Km			75.000	0.187	0.133
022 266-1290	Hauling excavated or borrow material, 15.28 m3 dump truck, swell factor 20% , round trip 80 km.			48.000	0.292	0.208
022 266-1300	Hauling excavated or borrow material,15.28 M3 dump truck,swell factor 20%, round trip 50 Km,medium traffic,25 km/hr.			48.000	0.292	0.208
022 266-3000	Hauling excavated or borrow material,15.28 M3 dump truck,swell factor 40%, round trip 50 Km, heavy traffic 15 km/hr.			30.000	0.467	0.333
<b>022 286</b>	<b>LOAM OR TOPSOIL:</b>					
022 286-0100	Remove and stockpile loam or topsoil,on site, 200 HP dozer, 150 mm deep, 90 meters haul	CUM	1Equip. Operator 0.5 Laborer 1 Dozer 200 Hp	205.000	0.059	0.039
022 286-0400	Spread loam or topsoil from stockpile to rough finished grade, with 1.15 CUM F.E. loader		1Equip. Operator 1 F.E. Loader, W.M. 1.15 CUM	146.000	0.055	0.055
022 286-0500	Spread loam or topsoil from stockpile to rough finished grade, up to 60 M radius, by hand		1 Common Laborer 1 Tool set	7.500	1.067	1.067
<b>022 300</b>	<b>PAVEMENT BASE:</b>					
<b>022 304</b>	<b>BASE:</b>					
022 304-0010	Prepare and roll Sub-base, small areas upto 2000 SQM	SQM	0.250 Labor Foreman 0.125 Surveyor 1.000 Laborer 3.000 Equipment Operator 1.000 Grader 1.000 Tandem Roller, 9 ton 1.000 Dozer 200 HP 1.000 Water Tanker	943.000	0.037	0.034
022 304-0100	Prepare And Roll Sub-base, large areas above 2000 SQM	SQM	0.250 Labor Foreman 0.125 Surveyor 1.000 Laborer 3.000 Equipment Operator 1.000 Grader 1.000 Tandem Roller, 9 ton 1.000 Dozer 200 HP 1.000 Water Tanker	1886.000	0.019	0.017
<b>022 308</b>	<b>BASE COURSE:</b>					
	<b>FOR ROADWAYS AND LARGE PAVED AREAS</b>					

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
022 308-0100	Base course, 20 mm Stone, compacted, for paved & large areas, 150 mm deep	SQM	0.250 Labor Foreman 0.125 Surveyor 2.000 Laborer 3.000 Equipment Operator 1.000 Aggregate Spreader 1.000 Tandem Roller, 9 ton 1.000 Dozer 225 HP 1.000 Water Tanker	2084.110	0.021	0.015
022 308-0300	Alternate pricing for base course, 20 mm stone, compacted, per CUM	CUM	0.250 Labor Foreman 0.125 Surveyor 2.000 Laborer 3.000 Equipment Operator 1.000 Aggregate Spreader 1.000 Tandem Roller, 9 ton 1.000 Dozer 225 HP 1.000 Water Tanker	1498.980	0.029	0.021
022 308-0303	Base course, crushed 40 mm stone, compacted, for paved & large area, 200 mm deep			1237.550	0.035	0.026
022 308-0320	Alternate pricing for base course, crushed 40 mm stone, compacted, per CUM			1286.000	0.033	0.025
022 308-0350	Base course, bank run gravel, spread and compacted, 200 mm deep	SQM	0.250 Labor Foreman 0.125 Surveyor 1.000 Laborer 3.000 Equipment Operator 1.000 Grader 1.000 Tandem Roller, 9 ton 1.000 Dozer 200 HP 1.000 Water Tanker	2458.260	0.014	0.013
022 308-0500	Base course bituminous concrete, 100 mm thick		0.375 Labor Foreman 1.000 Surveyor 7.000 Laborers 3.000 Equip. operator 1.000 Asphalt paver 1.000 Tandem Roller, 9 ton 1.000 Roller, Pneumatic Wheel	2577.000	0.035	0.009
022 308-0560	Base course bituminous concrete, 250 mm thick			1546.000	0.059	0.016
022 308-0600	For cold laid asphalt pavement, See Div. 022116					
022 308-0700	Liquid application to gravel base, asphalt emulsion	GAL.	0.125 Labor Foreman 2.000 Common Laborer 1.000 Truck Driver 1.000 Asphalt Tanker	5000.000	0.005	0.002
022 308-0800	Liquid application prime & seal cut back asphalt	"		5000.000	0.005	0.002
022 308-1000	Macadam Penetration Crushed Stone, 9 liter/ M2, 100 mm Thick	SQM		2111.000	0.012	0.004
022 308-1200	Macadam penetration crushed stone, 18 liter/ M2, 200 mm thick	SQM		1056.000	0.024	0.008

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
022 308-1511	Alternate pricing for base course, 20 mm stone, compacted, 150 mm thick, per CUM	CUM	0.250 Labor Foreman 0.125 Surveyor 2.000 Laborer 3.000 Equipment Operator 1.000 Aggregate Spreader 1.000 Tandem Roller, 9 ton 1.000 Dozer 225 HP 1.000 Water Tanker	312.620	0.138	0.102
022 308-1512	Alternate pricing for base course, 20 mm stone, Compacted, 230 mm thick, per CUM			344.760	0.125	0.093
022 308-1513	Alternate pricing for base course, 20 mm stone, compacted, 300 mm thick, per CUM			371.260	0.116	0.086
022 308-1522	Alternate pricing for base course, crushed 40 mm stone, compacted, per CUM			257.200	0.167	0.124
022 308-1660	Alternate base course bank run gravel, spread and compacted.		0.250 Labor Foreman 0.125 Surveyor 1.000 Laborer 3.000 Equipment Operator 1.000 Grader 1.000 Tandem Roller, 9 ton 1.000 Dozer 200 HP 1.000 Water Tanker	586.100	0.060	0.055
022 308-1670	Alternate pricing for base course bituminous concrete, metric ton, average thickness 100 mm	TON	0.375 Labor Foreman 1.000 Surveyor 7.000 Laborers 3.000 Equip. operator 1.000 Asphalt paver 1.000 Tandem Roller, 9 ton 1.000 Roller, Pneumatic Wheel 1.000 Asphalt Tanker	515.000	0.177	0.062
<b>022 400 SOIL STABILIZATION</b>						
<b>022 408 GROUTING PRESSURE:</b>						
022 408-0200	Grouting, cement & sand 1:1 mix, average	CUM	3 Laborers 1 Equip. Oper. (light) 1 Cement mixer, 1.53 m3	5.000	6.400	1.600
022 408-0800	Soil stabilization, including scarifying compaction, asphalt 75 mm deep, 1.00 gallon per SQM	SQM	0.125 Labor Foreman 2.000 Common Laborers 3.000 Equipment Operators 2.000 Truck Drivers 1.000 Grader 13608 kg with ripper attachment 2.000 Stabilizers, 310 HP 1.000 Truck 10 ton 1.000 Water Tank 20 CUM	2200.000	0.026	0.018

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
022 408-0900	Soil stabilization,including scarifying compaction, asphalt 75 mm deep, 1.50 gallon per SQM	SQM	0.125 Labor Foreman 2.000 Common Laborers 3.000 Equipment Operators 2.000 Truck Drivers 1.000 Grader 13608 kg with ripper attachment 2.000 Stabilizers,310 HP 1.000 Truck 10 ton 1.000 Water Tank 20 CUM	2000.000	0.029	0.020
022 408-1000	Soil stabilization,including scarifying compaction, asphalt 200 mm deep, 6 gallon per SQM	-	-	1650.000	0.035	0.024
022 408-2000	Soil stabilization,including scarifying compaction, cement 4% To 12% mix by volume, 150 mm deep.	SQM	1 Labor Foreman 2 Laborer 4 Equip. Operator 3 Truck Driver 1 Grader 13608 Kg with ripper attachment 1 Flat Truck, 3 Ton 1 Cement Spreader, Towed 1 Vibrating Roller 2 Stabilizers, 310 HP 1 Truck 27 Ton 1 Water Tank 20 CUM	800.000	0.100	0.080
022 408-2100	Soil stabilization,including compaction, cement 4% To 12% mix by volume, 300 mm deep.		-	700.000	0.114	0.091
022 408-3000	Geotextile fabric, woven, 90 Kg tensile strength.		0.125 Labor Foreman 2.000 Common Laborers 2.000 Tool sets	1600.000	0.011	0.010
022 408-3100	Geotextile fabric, woven,heavy duty, 270 Kg tensile strength.			1500.000	0.011	0.011
022 408-3200	Geotextile fabric,non-woven, 55 Kg tensile strength.			1600.000	0.011	0.010
022 408-3600	Hydrated lime, for base, 2% To 6% mix by weight, 150 mm deep	SQM	1 Labor Foreman 2 Laborer 4 Equip. Operator 3 Truck Driver 1 Grader 13608 Kg 1 Flat Truck, 3 Ton 1 Cement Spreader, Towed 1 Vibrating Roller 2 Stabilizers, 310 HP 1 Truck 27 Ton 1 Water Tank 20 CUM	1300.000	0.062	0.049
022 408-3800	Hydrated lime,for base, 2% to 6% mix by weight, 300 mm deep	-	-	1100.000	0.073	0.058
<b>022 700</b>	<b>SLOPE PROTECTION &amp; EROSION CONTROL</b>					
<b>022 702</b>	<b>CUT DRAINAGE:</b>					
022 702-0010	Cut drainage ditch in common earth,10 meters wide, 300 mm deep,including ditch cleaning	LM	0.125 Labor Foreman 1.000 Equipment Operator 2.000 Laborers 1.000 Grader, 13.6 Ton	1800.000	0.014	0.004

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>022 704</b>	<b>EROSION CONTROL:</b>					
022 704-0010	Jute mesh,1200 mm wide, 85 SQM /roll, stapled.	SQM	0.125 Labor Foreman 2.000 Common Laborers 2.000 Tool Sets	1600.000	0.011	0.010
022 704-0200	Polypropylene mesh,stapled, 220 gram/SQM			1600.000	0.011	0.010
022 704-0200	Silt fence,polypropylene, adverse conditions			250.000	0.068	0.064
<b>022 708</b>	<b>RETAINING WALLS:</b>					
022 708-1900	Concrete gravity wall with vertical face, including excavation & backfill, non- reinforced, 1.8 meter high,level embankment.	SQM	0.500 Skilled Foreman 5.000 Skilled Labors 3.000 Common Laborers 0.250 Cement Finisher 0.250 Equip. Operator 0.250 Crane 50 Ton 0.250 Gas Engine Vibrator 0.125 Concrete Pump & tansit mixer 0.125 Truck 25 ton 2.000 Power Tools 0.125 Trencher	8.780	8.200	2.620
022 708-2200	Concrete gravity wall,with vertical face,including excavation & backfill, non- reinforced, 2.40 meter high, level embankment.			6.590	10.926	3.490
022 708-2300	Concrete gravity wall,with vertical face,including excavation & backfill, non- reinforced, 2.40 meter high,33 degree sloped embankment.			5.760	12.500	3.993
022 708-2300	Concrete gravity wall, including excavation & backfill, non- reinforced, 3.00 meter high,33degree sloped embankment.			4.610	15.618	4.989
022 708-3000	Reinforced concrete, cantilever wall, including excavation & backfill, 1.8 meter high, 33 degree sloped embankment.			7.840	9.184	2.934
022 708-3100	Reinforced concrete, cantilever wall, including excavation & backfill, 3 meter high, 33 degree sloped embankment.			4.700	15.319	4.894
022 708-3200	Reinforced concrete, cantilever wall, including excavation & backfill, 6.00 meter high, 33 degree sloped embankment.			2.350	30.638	9.787
022 708-4100	Concrete filled slurry trench,see division 021-684					
<b>022 712</b>	<b>RIP-RAP:</b>					
022 712-0100	Rip-rap, random broken stone, machine placed,for slope protection, 0.29 to 0.19 cum pieces,grouted	CUM	0.125 Labor Foreman 1.000 Skilled Labor 2.000 Equip. Operator 1.000 Common laborer 1.000 Shovel 0.57 cum 1.000 Clamshell Backhoe, 0.57 m3 1.000 Grout Machine	55.000	0.600	0.436
022 712-0200	Rip-rap, random broken stone, machine placed,for slope protection, 450 mm thick,not grouted	SQM	0.125 Labor Foreman 5 Laborers 1 Equip. Operator 1 Hydraulic Crane	35.000	1.400	0.229
022 712-0600	Gabions, galvanized steel mesh, stone filled, 300 mm deep			90.000	0.544	0.089

**Division 02 : SITE WORK**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
022 712-0800	Gabions, galvanized steel mesh,stone filled, 900 mm deep	↓	↓	35.000	1.400	0.229
<b>022 716</b>	<b>STONE WALL:</b>					
022 716-0600	Stone wall, including excavation,concrete footing and stone, 900 mm below grade, exposed area measure. cut stone, 2 meters high, 450 mm thick, mortar set	SQM	0.250 Skilled Foreman 1.000 Skilled labor 5.000 Common laborer 1.000 Equip. Operator 0.500 Crane 80 ton 0.250 Backhoe, 057 M3.	2.500	23.200	2.400
<b>022 800</b>	<b>SOIL TREATMENT</b>					
<b>022 804</b>	<b>TERMITE PRETREATMENT:</b>					
022 804-0100	Termite treatment , slabs complete with insecticides for control,average	SQM	0.125 Skilled Foreman 2.000 Skilled Worker 2.000 Power Tools	225.000	0.076	0.071
022 804-0100	Termite treatment, walls complete with insecticides for control,average	"	"	226.000	0.075	0.071
<b>023</b>	<b>TUNNELING,PILES &amp; CAISSONS</b>					
<b>023 550</b>	<b>PILES DRIVING</b>					
<b>023 554</b>	<b>MOBILIZATION:</b>					
023 554-0100	Mobilization & demobilization of driven pile equipment from warehouse to site within city limit, 3 days mobilization	LM	1.000 Skilled Foreman 3.000 Skilled Workers 1.000 Equip. Operator 2.000 Mechanist 2.000 Truck Driver 5.000 Common Laborers 1.000 Crane 135 ton 2.000 Bed Truck	0.330	339.394	72.727
<b>023 558</b>	<b>PILING SPECIAL COSTS:</b>					
023 558-0500	Cutoffs of plain concrete pile , 500 mm diameter	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 1.000 Concrete Saw	4.500	3.778	1.778
023 558-0600	Cutoffs of plain with thin shell			3.750	4.533	2.133
023 558-0700	Cutoffs of steel pile	↓	↓	13.000	1.308	0.615
	Note: Add for pile testing as specified					
<b>023 600</b>	<b>DRIVEN PILES</b>					
<b>023 604</b>	<b>PILES CONCRETE:</b> <i>200 Piles,18 Meter Long</i>					



## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
023 604-0100	Cast in place, thin wall shell pipe pile, straight sided, non-reinforced 200 mm diameter, 16 gauge, 8.5 Kg/Lm, not including mobilization & pile caps	LM	1.000 Skilled Foreman 4.000 Pile Drivers 1.000 Mechanic 3.000 Equip. Operators 1.000 Common Laborer 1.000 Crane, 36 ton, with 60 lb leads & 1 hammer 1.000 Air compressor with hoses	155.000	0.516	0.103
023 604-0300	Cast in place, thin wall shell pile, straight sided, non-reinforced 300 mm diameter, 16 gauge, 13 Kg/Lm, not including mobilization & pile caps			124.000	0.645	0.129
023 604-0400	Cast in place, thin wall shell pile, straight sided, non-reinforced 350 mm diameter, 16 gauge, 14.88 Kg/Lm, not including mobilization & pile caps			116.000	0.690	0.138
023 604-0500	Cast in place, thin wall shell pile, straight sided, non-reinforced 400 mm diameter, 16 Gauge, 17 Kg/Lm, not including mobilization & pile caps			105.000	0.762	0.152
023 604-0800	Cast in place, friction pile, fluted, non-reinforced concrete tapered steel, 28MPa, 300 mm diameter, 7 gauge, not including mobilization & pile caps			124.000	0.645	0.129
023 604-1200	Cast in place, friction pile, fluted, non-reinforced concrete tapered steel, 28 MPa, 450 mm diameter, 7 gauge, not including mobilization & pile caps			93.000	0.860	0.172
023 604-1400	Cast in place concrete, end bearing, pile, fluted, no reinforcement, Constant Diameter, 28 MPa, 450 mm Diameter, 7 Gauge			93.000	0.860	0.172
023 604-2500	Precast, prestressed, pile, 400 mm diameter, 75 mm wall, wall thickness, up to 110 mm, pile either with void or cylinder type, shape either square or octagonal.			126.000	0.635	0.127
023 604-2900	Precast, prestressed, pile, 600 mm diameter, 90 mm wall, wall thickness, up to 110 mm, pile either with void or cylinder type, shape either square or octagonal.			95.000	0.842	0.168
023 604-2920	Precast, prestressed, pile, 900 mm diameter, 115 mm wall, wall thickness, up to 125 mm pile cylinder shape type.			76.000	1.053	0.211
023 604-2940	Precast, prestressed, pile, 1.4 m diameter, 130 mm wall, wall thickness, up to 130 mm, pile cylinder shape type.			63.000	1.270	0.254
023 604-2960	Precast, prestressed, pile, 1.6 m diameter, 150 mm wall, wall thickness up to 150 mm, pile cylinder shape type.			38.000	2.105	0.421
<b>023 608 STEEL PILES:</b>						
023 608-0120	Steel tapered, round, concrete filled, 200 mm tip, 54 ton capacity, 18 meters deep.	LM	1.000 Skilled Foreman 4.000 Pile Drivers 1.000 Mechanic 3.000 Equip. Operators 1.000 Common Laborer 1.000 Crane, 36 ton, with 60 lb leads & 1 hammer 1.000 Air compressor with hoses	162.000	0.494	0.099
023 608-0200	Steel tapered, round, concrete filled, 300 mm tip, 109 ton capacity, 18 meters deep.			130.000	0.615	0.123
023 608-0250	Pile, steel, "H" section, 15 m long, 200 mm x 200 mm, 54 Kg/Lm,			136.000	0.588	0.118

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
023 608-0800	Pile, steel, "H" section, 15 m long, 300 mm x 300 mm 110 Kg/lm,	LM	1.000 Skilled Foreman 4.000 Pile Drivers 1.000 Mechanic 3.000 Equip. Operators 1.000 Common Laborer 1.000 Crane, 36 ton, with 60 lm leads & 1 hammer 1.000 Air compressor with hoses	109.000	0.734	0.147
023 608-1300	Pile, steel, "H" section, 15 m long, 350 mm x 350 mm 150 Kg/lm,			93.000	0.860	0.172
023 608-3300	Steel pipe pile, concrete filled, 300 mm diameter, average scattered spacing, 65 kg/m, 18 meters deep, including splices.			81.000	0.988	0.198
023 608-3900	Steel pipe pile, concrete filled, 400 mm diameter, average scattered spacing, 77 kg/m, 18 meters deep, including splices.			68.000	1.176	0.235
023 608-4200	Steel pipe pile, concrete filled, 450mm, diameter, average scattered spacing, 88 kg/m, 18 meters deep, including splices.			60.000	1.333	0.267
<b>023 700</b>	<b>BORED / AUGERED PILES:</b>					
<b>023 704</b>	<b>PRESSURE INJECTED FOOTINGS:</b>					
023 704-0200	Uncased shaft, up 70 ton capacity, 430 mm diameter, 8 meters deep, including mobilization & demobilization.	LM	1.000 Skilled Foreman 4.000 Pile Drivers 1.000 Mechanic 2.000 Equip. Operators 1.000 Common Laborer 1.000 Crane, 36 ton, with 60 lm leads & 1 hammer	35.000	2.057	0.229
023 704-0500	Uncased shaft, 70 ton capacity, 560 mm diameter, 6 meters deep, including mobilization and demobilization.			30.000	2.400	0.267
<b>023 800</b>	<b>CAISSONS:</b>					
<b>023 804</b>	<b>CAISSONS:</b>					
023 804-0100	Open style caissons, machine drilled, with concrete, in stable ground, no casings or ground water, 15 meters deep, 450 mm diameter.	LM	1.000 Skilled Foreman 2.000 Pile Drivers 2.000 Common Laborers 1.000 Heavy Equip. Operator 1.000 Truck Driver 1.000 Drill Rig & Auger, Truck Mtd.	45.000	1.244	0.178
023 804-0200	Open style caissons, machine drilled, with concrete, in stable ground, no casings or ground water, 15 meters deep, 600 mm diameter.			42.000	1.333	0.190
023 804-0400	Open style caissons, machine drilled, with concrete, in stable ground, no casings or ground water, 15 meters deep, 900 mm diameter.			29.000	1.931	0.276
023 804-0500	Open style caissons, machine drilled, with concrete, in stable ground, no casings or ground water, 15 meters deep, 1.2 m diameter.			23.000	2.435	0.348
023 804-0600	Open style caissons, machine drilled, with concrete, in stable ground, no casings or ground water, 15 meters deep, 1.5m diameter.			20.000	2.800	0.400
023 804-0700	Open style caissons, machine drilled, with concrete, in stable ground, no casings or ground water, 15 meters deep, 1.8 m diameter.			18.000	3.111	0.444

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
023 804-1020	Bell including concrete & excavation 1.2 m diameter for caissons shaft 600 mm			14.000	4.000	0.571
023 804-1080	Bell including concrete & excavation 2.7 m diameter for caissons shaft 1.2 m			1.500	37.333	5.333
023 804-1100	Bell including concrete & excavation 3.0 m diameter for caissons shaft 1.5 m			1.000	56.000	8.000
023 804-1180	Bell including concrete & excavation 3.7 m diameter for caissons shaft 1.8 m			1.000	56.000	8.000
023 804-1300	Open style caissons,machine drilled, with concrete,in wet ground, pulled casing, and pumping, 15 meters deep, 450 mm diameter.	LM	1.000 Skilled Foreman 2.000 Pile Driver 3.000 Common Laborers 1.000 Heavy Equip. Operators 1.000 Mechanic 1.000 Drill rig & auger, truck mtd. 1.000 Pump w/ tubing.	36.000	1.778	0.444
023 804-1600	Open style caissons,machine drilled, with concrete,in soft ground, no casing, 18 meters deep, 450 mm diameter.			8.700	7.356	1.839
023 804-1900	Open style caissons,machine drilled, with concrete,in soft rock ground, pulled casing,and pumping,18 meters deep, 900 mm diameter.			4.500	14.222	3.556
<b>024 RAILROAD AND MARINE WORK</b>						
<b>024 520 RAILROAD TRACKWORK</b>						
<b>024 524 RAILROAD:</b>						
024 524-0010	Car bumpers heavy duty	EA	0.125 Skilled Foreman 1.000 Skilled Worker "Railman" 4.000 Common laborers 1.000 Equip. operator 1.000 Backhoe, 50 HP	1.500	32.667	5.333
024 524-0300	Derails hand throw, with standard timbers,open stand	EA		4.000	12.250	2.000
024 524-0800	Sliding yard spur,level grade,on wood ties & ballast, 36 Kg rail.	LM		12.000	4.083	0.667
024 524-0822	Sliding yard spur,level grade,on wood ties & ballast, 45 Kg rail.			12.000	4.083	0.667
024 524-0822	Sliding yard spur,level grade,on wood ties & ballast, 50 Kg rail.			12.000	4.083	0.667
024 524-1002	Siding,steel ties in concrete,with fasteners and plates, rail 36 Kg			4.500	10.889	1.778
024 524-1012	Siding,steel ties in concrete,with fasteners and plates, rail 41 Kg	LM	0.125 Skilled Foreman 1.000 Skilled Worker "Railman" 4.000 Common laborers 1.000 Equip. operator 1.000 Backhoe, 50 HP	4.500	10.889	1.778
024 524-1020	Siding,steel ties in concrete,with fasteners and plates, rail 45 Kg			4.500	10.889	1.778
024 524-1030	Siding,steel ties in concrete,with fasteners and plates, rail 50 Kg			4.500	10.889	1.778

**Division 02 : SITE WORK**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
024 524-1400	Ties concrete, 2600 mm long, 760 mm O.C.	LM	0.125 Skilled Foreman 1.000 Skilled Worker "Railman" 4.000 Common laborers 1.000 Equip. operator 1.000 Backhoe, 50 HP	55.000	0.891	0.145
024 524-2400	Wheel stops, fixed	EA	*	9.000	5.444	0.889
<b>024 820 MARINE WORK:</b>						
<b>024 824 DREDGING:</b>						
024 824-0100	Mobilization & demobilization of Equipment, average of 7 days for mobilization	Day	1.00 Skilled Foreman 3.00 Skilled Workers 1.00 Equip. Operator 2.00 Machinist 2.00 Truck Driver 5.00 Common Laborers 1.00 Crane 135 ton 2.00 Bed Truck	0.140	800.000	171.429
024 824-0300	Barge mounted clamshell excavation into scows, dumped 30 Km at sea	CUM	1.00 Labor Foreman 1.00 Machinist 4.00 Common Laborers 1.00 Heavy Equip. Operator 1.00 Barge 1.00 Clamshell Backhoe, 0.76 cum	180.000	0.311	0.089
024 824-0500	Barge mounted dragline or clamshell hooper dumped pumped 300 meters to sore dump.	CUM	1.00 Labor Foreman 1.00 Machinist 4.00 Common Laborers 2.00 Heavy Equip. Operator 1.00 Light Equip. Operator 1.00 Power shovel 0.76 cum 1.00 Barge 1.00 Clamshell Backhoe, 0.76 cum 1.00 Pump with 1 suction & 20 Discharge hoses	200.000	0.360	0.160
<b>024 840 SEAWALL &amp; BULKHEADS</b>						
<b>024 844 BULKHEADS:</b>						
024 844-0020	Bulkheads reinforced concrete, include footing and tie-backs, up to 1.8 m high, average	LM	0.500 Skilled Foreman 5.000 Skilled Labors 3.000 Common Laborers 0.250 Cement Finisher 0.250 Equip. Operator 0.250 Crane 50 Ton 0.250 Gas Engine Vibrator 0.125 Concrete Pump & transit mixer 0.125 Truck 25 ton 2.000 Power Tools 0.125 Trencher	6.910	10.420	3.329

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
024 844-0100	Bulkheads reinforced concrete, include footing and tie-backs, up to 3.7 m high, average	-	-	3.360	21.429	6.845
024 844-0600	Bulkheads Crushed stone placed behind bulkhead by clam bucket	CUM	0.125 Labor Foreman 5.00 Laborers 1.00 Equip. Operator 1.00 Hydraulic Crane, 11 ton	28.000	1.750	0.286
024 844-6000	Crushed stone placed behind bulkhead by clam bucket	CUM	1.00 Equip. Operator 1.00 Clamshell Backhoe 0.76 M3	95.000	0.084	0.084
<b>024 848 BULKHEADS, RESIDENTIAL CANAL:</b>						
024 848-0060	Bulkheads, aluminum panel sheeting, including concrete cap and anchor, coarse compact sand, 1.8 m high, 800 mm embedment	LM	0.500 Pile Driver Foreman 4.00 Pile Drivers 1.00 Equip. Operator (crane) 1.00 Equip. Operator Oil 1.00 Crane 36 metric ton 0.625 Vibratory hammer & gen. 0.500 Bed truck	53.000	0.981	0.321
024 848-0140	Bulkheads, aluminum panel sheeting, including concrete cap and anchor, coarse compact sand, 1.8 m high, 1.2 m embedment			37.000	1.405	0.459
024 848-0240	Bulkheads, Aluminum panel sheeting, including concrete cap and anchor, coarse compact sand, 2.4 m high, 1.5 m embedment			25.000	2.080	0.680
<b>024 880 DOCKS &amp; FACILITIES</b>						
<b>024 884 DOCKS, FIXED:</b>						
024 884-0030	Fixed dock, pile supported, treated wood, 1.5 m x 6 m platform, average	SQM	0.125 Skilled Foreman 3.00 Skilled workers 1.00 Pile Driver 1.00 Truck Driver 2.00 Common Laborer 1.00 Air Compressor 1.00 Truck 3 Ton 2.00 Power Tools	0.760	75.000	42.105
024 884-0200	Fixed dock, pile supported, treated wood, 2.4 m x 6 m platform, average	-	-	0.600	95.000	53.333
<b>025 PAVING &amp; SURFACING</b>						
<b>025 100 WALK/ROAD/PARKING PAVING</b>						
<b>025 104 ASPHALTIC CONCRETE PAVEMENT:</b>						
025 104-0160	Asphalt concrete pavement, binder course, 75 mm thick	SQM	0.375 Labor Foreman 1.000 Surveyor 7.000 Laborers 3.000 Equip. operator 1.000 Asphalt Paver 1.000 Tandem Roller, 9 Ton 1.000 Roller, Pneumatic Wheel	5095.000	0.018	0.005
025 104-0120	Asphalt concrete pavement, binder course, 50 mm thick	-	-	4442.000	0.020	0.005

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
025 104-0160	Asphalt concrete pavement,wearing course, 75 mm thick	SQM	0.375 Labor Foreman 1.000 Surveyor 7.000 Laborers 3.000 Equip. operator 1.000 Asphalt Paver 1.000 Tandem Roller, 9 Ton 1.000 Roller, Pneumatic Wheel	3364.000	0.027	0.007
025 104-0300	Asphalt concrete pavement,wearing course, 25 mm thick			6370.000	0.014	0.004
025 104-0380	Asphalt concrete pavement,wearing course, 50mm thick			4220.000	0.022	0.006
025 104-0460	Asphalt concrete pavement,wearing course, 75mm thick			3200.000	0.028	0.008
025 104-0810	Asphalt concrete pavement,wearing course,alternate method by ton for averageof 50 mm thick.			422.000	0.216	0.057
<b>025 116</b>	<b>COLD LAID ASPHALT PAVEMENT:</b>					
025 116-0100	100mm course blade mixed,spread & compacted	CUM	1 Labor Foreman 2 Laborers 4 Equip.Oper.(medium) 2 Graders,13 608 kg 1 Roller, Steel Wheel 1 Roller,Pneumatic Wheel	1514.000	0.037	0.021
025 116-020 0	100mm course plant mixed,spread & compacted	CUM	1 Labor Foreman 2 Laborers 4 Equip.Oper.(medium) 2 Graders,13 608 kg 1 Roller, Steel Wheel 1 Roller,Pneumatic Wheel	1160.000	0.048	0.028
<b>025 120</b>	<b>CONCRETE PAVEMENT:</b>					
025 120-0020	Concrete pavement including joints,finishing,and curing,fixed form, 4m wide passage, reinforced, 150 mm thick	SQM	1.00 Skilled Foreman 9.00 Skilled Workers 3.00 Common Laborers 0.125 Equip. operator (med) 0.375 Concrete Pump 2.00 Power tools 0.375 Gas Engine Vibrator 3.00 Gas finishing M/c.	90.400	1.162	0.509
025 120-0100	Concrete pavement including joints,finishing,and curing,fixed form, 4m wide passage,reinforced, 200 mm thick			87.450	1.201	0.526
025 120-0400	Concrete pavement including joints,finishing,and curing,fixed form, 4m wide passage,reinforced, 300 mm thick			76.000	1.382	0.605
025 120-0550	Concrete pavement including joints,finishing,and curing,fixed form, 2m wide passage,reinforced,150 mm thick for small irregular areas			72.320	1.452	0.636
025 120-0700	Concrete pavement,finishing,broom finish small areas		0.250 Labor Foreman 1.000 Cement Finishers 1.000 Gas Finishing M/C.	55.000	0.182	0.145
025 120-0100	Concrete pavement,Curing with sprayed membrane by hand		2 Common Laborers	800.000	0.020	0.000
<b>025 122</b>	<b>FINE GRADE:</b>					

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
025 122-1100	Fine grade granular base for slab on grade by machine	SQM	0.250 Labor Foreman 0.125 Surveyor 1.00 Laborer 3.00 Equip. Operator 1.00 Grader 1.00 Tandem Roller, 9 ton 1.00 Dozer 200 HP 1.00 Water Tanker	1020.000	0.034	0.031
025 122-1150	Fine grade granular base 200 mm thick for slab on grade,in confined area,hand grading	SQM	2 Laborers 1 Vibrating Compactor	95.000	0.168	0.084
<b>025 128 SIDEWALKS,DRIVEWAYS, &amp; PATIOS No base</b>						
025 128-0020	Sidewalk,asphaltic concrete, 50 mm thick	SQM	4 Laborers 1 Equip.Oper.(light) 1 Tandem Roller,4.5 met ton	468.000	0.085	0.017
025 128-0310	Sidewalk,concrete,20 MPa,cast in place with 150 x 150-100 mm/100 mm mesh,broomed finish,no base,100 mm thick		0.125 Labor Foreman 2.00 Skilled Worker 1.00 Common Laborer 1.00 Gas Finishing M/C	27.000	0.926	0.296
025 128-1000	Sidewalk,crushed stone, 25 mm thick,white marble,or bluestone		0.125 Labor Foreman 2.00 Common Laborer 2.00 Tools Sets	100.000	0.170	0.160
025 128-1660	Sidewalk,limestone pavers, 75 mm thick		0.125 Labor Foreman 1.000 Brick Layer 1.000 Common Laborer 1.000 Tools Set	5.000	3.400	1.600
025 128-1700	Sidewalk,redwood,prefabricated,1200 mm x 1200 mm sections		0.125 Labor Foreman 2.00 Skilled Workers 2.00 Power Tools	20.000	0.850	0.800
<b>025 150 UNIT PAVERS</b>						
<b>025 158 BRICK PAVING:</b>						
025 158-0300	Brick pavers,laid on 100 mm thick concrete bed, 100 mm x 200 mm x 38 mm,grouted,10 mm joint	SQM	0.125 Labor Foreman 1.000 Brick Layer 1.000 Common Laborer 1.000 Tools Set	6.000	2.833	1.333
025 158-1500	Brick pavers,100 mm x 200 mm x 57 mm laid flat on 100 mm thick sand bed		"	300.000	0.057	0.027
025 158-2800	Brick paving,steam cleaning		1 Building Laborer 1 Gas Eng. Power Tool	100.000	0.080	0.080
<b>025 162 CONCRETE BLOCK PAVERS:</b>						
025 162-0720	Pavers Precast concrete 50 mm thick, 400 mm x 400 mm	SQM	0.125 Labor Foreman 1.000 Brick Layer 1.000 Common Laborer 1.000 Tools Set	24.000	0.708	0.333
<b>025 166 STONE PAVERS:</b>						
025 166-1100	Stone pavers,irregular, 25 mm thick	SQM	1 Building Laborer 1 Gas Eng. Power Tool	6.000	2.833	1.333
025 166-1250	Stone pavers,random,rectangular, 50 mm thick	"	"	6.000	2.833	1.333

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
025 166-1550	Pavers,granite blocks, 90 mm x 90 mm x 90 mm	SQM	1 Building Laborer 1 Gas Eng. Power Tool	7.000	2.429	1.143
<b>025 250</b>	<b>CURBS</b>					
<b>025 254</b>	<b>CURBS:</b>					
025 254-0300	Curbs, Concrete, 200 mm x 450 mm,wood forms,straight	LM	0.125 Labor Foreman 4.00 Carpenters 1.00 Common Laborer 4.00 Power Tools	100.000	0.410	0.320
025 254-0400	Curbs, Concrete, 200 mm x 450 mm,wood forms,curved			40.000	1.025	0.800
025 254-0435	Curb & gutter,straight with 150 mm high curb and 150 mm thick gutter,wood forms 760 mm wide, 0.17 m3/m			60.000	0.683	0.533
025 254-0550	Curb & gutter precast,150 mm high curb,150 mm thick gutter, 450 mm wide,straight		0.125 Skilled Foreman 4.000 Common Laborers 1.000 Equip. Operator 1.000 Grader, 2.7 metric ton	150.000	0.273	0.053
<b>025 300</b>	<b>ATHLETIC PAVE/SURFACING</b>					
<b>025 304</b>	<b>RUNNING TRACK:</b>					
025 304-0050	Running track,colored rubberized asphalt pavement, 25 mm thick	SQM	0.375 Labor Foreman 1.000 Surveyor 7.000 Laborers 3.000 Equip. operator 1.000 Asphalt Paver 1.000 Tandem Roller, 9 Ton 1.000 Roller, Pneumatic Wheel	956.000	0.095	0.025
025 304-0300	Running track,rubber-vermiculite asphalt,colored, 25 mm thick	-	-	957.000	0.095	0.025
<b>025 308</b>	<b>TENNIS COURT:</b>					
025 308-0200	Double tennis court,asphaltic concrete,including base, 64 mm thick, colored sealer,acrylic emulsion, 3 coats	SQM	0.375 Labor Foreman 1.000 Surveyor 7.000 Laborers 3.000 Equip. operator 1.000 Asphalt Paver 1.000 Tandem Roller, 9 Ton 1.000 Roller, Pneumatic Wheel	480.000	0.190	0.050
025 308-0200	Double tennis court, asphaltic concrete , finish colored sealer, acrylic emulsion 3 coats.	-	1.00 Common Laborer 1.00 Tools Set	240.000	0.033	0.033
025 308-1400	Tennis court,posts for nets, 90 mm diameter with eye bolts,or pulley & reel	PAIR	0.125 Labor Foreman 2.000 Common Laborers 2.000 Tools Set	3.000	5.667	5.333
025 308-1700	Tennis court,net,13 m long,nylon thread with binder	PAIR	0.125 Labor Foreman 2.000 Common Laborers 2.000 Tools Set	42.000	0.405	0.381
025 308-2000	Tennis court,paint markings on asphalt, 2 coats	COURT	1 Painter 1 Tools Set	1.000	8.000	8.000
<b>025 400</b>	<b>SYNTHETIC SURFACING</b>					
<b>025 404</b>	<b>TURF,ARTIFICIAL:</b>					



## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
025 404-0910	Artificial turf,including 65 mm asphalt base with 150 mm crushed stone,no drainage	SQM	1.00 Skilled Worker Foreman 4.00 Skilled Workers 2.00 Common Laborer 4.00 Tools Set	120.000	0.467	0.267
<b>025 450</b>	<b>SURFACING</b>					
<b>025 458</b>	<b>SEALCOATING:</b>					
025 458-0320	Surfacing,including surface preparation,cleaning,& 2 coat of coal tar pitch emulsion or petroleum resistant,for surfaces upto 8500 m2	SQM	0.125 Labor Foreman 2.00 Common Laborer 1.00 Truck Driver 1.00 Asphalt Tanker	2111.000	0.012	0.004
025 458-1900	Surfacing,asphalt treatment,single course,small area 1.4 L/m2 asphalt material,11 kg/m2 aggregate	..	0.375 Labor Foreman 1.000 Surveyor 7.000 Laborers 3.000 Equip. operator 1.000 Asphalt Paver 1.000 Tandem Roller, 9 Ton 1.000 Roller, Pneumatic Wheel	2200.000	0.041	0.011
<b>025 500</b>	<b>BRIDGES</b>					
<b>025 504</b>	<b>BRIDGES:</b>					
025 504-0050	Pedestrian bridge,not including foundations,precast concrete, 2.4 m wide,18 m span	SQM	1.000 Struc. Steel Foreman 6.000 Struc. Steel Workers 1.000 Equip. Operator (Crane) 1.000 Equip. Operator (oiler) 1.000 Crane, 136 ton, truck mtd.	18.000	4.000	0.444
025 504-0400	Pedestrian bridge,not including foundations,steel trussed or arched spans, 2.4 m wide,15 m span			28.000	2.571	0.286
025 504-0700	Pedestrian bridge,not including foundations,steel trussed or arched spans, 2.4 m wide, 30 m span			36.000	2.000	0.222
<b>025 800</b>	<b>PAVEMENT MARKING</b>					
<b>025 804</b>	<b>PAINTING LINES:</b>					
025 804-0020	Pavement marking,including layout,painting lines,latex,white or yellow,150 mm wide	LM	0.125 Labor Foreman 1.000 Surveyor 1.000 Common Laborer 1.000 Truck Driver 1.000 Truck Paint Striper	2500.000	0.010	0.003
025 804-0500	Pavement marking,painting lines,latex,white or yellow, 200 mm wide			2250.000	0.011	0.004
025 804-0620	Pavement marking,painting arrows or gore lines			175.000	0.143	0.046
025 804-0730	Pavement marking including layout,painting thermoplastic white or yellow lines, 150 mm wide			3200.000	0.008	0.003
025 804-0750	Pavement marking including,painting thermoplastic white or yellow lines, 300 mm wide			1800.000	0.014	0.004
025 804-0760	Pavement marking ,painting thermoplastic white or yellow arrow	SQM		185.000	0.135	0.043

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
025 804-0800	Parking stall marking, latex paint	STALL	0.125 Labor Foreman 1.000 Surveyor 1.000 Common Laborer 1.000 Truck Driver 1.000 Truck Paint Striper	650.000	0.038	0.012
025 804-1000	Pavement marking, numbers or letter	..	*	120.000	0.208	0.067
<b>026 PIPED UTILITIES</b>						
<b>026 010 PIPED UTILITIES</b>						
<b>026 012 BEDDING:</b>						
026 012-0050	Bedding for utility lines, not including compaction, crushed run gravel	CUM	2 Laborers 1 Equip. Oper. (light) 1 Backhoe Loader, 50HP	200.000	0.120	0.040
026 012-0200	Bedding for utility lines, not including compaction, sand	*	*	20.000	1.200	0.400
026 012-0500	Bedding compaction in trench	CUM	1 Building Laborer 1 Gas Eng. Power Tool	30.000	0.267	0.267
<b>026 014 EXCAVATION AND BACKFILL: See division 022-204&amp;254</b>						
026 014-0100	Hand excavate and trim for pipe bells after trench excavation, pipe size 200 mm	LM	1.000 Common Laborer 1.000 Tool Set	36.000	0.222	0.222
026 014-0300	Hand excavate and trim for pipe bells after trench excavation, pipe size 450 mm	..	..	28.000	0.286	0.286
<b>026 050 MANHOLES &amp; CLEANOUTS</b>						
<b>026 054 UTILITY VAULTS:</b>						
026 054-0100	Utility manhole or vault, precast concrete, 150 mm thick, size 1.8 m x 3 m x 1.8 m high, inside dimensions	EA	0.125 Labor Foreman 4.000 Laborers 0.500 Equip. Oper. (crane) 0.500 Crane 23 ton	1.000	37.000	4.000
026 054-0150	Utility manhole or vault, precast concrete, 150 mm thick, size 1.5 m x 3.7 m x 1.8 m high, inside dimensions		*	1.000	37.000	4.000
026 054-0300	Utility manhole or vault, precast concrete, 150 mm thick, size 2.4 m x 4.3 m x 2 m high, inside dimensions		0.125 Labor Foreman 4.000 Laborers 0.500 Equip. Oper. (crane) 0.500 Crane 23 ton	0.500	74.000	8.000
026 054-0310	Utility manhole or vault, cast in place, 150 mm thick, size 1.8 m x 3 m x 1.8 m high, inside dimensions		*	1.000	37.000	4.000
026 054-0320	Utility manhole or vault, cast in place, 150 mm thick, size 1.5 m x 3.7 m x 1.8 m high, inside dimensions		0.250 Skilled Foreman 5.000 carpenters 1.000 Steel Fixer 0.125 Cement Finisher 3.000 Common Laborers 0.500 Equip. Operator 0.125 Gas Engine Vibrator 0.125 Concrete Pump small & transit mixer 0.375 Crane 23 ton 0.125 Bed Truck 4.000 Power Tools	0.750	105.333	50.667

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
026 054-0340	Utility manhole or vault, cast in place, 150 mm thick, size 2.4 m x 4.3 m x 2 m high, inside dimensions	↓	"	0.400	197.500	95.000
<b>026 100</b>	<b>PIPE &amp; FITTINGS</b>					
<b>026 104</b>	<b>PIPE INSULATION:</b>					
026 104-0100	Pipe insulation, calcium silicate, 25 mm thick, 100 mm diameter	LM	1 Asbestos worker 1 Asbestos Helper 1 Tools Sets	40.000	0.400	0.200
026 104-0140	Pipe insulation, calcium silicate, 25 mm thick, 150 mm diameter			26.670	0.600	0.300
026 104-0160	Pipe insulation, calcium silicate, 38 mm thick, 200 mm diameter			24.000	0.667	0.333
026 104-0240	Pipe insulation, calcium silicate, 38 mm thick, 400 mm diameter			19.200	0.833	0.417
026 104-0400	Pipe insulation, calcium silicate, 50 mm thick, 100 mm diameter			34.000	0.471	0.235
026 104-0600	Pipe insulation, calcium silicate, 50 mm thick, 600 mm diameter			15.300	1.046	0.523
026 104-0700	Pipe insulation, calcium silicate, 80 mm thick, 100 mm diameter			24.000	0.667	0.333
026 104-0760	Pipe insulation, calcium silicate, 80mm thick, 200 mm diameter			16.000	1.000	0.500
026 104-0900	Pipe insulation, calcium silicate, 80 mm thick, 600 mm diameter			10.710	1.494	0.747
026 104-1020	Pipe insulation, fiberglass, 25 mm thick, 100 mm diameter			40.000	0.400	0.200
026 104-1080	Pipe insulation, fiberglass, 25 mm thick, 200 mm diameter			25.000	0.640	0.320
026 104-1220	Pipe insulation, fiberglass, 25 mm thick, 600 mm diameter			16.000	1.000	0.500
026 104-1300	Pipe insulation, fiberglass, 40 mm thick, 100 mm diameter			32.000	0.500	0.250
026 104-1360	Pipe insulation, fiberglass, 40 mm thick, 200 mm diameter	↓	↓	21.600	0.741	0.370
026 104-1700	Pipe insulation, fiberglass, 50 mm thick, 300 mm diameter	LM	1 Asbestos worker 1 Asbestos Helper 1 Tools Sets	18.360	0.871	0.436
026 104-1800	Pipe insulation, fiberglass, 50 mm thick, 600 mm diameter	"	"	15.300	1.046	0.523
<b>026 400</b>	<b>VALVES &amp; COCKS</b>					
<b>026 404</b>	<b>PIPING VALVES: Water distribution, see also div.151-900</b>					
026 404-3100	Piping valve, butterfly with boxes, cast iron, mechanical joint, 100 mm diameter (4")	EA	0.125 Skilled Foreman 1.000 Skilled worker 1.000 Plumber Apprentice 1.000 Tools Set	3.000	5.667	2.667
026 404-3180	Piping valve, butterfly with boxes, cast iron, mechanical joint, 200 mm diameter (8")	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	2.250	9.333	5.333

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
026 404-3340	Piping valve, butterfly with boxes, cast iron, mechanical joint, 300 mm diameter (12")	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	1.750	12.000	6.857
026 404-3500	Piping valve, butterfly with boxes, cast iron, mechanical joint, 600 mm diameter (24")		*	0.350	60.000	34.286
026 404-3610	Piping valve, butterfly with boxes, cast iron, mechanical joint, & with lever operator size 100 mm		0.125 Skilled Foreman 1.000 Skilled worker 1.000 Plumber Apprentice 1.000 Tools Set	3.000	5.667	2.667
026 404-3616	Piping valve, butterfly with boxes, cast iron, mechanical joint, & with lever operator size 200 mm		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	2.250	9.333	5.333
026 404-3620	Piping valve, butterfly with boxes, cast iron, mechanical joint, & with lever operator size 300 mm			1.750	12.000	6.857
026 404-3630	Piping valve, butterfly with boxes, cast iron, mechanical joint, & with lever operator size 300 mm			0.350	60.000	34.286
026 404-3710	Piping valve, check, flanged 100 mm diameter		0.125 Skilled Foreman 1.000 Skilled worker 1.000 Plumber Apprentice 1.000 Tools Set	3.000	5.667	2.667
026 404-3714	Piping valve, check, flanged 150 mm diameter		..	2.500	6.800	3.200
026 404-3716	Piping valve, check, flanged 200 mm diameter		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	2.250	9.333	5.333
026 404-3720	Piping valve, check, flanged 300 mm diameter			1.750	12.000	6.857
026 404-3730	Piping valve, check, flanged 600 mm diameter			0.350	60.000	34.286
026 404-3810	Piping valve, gate, flanged, 100 mm diameter		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Plumber Apprentice 1.000 Tools Set	3.000	5.667	2.667
026 404-3814	Piping valve, gate, flanged, 150 mm diameter		..	2.500	6.800	3.200
026 404-3816	Piping valve, gate, flanged, 200 mm diameter		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	2.250	9.333	5.333
026 404-3820	Piping valve, gate, flanged, 300mm diameter			1.750	12.000	6.857

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
026 404-3830	Piping valve,gate,flanged, 600 mm diameter		↓	0.350	60.000	34.286
026 404-3842	Piping valve,gate,flanged with boxes,size 100 mm diameter		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Plumber Apprentice 1.000 Tools Set	2.500	6.800	3.200
026 404-3844	Piping valve,gate,flanged with boxes,size 150 mm diameter		"	2.000	8.500	4.000
026 404-3846	Piping valve,gate,flanged with boxes,size 200 mm diameter		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	1.800	11.667	6.667
026 404-3850	Piping valve,gate,flanged with boxes,size 300 mm diameter		↓	1.400	15.000	8.571
026 404-3860	Piping valve,gate,flanged with boxes,size 600 mm diameter		↓	0.300	70.000	40.000
026 404-3910	Piping valve,globe,flanged,iron body,size 100mm diameter		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Plumber Apprentice 1.000 Tools Set	5.000	3.400	1.600
026 404-3914	Piping valve,globe,flanged,iron body,size 150 mm diameter		"	4.500	3.778	1.778
026 404-3916	Piping valve,globe,flanged,iron body,size 200 mm diameter		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	3.500	6.000	3.429
026 404-3920	Piping valve,globe,flanged,iron body,size 300 mm diameter	↓	"	2.500	8.400	4.800
026 404-3930	Piping valve,globe,flanged,iron body,size 600 mm diameter	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	0.350	60.000	34.286
<b>026 450 HYDRANTS</b>						
<b>026 454 PIPING WATER DISTRIBUTION:</b>						
026 454-1140	Fire hydrants,two way mechanical joints,excavation and backfill not included.114 mm valve size, 0.9 m depth	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	6.000	3.500	2.000
026 454-1200	Fire hydrants,two way mechanical joints,excavation and backfill not included.114 mm valve size,1.4 m depth		↓	5.000	4.200	2.400
026 454-1260	Fire hydrants,two way mechanical joints,excavation and backfill not included.114 mm valve size,1.8 m depth	↓	↓	4.000	5.250	3.000

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
026 454-1300	Fire hydrants,two way mechanical joints,excavation and backfill not included.114 mm valve size,2.1 m depth	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	3.500	6.000	3.429
026 454-2080	Fire hydrants,two way mechanical joints,excavation and backfill not included.133 mm valve size,1.2 m depth			5.000	4.200	2.400
026 454-2160	Fire hydrants,two way mechanical joints,excavation and backfill not included.133 mm valve size,1.8 m depth			4.000	5.250	3.000
026 454-2320	Fire hydrants,two way mechanical joints,excavation and backfill not included.133 mm valve size, 3 m depth	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	3.000	7.000	4.000
026 454-2400	Hydrant,low barrel extensions with stems, 300 mm		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Plumber Apprentice 1.000 Tools Set	8.000	2.125	1.000
026 454-2480	Hydrant,low barrel extensions with stems, 900 mm			7.000	2.429	1.143
026 454-2520	Hydrant,low barrel extensions with stems,1200 mm			6.000	2.833	1.333
026 454-5020	Hydrant,indicating post,adjustable, valve size 100 mm to 350 mm,1.2m bury		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	6.000	3.500	2.000
026 454-5060	Hydrant,indicating post,adjustable, valve size 100 mm to 350 mm, 2.5 m bury			4.000	5.250	3.000
026 454-5080	Hydrant,indicating post,adjustable, valve size 100 mm to 350 mm, 3 m bury			3.500	6.000	3.429
026 454-5540	Hydrant indicator post,non-adjustable, valve size 100 mm to 350 mm,1.2 m bury			5.500	3.818	2.182
<b>026 650</b>	<b>WATER SYSTEMS</b>					
<b>026 686</b>	<b>PIPING WATER DISTRIBUTION: Pipe laid in trench,excavation and backfill not included</b>					
026 686-1410	Water pipings,ductile iron cement lined,mechanical joints,sections 5.5 m long,size 100 mm (4")	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Plumber Apprentice 1.000 Tool Set	32.370	0.525	0.247
026 686-1420	Water pipings,ductile iron cement lined,mechanical joints,sections 5.5 m long,size 150 mm (6")			27.510	0.618	0.291
026 686-1430	Water pipings,ductile iron cement lined,mechanical joints,sections 5.5 m long,size 200 mm (8")		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	22.660	0.927	0.530

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
026 686-1450	Water pipings, ductile iron cement lined, mechanical joints, sections 5.5 m long, size 300 mm (12")			14.560	1.442	0.824
026 686-1470	Water pipings, ductile iron cement lined, mechanical joints, sections 5.5 m long, size 400 mm (16")			9.710	2.163	1.236
026 686-1490	Water pipings, ductile iron cement lined, mechanical joints, sections 5.5 m long, size 600 mm (24")		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Pipe Layer 1.000 Tools Set	7.120	2.949	1.685
026 686-1550	Water pipings, ductile iron cement lined, push on joints, sections 5.5 m long, size 100 mm (4")		0.125 Skilled Foreman 1.000 Skilled worker 1.000 Plumber Apprentice 1.000 Tools Set	36.000	0.472	0.222
026 686-1560	Water pipings, ductile iron cement lined, push on joints, sections 5.5 m long, size 150 mm (6")			32.000	0.531	0.250
026 686-1570	Water pipings, ductile iron cement lined, push on joints, sections 5.5 m long, size 200 mm (8")			28.000	0.607	0.286
026 686-1590	Water pipings, ductile iron cement lined, push on joints, sections 5.5 m long, size 300 mm (12")			16.000	1.063	0.500
026 686-1640	Water pipings, ductile iron cement lined, push on joints, sections 5.5 m long, size 600 mm (24")			8.000	2.125	1.000
026 686-2650	Water piping, PVC, class 160, standard dimensions, 38 mm diameter.			60.000	0.283	0.133
026 686-2700	Water piping, PVC, Class 160, Standard Dimensions, 50 mm dia.			50.000	0.340	0.160
026 686-2900	Water piping, PVC, class 160, standard dimensions, 150 mm diameter.			36.000	0.472	0.222
026 686-2950	Water piping, PVC, class 160, standard dimensions, 200 mm diameter.			28.000	0.607	0.286
026 686-4100	Drill & tap pressurized main 150mm main to service 25 thru 50 mm	EA	0.125 Skilled Foreman 1.000 Skilled worker 1.000 Plumber Apprentice 1.000 Tools Set	2.000	8.500	4.000
026 686-4150	Drill & tap pressurized main 200mm main to service 25 thru 50 mm			1.750	9.714	4.571
026 686-4600	Tap & insert gate valve, 200 mm, 4600mm main, 100 mm branch			1.500	11.333	5.333
026 686-8010	Fittings, ductile iron, mechanical joint, 90 deg. bend 100 mm diameter (4")			25.000	0.680	0.320
026 686-8020	Fittings, ductile iron, mechanical joint, 90 deg. bend 10 mm diameter (4")			15.000	1.133	0.533
026 686-8040	Fittings, ductile iron, mechanical joint, 90 deg. bend 200 mm diameter (8")			12.000	1.417	0.667
026 686-8080	Fittings, ductile iron, mechanical joint, 90 deg. bend 300 mm diameter (12")			10.000	1.700	0.800
026 686-8120	Fittings, ductile iron, mechanical joint, 90 deg. bend 400 mm diameter (16")			8.000	2.125	1.000
026 686-8180	Fittings, ductile iron, mechanical joint, 90 deg. bend 600 mm diameter (24")			3.000	5.667	2.667
026 686-8200	Fittings, ductile iron, way or tee, 100 mm diameter (4")			15.000	1.133	0.533

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
026 686-8220	Fittings,ductile iron,way or tee, 150 mm diameter (6")	EA	0.125 Skilled Foreman 1.000 Skilled worker 1.000 Plumber Apprentice 1.000 Tools Set	10.000	1.700	0.800
026 686-8240	Fittings,ductile iron,way or tee, 200 mm diameter (8")			9.000	1.889	0.889
026 686-8280	Fittings,ductile iron,way or tee, 300 mm diameter (12")			7.000	2.429	1.143
026 686-8320	Fittings,ductile iron,way or tee, 400 mm diameter (16")			4.000	4.250	2.000
026 686-8380	Fittings,ductile iron,way or tee, 600 mm diameter (24")			2.000	8.500	4.000
026 686-8450	Ductile iron pipe fitting; decrease size 150 x 100 mm			7.000	2.429	1.143
026 686-8480	Ductile iron pipe fitting; decrease size 1300 x 150 mm			5.000	3.400	1.600
026 686-8510	Ductile iron pipe fitting; decrease size 600 x 150 mm			2.000	8.500	4.000
<b>026 700 WATER WELLS</b>						
<b>026 704 WELLS:</b>						
026 704-0100	Water well,domestic,drilled and cased,including casing,100 mm to 150 mm diameter	LM	1.000 Skilled Foreman 1.000 Equip. Operator 4.000 Common Laborers 1.000 Truck Mounted Drill Rig 1.000 Light truck, 3.00 ton	8.000	6.000	2.000
026 704-0200	Water well,domestic,drilled and cased,including casing, 200 mm diameter			6.000	8.000	2.667
026 704-0800	Observation wells, 32 mm riser pipe			8.500	5.647	1.882
026 704-1300	Water well test,100 mm diameter upto 14 m deep	EA		1.000	48.000	16.000
026 704-0200	Water well, gravel pack, including gravel, casing, seal, & filter, 600 mm dia.	LM		1.250	38.400	12.800
026 704-1900	Water pump,installed in wells to 30 m deep wells, 100mm submersible, 3 HP		0.125 Skilled Foreman 1.000 Skilled worker 1.000 Plumber Apprentice 1.000 Tools Set	0.850	20.000	9.412
026 704-3000	Well,water pump submersible,150 mm, 25 HP, 210 GPM,installed in wall upto 45 m deep			0.600	28.333	13.333
026 704-3100	Well,water pump submersible,150 mm, 30 HP, 210 GPM,installed in well upto 150 m deep			0.500	34.000	16.000
<b>026 800 FUEL DISTRIBUTION</b>						
<b>026 804 GAS STATION PRODUCT LINE</b>						
026 804-0020	Primary containment pipe, fiberglass-reinforced,plastic pipe 4.5 m & 9 m lengths, 50 mm diameter	LM	0.125 Skilled Foreman 1.000 Skilled worker 1.000 Plumber Apprentice 1.000 Tools Set	42.000	0.405	0.190
026 804-0060	Primary containment pipe, fiberglass-reinforced,plastic pipe 4.5 m & 9 m lengths,100 mm diameter	-		35.000	0.486	0.229
026 804-0130	Gas pipe fittings,elbow, 90 deg. & 45 deg.,bell-ends,100 mm diameter	EA		10.000	1.700	0.800



## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
026 804-0220	Gas pipe fittings,tee,bell-ends,100 mm diameter			8.000	2.125	1.000
026 804-0250	Gas pipe fittings,flanges bell ends,100 mm diameter			10.000	1.700	0.800
026 804-0280	Gas pipe fittings,sleeve couplings,100 mm diameter			8.000	2.125	1.000
026 804-0310	Gas pipe fittings,threaded adapters,100 mm diameter			8.000	2.125	1.000
026 804-0340	Gas pipe fittings, reducer, 100 mm x 50 mm diameter			10.000	1.700	0.800
<b>026 852 GAS DISTRIBUTION SYSTEM</b>						
<b>026 852 GAS SERVICE &amp; DISTRIBUTION:</b>						
026 852-0100	Gas piping,not including excavation or back fill,polyethylene, 415 kPa,coils, 32 mm diameter,SDR 11	LM	0.125 Skilled Foreman 1.000 Skilled worker 1.000 Plumber Apprentice 1.000 Tools Set	75.000	0.227	0.107
026 852-020 0	Gas piping,not including excavation or back fill,polyethylene, 415 kPa,coils, 75 mm diameter,SDR 11		..	60.000	0.283	0.133
026 852-0550	Gas piping,not including excavation or back fill,steel,schedule 40,palin end,tar coated & wrapped 25 mm diameter		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Welder 1.000 Common Laborer 1.000 Electric Welding Machine	70.000	0.357	0.114
026 852-0600	Gas piping,not including excavation or back fill,steel,schedule 40,palin end,tar coated & wrapped 50 mm diameter		*	55.000	0.455	0.145
026 852-0700	Gas piping,not including excavation or back fill,steel,schedule 40,palin end,tar coated & wrapped 100 mm diameter	LM	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Welder 1.000 Common Laborer 1.000 Electric Welding Machine	72.000	0.347	0.111
026 852-0800	Gas piping,not including excavation or back fill,steel,schedule 40,palin end,tar coated & wrapped 150 mm diameter			48.000	0.521	0.167
026 852-6002	Gas piping,not including excavation or back fill,steel,schedule 80,palin end,tar coated & wrapped 100 mm diameter			18.000	1.389	0.444
026 852-6008	Gas piping,not including excavation or back fill,steel,schedule 80,palin end,tar coated & wrapped 200 mm diameter			14.000	1.786	0.571
026 852-8008	Gas pipe fittings,elbow,weld joint,standard weight 100 mm diameter			5.500	4.545	1.455
026 852-8040	Gas pipe fittings,elbow,weld joint,standard weight 600 mm diameter			0.850	29.412	9.412
026 852-8102	Gas pipe fittings,elbow,weld joint,extra heavy weight 100 mm diameter	EA		4.500	5.556	1.778
026 852-8122	Gas pipe fittings,elbow,weld joint,extra heavy weight 600 mm diameter			0.700	35.714	11.429

**Division 02 : SITE WORK**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>026 858</b>	<b>PIPING, VALVES, GAS DISTRIBUTION</b>					
026 858-0140	Gas piping valves, gas stops, with or without checks 32 mm size	EA	0.125 Skilled Foreman 1.000 Skilled worker 1.000 Plumber Apprentice 1.000 Tools Set	20.000	0.850	0.400
026 858-0200	Gas piping valves, gas stops, with or without checks 50 mm size			13.000	1.308	0.615
026 858-0680	Gas piping valves, pressure regulator, iron and bronze 50mm diameter			6.500	2.615	1.231
026 858-0740	Gas piping valves, pressure regulator, iron and bronze 100 mm diameter			3.000	5.667	2.667
026 858-0780	Gas piping valves, pressure regulator, iron and bronze 150 mm diameter			1.750	9.714	4.571
<b>027</b>	<b>SEWERAGE &amp; DRAINAGE</b>					
<b>027 100</b>	<b>SUBDRAINAGE SYSTEMS</b>					
<b>027 108</b>	<b>PIPING, SUBDRAINAGE, CONCRETE:</b>					
027 108-3020	Subdrainage piping, no excavation for fill, porous wall concrete pipe standard length 150 mm diameter	LM	0.125 Skilled Foreman 1.000 Skilled worker 1.000 Plumber Apprentice 1.000 Tools Set	56.000	0.304	0.143
027 108-3060	Subdrainage piping, no excavation for fill, porous wall concrete pipe standard length 300 mm diameter		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tool Set	48.000	0.438	0.250
027 108-3100	Subdrainage piping, no excavation for fill, porous wall concrete pipe standard length 450 mm diameter		..	30.000	0.700	0.400
<b>027 110</b>	<b>PIPING, SUBDRAINAGE, CORRUGATED METAL:</b>					
027 110-2020	Subdrainage piping, no excav. or fill, corrugated aluminum, perforated, 150 mm diameter, 18 gauge	LM	0.125 Skilled Foreman 1.000 Skilled worker 1.000 Plumber Apprentice 1.000 Tools Set	60.000	0.283	0.133
027 110-2240	Subdrainage piping, no excav. or fill, corrugated aluminum, perforated, 300 mm diameter, 16 gauge		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tool Set	45.000	0.467	0.267
027 110-4000	Subdrainage piping, no excav. or fill, corrugated steel, perforated, asphalt coated, 150 mm diameter, 18 gauge		0.125 Skilled Foreman 1.000 Skilled worker 1.000 Plumber Apprentice 1.000 Tools Set	60.000	0.283	0.133

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
027 110-4050	Subdrainage piping, no excav. or fill, corrugated steel, perforated, asphalt coated, 300 mm diameter, 16 gauge	↓	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tool Set	45.000	0.467	0.267
<b>027 112 PIPING, SUBDRAINAGE, VITRIFIED CLAY:</b>						
027 112-3020	Subdrainage piping, no excav. or fill, vitrified clay perforated, 1.5 m length, 150 mm diameter	LM	0.125 Skilled Foreman 1.000 Skilled worker 1.000 Plumber Apprentice 1.000 Tools Set	63.000	0.270	0.127
027 112-3060	Subdrainage piping, no excav. or fill, vitrified clay perforated, 1.5 m length, 300 mm diameter	"	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tool Set	48.000	0.438	0.250
<b>027 150 SEWAGE SYSTEMS</b>						
<b>027 152 CATCH BASINS OR MANHOLES:</b>						
027 152-0800	Manhole without frame & covers, concrete cast in place 1.2 m x 1.2 m x 0.2 m thick & 1.2 m deep	EA	0.250 Skilled Foreman 5.000 carpenters 1.000 Steel Fixer 0.125 Cement Finisher 3.000 Common Laborers 0.500 Equip. Operator 0.125 Gas Engine Vibrator 0.125 Concrete Pump small & transit mixer 0.375 Crane 23 ton 0.125 Bed Truck 4.000 Power Tools	1.650	47.879	23.030
027 152-1000	Manhole without frame & covers, concrete cast in place 1.2 m x 1.2 m x 0.2 m thick & 2.4 m deep			1.100	71.818	34.545
027 152-1100	Manhole depth over 2.4 m add to above labor cost for every extra meter of depth.		↓	3.290	24.012	11.550
027 152-1600	Manhole frames & covers, C.I., 600 mm square, 227 kg		0.125 Skilled Foreman 2.000 Common Laborers 0.500 Equip. Operator 5000 Backhoe Loader, 50 HP	5.500	3.818	0.727
027 152-1800	Manhole frames & covers, C.I., light traffic, 450 mm, diameter, 45 kg			7.000	3.000	0.571
027 152-2100	Manhole frames & covers, C.I., heavy traffic, 600 mm, diameter, 181 kg			5.500	3.818	0.727
027 152-2500	Manhole frames & covers, C.I., water tight, 600 mm, diameter, 160 kg	↓	↓	5.500	3.818	0.727
<b>027 162 PIPING, DRAINAGE &amp; SEWAGE, CONCRETE:</b>						
027 162-1010	Sewer drainage, concrete pipe no excav. or fill, non-reinforced, extra strength, tongue & groove, 150 mm diameter	LM	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Plumber Apprentice 1.000 Tool Set	24.000	0.708	0.333

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
027 162-1040	Sewer drainage, concrete pipe no excav. or fill, non-reinforced, extra strength, tongue & groove 300 mm diameter		↓	27.000	0.630	0.444
027 162-1080	Sewer drainage, concrete pipe no excav. or fill, non-reinforced, extra strength, 600 mm diameter	LM	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tool Set	26.000	0.808	0.462
027 162-2240	Concrete reinforced culvert, size 600 mm diameter, with gaskets			18.000	1.167	0.667
027 162-2290	Concrete reinforced culvert, size 1.2 m diameter, with gaskets			6.000	3.500	2.000
027 162-2310	Concrete reinforced culvert, size 1.8 m diameter, with gaskets			3.500	6.000	3.429
027 162-2310	Concrete reinforced culvert, size 2.1 m diameter, with gaskets			3.000	7.000	4.000
027 162-2310	Concrete reinforced culvert, size 2.4 m diameter, with gaskets	↓	↓	2.500	8.400	4.800
<b>027 164</b>	<b>PIPING, STORM DRAINAGE, CORRUGATED METAL:</b>					
027 164-2040	Sewer / drainage piping; no excav. or fill, corrugated metal, galvanized or aluminum, bituminous coated with paved invert, 6 mm lengths, 200 mm diameter, 16 ga.	LM	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tool Set	56.000	0.375	0.214
027 164-2140	Sewer / drainage piping; no excav. or fill, corrugated metal, galvanized or aluminum, bituminous coated with paved invert, 6 mm lengths, 600 mm diameter, 14 ga.		*	45.000	0.467	0.267
027 164-2200	Sewer / drainage piping; no excav. or fill, corrugated metal, galvanized or aluminum, bituminous coated with paved invert, 6 mm lengths, 1.2m diameter, 12 ga.		0.125 Skilled Foreman 1.000 Skilled Worker 2.000 Common Laborer 0.500 Equip. Operator 0.500 Pipe Layer 1.000 Tool Set	9.000	3.222	1.333
027 164-2240	Sewer / drainage piping; no excav. or fill, corrugated metal, galvanized or aluminum, bituminous coated with paved invert, 6 mm lengths, 1.8 m diameter, 8 ga.	↓	..	4.000	7.250	3.000
<b>027 166</b>	<b>PIPING, DRAINAGE &amp; SEWAGE, PLASTIC:</b>					
027 166-1000	Sewer piping, no excav. or fill, plastic reinforced, general strength 100 mm diameter	LM	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Plumber Apprentice 1.000 Tools Set	35.000	0.486	0.229
027 166-1010	Sewer piping, no excav. or fill, plastic reinforced, general strength 150 mm diameter		..	27.000	0.630	0.296
027 166-1020	Sewer piping, no excav. or fill, plastic reinforced, general strength 200 mm diameter		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	27.000	0.778	0.444
027 166-1040	Sewer piping, no excav. or fill, plastic reinforced, general strength 300 mm diameter		..	18.000	1.167	0.667

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
027 166-5000	Sewer piping, no excav. or fill, plastic reinforced, high strength 100 mm diameter		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Plumber Apprentice 1.000 Tools Set	35.000	0.486	0.229
027 166-5020	Sewer piping, no excav. or fill, plastic reinforced, high strength 200 mm diameter		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	27.000	0.778	0.444
027 166-5040	Sewer piping, no excav. or fill, plastic reinforced, high strength 300 mm diameter	LM	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	18.000	1.167	0.667
027 166-9100	Plastic piping fittings; elbow 100 mm diameter		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Plumber Apprentice 1.000 Tools Set	10.000	1.700	0.800
027 166-9140	Plastic piping fittings; elbow 300 mm diameter			4.000	4.250	2.000
027 166-9610	Plastic piping fittings; Wyes and tees; 100 mm diameter			6.500	2.615	1.231
027 166-9620	Plastic piping fittings; Wyes and tees; 150 mm diameter			4.500	3.778	1.778
027 166-9630	Plastic piping fittings; Wyes and tees; 200 mm diameter			4.000	4.250	2.000
027 166-9650	Plastic piping fittings; Wyes and tees; 300 mm diameter			3.500	4.857	2.286
<b>027 168 PIPING, DRAINAGE &amp; SEWAGE, POLYVINYL CHLORIDE:</b>						
027 168-2000	Sewer /Drainage piping, no excav. or fill, PVC, 3 m sections SDR 35, 100 mm dia.	LM	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Plumber Apprentice 1.000 Tools Set	70.000	0.243	0.114
027 168-2040	Sewer /Drainage piping, no excav. or fill, PVC, 3 m sections SDR 35, 150 mm dia.			54.000	0.315	0.148
027 168-2080	Sewer /Drainage piping, no excav. or fill, PVC, 3 m sections SDR 35, 200 mm dia.			50.000	0.340	0.160
027 168-2160	Sewer /Drainage piping, no excav. or fill, PVC, 3 m sections SDR 35, 300 mm dia.		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	42.000	0.500	0.286
027 168-3040	PVC piping fittings, bends or elbows, 100 mm diameter	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Plumber Apprentice 1.000 Tools Set	10.000	1.700	0.800
027 168-3080	PVC piping fittings, bends or elbows, 150 mm diameter			7.500	2.267	1.067
027 168-3120	PVC piping fittings, tees, 100 mm diameter			6.500	2.615	1.231

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
027 168-3160	PVC piping fittings, tees, 150 mm diameter	↓	↓	5.500	3.091	1.455
027 168-3200	PVC piping fittings, wyes, 100 mm diameter	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Plumber Apprentice 1.000 Tools Set	6.500	2.615	1.231
027 168-3240	PVC piping fittings, wyes, 150 mm diameter	↓	↓	5.500	3.091	1.455
<b>027 172 PIPING, DRAINAGE &amp; SEWAGE, VITRIFIED CLAY C700</b>						
027 172-5040	Sewer/drainage piping, no excav. or fill, vitrified clay, extra strength, compression joints, 200 mm diameter x 1.5 m long	LM	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	36.000	0.583	0.333
027 172-5080	Sewer/drainage piping, no excav. or fill, vitrified clay, extra strength, compression joints, 300 mm diameter x 1.8 m long			27.000	0.778	0.444
027 172-5140	Sewer/drainage piping, no excav. or fill, vitrified clay, extra strength, compression joints, 600 mm diameter x 2.1 m long			9.000	2.333	1.333
027 172-5180	Sewer/drainage piping, no excav. or fill, vitrified clay, extra strength, compression joints, 900 mm diameter x 2.1 m long			4.000	5.250	3.000
027 172-8020	Vitrified clay fittings, 1/4 or 1/8 bend, plain joint, 100 mm diameter		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Plumber Apprentice 1.000 Tools Set	25.000	0.680	0.320
027 172-8026	Vitrified clay fittings, 1/4 or 1/8 bend, plain joint, 200 mm diameter			20.000	0.850	0.400
027 172-8040	Vitrified clay fittings, 1/4 or 1/8 bend, plain joint, 900 mm diameter			2.000	8.500	4.000
027 172-8200	Vitrified clay fittings, wye & tee, plain joint, 100 mm diameter			20.000	0.850	0.400
027 172-8216	Vitrified clay fittings, wye & tee, plain joint, 200 mm diameter			15.000	1.133	0.533
027 172-8230	Vitrified clay fittings, wye & tee, plain joint, 900 mm diameter	↓	↓	0.500	34.000	16.000
<b>027 174 SEWAGE PUMPING STATIONS:</b>						
027 174-0020	Sewage pumping station, prefabricated steel or concrete or fiberglass, 180 GPM	TOTAL	1.000 Skilled Foreman 1.000 Labor Foreman 8.000 Skilled Workers 2.000 Common Laborers 0.250 Equip. Oper. (crane) 0.250 Crane 80 ton 1.000 Power Tools 1.000 Walk behind Power tools	0.150	653.333	120.000
027 174-0200	Sewage pumping station, prefabricated steel or concrete or fiberglass, 900 GPM	↓	1.000 Skilled Foreman 1.000 Labor Foreman 8.000 Skilled Workers 2.000 Common Laborers 0.125 Equip. Oper. (crane) 0.125 Crane 80 ton 1.000 Power Tools 1.000 Walk behind Power tools	0.050	1960.000	360.000

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>027 176</b>	<b>SEWAGE TREATMENT:</b>					
027 176-0300	Sewage treatment, not including fencing or piping, steel package, blown air aeration plant, 57 CUM/day	CUM	1.000 Skilled Foreman 1.000 Labor Foreman 8.000 Skilled Workers 2.000 Common Laborers 0.125 Equip. Oper. (crane) 0.125 Crane 80 ton 1.000 Power Tools 1.000 Walk behind Power tools	1.500	65.333	12.000
027 176-0600	Sewage treatment, not including fencing or piping, steel package, blown air aeration plant, 378 CUM/day			2.000	49.000	9.000
027 176-0800	Sewage treatment, not including fencing or piping, steel package, blown air aeration plant, 1892 CUM/day			2.500	39.200	7.200
<b>027 350</b>	<b>WASTE WATER SYSTEM</b>					
<b>027 354</b>	<b>WASTEWATER TREATMENT SYSTEM:</b>					
027 354-0050	Wastewater treatment system, fiberglass, 4 CUM / capacity	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tools Set	0.700	30.000	17.143
027 354-0100	Wastewater treatment system, fiberglass, 5.5 CUM / capacity	"	"	0.500	42.000	24.000
<b>027 400</b>	<b>SEPTIC SYSTEMS</b>					
<b>027 404</b>	<b>SEPTIC TANKS:</b>					
027 404-0200	Septic tanks not included excav. or piping, precast 19 CUM	EA	0.125 Labor Foreman 4.000 Laborers 0.500 Equip Oper. (crane) 0.500 Crane 23 ton	1.500	24.667	2.667
027 404-0300	Septic tanks not included excav. or piping, precast 57 CUM			0.450	82.222	8.889
027 404-0400	Septic tanks not included excav. or piping, precast 95 CUM			0.300	123.333	13.333
027 404-0500	Septic tanks not included excav. or piping, precast 150 CUM			0.200	185.000	20.000
027 404-0600	Septic tank, no excav. fill or piping, high density polythylene, 4 cum			7.000	5.286	0.571
027 404-0700	Septic tank, no excav. fill or piping, high density polythylene, 5.5 cum			4.500	8.222	0.889

**Division 02 : SITE WORK**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
027 404-0800	Septic tank, no excav. fill or piping, cast in place concrete size 57 cum	EA	0.250 Skilled Foreman 5.000 carpenters 1.000 Steel Fixer 0.125 Cement Finisher 3.000 Common Laborers 0.500 Equip. Operator 0.125 Gas Engine Vibrator 0.125 Concrete Pump small & transit mixer 0.375 Crane 23 ton 0.125 Bed Truck 4.000 Power Tools	0.148	533.784	256.757
027 404-1150	Septic system leaching field chambers, 4 m x 1.1 m x 0.4 m	"	"	16.000	4.938	2.375
<b>027 800</b>	<b>POWER &amp; COMMUNICATIONS: See Div. 169100</b>					
<b>028</b>	<b>SITE IMPROVEMENTS</b>					
<b>028 100</b>	<b>IRRIGATION SYSTEMS</b>					
<b>028 104</b>	<b>SPRINKLER IRRIGATION SYSTEM:</b>					
028 104-0200	Sprinkler irrigation system, for lawn, fully automatic, 7.5 m diameter head at 4.6 m O.C.including piping average	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Plumber Apprentice 1.000 Tools Set	25.000	0.680	0.320
028 104-0500	Sprinkler irrigation system, for lawn, fully automatic, 18 m diameter head at 4.6 m O.C.including piping average			15.000	1.133	0.533
028 104-2000	Sprinkler heads, pop-up spray, head & nozzle, heavy duty brass			32.000	0.531	0.250
028 104-3000	Sprinkler heads, riser mounted spray, low/medium volume, plastic / brass			32.000	0.531	0.250
028 104-4000	Sprinkler heads, pop-up impact sprinkler, body & case, plastic low/medium volume			32.000	0.531	0.250
028 104-5000	Sprinkler heads, quick coupling valve and key, brass, thread type			26.000	0.654	0.308
028 104-5400	Sprinkler heads, pop-up gear drive sprinkler, nozzle & case plastic, medium volume			32.000	0.531	0.250
028 104-8000	Sprinkler heads, riser mounted impact sprinkler, body,part or full circle,plastic, low/medium volume			26.000	0.654	0.308
028 104-9000	Sprinkler system control panel 6 zone			4.000	4.250	2.000
028 104-9100	Sprinkler system control panel 12 zone			2.750	6.182	2.909
028 104-9200	Sprinkler system control panel 24 zone	↓	↓	1.750	9.714	4.571
<b>028 200</b>	<b>FOUNTAINS</b>					
<b>028 204</b>	<b>FOUNTAINS:</b>					



## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
028 204-0300	Fountain complete with fiberglass pool, piping & light 1.8 m diameter pool 0.6 m diameter spray ring	EA	0.125 Labor Foreman 1.000 Skilled Worker 2.000 Common Laborer 0.250 Truck Driver ( light) 0.250 Flatbed Truck, 3 metric ton 0.250 Chain winch 1.000 Power Tool	1.500	18.000	8.000
028 204-0400	Fountain complete with fiberglass pool, piping & light 2.3 m diameter pool 1.2 m diameter spray ring	"	"	1.000	27.000	12.000
<b>028 300</b>	<b>FENCES &amp; GATES</b>					
<b>028 308</b>	<b>FENCE, CHAIN LINK INDUSTRIAL:</b>					
028 308-0200	Fence, chain link industrial, 1.8 m high including 3 strands barbed wire, 50 mm posts @ 3 m O.C., 40 mm top rail, braces, posts and 9 to 6 ga. wire, galvanized steel or aluminum steel	LM	0.125 Labor Foreman 1.000 Skilled Worker 2.000 Common Laborer 0.250 Truck Driver ( light) 0.250 Flatbed Truck, 3 metric ton 1.000 Power Tool	30.000	0.900	0.333
028 308-0800	Fence, chain link industrial, 1.8 m high, no barbed wire, including 50 mm posts @ 3 m o.c., 40 mm top rail, braces & 6 ga. wire, galvanized steel or aluminum steel	"		32.000	0.844	0.313
028 308-1100	Fence galvanized steel corner posts 75 mm. no concrete	EA		24.000	1.125	0.417
028 308-1300	Fence galvanized or aluminium braces.			45.000	0.600	0.222
028 308-1400	Industrial fence gate for 1.8 m high fence, 40 mm frame, 900 mm wide, galvanized steel or aluminum			6.500	4.154	1.538
028 308-2000	Fence, chainlink, industrial, 1.5 m high including posts @ 3 m. o.c. 40 mm top rail, braces & 9 ga. wire galvanized or aluminum steel.			36.000	0.750	0.278
028 308-2400	Fence gate, 1.2 m wide, 1.5 m high, 50 mm frame, galvanized steel or aluminum	↓		6.500	4.154	1.538
028 308-2700	Fence swinging gate, 3m high, 4.5 m wide motor operated, no wiring.	OPENING		0.500	54.000	20.000
028 308-2800	Fence swinging gate, 3 m high, 9 m wide, motor operated, no wiring.			0.300	90.000	33.333
028 308-2900	Fence swinging gate, 3 m high, 14 m wide, motor operated no wiring.			0.250	108.000	40.000
028 308-5010	Fence, double swing gates, including posts & hardware 1.5 m high, 3.6 m opening			2.500	10.800	4.000
028 308-5020	Fence, double swing gates, including posts & hardware 1.5 m high, 6 m opening			2.000	13.500	5.000
028 308-5060	Fence, double swing gates, including posts & hardware 1.8 m high, 3.6 m opening			2.250	12.000	4.444
028 308-5120	Fence, double swing gates, including posts & hardware 3.6 m high, 3.6 m opening	↓	↓	0.750	36.000	13.333
<b>028 312</b>	<b>FENCE, CHAIN LINK RESIDENTIAL:</b>					

**Division 02 : SITE WORK**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
028 312-0920	Fence chain link, tennis court, 215 mm posts, 3 m O.C., 40 mm top rail, 3.6 m high, 11 gauge wire, 11 gauge wire	LM	0.125 Labor Foreman 1.000 Skilled Worker 2.000 Common Laborer 0.250 Truck Driver (light) 0.250 Flatbed Truck, 3 metric ton 1.000 Power Tool	20.000	1.350	0.500

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>028 320</b>	<b>FENCE, MISC. METAL:</b>					
028 320-0300	Fence, chicken wire, galvanized steel, 12 ga., 50 mm x 100 mm, mesh, 1.5 m high	LM	0.125 Labor Foreman 1.000 Skilled Worker 2.000 Common Laborer 0.250 Truck Driver (light) 0.250 Flatbed Truck, 3 metric ton 1.000 Power Tool	45.000	0.600	0.222
<b>028 324</b>	<b>FENCE, WOOD:</b>					
028 324-1200	Fencewood, stockade, cedar, treated wood, 4 rails each 80 mm, 1.8 mm high	LM	0.125 Labor Foreman 2.000 Skilled Workers 2.000 Power Tools	24.000	0.708	0.667
028 324-1250	Fencewood, gate, 1m wide, 1.8 m high	*	*	6.000	2.833	2.667
<b>028 400</b>	<b>WALK/ROAD/PARKING APPURENTUS</b>					
<b>028 402</b>	<b>BOLLARDS:</b>					
028 402 2000	Bollards, cast iron, 300 mm base, 1 meter high, footing included.	EA	0.125 Labor Foreman 2.000 Skilled Worker 3.000 Laborers 0.500 Equip. Operator light 0.500 Gradall, 3.00 metric ton 1.000 Power tools	25.000	1.800	0.480
028 402 2100	Bollard, granite, 400 x 400 x mm base, 1 meter high, footing included, wiring not included.			15.000	3.000	0.800
028 402 2200	Bollards, metal, lighted, 450 mm base, 1 meter high, footing included, wiring not included.			22.000	2.045	0.545
028 402 2300	Bollards, pipe, metal filled with concrete, painted, 150 mm dia, 1.6 m high of which 0.6 m set in concrete footing.			20.000	2.250	0.600
028 402 2400	Bollards, precast concrete, 300 x 300 x 900 mm, exposed aggregate, footing included.	↓	↓	22.000	2.045	0.545
<b>028 404</b>	<b>GUIDE RAIL:</b>					
028 404-0100	Guide rail, corrugated steel, galvanized steel posts, 2 m, O.C. 1.2 m high, double face	LM	0.125 Labor Foreman 2.000 Skilled Workers 2.000 Power Tools	65.000	0.262	0.246
028 404-0900	Guide rail, steel box beam, 150 mm x 150 mm, 1.2 m high, posts 3 m o.c.		0.125 Labor Foreman 2.000 Skilled Worker 3.000 Laborers 0.500 Equip. Operator light 0.500 Gradall, 3.00 metric ton 1.000 Power tools	20.000	2.250	0.600
028 404-1100	Median barrier, steel box beam, 150 mm x 200 mm			35.000	1.286	0.343
028 404-1400	Resilient guide fence and light shield, 1.8 m high, with 2 m high metal or wood square posts 3 m o.c.			16.000	2.813	0.750
028 404-1500	Guiderail, concrete posts, individual, 2 m triangular or square	↓	↓	60.000	0.750	0.200
<b>028 408</b>	<b>PARKING BARRIERS:</b>					

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
028 408-1000	Wheel stops,precast concrete,including dowels,150 mm x 250 mm x 1.8 m long	EA	0.125 Labor Foreman 2.00 Skilled Worker 3.00 Laborers 0.500 Equip. Operator light 0.5000 Gradall, 3.00 metric ton 1.000 Power tools	70.000	0.643	0.171
028 408-1100	Wheel stops,precast concrete,including dowels, 200 mm x 330 mm x 1.8 m long			70.000	0.643	0.171
028 408-1200	Wheel stops,thermoplastic 150 mm x 250 mm x 1.8 m long			80.000	0.563	0.150
028 412 SIGNS:						
028 412-1200	Guide and directional signs, 600 mm x 600 mm, reflectorized or high intensity with steel post 3 m high bolted.	EA	0.125 Labor Foreman 2.00 Skilled Worker 3.00 Laborers 0.500 Equip. Operator light 0.5000 Gradall, 3.00 metric ton 1.000 Power tools	24.000	1.875	0.500
028 412-1800	Highway road signs, aluminum, over 2 SQM, reflectorized or high intensity, fixed on 2 each, 6 meter high posts & including footings.	SQM		24.000	1.875	0.500
028 412-2200	Highway road signs, aluminum, 10 sqm, reflectorized or high intensity, suspended over road.	-		12.000	3.750	1.000
028 416 STEPS:						
028 416-0300	Bluestone steps treads, 300 mm x 50 mm or 300 mm x 40 mm including excav., borrow & concrete base	M RISER	0.125 Labor Foreman 2.00 Skilled Worker 3.00 Laborers 0.500 Equip. Operator light 0.5000 Gradall, 3.00 metric ton 1.000 Power tools	12.000	3.750	1.000
028 416-0500	Concrete, cast in place,	See division 034-804				
028 424 TRAFFIC SIGNALS:						
028 424-0100	Traffic signals, pedestrian intersection, 8 signals, 2 each direction, programmed & with pedestrian pushbuttons and mast arms	TOTAL	0.125 Skilled Foreman 2.000 Electrician 2.000 Helpers 0.500 Equip. Operator (crane) 1.000 Power tools 0.500 SP Crane, 4.5 ton	0.075	493.333	160.000
028 600 PALYFIELD EQUIPMENT						
028 604 BACKSTOPS:						
028 604-0300	Backstop for basketball, steel and with single pole	LM	0.125 Labor Foreman 2.00 Skilled Worker 3.00 Laborers 0.500 Equip. Operator light 0.5000 Gradall, 3.00 metric ton 1.000 Power tools	10.000	4.500	1.200
028 604-0400	Backstop for basketball, steel and double pole	-	-	7.000	6.429	1.714

**Division 02 : SITE WORK**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
028 604-0900	Backstop,wood, for handball or squash court, outdoor	EA	0.125 Labor Foreman 2.000 Skilled Workers 2.000 Power Tools	0.450	37.778	35.556
028 604-1000	Backstop,masonry, for handball or squash court outdoor	"	"	0.300	56.667	53.333
<b>028 608 GOAL POSTS:</b>						
028 608-0100	Goal posts steel, double support,soccer, regulation	PAIR	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tool Set	0.750	28.000	16.000
<b>028 612 PLAYGROUND EQUIPMENT:</b>						
028 612-0400	Playground Equipment,Horizontal monkey ladder, 4.3 m long, 2.3 m high.	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tool Set	2.500	8.400	4.800
028 612-0590	Playground Equipment,Parallel bars,3m long			2.500	8.400	4.800
028 612-1900	Playground Equipment,slides,stainless steel bed 450 mm wide, 3.6 m long, 1.8 m high			1.500	14.000	8.000
028 612-2000	Playground Equipment,slides,stainless steel bed 450 mm wide, 6 m long, 3 m high			1.250	16.800	9.600
028 612-2200	Playground Equipment,swings, pipe framed two end legs, 2.4 m high,plain seats, 4 seats			1.250	16.800	9.600
028 612-2300	Playground Equipment,swings, pipe framed two end legs, 2.4 m high,plain seats, 8 seats			0.850	24.706	14.118
028 612-2500	Playground Equipment,swings, pipe framed two end legs, 3.6 m high,plain seats, 4 seats			0.750	28.000	16.000
<b>028 620 PLATFORM PADDLE TENNIS COURT:</b>						
028 620-0100	Platform paddle tennis court complete with lighting,etc. Aluminum slate deck with aluminum frame	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tool Set	0.060	350.000	200.000
<b>028 700 SITE/STREET FURNISHINGS</b>						
<b>028 704 BENCHES:</b>						
028 704-0050	Benches park,precast concrete,with backs,wood rails,1.2 m long	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 0.500 Equip. Operator 0.500 Crane 11 ton 1.000 Tool Set	5.000	4.200	2.400
028 704-0510	Benches park,steel pedestals with backs, 50 mm x 75mm wood rails, 2.4 m long			6.000	3.500	2.000

**Division 02 : SITE WORK**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
028 704-0610	Benches park,aluminum pedestals,with backs,aluminum slats, 4.6 m long	↓	↓	5.000	4.200	2.400
<b>028 708</b>	<b>BLEACHERS:</b>					
028 708-0050	Bleachers outdoor,protable, 3 to 5 tiers,to 90 m long minimum	Seat	0.125 Labor Foreman 2.000 Skilled Workers 2.000 Power Tools	105.000	0.162	0.152
028 708-0100	Bleachers outdoor,protable, 3 to 5 tiers,less than 5 m long prefabricated	"	"	75.000	0.227	0.213
<b>028 716</b>	<b>PLANTERS:</b>					
028 716-0050	Planters conc.,sandblasted,precast,1.2 m dia., 600 mm high	EA	0.125 Skilled Foreman 2.000 Common Laborer 1.000 Equip. Operator 1.000 Crane 11 ton	20.000	1.250	0.400
028 716-0400	Planters, fiber glass,circular,1.5 m dia., 600 mm high	↓	↓	15.000	1.667	0.533
028 716-0900	Planter /bench fiberglass, 1.8 m square, 900 mm high	↓	↓	15.000	1.667	0.533
<b>028 720</b>	<b>TRASH CLOSURE:</b>					
028 720-0300	Trash closure, wood, 3 m wide, 1.8 m high , 3 m long	EA	0.125 Skilled Foreman 2.000 Common Laborer 1.000 Equip. Operator 1.000 Crane 11 ton	3.000	8.333	2.667
028 720-0300	Trash closure, precast concrete, 1.2 m wide, 1.2 m high , 1.5 m long	"	"	3.000	8.333	2.667
<b>028 724</b>	<b>TRASH RECEPTACLE:</b>					
028 724-0100	Trash receptacle, fiberglass, 600 mm square, 760 mm high	EA	0.125 Skilled Foreman 2.000 Common Laborer 1.000 Equip. Operator 1.000 Crane 11 ton	36.000	0.694	0.222
<b>029</b>	<b>LANDSCAPING</b>					
<b>029 100</b>	<b>SHRUB/TREE TRANSPLANTING</b>					
<b>029 104</b>	<b>TREE GUYING:</b>					
029 104-0100	Tree guying including stakes, guy wire and wrap less than 75 mm caliper, 2 stakes	EA	0.125 Labor Foreman 2.000 Common Laborer 2.000 Tools Set	25.000	0.680	0.640
029 104-1300	Tree guying including arrowhead anchor, cable, turnbuckles and wrap 150 mm caliper, 150 mm anchors	↓	↓	9.000	1.889	1.778
029 104-1400	Tree guying including arrowhead anchor, cable, turnbuckles and wrap 200 mm caliper, 200 mm anchors	↓	↓	6.000	2.833	2.667
<b>029 200</b>	<b>SOIL PREPARATION</b>					
<b>029 204</b>	<b>LAWN BED PREPARATION:</b>					
029 204-020 0	Rake topsoil, site material, harley rock rake, adverse	SQM	0.125 Labor Foreman 2.000 Laborers 1.000 Equip. Operator 1.000 Backhoe Loader 85 HP	500.000	0.050	0.016

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
029 204-1050	Remove topsoil & pile on site 75 HP dozer, 150 mm deep, 100 m haul		1.00 Equip. Operator 0.500 Laborer 1.000 Dozer, 75 HP	707.000	0.017	0.011
029 204-1100	Remove topsoil & pile on site 75 HP dozer, 300 mm deep, 15 m haul			1050.000	0.011	0.008
029 204-1150	Remove topsoil & pile on site 75 HP dozer, 300 mm deep, 90 m haul			353.000	0.034	0.023
029 204-1920	Remove rocks & debris from grade, with rock picker		1.000 Equip. Oper.(med.) 0.500 Laborer 1.000 F.E. Loader,W.M.,0.76M3	10000.000	0.001	0.001
029 204-3500	Screen topsoil from stockpile, vibrating screen, wet material (organic)	CUM	1.000 Equip. Oper.(med.) 0.500 Laborer 1.000 F.E. Loader,T.M.,1.91M3	125.000	0.096	0.064
029 204-3550	Screen topsoil from stockpile, vibrating screen, dry material (organic)		"	200.000	0.060	0.040
029 204-3800	Spread top soil, from stockpile, 150 mm deep, 15 meter far.		1.00 Equip. Operator 0.500 Laborer 1.000 Dozer, 75 HP	707.000	0.017	0.011
029 204-4100	Fertilizer, 0.11 kg/SQM, push spreader	SQM	1 Building Laborer 1 Gas Eng. Tool	10000.000	0.001	0.001
029 204-4150	Fertilizer, 0.11 kg/SQM, tractor spreader		1.000 Equip. Operator (med.) 0.5000 Laborer 1.000 Wheel Loader, 55 HP, W/ Attachment.	60000.000	0.000	0.000
029 204-4400	Spread manure 10 kg/m2, push spreader		1 Building Laborer 1 Gas Eng. Tool	1500.000	0.005	0.005
029 204-4450	Spread manure 10 kg/m2, tractor spreader		"	3000.000	0.003	0.010
029 204-6000	Tilling topsoil, 20 HP tractor, disk harrow, 150 mm deep		1.000 Equip. Operator (med.) 0.5000 Laborer 1.000 Wheel Loader, 55 HP, W/ Attachment.	25000.000	0.000	0.000
<b>029 208 PLANT BED PREPARATION:</b>						
029 208-0100	Backfill planting pit, by hand, on site topsoil	CUM	1.000 Common Laborer 1.000 Tool Set	10.000	0.800	0.800
029 208-1000	Excavate planting pit, by hand, sandy soil	"	"	4.500	1.778	1.778
029 208-2000	Mix planting soil, including loam, manure, peat, by skid steer loader	CM	0.125 Skilled Foreman 2.000 Laborers 1.000 Equip. operator 1.000 Loader, Skid Steer	225.000	0.111	0.036
<b>029 300 LAWNS &amp; GRASSES</b>						
<b>029 304 SEEDING:</b>						
029 304-0100	Seeding mechanical, 240 kg/hectare	SQM	1 Building Laborer 1 Gas Eng. Tool	10000.000	0.001	0.001
029 304-0600	Limestone, hand push spreader			14000.000	0.001	0.001
029 304-0800	Grass seed hand push spreader, 0.022 kg/SQM			14000.000	0.001	0.001

## Division 02 : SITE WORK

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
029 304-1900	Seeding by aerial operations, lawn seed	Hectare	1.000 Skilled Foreman 2.000 Common Laborers 1.000 Equip. Operator 1.000 Backhoe Loader, 50 kW 1.000 Small helicopter w/pilot	16.000	2.000	1.000
<b>029 316</b>	<b>SODDING:</b>					
029 316-0050	Sodding, 250 mm deep, bluegrass sod, level ground, 750 SQM	SQM	0.125 Skilled Foreman 4.000 Common Laborers 1.000 Equip. Operator 1.000 Wheel Loader	600.000	0.068	0.013
029 316-0200	Sodding, 250 mm deep, bluegrass sod, level ground, 370 SQM			500.000	0.082	0.016
029 316-0201	Sodding, 250 mm deep, bluegrass sod, level ground, 100 SQM			450.000	0.091	0.018
029 316-0600	Sodding, 250 mm deep, bluegrass sod, sloped ground, 370 SQM			375.000	0.109	0.021
029 316-0700	Sodding, 250 mm deep, bluegrass sod, sloped ground, 100 SQM			300.000	0.137	0.027
<b>029 500</b>	<b>TREES/PLANTS/GROUND COVER</b>					
<b>029 504</b>	<b>GROUND COVER:</b>					
029 504-0600	Ground cover, stone chips, marble	KG	0.125 Labor Foreman 2.000 Common Laborer 2.000 Tools Set	9000.000	0.002	0.002
029 504-0700	Ground gravel,hand cover pea gravel	CUM	"	16.000	1.063	1.000
<b>029 516</b>	<b>MULCH:</b>					
029 516-0100	Mulch aged barks, 75 mm deep, hand spread	SQM	1 Common Labor 1 Tool Set	65.000	0.123	0.123
029 516-0200	Mulch hay, 25 mm deep, hand spread			300.000	0.027	0.027
029 516-0800	Mulch peat moss, 25 mm deep, hand spread			600.000	0.013	0.013
<b>029 520</b>	<b>MOVING PLANTING:</b>					
029 520-0300	Planting, moving trees on site, 900 mm ball	EA	0.125 Labor Foreman 2.000 Common Laborer 2.000 Tools Set	2.000	8.500	8.000
029 520-0400	Planting, moving trees on site, 1500 mm ball	"	"	0.750	22.667	21.333
<b>029 524</b>	<b>PLANTING SHRUBS:</b>					
029 524-0100	Shrubs, broadleaf evergreen, planted in prepared beds	EA	0.125 Labor Foreman 2.000 Common Laborer 2.000 Tools Set	50.000	0.340	0.320
029 524-0200	Shrubs, azalea, 380 mm to 460 mm, container			50.000	0.340	0.320
029 524-0300	Shrubs, barberry, 230 mm to 300 mm, container			65.000	0.262	0.246
<b>029 528</b>	<b>PLANTING SHRUBS &amp; TREES :</b>					



**Division 02 : SITE WORK**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
029 528-0100	Shrubs and trees, evergreen, in prepared beds, balled and burlapped, 1.2 m to 1.5 m high	EA	0.125 Labor Foreman 1.000 Skilled Worker 2.000 Common Laborer 0.250 Truck Driver (light) 0.250 Flatbed Truck, 3 metric ton 1.000 Power Tool	16.000	1.688	0.625
029 528-0300	Shrubs and trees, evergreen, in prepared beds, balled and burlapped, 2.4 to 2.5 m high			10.000	2.700	1.000
029 528-0600	Shrubs and trees, evergreen, in prepared beds, balled and burlapped, upto 600mm high			45.000	0.600	0.222
029 528-0740	Shrubs and trees, evergreen, in prepared beds, balled and burlapped, pine black upto 900mm.			35.000	0.771	0.286
029 528-0741	Shrubs and trees, evergreen, in prepared beds, balled and burlapped, spruce, blue, 0.5 m to 0.6 m			45.000	0.600	0.222
<b>029 536</b>	<b>PLANTING TREES:</b>					
029 536-0100	Trees deciduous, in preparation beds, balled & burlapped,ash 50 mm caliper	EA	0.125 Labor Foreman 1.000 Skilled Worker 2.000 Common Laborer 0.250 Truck Driver (light) 0.250 Flatbed Truck, 3 metric ton 1.000 Power Tool	6.000	4.500	1.667
029 536-0200	Trees deciduous, in preparation beds, balled & burlapped,beech, 1.5 m to 1.8 m high			25.000	1.080	0.400
029 536-0600	Trees deciduous, in preparation beds, balled & burlapped,dogwood 1.2 m to 1.8 m high			25.000	1.080	0.400
029 536-1100	Trees deciduous, in preparation beds, balled & burlapped,honeylocust, 3m to 3.6m, 38 mm caliper			7.000	3.857	1.429
029 536-1400	Trees deciduous, in preparation beds, balled & burlapped,linden, 2.4 m to 3 m, 25 mm caliper			10.000	2.700	1.000
029 536-1600	Trees deciduous, in preparation beds, balled & burlapped,maple, red, 2.4 m to 3 m, 38 mm caliper	EA	0.125 Labor Foreman 1.000 Skilled Worker 2.000 Common Laborer 0.250 Truck Driver (light) 0.250 Flatbed Truck, 3 metric ton 1.000 Power Tool	7.000	3.857	1.429
029 536-2700	Trees deciduous, in preparation beds, balled & burlapped, tulip, 1.5m to 2.4m	"	"	25.000	1.080	0.400

## Division 3 Concrete

### Estimating Tips

#### General

Always obtain concrete prices from suppliers near the job site. Remember to add for waste, particularly for slabs and footings on grade.

#### 031 Concrete Formwork

A primary cost for concrete construction is forming. Most jobs today are constructed with prefabricated forms. The selection of the forms best suited for the job and the total square meter of forms required for efficient concrete forming and placing are key elements in estimating concrete construction. Enough forms must be available for erection to make efficient use of the concrete placing equipment and crew.

Concrete accessories for forming and placing depend upon the systems used. The productivity rate as shown in this book includes the form preparation, erecting, forms removal and cleaning. Concrete forms are usually estimated by computing the surface area of the form in contact with concrete.

Estimators shall focus on any special formwork requirements such as:

- Risers for stepped wall footings.
- Keyways, as grooves are usually formed in the top of footings.
- Design proper wall forms to withstand the horizontal pressure exerted by the flow of concrete.
- Curved walls require more studs and bracing.
- Bulkheads shall be considered for all opening in formwork, estimator shall allow an average of 0.06 M<sup>3</sup> form per square meter opening.
- Check for any setbacks for all wall foundations that extend above grade.
- Check for any continuous hunch in concrete wall forms.
- Using high early strength cement instead of ordinary portland cement will reduce the cost of forms in large jobs.
- Productivity rate for slab forms considers the use of adjustable sectional steel scaffolding units for shoring.

#### 032 Concrete Reinforcement

Ascertain that the reinforcing steel take-off has included all accessories, cutting, bending and an allowance for lapping, splicing and waste.

Estimator shall pay attention to steel bars supports with respect to rust prevention classification as being maximum, moderate or with no protection.

Estimator shall be aware that placing reinforcing steel in architectural concrete walls, having smaller sizes, horizontal, vertical short runs, and wired together in a costly operation.

#### 033 Cast-in-Place Concrete

When estimating structural concrete, pay particular attention to requirements for concrete additives, curing methods and surface treatments. Special consideration for climate, hot or cold, must be included in your estimate. Be sure to include requirements for concrete placing equipment and concrete finishing.

#### 034 Precast Concrete

The cost of hauling precast structural members is often an important factor. For this reason, it is important to get a quote from the nearest supplier.

Estimator shall consider additional forms for column depression at all column heads on the flat slabs. Estimator shall be aware that form work for stairs running with two (2) flights between floors and with an intermediate landing costs about 30% more than a straight flight run. Architectural concrete forms shall be priced based on the contractor know-how to detail them, including every piece of plywood, stud, wale, bolt, window boxes and lumbar for reveals.

DIVISION 03 : CONCRETE									
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS			
<b>031</b>	<b>CONCRETE FORMWORK</b>								
<b>030 100</b>	<b>STRUCT C.I.P. FORMWORK</b>								
<b>031 110</b>	<b>ACCESSORIES,ANCHOR BOLTS Incl. nut and washer</b>								
031 110-0200	Anchor bolt,including nut & washer,16 mm Diameter, 305 mm Long (5/8",12")	EA	1 Carpenter	60.000	0.133	0.000			
031 110-0300	Anchor bolt,including nut & washer,16 mm Diameter, 610 mm Long			45.000	0.178	0.000			
031 110-0500	Anchor bolt,including nut & washer, 20 mm Diameter, 610 mm Long			40.000	0.200	0.000			
031 110-0700	Anchor bolt,including nut & washer, 22 mm Diameter, 610 mm Long			30.000	0.267	0.000			
031 110-0800	Anchor bolt,including nut & washer, 24 mm Diameter, 305 mm Long (1",12")			42.000	0.190	0.000			
031 110-0950	Anchor bolt,including nut & washer, 24 mm Diameter, 914 mm Long			18.000	0.444	0.000			
<b>031 111</b>	<b>ANCHOR BOLTS with hex nuts and washers,zinc plated</b>								
031 111-0800	Anchor bolt with hex nut & washer,zinc plated,M8, 8 mm Diameter x 100 mm Long to 200 mm Long	EA	1 Carpenter	80.000	0.100	0.000			
031 111-1270	Anchor bolt with hex nut & washer,zinc plated,M12, 12 mm Diameter x 320 mm Long			68.000	0.118	0.000			
031 111-1670	Anchor bolt with hex nut & washer,zinc plated,M16, 16 mm Diameter x 320 mm Long			62.000	0.129	0.000			
031 111-2070	Anchor bolt with hex nut & washer,zinc plated,M20, 20 mm Diameter x 400 mm Long			50.000	0.160	0.000			
031 111-2450	Anchor bolt with hex nut & washer,zinc plated,M24, 24 mm Diameter x 320 mm Long			58.000	0.138	0.000			
<b>031 112</b>	<b>ACCESSORIES,CHAMFER STRIPS:</b>								
031 112-2000	Chamfer strip,Polyvinyl chloride,15 mm wide with leg	LM	1 Carpenter	125.000	0.064	0.000			
031 112-2200	Chamfer strip,Polyvinyl chloride, 20 mm chamfer with leg			120.000	0.067	0.000			
031 112-2400	Chamfer strip,Polyvinyl chloride, 25 mm radius with leg			115.000	0.070	0.000			
031 112-2800	Chamfer strip,Polyvinyl chloride, 30 mm radius			110.000	0.073	0.000			
031 112-5200	Chamfer strip,steel 20 mm wide			100.000	0.080	0.000			
031 112-5400	Chamfer strip,steel 25 mm wide			96.000	0.083	0.000			
<b>031 114</b>	<b>ACCESSORIES COLUMN FORM:</b>								
031 114-1300	Column clamps adjustable 760 mm x 760 mm	SET	1 Carpenter	15.000	0.533	0.000			
031 114-3300	Column clamps adjustable 1.5 m x 1.5 m	--	--	5.000	1.600	0.000			
<b>031 116</b>	<b>ACCESSORIES,DOVETAIL ANCHOR SYSTEM:</b>								
031 116-0500	Dovetail,Anchor slot,filled, 24 ga.	LM	1 Carpenter	92.000	0.087	0.000			
031 116-0600	Dovetail,Anchor slot,Galvanized, 20 ga.			85.000	0.094	0.000			

**DIVISION 03 : CONCRETE**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
031 116-0800	Dovetail,Anchor slot, 454 gram copper, foam filled			80.000	0.100	0.000
031 116-0900	Dovetail,Anchor slot, 26 ga. stainless steel, foam filled			80.000	0.100	0.000
031 116-1200	Dovetail,Brick anchor,galv., 89 mm Long, 16 ga.	100 PCS	1 Bricklayer	7.000	1.143	0.000
031 116-2100	Dovetail,Anchor Cavity wall,galv., 127 mm Long, 12 ga.			7.000	1.143	0.000
031 116-3100	Dovetail,Furring anchors,corr.,galv., 38 mm Long, 12 ga.			7.000	1.143	0.000
031 116-6100	Dovetail,Stone anchors, 89 mm Long, galv., 6 mm x 25 mm wide			6.000	1.333	0.000
<b>031 122</b>	<b>ACCESSORIES,INSERTS:</b>					
031 122-2300	Inserts,Continuous slotted, 914 mm Long 8 ga.	EA	1 Carpenter	50.000	0.160	0.000
031 122-2350	Inserts,Continuous slotted, 1.5 m Long 8 ga.	--	*	45.000	0.178	0.000
<b>031 126</b>	<b>ACCESSORIES,SLEEVES AND CHASES:</b>					
031 126-0150	Sleeves & Chases,Plastic type,1 use, 229 mm Long, 100 mm dia.(4")	EA	1 Carpenter	75.000	0.107	0.000
031 126-0250	Sleeves & Chases,Plastic type,1 use, 229 mm Long, 300 mm dia.(12")	--	*	50.000	0.160	0.000
<b>031 132</b>	<b>EXPANSION JOINT</b>					
031 132-0010	Expansion Joint,Keyed cold joint, 24 ga.,incl.stakes, 90 mm high	LM	1 Carpenter	50.000	0.160	0.000
031 132-0150	Expansion Joint,Keyed cold joint, 24 ga.,incl.stakes, 190 mm high		1 Carpenter	45.000	0.178	0.000
031 132-0350	Expansion Joint,Poured asphalt, plain, 25 mm x 50 mm		1 Common Labor	110.000	0.073	0.000
031 132-0550	Expansion Joint,Neoprene,liquid,cold applied, 25 mm x 50 mm		1 Common Labor	110.000	0.073	0.000
031 132-0750	Expansion Joint,Polyurethane, 1 part, 13 mm x 25 mm		2 Common Labor	110.000	0.073	0.000
031 132-1150	Expansion Joint,Rubberized hot applied,fuel resistant, 25 mm x 50 mm		*	110.000	0.073	0.000
031 132-2000	Expansion Joint,Premolded,bituminous fiber,13 mm x 150 mm		1 Carpenter	120.000	0.067	0.000
031 132-2250	Expansion Joint,Cork with resin binder, 13 mm x 150 mm			96.000	0.083	0.000
031 132-2550	Expansion Joint,Neoprene sponge,closed cell, 25 mm x 300 mm			96.000	0.083	0.000
031 132-2750	Expansion Joint,Polyethylene foam,13 mm x 150 mm			96.000	0.083	0.000
031 132-3000	Expansion Joint,Polyethylene backer rod, 10 mm to 25 mm diameter			120.000	0.067	0.000
031 132-3100	Expansion Joint,Polyethylene backer rod, 25 mm dia. (1")			120.000	0.067	0.000
031 132-3800	Expansion Joint,Polyurethane foam,regular,closed cell, 25 mm x 300 mm	LM	1 Carpenter	75.000	0.107	0.000
031 132-4300	Expansion Joint,Rubber,gray sponge,13 mm x 150 mm	LM	1 Carpenter	110.000	0.073	0.000
<b>031 138</b>	<b>FORMS IN PLACE, BEAMS AND GIRDERS:</b>					

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
031 138-0650	Forms in place,Beam and Girder,exterior spandrel, 305 mm wide,4 use	SQM CON-TACT AREA	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.250 Equip. Operator 2.000 Power Tools 0.250 Truck Crane 35 Ton	19.460	2.621	0.925
031 138-1500	Forms in place,Exterior spandrel, 610 mm wide, 1 use			18.290	2.788	0.984
031 138-2150	Forms in place,Interior beams, 305 mm wide, 5 use			22.990	2.218	0.783
031 138-2500	Forms in place,Interior beams, 610mm wide, 1 use			20.900	2.440	0.861
031 138-3150	Forms in place,Beam and Girder,encasing steel frame,hung, 5 use			30.080	1.695	0.598
031 138-3650	Forms in place,Beam bottoms only, 610 mm wide, 5 use			27.740	1.839	0.649
031 138-4000	Forms in place,Beam sides only,vertical, 914 mm high, 1 use			29.570	1.725	0.609
031 138-4500	Forms in place,Sloped sides, 914 mm high, 1 use			22.670	2.250	0.794
031 138-5000	Forms in place,Upstanding beams, 914 mm high, 1 use			16.620	3.069	1.083
<b>031 142 FORMS IN PLACE, COLUMNS:</b>						
031 142-0500	Column form,Round fiberglass, 5 use/mo., 300 mm dia. 4.2 m high.	LM	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.250 Equip. Operator 2.000 Power Tools 0.250 Truck Crane 35 Ton	73.000	0.699	0.247
031 142-0650	Column form,Round fiberglass, 5 use/mo.,rent, 610 mm dia. 4.2 m high.			64.000	0.797	0.281
031 142-0800	Column form,Round fiberglass, 5 use/mo., 760 mm dia. 4.2 m high.			58.000	0.879	0.310
031 142-0850	Column form,Round fiberglass, 5 use/mo., 914 mm dia. 4.2 m high			54.700	0.932	0.329
031 142-1700	Column form,Round fiber tube,1 use, 400 mm dia. 4.2 m high.			59.700	0.854	0.302
031 142-1800	Column form,Round fiber tube,1 use, 610 mm dia. 4.2 m high			55.000	0.927	0.327
031 142-1900	Column form,Round fiber tube,1 use, 914 mm dia. 4.2 m high.			50.000	1.020	0.360
031 142-2000	Column form,Round fiber tube,1 use,1220 mm dia. 4.2 m high.			29.300	1.741	0.614
031 142-3050	Column form,Round,steel, 5 use/mo.,regular duty, 400 mm dia., 6 m high			43.500	1.172	0.414
031 142-3150	Column form,Round Steel, 5 use/mo.,Heavy duty, 610 mm dia. 6 m high			30.300	1.683	0.594
031 142-3200	Column form,Round Steel, 5 use/mo., Heavy duty, 762 mm dia. 6 m high			25.800	1.977	0.698
031 142-3250	Column form,Round Steel, 5 use/mo.,Heavy duty, 914 mm dia. 7.6 m high.			22.600	2.257	0.796
031 142-3300	Column form,Round Steel, 5 use/mo.,Heavy duty,1220 mm dia. 7.6 m high			18.200	2.802	0.989

DIVISION 03 : CONCRETE						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
031 142-3350	Column form,Round Steel, 4 use/mo.,Heavy duty,1525 mm dia. 8 m high.	↓	1.00 Carpenter Foreman 4.00 Carpenters 2.00 Laborers 0.50 Equip. Operator 1.00 Power Tools 0.50 Truck Crane 35 Ton	15.500	3.871	0.774
031 142-4000	Column form,Round Steel,Column capitals, 5 use/mo., 600 mm col, 1200 mm cap dia.	EA		14.000	4.286	0.857
031 142-4100	Column form,Round Steel,Column capitals, 5 use/mo., 600 mm col, 1800 mm cap dia.	..	↓	12.250	4.898	0.980
031 142-5500	Column form,Plywood, 300 mm x 300 mm columns, 1 use	SQM CON-TACT AREA	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.250 Equip. Operator 2.000 Power Tools 0.250 Truck Crane 35 Ton	20.360	2.505	0.884
031 142-5650	Column form,Plywood, 300 mm x 300 mm columns, 5 use			24.980	2.042	0.721
031 142-6000	Column form,Plywood, 400 mm x 400 mm columns, 1 use			20.870	2.444	0.862
031 142-6650	Column form,Plywood, 600 mm x 600 mm columns, 5 use			27.850	1.831	0.646
031 142-7000	Column form,Plywood, 900 mm x 900 mm columns, 1 use			23.040	2.214	0.781
031 142-7100	Column form,Plywood, 900 mm x 900 mm columns, 5 use			29.150	1.750	0.617
031 142-7600	Column form,Steel framed plywood, 5 use/month, 300 mm x 300 mm			33.510	1.522	0.537
031 142-7650	Column form,Steel framed plywood, 5 use/month, 400 mm x 400 mm			35.190	1.449	0.512
031 142-7700	Column form,Steel framed plywood, 5 use/month, 500 mm x 500 mm			36.070	1.414	0.499
031 142-7750	Column form,Steel framed plywood, 5 use/month, 600 mm x 600 mm	↓	↓	36.970	1.379	0.487
<b>031 146 FORMS IN PLACE, CULVERT:</b>						
031 146-0010	Form Culvert,1524 mm to 2438 mm rectangular, 1 use	SQM CON-TACT AREA	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.250 Equip. Operator 2.000 Power Tools 0.250 Truck Crane 35 Ton	17.000	3.000	1.059
<b>031 150 FORMS IN PLACE, ELEVATED SLABS: STEEL JACK SUPPORTS</b>						
031 150-1000	Forms in place,Flat plate to 4.6 m high, 1 use	SQM	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.250 Equip. Operator 2.000 Power Tools 0.250 Truck Crane 35 Ton	65.850	0.774	0.273
031 150-1150	Forms in place,Flat plate to 4.6 m high, 5 use			72.000	0.708	0.250
031 150-1600	Forms in place,Flat plate 6.2 m to 11 m high ceiling, 5 use			62.000	0.823	0.290

DIVISION 03 : CONCRETE							
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS	
031 150-2150	Forms in place, Flat slab with drop panels, to 4.6 m high, 5 use			68.000	0.750	0.265	
031 150-3500	Forms in place, Floor slab, with 508 mm metal pans, 1 use			52.330	0.975	0.344	
031 150-3650	Forms in place, Floor slab, with 508 mm metal pans, 5 use/month			59.000	0.864	0.305	
031 150-3760	Forms in place, Floor slab, with 762 mm metal pans, 5 use/month.			65.320	0.781	0.276	
031 150-4000	Forms in place, Floor slab, with 483 mm metal domes, 1 use			51.200	0.996	0.352	
031 150-4150	Forms in place, Floor slab, with 483 mm metal domes, 2 use/month.			59.260	0.861	0.304	
031 150-4500	Forms in place, Floor slab, with 762 mm fiberglass domes, 1 use			51.200	0.996	0.352	
031 150-4550	Forms in place, Floor slab, with 762 mm fiberglass domes, 5 use			64.270	0.794	0.280	
031 150-5000	Forms in place, Floor slab, with hordi blocks 5 uses forms			63.140	0.808	0.285	
031 150-6500	Forms in place, Curb forms, wood, 150 mm to 300 mm H, on elevated slabs, 1 use	SQM CON-TACT AREA	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.125 Equip. Operator 1.000 Power Tools 0.125 Truck Crane 35 Ton	23.400	2.137	0.385	
031 150-8050	Forms in place, Perimeter deck and rail for elevated slabs, Curved	..		21.080	2.372	0.427	
031 150-8750	Forms in place, Void forms, round fiber, 300 mm diameter, void (12")	LM		100.000	0.500	0.090	
<b>031 154 FORMS IN PLACE, EQUIPMENT FOUNDATIONS:</b>							
031 154-0010	Forms in place, equipment foundations 1 use	SQM CON-TACT AREA	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.125 Equip. Operator 1.000 Power Tools 0.125 Truck Crane 35 Ton	11.880	4.209	0.758	
031 154-0150	Forms in place, equipment foundations 5 use	"	"	13.800	3.623	0.652	
<b>031 158 FORMS IN PLACE, FOOTINGS:</b>							
031 158-0010	Forms in place, Footings Continuous wall, 1 use	SQM CON-TACT AREA	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.125 Equip. Operator 1.000 Power Tools 0.125 Truck Crane 35 Ton	34.150	1.464	0.264	
031 158-0150	Forms in place, Footings Continuous wall, 5 use	"		40.420	1.237	0.223	
031 158-1000	Integral starter wall, to 100 mm high, 1 use	LM		155.000	0.323	0.058	
031 158-1550	Keyway, 5 use, tapered wood, 50 mm x 150 mm		1 Carpenter	115.000	0.070	0.000	
031 158-2050	Keyway, 5 use, tapered plastic, 50 mm x 100 mm		"	115.000	0.070	0.000	

DIVISION 03 : CONCRETE							
CSI CODE	ITEM DESCRIPTION	UNIT		CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
031 158-3000	Forms in place,pile cap, square or rectangular, 1 use			0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.125 Equip. Operator 1.000 Power Tools 0.125 Truck Crane 35 Ton	28.200	1.773	0.319
031 158-3150	Forms in place,pile cap,square or rectangular, 5 use				33.600	1.488	0.268
031 158-4000	Forms in place,pile cap,Triangular or hexagonal, 1 use				27.800	1.799	0.324
031 158-5000	Forms in place,spread footings, 1 use				30.330	1.649	0.297
031 158-5150	Forms in place,spread footings, 5 use				36.160	1.383	0.249
031 158-6000	Supports for dowels,plinths or templates, 600 mm x 600 mm footing		EA		27.000	1.852	0.333
031 158-6150	Supports for dowels,plinths or templates, 3650 mm x 3650 mm footing		"		18.000	2.778	0.500
031 162 FORMS IN PLACE, GRADE BEAM:							
031 162-0010	Forms,Grade Beam 1 use		SQM CON-TACT AREA	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.125 Equip. Operator 1.000 Power Tools 0.125 Truck Crane 35 Ton	43.000	1.163	0.209
031 162-0150	Forms,Grade Beam 5 use		"	"	50.000	1.000	0.180
031 166 FORMS IN PLACE, MAT FOUNDATION:							
031 166-0010	Forms in place,mat foundation 1 use		SQM CON-TACT AREA	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.125 Equip. Operator 1.000 Power Tools 0.125 Truck Crane 35 Ton	23.600	2.119	0.381
031 166-0120	Forms in place,mat foundation 5 use		"	"	28.300	1.767	0.318
031 170 FORMS IN PLACE, SLAB ON GRADE:							
031 170-1000	Bulkhead forms with keyway, 1 use , 2 piece		LM	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.125 Equip. Operator 1.000 Power Tools 0.125 Truck Crane 35 Ton	155.000	0.323	0.058
031 170-1400	Bulkhead forms w/keyway, 1 piece expanded metal, left in place		"		475.000	0.105	0.019
031 170-2000	Curb forms, wood,150 mm to 450 mm high,on grade, 1 use		SQM CON-TACT AREA		22.700	2.203	0.396
031 170-2150	Curb forms, wood,150 mm to 450 mm high,on grade, 5 use		"		26.300	1.901	0.342
031 170-4050	Edge forms for slab blockouts, 1 use to 600 mm high		LM		62.000	0.806	0.145



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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE		DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
031 170-6000	Trench forms in floor, 1 use	SQM CON- TACT AREA			17.500	2.857	0.514
031 170-6150	Trench forms in floor, 5 use	"		↓	19.200	2.604	0.469
031 174 FORMS IN PLACE, STAIRS:							
031 174-0010	Forms in place,Stairs (Slant length x width), 1 use	SQM	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.250 Equip. Operator 2.000 Power Tools 0.250 Truck Crane 35 Ton		6.700	7.612	2.687
031 174-0150	Forms in place,Stairs (Slant length x width), 5 use	"	"		9.000	5.667	2.000
031 182 FORMS IN PLACE, WALLS:							
031 182-0100	Box out for openings up to 1 square meter in 400 mm wall thick	EA	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.250 Equip. Operator 2.000 Power Tools 0.250 Truck Crane 35 Ton		12.000	4.250	1.500
031 182-0600	Bulkhead forms w/keyway, 1 piece expanded metal, left in place	LM	1 Carpenter		100.000	0.080	0.000
031 182-2000	Job built plyform wall forms,to 2400 mm high, 1 use	SQM CON- TACT AREA	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.250 Equip. Operator 2.000 Power Tools 0.250 Truck Crane 35 Ton		30.450	1.675	0.591
031 182-2150	Job built plyform wall forms,to 2400 mm high, 5 use				38.200	1.335	0.471
031 182-2550	Job built plyform wall forms over 2400 mm to 4800 mm high, 5 use				31.100	1.640	0.579
031 182-2850	Job built plyform wall forms over 4800 mm high, 5 use				25.900	1.969	0.695
031 182-4000	Radial wall forms,smooth curved, 1 use				22.390	2.278	0.804
031 182-4150	Radial wall forms,smooth curved, 5 use				27.950	1.825	0.644
031 182-4450	Radial wall forms, curved, with 600 mm chords, 5 use				33.540	1.521	0.537
031 182-4600	Retaining wall forms, battered, to 2400 mm high, 1 use				24.650	2.069	0.730
031 182-4750	Retaining wall forms, battered, to 2400 mm high, 5 use				31.000	1.645	0.581
031 182-5050	Retaining wall forms, battered, over 2400 mm to 4800 mm high, 5 use			↓	22.800	2.237	0.789
031 182-6200	Liners for forms Ribbed look, 13 mm & 19 mm deep, 5 use		1 Carpenter		68.900	0.116	0.000
031 182-6400	Liners for forms Rustic brick pattern, 5 use.				66.800	0.120	0.000
031 182-6600	Liners for forms striated,random,10 mm x 10 mm deep, 5 use			↓	68.900	0.116	0.000

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
031 182-7800	Wall form,Modular prefabricated plywood, to 2400 mm high, 1 use/month		0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.250 Equip. Operator 2.000 Power Tools 0.250 Truck Crane 35 Ton	62.300	0.819	0.289
031 182-7860	Wall form,Modular prefabricated plywood, to 2400 mm high, 5 use/month		↓	66.700	0.765	0.270
031 182-8060	Wall form,Modular prefabricated plywood, to 4800 mm high, 5 use/month		0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.250 Equip. Operator 2.000 Power Tools 0.250 Truck Crane 35 Ton	46.700	1.092	0.385
031 182-8660	Form,Pilasters, 5 use			30.350	1.680	0.593
031 182-9060	Wall form,Steel framed plywood, to 2400 mm high, 5 use/month			51.000	1.000	0.353
031 182-9260	Wall form,Steel framed plywood,over 2400 mm to 4800 mm high, 5 use/month			50.800	1.004	0.354
031 182-9460	Wall form,Steel framed plywood,over 4800 mm to 6100 mm high, 5 use/month	↓	↓	45.700	1.116	0.394
<b>031 186 GAS STATION FORMS:</b>						
031 186-0010	Forms,Curb fascia, with template 12 ga. steel, left in place, 230 mm high	LM	1 Carpenter	12.000	0.667	0.000
031 186-2550	Island forms, 6100mm long, 230 mm high, 1500 mm wide	EA	0.125 Carpenter Foreman 4.000 Carpenters 2.000 Laborers 0.125 Equip. Operator 1.000 Power Tools 0.125 Truck Crane 35 Ton	6.000	8.333	1.500
<b>031 190 SCAFFOLDING See division 015-254</b>						
<b>031 196 SLIPFORMS:</b>						
031 192-1000	Slipforms Buildings, Average	SQM CONTACT AREA	1.00 Skilled Foreman 4.00 Skilled workers 2.00 Laborers 0.25 Equip. Operator 0.25 Truck Crane - Hauling 0.50 Hyd. Jack with Rods	78.000	0.744	0.077
<b>031 198 WATERSTOP:</b>						
031 198-0010	Waterstop,Polyvinyl chloride, ribbed 5 mm thk. 100 mm wide	LM	1 Carpenter	38.000	0.211	0.000
031 198-0500	Waterstop,Ribbed, PVC, with center bulb, 5 mm thick, 230 mm wide			32.000	0.250	0.000
031 198-0850	Waterstop,Dumbbell type, PVC, 150 mm wide, 10 mm thick			33.000	0.242	0.000
031 198-1250	Waterstop,Split PVC, 10mm thick, 150 mm wide			33.000	0.242	0.000
031 198-2050	Waterstop,Rubber,flat dumbbell, 10 mm thick, 230 mm wide			32.000	0.250	0.000

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
031 198-5500	Waterstop fittings,Rubber,flat,dumbbell or center bulb, 10 mm thk. flat cross or tee,150 - 230 mm wide			25.000	0.320	0.000
031 198-6500	Waterstop fittings,Rubber,flat,dumbbell or center bulb, 10 mm thk. flat Ell 150 - 230 mm wide			30.000	0.267	0.000
031 198-7000	Waterstop fittings, Rubber,flat,dumbbell or center bulb,10 mm thk. Vertical Tee,150 - 230 mm wide			18.000	0.444	0.000
031 198-7500	Waterstop fittings, Rubber,flat,dumbbell or center bulb, 10 mm thk. Vertical Ell 150 - 230 mm wide			27.000	0.296	0.000
<b>032 CONCRETE REINFORCEMENT</b>						
<b>032 100 REINFORCING STEEL:</b>						
<b>032 107 REINFORCING IN PLACE A615, GRADE 60:</b>						
032 107-0100	Grade 60,Reinforcement,Beams & Girders,10 mm to 25 mm	MET. TON	0.25 Labor Foreman 4.00 Steel Fixtures 2.00 Common Laborers 0.25 Equip. Operator 1.00 Power Tool 0.125 Crane 0.125 Bed Truck	1.100	47.273	9.091
032 107-0150	Grade 60,Reinforcement,Beams & Girders, 25 mm to 40 mm			1.400	37.143	8.571
032 107-0200	Grade 60,Reinforcement,Columns, 10 mm to 25 mm			1.000	52.000	12.000
032 107-0250	Grade 60,Reinforcement,Columns, 25 mm to 40 mm			1.200	43.333	10.000
032 107-0300	Grade 60,Reinforcement,Spirals, 10 mm diam, hot rolled, to 350 mm dia. )			1.200	43.333	10.000
032 107-0400	Grade 60,Reinforcement,Elevated slabs,10 mm to 25 mm			1.800	28.889	6.667
032 107-0500	Grade 60,Reinforcement,Footings 10 mm to 25 mm			1.400	37.143	8.571
032 107-0550	Grade 60,Reinforcement,Footings 25 mm to 40 mm			1.800	28.889	6.667
032 107-0600	Grade 60,Reinforcement,Slab on grade 10 mm to 25 mm			1.600	32.500	7.500
032 107-0700	Grade 60,Reinforcement,Walls,10 mm to 25 mm			1.800	28.889	6.667
032 107-0750	Grade 60,Reinforcement,Walls, 25 mm to 40 mm			2.200	23.636	5.455
032 107-1000	Grade 60,Reinforcement,Typical in place,10 metric ton lots,average			1.100	47.273	10.909
032 107-1100	Grade 60,Reinforcement,Typical in place,over 45 metric ton lots,average			1.400	37.143	8.571
032 107-2000	Unloading,handling & sorting,steel reinforcement add to above	MET. TON	0.25 Skilled Foreman 4.00 Steel Fixtures(Reinf.) 2.00 Laborers 0.50 Equip. Oper(Crane) 0.50 Equip. Oper. Oiler 0.50 Hyd.Crane,23 ton 0.50 Bed Truck	80.000	0.725	0.100
032 107-2400	Reinforcement steel,Dowels, 600 mm long, deformed,10 mm bar	EA	0.125 Steel Forman 2.000 Steel Fixtures 1.000 Helper	400.000	0.063	0.000

# **DIVISION 03 : CONCRETE**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
032 107-2420	Reinforcement steel,Dowels, 600 mm long, deformed,16 mm bar			300.000	0.083	0.000
032 107-2430	Reinforcement steel,Dowels, 600 mm long, deformed, 20 mm bar			270.000	0.093	0.000
032 107-2450	Reinforcement steel,Dowels,heavier and longer than 20 mm	KG		280.000	0.089	0.000
032 107-2500	Reinforcement steel,Smooth dowels, 300 mm long, 10 mm dia. (3/8")	EA		100.000	0.250	0.000
032 107-2520	Reinforcement steel,Smooth dowels, 300 mm long, 16 mm dia. (5/8")			85.000	0.294	0.000
032 107-2700	Reinforcement steel,Dowel caps, 125 mm long, 20 mm dia. (3/4")			78.000	0.321	0.000
032 107-2720	Reinforcement steel,Dowel caps, 125 mm long, 32 mm dia. (1 1/4")			700.000	0.036	0.000
<b>032 109</b>	<b>SPLICING REINFORCING BARS Incl. holding bars in place while splicing:</b>					
032 109-0130	Butt weld column bar splice including holding bars in place, 35 mm bars	EA	1.00 Skilled Foreman 4.00 Steel Fixtures(Reinf.) 2.00 Laborers 1.00 Power Tools	70.000	0.800	0.229
032 109-0310	Column splice clamps,sleeve&wedge,or end bearing 30 mm or 35 mm steel bars			120.000	0.467	0.133
032 109-0800	Mechanical but splice, sleeve type with filler metal,compression only,all grades, columns only 35 mm steel bars			55.000	1.018	0.291
032 109-1700	Splice steel bar,including mechanical threading,straight steel bars, 35 mm			60.000	0.933	0.267
032 109-1750	Splice steel bar,including mechanical threading,straight steel bars, 40 mm	EA	1.00 Skilled Foreman 4.00 Steel Fixtures(Reinf.) 2.00 Laborers 1.00 Power Tools	45.000	1.244	0.356
032 109-2500	Splice bent steel bar, including mechanical threading, bars, 40 mm	-	-	36.000	1.556	0.444
<b>032 200</b>	<b>WELDED WIRE FABRIC:</b>					
<b>032 207</b>	<b>WELDED WIRE FABRIC:</b>					
032 207-0100	Welded Wire Fabric Sheets,100 mm x100 mmx (10x10) mm,12.34 Kg/m2	SQM	0.125 Steel Forman 4.00 Steel Fixtures 2.00 Helper	630.000	0.078	0.000
032 207-0150	Welded Wire Fabric Sheets,100 mm x 200 mm x (12x8) mm,10.90 Kg/m2			585.000	0.084	0.000
032 207-0200	Welded Wire Fabric Sheets,100 mm x 200 mm x (10x8) mm, 8.14 Kg/m2			560.000	0.088	0.000
032 207-0300	Welded Wire Fabric Sheets, 200 mm x 200 mm x (10x10) mm, 6.6 kg/m2			535.000	0.092	0.000
032 207-0400	Welded Wire Fabric Sheets,100 mm x 100 mm x (7x7) mm, 6.04 Kg/m2			520.000	0.094	0.000
032 207-0420	Welded Wire Fabric Sheets, 150 mm x 150 mm x (8x8) mm, 5.36 Kg/m2			500.000	0.098	0.000
032 207-0420	Welded Wire Fabric Sheets,100 mm x 300 mm x (8x8) mm, 5.30 Kg/m2			495.000	0.099	0.000
032 207-0440	Welded Wire Fabric Sheets,100 mm x 400 mm x ( 8x5) mm, 4.34 Kg/m2			470.000	0.104	0.000
032 207-0500	Welded Wire Fabric Sheets, 200 mm x 200 mmx ( 8x8) mm, 3.95 Kg/m2			450.000	0.109	0.000

DIVISION 03 : CONCRETE									
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS			
032 207-0600	Welded Wire Fabric Sheets,100 mm x 400 mm x ( 6x5) mm, 2.61 Kg/m2			425.000	0.115	0.000			
032 2070-650	Welded Wire Fabric Sheets,100 mm x 400 mm x ( 4x4) mm, 1.98 Kg/m2			420.000	0.117	0.000			
032 207-0700	Welded Wire Fabric Sheets, 200 mm x 200 mm x (5x5) mm, 1.54 Kg/m2			410.000	0.120	0.000			
032 207-0800	Welded Wire Fabric Sheets,150 mm x150 mm x (4x4) mm, 1.35 Kg/m2			400.000	0.123	0.000			
<b>032 300</b>	<b>STRESSING TENDONS:</b>								
<b>032 307</b>	<b>PRESTRESSING STEEL <i>Post-tensioned in field:</i></b>								
032 307-0100	Stressing Tendon,Post-tensioned in field,gouted strand, 15 m span, 50 metric ton	KG	1.00 Skilled Foreman 4.00 Steel Fixtures (reinf.) 1.00 Equip. Oper. (light) 2.00 Laborers 3.00 Stressing Equipment 0.50 Grouting Equipment	360.000	0.178	0.078			
032 307-0150	Stressing Tendon,Post-tensioned in field, grouted strand,15 m span,150 metric ton			760.000	0.084	0.037			
032 307-0300	Stressing Tendon,Post-tensioned in field,gouted strand, 30 m span,gouted 50 metric ton			550.000	0.116	0.051			
032 307-1000	Stressing Tendon,Post-tensioned in field,gouted strand, 25 m span,gouted 25 metric ton			900.000	0.071	0.031			
032 307-1200	Stressing Tendon,Post-tensioned in field,ungouted strand, 15 m span, 50 metric ton		1 Skilled Foreman 3 Steel workers 3 Stressing Equipment	350.000	0.091	0.069			
032 307-1400	Stressing Tendon,Post-tensioned in field,ungouted strand, 30 m span,ungouted 50 metric ton			490.000	0.065	0.049			
032 307-1800	Stressing Tendon,Post-tensioned in field,ungouted bars, 15 m span, 25 metric ton			410.000	0.078	0.059			
032 307-2000	Stressing Tendon,Post-tensioned in field,ungouted bars, 25 m span,ungouted, 25 metric ton			515.000	0.062	0.047			
032 307-2220	Steel Post-tensioned in field,ungouted single strand, 30 m slab,10 metric ton			325.000	0.098	0.074			
<b>033</b>	<b>CAST-IN-PLACE CONCRETE</b>								
<b>033 100</b>	<b>STRUCTURAL CONCRETE:</b>								
<b>033 130</b>	<b>CONCRETE IN PLACE: <i>Including forms (5 use),reinforcing steel,and finishing unless otherwise indicated</i></b>								
033 130-0204	Cast in Place, with forms,steel & finishing, Base,granolithic, 25 mm x 127mm high, straight	LM	0.125 Laborer Forman 2.000 Cement Finishers 1.000 Carpenter 1.000 Steel fixer 1.000 Common Laborer 2.000 Gas Finishing Mach.	75.000	0.547	0.213			
033 130-0220	Cast in Place, with forms,steel & finishing, Base,granolithic, 25 mm x 127mm high,cove	-	-	56.000	0.732	0.286			

# **DIVISION 03 : CONCRETE**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
033 130-0300	Cast in Place, with forms,steel & finishing.Beams, 745 kg/m, 3 m span	CUM	1.000 Skilled Foreman 10.00 Carpenters & Steel Fixers (reinf.) 4.000 Laborers 0.250 Cement Finisher 1.000 Equip. Oper 0.375 Gas Engine Vibrator 0.125 Concrete Pump &Trans Mixer 0.500 Crane 80 Ton 0.125 Truck 4.000 Power tools	5.000	26.000	8.200
033 130-0350	Cast in Place, with forms,steel & finishing.Beams, 745 kg/m, 7.6 m span	"	"	6.200	20.968	6.613
033 130-0720	Cast in place with forms,steel,Columns,square, 300 mm x 300 mm, Average reinforcing, 4.2 m high	CUM	1.000 Skilled Foreman 10.00 Carpenters & Steel Fixers (reinf.) 4.000 Laborers 0.250 Cement Finisher 1.000 Equip. Oper 0.375 Gas Engine Vibrator 0.125 Concrete Pump &Trans Mixer 0.500 Crane 80 Ton 0.125 Truck 4.000 Power tools	2.700	48.148	15.185
033 130-0920	Cast in place with forms,steel,Columns,square, 600 mm x 600 mm, Average reinforcing, 4.2 m high			4.600	28.261	8.913
033 130-1020	Cast in place with forms,steel,Columns,square, 900 mm x 900 mm, Average reinforcing, 4.2 m high			5.900	22.034	6.949
033 130-1040	Cast in place with forms,steel,Columns,square, 300 mm x 1600 mm, Average reinforcing, 4.2 m high			4.500	28.889	9.111
033 130-1100	Cast in place including forms, steel & concrete, columns, round, tied, 300 mm diameter, Average reinforcement, 4.2 m high.		1.000 Skilled Foreman 9.00 Carpenters & Steel Fixers(reinf.) 5.000 Laborers 0.250 Cement Finisher 1.000 Equip. Oper 0.375 Gas Engine Vibrator 0.125 Concrete Pump &Trans Mixer 0.500 Crane 80 Ton 0.125 Truck 2.000 Power tools	4.000	32.500	6.250
033 130-1420	Cast in place with forms,steel,Columns,round,tied, 600 mm diameter, Average reinforcing, 4.2 m high.			6.000	21.667	4.167
033 130-1520	Cast in place with forms,steel,Columns,round,tied, 900 mm diameter, Average reinforcing, 4.2 m high.			8.200	15.854	3.049
033 130-1540	Cast in place with forms,steel,Columns,round,tied,900mm diameter, Maximum reinforcing, 4.2 m high.			4.800	27.083	5.208

# **DIVISION 03 : CONCRETE**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
033 130-1900	Cast in place with forms,steel & finish,Elevated flat slabs, 600 kg/m2 Sup.Load, 6 m span		1.000 Skilled Foreman 10.00 Carpenters&Steel Fixers(reinf.) 4.000 Laborers 0.250 Cement Finisher 1.000 Equip. Oper 0.375 Gas Engine Vibrator 0.125 Concrete Pump &Trans Mixer 0.500 Crane 80 Ton 0.125 Truck 4.000 Power tools	14.700	8.844	2.789
033 130-1930	Cast in place with forms,steel & finish,Elevated flat slabs, 600 kg/m2 Sup.Load, 8.4 m span			20.000	6.500	2.050
033 130-2100	Cast in place with forms,steel & finish,Elevated flat slabs, 600 kg/m2 Sup.Load,4.6 m span			15.000	8.667	2.733
033 130-2130	Cast in place with forms,steel & finish,Elevated flat slabs, 600 kg/m2 Sup.Load, 7.4 m span			18.000	7.222	2.278
033 130-2300	Cast in place with forms,steel & finish,Elevated Waffle slabs, 762mm domes, 600 kg/m2 Sup. Load, 6 m span		1.000 Skilled Foreman 10.00 Carpenters&Steel Fixers(reinf.) 4.000 Laborers 0.250 Cement Finisher 1.000 Equip. Oper 0.375 Gas Engine Vibrator 0.125 Concrete Pump &Trans Mixer 0.500 Crane 80 Ton 0.125 Truck 4.000 Power tools	12.000	10.833	3.417
033 130-2350	Cast in place with forms,steel & finish,Elevated Waffle slabs, 762mm domes, 600 kg/m2 Sup. Load, 9.2 m span			15.000	8.667	2.733
033 130-2500	Cast in place with forms,steel & finish,Elevated joist slab, 762 mm pans 600 kg/m2 Sup. Load, 4.6 m span			11.800	11.017	3.475
033 130-2750	Cast in place with forms,steel & finish,Elevated joist slab, 762 mm pans 600 kg/m2 Sup. Load, 7.2 m span			14.400	9.028	2.847
033 130-2780	Cast in place with forms,steel & finish,Elevated One way beam slab, 600 kg/m2 Sup. Load, 7.6 m span			9.500	13.684	4.316
033 130-2950	Cast in place with forms,steel & finish,Elevated Two way beam slab, 600 kg/m2 Sup. Load, 7.6 m span			10.950	11.872	3.744
033 130-3200	Cast in place, Elevated slabs including finish only, not including forms or reinforcing.Regular Concrete, 150 mm slab	SQM	0.50 Skilled foreman 6.00 Laborers 2.00 Cement Finishers 2.00 Carpenters 1.00 Equip. Operator 1.00 Concrete Pump (small) 2.00 Gas engine vibrator 2.00 Gas Finishing Machine	438.000	0.210	0.091
033 130-3300	Cast in place,Lightweight concrete elevated slabs including finish only,1750 kg/m3, 64 mm thick floor fill	"	"	438.000	0.210	0.091

DIVISION 03 : CONCRETE						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
033 130-3800	Cast in place including forms & steel, Spread footings, spread under 0.75 m3	CUM	1.000 Skilled Foreman 5.000 Carpenters & Steel Fixers (reinf) 0.25 Cement Finisher 4.000 Laborers 0.250 Equip.Operators 0.375 Gas Engine Vibrator 0.25 Crane 35 Ton 0.125 Truck 0.125 Concrete Pump 2.00 Power Tool	15.000	5.600	1.533
033 130-3850	Cast in place including forms & steel, Spread footings, spread over 4 m3		*	18.000	4.667	1.278
033 130-4050	Cast in place, Raft ( Matt ) foundation, including forms & steel, over 1000 m3		0.50 Skilled Foreman 7.000 Carpenters & Steel Fixers (reinf) 0.250 Cement Finisher 4.000 Laborers 0.500 Equip.Operators 0.250 Gas Engine Vibrator 0.250 Crane 35 Ton 0.250 Truck 0.125 Concrete Pump 2.000 Power Tool	24.500	4.000	0.939
033 130-4050	Cast in place, Raft ( Matt ) foundation, including forms & steel, over 25 m3 & up to 500 m3			20.000	4.900	1.150
033 130-4050	Cast in place, Raft ( Matt ) foundation, including forms & steel, up to 25 m3			18.000	5.444	1.278
033 130-4200	Cast in place including forms & steel,Grade walls, 200 mm thick, 2400m m high		0.5 Skilled Foreman 10.00 Carpenters &Steel Fixers (reinf.) 5.000 Laborers 0.250 Cement Finisher 1.000 Equip. Oper 0.250 Gas Engine Vibrator 0.125 Concrete Pump &Trans Mixer 0.625 Crane 80 Ton 0.125 Truck 4.000 Power tools	8.700	15.402	4.713
033 130-4250	Cast in place including forms & steel,Grade walls, 200 mm thick, 4.2 m high			7.000	19.143	5.857
033 130-4270	Cast in place including forms & steel,Grade walls, 300 mm thick, 4.2 m high			10.000	13.400	4.100
033 130-4350	Cast in place including forms & steel,Grade walls, 400 mm thick, 3.6 m high			15.000	8.933	2.733
033 130-4500	Cast in place including forms & steel,Grade walls, 400 mm thick, 5.5 m high			10.400	12.885	3.942
033 130-4525	Cast in place including forms, steel & finish, Handicap access ramp, railing both sides, 1.50 m wide			14.500	9.241	2.828



# **DIVISION 03 : CONCRETE**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
033 130-4700	Cast in place including forms, steel and finish, Slab on grade, 150 mm thick	↓	1.00 Skilled foreman 6.00 Carpenters & Steel Fixtures(reinf.) 3.00 Laborers 3.00 Cement Finishers 0.125 Equip. Operators (med.) 0.375 Concrete Pump (small) 2.000 Power tools 0.375 Gas Engine Vibrator 3.00 Gas Finishing Machine	12.000	9.417	3.833
033 130-4760	Cast in place, Slab on grade, including troweled finish, not incl. forms or reinforcing, 100mm thick slab	SQM	0.50 Skilled foreman 1.00 Laborers 3.00 Cement Finishers 0.25 Concrete Pump (small) 0.25 Gas engine vibrator 3.00 Gas Finishing Machine	100.000	0.340	0.280
033 130-4840	Cast in place, Slab on grade, including troweled finish, not incl. forms or reinforcing, 200 mm thick slab	↓	0.50 Skilled foreman 1.00 Laborers 3.00 Cement Finishers 0.25 Concrete Pump (small) 0.25 Gas engine vibrator 3.00 Gas Finishing Machine	88.440	0.384	0.317
033 130-4900	Cast in place, Slab on grade, including troweled finish, not incl. forms or reinforcing, 300 mm thick slab	↓	↓	77.660	0.438	0.361
033 130-4950	Cast in place, Slab on grade, including troweled finish, not incl. forms or reinforcing, 380 mm thick slab	↓	↓	70.770	0.480	0.396
033 130-5010	Cast in place, Slab on grade, incl. textured finish, not inc. forms or reinforcing, 150 mm thick slab	↓	↓	90.280	0.377	0.310
033 130-5650	Cast in place Lightweight concrete, ready mix 1:3:2, for roof decks, including screed finish only, not including forms or reinforcing	CUM	↓	30.000	1.133	0.933
033 130-5700	Cast in place, Slab on grade, including troweled finish, forms and reinforcing, 100mm thick slab	↓	1.000 Skilled foreman 6.000 Carpenters & Steel Fixtures (reinf.) 3.000 Laborers 3.000 Cement Finishers 0.125 Equip. Operators (med.) 0.375 Concrete Pump (small) 2.000 Power tools 0.375 Gas Engine Vibrator 3.000 Gas Finishing Machine	9.000	12.556	5.111
033 130-5720	Cast in place, Slab on grade, including troweled finish, forms and reinforcing, 200mm thick slab	↓	↓	17.200	6.570	2.674
033 130-5740	Cast in place, Slab on grade, including troweled finish, forms and reinforcing, 300mm thick slab	↓	↓	24.800	4.556	1.855
033 130-5760	Cast in place, Thickened Slab on grade, including troweled finish, forms and reinforcing, 380mm thick slab	↓	↓	30.500	3.705	1.508

**DIVISION 03 : CONCRETE**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
033 130-5950	Cast in place concrete, Pile caps,forms and reinf.,square or rectangular,,over 7.5 m3	CUM	1.000 Skilled Foreman 5.00 Carpenters & Steel Fixers (reinf.) 4.000 Laborers 0.250 Cement Finisher 0.250 Equip. Oper 0.375 Gas Engine Vibrator 0.250 Crane 35 Ton 0.125 Truck 0.125 Concrete Pump 2.000 Power tools	21.000	4.000	1.095
033 130-6050	Cast in place concrete, Pile caps,forms and reinf., Triangular or hexagonal, over 7.5 m3		*	20.500	4.098	1.122
033 130-6200	Cast in place concrete, Retaining walls,gravity, 1.2 m high including forms & reinforcement, tapered 200 mm top, 600 mm bottom		1.000 Skilled Foreman 9.000 Carpenters 5.000 Laborers 0.500 Cement Finisher 0.500 Equip. Oper 0.375 Gas Engine Vibrator 0.375 Concrete Pump (small) 0.500 Crane 80 Ton 4.00 Power tools	15.500	8.258	2.710
033 130-6300	Cast in place concrete, Retaining walls, cantilever, 2.4 m high including forms, footing and reinforcement, tapered 300 mm top, 600 mm bottom.		0.500 Skilled Foreman 10.00 Carpenters & Steel Fixers (reinf.) 5.000 Laborers 0.250 Cement Finisher 1.000 Equip. Oper 0.250 Gas Engine Vibrator 0.125 Concrete Pump &Trans Mixer 0.625 Crane 80 Ton 0.125 Truck 4.000 Power tools	15.000	8.933	2.733
033 130-6800	Cast in place concrete, Stairs free standing,treads 1.8 meter long, 300 mm wide, including forms,steel , landing 1.2 x 1.8 meters and finish.		1.000 Skilled Foreman 8.000 Carpenters 0.250 Steel Fixers 0.125 Cement Finishers 0.125 Equip. Operators 4.000 Laborers 0.125 Gas Engine Vibrator 0.125 Concrete pump 0.375 Crane 80 Ton 0.125 Truck 0.125 Gas finishing m/c 4.000 Power tools	1.110	97.297	35.135

DIVISION 03 : CONCRETE						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
033 130-7000	Cast in place concrete, Stairs Landing, including forms,steel & finish		1.000 Skilled Foreman 10.00 Carpenters & Steel Fixers (reinf.) 4.000 Laborers 0.250 Cement Finisher 1.000 Equip. Oper 0.375 Gas Engine Vibrator 0.125 Concrete Pump &Trans Mixer 0.500 Crane 80 Ton 0.125 Truck 4.000 Power tools	10.700	12.150	3.832
033 138	CUTTING CONCRETE	See Div. 020-728				
033 142	DAMPPROOFING	See Div. 071				
033 146	EQUIPMENT FOR PLACING CONCRETE	See Div. 016-406				
033 148	EXPANSION JOINT	See Div. 031-132				
033 134	CURING:					
033 134-0100	Curing concrete with burlap,4 uses assumed 340 gram	SQM	2 Common Laborers	450.000	0.036	0.000
033 134-0200	Curing concrete with waterproof curing paper, 2 ply,reinforced			575.000	0.028	0.000
033 134-0300	Curing concrete with sprayed membrane curing compound			700.000	0.023	0.000
033 156	GROUT:					
033 156-0010	Grout Column & machine bases,non-shrink metallic grout, 25 mm deep	SQM	1 Cement Finisher 1 Helper	5.500	2.909	0.000
033 134-0050	Grout Column & machine bases, non-shrink metallic grout, 50 mm deep	-	-	4.000	4.000	0.000
033 160	GUNITE OR "SHOTCRETE":					
033 160-0300	Gunitite,applied in 25mm layers,typical in place,including mesh, 50 mm thick,average	SQM	0.125 Labor Foreman 4.000 Laborers 2.000 Cement Finishers 1.000 Equip. Oper.(med.) 2.000 Steel Workers (reinf.) 1.000 Concrete Pump (small) 0.125 Crane 80 Ton 0.125 Truck	40.000	1.825	0.250
033 160-0500	Gunitite,applied in 25mm layers,typical in place,including mesh, 100 mm thick,average			30.000	2.433	0.333
033 160-1100	Gunitite,applied in 25mm layers,typical in place,including mesh,100 mm thick,high finish,average			20.000	3.650	0.500
033 168	PATCHING CONCRETE:					
033 168-0100	Patching concrete in Floors, 6 mm thick, small areas,regular grout	SQM	1.000 Cement Finisher 1.000 Helper 1.000 Tool set	20.000	0.800	0.400

DIVISION 03 : CONCRETE						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
033 168-0150	Patching concrete in Floors, 6 mm thick, small areas,epoxy grout	SQM	1.000 Cement Finisher 1.000 Helper 1.000 Tool set	15.000	1.067	0.533
033 168-2150	Patching concrete in Walls,including chipping,cleaning and epoxy grout Average	"	"	6.000	2.667	1.333
<b>033 172 PLACING CONCRETE and vibrating,including labor &amp; eqpt.:</b>						
033 172-0050	Placing concrete,including vibrating,labor & equipment for small beams,elevated,pumped	CUM	1 Labor Foreman 9 Laborers 1 Cement Finisher 2 Carpenter 1 Equip. Operator 2 Gas Engine Vibrator 1 Concrete Pump & Trans Mixer	80.000	1.300	0.300
033 172-0100	Placing concrete,including vibrating,labor & equipment for small beams,elevated,with crane and bucket		1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane,50 metric ton	42.000	1.714	0.571
033 172-0200	Placing concrete,including vibrating,labor & equipment for large beams,elevated,pumped		1 Labor Foreman 9 Laborers 1 Cement Finisher 2 Carpenter 1 Equip. Operator 2 Gas Engine Vibrator 1 Concrete Pump & Trans Mixer	87.000	1.195	0.276
033 172-0400	Placing concrete,including vibrating,labor & equipment for columns,square or round,300mm thick,pumped		"	28.000	3.714	0.857
033 172-0450	Placing concrete,including vibrating,labor & equipment for columns,square or round, 300 mm thick, with crane and bucket		1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane,50 metric ton	28.000	2.571	0.857
033 172-0800	Placing concrete,including vibrating,labor & equipment for columns,square or round, 600 mm thick,pumped		1 Labor foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip.Oper.(med.) 2 Gas Engine Vibrators 1 Concrete Pump (small)	54.000	1.333	0.444

**DIVISION 03 : CONCRETE**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
033 172-0850	Placing concrete,including vibrating,labor & equipment for columns,square or round, 600 mm thick, with crane and bucket		1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane,50 metric ton	46.000	1.565	0.522
033 172-1000	Placing concrete,including vibrating,labor & equipment for columns,square or round, 900 mm thick,pumped		1 Labor foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip.Oper.(med.) 2 Gas Engine Vibrators 1 Concrete Pump (small)	104.000	0.692	0.231
033 172-1050	Placing concrete,including vibrating,labor & equipment for columns,square or round, 900 mm thick, with crane and bucket		1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane,50 metric ton	81.000	0.889	0.296
033 172-1400	Placing concrete,including vibrating,labor & equipment for elevated slabs,less than 150 mm thick,pumped		1 Labor Foreman 9 Laborers 1 Cement Finisher 2 Carpenter 1 Equip. Operator 2 Gas Engine Vibrator 1 Concrete Pump & Trans Mixer	87.000	1.195	0.276
033 172-1450	Placing concrete,including vibrating,labor & equipment for elevated slabs,less than 150 mm thick, with crane & bucket		1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane,50 metric ton	60.000	1.200	0.400
033 172-1500	Placing concrete,including vibrating,labor & equipment for elevated slabs,150 mm to 250 mm thick,pumped		1 Labor Foreman 9 Laborers 1 Cement Finisher 2 Carpenter 1 Equip. Operator 2 Gas Engine Vibrator 1 Concrete Pump & Trans Mixer	105.000	0.990	0.229

**DIVISION 03 : CONCRETE**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
033 172-1650	Placing concrete,including vibrating,labor & equipment for elevated slabs over 250 mm thick, with crane & bucket	CUM	1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane,50 metric ton	69.000	1.043	0.348
033 172-1900	Placing concrete,including vibrating,labor & equipment for footings, continous,shallow,direct chute		1 Labor Foreman 5 Laborers 1 Carpenter 1 Cement Finisher 2 Gas Engine Vibrators	93.000	0.688	0.172
033 172-1950	Placing concrete,including vibrating,labor & equipment for footings, continous,shallow,pumped		1 Labor foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip.Oper.(med.) 2 Gas Engine Vibrators 1 Concrete Pump (small)	71.000	1.014	0.338
033 172-2000	Placing concrete,including vibrating,labor & equipment for footings, continuous, shallow, with crane and bucket		1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane,50 metric ton	66.000	1.091	0.364
033 172-2100	Placing concrete,including vibrating,labor & equipment for footings, Deep continuous footings,direct chute		1 Labor Foreman 5 Laborers 1 Carpenter 1 Cement Finisher 2 Gas Engine Vibrators	112.000	0.571	0.143
033 172-2150	Placing concrete,including vibrating,labor & equipment for footings, Deep continuous footings,pumped		1 Labor foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip.Oper.(med.) 2 Gas Engine Vibrators 1 Concrete Pump (small)	93.000	0.774	0.258
033 172-2600	Placing concrete,including vibrating,labor & equipment for spread footings,over 4 m3, direct chute		1 Labor Foreman 5 Laborers 1 Carpenter 1 Cement Finisher 2 Gas Engine Vibrators	87.000	0.736	0.184
033 172-2650	Placing concrete,including vibrating,labor & equipment for spread footings,over 4 m3, pumped		1 Labor foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip.Oper.(med.) 2 Gas Engine Vibrators 1 Concrete Pump (small)	85.000	0.847	0.282

**DIVISION 03 : CONCRETE**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
033 172-2700	Placing concrete,including vibrating,labor & equipment for spread footings,over 4 m3, with crane and bucket		1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane,50 metric ton	70.000	1.029	0.343
033 172-2950	Placing concrete,including vibrating,labor & equipment for foundation mats, over 1000 m3, pumped		1 Labor foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip.Oper.(med.) 2 Gas Engine Vibrators 1 Concrete Pump (small)	233.000	0.309	0.103
033 172-3000	Placing concrete,including vibrating,labor & equipment for foundation mats, over 1000 m3, with crane and bucket		1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane,50 metric ton	100.000	0.720	0.240
033 172-3200	Placing concrete,including vibrating,labor & equipment for grade,beams,direct chute		1 Labor Foreman 5 Laborers 1 Carpenter 1 Cement Finisher 2 Gas Engine Vibrators	112.000	0.571	0.143
033 172-3250	Placing concrete,including vibrating,labor & equipment for grade,beams,pumped		1 Labor foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip.Oper.(med.) 2 Gas Engine Vibrators 1 Concrete Pump (small)	105.000	0.686	0.229
033 172-3300	Placing concrete,including vibrating,labor & equipment for grade, beams, with crane and bucket		1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane,50 metric ton	100.000	0.720	0.240
033 172-3500	Placing concrete,including vibrating,labor & equipment for high rise, more than 5 stories & up to 15 stories, pumped, adds/story	CUM	1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane,50 metric ton	90.000	0.800	0.356

**DIVISION 03 : CONCRETE**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
033 172-3510	Placing concrete,including vibrating,labor & equipment for high rise, more than 5 stories, with crane and bucket adds/story			95.000	0.758	0.000
033 172-3520	Placing concrete,including vibrating,labor & equipment for high rise, more than 15 stories, pumped, adds/story			110.000	0.655	0.040
033 172-3510	Placing concrete,including vibrating,labor & equipment for high rise, more than 15 stories, with crane and bucket adds/story			115.000	0.626	0.040
033 172-4000	Placing concrete,including vibrating,labor & equipment for pile cap,over 8m3 direct chute		1 Labor Foreman 5 Laborers 1 Carpenter 1 Cement Finisher 2 Gas Engine Vibrators	140.000	0.457	0.114
033 172-4050	Placing concrete,including vibrating,labor & equipment for pile cap,over 8m3 pumped		1 Labor foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip.Oper.(med.) 2 Gas Engine Vibrators 1 Concrete Pump (small)	116.000	0.621	0.207
033 172-4100	Placing concrete,including vibrating,labor & equipment for pile cap,over 8m3 with crane and bucket		1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane,50 metric ton	100.000	0.720	0.240
033 172-4600	Placing concrete,including vibrating,labor & equipment for slab over 150 mm thick, direct chute		1 Labor Foreman 5 Laborers 1 Carpenter 1 Cement Finisher 2 Gas Engine Vibrators	116.000	0.552	0.138
033 172-4650	Placing concrete,including vibrating,labor & equipment for slab over 150 mm thick, pumped		1 Labor foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip.Oper.(med.) 2 Gas Engine Vibrators 1 Concrete Pump (small)	116.000	0.621	0.207
033 172-4700	Placing concrete,including vibrating,labor & equipment for slab over 150 mm thick, with crane and bucket		1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane,50 metric ton	100.000	0.720	0.240
033 172-4900	Placing concrete,including vibrating,labor & equipment for walls, 200 mm thick, direct chute		1 Labor Foreman 5 Laborers 1 Carpenter 1 Cement Finisher 2 Gas Engine Vibrators	70.000	0.914	0.229



DIVISION 03 : CONCRETE						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
033 172-4950	Placing concrete,including vibrating,labor & equipment for walls, 200 mm thick, pumped		1 Labor foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip.Oper.(med.) 2 Gas Engine Vibrators 1 Concrete Pump (small)	76.000	0.947	0.316
033 172-5000	Placing concrete,including vibrating,labor & equipment for walls, 200 mm thick, with crane and bucket		1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane.50 metric ton	66.000	1.091	0.364
033 172-5100	Placing concrete,including vibrating,labor & equipment for walls, 300 mm thick, pumped		1 Labor foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip.Oper.(med.) 2 Gas Engine Vibrators 1 Concrete Pump (small)	77.000	0.935	0.312
033 172-5400	Placing concrete,including vibrating,labor & equipment for walls, 400 mm thick,with crane and bucket		1 Labor Foreman 5 Laborers 1 Cement Finisher 1 Carpenter 1 Equip. Oper. 2 Gas Engine Vibrators 1 Concrete Bucket,0.76m3 1 Hyd.Crane.50 metric ton	60.000	1.200	0.400
033 172-5810	Add to above concrete placing items and as required for concrete dumping using wheeled riding carts, 45 meter haul.	▼	0.125 Labor Foreman 1.00 Laborers 1.00 Concrete Wheeled Carts.	40.000	0.225	0.200
<b>033 180 SAWING CONCRETE See division 020-728</b>						
<b>033 184 STAIR TREAD INSERTS:</b>						
033 184-0010	Stair tread inserts, cast iron,abrasive, 75 mm wide	LM	1 Carpenter	20.000	0.400	0.000
033 184-0550	Stair tread inserts,cast iron,extruded aluminum safety tread,100 mm wide	LM	1 Carpenter	18.000	0.444	0.000
033 184-1750	Stair tread,cement filled pan type,non-slip	SQM	1 Cement finisher	7.000	1.143	0.000
<b>033 192 WATERPROOFING AND DAMPPROOFING See division 071</b>						
<b>033 450 CONCRETE FINISHING:</b>						
<b>033 454 FINISHING FLOORS:</b>						
033 454-0010	Finishing concrete floors monolithic,screed finish	SQM	1 Cement Finisher	70.000	0.114	0.000
033 454-0100	Finishing concrete floors,float finish		0.125 Labor Foreman 1 Cement Finisher 1 Gas Finishing Mach.	55.000	0.164	0.145

DIVISION 03 : CONCRETE									
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS			
033 454-0150	Finishing concrete floors,Broom finish			50.000	0.180	0.160			
033 454-0200	Finishing concrete floors,Steel trowel finish,for resilient tile			45.000	0.200	0.178			
033 454-0250	Finishing concrete floors monolithic,Steel trowel finish.			36.000	0.250	0.222			
033 454-0600	Concrete,Integral topping and finish, using 1:1:2 mix, 25mm thick		0.125 Labor Foreman 1 Laborer 2 Cement Finishers 2 Gas Finishing Mach.	55.000	0.455	0.291			
033 454-0950	Concrete,Granolithic topping,laid after,1:1:1-1/2 mix, 50 mm thick			40.000	0.625	0.400			
033 454-1200	Concrete,Granolithic topping Heavy duty,1:1:2, 20 mm thick, preshrunk,gray,over 2000 m2			25.000	1.000	0.640			
033 454-1350	Concrete,Granolithic topping,for colors, 2.44 kg/m2, add, Average			115.000	0.217	0.139			
033 454-1600	Concrete,Exposed local aggregate finish, Average		1 Cement finisher	45.000	0.178	0.000			
033 454-2000	Concrete,Floor hardeners, metallic,light service, 2.44 kg/m2		0.25 Labor Foreman 1 Cement Finisher 1 Gas Finishing Mach.	68.000	0.147	0.118			
033 454-2050	Concrete,Floor hardeners, metallic,Medium service, 3.66 kg/m2			60.000	0.167	0.133			
033 454-2100	Concrete,Floor hardeners, metallic,Heavy service, 4.88 kg/m2			52.000	0.192	0.154			
033 454-2150	Concrete,Floor hardeners, metallic,Extra Heavy service, 7.32 kg/m2	SQM	0.25 Labor Foreman 1 Cement Finisher 1 Gas Finishing Mach.	45.000	0.222	0.178			
033 454-2300	Concrete,Floor hardeners,Non-metallic,light service, 2.44 kg/m2			68.000	0.147	0.118			
033 454-2450	Concrete,Floor hardeners,Non-metallic, Extra Heavy, 7.32 kg/m2			45.000	0.222	0.178			
033 454-2600	Concrete,Floor colored hardener,metallic,medium service 3.66 kg/m2			35.000	0.286	0.229			
033 454-2650	Concrete,Floor colored hardener,non-metallic,medium service 3.66 kg/m2			45.000	0.222	0.178			
033 454-3850	Concrete floor Dustproofing,silicate liquids, 2 coats		1 Cement finisher	100.000	0.080	0.000			
033 454-4000	Concrete floor,Dustproofing,Epoxy coating, 1 coat, clear			115.000	0.070	0.000			
033 454-4050	Concrete floor,Dustproofing,Epoxy coating, 1 coat,Colors			115.000	0.070	0.000			
033 454-4400	Concrete Stair finish,float			20.000	0.400	0.000			
033 454-4500	Concrete Stair finish,Steel trowel finish			15.000	0.533	0.000			
033 454-4600	Concrete Stair finish,Silicon carbide finish,1.22 kg/m2			10.000	0.800	0.000			
<b>033 458 FINISHING WALLS:</b>									
033 458-0050	Finishing Concrete Walls, Burlap rub with grout	SQM	1 Cement Finisher 1 Helper	56.000	0.286	0.000			
033 458-0100	Finishing Concrete Walls,Carborundum rub, dry		..	28.000	0.571	0.000			

<b>DIVISION 03 : CONCRETE</b>						
<b>CSI CODE</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>CREW STRUCTURE</b>	<b>DAILY OUTPUT</b>	<b>MAN HOURS</b>	<b>EQUIP. HOURS</b>
033 458-0300	Finishing Concrete Walls, Bush hammer, green concrete		0.25 Labor Foreman 4 Laborers 1 Equipment Oper.(light) 1 Air Compressor, 118 L/s W/ Accessories & Hoses	75.000	0.560	0.107
033 458-0600	Finishing Concrete Walls, Float finish, 2 mm thick		1 Cement Finisher	22.000	0.364	0.000
033 458-0700	Finishing Concrete Walls, Sandblast, light penetration		0.25 Foreman 1.00 Laborer 2.00 Cement Finishers 2.00 Gas Finishing Mach.	85.000	0.306	0.188
033 458-0750	Finishing Concrete Walls, Sandblast, Heavy penetration		*	28.000	0.929	0.571
<b>034 PRECAST CONCRETE</b>						
<b>034 100 STRUCTURAL PRECAST:</b>						
<b>034 104 BEAMS:</b>						
034 104-0011	Precast concrete beams, "L"-shaped, 6.0m span, 300 mm x 500 mm, and within 25 meter reaching distance	EA	1 Struc.Steel Foreman 6 Struc.Steel Workers 2 Common Laborer 1 Equip.Oper.(Crane) 1 Equip.Oper.Oiler 1 Truck Crane, 136 metric ton 4 Hydraulic Jacks 4 Tools Set	25.000	3.520	2.880
034 104-1050	Precast concrete beams, "L"-shaped, Larger size span beams, up to 10 ton units and within 25 meters reaching distance.	LM		100.000	0.880	0.720
034 104-1100	Precast concrete beams, "L"-shaped, Larger size span beams, up to 15 ton and within 45 meters reaching distance.	-		45.000	1.956	1.600
<b>034 112 COLUMNS:</b>						
034 112-0010	Precast concrete columns Rectangular to 3.7 m floor high, small columns, 1 floor, up to 3 ton units and within 30 meters reaching distance.	LM	1 Struc.Steel Foreman 6 Struc.Steel Workers 2 Common Laborer 1 Equip.Oper.(Crane) 1 Equip.Oper.Oiler 1 Truck Crane, 136 metric ton 4 Hydraulic Jacks 4 Tools Set	74.000	1.189	0.973
034 112-0050	Precast concrete columns Rectangular to 3.7 m floor high, large columns, 1 floor, up to 10 ton units and within 30 meters reaching distance.			45.000	1.956	1.600
034 112-0300	Precast concrete columns Rectangular to 7.2 m floor high, large columns, 1 floor, up to 5 ton units and within 30 meters reaching distance.			85.000	1.035	0.847
034 112-1000	Precast concrete columns Rectangular to 3.7 m floor high, large columns, 1 floor, up to 10 ton units and within 45 meters reaching distance.			30.000	2.933	2.400
034 112-1200	Precast concrete columns Rectangular to 3.7 m floor high, large columns, 1 floor, up to 10 ton units and within 60 meters reaching distance.			24.000	3.667	3.000
<b>034 124 CURBS ROADWAY TYPE See Div. 025-250</b>						
<b>034 128 JOISTS:</b>						

# **DIVISION 03 : CONCRETE**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
034 128-0010	Precast Concrete Joists, 195 KG/M2 L.L., 150 mm deep for 3.6 m spans, low rise 8 floors building	EA	1 Skilled Foreman 3 Skilled Workers 1 Laborer 1 Equip.Oper.(Crane) 1 Hyd.Crane,11 metric ton	42.000	1.143	0.190
034 128-0050	Precast Concrete Joists, 195 KG/M2 L.L., 200 mm deep for 4.8 m spans, low rise 8 floors building			31.000	1.548	0.258
034 128-0100	Precast Concrete Joists, 195 KG/M2 L.L., 250 mm deep for 6 m spans, low rise 8 floors building			24.000	2.000	0.333
034 128-0150	Precast Concrete Joists, 195 KG/M2 L.L., 300 mm deep for 7.2 m spans, low rise 8 floors building			20.000	2.400	0.400
034 128-0500	Precast Concrete Joists, 195 KG/M2 L.L., 150 mm deep for 3.6 m spans, 2 floor building, labor handling & installation, 50 meter handling distance.		1 Skilled Foreman 3 Skilled Workers 6 Common Laborers	19.750	4.051	0.000
034 128-0550	Precast Concrete Joists, 195 KG/M2 L.L., 200 mm deep for 4.8 m spans, 2 floor building, labor handling & installation, 50 meter handling distance.			14.800	5.405	0.000
034 128-0600	Precast Concrete Joists, 195 KG/M2 L.L., 150 mm deep for 7.2 m spans, 2 floor building, labor handling & installation, 50 meter handling distance.			10.000	8.000	0.000
<b>034 136 SLABS:</b>						
034 136-0010	Precast roof slabs, Prestressed hollowcore or plank, 195 Kg/m2 LL, 200 mm deep, Straight jobs without difficulties.	SQM	1 Struc.Steel Foreman 6 Struc.Steel Workers 2 Common Laborer 1 Equip.Oper.(Crane) 1 Equip.Oper.Oiler 1 Truck Crane,136 metric ton 4 Hydraulic Jacks 4 Tools Set	600.000	0.147	0.120
034 136-0010	Precast roof slabs, Prestressed hollowcore or plank, 195 Kg/m2 LL, 200 mm deep, Jobs with difficulties.			320.000	0.275	0.225
034 136-0200	Precast floor slabs, Prestressed hollowcore or plank, 490 Kg/m2 LL, 250 mm deep			520.000	0.169	0.138
<b>034 140 TEES:</b>						
034 140-0200	Precast prestressed concrete,Double tee, 3 m wide, floor members, 18m span;up to 0.8 m deep & up to 390 Kg/m2 LL.	SQM	1 Struc.Steel Foreman 6 Struc.Steel Workers 2 Common Laborer 1 Equip.Oper.(Crane) 1 Equip.Oper.Oiler 1 Truck Crane,136 metric ton 4 Hydraulic Jacks 4 Tools Set	648.000	0.136	0.111
034 140-0350	Precast prestressed concrete,Double tee, 3 m wide, roof members, 15 m span;up to 0.3 m deep.			540.000	0.163	0.133
034 140-1250	Precast Concrete,Double tees,floor members standard weight, 0.3 m deep, 2.4 m wide, 6 m span			288.000	0.306	0.250
034 140-1450	Precast Concrete,Double tees,floor members standard weight, 0.6 m deep, 2.4 m wide,15 m span			468.000	0.188	0.154

DIVISION 03 : CONCRETE

CSI CODE	ITEM DESCRIPTION	UNIT		CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
034 140-2050	Precast Concrete,Double tees,roof members light weight, 500 mm x 2400 mm wide 12 m span				489.000	0.180	0.147
034 140-2150	Precast Concrete,Double tees,roof members, light weight, 0.8 m deep, 3.0 m wide 18 m span				702.000	0.125	0.103
034 140-2250	Precast Concrete,Double tees,roof members standard weight, 0.4 m deep, 2.4 m wide 9 m span				368.000	0.239	0.196
034 140-2350	Precast Concrete,Double tees,roof members standard weight, 500 mm x 2400 mm wide 12 m span				432.000	0.204	0.167
034 500 ARCHITECTURAL PRECAST:							
034 504 WALL PANELS:							
034 504-0150	Precast Concrete,Wall panel,uninsulated,smooth gray,low rise, size:1.2 m x 2.4 m, 100 mm thick, up to 1 ton and within 20 meters reaching distance..	SQM		1 Struc.Steel Foreman 6 Struc.Steel Workers 2 Common Laborer 1 Equip. Oper.(Crane) 1 Equip. Oper.Oiler 1 Truck Crane,136 metric ton 4 Hydraulic Jacks 4 Tools Set	53.000	1.660	0.151
034 504-0200	Precast Concrete,Wall panel,uninsulated,smooth gray,low rise, size:2.4 m x 2.4 m, 100 mm thick, up to 2 tons and within 20 meters reaching distance.	SQM		1 Struc.Steel Foreman 6 Struc.Steel Workers 2 Common Laborer 1 Equip. Oper.(Crane) 1 Equip. Oper.Oiler 1 Truck Crane,136 metric ton 4 Hydraulic Jacks 4 Tools Set	67.000	1.313	0.119
034 504-0250	Precast Concrete,Wall panel,uninsulated,smooth gray,low rise, size:2.4 m x 4.8 m, 100 mm thick, up to 3 tons and within 20 meters reaching distance.	SQM		1 Struc.Steel Foreman 6 Struc.Steel Workers 2 Common Laborer 1 Equip. Oper.(Crane) 1 Equip. Oper.Oiler 1 Truck Crane,136 metric ton 4 Hydraulic Jacks 4 Tools Set	109.000	0.807	0.073
034 504-0400	Precast Concrete,Wall panel,uninsulated,smooth gray,low rise, size:2.4 m x 2.4 m, 200 mm thick, up to 2.5 tons and within 20 meters reaching distance.				59.000	1.492	0.136
034 504-0500	Precast Concrete,Wall panel,uninsulated,exposed aggregate,low rise, size:2.4 m x 2.4 m,				67.000	1.313	0.119
034 504-0520	Precast Concrete,Wall panel,uninsulated,exposed aggregate,low rise, size:2.4 m x 2.4 m,				59.000	1.492	0.136
034 504-0560	Precast Concrete,Wall panel,insulated,textured, 10 floors high rise, size:1.8 m x 2.4 m, 200 mm thick, up to 2.5 ton and 20 meters reaching distance.				35.000	2.514	0.229
034 504-0600	Precast Concrete,Wall panel,insulated,textured, 10 floors high rise, size:1.8 m x 3.2 m, 200 mm thick, up to 3 ton and 20 meters reaching distance.				53.000	1.660	0.151
034 504-0700	Precast Concrete,Wall panel,insulated,textured,10 floors high rise, size:2.4 m x 4.8 m, 200 mm thick, up to 5 ton and 20 meters reaching distance.				65.000	1.354	0.123

DIVISION 03 : CONCRETE						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
034 504-0700	Precast Concrete, Wall panel, insulated, textured, 10 floors high rise, size: 2.4 m x 4.8 m, 200 mm thick, up to 5 ton and 20 meters reaching distance.	↓	↓	65.000	1.354	0.123
<b>034 800</b>	<b>PRECAST SPECIALTIES:</b>					
<b>034 802</b>	<b>LINTELS:</b>					
034 802-0800	Lintel, Precast concrete, 100 mm x 200 mm, to 1500 mm long, low rise	LM	0.25 Labor Foreman 1 Bricklayer 1 Bricklayer Helper	60.000	0.300	0.000
034 802-0850	Lintel, Precast concrete, 100 mm x 200 mm, to 3.6 m long, 5 to 10 floors		0.25 Labour Foreman 1 Bricklayer 2 Bricklayer Helpers 1 Equip. Oper. 1 Crane	55.000	0.618	0.145
034 802-1250	Lintel, Precast concrete, 200 mm wide, 200 mm height, to 3.6 m long, over 10 floors.			42.000	0.810	0.190
034 802-1400	Lintel, Precast concrete, 250 mm wide, 200 mm height, to 4.3 m long, low rise			65.000	0.523	0.123
034 802-1450	Lintel, Precast concrete, 300 mm wide, 200 mm height, to 5.8 m long, 5 to 10 floors.	↓	↓	70.000	0.486	0.114
<b>035</b>	<b>CEMENTITIOUS DECKS</b>					
<b>035 200</b>	<b>LIGHTWEIGHT CONCRETE:</b>					
<b>035 204</b>	<b>CONCRETE CHANNEL SLABS:</b>					
035 204-0010	Concrete channel slabs 70 mm or 90 mm thick, straight	SQM	0.5 Labor Foreman 3 Carpenters 1 Laborer 1 Equip. Oper. (crane) 1 Hyd. Crane, 11 metric ton	120.000	0.367	0.067
035 204-0050	Concrete channel slabs 70 mm or 90 mm thick, chopped up			65.000	0.677	0.123
035 204-0300	Concrete channel slabs 200 mm thick, span to 7 m	↓	↓	85.000	0.518	0.094
<b>035 208</b>	<b>CONCRETE PLANK</b>					
035 208-0010	Concrete plank lightweight, nailable, T&G, 50 mm thick	SQM	0.5 Labor Foreman 3 Carpenters 1 Laborer 1 Equip. Oper. (crane) 1 Hyd. Crane, 11 metric ton	170.000	0.259	0.047
035 208-0100	Concrete plank lightweight, nailable, T&G, 95 mm thick	"	"	136.000	0.324	0.059
<b>035 212</b>	<b>INSULATING:</b>					
035 212-0010	Roof Insulating, lightweight cellular concrete roof fill Portland cement and foaming agent	CUM	0.5 Labor Foreman 3 Laborers 2 Cement Finishers 1 Equip. Oper. (med) 1 Concrete Pump (small)	28.000	1.857	0.286
035 212-0200	Roof Insulating Poured vermiculite or perlite, field mix, 1:6 roof fill, add formboards above, 50 mm thick			25.000	2.080	0.320
035 212-0250	Roof Insulating, Ready mix, 1:6 mix, roof fill, 75 mm thick	↓	↓	595.000	0.087	0.013

DIVISION 03 : CONCRETE						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>035 300</b>	<b>WOOD FIBER SYSTEMS</b>					
<b>035 304</b>	<b>FORMBOARD:</b>					
035 304-0070	Formboard,including sub-purlins non-asbestos,fiber cement, 6 mm thick	SQM	0.5 Labor foreman 1 Struc. Steel Worker 1 Welder 1 Carpenter 1 Gas Welding Machine	215.000	0.130	0.037
035 304-0100	Formboard,including sub-purlins non-asbestos, fiberglass, 25 mm thick	"	"	205.000	0.137	0.039
<b>035 306</b>	<b>WOOD FIBER:</b>					
035 306-0010	Lightweight cement wood fiber, T&G planks, 25 mm thick	SQM	2 Carpenters	100.000	0.160	0.000
035 306-0011	Lightweight cement wood fiber, T&G planks, 65 mm thick	"	"	90.000	0.178	0.000

## Division 4

# Masonry

### Estimating Tips

#### 041 Mortar & Masonry Accessories

The terms *mortar* and *grout* are often used interchangeably, and incorrectly. Mortar is used to bed masonry units, seal the entry of air and moisture, provide architectural appearance, and allow for size variations in the units. Grout is used primarily in reinforced masonry construction and is used to bond the masonry to the reinforcing steel. Estimator should be aware of their unique uses and costs.

#### 042 Unit Masonry

Masonry pricing requires full knowledge of the various factors and parameters affecting costs, such as building shape, type of building, kind of mortar, wall thickness, joints style and quality of workmanship.

The most common types of unit masonry are brick and concrete masonry. The major classifications of brick are building brick and glazed brick, fire brick and pavers. Brick and concrete block are priced by the piece and then converted into price per square meter of wall.

All masonry walls, whether interior or exterior, require bracing. The cost of bracing walls during construction should be included by the estimator and this bracing must remain in place until permanent bracing is complete. Estimator shall also pay attention to all anchoring accessories of walls to the structural frames. Brick bonds, patterns, running bonds type are major factors affecting productivity and cost. For jobs that require large amount of cutting bricks, consider a portable masonry saw.

Contractor shall pay attention to the costs of cleaning face bricks, this cost varies with the kind of bricks used. Contractor shall focus on other miscellaneous masonry costs such as extra labor and hoisting for materials used in high-rise buildings. Contractors shall focus on pricing extra materials, labor involved to meet seismic requirements for concrete masonry walls.



# **DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>041</b>	<b>MORTAR &amp; MASONRY ACCESSORIES</b>					
<b>041 100</b>	<b>MORTAR</b>					
<b>041 016</b>	<b>GROUTING:</b>					
041 016-0020	Grouting bond beams & Lintels, pumped,not incl.block 200 mm thick, 200 mm deep.	CUM	1 Bricklayer 2 Bricklayer Helpers 1 Equip.Oper.(light) 1 Grout Pump complete w/ Hoses, Hopper& Accessories	8.000	4.000	1.000
041 016-0050	Grouting bond beams & Lintels, pumped,not incl.block 255 mm thick, 200 mm deep.	..		8.200	3.902	0.976
041 016-0060	Grouting bond beams & Lintels,pumped,not incl.block 300 mm thick, 200 mm deep.	SQM		8.815	3.630	0.908
041 016-0200	Grouting concrete block cores,solid,100 mm thick,by hand		1 Bricklayer 1 Bricklayer Helpers	18.000	0.889	0.444
041 016-0210	Grouting concrete block cores,solid, 150 mm thick,pumped,		1 Bricklayer 2 Bricklayer Helpers 1 Equip.Oper.(light) 1 Grout Pump complete w/ Hoses, Hopper& Accessories	112.000	0.286	0.214
041 016-0250	Grouting concrete block cores, 200 mm thick,pumped			82.000	0.390	0.293
041 016-0350	Grouting concrete block cores, 305 mm thick,pumped			48.000	0.667	0.500
041 016-0500	Grouting cavity walls, 50 mm space,pumped			164.000	0.195	0.146
041 016-0550	Grouting cavity walls, 75 mm space,pumped			109.000	0.294	0.220
041 016-0600	Grouting cavity walls,102 mm space			82.000	0.390	0.293
041 016-0700	Grouting cavity walls,150 mm space			55.000	0.582	0.436
041 016-0800	Grouting door frames, 915 mm x 2135 mm opening	OPENING		59.000	0.542	0.407
041 016-0850	Grouting door frames,1.8 m x 2.1 m opening	*		41.000	0.780	0.585
<b>041 024</b>	<b>MORTAR:</b>					
041 024-0100	Mortar with masonry cement, mix type M, 1:1:6 mix, field mix.	CUM	0.125 foreman 1.000 Bricklayer 2.000 Common Laborer 1.000 Mixer 0.28 m3	4.800	5.208	1.667
041 024-0200	Mortar with masonry cement, mix type N, 1:3 mix, field mix.			4.800	5.208	1.667
041 024-2100	Mortar with portland cement and lime, mix type M, 1:1/4:3 mix, field mix			4.800	5.208	1.667
041 024-2200	Mortar with portland cement and lime, mxi type N, 1:1:16 mix, 5170 Kpa, field mix			4.800	5.208	1.667
041 024-2800	Mortar for glass block			4.800	5.208	1.667
<b>041 036</b>	<b>SURFACE BONDING:</b>					
041 036-0020	Surface Bonding Block walls with fiberglass mortar, gray or white color, not incl. block work	SQM	1 Bricklayer	30.000	0.267	0.000

**DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>041 500</b>	<b>MASONRY ACCESSORIES</b>					
<b>041 504</b>	<b>ANCHOR BOLTS:</b>					
041 504-0010	Anchor bolts hooked w/nut and washer, 12 mm dia., 200 mm long	EA	1 Bricklayer	100.000	0.080	0.000
041 504-0030	Anchor bolts hooked w/nut and washer, 12 mm dia., 300 mm long			90.000	0.089	0.000
041 504-0050	Anchor bolts hooked w/nut and washer, 16 mm dia., 300 mm long			80.000	0.100	0.000
041 504-0070	Anchor bolts hooked w/nut and washer, 20 mm dia., 300 mm long	↓	↓	70.000	0.114	0.000
<b>041 508</b>	<b>CONTROL JOINT:</b>					
041 508-0010	Control joint Rubber or PVC, 100 mm. wall	LM	1 Bricklayer	160.000	0.050	0.000
041 508-0100	Control joint rubber or PVC, 150 mm wall only			130.000	0.062	0.000
041 508-0140	Control joint rubber or PVC, 200 mm and wider wall			100.000	0.080	0.000
041 508-0180	Control joint rubber or PVC, 300 mm wall	↓	↓	75.000	0.107	0.000
<b>041 512</b>	<b>JOINT REINFORCING:</b>					
041 512-0010	Joint Reinforcing steel bars, placed horiz. 10 mm bars	KG	1 Bricklayer 1 Helper	275.000	0.058	0.000
041 512-0020	Joint Reinforcing steel bars, placed horiz. 16 mm, & 20 mm bars			440.000	0.036	0.000
041 512-0050	Joint Reinforcing steel bars, Placed vertical, 10mm bars			220.000	0.073	0.000
041 512-0060	Joint Reinforcing steel bars, Placed vertical, 16 mm, & 20 mm bars	↓		350.000	0.046	0.000
041 512-0200	Joint Reinforcing Wire strips, regular truss, to 150 mm wide, galvanized	LM		1100.000	0.015	0.000
041 512-0250	Joint Reinforcing Wire strips, regular truss, to 300 mm wide, galvanized			750.000	0.021	0.000
041 512-0400	Joint Reinforcing, Cavity truss with drip section to 150 mm wide			1100.000	0.015	0.000
041 512-0450	Joint Reinforcing, Cavity truss with drip section to 300 mm wide	↓	↓	750.000	0.021	0.000
<b>041 518</b>	<b>WALL PLUGS:</b>					
041 518-0010	Wall Plugs, for nailing to brickwork, 26 ga., galvanized, plain, or wood fill	100 PCS.	1 Bricklayer	8.000	1.000	0.000
<b>041 520</b>	<b>WALL TIES:</b>					
041 520-0010	Wall Ties, to brick veneer, galv., corrugated, 20 mm x 180 mm, 22 ga	100 PCS.	1 Bricklayer	8.000	1.000	0.000
041 520-0600	Wall Ties, Cavity wall, 150 or 200 mm long, Z type, galvanized, 6 mm, or 5mm	100 PCS.	1 Bricklayer	8.000	1.000	0.000
041 520-1500	Wall Tiles, Rigid partition anchors, plain, 200 mm long and upto 50 mm x 3 mm or 50 mm x 6 mm.	↓	↓	8.000	1.000	0.000
<b>041 524</b>	<b>VENT BOX:</b>					
041 524-0010	Vent Box, Extruded aluminium, 100 mm deep, 60 mm x 206 mm	EA	1 Bricklayer 1 Helper	36.000	0.444	0.000

# **DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
041 524-0050	Vent Box, Extruded aluminium, 100 mm deep, 127 mm x 206 mm or 57 mm x 635 mm			30.000	0.533	0.000
041 524-0150	Vent Box, Extruded aluminium, 100 mm deep, 127 mm x 420 mm or 127 mm x 420 mm			25.000	0.640	0.000
041 524-0200	Vent Box, Extruded aluminium, 100 mm deep, 150 mm x 420 mm			24.000	0.667	0.000
041 524-0250	Vent Box, Extruded aluminium, 100 mm deep, 197 mm x 420 mm			23.000	0.696	0.000
041 524-1050	Ventilator vent box, stainless steel, 200 mm x 200 mm			28.000	0.571	0.000
041 524-1100	Ventilator vent box, stainless steel, 300 mm x 300 mm			26.000	0.615	0.000
041 524-1150	Ventilator vent box, stainless steel, 300 mm x 150 mm			28.000	0.571	0.000
<b>042 UNIT MASONRY</b>						
<b>042 050 CHIMNEYS:</b>						
<b>042 054 CHIMNEY</b> <i>Chimney for foundation, add to prices below, see div. 0330500</i>						
042 054-0100	Chimney size 410 x 420 mm, flue size 210 x 220 mm, brick size 200 x 71 x 100 mm complete w/ mortar.	LM	0.250 Foreman 0.250 Equip. Operator 3.000 Bricklayer 2.000 Helpers 0.125 Mixer 0.28 m3 2.000 Power Tool 1.000 Hodcarrier	18.360	2.397	1.362
042 054-0200	Chimney size 410 x 740 mm, 2 flue lines each 210 x 220 mm, brick size 200 x 71 x 100 mm complete w/ mortar.			11.190	3.932	2.234
042 054-0300	Chimney size 520 x 740 mm, 2 flue lines each 220 x 320 mm, brick size 200 x 71 x 100 mm complete w/ mortar.			11.000	4.000	2.273
042 054-0350	Chimney size 520 x 840 mm, 2 flue lines each 320 x 320 mm, brick size 200 x 71 x 100 mm complete w/ mortar.			10.740	4.097	2.328
042 054-1800	Chimney, Metal, high temp. steel jacket, factory lining, 610 mm dia. 24"		0.50 Struc. Steel Foreman 4.00 Struc. Steel Workers 2.00 Common Laborers 1.00 Equip. Oper. (crane) 1.00 Crane, 36 metric ton	13.500	4.444	0.593
042 054-1900	Chimney, Metal, high temp. steel jacket, factory lining, 1.5 m dia. 60"			6.750	8.889	1.185
<b>042 100 BRICK MASONRY</b>						
<b>042 104 CAULKING:</b> <i>See division 079-204</i>						
<b>042 108 COLUMNS:</b>						
042 108-0400	Columns Brick, 480 mm x 480 mm, brick size 240 x 71 x 115 mm, joints 10 mm including mortar.	LM	0.250 Foreman 0.250 Equip. Operator 3.000 Bricklayer 2.000 Helpers 0.125 Mixer 0.28 m3 2.000 Power Tool 1.000 Hodcarrier	11.540	3.813	2.166

# **DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
042 108-0800	Columns Brick, 740 mm x 740 mm, brick size 240 x 71 x 115 mm,joints 10 mm including mortar.			11.030	3.989	2.267
042 108-1000	Columns Brick, 1000 mm x 1000 mm, brick size 240 x 71 x 115 mm,joints 10 mm including mortar.			10.540	4.175	2.372
<b>042 116</b>	<b>COPING:</b>					
042 116-0010	Coping for 300 mm wall, aluminium	LM	1 Bricklayer 1 Bricklayer Helper	24.000	0.667	0.000
042 116-0050	Coping for 200 mm wall,precast conc. 255 mm wide, 100 mm tapers to 90 mm		1 Bricklayer 1 Bricklayer Helper	24.000	0.667	0.000
042 116-0110	Coping for 355 mm wall, precast conc. 355 mm wide, 100 mm tapers to 90 mm		1 Bricklayer 1 Bricklayer Helper	22.000	0.727	0.000
042 116-0250	Coping wall Corner, precast corner unit.	EA		32.000	0.500	0.000
042 116-0300	Coping limestone for 300 mm wall, 100 mm thick	LM		20.000	0.800	0.000
042 116-0350	Coping limestone for 300 mm wall, 150 mm thick			17.000	0.941	0.000
042 116-0500	Coping Marble to 100 mm thick wall, 230 mm wide			20.000	0.800	0.000
<b>042 130</b>	<b>FLASHING</b>					
	<i>See division 076-204</i>					
<b>042 134</b>	<b>LINTELS</b>					
	<i>See division 051-232</i>					
<b>042 142</b>	<b>REINFORCING</b>					
	<i>See division 041 -512</i>					
<b>042 150</b>	<b>SAND BLAST:</b>					
042 150-0080	Sand Blast Building face, wet system, Average	SQM	0.25 Foreman 1.00 Equip. Operator light 4.00 Laborers 1.00 Air Compr., 0.12m3/s with Air Tools, Accessories Hoses	60.000	0.700	0.133
042 150-2000	Sand Blast Building face, dry system, Average	SQM		136.000	0.309	0.059
<b>042 154</b>	<b>SAWING:</b>					
042 154-0010	Sawing brick or block by hand, per 10 mm of brick depth	LM	1 Bricklayer 1 Helper	18.000	0.889	0.444
<b>042 162</b>	<b>SIMULATED BRICK</b>					
042 162-0010	Simulated brick, aluminium,baked on colors.	SQM	1 Bricklayer 1 Helper	24.000	0.667	0.000
042 162-0050	Simulated brick, fiberglass panels			24.000	0.667	0.000
042 162-0110	Simulated brick, urethane pieces cemented in mastic			20.000	0.800	0.000
042 162-0180	Simulated brick, stone face,including mastic.			20.000	0.800	0.000
<b>042 166</b>	<b>STEAM CLEAN:</b>					

## DIVISION 04 : MASONRY

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
042 166-0300	Steam Clean building, not including scaffolding,common face brick,average	SQM	0.25 Foreman 1.00 Eqpt. Operator light 4.00 Laborers 1.00 Air Compr.,0.12m3/s with Air Tools, Accessories Hoses	140.000	0.300	0.057
042 166-0400	Steam Clean building,not including scaffolding,wire cut face brick,average	"	"	88.000	0.477	0.091
<b>042 184</b>	<b>WALLS:</b>					
042 184-0800	Walls brick,common 100 mm x 71 mmx 200 mm, 100 mm wall, as face brick	SQM	0.250 Foreman 0.250 Equip. Operator 3.000 Bricklayer 2.000 Helpers 0.125 Mixer 0.28 m3 2.000 Power Tool 1.000 Hodcarrier	11.096	3.965	2.253
042 184-0850	Walls brick,common,100mm x 71mm x 200 mm bricks,100 mm thick, as back up wall			11.030	3.989	1.179
042 184-0900	Walls brick,common,100 mm x 68mm x 200 mm bricks, 200 mm thick, as back up wall			10.610	4.147	2.356
042 184-1000	Walls brick,common,100 mm x 71 mm x 200 mm bricks,300 mm thick, as back up wall			10.450	4.211	2.392
042 184-1050	Walls brick,common,100 mm x 71 mm x200 mm bricks,400 mm thick, as back up wall		0.250 Foreman 0.250 Equip. Operator 3.000 Bricklayer 2.000 Helpers 0.250 Mixer 0.28 m3 2.000 Power Tool 1.000 Hodcarrier	9.920	4.435	2.621
<b>042 190</b>	<b>WALL TIES</b>					
	<b>See division 041 -520</b>					
<b>042 192</b>	<b>WALL PLUGS</b>					
	<b>See division 041 -518</b>					
<b>042 194</b>	<b>WINDOW SILL:</b>					
042 194-0010	Windows Sill Bluestone, thermal top, 255 mm wide, 40 mm thick	SQM	1.00 Brick layer 1.00 Brick layer helpers	4.824	3.317	0.000
042 194-0050	Windows Sill Bluestone, thermal top, 255 mm wide, 50 mm thick	"		4.338	3.688	0.000
042 194-0100	Windows Sill Cut stone, 125 mm x 200 mm plain	LM		20.000	0.800	0.000
042 194-0200	Windows Sill Face brick on edge, brick, 200 mm wide			30.000	0.533	0.000
042 194-0400	Windows Sill Marble, 230 mm wide, 25 mm thick			20.000	0.800	0.000
042 194-0600	Windows Sill precast conc., 230 mm wide, 100 mm tapers to 75 mm, 200 mm wall			28.000	0.571	0.000
042 194-0650	Windows Sill precast conc., 255 mm wall, 280 wide			22.000	0.727	0.000
042 194-0700	Windows Sill precast conc., 300 mm wall, 330 mm W, 90 mm tapers to 65 mm			21.000	0.762	0.000
<b>042 200</b>	<b>CONCRETE UNIT MASONRY</b>					

# **DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>042 216</b>	<b>CONCRETE BLOCK, BACK-UP:</b>	<b><i>Including Scaffolding</i></b>				
042 216-0010	Concrete Block, Back-up, Reinforced, alternate courses, bar spacing 1.2 meter, 200 mm x 400 mm, 100 mm thick	SQM	0.250 Foreman 4.000 Bricklayers 2.000 Bricklayer Helpers 0.250 Equip. Operator 0.125 Mixer 0.28 m3 0.500 Power Tools 0.250 Crane 0.125 Fork Lift 0.125 Truck 0.500 Hodcarrier	38.120	1.364	0.341
042 216-1100	Concrete Block, Back-up, Reinforced, alternate courses, bar spacing 1.2 meter, 200 mm x 400 mm, 150 mm thick			33.750	1.541	0.385
042 216-1150	Concrete Block, Back-up, Reinforced, alternate courses, bar spacing 1.2 meter, 200 mm x 400 mm, 200 mm thick			28.490	1.825	0.456
042 216-1200	Concrete Block, Back-up, Reinforced, alternate courses, 200 mm x 400 mm, 250 mm thick			25.460	2.042	0.589
042 216-1250	Concrete Block, Back-up, Reinforced, alternate courses, 200 mm x 400 mm, 300 mm thick			21.870	2.378	0.686
042 216-2000	Concrete Block, Back-up, Reinforced, alternate courses, 200 mm x 400 mm, 100 mm thick, Exposed with 2 side tooled joints.			36.310	1.432	0.358
042 216-2100	Concrete Block, Back-up, Reinforced, alternate courses, 200 mm x 400 mm, 150 mm thick, Exposed with 1 side tooled joints.			32.150	1.617	0.404
042 216-2200	Concrete Block, Back-up, Reinforced, alternate courses, 200 mm x 400 mm, 200 mm thick, Exposed with 1 side tooled joints.			27.130	1.917	0.479
042 216-2300	Concrete Block, Back-up, Reinforced, alternate courses, 200 mm x 400 mm, 300 mm thick, Exposed with 1 side tooled joints.	SQM	0.250 Foreman 4.000 Bricklayers 2.000 Bricklayer Helpers 0.250 Equip. Operator 0.250 Mixer 0.28 m3 0.500 Power Tools 0.250 Crane 0.250 Fork Lift 0.125 Truck 0.500 Hodcarrier	20.220	2.572	0.742
<b>042 220</b>	<b>CONCRETE BLOCK, DECORATIVE:</b>					
042 220-0100	Concrete Block, embossed simulated brick face, 1 Face tooled joint, not reinforced, 200 mm x 400 mm units, 100 mm thick	SQM	0.250 Foreman 4.000 Bricklayers 2.000 Bricklayer Helpers 0.250 Equip. Operator 0.125 Mixer 0.28 m3 0.500 Power Tools 0.250 Crane 0.125 Fork Lift 0.125 Truck 0.500 Hodcarrier	41.870	1.242	0.310
042 220-0250	Concrete Block, embossed simulated brick face, 1 Face tooled joint, not reinforced, 200 mm x 400 mm units, 150 mm thick			37.720	1.379	0.345

# **DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
042 220-0500	Concrete Block, embossed simulated brick face, 1 Face tooled joint, not reinforced, 200 mm x 400 mm units, 200 mm thick			35.932	1.447	0.362
042 220-1450	Concrete Block, Decorative, Deep grooved, smooth face, 200 mm x 400mm x 100 mm thick			34.020	1.529	0.382
042 220-1500	Concrete Block, Decorative, Deep grooved, smooth face, 200 mm x 400 mm x 200 mm thick			25.930	2.005	0.501
042 220-5100	Concrete block, decorative, split rib profile units, 25 mm deep ribs, 8 ribs, 200 mm x 400 mm x 100 mm thick			34.020	1.529	0.382
042 220-5150	Concrete block, decorative, split rib profile units, 25 mm deep ribs, 8 ribs, 200 mm x 400 mm x 150 mm thick			29.400	1.769	0.442
042 220-5200	Concrete block, decorative, split rib profile units, 25 mm deep ribs, 8 ribs, 200 mm x 400 mm x 200 mm thick			25.930	2.005	0.501
042 220-6100	Concrete block, decorative, split face or scored split face, 200 mm x 400 mm x 100 mm thick			34.020	1.529	0.382
042 220-6150	Concrete block, decorative, split face or scored split face, 200 mm x 400 mm x 150 mm thick			29.400	1.769	0.442
042 220-6200	Concrete block, decorative, split face or scored split face, 200 mm x 400 mm x 200 mm thick			25.930	2.005	0.501
<b>042 224 CONCRETE BLOCK, INTERLOCKING:</b>						
042 224-0400	Concrete block interlocking, 200 mm x 400 mm units, 200 mm thick, including grout and reinforcing	SQM	0.250 Foreman 4.000 Bricklayers 2.000 Bricklayer Helpers 0.250 Equip. Operator 0.250 Mixer 0.28 m3 0.250 Crane 0.250 Fork Lift 0.125 Truck 0.500 Hodcarrier	27.530	1.889	0.545
042 224-0450	Concrete block interlocking, 200 mm x 400 mm units, 300 mm thick, including grout and reinforcing	"	"	19.300	2.694	0.777
<b>042 232 CONCRETE BLOCK, PARTITIONS: Including Scaffolding</b>						
042 232-0200	Acoustical slotted concrete block, noise reduction coefficient, 0.5 or 0.65, 100 mm thick	SQM	0.250 Foreman 4.000 Bricklayers 2.000 Bricklayer Helpers 0.250 Equip. Operator 0.250 Mixer 0.28 m3 0.500 Power Tools 0.125 Crane 0.125 Fork Lift 0.125 Truck 0.500 Hodcarrier	26.690	1.948	0.487
042 232-0250	Acoustical slotted concrete block, noise reduction coefficient, 0.50 or 0.65, 150 mm thick			23.630	2.201	0.550
042 232-0400	Acoustical slotted concrete block, noise reduction coefficient, 0.45 or 0.55, 200 mm thick			19.940	2.608	0.652

# **DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
042 232-0500	Acoustical slotted concrete block, noise reduction coefficient, 0.60 or 0.65, 200 mm thick			19.940	2.608	0.652
042 232-2900	Lightweight concrete block, tooled joints, solid, not reinforced, 200 mm x 400 mm x 100 mm thick			49.470	1.051	0.263
042 232-2950	Lightweight block, tooled joints, 2 side solid, not reinforced, 200 mm x 400 mm x 150 mm thick			44.470	1.169	0.292
042 232-3000	Lightweight concrete block, tooled joints, solid, not reinforced, 200 mm x 400 mm x 200 mm thick			37.250	1.396	0.349
042 232-3050	Lightweight concrete block, tooled joints, solid, not reinforced, 200 mm x 400 mm x 250 mm thick			33.450	1.555	0.389
042 232-4100	Regular concrete block, tooled joints, 2 sides, hollow not reinforced, 200 mm x 400 mm x 100 mm thick			40.050	1.298	0.325
042 232-4150	Regular concrete block, tooled joints, 2 sides, hollow not reinforced, 200 mm x 400 mm x 150 mm thick			35.460	1.466	0.367
042 232-4200	Regular block, tooled joints, 2 sides, hollow not reinforced, 200 mm x 400 mm x 200 mm thick	SQM	0.250 Foreman 4.000 Bricklayers 2.000 Bricklayer Helpers 0.250 Equip. Operator 0.250 Mixer 0.28 m3 0.500 Power Tools 0.125 Crane 0.125 Fork Lift 0.125 Truck 0.500 Hodcarrier	29.930	1.737	0.434
042 232-4250	Regular block, tooled joints, 2 sides, hollow not reinforced, 200 mm x 400 mm x 250 mm thick			26.750	1.944	0.486
042 232-4300	Regular block, tooled joints, 2 sides, hollow not reinforced, 200 mm x 400 mm x 300 mm thick			22.970	2.264	0.566
042 232-4500	Regular block, no tooled joints, hollow, non - reinforced, 200 mm x 400 mm x 100 mm thick			44.320	1.173	0.293
042 232-4550	Regular block, no tooled joints, hollow, non - reinforced, 200 mm x 400 mm x 150 mm thick			39.240	1.325	0.331
042 232-4600	Regular block, no tooled joints, hollow, non - reinforced, 200 mm x 400 mm x 200 mm thick			33.120	1.570	0.393
042 232-4650	Regular block, no tooled joints, hollow, non - reinforced, 200 mm x 400 mm x 250 mm thick			29.600	1.757	0.439
042 232-5050	Regular concrete block, solid, not reinforced, 200 mm x 400 mm x 100 mm thick			42.100	1.235	0.309
042 232-5100	Regular concrete block, solid, not reinforced, 200 mm x 400 mm x 150 mm thick			37.280	1.395	0.349
042 232-5150	Regular concrete block, solid, not reinforced, 200 mm x 400 mm x 200 mm thick			31.470	1.652	0.413
042 232-5200	Regular concrete block, solid, not reinforced, 200 mm x 400 mm x 300 mm thick			24.150	2.153	0.538
042 232-5500	Regular concrete block, solid, reinforced, 200 mm x 400 mm x 100 mm thick			36.220	1.436	0.359
042 232-5550	Regular concrete block, solid, reinforced, 200 mm x 400 mm x 150 mm thick			32.060	1.622	0.405



# **DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
042 232-5600	Regular concrete block, solid, reinforced, 200 mm x 400 mm x 200 mm thick	↓	↓	27.070	1.921	0.480
<b>042 240</b>	<b>CONCRETE SCREEN BLOCK:</b>					
	<i>Including Scaffolding</i>					
042 240-0200	Concrete Screen Block, 200 mm x 400 mm, 100 mm thick	SQM	0.250 Foreman 4.000 Bricklayers 2.000 Bricklayer Helpers 0.250 Equip. Operator 0.250 Mixer 0.28 m3 0.500 Power Tools 0.125 Crane 0.125 Fork Lift 0.125 Truck 0.500 Hodcarrier	31.180	1.668	0.417
042 240-0300	Concrete Screen Block, 200 mm x 400 mm, 200 mm thick			24.624	2.112	0.528
042 240-0500	Concrete Screen Block, 190 mm x 190 mm, 190 mm thick	↓	↓	20.064	2.592	0.648
<b>042 248</b>	<b>GLAZED CONCRETE BLOCK :</b>					
042 248-0200	Glazed Concrete Block, Single face, 200 mm x 400 mm units, 100 mm thick, no reinforcing	SQM	0.250 Foreman 4.000 Bricklayers 2.000 Bricklayer Helpers 0.250 Equip. Operator 0.250 Mixer 0.28 m3 0.500 Power Tools 0.125 Crane 0.125 Fork Lift 0.125 Truck 0.500 Hodcarrier	36.560	1.422	0.356
042 248-0250	Glazed Concrete Block, Single face, 200 mm x 400 mm units, 150 mm thick, no reinforcing			32.370	1.606	0.402
042 248-0300	Glazed Concrete Block, Single face, 200 mm x 400 mm units, 200 mm thick, no reinforcing			27.330	1.903	0.476
042 248-0700	Glazed Concrete Block, Double face, 200 mm x 400 mm units, 100 mm thick ,no reinforcing			31.020	1.676	0.419
042 248-0750	Glazed Concrete Block, Double face, 200 mm x 400 mm units, 150 mm thick, no reinforcing			27.470	1.893	0.473
042 248-0800	Glazed Concrete Block, Double face, 200 mm x 400 mm units, 200 mm thick, no reinforcing	↓		23.180	2.243	0.561
042 248-1050	Glazed Concrete Block for Jambos, bullnose or square, single, face, 200 mm x 400 mm, 100 mm thick, no reinforcing	EA	↓	330.000	0.158	0.039
042 248-1250	Glazed Concrete Block for Caps, bullnose or square, 200 mm x 400 mm, 100 mm thick, no reinforcing	LM	0.250 Foreman 4.000 Bricklayers 2.000 Bricklayer Helpers 0.250 Equip. Operator 0.250 Mixer 0.28 m3 0.500 Power Tools 0.125 Crane 0.125 Fork Lift 0.125 Truck 0.500 Hodcarrier	132.000	0.394	0.098

# **DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
042 248-1550	Glazed Concrete Block for Cove base, 200 mm x 400 mm, 100 mm thick,no reinforcing			99.000	0.525	0.131
042 248-1600	Glazed Concrete Block for Cove base, 200 mm x 400 mm, 150mm thick,no reinforcing			88.000	0.591	0.148
042 248-1650	Glazed Concrete Block for Cove base, 200 mm x 400 mm, 200 mm thick,no reinforcing			74.000	0.703	0.176
<b>042 252</b>	<b>INSULATION</b>	<b>See also division 072-108</b>				
042 252-0200	Insulation, inserts, styrofoam, plant installed,for block units size 200 mm x 400 mm, 150 mm thick	SQM	1 Bricklayer	80.000	0.100	0.000
042 252-0250	Insulation, inserts, styrofoam, plant installed,for block units size 200 mm x 400 mm, 200 mm thick			70.000	0.114	0.000
042 252-0300	Insulation, inserts, styrofoam, plant installed,for block units size 200 mm x 400 mm, 250 mm thick			60.000	0.133	0.000
042 252-0500	Insulation, inserts, styrofoam, plant installed,for block units size 200 mm x 200 mm, 200 mm thick			60.000	0.133	0.000
042 252-1000	Perlite insulation fill in block cores, site mix, 200 mm x 400 mm x 100 mm blocks		1 Bricklayer 1 Bricklayer Helper	180.000	0.089	0.000
042 252-1500	Perlite insulation fill in block cores, site mix, 200 mm x 400 mm x 150 mm blocks			150.000	0.107	0.000
042 252-1800	Perlite insulation fill in block cores, site mix, 200 mm x 400 mm x 200 mm blocks			125.000	0.128	0.000
<b>042 260</b>	<b>REINFORCING:</b>	<b>See division 041 -512</b>				
<b>042 300</b>	<b>REINFORCED UNIT MASONRY</b>					
<b>042 304</b>	<b>CONCRETE BLOCK BOND BEAM:</b>	<b>Including Scaffolding</b>				
042 304-0020	Concrete Block Bond Beam, no reinforcement,no grout, regular block 200 mm high, 200 mm thick	LM	0.250 Foreman 4.000 Bricklayers 2.000 Bricklayer Helpers 0.250 Equip. Operator 0.250 Mixer 0.28 m3 0.500 Power Tools 0.125 Crane 0.125 Fork Lift 0.125 Truck 0.500 Hodcarrier	93.370	0.557	0.139
042 304-0150	Concrete Block Bond Beam, no reinforcement,no grout, regular block 200 mm high, 300 mm thick			71.390	0.728	0.182
042 304-0500	Concrete Block Bond Beam,lightweight, no reinforcement,no grout, regular block 200 mm high, 200 mm thick			98.690	0.527	0.132
042 304-2100	Concrete Block Bond Beam, including grout and 2 x 20 mm bars reinforcing regular block 200 mm high, 200 mm thick			55.390	0.939	0.235
042 304-2150	Concrete Block Bond Beam, including grout and 2 x 20 bars reinforcing regular block 200 mm high, 300 mm thick			43.800	1.187	0.297
042 304-2500	Concrete Block Bond Beam, including grout and 2 x 20 bars reinforcing lightweight 200 mm high, 200 mm thick			58.950	0.882	0.221
<b>042 310</b>	<b>CONCRETE BLOCK, EXTERIOR:</b>	<b>Reinforced, tooled joints 2 sides styrofoam inserts</b>				

# **DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
042 310-0100	Exterior concrete Regular block, reinforced, tooled joints 2 sides & styrofoam inserts 200 mm x 400 mm x 150 mm thick	SQM	0.250 Foreman 4.000 Bricklayers 2.000 Bricklayer Helpers 0.250 Equip. Operator 0.250 Mixer 0.28 m3 0.500 Power Tools 0.125 Crane 0.125 Fork Lift 0.125 Truck 0.500 Hodcarrier	31.340	1.659	0.415
042 310-0200	Exterior concrete Regular block, reinforced, tooled joints 2 sides & styrofoam inserts 200 mm x 400 mm x 200 mm thick			26.450	1.966	0.491
042 310-0250	Exterior concrete Regular block, reinforced, tooled joints 2 sides & styrofoam inserts 200 mm x 400 mm x 250 mm thick			23.640	2.200	0.550
042 310-0500	Exterior concrete lightweight block, reinforced, tooled joints 2 sides & styrofoam inserts 200 mm x 400 mm x 150 mm thick			34.570	1.504	0.376
042 310-0600	Exterior concrete lightweight block, reinforced, tooled joints 2 sides & styrofoam inserts 200 mm x 400 mm x 200 mm thick			29.180	1.782	0.446
042 310-0650	Exterior concrete lightweight block, reinforced, tooled joints 2 sides & styrofoam inserts 200 mm x 400 mm x 250 mm thick	↓	↓	22.400	2.321	0.580
<b>042 325</b>	<b>CONCRETE BLOCK HIGH STRENGTH: Including Scaffolding</b>					
042 325-0200	Concrete Block, High Strength, Hollow, reinforced, 200 mm x 400 mm units, 20 685 kPa, 100 mm thick	SQM	0.250 Foreman 4.000 Bricklayers 2.000 Bricklayer Helpers 0.250 Equip. Operator 0.250 Mixer 0.28 m3 0.500 Power Tools 0.125 Crane 0.125 Fork Lift 0.125 Truck 0.500 Hodcarrier	37.170	1.399	0.350
042 325-0250	Concrete Block, High Strength, Scaffolding not included, Hollow, reinforced, 200 mm x 400 mm units, 20 685 kPa, 150 mm thick	↓	↓	32.910	1.580	0.395
042 325-0300	Concrete Block, High Strength, Hollow, reinforced, 200 mm x 400 mm units, 20 685 kPa, 200 mm thick	SQM	0.250 Foreman 4.000 Bricklayers 2.000 Bricklayer Helpers 0.250 Equip. Operator 0.250 Mixer 0.28 m3 0.500 Power Tools 0.125 Crane 0.125 Fork Lift 0.125 Truck 0.500 Hodcarrier	27.780	1.872	0.468
042 325-0500	Concrete Block, High Strength, Hollow, reinforced, 200 mm x 400 mm units, 34 475 kPa, 100 mm thick			37.170	1.399	0.350
042 325-0550	Concrete Block, High Strength, Hollow, reinforced, 200 mm x 400 mm units, 34 475 kPa, 150 mm thick			32.910	1.580	0.395
042 325-0600	Concrete Block, High Strength, Hollow, reinforced, 200 mm x 400 mm units, 34 475 kPa, 200 mm thick	↓	↓	27.780	1.872	0.468

# **DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>042 330</b>	<b>CONCRETE BLOCK LINTELS:</b>	<i>Scaffolding Included</i>				
042 330-0200	Concrete Block, Lintels, including grout and reinforcing, 200 mm x 200 mm x 200 mm, 1x 10 mm bar	LM	0.250 Foreman 4.000 Bricklayers 2.000 Bricklayer Helpers 0.250 Equip. Operator 0.250 Mixer 0.28 m3 0.500 Power Tools 0.125 Crane 0.125 Fork Lift 0.125 Truck 0.500 Hodcarrier	91.890	0.566	0.141
042 330-0250	Concrete Block, Lintels, including grout and reinforcing, 200 mm x 200 mm x 200 mm, 2x10 mm bar			85.150	0.611	0.153
042 330-0400	Concrete Block, Lintels, including grout and reinforcing, 200 mm x 400 mm x 200 mm, 1x10 mm bar			68.100	0.764	0.191
042 330-0450	Concrete Block, Lintels, including grout and reinforcing, 200 mm x 400 mm x 200 mm, 2x10 mm bar			64.520	0.806	0.201
042 330-1000	Concrete Block, Lintels, including grout and reinforcing, 300 mm x 200 mm x 200 mm, 1x10 mm bar			69.020	0.753	0.188
042 330-1150	Concrete Block, Lintels, including grout and reinforcing, 300 mm x 200 mm x 200 mm, 2x16 mm bar			59.920	0.868	0.217
042 330-1200	Concrete Block, Lintels, including grout and reinforcing, 300 mm x 200 mm x 200 mm, 2x20 mm bar			54.310	0.957	0.239
042 330-1600	Concrete Block, Lintels, including grout and reinforcing, 300 mm x 400mm x 200 mm, 2x10 mm bar			67.460	0.771	0.193
<b>042 335</b>	<b>CONCRETE BLOCK COLUMN</b>					
042 335-0160	Concrete block column or pilaster, including reinforcement & grout, size 400 mm x 400 mm. block size 400 x 200 x 200 mm	LM	0.250 Labor foreman 0.250 Eqp. operator 4.000 Break layers 2.000 Helpers 2.000 Brick layer helpers 0.375 Mixing m/c .28 m3 2.000 Power tool 0.125 Crane 0.125 Forklift 0.125 Truck 0.375 Grout/pump 1.000 Hodcarriers	11.550	4.502	2.857
042 335-0170	Concrete block column or pilaster, including reinforcement & grout, size 400 mm x 500 mm. block size 400 x 200 x 200 mm			10.280	5.058	3.210
042 335-0180	Concrete block column or pilaster, including reinforcement & grout, size 500 mm x 500 mm. block size 400 x 200 x 200 mm			9.470	5.491	3.485
042 335-0190	Concrete block column or pilaster, including reinforcement & grout, size 600 mm x 600 mm. block size 400 x 200 x 200 mm			8.260	6.295	3.995
<b>042 500</b>	<b>CERAMIC VENEER</b>	<i>See Div. 096354</i>				
<b>042 550</b>	<b>MASONRY VENEER</b>					

# **DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>042 554</b>	<b>BRICK VENEER:</b>					
042 554-0050	Brick Veneer, Standard 100 mm x 71 mm x 240 mm, running bond, V - Tooled joints	SQM	0.250 Foreman 0.250 Equip. Operator 3.000 Bricklayer 2.000 Helpers 0.125 Mixer 0.28 m3 1.000 Power Tool 0.500 Hodcarrier	16.198	2.716	0.803
042 554-0100	Brick Veneer, Standard 100 mm x 71 mm x 240 mm, Full header every 6th course			13.538	3.250	0.960
042 554-0700	Brick Veneer, Glazed face, 100 mm x 71 mm x 240 mm, running bond			14.982	2.937	0.868
042 554-0750	Brick Veneer, Glazed face, 100 mm x 71 mm x 240 mm, Full header every 6th course			12.521	3.514	1.038
042 554-1000	Brick Veneer, Jumbo, 150 mm x 100 mm x 300 mm, running bond			23.484	1.874	0.554
042 554-1050	Brick Veneer, Economy, 100 mm x 100 mm x 200 mm, running bond			19.637	2.241	0.662
042 554-1500	Brick Veneer, standard, For curved walls, running bond, 100 x 71 x 240 mm bricks, V - Tooled joints.			11.334	3.882	1.147
042 554-1510	Brick Veneer, standard, For curved walls, full header every 6th course, 100 x 71 x 240 mm bricks, V - Tooled joints.			10.289	4.277	1.264
042 554-1520	Brick Veneer, glazed face, For curved walls, full header every 6th course, 100 x 71 x 240 mm bricks, V - Tooled joints.			9.519	4.622	1.366
<b>042 700</b>	<b>GLASS UNIT MASONRY</b>					
<b>042 704</b>	<b>GLASS BLOCK:</b>					
042 704-0100	Glass Block, 100 mm thick, plain, 150 mm x 150 mm block, under 100 m <sup>2</sup>	SQM	0.250 Foreman 3.000 Bricklayers 2.000 Bricklayer Helpers 0.125 Mixer 1.000 Hodcarrier	7.960	5.276	1.131
042 704-0150	Glass Block, 100 mm thick, plain, 200 mm x 200 mm block, under 100 m <sup>2</sup>			10.750	3.907	0.837
042 704-0200	Glass Block, 100 mm thick, plain, 300 mm x 300 mm block, under 100 m <sup>2</sup>			12.370	3.395	0.728
042 704-0300	Glass Block, plain, 100 mm thick, 150 mm x 150 mm block, 100 to 500 m <sup>2</sup>			9.150	4.590	0.984
042 704-0350	Glass Block, plain, 100 mm thick, 200 mm x 200 mm block, 100 to 500 m <sup>2</sup>			12.360	3.398	0.728
042 704-0500	Glass Block, plain, 100 mm thick, 150 mm x 150 mm block, over 500 m <sup>2</sup>			9.950	4.221	0.905
042 704-0550	Glass Block, plain, 100 mm thick, 200 mm x 200 mm block, over 500 m <sup>2</sup>			13.440	3.125	0.670
042 704-0800	Glass Block, solar reflective, 100 mm x 200 mm blocks, under 100 m <sup>2</sup>	SQM	0.250 Foreman 3.000 Bricklayers 2.000 Bricklayer Helpers 0.125 Mixer 1.000 Hodcarrier	10.750	3.907	0.837
042 704-0850	Glass Block, solar reflective, 100 mm x 200 mm blocks, over 500 m <sup>2</sup>			13.440	3.125	0.670

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# **DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>044 504</b>	<b>ASHLAR VENEER:</b>					
044 504-0200	Stone veneer 30 mm + or - thk., random or random rectangular sawn face, split joints, Mortar set including pointing & cleaning, scaffolding not included, average	SQM	0.25 Bricklayer Foreman 4.00 Bricklayer 2.00 Bricklayer Helpers 4.00 Common Laborer 1.00 Equip. Operator 0.75 Truck crane 11 ton 0.50 Power Tool 0.125 Mixer 0.28 M3	30.239	2.712	0.364
044 504-0240	Stone veneer 50 mm + or - thk., random or random rectangular sawn face, split joints, Mortar set including pointing & cleaning, scaffolding not included, average			25.745	3.185	0.427
044 504-0280	Stone veneer 70 mm + or - thk., random or random rectangular sawn face, split joints, Mortar set including pointing & cleaning, scaffolding not included, average			20.663	3.969	0.532
044 504-0300	Stone veneer 100 mm + or - thk., random or random rectangular sawn face, split joints, Mortar set including pointing & cleaning, scaffolding not included, average			15.675	5.231	0.702
044 504-0700	Precast concrete panel 150 mm overall thickness, stone veneered, 600mmx300mm, 50 mm thick, high rise building more than 10 floor & up 15 floors.	SQM	0.25 Bricklayer Foreman 4.00 Steel Structure Workers 4.00 Bricklayer 2.00 Bricklayer Helpers 0.50 Equip. Operator 0.25 Tower crane 75 m high, 45 m boom, 11 ton tip load 0.25 Truck 1.00 Power Tool 1.00 H0dcarrier	13.410	6.413	1.491
044 504-1000	Precast concrete panel with stone veneer, overall thickness, 200 mm, stone 400 mmx800x50 mm, mechanical installation, high rise building over 15 floors & up to 22 floors.			12.420	6.924	1.127
044 504-2000	Precast concrete panel with granite veneer, overall thickness, 200 mm, Stone 400 mm x 800 x 50 mm, mechanical installation, high rise building over 22 floors & up to 30 floors			11.730	7.332	1.194
<b>044 508</b>	<b>LIGHTWEIGHT NATURAL STONE:</b>					
044 508-0100	Lightweight natural stone lava type, veneer, rubble face, or sawed face, sawed back, irregular shapes	SQM	0.25 Bricklayer Foreman 4.00 Bricklayer 4.00 Bricklayer Helpers 1.00 Equip. Operator 0.75 Truck crane 11 ton 0.50 Power Tool 0.125 Mixer	27.100	2.731	0.406
<b>044 550</b>	<b>MARBLE</b>					
<b>044 554</b>	<b>MARBLE:</b>					
044 554-0100	Marble base, polished, 20 mm thick, polished, 150 mm high	LM	0.125 Foreman 3.000 Bricklayers 2.000 Bricklayer Helpers 0.125 Equip. Operator 0.500 Power Tool	63.000	0.667	0.079

## DIVISION 04 : MASONRY

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
044 554-0600	Marble facing for Columns, cornices, mouldings, etc., hand or special machine cut, up to 4.00 meter high, average	SQM		9.000	4.667	0.556
044 554-1050	Marble facing, polished finish, cut to size, 20 mm to 25 mm thick mechanical installation average			12.000	3.500	0.417
044 554-1300	Marble facing, polished finish, cut to size, 32 mm thick, mechanical installation, average			10.500	4.000	0.476
044 554-1400	Marble facing, polished finish, cut to size, 40 mm thick, mechanical installation, average			9.000	4.667	0.556
044 554-1500	Marble facing, polished finish, cut to size, 50 mm thick, mechanical installation average			8.250	5.091	0.606
044 554-1550	Marble, wall facing, cut to size, 300 x 800 x 40 mm thick Travertine, scaffolding not included, Average.			9.000	4.667	0.556
044 554-1600	Marble, wall facing, cut to size, 300 x 800 x 40 mm thick Travertine, Building from 6 floors up to 10 floors, scaffolding not included, Average.			8.000	5.250	0.625
044 554-2200	Marble, Window Sills, 150 mm x 20 mm thick			61.000	0.689	0.082
044 554-2510	Marble, Flooring, polished tiles, 300 mm x 300 mm x 10 mm, thin set, Average		0.250 Bricklayer Foreman 3.000 Bricklayer 2.000 Bricklayer Helper 0.125 Equip. Operator 0.125 Mixer 0.28 m3 0.125 Crane 11 Ton 0.500 Power Tool 0.500 Hodcarrier	20.250	2.173	0.494
044 554-2700	Marble, Flooring, polished tiles, 300 mm x 300 mm x 10 mm, mortar bed, Average			16.500	2.667	0.606
044 554-2780	Marble, Flooring, polished tiles, 300 mm x 300 mm x 20 mm, Travertine, mortar bed, average			15.000	2.933	0.667
044 554-2800	Marble flooring for patio tile, non-slip, 13 mm thick, mortar bed, flame finish			18.000	2.444	0.556
044 554-2900	Marble partitions for shower or toilet 20 mm thick			18.000	2.444	0.556
044 554-3210	Marble for stair risers 20 mm thick, 150 mm high.	LM	0.250 Bricklayer Foreman 1.000 Bricklayer 2.000 Bricklayer Helper 1.000 Equip. Operator 1.000 Truck Crane 11 Ton	19.000	1.789	0.421
044 554-3360	Marble stair treads, 300 mm wide x 30 mm thick random lengths	..		19.000	1.789	0.421
044 554-3500	Marble for thresholds, 910 mm L, 20 mm thick, 100 mm to 150 mm W, Plain or Beveled	EA		19.800	1.717	0.404
044 554-3700	Marble for window Stools, polished 20 mm thick, 130 mm wide	LM		18.000	1.889	0.444
<b>044 600</b>	<b>LIMESTONE</b>					
<b>044 604</b>	<b>LIMESTONE:</b>					

*See also Ashlar Veneer, Division 044-504*



# **DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
044 604-2020	Limestone,Coping,smooth finish,top & 2 sides, 230 mm x 100 mm x 6 m long.	EA	0.250 Bricklayer Foreman 1.000 Bricklayer 2.000 Bricklayer Helper 1.000 Equip. Operator 1.000 Truck Crane 11 Ton	5.000	6.800	1.600
044 604-2030	Limestone,Coping,smooth finish,top & 2 sides, 230 mm x 100 mm x 8 m long			4.000	8.500	2.000
044 604-2050	Limestone, Coping, smooth finish, top & 2 sides, 230 mm x 100 mm x 2 m long			15.000	2.267	0.533
044 604-2300	Limestone for steps,extra hard, 356 mm wide, 150 mm rise	LM		20.000	1.700	0.400
<b>044 650</b>	<b>GRANITE:</b>					
<b>044 651</b>	<b>GRANITE:</b>					
044 651-0150	Granite Veener,polished face, 20 mm to 30 mm thick, mechanical installation straight job, average	SQM	0.125 Bricklayer Foreman 3.000 Bricklayer 2.000 Bricklayer Helpers 0.125 Equip.Oper.(crane) 0.125 Truck Crane,11 metric ton 0.500 Power Tool	10.500	4.000	0.476
044 651-0300	Granite Veener,polished face, 40 mm to 65 mm thick, mechanical installation average			8.250	5.091	0.606
044 651-0700	Granite Veener,polished face, 65 mm to 100 mm thick, mechanical installation average			7.500	5.600	0.667
044 651-0800	Granite Veener,polished face 20 mm thick to 30 mm thick, mechanical installation for curved wall under 1.5 m,radius.			7.350	5.714	0.680
044 651-0820	Granite Veener,polished face 40 mm thick to 60 mm thick,for curved wall under 1.5 m,radius.			5.780	7.266	0.865
044 651-0840	Granite Veener,polished face 65 mm thick to 100 mm thick,for curved wall under 1.5 m,radius.			5.250	8.000	0.952
044 651-0860	Granite veneer, cut to size, 300 mm x 600 mm x 30 mm,mechanical installation.			11.500	3.652	0.435
044 651-0880	Granite veneer, cut to size, 400 mm x 400 mm x 30 mm,mechanical installation.			10.500	4.000	0.476
044 651-0900	Granite veneer, cut to size, 300mm x 300 mm x 30 mm,mechanical installation.	SQM	0.125 Bricklayer Foreman 3.000 Bricklayer 2.000 Bricklayer Helpers 0.125 Equip.Oper.(crane) 0.125 Truck Crane,11 metric ton 0.500 Power Tool	9.200	4.565	0.543
044 651-0920	Granite veneer, cut to size, 300 mm x 600 mm x 40 mm,mechanical installation.			9.000	4.667	0.556
044 651-0940	Granite veneer, cut to size, 400 mm x 400 mm x 40 mm,mechanical installation.			8.250	5.091	0.606
044 651-0960	Granite veneer, cut to size, 300 mm x 300 mm x 40 mm,mechanical installation.			7.220	5.817	0.693
044 651-0980	Granite veneer, cut to size, 400 mm x 800 mm x 50 mm,mechanical installation.			12.380	3.393	0.404
044 651-1000	Granite veneer, cut to size, 600 mm x1200 mm x 60 mm,mechanical installation.			14.850	2.828	0.337

# **DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
044 651-2000	Granite veneer to high rise building mole ( 6-10 floors); mechanical installation; 40 to 60 mm thick			7.000	6.000	0.714
044 651-2100	Granite veneer to high rise building mole ( 6- 10 floors); mechanical installation; 65 to 100 mm thick			6.000	7.000	0.833
044 651-2200	Precast concrete panel with granite veneer,overall thickness, 200 mm, Granite 400 mm x 800 x 50 mm,mechanical installation, high rise building over 15 floors.		0.25 Bricklayer Foreman 4.00 Steel Structure Workers 4.00 Bricklayer 2.00 Bricklayer Helpers 0.50 Equip. Operator 0.250 Tower crane 120 m high, 45 m boom, 11 ton tip load 0.25 Truck 1.00 Power Tool 1.00 Hldcarrier	15.420	5.577	1.297
044 651-2210	Precast concrete panel with granite veneer,overall thickness, 200 mm, Granite 400 mm x 800 x 50 mm,mechanical installation, high rise building over 15 floors & up to 22 floors.			15.000	5.733	0.933
044 651-2220	Precast concrete panel with granite veneer,overall thickness, 200 mm, Granite 400 mm x 800 x 50 mm,mechanical installation, high rise building over 22 floors & up to 30 floors.			14.000	6.143	1.000
044 651-2500	Granite Stair riser, 20 mm thick, 150 mm high,average	LM	0.250 Bricklayer Foreman 1.000 Bricklayer 2.000 Bricklayer Helper 1.000 Equip. Operator 1.000 Truck Crane 11 Ton	30.000	1.133	0.267
044 651-2550	Granite Stair tread, 30 mm thick, 310 mm wide, 1.2 meter long, average	-	-	30.000	1.133	0.267
044 651-2800	Granite Pavers,100 mm x 100 mm x 100 mm blocks,split face and joints,average	SQM	0.125 Bricklayer Foreman 3.000 Bricklayer 2.000 Bricklayer Helper 0.125 Equip. Operator 0.125 Mixer 0.28 m3 0.125 Crane 11 Ton 0.500 Power Tool 0.125 Hdcarrrier	13.500	3.111	0.519
044 651-4000	Granite Soffits, 50 mm thick,average			6.750	6.222	1.037
044 651-4200	Granite Soffits,100 mm thick,average			6.750	6.222	1.037
044 651-5000	Granite Flooring,300 mm x 300 mm 20 mm thick,mortar bed,average			15.000	2.800	0.467
044 651-5000	Granite Flooring,300 mm x 300 mm 30 mm thick,mortar bed,average			13.000	3.231	0.538
<b>044 700</b>	<b>SANDSTONE</b>					
<b>044 704</b>	<b>SANDSTONE OR BROWNSTONE:</b>					
	<i>Add for scaffolding</i>					

## DIVISION 04 : MASONRY

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
044 704-1000	Sandstone veneer, cut to size, smooth finish, mechanical installation, 200mm x 70 mm x 40 mm	SQM	0.125 Bricklayer Foreman 3.00 Bricklayer 2.00 Bricklayer Helper 0.125 Equip. Operator 0.125 Crane 11 Ton 0.500 Power Tool	6.750	6.222	0.741
044 704-1200	Sandstone veneer, cut to size, smooth finish, mechanical installation, 300 mm x 110 mm x 40 mm			7.430	5.653	0.673
044 704-1400	Sandstone veneer, cut to size, smooth finish, mechanical installation, 300 mm x 150 mm x 40 mm			8.540	4.918	0.585
044 704-1600	Sandstone veneer, cut to size, smooth finish, mechanical installation, 400 mm x 200 mm x 40 mm			9.000	4.667	0.556
044 704-1800	Sandstone veneer, cut to size, smooth finish, mechanical installation, 400 mm x 250 mm x 40 mm			9.900	4.242	0.505
044 704-2000	Sandstone veneer, cut to size, smooth finish, mechanical installation, 600 mm x 300 mm x 20 mm			10.500	4.000	0.476
044 704-2400	Sandstone veneer, cut to size, smooth finish, mechanical installation, 600 mm x 300 mm x 40 mm	↓	↓	9.750	4.308	0.513
044 704-2600	Sandstone veneer, cut to size, smooth finish, mechanical installation, 600 mm x 300 mm x 50 mm	SQM	0.125 Bricklayer Foreman 3.00 Bricklayer 2.00 Bricklayer Helper 0.125 Equip. Operator 0.125 Crane 11 Ton 0.500 Power Tool	9.000	4.667	0.556
044 704-2800	Sandstone veneer, cut to size, bush hammered, mechanical installation, 600 mm x 300 mm x 60 mm			8.250	5.091	0.606
044 704-3000	Sandstone veneer, cut to size, bush hammered, mechanical installation, 600 mm x 300 mm x 40 mm			9.750	4.308	0.513
044 704-3200	Sandstone veneer, cut to size, bush hammered, mechanical installation, 600 mm x 300 mm x 50 mm	↓	↓	9.000	4.667	0.556
044 704-3400	Sandstone veneer, cut to size, bush hammered, mechanical installation, 600 mm x 300 mm x 60 mm	SQM	0.125 Bricklayer Foreman 3.00 Bricklayer 2.00 Bricklayer Helper 0.125 Equip. Operator 0.125 Crane 11 Ton 0.500 Power Tool	8.250	5.091	0.606
<b>045 MASONRY RESTORATION &amp; CLEANING/REFRACTORIES</b>						
<b>045 100 MASONRY CLEANING</b>						
<b>045 106 CLEAN AND POINT:</b>						
045 106-0010	Clean and point smooth brick	SQM	1 Bricklayer	23.000	0.348	0.000
045 106-0100	Clean and point rough brick	"	"	20.000	0.400	0.000
<b>045 108 WASHING BRICK:</b>						
045 108-0010	Washing smooth brick, acid wash	SQM	1 Bricklayer	42.000	0.190	0.000

**DIVISION 04 : MASONRY**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
045 108-0050	Washing rough brick acid wash			30.000	0.267	0.000
045 108-0060	Washing stone,acid wash			45.000	0.178	0.000
<b>045 550</b>	<b>FLUE LINERS</b>					
<b>045 554</b>	<b>FLUE LINING:</b>					
045 554-0100	Restoration Flue Lining,including mortar joints	SQM	1 Bricklayer 1 Bricklayer Helpers	18.000	0.889	0.000

## **Division 5 Metals**

### **Estimating Tips**

#### **050 Materials, Coating & Fastenings**

Nuts, bolts, washers, connection angles and plates can add a significant amount to both the tonnage of a structural steel job as well as the estimated cost.

Simple construction consists generally of field bolted connections with lateral bracing supplied by other elements of the building, such as masonry walls or x-bracing. The estimator should be aware, however, that shop connections may be accomplished by welding or bolting. The method may be particular to the fabrication shop and may have an impact on the estimated cost.

Some other items shall be included when preparing an estimate on structural steel buildings such as extra costs for shapes, drawings, assembling costs like templates and shop painting.

#### **052 Steel Joists**

In any given project the total weight of open web steel joists is determined by the loads to be supported and the design. However, economies can be realized in minimizing the amount of labor used to place the joists. This is done by maximizing the joists spacing and therefore minimizing the number of joists required to be installed on the job.

#### **053 Metal Decking**

The take off and estimating of metal deck involves more than simply the area of the floor or roof and the type of deck specified or shown on the drawings. Many different sizes and types of openings may exist. Small openings for individual pipes or conduits may be drilled after the floor/ roof is installed, but larger openings may require special deck lengths as well as reinforcing or structural support.

#### **055 Metal Fabrications**

The most economical steel stairs, pipe railing, window guard, curb angles, floor & trench frames are those that use common materials, standard details and most importantly, a uniform and relatively simple method of field assembly. Risers and treads are usually made by specialty shops, and it is most economical to use a typical detail in as many places as possible. The stairs should be pre-assembled and shipped directly to the site.

Steel stack costs and labor vary widely with stack height, number of joints and transportation.

**DIVISION 05 : METALS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>050</b>	<b>METAL MATERIALS,FINISHES &amp; FASTENINGS</b>					
<b>050 500</b>	<b>METAL FASTENING:</b>					
<b>050 510</b>	<b>CURB EDGING:</b>					
050 510-0010	Curb Edging St. angle w/anchors, 25 mm x 25 mm, 1.2 kg/m	LM	0.375 Struc. Steel Foreman 2.000 Steel Fitter 1.000 Steel Welder 1.000 Welding Machine 1.000 Power Tool	80.000	0.338	0.200
050 510-0100	Curb Edging St. angle w/anchors, 50 mm x 50 mm, 5.8 kg/m			75.000	0.360	0.213
050 510-0200	Curb Edging St. angle w/anchors, 76 mm x 76 mm, 9.1 kg/m			70.000	0.386	0.229
050 510-0300	Curb Edging St. angle w/anchors,100 mm x 100 mm, 12.2 kg/m			60.000	0.450	0.267
050 510-1000	Curb Edging St. angle w/anchors,150 mm x 100 mm, 18.3 kg/m			55.000	0.491	0.291
050 510-1050	Curb Edging Steel channels with anchors, on forms, 75 mm channel, 7.4 kg/m			65.000	0.415	0.246
050 510-1100	Curb Edging Steel channels with anchors, on forms,100 mm channel, 8 kg/m			60.000	0.450	0.267
050 510-1200	Curb Edging Steel channels with anchors, on forms,150 mm channel,12 kg/m			55.000	0.491	0.291
050 510-1300	Curb Edging Steel channels with anchors, on forms, 200 mm channel, 17 kg/m			50.000	0.540	0.320
050 510-1400	Curb Edging Steel channels with anchors, on forms, 250 mm channel, 23 kg/m			45.000	0.600	0.356
050 510-1500	Curb Edging Steel channels with anchors, on forms, 310 mm channel, 31 kg/m			30.000	0.900	0.533
050 510-2050	Steel channels with anchors, on forms,for curved edging 200 mm channel, 17 kg/m			44.000	0.614	0.364
<b>051</b>	<b>STRUCTURAL METAL FRAMING</b>					
<b>051 100</b>	<b>BRACING</b>					
<b>051 108</b>	<b>BRACING:</b>					
051 108-0300	Bracing Let-in,"T" shaped, 20 ga. galv. steel, studs at 410 mm O.C.	LM	0.250 Steel Foreman 1.000 Steel Fitter 1.000 Power Tool	135.000	0.074	0.059
051 108-0400	Bracing Let-in,"T" shaped, 20 ga. galv. steel, studs at 610 mm O.C.			140.000	0.071	0.057
051 108-0500	Bracing Let-in,"T" shaped, 16 ga. galv. steel straps, studs at 410 mm O.C.			140.000	0.071	0.057
<b>051 110</b>	<b>PIPE SUPPORT FRAMING:</b>					
051 110-0010	Pipe Support Framing, under 15 kg/m	KG	0.375 Struc. Steel Foreman 2.000 Steel Fitter 1.000 Steel Welder 1.000 Welding Machine 1.000 Power Tool	1400.000	0.019	0.011
051 110-0200	Pipe Support Framing, 15.1 to 30 kg/m			1600.000	0.017	0.010
051 110-0600	Pipe Support Framing, over 30 kg/m			1600.000	0.017	0.010

**DIVISION 05 : METALS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>051 200</b>	<b>STRUCTURAL STEEL:</b>					
<b>051 204</b>	<b>ANCHOR BOLTS:</b>					
051 204-0010	Anchor Bolts See division 041-504					
<b>051 212</b>	<b>CANOPY FRAMING:</b>					
051 212-0010	Canopy Framing 150 mm and 200 mm members	KG	0.375 Struc. Steel Foreman 2.000 Steel Fitter 1.000 Steel Welder 1.000 Welding Machine 1.000 Power Tool	1000.000	0.027	0.016
<b>051 215</b>	<b>CEILING SUPPORTS:</b>					
051 215-1000	Entrance door/folding partition supports,1.8 m x 2.4 m	LM	0.375 Struc. Steel Foreman 2.000 Steel Fitter 1.000 Steel Welder 1.000 Welding Machine 1.000 Power Tool	14.000	1.929	1.143
051 215-1200	Lintels or shelf angles,hung,exterior hot dipped galv.	..		75.000	0.360	0.213
051 215-1400	Monitor support 1.8 m Paremiter,1.2 m hung from ceiling by expansion bolted	EA		4.000	6.750	4.000
051 215-1450	Monitor support 1.8 m Paremiter,1.2 m hung from ceiling by pre-set inserts.			5.000	5.400	3.200
051 215-1600	Motor supports for overhead electric doors 6 m wide.	↓		4.000	6.750	4.000
051 215-1700	Partition support for heavy folding partitions 2.6 m high	LM		10.000	2.700	1.600
051 215-2000	Rolling grilles & fire door,supports,to 2.4 m high.	↓		15.000	1.800	1.067
051 215-2400	Toilet partition support, wall hung, 1.6 m high.	↓	↓	15.000	1.800	1.067
<b>051 220</b>	<b>COLUMNS:</b>					
051 220-0010	Aluminium,extruded, 200 mm dia.	LM	0.375 Struc. Steel Foreman 2.000 Steel Fitter 1.000 Steel Welder 1.000 Welding Machine 1.000 Power Tool	60.000	0.450	0.267
051 220-0300	Aluminium,extruded, 310 mm dia.	↓		32.000	0.844	0.500
051 220-0500	Aluminium,extruded, Square columns 200 mm	↓	↓	36.000	0.750	0.444
051 220-0520	Aluminium,extruded, Square columns 380 mm	LM	0.375 Struc. Steel Foreman 2.000 Steel Fitter 1.000 Steel Welder 1.000 Welding Machine 1.000 Power Tool	28.000	0.964	0.571
051 220-0800	Steel.concrete filled,extra strong pipe, 89 mm diameter	LM	0.500 Steel Foreman 4.000 Steel Workers 1.000 Crane operator 1.000 Mobile Crane	150.000	0.293	0.053
051 220-0930	Steel.concrete filled,extra strong pipe,150 mm diameter	*		250.000	0.176	0.032

# **DIVISION 05 : METALS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
051 220-1700	Steel pipe,extra strong,no concrete,100 mm dia. x 3.7m	EA		44.000	1.000	0.182
051 220-1850	Steel pipe,extra strong,no concrete, 200 mm dia. x 4.3 m			38.000	1.158	0.211
051 220-1950	Steel pipe,extra strong,no concrete, 310 mm dia. x 5.5 m	↓		32.000	1.375	0.250
051 220-3300	Square structural tubing,100 mm to 150 mm, light section	KG		4000.000	0.011	0.002
051 220-3600	Square structural tubing,100 mm to 150 mm, Heavy section	..		8500.000	0.005	0.001
051 220-4000	Square structural tubing,100 mm to 150 mm, light section,concrete filled, 4.3 m high	EA		40.000	1.100	0.200
051 220-3600	Square structural tubing,150 mm to 150 mm, x6.4 mm, 4.3 m high.	..		36.000	1.222	0.222
051 220-5200	Rectangular structural tubing,127mm to 150 mm wide, Heavy section	KG		9500.000	0.005	0.001
051 220-5300	Rectangular structural tubing,178mm to 254 wide, light section	..		10500.000	0.004	0.001
051 220-5650	Rectangular structural tubing, 254 mm x 152 mm x 9.5 mm, 4.3 m high.	EA		38.000	1.158	0.211
051 220-6800	Wide flange column,A36 steel,Eye beam, ( I ) ,2 tier,W 200x36 (W8x24)	LM		260.000	0.169	0.031
051 220-6900	Wide flange column,A36 steel ( I ) Beam,2 tier,W 200x71 (W8x48)			240.000	0.183	0.033
051 220-6950	Wide flange column,A36 steel ( I ) Beam,2 tier,W 200x100 (W8x67)			225.000	0.196	0.036
051 220-7100	Wide flange column,A36 steel ( I ) Beam,2 tier,W 250x167 (W10x112)			230.000	0.191	0.035
051 220-7250	Wide flange column,A36 steel ( I ) Beam,2 tier,W 310x179 (W12x120)			230.000	0.191	0.035
051 220-7300	Wide flange,A36 steel 'I' Beam,2 tier,W 310x283 (W12x190)			210.000	0.210	0.038
051 220-7400	Wide flange,A36 steel 'I' Beam,2 tier,W 360x179 (W14x120)			220.000	0.200	0.036
051 220-7450	Wide flange,A36 steel 'I' Beam,2 tier,W 360x262 (W14x176)	↓	↓	210.000	0.210	0.038
<b>051 230 LIGHTWEIGHT FRAMING:</b>						
051 230-0200	For steel studs, see division 092-612					
051 230-0400	Angle framing,100 mm and larger	KG	0.500 Steel Foreman 4.000 Steel Workers 1.000 Crane operator 1.000 Mobile Crane	1000.000	0.044	0.008
051 230-0450	Angle framing,less than 100 mm			650.000	0.068	0.012
051 230-0600	Channel framing, 200 mm and larger		↓	1200.000	0.037	0.007
051 230-1000	Continuous slotted channel framing system,average		2 Skilled Worker	700.000	0.023	0.000
051 230-1300	Cross bracing rods,19mm diameter		0.375 Struc. Steel Foreman 2.000 Steel Fitter 1.000 Steel Welder 1.000 Welding Machine 1.000 Power Tool	420.000	0.064	0.038
051 230-1320	Cross bracing rods, 25 mm diameter			420.000	0.064	0.038



**DIVISION 05 : METALS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
051 230-1330	Cross bracing angle,127 mm x 127mm x 9.5 mm			1650.000	0.016	0.010
051 230-1350	Hanging lintels,average			500.000	0.054	0.032
051 230-1380	Roof frames, up to 1.0 meter square & 1.5 m span		1.000 Steel Foreman 4.000 Steel Workers 1.000 Crane operator 1.000 Mobile Crane	1400.000	0.034	0.006
051 230-1600	Tubular aluminum framing for window wall, average		..	350.000	0.137	0.023
<b>051 232 LINTELS :</b>						
051 232-0010	Plain steel angles,under 225kg	KG	2.00 Steel Workers	425.000	0.038	0.000
051 232-0100	Plain steel angles,above 225kg			500.000	0.032	0.000
051 232-2700	Steel angles,102 mm x 89 mm, 6.4 mm thick, 2.7 m long			55.000	0.291	0.000
051 232-3500	For precast lintels, see division 034-802					
<b>051 238 SPACE FRAME:</b>						
051 238-0010	Steel 1.2 m modular, 12 to 21 m spans, 26.9 kg/m2 average	SQM	1.00 Steel Foreman 4.00 Steel Workers 1.00 Crane Operators 1.00 Mobile Crane	27.000	1.778	0.296
051 238-0400	Steel 1.5 m modular, 12 to 21 m spans, 22.0 kg/m2 average	"	"	40.000	1.200	0.200
<b>051 240 STEEL CUTTING:</b>						
051 240-0100	Steel Cutting Hand burning,including preparation, torch cutting,and grinding,no staging, steel to 13 mm thick	LM	0.125 Foreman 1.000 Steel Foreman 1.000 Tools Set	16.000	0.563	0.500
051 240-0150	Steel Cutting Hand burning,including preparation, torch cutting,and grinding,no staging, steel 19 mm thick	"	"	12.000	0.750	0.667
051 240-0200	Steel Cutting Hand burning,including preparation, torch cutting,and grinding,no staging, steel 25 mm thick	LM	0.125 Foreman 1.000 Steel Foreman 1.000 Tools Set	10.000	0.900	0.800

**DIVISION 05 : METALS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>051 250</b>	<b>STRUCTURAL STEEL MEMBERS:</b>					
051 250-0100	Structural steel members common wide flange ( WF ) sizes, spans 3 m to 15 m including bolted connections and erection W150 x 13 (W 6 x 9)	LM	1.00 Steel Foreman 4.00 Steel Workers & Welder 1.00 Crane Operators 1.00 Mobile Crane 1.00 Drill 1 HP 1.00 Welding M/C 1.00 Arc Torch Set 0.25 Hydraulic Jacks Set of 2	133.000	0.361	0.256
051 250-0140	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W150 x 30 (W 6 x 20)			118.000	0.407	0.288
051 250-0320	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W200 x 22 (W 8 x 15)			124.000	0.387	0.274
051 250-0500	Structural steel members common WF sizes, spans 3m to 15m including bolted connections and erection W200 x 46 (W 8 x 31)			124.000	0.387	0.274
051 250-0540	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W200 x 71 (W 8 x 48)			114.000	0.421	0.298
051 250-0600	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W250 x 18 (W10 x 12)			180.000	0.267	0.189
051 250-0740	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W250 x 49 (W10 x 33)			170.000	0.282	0.200
051 250-0900	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W250 x 73 (W10 x 49)			152.000	0.316	0.224
051 250-1500	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W310 x 39 (W12 x 26)			178.000	0.270	0.191
051 250-1560	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W310 x 74 (W12 x 50)			152.000	0.316	0.224
051 250-1700	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W310 x107 (W12 x 72)			148.000	0.324	0.230
051 250-1740	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W310 x129 (W12 x87)			138.000	0.348	0.246
051 250-1900	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W360 x39 (W14 x26)			241.000	0.199	0.141
051 250-2300	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W360 x51 (W14 x34)			223.000	0.215	0.152
051 250-2380	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W360 x134 (W14 x90)			171.000	0.281	0.199
051 250-2500	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W360 x179 (W14 x120)			147.000	0.327	0.231
051 250-2700	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W410 x39 (W16 x26)			255.000	0.188	0.133
051 250-3120	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W410 x75 (W16 x50)			216.000	0.222	0.157
051 250-3140	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W410 x100 (W16 x67)			192.000	0.250	0.177

**DIVISION 05 : METALS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
051 250-3300	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W460 x52 (W18 x35)		1.00 Steel Foreman 5.00 Steel Workers 1.00 Welder 1.00 Crane Operators 1.00 Mobile Crane 1.00 Drill 1 HP 1.00 Welding M/C 1.00 Arc Torch Set 0.25 Hydraulic Jacks Set of 2	230.000	0.278	0.148
051 250-3900	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W460 x82 (W18 x55)			250.000	0.256	0.136
051 250-3960	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W460 x128 (W18 x86)			224.000	0.286	0.152
051 250-3980	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W530 x66 (W21 x44)			269.000	0.238	0.126
051 250-4500	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W530 x92 (W21 x62)			274.000	0.234	0.124
051 250-4760	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W530 x150 (W21 x101)			237.000	0.270	0.143
051 250-4780	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W530 x182 (W21 x122)			236.000	0.271	0.144
051 250-4900	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W610 x82 (W24 x55)			282.000	0.227	0.121
051 250-5700	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W610 x125 (W24 x84)			251.000	0.255	0.135
051 250-5740	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W610 x155 (W24 x104)			234.000	0.274	0.145
051 250-5780	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W610 x217 (W24 x146)			220.000	0.291	0.155
051 250-5800	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W690 x125 (W27 x84)			251.000	0.255	0.135
051 250-5920	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W690 x170 (W27 x114)			241.000	0.266	0.141

**DIVISION 05 : METALS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
051 250-5960	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W690 x240 (W27 x161)	LM	1.00 Steel Foreman 5.00 Steel Workers 1.00 Welder 1.00 Crane Operators 1.00 Mobile Crane 1.00 Drill 1 HP 1.00 Welding M/C 1.00 Arc Torch Set 0.25 Hydraulic Jacks Set of 2	212.000	0.302	0.160
051 250-6100	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W760 x147 (W30 x99)			238.000	0.269	0.143
051 250-6500	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W760 x173 (W30 x116)			240.000	0.267	0.142
051 250-6540	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W760 x220 (W30 x148)			219.000	0.292	0.155
051 250-6580	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W760 x284 (W30 x191)			196.000	0.327	0.173
051 250-6700	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W840 x176 (W33 x118)			238.000	0.269	0.143
051 250-7100	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W840 x210 (W33 x141)			223.000	0.287	0.152
051 250-7140	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W840 x299 (W33 x201)			192.000	0.333	0.177
051 250-7300	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W920 x201 (W36 x135)			227.000	0.282	0.150
051 250-7600	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W920 x253 (W36 x170)			207.000	0.309	0.164
051 250-7900	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W920 x342 (W36 x230)			189.000	0.339	0.180
051 250-8100	Structural steel members common WF sizes, spans 3 m to 15 m including bolted connections and erection W920 x446 (W36 x300)			165.000	0.388	0.206
<b>051 255</b>	<b>STRUCTURAL STEEL PROJECTS: Bolted, unless mentioned otherwise:</b>					
051 255-0700	Offices, hospitals, etc., steel bearing, 1 to 2 stories	TON	2.00 Steel Foreman 5.00 Steel Workers 2.00 Steel Welders 0.50 Crane Operator 0.50 Mobile Crane 3.00 Welding Machines 1.00 Air Compressor 0.125 Set Hydraulic Jacks 1.000 Power Tools 1.000 Tools Set	5.810	13.081	9.122

**DIVISION 05 : METALS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
051 255-0800	Offices,hospitals,etc.,steel bearing, 3 to 6 stories		3.00 Steel Foreman 9.00 Steel Workers 4.00 Steel Welders 1.00 Crane Operator 1.00 Mobile Crane 4.00 Welding Machines 1.00 Air Compressor 0.125 Set Hydraulic Jacks 2.000 Power Tools 1.000 Tools Set	10.250	13.268	7.122
051 255-0900	Offices,hospitals,etc.,steel bearing, 7 to 15 stories		"	9.150	14.863	7.978
051 255-1300	Industrial buildings,1 storey,beam & girders,steel bearing		2.00 Steel Foreman 5.00 Steel Workers 2.00 Steel Welders 0.50 Crane Operator 0.50 Mobile Crane 3.00 Welding Machines 1.00 Air Compressor 0.125 Set Hydraulic Jacks 1.000 Power Tools 1.000 Tools Set	7.100	10.704	7.465
051 255-1400	Industrial buildings,1 storey,beam & girders,masonry bearing			5.400	14.074	9.815
051 255-1600	Industrial buildings,1 story with roof trusses, steel bearing			5.900	12.881	8.983
051 255-3100	Roof trusses, average			4.800	15.833	11.042
051 255-3400	Welded construction,simple commercial bldgs.,1 to 2 stories	↓	↓	5.000	15.200	10.600
051 255-4300	Column base plates, light	KG	2.00 Skilled Workers 2.00 Tool Set	700.000	0.023	0.023
051 255-4400	Column base plates,heavy	KG	0.50 Steel Foreman 2.00 Steel Workers 1.00 Steel Welder 1.00 Crane Operator 1.00 Mobile Crane 1.00 Welding Machine	5000.000	0.007	0.003
051 255-4900	Castellated beams,heavy sections, to 75 kg/m, average	KG	"	5000.000	0.007	0.003
051 255-5200	High strength bolts in place,light reaming,19 mm bolts,average	EA	2.00 Skilled Workers 2.00 Tool Set	140.000	0.114	0.114
051 255-5300	High strength bolts in place,light reaming, 22 mm bolts,average	"	"	125.000	0.128	0.128
051 255-6170	Steel surface treatments, wire brush,hand	SQM	1.00 Painter,Struc.Steel 1.00 Consumable Tools	45.000	0.178	0.178
051 255-6180	Steel surface treatments, wire brush,power tool		"	48.000	0.167	0.167
051 255-6520	Paints & protective coatings,sprayed Alkyds,primer		2.00 Painters,Struc.Steel 1.00 Paint Sprayer,8 L/s	250.000	0.064	0.032
051 255-6540	Paints & protective coatings,sprayed gloss topcoats			225.000	0.071	0.036
051 255-6560	Paints & protective coatings,sprayed Silicon alkyd	↓	↓	225.000	0.071	0.036

# **DIVISION 05 : METALS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
051 255-6610	Paints & protective coatings,sprayed epoxy,primer	SQM	2.00 Painters,Struc.Steel 1.00 Paint Sprayer,8 L/s	210.000	0.076	0.038
051 255-6650	Paints & protective coatings,sprayed enamel coat			200.000	0.080	0.040
051 255-6810	Paints & protective coatings,sprayed latex primer			250.000	0.064	0.032
051 255-6830	Paints & protective coatings,sprayed latex primer top coats			225.000	0.071	0.036
051 255-0700	Paints & protective coatings,zinc rich primers, self cure,spray,inorganic			140.000	0.114	0.057
<b>051 275 VIBRATION PADS:</b>						
051 275-0300	Laminated synthetic rubber impregnated cotton duck	CUM	2.00 Skilled Workers 2.00 Tools Set	0.040	400.000	400.000
051 275-0600	Neoprene bearing pads,13 mm thick	SQM		1.750	9.143	9.143
051 275-0700	Neoprene bearing pads, 25 mm thick			1.400	11.429	11.429
051 275-1000	Neoprene bearing pads,fabric reinforced, 35 Mpa, 25 mm thick			1.400	11.429	11.429
051 275-1200	Felt surfaced vinyl pads, cork and sisal, 25 mm thick			1.400	11.429	11.429
<b>051 400 STRUCTURAL ALUMINIUM:</b>						
<b>051 404 ALUMINIUM:</b>						
051 404-0100	ALUMINIUM structural shapes, 25 mm to 250 mm,over 5 metric ton	KG.	1.00 Steel Foreman 4.00 Steel Workers 1.00 Crane Operator 1.00 Mobile Crane	440.000	0.109	0.018
051 404-0300	ALUMINIUM Extrusions, over 5 metric tons	"	"	440.000	0.109	0.018
<b>052 METAL JOISTS</b>						
<b>052 100 STEEL JOISTS:</b>						
<b>052 108 LIGHTGAUGE JOISTS:</b>						
052 108-0010	Lightgauge Joists Punched,double nailable, 250 mm deep,14 ga.to 12 ga.	LM	0.125 Steel Foreman 1.00 Steel Workers 2.00 Common Laborer 1.00 Power Tool	225.000	0.111	0.036
052 108-0900	Lightgauge Joists Punched,double nailable, 310 mm deep,14 ga.to 12 ga.	"	"	200.000	0.125	0.040
<b>052 110 OPEN WEB JOISTS:</b>						
052 110-0010	Open web joists K series,horizontal bridging,span up to 10 m,average	TON	2.00 Steel Foreman 4.00 Steel Workers 2.00 Steel Welder 1.00 Crane Operator 1.00 Mobile Crane 2.00 Welding Machine 2.00 Power Tools	6.500	11.077	6.154
052 110-0410	Open web joists K series,horizontal bridging,span 10 m to 15 m,average			7.000	10.286	5.714
052 110-2000	Open web joists LH series,bolted cross bridging span up to 30 m			7.500	9.600	5.333

**DIVISION 05 : METALS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
052 110-5500	Open web joists K series,welded cross bridging, span up to 10 m,average			5.500	13.091	7.273
052 110-6020	Open web joists K series,welded cross bridging, span up to 10 m to 15m,average			12.000	6.000	3.333
052 110-7000	Joist girders,average			9.000	8.000	4.444
<b>053</b>	<b>METAL DECKING</b>					
<b>053 100</b>	<b>STEEL DECK:</b>					
<b>053 104</b>	<b>METAL DECKING:</b>					
053 104-0200	Metal Decking Steel floor panels,over 1500 m2 Cellular units galvanized, 51 mm deep, 20-20 gauge(2")	SQM	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	115.000	0.348	0.070
053 104-0300	Metal Decking Steel floor panels,over 1500 m2 Cellular units galvanized, 51 mm deep, 18-18 gauge			110.000	0.364	0.073
053 104-0320	Metal Decking Steel floor panels,over 1500 m2 Cellular units galvanized, 51 mm deep, 16-18 gauge			105.000	0.381	0.076
053 104-0400	Metal Decking Steel floor panels,over 1500 m2 Cellular units galvanized, 76 mm deep, 20-20 gauge(3")			110.000	0.364	0.073
053 104-0700	Metal Decking Steel floor panels,over 1500 m2 Cellular units galvanized, 76 mm deep, 16-18 gauge			95.000	0.421	0.084
053 104-2200	Metal Decking Steel floor panels,open type,galt., 38 mm deep, 22 ga.,under 450 - 4500 m2			345.000	0.116	0.023
053 104-2400	Metal Decking Steel floor panels,open type,galt., 38mm deep,22 ga.,over 4500 m2			365.000	0.110	0.022
053 104-3060	Metal Decking Steel floor panels,open type,galt., 38mm deep,16 ga.,under 450 - 4500 m2			295.000	0.136	0.027
053 104-3100	Metal Decking Steel floor panels,open type,galt., 38 mm deep,16 ga.,over 4500 m2			240.000	0.167	0.033
053 104-3560	Metal Decking Steel floor panels,open type,galt., 76 mm deep,16 ga.,over 4500 m2			190.000	0.211	0.042
053 104-3900	Metal Decking Steel floor panels,open type,galt., 114 mm deep,long span roof, 16 gauge,over 450 m2			145.000	0.276	0.055
053 104-4100	Metal Decking Steel floor panels,open type,galt., 152 mm deep,long span ,18 gauge,(6")			135.000	0.296	0.059
053 104-4300	Metal Decking Steel floor panels,open type,galt., 152 mm deep,long span ,14 gauge			125.000	0.320	0.064

**DIVISION 05 : METALS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
053 104-4500	Metal Decking Steel floor panels,open type,gav., 191 mm deep,long span ,18 gauge(7-1/2")	SQM	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	260.000	0.154	0.031
053 104-5200	Metal Decking Steel floor panels, Non-cellular composite deck,gav., 51 mm deep,22 gauge(2")			280.000	0.143	0.029
053 104-5400	Metal Decking Steel floor panels, Non-cellular composite deck,gav., 51 mm deep,18 gauge(2")			245.000	0.163	0.033
053 104-5500	Metal Decking Steel floor panels, Non-cellular composite deck,gav., 51 mm deep,16 gauge			230.000	0.174	0.035
053 104-5700	Metal Decking Steel floor panels, Non-cellular composite deck,gav., 76 mm deep,22 gauge(3")			230.000	0.174	0.035
053 104-5900	Metal Decking Steel floor panels, Non-cellular composite deck,gav., 76 mm deep,18 gauge(3")			210.000	0.190	0.038
053 104-6000	Metal Decking Steel floor panels, Non-cellular composite deck,gav., 76 mm deep,16 gauge(3")			190.000	0.211	0.042
<b>055</b>	<b>METAL FABRICATION</b>					
<b>055 100</b>	<b>METAL STAIRS:</b>					
<b>055 104</b>	<b>STAIRS:</b>					
055 104-0100	Stair Steel,1.2 m wide including,safety nosing,steel tube stringers, Grating tread and pipe railing	RISER	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	25.000	1.600	0.320
055 104-0300	Stair Steel 1.2 m wide,including safety nosing,steel tube stringers, Cement fill metal pan and picket rail			25.000	1.600	0.320
055 104-0400	Stair Steel 1.2 m wide, including safety nosing,steel tube stringers, Cast iron tread and pipe rail.			30.000	1.333	0.267
055 104-0500	Stair Steel 1.1 m wide,including safety nosing,steel tube stringers, Checkered plate tread,industrial			25.000	1.600	0.320
055 104-0550	Stair Steel 0.91 m wide,including safety nosing,steeltube stringers, Checkered plate tread,circular for tanks			25.000	1.600	0.320
055 104-0600	Stair Steel,1.2 m wide, free standing, including,safety nosing,steel tube stringers,grating treads and two pipe railing			15.000	2.667	0.533
055 104-1500	Stair Steel,Landing,steel pan,conventional	SQM		11.000	3.636	0.727
055 104-1830	Stair aluminium,spiral,1.2 m diameter,aluminium treads, stock prefabricated unit.	RISER		40.000	1.000	0.200
<b>055 108</b>	<b>STAIR TREADS:</b>					
055 108-0100	Stair Treads Alum.grating 910 mm long, 25 x 5 mm bars, 310 mm wide	EA	1.00 Skilled Worker	16.000	0.500	0.000
055 108-0300	Stair Treads Alum.grating 910 mm long, 38 x 5 mm bars, 310 mm wide			16.000	0.500	0.000
055 108-0800	Stair Treads cast Aluminium, 1.1 m long, 310 mm wide, 10 mm thick.			11.000	0.727	0.000
055 108-2010	Stair Treads Steel grating, 1.1 m long, 310 mm wide			10.000	0.800	0.000
<b>055 150</b>	<b>LADDERS:</b>					



**DIVISION 05 : METALS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>055 158</b>	<b>LADDER:</b>					
055 158-0010	Ladder, steel or aluminium, bolted to concrete, with cage	LM	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	13.000	3.077	0.615
055 158-0400	Ladder steel or aluminium, bolted to concrete, without cage	"	"	20.000	2.000	0.400
<b>055 200</b>	<b>HANDRAILS &amp; RAILINGS:</b>					
<b>055 202</b>	<b>BUMPER RAILS:</b>					
055 202-0010	Bumper rails for garages, 12 ga. rail, 152 mm wide, with steel posts 3.8 mm O.C., average	LM	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	44.000	0.909	0.182
055 202-0300	Bumper rails for garages, 12 ga. 310 mm channel rail average	"	"	38.000	1.053	0.211
<b>055 203</b>	<b>RAILING, PIPE:</b>					
055 203-0010	Railing, Pipe Aluminium, 2 rail, 32 or 38 mm diam.	LM	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	42.000	0.952	0.190
055 203-0500	Railing, Pipe Steel 2 rail, primed, 32 or 38 mm diameter			42.000	0.952	0.190
055 203-0640	Railing, Pipe Steel, 3 rail, 38 mm diameter			36.000	1.111	0.222
055 203-0700	Railing, Pipe Stainless Steel 2 rail, 32 mm diameter			36.000	1.111	0.222
055 203-0900	Wall rail, alum. or steel pipe, 32 or 38 mm diam., for handicapped			60.000	0.667	0.133
055 203-0995	Wall rail, stainless steel pipe, 38 mm diam., for handicapped.	↓	↓	30.000	1.333	0.267
<b>055 206</b>	<b>RAILINGS, INDUSTRIAL:</b>					
055 206-0010	Railings, industrial welded, 2 rail, 1.1 m high, 50 mm Angle rail.	LM	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	60.000	0.667	0.133
055 206-0500	Railings, industrial welded, 2 rail, 1.1 m high, 38 mm pipe curved rails.	"	"	42.000	0.952	0.190
<b>055 208</b>	<b>RAILINGS, ORNAMENTAL:</b>					
055 208-0010	Railings, Ornamental Aluminium, bronze or stainless, average	LM	1.00 Skilled Worker 1.00 Power Tool	4.000	2.000	2.000
055 208-0400	Railings, Ornamental Hand-forged wrought iron, average	↓	↓	3.000	2.667	2.667
055 208-0600	Railings, Ornamental Composite metal and wood or glass, average	LM	1.00 Skilled Worker 1.00 Power Tool	1.000	8.000	8.000
<b>055 300</b>	<b>GRATINGS &amp; FLOOR PLATES:</b>					
<b>055 302</b>	<b>CHECKERED PLATE:</b>					

## DIVISION 05 : METALS

<b>CSI CODE</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>CREW STRUCTURE</b>	<b>DAILY OUTPUT</b>	<b>MAN HOURS</b>	<b>EQUIP. HOURS</b>
055 302-0010	Checkered plate 6 mm & 10 mm, bolted	KG	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	1150.000	0.035	0.007
055 302-0100	Checkered plate 6 mm & 10 mm, welded	-		1750.000	0.023	0.005
055 302-0300	Checkered plate pit or trench cover and frame, 6 mm plate, 610 mm to 910 mm wide	SQM		8.000	5.000	1.000
055 302-0500	Checkered plate platforms, rectangular, 6 mm plate, no handrails included.	KG		1650.000	0.024	0.005
055 302-0600	Checkered plate platforms, circular, 6 mm plate, no handrails included.	-		950.000	0.042	0.008
<b>055 304</b>	<b>FLOOR GRATING, ALUMINIUM:</b>					
055 304-1600	Floor Grating, Aluminium, Heavy duty, all extruded panels, 19 mm deep, 8.2 kg/m <sup>2</sup>	SQM	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	85.000	0.471	0.094
055 304-1800	Floor Grating, Aluminium, Heavy duty, all extruded panels, 44 mm deep, 23.1 kg/m <sup>2</sup>			70.000	0.571	0.114
055 304-2400	Floor Grating, close spaced aluminium grating with vinyl tread inserts			20.000	2.000	0.400
<b>055 308</b>	<b>FLOOR GRATING, FIBERGLASS:</b>					
055 308-0200	Floor grating, fiberglass reinforced polyester, fire retardant 25 mm x 100 mm grid, 38 mm thick	SQM	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	40.000	1.000	0.200
<b>055 310</b>	<b>FLOOR GRATING PLANKS:</b>					
055 310-0010	Floor Grating Planks ALUMINIUM, 240 mm wide 14 ga., 50 mm rib	LM	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	245.000	0.163	0.033
055 310-0600	Floor Grating Planks Galvanized steel, 240 mm wide 12 ga., 76 mm rib			245.000	0.163	0.033
055 310-0800	Floor Grating Planks stainless steel type 304 or 316, 16 ga., 50 mm rib			245.000	0.163	0.033
<b>055 312</b>	<b>FLOOR GRATING STEEL:</b>					
055 312-0010	Floor Grating, Steel for installing, on grade	SQM	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	65.000	0.615	0.123
055 312-0300	Floor Grating, platforms, to 3.7 m high, rectangular	KG		1200.000	0.033	0.007
055 312-0400	Floor Grating, platforms, to 3.7 m high, circular	*		850.000	0.047	0.009
055 312-2000	Floor Grating, Stainless Steel, close spaced, on grade	SQM		25.000	1.600	0.320
055 312-2100	Floor Grating, Stainless steel, standard, 15.9 kg/m <sup>2</sup>			65.000	0.615	0.123
055 312-2650	Floor Grating, Expanded steel, 20 kg/m <sup>2</sup>			65.000	0.615	0.123
<b>055 314</b>	<b>GRATING FRAME:</b>					

DIVISION 05 : METALS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
055 314-0010	Grating frame Aluminium,for gratings 25 mm to 40 mm deep	LM	1.00 Skilled Labour 1.00 Power Tools	15.000	0.533	0.533
055 314-0100	Grating frame ALUMINIUM corner, for gratings 25 mm to 40 mm deep	EA	..	11.000	0.727	0.727
<b>055 370 TRENCH COVER:</b>						
055 370-0020	Trench cover cast iron grating with bar stops and angle frame,to 460 mm wide	LM	1.00 Skilled Labour 1.00 Power Tools	5.000	1.600	1.600
055 370-0100	Trench cover frame only (both sides of trench), 25 mm grating	↓	↓	12.000	0.667	0.667
055 370-0150	Trench cover frame only (both sides of trench), 50 mm grating	↓	↓	8.000	1.000	1.000
<b>055 400 CASTINGS</b>						
<b>055 404 CONSTRUCTION CASTINGS:</b>						
055 404-0020	Manhole covers and frames, see division, 027-152					
055 404-0100	Column bases,cast iron, 410 mm x 410 mm, approx. 30 kg	EA	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	40.000	1.000	0.200
055 404-0200	Column bases,cast iron, 815 mm x 815 mm, approx. 115 kg	↓	..	18.000	2.222	0.444
055 404-0500	Column bases,cast aluminium for wood columns 310 mm x 310 mm	↓	1.00 Skilled Labour 1.00 Power Tools	25.000	0.320	0.320
055 404-0600	Miscellaneous C.I. castings,light sections	KG	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	1150.000	0.035	0.007
055 404-1100	Miscellaneous C.I. castings,Heavy sections	..	"	1600.000	0.025	0.005
<b>055 500 METAL SPECIALTIES</b>						
<b>055 504 LAMP POSTS:</b>						
055 504-0010	Lamp Posts, 2.15 m high,aluminium or mild steel	EA	1.00 Skilled Labour 1.00 Power Tools	12.000	0.667	0.667
<b>055 508 WINDOW GUARDS:</b>						

**DIVISION 05 : METALS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
055 508-0020	Window guard,Permanent,expanded metal,steel angle frame,steel bars, 13 mm x 13 mm, spaced 130 mm O.C	SQM	1.00 Steel Foreman 3.000 Steel Welder 1.000 Welder 1.000 Welding Machine	24.000	1.667	0.333
055 508-0070	Window guard,steel,Pivoted or projected,including steel angle frame, steel bars 13 mm x 13 mm,spaced, 130 mm O.C.			15.000	2.667	0.533
055 508-0500	Window Guards,Woven wire units, 10 mm chan. frame, 1.2 m x 1.8 m opening.			30.000	1.333	0.267
<b>058 EXPANSION CONTROL</b>						
<b>058 100 EXP. COVER ASSEMBLIES:</b>						
<b>058 104 EXPANSION JOINT ASSEMBLIES Custom Units:</b>						
058 104-0500	Floor cover assemblies, up to 50 mm space,aluminium,bronze or stainless	LM	1.00 Skilled Labour 1.00 Power Tools	9.000	0.889	0.889
058 104-1100	Wall and ceiling assemblies, up to 50 mm space, aluminium,bronze or stainless			9.000	0.889	0.889
058 104-1400	Floor to wall assemblies, 25 mm space,aluminium,bronze or stainless			9.000	0.889	0.889
058 104-1700	Gym floor angle covers,aluminium, 76 mm x 76 mm or 76 mm x 100 mm angle.			11.000	0.727	0.727
058 104-2000	Roof closures,aluminium, 25 mm space, flat roof			13.000	0.615	0.615
058 104-2300	Roof closures,Roof to wall, aluminium, 25 mm space			13.000	0.615	0.615

# Division 6

## Wood & Plastic

### Estimating Tips

#### 060 Fasteners & Adhesives

Common to any wood framed structure are the accessory connector items such as screws, nails, adhesives, hangers, connector plates, straps, and angles that should be taken off by the piece.

Nails requirement for wood structures varies with various kinds of lumber, estimator shall be aware of element needs for nails quality and types.

#### 061 Rough Carpentry

Lumber is a traded commodity and therefore sensitive to supply and demand in the market place. It is advisable to call local suppliers for the latest market pricing.

Waste is an issue of concern at the quantity taken off for any area of construction.

The estimator should ensure that the costs of all wood materials are included in the final estimate.

#### 062 Finish Carpentry

It is necessary to consider the grade of workmanship when estimating labor costs for erecting millwork and interior finish. It is important to notify that finish carpentry is not only shown in this division as per CSI format. Finish carpentry is spread in other four (4) divisions detailed as follows:

Wood siding is detailed in Div. 7

Doors & Windows are detailed in Div. 8

Specialties Div 10 includes tackboards, toilets partitions, folding partitions, bolts, etc.. While

Div 11 includes wood cabinets and shelving.

Div 12 deals with wood furnishings, seating, etc..

Modern tools, such as electric drills, sanders, electric hand saws play a major part in reducing labor costs and speed productivity.

**DIVISION 06 : WOOD & PLASTICS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>061</b>	<b>ROUGH CARPENTRY</b>					
<b>061 100</b>	<b>WOOD FRAMING</b>					
<b>061 128</b>	<b>FRAMING, WALLS:</b>					
061 128-6120	Framing walls,wood studs, 2450 mm high wall, 50 mm x 75 mm	CUM	0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	1.302	19.201	6.144
061 128-6125	Framing walls, woodstuds, 2450 mm high wall, 50 mm x 75 mm, pneumatic nailed		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Small Compressor w/ 2 Pneumatic Nailer 1.000 Power Tools	1.449	17.253	11.042
061 128-6140	Framing walls,wood studs, 2450 mm high wall, 50 mm x 100 mm		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	1.736	14.401	4.608
061 128-6145	Framing walls, wood studs, 2450 mm high wall, 50 mm x 100 mm, pneumatic nailed		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Small Compressor w/ 2 Pneumatic Nailer 1.000 Power Tools	1.933	12.933	8.277
061 128-6160	Framing walls, wood studs, 2450 mm high wall, 50 mm x 150 mm,		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	2.161	11.569	3.702
061 128-6160	Framing walls, wood studs, 2450 mm high wall, 50 mm x 150 mm, pneumatic nailed		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Small Compressor w/2 Pneumatic Nailer 1.000 Power Tools	2.406	10.391	6.650
061 128-6180	Framing walls, wood studs, 2450 mm high wall, 75 mm x 100 mm,		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	1.731	14.443	4.622
061 128-6185	Framing walls, wood studs, 2450 mm high wall, 76 mm x 100 mm, pneumatic nailed		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Small Compressor w/2 Pneumatic Nailer 1.000 Power Tools	1.995	12.531	8.020
061 128-8200	Framing stud wall, 3650 mm high wall, 50 x 100mm pneumatic nailed			1.866	13.398	8.574
061 128-8220	Framing stud wall,1825 mm high, 50 x 100mm, pneumatic nailed			1.389	17.999	11.519
061 128-8240	Framing stud wall, stub wall, 925 mm high, 50 x 100mm			1.042	23.992	15.355
061 128-8250	Framing stud wall, second story 2450 mm high, 50 x 100mm			1.649	15.161	9.703

**DIVISION 06 : WOOD & PLASTICS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>061 130</b>	<b>FURRING:</b>					
061 130-0010	Furring Wood strips, 25 mm x 50 mm, on wood walls, pneumatic, nailed	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Common Laborer 1.000 Small Compressor w/2 Pneumatic Nailer 1.000 Power Tools	270.000	0.063	0.059
061 130-0300	Furring Wood strips, 25 mm x 50 mm, on masonry walls, nails driven in joints		0.125 Labor Foreman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	185.000	0.092	0.043
061 130-0400	Furring Wood strips, 25 mm x 50 mm, on concrete walls nailed in wood plugs			85.000	0.200	0.094
061 130-0600	Furring Wood strips, 25 mm x 75 mm, nailed on wood walls			210.000	0.081	0.038
061 130-0700	Furring Wood strips, 25 mm x 75 mm, on masonry walls, nailed in wood plugs			90.000	0.189	0.089
061 130-0800	Furring Wood strips, 25 mm x 75 mm, on concrete walls			85.000	0.200	0.094
061 130-0850	Furring Wood strips, 25 mm x 75 mm, on wood ceilings			125.000	0.136	0.064
061 130-0950	Furring Wood strips, 25 mm x 75 mm, on concrete ceilings			68.000	0.250	0.118
<b>061 132</b>	<b>GROUNDINGS:</b> <i>(A piece of wood for attachment)</i>					
061 132-0400	Grounds for plaster, 20 mm deep on masonry	LM	0.125 Labor Foreman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	100.000	0.170	0.080
061 132-0600	Grounds for plaster, 20 mm deep on concrete			65.000	0.262	0.123
061 132-0700	Grounds for plaster, 20 mm deep on metal lath			80.000	0.213	0.100
<b>061 134</b>	<b>INSULATION</b> <i>See Division 072</i>					
<b>061 138</b>	<b>PARTITIONS:</b> <i>Wood stud with single bottom plate and double top plate</i>					
061 138-0180	Partitions, wood stud with bottom plate & double top plate, 50 mm x 100 mm, 2.45 m high, stud 300 mm O.C.	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	21.698	1.152	0.369
061 138-0200	Partitions, wood stud with bottom plate & double top plate, 50 mm x 100 mm, 2.45 mm high, stud 400 mm O.C.	-	-	24.375	1.026	0.328
061 138-0380	Partitions, wood stud with bottom plate & double top plate, 50 mm x 100 mm, 3 m high, stud 300 mm O.C.	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	20.509	1.219	0.390
061 138-0400	Partitions, wood stud with bottom plate & double top plate, 50 mm x 100 mm, 3 m high, stud 400 mm O.C.			23.259	1.075	0.344
061 138-0580	Partitions, wood stud with bottom plate & double top plate, 50 mm x 100 mm, 3.65 m high, stud 300 mm O.C.			17.619	1.419	0.454



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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
061 138-0600	Partitions,wood stud with bottom plate & double top plate, 50 mm x 100 mm, 3.65 m high,stud 400 mm O.C.			20.333	1.230	0.393
061 138-0780	Partitions,wood stud with bottom plate & double top plate, 50 mm x 150 mm, 2.45 m high,stud 300 mm O.C.			19.144	1.306	0.418
061 138-0800	Partitions,wood stud with bottom plate & double top plate, 50 mm x 150 mm, 2.45 m high,stud 400 mm O.C.			21.533	1.161	0.372
061 138-0980	Partitions,wood stud with bottom plate & double top plate, 50 mm x 150 mm, 3 m high,stud 300 mm O.C.			18.973	1.318	0.422
061 138-1000	Partitions,wood stud with bottom plate & double top plate, 50 mm x 150 mm, 3 m high,stud 400 mm O.C.			21.374	1.170	0.374
061 138-1180	Partitions,wood stud with bottom plate & double top plate, 50 mm x 150 mm, 3.65 m high,stud 300 mm O.C.			15.553	1.607	0.514
061 138-1205	Partitions,wood stud with bottom plate & double top plate, 50 mm x 150 mm, 3.65 m high,stud 400 mm O.C.,pneumatic nailed		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Small Compressor w/2 Pneumatic Nailer 1.000 Power Tools	18.663	1.340	0.857
061 138-1400	Horizontal blocking 50x100 mm added to stud wall		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	200.000	0.125	0.040
<b>061 150 SHEATHING:</b>						
061 154-0030	Plywood on roof,C&D, exterior glued, "CDX", 8 mm thick	SQM	0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	158.400	0.158	0.051
061 154-0055	Plywood on roof, "CDX " 10 mm thick, pneumatic nailed		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Small Compressor w/2 Pneumatic Nailer 1.000 Power Tools	184.320	0.136	0.087
061 154-0305	Plywood on roof, "CDX", 20 mm thick, pneumatic nailed			169.920	0.147	0.094
061 154-0500	Plywood on stud walls with exterior "CDX", 10 mm thick		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	123.840	0.202	0.065
061 154-0600	Plywood on stud walls with exterior CDX, 13 mm thick			118.080	0.212	0.068
061 154-0700	Plywood on stud walls with exterior CDX, 16 mm thick			109.440	0.228	0.073
061 154-0800	Plywood on stud walls with exterior CDX, 20 mm thick			97.920	0.255	0.082
061 154-2400	Sheathing Boards 25 mm x 150 mm on stud walls,laid regular, on straight regular walls			60.000	0.417	0.133
061 154-2500	Sheathing Boards 25 mm x 150 mm on stud walls,laid diagonal, on straight regular walls			52.500	0.476	0.152

**DIVISION 06 : WOOD & PLASTICS**

CSI CODE	ITEM DESCRIPTION	UNIT		CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
061 154-2700	Sheathing Boards 25 mmx 200 mm on stud walls,laid regular, on straight, regular walls				69.000	0.362	0.116
061 154-2800	Sheathing Boards 25 mm x 200 mm on stud walls,laid diagonal, on straight, regular walls				57.750	0.433	0.139
061 154-2820	Sheathing Boards 25 mm x 150 mm on stud walls, laid regular, on irregular walls regular walls				48.000	0.521	0.167
061 154-2850	Board, gypsum, weatherproof, 13 mm thick,on stud wall, taped and finished, beads not included				100.000	0.250	0.080
061 154-3000	Board, wood fiber, regular, no vapor barrier, 13 mm thick,on stud wall				105.000	0.238	0.076
061 154-3100	Board, wood fiber, regular, no vapor barrier, 16 mm thick,on stud wall				105.000	0.238	0.076
061 154-3800	Board, wood fiber, Asphalt impregnated, 20 mm thick,on stud wall		↓	↓	105.000	0.238	0.076
<b>061 160</b>	<b>SUBFLOOR:</b>						
061 160-0105	Subfloor, plywood, CDX, 16 mm thick,pneumatic nailed, blocking not included	SQM Fir.		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Small Compressor w/2 Pneumatic Nailer 1.000 Power Tools	178.560	0.140	0.090

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
061 160-0200	Subfloor, plywood, CDX, 20 mm thick		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	120.960	0.207	0.066
061 160-0205	Subfloor, plywood, CDX, 20 mm thick, pneumatic nailed to floor joists, no blocking		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Small Compressor w/2 Pneumatic Nailer 1.000 Power Tools	144.000	0.174	0.056
061 160-0210	Subfloor, plywood, CDX, 20 mm thick, pneumatic nailed to floor joists, and blocking pieces vertical to floor joists at 1.2 meter spacing	SQM Fir.	0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Small Compressor w/2 Pneumatic Nailer 1.000 Power Tools	74.880	0.334	0.107
061 160-1100	Subfloor, wood fiber tongue & groove, 600 x 2450 mm planks, 25 mm thick			96.000	0.260	0.083
<b>061 168</b>	<b>SUBFLOOR UNDERLAYMENT:</b>					
061 168-0015	Underlayment, plywood grade, 10 mm thick, pneumatic nailed	SQM Fir.	0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Small Compressor w/2 Pneumatic Nailer 1.000 Power Tools	184.320	0.136	0.087
061 168-0200	Underlayment, plywood grade, 16 mm thick		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	144.000	0.174	0.056
061 168-0205	Underlayment, plywood grade, 16 mm thick, pneumatic nailed		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Small Compressor w/2 Pneumatic Nailer 1.000 Power Tools	178.560	0.140	0.090
061 168-0600	Underlayment, particle board, 13 mm thick		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	144.000	0.174	0.056
061 168-0900	Underlayment, particle board, 20 mm thick		..	135.000	0.185	0.059
061 168-0905	Underlayment, particle board, 20 mm thick, pneumatic nailed		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Small Compressor w/2 Pneumatic Nailer 1.000 Power Tools	161.280	0.155	0.099
061 168-1100	Underlayment, hardboard, 1225 mm x 1225 mm, 5 mm thick		0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	146.880	0.170	0.054

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>061 250</b>	<b>WOOD DECKING</b>					
<b>061 258</b>	<b>ROOF DECKS:</b>					
061 258-0400	Roof decks, wood planks, 75 mm thick	SQM	0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	45.000	0.556	0.178
061 258-0500	Roof decks, wood planks, 100 mm thick	"	"	36.000	0.694	0.222
<b>061 259</b>	<b>DECK, WOOD, PRESSURE TREATED LUMBER:</b>					
061 259-0100	Pressure treated lumber railings and trim, 25 mm x 100 mm	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	100.000	0.170	0.080
061 259-0300	Pressure treated lumber railings and trim, 50 mm x 150 mm	"		100.000	0.170	0.080
061 259-0400	Pressure treated decking, 25 mm x 100 mm	SQM		22.500	0.756	0.356
061 259-0600	Pressure treated decking, 50 mm x 150 mm	"	↓	27.000	0.630	0.296
<b>061 280</b>	<b>MINERAL FIBER CEMENT PANELS</b>					
<b>061 281</b>	<b>MINERAL FIBER CEMENT PANELS: <i>Including panels, fasteners, accessories, trim &amp; sealant</i></b>					
061 280-0130	Mineral fiber cement panels, architectural, textured finish, 3 mm thru 10 mm thick	SQM	0.125 Labor Foreman 3.000 Skilled Workers 2.000 Common Laborers 2.000 Power Tools	60.000	0.683	0.267
061 280-0350	Mineral fiber cement panels, architectural, textured finish, 16 mm thick			38.000	1.079	0.421
061 280-2000	Mineral fiber cement panels, flat sheets 3 mm thick			144.000	0.285	0.111
061 280-2100	Mineral fiber cement panels, flat sheets 6 mm thick			124.000	0.331	0.129
061 280-2200	Mineral fiber cement panels, flat sheets 10 mm thick			105.000	0.390	0.152
061 280-2300	Mineral fiber cement panels, flat sheets 16 mm thick			96.000	0.427	0.167
061 280-4100	Mineral fiber cement, sandwich panel, glasweld face and back 25 mm thick, perlite or polyurethane core			38.000	1.079	0.421
061 280-4500	Mineral fiber cement, sandwich panel, glasweld face and back 50 mm thick, perlite, polyurethane core	↓	↓	38.000	1.079	0.421
<b>061 500</b>	<b>WOOD-METAL SYSTEMS</b>					
<b>061 508</b>	<b>STRUCTURAL JOISTS:</b>					
061 508-1200	Fabricated joists I (eye beam) shape with wood flanges, plywood webs, incl. bridging & blocking, panels 600 mm O.C. 4.6 m to 7.3 m span, 244 kg/m <sup>2</sup> live load.	SQM Fir.	0.125 Labor Foreman 2.000 Carpenters 3.000 Common Laborer 1.000 Power Tools	250.000	0.164	0.032

## DIVISION 06 : WOOD & PLASTICS

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
061 508-1500	Fabricated joists I (eye beam) shape with wood flanges, plywood webs, incl. bridging & blocking, panels 600 mm O.C. 7.3 m to 9.2 m span, 269 kg/m <sup>2</sup> live load.	"	"	250.000	0.164	0.032
<b>061 800</b>	<b>GLUED LAMINATED CONST.</b>					
<b>061 804</b>	<b>LAMINATED FRAMING:</b>					
061 804-0200	Laminated roof beams, no decking, 13.6 kg. short term live load, 6.8 kg dead load; straight, 6 m clear span, 2.45 m O.C.	SQM Fir.	0.500 Labor Foreman 4.000 Carpenters 1.000 Equip. Oper. (crane) 1.000 Hyd. Crane, 11 Ton 2.000 Power Tools	70.000	0.629	0.343
061 804-0300	Laminated roof beams, no decking, 13.6 kg. short term live load, 6.8 kg dead load; straight, 6.1 m clear span, 4.8 m O.C.	"	"	55.000	0.800	0.436
<b>061 808</b>	<b>LAMINATED ROOF DECK:</b>					
061 808-0100	Laminated roof deck pine, cedar, or fir wood, 100 mm thick	SQM	0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	36.000	0.694	0.222
<b>062</b>	<b>FINISH CARPENTRY</b>					
<b>062 200</b>	<b>MILLWORK MOLDINGS</b>					
<b>062 200</b>	<b>MOLDINGS, BASE:</b>					
062 200-0500	Molding base, pine, 14 mm x 90 mm, straight job, no cutting, minimal number of miters	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Power Tools	55.000	0.164	0.145
062 200-0550	Molding base, pine, 14 mm x 110 mm	"	"	45.000	0.200	0.178
<b>062 212</b>	<b>MOLDING, CASINGS:</b>					
062 212-0750	Molded pine casing, 17 mm x 90 mm	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Power Tools	50.000	0.180	0.160
<b>062 216</b>	<b>MOLDING, CEILINGS:</b>					
062 216-1200	Cornice molding, pine, 14 mm x 44 mm, straight	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Power Tools	70.000	0.129	0.114
062 216-1300	Cornice molding, pine, 14 mm x 57 mm			65.000	0.138	0.123
062 216-2400	Cornice molding, cove, pine, 14 mm x 44 mm			55.000	0.164	0.145
062 216-2600	Crown molding, pine, 14 mm x 90 mm			50.000	0.180	0.160
062 216-2700	Crown molding, pine, 17 mm x 117 mm	↓	↓	45.000	0.200	0.178
<b>062 220</b>	<b>MOLDINGS, EXTERIOR:</b>					
062 220-1500	Moldings exterior, cornice, boards, pine, 25 mm x 50 mm	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Power Tools	70.000	0.129	0.114

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
062 220-1700	Moldings exterior, cornice, boards, pine, 25 mm x 150 mm			56.000	0.161	0.143
062 220-2000	Molding exterior, cornice, boards, pine, 25 mm x 300 mm			36.000	0.250	0.222
062 220-3100	Corner board pine 25 mm x 150 mm			45.000	0.200	0.178
062 220-3370	Moldings exterior, fascia, pine, 25 mm x 200 mm			50.000	0.180	0.160
062 220-3400	Moldings exterior, trim or crown, pine casing			56.000	0.161	0.143
<b>062 224</b>	<b>MOLDINGS, TRIM:</b>					
062 224-0250	Astragal, pine, 33 mm x 56 mm	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Power Tools	55.000	0.164	0.145
062 224-0800	Chair rail, 16 mm x 64 mm			56.000	0.161	0.143
062 224-0900	Chair rail, 16 mm x 90 mm			50.000	0.180	0.160
062 224-1000	Closet pole, wood, 30 mm diameter, up to 2 meter long, including supports			48.000	0.188	0.167
062 224-3300	Closet pole, wood, half round, stock pine, 6 mm x 13 mm			60.000	0.150	0.133
062 224-3350	Closet pole, half round, stock pine, 13 mm x 25 mm			56.000	0.161	0.143
062 224-3470	Handrail, single piece, pine or fir 38 mm x 44 mm, on wall brackets			18.000	0.500	0.444
062 224-3480	Handrail, single piece, pine or fir 38 mm x 44 mm, on metal balustrade			13.000	0.692	0.615
062 224-3700	Lattice trim, wood 6 mm x 44 mm			56.000	0.161	0.143
062 224-3800	Molding trim miscellaneous, pine or cedar, 25 mm x 25 mm			56.000	0.161	0.143
062 224-4400	Molding trim miscellaneous, walnut, nominal 25 mm x 25 mm			45.000	0.200	0.178
062 224-4700	Molding trim miscellaneous, teak, nominal 25 mm x 75 mm			40.000	0.225	0.200
062 224-4900	Molding trim miscellaneous, quarter round, pine, 6 mm x 6 mm			56.000	0.161	0.143
062 224-5600	Wainscot molding, 29 mm x 14 mm, 600 mm high	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Power Tools	6.000	1.500	1.333
<b>062 228</b>	<b>MOLDINGS, WINDOW AND DOOR</b>					
062 228-2800	Door moldings, decorative, 29 mm wide	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Power Tools	42.000	0.214	0.190
062 228-3150	Door trim set, 1 head and 2 sides, pine, 64 mm wide			30.000	0.300	0.267
062 228-3200	Glass bead, pine 6 mm x 17 mm			64.000	0.141	0.125
062 228-3250	Glass bead, pine 10 mm x 13 mm			64.000	0.141	0.125
062 228-3270	Glass bead, pine 10 mm x 22 mm			60.000	0.150	0.133
062 228-5000	Stool caps, pine, 17 mm x 90 mm			36.000	0.250	0.222

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
062 228-5300	Threshold,oak,914mm long,16 mm x 90 mm	EA	0.125 Labor Foreman 1.000 Carpenters 1.000 Power Tools	26.000	0.346	0.308
062 228-5400	Threshold,oak, 914 mm long, 38 mm x 200 mm	EA		14.000	0.643	0.571
062 228-5900	Window trim sets , including casings, header, stops, stool and apron, 64 mm wide, minimum, window size 1 m x 1.5 m	OPENING		4.000	2.250	2.000
<b>062 300</b>	<b>SHELVING</b>					
<b>062 304</b>	<b>SHELVING:</b>					
062 304-0600	Shelving, plywood, 20 mm thick with lumber edge, 300 mm wide	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Power Tools	20.000	0.450	0.400
062 304-0700	Shelving, plywood, 20 mm thick with lumber edge, 600 mm wide	..		15.000	0.600	0.533
062 304-0900	Shelving, bookcase, clear grade pine, shelves 300 mm, O.C., 200 mm deep	SQM		6.000	1.500	1.333
062 304-1000	Shelving, bookcase, clear grade pine, shelves 300 mm, O.C., 300 mm deep	..		6.000	1.500	1.333
062 304-1200	Shelving, adjustable closet rod and shelf, 300 mm wide, 914 mm long	EA		15.000	0.600	0.533
062 304-1300	Shelving, adjustable closet rod and shelf, 300 mm wide, 2.4m long	*		9.000	1.000	0.889
<b>062 400</b>	<b>PLASTIC LAMINATE</b>					
<b>062 404</b>	<b>CONVECTOR COVERS:</b>					
062 404-0050	Convactor covers, laminated plastic on 19 mm thick particle board, 300 mm wide, average	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Power Tools	3.000	3.000	2.667
<b>062 408</b>	<b>COUNTER TOP:</b>					
062 408-0100	Counter Top, plastic laminated, 600 mm wide w/backsplash, Average	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Power Tools	7.500	1.200	1.067
062 408-1900	For standard cut outs in plastic laminated counter top add	EA		25.000	0.360	0.320
062 408-2200	Counter top built-in place, 635 mm wide, plastic laminate	LM		7.500	1.200	1.067
062 408-2500	Counter top marble, 600 mm wide, with splash, 13 mm thick, Average		0.125 Labor Foreman 1.000 Brick layer 1.000 Power Tools	4.000	2.250	2.000
062 408-2700	Counter top marble, 600 mm wide, with splash, 20 mm thick, Average			3.000	3.000	2.667
062 408-3200	Counter top, 600 mm wide, stainless steel	SQM		9.000	1.000	0.889
<b>062 500</b>	<b>PREFINISHED WOOD PANELING:</b>					
<b>062 504</b>	<b>PANELING, PLYWOOD:</b>					
062 504-2400	Plywood, prefinished 6 mm thick, 1.2 m x 2.44 m sheets with vertical grooves, Birch faced, Average in small rooms, required considerable cutting.	SQM	0.125 Labor Foreman 1.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	25.000	0.680	0.320

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
062 504-2600	Plywood, prefinished 6 mm thick, 1.2 m x .244 m sheets Mahogany, African			20.000	0.850	0.400
062 504-2700	Plywood, prefinished 6 mm thick, 1.2 m x 2.44 m sheets Philippine (Lauan), OAK or cherry, Average			25.000	0.680	0.320
062 504-3200	Plywood, prefinished 6 mm thick, 1.2 m x 2.44 m sheets Rosewood			15.000	1.133	0.533
062 504-3400	Plywood, prefinished 6 mm thick, 1.2 m x 244 m sheets Teak			20.000	0.850	0.400
062 504-3600	Plywood, prefinished 6 mm thick, 1.2 m x 2.44 m sheets Chestnut			18.000	0.944	0.444
062 504-3800	Plywood, prefinished 6 mm thick, 1.2 m x 2.44 m sheets Pecan			20.000	0.850	0.400
062 504-3900	Plywood, prefinished 6 mm thick, 1.2 m x 2.44 m sheets Walnut, Average			20.000	0.850	0.400
<b>062 550</b>	<b>PREFINISHED HARDBOARD PANEL:</b>					
<b>062 554</b>	<b>PANELING, HARDBOARD:</b>					
062 554-0050	Paneling hardboard, including furring no trim, 6 mm thick	SQM	0.125 Labor Foreman 1.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	25.000	0.680	0.320
062 554-1300	Paneling hardboard, plastic faced, including furring, no trim, 6 mm thick	LM		20.000	0.850	0.400
062 554-2100	Molding for hardboard, wood or aluminum, average	LM	0.125 Labor Foreman 1.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	70.000	0.243	0.114
<b>062 600</b>	<b>BOARD PANELING</b>					
<b>062 604</b>	<b>PANELING, BOARDS:</b>					
062 604-6700	Paneling Wood board 25 mm x 100 mm, redwood, or any veneer.	SQM	0.125 Labor Foreman 1.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	15.000	1.133	0.533
<b>062 700</b>	<b>MISC. FINISH CARPENTRY</b>					
<b>062 704</b>	<b>BEAMS, DECORATIVE:</b>					
062 704-0050	Beams decorative, rough sawn cedar, non load bearing 100 mm x 100 mm	LM	0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	60.000	0.417	0.133
062 704-0200	Beams decorative, rough sawn cedar, non load bearing 100 mm x 200 mm			55.000	0.455	0.291
062 704-0400	Beams decorative, rough sawn cedar, non load bearing 100 mm x 300 mm	LM	0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	45.000	0.556	0.356



# **DIVISION 06 : WOOD & PLASTICS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>062 720</b>	<b>FIREPLACE MANTEL BEAM:</b>					
062 720-0050	Fireplace mantel beam rough texture wood,100 mm x 200 mm, including wood brackets	LM	0.125 Labor Foreman 1.000 Carpenter 1.000 Power Tools	6.000	1.500	1.333
062 720-0100	Fireplace mantel beam rough texture wood,100 mm x 250 mm, including wood brackets	"		6.000	1.500	1.333
062 720-0300	Fireplace mantel beam laminated hardwood 50 mm x 275 mm wide, 1.8 m long with 3 brackets	EA		3.500	2.571	2.286
<b>062 730</b>	<b>GRILLES:</b>					
062 730-0300	Grilles and Panels, hardwood, sanded 0.6 m x 1.2 m to 1.2 m x 2.4 m, custom, unfinished, average	SQM	0.125 Labor Foreman 1.000 Carpenter 1.000 Power Tools	2.500	3.600	3.200
<b>062 735</b>	<b>HARDWARE:</b> <i>For hardware finish see Div. 064108</i>					
062 735-0100	Hardware Finish, <i>see division 064-108 &amp; 087</i>					
<b>062 740</b>	<b>LOUVERS:</b>					
062 740-0020	Gable roof louver,redwood,full or half circle, 600 mm diameter	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Power Tools	10.000	0.900	0.800
062 740-0300	Gable roof louver,redwood,triangular, 5/12 pitch,1.5m base	"	"	10.000	0.900	0.800
<b>062 760</b>	<b>SHUTTERS, EXTERIOR:</b>					
062 750-0400	Shutters fixed, exterior, Aluminum, 400 mm wide, up to 2 meter high, louvered fixed directly to concrete or masonry wall	SQM	0.125 Labor Foreman 1.000 Carpenter 1.000 Power Tools	10.000	0.900	0.800
062 750-1100	Shutters fixed, exterior,wood, 400 mm wide, up to 2 meter high, louvered, fixed directly to concrete or masonry wall			10.000	0.900	0.800
062 750-4500	Shutters fixed, exterior,Polystrene, louvered			10.000	0.900	0.800
062 750-6000	Shutters fixed, exteriors, Vinyl, louvered			10.000	0.900	0.800
062 750-6050	Shutters,aluminium louvered, motor operated>window 1.2 m x 1.2 m		0.125 Labor Foreman 1.000 Carpenter 0.500 Electrician 1.000 Common Laborer 1.000 Power Tools	12.000	1.750	0.667
<b>062 778</b>	<b>DOORS AND FRAMES:</b> <i>See division 081 &amp; 083</i>					
<b>064</b>	<b>ARCHITECTURAL WOODWORK</b>					
<b>064 100</b>	<b>CUSTOM CASEWORK</b>					
<b>064 102</b>	<b>CABINETS:</b>					
064 102-0010	Corner China cabinets, pine, 2m high,unfinished, average	EA	0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	5.000	5.000	1.600

# **DIVISION 06 : WOOD & PLASTICS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
064 102-0300	Chins Cabinets with built-in drawer units, pine, 457 mm deep, 810 mm high, unfinished average			9.000	2.778	0.889
064 102-0700	Kitchen base cabinets, hardwood, not incl. counter tops, 610 mm deep, 890 mm high, prefinished, with one top drawer, one door below, 300 mm wide.			24.000	1.042	0.333
064 102-0840	Kitchen base cabinets, hardwood, not incl. counter tops, 610 mm deep, 890 mm high, prefinished, with one top drawer, one door below, 450 mm wide.			18.000	1.389	0.444
064 102-0880	Kitchen base cabinets, hardwood, not incl. counter tops, 610 mm deep, 890 mm high, prefinished, with one top drawer, one door below, 600 mm wide.			14.000	1.786	0.571
064 102-1000	Kitchen base cabinets, hardwood, not incl. counter tops, 610 mm deep, 890 mm high, prefinished, with four drawers, 300 mm wide			24.000	1.042	0.333
064 102-1040	Kitchen base cabinets, hardwood, not incl. counter tops, 610 mm deep, 890 mm high, prefinished, with four drawers, 450 mm wide			18.000	1.389	0.444
064 102-1060	Kitchen base cabinets, hardwood, not incl. counter tops, 610 mm deep, 890 mm high, prefinished, with four drawers, 600 mm wide	EA	0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	14.000	1.786	0.571
064 102-1200	Kitchen base cabinets, hardwood, not incl. counter tops, 610 mm deep, 890 mm high, prefinished, with two top drawers, two doors below, 680 mm wide.			19.000	1.316	0.421
064 102-1260	Kitchen base cabinets, hardwood, not incl. counter tops, 610 mm deep, 890 mm high, prefinished, with two top drawers, two doors below, 910 mm wide.			15.000	1.667	0.533
064 102-1300	Kitchen base cabinets, hardwood, not incl. counter tops, 610 mm deep, 890 mm high, prefinished, with two top drawers, two doors below, 1.2m wide.			12.000	2.083	0.667
064 102-1500	Kitchen base cabinets, prefinished, with two doors below, for range or sink, 760 mm wide			19.000	1.316	0.421
064 102-1540	Kitchen base cabinets, prefinished, with two doors below, for range or sink, 910 mm wide			15.000	1.667	0.533
064 102-1580	Kitchen base cabinets, prefinished, with two doors below, for range or sink, 1.2 m wide			12.000	2.083	0.667
064 102-2000	Corner base cabinet, hardwood, not including countertops, standard, 890 mm H, 910 mm wide, prefinished.			13.000	1.923	0.615
064 102-2100	Corner base cabinet, hardwood, not including countertops, standard, 890 mm H, 910 mm wide, prefinished.			11.000	2.273	0.727
064 102-4000	Kitchen wall cabinets, hardwood, prefinished, 305 mm deep; 305 mm high with two doors, 760 mm wide.			25.000	1.000	0.320
064 102-4100	Kitchen wall cabinets, hardwood, prefinished, 305 mm deep; 305 mm high with two doors, 910 mm wide.			22.000	1.136	0.364
064 102-4050	Kitchen wall cabinets, hardwood, prefinished, 305 mm deep; 380 mm high with two doors, 760 mm wide	EA	0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	20.000	1.250	0.400
064 102-4440	Kitchen wall cabinets, hardwood, prefinished, 305 mm deep; 305 mm to 380 mm high with two doors, 910 mm wide			17.000	1.471	0.471
064 102-4700	Kitchen wall cabinets, hardwood, prefinished, 305 mm deep; 610 mm high with two doors, 760 mm wide.			14.000	1.786	0.571

**DIVISION 06 : WOOD & PLASTICS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
064 102-4720	Kitchen wall cabinets, hardwood, prefinished, 305 mm deep; 610 mm high with two doors, 910 mm wide.			11.000	2.273	0.727
064 102-5000	Kitchen wall cabinets, hardwood, prefinished, 305 mm deep; 762 mm high with one doors, 300 mm wide			25.000	1.000	0.320
064 102-5040	Kitchen wall cabinets, hardwood, prefinished, 305 mm deep; 762 mm high with one doors, 450 mm wide			17.000	1.471	0.471
064 102-5060	Kitchen wall cabinets, hardwood, prefinished, 305 mm deep; 762 mm high with one doors, 600 mm wide			14.000	1.786	0.571
064 102-5300	Kitchen wall cabinets, hardwood, prefinished, 305 mm deep; 762 mm high with two doors, 685 mm wide			13.000	1.923	0.615
064 102-5340	Kitchen wall cabinets, hardwood, prefinished, 300 mm deep; 760 mm high with two doors, 910 mm wide			10.000	2.500	0.800
064 102-5380	Kitchen wall cabinets, hardwood, prefinished, 300 mm deep; 760mm high with two doors, 1.2 m wide			9.000	2.778	0.889
064 102-6000	Corner wall cabinet, hardwood, prefinished, 760 mm high, 600 mm wide.			8.000	3.125	1.000
064 102-6050	Corner wall cabinet, hardwood, prefinished, 760 mm high, 760 mm wide.			7.600	3.289	1.053
064 102-6100	Corner wall cabinet, hardwood, prefinished, 760 mm high, 900 mm wide.			7.000	3.571	1.143
064 102-7000	Broom cabinet, 2.1m high, 610 mm deep, 460 mm wide			7.000	3.571	1.143
064 102-7500	Kitchen cabinet for 2 built-in ovens, 1 door below ovens, 1 door above ovens, 2.1m high, 610 mm deep, 685 mm wide	LM		6.000	4.167	1.333
064 102-7550	Kitchen cabinet for 1 oven, 1 door and with top, provision for hood, 1.4 m high, 600 mm deep, 685 mm wide			6.000	4.167	1.333
064 102-7750	Valance board trim			130.000	0.192	0.062
064 102-9550	Rule of thumb, kitchen cabinets not including appliance and counter top, average labor per LM			8.000	3.125	1.000
064 102-9610	For metal cabinets, <b>See division 123-501</b>					
<b>064 104</b>	<b>CASEWORK, FRAMES:</b>					
064 104-0050	Casework framing, base cabinets, counter storage, 914 mm high, 457 mm wide, one bay	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Power Tools	2.600	3.462	3.077
064 104-0400	Casework framing, base cabinets, counter storage, 914 mm high, 914 mm wide, two bay			1.600	5.625	5.000
064 104-1100	Casework framing, base cabinets, counter storage, 914 mm high, 1372 mm wide, three bay			1.100	8.182	7.273
064 104-2800	Casework framing, book cases, one bay, 2.1 m high, 457 mm wide			1.700	5.294	4.706
064 104-3500	Casework framing, book cases, two bay, 2.1 m high, 914 mm wide			0.900	10.000	8.889
064 104-4100	Casework framing, book cases, three bay, 2.1 m high, 1.4 m wide			0.600	15.000	13.333
064 104-5100	Casework framing, coat racks, one bay, 2.1 m high, 610 mm wide			1.400	6.429	5.714
064 104-5300	Casework framing, coat racks, two bay, 2.1 m high, 1.2 m wide			0.800	11.250	10.000

## DIVISION 06 : WOOD & PLASTICS

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
064 104-5800	Casework framing, coat racks, three bay, 2.1 m high, 1.8 m wide			0.500	18.000	16.000
064 104-6100	Casework framing, wall mounted cabinet, one bay, 610 mm high, 457 mm wide			4.000	2.250	2.000
064 104-7400	Casework framing, wall mounted cabinet, three bay, 610 mm high, 1.4 m wide	↓	↓	1.700	5.294	4.706
064 104-8400	Casework framing, wall mounted cabinet, one bay, 760 mm high, 457 mm wide	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Power Tools	3.100	2.903	2.581
064 104-9000	Casework framing, wall mounted cabinet, two bay, 760 mm high, 910 mm wide			1.900	4.737	4.211
064 104-9800	Casework framing, wardrobe, 2.1 m high, single, 610 mm wide	↓	↓	1.000	9.000	8.000
<b>064 106</b>	<b>CABINET DOORS</b>					
064 106-2000	Cabinet door, glass panel, hardwood frame 305 mm wide, 457 mm high	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Power Tools	25.000	0.360	0.320
064 106-2600	Cabinet door, glass panel, hardwood frame 305 mm wide, 762 mm high			22.000	0.409	0.364
064 106-5000	Cabinet door, hardwood, raised panel, 305 mm wide, 457 mm high			23.000	0.391	0.348
064 106-5600	Cabinet door, hardwood, raised panel, 305 mm wide, 762 mm high			19.000	0.474	0.421
064 106-6000	Cabinet door, plastic laminate on particleboard, 305 mm wide, 457 mm high			20.000	0.450	0.400
064 106-6140	Cabinet door, plastic laminate on particleboard, 305 mm wide, 762 mm high			16.000	0.563	0.500
064 106-6500	Cabinet door, plastic laminate on particleboard, 457 mm wide, 762 mm high	↓	↓	15.000	0.600	0.533
<b>064 108</b>	<b>CABINET HARDWARE</b>					
064 108-1000	Cabinet catches, Average	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Power Tools	175.000	0.051	0.046
064 108-2000	Cabinet door/drawer pulls, handles	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Power Tools	70.000	0.129	0.114
064 108-3000	Cabinet drawer tracks/glides, Average	PAIR	0.125 Labor Foreman 1.000 Carpenter 1.000 Power Tools	30.000	0.300	0.267
064 108-4000	Cabinet hinges, Average	EA	↓	60.000	0.150	0.133
<b>064 110</b>	<b>DRAWERS</b>					
064 110-1000	Drawers, solid hardwood front, 100 mm high, 300 mm wide	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Power Tools	12.000	0.750	0.667
064 110-1200	Drawers, solid hardwood front, 100 mm high, 457 mm wide			10.000	0.900	0.800
064 110-2800	Drawers, plastic laminate on particle board front, 100 mm high, 457 mm wide	↓	↓	10.000	0.900	0.800

**DIVISION 06 : WOOD & PLASTICS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>064 140</b>	<b>VANITIES</b>					
064 141-8000	Vanity bases, 2 doors, 760 mm high, 530 mm deep, 610 mm wide	EA	0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	19.000	1.316	0.421
064 141-8050	Vanity bases, 2 doors, 760 mm high, 530 mm deep, 760 mm wide			15.000	1.667	0.533
064 141-8100	Vanity bases, 2 doors, 760 mm high, 530 mm deep, 910 mm wide			13.000	1.923	0.615
064 141-8150	Vanity bases, 2 doors, 760 mm high, 530 mm deep, 1.2 m wide			10.000	2.500	0.800
064 141-9500	Vanity base, custom, built-in place, 2 doors, 760 mm high, 530 mm deep, 1.2 m wide	↓	↓	1.000	25.000	8.000
<b>064 300</b>	<b>STAIRWORK &amp; HANDRAILS</b>					
<b>064 306</b>	<b>STAIRS PREFABRICATED</b>					
064 306-0100	Box stairs,prefabricated 910 mm wide,oak or pine treads,no handrails, 600 mm high	EA	0.125 Labor Foreman 2.000 Carpenters 1.000 Common Laborer 1.000 Power Tools	5.000	5.000	1.600
064 306-0200	Box stairs,prefabricated 910mm wide,oak or pine treads,no handrails,1.8m high			3.000	8.333	2.667
064 306-0400	Box stairs,prefabricated 910 mm wide,oak or pine treads,no handrails, 2.45 m high			2.500	10.000	3.200
064 306-1500	Prefabricated stair rail with baluster, 5 risers			14.000	1.786	0.571
064 306-2100	Open stairs,prefabricated prefinished,metal stringers,wood treads 1 m wide, no railing,1.2 m high			4.000	6.250	2.000
064 306-2200	Open stairs,prefabricated prefinished,metal stringers, wood treads 1 m wide, no railing,1.8 m high			3.000	8.333	2.667
064 306-2300	Open stairs,prefabricated prefinished,metal stringers,wood treads 1 m wide, no railing, 2.45 m high			2.500	10.000	3.200
064 306-3400	Curved stairway, 990 mm wide, prefabricated Oak,unfinished, including balustrade system open one side 2.75 m high			0.625	40.000	12.800
064 306-3500	Curved stairway, 990 mm wide, prefabricated Oak,unfinished, including balustrade system open one side, 3 m high			0.625	40.000	12.800
064 306-3700	Curved stairway, 990 mm wide, prefabricated Oak,unfinished, including balustrade system open two sides 2.75 m high			0.375	66.667	21.333
064 306-3800	Curved stairway, 990 mm wide, prefabricated Oak,unfinished, including balustrade system open two sides 3 m high			0.375	66.667	21.333
064 306-4400	Spiral Oak stair, unfinished,prefabricated 1.4 m diameter, including railing, 2.75 m high.	↓	↓	1.000	25.000	8.000

# **DIVISION 06 : WOOD & PLASTICS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>064 308</b>	<b>STAIR PARTS</b>					
064 308-0900	Stair baluster,pine or birch,1.1 m high	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Power Tools	24.000	0.375	0.333
064 308-1200	Stair,starting newels, 80 mm wide	"		5.000	1.800	1.600
064 308-1500	Stair landing newel 80 mm wide,pine or birch	"		4.000	2.250	2.000
064 308-1800	Stair railings, oak, built-up, including the subrail,average	LM		10.000	0.900	0.800
064 308-2600	Stair riser oak 20 mm x 190 mm high			12.000	0.750	0.667
064 308-2850	Stair skirt board, pine, 25 mm x 250 mm	↓		10.000	0.900	0.800
064 308-3300	Stair treads 27 mm x 300 mm wide, 1.8 m long	EA	↓	9.000	1.000	0.889
<b>064 310</b>	<b>RAILING:</b>					
064 310-0300	Interior railing architectural grade, hardwood, with spindles 150 mm O.C., 1.2 m long	LM	0.125 Labor Foreman 1.000 Carpenter 1.000 Power Tools	8.000	1.125	1.000
064 310-0400	Interior railing architectural grade, hardwood, with spindles 150 mm O.C.,2.44 m long	LM	↓	9.000	1.000	0.889
<b>064 400</b>	<b>MISC. ORNAMENTAL ITEMS</b>					
<b>064 402</b>	<b>COLUMNS:</b>					
064 402-0050	Columns with base plate, Aluminum, round, 150 mm diameter, 3 meters high	LM	0.125 Labor Foreman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	4.000	4.250	2.000
064 402-0100	Columns with base plate, Aluminum, round , 200 mm diameter, 5 meters high			2.000	8.500	4.000
064 402-0200	Columns with base plate, Aluminum, round, 250 mm diameter, 8 meters high			1.500	11.333	5.333
064 402-0220	Columns cherry,square, 200 mm x 200 mm, 4 meter high, w/ decorative base & crown.	↓	↓	1.250	13.600	6.400
064 402-0250	Columns with base plate, fir wood, hollow round, 150 mm diameter, 4 meter high	LM	0.125 Labor Foreman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	3.500	4.857	2.286
064 402-0300	Columns with base plate, fir wood, hollow round, 200 mm diameter, 6 meter high			1.850	9.189	4.324
064 402-0350	Columns with base plate, fir wood, hollow round, 250 mm diameter, 7 meter high			1.750	9.714	4.571
064 402-0800	Square column with base plate,built up,127 mm x 127 mm,hollow core, fire wood, 3 meter high			2.500	6.800	3.200
064 402-0900	Square column with base plate,built up, 90 mm x 90 mm, solid,fire wood, 3 meter high			4.500	3.778	1.778
064 402-4000	Posts,rough sawn cedar,100 mm x 100 mm, 4 meter high			12.000	1.417	0.667

# **DIVISION 06 : WOOD & PLASTICS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
064 402-4200	Posts,rough sawn cedar,150 mm x 150 mm, 4 meter high			10.000	1.700	0.800
064 402-4300	Posts,rough sawn cedar,1200 x 200 mm, 4 meter high			9.000	1.889	0.889
<b>064 410</b>	<b>MILLWORK, HIGH DENSITY POLYMER</b>					
064 410-0100	Millwork, High density polymer base, 14 mm x 80 mm	LM	0.125 Labor Foreman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	55.000	0.309	0.145
064 410-0200	Millwork, High density polymer casing, fluted, 16 mm x 80 mm			50.000	0.340	0.160
064 410-0300	Millwork, High density polymer, Chair rail, 14 mm x 57 mm			56.000	0.304	0.143
064 410-0400	Millwork, High density polymer, Chair rail, 16 mm x80 mm			50.000	0.340	0.160
064 410-0500	Millwork, High density polymer, corner, inside, 13 mm x 29 mm			52.000	0.327	0.154
064 410-0600	Millwork, High density polymer, cove, 21 mm x 95 mm			56.000	0.304	0.143
064 410-0700	Millwork, High density polymer, crown, 19 mm x 97 mm			56.000	0.304	0.143
064 410-0800	Millwork, High density polymer, half round, 24 mm x 50 mm			56.000	0.304	0.143

# Division 7

## Thermal & Moisture Protection

### Estimating Tips

#### **071 Water Proofing & Damp-proofing**

As a matter of fact, that no one can be familiar with the many different types of water and damp-proofing in the worldwide market. Be sure of the job specifications before pricing this subdivision. The difference in cost between water proofing and damp-proofing can be great. Water-proofing will hold back standing water. Damp-proofing prevents the transmission of water vapor.

Method of applying such materials differs from one manufacturer to another to ensure a water resistant surface. Estimators shall consult local manufacturers for such items pricing.

#### **072 Insulation & Fire-Proofing**

Insulation and fire-proofing products are measured by area, thickness, volume or R value. Specifications may only give what the specific R value should be in a certain situation. The estimator may need to choose the type of

#### **075 Membrane Roofing**

#### **076 Flashing & Sheet Metal**

#### **077 Roof Specialties & Accessories**

#### **078 Skylights**

The items in these sub-divisions compose a roofing system. Several different installation trades will need to work together on the roofing system. Inherent various trades must be accounted for when estimating labor costs.

#### **079 Joint Sealers**

To complete the weather-tight, the sealants and caulking must be estimated. When caulking or sealant are shown at typical locations, this means that estimator must include them for all the locations where this detail is applicable.

Be careful to keep different types of sealant separate, and remember to consider backer rods and primers if necessary.



insulation to meet the R value.

DIVISION 07 :THERMAL & MOISTURE PROTECTION									
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS			
<b>071</b>	<b>WATERPROOFING &amp; DAMPPROOFING</b>								
<b>071 100</b>	<b>SHEET WATERPROOFING:</b>								
<b>071 102</b>	<b>ELASTOMERIC WATERPROOFING:</b>								
071 102-0010	Elastomeric waterproofing,EPDM plain 0.8 mm thick on metal.	SQM	0.125 Skilled Foreman 2,000 Roof Workers 1,000 Tools Set	45.000	0.378	0.178			
071 102-0020	Elastomeric waterproofing,EPDM plain 0.8 mm thick on concrete			95.000	0.179	0.084			
071 102-0100	Elastomeric waterproofing,EPDM plain 1.6 mm thick on metal.			42.000	0.405	0.190			
071 102-0120	Elastomeric waterproofing,EPDM plain 1.6 mm thick on concrete			90.000	0.189	0.089			
071 102-0300	Elastomeric waterproofing, Nylon reinforced sheets upto 1.6 mm thick on concrete			45.000	0.378	0.178			
071 102-1500	Elastomeric waterproofing,Neoprene nylon reinforced 0.8 mm			45.000	0.378	0.178			
071 102-1800	Elastomeric waterproofing,nylon reinforced, 3 mm thick on concrete			38.000	0.447	0.211			
071 102-2100	Elastomeric waterproofing, neoprene sheets, fiberglass reinforced, fluid applied 3 mm thick			38.000	0.447	0.211			
071 102-2200	Elastomeric waterproofing,Polythylene and rubberized asphalt sheets, 3mm thick, on metal			40.000	0.425	0.200			
071 102-2210	Elastomeric waterproofing,Polythylene and asphaltic hardboard protection board, 3 mm thick, on metal			38.000	0.447	0.211			
071 102-2220	Elastomeric waterproofing,Polythylene and asphaltic hardboard protection board, 6 mm thick, on metal			35.000	0.486	0.229			
071 102-2400	Elastomeric waterproofing,Polyvinyl chloride sheets plain upto 0.76 mm thick, on metal			42.000	0.405	0.190			
071 102-3300	Elastomeric waterproofing,Bitumen modified polyurethane,fluid applied,1mm thick, on metal			52.000	0.327	0.154			
071 102-3600	Elastomeric waterproofing,Vinyl plastic ,sprayed on, 0.6 to 1 mm thick, on metal			37.000	0.459	0.216			
<b>071 104</b>	<b>MEMBRANE WATERPROOFING:</b>								
071 104-0010	Membrane waterproofing,on slabs, 1 ply,felt	SQM	1 Roofer Foreman 4 Roofers,Composition 2 Roofer Helpers 1 Application Equipment 1 Tar Kettle/Pot	250.000	0.224	0.064			
071 104-0100	Membrane waterproofing,on slabs, 1 ply.glass fiber fabric			190.000	0.295	0.084			
071 104-0600	Membrane waterproofing,on slabs, 3 ply,felt			95.000	0.589	0.168			
071 104-0700	Membrane waterproofing,on slabs, 3 ply.glass fiber fabric			80.000	0.700	0.200			
071 104-0900	Membrane waterproofing,on walls, 1 ply,felt			200.000	0.280	0.080			
071 104-0910	Membrane waterproofing,on walls, 3 ply,felt			80.000	0.700	0.200			

DIVISION 07 :THERMAL & MOISTURE PROTECTION									
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS			
071 104-0920	Membrane waterproofing,on walls, 3 ply,glass fiber fabric		↓	65.000	0.862	0.246			
071 104-1000	Membrane waterproofing,on walls, 3 plyfelt & adhered 6 mm thick expanded polysyrene protection board.		1 Roofer Foreman 6 Roofers,Composition 2 Roofer Helpers 1 Application Equipment 1 Tar Kettle/Pot	80.000	0.900	0.200			
071 104-1070	Membrane waterproofing,Fiberglass fabric, black mesh		0.125 Skilled Foreman 2.000 Roof Workers 1.000 Tools Set	800.000	0.021	0.010			
071 104-1100	Membrane waterproofing,Fluid neoprene, 4 coats, 1 mm			15.000	1.133	0.533			
071 104-1200	Membrane waterproofing,Fluid neoprene, 4 coats, 2 mm	↓	↓	9.000	1.889	0.889			
<b>071 300</b>	<b>BENTONITE WATERPROOFING</b>								
<b>071 450</b>	<b>CEMENT WATERPROOFING</b>								
<b>071 452</b>	<b>CEMENTITIOUS WATERPROOFING:</b>								
071 452-0020	Cementitious waterproofing,one coat cement base 3 mm application,sprayed on	SQM	0.125 Skilled Foreman 1.000 Plasterer 1.000 Plasterer Helper 1.000 Building Laborer 1.000 Grouting Equipment	75.000	0.333	0.107			
<b>071 600</b>	<b>BITUMINOUS DAMPPROOFING</b>								
<b>071 602</b>	<b>BITUMINOUS ASPHALT COATING:</b>								
071 602-0030	Bituminous Asphalt coating.Brushed on, below grade, 1 coat	SQM	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Helper 1.000 Tools Set	55.000	0.309	0.145			
071 602-0100	Bituminous Asphalt coating.Brushed on, below grade, 2 coat			40.000	0.425	0.200			
071 602-0300	Bituminous Asphalt coating,Sprayed on, below grade, 1 coat, 0.63 m2/Liter			70.000	0.243	0.114			
071 602-0400	Bituminous Asphalt coating,Sprayed on, below grade, 2 coat, 0.50 m2/Liter			40.000	0.425	0.200			
071 602-0700	Bituminous Asphalt coating,Troweled on, asphalt coating with fibers, 3 mm thick			32.000	0.531	0.250			
071 602-1000	Bituminous Asphalt coating,Troweled on, asphalt coating with fibers, 13 mm thick			27.000	0.630	0.296			
071 602-4000	Bituminous Asphalt coating,Protective board asphalt coated,in mastic, 6 mm thick	↓	↓	36.000	0.472	0.222			
<b>071 750</b>	<b>WATER REPELLENT COAT</b>								
<b>071 754</b>	<b>RUBBER COATING:</b>								
071 754-0010	Rubber coating,Water base liquid,roller applied	SQM	0.125 Skilled Foreman 2.000 Roofers,Composition 2.000 Consumable Tools Set	450.000	0.038	0.018			

DIVISION 07 :THERMAL & MOISTURE PROTECTION									
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS			
071 754-0300	Rubber coating,Silicone or stearate,sprayed on masonry, 2 coat	"	"	145.000	0.117	0.055			
071 800	CEMENTITIOUS DAMPPROOFING								
071 802	CEMENT PARGING:								
071 802-0010	Cement Parging, 2 coats, 13 mm thick,regular portland cement or waterproofed portland cement	SQM	0.125 Labor Foreman 1.000 Mason 1.000 Mason Helper 1.000 Tools Set	18.000	0.944	0.444			
071 920	VAPOR RETARDERS								
071 922	BUILDING PAPER:								
071 922-0010	Building Paper,Aluminium and kraft laminated, foil 1 side or 2 sides	SQM	0.125 Labor Foreman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	275.000	0.062	0.029			
071 922-0100	Building Paper,Aluminium and kraft laminated,foil 2 sides			275.000	0.062	0.029			
071 922-0300	Building Paper,Asphalt,two ply, 13.60 kg,for subfloors			137.000	0.124	0.058			
071 922-0400	Building Paper,Asphalt felt sheathing paper, 6.80 kg			275.000	0.062	0.029			
071 922-0600	Building Paper,Polyethylene vapor barrier, standard from 0.05 mm thick to 0.25 mm thick			275.000	0.062	0.029			
071 922-1300	Building Paper,Polyethylene vapor barrier clear reinforced,fire retardant, 0.20 mm thick			275.000	0.062	0.029			
071 922-1500	Building Paper,Red rosin, 46 m2 rolls upto 0.244 kg/m2			275.000	0.062	0.029			
071 922-2400	Building Paper,Waterproofed kraft with sisal or fiberglass fibers, average	↓	↓	275.000	0.062	0.029			
072	INSULATION & FIREPROOFING								
072 104	CEMENTITIOUS INSULATION	See division 035-212							
072 107	HEATING INSULATION	See division 155-651							
072 108	MASONRY INSULATION:								
072 108-0100	Masonry Insulation,Vermiculite or perlite,poured, in cores of concrete block, 100 mm thick wall.	SQM	0.125 Labor Forman 1.000 Bricklayer 1.000 Bricklayer Helper 1.000 Tools Set	350.000	0.049	0.023			
072 108-0200	Masonry insulation,Vermiculite or perlite,poured, in cores of concrete block, 150 mm thick wall.			220.000	0.077	0.036			
072 108-0300	Masonry insulation,Vermiculite or perlite,poured, in cores of concrete block, 200 mm thick wall.			175.000	0.097	0.046			
072 108-0400	Masonry insulation,Vermiculite or perlite,poured, in cores of concrete block, 250 mm thick wall.	↓	↓	135.000	0.126	0.059			
072 108-0600	Masonry insulation, vermiculite or perlite, poured in cavity wall, water repellant	CUM	↓	5.500	3.091	1.455			

DIVISION 07 :THERMAL & MOISTURE PROTECTION						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
072 108-0700	Masonry insulation, Foamed in place, urethane 67 mm thick in cavity wall	..	0.125 Labor Forman 1.000 Mason 1.000 Mason Helper 1.000 Building Laborer 1.000 Grouting Equipment	0.650	38.462	12.308
<b>072 109 PERIMETER INSULATION:</b>						
072 109-0600	Perimeter insulation, expanded polystyrene 25 mm thick	SQM	0.125 Labor Forman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	65.000	0.262	0.123
072 109-0700	Perimeter insulation, expanded polystyrene 50 mm thick	"	"	65.000	0.262	0.123
<b>072 110 POURED INSULATION:</b>						
072 110-0010	Poured insulation,Cellulose fiber,or fiberglass wool, or mineral wool.	CUM	0.125 Labor Forman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	4.500	3.778	1.778
072 110-0400	Poured insulation,Vermiculite or perlite	"	"	4.500	3.778	1.778
<b>072 111 REFLECTIVE:</b>						
072 111-0100	Reflective insulation,aluminium foil on 18 kg kraft,multilayered with air spaces,2 ply.	SQM	0.125 Labor Forman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	170.000	0.100	0.047
072 111-0500	Reflective insulation,aluminium foil on 18 kg kraft,multilayered with air spaces, 3 ply or 5 ply	"	"	135.000	0.126	0.059
<b>072 112 REFRIGERATION INSULATION See division 130-380</b>						
<b>072 114 SHEATHING See division 061-154</b>						
<b>072 115 SPRAYED INSULATION:</b>						
072 115-0010	Insulation sprayed,Fibrous/cementitious,finished wall, 25 mm thick	SQM	0.125 Labor Forman 1.000 Mason 1.000 Mason Helper 1.000 Building Laborer 1.000 Grouting Equipment	150.000	0.167	0.053
072 115-0600	Insulation sprayed, urethane foam type, on roofs,incl.preparation, 25 mm thick	SQM	0.125 Labor Forman 1.000 Mason 1.000 Mason Helper 1.000 Building Laborer 1.000 Grouting Equipment	56.000	0.446	0.143
072 115-0700	Insulation sprayed, urethane foam type, on roofs, including preperation, 50 mm thick	↓	↓	35.000	0.714	0.229
<b>072 116 WALL INSULATION,RIGID:</b>						
072 116-0040	Wall insulation rigid,Fiberglass, 24 kg/m3,unfaced, 25 mm to 50 mm thick	SQM	0.125 Labor Forman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	100.000	0.170	0.080

DIVISION 07 :THERMAL & MOISTURE PROTECTION									
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE		DAILY OUTPUT	MAN HOURS	EQUIP. HOURS		
072 116-0100	Wall insulation rigid,Fiberglass, 24 kg/m3, unfaced or foil faced, 25 mm to 75 mm thick				80.000	0.213	0.100		
072 116-0370	Wall insulation rigid,Fiberglass, 48 kg/m3, unfaced or foil faced, 25 mm thick or 38 mm thick				100.000	0.170	0.080		
072 116-0400	Wall insulation rigid,Fiberglass, 48 kg/m3, unfaced or foil faced, 50 mm thick				90.000	0.189	0.089		
072 116-0420	Wall insulation rigid,Fiberglass, 48 kg/m3, unfaced or foil faced, 64 mm thick or 75 mm thick				80.000	0.213	0.100		
072 116-0670	Wall insulation rigid,Fiberglass, 96 kg/m3, unfaced or foil faced, 25 mm thick				100.000	0.170	0.080		
072 116-0690	Wall insulation rigid,Fiberglass, 96 kg/m3, unfaced or foil faced, 38 mm thick				90.000	0.189	0.089		
072 116-0700	Wall insulation rigid,Fiberglass, 96 kg/m3, unfaced or foil faced, 50 mm thick or 64 mm thick				80.000	0.213	0.100		
072 116-072 1	Wall insulation rigid,Fiberglass, 96 kg/m3, unfaced or foil faced, 75 mm thick				75.000	0.227	0.107		
072 116-1500	Wall insulation rigid,Foamglass, 38 mm thick				80.000	0.213	0.100		
072 116-1550	Wall insulation rigid,Foamglass, 77 mm thick				75.000	0.227	0.107		
072 116-1600	Wall insulation rigid, Isocyanurate, 1.2 m x 2.44 m sheet,foil faced,both sides 13 mm thick				80.000	0.213	0.100		
072 116-1620	Wall insulation rigid,Isocyanurate,1.2m x 2.44 m sheet,foil faced,both sides 16 mm thick to 25 mm thick				80.000	0.213	0.100		
072 116-1650	Wall insulation rigid,Isocyanurate,1.2 m x 2.44 m sheet,foil faced,both sides 38 mm thick,to 100 mm thick				75.000	0.227	0.107		
072 116-1700	Wall insulation rigid,Perlite, 25 mm thick				80.000	0.213	0.100		
072 116-1750	Wall insulation rigid,Perlite, 50 mm thick				75.000	0.227	0.107		
072 116-1900	Wall insulation rigid,Extruded or expanded polystyrene,1.75 kg/cm2, 25 mm thick				80.000	0.213	0.100		
072 116-1940	Wall insulation rigid,Extruded or expanded polystyrene, 1.75 kg/cm2, 50 mm thick or 76 mm thick				75.000	0.227	0.107		
072 116-2140	Wall insulation rigid,Sheathing,insulating foil faced fiberboard, 10 mm thick				70.000	0.243	0.114		
072 118	WALL OR CEILING INSUL.,NON-RIGID:								
072 118-0060	Wall or ceiling insulation,non-rigid,Fiberglass,kraft or foil faced, batts or blankets, 90mm thick, 280 mm wide	SQM	0.125 Labor Forman 1.000 Carpenter 1.000 Helper 1.000 Tools Set		120.000	0.142	0.067		
072 118-0080	Wall or ceiling insulation,non-rigid,Fiberglass,kraft or foil faced, batts or blankets, 90 mm thick, 380 or 600 mm wide				160.000	0.106	0.050		
072 118-0140	Wall or ceiling insulation,non-rigid,Fiberglass,kraft or foil faced, batts or blankets,150 mm thick, 280 mm wide				100.000	0.170	0.080		
072 118-0160	Wall or ceiling insulation,non-rigid,Fiberglass,kraft or foil faced, batts or blankets,150 mm thick, 380 mm wide				135.000	0.126	0.059		
072 118-0180	Wall or ceiling insulation,non-rigid,Fiberglass,kraft or foil faced, batts or blankets,150 mm thick, 600 mm wide				160.000	0.106	0.050		
072 118-0200	Wall or ceiling insulation,non-rigid,Fiberglass,kraft or foil faced, batts or blankets, 230 mm thick, 380 mm wide				120.000	0.142	0.067		

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS			
072 118-0220	Wall or ceiling insulation,non-rigid,Fiberglass,kraft or foil faced, batts or blankets, 230 mm thick, 600 mm wide			135.000	0.126	0.059			
072 118-0240	Wall or ceiling insulation,non-rigid,Fiberglass,kraft or foil faced, batts or blankets, 300 mm thick, 380 mm wide			100.000	0.170	0.080			
072 118-0260	Wall or ceiling insulation,non-rigid,Fiberglass,kraft or foil faced, batts or blankets, 300 mm thick, 600 mm wide			135.000	0.126	0.059			
072 118-0860	Wall or ceiling insulation,non-rigid,Fiberglass,unfaced,batts or blankets, 150 mm thick, 600 mm wide			135.000	0.126	0.059			
072 118-0900	Wall or ceiling insulation,non-rigid,Fiberglass,unfaced,batts or blankets, 230 mm thick, 600 mm wide			120.000	0.142	0.067			
072 118-1300	Wall or ceiling insulation,non-rigid,Mineral fiber batts,kraft faced, 90 mm thick			160.000	0.106	0.050			
072 118-1380	Wall or ceiling insulation,non-rigid,Mineral fiber batts,kraft faced, 250 mm thick			135.000	0.126	0.059			
<b>072 200 ROOF &amp; DECK INSULATION</b>									
<b>072 202 ROOF FORM BOARD See division 035-304</b>									
<b>072 203 ROOF DECK INSULATION:</b>									
072 203-0012	Roof deck insulation,basalt rock wool, 25 mm thick	SQM	0.125 Labour Foreman 1.000 Roofer,Composition 1.000 Helper 1.000 Tools Set	80.000	0.213	0.100			
072 203-0014	Roof deck insulation,basalt rock wool, 50 mm or 76 mm thick	SQM		70.000	0.243	0.114			
072 203-0018	Roof deck insulation,basalt rock wool,tapered for drainage	CU.M		2.000	8.500	4.000			
072 203-0020	Roof deck insulation,fiberboard low density, 13 mm thick	SQM		100.000	0.170	0.080			
072 203-0030	Roof deck insulation,fiberboard low density, 25 mm thru 50 mm thick	SQM	0.125 Labour Foreman 1.000 Roofer,Composition 1.000 Helper 1.000 Tools Set	80.000	0.213	0.100			
072 203-0120	Roof deck insulation,fiberboard high density, 25 mm thick, or 76 mm thick			80.000	0.213	0.100			
072 203-0200	Roof deck insulation,fiberglass, 17 mm thick thru., 33 mm thick			100.000	0.170	0.080			
072 203-0700	Roof deck insulation,fiberglass, 50 mm or 60 mm thick			80.000	0.213	0.100			
072 203-1500	Roof deck insulation,foamglass, 38 mm thick			80.000	0.213	0.100			
072 203-1530	Roof deck insulation,foamglass, 76 mm thick			70.000	0.243	0.114			
072 203-1650	Roof deck insulation,perlite, 13 mm thick			105.000	0.162	0.076			
072 203-1680	Roof deck insulation,perlite, 50 mm thick			70.000	0.243	0.114			
072 203-1685	Roof deck insulation,perlite, 128 mm thick			70.000	0.243	0.114			
072 203-1690	Roof deck insulation,perlite tapered for drainage			2.000	8.500	4.000			
072 203-1900	Roof deck insulation,Extruded Polystyrene1.05 kg/cm2 compressive strength,50mm thick,			125.000	0.136	0.064			

# DIVISION 07 :THERMAL & MOISTURE PROTECTION

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
072 203-1932	Roof deck insulation,Extruded Polystyrene 1.05 kg/cm2 compressive strength, 100mm thick,			100.000	0.170	0.080
072 203-1960	Roof deck insulation,Extruded Polystyrene, 4.21 kg/cm2 compressive strength, 25 mm thick			145.000	0.117	0.055
072 203-1962	Roof deck insulation,Extruded Polystyrene, 4.21 kg/cm2 compressive strength, 50 mm thick			120.000	0.142	0.067
072 203-1964	Roof deck insulation,Extruded Polystyrene, 4.21 kg/cm2 compressive strength, 76 mm thick			98.000	0.173	0.082
072 203-1966	Roof deck insulation,Extruded Polystyrene, 4.21 kg/cm2 compressive strength,100 mm thick			95.000	0.179	0.084
072 203-1968	Roof deck insulation,Extruded Polystyrene, 4.21 kg/cm2 compressive strength,tapered for drainage	CUM	0.125 Labour Foreman 1.000 Roofer, Composition 1.000 Tools Set	3.550	4.789	2.254
072 203-1970	Roof deck insulation,Extruded Polystyrene, 8.08 kg/cm2 compressive strength, 50 mm thick	SQM		120.000	0.142	0.067
072 203-1976	Roof deck insulation,Extruded Polystyrene, 8.08 kg/cm2 compressive strength,100 mm thick			90.000	0.189	0.089
072 203-2020	Roof deck insulation,Expanded polystyrene, 25 mm thick			150.000	0.113	0.053
072 203-2120	Roof deck insulation,Expanded polystyrene,100 mm thick			120.000	0.142	0.067
072 203-2140	Roof deck insulation,Expanded polystyrene,150 mm thick			120.000	0.142	0.067
072 203-2150	Roof deck insulation,Expanded polystyrene,tapered for drainage	CUM		3.850	4.416	2.078
072 400	EXTERIOR INSULATION					
072 401	SANDWICH PANELS See division 061-281					
072 402	EXTERIOR INSULATION FINISH SYSTEM:					
072 402-0130	Exterior insulation finish system,field applied 25 mm thru 100mm thick expanded polystyrene	SQM	0.125 Labour Foreman 3.000 Plasterers 2.000 Plaster Helpers 1.000 Mixing Machine,0.17 M3	20.000	2.050	0.400
072 402-0150	Exterior insulation finish system,heavy duty reinforced expanded polystyrene, 25 mm to 100 mm thick.		"	15.000	2.733	0.533
072 402-0170	Exterior insulation finish system,expanded polystyrene, 25 mm to 100 mm thick, including 1.80 kg/m2 metal lath substrate		"	17.000	2.412	0.471
072 402-0220	Exterior insulation finish system,prefabricated panels with hat channels 64 x 20 mm, and up to 100 mm thick expanded polystyrene		1.000 Struc.Steel Foreman 4.000 Struc. Steel Workers 2.000 Common Laborers 1.000 Equip. Oper.(crane) 1.000 Hyd.Crane,23 metric ton 2.000 Power Tools	135.000	0.474	0.119
072 402-0260	Exterior insulation finish system,prefabricated panels with 38 mm profile lightweight metal backing,and up to 100 mm thick expanded polystyrene			135.000	0.415	0.119





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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS			
<b>073 103</b>	<b>FIBER CEMENT:</b>								
073 103-0200	Fiber cement shakes, 237mm x 400 mm, 24.4 kg/m2	SQM	0.125 Labour Foreman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	24.000	0.708	0.333			
073 103-0400	Fiber cement hexagonal or square shape, 400 mm x 400 mm	"	"	30.000	0.567	0.267			
<b>073 104</b>	<b>ASPHALT SHINGLES:</b>								
073 104-0250	Asphalt shingles,standard,laminated multi-layered shingles, to 12.70 kg/m2	SQM	0.125 Labour Foreman 1.000 Roofer,Composition 1.000 Helper 1.000 Tools Set	45.000	0.378	0.178			
073 104-0400	Asphalt shingles,premium,laminated multi-layered shingles, 12.70 to 14.65 kg/m2			55.000	0.309	0.145			
073 104-0800	Felt underlayment, 6 Kg, for asphalt shingles			650.000	0.026	0.012			
073 104-0825	Felt underlayment, 13 Kg, for asphalt shingles			575.000	0.030	0.014			
<b>073 107</b>	<b>STEEL:</b>								
073 107-0010	Steel shingles,galvanized, 26 gauge or 24 gauge, plain or colored	SQM	0.125 Labour Foreman 1.000 Tile roofer 1.000 Helper 1.000 Tools Set	24.000	0.708	0.333			
<b>073 108</b>	<b>WOOD:</b>								
073 108-0010	Wood shingles, 400 mm red cedar,125 mm exposure,on roof	SQM	0.125 Labour Foreman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	20.000	0.850	0.400			
073 108-0015	Wood shingles, 400 mm red cedar, 125 mm exposure,on roof,pneumatic nailed		0.125 Labour Foreman 1.000 Carpenter 1.000 Pneumatic Nailer 1.000 Helper 1.000 Small compressor 1.000 circular saw	28.000	0.893	0.571			
073 108-0200	Wood shingles, 400 mm red cedar singles, 190 mm exposure,on walls		0.125 Labour Foreman 1.000 Tile roofer 1.000 Helper 1.000 Tools Set	18.000	0.944	0.444			
073 108-1100	Wood,hand-split red cedar shake, 20 mm thick x 600 mm long, 255 mm exposure on roof			22.000	0.773	0.364			
073 108-1200	Wood,hand-split red cedar shake, 455 mm long, 216 mm exposure on roof			20.000	0.850	0.400			
073 108-1205	Wood,hand-split red cedar shake, 455 mm long, 216 mm exposure on roof,pneumatic nailed	SQM	0.125 Labour Foreman 1.000 Carpenter 1.000 Pneumatic Nailer 1.000 Helper 1.000 Small compressor 1.000 Circular saw	28.000	0.893	0.571			

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS			
<b>073 200</b>	<b>ROOFING TILE</b>								
<b>073 201</b>	<b>ALUMINUM:</b>								
073 201-0010	Aluminum tiles, 0.48 mm thick	SQM	0.125 Labour Foreman 1.000 Carpenter 1.000 Tools Set	20.000	0.450	0.400			
<b>073 202</b>	<b>CLAY TILE:</b>								
073 202-0600	Roof covering,Clay tiles, severe weathering,including accessories 18.4 pieces/ SQM, red	SQM	0.125 Labour Foreman 1.000 Tile roofer 1.000 Helper 1.000 Tools Set	15.000	1.133	0.533			
073 202-1100	Roof covering,Clay tiles, severe weathering,including accessories 24.20 pieces/SQM machine scored finish, red			8.000	2.125	1.000			
073 202-1700	Roof covering,Clay tiles, severe weathering,including accessories 14.3 pieces / SQM, smooth finish,red, blue, or green			10.000	1.700	0.800			
073 202-2550	Roof covering,Clay tiles, severe weathering,including accessories 12.4 pieces / SQM,red	SQM	0.125 Labour Foreman 1.000 Tile roofer 1.000 Helper 1.000 Tools Set	8.000	2.125	1.000			
<b>073 204</b>	<b>CONCRETE TILE:</b>								
073 204-0020	Concrete tile including installation of accessories,Corrugated, 330 mm x 420 mm, 9.7 tiles/m2, 46 kg/m2 nailed to wood deck	SQM	0.125 Labour Foreman 1.000 Tile roofer 1.000 Helper 1.000 Tools Set	12.000	2.083	0.667			
073 204-0500	Concrete tile, 400 mm x 400 mm,morter bed			12.000	2.083	0.667			
073 204-0500	precst pre-insulated oncrete tile, 200 mm x 200 mm, mortar bed			10.000	2.500	0.800			
<b>074</b>	<b>PREFORMED ROOFING &amp; SIDING</b>								
<b>074 100</b>	<b>PREFORMED PANELS</b>								
<b>074 101</b>	<b>ALUMINIUM ROOFING</b>								
074 101-0300	Aluminum roofing,corrugated or ribbed, 0.44 mm thick to 0.8 mm thick,on steel framing.	SQM	0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.00 Power Tools	100.000	0.250	0.160			
<b>074 103</b>	<b>CURTAIN WALL</b>								
<b>074 104</b>	<b>FIBERGLASS:</b>								
074 104-0010	Fiberglass corrugated panels,roofing 2.44 kg/m2	SQM	0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.00 Power Tools	90.000	0.278	0.178			
074 104-0100	Fiberglass corrugated panels,roofing 3.66 kg/m2			80.000	0.313	0.200			
074 104-0700	Fiberglass corrugated panels on walls 3.66 kg/m2 fire retardant			80.000	0.313	0.200			

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS	
074 104-1700	Fiberglass sandwich panels, 40 mm thick,			16.000	1.563	1.000	
074 104-1900	Fiberglass sandwich panels, 70 mm thick,panels	↓	↓	12.000	2.083	1.333	
074 106	STEEL DECKING	See division 053-104					
074 107	STEEL ROOFING:						
074 107-0010	Steel roofing on steel frame,corrugated or ribbed,galv., 30 ga.	SQM	0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.00 Power Tools	100.000	0.250	0.160	
074 107-0300	Steel roofing on steel frame,corrugated or ribbed,galv., 26 ga.			90.000	0.278	0.178	
074 107-0400	Steel roofing,on steel frame,corrugated or ribbed,galv., 24 ga			85.000	0.294	0.188	
074 107-0710	Steel roofing, on steel frame flat profile, 44 mm locking seams, 255 mm wide, 26 ga.			90.000	0.278	0.178	
074 107-0715	Steel roofing on steel frame, flat profile, 44 mm locking seams, 255 mm wide, 24 ga.			85.000	0.294	0.188	
074 107-0720	Steel roofing on steel frame, flat profile, 44 mm locking seams, 255 mm wide, 22 ga.			80.000	0.313	0.200	
074 107-074 0	Steel roofing on steel frame, flat profile, 44 mm locking seams, 300 mm wide, 24 ga.			85.000	0.294	0.188	
074 107-0750	Steel roofing on steel frame, flat profile, 44 mm locking seams, 300 mm wide,zinc aluminum alloy finish 24 ga.			85.000	0.294	0.188	
074 107-0840	Steel roofing on steel frame, flat profile,25mm x 9.5mm batt., 306mm wide 22ga.			80.000	0.313	0.200	
074 107-0870	Steel roofing,Flat profile,420mm wide,22 ga.	↓	↓	80.000	0.313	0.200	
074 200	COMPOSITE PANELS						
074 201	EXPOSED AGGREGATE PANELS:						
074 201-1400	Exposed aggregate panels,fiberglass polymer back-up,medium size aggregate	SQM	0.125 Labour Foreman 4.000 Carpenters 1.000 Equip.Oper.(crane) 1.000 Hyd.Crane,11 metric ton 2.000 Power Tools	35.000	1.171	0.686	
074 202	METAL FACING PANELS:						
074 202-0300	Metal facing panels,Field assembled,insulated sandwich wall panels, over 500 m2, 16 ga.aluminum exterior, 38 mm fiberglass and 18 ga galvanized steel interior	SQM	0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.00 Power Tools	13.000	1.923	1.231	
074 202-0600	Metal facing panels,Field assembled,insulated sandwich wall panels, over 500 m2, 18 ga galvanized steel both sides			13.000	1.923	1.231	
074 202-0700	Metal facing panels,Field assembled,insulated sandwich wall panels, over 500 m2, 20 ga. stainless steel exterior face			13.000	1.923	1.231	
074 202-1200	Metal facing,Factory made sandwich wall panels,acrylic coated, 0.25 mm alum.face on 8 mm plywood core			20.000	1.250	0.800	

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
074 202-1400	Metal facing,Factory made sandwich wall panels, 28 ga,porcelain enamel face,insulated cores, hardboard,stabilizer and galvanized back, 25 mm or 50 mm thick			20.000	1.250	0.800
074 202-3100	Metal facing panels,Factory made sandwich wall panels,28 ga, porcelain enamel 2 sides6mm thick mineral fiber core			20.000	1.250	0.800

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS			
<b>074 600</b>	<b>CLADDING/SIDING</b>								
<b>074 602</b>	<b>ALUMINUM SIDING:</b>								
074 602-0010	Aluminum siding, 0.48 mm thick,on steel construction	SQM	0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.00 Power Tools	75.000	0.440	0.320			
074 602-0700	Aluminum siding,Industrial type,corrugated, 0.60 mm thick,on steel			75.000	0.440	0.320			
074 602-2750	Aluminum siding,Ribbed 76 mm profile,on steel frame1.27 mm thick			75.000	0.440	0.320			
074 602-3100	Aluminum siding,Perforated,corrugated,14% openings, 0.60 mm thick			75.000	0.440	0.320			
074 602-3300	Aluminum siding,Ribbed, 76 mm profile,on wood frame, 1.27 mm thick			95.000	0.347	0.253			
074 602-3630	Flashing for aluminum sidewall or end wall to 1 mm thick	LM		185.000	0.178	0.130			
074 602-4600	Aluminum siding,Sandwich panels,with 25 mm insulation,single story building	SQM		24.000	1.375	1.000			
074 602-4900	Aluminum siding,Sandwich panels,with 25 mm insulation, multi story building	..		20.000	1.650	1.200			
<b>074 606</b>	<b>STEEL SIDING:</b>								
074 606-0010	Steel siding,Beveled,vinyl coated, 200 mm wide	SQM	0.125 Labour Foreman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	18.000	0.944	0.444			
074 606-0050	Steel siding,Beveled,vinyl coated, 250 mm wide		..	20.000	0.850	0.400			
074 606-0080	Steel siding,Galv.corrugated or ribbed,on steel frame, 30 gauge to 22 gauge		0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.00 Power Tools	75.000	0.440	0.213			
074 606-1200	Steel siding,Factory sandwich panel, 26 ga., 25mm insulation,galvanized			20.000	1.650	0.800			
074 606-2000	Steel siding,Factory sandwich panel, 22 ga., galv. 50 mm insulation,baked enamel exterior			18.000	1.833	0.889			
<b>074 607</b>	<b>VINYL SIDING:</b>								
074 607-0100	Vinyl siding,Solid PVC panels, 200mm to 250 mm wide	SQM	0.125 Labour Foreman 1.000 Carpenter 1.000 Tools Set	20.000	0.450	0.400			
<b>074 609</b>	<b>WOOD SIDING,BOARDS:</b>								
074 609-3200	Wood siding, boards cedar bevel,short length 13 mm x 150 mm	SQM	0.125 Labour Foreman 1.000 Carpenter 1.000 Helper 1.000 Power Tool	20.000	0.850	0.400			
074 609-3300	Wood siding,boards cedar bevel,short lengths13 mm x 200 mm			22.000	0.773	0.364			
074 609-3800	Wood siding,boards, cedar,rough sawn, 25 mm x 100 mm,			18.000	0.944	0.444			

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
074 609-4700	Wood siding,boards, redwood,beveled, vertical grain,13 mm x 100 mm			16.000	1.063	0.500
074 609-4800	Wood siding,boards, redwood,beveled,vertical grain,13 mm x 200 mm		0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.00 Power Tools	20.000	1.250	0.800
074 609-5250	Wood siding,boards, redwood,Tounge & Groove boards, 25 mm x 200 mm			24.000	1.042	0.667
074 609-5400	Wood siding,boards, white pine,rough sawn, 25 mm x 200 mm			22.000	1.136	0.727
<b>074 611 WOOD PRODUCT SIDINGS:</b>						
074 611-0050	Wood lap siding,hardboard, 11 mm x 200 mm wood grain texture finish	SQM	0.125 Labour Foreman 2.000 Sheet Metal Workers 1.000 Building Laborers 2.00 Power Tools	70.000	0.357	0.229
074 611-0100	Wood panel siding,11 mm thick,smooth,textured or grooved		..	75.000	0.333	0.213
074 611-0700	Wood particle board siding,overlaid, 10 mm thick		0.125 Labour Foreman 2.00 Carpenters 2.00 Power Tools	80.000	0.313	0.200
074 611-0900	Wood siding,plywood medium density overlaid, 10 mm thick			80.000	0.313	0.200
074 611-1100	Wood siding plywood,medium density overlaid, 20 mm thick			75.000	0.333	0.213
074 611-2800	Wood siding,Plywood,redwood,textured siding,16 mm thick			70.000	0.357	0.229
074 611-3000	Wood siding,Plywood,polyvinyl chloride coated,10 mm thick			75.000	0.333	0.213
<b>075 MEMBRANE ROOFING</b>						
<b>075 100 BUILT-UP ROOFING</b>						
<b>075 101 ASPHALT:</b>						
075 101-0500	Asphalt Coated felt.13 kg, 18.6 m2/roll, not mopped	SQM	0.125 Labour Foreman 1.000 Roofer,Composition 1.000 Helper 1.000 Tools Set	517.500	0.017	0.015
075 101-0600	Asphalt Coated felt, roll roofing 40 kg.	..	..	135.000	0.067	0.059
<b>075 102 BUILT-UP ROOFING:</b>						
075 102-0200	Built-up roofing,Asphalt flood coat with gravel/slag surfacing,base sheet, 3 plies 6 kg asphalt felt,mopped	SQM	0.125 Labour Foreman 1.000 Plasterer 1.000 Plasterer Helper 1.000 Building Laborer 1.000 Grouting Equipment	155.000	0.161	0.052
075 102-0500	Built-up roofing,Asphalt flood coat with gravel/slag surfacing,base sheet, 4 plies 6 kg. asphalt felt,mopped			135.000	0.185	0.059
075 102-2200	Built-up roofing,Asphalt flood coat,smooth surface, asphalt base sheet & 3 plies 6 kg. asphalt felt,mopped			170.000	0.147	0.047

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
075 102-2700	Built-up roofing,Asphalt flood coat,smooth surface, asphalt base sheet & 4 plies 6 kg, asphalt felt.	SQM	0.125 Labour Foreman 1.000 Plasterer 1.000 Plasterer Helper 1.000 Building Laborer 1.000 Grouting Equipment	170.000	0.147	0.047
075 102-3800	Built-up roofing,coal tar pitch with coated glass fiber base sheet and 4 plies glass fiber felt,mopped	"	"	135.000	0.185	0.059
<b>075 103 CANTS:</b>						
075 103-0010	Cants,100 mm x 100 mm treated timber,cut diagonally	SQM	0.125 Labour Foreman 1.000 Roofer Composition 1.000 Tools Set	80.000	0.113	0.100
<b>075 104 FELT:</b>						
075 104-0010	Felt glass fibered, 6 kg,no mopping	SQM	0.125 Labour Foreman 1.000 Roofer,Composition 1.000 Helper 1.000 Tools Set	517.500	0.033	0.015
075 104-0011	Felt glass fibered, 22 kg,no mopping	"	"	517.500	0.033	0.015
075 104-0900	Asphalt felt 6 kg 37.2 m2/roll,no mopping	"	"	517.000	0.033	0.015
<b>075 200 PREPARED ROLL ROOFING</b>						
<b>075 204 ROLL ROOFING:</b>						
075 204-0200	Roll roofing,Asphalt,mineral surface,1 ply 6 kg., organic felt,1 ply mineral surfaced, selvage roofing, lap 480 mm, mopped	SQM	0.125 Labour Foreman 1.000 Plasterer 1.000 Plasterer Helper 1.000 Building Laborer 1.000 Grouting Equipment	185.000	0.135	0.043
075 204-0400	Roll roofing,Asphalt,mineral surface, 3 plies glass fiber felt, 1 ply mineral surfaced, selvage roofing, lap 480 mm, mopped	"	"	175.000	0.143	0.046
<b>075 300 ELASTOMERIC ROOFING</b>						
<b>075 301 ELASTOMERIC ROOFING: For Elastomeric waterproofing,see division 071-102</b>						
075 301-0300	Elastomeric roofing,Hypalon neoprene,fluid applied, 0.5 mm thick,not-reinforced.	SQM	0.125 Labour Foreman 1.000 Plasterer 1.000 Plasterer Helper 1.000 Building Laborer 1.000 Grouting Equipment	80.000	0.313	0.100
075 301-0900	Elastomeric roofing, 5 coat neoprene deck,1.5 mm thick			30.000	0.833	0.267
075 301-1000	Elastomeric roofing,Neoprene membrane,1.6 mm thick			90.000	0.278	0.089
075 301-1300	Elastomeric roofing,Vinyl plastic traffic deck,sprayed, 0.05 to 0.10 mm thick			50.000	0.500	0.160
075 301-1700	Elastomeric roofing,Polyurethane spray-on with 0.5 mm silicone rubber coating applied, 25 mm thick, average labor			60.000	0.417	0.133
075 301-1900	Elastomeric roofing,Polyurethane spray-on with 0.5 mm silicone rubber coating applied 50 mm thick, average labor			45.000	0.556	0.178



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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
075 301-2100	Elastomeric roofing, Polyurethane spray-on with 0.5 mm silicone rubber coating applied 76 mm thick, average labor	↓	↓	35.000	0.714	0.229
<b>075 302</b>	<b>SINGLE-PLY MEMBRANE:</b>					
075 302-3500	Single-ply membrane,Ethylene propylene diene monomer (EPDM), 1 mm, 1.37 kg/m2 loose-laid & ballasted with stone (50 kg/m2)	SQM	1 Roofer Foreman 2 Roofers, Composition 2 Roofer Helpers 1 Application Equipment	350.000	0.114	0.023
075 302-3700	Single-ply membrane,Ethylene propylene diene monomer (EPDM), 1 mm, 1.37 kg/m2 partially adhered, & allasted with stone ( 50 Kg/m2 )			245.000	0.163	0.033
075 302-3800	Single-ply membrane,Ethylene propylene diene monomer (EPDM), 1 mm, 1.37 kg/m2, fully adhered with dheseive& ballasted wiyh stone ( 50 Kg/m2 )			180.000	0.222	0.044
075 302-4200	Single-ply membrane,Ethylene propylene diene monomer(EPDM), 1.4mm,1.71 kg/m2 loose-laid & allasted with stone (49 kg/m2), partially adhered			245.000	0.163	0.033
075 302-4300	Single-ply membrane,Ethylene propylene diene monomer(EPDM), 1.4mm,1.71 kg/m2 loose-laid & allasted with stone (49 kg/m2), fully adhered with adhesive			180.000	0.222	0.044
075 302-7500	Single-ply membrane,Polyisobutylene (PIB),3mm,2.78 kg/m2,partially adhered with adhesive			245.000	0.163	0.033
075 302-7800	Single-ply membrane,Polyisobutylene (PIB),3mm,2.78 kg/m2,partially adhered with hot asphalt.			245.000	0.163	0.033
075 302-8200	Single-ply membrane,Polyvinyl chloride (PVC),heat welded seams, reinforced, 1.2mm, 1.61 kg/m2 loose- laid & ballasted with stone/gravel (58.6 kg/m2)			350.000	0.114	0.023
075 302-8800	Single-ply membrane,Polyvinyl chloride (PVC),heat welded seams, reinforced, 1.2mm, 1.61 kg/m2, partially adhered with mechanical fastners & ballasted with stone/gravel ( 58.6 Kg/m2)			245.000	0.163	0.033
075 302-8850	Single-ply membrane,Polyvinyl chloride (PVC),heat welded seams, reinforced, 1.2mm, 1.61 kg/m2, fully adhered with adhesive & ballasted with stone/grave ( 58.6 Kg/m2 )			180.000	0.222	0.044
075 302-8860	Single-ply membrane,Polyvinyl chloride(PVC),heat welded seams,reinforced, 1.5mm,2.1 kg/m2 loose-laid & ballasted with stone/gravel (58.6 kg/m2),partially adhered with mechanical fastners			350.000	0.114	0.023
075 302-8890	Single-ply membrane,Polyvinyl chloride(PVC),heat welded seams,reinforced, 1.5mm,2.1 kg/m2 loose-laid & ballasted with stone/gravel (58.6 kg/m2),fully adhered with adhesive	↓	↓	180.000	0.222	0.044



# **DIVISION 07 :THERMAL & MOISTURE PROTECTION**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
076 104-0050	Stinless steel roofing,type 304,batten seam, 28 gauge	SQM	0.125 Labour Foreman 1.000 Sheet Metal Worker 1.000 Tools Set	9.000	1.000	0.889
076 104-0100	Stinless steel roofing,type 304,batten seam, 26 gauge	"	"	7.500	1.200	1.067
<b>076 105 ZINC</b>						
076 105-0100	Zinc copper alloy roofing,batten seam 0.7mm thick	SQM	0.125 Labour Foreman 1.000 Sheet Metal Worker 1.000 Tools Set	8.000	1.125	1.000
076 105-0400	Zinc copper alloy roofing,batten seam 1 mm thick	"	"	6.500	1.385	1.231
<b>076 200 SHEET METAL FLASH &amp; TRIM</b>						
<b>076 201 DOWNSPOUTS:</b>						
076 201-0300	Downspouts aluminum 50 mm x 76 mm,0.50 mm thick	LM	0.125 Labour Foreman 1.000 Sheet Metal Worker 1.000 Tools Set	45.000	0.200	0.178
076 201-0400	Downspouts aluminum 76 mm x 100 mm,enameled, 0.60mm thick			35.000	0.257	0.229
076 201-0700	Downspouts,round,corrugated aluminum,100 mm diameter, 0.60 mm thick			35.000	0.257	0.229
076 201-0900	Aluminum wire strainer,round upto 100 mm,or rectangular 76 mm x 100 mm.			120.000	0.075	0.067
076 201-1500	Downspouts,copper,round,454 gram,76 mm diameter			45.000	0.200	0.178
076 201-1800	Downspouts,copper,round,454 gram,100 mm diameter (4")			35.000	0.257	0.229
076 201-1900	Downspouts,copper,round, 454 gram, 127 mm diameter (5")			30.000	0.300	0.267
076 201-2700	Copper wire strainer,rectangular 76x100 mm or round 100 mm.	EA		110.000	0.082	0.073
076 201-3400	Copper wire strainer,round 127mm	"		110.000	0.082	0.073
076 201-4900	Downspouts,steel,galvanized,round,corrugated,100 mm diam., 28 ga.	LM	0.125 Labour Foreman 1.000 Sheet Metal Worker 1.000 Helper 1.000 Tools Set	35.000	0.486	0.229
076 201-5400	Downspouts,steel,galvanized,round,corrugated,150 mm diam., 28 ga.			25.000	0.680	0.320
076 201-5700	Downspouts,steel,galvanized, rectangular, corrugated or plain,28 ga., 76mm x 100 mm			35.000	0.486	0.229
076 201-6600	Galvanized steel wire strainer,rectangular 76 x 100 mm or round 100 mm	EA		110.000	0.155	0.073
076 201-7300	Galvanized steel wire strainer,round 150mm	"		90.000	0.189	0.089
076 201-7500	Downspouts,steel pipe,black,extra heavy,100 mm diameter	LM		4.500	3.778	1.778
076 201-7600	Downspouts,steel pipe,black,extra heavy,150 mm diameter			4.000	4.250	2.000
076 201-7800	Downspouts,stainless steel tubing,schedule 5, 50 mm x 76 mm or 76 mm diam.			40.000	0.425	0.200
076 201-8100	Downspouts,stainless steel tubing,schedule 5, 100 mm x 127 mm or 127 mm diameter			30.000	0.567	0.267

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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS			
076 201-8200	Downspouts, vinyl, rectangular, 50 mm x 76 mm or round 64 mm	↓	↓	50.000	0.340	0.160			
<b>076 202</b>	<b>DRIP EDGE:</b>								
076 202-0300	Drip edge,aluminum, 0.40 mm thick, 710 mm wide	LM	0.125 Labour Foreman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	25.000	0.680	0.320			
076 202-0400	Drip edge,steel,galvanized,upto 200 mm wide	..	..	85.000	0.200	0.094			
<b>076 203</b>	<b>ELBOW:</b>								
076 203-0010	Elbow aluminum, 50 mm x 76 mm	EA	0.125 Labour Foreman 1.000 Sheet Metal Worker 1.000 Helper 1.000 Tools Set	80.000	0.213	0.100			
076 203-0600	Elbow copper, 454 gram round,76 mm diameter			80.000	0.213	0.100			
076 203-0900	Elbow copper, 454 gram round,127 mm diameter			80.000	0.213	0.100			
076 203-1300	Elbow vinyl, 64 mm diameter			80.000	0.213	0.100			
076 203-1400	Elbow Tee, Y Junction Vinyl 64 mm dia.	↓	↓	60.000	0.283	0.133			
<b>076 204</b>	<b>FLASHING:</b>								
076 204-0010	Flashing aluminum,mill finish, 0.30 mm thick to 1 mm thick	SQM	0.125 Labour Foreman 1.000 Sheet Metal Worker 1.000 Tools Set	10.000	0.900	0.800			
076 204-1600	Flashing copper, 454 gram,sheets			8.000	1.125	1.000			
076 204-2500	Flashing copper, 907 gram,sheets			7.000	1.286	1.143			
076 204-4300	Flashing copper-clad stainless steel, 0.38 mm thick		↓	8.000	1.125	1.000			
076 204-5000	Falshing fabric,asphalt-saturated cotton, utility grade		0.125 Labour Foreman' 1.000 Roofer,Composition 1.000 Helper 1.000 Tools Set	20.000	0.850	0.400			
076 204-6200	Flashing lead-coated copper,fabric-backed, 142 gram.		0.125 Labour Foreman 1.000 Sheet Metal Worker 1.000 Helper 1.000 Tools Set	20.000	0.850	0.400			
076 204-7300	Flashing polyvinyl chloride,black 0.25 mm thick to 1 mm thick		0.125 Labour Foreman' 1.000 Roofer,Composition 1.000 Helper 1.000 Tools Set	18.000	0.944	0.444			
076 204-8100	Flashing rubber,butyl, 0.8 mm thick to 2 mm thick		*	18.000	0.944	0.444			
076 204-8500	Flashing shower pan,bituminous membrane 198 gram, or 3 ply copper and fabric, 85 gram		0.125 Labour Foreman 1.000 Sheet Metal Worker 1.000 Tools Set	9.000	1.000	0.889			
076 204-8900	Flashing stainless steel sheets, 32 ga to 24 ga.	↓	*	10.000	0.900	0.800			
<b>076 205</b>	<b>GUTTERS:</b>								

## DIVISION 07 :THERMAL & MOISTURE PROTECTION

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
076 205-0010	Gutters aluminum, 127 mm box, 0.7 mm thick	LM	0.125 Labour Foreman 1.000 Sheet Metal Worker 1.000 Helper 1.000 Tools Set	25.000	0.680	0.320
076 205-0700	Gutters copper, half round, 454 gram, 150 mm wide			25.000	0.680	0.320
076 205-1500	Gutters lead coated copper, half round stock,150 mm wide			25.000	0.680	0.320
076 205-2100	Gutters stainless steel,half round or box, 28 ga.,127 mm wide			25.000	0.680	0.320
076 205-2400	Gutters steel,galf.,half round or box,stock 127 mm wide	↓		25.000	0.680	0.320
076 205-3000	Gutters vinyl, 127 mm wide	LM	0.125 Labour Foreman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	22.000	0.773	0.364
<b>076 206</b>	<b>GUTTER GUARD:</b>					
076 206-0010	Gutter guard 150 mm wide strip, aluminum or vinyl mesh	LM	0.125 Labour Foreman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	110.000	0.155	0.073
<b>076 210</b>	<b>REGLET:</b>					
076 210-0010	Reglet aluminum,copper,galvanized or stainless steel,in concrete parapet	LM	0.125 Labour Foreman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	55.000	0.309	0.145
<b>076 217</b>	<b>SOFFIT:</b>					
076 217-0010	Sofit aluminum, 0.5 mm thick	SQM	0.125 Labour Foreman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	15.000	1.133	0.533
076 217-0100	Sofit baked enamel on steel,16 or 18 gauge			7.500	2.267	1.067
076 217-3300	Sofit polyvinyl chloride, solid or perforated	↓	↓	18.000	0.944	0.444
<b>077</b>	<b>ROOF SPECIALTIES &amp; ACCESSORIES</b>					
<b>077 100</b>	<b>PREFAB ROOF SPECIALTIES</b>					
<b>077 103</b>	<b>EXPANSION JOINT:</b>					
077 103-0010	Expansion joint, butyle 1.6 mm thick, 735 mm wide	LM	0.125 Labour Foreman 1.000 Roofer 1.000 Helper 1.000 Tools Set	40.000	0.425	0.200
077 103-0400	Expansion joint, butyle on neoprene center with foam insulation, metal flanges, for openings upto 200 mm	LM	0.125 Labour Foreman 1.000 Roofer 1.000 Helper 1.000 Tools Set	40.000	0.425	0.200
077 103-1900	Expansion joint,neoprene,double seal type,with thick center, 115 mm wide			30.000	0.567	0.267
077 103-1950	Expansion joint,polyethylene bellows,with galvanized steel flanges		↓	25.000	0.680	0.320

**DIVISION 07 :THERMAL & MOISTURE PROTECTION**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
077 103-2000	Roof expansion joint,with extruded aluminum cover, 50 mm		0.125 Labour Foreman 1.000 Sheet Metal Worker 1.000 Helper 1.000 Tools Set	30.000	0.567	0.267
077 103-2100	Roof expansion joint,plastic curbs,foam center		0.125 Labour Foreman 1.000 Roofer 1.000 Helper 1.000 Tools Set	20.000	0.850	0.400
077 103-2500	Roof to wall expansion joint,with extruded aluminum cover		0.125 Labour Foreman 1.000 Sheet Metal Worker 1.000 Helper 1.000 Tools Set	25.000	0.680	0.320
077 103-2800	Wall expansion joint,closed cell foam on PVC cover 300 mm wide		0.125 Labour Foreman 1.000 Roofer 1.000 Helper 1.000 Tools Set	25.000	0.680	0.320
<b>077 104</b>	<b>FASCIA:</b>					
077 104-0300	Fascia aluminum or steel galvanized, no furring,average	SQM	0.125 Labour Foreman 1.000 Sheet Metal Worker 1.000 Tools Set	9.000	1.000	0.889
<b>077 105</b>	<b>GRAVEL STOP:</b>					
077 105-0300	Gravel stop aluminum,150 mm face height,1 mm thick	LM	0.125 Labour Foreman 1.000 Sheet Metal Worker 1.000 Tools Set	30.000	0.300	0.267
077 105-1350	Gravel stop,galv.steel, 24 ga.,upto 150 mm high with continuous cleat			30.000	0.300	0.267
077 105-1600	Gravel stop,polyvinyl chloride, 230 mm face height			30.000	0.300	0.267
077 105-1900	Gravel stop,stainless steel, 24 ga or 20 ga, 300 mm face height			20.000	0.450	0.400
<b>077 200</b>	<b>ROOF ACCESSORIES:</b>					
<b>077 204</b>	<b>CEILING HATCHES:</b>					
077 204-0010	Ceiling hatches, 760 mm x 760 mm,single leaf,steel frame & cover	EA	0.125 Labour Foreman 2.000 Sheet Metal Workers 2.000 Building Laborers 2.000 Power Tools	8.000	4.125	2.000
<b>077 205</b>	<b>ROOF DRAINS</b>					
<b>077 206</b>	<b>ROOF HATCHES:</b>					
077 206-0500	Roof hatches with 25 mm fiberglass insul., 760 mm x 915 mm,aluminum,or galvanized steel curb and cover	EA	0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.000 Power Tools	8.000	5.125	2.000
077 206-1200	Roof hatches with 25 mm fiberglass insul., 760 mm x 1370 mm, & with aluminum,or galvanized steel curb and cover			5.000	8.200	3.200
077 206-1200	Roof hatches, 760 mm x 2440 mm,aluminum or galvanized steel curb and cover			5.000	8.200	3.200
<b>077 208</b>	<b>SMOKE VENT:</b>					

DIVISION 07 :THERMAL & MOISTURE PROTECTION						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
077 208-0100	Smoke venet,insulated, 1220 mm x 1220 mm,aluminum or galvanized steel cover & frame	EA	0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.000 Power Tools	10.000	4.100	1.600
077 208-0300	Smoke venet,insulated, 1220 mm x 2400 mm,aluminum or galvanized steel cover & frame	"	"	7.000	5.857	2.286
<b>077 210 ROOF VENTS:</b>						
077 210-0010	Roof vents mushroom for built-up roofs,aluminum or PVC, 150 mm high.	EA	0.125 Labour Foreman 1.000 Roofer,Composition 1.000 Tools Set	20.000	0.450	0.400
<b>078 SKYLIGHTS</b>						
<b>078 100 PLASTIC SKYLIGHTS</b>						
<b>078 101 SKYLIGHT:</b>						
078 101-0300	Skylight, plastic roof domes,curb mounted,with 100 mm insulated curb & "L" frames,nominal size under 1.00 m2,double	SQM	0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.000 Power Tools	5.000	8.200	3.200
078 101-0400	Skylight, plastic roof domes,curb mounted,with 100 mm insulated curb & "L" frames,nominal size 1.00 to 2 m2,double			6.000	6.833	2.667
078 101-1200	Skylight, plastic roof domes,curb mounted,with 100 mm insulated curb & "L" frames,nominal size under 2 to 6 m2,double			18.000	2.278	0.889
078 101-1900	Skylight, plastic roof domes,curb mounted,with 230 mm insulated curb & "L" frames,nominal size under 2 to 6 m2,double			18.000	2.278	0.889
078 101-2150	Skylight, ventilating insulated plexiglass dome with insulated curb mounting size 1320 mm x 1320 mm	EA		10.000	4.100	1.600
078 101-2170	Skylight, ventilating insulated plexiglass dome with insulated curb mounting size 915 mm x 1320 mm	"		8.000	5.125	2.000
078 101-2400	Skylight, sandwish panel, fiberglass for walls 40 mm thick upto 25 SQM	SQM		16.000	2.563	1.000
078 101-2500	Skylight, sandwish panel, fiberglass for walls 40 mm thick more than 25 SQM	SQM	0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.000 Power Tools	20.000	2.050	0.800
078 101-2700	Skylight, sandwish panel, fiberglass for roofs 70 mm thick upto 25 SQM	"	"	24.000	1.708	0.667
078 101-2800	Skylight, sandwish panel, fiberglass for roofs 70 mm thick more than 25 SQM	SQM	0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.000 Power Tools	27.000	1.519	0.593
<b>078 200 METAL FRAMED SKYLIGHTS</b>						
<b>078 202 SKYROOFS:</b>						
078 202-0010	Skyroofs translucent panels, 70 mm thick	SQM HORI- ZONTAL	0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.000 Power Tools	30.000	1.367	0.533
078 202-0300	Skyroofs continuous vaulted,semi-circular, to 6 m wide,double glazed	"	"	10.000	4.100	1.600

# **DIVISION 07 :THERMAL & MOISTURE PROTECTION**

<b>CSI CODE</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>CREW STRUCTURE</b>	<b>DAILY OUTPUT</b>	<b>MAN HOURS</b>	<b>EQUIP. HOURS</b>
078 202-0900	Skyroofs continuous vaulted,motorized opening type,single glazed,full opening	SQM HORI- ZONTAL	0.125 Labour Foreman 2.000 Sheet Metal Workers 1.000 Electrician 3.000 Building Laborers 2.000 Power Tools	8.000	6.125	2.000
078 202-0300	Skyroofs pyramid type units, self-supporting, to 9 m clear opening, square or circular, single glazed average		0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.000 Power Tools	16.000	2.563	1.000
078 202-1500	Skyroofs grid type, 1.2 to 3 m modules, double glazed,average		"	12.000	3.417	1.333
<b>078 400</b>	<b>GLASS BLOCK SKYLIGHTS</b>					
<b>078 402</b>	<b>PREFABRICATED:</b>					
078 402-0010	Prefabricated glass block with metal frame average	SQM	0.125 Labour Foreman 2.000 Sheet Metal Workers 3.000 Building Laborers 2.000 Power Tools	15.000	2.733	1.067
<b>079</b>	<b>JOINT SEALERS</b>					
<b>079 100</b>	<b>JOINT FILLERS &amp; GASKETS</b>					
<b>079 102</b>	<b>CONTROL JOINTS</b>					
<b>079 204</b>	<b>SEALANTS &amp; CAULKINGS</b>					
<b>079 204</b>	<b>CAULKING AND SEALANTS:</b>					
079 204-0030	Acoustical sealant, elastomeric, backer rod,polyethylene, 6 mm to 25 mm diameter	LM	0.125 Labour Foreman 1.000 Bricklayers 1.000 Tools Set	110.000	0.082	0.073
079 204-0600	Caulking compound, oil base, bulk, in place 6 mm x 13 mm			60.000	0.150	0.133
079 204-0800	Caulking compound, oil base, bulk, in place 20 mm x 25 mm			60.000	0.150	0.133
079 204-1400	Caulking & Sealant, butyl base, bulk in place, 13 mm x 13 mm			60.000	0.150	0.133
079 204-2300	Caulking and sealant,polysulfide compounds, in place, 6 mm x 6 mm			60.000	0.150	0.133
079 204-3000	Caulking and sealant,polysulfide compounds, in place, 25 mm x 13 mm			35.000	0.257	0.229
079 204-3200	Caulking and sealant,polyurethane,in place, 6 mm x 6 mm			40.000	0.225	0.200
079 204-3800	Caulking and sealant,polyurethane,in place, 20 mm x10 mm			30.000	0.300	0.267
079 204-3900	Caulking and sealant,polyurethane,in place, 25 mm x 13 mm			30.000	0.300	0.267
079 204-4400	Sealant,neoprene gaskets,closed cell,adhesive, 3 mm x 10 mm			60.000	0.150	0.133
079 204-4800	Sealant,neoprene gaskets,closed cell,adhesive,19 mm x 38 mm			45.000	0.200	0.178
079 204-6000	Sealant,PVC tape,foam adhesive 3 mm x 13 mm			45.000	0.200	0.178



# Division 8

## Doors & Windows

### Estimating Tips

#### 081 Metal Doors & Frames

Most metal doors and frames look alike, but there may be significant differences among them. When estimating these items be sure to choose the line items that most closely compares to the specification or door schedule requirements regarding:

- a.) type of metal
- b.) metal gauge
- c.) door core material
- d.) fire rating
- e.) finish

Most of the items covered under this division are furnished by local manufacturers or distributors and carpenters set them at job site. Usually sash & doors are provided with glazing.

Contractor are advised to check this item to prevent duplication of work

#### 082 Wood & Plastic Doors

Some doors usually in institutional buildings are veneered on all surfaces with plastic laminate. Wood and plastic doors vary considerably in price. The primary determinant is the veneer material, which is bonded under pressure.

#### 083 Special Doors

There are many varieties of special doors, and they are usually priced per each. Add frames, hardware or operators required for a complete installation. Tin clad fire doors, overhead, coiling doors & grilles, folding, freezer and refrigerator, air curtain garage and entrance sliding doors and others are classified as special doors.

#### 087 Hardware

Hardware costs add considerably to the cost of a door, usually hardware schedules

Curtain walls are usually let to specialized sub-contractors. Estimator shall focus on material schedules.

set up is included in specifications rather than shown on drawings.

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>081</b>	<b>METAL DOORS &amp; FRAMES</b>					
<b>081 100</b>	<b>STEEL DOORS &amp; FRAMES</b>					
<b>081 103</b>	<b>COMMERCIAL STEEL DOORS:</b>	<b>"Hardware not included"</b>				
081 103-0020	Commercial Steel Door,Flush ,full panel,Hollow core,35 mm thick, 20 ga., 610 mm x 2035 mm,hardware & frame not included	EA	0.125 Skilled Foreman 2.00 Carpenters 1.00 Helper 2.00 Power Tools	19.000	1.316	0.842
081 103-0060	Commercial Steel Door,Flush ,full panel,Hollow core,35 mm thick,20 ga., 915 mm x 2035 mm,hardware & frame not included			16.000	1.563	1.000
081 103-0100	Commercial Steel Door,Flush ,full panel,Hollow core,35 mm thick,20 ga., 915mm x 2135 mm,hardware & frame not included			16.000	1.563	1.000
081 103-0400	Commercial Steel Door,Flush ,Hollow core,Half Glass,20 ga.,915 mm x 2135 mm,hardware & frame not included			16.000	1.563	1.000
081 103-1020	Commercial Steel Door,Flush,full panel,Hollow core,44 mm thick,20 ga.,815 mm x 2035 mm, hardware & frame not included			17.000	1.471	0.941
081 103-1060	Commercial Steel Door,Flush,full panel,Hollow core,44 mm thick,20 ga., 915 mm x 2135 mm, hardware & frame not included			16.000	1.563	1.000
081 103-1080	Commercial Steel Door,Flush,full panel,Hollow core,44 mm thick,20 ga., 1220 mm x 2135 mm, hardware & frame not included			14.000	1.786	1.143
081 103-1100	Commercial Steel Door,Flush,full panel,Hollow core,44 mm thick,20 ga., 1220 mm x 2440 mm, hardware & frame not included			12.000	2.083	1.333
081 103-1160	Commercial Steel Door,Flush,full panel,Hollow core,44 mm thick,18 ga.,915 mm x 2135 mm,hardware & frame not included			15.000	1.667	1.067
081 103-1180	Commercial Steel Door,Flush,full panel,Hollow core,44 mm thick,18 ga., 1220 mm x 2135 mm,hardware & frame not included			13.000	1.923	1.231
081 103-1260	Commercial Steel Door,Flush,Half glass,panel,hollow core,44 mm thick,20 ga., 915 mm x 2135 mm,hardware & frame not included			17.000	1.471	0.941
081 103-1300	Commercial Steel Door,Flush,Half glass,panel,hollow core,44 mm thick,20 ga., 1220 mm x 2440 mm,hardware & frame not included			12.000	2.083	1.333
081 103-1360	Commercial Steel Door,Flush,Half glass,panel,hollow core,44 mm thick,18 ga., 915 mm x 2135 mm,hardware & frame not included			16.000	1.563	1.000
081 103-1400	Commercial Steel Door,Flush,Half glass,panel,hollow core,44 mm thick,18 ga., 1220 mm x 2440 mm,hardware & frame not included			13.000	1.923	1.231
081 103-1760	Commercial Steel Door,flush,insulated, 44 mm thick,full panel, 18 ga. 915mm x 2135 mm,hardware & frame not included			14.000	1.786	1.143
081 103-1800	Commercial Steel Door,flush,insulated, 44 mm thick,full panel, 18 ga. 1220 mm x 2440 mm,hardware & frame not included			12.000	2.083	1.333
081 103-1820	Commercial Steel Door,flush,insulated, 44 mm thick,half glass, 18 ga,915 mm x 2035 mm,hardware & frame not included			15.000	1.667	1.067
081 103-1900	Commercial Steel Door,flush,insulated, 44 mm thick,half glass, 18 ga,1220 mm x 2440 mm,hardware & frame not included	↓	↓	13.000	1.923	1.231
<b>081 106</b>	<b>DOOR FRAMES:</b>					
081 106-0100	Door frames,150 mm steel channels 12 kg/m, with anchors and bar stops, 915 mm x 2135 mm door, weighs 91 kg	EA	1.00 Struc. Foreman 3.00 Struc. Steel Workers 2.00 Helpers 1.00 Gas Welding Machine 2.00 Power Tools	12.000	4.000	2.000

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
081 106-0200	Door frames, 200 mm steel channels 17 kg/m, with anchors and bar stops, 1830 mm x 2440 mm door, weighs 136 kg			8.000	6.000	3.000
081 106-0300	Door frames, 200 steel channels 17 kg with anchors and bar stops, 2440 mm x 3660 mm door, weighs 204 kg			6.000	8.000	4.000
081 106-0500	Door frames, 250 mm steel channels 22 kg/m with anchors and bar stops, 3660 mm x 3660 mm door weighs 283 kg			5.000	9.600	4.800
081 106-0600	Door frames, 310 mm steel channels 31 kg/m with anchors and bar stops, 3660 mm x 3660 mm door weighs 374 kg			4.000	12.000	6.000
081 106-0700	Door frames, 310 mm steel channels 31 kg/m with anchors and bar stops, 3660 mm x 4880 mm door weighs 453 kg			3.000	16.000	8.000
<b>081 110</b>	<b>FIRE DOOR:</b>	<b>"Hardware &amp; frame not included"</b>				
081 110-0040	Fire door steel, flush, 90 minute, full panel, 20 ga., 815 mm x 2035 mm, hardware & frame not included	EA	0.250 Skilled Foreman 2.000 Carpenters 1.000 Helper 2.000 Power Tools	17.000	1.529	0.941
081 110-0060	Fire door steel, flush, 90 minute, full panel, 20 ga., 915 mm x 2035 mm, hardware & frame not included			16.000	1.625	1.000
081 110-0080	Fire door steel, flush, 90 minute, full panel, 20 ga., 915 mm x 2135 mm, hardware & frame not included			16.000	1.625	1.000
081 110-0160	Fire door steel, flush, 90 minute, full panel, 18 ga., 815 mm x 2135 mm, hardware & frame not included			16.000	1.625	1.000
081 110-0180	Fire door steel, flush, 90 minute, full panel, 18 ga., 915 mm x 2135 mm, hardware & frame not included			15.000	1.733	1.067
081 110-0200	Fire door steel, flush, 90 minute, full panel, 18 ga., 1220 mm x 2135 mm, hardware & frame not included			14.000	1.857	1.143
081 110-0580	Fire door steel, flush, 90 min., composite, 20 ga., 915mm x 2135 mm			15.000	1.733	1.067
081 110-0680	Fire door steel, flush, 3 hour, composite, 18 ga., 915 mm x 2135 mm			15.000	1.733	1.067
081 110-0700	Fire door steel, flush, 3 hour, composite, 18 ga., 1220 mm x 2135 mm			13.000	2.000	1.231
<b>081 114</b>	<b>RESIDENTIAL STEEL DOOR:</b>					
081 114-0060	Residential steel door, prehung, insulated, exterior embossed, full panel 915 mm x 2135 mm, no hardware	EA	0.250 Skilled Foreman 2.000 Carpenters 1.000 Helper 2.000 Power Tools	14.000	2.000	1.143
081 114-0070	Residential steel door, prehung, insulated, exterior embossed, full panel 1625 mm x 2135 mm double leaf door, no hardware			8.000	3.500	2.000
081 114-0220	Residential steel door, prehung, insulated, exterior embossed, half glass 915 mm x 2135 mm, no hardware	EA	0.250 Skilled Foreman 2.000 Carpenters 1.000 Helper 2.000 Power Tools	15.000	1.867	1.067
081 114-2300	Residential steel door, prehung, insulated, interior, closet, bi-fold 915 mm x 2035 mm, no hardware			15.000	1.867	1.067
081 114-2420	Residential steel door, prehung, insulated, interior, closet, bi-fold 1830 mm x 2035 mm, no hardware			12.000	2.333	1.333
<b>081 200</b>	<b>ALUMINUM DOORS &amp; FRAMES:</b>					
<b>081 204</b>	<b>ALUMINUM FRAMES:</b>					

DIVISION 08 :DOORS & WINDOWS							
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS	
081 200-0500	Aluminum frames entrance,any finish, 1830 mm x 2135 mm opening	OPENING	0.125 Skilled Foreman 2.00 Skilled Workers 1.00 Helper 2.00 Power Tools	6.000	4.167	2.667	
081 200-0600	Aluminum frame entrance,any finish, 915 mm x 2135 mm opening			7.000	3.571	2.286	
081 200-1500	Aluminum frames entrance,any finish,with 915mm high transoms, 1830 mm x 3050 mm opening			6.000	4.167	2.667	
<b>081 212 ALUMINUM DOORS &amp; FRAMES:</b>							
081 212-0020	Aluminum doors & frames,entrance,narrow stile,including hardware & double glazed 17 mm, 915 mm x 2135 mm opening	EA	0.125 Skilled Foreman 2.00 Skilled Workers 1.00 Helper 2.00 Power Tools	2.000	12.500	8.000	
081 212-0200	Aluminum doors & frames,entrance,narrow stile,including hardware and closer,single glazed 10 mm, 1067 mm x 3050 mm opening, 915 mm high transom			2.000	12.500	8.000	
081 212-0300	Aluminum doors & frames,entrance,narrow stile,including hardware and closer,double glazed 21 mm, 1830 mm x 2135 mm opening			1.000	25.000	16.000	
081 212-0400	Aluminum doors & frames,entrance,narrow stile,including hardware and closer,single glazed 12 mm, 1830 mm x 3050 mm opening, 915 mm high transom			1.000	25.000	16.000	
081 212-1100	Aluminum doors & frames,entrance,narrow stile,including hardware,closer and double glazed 21 mm, 1067 mm x 3050 mm opening, 915 mm high transom			2.000	12.500	8.000	
081 212-1200	Aluminum doors & frames,entrance,narrow stile,including hardware, closer, and double glazed 25 mm, 1830 mm x 2135 mm opening			2.000	12.500	8.000	
081 212-1400	Aluminum doors & frames,entrance,narrow stile,including hardware, closer,and double glazed 25 mm, 1830 mm x 3050 mm opening, 915 mm high transom			1.000	25.000	16.000	
<b>082 WOOD &amp; PLASTIC DOORS</b>							
<b>082 050 WOOD &amp; PLASTIC DOORS</b>							
<b>082 054 WOOD FRAMES:</b>							
082 504-0440	Exterior frame,including exterior trim,pine, 30 mm upto 167 mm deep	LM	0.125 Skilled Foreman 2.00 Carpenters 1.00 Helper 2.00 Power Tools	110.000	0.227	0.145	
082 504-0600	Exterior frame,including exterior trim,oak or walnut, 30 mm upto 167 mm deep			100.000	0.250	0.160	
082 504-1000	Exterior wood sills, 50 mm x 200 mm deep oak			30.000	0.833	0.533	
082 504-3000	Wood frame,interior pine, 17 mm upto 132 mm deep			110.000	0.227	0.145	
082 504-3240	Wood frame,interior, oak or walnut, 17 mm upto 132 mm deep			100.000	0.250	0.160	
082 504-3600	Wood door pocket frame	EA		15.000	1.667	1.067	
082 504-3800	Door threshold,oak 16 mm x 90 mm deep	LM		55.000	0.455	0.291	
082 504-3840	Door threshold,oak 16 mm x 145 mm deep	"		50.000	0.500	0.320	
<b>082 062 WOOD DOOR, ARCHITECTURAL:</b>							

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
082 062-0020	Interior "Wood door architectural, flush, 44 mm, 7 ply,hollow core,any type of wood veneer, 610 mm x 2035 mm,hardware and frame not included	EA	0.125 Skilled Foreman 2.00 Carpenters 1.00 Helper 2.00 Power Tools	16.000	1.563	1.000
082 062-0100	Interior Wood door architectural, flush, 44mm, 7 ply,hollow core, 1220 mm x 2135 mm,hardware and frame not included			15.000	1.667	1.067
082 062-1320	Interior Wood door,architectural flush,medium duty,overlay on hardboard 915 mm x 2035 mm,hardware and frame not included			16.000	1.563	1.000
082 062-1400	Interior Wood door architectural, flush,medium duty,overlay on hardboard 1220 mm x 2135 mm,hardware and frame not included			15.000	1.667	1.067
082 062-1820	Interior Wood door architectural, flush,high pressure plastic laminate 915 mm x 2135 mm,hardware and frame not included			16.000	1.563	1.000
082 062-1840	Interior Wood door architectural, flush,high pressure plastic laminate 1220 mm x 2440 mm,hardware and frame not included			15.000	1.667	1.067
082 062-2080	Interior Wood door architectural, flush, 5 ply particle core,veneered any wood veneer, 915 mm x 2135 mm,hardware and frame not included			12.000	2.083	1.333
082 062-2100	Interior Wood door,architectural flush, 5 ply particle core,veneered any wood veneer, 1220 mm x 2135 mm, hardware and frame not included			12.000	2.083	1.333
082 062-3720	Interior Wood door architectural, flush, with plastic laminate on hardwood, 765 mm x 2035 mm			12.000	2.083	1.333
082 062-3740	Interior Wood door architectural, flush, with plastic laminate on hardwood, 915 mm x 2035 mm			11.000	2.273	1.455
082 062-3780	Interior Wood door architectural ,flush, with plastic laminate on hardwood, 915 mm x 2135 mm			10.000	2.500	1.600
082 062-3800	Interior Wood door architectural, flush, with plastic laminate on hardwood, 1220 mm x 2135 mm			8.000	3.125	2.000
082 062-4040	Exterior Wood door architectural, flush,solid wood core, birch or oak or walnut veneered face, 44mm x 2135 mm x 915 mm wide	EA	0.125 Skilled Foreman 2.00 Carpenters 1.00 Helper 2.00 Power Tools	14.000	1.786	1.143
<b>082 066</b>	<b>WOOD DOOR, DECORATOR:</b>					
082 066-3020	Wood doors,decorator,solid wood,mahogany,pine or red oak, 44 mm, 915 mm x 2135 mm, average,hardware & frame not included	EA	0.125 Skilled Foreman 2.00 Carpenters 1.00 Helper 2.00 Power Tools	13.000	1.923	1.231
082 066-3040	Wood doors,decorator,solid wood,mahogany,pine or red oak, 44 mm, 1067 mm x 2440 mm, average,hardware & frame not included			9.000	2.778	1.778
082 066-4000	Wood door,hand carved,mahogany or red oak, 915 mm x 2135 mm, average,hardware & frame not included			13.000	1.923	1.231
082 066-4040	Wood door,hand carved,mahogany or red oak,1067 mm x 2440 mm, average,hardware & frame not included			9.000	2.778	1.778
082 066-6520	Wood door,interior cafe doors, 915 mm opening,panel pine,hardware & frame not included			15.000	1.667	1.067
082 066-6550	Wood door,interior cafe doors, 915 mm opening,louvered pine,hardware & frame not included			15.000	1.667	1.067
<b>082 070</b>	<b>WOOD FIRE DOORS:</b>					

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
082 070-0040	Wood fire doors Mineral core, 3 ply stile,1 hour rated, veneered any type, 44 mm x 765 mm x 2035 mm,hardware & frame not included	EA	0.125 Skilled Foreman 2.00 Carpenters 1.00 Helper 2.00 Power Tools	13.000	1.923	1.231
082 070-0090	Wood fire doors Mineral core, 3 ply stile,1 hour rated, veneered any type, 44 mm x 915 mm x 2135 mm,hardware & frame not included			11.000	2.273	1.455
082 070-0100	Wood fire doors Mineral core, 3 ply stile,1 hour rated, veneered any type, 44 mm x 1220 mm x 2135 mm,hardware & frame not included			11.000	2.273	1.455
082 070-0490	Wood fire doors, 1 hour rated medium duty overlay on hardboard, 44 mm thick, 915 mm x 2135 mm,hardware & frame not included			12.000	2.083	1.333
082 070-0500	Wood fire doors, 1 hour rated medium duty overlay on hardboard, 44 mm thick, 1220 mm x 2135 mm,hardware & frame not included			11.000	2.273	1.455
082 070-0580	Wood fire doors, 1 hour rated, with high pressure plastic laminated, 44 mm thick, 915 mm x 2035 mm,hardware & frame not included			11.000	2.273	1.455
082 070-0590	Wood fire doors, 1 hour rated, with high pressure plastic laminated,44mm thick, 915 mm x 2135 mm,hardware & frame not included			10.000	2.500	1.600
082 070-0600	Wood fire doors, 1 hour rated, with high pressure plastic laminated, 44 mm thick, 1220 mm x 2135 mm,hardware & frame not included			11.000	2.273	1.455
082 070-2260	Wood fire doors,custom architectural 1 hour rated,flush, 44 mm thick,solid core 915 mm x 2135 mm,hardware & frame not included			13.000	1.923	1.231
082 070-2300	Wood fire doors,custom architectural 1 hour rated,flush, 44 mm thick,solid core 1220 mm x 2135 mm,hardware & frame not included			12.000	2.083	1.333
082 070-2400	Wood fire doors,custom architectural 1 hour rated,flush, 44 mm thick,solid core 1220 mm x 2440 mm,hardware & frame not included	▼	▼	10.000	2.500	1.600
<b>082 074 WOOD DOORS, paneled:</b>						
082 074-0080	Wood doors,paneled interior,six panel,hollow core, 35 mm thick,molded hardboard 915 mm x 2035 mm,hardware & frame not included	EA	0.125 Skilled Foreman 2.00 Carpenters 1.00 Helper 2.00 Power Tools	16.000	1.563	1.000
082 074-0560	Wood doors,paneled interior,six panel,solid, 35 mm thick,pine, 765 mm x2135 mm,hardware & frame not included			13.000	1.923	1.231
082 074-0580	Wood doors,paneled interior,six panel,solid, 35 mm thick,pine, 915 mm x 2135 mm,hardware & frame not included	▼	▼	12.000	2.083	1.333
<b>082 078 WOOD DOORS, RESIDENTIAL:</b>						
082 078-0260	Wood doors,residential, exterior,combination storm & screen,pine,full lite, 2055 mm x 815 mm wide,hardware & frame not included	EA	0.125 Skilled Foreman 2.00 Carpenters 1.00 Helper 2.00 Power Tools	9.000	2.778	1.778
082 078-0300	Wood doors,residential, exterior,combination storm & screen,pine,full lite, 2135 mm x 915 mm wide,hardware & frame not included			8.000	3.125	2.000
082 078-1020	Exterior wood doors,entrance, 6 panel pine, 44 mm x 2135 mm x 915 mm wide,hardware & frame not included			14.000	1.786	1.143
082 078-1120	Exterior wood doors,entrance, 8 panel pine, 44 mm x 2135 mm x 915 mm wide,hardware & frame not included			14.000	1.786	1.143
082 078-2700	Wood doors,interior closet,bi-fold,w/hardware,no frame or trim included, flush, 1980 mm or 2035 mm high x 915 mm wide			12.000	2.083	1.333

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
082 078-2760	Wood doors,interior,closet bi-fold,w/hardware,no frame or trim included, flush, 1980 mm or 2035 mm high x 1220 mm wide			11.000	2.273	1.455
082 078-2780	Wood doors,interior closet,bi-fold,w/hardware,no frame or trim included, flush, 1980 mm or 2035 mm high x 1525 mm wide			10.000	2.500	1.600
082 078-3200	Wood doors,interior closet,bi-fold,w/hardware,no frame or trim included, louvered,pine,1980 mm or 2035 mm x 915 mm wide			12.000	2.083	1.333
082 078-3280	Wood doors,interior closet,bi-fold,w/hardware,no frame or trim included, louvered,pine, 1980 mm or 2035 mm x 1830 mm wide			9.000	2.778	1.778
082 078-6100	Door closet,folding accordion,not including frame,vinyl, 2 layer			35.000	0.714	0.457
082 078-6140	Door closet,folding accordion,not including frame,woven mahogany and vinyl			34.000	0.735	0.471
<b>082 082</b>	<b>PRE-HUNG DOORS:</b>					
082 082 -0340	Pre-hung doors,exterior,wood,combination storm & screen, 2055 mm x 915 mm wide	EA	0.125 Skilled Foreman 2.00 Carpenters 1.00 Helper 2.00 Power Tools	14.000	1.786	1.143
082 082 -4440	Pre-hung doors,interior, 117 mm solid jamb,flush,solid core, 35 mm x 2035 mm x 915 mm wide			18.000	1.389	0.889
082 082 -4640	Pre-hung doors,interior, 117 mm solid jamb,flush,hollow core, 35 mm x 2035 mm x 915 mm wide			18.000	1.389	0.889
<b>083</b>	<b>SPECIAL DOORS</b>					
<b>083 050</b>	<b>ACCESS DOORS</b>					
<b>083 054</b>	<b>ACCESS DOORS:</b>					
083 054-1100	Access doors,fire rated,with lock,metal, 300 mm x 300 mm	EA	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	8.000	1.125	1.000
083 054-1150	Access doors,fire rated,with lock,metal, 455 mmx 455 mm			7.000	1.286	1.143
083 054-1200	Access doors,fire rated,with lock,metal, 610 mm x 610 mm			7.000	1.286	1.143
083 054-1350	Access doors,fire rated, with lock,metal, 915 mm x 915 mm			6.000	1.500	1.333
083 054-1400	Access doors,fire rated, with lock,metal, 1220 mm x 1220 mm			6.000	1.500	1.333
083 054-1600	Access doors,fire rated, with lock,stainless steel, 300mm x 300 mm			8.000	1.125	1.000
083 054-1700	Access doors,fire rated, with lock,stainless steel, 610 mm x 610 mm			7.000	1.286	1.143
083 054-1750	Access doors,fire rated,with lock,stainless steel, 610 mm x 915 mm			6.000	1.500	1.333
083 054-3000	Recessed access door,for acoustic tile,metal, 300 x 300 mm			3.000	3.000	2.667
083 054-3200	Recessed access door,for acoustic tile,metal, 610 mm x 610 mm			3.000	3.000	2.667
083 054-3250	Recessed access door,for acoustic tile,metal, 610 mm x915 mm			3.000	3.000	2.667
083 054-4200	Recessed access door,for drywall,metal, 610 mm x 915 mm			4.000	2.250	2.000
<b>083 100</b>	<b>SLIDING DOORS:</b>					
<b>083 102</b>	<b>GLASS,SLIDING:</b>					



DIVISION 08 :DOORS & WINDOWS							
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS	
083 102-0030	Sliding vinyl clad door, 25 mm insulated glass, 1836 mm x 2440 mm high	EA	0.125 Skilled Foreman 2.00 Carpenters 1.00 Helper 2.00 Power Tools	3.000	8.333	5.333	
083 102-0100	Sliding vinyl clad door, 25 mm insulated glass, 2440 mm X 2085 mm high	OPENING		3.000	8.333	5.333	
083 102-0500	Sliding vinyl clad door, 25 mm insulated glass, 3 leaf, 3660 mm x 2085 mm high	*		2.000	12.500	8.000	
<b>083 108 STEEL,SLIDING:</b>							
083 108-0100	Steel,electric operated sliding door up to 15 m wide x 5.4 m high,standard duty,average	SQM	1.00 Struc. Steel Foreman 5.00 Struc. Steel Workers 1.00 Electrician 3.00 Laborers 1.00 Equip. Oper.(crane) 1.00 Hyd.Crane,23 metric Ton	27.000	3.259	0.296	
083 108-0500	Steel,electric operated sliding door up to 15 m wide x 5.4 m high,heavy duty,average	*	*	24.000	3.667	0.333	
<b>083 180 SECURITY DOORS</b>							
<b>083 182 SECURITY GATES</b> <i>See division 106101</i>							
<b>083 184 VAULT FRONT:</b>							
083 184-0100	Vault front door and frame, 815 mm x 1980 mm,clear opening, 1 hour test, weighs 340 kg, with time clock	OPENING	0.125 Skilled Foreman 2.00 Skilled Workers 1.00 Electrician 2.00 Laborers 2.00 Power Tools	1.200	34.167	13.333	
083 184-0200	Vault front door and frame, 815 mm x 1980 mm,clear opening, 2 hour test, weighs 430 kg, with time clock			1.000	41.000	16.000	
083 184-0250	Vault front door and frame, 1015 mm x 1980 mm,clear opening, 2 hour test, weighs 512 kg, with time clock			0.750	54.667	21.333	
083 184-0300	Vault front door and frame, 815 mm x 1980 mm,clear opening, 4 hour test, weighs 465 kg, with time clock			0.900	45.556	17.778	
083 184-0350	Vault front door and frame, 1015 mm x 1980 mm,clear opening, 4 hour test, weighs 517 kg, with time clock			0.700	58.571	22.857	
083 184-2050	Security vault door,class I			0.080	512.500	200.000	
<b>083 250 COLD STORAGE DOORS</b>							
<b>083 251 COLD STORAGE:</b>							
083 251-0500	Cold storage door,galvanized steel,horizontal sliding>manual, 1525 mm x 2135 mm x 150 mm	EA	0.125 Skilled Foreman 2.00 Skilled Workers 2.00 Laborers 2.00 Power Tools	1.850	17.838	8.649	
083 251-1000	Cold storage door,galvanized steel,horizontal sliding,power operated, 1525 mm x 2135 mm x 150 mm		0.125 Skilled Foreman 2.00 Skilled Workers 1.00 Electrician 2.00 Laborers 2.00 Power Tools	1.750	23.429	9.143	
083 251-1300	Cold storage door,galvanized steel,horizontal sliding>manual, 2745 mm x 3050 mm x 150mm		0.125 Skilled Foreman 2.00 Skilled Workers 2.00 Laborers 2.00 Power Tools	1.600	20.625	10.000	

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
083 251-2000	Cold storage door,galvanized steel,horizontal sliding,power operated, 2745 mm x 3050 mm x 150 mm	↓	0.125 Skilled Foreman 2.00 Skilled Workers 1.00 Electrician 2.00 Laborers 2.00 Power Tools	1.500	27.333	10.667
083 251-3000	Cold storage door,galvanized steel,aluminum or stainless steel,hinged,lightweight, 915 mm x 2135 mm x 150 mm thick	EA	0.125 Skilled Foreman 2.00 Skilled Workers 2.00 Laborers 2.00 Power Tools	1.300	25.385	12.308
083 251-5000	Cold storage door,galvanized steel,bi-parting,electric operated, 1830 mm x 2440 mm opening, 100 mm thick for cooler or freezer	OPENING	0.125 Skilled Foreman 2.00 Skilled Workers 1.00 Electrician 2.00 Laborers 2.00 Power Tools	0.750	54.667	21.333
083 251-6500	Cold storage 3 hr., fire rated door,galvanized steel,double Bi-parting, 1830 mm x 2440 mm	OPENING	0.125 Skilled Foreman 2.00 Skilled Workers 2.00 Laborers 2.00 Power Tools	0.650	50.769	24.615
<b>083 300</b>	<b>COILING DOORS</b>					
<b>083 302</b>	<b>COUNTER DOORS:</b>					
083 302-0600	Counter doors stainless steel,galvanized steel or aluminum, 1220mm high roll-up, 1830 mm long	OPENING	0.125 Skilled Foreman 2.00 Carpenters 1.00 Helper 2.00 Power Tools	1.900	13.158	8.421
083 302-0700	Counter doors stainless steel,galvanized steel or aluminum, 1220 mm high roll-up, 3000 mm long	-	-	1.700	14.706	9.412
<b>083 400</b>	<b>COILING GRILLES</b>					
<b>083 402</b>	<b>ROLL UP GRILLE:</b>					
083 402-0500	Roll up grille steel>manual operated, 4570 mm x 2440 mm high	SQM	0.125 Skilled Foreman 2.00 Skilled Workers 2.00 Laborers 2.00 Power Tools	7.000	3.571	2.286
<b>083 406</b>	<b>ROLLING GRILLE SUPPORTS:</b>					
083 406-0100	Rolling grille over head,frame support, opening 4.5 m x 2.44 m	LM	1.00 Struct. Foreman 3.00 Struct. Steel Workers 2.00 Laborers 1.00 Gas Welding Machine 2.00 Power Tools	10.000	4.800	2.400
<b>083 350</b>	<b>FLEXIBLE DOORS</b>					
<b>083 551</b>	<b>FLEXIBLE TRANSPARENT STRIP ENTRANCE:</b>					
083 551-0200	Flexible transparent strip entrance door, 300 mm strip width,full overlap,including suspension	SQM SURFACE	0.125 Skilled Foreman 3.00 Sheet Metal Workers 1.00 Helper 2.00 Power Tools	9.000	3.667	1.778
<b>083 600</b>	<b>SECTIONAL OVERHEAD DOORS</b>					
<b>083 604</b>	<b>OVERHEAD,COMMERCIAL:</b>					

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
083 604-1000	Commercial,overhead sectional door,wood, heavy duty,without frame, 45 mm thick, 2440 mm wide x 2440 mm high	EA	0.125 Skilled Foreman 2.00 Carpenters 1.00 Helper 2.00 Power Tools	1.900	13.158	8.421
083 604-1100	Commercial,overhead sectional door,wood, heavy duty,without frame, 45 mm thick, 3050mm wide x 3050 mm high			1.700	14.706	9.412
083 604-1200	Commercial,overhead sectional door,wood, heavy duty,without frame, 45 mm thick, 3660 mm wide x 3660 mm high			1.500	16.667	10.667
083 604-1300	Commercial,overhead sectional door,chain hoist,wood, heavy duty,without frame, 45 mm thick, 4265 mm wide x 4265 mm high			1.300	19.231	12.308
083 604-1400	Commercial,overhead sectional door,chain hoist,wood, heavy duty,without frame, 45 mm thick, 3660 mm wide x 4875 mm high			0.950	26.316	16.842
083 604-1500	Commercial,overhead sectional door,chain hoist,wood, heavy duty,without frame, 45 mm thick, 6095 mm wide x 2440 mm high			0.750	33.333	21.333
083 604-2300	Commercial,overhead sectional door,fiberglass & aluminum,heavy duty,without frame, 45 mm x 3660 mm x 3660 mm			1.350	18.519	11.852
083 604-2450	Commercial,overhead sectional chain hoist door,fiberglass & aluminum,heavy duty,without frame, 45 mm x 6095 mm x 6095 mm			0.450	55.556	35.556
083 604-2600	Commercial,overhead sectional door,steel 24 ga, manual ,without frame 2440 mm x 2440 mm			1.900	13.158	8.421
083 604-2650	Commercial,overhead sectional door,steel 24 ga, manual ,without frame 3050 mm x 3050 mm			1.700	14.706	9.412
083 604-2800	Commercial,overhead sectional chain hoisted door,steel 24 ga,manual ,without frame 6095 mm x 4265 mm			0.650	38.462	24.615
083 604-2900	Commercial Overhead Door,Electric trolley operator, 250W, overhead sectional doors upto 3.6 m x 3.6 m		0.125 Skilled Foreman 2.00 Carpenters 0.50 Electrician 1.00 Laborer 2.00 Power Tools	1.425	20.351	11.228
083 604-2950	Commercial Overhead Door,Electric trolley operator, 375W, for doors over 3660 mm x 3660 mm		*	1.200	24.167	13.333
<b>083 606 RESIDENTIAL GARAGE DOORS:</b>						
083 606-0050	Residential garage doors including hardware,no frame,hinged,wood,custom,double door, 2745 mm x 2135 mm	EA	0.125 Skilled Foreman 2.00 Carpenters 1.00 Helper 2.00 Power Tools	2.750	9.091	5.818
083 606-0070	Residential garage doors including hardware,no frame,hinged,wood,custom,double door, 4875 mm x 2135 mm			1.900	13.158	8.421
083 606-0200	Residential garage doors including hardware,no frame,overhead,sectional,fiberglass, 2745 mm x 2135 mm			7.500	3.333	2.133
083 606-0300	Residential garage doors including hardware,no frame,overhead,sectional,fiberglass, 4875 mm x 2135 mm			5.500	4.545	2.909
083 606-0500	Residential garage doors including hardware,no frame,overhead,sectional,hardboard, 2745 mm x 2135 mm			7.500	3.333	2.133
083 606-3000	Residential garage doors including hardware,no frame,swing up,fiberglass 4875 mm x 2135 mm,average	EA	0.125 Skilled Foreman 2.00 Carpenters 1.00 Helper 2.00 Power Tools	5.500	4.545	2.909

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
083 606-3400	Residential garage doors including hardware,no frame,swing up,metal 2745 mm x 2135 mm,average	EA	0.125 Skilled Foreman 2.000 Carpenters 1.000 Helper 2.000 Power Tools	7.500	3.333	2.133
083 606-4000	Residential sectional garage door,including hardware,no frame,wood , custom double , 2745 x 2135 mm,with remote control	EA	0.50 Skilled Foreman 2.000 Carpenters 1.000 Electrician 1.000 Laborer	2.750	13.091	0.000
083 606-4100	Residential sectional garage door,including hardware,no frame,wood , custom double, 4875 x 2135 mm,with remote control	EA	0.25 Skilled Foreman 2.000 Carpenters 1.000 Electrician 1.000 Laborer	1.900	17.895	0.000
<b>083 650</b>	<b>MULTILEAF VERTICAL LIFT DOORS</b>					
<b>083 652</b>	<b>TELESCOPING STEEL DOORS:</b>					
083 652-1000	Telescoping steel doors, backed enamel finish,overhead, 0.76 mm thick,electric operated, 3050 mm x 3050 mm	EA	1.00 Struc. Steel Foreman 1.00 Struc. Steel Worker 1.00 Welder 0.50 Electrician 1.00 Common Labor 1.00 Gas Welding Machine- with accessories 1.00 Power Tools	0.750	48.000	21.333
083 652-2000	Telescoping steel doors, backed enamel finish,overhead, 0.76 mm thick,electric operated, 6095 mm x 3050 mm			0.550	65.455	29.091
083 652-3000	Telescoping steel doors, backed enamel finish,overhead, 0.76 mm thick,electric operated, 6095 mm x 4875 mm			0.350	102.857	45.714
<b>083 654</b>	<b>VERTICAL LIFT:</b>					
083 654-0010	Vertical lift doors,motorized,including frame, 4875 mm x 4875 mm high	EA	1.00 Struc. Steel Foreman 1.00 Struc. Steel Worker 1.00 Welder 0.50 Electrician 1.00 Common Labor 1.00 Gas Welding Machine- with accessories 1.00 Power Tools	1.000	36.000	16.000
083 654-0100	Vertical lift doors,motorized,including frame, 9755 mm x 7315 mm high	"	"	1.000	36.000	16.000
<b>083 700</b>	<b>HANGAR DOORS</b>					
<b>083 701</b>	<b>HANGAR DOOR:</b>					
083 701-0100	Hangar door bi-fold,overhead, 20 kg/m2 wind load,including electrical operation without sheeting, 3660 mm high x 12 m	SQM	0.125 Skilled Foreman 2.000 Skilled Workers 0.500 Electrician 1.000 Common Labor 2.000 Power Tools	20.000	1.450	0.800
083 701-0200	Hangar door bi-fold,overhead, 20 kg/m2 wind load,including electrical operation without sheeting, 4875 mm high x 18 m			19.000	1.526	0.842
083 701-0300	Hangar door bi-fold,overhead, 20 kg/m2 wind load,including electrical operation without sheeting, 6095 mm high x 24 m			18.000	1.611	0.889
<b>083 720</b>	<b>SPECIAL PURPOSE DOORS</b>					

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>083 721</b>	<b>BULKHEAD CELLAR DOORS:</b>					
083 721-0500	Bulkhead cellar doors, steel, including sides & foundation plates, 1450 mm x 1145 mm x 610 mm	EA	0.125 Skilled Foreman 1.00 Carpenter 1.00 Laborer 1.000 Power Tools	4.000	4.250	2.000
<b>083 722</b>	<b>AIR CURTAINS:</b>					
083 721-0500	Air Curtain,shipping & receiving door,unheated,door including motor starter,transformer,door switch,or temperature control,for maximum wind stoppage, 3 m high & multiples of 1.2 m wide	LM	0.125 Skilled Foreman 2.000 Sheet Metal Workers 0.500 Electrician 1.000 Laborer 1.000 Power Tools	1.000	29.000	8.000
083 721-0650	Air curtains,shipping and receiving doors,unheated,including motor starter,transformer,door switch or temperature control for maximum wind stoppage 4.2 m high, multiples of 1.2 m wide			0.900	32.222	8.889
083 721-1650	Air curtains,customer entrance door,unheated,including motor starter,transformer,door switch or temperature control for maximum wind stoppage 3.6 m high,multiples of 1.2 m wide			0.900	32.222	8.889
083 721-2000	Air curtain door for walk-in coolers or freezers,including motor starter,transformer,door switch or temperature control,minimal wind stoppage 2.44 m high & multiples of 0.9 m wide			1.000	29.000	8.000
<b>083 732</b>	<b>ROLLING SERVICE DOORS:</b>					
083 732-0010	Rolling service doors steel,manual, 20 ga., 3050 mm x 3050 mm high,standard	EA	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Laborer 2.000 Power Tools	1.250	20.000	12.800
083 732-0300	Rolling service doors steel,manual, 20 ga., 3660 mm x 3660 mm high,standard			1.125	22.222	14.222
083 732-0400	Rolling service doors steel,manual, 20 ga., 6095 mm x 3660 mm high,standard			0.850	29.412	18.824
083 732-0500	Rolling service doors steel,manual, 20 ga., 4265 mm x 4265 mm high,standard			0.750	33.333	21.333
083 732-0600	Rolling service doors steel,manual, 20 ga., 6095 mm x 4875 mm high,standard			0.550	45.455	29.091
083 732-0700	Rolling service doors steel,manual, 20 ga., 3050 mm x 6095 mm high,standard			0.450	55.556	35.556
083 732-2000	Rolling service doors steel, 3 hours fire rated,manual, 20 ga., 2440 mm x 2440 mm high	EA	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Laborer 2.000 Power Tools	1.250	20.000	12.800
083 732-2200	Rolling service doors steel,3 hours fire rated,manual, 20 ga., 6095 mm x 3050 mm high	EA	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Laborer 2.000 Power Tools	0.750	33.333	21.333
083 732-2500	Rolling service doors steel, 3 hours fire rated,manual, 20 ga., 4265 mm x 4265 mm high	EA	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Laborer 2.000 Power Tools	0.550	45.455	29.091
<b>083 750</b>	<b>SWING DOORS</b>					
<b>083 752</b>	<b>DOUBLE ACTING:</b>					

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
083 752-2050	Double acting swing door,20mm thick solid core wood,with metal frame & stainless steel base plate, 2.1 m high & 2.1 m wide	PAIR	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Laborer 2.000 Power Tools	3.500	7.143	4.571
<b>083 800 SOUND RETARDANT DOORS</b>						
<b>083 804 ACOUSTICAL:</b>						
083 804-0300	Acoustical steel door, 48 sound transmission coefficient rating including framed seals, 915 mm x 2135 mm high	EA	0.125 Skilled Foreman 2.000 Carpenters 1.000 Helper 2.000 Power Tools	1.350	18.519	11.852
<b>083 900 SCREEN &amp; STORM DOORS</b>						
<b>083 904 STORM DOORS &amp; FRAMES:</b>						
083 904-0420	Storm doors & frames aluminum,residential,combination storm and screen,clear anodic coating, 2030 x 815 mm wide	EA	0.125 Skilled Foreman 2.000 Carpenters 1.000 Helper 2.000 Power Tools	13.000	1.923	1.231
<b>084 ENTRANCE &amp; STOREFRONTS</b>						
<b>084 100 ALUMINUM</b>						
<b>084 103 BALANCED DOORS:</b>						
084 103-0010	Balanced doors,hardware & frame,aluminum & glass, 0.9 x 2 m,average	EA	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Laborer 2.000 Power Tools	0.650	38.462	24.615
084 103-0100	Balanced doors,hardware & frame,stainless steel & glass, 0.9 x 2 m,average	EA	*	0.450	55.556	35.556
<b>084 105 STOREFRONT SYSTEMS:</b>						
084 105-1000	Storefront systems,Aluminium frame, 10 mm plate glass,including 1800 mm x 2135 mm door with ardware, wall height to 3660 mm, commercial grade	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	11.500	2.174	1.391
084 105-1100	Storefront systems,Aluminium frame, 10 mm plate glass,including 1800 mm x 2135 mm door with ardware, wall height to 3660 mm, institutional grade	↓	↓	10.000	2.500	1.600
<b>084 300 STAINLESS STEEL</b>						
<b>084 301 STAINLESS STEEL AND GLASS:</b>						
084 301-0020	Stainless steel and glass entrance unit,narrow stiles 915 mm x 2135 mm opening including hardware average	OPENING	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Laborer 2.000 Power Tools	1.125	22.222	14.222
<b>084 600 AUTOMATIC DOORS</b>						
<b>084 602 SLIDING ENTRANCE:</b>						
084 602-0020	Aluminum framing Sliding entrance 3.7 m x 2.3 m,including 1.5 x 2.1 m door,2 way mat activated,panic pushout,including operator & hardware,glazing	OPENING	0.125 Skilled Foreman 2.000 Aluminum Workers 0.500 Electrician 1.000 Common Laborer 1.000 Glazier 2.000 Power Tools	0.650	56.923	24.615

DIVISION 08 :DOORS & WINDOWS							
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS	
<b>084 604</b>	<b>SLIDING PANEL:</b>						
084 604-0010	Sliding panel mall fronts,aluminum & glass, 4.5 m x 2.75 m heigh,photocell	SQM	0.125 Skilled Foreman 2.000 Glaziers 0.500 Electrician 1.000 Common Laborer 2.000 Power Tools	1.200	24.167	13.333	
084 604-0100	Sliding panel mall fronts,aluminum & glass, 7.3 m x 2.75 m high		"	0.650	44.615	24.615	
084 604-0200	Sliding panel mall fronts,aluminum & glass, 14.6 m x 2.75 m high, with fixed panels		0.25 Skilled Foreman 2.00 Glaziers 1.00 Helper 2.000 Power Tools	0.400	62.500	40.000	
<b>084 700</b>	<b>REVOLVING DOORS</b>						
<b>084 701</b>	<b>REVOLVING DOORS:</b>						
084 701-0010	Revolving doors aluminum,up to 2.2 m diameter, 2.1 m high,average	OPENING	0.125 Skilled Foreman 4.000 Skilled workers 2.00 Laborers 2.000 Power Tools	0.650	75.385	24.615	
084 701-1000	Revolving doors stainless steel,up to 2.2 m diameter, 2.1 m,high,average			0.250	196.000	64.000	
084 701-1100	Revolving doors solid bronze,up to 2.2 m diameter, 2.1 m,high,average			0.150	326.667	106.667	
084 701-1500	Revolving doors solid bronze upto 2.2 m diameter,2.1 m high,with automatic controls,average	OPENING	0.125 Skilled Foreman 4.000 Skilled workers 0.250 Electrician 2.00 Laborers 2.000 Power Tools	0.150	340.000	106.667	
<b>085</b>	<b>METAL WINDOWS</b>						
<b>085 100</b>	<b>STEEL WINDOWS</b>						
<b>085 102</b>	<b>STEEL SASH:</b>						
085 102-0100	Steel sash custom unit,including glazing & trim,casement,fixed	SQM	0.125 Skilled Foreman 2.000 Skilled workers 1.00 Laborers 2.000 Power Tools	12.000	2.083	1.333	
085 102-1500	Steel sash, industrial,fixed,including glazing & trim.horizontally,pivoted			12.000	2.083	1.333	
085 102-2100	Industrial security sash,including glazing & trim,fixed			12.000	2.083	1.333	
085 102-2500	Steel picture window including glazing & trim	LM	0.125 Skilled Foreman 2.000 Skilled workers 1.00 Laborers 2.000 Power Tools	12.000	2.083	1.333	
085 102-5000	Mullion for above steel sash items with interior cover	"	"	55.000	0.455	0.291	
<b>085 104</b>	<b>STEEL WINDOWS:</b>						
085 104-1500	Commercial projected steel window including frame,trim & insulated glazing, 1145 mm x 1650 mm	EA	0.125 Skilled Foreman 2.000 Skilled workers 1.00 Laborers 2.000 Power Tools	9.000	2.778	1.778	
085 104-1600	Commercial projected steel window including frame,trim & insulated glazing, 2055 mm x 1245 mm	"	"	6.000	4.167	2.667	

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>085 200</b>	<b>ALUMINUM WINDOWS</b>					
<b>085 202</b>	<b>ALUMINUM SASH:</b>					
085 202-0100	Fixed casement,aluminum sash window including glazing & trim	SQM	0.125 Skilled Foreman 2,000 Skilled workers 1.00 Laborers 2,000 Power Tools	12.000	2.083	1.333
085 202-0150	Fixed aluminum window sash,including glazing & trim			12.000	2.083	1.333
085 202-2000	Custom aluminum sash,without glazing			10.000	2.500	1.600
<b>085 204</b>	<b>ALUMINUM WINDOWS:</b>					
085 204-1000	Aluminum windows including frame and glazing,casement type, 1 m x 1 m,including screen	EA	0.125 Skilled Foreman 2,000 Skilled workers 1.00 Laborers 2,000 Power Tools	9.000	2.778	1.778
085 204-1600	Aluminum windows including frame and glazing,projected with screen, 1 m x 1 m			9.000	2.778	1.778
085 204-2000	Aluminum windows including frame and glazing,projected with screen, 1.4 m x 1.6 m			7.500	3.333	2.133
085 204-3000	Aluminum windows including frame and glazing,single hung, 600 mm x 900 mm ,enameled,with insulating glass & screen			9.000	2.778	1.778
085 204-3300	Aluminum windows including frame and glazing,single hung, 900 mm x 2000 mm,enameled,with insulating glass & screen			7.500	3.333	2.133
085 204-3700	Aluminum windows including frame and glazing,single hung, 1 m x 1.5 m ,powder coated,with insulating glass & screen			8.000	3.125	2.000
085 204-3890	Aluminum windows including frame and glazing,,awning type, 1 m x 1 m ,powder coated,with insulating glass & screen			13.000	1.923	1.231
085 204-3910	Aluminum windows including frame and glazing,,awing type, 1 m x1.2 m ,powder coated,with standard glass & screen			9.000	2.778	1.778
085 204-3930*	Aluminum windows including frame and glazing,grade C,awing type, 915 mm x 1220 mm opening,enameled,with standard glass & screen			9.000	2.778	1.778
085 204-3950	Aluminum windows including frame and glazing,awning type& hinged 1.2 m x 1.2 mm powder coated ,with insulating glass & screen			8.000	3.125	2.000
085 204-4000	Aluminum windows including frame and glazing, sliding 1.2 m x 1.2 m,standard or insulating glass			7.500	3.333	2.133
085 204-4300	Aluminum windows including frame and glazing,sliding, 1.2 m x 1.5 m,standard or insulating glass			7.500	3.333	2.133
085 204-4600	Aluminum windows including frame and glazing, sliding,1.8 m x 2.44 m,standard or insulating glass			4.500	5.556	3.556
085 204-5000	Aluminum windows including frame and glazing,sliding aluminum 2.7 m x 1.5 m opening,standard or insulating glass			3.750	6.667	4.267
<b>085 700</b>	<b>SCREENS</b>					
<b>085 701</b>	<b>SCREENS:</b>					
085 701-0800	Screens ,security screen,aluminum frame with stainless steel cloth	SQM	0.125 Skilled Foreman 1,000 Skilled workers 1.00 Laborers 1,000 Power Tools	100.000	0.170	0.080
<b>086</b>	<b>WOOD &amp; PLASTIC WINDOWS</b>					



DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>086 100</b>	<b>WOOD WINDOWS</b>					
<b>086 104</b>	<b>AWNING WINDOW:</b>					
086 104-1000	Awning window wood,vinyl clad,insulating glass,including frame,screen & trim, 900 mm x 900 mm	EA	0.125 Skilled Foreman 1.00 Carpenter 1.000 Helper 1.000 Power Tools	8.000	2.125	1.000
086 104-1500	Awning window wood,vinyl clad,insulating glass,including frame,screen & trim, 900 mm x 1.5 m	EA	0.125 Skilled Foreman 1.00 Carpenter 1.000 Helper 1.000 Power Tools	6.000	2.833	1.333
086 104-2000	Awning window wood,metal clad,insulating glass,including frame,screen & trim, 1.2 m x 1.2 m	EA	0.125 Skilled Foreman 1.00 Carpenter 1.000 Helper 1.000 Power Tools	7.000	2.429	1.143
086 104-2200	Awning window wood,metal clad,insulating glass,including frame,screen & trim, 1.2 m x 1.2 m	EA	0.125 Skilled Foreman 1.00 Carpenter 1.000 Helper 1.000 Power Tools	6.000	2.833	1.333
<b>086 108</b>	<b>BOW-BAY WINDOW:</b>					
086 108-1420	Bow-bay wood window,vinyl or metal clad,insulating glass,including frame,screen & trim, 1.8 m x 1.2 m, 3 panels	EA	0.125 Skilled Foreman 2.000 Carpenters 1.000 Helper 2.000 Power Tools	9.000	2.778	1.778
086 108-1640	Bow-bay wood window,metal or vinyl clad,insulating glass,including frame,screen & trim, 2.7 m x 1.2 m high, 4 panels	↓	↓	7.500	3.333	2.133
<b>086 120</b>	<b>CASEMENT WINDOW:</b>					
086 120-0200	Casement window including frame,screen,and exterior trim,wood 610 mm x 1370 mm high,standard or insulating glazing	EA ↓	0.125 Skilled Foreman 1.00 Carpenter 1.000 Helper 1.000 Power Tools	8.000	2.125	1.000
086 120-1000	Casement window including frame,screen,and exterior trim,vinyl clad,insulating glass, 610 mm x 1830 mm	EA	0.125 Skilled Foreman 1.00 Carpenter 1.000 Helper 1.000 Power Tools	7.500	2.267	1.067
086 120-1120	Casement window,solid oak including solid oak frame,screen,exterior trim and insulating glass, 900 mm x 1.8 m high	↓	↓	6.500	2.615	1.231
<b>086 124</b>	<b>DOUBLE HUNG:</b>					
086 124-0200	Double hung,wood vinyl clad,including frame,screen & exterior trim,insulating glass, 915 mm x 1065 mm	EA	0.125 Skilled Foreman 1.00 Carpenter 1.000 Helper 1.000 Power Tools	9.000	1.889	0.889
086 124-1300	Double hung,wood vinyl clad,including frame,screen & exterior trim,insulating glass, 915 mm x 1.5 m			7.500	2.267	1.067
086 124-1500	Double hung,wood vinyl clad,including frame,screen & exterior trim,insulating glass, 1 m x 1.8 m			7.000	2.429	1.143
086 124-1542	Double hung,solid vinyl window including frame,screen & exterior trim,including glass 1 m x 1.2 m			7.500	2.267	1.067
086 124-1544	Double hung,solid vinyl window including frame,screen & exterior trim,including glass 1.2 m x 1.4 m	↓	↓	6.500	2.615	1.231

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>086 132</b>	<b>PICTURE WINDOW:</b>					
086 132-0100	Picture window including frame and exterior trim,wood 1065 mm x 1220 mm high, standard or insulated glazing	EA	0.125 Skilled Foreman 2.000 Carpenters 1.000 Helper 2.000 Power Tools	11.000	2.273	1.455
086 132-0350	Picture window including frame and exterior trim,wood 1.5 m x 1.2 m high,standard or insulated glazing			10.000	2.500	1.600
086 132-0450	Picture window including frame and exterior trim,wood 1.8 m x 1.4 m high,standard or insulated glazing			9.000	2.778	1.778
<b>086 140</b>	<b>SLIDING WINDOW:</b>					
086 140-0100	Sliding window including frame,screen,and exterior trim,wood, 915 mm x 915 mm high,standard or insulated glazing	EA	0.125 Skilled Foreman 1.000 Carpenter 1.000 Helper 1.000 Power Tools	9.000	1.889	0.889
086 140-0300	Sliding window including frame,screen,and exterior trim,wood, 1.8 m x 1.5 m, high,standard or insulated glazing	EA	*	7.500	2.267	1.067
<b>086 148</b>	<b>WOOD SASH:</b>					
086 148-0050	Wood sash,including glazing & trim, 25 mm double glazed, 1.5 m x 1.2 m high	EA	0.125 Skilled Foreman 2.000 Carpenters 1.000 Helper 2.000 Power Tools	3.000	8.333	5.333
086 148-0300	Wood sash,including glazing & trim, 25 mm double glazed, 2 m x 1.4 m high	..	..	2.750	9.091	5.818
<b>086 152</b>	<b>WOOD SCREENS:</b>					
086 152-0020	Wood screen, 20 mm frames over 0.25 M2	SQM	0.125 Skilled Foreman 2.000 Carpenters 1.000 Helper 2.000 Power Tools	30.000	0.833	0.533
086 152-0100	Wood screen, 30 mm frames over 0.25 M2	..	..	30.000	0.833	0.533
<b>087</b>	<b>HARDWARE</b>					
<b>087 100</b>	<b>FINISH HARDWARE</b>					
<b>087 103</b>	<b>BOLTS,FLUSH:</b>					
087 103-0010	Bolts,flush,standard,concealed	EA	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	6.500	1.385	1.231
087 103-0800	Bolts,flush,automatic fire exit		..	4.750	1.895	1.684
087 103-1600	Bolts,flush,for electric release		0.125 Skilled Foreman 1.000 Carpenter 0.250 Electrician 1.000 Power Tools	2.750	4.000	2.909
<b>087 105</b>	<b>BUMPER PLATES:</b>					
087 105-0100	Bumper plates, 40 mm x 20 mm, U channel	EA	0.125 Skilled Foreman 2.000 Carpenters 1.000 Helper 2.000 Power Tools	22.000	1.136	0.727
087 105-1000	Bumper plates,tear drop,spring-steel,upto 255 mm high	..	..	14.000	1.786	1.143

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>087 108</b>	<b>DEADLOCKS:</b>					
087 108-1000	Deadlocks,mortise or tubular,outside key	EA	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	9.000	1.000	0.889
<b>087 110</b>	<b>DOORSTOPS:</b>					
087 110-1300	Doorstops,wall or floor type or plunger type	EA	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	22.000	0.409	0.364
<b>087 112</b>	<b>ENTRANCE LOCKS:</b>					
087 112-0020	Entrance locks,cylinder,grip handle,deadbolt	EA	0.125 Skilled Foreman 1.000 Carpenter	7.500	1.200	0.000
<b>087 114</b>	<b>FLOOR CHECKS:</b>					
087 114-0010	Floor checks,for over 915mm wide doors,single or double acting	EA	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	2.250	4.000	3.556
<b>087 118</b>	<b>KICK PLATE:</b>					
087 118-0010	Kick plate,150mm high, for 915mm door, stainless steel or bronze	EA	0.125 Skilled Foreman 1.000 Carpenter	14.000	0.643	0.000
<b>087 120</b>	<b>LOCKSET:</b>					
087 120-0400	Lockset standard duty,cylindrical,with sectional trim,keyed,single cylinder function	EA	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	9.000	1.000	0.889
087 120-0420	Lockset standard duty,cylindrical,with sectional trim,keyed,single cylinder function hotel style		..	7.500	1.200	0.000
087 120-1700	Lockset standard duty,cylindrical for residential ,interior door, average		0.125 Skilled Foreman 1.000 Carpenter	11.000	0.818	0.000
087 120-1800	Lockset standard duty,cylindrical for residential,exterior door, average	↓		10.000	0.900	0.000
<b>087 125</b>	<b>MORTISE LOCKSET:</b>					
087 125-0100	Mortise lockset,wrought knobs & full escutcheon trim,keyed,office/apartment entrance,average	EA	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	6.500	1.385	1.231
087 125-0200	Mortise lockset,wrought knobs & full escutcheon trim,hotel,average			5.500	1.636	1.455
087 125-1000	Mortise Lockset,wrought knobs and sectional trim,non-keyed,entrance,office/apartment average			7.500	1.200	1.067
087 125-2210	Mortise Lockset,cast knobs and full escutcheon trim,non-keyed,single cylinder,hotel average	↓	↓	5.500	1.636	1.455
<b>087 127</b>	<b>PANIC DEVICE:</b>					
087 127-0200	Panic device,for rim locks,bar and vertical or concealed rod,exit only	EA	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	3.750	2.400	2.133
087 127-1000	Panic device,for mortise locks,bar,exit only	..	..	3.750	2.400	2.133
<b>087 129</b>	<b>PUSH - PULL:</b>					

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
087 129-0010	Push-plate,pull plate,aluminum or bronze	EA	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	11.000	0.818	0.727
087 129-3000	Push plate both sides,aluminum or bronze	"	"	12.000	0.750	0.667
<b>087 200 OPERATORS</b>						
<b>087 202 AUTOMATIC OPENERS:</b>						
087 202-1000	Automatic openers,sliding doors, 915 mm wide,including track & hanger,single	OPENING	0.125 Skilled Foreman 2.000 Carpenters 1.000 Helper 2.000 Power Tools	0.550	45.455	29.091
087 202-1300	Automatic openers,sliding doors, 915 mm wide,including track & hanger,bi-parting			0.450	55.556	35.556
087 202-1750	Automatic openers,handicap opener,button operating			0.550	45.455	29.091
<b>087 204 AUTOMATIC OPERATORS:</b>						
087 204-0200	Automatic Operators,industrial,sliding doors,to 3.6 m wide	OPENING	0.125 Skilled Foreman 2.000 Carpenters 1.000 Helper 2.000 Power Tools	0.350	71.429	45.714
087 204-1000	Automatic Operators,industrial,swing doors,to 1.5 m wide	"	"	0.650	38.462	24.615
<b>087 206 DOOR CLOSER:</b>						
087 206-0010	Door closer,rack and pinion,adjustable backcheck,all sizes,regular or hold open arm	EA	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	5.500	1.636	1.455
087 206-0100	Door closer,rack and pinion,adjustable backcheck,all sizes,fusible link			6.000	1.500	1.333
087 206-4000	Door closer,backcheck,overhead concealed,all sizes,concealed arm			4.750	1.895	1.684
<b>087 300 WEATHERSTRIPPING/SEALS</b>						
<b>087 302 ASTRAGALS:</b>						
087 302-0400	Astragals,one piece overlapping,cadmium plated steel or aluminum,flat, 5 mm x 50 mm or 3 mm x 75 mm	LM	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	25.000	0.360	0.320
087 302-1200	Astragals,one piece overlapping,Aluminum,nail on,"T" extrusion, 3 mm x 50 mm			33.000	0.273	0.242
087 302-1300	Astragals,one piece overlapping,Aluminum,vinyl bulb insert, 3 mm x 50 mm			30.000	0.300	0.267
087 302-2400	Astragals,one piece overlapping,Aluminum,spring hinged security seal,with cam, 3 mm x 50 mm			20.000	0.450	0.400
087 302-2600	Astragals,one piece overlappingAluminum,spring loaded locking bolt,vinyl insert, 3 mm x 50 mm			12.000	0.750	0.667
087 302-2800	Astragals,one piece overlapping,Neoprene sponge strip,"Z" shaped,aluminum			16.000	0.563	0.500
087 302-4000	Astragals,one piece stile protection,extruded aluminum retainer,flush mount, pile insert			30.000	0.300	0.267
<b>087 304 THRESHOLD:</b>						
087 304-0010	Threshold 915 mm long door saddles,aluminum,bronze or rubber,average	EA	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	11.000	0.818	0.727

DIVISION 08 :DOORS & WINDOWS							
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS	
<b>087 306</b>	<b>WEATHERSTRIPPING:</b>						
087 306-0010	Weatherstripping,window, 915 mm x 1.5 m, zinc or bronze	OPENING	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	6.500	1.385	1.231	
087 306-0500	Weatherstripping,window, 915 mm x 1.5 m, heavy duty,zinc			4.250	2.118	1.882	
087 306-1000	Weatherstripping,doors,wood frame,interlocking,for 915 mm x 2.1 m door,zinc or bronze			2.750	3.273	2.909	
087 306-1300	Weatherstripping,doors,wood frame,interlocking, 1.8 m x 2.1 m	↓	↓	1.900	4.737	4.211	
087 306-1800	Weatherstripping,doors,wood frame,spring type,bronze, 915 mm x 2.1 m door	OPENING	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	7.000	1.286	1.143	
087 306-1900	Weatherstripping,doors,metal frame,spring type,bronze, 1.8 m x 2.1 m door	..	..	2.250	4.000	3.556	
<b>087 400</b>	<b>DOORS COMPLETE HARDWARE SET</b>						
<b>087 405</b>	<b>SINGLE LEAF DOOR:</b>						
087 405-0050	Complete hardware set for interior door including 3 hinges,lockset & door closer	EA	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	16.000	0.563	0.188	
087 405-0100	Complete hardware set for fire doors including 3 hinges & panic device			11.000	0.818	0.182	
087 405-0200	Complete hardware set for exterior door including 3 hinges,keyed lockset,with handle,weather stripping & exterior pull bar	↓	↓	10.000	0.900	0.200	
<b>087 410</b>	<b>DOUBLE LEAF DOORS:</b>						
087 410-0050	Complete hardware set,interior door including 6 hinges,lockset keyed with handles and floor door stop	EA	0.125 Skilled Foreman 1.000 Carpenter 1.000 Power Tools	2.000	4.500	4.000	
087 410-0100	Complete hardware set,exterior door, including 6 hinges,lockset keyed with handle,weather stripping & one exterior pull handle bar	..	..	1.000	9.000	8.000	
<b>087 500</b>	<b>DOOR/WINDOW ACCES.</b>						
<b>087 501</b>	<b>WINDOW GRATING:</b>						
087 501-0100	Steel window security grating anchored to walls, @7 kg/m2.welded & painted	SQM	0.25 Skilled Foreman 1.00 Skilled Worker 1.00 Painter 1.00 Laborer	23.000	1.130	0.000	
<b>087 504</b>	<b>DETECTION SYSTEMS</b>	<b>See division 168120</b>					
<b>088</b>	<b>GLAZING</b>						
<b>088 100</b>	<b>GLASS</b>						
<b>088 108</b>	<b>BEVELED GLASS:</b>						
088 108-0010	Beveled glass design patterns, 6 mm thick, 13 mm bevel,average	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	11.250	2.222	1.422	
<b>088 112</b>	<b>CURTAIN WALL</b>	<b>See division 089200</b>					
<b>088 118</b>	<b>FLOAT GLASS:</b>						

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
088 118-0600	Float glass, 6 mm thick,clear,plain or tempered	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	11.000	2.273	1.455
088 118-1600	Float glass, 10 mm thick,clear,plain,tinted or tempered			6.500	3.846	2.462
088 118-2800	Float glass, 16 mm thick,clear,plain,tinted or tempered			3.900	6.410	4.103
088 118-3600	Float glass, 25 mm thick,clear,plain			2.800	8.929	5.714
<b>088 124</b>	<b>GLASS BLOCK</b>	<i>See division 042704</i>				
<b>088 132</b>	<b>INSULATING GLASS:</b>					
088 132-0020	Insulating glass, 13 mm thick,under 1.5 m2 clear or tinted	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	8.250	3.030	1.939
088 132-0400	Insulating glass, 25 mm thick,double glazed,6mm float 3 to 7 m2, clear or tinted			6.500	3.846	2.462
088 132-0600	Insulating glass, 25 mm thick double glazed, 6 mm float,6mm wire			6.500	3.846	2.462
088 132-2500	Insulating glass,heat reflective,film inside, 25 mm thick unit,clear or tinted	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	7.500	3.333	2.133
<b>088 136</b>	<b>LAMINATED GLASS:</b>					
088 136-0010	Laminted glass,clear float, 0.76 mm vinyl, 6 mm thick	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	7.500	3.333	2.133
088 136-0100	Laminted glass,clear float, 0.76 mm vinyl, 10 mm thick			6.500	3.846	2.462
088 136-1000	Laminted glass,clear float, 2mm vinyl, 16mm thick			7.500	3.333	2.133
088 136-2000	Laminted glass,bullet-resisting, 30 mm thick			1.350	18.519	11.852
088 136-2500	Laminted glass,bullet-resisting, 55 mm thick			1.000	25.000	16.000
<b>088 140</b>	<b>LEAD GLASS For X-ray,</b>	<i>See division 130911</i>				
<b>088 144</b>	<b>MIRRORS:</b>					
088 144-0100	Mirrors,no frames,wall type, 6 mm plate glass,polished edge upto 0.5 m2	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	10.000	2.500	1.600
088 144-0200	Mirrors,no frames,wall type, 6 mm plate glass,polished edge over 0.5 m2			14.000	1.786	1.143
088 144-0500	Mirrors,no frames,door type, 6 mm plate glass,upto 1.20 m2			14.000	1.786	1.143
088 144-1100	Mirrors,no frames,float glass,upto 1 m2, 5 mm thick			14.000	1.786	1.143
088 144-2000	Mirrors,float glass 6 mm thick one way transparent			11.000	2.273	1.455
088 144-2010	Mirrors,float glass 6 mm thick bathroom,unframed,laminated			14.000	1.786	1.143

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>088 148</b>	<b>OBSCURE GLASS:</b>					
088 148-0010	Obscure glass, 3 mm thick,average	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	11.000	2.273	1.455
088 148-0100	Obscure glass, 6 mm thick,average	"	"	10.000	2.500	1.600
<b>088 152</b>	<b>PATTERNED GLASS:</b>					
088 152-0010	Patterned glass colored, 3 mm thick,average	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	11.000	2.273	1.455
088 152-0300	Patterned glass colored, 6 mm thick,average	"	"	10.000	2.500	1.600
<b>088 160</b>	<b>REFLECTIVE GLASS:</b>					
088 160-0010	Reflective glass 6 mm float with fused metallic oxide,tinted	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	10.000	2.500	1.600
088 160-0500	Reflective glass 6 mm float glass with reflective applied coating	↓	↓	10.000	2.500	1.600
088 160-2000	Reflective glass,solar film on glass,average	↓	↓	16.000	1.563	1.000
<b>088 164</b>	<b>SANDBLASTED GLASS:</b>					
088 164-0100	Sandblasted glass,float glass, 5 mm thick	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	11.000	2.273	1.455
088 164-0500	Sandblasted glass,plate glass, 6 mm thick	↓	↓	10.000	2.500	1.600
088 164-0600	Sandblasted glass,plate glass, 10 mm thick	↓	↓	6.500	3.846	2.462
<b>088 168</b>	<b>SHEET GLASS:</b>					
088 168-0010	Sheet Glass gray, 3 mm thick	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	14.000	1.786	1.143
088 168-0200	Sheet Glass gray, 6 mm thick	"	"	11.000	2.273	1.455
<b>088 172</b>	<b>SPANDREL GLASS:</b>					
088 172-0010	Spandrel glass,standard color, 6 mm thick,over 200 m2	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	11.000	2.273	1.455
088 172-0200	Spandrel glass, 6 mm thick,standard colors,under 200 m2	↓	↓	10.000	2.500	1.600
088 172-0300	Spandrel glass,ceramic,10 mm over 200 m2	↓	↓	9.000	2.778	1.778
088 172-2100	Spandrel glass panels,insulated,with aluminum backed fiberglass,upto 50 mm thick	↓	↓	10.000	2.500	1.600
<b>088 176</b>	<b>WINDOW GLASS:</b>					

DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
088 176-0100	Window glass,clear float,stops,putty bed 6 mm thick	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	40.000	0.625	0.400
<b>088 180</b>	<b>WINDOW WALL</b>	<i>See division 089200</i>				
<b>088 184</b>	<b>WIRE GLASS:</b>					
088 184-0010	Wire glass, 6 mm thick,rough obscure (chicken wire)	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	11.000	2.273	1.455
088 184-1000	Wire glass,polished wire, 6 mm thick,diamond,clear	"	"	11.000	2.273	1.455
<b>088 400</b>	<b>PLASTIC GLAZING</b>					
<b>088 404</b>	<b>PLEXIGLASS ACRYLIC:</b>					
088 404-0200	Plexiglass Acrylic,clear,masked, 3 mm thick,full sheets	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	17.000	1.471	0.941
088 404-0500	Plexiglass Acrylic,clear,masked, 6 mm thick,cut sheets			14.000	1.786	1.143
088 404-0900	Plexiglass Acrylic,clear,masked, 10 mm thick,cut sheets			13.000	1.923	1.231
088 404-1700	Plexiglass Acrylic,clear,masked, 20 mm thick,cut sheets	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	10.000	2.500	1.600
088 404-2100	Plexiglass Acrylic,clear,masked, 25 mm thick,cut sheets	"	"	9.000	2.778	1.778
<b>088 408</b>	<b>POLYCARBONATE:</b>					
088 408-0010	Polycarbonate clear,masked,cut sheets, 3 mm thick	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	15.000	1.667	1.067
088 408-1000	Polycarbonate clear,masked,cut sheets, 6 mm thick	"	"	13.000	1.923	1.231
088 408-1500	Polycarbonate clear,masked,cut sheets, 10 mm thick	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	12.750	1.961	1.255
<b>088 412</b>	<b>VINYL GLASS:</b>					
088 412-0500	Vinyl glass,steel mesh reinforced,stock sizes, 3 mm thick	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	15.000	1.667	1.067
088 412-1000	Vinyl glass,steel mesh reinforced, 6 mm thick	"	"	13.000	1.923	1.231
<b>089</b>	<b>GLAZED CURTAIN WALL</b>					
<b>089 200</b>	<b>GLAZED CURTAIN WALL</b>					
<b>089 202</b>	<b>CURTAIN WALLS:</b>					



DIVISION 08 :DOORS & WINDOWS						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
089 202-0050	Curtain walls,Aluminum,single glazed,upto 10 floors,average	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	9.500	2.632	1.684
089 202-0150	Curtain walls,Aluminum,double glazed, up to 10 floors,average			8.500	2.941	1.882
089 202-0200	Curtain walls,Aluminum,single glazed,upto 10 floors, curved,average			6.500	3.846	2.462
089 202-0300	Curtain walls,Aluminum,double glazed,curved wall,upto 10 floors,average			5.500	4.545	2.909
089 202-0400	Curtain walls,Aluminum,single glazed,more than 10 floors building,average			3.750	6.667	4.267
089 202-0500	Curtain walls,Aluminum,double glazed,more than 10 floors building,average			2.900	8.621	5.517
089 202-1000	Curtain walls,Stainless steel,single glazed,upto 12 m high,average			7.500	3.333	2.133
089 202-1200	Curtain walls,Stainless steel,double glazed,upto 12 m high,average	↓	↓	7.000	3.571	2.286
<b>089 204 TUBE FRAMING:</b>						
089 204-0050	Tube framing,for window walls and store fronts,aluminum plain tube frame,mill finish, 45 mm x 45 mm	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	29.000	0.862	0.552
089 204-0150	Tube framing,for window walls and store fronts,aluminum plain tube frame,mill finish, 45 mm x 100 mm			26.000	0.962	0.615
089 204-0250	Tube framing,for window walls and store fronts,aluminum plain tube frame,mill finish, 50 mm x 150 mm			24.000	1.042	0.667
089 204-0450	Tube framing,glass bead			70.000	0.357	0.229
089 204-1000	Tube framing,flush tube mill finish, for 6 mm glass, 45 mm x100mm,open header			22.000	1.136	0.727
089 204-1050	Tube framing,flush tube mill finish,for 6 mm glass, 45 mmx100mm,open sill			23.000	1.087	0.696
089 204-1150	Tube framing,flush tube mill finish,for 6 mm glass, 45 mm x100 mm,closed back sill			24.000	1.042	0.667
089 204-1200	Tube framing,flush tube mill finish,for 6 mm glass, 45mm x100mm,vertical mullion two piece			21.000	1.190	0.762
089 204-2000	Tube framing,flush tube frame, mill finish, 50 mm x 115 mm,open header			21.500	1.163	0.744
089 204-5000	Tube framing,flush tube mill finish, 55 mm x 115 mm,open sill	↓	↓	22.000	1.136	0.727
<b>089 206 WINDOW WALLS:</b>						
089 206-0050	Window walls,aluminum,stock,including glazing average	SQM	0.125 Skilled Foreman 2.000 Glaziers 1.000 Helper 2.000 Power Tools	9.000	2.778	1.778
089 206-0100	Acoustical window wall,aluminum,double glazed 25 mm thick, 50 mm x 115 mm framing for airports	"	"	3.000	8.333	5.333

# Division 9

## Finishes

### Estimating Tips

#### 092 Lath, Plaster & Gypsum Board

Lath is estimated by the square meter for both gypsum and metal lath, plus usually 5% allowance for waste. Furring, channels and accessories are measured by the linear meter. Plaster is also estimated by square meter. Deduction for openings vary by preference, from zero deduction to 50% of all openings over 60 centimeters. Many plastering contractors make no deduction for openings. The estimator should allow one extra square meter for each linear meter of horizontal interior or exterior angle located below the ceiling level. Also, double the areas of small radius work.

Metal lath cost and productivity vary according to complexity of work, location, room sizes, height above floor and method of attachments whether nails or tie-on. Plaster coverage area depends usually on mechanic application system, thickness of grounds, surface, type of lath, and quality of sand.

#### 095 Acoustical System

Acoustical systems fall into several categories. The take-off of these materials is by the square meter of area with a 5% allowance for waste. Do not forget about scaffolding, if applicable, when estimating these systems.

#### 096 Flooring & Carpet

Most of the various types of flooring are all measured on square meter basis. base is measured by linear meter. If adhesive materials are to be quantified, they are estimated at a specific coverage rate by the gallon depending upon the specified type and the manufacturer's recommendations.

#### 099 Painting & Wall Coverings

Painting is one area where bids vary to a greater extent than almost any other section of a project. This arises from the many methods of measuring surfaces to be painted. Estimators shall never forget to include the protection of all adjacent surfaces in estimated costs and productivity.

Each room should be measured, perimeter times maximum wall height. Ceiling areas are equal to length times width. Drywall, accessories, studs, track, and acoustical caulking are all measured by the square meter.

### **093 Tile**

### **094 Terrazzo**

Two basic methods of installation are used. Mud set is more expensive than the thin set. In terrazzo work, be sure to include the linear footage of embedded decorative strips, grounds, machine rubbing and power clean-up. Add for material handling and labor distribution in high-rise buildings.

When considering the method of paint application, an important factor is the amount of protection and masking required. These must be estimated separately and may be the determining factor in choosing the method of application. Scaffolding and ladders shall be estimated.

**DIVISION 09: FINISHES**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>091</b>	<b>METAL SUPPORT SYSTEM</b>					
<b>091 300</b>	<b>SUSPENSION SYSTEMS</b>					
<b>091 304</b>	<b>SUSPENSION SYSTEMS:</b>					
091 304-0050	Suspension systems for boards and tile,, T bar,610 mm x 1220 mm grid	SQM	0.125 Labor Foreman 1.000 Carpenter 1.000 Helper	55.000	0.309	0.000
091 304-0300	Suspension systems for boards and tile, T bar, 610 mm x 610 mm grid			45.000	0.378	0.000
091 304-0400	Suspension systems for boards and tile, concealed Z bar, 300 mm module			40.000	0.425	0.000
091 304-0600	Suspension systems for boards and tile, 38 mm carrier channels, 1220 mm O.C, add			40.000	0.425	0.000
<b>092</b>	<b>LATH,PLASTER &amp; GYPSUM BOARD</b>					
<b>092 050</b>	<b>FURRING &amp; LATHING</b>					
<b>092 052</b>	<b>ACCESSORIES,PLASTER:</b>					
092 052-0100	Accessories plaster,casing bead,expanded flange,galvanized or zinc alloy	LM	0.125 Labor Foreman 1.000 Lather 1.000 Power Tools	80.000	0.113	0.100
092 052-0620	Accessories plaster,corner bead,expanded bullnose, 20 mm radius,galvanized			75.000	0.120	0.107
092 052-1640	Accessories plaster,corner bead,expanded bullnose, 20 mm radius, zinc alloy			80.000	0.113	0.100
092 052-1700	Accessories plaster,inside corner bead, 20 mm, 76 mm x 76 mm,painted			75.000	0.120	0.107
<b>092 054</b>	<b>FURRING:</b>					
092 054-0050	Furring beams & columns, 20 mm channels, galvanized, 400 mm O.C	SQM	0.125 Labor Foreman 1.000 Lather 1.000 Helper 1.000 Power Tools	23.000	0.739	0.348
092 054-0300	Furring ceilings,on steel 20 mm channels,galvanized 400 mm O.C.			32.000	0.531	0.250
092 054-0600	Furring ceilings,on steel 38 mm channels,galvanized 300 mm O.C.			21.000	0.810	0.381
092 054-0900	Furring ceilings,on steel 38 mm channels,galvanized 610 mm O.C.			64.000	0.266	0.125
092 054-1200	Furring walls, 20 mm channels,galvanized, 400 mm O.C.			30.000	0.567	0.267
092 054-1300	Furring walls, 20 mm channels,galvanized, 610 mm O.C.			45.000	0.378	0.178
092 054-1500	Furring walls, 38 mm channels,galvanized, 300 mm O.C.			24.000	0.708	0.333
092 054-1800	Furring walls, 38 mm channels,galvanized, 610 mm O.C.			48.000	0.354	0.167
092 054-8000	Furring suspended ceilings,including 38mm carriers, 610 mm O.C. with 20 mm channels, 400 mm O.C.			15.380	1.105	0.520
092 054-8400	Furring suspended ceilings,including 38 mm carriers, 610 mm O.C. with 38 mm channels, 400 mm O.C.			13.330	1.275	0.600

## DIVISION 09: FINISHES

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
092 054-8720	Furring suspended ceilings,including 50 mm carriers, 610 mm O.C. with 20 mm channels, 610 mm O.C.			18.000	0.944	0.444
092 054-8800	Furring suspended ceilings,including 50 mm carriers, 610 mm O.C. with 38 mm channels, 400 mm O.C.			13.460	1.263	0.594
<b>092 056</b>	<b>GYPSON LATH:</b>					
092 056-0300	Gypsum lath, plain or perforated,clipped to steel studs, 10 mm thick	SQM	0.125 Labor Foreman 1.000 Lather 1.000 Helper 1.000 Power Tools	90.000	0.189	0.089
092 056-0400	Gypsum lath, plain or perforated,clipped to steel studs, 13 mm thick			83.250	0.204	0.096
092 056-1500	Gypsum lath,for ceiling installations, 13 mm thick			67.500	0.252	0.119
092 056-1600	Gypsum lath,for columns and beams, 13 mm thick			60.750	0.280	0.132
<b>092 058</b>	<b>METAL LATH:</b>					
092 058-3600	Metal lath, 1.13 kg diamond painted, on wood framing, on walls	SQM	0.125 Labor Foreman 2.000 Lather 1.000 Helper 1.000 Power Tools	180.000	0.139	0.044
092 058-3400	Metal lath, 1.54 kg diamond painted, on wood framing, on ceilings			153.000	0.163	0.052
092 058-4200	Metal lath, 1.54 kg diamond painted or rib, wired to steel framing, on walls			165.000	0.152	0.048
092 058-4300	Metal lath, 1.54 kg diamond painted, wired to steel framing, on ceilings			140.000	0.179	0.057
092 058-4500	Metal lath, 1.54 kg diamond painted on columns and beams,wired to steel			82.000	0.305	0.098
092 058-4600	Metal lath, 1.54 kg diamond painted on cornices,wired to steel			68.000	0.368	0.118
092 058-4800	Metal lath, 1.13 kg diamond painted on screwed to steel studs			170.000	0.147	0.047
092 058-5100	Metal lath, rib lath, painted, wired to steel,on walls, 1.25 kg			158.000	0.158	0.051
092 058-5400	Metal lath,rib lath,painted, wired to steel,on walls, 1.81 kg			145.000	0.172	0.055
092 058-5700	Suspended ceiling system, including 1.54 kg diamond lath,painted or galvanized			25.600	0.977	0.313
092 058-6300	Hollow metal stud partitions,including 1.54 kg painted lath both sides,non-load bearing, 25 ga. with rib lath studs 64 mm at 400 mm O.C.			36.300	0.689	0.220
092 058-6700	Hollow metal stud partitions,including 1.54 kg painted lath both sides,non-load bearing, 25 ga. with rib lath studs 100 mm at 400 mm O.C.			35.100	0.712	0.228
092 058-7000	Hollow metal stud partitions,including 1.54 kg painted lath both sides,non-load bearing, 25 ga. with rib lath studs 150 mm at 400 mm O.C.			34.400	0.727	0.233

## DIVISION 09: FINISHES

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
092 058-7100	Hollow metal stud partitions,including 1.54 kg painted lath both sides,non-load bearing, 25 ga. with rib lath studs 150 mm at 610 mm O.C.	SQM	0.125 Labor Foreman 2.000 Lather 1.000 Helper 1.000 Power Tools	39.300	0.636	0.204
092 058-7200	Load bearing partitions, 16 ga., with rib lath, 100 mm studs, 400 mm O.C.			23.400	1.068	0.342
092 058-7600	Load bearing partitions, 16 ga., with rib lath, 100 mm studs, 150 mm O.C.			22.900	1.092	0.349
<b>092 100</b>	<b>GYPSUM PLASTER</b>					
<b>092 102</b>	<b>CEMENT PLASTER:</b>					
092 102-0150	Cement plaster,splash coat on exterior concrete or masonry walls	SQM	0.125 Foreman 1.000 Plasterer 1.000 Common Laborer 0.500 Mixer 0.17 m3 1.000 Tools Set 1.000 Scaffolding set	90.000	0.189	0.222
092 102-0200	Cement plaster,splash coat on interior concrete or masonry walls			80.000	0.213	0.250
092 102-0220	Cement plaster,brown coat,on interior concrete or masonry walls			50.000	0.340	0.400
092 102-0250	Cement plaster,float finish coat,on interior concrete or masonry walls			35.000	0.486	0.571
092 102-0280	Cement plaster,trowel finish coat,on exterior concrete walls & columns			25.000	0.680	0.800
092 102-0300	Cement plaster,finish coat,on interior concrete walls & columns			24.380	0.697	0.820
092 102-0400	Cement plaster accessories			150.000	0.113	0.133
092 102-0500	Cement plaster on exterior concrete or masonry walls, 3 coats including accessories			13.490	1.260	1.483
092 102-0600	Cement plaster on interior concrete or masonry walls, 3 coats including accessories			11.740	1.448	1.704
092 102-0700	Cement plaster on concrete ceilings, 3 coats including accessories			11.150	1.525	1.794
092 102-0800	Cement plaster on concrete columns and beams, 3 coats including accessories			8.800	1.932	2.273
<b>092 108</b>	<b>GYPSUM PLASTER:</b>					
092 108-0300	Gypsum plaster, 2 coats, no lath included, on walls	SQM	0.125 Foreman 3.000 Plasterer 2.000 Common Laborer 0.500 Mixer 0.17 m3 2.000 Tools Set 1.000 Scaffolding set	65.880	0.622	0.425
092 108-0400	Gypsum plaster, 2 coats, no lath included, on ceilings			57.640	0.711	0.486
092 108-0600	Gypsum plaster, 2 coats on and including 10 mm gypsum lath on steel,on walls			58.300	0.703	0.549
092 108-0700	Gypsum plaster, 2 coats on and including 10 mm gypsum lath on steel,on ceilings			49.560	0.827	0.646
092 108-0900	Gypsum plaster, 3 coats, no lath included,on walls			56.400	0.727	0.567
092 108-1000	Gypsum plaster, 3 coats, no lath included,on ceilings			49.340	0.831	0.649

**DIVISION 09: FINISHES**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
092 108-1200	Gypsum plaster, 3 coats and including painted metal lath,on wood studs			50.330	0.815	0.636
092 108-1300	Gypsum plaster, 3 coats, including painted metal lath,on ceilings			44.000	0.932	0.727
092 108-1600	Gypsum plaster, 3 coats, including painted metal lath,on irregular or curved surfaces			38.000	1.079	0.842
092 108-1800	Gypsum plaster, 3 coats, including painted metal lath,on columns and beams			36.650	1.119	0.873
<b>092 116 PERLITE OR VERMICULITE PLASTER:</b>						
092 116-1200	Perlite or vermiculite plaster, 3 coats,including painted metal lath,on metal studs	SQM	0.125 Foreman 3.000 Plasterer 2.000 Common Laborer 0.500 Mixer 0.17 m3 2.000 Tools Set 1.000 Scaffolding set	57.600	0.712	0.556
092 116-1500	Perlite or vermiculite plaster, 3 coats,including suspended metal lath ceilings			38.500	1.065	0.831
092 116-1700	Perlite or vermiculite plaster, 3 coats,including painted metal lath on irregular or curved surfaces			33.300	1.231	0.961
092 116-1800	Perlite or vermiculite plaster, 3 coats,including painted metal lath on columns and beams			32.000	1.281	1.000
<b>092 300 AGGREGATE COATINGS</b>						
<b>092 304 STUCCO:</b>						
092 304-0100	Stucco, 3 coats 25 mm thick,float finish,on masonry or concrete construction,no mesh included	SQM	0.125 Foreman 3.000 Plasterer 2.000 Common Laborer 0.500 Mixer 0.17 m3 2.000 Tools Set 1.000 Scaffolding set	32.300	1.269	0.991
092 304-0600	Stucco, 3 coats 25 mm thick,last coat with special coloring finish	"	"	31.400	1.306	1.019
<b>092 600 GYPSUM BOARD SYSTEMS</b>						
<b>092 602 BLUEBOARD:</b>						
092 602-1100	Blueboard, 10 mm thick,on walls or ceilings,standard,with thin coat plaster finish	SQM	0.125 Labor Foreman 2.000 Finishing Carpenters 1.000 Common Laborer 1.000 Power Tool	85.000	0.294	0.094
092 602-1450	Blueboard, 10 mm thick,on beams.columns,or soffits,standard,with thin coat plaster finish			52.000	0.481	0.154
092 602-3100	Blueboard, 13 mm thick,on walls or ceilings,standard,with thin coat plaster finish			85.000	0.294	0.094

## DIVISION 09: FINISHES

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
092 602-3400	Blueboard, 13 mm thick,on walls or ceilings,fire resistant,with thin coat plaster finish	SQM	0.125 Labor Foreman 2.000 Finishing Carpenters 1.000 Common Laborer 1.000 Power Tool	85.000	0.294	0.094
092 602-3800	Blueboard, 13 mm thick,on beams,columns,or soffits,fire resistant, with thin coat plaster finish			52.000	0.481	0.154
092 602-5100	Blueboard, 16 mm thick,on walls or ceilings,fire resistant,with thin coat plaster finish			72.000	0.347	0.111
092 602-5600	Blueboard, 16 mm thick,on beams,columns or soffits,fire resistant, with thin coat plaster finish			58.000	0.431	0.138
092 602-6000	Blueboard,for high ceilings,over 2.4 m high add			160.000	0.156	0.050
092 602-6500	Blueboard,for over 3 stories high,add/story			200.000	0.125	0.040
<b>092 604 CEILINGS:</b>						
092 604-0100	Ceilings,gypsum drywall,fire rated,finished,screwed to grid channel or joists, 13 mm or 16 mm thick	SQM	0.125 Labor Foreman 2.000 Finishing Carpenters 1.000 Common Laborer 1.000 Power Tool	78.000	0.321	0.103
092 604-0300	Ceilings,gypsum drywall,fire rated,finished,screwed to grid channel or joists, over 2.4 m high, 13 mm or 16 mm thick			72.000	0.347	0.111
092 604-0800	Ceilings,grid suspension system,direct hung, 3 8 mm or 90 mm cold rolled channel, with 22 mm hi hat furring channel, 610 mm O.C.			36.000	0.694	0.222
<b>092 608 DRYWALL:</b>						
092 608-0150	Drywall,gypsum plasterboard,nailed or screwed, 10 mm thick, on stud walls,standard taped and finished, paint not included	SQM	0.125 Labor Foreman 2.000 Finishing Carpenters 1.000 Common Laborer 1.000 Power Tool	85.000	0.294	0.094
092 608-0300	Drywall,gypsum plasterboard,nailed or screwed, 13 mm thick,on stud walls,standard,fire resistant or water resistant, taped and finished, paint not included			85.000	0.294	0.094
092 608-1000	Drywall,gypsum plasterboard,nailed or screwed, 13 mm thick,on ceilings,standard,fire resistant or water resistant, taped and finished, paint not included.			78.000	0.321	0.103
092 608-1550	Drywall,gypsum plasterboard,nailed or screwed, 13 mm thick,on beams,columns,or soffits,standard,fire resistant or water resistant, taped and finished, paint not included.			52.000	0.481	0.154
092 608-2000	Drywall,gypsum plasterboard,nailed or screwed, 16 mm thick,on stud walls,standard,fire resistant or water resistant, taped and finished, paint not included.			78.800	0.317	0.102
092 608-3000	Drywall,gypsum plasterboard,nailed or screwed, 16 mm thick,on stud ceiling,standard,fire resistant or water resistant, taped and finished, paint not included.			72.000	0.347	0.111
092 608-4000	Drywall fireproofing beam or columns, 2 layers, 13 mm thick, including finish, paint not included.			24.750	1.010	0.323
092 608-4050	Drywall fireproofing beam or columns, 2 layers, 16 mm thick, including finish, paint not included.			23.000	1.087	0.348
092 608-4150	Drywall fireproofing beam or columns, 3 layers, 16 mm thick, including finish, paint not included.			15.250	1.639	0.525



## DIVISION 09: FINISHES

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
092 608-5050	Drywall,for 25 mm thick coreboard on columns, paint not included.			39.000	0.641	0.205
092 608-5100	Drywall,for foil-backed board,add			78.800	0.317	0.102
092 608-5200	Drywall,for high ceilings,over 2.4 m high add			300.000	0.083	0.027
092 608-5270	Drywall, textured spary,add			172.000	0.145	0.047
092 608-5300	Drywall,for over 3 stories high,add/story			550.000	0.045	0.015
092 608-5350	Drywall,for finishing corners,inside or outside,add			1125.000	0.022	0.007
092 608-5500	Drywall,for acoustical sealant,add/bead			506.000	0.049	0.016
092 608-5600	Drywall,sound deadening board, 6 mm gypsum or 13 mm wood fiber			160.000	0.156	0.050
<b>092 612</b>	<b>METAL STUDS,DRYWALL:</b>					
	<i>Partitions,3m high,with runners,See also studding,division 051-230</i>					
092 612-2000	Metal studs,drywall,non-load bearing,galvanized upto 20 ga., 40 mm, 400 mm O.C.	SQM	0.125 Labor Foreman 2.000 Finishing Carpenters 1.000 Common Laborer 1.000 Power Tool	95.500	0.262	0.084
092 612-2100	Metal studs,drywall,non-load bearing,galvanized upto 20 ga., 40 mm, 610 mm O.C.			113.100	0.221	0.071
092 612-2200	Metal studs,drywall,non-load bearing,galvanized upto 20 ga., 64 mm,wide, 400 mm O.C.			93.100	0.269	0.086
092 612-2400	Metal studs,drywall,non-load bearing,galvanized upto 20 ga., 100 mm, wide, 400 mm O.C.			89.200	0.280	0.090
092 612-2450	Metal studs,drywall,non-load bearing,galvanized upto 20 ga., 100 mm, wide, 610 mm O.C.			105.300	0.237	0.076
092 612-2500	Metal studs,drywall,non-load bearing,galvanized upto 20 ga., 150 mm,wide, 400 mm O.C.			87.000	0.287	0.092
092 612-2550	Metal studs,drywall,non-load bearing,galvanized upto 20 ga., 150 mm wide, 610 mm O.C.			103.200	0.242	0.078
092 612-4000	Load bearing metal studs,structural,galvanized, 18 ga., 64 mm, 400 mm O.C.			69.800	0.358	0.115
092 612-4300	Load bearing metal studs,structural,galvanized,18 ga., 100 mm, wide, 400 mm O.C.			66.900	0.374	0.120
092 612-4450	Load bearing metal studs,structural,galvanized,18 ga., 150 mm,wide, 610 mm O.C.			77.400	0.323	0.103
092 612-4600	Load bearing metal studs,structural,galvanized, 16 ga., 64 mm, wide, 400 mm O.C.			58.200	0.430	0.137
092 612-4800	Load bearing metal studs,structural,galvanized,16 ga., 100 mm, wide, 400 mm O.C.			55.700	0.449	0.144
092 612-4850	Load bearing metal studs,structural,galvanized,16 ga., 100 mm, wide, 610 mm O.C.	SQM	0.125 Labor Foreman 2.000 Finishing Carpenters 1.000 Common Laborer 1.000 Power Tool	65.800	0.380	0.122
092 612-4900	Load bearing metal studs,structural,galvanized,16 ga., 150 mm, wide, 400 mm O.C.	"	"	54.400	0.460	0.147
<b>092 620</b>	<b>PARTITION WALL:</b>					

## DIVISION 09: FINISHES

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
092 620-0500	Interior partition wall, 2.4 to 3.7 m high, including wood studs, 50 mm x 100 mm at 400 O.C., 13 mm standard, fire resistant or water resistant gypsum drywall both sides, taped & finished	SQM	0.125 Labor Foreman 2.000 Finishing Carpenters 1.000 Common Laborer 1.000 Power Tool	27.800	0.899	0.288
092 620-1600	Interior partition wall, 2.4 to 3.7 m high, including metal studs, NLB, 25 ga., at 400 O.C., 92 mm wide, 13 mm standard, fire resistant or water resistant gypsum drywall both sides, taped & finished			29.100	0.859	0.275
092 620-2400	Interior partition wall, 2.4 to 3.7 m high, including metal studs, NLB, 25 ga., at 400 O.C., 150 mm wide, 2 layers of 16 mm, fire resistant or water resistant gypsum drywall 2 hr. rating both sides, taped & finished.			17.150	1.458	0.466
092 620-3400	Interior partition wall, 2.4 to 3.7 m high, including wood studs 50 x 100 mm., at 400 O.C., 2 layers of 16 mm, fire resistant or water resistant gypsum drywall 2 hr. rating both sides, taped & finished			16.970	1.473	0.471
092 620-3600	Interior partition wall, 2.4 to 3.7 m high, including metal studs, NLB, 25 ga., at 400 O.C., 92 mm wide, 2 layers of 16 mm, fire resistant or water resistant gypsum drywall 2 hr. rating, both sides, taped & finished			17.470	1.431	0.458
092 620-4000	Interior partition wall, 2.4 to 3.7 m high, including metal studs, NLB, 25 ga., at 400 O.C., 150 mm wide, 2 layers of 16 mm, fire resistant or water resistant gypsum drywall 2 hr. rating both sides, taped & finished			17.320	1.443	0.462
092 620-4200	Interior partition wall, 2.4 to 3.7 m high, including NLB metal studs at 610 O.C., 92 mm wide, 16 mm standard, fire resistant or water resistant gypsum drywall both sides, taped & finished			31.200	0.801	0.256
092 620-5800	Interior partition wall, 2.4 to 3.7 m high, including metal studs, NLB, 25 ga., at 610 mm O.C., 92 mm wide and 2 layers of 16 mm gypsum drywall, water & fire resistant, both sides, taped and finished			17.870	1.399	0.448
092 620-9500	Interior partition wall, 2.4 to 3.7 m high, including metal studs, LB, 25 ga., at 400 mm O.C., 150 mm wide and 3 layers of 16 mm gypsum drywall, 3 hrs fire resistant, both sides, taped and finished	↓	↓	11.800	2.119	0.678
<b>093 TILE</b>						
<b>093 100 CERAMIC TILE</b>						
<b>093 102 CERAMIC TILES :</b>						
093 102-0010	Ceramic tile base 300 mm x 100 mm high, mud set	LM	0.125 Foreman 1.000 Tile Layer 1.000 Tile Layer Helper 1.000 Tools Set	20.000	0.850	0.400
093 102-0100	Ceramic tile base 300 mm x 100 mm high, thin set			30.000	0.567	0.267
093 102-0900	Ceramic tile cove base 150 mm x 100 mm high, mud set			22.000	0.773	0.364
093 102-1500	Ceramic tile cove base 150 mm x 150 mm high, mud set	↓		22.000	0.773	0.364
093 102-1900	Ceramic tile on bathtub, 1.5 m long, 100 mm x 100 mm tile wainscott, adhesive set, 1.8 m high	EA		3.300	5.152	2.424
093 102-2400	Ceramic bullnose trim, 100 mm x 100 mm, mud set	LM		20.000	0.850	0.400
093 102-5100	Ceramic sheet, floor, unglazed, with adhesive	SQM		12.000	1.417	0.667

# **DIVISION 09: FINISHES**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
093 102-5400	Ceramic tile interior wall,with dry thin set mortar 100 x 100 mm glazed			8.900	1.910	0.899
093 102-5700	Ceramic tile interior wall,with thin set 200 x 100 mm glazed			9.000	1.889	0.889
093 102-5800	Ceramic tile interior wall,with thin set 150 x 150 mm glazed			9.100	1.868	0.879
093 102-5810	Ceramic tile interior wall,with thin set 200 x 200 mm glazed			9.330	1.822	0.857
093 102-5830	Ceramic tile interior wall,with thin set 400 x 400 mm glazed			20.000	0.850	0.400
093 102-5840	Ceramic tile interior or exterior wall,set with portland cement mortar " conventional method" 100 x 100 mm glazed			7.330	2.319	1.091
093 102-5860	Ceramic tile interior or exterior wall,set with portland cement mortar 200 x 100 mm glazed			7.440	2.285	1.075
093 102-5870	Ceramic tile interior or exterior wall,set with portland cement mortar 150 x 150 mm glazed			7.500	2.267	1.067
093 102-5880	Ceramic tile interior or exterior wall,set with portland cement mortar 200 x 200 mm glazed			7.700	2.208	1.039
093 102-5890	Ceramic tile interior or exterior wall,set with portland cement mortar 300 x 300 mm glazed			13.550	1.255	0.590
093 102-5900	Ceramic tile interior or exterior wall,set with portland cement mortar 400 x 400 mm glazed			16.500	1.030	0.485
093 102-7000	For epoxy grout,2mm joints, 108 mm tile, add	↓	↓	150.000	0.113	0.053
<b>093 300 QUARRY TILE</b>						
<b>093 304 QUARRY TILE:</b>						
093 304-0010	Quarry tile,base,cove or sanitary 50 mm or 127 mm high,mortar set,13 mm thick	SQM	0.125 Foreman 1.000 Tile Layer 1.000 Tile Layer Helper 1.000 Tools Set	20.000	0.850	0.400
093 304-0700	Quarry tile,floors,mortar set 100 x 100 x 13 mm thick			6.200	2.742	1.290
093 304-1000	Quarry tile,floors,mortar set 100 x 200 x 13 mm thick	↓	↓	7.700	2.208	1.039
<b>093 500 GLASS MOSAICS</b>						
<b>093 501 GLASS MOSAICS:</b>						
093 501-0300	Glass mosaics 20 mm tile on 300 mm sheets,standard grout	SQM	0.125 Foreman 1.000 Tile Layer 1.000 Tile Layer Helper 1.000 Tools Set	5.000	3.400	1.600
093 501-0700	Glass mosaics 20 mm tile on 300 mm sheets,standard grout color golds,silvers & specialties	-	-	4.000	4.250	2.000
<b>093 700 METAL TILE</b>						
<b>093 701 METAL TILE:</b>						
093 701-0010	Metal tile 1220 x 1220 mm sheet, 24 ga., tile pattern,nailed stainless steel or aluminized steel	SQM	0.125 Labor Foreman 2.000 Finishing Carpenters 1.000 Common Laborer 1.000 Power Tool	31.500	0.794	0.254

## DIVISION 09: FINISHES

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>093 900</b>	<b>TILE SETTING MATERIALS</b>					
<b>093 910</b>	<b>CEMENTITIOUS BACKBOARD:</b>					
093 910-0120	Cementitious backerboard, on floor 0.9 m x 1.80 m x 16 mm sheets	SQM	0.125 Labor Foreman 2.000 Finishing Carpenters 1.000 Common Laborer 1.000 Power Tool	36.000	0.694	0.222
093 910-0150	Cementitious backerboard, on wall 0.9 m x 1.2 m x 13 mm sheets			24.000	1.042	0.333
093 910-0320	Cementitious backerboard, on counter 0.9 m x 1.80 m x 16 mm sheets			16.000	1.563	0.500
<b>094</b>	<b>TERRAZZO</b>					
<b>094 100</b>	<b>PORTLAND CEMENT TERRAZZO</b>					
<b>094 104</b>	<b>TERRAZZO, CAST IN PLACE (C.I.P.)</b>					
094 104-0010	Terrazzo, C.I.P., cove base, 150 mm high, 16 ga., zinc	LM	0.250 Foreman 2.000 Terrazzo Workers 3.000 Terrazzo Helper 0.250 Terrazzo Mixer 0.28 m3 1.000 Hodcarrier 0.500 Hand Metal Roller	30.000	1.400	0.467
094 104-0100	Terrazzo, C.I.P., curb, 150 mm high and 150 mm wide		"	6.000	7.000	2.333
094 104-0300	Terrazzo, divider strip for floors, 14 ga., 32 mm deep, zinc or brass		0.125 Labor Foreman 1.000 Tile Layer 1.000 Helper 1.000 Tools Set	120.000	0.142	0.067
094 104-0600	Terrazzo, divider strip for floors, heavy top strip 6mm thick, 32 mm deep, zinc or galvanized bottoms, brass		"	96.000	0.177	0.083
094 104-1500	Terrazzo, C.I.P., floor, bonded to concrete 40 mm thick, gray or white cement mortar set, 1.2 meter squares.	SQM	0.250 Foreman 2.000 Terrazzo Workers 3.000 Terrazzo Helper 0.250 Terrazzo Grinder 0.250 Terrazzo Mixer 0.28 m3 1.000 Hodcarrier 0.250 Tools Set 0.500 Hand Metal Roller	17.900	2.346	1.006
094 104-1800	Terrazzo, C.I.P., floor, not -bonded to concrete 75 mm thick, gray or white cement mortar set, 1.2 meter squares.			16.700	2.515	1.078
094 104-1810	Terrazzo, C.I.P., floor, not -bonded to concrete 75 mm thick, gray or white cement mortar set, 1.5 meter squares.			17.200	2.442	1.047
094 104-1810	Terrazzo, C.I.P., floor, not -bonded to concrete 75 mm thick, gray or white cement mortar set, 0.90 meter squares.			15.400	2.727	1.169
094 104-2200	For heavy duty abrasive terrazzo, add			8.950	4.693	2.011
094 104-2400	Terrazzo, floor, C.I.P., bonded conductive for hospitals			12.560	3.344	1.433
094 104-2500	Terrazzo, floor, C.I.P., floor, epoxy, 6 mm thick, average			8.970	4.682	2.007
094 104-3000	Terrazzo stairs, cast in place, pan filled treads	LM		15.000	2.800	1.200

## DIVISION 09: FINISHES

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
094 104-4000	C.I.P. Terrazzo,wainscot,bonded, 38 mm thick	SQM		4.500	9.333	4.000
094 104-4200	C.I.P. Terrazzo,wainscot,epoxy 6 mm thick	"	↓	6.280	6.688	2.866
<b>094 200</b>	<b>PRECAST TERRAZZO</b>					
<b>094 201</b>	<b>TERRAZZO,PRECAST:</b>					
094 201-0010	Terrazzo,precast,base, 150 mm high,straight	LM	0.125 Labor Foreman 1.000 Tile Layer 1.000 Helper 1.000 Tools Set	20.000	0.850	0.400
094 201-0200	Terrazzo,precast,cove, 150 mm high			17.000	1.000	0.471
094 201-0400	Terrazzo,precast,cove, 200 mm high			17.000	1.000	0.471
094 201-1000	Terrazzo,curbs, 200 mm x 200 mm high	↓	↓	8.500	2.000	0.941
094 201-1200	Terrazzo,floor tiles,non-slip 25 mm thick, 300 mmx 300 mm	SQM	0.125 Foreman 3.000 Tile Layer 2.000 Tile Layer Helper 0.125 Equip. Operator 0.125 Crane 11 Ton 2.000 Tools Set 1.000 Grinding Machine	16.300	2.577	1.534
094 201-1300	Terrazzo,floor tiles,non-slip 30 mm thick, 300 mm x 300 mm	"	"	16.300	2.577	1.534
094 201-1500	Terrazzo,floor tiles,non-slip 30 mm thick,400 mm x 400 mm	SQM	0.125 Foreman 3.000 Tile Layer 2.000 Tile Layer Helper 0.125 Equip. Operator 0.125 Crane 11 Ton 2.000 Tools Set 1.000 Grinding Machine	17.100	2.456	1.462
094 201-1600	Terrazzo,floor tiles,non-slip 40 mm thick,400 mm x 400 mm	"	"	17.100	2.456	1.462
<b>095</b>	<b>ACOUSTICAL TREATMENT &amp; WOOD FLOORING</b>					
<b>095 100</b>	<b>ACOUSTICAL CEILINGS</b>					
<b>095 102</b>	<b>CEILING TILE</b>					
095 102-0700	Ceiling acoustic tile, 20 mm thick, directly cemented with acoustical cement "adhesive", 300 mm x 300 mm, no Pattern.	SQM	0.125 Labor Foreman 2.000 Finishing Carpenter 1.000 Helper 1.000 Tools Set	50.000	0.500	0.160
095 102-0720	Ceiling acoustic tile, 20 mm thick, directly cemented with acoustical cement "adhesive", 300 mm x 600 mm, no Pattern.			66.000	0.379	0.121
095 102-0740	Ceiling acoustic tile, 20 mm thick, directly cemented with acoustical cement "adhesive", 300 mm x 300 mm, Pattern layout.			36.000	0.694	0.222
095 102-0740	Ceiling acoustic tile, 20 mm thick, directly cemented with acoustical cement "adhesive", 300 mm x 600 mm, Pattern layout.	↓	↓	45.000	0.556	0.178
<b>095 104</b>	<b>SUSPENDED ACOUSTIC CEILING BOARDS:      Not including suspension system:</b>					

## DIVISION 09: FINISHES

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
095 104-0400	Suspended Acoustic Ceiling Boards, fiberglass, film faced 610 mm x 610 mm or 610 mm x 1220 mm, 20 mm thick	SQM	0.125 Labor Foreman 1.000 Finishing Carpenter 1.000 Helper 1.000 Tools Set	52.000	0.327	0.154
095 104-0500	Suspended Acoustic Ceiling Boards, fiberglass, film faced 610 mm x 610mm or 610 mm x 1220 mm, 76 mm thick, thermal, 1.9 m2 K/W			36.000	0.472	0.222
095 104-0600	Suspended Acoustic Ceiling Boards, glass cloth faced fiberglass, 20 mm thick			44.000	0.386	0.182
095 104-0700	Suspended Acoustic Ceiling Boards, glass cloth faced fiberglass, 25 mm thick			43.000	0.395	0.186
095 104-0820	Suspended Acoustic Ceiling Boards, glass cloth faced fiberglass, 38 mm thick, nubby face			42.000	0.405	0.190
095 104-0900	Suspended Acoustic Ceiling Boards, mineral fiber boards, 16mm thick, aluminum faced 610 mm x 610 mm			52.000	0.327	0.154
095 104-1000	Suspended Acoustic Ceiling Boards, mineral fiber boards, 16 mm thick, plastic coated face 610 mm x 1220 mm			57.000	0.298	0.140
095 104-1200	Suspended Acoustic Ceiling Boards, mineral fiber, 2 hour rating, 16 mm thick			52.000	0.327	0.154
095 104-1300	Suspended Acoustic Ceiling Boards, mirror faced panels, 24 mm thick, 610 mm x 610 mm			39.000	0.436	0.205
095 104-2100	Suspended Acoustic Ceiling Boards, polystyrene eggcrate, 10 mm x 10 mm x 13 mm cubes			39.000	0.436	0.205
095 104-2400	Suspended Acoustic Ceiling Boards, luminous panels, prismatic, acrylic or polystyrene			35.000	0.486	0.229
095 104-3600	Suspended Acoustic Ceiling Boards, perforated aluminum sheets, 0.61 mm thick corrugated, painted or plain			38.000	0.447	0.211
095 104-3720	Suspended Acoustic Ceiling Boards, mineral fiber, 610 mm x 610 mm or 1220 mm, reval edge painted 16 mm thick			52.000	0.327	0.154
095 104-3760	Suspended Acoustic Ceiling Boards, wood fiber in cement, 610mm x 610mm or 1220 mm, painted, 50mm thick			30.000	0.567	0.267
095 104-3780	Suspended Acoustic Ceiling Boards, wood fiber in cement, 610 mm x 610 mm or 1220 mm, painted, 76 mm thick			27.000	0.630	0.296
<b>095 106</b>	<b>SUSPENDED CEILING, COMPLETE:</b>	<i>Including standard suspension system and 38mm carrier channels</i>				
095 106-0600	Suspended ceilings complete, fiberglass board, 610mm x 1220 mm x 16 mm, plain faced, supermarkets	SQM	0.125 Labor Foreman 1.000 Finishing Carpenter 1.000 Helper 1.000 Power Tools	27.000	0.630	0.296
095 106-0700	Suspended ceilings complete, fiberglass board, 610 mm x 1220 mm x 20mm, plain faced, offices			22.000	0.773	0.364
095 106-0800	Suspended ceilings complete, mineral fiber, cement binder, T bar suspension 610 mm x 610 mm x 20mm board			20.000	0.850	0.400
095 106-0810	Suspended ceilings complete, mineral fiber, cement binder, T bar suspension 610 mm x 1220 mm x 16 mm board			23.000	0.739	0.348
095 106-0900	Suspended ceilings complete, luminous panels, prismatic, acrylic			21.000	0.810	0.381
095 106-1200	Suspended ceilings complete, metal pan with acoustic pad, steel, Aluminium or stainless steel.			10.000	1.700	0.800

# **DIVISION 09: FINISHES**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
095 106-1800	Suspended ceilings complete,Z bar suspension,16 mm or 20 mm mineral fiber tile	↓	↓	21.000	0.810	0.381
<b>095 250</b>	<b>ACOUSTICAL SPACE UNITS</b>					
<b>095 254</b>	<b>SOUND ABSORBING PANELS:</b>					
095 254-0200	Sound absorbing panels perforated steel facing,painted w / fiberglass,no backs,57 mm thick, space units,ceiling or wall hung,white or colored	SQM	0.125 Labor Foreman 1.000 Finishing Carpenter 1.000 Helper 1.000 Power Tools	8.000	2.125	1.000
095 254-0300	Sound absorbing panels,fiberboard sound deadening panels,13 mm thick			52.000	0.327	0.154
095 254-0500	Sound absorbing panels,fiberglass panels,1220 mm x 2440 mm x 25mm thick,with glass cloth face for walls, cemented			19.000	0.895	0.421
095 254-0700	Sound absorbing panels,fiberglass panels,1220 mm x 2440 mm x 38 mm thick, dacron covered,inner aluminum frame,wall mounted			22.000	0.773	0.364
095 254-0900	Sound absorbing panels,mineral fiberboard panels,fabric covered, 762 mm x 2743 mm, 20 mm thick,concealed spline,wall mounted	↓	↓	17.000	1.000	0.471
<b>095 300</b>	<b>ACOUSTICAL INSULATION</b>					
<b>095 304</b>	<b>BARRIERS:</b>					
095 304-0010	Barriers,plenum,leaded vinyl, 2.34 kg/m2	SQM	0.125 Labor Foreman 1.000 Finishing Carpenter 1.000 Helper 1.000 Power Tools	12.000	1.417	0.667
095 304-0300	Barriers,plenum,leaded vinyl, 7.32 kg/m2			10.500	1.619	0.762
095 304-0400	Barriers,plenum,leaded vinyl, 14.65 kg/m2	↓	↓	8.400	2.024	0.952
095 304-0600	Barriers,aluminum foil,fiberglass reinf.,parallel with joists	SQM	0.125 Labor Foreman 1.000 Finishing Carpenter 1.000 Helper 1.000 Power Tools	20.000	0.850	0.400
095 304-0700	Barriers,aluminum foil,fiberglass reinf.,perpendicular to joists			12.000	1.417	0.667
095 304-0900	Barriers,aluminum mesh,kraft,paperbacked			20.000	0.850	0.400
095 304-0980	Barriers,fiberglass batts,kraft faced, 150 mm thick			100.000	0.170	0.080
095 304-1000	Barriers,sheet lead, 0.45 kg., 0.397 mm thick,perpendicular to joists	↓	↓	10.500	1.619	0.762
<b>095 308</b>	<b>SOUND ATTENUATION:</b>					
095 308-0010	Sound attenuation,blanket, 25 mm thick	SQM	0.125 Labor Foreman 1.000 Finishing Carpenter 1.000 Helper 1.000 Power Tools	36.000	0.472	0.222
095 308-1500	Sound attenuation,blanket, 76 mm thick			35.000	0.486	0.229
095 308-3200	Sound attenuationthermal or acoustical bat, above ceiling, 100 mm thick			33.000	0.515	0.242
095 308-3600	Sound attenuation,urethane plastic foam,open cell,on wall,100 mm thick			40.000	0.425	0.200

# **DIVISION 09: FINISHES**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
095 308-3900	Sound attenuation,urethane plastic foam,open cell,on ceiling, 100 mm thick			33.000	0.515	0.242
095 308-4200	Sound attenuation, fiberglass reinforced backer board underlayment, on floor, 11 mm thick.			30.000	0.567	0.267
<b>095 600</b>	<b>WOOD STRIP FLOORING</b>					
<b>095 604</b>	<b>WOOD:</b>					
095 604-0600	Wood floor,in mastic,over 2 ply flet, 20 mm or 26 mm thick maple	SQM	0.125 Labor Foreman 1.000 Finishing Carpenter 1.000 Helper 1.000 Power Tools	12.200	1.393	0.656
095 604-1600	Wood,maple flooring,over sleepers, 20 mm thick			10.200	1.667	0.784
095 604-1900	Wood,maple flooring,over sleepers, 26 mm thick			9.690	1.754	0.826
095 604-3700	Wood,portable hardwood,prefinished panels			9.690	1.754	0.826
095 604-3720	Wood,portable hardwood,prefinished panels,insulated with polystyrene, 25 mm thick			4.850	3.505	1.649
095 604-4000	Wood,maple,strip, 20 mm x 57 mm,not including finish			10.000	1.700	0.800
095 604-5200	Wood,parquetry,standard, 8 mm thick,not including finish,oak or teak average			10.200	1.667	0.784
095 604-5650	Wood,parquetry,standard, 20 mm thick,oak,average			10.200	1.667	0.784
095 604-5800	Wood,parquetry,custom,including finish,average			6.375	2.667	1.255
095 604-6500	Wood,prefinished,hardwood blocks, 230 mm x 230 mm, 20 mm thick			10.200	1.667	0.784
095 604-7200	Wood,prefinished,acrylic wood parquet blocks, 300 mm x 300 mm x 8 mm,irradiated in epoxy			10.200	1.667	0.784
095 604-7400	Wood, yellow pine,20 mm x 80 mm ,tounge & groove, not including finish.			13.260	1.282	0.603
095 604-7500	Refinish wood floor,sand, 2 coats poly.wax soft wood,average			19.700	0.863	0.406
095 604-7600	Refinish wood floor,sand, 2 coats poly.wax hard wood,average			8.800	1.932	0.909
095 604-7800	Wood,sanding and finishing,fill,polyurethane,wax			13.800	1.232	0.580
095 604-7900	Wood,subfloor and underlayment,	<b>See division 061164 &amp; 168</b>				
<b>095 650</b>	<b>WOOD BLOCK FLOORING</b>					
<b>095 651</b>	<b>WOOD BLOCK FLOORING:</b>					
095 651-0400	Wood block flooring,natural finish, 25 mm thru. 50 mm thick, fir or pine	SQM	0.125 Labor Foreman 1.000 Finishing Carpenter 1.000 Helper 1.000 Power Tools	15.000	1.133	0.533
<b>096</b>	<b>FLOORING &amp; CARPET</b>					
<b>096 150</b>	<b>MARBLE FLOORING</b>					
<b>096 151</b>	<b>MARBLE &amp; GRANITE:</b>					



## DIVISION 09: FINISHES

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
096 151-0010	Marble,Thin gauge tile, 300 mm x 150 mm, 10 mm, mortar set	SQM	0.375 Foreman 2.000 Tile Layer 3.000 Tiler Layer Helper 0.625 Equip. Operator 0.625 Crane 11 Ton 0.500 Power Tools 0.125 Hodcarrier 0.500 Grinding Machine	10.950	4.384	1.279
096 151-0030	Marble tile 200 mm x 200 mm x 20 mm , mortar set	"	"	10.700	4.486	1.308
096 151-0050	Marble tile 300 mm x 300 mm x 20 mm , mortar set	SQM	0.375 Foreman 2.000 Tile Layer 3.000 Tiler Layer Helper 0.625 Equip. Operator 0.625 Crane 11 Ton 0.500 Power Tools 0.125 Hodcarrier 0.500 Grinding Machine	15.300	3.137	0.915
096 151-0080	Marble tile 400 mm x 400 mm x 20 mm , mortar set			16.400	2.927	0.854
096 151-0100	Marble tile 400 mm x 400 mm x 30 mm , mortar set			14.153	3.392	0.989
096 151-0120	Marble tile 400 mm x 400 mm x 30 mm , mortar set, Building above 5 floors,reduce production 3% each extra floor, avg production through building for 15 floors as example.			12.501	3.840	1.120
096 151-0140	Marble tile 400 mm x 400 mm x 30 mm , mortar set, Building above 5 floors,reduce production 3% each extra floor, avg production through building for 25 floors as example.			10.756	4.463	1.302
096 151-0200	Marble, 300 mm x 300 mm x 10 mm, thin set,floors			17.000	2.824	0.824
096 151-1000	Granite floor, 300 mm x 300 mm x 20 mm thick.			13.000	3.692	1.077
096 151-1100	Granite floor, 400 mm x 400 mm x 30 mm thick.	↓		12.000	4.000	1.167
096 151-2000	Marble stair tread 300 mm & riser 160 mm high, up to 1 meter long.	LM		19.450	2.468	0.720
096 151-2100	Marble stair tread 300 mm & riser 160 mm high, from 1.2 meter up to 1.8 meter long.			25.869	1.856	0.541
096 151-2500	Granite stair tread 300 mm & riser 160 mm high, up to 1 meter long.			17.000	2.824	0.824
096 151-2800	Granite stair tread 300 mm & riser 160 mm high, from 1.2 meter up to 1.8 meter long.	↓	↓	22.000	2.182	0.636
<b>096 250</b>	<b>SLATE FLOORING</b>					
<b>096 251</b>	<b>SLATE TILE:</b>					
096 251-0010	Slate tile,150 mm x 150 mm x 6 mm thick,thin set	SQM	0.125 Foreman 1.000 Tile Layer 1.000 Tiler Layer Helper 0.125 Equip. Operator 0.125 Crane 11 Ton 1.000 Power Tools 0.125 Hodcarrier	15.000	1.200	0.667

**DIVISION 09: FINISHES**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>096 254</b>	<b>CONCRETE FLOORS</b>	<i>And toppings, see division 033-454</i>				
<b>096 350</b>	<b>BRICK FLOORING</b>					
<b>096 354</b>	<b>FLOORING:</b>					
096 354-0010	Flooring, acidproof shales, red, 200 mm x 95 mm x 32 mm thick, sand bed.	SQM	0.125 Foreman 1.000 Tile Layer 1.000 Tiler Layer Helper 1.000 Hodcarrier 1.000 Power Tools	9.000	1.889	1.778
096 354-0050	Flooring, acidproof shales, red, 200 mm x 95 mm x 57 mm thick, sand bed.			8.325	2.042	1.922
096 354-0200	Flooring, acidproof clay brick, 300 mm x 300 mm x 40 mm thick, mortar bed.			10.350	1.643	1.546
096 354-0260	Flooring, ceramic, 100 mm x 200 mm x 13 mm thick, unglazed, mortar bed			9.300	1.828	1.720
096 354-0280	Flooring, ceramic, hexagonal tile 200 mm, 20 mm thick, mortar bed			8.370	2.031	1.912
096 354-0500	Flooring, pavers, 200 mm x 100 mm, 25 mm to 44 mm thick red, mortar bed.			8.280	2.053	1.932
096 354-0540	Flooring, pavers, 200 mm x 100 mm, to 44 mm thick red, mortar bed with epoxy joints			7.000	2.429	2.286
096 354-0580	Flooring, pavers, 200 mm x 100 mm, 57 mm thick red, mortar bed			7.750	2.194	2.065
096 354-0870	Flooring for epoxy joints add			48.000	0.354	0.333
096 354-0890	Flooring, for waxed surface, steam cleaned	↓	↓	80.000	0.213	0.200
<b>096 600</b>	<b>RESILIENT TILE FLOORING</b>					
<b>096 610</b>	<b>RESILENT:</b>					
096 610-0050	Resilient, asphalt tile, on concrete, 3 mm thick, colored.	SQM	0.125 Foreman 1.000 Tile Layer 1.000 Helper 1.000 Tools Set	42.800	0.397	0.187
096 610-0800	Resilient base, cove, rubber or vinyl, to 3 mm thick, standard colors, upto 150 mm high	LM		110.000	0.155	0.073
096 610-1700	Resilient conductive flooring, rubber tile, or homogeneous vinyl tile, 3 mm thick	SQM		39.000	0.436	0.205
096 610-2200	Resilient, Unbevelled Cork tile, standard finish, or urethane finish, 3 mm thick to 13 mm thick			21.400	0.794	0.374
096 610-2205	Resilient, bevelled Cork tile, standard finish, or urethane finish, 3 mm thick to 13 mm thick			26.700	0.637	0.300
096 610-3700	Resilient, polyethylene, in rolls, no base, including nylon action surface, up to 10 mm thick.			32.000	0.531	0.250
096 610-5500	Resilient polyvinyl chloride sheet, for gymnasium, 6 mm thick	↓	↓	16.000	1.063	0.500

# **DIVISION 09: FINISHES**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
096 610-5600	Resilient polyvinyl chloride sheet, for gymnasium, 10 mm thick	SQM	0.125 Foreman 1.000 Tile Layer 1.000 Helper 1.000 Tools Set	14.000	1.214	0.571
096 610-5900	Resilient rubber sheet, 914 mm wide, 3 mm thick			32.000	0.531	0.250
096 610-6000	Resilient rubber sheet, 914 mm wide, 6 mm thick			26.000	0.654	0.308
096 610-6050	Resilient rubber tile, marbled colors, 300 mm x 300 mm, 5 mm thick			28.000	0.607	0.286
096 610-6700	Resilient, synthetic turf, 10 mm thick			16.000	1.063	0.500
096 610-6750	Resilient, synthetic turf, interlocking 610 mm x 610 mm squares, 13 mm thick, not cemented, for playgrounds, average			16.000	1.063	0.500
096 610-7000	Resilient, vinyl composition tile, 300 mm x 300 mm, 2 mm thick or 3 mm thick, embossed or marbled or solid			34.000	0.500	0.235
096 610-8000	Resilient, vinyl sheet goods, backed, to 6 mm thick, average			32.000	0.531	0.250
<b>096 780 RESILIENT ACCESSORIES</b>						
<b>096 781 STAIR TREADS AND RISERS:</b>						
096 781-0300	Stair treads, rubber, molded tread, 300 mm wide, 8 mm thick	LM	0.125 Foreman 1.000 Tile Layer 1.000 Helper 1.000 Tools Set	42.500	0.400	0.188
096 781-0900	Stair treads, rubber, grip strip safety tread, colors, 8 mm thick	LM		42.500	0.400	0.188
096 781-1200	Stair landing, rubber, grip strip safety tread, colors, 8 mm thick	SQM		32.000	0.531	0.250
096 781-2100	Stair treads, vinyl, molded 300 mm wide, colors, 6 mm thick	LM		42.500	0.400	0.188
096 781-2400	Stair risers, vinyl, 178 mm high, 3 mm thick, coved			63.000	0.270	0.127
096 781-2500	Stair treads and risers combined, vinyl, 3 mm thick			32.000	0.531	0.250
<b>096 850 SHEET CARPET</b>						
<b>096 852 CARPET:</b>						
096 852-1100	Carpet, commercial grade, direct cement, Nylon, level loop, upto 1134 gram, avg size room	SQM	0.125 Foreman 1.000 Tile Layer 1.000 Helper	80.000	0.213	0.100
096 852-3340	Carpet, commercial grade, direct cement, Nylon, plush, upto 1700 gram, avg size room			68.000	0.250	0.118
096 852-3500	Carpet, commercial grade, direct cement, Olefin, upto 1190 gram, avg size room			68.000	0.250	0.118
096 852-4500	Carpet, commercial grade, direct cement, Wool, level loop, upto 1418 gram, avg size room			80.000	0.213	0.100
096 852-4900	Carpet, commercial grade, direct cement, Wool, patterned, upto 1360 gram, avg size room			64.000	0.266	0.125
096 852-5000	Carpet, commercial grade, direct cement, Nylon, plush, upto 1700 gram, Small rooms wide less than 3.6 meters			54.000	0.315	0.148

**DIVISION 09: FINISHES**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
096 852-5200	Carpet,commercial grade,direct cement, Wool,patterned, upto 1360 gram, Large open area, no cuts.	↓		110.000	0.155	0.073
096 852-5600	For bound carpet baseboard	LM		160.000	0.106	0.050
096 852-5610	Carpet for stairs, average 1.2 meter long trad.	RISER		32.000	0.531	0.250
096 852-9000	Carpet,sponge rubber pad, or sponge felt pad, or urethane pad, average	SQM	↓	180.000	0.094	0.044
<b>096 856</b>	<b>CARPET MAINTENANCE:</b>					
096 856-0010	Carpet maintenance,steam clean,per cleaning average	SQM	1 Common Laborer 1 Power tool	160.000	0.050	0.050
<b>096 900</b>	<b>CARPET TILE:</b>					
096 900-5060	Carpet tile, 457 mm x 457 mm or 610 mm x 610 mm upto 1190 gram	SQM	0.125 Foreman 1.000 Tile Layer 1.000 Helper 1.000 Tools Set	59.000	0.288	0.000
<b>097</b>	<b>SPECIAL FLOORING &amp; FLOOR TREATMENT</b>					
<b>097 200</b>	<b>EPOXY-MARBLE FLOORING</b>					
<b>097 201</b>	<b>COMPOSITION FLOORING:</b>					
097 201-0010	Composition flooring,acrylic, 6 mm thick	SQM	0.125 Foreman 1.000 Cement Finisher 4.000 Common Laborer 1.000 Grinder 0.500 Mixer 1.000 Gas Vibrator 0.500 Hodcarrier 0.500 Hand Metal Roller	32.000	1.281	0.750
097 201-0100	Composition flooring,acrylic, 10 mm thick			28.000	1.464	0.857
097 201-0600	Composition flooring,epoxy,with colored quartz chips,boardcast,average			30.000	1.367	0.800
097 201-0900	Composition flooring,epoxy,trowelled,average			22.500	1.822	1.067
097 201-1200	Composition flooring,heavy duty epoxy topping, 6 mm thick	↓	↓	18.000	2.278	1.333
097 201-1800	Composition flooring,epoxy terrazzo, 6 mm thick,chemical resistant,average	SQM	0.250 Foreman 2.000 Terrazzo Workers 3.000 Terrazzo Helper 0.250 Terrazzo Grinder 0.250 Terrazzo Mixer 0.28 m3 1.000 Hodcarrier 0.250 Tools Set 0.500 Hand Metal Roller	15.000	2.800	1.200
<b>098</b>	<b>SPECIAL COATINGS</b>					
<b>098 150</b>	<b>GLAZED COATINGS</b>					
<b>098 150</b>	<b>GLAZED COATINGS:</b>					

## DIVISION 09: FINISHES

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
098 150-0010	Wall coatings, acrylic glazed coatings, average	SQM	1 Painter, ordinary 1 Set Consumable Tools	35.000	0.229	0.229
098 150-0300	Wall coatings, epoxy coatings, average			30.000	0.267	0.267
098 150-0600	Wall coatings, exposed aggregate, troweled on, 2 mm to 6 mm, average			18.000	0.444	0.444
098 150-3600	Wall coatings, ceramic-like glazed coating, cementitious, average			35.000	0.229	0.229
<b>099</b>	<b>PAINTING &amp; WALL COVERINGS</b>					
<b>099 100</b>	<b>EXTERIOR PAINTING</b>					
<b>099 104</b>	<b>DOORS AND WINDOWS:</b>					
099 104-0130	Door frames & trim, only, brushwork, primer	LM	1 Painter, ordinary 1 Set Consumable Tools	200.000	0.040	0.040
099 104-0120	Door frames & trim, only, brushwork, finish coat exterior latex			180.000	0.044	0.044
099 104-0130	Door frames & trim, only, brushwork primer & 1 coat, exterior latex			95.000	0.084	0.084
099 104-0140	Door frames & trim, only, brushwork, primer & 2 coat, exterior latex			60.000	0.133	0.133
099 104-0150	Doors, flush, both sides, 0.9 x 2.1 m, including frame, brushwork primer, Paint area 7.2 meter both sides.	EA		17.000	0.471	0.471
099 104-0160	Doors, flush, both sides, brushwork primer paint	SQM		120.000	0.067	0.067
099 104-0190	Doors, flush, both sides, brushwork, primer, & 2 coats exterior latex.	*		37.000	0.216	0.216
099 104-0200	Doors, flush, both sides, 0.9 x 2.1 m, including frame & trim, brushwork Stain sealer & 2 coats polyurethane, Paint area 7.2 meter both sides.	EA		3.000	2.667	2.667
099 104-0205	Doors, flush, both sides, including frame & trim, brushwork, stain, sealer & 2 coats polyurethane	SQM		20.000	0.400	0.400
099 104-0270	Doors, louvered, both sides, including frame & trim, brushwork, primer			54.000	0.148	0.148
099 104-0290	Doors, louvered, both sides, including frame & trim, brushwork primer & finish coat exterior latex			20.000	0.400	0.400
099 104-0310	Doors, louvered, both sides, including frame & trim, brushwork, primer & 2 coats, exterior latex			15.000	0.533	0.533
099 104-0320	Doors, louvered, both sides, including frame & trim, brushwork, stain, sealer & 2 coats polyurethane			10.000	0.800	0.800
099 104-0330	Doors, panel, both sides, including frame & trim, roll & bursh, primer			84.000	0.095	0.095
099 104-0370	Doors, panel, both sides, including frame & trim, roll, primer & 2 coats, exterior latex			22.000	0.364	0.364
099 104-0380	Doors, panel, both sides, including frame & trim, brushwork, stain, sealer, 2 coats polyurethane			14.250	0.561	0.561
099 104-0420	Window, wood upto 1.4 m2 surface, brushwork primer			96.000	0.083	0.083
099 104-0450	Window, wood upto 1.4 m2 surface, brushwork, primer & 2 coats			30.000	0.267	0.267
099 104-0446	Window, wood upto 1.4 m2 surface, brushwork stain sealer & 1 coat varnish			16.250	0.492	0.492
<b>099 106</b>	<b>SIDING</b>					

## DIVISION 09: FINISHES

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
099 106-0500	Exterior siding painting,alkyd,oil base, 2 coats,spray	SQM	1 Painter,ordinary 1 Paint sprayer	160.000	0.050	0.050
099 106-1200	Stucco,rough,oil base,paint 2 coats,brushwork			44.000	0.182	0.182
099 106-1400	Stucco,rough,oil base,paint 2 coats,roller			70.000	0.114	0.114
099 106-1600	Stucco,rough,oil base,paint 2 coats,spray			140.000	0.057	0.057
099 106-1800	siding,clapboard,oil base, primer coat,& 2 coats texture,brushwork			120.000	0.067	0.067
099 106-4400	Siding wood shingles,oil base,primer coat, & 2 coats texture,spray			70.000	0.114	0.114
099 106-5000	Siding wood shingles, roll, 2 coats stain.			39.000	0.205	0.205
099 106-6000	Siding wood shingles, brushwork 2 coats stain			38.000	0.211	0.211
099 106-8000	Siding wood shingles, oil base, 3 coats, 1 coat primer, brushwork, 2 coats, spray.			50.000	0.160	0.160
<b>099 108 FENCES:</b>						
099 108-0110	Fences paint chain link or wire metal, water base, 1 coat roller & 1 coat brushwork	SQM	1 Painter,ordinary 1 Set Consumable Tools	52.000	0.154	0.154
099 108-0130	Fences paint chain link or wire metal,spray,water base, & 2 coats.		1 Painter,ordinary 1 Paint sprayer	150.000	0.053	0.053
099 108-0200	Fences paint stockade,water base roll & brush,first coat		1 Painter,ordinary 1 Set Consumable Tools	95.000	0.084	0.084
099 108-0220	Fences paint stockade,water base roll & brush,second coat		"	125.000	0.064	0.064
099 108-0230	Fences paint stockade,water base spray,first coat		1 Painter,ordinary 1 Paint sprayer	275.000	0.029	0.029
099 108-0240	Fences paint stockade,water base spray,second coat		"	335.000	0.024	0.024
<b>099 112 MISCELLANEOUS:</b> <i>For painting metals see Div. 051255</i>						
099 112-0100	Railing,exterior,decorative wood,including balusters,brushwork stain, seal, sand & varnish First coat.	LM	1 Painter,ordinary 1 Set Consumable Tools	52.000	0.154	0.154
099 112-0120	Railing paint,brushwork,stain,sand,seal & varnish Second coat.	"		68.000	0.118	0.118
099 112-0450	Decking paint,sealer or paint,alkyd,brushwork	SQM		28.000	0.286	0.286
099 112-0460	Decking paint,sealer or paint,alkyd,brushwork,first coat			30.000	0.267	0.267
099 112-0470	Decking paint,sealer,or paint,alkyd,brushwork,second coat	SQM	1 Painter,ordinary 1 Set Consumable Tools	32.000	0.250	0.250
<b>099 120 TRIM:</b>						
099 120-0120	Paint fascia, 25 mm thick, 100 mm high,latex paint one coat,brushwork, & roll 2 coats	LM	1 Painter,ordinary 1 Set Consumable Tools	62.000	0.129	0.129
099 120-0140	Paint fascia, 25 mm thick, 100 mm high,latex paint one coat,brushwork, & spray! 2 coats		1 Painter,ordinary 1 Paint sprayer	89.000	0.180	0.090
099 120-0200	Paint fascia, 25 mm thick, 300 mm high,latex paint one coat,brush work, & spray! 2 coats		"	80.000	0.200	0.100
099 120-0220	Gutters & downspouts paint,metal zinc chromate paint,brushwork,gutters, 127 mm, 3 coats		1 Painter,ordinary 1 Set Consumable Tools	60.000	0.133	0.133

**DIVISION 09: FINISHES**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>099 124</b>	<b>WALLS,MASONRY (CMU):</b>					
099 124-0410	Walls,masonry paint,roll,latex,paint, first coat	SQM	1 Painter,ordinary 1 Set Consumable Tools	200.000	0.040	0.040
099 124-0420	Walls,masonry paint,roll,latex,paint, second coat	SQM	1 Painter,ordinary 1 Set Consumable Tools	230.000	0.035	0.035
099 124-0430	Walls,masonry paint,roll,waterproof sealer, first coat			112.000	0.071	0.071
099 124-0440	Walls,masonry paint,roll,waterproof sealer, 2nd coat			176.000	0.045	0.045
099 124-0450	Walls,masonry paint,spray,latex,paint,first coat		1 Painter,ordinary 1 Paint sprayer	400.000	0.020	0.020
099 124-0460	Walls,masonry paint,spray,latex,paint, 2nd coat			450.000	0.018	0.018
099 124-0470	Walls,masonry paint,spray,waterproof,sealer,first coat			400.000	0.020	0.020
099 124-0480	Walls,masonry paint,spray,waterproof,sealer,second coat			450.000	0.018	0.018
<b>099 200</b>	<b>INTERIOR PAINTING</b>					
<b>099 204</b>	<b>CABINETS AND CASEWORK:</b>					
099 204-1000	Cabinets and casework,primer coat,oil base,brushwork	SQM	1 Painter,ordinary 1 Set Consumable Tools	48.000	0.167	0.167
099 204-2000	Cabinets and casework,paint,latex paint,brushwork, 1 coat			42.000	0.190	0.190
099 204-3000	Cabinets and casework,paint,stain,brushwork,wipe off			36.000	0.222	0.222
099 204-4500	Cabinets and casework,varnish,3 coats,brushwork,sand after 1st coat			18.000	0.444	0.444
<b>099 214</b>	<b>DOORS &amp; WINDOWS,LATEX:</b>					
	<i>See Div. 099104 exterior doors.</i>					
<b>099 216</b>	<b>DOORS &amp; WINDOWS,ALKYD (OIL BASE):</b>					
	<i>Labor cost includes protection of adjacent items not painted</i>					
099 216-0500	Flush door & frame paint,oil,primer brushwork	SQM	1 Painter,ordinary 1 Set Consumable Tools	120.000	0.067	0.067
099 216-1000	Flush door & frame paint,oil,primer brushwork,& 1 coat paint.			53.000	0.151	0.151
099 216-1400	Flush door & frame, stain, brushwork,wipe off			110.000	0.073	0.073
099 216-1800	Flush door & frame paint,varnish, 3 coats brushwork,sand after 1st coat			20.000	0.400	0.400
099 216-2000	Panel door & frame paint,oil,primer brushwork			84.000	0.095	0.095
099 216-2200	Panel door & frame paint,oil,primer brushwork, & 1 coat paint			46.000	0.174	0.174
099 216-2600	Panel door & frame paint,stain,brushwork,wipe off			102.000	0.078	0.078
099 216-3000	Panel door & frame paint,varnish, 3 coats brushwork,sand after 1st coat			18.000	0.444	0.444
099 216-4400	Paint windows including frame & trim,per side,oil primer,brushwork			110.000	0.073	0.073
099 216-5800	Paint windows including frame & trim,per side,oil primer & 1 coat brushwork			53.000	0.151	0.151
<b>099 224</b>	<b>WALLS AND CEILINGS:</b>					
	<i>Labor cost includes protection of adjacent items not painted</i>					

## DIVISION 09: FINISHES

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
099 224-0100	Paint concrete, dry wall or plaster, oil base, primer or sealer coat smooth finish, brushwork	SQM	1 Painter, ordinary 1 Set Consumable Tools	115.000	0.070	0.070
099 224-0240	Paint concrete, dry wall or plaster, oil base, primer or sealer coat smooth finish, roller			140.000	0.057	0.057
099 224-0800	Paint concrete, dry wall or plaster, paint 2 coats, smooth finish, brushwork			60.000	0.133	0.133
099 224-0840	Paint concrete, dry wall or plaster, paint 2 coats, smooth finish, roller			75.000	0.107	0.107
099 224-0880	Paint concrete, dry wall or plaster, paint 2 coats, smooth finish, spray		1 Painter, ordinary 1 Paint sprayer	140.000	0.057	0.057
099 224-0900	Paint concrete, dry wall or plaster, paint 2 coats, sand finish, brushwork		1 Painter, ordinary 1 Set Consumable Tools	50.000	0.160	0.160
099 224-0940	Paint concrete, dry wall or plaster, paint 2 coats, sand finish, roller		..	64.000	0.125	0.125
099 224-0980	Concrete, dry wall or plaster, paint 2 coats, sand finish, spray		1 Painter, ordinary 1 Paint sprayer	118.000	0.068	0.068
099 224-1200	Concrete, dry wall or plaster, paint 3 coats, smooth finish, brushwork		1 Painter, ordinary 1 Set Consumable Tools	40.000	0.200	0.200
099 224-1240	Concrete, dry wall or plaster, paint 3 coats, smooth finish, roller		..	50.000	0.160	0.160
099 224-1280	Concrete, dry wall or plaster, paint 3 coats, smooth finish, spray		1 Painter, ordinary 1 Paint sprayer	94.000	0.085	0.085
<b>099 700 WALLPAPER</b>						
<b>099 701 WALL COVERING</b>						
099 701-0050	Wall covering, aluminum foil	SQM	1 Paper hanger 1 Set Tools	30.000	0.267	0.267
099 701-0100	Wall covering, copper sheets, 0.6 mm thick, vinyl backing			27.000	0.296	0.296
099 701-0600	Wall covering, cork tiles, light or dark, 300 mm x 300 mm x 5 mm			27.000	0.296	0.296
099 701-0700	Wall covering, cork tiles, light or dark, 300 mm x 300 mm x 8 mm			26.000	0.308	0.308
099 701-0900	Wall covering, cork tiles, light or dark, 300 mm x 300 mm x 6 mm, basketweave	SQM	1 Paper hanger 1 Set Tools	27.000	0.296	0.296
099 701-1000	Wall covering, cork tiles, light or dark, 300 mm x 300 mm x 13 mm, natural, non-directional pattern			27.000	0.296	0.296
099 701-1200	Wall covering, cork tiles, granular surface, 300 mm x 910 mm x 13 mm thick			42.000	0.190	0.190
099 701-1300	Wall covering, cork tiles, granular surface, 300 mm x 910 mm x 25 mm thick			40.000	0.200	0.200
099 701-1500	Wall covering, cork tiles, polyurethane coated, 300 mm x 300 mm x 5 mm thick			27.000	0.296	0.296
099 701-1600	Wall covering, cork tiles, polyurethane coated, 300 mm x 300 mm x 8 mm thick			26.000	0.308	0.308
099 701-1800	Wall covering, cork wallpaper, paperbacked, natural or coloured			42.000	0.190	0.190
099 701-2100	Wall covering, flexible wood veneer, 0.8 mm thick, plain woods			10.000	0.800	0.800
099 701-2200	Wall covering, flexible wood veneer, 0.8 mm thick, exotic woods			9.000	0.889	0.889
099 701-2400	Wall covering, gypsum based, fabric-backed, fire resistant for masonry walls, average			55.000	0.145	0.145



## DIVISION 09: FINISHES

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
099 701-2750	Wall covering, acrylic, modified, semi-rigid PVC, 0.71 mm thick			35.000	0.229	0.229
099 701-2800	Wall covering, acrylic, modified, semi-rigid PVC, 1 mm thick			33.000	0.242	0.242
099 701-3000	Wall covering, vinyl, fabric-backed, lightweight			55.000	0.145	0.145
099 701-3300	Wall covering, vinyl, fabric-backed, medium weight			42.000	0.190	0.190
099 701-3400	Wall covering, vinyl, fabric-backed, heavy weight			38.000	0.211	0.211
099 701-3700	Wall covering, wallpaper, average workmanship, solid pattern, low cost paper			55.000	0.145	0.145
099 701-3900	Wall covering, wallpaper, average workmanship, basic patterns (matching required), Quality workmanship			45.000	0.178	0.178
099 701-4100	Wall covering, linen wall covering, paper backed			27.000	0.296	0.296
099 701-4100	Wall covering, grass cloths with lining paper	↓	↓	27.000	0.296	0.296
<b>099 900</b>	<b>SURFACE PREPARATION</b>					
<b>099 902</b>	<b>REMOVAL: Existing lead paint, by chemicals</b>					
099 902-0030	Removal existing paint from, plain metal surfaces	SQM	1 Painter, ordinary 1 Set Tools	9.600	0.833	0.833
099 902-0040	Removal existing paint from, plain wood surfaces			8.400	0.952	0.952
099 902-0070	Removal existing paint from, baseboard, to 300 mm wide			9.600	0.833	0.833
099 902-0200	Removal existing paint from balustrades, one side			2.940	2.721	2.721
099 902-1400	Removal existing paint from cabinets average.			3.360	2.381	2.381
099 902-2800	Removal existing paint from doors, one side			7.560	1.058	1.058
099 902-2840	Removal existing paint from doors, paneled, one side			4.300	1.860	1.860
099 902-3200	Removal existing paint from grilles, one side, average	↓		2.850	2.807	2.807
099 902-4400	Removal existing paint from pipes, to 100 mm diameter (4")	LM		30.500	0.262	0.262
099 902-4440	Removal existing paint from pipes, to 300 mm diameter (12")	"	↓	10.100	0.792	0.792

# Division 10

## Specialties

### Estimating Tips

#### General

Many items in Division 10 require some type of support system that is not usually furnished with the item. Examples of these systems include blocking for the attachment of grab bars and support angles for ceiling hung toilet partitions. The required blocking or supports material must be added to the estimate in the appropriate division.

Some items in Division 10, such as lockers, may require assembly before installation.

Usually items of this division prefabricated and installed by special contractors under the general contractor supervision and coordination. Some items may be covered under provisional sum.

#### 106 Partitions & Storage Shelving

The required acoustical rating of a folding partition can have a significant impact on costs. Verify the sound transmission co-efficient rating of the panel priced to the specification requirements.

DIVISION 10 : SPECIALTIES						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>101</b>	<b>CHALKBOARDS, COMPARTMENTS &amp; CUBICLES</b>					
<b>101 100</b>	<b>CHALKBOARDS</b>					
<b>101 104</b>	<b>CHALKBOARDS</b>					
101 104-0500	Sliding chalkboards,Vertical,one sliding board with back panel, wall mounted 2.4 m x 1.2 m	EA	0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool	8.000	3.125	1.000
101 104-0540	Sliding chalkboards,Vertical,one sliding board with back panel, wall mounted 2.4 m x 3.6 m			6.000	4.167	1.333
101 104-0620	Sliding chalkboards,Vertical,two sliding boards with back panel 2.4 m x 1.2 m			8.000	3.125	1.000
101 104-0660	Sliding chalkboards,Vertical,two sliding board with back panel 2.4 m x 3.6 m			6.000	4.167	1.333
101 104-0800	Sliding chalkboards Horizontal, two track, 1.2 m x 2.4 m, 2 sliding panels			8.000	3.125	1.000
101 104-0820	Sliding chalkboards Horizontal, two track, 1.2 m x 3.6 m, 2 sliding panels			7.000	3.571	1.143
101 104-0840	Sliding chalkboards Horizontal, two track, 1.2 m x 4.8 m, 4 sliding panels			6.000	4.167	1.333
101 104-0920	Sliding chalkboards Horizontal, four track, 1.2 m x 2.4 m, 4 sliding panels			8.000	3.125	1.000
101 104-0960	Sliding chalkboards Horizontal, four track, 1.2 m x 4.8 mm, 4 sliding panels			6.000	4.167	1.333
101 104-1450	Sliding chalkboard Vertical, motor operated, one sliding panels with back panel; 3 m x 1.2 m		0.125 Labor Foreman 2.000 Carpenters 0.500 Electrician 1.000 Laborer 1.000 Power Tool	5.000	5.800	1.600
101 104-1550	Sliding chalkboard Vertical, motor operated, one sliding panels with back panel; 3 m x 4.8 m			4.000	7.250	2.000
101 104-1750	Chalkboard Vertical, motor operated, two sliding panels with back panel; 3 m x 1.2 m			5.000	5.800	1.600
101 104-1850	Chalkboard Vertical, motor operated, two sliding panels with back pane; 3 m x 4.8 m			4.000	7.250	2.000
101 104-2100	Chalkboard Vertical,motor operated, three sliding panels with back panel; 3 m x 1.2 m			4.500	6.444	1.778
101 104-2200	Chalkboard Vertical, motor operated, three sliding panels with back panel; 3 m x 4.8 m			3.500	8.286	2.286
101 104-3200	Chalkboard,swing leaf,any combination of chalkboard & cork,floor style, Aluminum frame 5 panels, 1.2 m x 1 m		0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool	10.000	2.500	0.800
101 104-3450	Chalkboard,swing leaf,any combination of chalkboard & cork,wall mounted, Aluminum frame 5 panels, 1.2 m x 1 m			5.000	5.000	1.600
101 104-3900	Chalkboard,wall hung, Aluminum frame and chalktrough; 0.9 m x 1.2 m			17.000	1.471	0.471
101 104-4500	Chalkboard,wall hung, Aluminum frame and chalktrough; 1.2 m x 3.6 m			14.000	1.786	0.571
101 104-5000	Chalkboard,,wall hung, Wood frame and chalktrough; 0.9 m x 1.5 m			17.000	1.471	0.471
101 104-5300	Chalkboard,wall hung, Wood frame and chalktrough; 1.2 m x 2.4 m			14.000	1.786	0.571
<b>101 600</b>	<b>TOILET COMPARTMENTS</b>					

DIVISION 10 : SPECIALTIES						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>101 602</b>	<b>PARTITIONS, TOILET</b>					
101 602-0100	Cubicles, ceiling hung, marble	EA	0.125 Labor Foreman 2.000 Tilers 1.000 Laborer 1.000 Power Tool	2.000	12.500	4.000
101 602-0200	Cubicles, ceiling hung, Painted metal, plastic laminated, stainless steel or porcelain enamel			5.000	5.000	1.600
101 602-0800	Cubicles, Floor & Ceiling anchored, marble			2.750	9.091	2.909
101 602-1000	Cubicles, floor & ceiling anchored, Painted metal, plastic laminated, stainless steel or porcelain enamel			5.750	4.348	1.391
101 602-1600	Cubicles, Floor mounted marble			3.250	7.692	2.462
101 602-1700	Cubicles, floor mounted, Painted metal, plastic laminate, porcelain enamel, or stainless steel.			7.000	3.571	1.143
101 602-3000	Cubicles, Wall hung partitions, painted metal, porcelain enamel or stainless steel.			7.000	3.571	1.143
101 602-4000	Screens, entrance, floor mounted, 1.4 m high, 1.2 m wide marble			10.000	2.500	0.800
101 602-4300	Screens, entrance, floor mounted, 1.4 m high, 1.2 m wide, plastic laminate on particle board			17.000	1.471	0.471
101 602-4500	Screens, entrance, floor mounted, 1.4 m high, 1.2 m wide, stainless steel			17.000	1.471	0.471
101 602-4600	Urinal screen, 457 mm wide, ceiling braced, marble			8.000	3.125	1.000
101 602-4700	Urinal screen, 457 mm wide, ceiling braced, plastic laminate, porcelain enamel or stainless steel.			9.000	2.778	0.889
101 602-5200	Urinal screen, 457 mm wide, floor mounted, head rail braced			8.000	3.125	1.000
101 602-5300	Urinal screen, 457 mm wide, floor mounted, head rail braced, painted metal			9.000	2.778	0.889
101 602-6700	Urinal screen, 457 mm wide, wall hung, bracket supported, painted metal			11.000	2.273	0.727
101 602-6800	Urinal screen, 457 mm wide, wall hung, bracket supported, plastic laminated, porcelain enamel or stainless steel			11.000	2.273	0.727
<b>101 850</b>	<b>SHOWER COMPARTMENTS</b>					
<b>101 852</b>	<b>PARTITIONS, SHOWER</b>					
101 852-0100	Shower cabinet, floor mounted, no plumbing, including base no door, painted steel, 25 mm thick walls	EA	0.125 Labor Foreman 2.000 Sheet Metal Workers 1.000 Laborer 1.000 Power Tools 1.000 Tools Set	4.500	5.556	3.556
101 852-0300	Shower cabinet, floor mounted, no plumbing, including base & fiberglass door, painted steel, 25 mm thick walls	EA	0.125 Labor Foreman 2.000 Sheet Metal Workers 1.000 Laborer 1.000 Power Tools 1.000 Tools Set	4.000	6.250	4.000
101 852-0600	Shower cabinet, floor mounted, no plumbing, including base & door, painted steel, 25 mm thick walls			4.500	5.556	3.556
101 852-1100	Shower stall, 25 mm thick wall, no base, Porcelain enameled steel.			4.500	5.556	3.556

DIVISION 10 : SPECIALTIES								
CSI CODE	ITEM DESCRIPTION	UNIT		CREW STRUCTURE		DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
101 852-1500	Shower cabinet,circular fiberglass ,floor mounted,no plumbing,no door, 915 mm diameter					3.500	7.143	4.571
101 852-1800	Shower cabinet,circular fiberglass ,floor mounted,w/door & no plumbing, 915 mm diameter					2.000	12.500	8.000
101 852-2400	Shower cabinet,glass stalls,floor mounted with doors, no plumbing, chrome on brass					2.000	12.500	8.000
101 852-2700	Shower cabinet,glass stalls,floor mounted with doors, no plumbing, Anodized aluminium.					3.000	8.333	5.333
101 852-2900	Marble shower stall,floor mounted,no plumbing, stock design, with shower door			0.125 Labor Foreman 2.000 Tilers 1.000 Laborer 1.000 Power Tool		1.000	25.000	8.000
101 852-4100	Shower doors, economy plastic, 610 mm wide			0.125 Labor Foreman 1.000 Sheet Metal Worker 1.000 Laborer 1.000 Tools Set		12.000	1.417	0.667
101 852-4200	Shower Door Tempered glass, economy					10.000	1.700	0.800
101 852-4500	Shower Door,Sliding, tempered glass, 1219 mm opening					8.000	2.125	1.000
101 852-4700	Shower Door,Deluxe, tempered glass, chrome on brass frame, average					6.000	2.833	1.333
101 852-5120	Shower enclosure,floor mounted,no plumbing, tempered glass, anodized alum. frame 2 panel & door, corner unit, 815 mm x 815 mm					2.500	6.800	3.200
101 852-5200	Shower surround,floor mounted,no plumbing, 3 wall, polypropylene, 815 mm x 815 mm			0.125 Labor Foreman 1.000 Carpenter 1.000 Laborer 1.000 Power Tool		8.000	2.125	1.000
101 852-5250	Shower surround,floor mounted, 2 wall, polypropylene, 815 mm x 815 mm			..		8.000	2.125	1.000
101 852-5300	Tub door, tempered glass & frame, average			0.125 Labor Foreman 1.000 Sheet Metal Worker 1.000 Laborer 1.000 Tools Set		10.000	1.700	0.800
101 852-5900	Tub/shower enclosure,floor mounted tempered glass, alum. frame, Average			..		3.000	5.667	2.667
101 852-5900	Tub/shower enclosure,floor mounted tempered glass, chrome-plated brass frame, Average			*		3.000	5.667	2.667
101 852-7000	Tub surround,floor mounted,no plumbing, 3 wall, fiberglass, Average			0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool		5.000	5.000	1.600
<b>102 LOUVERS, CORNER PROTECTION &amp; ACCESS FLOORING</b>								
<b>102 100 METAL WALL LAVOURS</b>								
<b>102 104 LOUVERS</b>								
102 104-1000	Louvers,aluminum with screen, residential, 300 mm x 300 mm	EA		0.125 Labor Foreman 2.000 Carpenter 1.000 Laborer 1.000 Power Tool		30.000	0.833	0.267
102 104-2000	Louvers aluminum with screen, residential, 300 mm x 457 mm					26.000	0.962	0.308

DIVISION 10 : SPECIALTIES						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
102 104-2500	Louvers aluminum with screen, residential, 356 mm x 610 mm			22.000	1.136	0.364
102 104-3000	Louvers aluminum with screen, residential, 457 mm x 610 mm			20.000	1.250	0.400
102 104-5000	Louvers aluminum with screen, residential, 610 mm x 762 mm			18.000	1.389	0.444
102 104-7000	Louvers aluminum,"Triangle, Adjustable,average			16.000	1.563	0.500
102 104-2100	Louvers,Midget, aluminum, 20 mm deep, 25 mm diameter			50.000	0.500	0.160
102 104-2150	Louvers,Midget, aluminum, 20 mm deep, 76 mm diameter			35.000	0.714	0.229
102 104-2200	Louvers,Midget, aluminum, 20 mm deep, 100 mm diameter			30.000	0.833	0.267
102 104-2250	Louvers,Midget, aluminum, 20 mm deep, 150 mm diameter	↓	↓	20.000	1.250	0.400
102 104-2300	Ridge vent louver strip,mill finish	LM	0.125 Labor Foreman 1.000 Sheet Metal Worker 1.000 Laborer 1.000 Tools Set	55.000	0.455	0.145
102 104-2330	Soffit vent,continuous louver, 76 mm wide,aluminum	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Laborer 1.000 Power Tool	65.000	0.385	0.123
102 104-7000	Vinyl gable vent louver, 200 mm x 200 mm or 300 mm x 300 mm			30.000	0.833	0.267
102 104-7080	Vinyl gable vent louver, 300 mm x 457 mm			26.000	0.962	0.308
102 104-7200	Vinyl gable vent louver, 356 mm x 610 mm	↓	↓	22.000	1.136	0.364
<b>102 600 WALL &amp; CORNER GUARDS</b>						
<b>102 604 CORNER GUARDS</b>						
102 604-0010	Corner guard,steel angle, 25 mm x 25 mm x 6 mm, 2.2 kg/m	LM	0.375 Struc. Steel Foreman 2.000 Struc. Steel Workers 1.000 Steel Welder 2.000 Laborers 1.000 Gas Welding Machine 1.000 Power Tool	60.000	0.717	0.267
102 604-0200	Corner guards, steel angle, 76 mm x 76 mm x 8 mm, 9.0 kg/m			52.000	0.827	0.308
102 604-0300	Corner guards, steel angle, 100 mm x 100 mm x 8 mm, 12 kg/m	↓		45.000	0.956	0.356
102 604-0500	Cast iron wheel guards, 915 mm high	EA		16.000	2.688	1.000
102 604-0600	Cast iron wheel guards, 1524 mm high			11.000	3.909	1.455
102 604-0800	Pipe bumper for truck doors, 2.4m long, 200 mm diameter [8"], filled.	↓	↓	12.000	3.583	1.333
<b>102 608 CORNER PROTECTION</b>						
102 608-0100	Corner Protection,Stainless steel, 16 ga., adhesive mount, 89 mm leg	LM	0.125 Labor Foreman 1.000 Structural Steel Worker 1.000 Power Tool	20.000	0.450	0.400
102 608-0200	Corner Protection,Stainless steel, 12 ga., adhesive mount, 89 mm leg			20.000	0.450	0.400
102 608-0300	Corner Protection,Stainless steel, 12 ga., Screw mount, 89 mm leg		↓	17.000	0.529	0.471

DIVISION 10 : SPECIALTIES						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
102 608-0500	Corner Protection,Vinyl acrylic, adhesive mount, 76 mm leg		1.000 Labor Foreman 1.000 Carpenter 1.000 Laborer 1.000 Power Tool	45.000	0.378	0.178
102 608-0600	Corner Protection,Vinyl acrylic, screw mounted, 76 mm leg			28.000	0.607	0.286
102 608-0700	Corner Protection,Clear plastic, screw mounted, 64 mm			21.000	0.810	0.381
102 608-1000	Corner Protection,Vinyl cover, aluminum retainer, surface mount, 76 mm x 76 mm			17.000	1.000	0.471
102 608-1100	Corner Protection,Vinyl cover, aluminum retainer, flush mount, 76 mm x 76 mm			11.000	1.545	0.727
<b>102 612 WALLGUARD</b>						
102 612-0500	Wall guard rail, neoprene, aluminum backing, 38 mm x 51 mm	LM	0.125 Labor Foreman 1.000 Carpenter 1.000 Laborer 1.000 Power Tool	45.000	0.378	0.178
102 612-1200	Wall Guard,Bed bumper, vinyl acrylic, aluminum retainer, 530 mm long	EA		10.000	1.700	0.800
102 612-1300	Wall Guard,Bed bumper, vinyl acrylic, aluminum retainer, 1340 mm long with aligner	"		8.000	2.125	1.000
102 612-2000	Wall Guard,Crash rail, vinyl cover, alum. retainer, 25 mm x 200 mm	LM		25.000	0.680	0.320
102 612-3010	Wall Guard,Handrail/bumper, Vinyl cover,aluminum retainer, flat rail,bracket mounted, 140 mm	"		22.000	0.773	0.364
<b>102 700 ACCESS FLOORING</b>						
<b>102 705 PEDESTAL ACCESS FLOORS</b>						
102 705-0020	Access floor,particle board or steel panels, no covering, 600 mm x 600 mm x 55 mm on snap prop stringers 200 mm high,less than 600 m2	SQM	0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Levelling Laser tools	25.000	1.000	0.320
102 705-0100	Access floor,particle board with metal covering, 600 mm x 600 mm x 55 mm on snap prop stringers 200 mm high,over 600 m2			30.000	0.833	0.267
102 705-0300	Access floor,aluminum panels 600 mm x 600 mm on stringers 200 mm high			35.000	0.714	0.229
102 705-0400	Access floor,steel panels with carpet covering on stringer 600 mm high			25.000	1.000	0.320
102 705-0700	Access floor,steel panels with high pressure laminate covering,stringers 600 mm high			25.000	1.000	0.320
102 705-0800	Access floor,extra heavy duty steel panels 600 mm x 600 mm x 64 mm with vinyl covering, stringer up to 600 mm high			20.000	1.250	0.400
102 705-0850	Access floor,fire stop, 900 mm long,upto 600 mm high	EA		32.000	0.781	0.250
102 705-1000	Machine cutout in access floor			15.000	1.667	0.533
102 705-1100	Air conditioning grille cutout 300 mm x 300 mm			15.000	1.667	0.533
102 705-1200	Access floor approach ramp,average	SQM		8.000	3.125	1.000
<b>103 FIREPLACES, EXT. SPECIALISTS &amp; FLAGPOLES</b>						
<b>103 050 PREFABRICATED FIREPLACES</b>						

DIVISION 10 : SPECIALTIES						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>103 054</b>	<b>FIREPLACE, PREFABRICATED</b>					
103 050-0100	Fireplace, prefabricated free standing or wall hung with hood & screen, Average	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Laborer 1.000 Power Tools	1.500	11.333	5.333
103 050-0500	Fireplace, chimney, double wall, stainless steel, over 2.6 m, 180 mm diameter.	LM		9.000	1.889	0.889
103 050-0600	Fireplace, chimney, double wall, stainless steel, over 2.6 m, 250 mm diameter			8.500	2.000	0.941
103 050-0700	Fireplace, chimney, double wall, stainless steel, over 2.6 m, 300 mm diameter,			8.000	2.125	1.000
103 050-0800	Fireplace, chimney, double wall, stainless steel, over 2.6 m, 356 mm diameter			7.500	2.267	1.067
103 050-2000	Fireplace, built-in, 915 mm hearth, radiant	EA		1.500	11.333	5.333
103 050-2400	Fireplace, built-in, 1.2 m hearth, radiant			1.250	13.600	6.400
103 050-2500	Fireplace, built-in, 1.2 m hearth, radiant, with recirculating fan			0.900	18.889	8.889
<b>103 460</b>	<b>CUPOLAS</b>					
103 460-0300	Cupola, Prefabricated, stock unit, pine, 585 mm square, 840 mm high, aluminium roof.	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Laborer 1.000 Power Tool	4.000	4.250	2.000
103 460-0400	Cupola, Prefabricated, stock unit, pine, 585 mm square, 840 mm high, copper roof.			3.500	4.857	2.286
103 460-1000	Cupola, Prefabricated, stock unit, pine, 915 mm hexagonal, 1270 mm high, copper roof			3.500	4.857	2.286
103 460-0300	Cupola, Prefabricated, stock unit, fiberglass, 1.8 m base, 1.7 m high.			4.000	4.250	2.000
<b>103 520</b>	<b>GROUND SET FLAGPOLES</b>					
<b>103 524</b>	<b>FLAGPOLE</b>					
	<i>Not including base or foundation</i>					
103 524-0100	Flagpole, Aluminum, tapered, ground set 6 m high	EA	0.125 Labor Foreman 1.000 Skilled Laborer 1.000 Common Laborer 1.000 Equipment Operator 1.000 Crane 11 Ton	3.000	8.333	2.667
103 524-0300	Flagpole, Aluminum, tapered, ground set 9 m high			2.250	11.111	3.556
103 524-0600	Flagpole, Aluminum, tapered, ground set 15 m high			1.500	16.667	5.333
103 524-0800	Flagpole, Aluminum, tapered, ground set 21 m high			1.200	20.833	6.667
103 524-3000	Flagpole, Fiberglass, tapered, ground set, 7.0 m high			3.000	8.333	2.667
103 524-3300	Flagpole, Fiberglass, tapered, ground set, 12.0 m high			1.750	14.286	4.571
103 524-3400	Flagpole, Fiberglass, tapered, ground set, 15 m high			1.500	16.667	5.333
103 524-3500	Flagpole, Fiberglass, tapered, ground set, 18.0 m high			1.400	17.857	5.714
103 524-4700	Flagpole, concrete, direct imbedded installation, internal halyard, 12 m high			3.000	8.333	2.667



DIVISION 10 : SPECIALTIES						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
103 524-5000	Flagpole,concrete, direct imbedded installation,internal halyard, 18 m high			2.500	10.000	3.200
103 524-5200	Flagpole,concrete, direct imbedded installation,internal halyard, 24 m high			2.000	12.500	4.000
103 524-6800	Flag pole, wood poles, tapered, clear vertical grain fir with tilting base, no foundation, 150 mm butt, 9 m high		0.125 Labor Foreman 2.000 Skilled Laborer 2.000 Common Laborer 1.000 Equipment Operator 1.000 Crane 11 Ton	3.000	13.667	2.667
103 524-7300	Foundation for flagpoles,including excavation and concrete,to 10.7 m high poles		0.125 Labor Foreman 3.000 Carpenters 1.000 Steel Fixer 2.000 Laborers 0.125 Equipment Operator 1.000 Power Tools 1.000 Excavator	10.000	5.000	1.600
103 524-7600	Foundations for flagpoles, including excavation and concrete, to 12 m to 15 m high poles			3.250	15.385	4.923
103 524-7700	Foundations for flagpoles, including excavation and concrete, over 18 m high poles			1.750	28.571	9.143
<b>103 540 WALL MOUNTED FLAGPOLES</b>						
<b>103 544 FLAGPOLE</b>						
103 540-0100	Flagpole structure mounted, fiberglass, vertical wall set, 7 m long	EA	0.125 Labor Foreman 1.000 Skilled Laborer 1.000 Common Laborer 1.000 Equipment Operator 1.000 Crane 11 Ton	2.000	12.500	4.000
103 540-1300	Flagpole structure mounted, aluminum, vertical wall set, tapered, with base 6 m	..	..	1.750	14.286	4.571
<b>104 IDENTIFYING &amp; PEDESTRIAN CONTROL DEVICES</b>						
<b>104 100 DIRECTORIES</b>						
<b>104 104 DIRECTORY BOARDS</b>						
104 104-0010	Directory boards, plastic, glass covered, 760 mm x 500 mm	EA	0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool	4.000	6.250	2.000
104 104-0100	Directory boards, plastic, glass covered, 914 mm x 1220 mm			2.500	10.000	3.200
104 104-0300	Directory boards, grooved cork,glass covered, 914 mm x 1220 mm			4.000	6.250	2.000
104 104-0600	Directory boards, black felt, glass covered, 760 mm x 500 mm			4.000	6.250	2.000
104 104-0700	Directory boards, plastic, glass covered, black felt, 914 mm x 1220 mm			2.500	10.000	3.200
104 104-0900	Directory boards, outdoor, weatherproof, black plastic, 914 mm x 610 mm			2.500	10.000	3.200
104 104-1000	Directory boards, outdoor, weatherproof, black plastic, 914 mm x 914 mm			2.000	12.500	4.000
104 104-1800	Directory boards, indoor,open face, 457 mm x 610 mm			6.000	4.167	1.333

DIVISION 10 : SPECIALTIES						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
104 104-1900	Directory boards, indoor,open face, 610 mm x 914 mm			6.000	4.167	1.333
104 104-2100	Directory boards,indoor,open face, 914 mm x 1219 mm			5.000	5.000	1.600
104 104-2400	Building directory,aluminum, black felt panels, 1 door, 610 mm x 457 mm			3.000	8.333	2.667
104 104-2600	Building directory, aluminum, black felt panels, 1 door, 1220 mm x 815 mm			2.500	10.000	3.200
104 104-2700	Building directory, aluminum, black felt panels, 2 doors, 914 mm x 1220 mm			2.000	12.500	4.000
104 104-2900	Building directory, aluminum, black felt panels, 2 doors, 1220 mm x 1524 mm			1.000	25.000	8.000
<b>104 150 BULLETIN BOARDS</b>						
<b>104 151 BULLETIN BOARD</b>						
104 151-0100	Bulletin board,Cork sheets, unbacked, no frame, upto 13 mm thick	SQM	0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool	25.000	1.000	0.320
104 151-1200	Bulletin board,6 mm vinyl cork, on 6 mm hardboard, no frame	--		25.000	1.000	0.320
104 151-2120	Bulletin board,Prefabricated, 6 mm cork, 914 mm x 1524 mm with frame	EA		15.000	1.667	0.533
104 151-2200	Bulletin board,Prefabricated, 6 mm cork, 1.2 m x 2.4 m with frame			12.000	2.083	0.667
104 151-2220	Bulletin board,Prefabricated, 6 mm cork, 1.2 m x 3.6 m with frame			10.000	2.500	0.800
104 151-2240	Bulletin board case, single glass door, with lock 914 mm x 610 mm			10.000	2.500	0.800
104 151-2400	Bulletin board,glass enclosed cabinets, aluminum, cork panel, hinged doors, 914 mm x 914 mm, 1 door			10.000	2.500	0.800
104 151-2500	Bulletin board,Glass enclosed cabinet, aluminum, cork panel, hinged doors, 1.2 m x 1.2 m, 2 doors			9.000	2.778	0.889
104 151-2600	Bulletin board,Glass enclosed cabinets, aluminum, cork panel, hinged doors, 1.2 m x 2.1 m, 3 doors			8.000	3.125	1.000
104 151-2800	Bulletin board,Glass enclosed cabinets, aluminum, cork panel, hinged doors, 1.2 m x 3 m, 4 doors & 4 lights			6.000	4.167	1.333
<b>104 155 CONTROL BOARDS</b>						
104 155-0100	Control board,Magnetic, porcelain finish, 610 mm x 914 mm	EA	0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool	7.000	3.571	1.143
104 155-0300	Control board,Magnetic, porcelain finish, 1.2 m x 1.8 m			5.000	5.000	1.600
104 155-0400	Control board,Magnetic, porcelain finish, 1.2 m x 2.4 m			4.000	6.250	2.000
<b>104 300 SIGNS</b>						
<b>104 304 SIGNS:</b>						
104 304-0100	Sign,cast aluminum or bronze,with 100 mm high & 13 mm deep letters	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Laborer 1.000 Power Tool	25.000	0.680	0.320
104 304-0600	Sign,cast aluminum or bronze,with 200 mm high & 20 mm deep letters			15.000	1.133	0.533
104 304-1200	Sign,cast aluminum or bronze,with 300 mm high & 20 mm deep letters			10.000	1.700	0.800

DIVISION 10 : SPECIALTIES						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
104 304-1600	Sign,cast aluminum or bronze,with 356 mm high & 60 mm deep letters			10.000	1.700	0.800
104 304-1800	Sign,Fabricated stainless steel, with 152 mm high, 50 mm deep letters			15.000	1.133	0.533
104 304-2100	Sign,Fabricated stainless steel,with 457 mm high, 76 mm deep letters			10.000	1.700	0.800
104 304-2200	Sign,Fabricated stainless steel,with 610 mm high, 100 mm deep, letters			8.000	2.125	1.000
104 304-4800	Signs, reflective aluminum street signs, double face, 2-way or 4-way with bracket			15.000	1.133	0.533
104 304-5100	Exit signs, 24 ga. aluminum, 250 mm x 180 mm surface mounted	↓	↓	20.000	0.850	0.400
<b>104 560 TURNSTILES</b>						
<b>104 561 TURNSTILES</b>						
104 561-0100	Turnstiles one way, 4 arm, 1.1 m diameter, electric	EA	0.125 Labor Foreman 2.000 Carpenters 0.500 Electrician 1.000 Laborer 1.000 Power Tool	1.250	23.200	6.400
104 561-0300	Turnstiles,High security, galv., 1.6 m diameter, 2.1 m high, manual			1.250	20.000	6.400
104 561-0350	Turnstiles,High security, galv., 1.6 m diameter, 2.1 m high, electric			0.750	38.667	10.667
104 561-0420	Turnstiles,Three arm, 610 mm opening, light duty, manual			2.250	11.111	3.556
104 561-0450	Turnstiles,Three arm, 610 mm opening, heavy duty, manual			1.500	16.667	5.333
104 561-0450	Turnstiles,one way gate with horizontal bars, 1.6 m diameter 7 2.1 m high.	↓	↓	0.750	33.333	10.667
<b>105 LOCKERS, PROTECTIVE COVERS &amp; POSTAL SPECIALTIES</b>						
<b>105 050 METAL LOCKERS</b>						
105 050-0010	Locker,steel, baked enamel, 1.5 m or 1.8 m high, single tier, average	OPENING	0.125 Labor Foreman 1.000 Sheet Metal Worker 1.000 Helper 1.000 Power Tool	8.000	2.125	1.000
105 050-0300	Locker, steel, baked enamel, 2 tier, 1.5 m or 1.8 m total height, Average			6.000	2.833	1.333
105 050-0600	Locker,Steel, baked enamel, 5 tier box lockers, 1.5 m or 1.8 m total height, Average			20.000	0.850	0.400
105 050-0900	Locker,Steel, baked enamel, 6 tier box lockers, 1.5 m or 1.8 m total height, Average	↓		25.000	0.680	0.320
105 050-2500	Locker units for 16-persons with clothing rack, 70 mm wide x 380 mm deep x 1.8 m high	EA		7.000	2.429	1.143
105 050-3100	Wall mounted lockers,4 persons with coat bar, 1.2 m wide x 457 mm deep x 305 mm high	"	↓	7.000	2.429	1.143
<b>105 380 CANOPIES</b>						
<b>105 384 CANOPIES</b>						
105 384-0010	Canopy,Wall hung, aluminum, 0.8 mm prefinished, 2.4 m x 3 m	EA	0.125 Labor Foreman 2.000 Skilled Laborer 2.000 Common Laborer 1.000 Equipment Operator 1.000 Crane 11 Ton	1.500	27.333	5.333

DIVISION 10 : SPECIALTIES						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
105 384-0700	Canopy,Wall hung, aluminum, 0.8 mm prefinished, 3 m x 6 m	EA	0.125 Labor Foreman 2.000 Skilled Laborer 2.000 Common Laborer 1.000 Equipment Operator 1.000 Crane 11 Ton	1.250	32.800	6.400
105 384-1700	Canopy,Wall hung, aluminum, 0.8 mm prefinished, 3 m x 12 m			0.650	63.077	12.308
105 384-1720	Canopy,free standing unit,aluminum,0.8mm,prefinished, 3 m & 6 m			1.100	37.273	7.273
105 384-1780	Canopy,free standing unit,aluminum,0.8mm,prefinished, 3 m & 12 m			0.500	82.000	16.000
105 384-2500	Aluminum entrance canopies, flat soffit, 0.8 mm, 1.1 m x 1.2 m, clear or bronze anodized		0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool	3.500	7.143	2.286
105 384-3300	Aluminum entrance canopies, flat soffit, 0.8 mm, 1.4 m x 3 m, clear or bronze anodized			1.500	16.667	5.333
105 384-4700	Canvas awnings, including canvas, frame & lettering, Average	SQM		7.000	3.571	1.143
105 384-7000	Carport, baked vinyl finish, 0.8 mm, 6.1 m x 3.00 m, no foundations, Average	CAR	0.125 Labor Foreman 2.000 Skilled Laborer 2.000 Common Laborer 1.000 Equipment Operator 1.000 Crane 11 Ton	3.500	11.714	2.286
105 384-7500	Walkway cover, to 3.6 m wide, steel with vinyl finish 0.8 mm no foundations, Average	SQM	..	20.000	2.050	0.400
<b>105 510 MAIL CHUTES</b>						
<b>105 511 MAIL CHUTES</b>						
105 511-0010	Mail Chutes,Aluminum & glass, 360 mm wide, 117 mm deep	FLOOR	0.125 Labor Foreman 2.000 Sheet Metal Workers 1.000 Laborer 1.000 Tools Set 1.000 Power Tool	4.000	6.250	4.000
105 511-0100	Mail Chutes,Aluminum & glass, 362 mm wide, 220 mm deep			3.750	6.667	4.267
105 511-0300	Mail Chutes,Aluminum & glass, 220 mm wide, 90mm deep			5.000	4.000	3.200
105 511-0400	Mail Chutes,Bronze or stainless, 220 mm x 90 mm deep			4.000	6.250	4.000
105 511-0600	Mail chutes, lobby collection boxes, aluminum	EA		5.000	5.000	3.200
105 511-0700	Mail chutes, lobby collection boxes, bronze or stainless	..		4.000	6.250	4.000
<b>105 520 MAIL BOXES</b>						
<b>105 521 MAIL BOXES</b>						
105 520-0010	Mail box Horiz., key lock, 127 mm high x 150 mm wide x 380 deep, rear or front loading	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Laborer 1.000 Power Tool	30.000	0.567	0.267
105 521-0200	Double, 127 mm high x 305 mm wide x 380 mm deep, rear or front loading			22.000	0.773	0.364
105 521-1800	Letter collection box			7.000	2.429	1.143
105 521-2200	Post office counter window,with grille			3.000	5.667	2.667

DIVISION 10 : SPECIALTIES						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>106</b>	<b>PARTITIONS &amp; STORAGE SHELVING</b>					
<b>106 050</b>	<b>WIRE MESH PARTITIONS</b>					
<b>106 052</b>	<b>PARTITIONS, WOVEN WIRE</b>					
106 052-0300	Partition,Woven Wire,Channel frame, 38 mm diamond mesh, 10 ga. wire, painted wall panels, 1.2 m wide, 2.1 m high	EA	0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool	30.000	0.833	0.267
106 052-0600	Partition,Woven Wire,Channel frame, 38 mm diamond mesh, 10 ga. wire, painted wall panels, 1.2 m wide, 3m high			20.000	1.250	0.400
106 052-0900	Partition,Woven Wire,Channel frame, 38 mm diamond mesh, 10 ga. wire, painted,Ceiling panels, 3 m long, 0.6 m wide			30.000	0.833	0.267
<b>106 100</b>	<b>FOLDING GATES</b>					
<b>106 101</b>	<b>SECURITY GATES : <i>Security gates for roll up type,see div.083302</i></b>					
106 101-0300	Scissors type folding security gate, painted steel, single, 1.8 m high, 1.6 m wide	OPENING	0.125 Labor Foreman 2.000 Struc. Steel workers 1.000 Laborer 1.000 Power Tool	5.000	5.000	1.600
106 101-0400	Scissors type folding security gate, painted steel, single, 1.8 m high, 2.2 m wide			5.000	5.000	1.600
106 101-0600	Scissors type folding security gate, painted steel, double, 2.2 m high, 2.4 m wide			3.000	8.333	2.667
106 101-0700	Scissors type folding security gate, painted steel, double, 2.2 m high, 3.6 m wide			3.000	8.333	2.667
106 101-0750	Scissors type folding security gate, painted steel, double, 2.2 m high, 4.2 m wide			2.500	10.000	3.200
106 101-0900	Security Door gate, folding steel, 1.2 m wide, 1.5 m high			5.000	5.000	1.600
106 101-1300	Security Window gates,folding,steel 610 mm to 1.2 m wide, 787 mm high			5.000	5.000	1.600
<b>106 150</b>	<b>DEMOUNTABLE PARTITIONS</b>					
<b>106 152</b>	<b>PARTITIONS, MOVABLE OFFICE:</b>					
106 152-0900	Demountable partition,vinyl clad gypsum system on 50 mm or 64 mm steel studs, 2.75 m high, 76 mm to 95 mm thick	LM	0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool	20.000	1.250	0.400
106 152-1000	Demountable partition,fabric clad gypsum system on 50 mm or 64 mm steel studs, 2.75 m high, 76 mm to 95 mm thick	LM	0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool	17.000	1.471	0.471
106 152-1300	Demountable partition,steel clad gypsum system on 50 mm or 64 mm steel studs, 2.75 m high, 76 mm to 95 mm thick			15.000	1.667	0.533
106 152-1900	Demountable partition system,aluminum framing,vinyl clad hardboard,paper honeycomb core panel,44 mm to 64 mm thick, 2.75 m			20.000	1.250	0.400
106 152-2100	Demountable partition system,aluminum framing, vinyl clad hardboard, paper honeycomb core panel, 44 mm to 64 mm thick, 2.1 m high.			23.000	1.087	0.348

DIVISION 10 : SPECIALTIES						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
106 152-2200	Demountable partition system,aluminum framing, vinyl clad hardboard, paper honeycomb core panel, 44 mm to 64 mm thick, 1.5 m high.			30.000	0.833	0.267
106 152-3100	Demountable partition,movable steel walls, modular system, unitized panels, 2.75 m high, 1.2 m wide, baked enamel, prefinished			23.000	1.087	0.348
106 152-3200	Demountable partition,movable steel walls, modular system, unitized panels, 2.75 m high, 1.2 m wide, fabric clad steel			17.000	1.471	0.471
106 152-5310	Demountable partition,Trackless wall, cork finish, semi-acoustic, 40 mm thick, average	SQM		24.000	1.042	0.333
106 152-6100	Demountable partition in plant modular office system, w/prehung steel door,76mm thick,honeycomb core panels 3.6 m x 3.6 m,double wall	EA		4.000	6.250	2.000
<b>106 300 PORTABLE PARTITIONS</b>						
<b>106 302 PARTITIONS, HOSPITAL</b>						
106 302-0010	Curtain track, box channel, ceiling mounted	LM	0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool	50.000	0.500	0.160
106 302-0100	Curtain track, box channel, ceiling,suspended	"	"	35.000	0.714	0.229
<b>106 304 PARTITIONS, PORTABLE</b>						
106 302-2100	Partitions, portable, divider panels, free standing, fiber core, fabric face straight, 914 mm long, 1.2 m high	LM	0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool	35.000	0.714	0.229
106 302-2500	Partitions, portable, divider panels, free standing, fiber core, fabric face straight, 914 mm long, 1.8 m high			26.000	0.962	0.308
106 302-2600	Partitions, portable, divider panels, free standing, fiber core, fabric face straight, 1.8 m long, 1.5 m high			55.000	0.455	0.145
106 302-3100	Partitions, portable, divider panels, free standing, fiber core, fabric face curved, 1.8 m long, 1.5 m high			32.000	0.781	0.250
106 302-3450	Acoustical panels, 60 to 90 noise reduction coefficient, 914 mm long, 1.5 m high			32.000	0.781	0.250
106 302-3600	Acoustical panels, 60 to 90 noise reduction coefficient, 1.5 m long, 1.5 m high			50.000	0.500	0.160
106 302-3750	Acoustical panels, 60 to 90 noise reduction coefficient, 1.8 m long, 1.8 m high			45.000	0.556	0.178
<b>106 520 PANEL PARTITIONS</b>						
<b>106 522 PARTITIONS, FOLDING LEAF:</b>						
106 520-0100	Folding Partition,Acoustic, wood, vinyl faced, to 5.5 m high, 29 kg/m <sup>2</sup> , Average.	SQM	0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool	4.000	6.250	2.000
106 520-0600	Folding Partition,Wood, low acoustical type, 22 kg/m <sup>2</sup> , to 4.3 m high			5.000	5.000	1.600
106 520-1100	Folding Partition,Steel, acoustical, 44 to 60 kg/m <sup>2</sup> , vinyl faced, average			6.000	4.167	1.333
106 520-1700	Folding Partition,Aluminum framed, acoustical, to 3.7 m high, 27 kg/m <sup>2</sup> , Average			4.000	6.250	2.000
<b>106 550 ACCORDION PARTITIONS</b>						
<b>106 552 PARTITIONS, FOLDING ACCORDION:</b>						



DIVISION 10 : SPECIALTIES						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
107 550-0300	Telephone enclosure, shelf type, wall hung, average	EA	0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool	4.000	6.250	2.000
107 550-0600	Telephone enclosure, booth type, painted steel, indoor average			1.250	20.000	6.400
107 550-1300	Telephone enclosure, outdoor, acoustical, on post			2.500	10.000	3.200
107 550-1400	Outdoor, phone carousel, pedestal mounted with dividers			0.500	50.000	16.000
108	TOILET & BATH ACCESSORIES					
108 200	BATH ACCESSORIES					
108 204	BATHROOM ACCESSORIES					
108 204-0200	Curtain rod, stainless steel, 1.5 m long, 32 mm diameter	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Laborer 1.000 Power Tool	17.000	1.000	0.471
108 204-0500	Dispenser units, combined soap & towel dispensers,mirror & shelf,flush mounted			12.000	1.417	0.667
108 204-0600	Towel dispenser and waste receptacle, 68 liter capacity			12.000	1.417	0.667
108 204-0800	Grab bar, straight, 32 mm dia., stainless steel, 457 mm long			30.000	0.567	0.267
108 204-0900	Grab bar, straight, 32 mm dia., stainless steel, 610 mm long			28.000	0.607	0.286
108 204-1000	Grab bar, straight, 32 mm dia., stainless steel, 760 mm long			26.000	0.654	0.308
108 204-1100	Grab bar, straight, 32 mm dia., stainless steel, 914 mm long			24.000	0.708	0.333
108 204-1200	Grab bar, straight, 38 mm dia., stainless steel, 610 mm long			28.000	0.607	0.286
108 204-1500	Tub bar,stainless steel, 32 mm diameter, 610 mm x 914 mm			17.000	1.000	0.471
108 204-1600	Tub bar,stainless steel, 32 mm diameter, 610 mm x 914 mm, plus vertical arm			15.000	1.133	0.533
108 204-2350	Hand dryer, 1000 watt wall mounted, with electrical connections			5.000	3.400	1.600
108 204-2600	Hat and coat strip, stainless steel, 4 hook, 914 mm long			30.000	0.567	0.267
108 204-3000	Mirror with stainless steel frame, 457 mm x 610 mm			20.000	0.850	0.400
108 204-3200	Mirror with stainless steel frame, 1220 mm x 610 mm			10.000	1.700	0.800
108 204-3300	Mirror with stainless steel frame, 1830 mm x 610 mm			6.000	2.833	1.333
108 204-3500	Mirror with 127 mm stainless steel shelf, 20 mm sq. frame, 457 x 610 mm			20.000	0.850	0.400
108 204-3700	Mirror with 127 mm stainless steel shelf, 20 mm sq. frame, 1220 x 610 mm			10.000	1.700	0.800
108 204-3800	Mirror with 127 mm stainless steel shelf, 20 mm sq. frame, 1830 x 610 mm			6.000	2.833	1.333
108 204-4100	Mop holder strip, stainless steel, 5 holders, 1220 mm long			24.000	0.708	0.333
108 204-4200	Napkin/tampon dispenser, recessed			17.000	1.000	0.471



## DIVISION 10 : SPECIALTIES

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
108 204-4300	Robe hook, single, heavy duty, concealed mounting			40.000	0.425	0.200
108 204-4600	Soap dispenser, chrome, surface mounted, liquid or powder			24.000	0.708	0.333
108 204-5000	Soap dispenser, Recessed, stainless steel, liquid or powder			12.000	1.417	0.667
108 204-5300	Soap dispenser tank, stainless steel, 3.8 liter			12.000	1.417	0.667
108 204-5400	Soap dispenser tank, stainless steel, 20 liter			6.000	2.833	1.333
108 204-5440	Soap dish chrome, surface mounted			36.000	0.472	0.222
108 204-5480	Soap dish chrome, recessed			17.000	1.000	0.471
108 204-5520	Soap dish, with grab bar surface mounted			20.000	0.850	0.400
108 204-5560	Soap dish, with grab bar recessed			10.000	1.700	0.800
108 204-5600	Shelf, stainless steel, 127 mm wide, 18 ga., 610 mm long	↓	↓	30.000	0.567	0.267
108 204-5700	Shelf, stainless steel, 127 mm wide, 18 ga., 1219 mm long	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Laborer 1.000 Power Tool	20.000	0.850	0.400
108 204-5800	Shelf, stainless steel, 200 mm wide, 18 ga., 610 mm long			27.000	0.630	0.296
108 204-5900	Shelf, stainless steel, 200 mm wide, 18 ga., 1220 mm long			20.000	0.850	0.400
108 204-6000	Toilet seat cover dispenser, stainless steel, recessed			24.000	0.708	0.333
108 204-6050	Toilet seat cover dispenser, stainless steel, surface mounted			12.000	1.417	0.667
108 204-6100	Toilet tissue dispenser, surface mounted, stainless steel, single roll			30.000	0.567	0.267
108 204-6200	Toilet tissue dispenser, surface mounted, stainless steel, double roll			24.000	0.708	0.333
108 204-6400	Towel bar, stainless steel, 457 mm long			25.000	0.680	0.320
108 204-6500	Towel bar, stainless steel, 760 mm long			22.000	0.773	0.364
108 204-6700	Towel dispenser, stainless steel, surface mounted			20.000	0.850	0.400
108 204-6800	Towel dispenser, stainless steel, flush mounted, recessed			12.000	1.417	0.667
108 204-7000	Towel holder, hotel type, 2 guest size			22.000	0.773	0.364
108 204-7200	Towel shelf, stainless steel, 610 mm long, 200 mm wide			22.000	0.773	0.364
108 204-7400	Tumbler holder			32.000	0.531	0.250
108 204-7500	Soap, tumbler & toothbrush			32.000	0.531	0.250
108 204-7700	Wall urn ash receiver, surface mount, 280 mm long			15.000	1.133	0.533
108 204-8000	Waste receptacles, stainless steel, with top, 50 liter			12.000	1.417	0.667
108 204-8100	Waste receptacles, stainless steel, with top, 136 liter	↓	↓	10.000	1.700	0.800
<b>108 208</b>	<b>MEDICINE CABINETS:</b>					

DIVISION 10 : SPECIALTIES							
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS	
108 208-0010	Medicine Cabinets,With mirror, stainless steel frame, 400 mm x 560 mm, unlighted	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Laborer 1.000 Power Tool	15.000	1.133	0.533	
108 208-0300	Medicine Cabinets,Sliding mirror doors, 500mm x 400 mm x 120 mm, unlighted			8.000	2.125	1.000	
108 208-0400	Medicine Cabinets,Sliding mirror doors, 600 mm x 480 mm x 210 mm, lighted			6.000	2.833	1.333	
108 208-1200	Medicine Cabinets,Hotel cabinets, stainless, with lower shelf, unlighted			11.000	1.545	0.727	
108 208-1300	Medicine Cabinets,Hotel cabinets, stainless, with lower shelf, lighted			6.000	2.833	1.333	
<b>108 800</b>	<b>SCALES</b>						
<b>108 801</b>	<b>SCALES</b>						
	<i>Built-in floor scale, not incl. foundations</i>						
108 801-0100	Scales, dial type, 4.5 metric ton capacity, 2.4 m x 1.8 m platform	EA	0.125 Labor Foreman 3.000 Carpenters 0.500 Electrician 2.000 Laborer 1.000 Power & Tools Set	0.600	75.000	13.333	
108 801-0300	Scales, dial type, 4.5 metric ton capacity, 2.7 m x 2.1 m platform			0.500	90.000	16.000	
108 801-0600	Scales, dial type, 9 metric ton capacity, steel platform, 2.7 m x 2.1 m platform			0.400	112.500	20.000	
108 801-0700	Truck scales, included steel weigh bridge, dial type, mech., 7 m x 3 m platform, 18 metric ton capacity			0.350	128.571	22.857	
108 801-1100	Truck scales, included steel weigh bridge, dial type, mech.,15 m x 3 m platform, 45 metric ton capacity			0.150	300.000	53.333	
108 801-1400	Truck scales, included steel weigh bridge, dial type, mech., 21 m x 3 m platform, 54 metric ton capacity			0.125	360.000	64.000	
108 801-1640	Truck digital electronic scale, 90 metric ton capacity, 18 m x 3 m platform			0.150	300.000	53.333	
108 801-2300	Concrete foundation pits for scale platform, 2.4 m x 1.8 m, 3.82 m <sup>3</sup> required.		0.125 Labor Foreman 3.000 Carpenters 1.000 Steel fixer 2.000 Laborers 0.125 Equipment Operator 1.000 Power Tools 1.000 Excavator	0.650	76.923	24.615	
108 801-2600	Concrete foundation pits for scale platform, 15 m x 3 m, 22.92 m <sup>3</sup> required.			0.220	227.273	72.727	
108 801-2700	Concrete foundation pits for scale platform, 21 m x 3 m, 30.56 m <sup>3</sup> required.			0.160	312.500	100.000	
108 801-2900	Low profile electronic warehouse scale, not incl. printer, 1.2 m x 1.2 m platform, 4536 kg capacity		0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 1.000 Power Tool	0.300	83.333	26.667	
<b>109</b>	<b>WARDROBE &amp; CLOSET SPECIALTIES</b>						
<b>109 010</b>	<b>COAT RACKS / WARDROBES</b>						
<b>109 011</b>	<b>COAT RACKS &amp; WARDROBES</b>						

DIVISION 10 : SPECIALTIES							
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE		DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
109 011-1400	Utility hook strips, 10 mm x 64 mm x 860 mm long, 12 hooks	EA	0.125 Labor Foreman 1.000 Carpenter 1.000 Laborer 1.000 Power Tool		55.000	0.309	0.145
109 011-1850	Wall mounted racks, 16 gauge steel frame, 22 gauge shelves, 300 mm x 380 mm x 0.66 m, 6 hangers				36.000	0.694	0.222
109 011-2000	Wall mounted racks, 16 gauge steel frame, 22 gauge shelves, 300 mm x 380 mm x 1.3 m, 12 hangers				36.000	0.694	11.520

# Division 11

## Equipment

### Estimating Tips

#### General

Many of these items are purchased by the owner for installation by the contractor. Check the specifications for responsibilities, and include time for receiving, installation, mechanical and electrical hook-ups in the appropriate division. Many items in Division 11 require some type of support system that is not usually furnished with the item.

Example of these systems include blocking for the attachment casework and support angles for ceiling hung projection screens. Some items may require assembly. Verify the amount of assembly required to the need for a hard electrical connection and add the appropriate costs.

DIVISION 11: EQUIPMENT									
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS			
<b>110</b>	<b>EQUIPMENT</b>								
<b>110 050</b>	<b>CONTRACTOR EQUIPMENT</b>								
<b>110 051</b>	<b>CONTRACTOR EQUIPMENT</b>	<i>See division 016</i>							
<b>110 100</b>	<b>MAINTENANCE EQUIPMENT</b>								
<b>110 121</b>	<b>VACUUM CLEANING:</b>								
110 121-0010	Vacuum Cleaning,Central, 3 inlet system, residential	SYSTEM	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	1.350	12.593	5.926			
110 121-0800	Vacuum Cleaning,Central, 9 inlet system, residential	--	--	0.550	30.909	14.545			
<b>110 200</b>	<b>SECURITY / VAULT EQUIP.</b>								
<b>110 261</b>	<b>SAFE:</b>								
110 261-0100	Safe for offices 4 hours rating 1.5 m x 0.8 m x 0.5 m including handling into building	EA	0.125 Labor Foreman 3.000 Common Laborers 1.000 Truck Driver 1.000 Pickup	1.500	22.000	5.333			
110 261-0300	Safe for offices 1 hours rating 1.5 m x 0.8 m x 0.5 m double door, including handling into building			1.500	22.000	5.333			
110 261-0550	Safe,office data,4 hours rating 1.8 m x 0.9 m x 1.4 m including handling into building			0.900	36.667	8.889			
110 261-0800	Safe,money,1 hour fire rated 0.23 m x 0.36 m x 0.36 m including handling into building			6.000	5.500	1.333			
110 261-1200	Safe,jeweler,1.6 m x 0.6 m x 0.45 m including handling into building			1.500	22.000	5.333			
<b>110 300</b>	<b>TELLER &amp; SERVICE EQUIPMENT</b>								
<b>110 301</b>	<b>BANK EQUIPMENT:</b>								
110 301-0100	Alarm system for police with vault alarm	EA	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	0.400	62.500	20.000			
110 301-0500	Bullet resistant teller window, 1.2 m x 1.5 m	--	0.125 Skilled Forman 1.000 Skilled Worker 1.000 Common Labor 1.000 Power Tool	1.000	17.000	8.000			
110 301-3100	Bank counter, complete with steel undercounter	STATION	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	0.500	50.000	16.000			
110 301-4600	Bank door and frame, bullet-resistant, with vision panel, average	EA		1.000	25.000	8.000			
110 301-4800	Bank drive-up window, complete w/motorized drawer, mike & bullet resistant glass 600 mm wide, 800 mm high for 1 teller.			0.750	33.333	10.667			
110 301-5000	Bank night depository door, with whole chest average			0.650	38.462	12.308			

# **DIVISION 11: EQUIPMENT**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
110 301-5200	Bank night depository door, envelop only.	↓		5.000	5.000	1.600
110 301-5400	Bank partitions, bullet-resistant, 30 mm glass, 2.4 m high	LM		1.500	16.667	5.333
110 301-5500	Bank pneumatic tube systems, 2 lane drive-up, complete system	TOTAL		0.300	83.333	26.667
110 301-5550	Bank pneumatic tube systems, 2 lane drive-up, with T.V. viewer	..	↓	0.250	100.000	32.000
110 301-5580	Bank safety deposit boxes, 18 modular openings, each 250 mm x 380 mm including base and top canopy units, average.	OPENING	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	5.000	3.400	1.600
110 301-5590	Bank teller locker, average	..	..	10.000	1.700	0.800
110 301-5600	Bank pass thru, bullet-resist. window, painted steel, 610 mm x 910 mm	EA	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	1.750	14.286	4.571
110 301-5700	Bank pass thru, bullet-resist. window, painted steel, 1200 mm x1200 mm			1.250	20.000	6.400
110 301-5800	Bank pass thru, bullet-resist. window, painted steel, 1800 mm x 1000 mm			1.000	25.000	8.000
110 301-6000	Bank surveillance system,including 3 cameras 16 mm film ,complete			1.250	20.000	6.400
110 301-6010	Bank surveillance system, 16 mm film camera,add for any added camera			5.000	5.000	1.600
110 301-6100	Bank surveillance system, video camera, complete			1.000	25.000	8.000
110 301-6200	Bank twenty four (24) hour teller, single unit, automated. deposit, cash and memo.			0.250	100.000	32.000
110 301-7000	Bank Vault door and frame, 1980 mm x 810 mm x 250 mm thick single, 10 bolt, 4 hours rating.			3.000	8.333	2.667
110 301-7000	Bank Vault door and frame, 1980 mm x 810 mm x 250 mm thick single, 10 bolt, 6 hours rating.			3.000	8.333	2.667
110 301-7000	Bank Vault door and frame, 1980 mm x 810 mm x 250 mm thick single, 18 bolt, 4 hours rating.	↓	↓	1.500	16.667	5.333
<b>110 400</b>	<b>ECCLESIASTICAL EQUIPMENT</b>					
<b>110 401</b>	<b>MOSQUE EQUIPMENT:</b>					
110 401-0050	Book shelve unit, hardwood, 1.0 m high, 1 m long, 300 mm wide, including handling, shelves at 300 mm O.C.	EA	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	20.000	0.850	0.400
110 401-0100	Chandelier, crystal, 3 meter diameter, with winch.	EA	0.125 Skilled Foreman 2.000 Skilled Workers 4.000 Common Laborer 1.000 Tools Set 1.000 Chain Hoist 1.000 Special Scaffolding.	1.000	49.000	24.000
110 401-0200	Mihrab, arched, 2.5 m high, 1.5 m wide, oak veneer casement including furring.	-	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	0.500	50.000	16.000

## DIVISION 11: EQUIPMENT

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
110 401-0500	Minbar, wood, prefabricated , w/6 riser stair and built-in microphone			1.000	16.000	0.000
110 401-0600	Minbar, wood, deluxe, prefabricated, w/10 riser, solid cherry, and built-in microphone.			1.000	16.000	0.000
110 401-0700	Minbar, railing, hardwood, average	LM	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	12.000	1.417	0.667
110 401-1000	Minaret crescent bronze upto 2 m high	EA	0.125 Skilled Foreman 1.000 Skilled Workers 2.000 Common Laborer 1.000 Power Tool	2.000	12.500	4.000
110 401-1100	Minaret crescent bronze more than 2 m high		"	1.000	25.000	8.000
110 401-2000	Sound system equipment, rack with amplifier, tape recorder and 4 minaret loud speakers		0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	1.500	11.333	5.333
110 401-3000	Shoe rack, capacity 100 shoes, including handling		0.125 Labor Foreman 1.000 Painter 4.000 Common Laborers 1.000 Consumable Tools	6.000	6.833	1.333
110 401-4000	Stained glass moderate art work	SQM	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	4.000	4.250	2.000
110 401-4100	Small pieces colored glass, patterned	"	"	6.000	2.833	1.333
<b>110 500</b>	<b>LIBRARY EQUIPMENT</b>					
<b>110 501</b>	<b>LIBRARY EQUIPMENT:</b>					
110 501-0010	Library equipment, Book shelf, metal, 2.3 m high, 250 mm shelf, double face	LM	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	5.000	3.400	1.600
110 501-0300	Library equipment, Bookshelf, metal, 2.3 m high, 250 mm shelf, single face			5.000	3.400	1.600
110 501-0700	Library equipment, Book shelf, metal, 2.3 m high, 300 mm shelf, double face			5.000	3.400	1.600
110 501-1100	Magazine shelving, 2.2 m high, 300 mm deep			5.000	3.400	1.600
110 501-2500	Carrels, hardwood, 910 mm x 610 mm, average	EA		10.000	1.700	0.800
110 501-3500	Charging desk, built-in, with counter, plastic laminated top	LM		4.000	4.250	2.000
110 501-3800	Steel mobile compacting shelving, 2.7 meter high, 900 m wide, hand crank.	EA		1.500	11.333	5.333
110 501-3820	Steel mobile compacting shelving, 2.7 m high, 900 mm wide, motor operated.	"		1.000	17.000	8.000
<b>110 600</b>	<b>THEATRE / STAGE EQUIPMENT</b>					
<b>110 601</b>	<b>STAGE EQUIPMENT:</b>					

## DIVISION 11: EQUIPMENT

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
110 601-0100	Control boards with 20 dimmers & breakers, average	EA	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	0.600	28.333	13.333
110 601-0500	Curtain track, straight, light duty, less than 8 meters.	LM		7.000	2.429	1.143
110 601-0520	Curtain track, straight, light duty, more than 12 meters.			8.000	2.125	1.000
110 601-0540	Curtain track, straight, medium duty, more than 12 meters.			7.000	2.429	1.143
110 601-0600	Curtain track, straight, heavy duty, more than 12 meters.			5.000	3.400	1.600
110 601-0700	Curtain track, curved section.	↓		3.500	4.857	2.286
110 601-0800	Curtain track, add for curtain drawing, motor operation upto 3/4 HP, no wiring included per track.	EA		5.000	3.400	1.600
110 601-0820	Curtain track, add for curtain lifting equipment, motor operation upto 3/4 HP, no wiring included per track.	-		5.000	3.400	1.600
110 601-1000	Curtains, velour, medium weight	SQM		40.000	0.425	0.200
110 601-1150	Curtains, silica based yarn, fireproof	-		4.500	3.778	1.778
110 601-2000	Stage Lights, border, quartz, reflector, vented, colored or white	LM		8.000	2.125	1.000
110 601-2500	Stage Spotlight, follow spot, with transformer, 2000 W	EA		5.000	3.400	1.600
110 601-3000	Stage Light Stationery spot, fresnel quartz, 200 mm lens			6.000	2.833	1.333
110 601-3500	Stage Light Ellipsoidal quartz, 1,000 W, 300 mm lens	↓		6.000	2.833	1.333
110 601-4000	Stage Light Strobe, quartz up to 15 flashes.	↓	↓	4.000	4.250	2.000
110 601-6000	Stage Telescoping platforms, extruded alum., straight, average	SQM Stg	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	8.000	3.125	1.000
110 601-8000	Rule of thumb: total stage equipment, average	SQM Stg	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	5.000	5.000	1.600
<b>110 604 MOVIE EQUIPMENT:</b>						
110 604-2600	Movie projector, 35 mm with pedestal, average	EA	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	6.000	2.833	1.333
110 604-3000	Projection screens, rigid, in wall, acrylic, 6 mm thick	SQM	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	24.000	1.042	0.333
110 604-3100	Projection screens, rigid, in wall, acrylic, 13 mm thick	SQM		17.000	1.471	0.471
110 604-3300	Projection screens, electric operated, heavy duty, 37 SQM	EA		1.000	25.000	8.000
110 604-3320	Theatre projection screens, matte white, including frames	SQM	↓	26.000	0.962	0.308



**DIVISION 11: EQUIPMENT**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
110 604-3700	Sound systems rack unit, incl. amplifier, single system, average	EA	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	1.500	11.333	5.333
110 604-3800	Sound systems, rack unit, including amplifier,dolby/super sound,average			0.750	22.667	10.667
110 604-5300	Sound Speakers, recessed behind screen, average			2.500	6.800	3.200
110 604-5700	Theatre Seating, painted steel, upholstered		0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	32.000	0.781	0.250
110 604-5800	Theatre Seating, deluxe, provided sound outlets.		*	8.000	3.125	1.000
<b>111 020 BARBER SHOP EQUIPMENT</b>						
<b>111 021 BARBER EQUIPMENT:</b>						
111 021-0050	Chair, hydraulic, movable, average	EA	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	30.000	0.567	0.267
111 021-0200	Wall hung styling station with mirrors, average			5.000	3.400	1.600
111 021-0500	Barber Sink, hair washing basin, rough plumbing not incl.			5.000	3.400	1.600
111 021-1100	Total equipment, rule of thumb, per chair, average			2.000	8.500	4.000
<b>111 040 CASH REGISTER / CHECKING</b>						
<b>111 041 CHECKOUT COUNTER:</b>						
111 041-0010	Checkout Counter,Supermarket conveyor, single belt	EA	0.125 Skilled Foreman 1.000 Skilled Workers 2.000 Common Laborer 1.000 Power Tool	10.000	2.500	0.800
111 041-0100	Checkout Counter,Supermarket conveyor, double belt, power take-away			9.000	2.778	0.889
111 041-0400	Checkout Counter,Supermarket conveyor, double belt, power take-away, incl. side scanning			8.000	3.125	1.000
111 041-0800	Warehouse or bulk type conveyor belt			7.000	3.571	1.143
111 041-1000	Scanning system 2 lanes with 10 registers computerized,including scales			0.500	50.000	16.000
111 041-2000	Register,cashier,average			15.000	1.667	0.533
<b>111 050 DISPLAY CASES</b>						
<b>111 051 REFRIGERATED FOOD CASES:</b>						
111 051-0400	Freezer,self contained,chest type, 0.84 m3	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 1.000 Power Tools	3.000	5.667	2.667
111 051-0500	Freezer,self contained,upright,glass door, 2.18 m3			2.500	6.800	3.200

**DIVISION 11: EQUIPMENT**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
111 051-0600	Frozen food,chest type 3.6 m long			2.500	6.800	3.200
111 051-0800	Frozen food,island case, 3.6 m long, single deck.			2.500	6.800	3.200
111 051-0900	Frozen food,island case, 3.6 m long, double deck.			2.250	7.556	3.556
<b>111 100</b>	<b>LAUNDRY / DRY CLEANING</b>					
<b>111 101</b>	<b>LAUNDRY EQUIPMENT:</b>					
111 101-2000	Dry cleaners, electric, 9 kg capacity	EA	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	0.300	83.333	26.667
111 101-2050	Dry cleaners, electric, 12 kg capacity			0.250	100.000	32.000
111 101-2100	Dry cleaners, electric, 14 kg capacity			0.220	113.636	36.364
111 101-2150	Dry cleaners, electric, 27 kg capacity			0.150	166.667	53.333
111 101-3600	Folders, blankets & sheets			0.400	62.500	20.000
111 101-3700	Folders, king size, with automatic stacker,			0.250	100.000	32.000
111 101-4500	Ironers, institutional, 2.8 m, single roll			0.400	62.500	20.000
111 101-5000	Washers, residential, 4 cycle, average	EA	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	8.000	2.125	1.000
111 101-6000	Combination washer/extractor, 9 kg capacity			1.500	11.333	5.333
111 101-6100	Combination washer/extractor, 14 kg capacity			0.750	22.667	10.667
111 101-6200	Combination washer/extractor, 23 kg capacity			0.650	26.154	12.308
111 101-6300	Combination washer/extractor, 34 kg capacity			0.300	56.667	26.667
111 101-6350	Combination washer/extractor, 57 kg capacity			0.150	113.333	53.333
111 101-7000	Central Laundry conveyor rack rail for moving bags complete w/ scale & motor	LM	1.000 Skilled Foreman 3.000 Skilled Workers 2.000 Common Laborers 1.000 Power Tools 1.000 Tools Set	3.000	16.000	5.333
<b>111 320</b>	<b>PROJECTION SCREENS</b>					
<b>111 321</b>	<b>PROJECTION SCREENS:</b>					
111 321-0100	Projection screens, wall or ceiling hung, glass beaded, manually operated, average	SQM	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	32.000	0.781	0.250
111 321-0600	Projection screens, electric operated, glass beaded, 2.5 SQM	EA		5.000	5.000	1.600
111 321-0900	Projection screens, electric operated, glass beaded, 4.5 SQM			3.000	8.333	2.667

**DIVISION 11: EQUIPMENT**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
111 321-1200	Projection screens, heavy duty, electric operated, 18 SQM			1.500	16.667	5.333
111 321-1300	Projection screens, heavy duty, electric operated, 37 SQM	↓		1.000	25.000	8.000
111 321-1500	Projection screens, rigid acrylic in wall, for rear projection, 6 mm thick	SQM		24.000	1.042	0.333
111 321-1600	Projection screens, rigid acrylic in wall, for rear projection, 13 mm thick (maximum size 3m x 6m)	..	↓	17.000	1.471	0.471
<b>111 400 SERVICE STATION EQUIPMENT</b>						
<b>111 401 AUTOMOTIVE:</b>						
111 401-0010	Air compressors, electric, 2 HP, standard controls or dual controls	EA	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	3.250	7.692	2.462
111 401-0600	Air compressors, electric, 5 HP, 110/220 V, standard controls or dual controls			3.000	8.333	2.667
111 401-0600	Air hose assembly, 15 meter, heavy duty, complete with filter and quick disconnect.			4.000	6.250	2.000
111 401-0700	Air operated pump for hose reels, w/200 liter drum.			12.000	2.083	0.667
111 401-1100	Diesel /Gasoline dispenser, 170 Liter per minute, complete with connections.			4.500	5.556	1.778
111 401-2200	Diesel/Gasoline dispenser, 55 liter per minute, complete with connections, single hose, not including piping of pit box.			0.350	71.429	22.857
111 401-2400	Hoists, single post, fully hydraulic, 3600 kg, capacity, swivel arms.			0.200	125.000	40.000
111 401-2500	Hoists, two posts, fully hydraulic, adjustable frames, 5000 kg capacity.			0.100	250.000	80.000
111 401-2800	Hoists two posts, fully hydraulic, adjustable frames, 11000 kg capacity, frame supports.			0.200	125.000	40.000
111 401-2820	Hoists, two posts, pneumatic, 5000 kg capacity.	↓		0.100	250.000	80.000
111 401-3000	Hoists, two posts, pneumatic, 11000 kg capacity.	SET		0.400	62.500	20.000
111 401-3200	Oil pump air operated, 54 Kg drum	EA		12.000	2.083	0.667
111 401-4200	Paint spray booth, 3.0 m x 2.95 m x 3.25 m high, 220 V/3 phase/ 60 Hz.			0.400	62.500	20.000
111 401-4400	Tire, changer pneumatic			2.750	9.091	2.909
111 401-4600	Tire changer, hydraulic, for truck tire.			1.500	16.667	5.333
111 401-4000	Underground exhaust fume system, per station.	↓	↓	2.000	12.500	4.000
<b>111 500 PARKING CONTROL EQUIPMENT</b>						
<b>111 501 PARKING EQUIPMENT:</b>						
111 501-0010	Parking equipment, traffic detectors, magnetic	EA	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	4.000	6.250	2.000
111 501-0500	Parking equipment, automatic gate 2.4 m long arm one way			1.750	14.286	4.571

## DIVISION 11: EQUIPMENT

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
111 501-0650	Parking equipment,automatic gate 2.4 m long arm two way			1.750	14.286	4.571
111 501-1050	Parking equipment, booth for attendant, average			2.000	12.500	4.000
111 501-1400	Parking equipment, fee indicator, 25 mm display			6.000	4.167	1.333
111 501-3500	Parking equipment, ticket printer and dispenser			2.000	12.500	4.000
111 501-4000	Parking equipment, card control station			6.000	4.167	1.333
<b>111 600</b>	<b>LOADING DOCK EQUIPMENT</b>					
<b>111 601</b>	<b>LOADING DOCK:</b>					
111 601-0010	Loading dock, bumpers rubber blocks 114 mm thick, 250 mm high, 350 mm long	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Power Tool	15.000	0.600	0.533
111 601-0300	Loading dock, bumpers rubber blocks 114 mm thick, 250 mm high, 910 mm long			10.000	0.900	0.800
111 601-0500	Loading dock, bumpers rubber blocks 114 mm thick, 300 mm high, 350 mm long			14.000	0.643	0.571
111 601-0550	Loading dock, bumpers rubber blocks 114 mm thick, 300 mm high, 610 mm long			11.000	0.818	0.727
111 601-0600	Loading dock, bumpers rubber blocks 114 mm thick, 300 mm high, 910 mm long			9.000	1.000	0.889
111 601-0800	Loading dock, bumpers rubber blocks 150 mm thick, 250 mm high, 356 mm long			12.750	0.706	0.627
111 601-0850	Loading dock, bumpers rubber blocks 150 mm thick, 250 mm high, 610 mm long			10.500	0.857	0.762
111 601-0900	Loading dock, bumpers rubber blocks 150 mm thick, 250 mm high, 910 mm long			8.000	1.125	1.000
111 601-0910	Loading dock, bumpers rubber blocks 150 mm thick, 500 mm high, 280 mm long			7.500	1.200	1.067
111 601-0920	Loading dock, extruded rubber bumpers, T section, 560 mm x 560 mm x 76 mm			22.000	0.409	0.364
111 601-0940	Loading dock, molded rubber bumpers, T section, 610 mm x 300 mm x 76 mm			11.000	0.818	0.727
111 601-2200	Dock lifter, 2200 Kg capacity, 1.5 m x 1.5 m aluminium platform		0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	2.000	12.500	4.000
111 601-2700	Dock lifter, 4000 Kg capacity, 1.5 m x 1.5 m aluminium platform			2.000	12.500	4.000
111 601-3200	Dock lifter, 6000 Kg capacity, 1.5 m x 1.5 m aluminium platform			2.000	12.500	4.000
111 601-4400	Dock lifter, 2200 kg capacity, fixed with 1.8 m x 2.4 m platform		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 1.000 Gas Welding M/C	0.6	28.333	13.333
111 601-4500	Loading dock,levelers,hinged for trucks 10 ton capacity, 1.8 m x 2.4 m			1.000	17.000	8.000
111 601-4700	Loading dock,levelers,hydraulic for trucks 10 ton capacity, 2.1 m x 2.4 m			1.000	17.000	8.000
111 601-5000	Loading docks light single or double arm upto 1.5 m long		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 1.000 Power Tool	3.000	3.000	2.667

**DIVISION 11: EQUIPMENT**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>111 700</b>	<b>WASTE HANDLING EQUIPMENT</b>					
111 700-0010	Waste handling, compactors, 120V, 110 kg/hr, chute fed	EA	0.125 Skilled Foreman 2.000 Skilled workers 1.000 Common Laborer 1.000 Power Tool	0.850	29.412	9.412
111 700-0100	Waste handling, compactors, 120V, 110 kg/hr, hand fed			2.000	12.500	4.000
111 700-1000	Heavy duty industrial compactor, upto 2 CUM capacity			0.400	62.500	20.000
111 700-1150	Heavy duty industrial compactor, upto 4 CUM capacity			0.400	62.500	20.000
111 700-1200	Combination shredder / compactor 2200 kg/hr.			0.400	62.500	20.000
111 700-3750	Incinerator, electric, 45 kg/hour, average		1.000 Skilled Foreman 2.000 Skilled Workers 0.250 Equipment Operator 3.000 Common Laborers 0.250 Crane 11 Ton 1.000 Tool Set	0.600	83.333	16.667
111 700-4000	Incinerator, electric, 180 kg/hour, average			0.550	90.909	18.182
111 700-4250	Incinerator, electric, 450 kg/hour, average			0.230	217.391	43.478
111 700-4400	Incinerator, Gas, chimney not included, 23 kg/hour, average			0.600	83.333	16.667
111 700-4500	Incinerator, Gas, chimney not included, 180 kg/hour, average			0.230	217.391	43.478
111 700-4600	Incinerator, Gas, chimney not included, 180 kg/hour, with heat recovery system, average			0.100	500.000	100.000
<b>111 900</b>	<b>DETENTION EQUIPMENT</b>					
<b>111 901</b>	<b>DETENTION EQUIPMENT</b>					
111 901-0500	Bar front, rolling, 22 mm bars, 100 mm O.C., 2.1 m high, 1.5 m wide, with hardware	EA	0.125 skilled Foreman 3.000 Skilled Workers 2.000 Common Laborer 1.000 Gas Welding M/C 1.000 Power Tools	1.750	23.429	9.143
111 901-1000	Detention, doors and frames, 915 x 2.1 m, complete, w/hardware			3.500	11.714	4.571
111 901-2000	Detention, cells, prefab., 1.5 to 2 m wide, 2 to 2.5 m high, 2 to 2.5 m deep bar front, not incl. plumbing			1.250	32.800	12.800
111 901-4000	Detention, visitor cubicle, vision panel, no intercom			1.000	41.000	16.000
<b>114</b>	<b>FOOD SERVICE, RESIDENTIAL, DARKROOM, ATHLETIC EQUIPMENT</b>					
<b>114 000</b>	<b>FOOD SERVICE EQUIPMENT</b>					
<b>114 002</b>	<b>APPLIANCES</b>					

# **DIVISION 11: EQUIPMENT**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
114 002-0050	Cooking range, 760 mm free standing, 1 oven, average	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Worker 1.000 Tools Set	9.000	1.889	0.889
114 002-0150	Cooking range, 760 mm free standing, 2 oven, average	"	"	9.000	1.889	0.889
114 002-0350	Cooking range, built-in, 760 mm wide, 1 oven, average	↓	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Tools Set	3.000	8.333	2.667
114 002-0700	Cooking range, free standing, 530 mm wide range, 1 oven, average	EA	0.125 Skilled Foreman 1.000 Skilled worker 1.000 Common Laborer 1.000 Tools Set	9.000	1.889	0.889
114 002-0900	Counter top cook tops, 4 burner, standard, average			7.000	2.429	1.143
114 002-1250	Microwave oven, average		↓	7.000	2.429	1.143
114 002-1570	Combination range, refrigerator and sink 1.5 m wide, average		0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Tools Set	2.000	12.500	4.000
114 002-1590	Combination range, refrigerator and sink 1.8 m wide, average			1.250	20.000	6.400
114 002-1600	Combination range, refrigerator and sink, 1.2 m wide, office, average			2.000	12.500	4.000
114 002-1620	Combination refrigerator and sink only, office model			2.500	10.000	3.200
114 002-1750	Compactor, residential, average		↓	4.500	5.556	1.778
114 002-2000	Deep freeze, 0.4 to 0.6 CUM, average		0.125 Skilled Foreman 1.000 Skilled worker 1.000 Common Laborer 1.000 Tools Set	9.000	1.889	0.889
114 002-2200	Deep freeze, 0.84 CUM, average			7.000	2.429	1.143
114 002-2750	Dishwasher, built-in, average			5.000	3.400	1.600
114 002-3200	Dryer, automatic, average			7.000	2.429	1.143
114 002-3300	Garbage disposer, sink type, average			4.000	4.250	2.000
114 002-3550	Heater, electric, built-in, 1250 W, ceiling type, average			6.000	2.833	1.333
114 002-3700	Heater, electric, built-in, 1250 W, wall type, average			6.000	2.833	1.333
114 002-3950	Heater, electric, built-in, 3000 W, wall type with blower, average		↓	6.000	2.833	1.333
114 002-4150	Hood for range, 2 speed, vented, 1m wide, average		0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Tools Set	6.000	4.167	1.333
114 002-5200	Icemaker, automatic, 9 kg/day		0.125 Skilled Foreman 1.000 Skilled worker 1.000 Common Laborer 1.000 Tools Set	9.000	2.778	0.889

# **DIVISION 11: EQUIPMENT**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
114 002-5350	Icemaker, automatic, 23 kg/day			3.000	8.333	2.667
114 002-5500	Refrigerator, no frost, 0.28 CUM to 0.34 CUM, average			9.000	2.778	0.889
114 002-5950	Refrigerator, no frost, 0.50 CUM to 0.56 CUM, average			8.000	3.125	1.000
114 002-6150	Refrigerator, no frost, 0.59 CUM to 0.8 CUM, average			7.000	3.571	1.143
114 002-6400	Sump pump cellar drainer, 250 W, average			1.000	25.000	8.000
114 002-6650	Washing machine, automatic, average			8.000	3.125	1.000
114 002-6900	Water heater, electric, 100 liter, average			5.000	5.000	1.600
114 002-7100	Water heater, electric, 300 liter, average			2.000	12.500	4.000
114 002-7350	Water softener, automatic, to 8 grains/L			4.000	6.250	2.000
114 002-7400	Water softener, automatic, to 26 grains/L			3.000	8.333	2.667
114 002-7450	Vent kits for dryers			9.000	2.778	0.889
<b>114 004 KITCHEN EQUIPMENT:</b>						
114 004-0010	Bake oven gas, one section	EA	0.125 Skilled Foreman 1.000 Skilled worker 1.000 Common Laborer 1.000 Tools Set	7.000	2.429	1.143
114 004-0300	Bake oven gas, two section			6.000	2.833	1.333
114 004-0600	Bake oven gas, three section			5.000	3.400	1.600
114 004-1300	Broiler without oven, standard.			5.000	3.400	1.600
114 004-1550	Broiler without oven, infra-red.		0.125 Skilled Foreman 2.000 Skilled worker 1.000 Common Laborer 1.000 Power Toolst	3.000	8.333	2.667
114 004-1580	Bain Marie gas or steam, 1.8 meter		*	6.000	4.167	1.333
114 004-1850	Coffee urns, twin, 22 Liter		0.125 Skilled Foreman 1.000 Skilled worker 1.000 Common Laborer 1.000 Tools Set	16.000	1.563	0.500
114 004-1860	Coffee urns, twin, 76 Liter			7.000	3.571	1.143
114 004-2350	Cooler,beverage,1.8 m long			5.000	3.400	1.600
114 004-2700	Dishwasher, commercial, rack type, 10 to 12 rack/hr.			2.000	8.500	4.000
114 004-2750	Dishwasher, semi-automatic 38 to 50 racks/hour			1.000	17.000	8.000
114 004-2800	Dishwasher, automatic 190 to 230 racks/hour	EA	0.125 Skilled Foreman 2.000 Skilled worker 1.000 Common Laborer 1.000 Tools Set	0.600	41.667	13.333

# **DIVISION 11: EQUIPMENT**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
114 004-2840	Dishwasher, automatic 8,750 to 12,500 dishes/hour			0.150	166.667	53.333
114 004-3800	Food mixers, 18 liter			6.000	4.167	1.333
114 004-4000	Food mixers, 56 liter			4.000	6.250	2.000
114 004-4300	Freezeers, reach-in 1.90 CUM		0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Tools Set	2.500	6.800	3.200
114 004-4750	Fryer, with twin baskets, modular model			6.000	2.833	1.333
114 004-5000	Fryer, floor model, on 152 mm legs			4.000	4.250	2.000
114 004-5550	Griddle, 1.2 m long			5.000	3.400	1.600
114 004-5800	Ice cube maker, 25 kg/day			3.000	5.667	2.667
114 004-6050	Ice cube maker, 230 kg/day			1.000	17.000	8.000
114 004-6350	Kettles, steam jacketed, 75 liter		0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tools	5.000	5.000	1.600
114 004-6600	Kettles, steam jacketed, 230 liter			4.000	6.250	2.000
114 004-6700	Peelers, vegetables, large, capacity 23 kg			5.000	5.000	1.600
114 004-6760	Pot washer, small			4.000	6.250	2.000
114 004-6770	Pot washer, large			3.000	8.333	2.667
114 004-6900	Range, restaurant type, 6 burners and 1 standard oven, 910 mm W		0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Workers 1.000 Tools Set	6.000	2.833	1.333
114 004-7450	Range, restaurant type, heavy duty, single 860 mm convention oven.			4.000	4.250	2.000
114 004-7950	Range, restaurant type, hood fire protection system, average			2.000	8.500	4.000
114 004-8000	Shield stainless steel wall mounted	SQM		6.500	2.615	1.231
114 004-8800	Service counter, stainless steel, straight section, 600 mm wide	LM		21.000	0.810	0.381
114 004-8820	Service counter, stainless steel, curved section, 600 mm wide	-		16.000	1.063	0.500
114 004-8830	Soft drinks dispenser, 4 spout, 1 remote	EA		0.450	37.778	17.778
114 004-8850	Steamer, electric 27 kW	-	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Workers 1.000 Power Tool	6.000	4.167	1.333
<b>114 580</b>	<b>DISAPPEARING STAIRS</b>					
<b>114 581</b>	<b>DISAPPEARING STAIRWAY:</b>					



**DIVISION 11: EQUIPMENT**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
114 581-0100	Disappearing stairway without trim, custom grade,pine,ceiling height 2.8 m	EA	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Workers 1.000 Power Tool	6.000	4.167	1.333
114 581-0600	Disappearing stairway without trim, heavy duty, pine to 4 m ceiling high	..		4.000	6.250	2.000
114 581-0700	Disappearing stairway, spiral for mosque Minaret	LM		7.000	3.571	1.143
114 581-1000	Disappearing stairway, fire escape, galvanized steel, 3.2 m to 4.0 m ceiling	EA	↓	1.250	20.000	6.400
<b>114 740 DARKROOM PROCESSING</b>						
<b>114 741 DARKROOM EQUIPMENT:</b>						
114 741-0050	Darkroom equipment, developing sink, 1.2 m x 1.3 m, 130 mm deep	EA	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Tools Set	1.250	13.600	6.400
114 741-0250	Darkroom equipment, developing sink, 250 mm deep, 610 mm x 2.75 m		..	1.200	14.167	6.667
114 741-0650	Darkroom Dryers, dehumidified filtered air 1.2 m x 635 mm x 1.7 m high		0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Tools Set	4.000	6.250	2.000
114 741-2000	Darkroom Processors, automatic, color print, average			1.000	25.000	8.000
114 741-3000	Darkroom Viewing lights, 500 mm x 610 mm with color correction		↓	4.000	6.250	2.000
114 741-3500	Darkroom Washers, round, maximum sheet 500 mm x 610 mm		0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Tools Set	0.850	20.000	9.412
114 741-3800	Darkroom Washers, square, maximum sheet 1.2 m x 1.4 m			0.700	24.286	11.429
114 741-4500	Darkroom Combination tank sink, tray sink, washers, with dry side tables, average	↓	↓	0.850	20.000	9.412
<b>114 760 REVOLVING DARKROOM DOORS</b>						
<b>114 768 DARKROOM DOORS:</b>						
114 768-0020	Darkroom Revolving door, standard, 2 way, 1 m diameter	OPENING	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Tools Set	4.000	6.250	2.000
114 768-2500	Darkroom Hinged safety door, 3 way, 1.2 m diameter	OPENING	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Tools Set	3.000	8.333	2.667
<b>114 800 ATHLETIC / RECREATIONAL</b>						
<b>114 801 HEALTH CLUB EQUIPMENT:</b>						
114 801-0600	Circuit training apparatus, 12 machines, average	SET	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Tools Set	0.650	26.154	12.308

DIVISION 11: EQUIPMENT						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
114 801-0800	Squat racks	EA	..	4.000	4.250	2.000
<b>114 805</b>	<b>SCHOOL EQUIPMENT:</b>					
114 805-1000	Basketball backstops, wall mounted, 1.8 m extended, fixed, average	EA	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Tools Set	1.000	17.000	8.000
114 805-3000	Bleachers, telescoping, manual to 15 tier, average	SET	1.000 Skilled Foreman 3.000 Skilled Workers 2.000 Common Laborer 2.000 Tools Set	75.000	0.640	0.213
114 805-4200	Exercise ladder, 4.8 m x 480 mm, suspended	EA	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Tools Set	2.000	8.500	4.000
114 805-4210	Exercise equipment, High bar, floor plate attached			6.000	2.833	1.333
114 805-4240	Exercise equipment, Parallel bars, adjustable, uneven			4.500	3.778	1.778
114 805-4300	Exercise equipment, Rope, ceiling mounted, 5.4 m long			4.500	3.778	1.778
114 805-4360	Exercise equipment, Treadmill, motorized, training type, deluxe			6.000	2.833	1.333
114 805-4390	Exercise equipment, Weight lifting multi-station, average quality		↓	0.700	24.286	11.429
114 805-7300	Scoreboards, football, average		1.000 Skilled Foreman 2.000 Skilled Workers 0.250 Equipment Operator 3.000 Common Laborers 0.250 Crane 11 Ton 1.000 Tools Set	0.400	125.000	25.000
114 805-7500	Scoreboards, basketball, average	↓	*	1.000	50.000	10.000
<b>115</b>	<b>INDUSTRIAL &amp; PROCESS EQUIPMENT</b>					
<b>115 000</b>	<b>INDUSTRIAL EQUIPMENT</b>					
<b>115 005</b>	<b>EQUIPMENT INSTALLATION:</b>					
115 005-0010	Industrial equipment, average	MET.TON	1.000 Struc. Steel Foreman 4.000 Struc. Steel Workers 1.000 Eqp. Oper. (crane) 1.000 Eqp. Oper. Oiler 1.000 Crane, 82 metric ton	1.500	37.333	5.333
<b>115 010</b>	<b>SPECIALIZED EQUIPMENT</b>					
<b>115 011</b>	<b>VOCATIONAL SHOP EQUIPMENT:</b>					
115 011-0400	Combination belt & disc sander, 150 mm	EA	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	5.000	3.400	1.600
115 011-0700	Drill press, floor mounted, 300 mm, 0.5 HP			5.000	3.400	1.600

**DIVISION 11: EQUIPMENT**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
115 011-0800	Dust collector, not incl. ductwork, 150 mm diameter [6"]			2.000	8.500	4.000
115 011-1000	Grinders, double wheel, 1 HP			6.000	2.833	1.333
115 011-1300	Jointer, 100 mm, 1 HP			6.000	2.833	1.333
115 011-2500	Potter's wheel, motorized			5.000	3.400	1.600
115 011-2800	Saws, band, 350 mm, 3/4 HP			5.000	3.400	1.600
115 011-4300	Welder AC arc, 30 A capacity			5.000	3.400	1.600

**116 LABORATORY, PLANETARIUM, OBSERVATORY EQUIPMENT****116 000 LABORATORY EQUIPMENT****116 001 LABORATORY EQUIPMENT:**

116 001-0010	Laboratory, cabinets, base, door units, metal	LM	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	7.000	2.429	1.143
116 001-0011	Laboratory cabinet, drawer units	-		7.000	2.429	1.143
116 001-1550	Laboratory, counter tops, not incl. base cabinets, acidproof, average	SQM		8.000	2.125	1.000
116 001-1650	Laboratory, counter tops, not incl. base cabinets, stainless steel, average	..		9.000	1.889	0.889
116 001-2020	Laboratory Fume hood, with countertop & base, not including HVAC, simple	LM		2.500	6.800	3.200
116 001-2100	Laboratory Fume hood, with countertop & base, not including HVAC, special, maximum	..		1.500	11.333	5.333
116 001-2800	Laboratory sink, one piece, flask wash, free standing	EA		3.000	5.667	2.667
116 001-3000	Laboratory Utility table, acid resistant top with drawers	LM	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	10.000	1.700	0.800

**117 MEDICAL EQUIPMENT****117 100 HOSPITAL EQUIPMENT****117 104 CLEAN ROOM EQUIPMENT:**

117 104-0100	Scrub station, stainless steel base, 1 bay 1.5 m	EA	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	2.500	10.000	3.200
117 104-0400	Stainless steel warm cabinet, solution 600 mm x 760 mm x 1.8 m			7.000	3.571	1.143
117 104-0500	Clean room sterilizer, 400 x 400 x 660 mm			4.000	6.250	2.000
117 104-0600	Stainless steel, suture/drug cabinet; 1220 mm x 460 mm x 1524 mm			8.000	3.125	1.000

**117 110 DENTAL EQUIPMENT**

**DIVISION 11: EQUIPMENT**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>117 110</b>	<b>DENTAL EQUIPMENT:</b>					
117 111-0100	Dental Central suction system, average	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 1.000 Power Tool	2.000	8.500	4.000
117 111-0300	Dental compressor, average			1.000	17.000	8.000
117 111-0600	Dental chair, electric or hydraulic, average			0.500	34.000	16.000
117 111-1000	Drill console with accessories, average			2.500	6.800	3.200
117 111-2000	Light, ceiling mounted, average			3.000	5.667	2.667
117 111-2200	Dental Sterilizer			4.000	4.250	2.000
117 111-3000	X-ray unit, wall, average			5.000	3.400	1.600
117 111-3105	X-ray panoramic unit, deluxe			1.250	13.600	6.400
117 111-3500	Developers, x-ray, average	↓	↓	8.000	2.125	1.000
<b>117 120</b>	<b>EMERGENCY EQUIPMENT:</b>					
117 120-0100	Treatment cabinet with suction compressor	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 1.000 Power Tool	5.000	3.400	1.600
117 120-0200	Examination light 600 mm, ceiling mounted			3.000	5.667	2.667
117 120-0300	Plaster sink complete with fitting and trap			3.500	4.857	2.286
117 120-0400	Splint cabinet with plaster bins	↓		7.000	2.429	1.143
117 120-0500	Examination room furnishings	ROOM		1.000	17.000	8.000
117 120-0600	Scale physician's, with height rod, handling in	EA		10.000	1.700	0.800
117 120-0700	Medicine station	*	↓	7.000	2.429	1.143
<b>117 125</b>	<b>FILING EQUIPMENT:</b>					
117 125-1000	Filing cabinets, 2.74 m high, metal painted, complete with tracks, including shelving, 400 mm O.C., double face, electrical operation.	LM	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	0.900	18.889	8.889
<b>117 130</b>	<b>HYDROTHERAPY EQUIPMENT:</b>					
117 130-0100	Heated therapy unit, humidified, tank with accessories, stainless steel, 335 imperial gal.	EA	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	1.500	11.333	5.333
117 130-0120	Treatment tank 4000 liters			1.500	11.333	5.333
117 130-0200	Heated therapy unit, humidified, tank with accessories, stainless steel, 200 imperial gal.			2.000	8.500	4.000

**DIVISION 11: EQUIPMENT**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
117 130-0300	Hubbard tank, 400 gallon, stainless steel			1.500	11.333	5.333
117 130-0400	Whirlpool bath, fixed, including mixing valves, stainless steel, 457 mm x 610 mm x 1524 mm			3.000	5.667	2.667
117 130-0500	Whirlpool bath, fixed, including mixing valves, stainless steel, 25 imperial gallon			4.000	4.250	2.000
117 130-0600	Moisture heat therapy unit table			9.000	1.889	0.889
117 130-0700	Paraffin bath 325 K, auto controlled			3.000	5.667	2.667
<b>117 140</b>	<b>INHALATION THERAPY EQUIPMENT:</b>					
117 140-0100	Inhaler	EA	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	18.000	0.944	0.444
117 140-0200	Lung air volume tester			8.000	2.125	1.000
117 140-0300	Ventilator complete			18.000	0.944	0.444
117 140-0400	Suction unit, stainless steel cabinet			16.000	1.063	0.500
<b>117 150</b>	<b>LABORATORY EQUIPMENT: See also Div. 116001</b>					
117 150-0100	Stainless steel, specimen pass thru boxes	EA	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	1.000	17.000	8.000
117 150-0200	Distiller, water, steam heated 10 gallon			5.000	3.400	1.600
117 150-0500	Stainless steel water tank 40 gallon			5.000	3.400	1.600
117 150-0600	Laboratory washer			3.000	5.667	2.667
117 150-0700	Blood plasma freezer, 0.58 cum, 7 drawers, 863 mm x 910 mm x 2030 mm high			5.000	3.400	1.600
117 150-0800	Blood plasma freezer, 1.15 cum, 14 drawers, 1500 mm x 910 mm x 2057 mm high			4.000	4.250	2.000
<b>117 155</b>	<b>LAUNDRY HOSPITAL EQUIPMENT: See also div. 111101</b>					
117 155-0100	Extractor 100 kg. with accessories	EA	0.125 Skilled Foreman 2.000 Skilled Workers 1.000 Common Laborer 1.000 Power Tool	0.150	166.667	53.333
117 155-0200	Washer/extractor 300 kg.			0.080	312.500	100.000
117 155-0300	Dryer steam 200 kg			0.180	138.889	44.444
117 155-0400	Ironer/folder; 2 lane			0.200	125.000	40.000
117 155-0600	Flat ironer, 6 roller			0.080	312.500	100.000
117 155-0700	Folder 3 lane			0.300	83.333	26.667
<b>117 160</b>	<b>MONITORING EQUIPMENT:</b>					



# **DIVISION 11: EQUIPMENT**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
117 182-0100	Tables walk-off electric	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 1.000 Power Tools	2.000	8.500	4.000
117 182-0200	Exercise chair			4.000	4.250	2.000
117 182-0300	Treadmill, motorized, 5 speeds			6.000	2.833	1.333
117 182-0400	Treadmill, adjustable			12.000	1.417	0.667
117 182-0600	Station, dietary			1.750	9.714	4.571
<b>117 190</b>	<b>STERILIZERS:</b>					
117 190-0100	Sterilizer, floor loading, 710 mm x 1700 mm x 1320 mm, 1 or 2 door, steam	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 1.000 Tool Set	0.070	242.857	114.286
117 190-0200	Sterilizer, recessed with automatic doors, 600 mm x 915 mm x 1220 mm, steam, pass - thru.	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 1.000 Tool Set	0.100	170.000	80.000
117 190-0300	Sterilizer, recessed with automatic doors, 600 x 915 mm x 915 mm, 1 door steam			0.100	170.000	80.000
117 190-0400	Sterilizer, recessed with automatic doors, 600 mm x 915 mm x 1520 mm, 1 door gas			0.120	141.667	66.667
117 190-0500	Sterilizer, recessed with automatic doors, 600 mm x 915 mm x 1520 mm, gas, pass-thru.			0.120	141.667	66.667
117 190-0600	Sterilizer, recessed with automatic doors, 600 mm x 915 mm x 1520 mm, gas/cryogenic			0.110	154.545	72.727
117 190-0700	Gas aerator 600 mm x 915 mm x 1520 mm			0.850	20.000	9.412
117 190-0800	Gas aerator 400 mm x 915 mm x 1220 mm			1.500	11.333	5.333
117 190-0900	Steam generator up to 10 HP			1.750	9.714	4.571
<b>117 192</b>	<b>SURGICAL EQUIPMENT:</b>					
117 192-0100	Surgery table, minor, stationary, electrical	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 1.000 Tool Set	0.700	24.286	11.429
117 192-0200	Surgery table, stationary, electrical			0.500	34.000	16.000
117 192-0220	Surgery table, orthopedic, stationary, electrical			0.600	28.333	13.333
117 192-0240	Surgery service island			0.700	24.286	11.429
117 192-0300	Surgical light single arm			1.250	13.600	6.400
117 192-0400	Surgical light dual arm			0.800	21.250	10.000
117 192-0500	Surgical light triple arm			0.750	22.667	10.667

# DIVISION 11: EQUIPMENT

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
117 192-0550	Surgical light, major operation room, dual head average			0.700	24.286	11.429
117 192-1000	scrub surgical, stainless steel, 3 way unit station, average			1.100	15.455	7.273
<b>117 196 WASHERS, UTENSILES &amp; INSTRUMENTS:</b>						
117 196-0100	Utensil washer-sterilizer, 685 mm x 685 mm x 1524 mm, free stand	EA	0.125 Skilled Foreman 1.000 Skilled Workers 1.000 Common Laborer 1.000 Tool Set	0.600	28.333	13.333
117 196-0200	Utensil washer, conveyor, pass-thru			0.150	113.333	53.333
117 196-0300	Instrument cleaner, sonic, 2 compartment			0.300	56.667	26.667
117 196-0400	Glass washer, steam, 400 mm x 500 mm x 400 mm, pass-thru			0.200	85.000	40.000
117 196-0500	Drying oven, 635 mm x 635 mm x 1270 mm, steam			0.650	26.154	12.308
117 196-0600	Charging table stainless steel, 2 sink, 1350 mm			3.000	5.667	2.667
<b>117 198 X-RAY EQUIPMENT:</b>						
117 198-0100	X-ray stationery average	EA	0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 1.000 Tool Set	0.500	34.000	16.000
117 198-0200	X-ray, Cardiac catheterization unit, complete		1.000 Skilled Foreman 0.500 High Skilled Sapecialist 3.000 Skilled Workers 2.000 Common Laborer 2.000 Special Tool Set	0.200	260.000	40.000
117 198-0300	X-ray ceiling mounted, general purpose		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 1.000 Tool Set	0.200	85.000	40.000
117 198-0400	X-ray Dark room safelight, 600 mm long fluorescent with filter			6.000	2.833	1.333
117 198-0500	X-ray developing tank, 10 gallon, stainless steel complete with mixing valves			2.000	8.500	4.000
117 198-0600	X-ray, film handling unit, automatic day light, floor mounted			1.250	13.600	6.400
117 198-0700	X-ray, Magnetic resonance imaging, 1.5 Tesla		1.000 Skilled Foreman 0.500 High Skilled Specialist 3.000 Skilled Workers 2.000 Common Laborer 2.000 Special Tool Set	0.100	520.000	80.000
117 198-0800	X-ray, Radiographic units, Mammographic, vertically adjustable plate		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 1.000 Tool Set	0.500	34.000	16.000



**DIVISION 11: EQUIPMENT**

CSI CODE	ITEM DESCRIPTION	UNIT		CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
117 198-0900	X-ray, Scanners, computed topography, complete and with computer and console			1.000 Skilled Foreman 0.500 High Skilled Specialist 3.000 skilled Workers 2.000 Common Laborer 2.000 Special Tool Set	0.150	346.667	53.333
117 198-1000	X-ray wall mounted, chest			0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common Laborer 1.000 Tool Set	0.600	28.333	13.333
117 198-1100	X-ray table		▼	"	0.350	48.571	22.857

# **Division 12**

## **Furnishings**

### **Estimating Tips**

#### **General**

Most of these items are purchased by the owner and placed by the supplier. Do not assume the items in this division will be purchased and installed by the supplier. Check the specifications for responsibilities and include receiving, installation and mechanical and electrical hook-ups in the appropriate divisions.

Some items require some type of support system that is not usually furnished with the item. Examples of these systems include blocking for the attachment casework and heavy drapery rods.

**DIVISION 12 : FURNISHINGS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>123</b>	<b>MANUFACTURED CASEWORK</b>					
<b>123 010</b>	<b>METAL CASEWORK</b>					
<b>123 015</b>	<b>KEY CABINETS:</b>					
123 015-0010	Key cabinet, wall mounted, 60 key capacity	EA	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Tools Set	8.000	0.680	0.320
123 015-0100	Key cabinet, wall mounted, 1200 key capacity			8.000	1.417	0.667
123 015-0200	Key cabinet, drawer type, 600 key capacity			8.000	0.850	0.400
123 015-0500	Key cabinet, tray type, 50 key capacity			8.000	0.486	0.229
<b>123 500</b>	<b>HOSPITAL CASEWORK</b>					
<b>123 501</b>	<b>CABINETS:</b>					
	<i>For wood kitchen cabinets, see division 064-102</i>					
123 501-0500	Cabinets, hospital, base cabinets, laminated plastic or stainless steel	LM	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	2.833	1.333
123 501-1300	Hospital, cabinet base trim, 100 mm high, enameled steel or stainless steel	LM		8.000	0.340	0.160
123 501-1650	Hospital cabinet counter top, laminated plastic or stainless steel, with backsplash	SQM		8.000	1.889	0.889
123 501-1800	Hospital cabinet counter top, plastic with sink cutout & backsplash	EA		8.000	4.250	2.000
123 501-2000	Hospital cabinet drop-in stainless steel counter top 1092 mm x 533 mm sink	SQM		8.000	1.889	0.889
123 501-2100	Hospital cabinet nurses station, door type, laminated plastic, enameled steel or stainless steel	LM		8.000	5.667	2.667
123 501-2400	Hospital cabinet, nurses station, door type, laminated plastic, four drawer type			8.000	4.250	2.000
123 501-2500	Hospital, wall cabinets, with glass doors, laminated plastic, enameled steel or stainless steel			8.000	4.250	2.000
123 501-3500	Hospital, kitchen base cabinets, metal, average			8.000	2.429	1.143
123 501-3700	Hospital, kitchen wall cabinets, metal, average			8.000	2.125	1.000
123 501-5000	School cabinets, 610 mm deep, metal, 2.1 m high units			8.000	3.400	1.600
123 501-5150	School cabinets, 610 mm deep, metal, 1.2 m high units			8.000	2.429	1.143
123 501-5450	School cabinets, wood custom fabricated, 610 mm deep, 810 mm high counter			8.000	2.429	1.143
123 501-5600	Counter top for school cabinets, with backsplash.	SQM		8.000	1.889	0.889
<b>123 800</b>	<b>DISPLAY CASEWORK</b>					
<b>123 801</b>	<b>DISPLAY CASES:</b>					

## DIVISION 12 : FURNISHINGS

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
123 801-0020	Display cases,all glass, aluminum, or wood, or bronze frame, 1067 mm high x 914 mm x 300 mm deep, <b>free standing.</b>	EA	0.125 Labor Forman 2.000 Carpenter 1.000 Common Laborer 1.000 Tools Set	8.000	2.500	0.800
123 801-0100	Display cases,all glass, aluminum, or wood, or bronze frame, 1780 mm high x 1220 mm x 457 mm deep, <b>free standing</b>			8.000	3.125	1.000
123 801-2010	Display cases, glass front, aluminum frame,non-illuminated, one section 914 mm x 1220mm x 400mm, wall mounted.			8.000	4.167	1.333
123 801-2100	Display cases, glass front, aluminum frame,non-illuminated, one section 1525 mm x 1220 mm x 406 mm, wall mounted.			8.000	5.000	1.600
123 801-2200	Display cases, glass front, aluminum frame, non-illuminated, one section 1830 mm x 1220 mm x 400 mm, wall mounted.			8.000	6.250	2.000
123 801-2500	Display cases, glass front, aluminum frame, non-illuminated, two section 2.4 m x 1.2 m x 400 mm, wall mounted.			8.000	8.333	2.667
123 801-2600	Display cases, glass front, aluminum, wood or bronze frame non-illuminated, two section 3048 mm x 1219 mm x 406 mm, wall mounted.			8.000	10.000	3.200
123 801-3000	Display cases, glass front, aluminum frame, non-illuminated, three section 4.8 m x 1.21 m x 400 mm, wall mounted.	↓		8.000	12.500	4.000
123 801-3500	Display cases, glass front, aluminum frame, illuminated with fluorescent lights, one section 914 mm x 1220 mm x 400 mm, wall mounted.	SECTION		8.000	4.167	1.333
123 801-4100	Table exhibit cases, 914 mm wide, 914 mm high, 1220 mm long, sloping top	EA	↓	8.000	6.250	2.000
<b>123 900</b>	<b>RESIDENTIAL CASEWORK</b>					
<b>123 905</b>	<b>IRONING CENTER:</b>					
123 905-0010	Ironing center, including cabinet, board & light, average	EA	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	6.800	3.200
<b>125</b>	<b>WINDOW TREATMENT</b>					
<b>125 100</b>	<b>BLINDS</b>					
125 103-0090	Blinds, interior, solid colors, horizontal, 25 mm aluminum slats, average	SQM	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	0.340	0.160
125 103-0250	Blinds, interior, solid colors, horizontal, 50 mm aluminum or steel slats, average			8.000	0.425	0.200
125 103-1500	Blinds, interior, solid colors, vertical, 76 mm to 127 mm PVC or cloth strips, average			8.000	0.425	0.200
125 103-1800	Blinds, interior, solid colors,vertical, 100 mm aluminum slats, average			8.000	0.425	0.200
125 103-1950	Blinds, interior, solid colors,vertical, mylar mirror-finish strips, to 200 mm wide, average	↓		8.000	0.486	0.229
125 103-3600	Blinds, interior, wood folding panels with movable louvers, 250 mm x 1010 mm each	PAIR	↓	8.000	0.850	0.400

**DIVISION 12 : FURNISHINGS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
125 103-4300	Blinds, interior, wood folding panels with fixed louver type, 300 mm x 910 mm each	PAIR	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	0.850	0.400
125 103-5750	Blinds, interior, wood raised panel type, 406 mm x 914 mm	↓	↓	8.000	0.850	0.400
<b>125 200 SHADES</b>						
<b>125 201 SHADES:</b>						
125 201-0200	Shades basswood, roll-up, stain finish, 22 mm slats	SQM	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	0.425	0.200
125 201-0900	Shades, mylar, non-heat reflective, single or double layer			8.000	0.243	0.114
125 201-1500	Shades, vinyl heavy weight, 6 gauge			8.000	0.243	0.114
125 201-3000	Shades, woven aluminum 10 mm thick, lightproof and fireproof	↓	↓	8.000	0.486	0.229
<b>125 300 DRAPE / CURTAIN HARDWARE</b>						
<b>125 301 DRAPERY HARDWARE:</b>						
125 301-0030	Drape/curtain, standard traverse, per meter, average	LM	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	0.708	0.333
125 301-4000	Drape/curtain, traverse rods, adjustable, 710 mm to 1220 mm	EA		8.000	0.850	0.400
125 301-4020	Drape/curtain, traverse rods, adjustable, 1220 mm to 2135 mm			8.000	0.944	0.444
125 301-4040	Drape/curtain, traverse rods, adjustable, 1676 mm to 3050 mm			8.000	1.063	0.500
125 301-4060	Drape/curtain, traverse rods, adjustable, 2135 mm to 3960 mm			8.000	1.214	0.571
125 301-4080	Drape/curtain, traverse rods, adjustable, 3048 mm to 5590 mm			8.000	1.417	0.667
125 301-4100	Drape/curtain, traverse rods, adjustable, 5790 mm to 7925 mm	↓	↓	8.000	1.545	0.727
<b>126 FURNITURE &amp; ACCESSORIES</b>						
<b>126 100 LANDSCAPE PARTITIONS</b>						
<b>126 105 PANELS &amp; DIVIDERS:</b>						
126 105-0100	Fabric panel, fire rated, fabric edged, 1 m high, 0.6 m wide	EA	0.125 Labor Forman 2.000 Common Laborer	0.000	0.283	0.000
126 105-0300	Fabric panel, fire rated, fabric edged, 1 m high, 1.5 m wide			0.000	0.354	0.000
126 105-0480	Fabric panel, fire rated, fabric edged, 1.5 m high, 1.5 m wide			0.000	0.425	0.000
126 105-1400	Fabric panel, fire rated, fabric edged, 1.8 m high, 1.5 m wide			0.000	0.425	0.000
126 105-2400	Fabric panel, fire rated, hardwood edged, 1.5 m high, 1.5 m wide	↓	↓	0.000	0.425	0.000

## DIVISION 12 : FURNISHINGS

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
126 105-2860	Fabric panel, fire rated, hardwood edged, 1.8 m high, 1.5 m wide	↓	↓	0.000	0.425	0.000
<b>126 200</b>	<b>FURNITURE</b>					
<b>126 203</b>	<b>BANK FURNITURE:</b>					
	<i>See Division 126222</i>					
<b>126 206</b>	<b>FURNITURE, DORMITORY:</b>					
	<b>LOW RISE BUILDING 2 FLOORS</b>					
126 206-0100	Dormitory, single bed complete, hardwood, average	EA	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	1.063	0.500
126 206-0120	Dormitory, single bed 2 layers complete, hardwood, average			8.000	1.417	0.667
126 206-0200	Dormitory wardrobe, 1 m wide.			8.000	1.214	0.571
126 206-1000	Dormitory, built-in chest, four drawer, average	↓		8.000	6.800	3.200
126 206-1200	Dormitory, desk top, built-in, laminated plastic, 610 mm deep, average	LM		8.000	1.417	0.667
126 206-1450	Dormitory, desk top, built-in, laminated plastic, 760 mm deep, average	*		8.000	1.545	0.727
126 206-1750	Dormitory, dressing unit, built-in, average	EA	↓	8.000	6.800	3.200
<b>126 210</b>	<b>FURNITURE, HOSPITAL:</b>					
	<b>LOW RISE BUILDING UP TO 4 FLOORS</b>					
126 210-0100	Hospital beds, manual, average	EA	0.125 Skilled Forman 1.000 Skilled Labor 1.000 Common Laborer 1.000 Power Tool	8.000	4.250	2.000
126 210-0300	Hospital bed, manual and electric, average			8.000	5.667	2.667
126 210-0600	Hospital bed, all electric, average			8.000	8.500	4.000
126 210-0900	Hospital bed, manual, nursing home, average			8.000	3.400	1.600
126 210-1100	Hospital, overbed table, laminated top			8.000	0.340	0.160
126 210-1200	Hospital, patient wall systems, not including plumbing, average			8.000	5.667	2.667
126 210-2000	Hospital TV set, 480 mm ceiling hung	↓	↓	8.000	1.545	0.727
<b>126 214</b>	<b>FURNITURE, HOTEL:</b>					
	<b>LOW RISE BUILDING UP TO 7 FLOORS</b>					
126 214-0010	Hotel front desk, built-in, base cabinets, continuous shelf oak top, 610 mm wide, quality granite top. provided with raceways for data & power wiring.	LM	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	17.000	8.000
126 214-0020	Hotel lodge in quality, guest room set, 2 beds/room, complete with standard furniture average	ROOM	0.125 Labor Forman 2.000 Carpenter 0.250 Electrician 3.000 Common Laborer 1.000 Power Tools	8.000	6.146	1.143
126 214-0050	Hotel 3 star guest room, 2 beds per room, complete with standard furniture, average			8.000	7.168	1.334

## DIVISION 12 : FURNISHINGS

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
126 214-0100	Hotel 4 star guest room,average			8.000	12.992	2.417
126 214-0200	Hotel 5 star guest room,average			8.000	15.613	2.905
126 214-0300	Hotel guest room, twin bed,cherry, complete	EA	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	1.700	0.800
126 214-0400	Hotel guest room bed, queen size, oak, complete			8.000	2.125	1.000
126 214-0500	Hotel guest room bed, king size, cherry complete			8.000	2.429	1.143
126 214-1000	Hotel guest room, desk & chair, cherry, 600 mm x 1000 mm x 740 mm.			8.000	0.708	0.333
126 214-1600	Hotel guest room, dining table chair,quality fabric,padded, and solid cherry.			8.000	0.309	0.145
126 214-1700	Hotel guest room, dining table, cherry.			8.000	0.607	0.286
126 214-2000	Hotel guest room, dresser unit, cherry, 1.6 m long			8.000	1.417	0.667
126 214-2500	Hotel guest room, luggage table/ rack		0.125 Labor Forman 1.000 Common Laborer	0.000	0.300	0.000
126 214-3000	Hotel guest room, night table			8.000	0.378	0.178
126 214-3500	Hotel refrigerator unit			8.000	0.531	0.250
126 214-4000	Hotel guest room, safe, with battery back-up			8.000	0.850	0.400
126 214-4200	Hotel guest room, sofa, quality all fabric			8.000	0.708	0.333
126 214-4500	Hotel guest room, stand light 100 watt		1 Electrician 1 Tools Set	8.000	0.400	0.400
126 214-5000	Hotel guest room, table lamp. 100 watt		*	8.000	0.400	0.400
126 214-6000	Hotel guest room top chair, quality all fabric		0.125 Labor Forman 1.000 Common Laborer	0.000	0.375	0.000
126 214-7000	Hotel guest room,TV set, with tuner,480 mm screen		1 Electrician 1 Tools Set	8.000	0.667	0.667
<b>126 218 FURNITURE, LIBRARY:</b>						
126 218-0100	Library, attendant desk, 914 mm x 1575 mm x 737 mm high	EA	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	0.850	0.400
126 218-0220	Library, table with bulletin board			8.000	0.850	0.400
126 218-0800	Library, card catalogue, 30 tray unit			8.000	0.654	0.308
126 218-0840	Library, card catalogue, 60 tray unit			8.000	0.850	0.400
126 218-0880	Library, card catalogue, 72 tray unit			8.000	1.063	0.500
126 218-1000	Library, carrels, double face, initial unit, 914 mm x 600 mm x 738 mm.			8.000	1.214	0.571
126 218-4000	Library, dictionary stand, stationary, or revolving.			8.000	0.654	0.308

**DIVISION 12 : FURNISHINGS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
126 218-4200	Library, exhibit case, table style, 1524 mm x 711 mm x 914 mm	↓	↓	8.000	1.000	0.471
<b>126 222</b>	<b>FURNITURE, OFFICE: LOW RISE BUILDING UP TO 7 FLOORS</b>					
126 222-0020	Office desk,metal double pedestal 760 mm high, 760 mm wide, 1.5 m long	EA	0.125 Labor Forman 2.000 Common Laborer	0.000	0.708	0.000
126 222-0040	Office desk,metal double pedestal 760 mm high, 900 mm wide, 1.8 m long			0.000	0.850	0.000
126 222-0100	Office desk,wood double pedestal 760 mm high, 760 mm wide, 1.5 m long			0.000	0.850	0.000
126 222-0200	Office desk,wood double pedestal 760 mm high, 900 mm wide, 1.8 m long		↓	0.000	1.063	0.000
126 222-0300	Executive desk with side extension, 2 m long		0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	1.889	0.889
126 222-0400	Office metal desk,single pedestal, 760 mm high, 760 mm wide, 1.5 m long		0.125 Labor Forman 2.000 Common Laborer	0.000	0.708	0.000
126 222-0500	Office wood desk,single pedestal, 760 mm high, 760 mm wide, 1.5 m long		*	0.000	0.850	0.000
126 222-0700	Secretarial desk unit,metal, 457 mm x 1100 mm		0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	1.133	0.533
126 222-1500	Computer station unit with upper shelf		*	8.000	1.417	0.667
126 222-6000	Office furniture, conference table 12 persons,wood, cherry veneered,boat, 1.35 m x 4 m		0.125 Labor Forman 1.000 Carpenter 2.000 Common Laborer 1.000 Power Tools	8.000	8.333	2.667
126 222-6050	Office conference table, 16 persons,solid wood,oak facing, boat, 1.35 m x 4.8 m, average			8.000	10.000	3.200
126 222-6070	Office conference table, 20 persons,solid wood,oak facing, boat, 1.6 m x 5.4 m, average			8.000	12.500	4.000
126 222-6100	Office conference table, 24 persons,solid wood,oak facing, boat, 1.8 m x 6.0 m, average			8.000	14.286	4.571
126 222-6720	Office conference table, 8 persons,solid wood,oak facing, rectangle, 1.2 m x 2.2 m, average	↓	↓	8.000	3.125	1.000
126 222-6740	Office conference table, 10 persons,solid wood,oak facing, rectangle, 1.2 m x 3.0 m, average	EA	0.125 Labor Forman 1.000 Carpenter 2.000 Common Laborer 1.000 Power Tools	8.000	4.167	1.333
126 222-6760	Office conference table, 12 persons,solid wood,oak facing, rectangle, 1.2 m x 4.0 m, average	↓	↓	8.000	6.250	2.000
126 222-8000	Office leather sofa, 3 persons average,including handling into building.	↓	↓	8.000	1.250	0.400
<b>126 226</b>	<b>FURNITURE, RESTAURANT</b>					
126 226-0200	Restaurant counter with base cabinets	LM	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	7.083	3.333



**DIVISION 12 : FURNISHINGS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
126 226-0300	Restaurant, booth seating, see division 127-401					
126 226-2000	Restaurant, chair, bentwood side chair, metal, average	LM	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	0.283	0.133
<b>126 230</b>	<b>FURNITURE, SCHOOL</b>					
126 230-2000	School desk, single pedestal, top book compartment, average, handling into building.	EA	0.125 Labor Forman 2.000 Common Laborer	0.000	0.607	0.000
126 230-2200	School desk, flip top, minimum, handling into building.		"	0.000	0.531	0.000
126 230-4000	School desk, laboratory, w/ electrical outlets, connected. & including handling.		0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	1.417	0.667
<b>126 500</b>	<b>FURNITURE ACCESSORIES</b>					
<b>126 501</b>	<b>ASH/TRASH RECEIVERS</b>					
126 501-1060	Ash urn, cylindrical metal, 250 mm diameter, 660 mm high	EA	0.125 Labor Forman 1.000 Common Laborer	0.000	0.164	0.000
126 501-5540	Trash receptacle, plastic with lid 170 L	"	"	0.000	0.164	0.000
<b>126 507</b>	<b>MULTI MEDIA BOARDS</b>	<i>See Division 101104</i>				
<b>126 900</b>	<b>FLOOR MATS &amp; FRAMES</b>					
<b>126 901</b>	<b>FLOOR MATS</b>					
126 901-0100	Floor mats including recessed frame, in laid black rubber, 13 mm thick, solid or perforated	SQM	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	0.708	0.333
126 901-0600	Floor link mats, including nosings, aluminum, or galvanized steel 10 mm thick			8.000	0.850	0.400
126 901-0900	Floor mat, skate lock tile, 610 mm x 610 mm x 13 mm thick, rubber, black			8.000	1.063	0.500
126 901-1150	Floor mate, skate lock tile, 305 mm x 305 mm x 13 mm outside corner, black			8.000	1.417	0.667
<b>127</b>	<b>MULTIPLE SEATING</b>					
<b>127 100</b>	<b>MISCELLANEOUS SEATING</b>					
<b>127 101</b>	<b>SEATING</b>					
127 101-0010	Seating benches, <i>See div. 028704</i>					
127 101-0100	Bleachers, <i>See div. 028708</i>					
127 101-1000	Lecture hall seating, pedestal type, average	EA	0.125 Labor Forman 2.000 Carpenter 1.000 Common Laborer 1.000 Tools Set	8.000	0.781	0.250
127 101-2000	Auditorium chair, seating, Padded & veneered.	"	"	8.000	0.781	0.250

**DIVISION 12 : FURNISHINGS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>127 400</b>	<b>BOOTH &amp; TABLES</b>					
<b>127 401</b>	<b>BOOTHES:</b>					
127 401-1000	Booth, banquet, upholstered seat and back, straight average	LM	0.125 Labor Forman 2.000 Carpenter 1.000 Common Laborer 1.000 Tools Set	8.000	2.083	0.667
127 401-1600	Booth, banquet, upholstered seat and back "L" or "U" shape, average	..		8.000	2.778	0.889
127 401-3000	Booth, prefabricated seating, fixed, one piece plastic chair and plastic laminate table top including four seat, 610 mm x 610 mm table, average	EA		8.000	1.563	0.500
127 401-3200	Booth, prefabricated seating, fixed, one piece plastic chair and plastic laminate table top including four seat, 610 mm x 1220 mm table, average			8.000	1.786	0.571
127 401-3300	Booth, prefabricated seating, fixed, one piece plastic chair and plastic laminate table top including four seat, 610 mm x 1930 mm table, average			8.000	2.083	0.667
127 401-3400	Booth, prefabricated seating, fixed, one piece plastic chair and plastic laminate table top including four seat, 610 mm x 2590 mm table, average			8.000	2.500	0.800
127 401-4000	Free standing, wood fiber core with plastic laminate, single booth, 610 mm wide			8.000	1.250	0.400
127 401-4100	Free standing, wood fiber core with plastic laminate, single booth, 1220 mm wide			8.000	1.471	0.471
127 401-4200	Free standing, wood fiber core with plastic laminate, single booth, 1524 mm wide			8.000	1.563	0.500
127 401-4400	Free standing, wood fiber core with plastic laminate, double booth, 1220 mm wide			8.000	1.786	0.571
<b>128</b>	<b>INTERIOR PLANTS &amp; PLANTERS</b>					
<b>128 150</b>	<b>PLANTERS</b>					
<b>128 155</b>	<b>PLANTERS:</b>					
128 155-1000	Planter, fiberglass, hanging, 300 mm diameter, 178 mm high	EA	0.125 Labor Forman 1.000 Carpenter 1.000 Common Laborer 1.000 Power Tools	8.000	0.654	0.308
128 155-1650	Planter, fiberglass, free standing, rectangular, 1524 mm long, 760 mm high x 710 mm wide			8.000	0.708	0.333
128 155-8750	Planter, wood, fiberglass liner square, hanging, 360 mm square, 380 mm high, average			8.000	0.773	0.364

# **Division 13**

## **Special Construction**

### **Estimating Tips**

#### **General**

The items and systems in this division are usually estimated, purchased, supplied and installed as a unit by one or more sub-contractors. The estimator must ensure that all parties are operating from the same set of specifications and assumptions and that all necessary items are estimated and will be provided. Many times the complex items and systems are covered but the more common ones such as excavation or a crane are overlooked for the very reason that everyone assumes nobody could miss them. The estimator should be the central focus and be able to ensure that all systems are complete.

Estimators shall focus on all accessories for pre-engineered structures and utility supplies for some special construction items, usually missed on overlooked.

#### **131 Pre-Engineered Structures**

Focus on estimating foundations, slabs as well as rough electro-mechanical installations. Usually as pre-engineered structures are provided as a shell, estimators shall focus on all additional items and features and good understanding to the scope of work required.

#### **132 Tanks, Covers & Filtration Equipment**

Items listed in this book don't include foundation, tank accessories, guages, detection of additional man-holes and piping. Refer to related divisions 2, 3, and 15 to price such items.

DIVISION 13 : SPECIAL CONSTRUCTION							
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS	
130	SPECIAL CONSTRUCTION						
130 100	AIR SUPPORTED STRUCTURES						
130 111	AIR SUPPORTED STRUCTURES						
130 111-0100	Air supported warehouse, polyester/vinyl fabric, 794 gram, welded seams, tension cables, primary & auxiliary inflation system, airlock, personnel ors and liner up to 464 SQM	SQM FLOOR	0.125 Labor Foreman 4 Common Labor 2 Tools Set	300.000	0.110	0.053	
130 111-0400	Air supported warehouse, polyester/vinyl fabric, 794 gram, welded seams, tension cables, primary & auxiliary inflation system, airlock, personnel doors and liner above 1000 SQM		0.25 Labor Foreman 8 Common Labor 4 Tools Set	400.000	0.165	0.080	
130 111-0750	Air supported warehouse, 340 gram reinforced vinyl fabric, sewn seams, accordion door, including liner 300 SQM		0.125 Labor Foreman 4 Common Labor 2 Tools Set	200.000	0.165	0.080	
130 111-0850	Air supported warehouse, 340 gram reinforced vinyl fabric, sewn seams, accordion door, including liner over 1000 SQM		0.25 Labor Foreman 8 Common Labor 4 Tools Set	350.000	0.189	0.091	
130 250	INTEGRATED CEILINGS						
130 251	INTEGRATED CEILINGS						
130 251-0100	Integrated lighting ceilings, acoustical, luminaire, with connections, 1.5 m x 1.5 m modules, 50% lighted	SQM	0.125 Labor Foreman 1.000 Carpenter 1.000 Helper 0.500 Electrician 0.500 Sheet metal worker 1.000 Tools Set	5.500	4.545	1.455	
130 251-0200	Integrated lighting ceilings, acoustical, luminaire, with connections, 1.5 m x 1.5 m modules, 100% lighted			3.000	8.333	2.667	
130 251-1640	Integrated ceiling, grid sys. & tile , flat profile, 1.5 m x 1.5 m mod., 50% lighted, mineral fiber panels			48.000	0.500	0.160	
130 251-1640	Integrated ceiling, grid sys. & tile only, flat profile, 1.5 m x 1.5 m mod., 100% lighted, mineral fiber panels			50.000	0.500	0.160	
130 251-1660	Integrated vaulted ceiling, grid sys. & tile only, flat profile, 1.5 m x 1.5 m mod., 50% lighted, glass fiber panels			53.000	0.500	0.160	
130 300	SPECIAL PURPOSE ROOMS						
130 305	DARKROOMS						
130 305-0010	Darkrooms shell, complete lead lining without door, 6 SQM, 2.4 m high	SQM	0.125 Labor Foreman 2.000 Carpenters 2.000 Tools Set	8.500	2.000	1.882	
130 305-0100	Darkrooms shell, complete lead lining without door, 6 SQM, 3.6 m high			4.250	4.000	3.765	
130 305-0500	Darkrooms shell, complete with door, 11.15 SQM floor, 2438 mm high			7.134	2.383	2.243	
130 305-0600	Darkrooms shell, complete with door, 11.15 SQM floor, 3658 mm high			4.829	3.520	3.313	
130 305-0800	Darkrooms shell, complete lead lining without door, 22 SQM floor, 2.4 m high			8.000	2.125	2.000	
130 305-0900	Darkrooms shell, complete lead lining without door, 22 SQM floor, 3.6 m high			4.000	4.250	4.000	

**DIVISION 13 : SPECIAL CONSTRUCTION**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>130 320</b>	<b>ATHLETIC ROOMS</b>					
<b>130 321</b>	<b>SPORT COURT</b>					
130 321-0010	Sport court, floors, no. 2 & better maple, 20 mm thick	SQM	0.125 Labor Foreman 3.000 Carpenters 2.000 Tools Set	10.000	2.500	1.600
130 321-0100	Sport court, walls, laminated plastic bonded to galv. steel studs			10.000	2.500	1.600
130 321-0470	Squash court, indoor, walls only, laminated plastic bonded to galv. steel studs	↓	↓	10.000	2.500	1.600
<b>130 340</b>	<b>AUDIOMETRIC ROOMS</b>					
<b>130 341</b>	<b>AUDIOMETRIC ROOMS</b>					
130 341-0010	Audiometric rooms, under 46 SQM surface	SQM	0.125 Labor Foreman 4.000 Carpenters 2.000 Tools Set	6.500	5.077	2.462
130 341-0100	Audiometric rooms, over 46 SQM surface	"	"	8.000	4.125	2.000
<b>130 360</b>	<b>CLEAN ROOMS</b>					
<b>130 361</b>	<b>CLEAN ROOM</b>					
130 361-3000	Clean room ceiling panel, vinyl coated foil on mineral substrate, sealed & non-perforated	SQM	0.125 Labor Foreman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	6.000	2.833	1.333
130 361-6000	High efficiency particulate air filter 0.6 m x 1.2m; 76 mm to 150 mm deep, beveled frame,	EA	"	4.000	4.250	2.000
<b>130 380</b>	<b>COLD STORAGE ROOMS</b>					
<b>130 381</b>	<b>REFRIGERATION</b>					
130 381-1000	Doors,	<i>See division 083251</i>				
130 381-2500	Cold storage room finishes, 2 coat portland cement plaster, 13 mm thick with galvanized reinforcing mesh	SQM	0.125 Labor Foreman 0.125 Lather 1.000 Mason 1.000 Helper 1.000 Grouting Mixer	4.000	4.500	2.000
130 381-2700	Cold storage room finishes, 5 mm thick latex cement		0.125 Labor Foreman 1.000 Plasterer 1.000 Helper 1.000 Tools Set	6.000	2.833	1.333
130 381-2900	Cold storage room finishes, glass cloth reinforced ceilings		"	45.000	0.378	0.178
130 381-3100	Cold storage room finishes, fiber glass panels, 3 mm thick		0.125 Labor Foreman 1.000 Carpenter 1.000 Helper 1.000 Tools Set	12.000	1.417	0.667
130 381-3200	Cold storage room finishes, polystyrene, plastic finish ceiling 100 mm thick	↓	"	24.000	0.708	0.333

**DIVISION 13 : SPECIAL CONSTRUCTION**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
130 381-4900	Cold storage room, partitions, galvanized sandwich panels, 100 mm thick, aluminum or fiberglass	SQM	0.125 Labor Foreman 2.000 Carpenter 1.000 Helper 1.000 Tools Set	24.000	1.042	0.333
130 381-5200	Cold storage room, prefab walk-in, 2.2 m high, aluminum, including door, floors, partitions & refrigeration, 1.8 m x 1.8 m outside dimensions nominal			4.000	6.250	2.000
130 381-5500	Cold storage room, prefab walk-in, 2.2 m high, aluminum, including door & floors, partitions & refrigeration, 3 m x 3 m outside dimensions nominal			5.500	4.545	1.455
130 381-5700	Cold storage room, prefab walk-in, 2.2 m high, aluminum, including door, floors, partitions & refrigeration, 3.6 m x 4.2 m outside dimensions nominal			7.500	3.333	1.067
130 381-5800	Cold storage room, prefab walk-in, 2.2 m high, aluminum, including door floors, partitions & refrigeration, 3.6 m x 6 m outside dimensions nominal			7.500	3.333	1.067
130 381-6600	Cold storage room shelving plated on galvanized steel wire	↓	↓	30.000	0.833	0.267
130 381-7500	Cold storage room, for air curtain doors,	see division 083-722				
130 520	SAUNAS					
130 521	SAUNA					
130 521-0010	Sauna prefabricated including heater & controls, 2.1 m H, 1.8 m x 1.2 m cedar on cedar	EA	0.125 Labor Foreman 2.000 Carpenters 1.000 Laborer 0.500 Electrician 1.00 Tools Set	2.000	14.500	4.000
130 521-0400	Sauna prefabricated including heater & controls, 2.1 m H, 1.8 m x 1.5 m cedar on paneling			1.800	16.111	4.444
130 521-0800	Sauna prefabricated including heater & controls, 2.1 m H, 1.8 m x 2.75 m cedar on paneling			1.500	19.333	5.333
130 521-1000	Sauna prefabricated including heater & controls, 2.1 m H, 2.44 m x 3.6 m cedar on cedar			1.000	29.000	8.000
130 521-1400	Sauna prefabricated including heater & controls, 2.1 m H, 2.44 m x 3 m cedar on paneling			1.200	24.167	6.667
130 521-1600	Sauna prefabricated including heater & controls, 2.1 m H, 3 m x 3.6 m cedar on paneling		↓	1.000	29.000	8.000
130 521-1700	Sauna, door only, cedar, 610 mm x 1800 mm with tempered insulated glass window		0.125 Labor Foreman 2.000 Carpenters 1.000 Helper 1.000 Tools Set	2.500	10.000	3.200
130 521-3000	Sauna, heaters only, floor standing to 28 CUM, room size 16 kW with controls	↓	0.125 Labor Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	2.500	6.800	3.200
130 540	STEAM BATHS					
130 541	STEAM BATH					
130 541-0010	Steam bath heater, including timer & head, single, to 3.9 CUM	EA	0.125 Labor Foreman 1.000 Plumber 1.000 Helper 1.000 Tools Set	0.850	20.000	9.412

**DIVISION 13 : SPECIAL CONSTRUCTION**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
130 541-0500	Steam bath heater,including timer & head, single, to 8.4 CUM			0.750	22.667	10.667
130 541-1000	Steam bath heater,commercial,with blow-down assembly, to 22 CUM			0.600	28.333	13.333
130 541-1000	Steam bath heater,commercial,with blow-down assembly, to 22 CUM			0.600	28.333	13.333
<b>130 810</b>	<b>ACOUSTICAL ENCLOSURES</b>					
<b>130 811</b>	<b>ACOUSTICAL</b>					
130 811-0020	Acoustical enclosure, 100 mm thick wall and ceiling panels 51 kg/SQM, up to 3.6 m span	SQM	0.125 Labor Foreman 3.000 Carpenters 1.000 Common laborer 2.000 Tools Set	4.000	8.250	4.000
130 811-0400	Acoustical reverb-chamber, 100 mm thick, parallel walls, complete			3.750	8.800	4.267
130 811-0700	Acoustical reverb-chamber, 100 mm thick, skewed walls, parallel roof, complete			2.850	11.579	5.614
130 811-0900	Acoustical, sound-absorbing panels, painted metal, 762 mm x 2438 mm, up to 100 SQM			20.000	1.650	0.800
130 811-1100	Acoustical, sound-absorbing panels, painted metal, 762 mm x 2438 mm, over 100 SQM			22.000	1.500	0.727
130 811-3100	Acoustical audio masking system, including speakers, amplification and signal generator			4.010	8.229	3.990
130 811-1150	Acoustical, sound-absorbing panels, perforated metal,over 46 SQM,music rooms			20.000	1.650	0.800
130 811-3200	Acoustical audio masking system, including speakers, amplification and signal generator, ceiling mounted up to 500 m2		0.125 Labor Foreman 2.000 Electricians 1.000 Helper 1.000 Tools Set	160.000	0.156	0.050
130 811-3200	Acoustical audio masking system, including speakers, amplification and signal generator, ceiling mounted more than 500 m2			200.000	0.125	0.040
130 811-3400	Acoustical audio masking system, including speakers, amplification and signal generator, plenum mounted, more than 500 m2			300.000	0.083	0.027
<b>130 910</b>	<b>RADIATION PROTECTION</b>					
<b>130 911</b>	<b>SHIELDING LEAD</b>					
130 911-0100	Shielding lead, laminated lead in wood doors, 2 mm thick, no hardware		1 Skilled Labor 1 Helper	2.400	6.667	3.333
130 911-0200	Shielding, lining door frame, 2 mm thick lead, prepared to receive hardware	EA	0.125 Skilled Foreman 1.000 Lather 1.000 Helper 1.000 Tools Set	1.750	9.714	4.571
130 911-0300	Shielding, sheets, 2 mm thick lead	SQM	0.125 Skilled Foreman 2.000 Lather 1.000 Helper 2.000 Tools Set	9.000	2.778	1.778
130 911-0400	Shielding, sheets, 3 mm thick lead	SQM	0.125 Skilled Foreman 2.000 Lather 1.000 Helper 2.000 Tools Set	8.000	3.125	2.000

**DIVISION 13 : SPECIAL CONSTRUCTION**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
130 911-0600	Shielding glass, 6 mm thick lead, 300 mm x 400 mm	EA		9.000	2.778	1.778
130 911-0700	Shielding glass, 6 mm thick lead, 610 mm x 910 mm			6.000	4.167	2.667
130 911-0800	Shielding glass, 6 mm thick lead, 910 mm x 1525 mm			1.000	25.000	16.000
130 911-0850	Shielding window frame, 2 mm thick lead, 910 mm x 1525 mm	↓		1.000	25.000	16.000
130 911-0900	Shielding gypsum board, 16 mm thick with 2 mm lead	SQM		11.000	2.273	1.455
130 911-0910	Shielding gypsum board, 16 mm thick with 3 mm lead			9.500	2.632	1.684
130 911-0930	Shielding gypsum board, 16 mm thick with 0.8 mm lead			15.000	1.667	1.067
130 911-1210	Shielding protection, X-ray room, average radiography or fluoroscopy room of 2.1 wall height & upto 28 SQM size, 2 mm lead, minimum			7.000	3.571	2.286
130 911-1900	Shielding protection, deep therapy X-ray room 250 KV capacity, of 2.1 wall height & upto 28 SQM size, 6 mm lead, minimum		↓	7.000	3.571	2.286
130 911-2010	Shielding, X-ray viewing panels, clear lead plastic 7 mm thick with 0.3 mm lead thick		0.125 Skilled Foreman 1.000 Skilled Worker 1.000 Common laborer 1.000 Tools Set	9.000	1.889	0.889
130 911-2040	Shielding, X-ray viewing panels, clear lead plastic 22 mm thick with 1.0 mm lead thick			3.000	5.667	2.667
130 911-2050	Shielding, X-ray viewing panels, clear lead plastic 35 mm thick with 1.0 mm lead thick			2.000	8.500	4.000
130 911-2060	Shielding, X-ray viewing panels, clear lead plastic 46 mm thick with 2.0 mm lead thick			1.500	11.333	5.333
130 911-7000	Shielding, X-ray barriers, mobile, mounted within framework with casters on bottom, clear lead plastic window panels on upper portion, opaque on lower including framework	↓		1.440	11.806	5.556
130 911-4020	Shielded, X-ray modular steel barriers with window ,framed, floor or wall or ceiling mounted, supported, 0.9 m wide, 2.1 m high, 1 section, 0.5 mm leaded.	EA		4.000	4.250	2.000
130 911-4050	Shielded, X-ray modular steel barriers with window ,framed, floor or wall or ceiling mounted, supported, 0.9 m wide, 2.1 m high, 1 section, 1.5 mm leaded.			3.000	5.667	2.667
130 911-4070	Shielded, X-ray modular steel barriers with window ,framed, floor or wall or ceiling mounted, supported, 1.8 m wide, 2.1 m high, 2 section, 0.5 mm leaded.			3.000	5.667	2.667
130 911-4090	Shielded, X-ray modular steel barriers with window ,framed, floor or wall or ceiling mounted, supported, 1.8 m wide, 2.1 m high, 2 section, 1.0 mm leaded.			2.600	6.538	3.077
130 911-5000	Shielded, X-ray modular steel barriers with window ,framed, floor or wall or ceiling mounted, supported, 1.8 m wide, 2.1 m high, 2 section, 1.5 mm leaded.			2.350	7.234	3.404
130 911-5040	Shielded, X-ray modular steel barriers with window ,framed, floor or wall or ceiling mounted, supported, 2.7 m wide, 2.1 m high, 3 section, 1.0 mm leaded.			2.000	8.500	4.000
130 911-5050	Shielded, X-ray modular steel barriers with window ,framed, floor or wall or ceiling mounted, supported, 2.7 m wide, 2.1 m high, 3 section, 1.5 mm leaded.	↓	↓	1.750	9.714	4.571
<b>130 912</b>	<b>SHIELDING, RADIO FREQUENCY</b>					



**DIVISION 13 : SPECIAL CONSTRUCTION**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
130 912-0020	Radio frequency shielding, prefabricated or screen-type copper or steel, average	EA	0.125 Skilled Foreman 2.000 Carpenters 1.000 Helper 2.000 Tools Set	10.000	2.500	1.600
<b>131</b>	<b>PRE-ENG. STRUCTURES, POOLS &amp; ICE RINKS</b>					
<b>131 200</b>	<b>PRE-ENG. STRUCTURES</b>					
<b>131 202</b>	<b>DOMES</b>					
131 202-0600	Domes revolving aluminum, electric drive, for astronomy observation, stock units 3048 mm diameter, 363 kg, dome & shell base	SQM Floor	2 Carpenters	0.670	23.881	11.940
131 202-1200	Domes revolving aluminum, electric drive, for astronomy observation, stock units 7315 mm diameter, 2041 kg, dome & shell base	SQM Floor	"	3.760	4.255	2.128
131 202-1600	Bulk storage dome, shell only, dual radius hemisphere. arch, steel framing, corrugated steel covering 40 m diameter	SQM Floor	1 Struc. steel foreman 4 Struc. steel workers 1 Equip. Oper (crane) 2 Common Laborers 1 Crane, 82 metric ton	40.000	1.600	0.200
131 202-2000	Bulk storage dome, shell, steel framing, plywood & asphalt shingle covering 15 m diameter		1 Skilled Foreman 2 Struct. steel workers 2 Carpenters 1 Equip Oper (crane) 2 Common Laborers 2 Power Tools 1 Hyd. crane, 11 metric ton	145.000	0.441	0.166
131 202-2200	Bulk storage dome covering, plywood, asphalt shingles, 22 m diameter			125.000	0.512	0.192
131 203-2300	Geodesic dome, shell only aluminum framed, aluminum closure panels 98 m diameter			0.960	66.667	25.000
131 203-2400	Geodesic dome, shell only aluminum framed, aluminum closure panels 126 m diameter			0.950	67.368	25.263
131 203-2800	Geodesic dome, shell only aluminum framed, fiberglass sandwich panel closure 2 m diameter			0.900	71.111	26.667
131 203-2900	Geodesic dome, shell only aluminum framed, fiberglass sandwich panel closure 9 m diameter			0.850	75.294	28.235
131 202-4000	Dome shell, aluminium framing, plexiglass closure panels, 12 m diameter			30.000	2.133	0.800
131 202-4000	Dome shell, aluminium framing, aluminium closure panels, 12 m diameter			20.000	3.200	1.200
131 202-4000	Dome shell, aluminium framing, fiberglass sandwich closure panels, 2 m diameter		0.125 Skilled Foreman 2.000 Carpenters 1.000 Common laborer 2.000 Power tools	12.000	2.083	1.333
131 202-4000	Dome shell, aluminium framing, fiberglass sandwich closure panels, 9 m diameter		"	30.000	0.833	0.533
131 205-0800	Silos steel, factory fab., epoxy lined, average		"	0.150	106.667	53.333
131 207-0460	Rigid steel or alum. frame, vinyl coated polyester fabric shell, 37 m clear span, not incl. foundations or floors			0.100	160.000	80.000

**DIVISION 13 : SPECIAL CONSTRUCTION**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
131 207-0470	Rigid steel or alum. frame, vinyl coated polyester fabric shell, 61 m clear span, not incl. foundations or floors			0.050	320.000	160.000
131 207-0500	Roll-up door, 3658 mm x 4267 mm		1 Carpenter 1 Carpenter Helper	0.250	64.000	32.000
<b>131 210</b>	<b>PRE-ENGINEERED BUILDINGS</b>					
<b>131 211</b>	<b>HANGARS</b>					
131 211-0110	Hangars prefabricated steel T hangars, 6 m high, Galv. steel roof & walls, incl. electric bi-folding doors, not including floors or foundations, average	SQM SURFACE AREA	1 Struc. steel foreman 4 Struc. steel workers 1 Equip. Oper (crane) 2 Common Laborers 1 Crane, 82 metric ton	90.000	0.711	0.089
131 211-2000	Hangars prefabricated steel, circular type, steel frame, plastic skin, electric door including foundations, 24 m diameter, average	"	"	45.000	1.422	0.178
<b>131 212</b>	<b>PRE-ENGINEERED STEEL BUILDINGS</b>					
131 212-0025	Pre-engineered steel building shell only, 26 ga. colored roofing & siding, average	SQM	1 Struc. steel foreman 4 Struc. steel workers 1 Equip. Oper (crane) 2 Common Laborers 1 Crane, 82 metric ton	115.000	0.557	0.070
131 212-0100	Pre-engineered steel building rigid, clear span frame, 26 ga. colored roofing and siding 10 m wide, 4.25 m eave height, 2400 m2 floor area			115.000	0.557	0.070
131 212-0500	Pre-engineered steel building rigid, clear span frame, 26 ga. colored roofing and siding 12 m wide, 6 m eave height, 2400 m2 floor area			70.000	0.914	0.114
131 212-0700	Pre-engineered steel building rigid, clear span frame, 26 ga. colored roofing and siding 15 m wide, 4.25 m eave height, 2400 m2 floor area			115.000	0.557	0.070
131 212-1100	Pre-engineered steel building rigid, clear span frame, 26 ga. colored roofing and siding 24 m wide, 7.2 m eave height, 2400 m2 floor area			70.000	0.914	0.114
131 212-1400	Pre-engineered steel building rigid, clear span tapered beam frame, 26 ga. colored roofing and siding 10 m wide, 4.25 m eave height, 2400 m2 floor area			115.000	0.557	0.070
131 212-2000	Pre-engineered steel building, rigid clear span tapered beam frame, 26 ga. colored roofing and siding 12 m wide, 6 m eave height, 2400 m2 floor area			70.000	0.914	0.114
131 212-2100	Pre-engineered steel building rigid, clear span tapered beam frame, 26 ga. colored roofing and siding 15 m wide, 6 m eave height, 2400 m2 floor area			70.000	0.914	0.114
131 212-2500	Pre-engineered building, 3 post frame per width, 12 m span, 26 ga. roofing and siding 24 m. wide, 4.2 m eave height, 2400 m2 floor area			100.000	0.640	0.080
131 212-2800	Pre-engineered building, 3 post frame per width, 15 m span, 26 ga. roofing and siding 30 m. wide, 6 m eave height, 2400 m2 floor area			65.000	0.985	0.123
131 212-2900	Pre-engineered building, single post frame, 26 ga. roofing and siding 24 m. wide, 7.3 m eave height			70.800	0.904	0.113
131 212-3400	Pre-engineered building, 3 post frame per width, 18 m span, 26 ga. roofing and siding 36 m. wide, 4.25 m eave height, 2400 m2 floor area			100.000	0.640	0.080
131 212-3600	Pre-engineered building, 3 post frame per width, 18 m span, 26 ga. roofing and siding 36 m. wide, 6 m eave height, 2400 m2 floor area			65.000	0.985	0.123
131 212-3700	Pre-engineered building, single post frame, 26 ga. roofing and siding 36 m. wide, 7 m eave height			70.800	0.904	0.113

## DIVISION 13 : SPECIAL CONSTRUCTION

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
131 212-3800	Pre-engineered building, double post frame, 26 ga. roofing and siding 45 m. wide, 4.25 m eave height			65.000	0.985	0.123
131 212-4100	Pre-engineered building, 4 post frame per width, 15 m span, 26 ga. roofing and siding 45 m. wide, 6 m eave height, 2400 m2 floor area			65.000	0.985	0.123
131 212-4200	Pre-engineered building, double post frame, 26 ga. roofing and siding 45 m. wide, 7 m eave height			60.000	1.067	0.133
131 212-5500	Pre-engineered entrance canopy, incl. frame, 1.2 m x 1.2 m			25.000	2.560	0.320
131 212-5550	Pre-engineered entrance canopy, incl. frame, 1.2 m x 2.4 m			40.000	1.600	0.200
131 212-5700	Pre-engineered doors, hollow metal self-framing, incl. butts, lockset and trim, single leaf, 910 mm x 2100 mm, economy	OPENING	0.125 Skilled Foreman 2.000 Structural steel workers 1.000 Common Laborer 1.000 Tools Set	5.000	5.000	1.600
131 212-5950	Pre-engineered doors, hollow metal self-framing, incl. butts, lockset and trim, single leaf, 1.8 m x 2.4 m, economy	OPENING		2.500	10.000	3.200
131 212-6050	Pre-engineered, framing only, for openings, 910 mm x 2100 mm	OPENING		15.000	1.667	0.533
131 212-6100	Pre-engineered, framing only, for openings, 3000 mm x 3000 mm	OPENING		13.500	1.852	0.593
131 212-6250	Pre-engineered, flashings, 26 ga., corner or eave	OPENING		44.000	0.568	0.182
131 212-6550	Gutter, eave type, 26 ga.	LM		40.000	0.625	0.200
131 212-8200	Skylight, fiberglass panels upto 3 SQM	SQM	1 Welder Foreman 1 Welder 1 Laborer 1 Equip. Oper. (light) 1 Gas welding machine	20.000	1.600	0.400
131 212-8250	Skylight, fiberglass panels over 3 SQM	SQM	..	25.000	1.280	0.320
131 212-8400	Framed roof vents, circular with damper, birdscreen and operator hardware, painted 26 ga., 300 mm diameter	EA	0.125 Skilled Foreman 1.000 Structural Steel Worker 1.000 Helper 1.000 Tools Set	3.000	5.333	2.667
131 212-8450	Framed roof vents, circular with damper, birdscreen and operator hardware, painted 26 ga., 500 mm diameter			2.000	8.000	4.000
131 212-8500	Framed roof vents, circular with damper, birdscreen and operator hardware, painted 24 ga., 600 mm diameter			2.000	8.000	4.000
<b>131 230</b>	<b>GREENHOUSES</b>					
<b>131 231</b>	<b>GREENHOUSE</b>					
131 231-0300	Greenhouse, free standing, size 2.6 m long, 2.2 m wide, 2.44m high	SQM Floor	2 Carpenters 1 Helper	4.000	6.000	0.000
131 231-0700	Greenhouse shell only, 5 m long, 3.2 m wide			0.350	45.714	22.857
131 231-0400	Greenhouse, free standing, size 2.6 m long, 3.2 m wide, 2.44m high			6.000	4.000	0.000
131 231-0700	Greenhouse, free standing, size 2.6 m long, 5.1 m wide, 2.44m high			12.000	2.000	0.000
<b>131 244</b>	<b>GARDEN HOUSE</b>					

**DIVISION 13 : SPECIAL CONSTRUCTION**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
131 244-0100	Garden house, prefabricated without floor or foundation 2.5 m long, 5 m wide	SQM Floor	2 Carpenters 2 Power tools	12.000	2.667	0.000
<b>131 245</b>	<b>KIOSKS</b>					
131 245-0010	Prefabricated kiosk, round, 1.5 m diameter, 2.4 m high, 6 mm fiberglass wall.	EA	2 Skilled Workers 1 Helper	4.000	6.000	0.000
131 245-0100	Prefabricated kiosk, round, 1.5 m diameter, 2.4 m high, 25 mm insulated, double wall fiberglass			4.000	6.000	0.000
131 245-0100	Prefabricated kiosk, rectangular, 1.5 m x 2.7 m x 2.3 m, 25 mm insulated double wall, fiberglass			4.000	6.000	0.000
<b>131 247</b>	<b>PORTABLE BOOTHS</b>					
131 247-0300	Prefabricated, booth, aluminum with doors, windows, ext. roof lights wiring & insulation, 2.8 SQM, 2.4 m high, average	EA	2 Skilled Workers 1 Helper	4.000	6.000	0.000
131 247-1200	Prefabricated ticket booth, galv. steel, not incl. foundations, 1.2 m x 1.8 m average	..	..	4.000	6.000	0.000
<b>131 250</b>	<b>GRANDSTANDS / BLEACHERS</b>					
<b>131 251</b>	<b>GRANDSTANDS</b>					
131 251-0100	Grandstand, no foundation, steel understructure with precast concrete closed deck average	SEAT	1 Struc. steel foreman 4 Struc. steel workers 1 Equip. Oper (crane) 1 Equip. Oper oiler 1 Crane, 82 metric ton	8.000	7.000	1.000
131 251-0300	Grandstand, steel deck at framing, average	SEAT	1 Struc. steel foreman 4 Struc. steel workers 1 Equip. Oper (crane) 1 Equip. Oper oiler 1 Crane, 82 metric ton	0.250	64.000	32.000
<b>131 520</b>	<b>SWIMMING POOLS</b>					
<b>131 521</b>	<b>SWIMMING POOL ENCLOSURE</b>					
131 521-0200	Swimming pool enclosure, translucent, free standing, not including foundations, heat or light, average	SQM	2 Carpenters 1 Helper	8.000	3.000	1.000
<b>131 523</b>	<b>SWIMMING POOL EQUIPMENT</b>					
131 523-0300	Swimming pool, diving stand, stainless steel, 3 meter	EA	2 Carpenters 1 Helper	0.250	96.000	32.000
131 523-0600	Swimming pool, diving board 5 m long			2.000	12.000	4.000
131 523-0900	Swimming pool filter system, sand or diatomite type, including pump 85 GPM & chlorination system, pool size 75 SQM			1.000	24.000	0.000
131 523-1100	Swimming pool, gutter system, stainless steel, with grating, including supply and drainage system	LM	1 Welder Foreman 1 Welder 1 Equip. Oper. (light) 1 Gas welding machine	4.000	6.000	2.000
131 523-1200	Swimming pool, ladders, heavy duty, stainless steel, 4 tread	EA	2 Carpenters 1 Helper	4.000	6.000	0.000
131 523-1800	Swimming pool, lifeguard chair, stainless steel, fixed		..	2.000	12.000	0.000

## DIVISION 13 : SPECIAL CONSTRUCTION

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
131 523-2100	Swimming pool, lights, underwater, 12V, with transformer	↓	1 Electrician 1 Helper	5.000	3.200	0.000
131 523-2800	Swimming pool heaters,	<i>See division 155150</i>				
131 523-3300	Swimming pool slides, fiberglass, aluminum handrails & ladder, 1.8 m straight	EA	2 Carpenters 1 Helper	1.500	16.000	0.000
131 523-3400	Swimming pool slides, fiberglass, aluminum handrails & ladder, 3.2 m curved unit	"	..	0.850	28.235	0.000
<b>131 525</b>	<b>SWIMMING POOLS</b>					
131 525-0600	Swimming pool gunite bottom and sides, white plaster finish	SQM Surf.	1 Foreman 3 Laborers 2 Cement Finisher 1 Grout pump with hose & nozzle	10.000	4.800	0.800
131 525-0810	Swimming pool, concrete bottom and sides tile finished	..	1 Foreman 4 Tilers 4 Laborers 1 Cement Finisher 5 Rodman (reinf.) 5 Equip. Oper. (med.) 5 F.E. Ldr., T.M., 1.91 CUM	6.000	14.667	0.667
<b>132</b>	<b>TANKS, TANK COVERS, FILTRATION EQUIPMENT</b>					
<b>132 050</b>	<b>GROUND STORAGE TANKS</b>					
<b>132 051</b>	<b>TANKS</b>					
132 051-3040	Steel, storage tank, above ground, including supports, coating fittings not including mat, pumps or piping, single wall, 2 CUM capacity	EA	1 Steamfitter 1 Steamfitter Apprentice	3.500	4.571	0.000
132 051-3080	Steel, storage tank, above ground, including supports, coating, fittings, not including mat, pumps or piping, 4 CUM capacity		1 Steamfitter Foreman (in) 2 Steamfitters 1 Steam Apprentice 0.25 Crane Operator 0.25 Crane 11 ton	5.000	6.800	0.400
132 051-3140	Steel, storage tank, above ground, including supports, coating, fittings, not including mat, pumps or piping, 20 CUM capacity			2.400	14.167	0.833
132 051-3180	Steel, storage tank, above ground, including supports, coating, fittings, not including mat, pumps or piping, 100 CUM capacity			0.900	37.778	2.222
132 051-3330	Steel, storage tank, above ground, including supports, coating, fittings not including mat, pumps or piping, double wall, 8 CUM capacity			3.000	11.333	0.667
132 051-3360	Steel, storage tank, above ground, including supports, coating, fittings, not including mat, pumps or piping, double wall, 30 CUM capacity			1.500	22.667	1.333
132 051-3400	Steel above ground, storage tank, above ground, including supports, coating fittings not including mat, pumps or piping, double wall, 100 CUM capacity	↓	↓	0.800	42.500	2.500
<b>132 150</b>	<b>UNDERGROUND STORAGE TANKS</b>					
<b>132 151</b>	<b>TANKS</b>					

**DIVISION 13 : SPECIAL CONSTRUCTION**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
132 151-0240	Underground storage tank, fiberglass, single wall,not including excavation,hold down straps and manway, 8 CUM capacity	EA	1 Steamfitter Foreman (in) 2 Steamfitters 1 Steam Apprentice 0.25 Crane Operator 0.25 Crane 11 ton	2.000	17.000	1.000
132 151-0280	Underground storage tank, fiberglass, single wall,not including excavation,hold down straps and manway, 40 CUM capacity			0.500	68.000	4.000
132 151-0290	Underground storage tank, fiberglass, single wall,not including excavation,hold down straps and manway, 80 CUM capacity			0.300	113.333	6.667
132 151-5530	Underground storage tank, steel,not including excavation,hold down straps,pad,pumps & piping, 8 CUM capacity, 6 mm wall thickness.			0.500	68.000	4.000
132 151-5580	Underground storage tank, steel,not including excavation,hold down straps,pad,pumps & piping, 60 CUM capacity, 8 mm wall thickness.			0.500	68.000	4.000
132 151-5610	Underground storage tank, steel,not including excavation,hold down straps,pad,pumps & piping, 100 CUM capacity, 10 mm wall thickness.			0.300	113.333	6.667
132 151-5630	Underground storage tank, steel,not including excavation,hold down straps,pad,pumps & piping, 150 CUM capacity, 10 mm wall thickness.			0.200	170.000	10.000
<b>133</b>	<b>UTILITY CONTROL SYSTEMS</b>					
<b>133 300</b>	<b>POWER CONTROL SYSTEMS</b>					
<b>133 311</b>	<b>RADIO TOWERS See Div 169-120</b>					

# Division 14

## Conveying Systems

### Estimating Tips

#### General

Many products in this division will require some type of support or blocking for installation not included with the item itself. Examples are supports for conveyors, attachment points for lifts and footings for hoists or cranes.

#### 141 Dumb-waiters

#### 142 Elevators

Dumb-waiters

Elevators are estimated and purchased from manufacturers with a base unit price for standard features and added to this base unit price will be whatever options the owner or specifications require. Increased load capacity, additional vertical travel, additional stops, higher speed, and cab finish options are items to be considered. When developing an estimate for elevators, remember that some items needed by the installers may have to be included as part of the general contract. Examples are:

- shaftway
- rail support brackets
- machine room electrical supply
- sill angles
- electrical connections
- pits
- roof penthouse
- pit ladders

#### 143 Escalators

Escalators are specialty items installed by specialty contractors. There are numerous options associated with these items. For specific options contact a manufacturer or contractor.

#### 144 Lifts

#### 146 Hoists & Cranes

These products may require trained installers.

The general contractor might not have any choice as to who will perform the installation or when it will be performed. Long lead items are often required for these products, making early decisions in scheduling is necessary.

**DIVISION 14: CONVEYING SYSTEMS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>141</b>	<b>DUMBWAITERS</b>					
<b>141 100</b>	<b>MANUAL DUMBWAITERS</b>					
<b>141 101</b>	<b>DUMBWAITERS:</b>					
141 101-0100	Manual dumbwaiter, 2 stops,average	EA	0.50 Elevator Forman 4.00 Elevator Constructors 1.00 Steel Structure Worker 2.00 Elevator apprentice 3.00 Hand Tools 1.00 Chain Winch	2.000	30.000	16.000
141 101-0300	Manual dumbwaiter, for each stop,add	STOP	*	2.000	30.000	16.000
<b>141 200</b>	<b>ELECTRIC DUMBWAITERS</b>					
<b>141 201</b>	<b>DUMBWAITERS:</b>					
141 201-0010	Electric dumbwaiters, 2 stops,average	EA	0.50 Elevator Forman 4.00 Elevator Constructors 1.00 Steel Structure Worker 2.00 Elevator apprentice 3.00 Hand Tools 1.00 Chain Winch	0.350	171.429	91.429
141 201-0600	Electric dumbwaiters, for each additional stop,add	STOP	*	1.500	40.000	21.333
<b>142</b>	<b>ELEVATORS</b>					
<b>142 010</b>	<b>ELEVATORS</b>					
<b>142 011</b>	<b>ELEVATORS</b>					
142 011-0600	Elevator freight, 2 story,hydraulic, 1360 kg capacity, 0.5m/second speed,average	EA	0.50 Elevator Forman 4.00 Elevator Constructors 1.00 Steel Structure Worker 2.00 Elevator apprentice 3.00 Hand Tools 1.00 Chain Winch	0.108	555.556	296.296
142 011-0700	Elevator freight, 2 story,hydraulic, 1800 kg capacity, 0.88 m/second speed,average			0.101	594.059	316.832
142 011-0750	Elevator freight, 3 story,hydraulic, 1800 kg capacity, 0.88 m/second speed,average			0.087	689.655	367.816
142 011-1000	Elevator freight, 6 story,hydraulic, 1360 kg capacity, 0.76 m/second speed,average			0.082	731.707	390.244
142 011-1100	Elevator freight, 6 story,hydraulic, 1600 kg capacity, 0.76 m/second speed,average			0.082	731.707	390.244
142 011-1120	Elevator freight, 6 story,hydraulic, 2000 kg capacity, 0.76 m/second speed,average			0.076	789.474	421.053
142 011-1200	Elevator freight, 6 story,hydraulic, 2700 kg capacity, 0.88 m/second speed,average			0.072	833.333	444.444
142 011-1700	Elevator freight, 6 story,hydraulic, 3000 kg capacity, 0.88 m/second speed,average			0.072	833.333	444.444



# **DIVISION 14: CONVEYING SYSTEMS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
142 011-1820	Elevator freight, 6 story,hydraulic, 3600 kg capacity, 0.88 m/second speed,average			0.059	1016.949	542.373
142 011-2500	Elevator freight, 6 story geared electric 1800 kg capacity, 2.0 m/second speed,average			0.090	666.667	355.556
142 011-2600	Elevator freight, 6 story geared electric 3000 kg capacity, 2 m/second speed,average			0.078	769.231	410.256
142 011-2700	Elevator freight, 6 story geared electric 4500 kg capacity, 1.5 m/second speed,average			0.066	909.091	484.848
142 011-2800	Elevator freight, 6 story geared electric 4500 kg capacity, 2 m/second speed,average			0.064	937.500	500.000
142 011-3500	Elevator freight, 10 story geared electric 1800 kg capacity, 1.5 m/second speed,average			0.078	769.231	410.256
142 011-3600	Elevator freight, 10 story geared electric 2700 kg capacity, 1.5 m/second speed,average			0.069	869.565	463.768
142 011-3700	Elevator freight, 10 story geared electric 3000 kg capacity, 2 m/ second speed,average			0.068	882.353	470.588
142 011-3800	Elevator freight, 10 story geared electric 3600 kg capacity, 1.5 m/second speed,average			0.059	1016.949	542.373
142 011-3900	Elevator freight, 10 story geared electric 4500 kg capacity, 1.2 m/second speed,average			0.057	1052.632	561.404
142 011-4500	Elevator freight, 12 story geared electric 4500 kg capacity, 1.5 m/second speed,average			0.051	1176.471	627.451
142 011-4620	Elevator freight, 14 story geared electric 4500 kg capacity, 2.0 m/second speed,average			0.049	1224.490	653.061
142 011-5200	Elevator freight, 15 story geared electric 2200 kg capacity, 1.5 m/second speed,average			0.059	1016.949	542.373
142 011-5800	Elevator freight, 16 story geared electric 2700 kg capacity, 2.0 m/second speed,average			0.060	1000.000	533.333
142 011-5920	Elevator freight, 16 story geared electric 3600 kg capacity, 2.0 m/second speed,average			0.052	1153.846	615.385
142 011-6400	Elevator freight, 20 story geared electric 3000 kg capacity, 2 m/second speed,average			0.047	1276.596	680.851
142 011-6620	Elevator freight, 22 story geared electric 3600 kg capacity, 2 m/second speed,average			0.040	1500.000	800.000
142 011-6700	Elevator freight, 24 story geared electric 4500 kg capacity, 2 m/second speed,average			0.037	1621.622	864.865
142 011-7000	Elevator passenger, 3 story,hydraulic, 680 kg capacity, 0.63 m/second speed	EA	0.50 Elevator Forman 4.00 Elevator Constructors 1.00 Steel Structure Worker 2.00 Elevator apprentice 3.00 Hand Tools 1.00 Chain Winch	0.090	666.667	355.556
142 011-7020	Elevator passenger, 3 story,hydraulic, 900 kg capacity, 0.88 m/second speed			0.085	705.882	376.471
142 011-7040	Elevator passenger, 3 story,hydraulic, 1100 kg capacity, 0.76 m/second speed			0.090	666.667	355.556
142 011-7060	Elevator passenger, 4 story,hydraulic, 1100 kg capacity, 0.88 m/second speed			0.081	740.741	395.062

## DIVISION 14: CONVEYING SYSTEMS

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
142 011-7160	Elevator passenger, 5 story,hydraulic, 680 kg capacity, 0.5 m/second speed			0.081	740.741	395.062
142 011-7180	Elevator passenger,6 story,hydraulic, 900 kg capacity, 0.635 m/second speed			0.077	779.221	415.584
142 011-7200	Elevator passenger, 5 story,hydraulic, 1100 kg capacity, 0.76 m/second speed			0.081	740.741	395.062
142 011-7260	Elevator passenger, 5 story,hydraulic, 1100 kg capacity, 0.88 m/second speed			0.077	779.221	415.584
142 011-7300	Elevator passenger, 6 story,hydraulic, 1100 kg capacity, 0.5 m/second speed			0.077	779.221	415.584
142 011-7320	Elevator passenger, 6 story,hydraulic, 1300 kg capacity, 0.88 m/second speed			0.074	810.811	432.432
142 011-7340	Elevator passenger, 7 story,hydraulic, 1800 kg capacity, 0.76 m/second speed			0.074	810.811	432.432
142 011-7400	Elevator passenger, 8 story,hydraulic, 2000 kg capacity, 0.88 m/second speed			0.068	882.353	470.588
142 011-7800	Elevator passenger, 10 story geared electric 970 kg capacity, 1.02 m/second speed,average			0.073	821.918	438.356
142 011-7900	Elevator passenger, 12 story geared electric 1100 kg capacity, 1.20 m/second speed,average			0.065	923.077	492.308
142 011-8000	Elevator passenger, 10 story geared electric 1360 kg capacity, 1.50 m/second speed,average			0.072	833.333	444.444
142 011-8060	Elevator passenger, 10 story geared electric 1800 kg capacity, 1.77 m/second speed,average			0.068	882.353	470.588
142 011-8100	Elevator passenger, 13 story geared electric 2000 kg capacity, 2.00 m second/speed,average			0.055	1090.909	581.818
142 011-8120	Elevator passenger, 10 story geared electric 2200 kg capacity, 2.00 m second/speed,average			0.062	967.742	516.129
142 011-8340	Elevator passenger, 16 story geared electric 1800 kg capacity, 1.5 m/second speed,average			0.059	1016.949	542.373
142 011-8380	Elevator passenger, 16 story geared electric 1800 kg capacity, 2 m/second speed,average			0.057	1052.632	561.404
142 011-8400	Elevator passenger, 16 story geared electric 2200 kg capacity, 2 m/second speed,average			0.053	1132.075	603.774
142 011-8440	Elevator passenger, 16 story geared electric 3200 kg capacity, 2 m/second speed,average			0.047	1276.596	680.851
142 011-8600	Elevator passenger, 20 story geared electric 1800 kg capacity, 2 m/second speed,average			0.048	1250.000	666.667
142 011-8700	Elevator passenger, 20 story geared electric 2200 kg capacity, 2 m/second speed,average			0.045	1333.333	711.111
142 011-9000	Elevator passenger, 16 story gearless electric 1800 kg capacity, 2.50 m/second speed,average			0.052	1153.846	615.385
142 011-9060	Elevator passenger, 16 story gearless electric 1800 kg capacity, 3.00 m/second speed,average			0.052	1153.846	615.385
142 011-9120	Elevator passenger, 16 story gearless electric 2200 kg capacity, 3.50 m/second speed,average			0.048	1250.000	666.667

## DIVISION 14: CONVEYING SYSTEMS

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
142 011-9220	Elevator passenger, 16 story gearless electric 3200 kg capacity, 4.00 m/second speed, average			0.040	1500.000	800.000
142 011-9500	Elevator passenger, 18 story gearless electric 1800 kg capacity, 3.00 m/second speed, average			0.049	1224.490	653.061
142 011-9560	Elevator passenger, 20 story gearless electric 1800 kg capacity, 4.00 m/second speed, average			0.044	1363.636	727.273
142 011-9600	Elevator passenger, 20 story gearless electric 2000 kg capacity, 3.50 m/second speed, average			0.041	1463.415	780.488
142 011-9660	Elevator passenger, 20 story gearless electric 2000 kg capacity, 4.00 m/second speed, average			0.041	1463.415	780.488
142 011-9700	Elevator passenger, 20 story gearless electric 3200 kg capacity, 3.00 m/second speed, average			0.034	1764.706	941.176
142 011-9740	Elevator passenger, 20 story gearless electric 2800 kg capacity, 3.50 m/second speed, average			0.039	1538.462	820.513
142 011-9780	Elevator passenger, 20 story gearless electric 2800 kg capacity, 4.00 m/second speed, average			0.034	1764.706	941.176
142 011-9860	Elevator passenger, 20 story gearless electric 2800 kg capacity, 5.00 m/second speed, average			0.031	1935.484	1032.258
<b>143</b>	<b>MOVING STAIRS &amp; WALKS</b>					
<b>143 100</b>	<b>ESCALATORS</b>					
<b>143 101</b>	<b>ESCALATORS:</b>					
143 101-0010	Escalators single unit, up or down, 3.00 m rise, 813 mm wide, stainless steel balustrade	EA	0.50 Elevator Forman 4.00 Elevator Constructors 1.00 Steel Structure Worker 2.00 Elevator apprentice 3.00 Hand Tools 1.00 Chain Winch	0.067	835.821	358.209
143 101-0100	Escalators single unit, up or down, 4.50 m rise, 813 mm wide, stainless steel balustrade	EA	0.50 Elevator Forman 4.00 Elevator Constructors 1.00 Steel Structure Worker 2.00 Elevator apprentice 3.00 Hand Tools 1.00 Chain Winch	0.092	608.696	260.870
143 101-0200	Escalators single unit, up or down, 6.00 m rise, 813 mm wide, stainless steel balustrade			0.075	746.667	320.000
143 101-0300	Escalators single unit, up or down, rise, 4.50 m rise, 813 mm wide, enameled steel balustrade			0.090	622.222	266.667
143 101-1000	Escalator, single unit, up or down, 3.00 rise, 1.20 m wide, enameled steel balustrade			0.089	629.213	269.663
143 101-1100	Escalator, single unit, up or down, 4.50 rise, 1.20 m wide, enameled steel balustrade			0.078	717.949	307.692
143 101-1200	Escalator, single unit, up or down, 6.00 rise, 1.20 m wide, enameled steel balustrade			0.065	861.538	369.231
143 101-1300	Escalator, single unit, up or down, 4.50 m, 1200 mm wide, enameled steel or glass balustrade			0.078	717.949	307.692
<b>143 200</b>	<b>MOVING WALKS</b>					

**DIVISION 14: CONVEYING SYSTEMS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>143 201</b>	<b>MOVING RAMPS AND WALKS:</b>					
143 201-0010	Moving walk, 686 mm tread width, 50 m long.	LM	0.50 Elevator Forman 4.00 Elevator Constructors 1.00 Steel Structure Worker 2.00 Elevator apprentice 3.00 Hand Tools 1.00 Chain Winch	3.250	17.231	7.385
143 201-0100	Moving walk, 686 mm tread width, 90 m long.			2.750	20.364	8.727
143 201-0140	Moving walk, 686 mm tread width, 150 m long.			2.500	22.400	9.600
143 201-0300	Moving walk, 1220 mm tread width, 20 m long			2.350	23.830	10.213
143 201-0360	Moving walk, 1220 mm tread width, 30 m long			2.000	28.000	12.000
143 201-0400	Moving walk, 1220 mm tread width walk, 100 m long			1.850	30.270	12.973
143 201-0600	Moving walk,ramp, 12 degree incline, 910 mm tread width, 12 meter long			2.600	21.538	9.231
143 201-0660	Moving walk,ramp, 12 degree incline, 910 mm tread width, 20 meter long			1.700	32.941	14.118
143 201-0700	Moving walk,ramp, 12 degree incline, 910 mm tread width, 27 meter long			1.600	35.000	15.000
143 201-0900	Moving walk,ramp, 12 degree incline,1220 mm tread width, 6 meter long			1.300	43.077	18.462
143 201-0960	Moving walk,ramp, 12 degree incline,1220 mm tread width, 12 meter long			1.820	30.769	13.187
143 201-1000	Moving walk,ramp, 12 degree incline,1220 mm tread width, 21 m long			1.190	47.059	20.168
<b>144</b>	<b>LIFTS</b>					
<b>144 010</b>	<b>LIFTS</b>					
<b>144 015</b>	<b>CORRESPONDENCE &amp; PARCEL LIFTS: " SMALL CAPACITY LIFTS"</b>					
144 015-0100	Correspondence lift, 1 floor, 2 stops. 11.30 Kg capacity, electric	EA	0.25 Forman 2.00 Elevator Workers 1.00 Common laborer 1.00 Hand tools 1.00 Chain winch	0.200	130.000	80.000
144 015-0100	Parcel lift, 508 mm x 508 mm, 1 floor, 2 stops,45 Kg capacity, electric.	"	"	0.250	104.000	64.000
<b>145</b>	<b>MATERIAL HANDLING SYSTEMS</b>					
<b>145 500</b>	<b>CONVEYORS</b>					
<b>145 501</b>	<b>MATERIAL HANDLING:</b>					
145 501-0050	Conveyors, Gravity type, 50 mm rollers, 76 mm O.C., 3 m sections with 2 supports, 270 kg capacity, 460 mm wide	EA	0.25 Forman 2.00 Elevator Workers 1.00 Elevator Worker Helper 2.00 Power Tools	2.500	10.400	6.400
145 501-0100	Conveyors, Gravity type, 50 mm rollers, 76 mm O.C., 3 m sections with 2 supports, 270 kg capacity, 600 mm wide			2.250	11.556	7.111
145 501-0150	Conveyors, Gravity type, 50 mm rollers, 76 mm O.C., 3 m sections with 2 supports, 600 kg capacity, 600 mm wide			1.800	14.444	8.889

## DIVISION 14: CONVEYING SYSTEMS

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
145 501-0400	Conveyors, Center drive & take-up, horizontal belt, 0.3 m/s, 400 mm belt, 8 m long			0.600	43.333	26.667
145 501-0450	Conveyors, Center drive & take-up, horizontal belt, 0.3 m/s, 600 mm belt, 13 m long	↓		0.500	52.000	32.000
145 501-0500	Conveyors, Center drive & take-up, horizontal belt, 0.3 m/s, 600 mm belt, 19 m long	LM		0.400	65.000	40.000
145 501-0620	Conveyor, Inclined belt, with horizontal loader and end idler assembly, 3 m rise, 8 m long, 460 mm wide belt.			0.400	65.000	40.000
145 501-0700	Conveyor, Inclined belt, with horizontal loader and end idler assembly, 3 m rise, 8 m long, 600 mm wide belt.			0.220	118.182	72.727
145 501-1210	Conveyor, Overhead, automatic powered chain type, 186 kg/m capacity	↓	↓	6.000	4.333	2.667
<b>145 504</b>	<b>VERTICAL CONVEYOR:</b>					
145 504-0100	Vertical Conveyor Automatic between floors, selective, 1 floor 4.5 m high, 2 stops, complete with electrical hook-up	EA	0.25 Forman 2.00 Elevator Workers 1.00 Electrician 1.00 Elevator Worker Helper 2.00 Power Tools 1.00 Tools set 0.50 Winch	0.150	226.667	186.667
<b>145 600</b>	<b>CHUTES</b>					
<b>145 601</b>	<b>CHUTES:</b>					
145 601-0050	Chutes for liner or refuse, floor height 3.6 m, aluminized steel, 16 ga, or galvanized steel or stainless steel with sprinkler, size 450 mm diameter	FLOOR	0.25 Forman 2.00 Sheet Metal Workers 1.00 Common Laborer 2.00 Power Tools	4.000	6.500	4.000
145 601-0200	Chutes for liner or refuse, floor height 3.6 m, aluminized steel, 16 ga, or galvanized steel or stainless steel with sprinkler, size 760 mm diameter	FLOOR		3.500	7.429	4.571
145 601-0300	Chutes for liner or refuse, floor height 3.6 m, aluminized steel, 16 ga, or galvanized steel or stainless steel with sprinkler, size 900 mm diameter	EA		3.000	8.667	5.333
145 601-1200	Chutes, linen bottom collector, aluminized steel or stainless steel			4.000	6.500	4.000
145 601-1500	Chutes, refuse bottom hopper, aluminized steel upto 900 mm diameter (36")	↓	↓	3.000	8.667	5.333
<b>145 800</b>	<b>TUBE SYSTEMS</b>					
<b>145 801</b>	<b>PNEUMATIC TUBE SYSTEM:</b>					
145 801-0100	Pneumatic tube system, single tube, 2 stations with blower, 76 mm diameter (3")	LM	0.25 Forman 2.00 Steamfitter, Pipefitter 1.00 Common laborer 2.00 Power Tools	0.120	216.667	133.333
145 801-0300	Pneumatic tube system, single tube, 2 stations with blower, 100 mm diameter (4")			0.085	305.882	188.235
145 801-0900	Pneumatic tube system, twin tube, two stations with blower, conventional system, 100 mm diameter (4")			0.065	400.000	246.154
145 801-1000	Pneumatic tube system, twin tube, two stations, with blower, conventional system, 100 mm x 180 mm oval	↓	↓	0.045	577.778	355.556
<b>146</b>	<b>HOISTS &amp; CRANES</b>					

**DIVISION 14: CONVEYING SYSTEMS**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>146 010</b>	<b>HOISTS &amp; CRANES</b>					
<b>146 011</b>	<b>MATERIAL HANDLING</b>					
146 011-2100	Overhead crane, Electric, horizontal, vertical movement, complete w / electrical connections, no rails or box beam.Capacity 2.70 Ton, 4.60 m lift	EA	0.25 Forman 2.00 Struc. Steel Foreman 1.00 Electrician 2.00 Common laborer 1.00 Gas welding Machine 2.00 Power Tools 1.00 Winch	0.500	84.000	64.000
146 011-2120	Overhead crane, Electric, horizontal, vertical movement, complete w / electrical connections, no rails or box beam.Capacity 5.00 Ton., 4.6 m lift			0.450	93.333	71.111
146 011-2140	Overhead crane, Electric, horizontal, vertical movement, complete w / electrical connections, no rails or box beam.Capacity 7.50 Ton, 4.6 m lift			0.425	98.824	75.294
146 011-2160	Overhead crane, Electric, horizontal, vertical movement, complete w / electrical connections, no rails or box beam.Capacity 10.0 Ton, 4.6 m lift	↓	↓	0.400	105.000	80.000
<b>146 050</b>	<b>RAILS</b>					
<b>146 054</b>	<b>CRANE RAIL</b>					
146 054-0100	Overhead crane, box beam bridge without equipment.	KG	0.25 Struc. Steel Foreman 3.00 Struc. Steel Workers 1.00 Common laborer 1.00 Power tool 1.00 Winch 1.00 Gas welding machine	2000.000	0.017	0.012
146 054-0200	Overhead crane running tracks only, 0 .05 Kg/ mm	"	"	3000.000	0.011	0.008

# **Division 15**

## **Mechanical**

### **Estimating Tips**

#### **151 Pipe & Fittings**

This sub-division is primarily basic pipe and related materials. The pipe may be used by any of the mechanical disciplines, i.e., plumbing, fire protection, heating and air conditioning.

When operating an estimate it may be necessary to approximate the fittings. Fittings usually run between 25% and 50% of the cost of the pipe. The lower percentage is for simpler runs, and the higher number is for complex areas like mechanical room.

#### **152 Plumbing Fixtures**

Plumbing fixture costs usually require two (2) lines, the fixture itself and its "rough-in, supply and waste".

#### **153 Plumbing Appliances**

Estimators shall include in estimate all required vents needed for gas or fired appliances.

#### **155 Heating**

When estimating the cost of an HVAC system, check to see who is responsible for providing and installing the temperature control system. Focus on boilers capacity whether it is output or input capacity.

#### **156 HVAC Piping Specialties**

Be aware not to overlook correct pressure rating and type of connections (threaded, welded or flanged)

#### **157 Air Conditioning & Ventilation**

Estimator shall be aware that the cost of duct work varies with job size and type of distribution. Estimators are advised to list all duct types, fittings and accessories to get the unit cost of duct kilogram. Estimators shall be aware of duct internal pressure.

HVAC in general is let to be specialized sub-contractors. Estimators shall focus also on

## **154 Fire Protection**

Estimators shall be aware of the system used and to include all items required. Also, estimators shall include in estimate any special requirements to meet the local fire code standards.

insulation requirements, not to duplicate electrical work requirements for HVAC, free service warranty if required, equipment foundation, equipment and pipe painting and identification.



DIVISION 15 : MECHANICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>151</b>	<b>PIPE &amp; FITTINGS</b>					
<b>151 100</b>	<b>MISCELLANEOUS FITTINGS</b>					
<b>151 105</b>	<b>BACKFLOW PREVENTER</b>					
151 105-4120	Backflow preventer, including gate valves, four test cocks, corrosion resistant automatic,	EA	1 Plumber 1 Tool set	12.000	0.667	0.667
151 105-4140	Backflow preventer, including gate valves, four test cocks, corrosion resistant automatic, threaded 25 mm pipe size [1"]			11.000	0.727	0.727
151 105-4160	Backflow preventer, including gate valves, four test cocks, corrosion resistant automatic, threaded 38 mm pipe size [1-1/2"]			8.000	1.000	1.000
151 105-4180	Backflow preventer, including gate valves, four test cocks, corrosion resistant automatic, threaded 50 mm pipe size [2"]			6.000	1.333	1.333
151 105-5080	Backflow preventer, OS&Y valves, flanged, bronze 76 mm pipe size [3"]			6.000	4.000	1.333
151 105-5100	Backflow preventer, OS&Y valves, flanged, bronze 100 mm pipe size [4"]			4.500	5.333	1.778
151 105-5120	Backflow preventer, OS&Y valves, flanged, bronze 150 mm pipe size [6"]			2.650	9.057	3.019
151 105-5660	Backflow preventer, OS&Y valves, flanged, iron 64 mm pipe size [2-1/2"]			6.500	3.692	1.231
151 105-5700	Backflow preventer, OS&Y valves, flanged, iron 100 mm pipe size [4"]			4.500	5.333	1.778
151 105-5720	Backflow preventer, OS&Y valves, flanged, iron 150 mm pipe size [6"]			2.650	9.057	3.019
151 105-5740	Backflow preventer, OS&Y valves, flanged, iron 200 mm pipe size [8"]			1.750	13.714	4.571
<b>151 110</b>	<b>CLEANOUTS:</b>					
151 110-0100	Cleanout floor type round or square, nickel bronze top 50 mm pipe size [2"]	EA	0.125 Foreman 1.000 Plumber 1.000 Plumber Helper 1.00 Tool Set	9.000	1.889	0.889
151 110-0120	Cleanout floor type round or square, nickel bronze top 76 mm pipe size [3"]			7.000	2.429	1.143
151 110-0140	Cleanout floor type round or square, nickel bronze top 100 mm pipe size [4"]			5.000	3.400	1.600
151 110-1100	Cleanout floor type round top, recessed for terrazzo 100 mm pipe size [4"]			3.750	4.533	2.133
<b>151 115</b>	<b>CLEANOUT TEE:</b>					
151 115-0200	Cleanout tee shape cast iron with countersunk plug 50 mm pipe size [2"]	EA	1 Plumber 1 Plumber Helper 1 Tool set	6.000	2.667	1.333
151 115-0240	Cleanout tee shape cast iron with countersunk plug 100 mm pipe size [4"]			5.000	3.200	1.600
151 115-0280	Cleanout tee cast iron with countersunk plug 150 mm pipe size [6"]			4.500	3.556	1.778
151 115-4040	ABS, DWV, cleanout tee, 76 mm pipe size [3"]			16.000	1.000	0.500
151 115-4050	ABS, DWV, cleanout tee, 100 mm pipe size [4"]			12.000	1.333	0.667

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
151 115-4120	ABS, DWV, cleanout plug 76 mm pipe size [3"]			30.000	0.533	0.267
151 115-4130	ABS, DWV, cleanout plug 100 mm pipe size [4"]			25.000	0.640	0.320
151 115-4200	ABS, DWV, cleanout adapter fitting, 76 mm pipe size [3"]			30.000	0.533	0.267
151 115-4210	ABS, DWV, cleanout adapter fitting, 100 mm pipe size [4"]			25.000	0.640	0.320
151 115-5030	PVC, DWV, cleanout tee, 76 mm pipe size [3"]			16.000	1.000	0.500
151 115-5040	PVC, DWV, cleanout tee, 100 mm pipe size [4"]	↓	↓	12.000	1.333	0.667
<b>151 120</b>	<b>CONNECTORS:</b>					
151 120-0240	Connectors flexible, corrugated, 22 mm O.D., 13 mm I.D., gas, seamless brass, steel fittings 600 mm long [24"]	EA	1 Plumber 1 Tool set	28.000	0.286	0.286
151 120-0340	Connectors flexible, corrugated, 22 mm O.D., 13 mm I.D., gas, seamless brass, steel fittings 1524 mm long [60"]			25.000	0.320	0.320
151 120-2260	Connector flexible, corrugated, 22 mm O.D. 13 mm I.D. Water, copper tubing, dielectric separators, 600 mm long [24"]	↓	↓	28.000	0.286	0.286
<b>151 125</b>	<b>DRAINS:</b>					
151 125-0400	Drains, Deck, auto park, C.I., 330 mm top, from 76 mm to 150 mm pipe size.	EA	1 Plumber 1 Plumber Apprentice 1 Tool set	7.000	2.286	1.143
151 125-2000	Drains, floor, medium duty, C.I., double flange, 178 mm top, from 50 mm to 76 mm pipe size.			10.000	1.600	0.800
151 125-2400	Drains, heavy duty, with sediment bucket, C.I., 300 mm loose grate, from 76 mm to 150 mm pipe			7.000	2.286	1.143
151 125-2820	Drain, shower, with strainer, uniform diam. trap, bronze top, 100 mm pipe size			6.000	2.667	1.333
151 125-3890	Drain, roof, flat metal deck, C.I. body, 300 mm C.I. dome 76 mm pipe size			12.000	1.333	0.667
151 125-3920	Drain, roof, flat metal deck, C.I. body, 300 mm C.I. dome 150 mm pipe size			8.000	2.000	1.000
151 125-4980	Drain, scupper floor, oblique strainer, C.I. 150 x 180 mm top, from 50 mm to 100 mm pipe size.			13.000	1.231	0.615
151 125-5100	Drain, scupper floor, oblique strainer, C.I. 200 x 300 mm top, 127 and 150 mm pipe			11.000	1.455	0.727
151 125-6000	Drain, trench floor, heavy duty, modular, C.I., 300 mm x 300 mm top, from 50 mm to 150 mm pipe			6.000	2.667	1.333
151 125-7100	Backwater valve, soil pipe, C.I. body, bronze gate and automatic flapper valves for pipes from 76 mm to 150 mm	↓	↓	10.000	1.600	0.800
151 125-7340	Backwater valve, soil pipe, C.I. body, bronze flapper valve, bolted cover 150 mm pipe size	EA	2 Plumbers 1 Plumber Apprentice 2 Tools Set	14.000	1.714	1.143
<b>151 141</b>	<b>FAUCETS / FITTINGS:</b>					
151 141-0150	Bath, faucets, diverter spout combination, sweat	EA	1 Plumber 1 Tool set	6.000	1.333	1.333
151 141-0840	Flush valves, with vacuum breaker for water closet			6.000	1.333	1.333

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
151 141-1000	Automatic flush sensor and operator for kitchen sink faucets, top mount, cast spout			8.000	1.000	1.000
151 141-2000	Laundry faucets, shelf type, iron pipe size."IPS" or copper unions			10.000	0.800	0.800
151 141-2100	Lavatory faucet,centerset, without drain			8.000	1.000	1.000
151 141-3000	Service sink faucet, cast spout, pail hook, hose end			12.000	0.667	0.667
151 141-4000	Shower by-pass valve with union			15.000	0.533	0.533
151 141-4200	Shower thermostatic mixing valve, concealed			6.000	1.333	1.333
151 141-5000	Sillcock, compact, brass, IPS or copper to hose			18.000	0.444	0.444
<b>151 156 HYDRANTS:</b>						
151 156 -0200	Hydrant wall type, moderate climate, bronze, encased 20 mm IPS connection [3/4"]	EA	1 Plumber 1 Plumber Apprentice 1 Tool set	12.000	1.333	0.667
151 156 -3100	Hydrant ground box type, bronze frame, 20 mm IPS connection, all bronze, polished face, set flush, 600 mm depth of bury			6.000	2.667	1.333
151 156 -5120	Hydrant, wall type moderate climate, all bronze, polished face and cover, set flush, 25 mm IPS connection[1"]			11.000	1.455	0.727
<b>151 165 SHOCK ABSORBERS:</b>						
151 165-0500	Shock absorbers copper 20 mm male IPS. for 1 to 11 fixtures	EA	1 Plumber 1 Tool set	9.000	0.889	0.889
151 165-0700	Shock absorbers copper 32 mm male, IPS for 33 to 60 fixtures			7.000	1.143	1.143
151 165-0800	Shock absorbers copper 38 mm male I.P.S. for 61 to 113 fixtures			7.000	1.143	1.143
151 165-1000	Shock absorbers copper 64 mm male I.P.S. for 155 to 330 fixtures			3.000	2.667	2.667
<b>151 170 SUPPORT / CARRIERS:</b>						
151 170-0600	Supports/ carriers for drinking fountain, wall mounted, plate type with studs, top back plate	EA	1 Plumber 1 Tool set	5.000	1.600	1.600
151 170-3050	Supports/ carriers for lavatory, concealed arm wall mounted in masonry.			4.000	2.000	2.000
151 170-4650	Supports/ carriers for sink, floor/ wall mounted, exposed arm system			3.000	2.667	2.667
151 170-6200	Supports/ carriers for urinal, floor/wall mounted,50 mm or 76 mm coupling with bearing plate			4.000	2.000	2.000
151 170-7040	Supports/ carriers for water closet, siphon set, horizontal, adjustable, caulk, single, 100 mm pipe size			4.000	2.000	2.000
151 170-7820	Supports/ carriers for water closet, blowout, vertical offset, caulk or thread, single, 100 mm pipe size			4.000	2.000	2.000
151 170-8240	Supports/ carriers for water closet, residential, floor mounted, single, 76 mm caulk, 50 mm or 76 mm vent			3.000	2.667	2.667
151 170-9100	Supports/ carriers for water cooler (electric), floor mounted, plate type with bearing plate, single			4.000	2.000	2.000

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>151 181</b>	<b>TRAPS:</b>					
151 181-1140	Cast iron "C.I." Service weight, long P trap, 50 mm pipe size, up to 460 mm long.	EA	1 Plumber 1 Plumber Apprentice 1 Tool set	12.000	1.333	0.667
151 181-2120	Running trap, C.I., Service weight, single hub, with vent, 100 mm pipe size, 100 mm vent			10.000	1.600	0.800
151 181-3420	C.I., Service weight, deep seal trap, 50 mm pipe size [2"]			11.000	1.455	0.727
151 181-3440	C.I., Service weight, deep seal trap, 76 mm pipe size [3"]			10.000	1.600	0.800
151 181-3800	C.I., Service weight, drum trap, 100 x 127 mm, 50 mm tapping		2 Plumbers 1 Plumber Apprentice 2 Tools Set	12.000	2.000	1.333
151 181-4840	Copper, drainage, drum trap 76 mm x 150 mm swivel, 38 mm pipe size		1 Plumber 1 Tool set	12.000	0.667	0.667
151 181-5280	Copper, drainage, P trap, standard pattern, 76 mm pipe size			9.000	0.889	0.889
151 181-5400	Copper, drainage, P trap with cleanout and slip joint, 38 mm pipe size			12.000	0.667	0.667
<b>151 185</b>	<b>VACUUM BREAKERS: STRAIGHT RUN, FITTINGS NOT INCLUDED</b>					
151 185-1040	Vacuum breaker, anti-siphon, brass, 6 mm size	EA	1 Plumber 1 Tool set	20.000	0.400	0.400
151 185-1060	Vacuum breaker, anti-siphon, brass, 13 mm size			20.000	0.400	0.400
151 185-1100	Vacuum breaker, anti-siphon, brass, 25 mm size			16.000	0.500	0.500
151 185-1160	Vacuum breaker, anti-siphon, brass, 50 mm size			9.000	0.889	0.889
<b>151 195</b>	<b>VENT FLASHING:</b>					
151 195-1020	Vent flashing, alum. with lead ring or copper with neoprene ring, size 32 mm pipe	EA	1 Plumber 1 Tool set	17.000	0.471	0.471
151 195-1040	Vent flashing, alum. with lead ring or copper with neoprene ring, size 50 mm pipe			15.000	0.533	0.533
151 195-1060	Vent flashing, alum. with lead ring or copper with neoprene ring, size 100 mm pipe			14.000	0.571	0.571
<b>151 200</b>	<b>PIPING</b>					
<b>151 200</b>	<b>PIPING See also divisions 026 &amp; 027 for sitework</b>					
<b>151 201</b>	<b>PIPING ELEVATED INSTALLATION</b>					
151 201-0100	Piping, add to labor for elevated installation, for building from 3 to 4 floors	Percent		10%		
151 201-0200	Piping, Add to labor for elevated installation for building from 4 floors up to 6 floors			20%		
151 201-0300	Piping, Add to labor for elevated installation for building from 6 floors up to 7 floors			25%		
151 201-1080	Piping, Add to labor for elevated installation for building from 7 floors up to 9 floors			35%		
151 201-1080	Piping, Add to labor for elevated installation for building from 9 floors up to 10 floors			40%		

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
151 201-1080	Piping, Add to labor for elevated installation for buiding from 10 floors up to 12 floors			50%		
151 201-1140	Piping, Add to labor for elevated installation for buiding over 12 floor			55%		
<b>151 250</b>	<b>BRASS PIPE</b>					
<b>151 251</b>	<b>PIPE, BRASS:</b>					
151 251-1120	Pipe, brass, plain end, field threaded, coupling & clevis hanger 3 m O.C. 13 mm diameter [1/2"]	LM	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 0.375 Tools Set 1.000 Power & Pipe Power Tools	21.120	0.805	0.521
151 251-1140	Pipe, brass, plain end, field threaded, coupling & clevis hanger 3 m O.C. 20 mm diameter [3/4"]			20.210	0.841	0.544
151 251-1160	Pipe, brass, plain end, field threaded, coupling & clevis hanger 3 m O.C. 25 mm diameter [1"]			19.270	0.882	0.571
151 251-1200	Pipe, brass, plain end, field threaded, coupling & clevis hanger 3 m O.C. 38 mm diameter [1-1/2"]			16.240	1.047	0.677
151 251-1220	Pipe, brass, plain end, field threaded, coupling & clevis hanger 3 m O.C. 50 mm diameter [2"]			15.740	1.080	0.699
<b>151 300</b>	<b>CAST IRON PIPE</b>					
<b>151 301</b>	<b>PIPE, CAST IRON:</b>					
151 301-2120	Pipe, cast iron on hangers 1.5 m O.C., single hub, service wt., lead & oakum joints 3 m O.C. 50 mm diameter [2"]	LM	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 0.375 Tool Set 1.000 Power & Pipe Power Tools	14.410	1.180	0.763
151 301-2160	Pipe, cast iron on hangers 1.5 m O.C., single hub, service wt., lead & oakum joints 3 m O.C. 100 mm diameter [4"]		0.125 Plumber Foreman 2.000 Plumber 1.000 Plumber Apprentice 0.375 Tool Set 1.000 Power & Pipe Power Tools	14.530	1.721	0.757
151 301-2200	Pipe, cast iron on hangers 1.5 m O.C., single hub, service wt., lead & oakum joints 3 m O.C. 150 mm diameter [6"]			10.460	2.390	1.052
151 301-2200	Pipe, cast iron on hangers 1.5 m O.C., single hub, service wt., lead & oakum joints 3 m O.C. 200 mm diameter [8"]			8.370	2.987	1.314
151 301-2200	Pipe, cast iron on hangers 1.5 m O.C., single hub, service wt., lead & oakum joints 3 m O.C. 250 mm diameter [10"]			7.230	3.458	1.521
151 301-2200	Pipe, cast iron on hangers 1.5 m O.C., single hub, service wt., lead & oakum joints 3 m O.C. 300 mm diameter [12"]			5.850	4.274	1.880
151 301-2322	Pipe, cast iron on hangers 1.5 m O.C., double hub, service wt., lead & oakum joints 3 m O.C. 100 mm diameter [4"]			13.800	1.812	0.797
151 301-2325	Pipe, cast iron on hangers 1.5 m O.C., double hub, service wt., lead & oakum joints 3 m O.C. 150 mm diameter [6"]			9.930	2.518	1.108

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
151 301-2342	Pipe, cast iron on hangers 1.5 m O.C., single hub, extra heavy wt., lead & oakum joints 3 m O.C. 100 mm diameter [4"]			13.800	1.812	0.797
151 301-2345	Pipe, cast iron on hangers 1.5 m O.C., single hub, extra heavy wt., lead & oakum joints 3 m O.C. 150 mm diameter [6"]			9.930	2.518	1.108
151 301-4100	Pipe C.I. on hangers 1.5 m. O.C., no hub, service wt., lead & oakum joint coupling, coupling 3 m O.C., 38 mm diameter [1-1/2"]			20.120	0.845	0.547
151 301-4160	Pipe C.I. on hangers 1.5 m. O.C., no hub, service wt., lead & oakum joints, coupling 3 m O.C., 100 mm diameter [4"]			16.050	1.059	0.685
<b>151 310 CAST IRON PIPE FITTING: STRAIGHT RUN, FITTINGS NOT INCLUDED</b>						
151 310-0140	C.I. hub pipe fitting, standard weight Bend, Regular or Sweep, size 50mm	EA	0.125 Foreman 1.000 Plumber 1.000 Plumber Helper 1.00 Tool Set	32.000	0.531	0.250
151 310-0160	C.I. hub pipe fitting, standard weight Bend, Regular or Sweep, size 76mm			28.000	0.607	0.286
151 310-0180	C.I. hub pipe fitting, standard weight Bend, Regular or Sweep, size 100mm			21.000	0.810	0.381
151 310-0200	C.I. hub pipe fitting, standard weight Bend, Regular or Sweep, size 150mm			14.000	1.214	0.571
151 310-0210	C.I. hub pipe fitting, standard weight Bend, Regular or Sweep, size 200mm			11.000	1.545	0.727
151 310-0620	C.I. hub pipe fitting; standard weight Tee, size 100 mm			10.000	1.700	0.800
151 310-0660	C.I. hub pipe fitting; standard weight Tee, size 200 mm			6.000	2.833	1.333
151 310-0800	C.I. hub pipe fitting; standard weight Trap, size 50 mm			32.000	0.531	0.250
151 310-0840	C.I. hub pipe fitting; standard weight Trap, size 76 mm			28.000	0.607	0.286
151 310-0860	C.I. hub pipe fitting; standard weight Trap, size 100 mm			21.000	0.810	0.381
151 310-0860	C.I. hub pipe fitting; standard weight Trap, size 150 mm			14.000	1.214	0.571
151 310-0880	C.I. hub pipe fitting; standard weight Trap, size 200 mm			11.000	1.545	0.727
151 310-1000	C.I. hub pipe fitting; standard weight Wye, size 50 mm			16.000	1.063	0.500
151 310-1100	C.I. hub pipe fitting; standard weight Wye, size 100 mm	EA	0.125 Foreman 1.000 Plumber 1.000 Plumber Helper 1.00 Tool Set	10.000	1.700	0.800
151 310-1140	C.I. hub pipe fitting; standard weight Wye, size 150 mm			7.000	2.429	1.143
151 310-1300	C.I. hub pipe fitting; standard weight Double Wye or Cross, size 50 mm			10.000	1.700	0.800
151 310-1320	C.I. hub pipe fitting; standard weight Double Wye or Cross, size 76 mm			9.000	1.889	0.889
151 310-1340	C.I. hub pipe fitting; standard weight Double Wye or Cross, size 100 mm			7.000	2.429	1.143
151 310-1360	C.I. hub pipe fitting; standard weight Double Wye or Cross, size 150 mm			5.000	3.400	1.600
151 310-1380	C.I. hub pipe fitting; standard weight Double Wye or Cross, size 200 mm			4.000	4.250	2.000

## DIVISION 15 : MECHANICAL

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
151 310-2000	C.I non hub pipe fitting, standard weight Quarter or Sweep Bend, size 38 mm			28.000	0.607	0.286
151 310-2020	C.I non hub pipe fitting, standard weight Quarter or Sweep Bend, size 50 mm			24.000	0.708	0.333
151 310-2060	C.I non hub pipe fitting, standard weight Quarter or Sweep Bend, size 100 mm			17.000	1.000	0.471
151 310-2100	C.I non hub pipe fitting, standard weight Quarter or Sweep Bend, size 200 mm			11.000	1.545	0.727
151 310-2300	C.I non hub pipe fitting; standard weight Stainless Steel Coupling, size 50 mm			60.000	0.283	0.133
151 310-2400	C.I non hub pipe fitting; standard weight Stainless Steel Coupling, size 200 mm			60.000	0.283	0.133
151 310-2600	C.I non hub pipe fitting; standard weight Sanitary Tee, size 50 mm			15.000	1.133	0.533
151 310-2700	C.I non hub pipe fitting; standard weight Sanitary Tee, size 150 mm			9.000	1.889	0.889
151 310-2740	C.I non hub pipe fitting; standard weight Sanitary Tee, size 200 mm			7.000	2.429	1.143
151 310-2800	C.I non hub pipe fitting; standard weight Sanitary Cross, size 50 mm			13.000	1.308	0.615
151 310-2880	C.I non hub pipe fitting; standard weight Sanitary Cross, size 100 mm			9.000	1.889	0.889
151 310-2960	C.I non hub pipe fitting; standard weight Sanitary Cross, size 200 mm			8.000	2.125	1.000

151 400	COPPER PIPE & TUBING
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151 401	PIPE, COPPER:	INCLUDING 1 COUPLING, 1 TEE & 1 ELL EVERY 6 METERS
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151 401-1200	Pipe, copper solder joints type K tubing, coupling, & clevis hangers 3 m O.C. 25 mm diameter	LM	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 0.375 Tools Set 1.000 Power & Pipe Power Tools	16.750	1.015	0.657
151 401-1260	Pipe, copper solder joints type K tubing, coupling, & clevis hangers 3 m O.C. 50 mm diameter			12.710	1.338	0.865
151 401-2100	Pipe, copper solder joints type L tubing, coupling, & hangers 3 m O.C. 6 mm diameter			32.900	0.517	0.334
151 401-2180	Pipe, copper solder joints type L tubing, coupling, & hangers 3 m O.C. 20 mm diameter [3/4"]			28.610	0.594	0.384
151 401-2200	Pipe, copper solder joints type L tubing, coupling, & hangers 3 m O.C. 25 mm diameter [1"]			25.430	0.669	0.433
151 401-2260	Pipe, copper solder joints type L tubing, coupling, & hangers 3 m O.C. 50 mm diameter [2"]			15.890	1.070	0.692
151 401-2300	Pipe, copper solder joints type L tubing, coupling, & hangers 3 m O.C. 76 mm diameter [3"]			11.130	1.527	0.988
151 401-2340	Pipe, copper solder joints type L tubing, coupling, & hangers 3 m O.C. 100 mm diameter [4"]			7.790	2.182	1.412

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
151 401-2380	Pipe, copper solder joints type L tubing, coupling, & hangers 3 m O.C. 150 mm diameter [6"]		0.125 Plumber Foreman (ins) 2.000 Plumbers 1.000 Plumber Apprentice 0.375 Tools Set 1.000 Power & Pipe Power Tools	10.940	2.285	1.005
151 401-4120	Pipe copper, silver solder joints type DWV tubing, coupling, & hangers 3 m O.C. 50 mm diameter [1-1/2"]		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 0.375 Tools Set 1.000 Power & Pipe Power Tools	12.710	1.338	0.865
151 401-4140	Pipe copper, type DWV tubing, coupling & hangers 3 mm o.c 50 mm diameter [2"]	↓	*	16.690	1.019	0.659
151 401-4200	Pipe copper, type DWV tubing, coupling & hangers 3 mm o.c 150 mm diameter [6"]	LM	0.125 Plumber Foreman (ins) 2.000 Plumbers 1.000 Plumber Apprentice 0.375 Tools Set 1.000 Power & Pipe Power Tools	11.480	2.178	0.958

**151 450 CORROSION RESISTANT PIPE****151 451 PIPE, CORROSION RESISTANT:**

151 451-1100	Pipe, corrosion resistant, no coupling, or hangers, iron alloy, drain, mechanical joint, 50 mm diameter [2"]	LM	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 0.375 Tools Set 1.000 Power & Pipe Power Tools	15.500	1.097	0.710
151 451-1140	Pipe, corrosion resistant, no coupling, or hangers, iron alloy, drain, mechanical joint, 100 mm diameter [4"]			11.630	1.462	0.946
151 451-3120	Pipe, plastic, expoxy, fiberglass filament wound 100 mm diameter	↓	↓	10.170	1.672	1.082
151 451-3980	Pipe, plastic polyster, fiberglass filament wound 50 mm diameter	LM	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 0.375 Tools Set 1.000 Power & Pipe Power Tools	14.340	1.185	0.767
151 451-5000	Pipe, plastic polypropylene, acid resistant, fire retardant, schedule 40, 38 mm diameter			15.890	1.070	0.692
151 451-5140	Pipe, plastic polypropylene, acid resistant, fire retardant, schedule 40, 100 mm diameter			10.330	1.646	1.065
151 451-6120	Pipe, plastic proxylene, fire retardant, schedule 40, 76 mm diameter	↓	↓	12.000	1.417	0.917

**151 500 GLASS PIPE****151 501 PIPE, GLASS:**



**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
151 501-1100	Pipe, glass borosilicate, couplings & hangers 3 m O.C. drainage 38 mm diameter	LM	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 0.375 Tools Set 1.000 Power & Pipe Power Tools	12.000	1.417	0.917
151 501-1120	Pipe, glass borosilicate, couplings & hangers 3 m O.C. drainage 50 mm diameter	"	"	9.000	1.889	1.222
<b>151 550</b>	<b>PLASTIC PIPE</b>					
<b>151 551</b>	<b>PIPE, PLASTIC:</b>					
	<i>See Division 151 451</i>					
151 551-0240	Pipe, plastic, fiberglass reinforced, couplings, 3 m O.C. hangers 90 mm, high strength, 50 mm diameter [2"]	LM	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 0.375 Tools Set 1.000 Power & Pipe Power Tools	13.260	1.282	0.830
151 551-0280	Pipe, plastic, fiberglass reinforced, couplings 3 m O.C. hangers 90 mm, high strength, 100 mm diameter [4"]			10.610	1.602	1.037
151 551-0300	Pipe, plastic, fiberglass reinforced, couplings 3 m O.C. hangers 90 mm, high strength, 150 mm diameter [8"]			8.490	2.002	1.296
151 551-1870	Pipe, PVC, couplings, 3 m O.C., hangers 90 mm schedule 40, 20 mm diameter [3/4"]			25.300	0.672	0.435
151 551-1880	Pipe, PVC, couplings, 3 m O.C., hangers 90 mm schedule 40, 25 mm diameter [1"]			22.770	0.747	0.483
151 551-1900	Pipe, PVC, couplings, 3 m O.C., hangers 90 mm schedule 40, 38 mm diameter [1-1/2"]			20.490	0.830	0.537
151 551-1910	Pipe, PVC, couplings, 3 m O.C., hangers 90 mm schedule 40, 50 mm diameter [2"]			17.420	0.976	0.631
151 551-1920	Pipe, PVC, couplings, 3 m O.C., hangers 90 mm schedule 40, 64 mm diameter [2-1/2"]			14.810	1.148	0.743
151 551-1950	Pipe, PVC, couplings, 3 m O.C., hangers 910mm schedule 40, 127 mm diameter [6"]		0.125 Plumber Foreman (ins) 2.000 Plumbers 1.000 Plumber Helper 0.375 Tools Set 1.000 Power & Pipe Power Tools	16.200	1.543	0.679
151 551-4140	Pipe, plastic, DWV "drainage,wase,vent" type ABS or PVC, schedule 40, including couplings 3 m O.C., hangers 90 mm, 32 mm diameter		0.125 Plumber Foreman (ins) 1.000 Plumbers 1.000 Plumber Helper 0.375 Tools Set 1.000 Power & Pipe Power Tools	24.590	0.691	0.447
151 551-4160	Pipe, plastic, DWV "drainage,wase,vent" type ABS or PVC, schedule 40, including couplings 3 m O.C., hangers 90 mm, 50 mm diameter			17.420	0.976	0.631

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
151 551-5470	Pipe CPVC schedule 40, couplings 3 m o.c., hangers 90 mm, 20 mm diameter			25.300	0.672	0.435
151 551-5480	Pipe, CPVC schedule 40, couplings 3 m o.c., hangers 90 mm, 25 mm diameter			22.770	0.747	0.483
151 551-5530	Pipe, CPVC schedule 40, couplings 3 m o.c., hangers 90 mm, 76 mm diameter			15.550	1.093	0.707
<b>151 600 STAINLESS STEEL PIPE</b>						
<b>151 601 PIPE, STAINLESS STEEL:</b>						
151 601-3550	Pipe, stainless steel, threaded, couplings and hangers 3 m, O.C., schedule 40, type 304/316, 6 mm diameter	LM	0.125 Plumber Foreman (ins) 1.000 Plumbers 1.000 Plumber Helper 0.375 Tools Set 1.000 Power & Pipe Power Tools	24.920	0.682	0.441
151 601-3550	Pipe, stainless steel, threaded, couplings and hangers 3 m, O.C., schedule 40, type 304/316, 10 mm diameter			24.300	0.700	0.453
151 601-3560	Pipe, stainless steel, threaded, couplings and hangers 3 m, O.C., schedule 40, type 304/316, 13 mm diameter			23.080	0.737	0.477
151 601-3570	Pipe, stainless steel, threaded, couplings and hangers 3 m, O.C., schedule 40, type 316, 20 mm diameter			21.930	0.775	0.502
151 601-3580	Pipe, stainless steel, threaded, couplings and hangers 3 m, O.C., schedule 40, type 304/316, 25 mm diameter			20.830	0.816	0.528
151 601-3610	Pipe, stainless steel, threaded, couplings and hangers 3 m, O.C., schedule 40, type 304/316, 50 mm diameter			15.620	1.088	0.704
151 601-3640	Pipe, stainless steel, threaded, couplings and hangers 3 m, O.C., schedule 40, type 304/316, 100 mm diameter			13.280	1.280	0.828
<b>151 700 STEEL PIPE</b>						
<b>151 701 PIPE, STEEL:</b>						
151 701-0560	Pipe, Steel black to A-53, schedule 40, or Galvanized, threaded with couplings, clevis type hangers, 3 m O.C., black, 13 mm diameter	LM	0.125 Plumber Foreman (ins) 1.000 Plumbers 1.000 Plumber Helper 0.375 Tools Set 1.000 Power & Pipe Power Tools	31.150	0.546	0.353
151 701-0570	Pipe, Steel black to A-53, schedule 40, or Galvanized, threaded with couplings, clevis type hangers, 3 m O.C., black, 20 mm diameter			29.770	0.571	0.369
151 701-0580	Pipe, Steel black to A-53, schedule 40, or Galvanized, threaded with couplings, clevis type hangers, 3 m O.C., black, 25 mm diameter			28.360	0.599	0.388
151 701-0590	Pipe, Steel black to A-53, schedule 40, or Galvanized, threaded with couplings, clevis type hangers, 3 m O.C., black, 32 mm diameter			26.410	0.644	0.417

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
151 701-0600	Pipe, Steel black to A-53, schedule 40, or Galvanized, threaded with couplings, clevis type hangers, 3 m O.C., black, 38 mm diameter	LM	0.125 Plumber Foreman (ins) 1.000 Plumbers 1.000 Plumber Helper 0.375 Tools Set 1.000 Power & Pipe Power Tools	24.410	0.696	0.451
151 701-0610	Pipe, Steel black to A-53, schedule 40, or Galvanized, threaded with couplings, clevis type hangers, 3 m O.C., black, 50 mm diameter			22.260	0.764	0.494
151 701-0620	Pipe, Steel black to A-53, schedule 40, or Galvanized, threaded with couplings, clevis type hangers, 3 m O.C., black, 64 mm diameter			20.390	0.834	0.539
151 701-0630	Pipe, Steel black to A-53, schedule 40, or Galvanized, threaded with couplings, clevis type hangers, 3 m O.C., black, 76 mm diameter			18.630	0.913	0.590
151 701-0650	Pipe, Steel black to A-53, schedule 40, or Galvanized, threaded with couplings, clevis type hangers, 3 m O.C., black, 100 mm diameter		0.125 Plumber Foreman (ins) 2.000 Plumbers 1.000 Plumber Helper 0.375 Tools Set 1.000 Power & Pipe Power Tools	22.890	1.092	0.481
151 701-0660	Pipe, Steel black to A-53, schedule 40, or Galvanized, threaded with couplings, clevis type hangers, 3 m O.C., black, 127 mm diameter			15.440	1.619	0.712
151 701-0670	Pipe, Steel black to A-53, schedule 40, or Galvanized, threaded with couplings, clevis type hangers, 3 m O.C., black, 150 mm diam.			13.430	1.862	0.819
151 701-1430	Pipe, Galvanized, threaded w/couplings, clevis type hangers, 3 m O.C., 200 mm diameter.			10.610	2.356	1.037
151 701-1440	Pipe, Galvanized, threaded w/couplings, clevis type hangers, 3 m O.C., 250 mm diameter.			9.040	2.765	1.217
151 701-1450	Pipe, Galvanized, threaded w/couplings, clevis type hangers, 3 m O.C., 300 mm diameter.			7.550	3.311	1.457
151 701-2040	Pipe, Steel black to A-53, schedule 40, welded, on yoke & roll hangers at 3 m O.C., 25 mm diameter		0.125 Plumber Foreman (ins) 1.000 Plumbers 1.000 Plumber Helper 0.375 Tools Set 1.000 Electric Welding Machine	23.170	0.734	0.475
151 701-2070	Pipe, Steel black to A-53, schedule 40, welded, on yoke & roll hangers at 3 m O.C., 50 mm diameter			17.450	0.974	0.630
151 701-2090	Pipe, Steel black to A-53, schedule 40, welded, on yoke & roll hangers at 3 m O.C., 76 mm diameter			15.060	1.129	0.730
151 701-2110	Pipe, Steel black to A-53, schedule 40, welded, on yoke & roll hangers at 3 m O.C., 100 mm diameter		0.125 Plumber Foreman 2.000 Plumber 1.000 Plumber Apprentice 1.000 Electric Welding Machine 0.375 Tools Set	18.510	1.351	0.594
151 701-2130	Pipe, Steel black to A-53, schedule 40, welded, on yoke & roll hangers at 3 m O.C., 150 mm diameter			10.860	2.302	1.013

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
151 701-2140	Pipe, Steel black to A-53, schedule 40, welded, on yoke & roll hangers at 3 m O.C., 200 mm diameter			8.580	2.914	1.282
151 701-2160	Pipe, Steel black to A-53, schedule 40, welded, on yoke & roll hangers at 3 m O.C., 300 mm diameter			6.100	4.098	1.803
<b>151 800 GROOVED JOINT PIPE</b>						
<b>151 801 PIPE, GROOVED-JOINT STEEL FITTINGS &amp; VALVES:</b>						
151 801-1040	Pipe, Grooved-joint black steel schedule 40, or Galvanized, including coupling & clevis type hanger 3 m O.C., 20 mm diameter	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 0.375 Tools Set 1.000 Power & Pipe Power Tools	26.790	0.635	0.411
151 801-1060	Pipe, Grooved-joint black steel schedule 40, or Galvanized, including coupling & clevis type hanger 3 m O.C., 32 mm diameter			23.770	0.715	0.463
151 801-1070	Pipe, Grooved-joint black steel schedule 40, or Galvanized, including coupling & clevis type hanger 3 m O.C., 38 mm diameter			21.970	0.774	0.501
151 801-1080	Pipe, Grooved-joint black steel schedule 40, or Galvanized, including coupling & clevis type hanger 3 m O.C., 50 mm diameter			20.030	0.849	0.549
151 801-1100	Pipe, Grooved-joint black steel schedule 40, or Galvanized, including coupling & clevis type hanger 3 m O.C., 76 mm diameter			16.760	1.014	0.656
151 801-1110	Pipe, Grooved-joint black steel schedule 40, or Galvanized, including coupling & clevis type hanger 3 m O.C., 100 mm diameter		0.125 Plumber Foreman 2.000 Plumber 1.000 Plumber Apprentice 0.375 Tools Set 1.000 Power & Pipe Power Tools	20.600	1.214	0.534
151 801-1120	Pipe, Grooved-joint black steel schedule 40, or Galvanized, including coupling & clevis type hanger 3 m O.C., 127 mm diameter			13.900	1.799	0.791
151 801-1130	Pipe, Grooved-joint black steel schedule 40, or Galvanized, including coupling & clevis type hanger 3 m O.C., 150 mm diameter	EA	0.125 Plumber Foreman 2.000 Plumber 1.000 Plumber Apprentice 0.375 Tools Set 1.000 Power & Pipe Power Tools	12.090	2.068	0.910
151 801-4030	Pipe, Steel fitting: Elbow 90° or 45°, painted 20 mm diameter		1 Plumber 1 Tool set	42.000	0.190	0.190
151 801-4040	Pipe, Steel fitting: Elbow 90° or 45°, painted 25 mm diameter			40.000	0.200	0.200
151 801-4070	Pipe, Steel fitting: Elbow 90° or 45°, painted 50 mm diameter			22.000	0.364	0.364
151 801-4080	Pipe, Steel fitting: Elbow 90° or 45°, painted 64 mm diameter	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	32.000	0.531	0.250
151 801-4100	Pipe, Steel fitting: Elbow 90° or 45°, painted 100 mm diameter			20.000	0.850	0.400
151 801-4120	Pipe, Steel fitting: Elbow 90° or 45°, painted 150 mm diameter			14.000	1.214	0.571

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
151 801-4700	Pipe, Steel fitting: Tee, painted, 20 mm diameter	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	32.000	0.250	0.250
151 801-4740	Pipe, Steel fitting: Tee, painted, 25 mm diameter	EA	1 Plumber 1 Tool set	30.000	0.267	0.267
151 801-4770	Pipe, Steel fitting: Tee, painted, 50 mm diameter			17.000	0.471	0.471
151 801-4800	Pipe, Steel fitting: Tee, painted, 100 mm diameter		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	15.000	1.133	0.533
151 801-4820	Pipe, Steel fitting: Tee, painted, 150 mm diameter		"	11.000	1.545	0.727
151 801-4908	Pipe, Steel fitting, Couplings, rigid style or flexible, painted, 25 mm diameter		1 Plumber 1 Tool set	72.000	0.111	0.111
151 801-4912	Pipe, Steel fitting, Couplings, rigid style or flexible, painted, 50 mm diameter		"	40.000	0.200	0.200
151 801-4918	Pipe, Steel fitting, Couplings, rigid style or flexible, painted, 100 mm diameter		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	36.000	0.472	0.222
151 801-4922	Pipe, Steel fitting, Couplings, rigid style or flexible, painted, 150 mm diameter		"	25.200	0.675	0.317
<b>151 950 VALVES</b>						
<b>151 951 VALVES, BRASS:</b>						
151 951-0530	Valves, brass, Gas stops, without checks, 13 mm size	EA	1 Plumber 1 Tool set	22.000	0.364	0.364
151 951-0550	Valves, brass, Gas stops, without checks, 25 mm size			16.000	0.500	0.500
151 951-0560	Valves, brass, Gas stops, without checks, 32 mm size			12.000	0.667	0.667
<b>151 955 VALVES, BRONZE:</b>						
151 955-1050	Valves, bronze, Angle or Ball, 1034 kPa, rising stem, threaded 10 mm size	EA	1 Plumber 1 Tool set	22.000	0.364	0.364
151 955-1080	Valves, bronze, Angle or Ball, 1034 kPa, rising stem, threaded 25 mm size			16.000	0.500	0.500
151 955-1110	Valves, bronze, Angle or Ball, 1034 kPa, rising stem, threaded 50 mm size			9.000	0.889	0.889
151 955-1860	Valves, bronze, Check, swing, regrinding disc, Class 150, threaded, 20 mm size			17.000	0.471	0.471
151 955-1890	Valves, bronze, Check, swing, regrinding disc, Class 150, threaded, 38 mm size			11.000	0.727	0.727
151 955-1900	Valves, bronze, Check, swing, regrinding disc, Class 150, threaded, 50 mm size			9.000	0.889	0.889
151 955-1910	Valves, bronze, Check, swing, regrinding disc, Class 150, threaded, 64 mm size		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	12.000	1.417	0.667
151 955-2020	Valves, bronze, Check, swing, regrinding disc, 2068 kPa, threaded, 50 mm size		1 Plumber 1 Tool Set	7.000	1.143	1.143

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
151 955-2940	Valves, bronze, Gate, non rising stem, soldered, 862 kPa, 20 mm size [3/8"]		..	17.000	0.471	0.471
151 955-2980	Valves, bronze, Gate, non rising stem, soldered, 862 kPa, 50 mm size [3/8"]		*	9.000	0.889	0.889
151 955-3000	Valves, bronze, Gate, non rising stem, soldered, 862 kPa, 76 mm size [3/8"]		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	11.000	1.545	0.727
151 955-4000	Valves, bronze, Gate, rising stem, soldered, 2068 kPa, 76 mm size		*	11.000	1.545	0.727
151 955-4340	Valves, bronze, Gate or Globe, threaded, rising stem, Class 150, 20 mm size		1 Plumber 1 Tool set	17.000	0.471	0.471
151 955-4370	Valves, bronze, Gate or Globe threaded, rising stem, Class 150, 38 mm size		*	11.000	0.727	0.727
151 955-4400	Valves, bronze, Gate or Globe, threaded, rising stem, Class 150, 76 mm size		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	11.000	1.545	0.727
151 955-5650	Valves, bronze, Relief pressure & Temperature, self-closing, 25 mm size		1 Plumber 1 Tool set	20.000	0.400	0.400
151 955-5680	Valves, bronze, Relief pressure & Temperature, self-closing, 50 mm size			13.000	0.615	0.615
151 955-6040	Valves, bronze, Relief pressure, poppet type, threaded, 20 mm size			24.000	0.333	0.333
151 955-6480	Valves, bronze, Relief pressure, water, threaded, 50 mm size			13.000	0.615	0.615
151 955-6950	Valves, bronze, Reducing, water pressure, 2068 kPa to 172-517 kPa, threaded or sweat 20 mm size	↓	↓	17.000	0.471	0.471
151 955-6970	Valves, bronze, Reducing, water pressure, 2068 kPa to 172-517 kPa, threaded or sweat 32 mm size	EA	1 Plumber 1 Tool set	12.000	0.667	0.667
151 955-8780	Valve, bronze, Tempering, water, threaded connections, 50 mm size	*	*	9.000	0.889	0.889
<b>151 960 VALVES, IRON BODY:</b>						
151 960-1030	Valves iron body, Butterfly, wafer type, gear actuator, 50 mm size	EA	1 Plumber 1 Tool set	11.000	0.727	0.727
151 960-1050	Valves iron body, Butterfly, wafer type, gear actuator, 76 mm size		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	7.000	2.429	1.143
151 960-1060	Valves iron body, Butterfly, wafer type, gear actuator, 100 mm size		↓	4.000	4.250	2.000
151 960-1080	Valves iron body, Butterfly, wafer type, gear actuator, 150 mm size	↓	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	3.500	4.857	2.286
151 960-2200	Valve iron body, Gate, 862 kPa. Non rising stem, or (OS&Y) outside screw & yoke, Flanged, 50 mm size	EA	1 Plumber 1 Tool set	4.000	2.000	2.000
151 960-2280	Valve iron body, Gate, 862 kPa. Non rising stem, or (OS&Y) outside screw & yoke, Flanged, 100 mm size		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	2.500	6.800	3.200

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
151 960-2300	Valve iron body, Gate, 862 kPa.Non rising stem, or (OS&Y) outside screw & yoke, Flanged, 150 mm size		*	2.500	6.800	3.200
151 960-5500	Valve, iron body, Swing check, 862 kPa, Threaded, 50 mm size		1 Plumber 1 Tool set	9.000	0.889	0.889
151 960-5550	Valve, iron body, Swing check, 862 kPa, Threaded, 76 mm size		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	11.000	1.545	0.727
151 960-5560	Valve, iron body, Swing check, 862 kPa, Threaded, 100 mm size		"	8.000	2.125	1.000
151 960-6000	Valve, iron body, Swing check, 862 kPa, Flanged, 50 mm size		1 Plumber 1 Tool set	4.000	2.000	2.000
151 960-6050	Valve, iron body, Swing check, 862 kPa, Flanged, 76 mm size		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	3.500	4.857	2.286
151 960-6070	Valve, iron body, Swing check, 862 kPa, Flanged, 150 mm size		*	2.500	6.800	3.200
<b>151 975 VALVES, PLASTIC:</b>						
151 975-1120	Valve, Angle or Ball, PVC or CPVC, threaded, 13 mm size	EA	1 Plumber 1 Tool set	21.000	0.381	0.381
151 975-1130	Valve, Angle or Ball, PVC or CPVC, threaded, 20 mm size			20.000	0.400	0.400
151 975-1260	Valve, Ball, PVC or CPVC, socket or threaded, single union, 32 mm size			17.000	0.471	0.471
151 975-1280	Valve, Ball, PVC or CPVC, socket or threaded, single union, 50 mm size			14.000	0.571	0.571
151 975-2150	Valve, ball, Polypropylene, threaded, 25 mm size			20.000	0.400	0.400
151 975-4900	Valve, Foot, PVC, socket or threaded, 13 mm size			27.000	0.296	0.296
151 975-4940	Valve, Foot, PVC, socket or threaded, 25 mm size			23.000	0.348	0.348
151 975-4960	Valve, Foot, PVC, socket or threaded, 38 mm size			21.000	0.381	0.381
151 975-6470	Strainer, Y sediment, PVC, socket or threaded, 38 mm size			17.000	0.471	0.471
<b>151 980 VALVES, STEEL:</b>						
151 980-1400	Valves, Cast steel, Check, swing type, Gate or Globe, 1034 kPa, flanged, 50 mm size	EA	1 Plumber 1 Tool set	6.000	1.333	1.333
151 980-1450	Valves, Cast steel, Check, swing type, Gate or Globe, 1034 kPa, flanged, 76 mm size		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tools Set	3.500	4.857	2.286
151 980-1460	Valves, Cast steel, Check, swing type, Gate or Globe, 1034 kPa, flanged, 100 mm size		"	2.500	6.800	3.200
151 980-5750	Valves, Cast steel, Check valve, forged steel, Class 800, horizontal, socket or threaded, 25 mm size		1 Plumber 1 Tool set	16.000	0.500	0.500
151 980-5760	Valves, Cast steel, Check valve, forged steel, Class 800, horizontal, socket or threaded, 25 mm size		"	12.000	0.667	0.667

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>152</b>	<b>PLUMBING FIXTURES</b>					
<b>152 100</b>	<b>FIXTURES</b>					
<b>152 101</b>	<b>FIXTURES:</b> <i>Includes trim fittings, unless otherwise noted, for rough-in, supply, waste, and vent, see add for each type for electric water coolers, see division 153 -105 for color, unless otherwise noted, add</i>					
<b>152 104</b>	<b>BATHS:</b>					
152 104-0140	Bath tubs, recessed porcelain enamel on cast iron, with trim 1067 mm x 940 mm	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tools Set	3.500	4.857	2.286
152 104-0220	Bath tubs, recessed porcelain enamel on cast iron, with trim 1829 mm x 914 mm			2.500	6.800	3.200
152 104-2200	Bath tubs, enameled formed steel, 1524 mm long			3.750	4.533	2.133
152 104-6100	Bath, whirlpool, with vented overflow, molded fiberglass 1676 mm x 1219 mm x 610 mm			0.850	20.000	9.412
152 104-9600	Rough-in, supply, waste and vent, for all above tubs based on 18 m supply, plastic & 18 meters DWV plastic piping	↓	↓	3.250	5.231	2.462
152 104-9620	Rough-in, supply, waste and vent, for all above tubs based on 18 m supply, copper & 18 meters DWV cast iron piping	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tools Set	2.250	7.556	3.556
<b>152 116</b>	<b>DRINKING FOUNTAIN:</b>					
152 116-2000	Drinking fountain, wall mounted, Bronze, cast aluminium or fiberglass, 300 mm back, single bubbler unit	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tools Set	6.000	2.833	1.333
152 116-2040	Drinking fountain, wall mounted, Bronze, cast aluminium or fiberglass, 300 mm back, dual bubbler unit			5.000	3.400	1.600
152 116-2400	Drinking fountain, precast stone, no back			6.000	2.833	1.333
152 116-2700	Drinking fountain, stainless steel, single bubbler, no back			6.000	2.833	1.333
152 116-2820	Drinking fountain, stainless steel, dual bubbler, with back, & dual level for handicapped.	↓	↓	5.000	3.400	1.600
152 116-3300	Drinking fountain, vitreous China, 178 mm back	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tools Set	6.000	2.833	1.333
152 116-3940	Drinking fountain, vitreous China, 178 mm back, with vendal resistant bottom plate.			6.000	2.833	1.333
152 116-4000	Drinking fountain, wall mounted, semi-recessed, poly-marble, single bubbler			6.000	2.833	1.333
152 116-7600	Drinking fountain, floor mounted, pedestal type, aluminum, architectural style, C.I. base			3.500	4.857	2.286



**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
152 116-9980	Rough-in, Supply, vent & waste for drinking fountain, at 20 m, plastic supply piping and 20 m of DWV plastic piping			3.700	4.595	2.162
152 116-9990	Rough-in, Supply, vent & waste for drinking fountain, at 20 m, copper supply piping and 20 m of DWV cast iron piping			2.500	6.800	3.200
<b>152 124</b>	<b>INDUSTRIAL SAFETY FIXTURES</b>					
	<i>Rough-in not included</i>					
152 124-1000	Eye wash fountain, plastic bowl or stainless steel, pedestal mounted or wall mounted.	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	4.000	4.250	2.000
152 124-5000	Shower, multi- nozzle,eye/face wash comination	"	"	5.000	3.400	1.600
<b>152 128</b>	<b>INTERCEPTORS</b>					
152 128-0150	Interceptors, grease, 50 mm cast iron, 250 mL/s, 3.6 kg fat capacity,	EA	1 Plumber 1 Tool set	3.000	2.667	2.667
152 128-1040	Interceptors, grease, 50mm cast iron, 947 mL/s, 13.6 kg fat capacity,			2.250	3.556	3.556
152 128-1060	Interceptors, grease, 76 mm cast iron, 1260 mL/s, 18 kg fat capacity,			1.750	4.571	4.571
152 128-1160	Interceptors, grease, cast iron, 6300 mL/s, 90.7 kg fat capacity,		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	1.750	9.714	4.571
152 128-1580	Interceptors, hair, cast iron, 32 mm and 38 mm pipe connection		1 Plumber 1 Tool set	5.000	1.600	1.600
152 128-4000	Interceptors, oil, fabricated steel, 630 mL/s, 50 mm pipe size			3.000	2.667	2.667
152 128-4120	Interceptors, oil, fabricated steel, 1260 mL/s, 50 mm or 76 mm pipe size			2.250	3.556	3.556
152 128-4220	Interceptors, oil, fabricated steel, 6310 mL/s, 76 mm pipe size		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	1.750	9.714	4.571
152 128-6000	Interceptors, solids & precious metals recovery, C.I., 32 mm to 50 mm pipe		1 Plumber 1 Tool set	3.000	2.667	2.667
152 128-6100	Interceptors, dental lab, large, C.I., 38 mm to 50 mm pipe		"	2.250	3.556	3.556
<b>152 136</b>	<b>LAVATORIES:</b>					
	<i>With trim</i>					
152 136-0640	Lavatory, Vanity top, Porcelain enamel on cast iron, 836 mm x 482 mm oval	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	6.000	2.833	1.333
152 136-1040	Lavatory,Vanity top, Cultured marble, single bowl, 635 mm x 482 mm, single bowl			6.000	2.833	1.333
152 136-1900	Lavatory,Vanity top, Stainless steel, self-rimming, 635 mm x 560 mm, single bowl, ledge			6.000	2.833	1.333
152 136-2600	Lavatory,Vanity top, Steel, enameled, 508 mm x 432 mm, single bowl			5.500	3.091	1.455
152 136-3200	Lavatory,Vanity top,Vitreous china, 560 mm x 483 mm, single bowl			4.750	3.579	1.684

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
152 136-3580	Rough-in, supply, waste and vent for all Vanity top lavatories; plastic piping, approximate run of 18 m each for both supply & DWV			3.740	4.545	2.139
152 136-3590	Rough-in, supply, waste and vent for all vanity top lavatories; copper supply piping, cast iron DWV piping, approximate run of 18 m each for both supply & DWV			2.600	6.538	3.077
152 136-4240	Lavatory, wall hung, Porcelain enamel on cast iron, 560 mm x 482 mm, single bowl			7.500	2.267	1.067
152 136-6000	Lavatory, wall hung, Vitreous china, 460 mm x 380 mm, single bowl with backsplash			6.500	2.615	1.231
152 136-6180	Lavatory, wall hung, Vitreous china, 483 mm x 483 mm, corner style			7.500	2.267	1.067
152 136-6960	Rough-in, supply, waste and vent for wall hung lavatories; plastic piping, approximate run of 18 m each for both supply & DWV			2.200	7.727	3.636
<b>152 140</b>	<b>LAUNDRY SINKS:</b>					
	<i>With trim</i>					
152 140-0100	Laundry sink Porcelain enamel on cast iron, black iron frame, 610 mm x 584 mm, single compartment	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	5.500	3.091	1.455
152 140-2020	Laundry sink, Molded stone on wall hangers or legs 560 mm x 530 mm, single compartment	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	5.500	3.091	1.455
152 140-2100	Laundry sink, Molded stone on wall hangers or legs 1140 mm x 530 mm, double compartment			4.500	3.778	1.778
152 140-3000	Laundry sink, Plastic, on wall hangers or legs, 1016 mm x 610 mm, double compartment.			5.000	3.400	1.600
152 140-9600	Rough-in, supply, waste and vent for laundry sink; plastic piping, approximate run of 18 m each for both supply & DWV			3.500	4.857	2.286
152 140-9600	Rough-in, supply, waste and vent for laundry sink; copper supply piping and cast iron DWV piping approximate run of 18 m each for both supply & DWV			2.400	7.083	3.333
<b>152 148</b>	<b>SHOWERS:</b>					
152 148-3100	Showers, Stall, with door and trim, fiberglass, one piece, 3 walls, 910 mm x 910 mm	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	2.750	6.182	2.909
152 148-3250	Showers, Stall, with door and trim, fiberglass, one piece, 3 walls, 1626 mm x 1670 mm	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	2.000	8.500	4.000
152 148-4960	Rough-in, supply, waste and vent for shower stall; plastic piping, approximate run of 18 m each for both supply & DWV			3.250	5.231	2.462
152 148-4990	Rough-in, supply, waste and vent for shower stall; copper supply piping, and Cast iron DWV piping; approximate run of 18 m each for both supply & DWV			2.250	7.556	3.556
152 148-5000	Shower built-in, head, arm, 252 mL/s valve			6.500	2.615	1.231
<b>152 152</b>	<b>SINKS:</b>					

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
152 152 -2100	Kitchen sink with faucets and drain , counter top, Porcelain enamel on C.I., 760 mm x 530 mm single bowl	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	5.750	2.957	1.391
152 152 -3000	Kitchen sink with faucets and drain , counter top, Stainless steel, self rimming, 635 mm x 560 mm single bowl.			5.750	2.957	1.391
152 152 -4980	Rough in, supply, waste and vent for countertop sink; plastic piping, approximate run of 18 m each for both supply & DWV			3.500	4.857	2.286
152 152 -5100	Kitchen sink with faucets and drain, raised deck, Porcelain enamel on C.I., 813 mm x 533 mm dual level, double bowl			2.750	6.182	2.909
152 152 -5790	Rough-in, supply, waste and vent for wall service sink; plastic piping, approximate run of 18 m each for both supply & DWV			2.300	7.391	3.478
<b>152 168 URINALS:</b>						
152 168-3000	Urinals, Wall hung, Vitreous china, with hanger & self-closing valve	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	4.000	4.250	2.000
152 168-3300	Rough-in, supply, waste and vent for wall hung urinal; plastic piping, approximate run of 18 m each for both supply & DWV			3.250	5.231	2.462
152 168-5000	Urinal Stall type, Vitreous china, includes valve			3.250	5.231	2.462
<b>152 180 WATER CLOSETS:</b>						
152 180-0200	Water closets, tank type, wall hung, one piece, Vitreous china, including seat, supply pipe w/stop	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	5.750	2.957	1.391
152 180-1000	Water closet tank type, Vitreous china, floor mounted, one piece			6.750	2.519	1.185
152 180-1980	Rough-in, supply, waste, vent & carrier for wall hung water closet; plastic piping, approximate run of 10 m each for both supply and DWV			3.250	5.231	2.462
152 180-1990	Rough-in, supply, waste, vent & carrier for wall hung water closet; copper supply piping, & cast iron DWV piping, approximate run of 10 m each for both supply and DWV			2.250	7.556	3.556
152 180-3100	Water closet, bowl only, With flush valve, seat; wall hung or floor mounted.			6.000	2.833	1.333
152 180-3200	For rough-in, supply, waste and vent, WC			3.500	4.857	2.286
<b>152 400 PUMPS</b> <i>See also Division 154 145</i>						
<b>152 410 PUMPS, CIRCULATING</b> <i>Heated or chilled water application</i>						
152 410-1100	Pump, circulating, bronze, flange connection, 20 mm to 38 mm size, 1/3 HP	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	5.000	3.400	1.600
152 410-1180	Pump, circulating, bronze, flange connection, 64 mm size, 1/4 HP			4.000	4.250	2.000

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
152 410-2100	Pump, circulating, C.I. flanged connection 19 mm to 38 mm size in line, 1/3 HP			5.000	3.400	1.600
152 410-2220	Pump, circulating, C.I. flanged connection 76 mm size in line, 1/4 HP			3.250	5.231	2.462
<b>152 415 PUMPS, CONDENSATE RETURN SYSTEM</b>						
152 415-0200	Pump, condensate, simplex motor, float switch, controls, cas iron receiver	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	0.875	19.429	9.143
152 415-1000	Pump, condensate, duplex, 2 pumps, motors, float switch, alternator assembly, C.I. receiver	"	"	0.375	45.333	21.333
<b>152 430 PUMPS, GENERAL UTILITY <i>With motor, mounted on base</i></b>						
152 430-0300	Pump, general utility, multi-stage, horizontal split, for boiler feed applications two stage, 76 mm discharge x 100 mm suction, 75 HP	EA	0.50 Steamfitter Foreman 2.00 Steamfitters 0.50 Electrician 1.00 Steamfitter Apprentice 2.00 Tools Set 1.00 Chain Winch 1.00 Gas Welding M/C	0.200	160.000	160.000
152 430-0340	Pump, general utility, multi-stage, horizontal split, for boiler feed applications four stage, 76 mm discharge x 100 mm suction, 150 HP			0.125	256.000	256.000
152 430-2100	Pump, general utility, single stage, end suction, 38 mm discharge x 76 mm suction, 10 HP			0.550	58.182	58.182
152 430-2140	Pump, general utility, single stage, end suction, 50 mm discharge x 76 mm suction, 15 HP			0.500	64.000	64.000
152 430-3060	Pump, general utility, single stage, double suction, 76 mm discharge x 100 mm suction, 15 HP			0.400	80.000	80.000
152 430-3180	Pump, general utility, single stage, double suction, 150 mm discharge x 200 mm suction, 60 HP			0.200	160.000	160.000
152 430-3220	Pump, general utility, single stage, double suction, 100 HP, to 3000 GPM			0.170	188.235	188.235
152 430-3240	Pump, general utility, single stage, double suction, 150 HP, to 4000 GPM	EA	0.50 Steamfitter Foreman 2.00 Steamfitters 0.50 Electrician 1.00 Steamfitter Apprentice 2.00 Tools Set 1.00 Chain Winch 1.00 Gas Welding M/C	0.150	213.333	213.333
<b>152 450 PUMPS, PRESSURE BOOSTER SYSTEM</b>						
152 450-0420	Pressure booster pump system, with diaphragm tank, control & pressure switch 2 HP	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	1.000	17.000	8.000
152 450-0440	Pressure booster pump system, with diaphragm tank, control & pressure switch 3 HP		"	0.900	18.889	8.889

## DIVISION 15 : MECHANICAL

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
152 450-0460	Pressure booster pump system, with diaphragm tank, control & pressure switch 5 HP		0.125 Plumber Foreman 2.000 Plumber 1.000 Plumber Apprentice 2.000 Tool Set	1.200	20.833	13.333
152 450-0500	Pressure booster pump system,with diaphragm tank, control & pressure switch 10HP		*	1.000	25.000	16.000

## 152 460 PUMPS, PEDESTAL SUMP

152 460-0400	Sump pump, pedestal, molded base, 1325 mL/s at 4.5 m head, 1/3 HP	EA	1 Plumber 1 Tool Set	3.500	2.286	2.286
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152 465	PUMPS, SEWAGE EJECTOR
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152 465-0500	Pump, sewage ejector simplex system incl. tank, cover, 4.5 m head, 140 Liter.polyethylene tank, 757 mL/s, 1/2 HP, 50 mm discharge [2"]	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	2.750	6.182	2.909
152 465-0660	Pump, sewage ejector simplex system incl. tank, cover, 4.5 m head, 170 Liter.polyethylene tank, 8 L/s, 3/4 HP, 76 mm discharge [3"]			2.500	6.800	3.200
152 465-0710	Pump sewage ejector, simplex system including tank, cover, 4.5 m head, 265 Liter.polyethylene tank, 757 mL/s, 1/2 HP, 76 mm discharge			2.250	7.556	3.556
152 465-0760	Pump sewage ejector, simplex system including tank, cover, 4.5 m head, 265 Liter.polyethylene tank, 8 L/s, 1 HP, 50 mm discharge			2.000	8.500	4.000

152 480	PUMPS, SUBMERSIBLE
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152 480-7540	Submersible, sump pump, automatic, cast iron, 32 mm discharge, 1/4 HP	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	5.000	3.400	1.600
152 480-7560	Submersible, sump pump, automatic, cast iron, 32 mm discharge, 1/2 HP	"	"	4.000	4.250	2.000

152 490	PUMPS, WELL	See Div.026704
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**See Div.026704**

## 153 PLUMBING APPLIANCES

## 153 100 WATER APPLIANCES

## 153 105 WATER COOLER:

153 105-0100	Water cooler, wall mounted, non-recessed, 7 Gal. per hour	EA	0.125 Plumber Foreman 1.000 Plumber 0.250 Electrician 1.000 Plumber Apprentice 1.000 Tool Set	3.750	5.067	2.133
153 105-4720	Water cooler, floor mounted, flush-to-wall, 12 gal. per hour			5.750	3.304	1.391
153 105-5000	Water cooler, floor mounted, dual height, 12 gal. per hour			3.750	5.067	2.133

153 110	WATER HEATERS	<i>For solar, see Division 155 -471</i>
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***For solar, see Division 155 -471***

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
153 110-1000	Residential, water heater, electric, glass lined tank, 38 liter, single element	EA	0.125 Plumber Foreman 1.000 Plumber 0.250 Electrician 1.000 Plumber Apprentice 1.000 Tool Set	5.000	3.800	1.600
153 110-1060	Residential, water heater, electric, glass lined tank, 100 liter, double element			4.500	4.222	1.778
153 110-1100	Residential, water heater, electric, glass lined tank, 200 liter, double element			4.000	4.750	2.000
153 110-1180	Residential, water heater, electric, glass lined tank, 400 liter, double element			2.750	6.909	2.909
153 110-4120	Commercial water heater, electric, 50 liter, 6 kW			3.500	5.429	2.286
153 110-4160	Commercial water heater, electric, 200 liter, 9 kW	↓	↓	3.000	6.333	2.667
153 110-4320	Commercial water heater, electric, 700 liter, 120 kW	EA	0.125 Plumber Foreman 1.000 Plumber 0.250 Electrician 1.000 Plumber Apprentice 1.000 Tool Set	1.500	12.667	5.333
153 110-6060	Commercial, water heater, gas fired, flush jacket, std. controls, vent not incl. 29 kW input, 360 liter/Hr			2.500	7.600	3.200
153 110-6340	Commercial, water heater, gas fired, flush jacket, std. controls, vent not incl. 352 kW input, 4350 liter/ Hr	↓	↓	0.350	54.286	22.857
<b>153 150 WATER TREATMENT, POTABLE</b>						
153 150-6100	Water tratment, potable, softener systems, automatic, hardness capacity between regenerations and flow, 150 000 grains 2.3 L/s cont., 3.2 L/s peak	EA	0.125 Plumber Foreman 1.000 Plumber 0.250 Electrician 1.000 Plumber Apprentice 1.000 Tool Set	1.000	19.000	8.000
153 150-6200	Water tratment, potable, softener systems, automatic, hardness capacity between regenerations and flow, 300 000 grains 5.1 L/s cont., 7.1 L/s peak			0.800	23.750	10.000
153 150-6300	Water tratment, potable, softener systems, automatic, hardness capacity between regenerations and flow, 750 000 grains 10.1 L/s cont., 14.5 L/s peak	↓	↓	0.700	27.143	11.429
153 150-6400	Water tratment, potable, softener systems, automatic, hardness capacity between regenerations and flow, 900 000 grains 11.7 L/s cont., 17.0 L/s peak	EA	0.125 Plumber Foreman 1.000 Plumber 0.250 Electrician 1.000 Plumber Apprentice 1.000 Tool Set	0.600	31.667	13.333
<b>153 160 WATER SUPPLY METERS</b>						
153 160-2100	Water meter, domestic/ commercial, bronze, threaded, 25 mm diameter, to 3.2 L/s	EA	1 Plumber 1 Tool Set	9.000	0.889	0.889
153 160-2340	Water meter, domestic/ commercial, bronze, threaded/flanged, 38 mm diameter, to 6.31 L/s			6.000	1.333	1.333
153 160-2360	Water meter, domestic/ commercial, bronze, threaded/flanged, 50 mm diameter, to 10.1 L/s		↓	5.000	1.600	1.600

## DIVISION 15 : MECHANICAL

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
153 160-2640	Water meter, domestic/commercial, bronze, threaded, flanged, compound, 76 mmdiameter, to 20.2 L/s		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tools Set	2.700	6.296	2.963
153 160-2650	Water meter, domestic/commercial, bronze, threaded, flanged, compound. 100 mm diameter. to 31.5 L/s		"	1.350	12.593	5.926

154	FIRE PROTECTION
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154 100	FIRE SYSTEMS
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## 154 101 AUTOMATIC FIRE SUPPRESSION SYSTEMS

154 101-1000	Automatic fire suppression systems dispersion nozzle, CO2, 76 mm x 127 mm	EA	1 Plumber 1 Tool Set	14.000	0.571	0.571
154 101-1100	Automatic fire suppression systems dispersion nozzle, FM 200, 38 mm			11.000	0.727	0.727
154 101-2000	Fire extinguisher, CO2 system, high pressure, 34 kg cylinder		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tool Set	5.000	3.400	1.600
154 101-2540	Fire extinguisher, FM 200 system, filled, with mounting bracket 89 kg container			3.000	5.667	2.667
154 101-3000	Fire extinguisher, FM 200 system, filled, including mounting bracket & provided with electro/mechanical release, 89 kg container			1.500	11.333	5.333

154 115	FIRE EQUIPMENT CABINETS
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154 115-3000	Fire cabinet, 20 ga. steel box, hose rack assy. 38 mm valve & 30 m hose, 610 mm x 1016 mm, aluminum or steel or stainless steel door and frame	EA	0.125 Foreman 1.000 Sprinkler Installer 1.000 Sprinkler Apprentice 1.000 Tool Set	5.000	3.400	1.600
154 115-5000	Fire cabinet, 20 ga. steel box, hose rack assy. 64 mm x 38 mm valve & 30 m hose, 610 mm x 1016 mm, aluminum or steel or stainless steel door and frame	-	-	5.000	3.400	1.600

154 125	FIRE EXTINGUISHERS
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154 125-2000	Fire extinguishers, ABC all purpose type 9.1 kg, installed on masonry or concrete	EA	1 Plumber 1 Tool Set	11.000	0.727	0.727
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154 135	FIRE HOSE AND EQUIPMENT
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154 135-2640	Fire hose rack, swinging, for 38 mm diameter hose, enameled steel, upto 30 m and 38 m lengths of hose	EA	0.125 Foreman 1.000 Sprinkler Installer 1.000 Sprinkler Apprentice 1.000 Tool Set	16.000	1.063	0.500
154 135-3840	Fire hydrants, wall, with caps, single, flush, polished brass 64 mm x 76 mm			4.000	4.250	2.000
154 135-7180	Fire, standpipe connections, wall, w/plugs & chains, single or double, flush, polished brass			4.000	4.250	2.000
154 135-7290	Fire, standpipe connections, wall, w/plugs & chains, Three way, flush or projecting, polished brass, 64 mm x (3) x 102 mm			4.000	4.250	2.000

154 145	FIRE PUMPS
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**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
154 145-0200	Fire pump with controller, fittings and relief valve, diesel 47 L/s, 345 kPa, 40 HP, 127 mm pump [5"]	EA	0.50 Steamfitter Foreman 2.00 Steamfitters 0.50 Electrician 1.00 Steamfitter Apprentice 2.00 Tools Set 1.00 Chain Winch 1.00 Gas Welding M/C	0.450	71.111	71.111
154 145-0700	Fire pump with controller, fittings and relief valve, diesel 126 L/s, 689 kPa, 170 HP, 150 mm pump [6"]			0.250	128.000	128.000
154 145-0950	Fire pump with controller, fittings and relief valve, diesel 221 L/s, 689 kPa, 320 HP, 254 mm pump [10"]			0.180	177.778	177.778
154 145-3200	Fire pump with controller, fittings and relief valve, electric 32 L/s, 345 kPa, 27 HP, 1770 RPM, 100 mm pump	EA	0.50 Steamfitter Foreman 2.00 Steamfitters 0.50 Electrician 1.00 Steamfitter Apprentice 2.00 Tools Set 1.00 Chain Winch 1.00 Gas Welding M/C	0.550	58.182	58.182
154 145-3400	Fire pump with controller, fittings and relief valve, electric 47 L/s, 689 kPa, 65 HP, 3550 RPM, 100 mm pump		*	0.500	64.000	64.000
154 145-5000	Fire Jockey pump 25 mm, 3 Hp, with control		0.125 Foreman 1.000 Sprinkler Installer 1.000 Sprinkler Apprentice 1.000 Tool Set	1.500	11.333	5.333
<b>154 160 FIRE VALVES</b>						
154 160-0080	Fire valve, wheel handle, 2068 kPa, 38 mm	EA	1 Sprinkler Installer 1 Tool set	9.000	0.889	0.889
154 160-0090	Fire valve, wheel handle, 2068 kPa, 64 mm	"	"	5.000	1.600	1.600
<b>154 170 SPRINKLER SYSTEM COMPONENTS</b>						
154 170-2700	Sprinkler heads, piping not included, Dry, Pendent, 13 mm orifice, 20 mm or 25 mm NPT, 279 mm to 324 mm length	EA	1 Sprinkler Installer 1 Tool set	12.000	0.667	0.667
154 170-2720	Sprinkler heads, piping not included, Dry, Pendent, 13 mm orifice, 20 mm or 25 mm NPT, 381 mm to 425 mm length	"	"	11.000	0.727	0.727
154 170-2730	Sprinkler heads, piping not included, Dry, Pendent, 13 mm orifice, 20 mm or 25 mm NPT, 432 mm to 476 mm length	EA	1 Sprinkler Installer 1 Tool set	11.000	0.727	0.727
154 170-3600	Sprinkler, Foam-water, pendant or upright, 13 mm NPT, 13 mm orifice			10.000	0.800	0.800
154 170-3700	Sprinkler, no piping, Standard spray, pendant or upright, brass 330 to 415 K, 13 mm NPT, 13 mm orifice			13.000	0.615	0.615
154 170-4520	Sprinkler head, no piping, Standard spray, sidewall, horizontal, brass 330 to 415 K, 13 mm NPT, 13 mm orifice			13.000	0.615	0.615
154 170-4820	Sprinkler head, no piping, Standard spray, recessed pendent, horizontal, brass 330 to 415 K, 13 mm NPT, 13 mm orifice			8.000	1.000	1.000



**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT		CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
154 170-6520	Valves, check, swing, C.I. body, brass fittings, auto. ball drip 102 mm size			0.125 Foreman 1.000 Sprinkler Installer 1.000 Sprinkler Apprentice 1.000 Tool Set	2.000	8.500	4.000
154 170-6820	Valves, check, wafer, butterfly type, C.I. body, bronze fittings, 102 mm size				3.000	5.667	2.667
154 170-7040	Valve, deluge, assembly, incl. trim, pressure, operated relief, emergency release, gauges, 50 mm size				1.750	9.714	4.571
154 170-7060	Valve, deluge, assembly, incl. trim, pressure, operated relief, emergency release, gauges, 76 mm size				1.350	12.593	5.926
155 HEATING							
155 100 BOILERS							
155 105	BOILERS, GENERAL Prices do not include flue piping, elect. wiring, gas or oil piping, boiler base, pad, or tankless unless noted boiler W: 10 KW = 34 lbs/steam/hr = 33,475 BTU/hr. To convert SFR to BTU rating: Hot water, 150 x SFR; Forced hot water, 180 x SFR; steam, 240 x SFR						
155 110 BOILERS ELECTRIC							
155 110-1160	Steam boiler, Electric fired, including,standard controls and trim 60 kW		EA	0.125 Foreman 1.000 Steamfitter 1.000 Steamfitter Apprentice 1.000 Electrician 0.250 Gas Welding M/c 0.250 Chain Winch 1.000 Tool Set	0.750	33.333	16.000
155 110-1280	Steam boiler, Electric fired, including,standard controls and trim 210 kW			*	0.380	65.789	31.579
155 110-1380	Steam boiler, Electric fired, including,standard controls and trim 510 kW			0.500 Mech. Foreman 2.000 Steamfitter 1.000 Electrician 0.250 Equipment operator 1.000 Steamfitter Apprentice 0.250 Gas Welding M/C 0.250 Crane 11 ton 1.000 Tools Set	0.250	152.000	48.000
155 110-1480	Steam boiler, Electric fired, including,standard controls and trim 1080 kW			*	0.200	190.000	60.000
155 110-2100	Boilers, hot water, electric fired, including standard controls & trim 60 kW			0.125 Foreman 1.000 Steamfitter 1.000 Steamfitter Apprentice 1.000 Electrician 0.250 Gas welding M/C 0.250 Chain Winch 1.000 Tool Set	0.900	27.778	13.333
155 110-2220	Boilers, hot water, electric fired, including standard controls & trim 240 kW			..	0.450	55.556	26.667

## DIVISION 15 : MECHANICAL

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
155 110-2320	Boilers, hot water, electric fired, including standard controls & trim 480 kW	↓	0.500 Mech. Foreman 2.000 Steamfitter 1.000 Electrician 0.250 Equipment Operator 1.000 Steamfitter Apprentice 0.250 Gas welding M/C 0.250 Crane 11 ton 1.000 Tool Set	0.400	95.000	30.000

## 155 115 BOILERS, GAS FIRED

155 115-2000	Steam boiler, Gas fired, standard control, cast iron, with insulated jacket, gross output 24 kW	EA	0.500 Mech. Foreman 2.000 Steamfitter 0.250 Electrician 0.250 Equipment Operator 1.000 Steamfitter Apprentice 0.250 Gas welding M/C 0.250 Crane 11 ton 1.000 Tool Set	1.100	29.091	10.909
155 115-2240	Steam boiler, Gas fired, standard control, cast iron, with insulated jacket, gross output 224 kW			0.350	91.429	34.286
155 115-2320	Steam boiler, Gas fired, standard control, cast iron, with insulated jacket, gross output 550 kW			0.220	145.455	54.545
155 115-3140	Hot water, boiler, Gas fired, standard controls, cast iron, with insulated jacket, gross output 94 kW			0.600	53.333	20.000
155 115-3380	Hot water, boiler, Gas fired, standard controls, cast iron, with insulated jacket, gross output 960 kW			0.240	133.333	50.000
155 115-3480	Hot water, boiler, Gas fired, standard controls, cast iron, with insulated jacket, gross output 1788 kW			0.100	320.000	120.000
155 115-5500	Steam boiler, Gas fired, standard controls, steel, with insulated jacket, gross output 422 kW, including burner			0.360	88.889	33.333
155 115-5580	Steam boiler, Gas fired, standard controls, steel, with insulated jacket, gross output 900 kW, including burner	↓	↓	0.200	160.000	60.000
155 115-6240	Hot water, boiler, Gas fired, standard controls, steel, with insulated jacket, gross output 280 kW, including burner & one zone valve.	EA	0.500 Mech. Foreman 2.000 Steamfitter 0.250 Electrician 0.250 Equipment Operator 1.000 Steamfitter Apprentice 0.250 Gas welding M/C 0.250 Crane 11 ton 1.000 Tool Set	0.460	69.565	26.087
155 115-6340	Hot water, boiler, Gas fired, standard controls, steel, with insulated jacket, gross output 880 kW, including burner & one zone valve.	↓	↓	0.160	200.000	75.000

155 120	BOILERS, OIL FIRED
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**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
155 120-2060	Steam boiler, Oil fired, standard controls, burner, C.I. with insulated jacket gross output 61 kW	EA	0.500 Mech. Foreman 2.000 Steamfitter 0.250 Electrician 0.250 Equip. Operator 1.000 Steamfitter Apprentice 0.250 Gas Welding M/C 0.250 Crane 11 ton 1.000 Tool Set	0.750	42.667	16.000
155 120-2180	Steam boiler, Oil fired, standard controls, burner, C.I. with insulated jacket gross output 318 kW			0.350	91.429	34.286
155 120-2280	Steam boiler, Oil fired, standard controls, burner, C.I. with insulated jacket gross output 880 kW			0.200	160.000	60.000
155 120-2380	Steam boiler, Oil fired, standard controls, burner, C.I. with insulated jacket gross output 1618 kW			0.110	290.909	109.091
155 120-6180	Steam boiler, Oil fired, standard controls, burner, Steel with insulated jacket gross output 295 kW			0.350	91.429	34.286
155 120-6280	Steam boiler, Oil fired, standard controls, burner, Steel with insulated jacket gross output 700 kW			0.180	177.778	66.667
155 120-7200	Hot water boiler, Oil fired, standard controls, burner, Steel with insulated jacket gross output 246 kW			0.450	71.111	26.667
155 120-7260	Hot water boiler, Oil fired, standard controls, burner, Steel with insulated jacket gross output 490 kW			0.280	114.286	42.857
155 120-7320	Hot water boiler, Oil fired, standard controls, burner, Steel with insulated jacket gross output 920 kW			0.140	228.571	85.714
<b>155 150</b>	<b>SWIMMING POOL HEATERS</b>	<b><i>Not including wiring, external piping, base or pad</i></b>				
155 150-0060	Pool heaters, Gas fired, gross output, 15 kW	EA	0.500 Mech. Foreman 2.000 Steamfitter 0.250 Electrician 0.250 Equip. Operator 1.000 Steamfitter Apprentice 0.250 Gas Welding M/C 0.250 Crane 11 ton 1.000 Tool Set	3.250	9.846	3.692
155 150-0200	Pool heaters, Gas fired, gross output, 50 kW			1.000	32.000	12.000
155 150-0400	Pool heaters, Gas fired, gross output, 470 kW			0.150	213.333	80.000
155 150-1500	Pool heater, Oil fired, gross output 470 kW			0.150	213.333	80.000

## DIVISION 15 : MECHANICAL

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
155 150-2000	Pool heater, Electric, 12 kW, 18 CUM pool		0.500 Mech. Foreman 2.000 Steamfitter 1.000 Electrician 0.250 Equip. Operator 1.000 Steamfitter Apprentice 0.250 Gas Welding M/C 0.250 Crane 11 ton 1.000 Tool Set	3.500	10.857	3.429
155 150-2020	Pool heater, Electric, 15 kW, 27 CUM pool			3.200	11.875	3.750
155 150-2040	Pool heater, Electric, 24 kW, 36 CUM pool			3.000	12.667	4.000
155 150-2100	Pool heater, Electric, 55 kW, 91 CUM pool			1.500	25.333	8.000

## 155 200 BOILER ACCESSORIES

## 155 260 INDUCED DRAFT FANS

155 260-1900	Draft fan, hot gas, 588K, variable pitch pulley and motor 300 mm diam. inlet 3/4 HP, 3 phase, 1.4 CUM/s	EA	0.125 Foreman 1.000 Sheet metal worker 0.250 Electrician 1.000 Sheet metal apprentice 1.000 Tool Set	3.000	6.333	2.667
155 260-1980	Draft fan, hot gas, 588K, variable pitch pulley and motor 600 mm diam. inlet 7.5 HP, 3 phase, 8.4 CUM/s	"	"	0.600	31.667	13.333

## 155 400 WARM AIR SYSTEMS

155 401	DUCT FURNACES
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155 401-0100	Duct furnace with burner, control, stainless steel, heat exchanger, gas fired electric ignition, indoor type 35 kW output	EA	0.125 Foreman 1.000 Sheet metal worker 0.250 Electrician 1.000 Sheet metal apprentice 1.000 Tool Set	3.000	6.333	2.667
155 401-0140	Duct furnace with burner, control, stainless steel, heat exchanger, gas fired electric ignition, indoor type 70 kW output			2.000	9.500	4.000
155 401-0180	Duct furnace with burner, control, stainless steel, heat exchanger, gas fired electric ignition, indoor type 94 kW output			1.400	13.571	5.714
155 401-1180	Duct furnace with burner, control, stainless steel, heat exchanger, gas fired electric ignition, outdoor type 132 kW output	EA	0.125 Foreman 1.000 Sheet metal worker 0.250 Electrician 1.000 Sheet metal apprentice 1.000 Tool Set	1.250	15.200	6.400

155 408	DUCT HEATERS
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## DIVISION 15 : MECHANICAL

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
155 408-0100	Duct heater, electric, finned tabular insert 533 K, 200 mm wide x 150 mm high, 4.0 kW	EA	0.125 Foreman 1.000 Sheet metal worker 0.250 Electrician 1.000 Sheet metal apprentice 1.000 Tools Set	12.000	1.583	0.667
155 408-0120	Duct heater, electric, finned tabular insert 533 K, 200 mm wide x 300 mm high, 8.0 kW			11.000	1.727	0.727
155 408-0160	Duct heater, electric, finned tabular insert 533 K, 200 mm wide x 600 mm high, 16.0 kW			10.000	1.900	0.800
155 408-0180	Duct heater, electric, finned tabular insert 533 K, 200 mm wide x 760 mm high, 20.0 kW			9.000	2.111	0.889
155 408-0760	Duct heater, electric, finned tabular insert 533 K, 600 mm wide x 600 mm high, 72 kW			7.000	2.714	1.143

## 155 420 FURNACES

155 420-1020	Furnace, electric, standard control, no rough in, electric heat staging, 220 V, 3 kW	EA	0.125 Foreman 1.000 Sheet metal worker 0.250 Electrician 1.000 Sheet metal apprentice 1.000 Tool Set	4.000	4.750	2.000
155 420-1100	Furnace, electric, standard control, no rough in, electric heat staging, 220 V, 10 kW			3.500	5.429	2.286
155 420-3020	Furnace, gas, standard control, no rough in or flue piping, direct drive models 13 kW output			3.000	6.333	2.667
155 420-3060	Furnace, gas, standard control, no rough in or flue piping, direct drive models 22 kW output			2.800	6.786	2.857
155 420-6020	Furnace, oil, standard control, no rough in or flue piping, atomizing gun type burner, 16 kW output			2.800	6.786	2.857
155 420-6080	Furnace, oil, standard control, no rough in or flue piping, atomizing gun type burner, 45 kW output			2.400	7.917	3.333

## 155 440 HEATING &amp; VENTILATING UNITS

155 440-0080	Heating and ventilating unit, classroom type including filter, heating/cooling coils, and standard control, 0.36 CUM/s, 7 kW cooling	EA	0.500 Mech. Foreman 2.000 Steamfitter 0.250 Electrician 0.250 Equipment Operator 1.000 Steamfitter Apprentice 0.250 Gas welding M/C 0.250 Crane 11 ton 1.000 Tool Set	2.000	16.000	6.000
155 440-0140	Heating and ventilating unit, classroom type including filter, heating/cooling coils, and standard control, 0.7 CUM/s, 14 kW cooling	"	"	0.900	35.556	13.333

155 471	SOLAR ENERGY
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## DIVISION 15 : MECHANICAL

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
155 471-0540	Hot water, solar heating, standard low temperature package, 1 collector, circulator, fittings, 246 L tank, not including piping or fixtures connection.	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tools Set	0.350	48.571	22.857
155 471-0620	Hot water, solar heating, standard low temperature package, 1 collector, circulator, fittings, 450 L tank, not including piping or fixtures connection.	"	"	0.300	56.667	26.667
<b>155 600</b>	<b>HEATING SYSTEM ACCESSORIES</b>					
<b>155 601</b>	<b>HEAT EXCHANGERS</b>					
155 601-0120	Heat exchangers, shell & tube type, 4 pass, 19 mm outside diam., copper tubes, Cast iron, heads, Cast iron tube sheet, steel shell, hot water 277 K to 355 K, by steam at 69 kPa, 0.5 L/s	EA	0.125 Foreman 2.000 Steamfitter 0.125 Equip. Operator 1.000 Steamfitter apprentice 0.250 Gas welding M/c 0.125 Crane 11 ton 2.000 Tools set	9.000	2.889	2.111
155 601-0160	Heat exchangers, shell & tube type, 4 pass, 19 mm outside diam., copper tubes, Cast iron, heads, Cast iron tube sheet, steel shell, hot water 277 K to 355 K, by steam at 69 kPa, 2.5 L/s			6.000	4.333	3.167
155 601-0220	Heat exchangers, shell & tube type, 4 pass, 19 mm outside diam., copper tubes, Cast iron, heads, Cast iron tube sheet, steel shell, hot water 277 K to 355 K, by steam at 69 kPa, 7.6 L/s			1.250	20.800	15.200
155 601-1020	Heat exchangers, shell & tube type, 4 pass, 19 mm outside diam., copper tubes, Cast iron, heads, Cast iron tube sheet, steel shell, hot water 277 K to 355 K, by water at 366 K, 0.44 L/s			9.000	2.889	2.111
155 601-1060	Heat exchangers, shell & tube type, 4 pass, 19 mm outside diam., copper tubes, Cast iron, heads, Cast iron tube sheet, steel shell, hot water 277 K to 355 K, by water at 366 K, 2.15 L/s			6.000	4.333	3.167
155 601-1100	Heat exchangers, shell & tube type, 4 pass, 19 mm outside diam., copper tubes, Cast iron, heads, Cast iron tube sheet, steel shell, hot water 277 K to 355 K, by water at 366 K, 4.7 L/s	↓	↓	2.250	11.556	8.444
<b>155 610</b>	<b>HEAT TRANSFER PACKAGES <i>Complete, Controls</i></b>					
155 610-1020	Heat transfer package, hot water, 355 K enter, 366 K leaving, 103 kPa steam, one pump system, 2.2 L/s	EA	0.125 Foreman 2.000 Steamfitter 0.125 Equip. Operator 1.000 Steamfitter apprentice 0.250 Gas welding M/c 0.125 Crane 11 ton 2.000 Tools set	0.650	40.000	29.231
155 610-1060	Heat transfer package, hot water, 355 K enter, 366 K leaving, 103 kPa steam, one pump system, 8.2 L/s			0.500	52.000	38.000
155 610-1100	Heat transfer package, hot water, 355 K enter, 366 K leaving, 103 kPa steam, one pump system, 34.7 L/s	↓	↓	0.250	104.000	76.000
<b>155 630</b>	<b>HYDRONIC HEATING</b>					

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
155 630-1200	Hydronic heating, radiation panel, baseboard, C.I., fin tube, wall hung with damper, 32 mm copper tube, 100 mm alum. fin, including supports	LM	0.125 Foreman 2.000 Steamfitter 0.125 Equip.Operator 1.000 Steamfitter apprentice 0.250 Gas welding M/c 0.125 Crane 11 ton 2.000 Tools set	18.000	1.444	1.056
155 630-1250	Hydronic heating, radiation panel, baseboard, C.I., fin tube, wall hung with damper, 32 mm steel tube, 100 mm steel fin, including supports.	"		16.000	1.625	1.188
155 630-3000	Radiators, cast iron, free standing or wall hung, 6 tube, 635 mm high	SECTION		140.000	0.186	0.136
<b>155 640 HUMIDIFIERS</b>						
155 640-0540	Humidifier, steam, room or duct, filter, regulators, auto. controls, 220 V, 5 kg/hr	EA	0.125 Foreman 1.000 Steamfitter 1.000 Steamfitter apprentice 0.250 Gaswelding M/c 1.000 Tools set	5.000	<b>3.400</b>	2.000
155 640-0580	Humidifier, steam, room or duct, filter, regulators, auto. controls, 220 V, 15 kg/hr			3.000	<b>5.667</b>	3.333
155 640-0620	Humidifier, steam, room or duct, filter, regulators, auto. controls, 220 V, 45 kg/hr			2.500	<b>6.800</b>	4.000
<b>155 651 INSULATION</b>						
155 651-1020	Insulation, Boiler, 38 mm calcium silicate, 13 mm cement finish, 50 mm fiberglass	SQM	0.125 Labor Foreman 1.000 Asbestos Worker 1.000 Asbestos Apprentice 1.000 Tools set	6.000	2.833	1.333
155 651-3000	Insulation, Duct, blanket type, fiberglass, flexible, fire resistant liner, black coating one side 13 mm thick, 0.9 kg density			30.000	0.567	0.267
155 651-3060	Insulation, Duct, blanket type, fiberglass, flexible, fire resistant liner, black coating one side 25 mm thick, 0.68 kg density			27.000	0.630	0.296
155 651-3070	Insulation, Duct, blanket type, fiberglass, flexible, fire resistant liner, black coating one side 38 mm thick, 0.68 kg density			25.000	0.680	0.320
155 651-3080	Insulation, Duct, blanket type, fiberglass, flexible, fire resistant liner, black coating one side 50 mm thick, 0.68 kg density			22.000	0.773	0.364
155 651-3520	Insulating, Duct, board type fiberglass, 1.36 kg. density, fire resistant, 1 side, 25 mm thick			12.000	1.417	0.667
155 651-3540	Insulating, Duct, board type fiberglass, 1.36 kg. density, fire resistant, 1 side, 38 mm thick			10.000	1.700	0.800
155 651-3560	Insulating, Duct, board type fiberglass, 1.36 kg. density, fire resistant, 1 side, 50 mm thick			9.000	1.889	0.889
155 651-6840	Insulating, Pipe, fiberglass covering with service jacket 25 mm wall, 13 mm iron pipe size	LM		60.000	0.283	0.133
155 651-6870	Insulating, Pipe, fiberglass covering with service jacket 25 mm wall, 25 mm iron pipe size			57.000	0.298	0.140
155 651-6900	Insulating, Pipe, fiberglass covering with service jacket 25 mm wall, 50 mm iron pipe size			52.000	0.327	0.154

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
155 651-6920	Insulating, Pipe, fiberglass covering with service jacket 25 mm wall, 76 mm iron pipe size			46.000	0.370	0.174
155 651-6940	Insulating, Pipe, fiberglass covering with service jacket 25 mm wall, 100 mm iron pipe size			40.000	0.425	0.200
155 651-7440	Insulating, Pipe, fiberglass covering with service jacket 50 mm wall, 150 mm iron pipe size			25.000	0.680	0.320
155 651-7460	Insulating, Pipe, fiberglass covering with service jacket 50 mm wall, 200 mm iron pipe size	LM	0.125 Labor Foreman 1.000 Asbestos Worker 1.000 Asbestos Apprentice 1.000 Tools set	21.000	0.810	0.381
155 651-7480	Insulating, Pipe, fiberglass covering with service jacket 50 mm wall, 250 mm iron pipe size			18.000	0.944	0.444
155 651-7490	Insulating, Pipe, fiberglass covering with service jacket 50 mm wall, 300 mm iron pipe size			16.000	1.063	0.500
155 651-7880	Insulating, Pipe with flexible Rubber tubing, 10 mm wall, 6 mm iron pipe size			42.000	0.405	0.190
155 651-7910	Insulating, Pipe with flexible Rubber tubing, 10 mm wall, 13 mm iron pipe size			40.000	0.425	0.200
155 651-7920	Insulating, Pipe with flexible Rubber tubing, 10 mm wall, 20 mm iron pipe size			40.000	0.425	0.200
155 651-7930	Insulating, Pipe with flexible Rubber tubing, 10 mm wall, 25 mm iron pipe size			38.000	0.447	0.211
155 651-7950	Insulating, Pipe with flexible Rubber tubing, 10 mm wall, 38 mm iron pipe size			38.000	0.447	0.211
155 651-8140	Insulating, Pipe with flexible Rubber tubing, 13 mm wall, 20 mm iron pipe size			32.000	0.531	0.250
155 651-8170	Insulating, Pipe with flexible Rubber tubing, 13 mm wall, 38 mm iron pipe size			30.000	0.567	0.267
155 651-8180	Insulating, Pipe with flexible Rubber tubing, 13 mm wall, 50 mm iron pipe size			29.000	0.586	0.276
155 651-8200	Insulating, Pipe with flexible Rubber tubing, 13 mm wall, 76 mm iron pipe size			28.000	0.607	0.286
155 651-8300	Insulating, Pipe with flexible Rubber tubing, 20 mm wall, 6 mm iron pipe size			30.000	0.567	0.267
155 651-8350	Insulating, Pipe with flexible Rubber tubing, 20 mm wall, 25 mm iron pipe size			29.000	0.586	0.276
155 651-8400	Insulating, Pipe with flexible Rubber tubing, 20 mm wall, 76 mm iron pipe size	LM	0.125 Labor Foreman 1.000 Asbestos Worker 1.000 Asbestos Apprentice 1.000 Tools set	28.000	0.607	0.286
<b>155 671 TANKS Fiberglass and steel tanks, single or double wall storage, see Div 132-15</b>						
155 671-2020	Steel tank, liquid expansion, painted, 20 gallon capacity	EA	0.125 Foreman 1.000 Steamfitter 1.000 Steamfitter apprentice 0.250 Gas welding M/c 1.000 Tools set	12.000	1.417	0.833
155 671-2120	Steel tank, liquid expansion, painted, 85 gallon capacity			4.000	4.250	2.500
155 671-3040	Steel tank, liquid expansion, painted, rubber diaphragm, 50 gallon capacity			4.000	4.250	2.500
155 671-3100	Steel tank, liquid expansion, painted, rubber diaphragm, 150 gallon capacity			3.000	5.667	3.333



**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
155 671-3180	Steel tank, liquid expansion, painted, rubber diaphragm, 500 gallon capacity	↓	↓	2.000	8.500	5.000
<b>155 680 VENT CHIMNEY</b>						
155 680-0140	Chimney vent, gas or all fuel types, double wall, galvanized steel or stainless steel, 150 mm diameter	LM	0.125 Labor Foreman 1.000 Sheet Metal Worker 1.000 Sheet Metal Apprentice 1.000 Tools set	14.000	1.214	0.571
155 680-0180	Chimney vent, gas or all fuel types, double wall, galvanized steel or stainless steel, 200 mm diameter		↓	12.000	1.417	0.667
155 680-0260	Chimney vent, gas or all fuel types, double wall, galvanized steel or stainless steel, 400 mm diameter		↓	9.000	1.889	0.889
155 680-0300	Chimney vent, gas or all fuel types, double wall, galvanized steel or stainless steel, 500 mm diameter		0.125 Labor Foreman 2.000 Sheet Metal Worker 1.000 Sheet Metal Apprentice 1.000 Tools set 1.000 Power Tools	8.000	3.125	2.000
155 680-0480	Chimney vent, gas or all fuel types, double wall, galvanized steel or stainless steel, 965 mm diameter			6.000	4.167	2.667
155 680-9020	Vent chimney, prefabricated metal, high temp., (1366 k) steel jacket, acid resistant, refractory lining 11 guage, straight section 1.2 m long, 250 mm diameter			10.000	2.500	1.600
155 680-9070	Vent chimney, prefabricated metal, high temp., (1366 k) steel jacket, acid resistant, refractory lining 11 guage, straight section 1.2 m long, 914 mm diameter			2.300	10.870	6.957
155 680-9090	Vent chimney, prefabricated metal, high temp., (1366 k) steel jacket, acid resistant, refractory lining 11 guage, straight section 1.2 m long, 1220 mm diameter	↓		1.750	14.286	9.143
155 680-9120	Vent chimney accessories; Tee Section; 250mm diameter	EA		3.500	7.143	4.571
155 680-9140	Vent chimney accessories; Tee Section; 457 mm diameter			1.800	13.889	8.889
155 680-9170	Vent chimney accessories; Tee Section; 914 mm diameter			0.600	41.667	26.667
155 680-9220	Vent chimney accessories; Cleanout; 250 mm diameter			2.750	9.091	5.818
155 680-9320	Vent chimney accessories; Cleanout w/Drain; 254 mm diameter			2.500	10.000	6.400
155 680-9330	Vent chimney accessories; Elbow, 250 mm diameter			5.000	5.000	3.200
155 680-9350	Vent chimney accessories; Elbow, 457 mm diameter			3.350	7.463	4.776
155 680-9380	Vent chimney accessories; Elbow, 914 mm diameter			1.900	13.158	8.421
155 680-9440	Vent chimney accessories; End cap, 250 mm diameter	↓		12.000	2.083	1.333
155 680-9490	Vent chimney accessories; End cap, 914 mm diameter	LM		4.000	6.250	4.000
155 680-9630	Vent chimney, prefabricated metal, high temp., (1366k), 26 guage aluminized jacket, straight section 1.2 meter long, 250 mm diameter	-	↓	3.500	7.143	4.571

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
155 680-9630	Vent chimney, prefabricated metal, high temp., (1366 K) 26 guage aluminized jacket, straight section 1.2 meter long, 914 mm diameter	LM	0.125 Labor Foreman 2.000 Sheet Metal Worker 1.000 Sheet Metal Apprentice 1.000 Tools set 1.000 Power Tools	0.700	35.714	22.857
<b>156 HVAC PIPING SPECIALTIES</b>						
<b>156 200 HEAT / COOL PIPING MISCELLANEOUS</b>						
<b>156 201 AUTOMATIC AIR VENT</b>						
156 201-0060	Automatic air vent Cast iron body, stainless steel internals, float type 13 mm inlet, 2068 kPa	EA	1 Pipe Fitter 1 Tool set	10.000	0.800	0.800
156 201-0220	Automatic air vent Cast iron body, stainless steel internals, float type 20 mm inlet, 1724 kPa			8.000	1.000	1.000
156 201-0340	Automatic air vent Cast iron body, stainless steel internals, float type 38 mm inlet, 1724 kPa			5.000	1.600	1.600
<b>156 205 AIR CONTROL</b>						
156 205-0040	Air control with stainer 50 mm diameter	EA	0.125 Foreman 1.000 Pipe Fitter 1.000 Pipe Fitter Apprentice 1.000 Tools set	4.500	3.778	1.778
156 205-0100	Air control with stainer 76 mm diameter			3.000	5.667	2.667
156 205-0120	Air control with stainer 100 mm diameter			2.500	6.800	3.200
156 205-0140	Air control with stainer 150 mm diameter			2.000	8.500	4.000
<b>156 225 EXPANSION JOINTS</b>						
156 225-0120	Expansion joint, bellow type, neoprene cover, flanged spool, 25 mm diameter	EA	1 Pipe Fitter 1 Tool set	16.000	1.063	0.500
156 225-0160	Expansion joint, bellow type, neoprene cover, flanged spool, 38 mm diameter			13.000	1.308	0.615
156 225-0180	Expansion joint, bellow type, neoprene cover, flanged spool, 50 mm diameter			10.000	1.700	0.800
156 225-0200	Expansion joint, bellow type, neoprene cover, flanged spool, 76 mm diameter			9.000	1.889	0.889
<b>156 235 FLEXIBLE METAL HOSE</b>						
156 235-0160	Flexible metal hose connector, bronze braided, bronze ends, standard length, 20 mm diameter x 300 mm	EA	1 Pipe Fitter 1 Tool set	10.000	0.800	0.800
156 235-0180	Flexible metal hose connector, bronze braided, bronze ends, standard length, 25 mm diameter x 457 mm	EA	1 Pipe Fitter 1 Tool set	8.000	1.000	1.000
156 235-0220	Flexible metal hose connector, bronze braided, bronze ends, standard length, 50 mm diameter x 457 mm			5.000	1.600	1.600
<b>156 240 HEATING CONTROL VALVES</b>						
156 240-0120	Heat control valve, radiator supply, 20 mm diameter	EA	1 Plumber 1 Tool set	18.000	0.444	0.444

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
156 240-0140	Heat control valve, radiator supply, 25 mm diameter			16.000	0.500	0.500
156 240-0160	Heat control valve, radiator supply, 32 mm diameter			12.000	0.667	0.667
<b>156 260</b>	<b>PRESSURE REGULATOR</b>					
156 260-3030	Pressure regulator, steam, high capacity, bronze body, stainless steel trim threaded, 20 mm diameter	EA	1 Plumber 1 Tool set	18.000	0.444	0.444
156 260-3040	Pressure regulator, steam, high capacity, bronze body, stainless steel trim threaded, 25 mm diameter			16.000	0.500	0.500
156 260-3080	Pressure regulator, steam, high capacity, bronze body, stainless steel trim threaded, 38 mm diameter			10.000	0.800	0.800
156 260-3140	Pressure regulator, steam, high capacity, bronze body, stainless steel trim threaded, 76 mm diameter			4.000	2.000	2.000
156 260-3540	Pressure regulator, steam, high capacity, flanged connection, iron body 861 kPa W.S.P. 100 mm diameter			2.000	4.000	4.000
<b>156 270</b>	<b>STEAM CONDENSATE METER</b>					
156 270-0100	Steam condensate meter, 227 kg/hr	EA	1 Pipe Fitter 1 Tool set	11.000	0.727	0.727
156 270-0140	Steam condensate meter, 680.4 kg/hr	"	"	5.500	1.455	1.455
<b>156 272</b>	<b>STEAM TRAP</b>					
156 272-0050	Steam trap, cast iron body, threaded, inverted bucket 13 mm pipe size	EA	1 Plumber 1 Tool set	9.000	0.889	0.889
156 272-0200	Steam trap, cast iron body, threaded inverted bucket 25 mm pipe size			7.000	1.143	1.143
156 272-0220	Steam trap, cast iron body, threaded inverted bucket 32 mm pipe size			6.000	1.333	1.333
<b>156 600</b>	<b>STRAINERS</b>					
<b>156 608</b>	<b>STRAINERS Y TYPE BRONZE BODY:</b>					
156 608-0070	Strainers, Y type bronze body screwed, 1034 kPa, 10 mm pipe, size	EA	1 Plumber 1 Tool set	18.000	0.444	0.444
156 608-0100	Strainers, Y type bronze body screwed, 1034 kPa, 13 mm pipe, size			15.000	0.533	0.533
156 608-0140	Strainers, Y type bronze body screwed, 1034 kPa, 25 mm pipe size			12.000	0.667	0.667
156 608-0180	Strainers, Y type bronze body screwed, 1034 kPa, 50 mm pipe size			10.000	0.800	0.800
156 608-0220	Strainers, Y type bronze body screwed, 1034 kPa, 76 mm pipe size		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tools Set	12.000	1.417	0.667
156 608-1000	Strainers, Y type bronze body flanged, 1034 kPa, 38 mm pipe size		1 Plumber 1 Tool set	8.000	1.000	1.000
156 608-1020	Strainers, Y type bronze body flanged, 1034 kPa, 50 mm pipe size	EA	1 Plumber 1 Tool set	6.000	1.333	1.333

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
156 608-1100	Strainers, Y type bronze body flanged, 1034 kPa, 150 mm pipe size	EA	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tools Set	1.750	9.714	4.571
<b>156 612</b>	<b>STRAINERS, Y TYPE IRON</b>					
156 612-0100	Strainers, Y type iron body screwed, 1724 kPa, 13 mm pipe size	EA	1 Plumber 1 Tool set	14.000	0.571	0.571
156 612-0160	Strainers, Y type iron body screwed, 1724 kPa, 38 mm pipe size		..	9.000	0.889	0.889
156 612-0220	Strainers, Y type iron body screwed, 1724 kPa, 76 mm pipe size		0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tools Set	8.000	2.125	1.000
156 612-0240	Strainers, Y type iron body screwed, 1724 kPa, 100 mm pipe size		..	4.000	4.250	2.000
156 612-1020	Strainers, Y type iron body flanged, 862 kPa, 50 mm pipe size		1 Plumber 1 Tool set	6.000	1.333	1.333
156 612-1100	Strainers, Y type iron body flanged, 862 kPa, 150 mm pipe size	↓	0.125 Plumber Foreman 1.000 Plumber 1.000 Plumber Apprentice 1.000 Tools Set	1.750	9.714	4.571
<b>157</b>	<b>AIR CONDITIONING / VENTILATING</b>					
<b>157 100</b>	<b>A.C. &amp; VENT. UNITS</b>					
<b>157 125</b>	<b>CENTRAL STATION AIR-HANDLING UNIT</b>					
157 125-1100	Central station AHU, chilled water, modular, capacity at 3.55 m/s face velocity 0.6 CUM/s	EA	0.125 Skilled Foreman 2.000 Steamfitter (HVAC) 0.125 Equip. Operator 0.500 Welder 0.500 Electrician 1.000 Steam Fitter Apprentice 0.125 Crane 11 ton 0.500 Welding M/C 2.000 Standard Tools	2.250	15.111	9.333
157 125-1300	Central station AHU, chilled water, modular, capacity at 3.55 m/s face velocity 1.5 CUM/s			1.400	24.286	15.000
157 125-1500	Central station AHU, chilled water, modular, capacity at 3.55 m/s face velocity 3.8 CUM/s	↓	↓	1.000	34.000	21.000
157 125-1700	Central station AHU, chilled water, modular, capacity at 3.55 m/s face velocity 9.44 CUM/s	EA	0.125 Skilled Foreman 2.000 Steamfitter (HVAC) 0.125 Equip. Operator 0.500 Welder 0.500 Electrician 1.000 Steam Fitter Apprentice 0.125 Crane 11 ton 0.500 Welding M/C 2.000 Standard Tools	0.500	68.000	42.000

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
157 125-1900	Central station AHU, chilled water, modular, capacity at 3.55 m/s face velocity 15.8 CUM/s			0.350	97.143	60.000
157 125-2100	Central station AHU, chilled water, modular, capacity at 3.55 m/s face velocity 29.7 CUM/s			0.250	136.000	84.000
157 125-2195	Central station AHU, chilled water, modular, capacity at 3.55 m/s face velocity 15.8 CUM/s, including hot water heating coil			0.330	103.030	63.636
157 125-2200	For hot water heating coil, add	↓	↓		7.50%	
<b>157 130 COMPUTER ROOM UNITS</b>						
157 130-1240	Computer room units, air cooled, includes remote condenser but not interconnecting tubing for refrigerant, 35 kW	EA	0.125 Skilled Foreman 2.000 Steam Fitter (HVAC) 0.125 Equip. Operator 0.500 Welder 0.500 Electrician 1.000 Steam Fitter Apprentice 0.125 Crane 11 ton 0.500 Welding M/C 2.000 Standard Tools	0.450	75.556	46.667
157 130-1360	Computer room units, air cooled, includes remote condenser but not interconnecting tubing for refrigerant, 80 kW	EA	*	0.350	97.143	60.000
<b>157 150 FAN COIL AIR CONDITIONING</b>						
157 150-0100	FCU, cabinet mounted, with controls and filter, chilled water, 1.8 kW cooling	EA	0.125 Skilled Foreman 2.000 Steam Fitter (HVAC) 0.125 Equip. Operator 0.500 Welder 0.500 Electrician 1.000 Steam Fitter Apprentice 0.125 Crane 11 ton 0.500 Welding M/C 2.000 Standard Tools	13.000	2.615	1.615
157 150-0120	FCU, cabinet mounted, with controls and filter, chilled water, 3.5 kW cooling			9.500	3.579	2.211
157 150-0180	FCU, cabinet mounted, with controls and filter, chilled water, 10.5 kW cooling			6.500	5.231	3.231
157 150-0200	FCU, cabinet mounted, with controls and filter, chilled water, 35 kW cooling			3.000	11.333	7.000
157 150-0240	FCU, cabinet mounted, with controls and filter, chilled water, 70 kW cooling			0.900	37.778	23.333
157 150-1000	FCU, cabinet mounted, with controls and filter, direct expansion, 17.6 kW cooling for use with/air cooled condensing.	↓	↓	5.000	6.800	4.200

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
157 150-1060	FCU, cabinet mounted, with controls and filter, direct expansion, 70 kW cooling for use with/air cooled condensing.	EA	0.125 Skilled Foreman 2.000 Steam Fitter (HVAC) 0.125 Equip. Operator 0.500 Welder 0.500 Electrician 1.000 Steam Fitter Apprentice 0.125 Crane 11 ton 0.500 Welding M/C 2.000 Standard Tools	0.800	42.500	26.250

**157 160 HEAT PUMPS**

157 160-1080	Heat pump, air to air, Split system, not including curbs, pads, or ductwork 26 kW cooling, 10 kW heat @ 255 K	EA	0.125 Skilled Foreman 2.00 Steam fitter (HVAC) 0.125 Equip. Operator 1.000 Electrician 1.000 Steam Fitter Apprentice 0.125 Crane 11 ton 2.000 Standard Tools	2.000	17.000	8.500
157 160-1120	Heat pump, air to air, Split system, not including curbs, pads, or ductwork 54 kW cooling, 19 kW heat @ 255 K			0.280	121.429	60.714
157 160-1180	Heat pump, air to air, Split system, not including curbs, pads, or ductwork 140 kW cooling, 57 kW heat @ 255 K			0.110	309.091	154.545
157 160-1640	Heat pump, air to air, Single Package, not including curbs, pads, or plenums 26 kW cooling, 10 kW heat @ 255 K			0.650	52.308	26.154
157 160-1640	Heat pump, air to air, Single Package, not including curbs, pads, or plenums 54 kW cooling, 16 kW heat @ 255 K			0.320	106.250	53.125
157 160-2140	Heat pump, water source to air, single package, 7 kW cooling, 6 kW heat @ 297 K			2.500	13.600	6.800
157 160-2220	Heat pump, water source to air, single package, 17 kW cooling, 8 kW heat @ 297 K	↓	↓	1.250	27.200	13.600

**157 170 PACKAGED TERMINAL AIR CONDITIONER**

157 170-0240	Package terminal air conditioner cabinet, wall sleeve, 3.5 kW cooling 4 kW heat	EA	0.125 Skilled Foreman 2.00 Steam fitter (HVAC) 0.125 Equip. Operator 1.000 Electrician 1.000 Steam Fitter Apprentice 0.125 Crane 11 ton 2.000 Standard Tools	6.000	5.667	2.833
157 170-0260	Package terminal air conditioner cabinet, wall sleeve, 4.4 kW cooling 4 kW heat	..	..	5.000	6.800	3.400

**157 180 ROOF TOP AIR CONDITIONERS**

## DIVISION 15 : MECHANICAL

[illegible]

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
157 190-0240	Water chiller,Centrifugal,liquid chiller,Water cooled, not including water tower, packaged hermetic 200 Ton cooling	EA	0.250 Skilled Foreman 3.000 Steam Fitter (HVAC) 1.000 Welder 1.000 Electrician 0.250 Equip. Operator 3.000 Steam Fitter Apprentice 0.250 Crane 11 ton 1.000 Welding Machine 3.000 Standard Tools	0.055	1236.364	618.182
157 190-0280	Water chiller,Centrifugal,liquid chiller,Water cooled, not including water tower, packaged hermetic 400 Ton cooling			0.048	1431.579	715.789
157 190-0300	Water chiller,Centrifugal,liquid chiller,Water cooled, not including water tower, packaged hermetic 750 Ton cooling			0.038	1813.333	906.667
157 190-0320	Water chiller,Centrifugal,liquid chiller,Water cooled, not including water tower, packaged hermetic 1000 Ton cooling			0.025	2720.000	1360.000
157 190-0550	Water chiller,Reciprocating,packaged with air cooled condenser, 75 Ton cooling			0.220	309.091	154.545
157 190-0600	Water chiller,Reciprocating,packaged with air cooled condenser, 100 Ton cooling			0.180	377.778	188.889
157 190-0630	Water chiller,Reciprocating,packaged with air cooled condenser, 125 Ton cooling			0.140	485.714	242.857
157 190-0640	Water chiller,Reciprocating,packaged with air cooled condenser, 150 Ton cooling			0.130	523.077	261.538
157 190-0660	Water chiller,Reciprocating,packaged with air cooled condenser, 200 Ton cooling			0.090	755.556	377.778
157 190-1160	Water chiller, Reciprocating, Water cooled, multi compressor, semi-hermitic tower not included, 100 Ton cooling			0.220	309.091	154.545
157 190-1200	Water chiller, Reciprocating, Water cooled, multi compressor, semi-hermitic tower not included, 140 Ton cooling			0.160	425.000	212.500
157 190-1210	Water chiller, Reciprocating, Water cooled, multi compressor, semi-hermitic tower not included, 160 Ton cooling			0.140	485.714	242.857
157 190-1580	Water chiller,Reciprocating, Water cooled, dual compressor, direct drive, semi-hermitic tower not included 150 Ton cooling			0.130	523.077	261.538
157 190-1620	Water chiller,Reciprocating, Water cooled, dual compressor, direct drive, semi-hermitic tower not included 200 Ton cooling			0.090	755.556	377.778
157 190-1660	Water chiller,Reciprocating, Water cooled, dual compressor, direct drive, semi-hermitic tower not included 225 Ton cooling			0.090	755.556	377.778
157 190-3100	Water chiller, Packaged,with remote air coolewd condenser 100 ton			0.160	425.000	212.500
157 190-3150	Water chiller, Packaged,with remote air coolewd condenser 140 ton	↓	↓	0.110	618.182	309.091
<b>157 200</b>	<b>SYSTEM COMPONENTS</b>					
<b>157 225</b>	<b>CONDENSERS</b>					



**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
157 225-0240	Condenser, air cooled, belt drive, propeller fan, 40 Ton	EA	0.250 Skilled Foreman 3.000 Steam Fitter (HVAC) 1.000 Welder 1.000 Electrician 0.250 Equip. Operator 3.000 Steam Fitter Apprentice 0.250 Crane 11 ton 1.000 Welding Machine 3.000 Standard Tools	0.950	71.579	35.789
157 225-0280	Condenser, air cooled, belt drive, propeller fan, 60 Ton			0.650	104.615	52.308
157 225-0400	Condenser, air cooled, belt drive, propeller fan, 100 Ton			0.550	123.636	61.818
157 225-0380	Condenser, air cooled, belt drive, propeller fan, 157 Ton			0.500	136.000	68.000
157 225-0600	Condenser, air cooled, belt drive, propeller fan, 235 Ton			0.200	340.000	170.000
157 225-0700	Condenser, air cooled, belt drive, propeller fan, 314 Ton			0.160	425.000	212.500
157 225-0800	Condenser, air cooled, belt drive, propeller fan, 470 Ton			0.110	618.182	309.091
157 225-0900	Condenser, air cooled, belt drive, propeller fan, 630 Ton			0.095	715.789	357.895
157 225-1660	Condenser, air cooled, direct drive, propeller fan, 10 Ton			3.500	19.429	9.714
157 225-1760	Condenser, air cooled, direct drive, propeller fan, 40 Ton			1.000	68.000	34.000
157 225-1820	Condenser, air cooled, direct drive, propeller fan, 76 Ton			0.600	113.333	56.667
157 225-1880	Condenser, air cooled, direct drive, propeller fan, 105 Ton	↓	↓	0.500	136.000	68.000
<b>157 197 WINDOW UNIT AIR CONDITIONER:</b>						
157 197-2000	Window A/C unit thru the wall, 1.5 ton	EA	0.125 Foreman 1.000 Electrician 1.000 Common laborer 1.000 Tools Set	6.000	2.833	1.333
157 197-2100	Window A/C unit thru the wall, 2 ton	↓	↓	4.000	4.250	2.000
157 197-2200	Window A/C unit thru the wall, 3 ton	↓	↓	4.000	4.250	2.000
<b>157 240 COOLING TOWERS</b>						
157 240-0100	Cooling tower, package unit, galv. steel or stainless steel, draw thru, single flow, belt drive 60 Ton	EA	0.250 Skilled Foreman 3.000 Steam Fitter (HVAC) 1.000 Welder 1.000 Electrician 0.250 Equip. Operator 3.000 Steam Fitter Apprentice 0.250 Crane 11 ton 1.000 Welding Machine 3.000 Standard Tools	1.000	68.000	34.000

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
157 240-0250	Cooling tower, package unit, galv. steel or stainless steel, draw thru, single flow, belt drive 125 Ton	EA	0.250 Skilled Foreman 3.000 Steam Fitter (HVAC) 1.000 Welder 1.000 Electrician 0.250 Equip. Operator 3.000 Steam Fitter Apprentice 0.250 Crane 11 ton 1.000 Welding Machine 3.000 Standard Tools	0.900	75.556	37.778
157 240-1500	Cooling tower, package unit, galvanized steel or stainless steel, induced air, double flow, gear drive, 150 Ton			0.800	85.000	42.500
157 240-2000	Cooling tower, package unit, galvanized steel or stainless steel, induced air, double flow, gear drive, 300 Ton			0.700	97.143	48.571
157 240-2100	Cooling tower, package unit, galvanized steel or stainless steel, induced air, double flow, gear drive, 600 Ton			0.400	170.000	85.000
<b>157 250</b>	<b>DUCTWORK</b>	<i>Fabricated rectangular, includes fittings, joints, supports</i>				
157 250-0110	Duct aluminum alloy, fabricated & installed	KG	0.125 Labor Foreman 2.000 Sheet Metal Worker 1.000 Sheet Metal Apprentice 1.000 Tools Set 1.000 Power Tools	45.000	0.556	0.356
157 250-0500	Duct galvanized steel, fabricated & installed			80.000	0.313	0.200
157 250-1000	Duct stainless steel type 304, under 45 kg			60.000	0.417	0.267
157 250-1020	Duct stainless steel type, fabricated & installed			80.000	0.313	0.200
157 250-1500	Round duct, flexible, coated fiberglass 76 mm diameter	LM		165.000	0.152	0.097
157 250-156 0	Round duct, flexible, coated fiberglass 150 mm diameter			115.000	0.217	0.139
157 250-1600	Round duct, flexible, coated fiberglass 200 mm diameter	LM	0.125 Labor Foreman 2.000 Sheet Metal Worker 1.000 Sheet Metal Apprentice 1.000 Tools Set 1.000 Power Tools	85.000	0.294	0.188
157 250-1640	Round duct, flexible, coated fiberglass 250 mm diameter			65.000	0.385	0.246
157 250-1660	Round duct, flexible, coated fiberglass 300 mm diameter			50.000	0.500	0.320
<b>157 290</b>	<b>FANS</b>					
157 290-0050	Fan, axial flow, compact, low sound, 64 mm S.P., (3500 CFM), 1.8 CUM/s, 5 HP	EA	0.125 Foreman 1.000 Sheet Metal Worker 1.000 Sheet Metal Apprentice 0.250 Electrician 1.000 Tools Set	2.800	6.786	2.857

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
157 290-0100	Fan, axial flow, compact, low sound, 64 mm S.P., (10500 CFM), 5 CUM/s, 7.5 HP			2.000	9.500	4.000
157 290-0120	Fan, axial flow, compact, low sound, 64 mm S.P., (15600 CFM), 7.3 CUM/s, 10 HP			1.300	14.615	6.154
157 290-0260	Fan, in-line centrifugal, supply/exhaust booster, aluminum wheel/hub, disconnect switch, 6 mm S.P., (1380 CFM), 0.651 CUM/s, 300 mm dia conn			1.600	11.875	5.000
157 290-0300	Fan, in-line centrifugal, supply/exhaust booster, aluminum wheel/hub, disconnect switch, 6 mm S.P., (2560 CFM), 1.208 CUM/s, 457 mm diameter connection			0.850	22.353	9.412
157 290-0320	Fan, in-line centrifugal, supply/exhaust booster, aluminum wheel/hub, disconnect switch, 6 mm S.P., (3480 CFM), 1.643 CUM/s, 500 mm diameter connection			0.650	29.231	12.308
157 290-2580	Ceiling fan, right angle, extra quiet, 3 mm S.P., (885 CFM), 0.418 CUM/s			12.000	1.583	0.667
157 290-2620	Ceiling fan, right angle, extra quiet, 3 mm S.P., (2960 CFM), 1.397 CUM/s			9.000	2.111	0.889
157 290-3020	Ceiling fan, paddle blade air circulator, 3 speed switch, 1067 mm, (5000 CFM), 2.36 CUM/s high, (3000 CFM), 1.416 CUM/s low			4.500	4.222	1.778
157 290-3040	Ceiling fan, paddle blade air circulator, 3 speed switch, 1321 mm, (6500 CFM), 3.068 CUM/s high, (4000 CFM), 1.888 CUM/s low			3.200	5.938	2.500
157 290-4640	Ventilator, roof type, corrosive fume resistant, plastic, centrifugal, V belt drive, motor, 6 mm S.P., (895 CFM - 1/3 HP), 0.422 CUM/s, 248 W			4.000	4.750	2.000
157 290-4680	Ventilator, roof, corrosive fume resistant, plastic, centrifugal, V belt drive, motor, 6 mm S.P., (2240 CFM, 1 HP) 1.057 CUM/s, 746 W			2.500	7.600	3.200
157 290-4720	Ventilator, roof, corrosive fume resistant, plastic, centrifugal, V belt drive, motor, 6 mm S.P., (11760 CFM, 5 HP) 5.549 CUM/s, 3.75 KW			0.800	23.750	10.000
157 290-6140	Fan, propeller exhaust, wall shutter, 6 mm S.P., direct drive two speed, (1000 CFM, 1/8 HP), 0.472 CUM/s, 93 W			6.000	3.167	1.333
157 290-6670	Fan, residential, bath exhaust, grille, back draft damper (110 CFM), 0.052 CUM/s			16.000	1.188	0.500
157 290-7160	Roof exhauster, centrifugal, aluminum housing, 300 mm galvanized curb, bird screen, back draft damper, 6 mm S.P. direct drive (1450 CFM), 0.684 CUM/s, 0.109 SQM			3.500	5.429	2.286
157 290-7180	Roof exhauster, centrifugal, aluminum housing, 300 mm galvanized curb, bird screen, back draft damper, 6 mm S.P. direct drive (2050 CFM), 0.968 CUM/s, 0.165 SQM			3.250	5.846	2.462
157 290-7260	Roof exhauster, centrifugal, aluminum housing, 305 mm galvanized curb, bird screen, back draft damper, 6 mm S.P. V-belt drive (8525 CFM), 4.024 CUM/s, 0.506 SQM			2.500	7.600	3.200
<b>157 400 ACCESSORIES</b>						
<b>157 401 AIR FILTERS</b>						
157 401-1190	Chemical media filter, industrial air fume & odor scrubber unit with pump & motor corrosion resistant, PVC construction, single pack, horizontal 12000 CFM.	EA	0.125 Labor Foreman 2.000 Sheet Metal Worker 1.000 Sheet Metal Apprentice 1.000 Tools Set 1.000 Power Tools	4.000	6.250	4.000

## DIVISION 15 : MECHANICAL

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
157 401-1230	Chemical media filter, industrial air fume & odor scrubber unit with pump & motor corrosion resistant, PVC construction, single pack, horizontal 30000 CFM.	EA	0.125 Labor Foreman 2.000 Sheet Metal Worker 1.000 Sheet Metal Apprentice 1.000 Tools Set 1.000 Power Tools	1.800	13.889	8.889
157 401-1370	Chemical media filter, industrial air fume & odor scrubber unit with pump & motor corrosion resistant, PVC construction, double pack, horizontal 12000 CFM.			3.250	7.692	4.923
157 401-1410	Chemical media filter, industrial air fume & odor scrubber unit with pump & motor corrosion resistant, PVC construction, double pack, horizontal 30000 CFM.			1.250	20.000	12.800
157 401-1600	Chemical media filter, industrial air fume & odor scrubber unit with pump & motor corrosion resistant, PVC construction, single pack, vertical 24000 CFM.			2.000	12.500	8.000
157 401-1750	Chemical media filter, industrial air fume & odor scrubber unit with pump & motor corrosion resistant, PVC construction, double pack, vertical 24000 CFM.			1.850	13.514	8.649
157 401-2150	Air filter, Electronic air cleaner, self-contained, 0.236 CUM/s, 1000 CFM		0.125 Foreman 1.000 Sheet Metal worker 1.000 Tools Set	2.000	4.500	4.000
157 401-2200	Air filter, electronic air cleaner, self-contained, 0.472 CUM/s, 1400 CFM			1.800	5.000	4.444
157 401-2250	Air filter, electronic air cleaner, self-contained, 0.566 CUM/s, 2000 CFM			1.650	5.455	4.848
<b>157 450</b>	<b>DIFFUSERS</b>					
	<i>Aluminum, opposed blade damper unless noted</i>					
157 450-0500	Diffuser linear, ceiling/sidewall, perforated, 600 mm x 600 mm, panel size 150 mm x 150 mm	EA	0.125 Foreman 1.000 Sheet Metal worker 1.000 Tools Set	12.000	0.750	0.667
157 450-0520	Diffuser linear, ceiling/sidewall, perforated, 600 mm x 600 mm, panel size 200 mm x 200 mm			11.000	0.818	0.727
157 450-0540	Diffuser linear, ceiling/sidewall, perforated, 600 mm x 600 mm, panel size 250 mm x 250 mm			10.000	0.900	0.800
157 450-0600	Diffuser linear, ceiling/sidewall, perforated, 600 mm x 600 mm, panel size 457 mm x 457 mm			8.000	1.125	1.000
157 450-1020	Diffuser, rectangular, 1 to 4 way blow, 300 mm x 150 mm			11.000	0.818	0.727
157 450-1100	Diffuser, rectangular, 1 to 4 way blow, 610 mm x 300 mm			8.000	1.125	1.000
157 450-1160	Diffuser, rectangular, 1 to 4 way blow, 533 mm x 533 mm	EA	0.125 Foreman 1.000 Sheet Metal worker 1.000 Tools Set	6.000	1.500	1.333
157 450-152 0	Diffuser, round, butterfly damper, 200 mm diameter [8"]			12.000	0.750	0.667
157 450-1580	Diffuser, round, butterfly damper, 356 mm diameter [14"]			8.000	1.125	1.000
157 450-2060	Diffuser, T bar mount, 600 mm x 600 mm lay-in frame, 380 mm x 380 mm			9.000	1.000	0.889
157 450-2080	Diffuser, T bar mount, 600 mm x 600 mm lay-in frame, 457 mm x 457 mm			8.000	1.125	1.000
<b>157 460</b>	<b>GRILLES</b>					

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
157 460-1080	Grille, aluminum, air return, 400 mm x 200 mm	EA	0.125 Foreman 1.000 Sheet Metal worker 1.000 Tools Set	16.000	0.563	0.500
157 460-1120	Grille, aluminum, air return, 600 mm x 300 mm			13.000	0.692	0.615
157 460-1280	Grille, aluminum, air return, 910 mm x 600 mm			11.000	0.818	0.727
<b>157 470 REGISTERS</b>						
157 470-1020	Register, for air supply, ceiling/wall, opposing blade damper, anodized aluminum one or two way deflection, adj. curved face bars 200 mm x 100 mm	EA	0.125 Foreman 1.000 Sheet Metal worker 1.000 Tools Set	20.000	0.450	0.400
157 470-1240	Register, for air supply, ceiling/wall, opposing blade damper, anodized aluminum one or two way deflection, adj. curved face bars 508 mm x 150 mm			13.000	0.692	0.615
157 470-1350	Register, for air supply, ceiling/wall, opposing blade damper, anodized aluminum one or two way deflection, adj. curved face bars 610 mm x 457 mm			9.000	1.000	0.889
157 470-4140	Register, for air supply, floor, opposing blade damper, anodized aluminum one or two way deflection, adj. curved face bars 250 mm x 250 mm			15.000	0.600	0.533
157 470-4240	Register, for air supply, floor, opposing blade damper, anodized aluminum one or two way deflection, adj. curved face bars 356 mm x 508 mm			11.000	0.818	0.727
<b>157 480 DUCT ACCESSORIES</b>						
157 480-0050	Duct accessories, air extractors, 300 mm x 100 mm	EA	0.125 Foreman 1.000 Sheet Metal worker 1.000 Tools Set	18.000	0.500	0.444
157 480-0200	Duct accessories, air extractors, 508 mm x 200 mm			12.000	0.750	0.667
157 480-0280	Duct accessories, access door, insulated, 300 mm x 300 mm			7.000	1.286	1.143
157 480-3240	Duct accessories, fire damper, curtain type, vertical, 406 mm x 356 mm			13.000	0.692	0.615
157 480-3400	Duct accessories, fire damper, curtain type, vertical, 610 mm x 508 mm			6.000	1.500	1.333
157 480-6000	Duct accessories, multi-blade dampers, opposed blade, 300 mm x 300 mm			16.000	0.563	0.500
157 480-6080	Duct accessories, multi-blade dampers, opposed blade, 610 mm x 610 mm			6.000	1.500	1.333
157 480-6180	Duct accessories, multi-blade dampers, opposed blade, 1219 mm x 910 mm	EA	0.125 Labor Foreman 2.000 Sheet Metal Worker 1.000 Sheet Metal Apprentice 1.000 Tools Set 1.000 Power Tools	8.000	3.125	2.000
157 480-7020	Duct accessories, splitter damper assembly, self-locking, 910 mm rod	EA	0.125 Foreman 1.000 Sheet Metal worker 1.000 Tools Set	16.000	0.563	0.500
157 480-7060	Duct accessories, splitter damper assembly, self-locking, 1830 mm rod	EA	0.125 Foreman 1.000 Sheet Metal worker 1.000 Tools Set	14.000	0.643	0.571

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
157 480-8260	Duct accessories, multi-blade dampers, parallel blade, 760 mm x 457 mm	"	"	6.000	1.500	1.333
<b>157 482 LOUVERS</b>						
157 482-2020	Louvers, aluminum, extruded, with screen, mill finish, for cooling tower and mechanical eqpt., screens, standard weight	SQM	0.125 Foreman 1.000 Sheet Metal worker 1.000 Tools Set	3.000	3.000	2.667
157 482-2020	Louvers, aluminum, extruded, with screen, mill finish, dual combination, automatic or manual or electric operation, intake or exhaust,			1.750	5.143	4.571
157 482-3000	Louver, aluminum, extruded, with screen, mill finish, fixed blade, mullion type, stormproof or vertical line			2.250	4.000	3.556
<b>157 490 VENTILATORS</b>						
157 490-0500	Ventilator, base, damper & bird screen, rotary syphon, galvanized, 150 mm neck diameter, 0.087 CUM/s, in 8 km/hr wind	EA	0.125 Labor Foreman 2.000 Sheet Metal Worker 1.000 Sheet Metal Apprentice 1.000 Tools Set 1.000 Power Tools	20.000	1.250	0.800
157 490-0660	Ventilator base, damper & bird screen, rotary syphon, galvanized, 610 mm neck diameter, 0.722 CUM/s, in 8 km/hr wind			10.000	2.500	1.600
157 490-0720	Ventilator, base, damper & bird screen, rotary syphon, galvanized, 1067 mm neck diameter, 2.124 CUM/s in 8 km/hr wind			5.000	5.000	3.200
<b>157 600 MISCELLANEOUS</b>						
<b>157 601 BALANCING AIR</b>						
157 601-0900	Balancing, air, heating and ventilating equipment central plan	EA	1.00 Mech. Foreman 2.00 HVAC Technicians 3.00 Common Laborers 1.00 Set Testing Tools 2.00 Tools Set	30.000	1.600	0.800
157 601-2000	Balancing, air, air conditioning equipment central plan			15.000	3.200	1.600
157 601-3000	Balancing, air, air supply & return units:registers, diffusers, grilles, ..etc			10.000	4.800	2.400
<b>157 604 BALANCING, WATER</b>						
157 604-0050	Balancing water, HVAC system, air cooled condenser (evaporative)	EA	1.00 Mech. Foreman 2.00 HVAC Technicians 3.00 Common Laborers 1.00 Set Testing Tools 2.00 Tools Set	3.000	16.000	8.000
157 604-0200	Balancing water, HVAC system, chiller			1.000	48.000	24.000
157 604-0500	Balancing water, HVAC system, cooling tower			1.500	32.000	16.000
157 604-0600	Balancing water, HVAC system, fan coil unit, unit ventilator			5.000	9.600	4.800
157 604-0700	Balancing water, HVAC system, fin tube and radiant panels			4.000	12.000	6.000
157 604-0800	Balancing water, HVAC system, main and duct re-heat coils			4.000	12.000	6.000

**DIVISION 15 : MECHANICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
157 604-0810	Balancing water, HVAC system, heat exchanger			4.000	12.000	6.000
157 604-1000	Balancing water, HVAC system, pumps			2.000	24.000	12.000
157 604-1100	Balancing water, HVAC system, unit heater			5.000	9.600	4.800
<b>157 610</b>	<b>DUST COLLECTION SYSTEM</b>					
157 610-0220	Dust collection system, commercial/industrial, central vacuum units includes stand, filters and motorized shaker, 0472 CUM/s, 250 mm inlet, 3 HP	EA	0.125 Foreman 1.000 Sheet Metal Worker 1.000 Sheet Metal Apprentice 0.250 Electrician 1.000 Tools Set	1.750	10.857	4.571
157 610-1120	Dust collection system, vacuum tubing, galvanized 76 mm OD, 16 ga.	LM	0.125 Laborer Foreman 2.000 Sheet Metal Worker 1.000 Sheet Metal Apprentice 1.000 Tools Set 1.000 Power Tools	150.000	0.167	0.107
157 610-1140	Dust collection system, vacuum tubing, galvanized 100 mm OD, 16 ga.			140.000	0.179	0.114
157 610-1160	Dust collection system, vacuum tubing, galvanized 150 mm OD, 14 ga.			110.000	0.227	0.145
157 610-1190	Dust collection system, vacuum tubing, galvanized 300 mm OD, 12 ga.			45.000	0.556	0.356
157 610-1200	Dust collection system, vacuum tubing, galvanized 356 mm OD, 12 ga.			30.000	0.833	0.533
157 610-1956	Vacuum, hose, flexible wire reinforced rubber 76 mm dia.			140.000	0.179	0.114
157 610-1980	Vacuum, hose, flexible wire reinforced rubber 150 mm dia.			110.000	0.227	0.145
157 610-2130	Vacuum tubing 90/45 degree elbow size 76 mm dia.			75.000	0.333	0.213
157 610-2170	Vacuum tubing 90/45 degree elbow size 150 mm dia			50.000	0.500	0.320
157 610-3470	Vacuum tubing compression coupling, galvanized, neoprene gasket size 54 mm dia			52.000	0.481	0.308
157 610-3490	Vacuum tubing compression coupling, galvanized, neoprene gasket size 76 mm dia			45.000	0.556	0.356
157 610-3530	Vacuum tubing compression coupling, galvanized, neoprene gasket size 150 mm dia			30.000	0.833	0.533
157 610-3830	Vacuum tubing air gate valve, galvanized, neoprene gasket size 76 mm dia			30.000	0.833	0.533
157 610-3850	Vacuum tubing air gate valve, galvanized, neoprene gasket size 150 mm dia			22.000	1.136	0.727

# **Division 16**

## **Electrical**

### **Estimating Tips**

#### **General**

Estimators for this division item shall have full knowledge of the system and working knowledge used, prepare a complete take-off quantities, code requirements, specifications, and SCECO requirements.

#### **160 Raceways**

Conduit should be taken off in three main categories: power distribution, branch power, and branch lighting, so the estimator can concentrate on systems and components, therefore making it easier to ensure all items have been accounted for. For cost modifications for elevated conduit installation, add the percentage to labor according to the height of installation for all and only the quantities exceeding the different height levels and number of building floors.

#### **163 Motors, Starters, Boards & Switches**

Estimator shall include all supporting systems for these items, whether it is a foundation, bracket or a piece of wood.

#### **164 Transformers & Bus Ducts**

Never forget to include the equipment cost for such installation, whether scaffolding, lifts or cranes.

#### **165 Lighting**

Productivity rate for lighting fixtures varies with the number of fixtures included in a single room. Estimators are advised to increase productivity rate of lighting fixtures in large rooms including more than six (6) fixtures.

#### **168 Special Electrical System**

Usually most of these systems are let to



## **161 Conductors & Grounding**

Remember that aluminum wiring of equal capacity is larger in diameter than copper and may require larger conduit. If more than three wires at a time are being pulled, deduct percentages from the labor hours of that grouping of wires.

## **162 Boxes & Wiring Devices**

The estimator should take the weights of materials into consideration when completing a take-off. Topics to consider include:

- How will the materials be supported ?
- How high will the support structure have to reach ?
- Will the final support structure be able to withstand the total burden ?
- Is the support material included or separate from the fixture, equipment and material specified ?

specialized contractors, provisions for special installation requirements shall be consulted.

## **169 Utilities**

Usually these items are let to specialty contractors, whether for transmission lines and accessories of specialized high voltage equipment. Productivity varies with site conditions, hilly, plain, easy access, and nearby roads. Site investigation prior pricing such items is very important. Equipment supports, foundations, metal, etc.. shall not be overlooked.

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>160</b>	<b>RACEWAYS</b>					
<b>160 100</b>	<b>CABLE TRAYS</b>					
<b>160 102</b>	<b>CABLE TRAY GENERAL</b>					
160 102-0050	Cable tray for elevated installation higher than 4.6 m, floor height & up to 6 m add	PERCENT	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set		1.25%	
160 102-0100	Cable tray for elevated installation higher than 4.6 m, floor height & from 6.1 to 8 m floor height add				2.50%	
160 102-0700	Cable tray,galv.steel,With fittings & supports, 100 mm deep, 100 mm rung spacing, For more than 2 floors building, Add to above items Per each additional floor.				2.50%	
<b>160 105</b>	<b>CABLE TRAY LADDER:</b>					
160 105-0200	Cable tray ladder,galv.steel,With fittings & supports, 100 mm deep, 100 mm rung spacing, 300 mm wide; 2 floors building, 4.6 m floor to floor	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	14.720	1.155	0.543
160 105-0400	Cable tray ladder,galv.steel,With fittings & supports, 100 mm deep, 100 mm rung spacing, 450 mm wide; 2 floors building, 4.6 m floor to floor			12.880	1.320	0.621
160 105-0600	Cable tray ladder,galv.steel,With fittings & supports, 100 mm deep, 100 mm rung spacing, 600 mm wide; 2 floors building, 4.6 m floor to floor			11.780	1.443	0.679
<b>160 110</b>	<b>CABLE TRAY SOLID: 4.6 m floor to floor height.</b>					
160 110-0170	Cable tray solid, galv.steel,With fittings & supports, 100 mm deep 150 mm wide; 2 floor building,	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	13.800	1.232	0.580
160 110-0200	Cable tray solid, galv.steel,With fittings & supports, 150 mm deep, 300 mm wide; 2 floor building.			12.650	1.344	0.632
160 110-0600	Cable tray solid, galv.steel,With fittings & supports, 150 mm deep, 600 mm wide; 2 floor building.			9.420	1.805	0.849
<b>160 115</b>	<b>CABLE TRAY ACCESSORIES:</b>					
160 115-0100	Cable tray Elbow 150 mm wide	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power/Tools Set	6.000	2.833	1.333
160 115-0200	Cable tray Elbow 300 mm wide			4.000	4.250	2.000
160 115-0400	Cable tray Elbow 600 mm wide			3.000	5.667	2.667
<b>160 150</b>	<b>WIREWAY:</b>					

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
160 150-0200	Wireway screw cover with fittings and supports, 100 mm x 100 mm; 2 floors building.	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power/Tools Set	13.000	1.308	0.615
160 150-0400	Wireway screw cover with fittings and supports, 150 mm x 150 mm; 2 floors building.			11.000	1.545	0.727
160 150-0600	Wireway screw cover with fittings and supports, 200 mm x 200 mm; 2 floors building.			8.000	2.125	1.000
<b>160 200 CONDUITS</b>						
<b>160 202 CONDUIT GENERAL:</b>						
160 202-0050	Conduit elevated installation higher than 4.6 m, floor height & up to 6 m add	PERCENT	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power/Tools Set		1.25%	
160 202-0100	Conduit elevated installation higher than 4.6 m, floor height & from 6.1 to 8 m floor height add				0.025	
160 202-0100	Conduit installation higher than 4.6 m, floor height & from 8.1 to 10 m floor height add				0.040	
160 202-0700	Conduit elevated installation, For more than 2 floors building, Add to above items Per each additional floor.				0.030	
<b>160 205 CONDUIT:</b>						
160 205-0300	Conduit Aluminium, exposed,in 2 story building,includes 1 termination, 1 elbow every 6 meters & 1 clamp every 2.75 m., 15 mm diameter (1/2")	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Conduit Power Tools	32.600	0.521	0.245
160 205-0500	Conduit Aluminium, exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 20 mm diameter (3/4")			29.500	0.576	0.271
160 205-0700	Conduit Aluminium, exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 25 mm diameter (1")			24.700	0.688	0.324
160 205-1030	Conduit Aluminium, exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 38 mm diameter (1-1/2")			22.450	0.757	0.356
160 205-1050	Conduit Aluminium, exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 50 mm diameter (2")			21.900	0.776	0.365
160 205-1140	Conduit Aluminium, exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 100 mm diameter (4")			10.300	1.650	0.777
160 205-1750	Conduit Galv. Rigid Steel, exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 15 mm diameter (1/2")			28.990	0.586	0.276
160 205-1770	Conduit Galv. Rigid Steel, exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 20 mm diameter (3/4")			26.790	0.635	0.299
160 205-1800	Conduit Galv. Rigid Steel, exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 25 mm diameter (1")			22.500	0.756	0.356
160 205-1850	Conduit Galv. Rigid Steel, exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 38 mm diameter (1-1/2")			16.770	1.014	0.477

# **DIVISION16: ELECTRICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
160 205-1870	Conduit Galv. Rigid Steel, exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 50 mm diameter ( 2")	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Conduit Power Tools	13.700	1.241	0.584
160 205-1930	Conduit Galv. Rigid Steel, exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 76 mm diameter ( 3")			8.930	1.904	0.896
160 205-1970	Conduit Galv. Rigid Steel, exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 100 mm diameter ( 4")			6.140	2.769	1.303
160 205-2530	Conduit Intermediate Steel (IMC), exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 20 mm diameter ( 3/4")			29.500	0.576	0.271
160 205-2550	Conduit Intermediate Steel (IMC), exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 25 mm diameter ( 1")			24.700	0.688	0.324
160 205-2570	Conduit Intermediate Steel (IMC), exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 32 mm diameter ( 1-1/4")			21.900	0.776	0.365
160 205-2630	Conduit Intermediate Steel (IMC), exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 50 mm diameter ( 2")			15.100	1.126	0.530
160 205-2650	Conduit Intermediate Steel (IMC), exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 64 mm diameter ( 2-1/2")			12.500	1.360	0.640
160 205-2700	Conduit Intermediate Steel (IMC), exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 90 mm diameter ( 3-1/2")			8.400	2.024	0.952
160 205-5000	Conduit Electric Metallic Tubing (EMT), exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 15 mm diameter ( 1/2")			53.600	0.317	0.149
160 205-5200	Conduit Electric Metallic Tubing (EMT), exposed,in 2 story building,includes 1 termination,1elbow every 6 meters & 1 clamp every 2.75 m., 20 mm diameter ( 3/4")			48.900	0.348	0.164
160 205-5040	Conduit Electric Metallic Tubing (EMT), exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 25 mm diameter ( 1")			40.400	0.421	0.198
160 205-5060	Conduit Electric Metallic Tubing (EMT), exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 32 mm diameter ( 1-1/4")			33.900	0.501	0.236
160 205-5080	Conduit Electric Metallic Tubing (EMT), exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 38 mm diameter ( 1-1/2")			30.200	0.563	0.265
160 205-5100	Conduit Electric Metallic Tubing (EMT), exposed,in 2 story building,includes 1 termination,1 elbow every 6 meters & 1 clamp every 2.75 m., 50 mm diameter ( 2")			24.700	0.688	0.324
<b>160 230 CONDUIT IN CONCRETE SLAB:</b>						
160 230-3250	Conduit in concrete slab:PVC Sch 40; With terminations,fittings & supports, 20 mm diameter (3/4")	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Conduit Power Tools	44.500	0.382	0.180
160 230-3270	Conduit in concrete slab:PVC Sch 40; With terminations,fittings & supports, 25 mm diameter ( 1")			37.850	0.449	0.211
160 230-3300	Conduit in concrete slab:PVC Sch 40; With terminations,fittings & supports, 32 mm diameter (1-1/4")			33.400	0.509	0.240

**DIVISION16: ELECTRICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
160 230-3330	Conduit in concrete slab;PVC Sch 40; With terminations,fittings & supports, 38 mm diameter (1-1/2")			26.720	0.636	0.299
160 230-4400	Conduit in concrete slab;Galv. Rigid Steel; With terminations,fittings & supports, 20 mm diameter ( 3/4")			27.350	0.622	0.293
160 230-4450	Conduit in concrete slab;Galv. Rigid Steel; With terminations,fittings & supports, 25 mm diameter ( 1")			22.900	0.742	0.349
160 230-4600	Conduit in concrete slab;Galv. Rigid Steel; With terminations,fittings & supports, 38 mm diameter ( 1-1/2")			17.130	0.992	0.467
160 230-4800	Conduit in concrete slab;Galv. Rigid Steel; With terminations,fittings & supports, 50 mm diameter ( 2")			13.990	1.215	0.572
<b>160 240</b>	<b>CONDUIT IN TRENCH: For excavation or backfill see Div. 022200</b>					
160 240-0200	Conduit,galvanized rigid steel in trench underground with fittings & terminations,no excavation or backfill, 50 mm diameter (2")	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Conduit Power Tools	49.800	0.341	0.161
160 240-0600	Conduit,galvanized rigid steel in trench underground with fittings & terminations,no excavation or backfill, 76 mm diameter (3")			32.480	0.523	0.246
160 240-1000	Conduit,galvanized rigid steel in trench underground with fittings & terminations,no excavation or backfill, 100 mm diameter (4")			22.340	0.761	0.358
<b>160 275</b>	<b>FLEXIBLE CONDUITS FOR MOTOR CONNECTIONS:</b>					
160 275-0040	Flexible Conduit With watertight fittings both ends; 0.6 meter Length Size 20 mm (3/4")	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	14.000	1.214	0.571
160 275-0080	Flexible Conduit With watertight fittings both ends; 0.6 meter Length Size 25 mm ( 1")			10.000	1.700	0.800
160 275-0160	Flexible Conduit With watertight fittings both ends; 0.6 meter Length Size 38 mm (1-1/2")			7.000	2.429	1.143
160 275-0200	Flexible Conduit With watertight fittings both ends; 0.6 meter Length Size 50 mm ( 2")			5.000	3.400	1.600
<b>160 290</b>	<b>WIREMOLD RACEWAY:</b>					
160 290-0110	Wiremold,raceway,surface,metal,straight section No.700	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power Tools Set	42.000	0.405	0.190
160 290-0600	Wiremold,raceway,surface,metal,straight section No.2000,base & cover			36.000	0.472	0.222
160 290-0800	Wiremold,raceway,surface,metal,straight section No.3000,base & cover			31.500	0.540	0.254
160 290-2400	Wiremold fitting; ELBOW & cover			48.000	0.354	0.167
160 290-2900	Wiremold fitting; TEE connector			30.000	0.567	0.267

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
160 290-3000	Wiremold fitting; Switch box	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power Tools Set	20.000	0.850	0.400
160 290-3600	Wiremold fitting; Junction box	"	"	20.000	0.850	0.400
<b>160 500 DUCTS</b>						
<b>160 540 TRENCH DUCT:</b>						
160 540-0200	Trench duct,steel with cover adjustable depths to 100mm, straight,single compartment, 300 mm wide	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power Tools	6.500	2.615	1.231
160 540-0600	Trench duct,steel with cover adjustable depths to 100mm, straight,single compartment, 600 mm wide			5.500	3.091	1.455
160 540-1000	Trench duct,steel with cover adjustable depths to 100mm, straight,single compartment, 900 mm wide			4.000	4.250	2.000
160 540-1400	Trench duct fitting; horizontal or vertical Elbow, 300 mm wide	EA		4.000	4.250	2.000
160 540-2200	Trench duct fitting; horizontal or vertical Elbow, 600 mm wide			2.500	6.800	3.200
160 540-3800	Trench duct; Cross fitting, 300 mm wide			2.500	6.800	3.200
160 540-4200	Trench duct; Cross fitting, 600 mm wide			1.500	11.333	5.333
160 540-5000	Trench duct fitting; End closure, 300 mm wide			8.000	2.125	1.000
160 540-5400	Trench duct fitting; End closure, 600 mm wide			6.000	2.833	1.333
160 540-6200	Trench duct fitting; TEE connection, 300 mm wide			2.500	6.800	3.200
160 540-8200	Trench duct fitting; Riser & cabinet connector, 900 mm wide			4.000	4.250	2.000
160 540-8400	Trench duct fitting; Insert assembly,cell to conduit adapter, 32 mm			20.000	0.850	0.400
<b>160 560 UNDERFLOOR DUCT:</b>						
160 560-0400	Floor trunking 35mm x 80mm with 22mm or 35mm inserts at 600mm O.C.	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power Tools	36.000	0.472	0.222
160 560-0600	Floor trunking 35mm x 180mm ,super duct with 22mm or 35mm inserts at 600mm O.C.			30.000	0.567	0.267
160 560-0800	Floor trunking fittings; Junction box,single duct, 1 level, 80mm			6.000	2.833	1.333
160 560-1000	Floor trunking fittings; Junction box,single duct, 1 level, 180mm			4.000	4.250	2.000
160 560-1400	Floor trunking fittings; Junction box, 2 duct, 1 level, 180mm			3.000	5.667	2.667
160 560-1600	Floor trunking fittings; Junction box,triple duct, 1 level, 80mm			3.000	5.667	2.667
160 560-1800	Floor trunking fittings; Insert to conduit adapter,19mm x 25mm			40.000	0.425	0.200

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
160 560-2200	Floor trunking fitting; Support,super duct cell 180mm wide			20.000	0.850	0.400
160 560-2400	Floor trunking fitting; Support,double cell 80mm wide	↓		20.000	0.850	0.400
160 560-2800	Floor trunking fitting; Vertical Elbow,standard duct 80 mm	EA		14.000	1.214	0.571
160 560-3000	Floor trunking fitting; Vertical Elbow,super duct 180 mm			11.000	1.545	0.727
160 560-3400	Floor trunking fitting; Cabinet connector,super duct 180mm			32.000	0.531	0.250
160 560-3600	Floor trunking fitting; Conduit adapter,25mm to 32mm			34.000	0.500	0.235
160 560-3800	Floor trunking fitting; Conduit adapter,50mm to 32mm			30.000	0.567	0.267
160 560-4000	Floor trunking fitting; Low tension Outlet,(telephone,computer,etc.)			12.000	1.417	0.667
160 560-4200	Floor trunking fitting; Receptacle outlet	↓	↓	12.000	1.417	0.667
<b>161</b>	<b>CONDUCTORS &amp; GROUNDING</b>					
<b>161 100</b>	<b>CONDUCTORS</b>					
<b>161 105</b>	<b>ARMORED CABLE:</b>					
161 105-0050	1 KV wire armored Cable,With PVC jacket,in cable tray;copper; 4 x 6 mm2	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	209.000	0.081	0.038
161 105-0250	1 KV wire armored Cable, With PVC jacket,in cable tray;copper; 3 x 50 + 25 mm2			93.000	0.183	0.086
161 105-0400	1 KV wire armored Cable, With PVC jacket,in cable tray;copper; 3 x 120 + 70 mm2			64.000	0.266	0.125
161 105-0550	1 KV wire armored Cable, With PVC jacket,in cable tray;copper; 3 x 240 + 120 mm2			46.000	0.370	0.174
161 105-0600	1 KV wire armored Cable, With PVC jacket,in cable tray;copper; 3 x 300 + 150 mm2			37.000	0.459	0.216
161 105-1700	1 KV wire armored Cable, With PVC jacket,in cable tray;aluminium; 3 x 50 + 25 mm2			102.000	0.167	0.078
161 105-2300	1 KV wire armored Cable, With PVC jacket,in cable tray;aluminium; 3 x 240 + 120 mm2			51.000	0.333	0.157
161 105-2500	1 KV wire armored Cable, With PVC jacket,in cable tray;aluminium; 3 x 300 + 150 mm2			41.000	0.415	0.195
161 105-5000	15 KV wire armored Cable,Shielded & With PVC jacket,in cable tray;copper; 3 x 25 mm2			68.000	0.250	0.118
161 105-5150	15 KV wire armored Cable,Shielded & With PVC jacket,in cable tray;copper; 3 x 95 mm2	↓	↓	57.000	0.298	0.140
161 105-5200	15 KV wire armored Cable,Shielded & With PVC jacket,in cable tray;copper; 3 x 120 mm2	LM	0.125 Electrical Foreman 1.000 Special Electrician 1.000 Helper 1.000 Tools Set	53.000	0.321	0.151

DIVISION16: ELECTRICAL							
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS	
161 105-5300	15 KV wire armored Cable,Shielded & With PVC jacket,in cable tray;copper; 3 x 185 mm2			46.000	0.370	0.174	
161 105-5350	15 KV wire armored Cable,Shielded & With PVC jacket,in cable tray;copper; 3 x 240 mm2			39.000	0.436	0.205	
161 105-5400	15 KV wire armored Cable,Shielded & With PVC jacket,in cable tray;copper; 3 x 300 mm2			31.000	0.548	0.258	
161 105-7200	15 KV wire armored Cable,Shielded & With PVC jacket,in cable tray;aluminium; 3 x 95 mm2			60.000	0.283	0.133	
161 105-7500	15 KV wire armored Cable,Shielded & With PVC jacket,in cable tray;aluminium; 3 x 150 mm2			53.000	0.321	0.151	
161 105-7700	15 KV wire armored Cable,Shielded & With PVC jacket,in cable tray;aluminium; 3 x 240 mm2			42.000	0.405	0.190	
161 105-7750	15 KV wire armored Cable,Shielded & With PVC jacket,in cable tray;aluminium; 3 x 300 mm2			33.000	0.515	0.242	
161 135 CONTROL CABLE:							
161 135-0200	1 KV control cable, 1.5 mm2, PVC jacket; 6 wires, installed in cable tray	LM	1 Electrician 1 Tools Set	300.000	0.027	0.027	
161 135-0300	1 KV control cable, 1.5 mm2, PVC jacket; 10 wires, installed in cable tray			250.000	0.032	0.032	
161 135-0600	1 KV control cable, 1.5 mm2, PVC jacket; 20 wires, installed in cable tray			160.000	0.050	0.050	
161 135-0700	1 KV control cable, 1.5 mm2, PVC jacket; 10 wires, installed in conduit		0.125 Electrical Foreman 1.000 Special Electrician 1.000 Helper 1.000 Electrician Tools Set	120.000	0.142	0.067	
161 135-0900	1 KV control cable, 1.5 mm2, PVC jacket; 20 wires, installed in conduit		0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	75.000	0.227	0.107	
161 137 FIBER OPTICS:							
161 137-0100	Fiber optic cable,labor depends on fiber type & type of connectors; Average labor	LM	0.125 Electrical Foreman 1.000 Special Electrician 1.000 Helper 1.000 Special Tools Set	250.000	0.068	0.032	
161 137-0200	Fiber optic cable connector	EA	1 Electrician 1 Tools Set	20.000	0.400	0.400	
161 137-0300	Fiber optic cable finger splice			25.000	0.320	0.320	
161 137-0400	Multi-channel rack enclosure, ( 10 Modules )			1.500	5.333	5.333	
161 137-0500	Fiber optic patch panel ( 12 points)			4.000	2.000	2.000	
161 140 MINERAL INSULATED CABLES:							
161 140-0400	1 KV ; mineral insulated cable, installed in cable tray, copper; 1 x 16 mm2	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Electrician Tools Set	100.000	0.170	0.080	



DIVISION16: ELECTRICAL											
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS					
161 140-0600	1 KV ; mineral insulated cable, installed in cable tray, copper; 1 x 50 mm2			70.000	0.243	0.114					
161 140-0900	1 KV ; mineral insulated cable, installed in cable tray, copper; 1 x 150 mm2			50.000	0.340	0.160					
161 140-1000	1 KV ; mineral insulated cable, installed in cable tray, copper; 1 x 240 mm2			40.000	0.425	0.200					
<b>161 145</b>	<b>NON- ARMORED CABLE:</b>										
161 145-0120	1 KV cable, PVC insulated, PVC Sheath,installed in cable tray, copper; 4 x 16 mm2	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	170.000	0.100	0.047					
161 145-0300	1 KV cable, PVC insulated, PVC Sheath,installed in cable tray, copper; 3 x 95 + 50 mm2			61.000	0.279	0.131					
161 145-0380	1 KV cable, PVC insulated, PVC Sheath,installed in cable tray, copper; 3 x 150 + 70 mm2			66.000	0.258	0.121					
161 145-0460	1 KV cable, PVC insulated, PVC Sheath,installed in cable tray, copper; 3 x 240 + 120 mm2			50.000	0.340	0.160					
161 145-0500	1 KV cable, PVC insulated, PVC Sheath,installed in cable tray, copper; 3 x 300 + 150 mm2			40.000	0.425	0.200					
161 145-0860	1 KV cable, PVC insulated, PVC Sheath,installed in cable tray, copper; 1 x 35 mm2			193.000	0.088	0.041					
161 145-0940	1 KV cable, PVC insulated, PVC Sheath,installed in cable tray, copper; 1 x 70 mm2			168.000	0.101	0.048					
161 145-1100	1 KV cable, PVC insulated, PVC Sheath,installed in cable tray, copper; 1 x 185 mm2			140.000	0.121	0.057					
161 145-1180	1 KV cable, PVC insulated, PVC Sheath,installed in cable tray, copper; 1 x 300 mm2			122.000	0.139	0.066					
161 145-1700	1 KV cable, PVC insulated, PVC Sheath,installed in conduit, copper; 3 x 25 + 16 mm2, including 2 terminations every 30 m run, conduit length up to 30 meter, conduits not included			102.000	0.333	0.078					
161 145-1860	1 KV cable, PVC insulated, PVC Sheath,installed in conduit, copper; 3 x 95 + 50 mm2, including 2 terminations every 30 m run, conduit length up to 30 meter, conduits not included			56.000	0.607	0.143					
161 145-1940	1 KV cable, PVC insulated, PVC Sheath,installed in conduit, copper; 3 x 150 + 70 mm2			51.000	0.667	0.157					
161 145-2220	1 KV cable, PVC insulated, PVC Sheath,installed in conduit, copper; 3 x 240 + 120 mm2			39.000	0.872	0.205					
161 145-2260	1 KV cable, PVC insulated, PVC Sheath,installed in conduit, copper; 3 x 300 + 150 mm2, including 2 terminations, conduits not included			31.000	1.097	0.258					
161 145-2680	1 KV cable, PVC insulated, PVC Sheath,installed in conduit, copper; 1 x 70 mm2, including 4 terminations per 100 meter	LM	0.250 Electrical Foreman 1.000 Electrician 3.000 Electrician Helper 1.000 Tools Set	131.000	0.260	0.061					
161 145-2840	1 KV cable, PVC insulated, PVC Sheath,installed in conduit, copper; 1 x 185 mm2, including 2 terminations per 100 meter			109.000	0.312	0.073					
161 145-2920	1 KV cable, PVC insulated, PVC Sheath,installed in conduit, copper; 1 x 300 mm2, including 2 terminations per 100 meter			95.000	0.358	0.084					
161 145-3000	For cables pulled in more than 30 meter run, add for every extra meter				5.00%	5.00%					

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>161 165 WIRES:</b>						
161 165-0060	0.6 To 1 KV, copper wire, THW or THHN, pulled in conduits, 4 mm2	LM	1 Electrician 2 Common Laborers 1 Tools Set	450.000	0.036	0.018
161 165-0100	0.6 To 1 KV, copper wire, THW or THHN, pulled in conduits, 6 mm2			360.000	0.044	0.022
161 165-0140	0.6 To 1 KV, copper wire, THW or THHN, pulled in conduits, 10 mm2			294.000	0.054	0.027
161 165-0180	0.6 To 1 KV, copper wire, THW or THHN, pulled in conduits, 16 mm2			204.000	0.078	0.039
161 165-0220	0.6 To 1 KV, copper wire, THW or THHN, pulled in conduits, 25 mm2			159.000	0.101	0.050
161 165-0380	0.6 To 1 KV, copper wire, THW or THHN, pulled in conduits, 95 mm2			90.000	0.267	0.089
161 165-0460	0.6 To 1 KV, copper wire, THW or THHN, pulled in conduits, 150 mm2			69.000	0.348	0.116
161 165-0540	0.6 To 1 KV, copper wire, THW or THHN, pulled in conduits, 240 mm2			60.000	0.400	0.133
161 165-0560	0.6 To 1 KV, copper wire, THW or THHN, pulled in conduits, 300 mm2			54.000	0.444	0.148
161 165-0740	0.6 To 1 KV, aluminium wire, THW or THHN, pulled in conduits, 6 mm2			432.000	0.037	0.019
161 165-0760	0.6 To 1 KV, aluminium wire, THW or THHN, pulled in conduits, 10 mm2			354.000	0.045	0.023
161 165-0840	0.6 To 1 KV, aluminium wire, THW or THHN, pulled in conduits, 25 mm2			195.000	0.082	0.041
161 165-1000	0.6 To 1 KV, aluminium wire, THW or THHN, pulled in conduits, 95 mm2			108.000	0.148	0.074
161 165-1160	0.6 To 1 KV, aluminium wire, THW or THHN, pulled in conduits, 240 mm2			72.000	0.222	0.111
161 165-1200	0.6 To 1 KV, aluminium wire, THW or THHN, pulled in conduits, 300 mm2			66.000	0.364	0.121
<b>161 500 TERMINATIONS</b>						
<b>161 520 CABLE TERMINATIONS:</b>						
161 520-0025	Wire connectors,screw type, 0.75 to 6 mm2	EA	1 Electrician	200.000	0.040	0.000
161 520-0035	Wire connectors,screw -on type,insulated, from 1 to 6 mm2			190.000	0.042	0.000
161 520-0040	Wire connectors,screw -on type,insulated, from 2 to 10 mm2			180.000	0.044	0.000
161 520-0045	Wire connectors,screw -on type,insulated, from 4 to 16 mm2			150.000	0.053	0.000
161 520-0100	Terminal lugs, solderless for wires, 6 to 25 mm2			40.000	0.200	0.000
161 520-0200	Terminal lugs, solderless for wires, 50 to 70 mm2			36.000	0.222	0.000
161 520-0325	Terminal lugs, solderless for wires, 150 mm2			20.000	0.400	0.000
161 520-0350	Terminal lugs, solderless for wires, 185 mm2			15.000	0.533	0.000
161 520-0375	Terminal lugs, solderless for wires, 240 mm2			10.000	0.800	0.000

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
161 520-0400	Terminal lugs, solderless for wires, 300 mm2			8.000	1.000	0.000
161 520-2000	Wire termination, 1 hole lug,crimp side,copper or aluminium, 25 mm2		1 Electrician 1 Crimping Tool	40.000	0.200	0.200
161 520-2400	Wire termination, 1 hole lug,crimp side,copper or aluminium, 50 mm2			36.000	0.222	0.222
161 520-3000	Wire termination, 1 hole lug,crimp side,copper or aluminium, 95 mm2			24.000	0.333	0.333
161 520-3400	Wire termination, 1 hole lug,crimp side,copper or aluminium, 150 mm2			20.000	0.400	0.400
161 520-3800	Wire termination, 1 hole lug,crimp side,copper or aluminium, 240 mm2			10.000	0.800	0.800
161 520-3900	Wire termination, 1 hole lug,crimp side,copper or aluminium, 300 mm2			8.000	1.000	1.000
<b>161 522 HIGH VOLTAGE CABLE TERMINATIONS:</b>						
161 522-0100	15 KV termination, cable 95 mm2 to indoor switchgear or transformer, premolded cone.	EA	0.125 Electrical Foreman 1.000 Electrical Joiner 1.000 Tools Set	6.000	1.500	1.333
161 522-0300	15 KV termination, cable 150 mm2 to indoor switchgear or transformer, premolded cone.			6.000	1.500	1.333
161 522-0500	15 KV termination, cable 185 mm2 to indoor switchgear or transformer, premolded cone.			6.000	1.500	1.333
161 522-0700	15 KV termination, cable 240 mm2 to indoor switchgear or transformer, premolded cone.			5.000	1.800	1.600
161 522-1000	15 KV termination, cable 300 mm2 to indoor switchgear or transformer, premolded cone.			5.000	1.800	1.600
<b>161 800 GROUNDING</b>						
<b>161 810 GROUNDING:</b>						
161 810-0030	Ground rod,copper clad, 2.4 m long, 20 mm diameter (3/4"), driven in standard soil.	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Common laborer 1.000 Power tool	10.000	1.700	0.800
161 810-0050	Ground rod,copper clad, 2.4 m long, 20 mm diameter (3/4"), driven in hard soil.	-	-	5.000	3.400	1.600
161 810-0100	Ground rod,copper clad, 3.0 m long, 20 mm diameter (3/4"), driven in hard soil.	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Common laborer 1.000 Power tool	4.000	4.250	2.000
161 810-0130	Ground rod,copper clad, 4.6 m long, 20 mm diameter (3/4"), driven in ordinary soil.			7.000	2.429	1.143
161 810-0200	Ground plate,copper 600x 600 mm, 1 meter deep, no excavation included			20.000	0.850	0.400
161 810-0600	Groundwire,bare copper, 35 mm2			500.000	0.034	0.016
161 810-0800	Groundwire,bare copper, 95 mm2			175.000	0.097	0.046
161 810-1000	Groundwire,bare copper, 150 mm2			150.000	0.113	0.053

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
161 810-1300	Groundwire,bare copper, 300 mm2			115.000	0.148	0.070
161 810-2100	Water pipe ground clamps,heavy duty bronze, 32 mm to 50 mm diameter			10.000	1.700	0.800
161 810-3100	Grounding,brazed connections, 35 mm2 cable			20.000	0.850	0.400
161 810-3100	Grounding,brazed connections, 95 mm2 cable			12.000	1.417	0.667
161 810-3200	Grounding,brazed connections, 150 mm2 cable			8.000	2.125	1.000
161 810-3700	Grounding,brazed connections, 300 mm2 cable			5.000	3.400	1.600
<b>162</b>	<b>BOXES &amp; WIRING DEVICES</b>					
<b>162 100</b>	<b>BOXES</b>					
<b>162 110</b>	<b>OUTLET BOXES</b>					
162 110-0020	Outlet Box, pressed steel,octagon or square, 100 mm	EA	1 Electrician	20.000	0.400	0.000
162 110-0100	Octagonal/square box extension cover, 100 mm			36.000	0.222	0.000
162 110-0250	Square outlet Box blank cover 100 mm			60.000	0.133	0.000
162 110-0300	Square outlet Box 100 mm, plaster ring cover raised			36.000	0.222	0.000
162 110-0650	Outlet Box,preserved steel,switch box "utility box" 100 mm x 50 mm			25.000	0.320	0.000
162 110-1100	Concrete floor,outlet box,1 gang			6.000	1.333	0.000
<b>162 130</b>	<b>PULL BOXES &amp; CABINETS:</b>					
162 130-0200	Pull box,sheet metal,NEMA 1, 200 mm x 200 mm, 100 mm deep	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power & Tools Set	11.000	1.545	0.727
162 130-0400	Pull box,sheet metal,NEMA 1, 400 mm x 500 mm, 200 mm deep			5.500	3.091	1.455
162 130-0600	Pull box,sheet metal,NEMA 1, 600 mm x 900 mm, 200 mm deep			3.500	4.857	2.286
162 130-0800	Hinged cabinet,sheet metal,NEMA 1 or NEMA 3R; 300 mm x 400 mm, 150 mm deep.			6.000	2.833	1.333
162 130-1200	Hinged cabinet,sheet metal,NEMA 1 or NEMA 3R; 500 mm x 500 mm, 200 mm deep.			4.250	4.000	1.882
162 130-1400	Hinged cabinet,sheet metal,NEMA 1 or NEMA 3R; 600 mm x 900 mm, 200 mm deep.			3.500	4.857	2.286
162 130-1600	Hinged cabinet,sheet metal,NEMA 1 or NEMA 3R; 600 mm x 1200 mm, 200 mm deep.			2.750	6.182	2.909
162 130-2200	Hinged cabinet,sheet metal,NEMA 1 or NEMA 3R; 800 mm x 600 mm, 300 mm deep.			2.500	6.800	3.200
162 130-2250	Hinged cabinet,sheet metal,NEMA 1 or NEMA 3R; 900 mm x 900 mm, 300 mm deep.			2.000	8.500	4.000
162 130-3050	Box/Cabinets,Cast Iron,surface mounted,NEMA 4,Weatherproof "WP" 150 x1 50 mm,150 mm deep.			5.500	3.091	1.455

DIVISION16: ELECTRICAL							
CSI CODE	ITEM DESCRIPTION	UNIT		CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
162 130-3200	Box/Cabinets,Cast Iron,surface mounted,NEMA 4,Weatherproof "WP" 300 x 300 mm,150 mm deep.				2.500	6.800	3.200
162 130-3350	Box/Cabinets,Cast Iron,surface mounted,NEMA 4,Weatherproof "WP" 600 x 450 mm, 200 mm deep.				1.000	17.000	8.000
162 130-3400	Box/Cabinets,Cast Iron,surface mounted,NEMA 4,Weatherproof "WP" 600 x 600 mm, 250 mm deep.				0.750	22.667	10.667
162 130-3450	Box/Cabinets,Cast Iron,surface mounted,NEMA 4,Weatherproof "WP" 760 x 600 mm, 300 mm deep.				0.500	34.000	16.000
162 130-3500	Box/Cabinets,Cast Iron,surface mounted,NEMA 4,Weatherproof "WP" 900 x 900 mm, 300 mm deep.				0.350	48.571	22.857
162 130-6400	Box/Cabinets,Cast Iron,surface mounted,NEMA 12,Dust&Drip tight, 300 x 400 mm, 150 mm deep.				7.000	2.429	1.143
162 130-6400	Box/Cabinets,Cast Iron,surface mounted,NEMA 12,Dust&Drip tight, 600 x 900 mm, 200 mm deep.				3.500	4.857	2.286
162 130-6450	Box/Cabinets,Cast Iron,surface mounted,NEMA 12,Dust&Drip tight, 600 x 1050 mm, 200 mm deep.			0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	3.500	4.857	2.286
162 130-6500	Box/Cabinets,Cast Iron,surface mounted,NEMA 12,Dust&Drip tight, 600 x 1200 mm, 200 mm deep.				2.750	6.182	2.909
162 130-7050	Cabinets for current transformer,single door, 600 x 600 mm, 250 mm deep.				2.250	7.556	3.556
162 130-7150	Cabinets for current transformer,single door,900 x 600 mm, 250 mm deep.				1.500	11.333	5.333
162 130-7300	Cabinets for current transformer,single door,900 x 900 mm, 250 mm deep.				1.000	17.000	8.000
162 130-7500	Cabinets for current transformer,double door,1200 x 900 mm, 250 mm deep.				0.900	18.889	8.889
162 130-7550	Cabinets for current transformer,double door,600 x 600 mm, 300 mm deep.				1.500	11.333	5.333
<b>162 300 WIRING DEVICES</b>							
<b>162 310 LOW VOLTAGE SWITCHING:</b>							
162 310-3600	Relays, 120v or 220 V standard	EA	1 Electrician		10.000	0.800	0.000
162 310-3800	Switch,flush or surface; Standard or Interchangeable.				36.000	0.222	0.000
162 310-4200	Low voltage switching,transformer 120 or 220V to 24V				10.000	0.800	0.000
162 310-4400	Low voltage switching,master control unit up to 25 circuits>manual or motorized.				3.000	2.667	0.000
162 310-4600	Low voltage switching,Silicon Rectifier.				10.000	0.800	0.000
162 310-5800	Switch plate, 3 gang, 9 switch,stainless steel				25.000	0.320	0.000
<b>162 320 WIRING DEVICES:</b>							
162 320-0200	Lighting switch,toggle,single pole,15A	EA	1 Electrician		32.000	0.250	0.000

DIVISION16: ELECTRICAL							
CSI CODE	ITEM DESCRIPTION	UNIT		CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
162 320-0600	Lighting switch,toggle, 3 Way, 15A				20.000	0.400	0.000
162 320-0900	Lighting switch,toggle, 4 Way, 15A				13.000	0.615	0.000
162 320-1800	Dimmer switch, 120V, 1000 watt incandescent, 1 pole				20.000	0.400	0.000
162 320-2100	Dimmer switch, 120 V, 2000 watt incandescent, 1 pole				12.000	0.667	0.000
162 320-2470	Duplex receptacle, 120 or 220 V, grounded, 20 A				32.000	0.250	0.000
162 320-2475	Duplex receptacle, 120 or 220 V, grounded fault interrupting, "GFI", 20 A				24.000	0.333	0.000
162 320-2490	Receptacle,single, 250 V, grounded, 30A				20.000	0.400	0.000
162 320-2500	Receptacle,single, 250 V, grounded, 50A				16.000	0.500	0.000
162 320-4100	Single interlocking receptacle, ceiling mounted, 120 or 220 V, grounded, 15 A				18.000	0.444	0.000
162 320-4840	Receptacle, corrosion resistsnt, 20 A, 250 V				18.000	0.444	0.000
162 320-4900	Receptacle/ switch cover plate				80.000	0.100	0.000
162 320-5100	Plug straight or angle 20 A				30.000	0.267	0.000
162 320-5160	Plug straight or angle 30 A				28.000	0.286	0.000
162 320-5210	Plug straight or angle 50 A				20.000	0.400	0.000
162 320-7100	Connector computer, 3 pole, 4 wire, 20 A				32.000	0.250	0.000
162 320-7040	Connector computer, 3 pole, 4 wire, 60 A				16.000	0.500	0.000
162 320-7050	Connector computer, 3 pole, 4 wire,100 A				8.000	1.000	0.000
162 320-8000	Lampholder,keyless				20.000	0.400	0.000
162 320-8100	Lampholder,pullchain with receptacle				18.000	0.444	0.000
<b>163</b>	<b>MOTORS,STARTERS,BOARDS &amp; SWITCHES</b>						
<b>163 100</b>	<b>STARTERS &amp; CONTROLS</b>						
<b>163 110</b>	<b>MOTOR CONTROL CENTERS:</b>						
163 110-0100	Manufactured structure consisting combination of motor circuit protector &starter full voltage non-reversed "FVNR", with control transformer ; 10 HP size 1; of 300 mm height	EA	1 Electrician 1 Tools Set		2.000	4.000	4.000
163 110-0200	Manufactured structure consisting combination of motor circuit protector &starter full voltage non-reversed "FVNR", with control transformer ; 25 HP size 1; of 457 mm height				1.750	4.571	4.571
163 110-0300	Manufactured structure consisting combination of motor circuit protector &starter full voltage non-reversed "FVNR", with control transformer ; 50 HP size 1; of 610 mm height				0.750	10.667	10.667

**DIVISION16: ELECTRICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
163 110-0350	Manufactured structure consisting combination of motor circuit protector & starter full voltage non-reversed "FVNR", with control transformer ; 75 HP size 1; of 610 mm height			0.650	12.308	12.308
163 110-0400	Manufactured structure consisting combination of motor circuit protector & starter full voltage non-reversed "FVNR", with control transformer ; 100 HP size 1; of 762 mm height			0.550	14.545	14.545
163 110-0500	Manufactured structure consisting combination of motor circuit protector & starter full voltage non-reversed "FVNR", with control transformer ; 200 HP size 1; of 1220 mm height			0.400	20.000	20.000
163 110-0600	Manufactured structure consisting combination of motor circuit protector & starter full voltage non-reversed "FVNR", with control transformer ; 400 HP size 1; of 1830 mm height			0.250	32.000	32.000
163 110-0900	MCC,300 A,22 KA IC, consisting number structure of starter units, combination of motor circuit protector & starter full voltage non-reversed "FVNR", with control transformer ,push buttons & pilot lights;combination of units up to 1.83 m high		0.125 Electrician Foreman 1.000 Electrician 3.000 Helpers 0.250 Equip. Operator 0.250 Crane 11 Ton 1.000 Tools Set	0.380	92.105	26.316

**163 130 MOTOR STARTERS & CONTROLS:**

163 130-0100	Magnetic motor starters full voltage non-reversed "FVNR" with enclosure & heaters, 220V, Size 0 - " 5 HP"	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power Tools Set	3.250	5.231	2.462
163 130-0300	Magnetic motor starters full voltage non-reversed "FVNR" with enclosure & heaters, 220V, Size 2 - "25 HP"			1.500	11.333	5.333
163 130-0600	Magnetic motor starters full voltage non-reversed "FVNR" with enclosure & heaters, 220V, Size 5 - "200 HP"			0.650	26.154	12.308
163 130-0700	Magnetic motor starters full voltage non-reversed "FVNR" combination with motor circuit protector,including enclosure & heaters Size 0			2.400	7.083	3.333
163 130-1000	Magnetic motor starters full voltage non-reversed "FVNR" combination with motor circuit protector,including enclosure & heaters Size 3 - "50 HP"	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power Tools Set	0.900	18.889	8.889
163 130-1200	Magnetic motor starters full voltage non-reversed "FVNR" combination with motor circuit protector,including enclosure & heaters Size 4 - " 100 HP"			0.550	30.909	14.545
163 130-1600	Magnetic motor starters full voltage non-reversed "FVNR" combination with fused switch,including enclosure & heaters Size 1 - "10 HP"			1.750	9.714	4.571
163 130-1800	Magnetic motor starters full voltage non-reversed "FVNR" combination with fused switch,including enclosure & heaters Size 2			1.500	11.333	5.333
163 130-2200	Magnetic motor starters full voltage non-reversed "FVNR" combination with fused switch,including enclosure & heaters Size 4			0.550	30.909	14.545

**163 200 BOARDS****163 205 CIRCUIT BREAKERS (in enclosure):**

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
163 205-0400	Circuit Breakers in NEMA 1 enclosure; 600V, 3 pole, 100A	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power Tools	3.500	4.857	2.286
163 205-0600	Circuit Breakers in NEMA 1 enclosure; 600V, 3 pole, 225A			2.250	7.556	3.556
163 205-0700	Circuit Breakers in NEMA 1 enclosure; 600V, 3 pole, 400A			1.500	11.333	5.333
163 205-1000	Circuit Breakers in NEMA 1 enclosure; 600V, 3 pole, 800A			0.750	22.667	10.667
<b>163 225 FUSE CABINETS:</b>						
163 225-0200	Fuse cabinets,127/220 V, 3 wire, 4 branches 30A,including plug fuses.	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power Tools	6.000	2.833	1.333
163 225-0500	Fuse cabinets,127/220 V, 3 wire, 12 branches 30A,including plug fuses.	"	"	3.000	5.667	2.667
<b>163 240 METER CENTERS:</b>						
163 240-2600	Meter board, fiberglass, rainproof, 3P, 4W, 127/227 V, consisting, Molded case C.B. & meter up to 200 A	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power Tools	1.250	13.600	6.400
163 240-2610	Meter board, fiberglass, rainproof, 3P, 4W, 127/227 V, consisting, main lugs 300 A & 3 each molded case C.B. & meter up to 100 A			0.620	27.419	12.903
163 240-2630	Meter board, fiberglass, rainproof, 3P, 4W, 127/227 V, consisting, main lugs 600 A & 6 each molded case C.B. & meter			0.430	39.535	18.605
163 240-2660	Meter board, fiberglass, rainproof, 3P, 4W, 127/227 V, consisting, main lugs 1000 A & 10 each molded case C.B. & meter			0.280	60.714	28.571
163 240-3770	Meter board, fiberglass, rainproof, 3P, 4W, 127/227 V, consisting, main circuit breaker 600 A & 6 each molded case C.B. & meter			0.400	42.500	20.000
<b>163 245 PANELBOARDS(Commercial use)</b>						
163 245-0150	Panelboard 2 Phase 3 Wire, 100 Amps Main lugs only (M.L.O); 127/220 V, including 10 branches, bolt-on type circuit breakers, 1P-20A	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Common Laborer 1.000 Power Tool	1.237	13.743	6.467
163 245-0250	Panelboard 2 Phase 3 Wire, 100 Amps Main lugs only (M.L.O); 127/220 V, including 18 branches, bolt-on type circuit breakers, 1P-20A			1.026	16.569	7.797
163 245-0350	Panelboard 2 Phase 3 Wire, 225 Amps Main lugs only (M.L.O); 127/220 V, including 24 branches, bolt-on type circuit breakers, 1P-20A			0.706	24.079	11.331
163 245-0400	Panelboard 2 Phase 3 Wire, 225 Amps Main lugs only (M.L.O); 127/220 V, including 30 branches, bolt-on type circuit breakers, 1P-20A			0.649	26.194	12.327
163 245-0550	Panelboard 2 Phase 3 Wire, 225 Amps Main lugs only (M.L.O); 127/220 V, including 42 branches, bolt-on type circuit breakers, 1P-20A			0.558	30.466	14.337
163 245-0600	Panelboard 3 Phase 4 Wire, 100 Amps Main lugs only (M.L.O); 127/220 V, including 12 branches, bolt-on type circuit breakers, 1P-20A			1.143	14.873	6.999



DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
163 245-0700	Panelboard 3 Phase 4 Wire,100 Amps Main lugs only (M.L.O); 127/220 V,including 20 branches,bolt-on type circuit breakers, 1P-20A			0.960	17.708	8.333
163 245-0800	Panelboard 3 Phase 4 Wire,100 Amps Main lugs only (M.L.O); 127/220 V,including 30 branches,bolt-on type circuit breakers, 1P-20A			0.800	21.250	10.000
163 245-0950	Panelboard 3 Phase 4 Wire, 225 Amps Main lugs only (M.L.O); 127/220 V,including 36 branches,bolt-on type circuit breakers, 1P-20A			0.571	29.772	14.011
163 245-1000	Panelboard 3 Phase 4 Wire, 225 Amps Main lugs only (M.L.O); 127/220 V,including 42 branches,bolt-on type circuit breakers, 1P-20A			0.533	31.895	15.009
163 245-1300	Panelboard 3 Phase 4 Wire,100 Amps Main lugs only (M.L.O); 220/380 V,including 20 branches,bolt-on type circuit breakers, 1P-20A			0.984	17.276	8.130
163 245-1350	Panelboard 3 Phase 4 Wire, 225 Amps Main lugs only (M.L.O); 220/380 V,including 24 branches,bolt-on type circuit breakers, 1P-20A			0.842	20.190	9.501
163 245-1400	Panelboard 3 Phase 4 Wire, 225 Amps Main lugs only (M.L.O); 220/380 V,including 30 branches,bolt-on type circuit breakers, 1P-20A			0.747	22.758	10.710
163 245-1460	Panelboard 3 Phase 4 Wire, 225 Amps Main lugs only (M.L.O); 220/380 V,including 42 branches,bolt-on type circuit breakers, 1P-20A			0.600	28.333	13.333
163 245-1750	Panelboard 2 Phase 3 Wire,100 Amps Main Circuit Breaker; 127/220 V,including 20 branches,bolt-on type circuit breakers, 1P-20A			0.984	17.276	8.130
163 245-1800	Panelboard 2 Phase 3 Wire, 225 Amps Main Circuit Breaker; 127/220 V,including 30 branches,bolt-on type circuit breakers, 1P-20A			0.649	26.194	12.327
163 245-1850	Panelboard 2 Phase 3 Wire, 225 Amps Main Circuit Breaker; 127/220 V,including 42 branches,bolt-on type circuit breakers, 1P-20A			0.558	30.466	14.337
163 245-1900	Panelboard 2 Phase 3 Wire, 400 Amps Main Circuit Breaker; 127/220 V,including 30 branches,bolt-on type circuit breakers, 1P-20A	↓	↓	0.510	33.333	15.686
163 245-1950	Panelboard 2 Phase 3 Wire, 400 Amps Main Circuit Breaker; 127/220 V,including 42 branches,bolt-on type circuit breakers, 1P-20A	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Common Laborer 1.000 Power Tool	0.453	37.528	17.660
163 245-2000	Panelboard 3 Phase 4 Wire,100 Amps Main Circuit Breaker; 127/220 V,including 24 branches,bolt-on type circuit breakers, 1P-20A			0.889	19.123	8.999
163 245-2100	Panelboard 3 Phase 4 Wire,100 Amps Main Circuit Breaker; 127/220 V,including 30 branches,bolt-on type circuit breakers, 1P-20A			0.800	21.250	10.000
163 245-2250	Panelboard 3 Phase 4 Wire, 225 Amps Main Circuit Breaker; 127/220 V,including 42 branches,bolt-on type circuit breakers, 1P-20A			0.533	31.895	15.009
163 245-2300	Panelboard 3 Phase 4 Wire,400 Amps Main Circuit Breaker; 127/220 V,including 42 branches,bolt-on type circuit breakers			0.419	40.573	19.093
163 245-2350	Panelboard 3 Phase 4 Wire, 600 Amps Main Circuit Breaker; 127/220 V,including 42 branches,bolt-on type circuit breakers,			0.363	46.832	22.039
163 245-2500	Panelboard 3 Phase 4 Wire,100 Amps Main Circuit Breaker; 220/380 V,including 24 branches,bolt-on type circuit breakers, 1P-20A			0.888	19.144	9.009
163 245-2550	Panelboard 3 Phase 4 Wire,100 Amps Main Circuit Breaker; 220/380 V,including 30 branches,bolt-on type circuit breakers, 1P-20A			0.784	21.684	10.204
163 245-2650	Panelboard 3 Phase 4 Wire, 225 Amps Main Circuit Breaker; 220/380 V,including 42 branches,bolt-on type circuit breakers, 1P-20A	↓	↓	0.638	26.646	12.539

DIVISION16: ELECTRICAL											
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS					
<b>163 250</b>	<b>PANELBOARD &amp; LOAD CENTER CIRCUIT BREAKERS:</b>										
163 250-0100	Install Circuit Breaker,bolt-on type,10 000 Amp.Interrupting Capacity, 127V,1 Pole, 15 to 50A, in panel	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Tools Set	15.000	0.600	0.533					
163 250-0300	Install Circuit Breaker,bolt-on type,10 000 Amp.Interrupting Capacity, 127V,1 Pole, 70A, in panel			10.000	0.900	0.800					
163 250-0400	Install Circuit Breaker,bolt-on type,10 000 Amp.Interrupting Capacity, 220V,2 Pole, 15 to 50A, in panel			6.700	1.343	1.194					
163 250-0600	Install Circuit Breaker,bolt-on type,10 000 Amp.Interrupting Capacity, 220V,2 Pole,100A, in panel			4.600	1.957	1.739					
163 250-0700	Install Circuit Breaker,bolt-on type,10 000 Amp.Interrupting Capacity, 220V,3 Pole, 15 to 60A, in panel			5.200	1.731	1.538					
163 250-0900	Install Circuit Breaker,bolt-on type,10 000 Amp.Interrupting Capacity, 220V,3 Pole,100A, in panel			3.200	2.813	2.500					
163 250-1000	Install Circuit Breaker,bolt-on type,22 000 Amp.Interrupting Capacity, 220V,2 Pole,70 to225A, in panel			2.900	3.103	2.759					
163 250-1100	Install Circuit Breaker,bolt-on type,22 000 Amp.Interrupting Capacity, 220V,3 Pole,70 to225A, in panel			2.300	3.913	3.478					
163 250-1200	Install Circuit Breaker,bolt-on type,14 000 Amp.Interrupting Capacity, 220V,1 Pole,15 to 30A, in panel			15.000	0.600	0.533					
163 250-1300	Install Circuit Breaker,bolt-on type,22 000 Amp.Interrupting Capacity, 380V,2 Pole,70 to225A, in panel			2.900	3.103	2.759					
163 250-1400	Install Circuit Breaker,bolt-on type,22 000 Amp.Interrupting Capacity, 380V,3 Pole,70 to225A, in panel			2.300	3.913	3.478					
<b>163 260</b>	<b>SWITCHBOARDS:</b>										
163 260-2000	Switchboard incoming main service section,copper bus bars, including CT's with compartments and Main Air Circuit Breaker drawout Type;127/220 V, 3 Phase 4 Wire, 1000 Amp.	EA	0.125 Electrical Foreman 1.000 Electrician 2.000 Common Laborer 1.000 Hydraulic Jacks 1.000 Tools Set	0.750	33.333	21.333					
163 260-2200	Switchboard incoming main service section,copper bus bars, including CT's with compartments and Main Air Circuit Breaker drawout Type;127/220 V, 3 Phase 4 Wire, 1600 Amp.			0.660	37.879	24.242					
163 260-2300	Switchboard incoming main service section,copper bus bars, including CT's with compartments and Main Air Circuit Breaker drawout Type;127/220 V, 3 Phase 4 Wire, 2000 Amp.			0.600	41.667	26.667					
163 260-2400	Switchboard incoming main service section,copper bus bars, including CT's with compartments and Main Air Circuit Breaker drawout Type;127/220 V, 3 Phase 4 Wire, 2500 Amp.			0.540	46.296	29.630					
163 260-2500	Switchboard incoming main service section,copper bus bars, including CT's with compartments and Main Air Circuit Breaker drawout Type;127/220 V, 3 Phase 4 Wire, 3000 Amp.			0.480	52.083	33.333					

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
163 260-2600	Switchboard incoming main service section,copper bus bars, including CT's with compartments and Main Air Circuit Breaker drawout Type;127/220 V, 3 Phase 4 Wire, 4000 Amp.			0.390	64.103	41.026
163 260-4600	Switchboard incoming main service section,copper bus bars, including CT's with compartments and Main Molded Case Circuit Breaker (MCCB), 127/220 V, 3 Phase 4 Wire, 600 Amp.			1.200	20.833	13.333
163 260-5000	Switchboard incoming main service section,copper bus bars, including CT's with compartments and Main Molded Case Circuit Breaker (MCCB), 127/220 V, 3 Phase 4 Wire, 1200 Amp.			0.750	33.333	21.333
163 260-5000	Switchboard incoming main service section,copper bus bars, including CT's with compartments and Main Molded Case Circuit Breaker (MCCB), 127/220 V, 3 Phase 4 Wire, 1600 Amp.			0.660	37.879	24.242
163 260-5000	Switchboard incoming main service section,copper bus bars, including CT's with compartments and Main Molded Case Circuit Breaker (MCCB), 127/220 V, 3 Phase 4 Wire, 2500 Amp.			0.540	46.296	29.630
<b>163 264 SWITCHBOARDS,DISTRIBUTION SECTION:</b>						
163 264-0200	Switchboard,distribution section,Copper bus bars,without breakers; 127/220 V or 220/380 V, 3 Phase, 4 Wire, 600 A.	EA	0.125 Electrical Foreman 1.000 Electrician 2.000 Common Laborer 1.000 Hydraulic Jacks 1.000 Tools Set	1.080	23.148	14.815
163 264-0600	Switchboard,distribution section,Copper bus bars,without breakers; 127/220 V or 220/380 V, 3 Phase, 4 Wire, 1600 A.	EA	0.125 Electrical Foreman 1.000 Electrician 2.000 Common Laborer 1.000 Hydraulic Jacks 1.000 Tools Set	0.594	42.088	26.936
163 264-0700	Switchboard,distribution section,aluminum bus bars,without breakers; 127/220 V or 220/380 V, 3 Phase, 4 Wire, 2000 A.			0.540	46.296	29.630
163 264-0800	Switchboard,distribution section,aluminum bus bars,without breakers; 127/220 V or 220/380 V, 3 Phase, 4 Wire, 2500 A.			0.486	51.440	32.922
163 264-0900	Switchboard,distribution section,aluminum bus bars,without breakers; 127/220 V or 220/380 V, 3 Phase, 4 Wire, 3000 A.			0.432	57.870	37.037
<b>163 266 SWITCHBOARDS,FEEDER SECTION:</b>						
163 266-0160	Switchboards,feeder section group mounted circuit breakers frame upto 60A, 1 pole	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Tools Set	15.000	0.600	0.533
163 266-0280	Switchboards,feeder section group mounted circuit breakers frame upto 100A, 1 pole			10.000	0.900	0.800
163 266-0420	Switchboards,feeder section group mounted circuit breakers frame 225 A, 3 pole			2.300	3.913	3.478
163 266-0430	Switchboards,feeder section group mounted circuit breakers frame 400 A, 3 pole			1.600	5.625	5.000
163 266-0460	Switchboards,feeder section group mounted circuit breakers frame 600 A, 3 pole			1.200	7.500	6.667
163 266-0490	Switchboards,feeder section group mounted circuit breakers frame 1200 A, 3 pole			0.800	11.250	10.000

<b>DIVISION16: ELECTRICAL</b>						
<b>CSI CODE</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>CREW STRUCTURE</b>	<b>DAILY OUTPUT</b>	<b>MAN HOURS</b>	<b>EQUIP. HOURS</b>
163 266-0500	Switchboards,feeder section group mounted fused switch 30/30A, 2 pole			6.700	1.343	1.194
163 266-0600	Switchboards,feeder section group mounted fused switch 100/100A, 2 pole			4.600	1.957	1.739
<b>163 268</b>	<b>SWITCHBOARD INSTRUMENTS:</b>					
163 268-0100	Switchboard instruments 3 phase, 4 wire,AC indicating,ammeter or voltmeter & switch	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Tools Set	10.000	0.900	0.800
163 268-0300	Switchboard instruments 3 phase, 4 wire,AC indicating,wattmeter			10.000	0.900	0.800
163 268-0400	Switchboard instruments 3 phase, 4 wire,AC recording,ammeter or voltmeter			5.000	1.800	1.600
163 268-0600	Switchboard instruments 3 phase, 4 wire,ground fault protection.			3.250	2.769	2.462
163 268-0800	Switchboard instruments Current transformers, up to 2000 A high side			5.000	1.800	1.600
163 268-0850	Switchboard instruments Current transformers, up to 4000 A high side			4.000	2.250	2.000
163 268-1300	Switchboard instruments fused potential transformer, 600V			8.000	1.125	1.000
<b>163 300</b>	<b>SWITCHES</b>					
<b>163 310</b>	<b>CONTACTORS:</b>					
163 310-0200	Lighting contactor, electrically or mechanically held, 600 V, 3P - 30 A	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power Tools	8.000	2.125	1.000
163 310-0400	Lighting contactor, electrically or mechanically held, 600 V, 3P - 100 A			5.500	3.091	1.455
163 310-0500	Lighting contactor, electrically or mechanically held, 600 V, 3P - 200 A			3.000	5.667	2.667
<b>163 320</b>	<b>CONTROL STATIONS:</b>					
163 320-0050	Control stations,NEMA 1, heavy duty,stop/start	EA	1 Electrician 1 Helper 1 Power Tools	12.000	1.333	0.667
163 320-0100	Control stations,NEMA 1, stop/start,pilot light			10.000	1.600	0.800
163 320-0200	Control stations,NEMA 1, hand/off/automatic			10.000	1.600	0.800
163 320-0400	Control stations,NEMA 1, stop/start/reverse			8.000	2.000	1.000
<b>163 350</b>	<b>RELAYS:</b>					
163 350-0050	Relay 600 V, 1P -12A, NEMA -1 enclosure	EA	1 Electrician 1 Helper 1 Power Tools	8.000	2.000	1.000
163 350-0100	Relay 600 V, 2P -12A, NEMA - 1 enclosure			7.500	2.133	1.067
163 350-0200	Relay 600 V, 4P -12A, NEMA - 1 enclosure			6.750	2.370	1.185
<b>163 360</b>	<b>SAFETY SWITCHES:</b>					

**DIVISION16: ELECTRICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
163 360-0200	Safety switch, general duty or heavy duty, 600 V, 3P- 60 A,fused.	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Power Tools	3.000	5.667	2.667
163 360-0300	Safety switch, general duty or heavy duty, 600 V, 3P- 100 A,fused.			2.750	6.182	2.909
163 360-0400	Safety switch, general duty or heavy duty, 600 V, 3P- 200 A,fused.			1.900	8.947	4.211
163 360-0500	Safety switch, general duty or heavy duty, 600 V, 3P- 400 A,fused.			1.250	13.600	6.400
163 360-0600	Safety switch, general duty or heavy duty, 600 V, 3P- 600 A,fused.			0.900	18.889	8.889
<b>163 500 MOTORS:</b>						
<b>163 520 MOTORS:</b>						
163 520-0100	Motors up to 480 V, 60 HZ Dripproof, 1800 RPM, 1 HP, 220 V	EA	1 Electrician 1 Tools Set	7.000	1.143	1.143
163 520-0250	Motors up to 480 V, 60 HZ Dripproof, 1800 RPM, 5 HP, 220 V			6.460	1.238	1.238
163 520-0350	Motors up to 480 V, 60 HZ Dripproof, 1800 RPM, 10 HP, 220 V			5.450	1.468	1.468
163 520-0450	Motors up to 480 V, 60 HZ Dripproof, 1800 RPM, 20 HP, 220 V	EA	1 Electrician 1 Tools Set	4.120	1.942	1.942
163 520-0650	Motors up to 480 V, 60 HZ Dripproof, 1800 RPM, 50 HP, 220 V			2.730	2.930	2.930
163 520-0800	Motors up to 480 V, 60 HZ Dripproof, 1800 RPM, 100 HP, 220 V			1.710	4.678	4.678
163 520-0950	Motors up to 480 V, 60 HZ Dripproof, 1800 RPM, 200 HP, 220 V			0.860	9.302	9.302
163 520-3000	Motors up to 480 V, 60 HZ Dripproof, 1800 RPM, 50 HP, 380 V			3.680	2.174	2.174
163 520-3600	Motors up to 480 V, 60 HZ Dripproof, 1800 RPM, 100 HP, 380 V			2.230	3.587	3.587
163 520-3950	Motors up to 480 V, 60 HZ Dripproof, 1800 RPM, 200 HP, 380 V			1.110	7.207	7.207
163 520-4800	Motors up to 480 V, 60 HZ Dripproof, 1800 RPM, 200 HP, 480 V			1.200	6.667	6.667
<b>164 TRANSFORMERS &amp; BUS DUCTS</b>						
<b>164 100 TRANSFORMERS</b>						
<b>164 120 DRY TYPE TRANSFORMER:</b>						
164 120-0700	Dry type transformer,single phase, 440 or 240 V primary 220 or 120 V secondary, 5 kVA	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	1.700	10.000	4.706
164 120-1100	Dry type transformer,single phase, 440 or 240 V primary 220 or 120 V secondary, 10 kVA		*	1.400	12.143	5.714
164 120-1500	Dry type transformer,single phase, 440 or 240 V primary 220 or 120 V secondary, 25 kVA		0.125 Electrical Foreman 2.000 Electricians 1.000 Helper 1.000 Tools Set	1.560	16.026	5.128

DIVISION16: ELECTRICAL					
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CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
164 120-1900	Dry type transformer,single phase, 440 or 240 V primary 220 or 120 V secondary, 50 kVA			1.000	25.000	8.000
164 120-2100	Dry type transformer,single phase, 440 or 240 V primary 220 or 120 V secondary, 75 kVA			0.850	29.412	9.412
164 120-2200	Dry type transformer,single phase, 480V Primary 20/240 V secondary,non vent, 25 kVA			1.400	17.857	5.714
164 120-2310	Dry type transformer, 3 phase, 220/380 V primary,127/220 V secondary,ventilated, 3 kVA		0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	1.200	14.167	6.667
164 120-3100	Dry type transformer, 3 phase, 220/380 V primary,127/220 V secondary,ventilated, 15 kVA		0.125 Electrical Foreman 2.000 Electricians 1.000 Helper 1.000 Tools Set	1.460	17.123	5.479
164 120-3700	Dry type transformer, 3 phase, 220/380 V primary,127/220 V secondary,ventilated, 75 kVA		0.250 Electrical Foreman 2.000 Electricians 1.000 Helper 0.250 Equipment Operator 0.125 Truck Crane 11 Ton 1.000 Tools Set	1.470	19.048	6.803
164 120-4100	Dry type transformer, 3 phase, 220/380 V primary,127/220 V secondary,ventilated,150 kVA			1.020	27.451	9.804
164 120-4500	Dry type transformer, 3 phase, 220/380 V primary,127/220 V secondary,ventilated, 300 kVA			0.750	37.333	13.333
164 120-4700	Dry type transformer, 3 phase, 220/380 V primary, 127/220 V secondary,ventilated, 500 kVA			0.580	48.276	17.241
164 120-4800	Dry type transformer, 3 phase, 220/380 V primary, 127/220 V secondary,ventilated, 750 kVA			0.450	62.222	22.222
164 120-5000	Dry type transformer, 3 phase, 13800 V primary, 127/220 V or 220/380 V secondary, 100 kVA			0.930	27.957	18.280
164 120-5200	Dry type transformer, 3 phase, 13800 V primary, 127/220 V or 220/380 V secondary, 500 kVA			0.510	50.980	33.333
164 120-5300	Dry type transformer, 3 phase, 13800 V primary, 127/220 V or 220/380 V secondary, 750 kVA			0.400	65.000	42.500
164 120-5400	Dry type transformer, 3 phase, 13800 V primary, 127/220 V or 220/380 V secondary, 1000 kVA			0.370	70.270	45.946
164 120-5500	Dry type transformer, 3 phase, 13800 V primary,127/220 V or 220/380 V secondary, 1500 kVA			0.310	83.871	54.839
164 120-5600	Dry type transformer, 3 phase, 13800 V primary, 127/220 V or 220/380 V secondary, 2000 kVA			0.270	96.296	62.963
164 120-5700	Dry type transformer, 3 phase, 13800 V primary, 127/220 V or 220/380 V secondary, 2500 kVA			0.230	113.043	73.913
164 120-7000	For dry type transformer installation in buildings floor, other than grade level add per floor	PERCENT		1.50%	2.50%	
<b>164 140</b>	<b>ISOLATING PANELS:</b>					

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
164 140-0100	Isolating panel in hospital critical care area or operating rooms,used with isolating transformer, 8 circuits 3 KVA	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	0.900	18.889	8.889
164 140-0400	Isolating panel in hospital critical care area or operating rooms,used with isolating transformer, 8 circuits 7.5 KVA			0.850	20.000	9.412
164 140-0600	Isolating panel in hospital critical care area or operating rooms,used with isolating transformer, 8 circuits 10 KVA			0.800	21.250	10.000
164 140-0600	Isolating panel in hospital X- RAY systems,used with isolating transformer, 8 circuits 15 KVA			0.750	22.667	10.667
164 140-0100	Isolating panel in hospital X- RAY systems,used with isolating transformer, 8 circuits 25 KVA			0.700	24.286	11.429
<b>164 160 OIL OR SILICON FILLED TRANSFORMER:</b>						
164 160-0100	Oil filled transformer pad mounted,Primary:Delta or Star, 13.8 kV,With taps; 127/220 or 220/380 V Secondary 3 Phase, 150 KVA	EA	0.125 Electrical Foreman 2.000 Electricians 1.000 Helper 0.125 Equipment Operator 0.125 Truck Crane 11 Ton 2.000 Tools Set	0.700	37.143	24.286
164 160-0200	Oil filled transformer pad mounted,Primary:Delta or Star, 13.8 kV,With taps; 127/220 or 220/380 V Secondary 3 Phase, 300 KVA			0.520	50.000	32.692
164 160-0300	Oil filled transformer pad mounted,Primary:Delta or Star, 13.8 kV,With taps; 127/220 or 220/380 V Secondary 3 Phase, 500 KVA			0.490	53.061	34.694
164 160-0400	Oil filled transformer pad mounted,Primary:Delta or Star, 13.8 kV,With taps; 127/220 or 220/380 V Secondary 3 Phase, 750 KVA			0.380	68.421	44.737
164 160-0500	Oil filled transformer pad mounted,Primary:Delta or Star, 13.8 kV,With taps; 127/220 or 220/380 V Secondary 3 Phase, 1000 KVA			0.350	74.286	48.571
164 160-0600	Oil filled transformer pad mounted,Primary:Delta or Star, 13.8 kV,With taps; 127/220 or 220/380 V Secondary 3 Phase, 1500 KVA			0.300	86.667	56.667
164 160-0700	Oil filled transformer pad mounted,Primary:Delta or Star, 13.8 kV,With taps; 127/220 or 220/380 V Secondary 3 Phase, 2000 KVA			0.250	104.000	68.000
164 160-0800	Oil filled transformer pad mounted,Primary:Delta or Star, 13.8 kV,With taps; 127/220 or 220/380 V Secondary 3 Phase, 3750 KVA			0.190	136.842	89.474
<b>164 200 BUS DUCTS/BUSWAYS</b>						
<b>164 220 COPPER BUS DUCT:</b>						
164 220-1500	Copper bus duct plug-in,indoor, 3 pole 4 wire,straight section, 600 A.	LM	0.125 Electrical Foreman 1.000 Special Electrician 1.000 Helper 0.125 Equip. Operator 0.125 Truck Crane 11 Ton 1.000 Tools Set	5.000	3.600	1.800
164 220-2450	Copper bus duct plug-in,indoor, 3 pole 4 wire,straight section, 1000 A.			3.500	5.143	2.571

**DIVISION16: ELECTRICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
164 220-2500	Copper bus duct plug-in,indoor, 3 pole 4 wire,straight section, 1600 A.			2.500	7.200	3.600
164 220-2510	Copper bus duct plug-in,indoor, 3 pole 4 wire,straight section, 2000 A.			1.950	9.231	4.615
164 220-2520	Copper bus duct plug-in,indoor, 3 pole 4 wire,straight section, 2500 A.			1.550	11.613	5.806
164 220-2550	Copper bus duct plug-in,indoor, 3 pole 4 wire,straight section, 3000 A.			1.200	15.000	7.500
164 220-2600	Copper bus duct plug-in,indoor, 3 pole 4 wire,straight section, 4000 A.			0.900	20.000	10.000
164 220-2800	Copper bus duct plug-in,outdoor "WP", including framed supports,3 pole 4 wire feeder Section, 2000 A			1.500	12.000	6.000
164 220-2900	Copper bus duct plug-in,outdoor "WP", including framed supports,3 pole 4 wire feeder Section, 3000 A			0.900	20.000	10.000
164 220-3000	Copper bus duct plug-in,outdoor "WP", including framed supports,3 pole 4 wire feeder Section, 4000 A			0.700	25.714	12.857
164 220-3300	Copper bus duct accessories: Elbow, 600 A			2.000	9.000	4.500
164 220-3600	Copper bus duct accessories: Elbow, 1600 A			1.500	12.000	6.000
164 220-3700	Copper bus duct accessories: Elbow, 2000 A			1.200	15.000	7.500
164 220-3800	Copper bus duct accessories: Elbow, 2500 A			1.000	18.000	9.000
164 220-3850	Copper bus duct accessories: Elbow, 3000 A			0.900	20.000	10.000
164 220-3900	Copper bus duct accessories: Elbow, 4000 A			0.800	22.500	11.250
164 220-4200	Copper bus duct accessories: End box, 600 A			20.000	0.900	0.450
164 220-4450	Copper bus duct accessories: End box, 1600 A			15.000	1.200	0.600
164 220-4500	Copper bus duct accessories: End box, 2000 A			13.000	1.385	0.692
164 220-4550	Copper bus duct accessories: End box, 2500 A			12.000	1.500	0.750
164 220-4600	Copper bus duct accessories: End box, 3000 A			10.000	1.800	0.900
164 220-4650	Copper bus duct accessories: End box, 4000 A			8.000	2.250	1.125
164 220-5100	Copper bus duct accessories: Cable tap box, 600 A			1.750	10.286	5.143
164 220-5400	Copper bus duct accessories: Cable tap box, 1600 A			1.000	18.000	9.000
164 220-5500	Copper bus duct accessories: Cable tap box, 2000 A			0.750	24.000	12.000
164 220-5600	Copper bus duct accessories: Cable tap box, 2500 A			0.500	36.000	18.000
164 220-6200	Copper bus duct accessories: Switchboard stub, 1600 A			2.000	9.000	4.500
164 220-6325	Copper bus duct accessories: Switchboard stub, 2500 A			1.500	12.000	6.000
164 220-6350	Copper bus duct accessories: Switchboard stub, 3000 A			1.250	14.400	7.200



DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
164 220-6375	Copper bus duct accessories: Switchboard stub, 4000 A			1.000	18.000	9.000
164 220-6900	Copper bus duct accessories: Tee fitting, 1600 A			0.750	24.000	12.000
164 220-6950	Copper bus duct accessories: Tee fitting, 2000 A			0.550	32.727	16.364
164 220-7000	Copper bus duct accessories: Tee fitting, 2500 A			0.500	36.000	18.000
164 220-7400	Copper bus duct accessories: Plug-in Switch, 100 A	↓	↓	4.000	4.250	2.000
164 220-7600	Copper bus duct accessories: Plug-in Switch, 400 A	LM	0.125 Electrical Foreman 1.000 Special Electrician 1.000 Helper 1.000 Tools Set	1.250	13.600	6.400
164 220-8100	Copper bus duct accessories: Plug-in Molded Case Circuit Breaker (MCCB), 70 to 100 A			5.000	3.400	1.600
164 220-8200	Copper bus duct accessories: Plug-in Molded Case Circuit Breaker (MCCB), 150 to 225 A			3.000	5.667	2.667
164 220-8300	Copper bus duct accessories: Plug-in Molded Case Circuit Breaker (MCCB), 250 to 400 A			1.250	13.600	6.400
164 220-8400	Copper bus duct accessories: Plug-in Molded Case Circuit Breaker (MCCB), 500 to 600 A			0.850	20.000	9.412
164 220-8500	Copper bus duct accessories: Plug-in Molded Case Circuit Breaker (MCCB), 700 to 800 A			0.750	22.667	10.667
164 220-8600	Copper bus duct accessories: Plug-in Molded Case Circuit Breaker (MCCB), 900 to 1000 A			0.600	28.333	13.333
164 220-8700	Copper bus duct accessories: Plug-in Molded Case Circuit Breaker (MCCB), 1200 A	↓	↓	0.450	37.778	17.778
<b>165</b>	<b>POWER SYSTEMS &amp; CAPACITORS</b>					
<b>165 100</b>	<b>POWER SYSTEMS</b>					
<b>165 120</b>	<b>GENERATOR SET: COMPLETE WITH ELECTROMECH CONNECTIONS UP TO 20 METERS DISTANCE</b>					
165 120-0400	Generator set,gas or gasoline operated,includes battery,charger,muffler & transfer switch 3 phase, 4 wire, up to 220/380 V; 15 KW	EA	1.000 Skilled Forman 3.000 Skilled Workers 0.250 Equip. Operator 2.000 Common Laborer 0.250 Crane 11 Ton 2.000 Power Tools, Hydraulic 1.000 Tools Set	0.900	55.556	28.889
165 120-0600	Generator set,gas or gasoline operated,includes battery,charger,muffler & transfer switch 3 phase, 4 wire, up to 220/380 V; 70 KW			0.625	80.000	41.600
165 120-0800	Generator set,gas or gasoline operated,includes battery,charger,muffler & transfer switch 3 phase, 4 wire, up to 220/380 V; 115 KW			0.450	111.111	57.778
165 120-2300	Generator set,diesel engine,including battery,charger,muffler,transfer switch & daily fuel tank, 3 Phase, 4 Wire Up to 220/380 V; Capacity 100 KW			0.300	166.667	86.667
165 120-2500	Generator set,diesel engine,including battery,charger,muffler,transfer switch & daily fuel tank, 3 Phase, 4 Wire Up to 220/380 V; Capacity 150 KW			0.275	181.818	94.545

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
165 120-2600	Generator set,diesel engine,including battery,charger,muffler,transfer switch & daily fuel tank, 3 Phase, 4 Wire Up to 220/380 V; Capacity 200 KW			0.250	200.000	104.000
165 120-2700	Generator set,diesel engine,including battery,charger,muffler,transfer switch & daily fuel tank, 3 Phase, 4 Wire Up to 220/380 V; Capacity 300 KW			0.225	222.222	115.556
165 120-2800	Generator set,diesel engine,including battery,charger,muffler,transfer switch & daily fuel tank, 3 Phase, 4 Wire Up to 220/380 V; Capacity 400 KW			0.200	250.000	130.000
165 120-3000	Generator set,diesel engine,including battery,charger,muffler,transfer switch & daily fuel tank, 3 Phase, 4 Wire Up to 220/380 V; Capacity 600 KW			0.180	277.778	144.444
165 120-3100	Generator set,diesel engine,including battery,charger,muffler,transfer switch & daily fuel tank, 3 Phase, 4 Wire Up to 220/380 V; Capacity 900 KW			0.125	400.000	208.000
165 120-3200	Generator set,diesel engine,including battery,charger,muffler,transfer switch & daily fuel tank, 3 Phase, 4 Wire Up to 220/380 V; Capacity 1200 KW	↓	↓	0.100	500.000	260.000
<b>165 125 TRANSFER SWITCHES:</b>						
165 125-0300	Automatic transfer switch in NEMA 1 enclosure, 600 A	EA	0.125 Electrical Foreman 1.000 Special Electrician 1.000 Helper 1.000 Tools Set	0.900	18.889	8.889
165 125-0400	Automatic transfer switch in NEMA 1 enclosure, 1000 A			0.750	22.667	10.667
165 125-0500	Automatic transfer switch in NEMA 1 enclosure, 1200 A			0.700	24.286	11.429
165 125-0600	Automatic transfer switch in NEMA 1 enclosure, 1600 A			0.600	28.333	13.333
165 125-0700	Automatic transfer switch in NEMA 1 enclosure, 2000 A			0.500	34.000	16.000
165 125-1100	Manual transfer switch in NEMA 1 enclosure, 200 A			1.750	9.714	4.571
165 125-1200	Manual transfer switch in NEMA 1 enclosure, 400 A			1.250	13.600	6.400
165 125-1300	Manual transfer switch in NEMA 1 enclosure, 600 A	↓	↓	1.000	17.000	8.000
<b>165 200 CAPACITORS</b>						
<b>165 210 CAPACITORS:</b>						
165 210-0150	Capacitor indoor, 220V,single Phase & 3 phase, 2.5 KVAR	EA	0.125 Electrical Foreman 1.000 Special Electrician 1.000 Helper 1.000 Tools Set	3.500	4.857	2.286
165 210-0200	Capacitor indoor, 220V,single Phase & 3 phase, 5.0 KVAR			2.500	6.800	3.200
165 210-0300	Capacitor indoor, 220V,single Phase & 3 phase, 10 KVAR			2.000	8.500	4.000
165 210-1000	Capacitor indoor, 220V,single Phase & 3 phase, 25 KVAR			1.500	11.333	5.333
165 210-1150	Capacitor indoor, 380V,single Phase & 3 phase, 5 KVAR			3.000	5.667	2.667
165 210-1250	Capacitor indoor, 380V,single Phase & 3 phase, 15 KVAR			2.750	6.182	2.909
165 210-1350	Capacitor indoor, 380V,single Phase & 3 phase, 30 KVAR			2.000	8.500	4.000

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
165 210-1450	Capacitor indoor, 380V,single Phase & 3 phase, 50 KVAR	↓	↓	1.750	9.714	4.571
166	LIGHTING					
166 100 LIGHTING						
166 110 EXIT AND EMERGENCY LIGHTING:						
166 110-0080	Exit lighting fixture, ceiling or wall mount, incandescent,single face.	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	14.000	1.214	0.571
166 110-0100	Exit lighting fixture, ceiling or wall mount, incandescent,double face.			11.000	1.545	0.727
166 110-0300	Emergency lighting fixture,battery operated,twin sealed beam lights, 25W, 6V each.			8.000	2.125	1.000
166 110-0900	Emergency lighting fixture, self-contained fluorescent lamp pack	↓	↓	15.000	1.133	0.533
166 115 EXTERIOR FIXTURES:						
166 115-0200	Exterior lighting fixture with lamp wall mounted,incandescent, 100 W	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	25.000	0.680	0.320
166 115-0400	Exterior lighting fixture with lamp, floodlight,quartz, 500 W, wall mounted			20.000	0.850	0.400
166 115-0600	Exterior lighting fixture with lamp,floodlight,mercury vapor, 100 W, wall mounted			10.000	1.700	0.800
166 115-0800	Exterior lighting fixture,wall pack,discharge lamp up to 250 Watt.			10.000	1.700	0.800
166 115-1000	Exterior fixture,floodlights with ballast and lamp,pole mounted,pole not included Mercury Vapor,metal halide or sodium, 175 W			6.000	2.833	1.333
166 115-1400	Exterior fixture,floodlights with ballast and lamp,pole mounted,pole not included Mercury Vapor,metal halide or sodium, 250 W			6.000	2.833	1.333
166 115-1600	Exterior fixture,floodlights with ballast and lamp,pole mounted,pole not included Mercury Vapor,metal halide or sodium, 400 W			5.000	3.400	1.600
166 115-1800	Exterior fixture,floodlights with ballast and lamp,pole mounted,pole not included Mercury Vapor,metal halide or sodium, 1000 W			8.000	2.125	1.000
166 115-2840	Exterior Light Pole,Aluminium, anchor base without concrete, 2.5 meter high		↓	7.000	2.429	1.143
166 115-3000	Exterior Light Pole,Aluminium, anchor base without concrete, 6.0 meter high		0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Equip. Operator 1.000 Truck Crane 11 Ton 1.000 Tools Set	6.000	4.167	2.667
166 115-3200	Exterior Light Pole,Aluminium, anchor base without concrete, 9.0 meter high			4.500	5.556	3.556
166 115-3600	Exterior Light Pole,Aluminium, anchor base without concrete, 12 meter high			3.500	7.143	4.571
166 115-3800	Exterior Light pole bracket arms, 1 arm, Steel or Aluminium			10.000	2.500	1.600

**DIVISION16: ELECTRICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
166 115-4000	Exterior Light pole bracket arms, 2 arms, Steel or aluminium			9.000	2.778	1.778
166 115-4400	Exterior Light pole bracket arms, 4 arms, Steel or Aluminium			7.000	3.571	2.286
166 115-4500	Exterior Light Pole, Steel, anchor base without concrete, 2.5 meter high		0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	6.000	2.833	1.333
166 115-4600	Exterior Light Pole, Steel, anchor base without concrete, 6.0 meter high		0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Equip. Operator 1.000 Truck Crane 11 Ton 1.000 Tools Set	5.000	5.000	3.200
166 115-4800	Exterior Light Pole, Steel, anchor base without concrete, 9.0 meter high			4.000	6.250	4.000
166 115-5200	Exterior Light Pole, Steel, anchor base without concrete, 12 meter high			3.000	8.333	5.333
166 115-6100	Exterior Light Pole, Fiberglass, anchor base without concrete, 6.0 meter high			8.000	3.125	2.000
166 115-6200	Exterior Light Pole, Fiberglass, anchor base without concrete, 9.0 meter high			7.000	3.571	2.286
166 115-6500	Exterior, Bollard light,including mercury fixture 175 watt,lamp, ballast & polycarbonate lens, 1.00 m high		0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	6.000	2.833	1.333
166 115-7100	Exterior, Bollard light,including sodium fixture up to 150 watt,lamp, ballast & polycarbonate lens, 1.00 m high			6.000	2.833	1.333
166 115-7400	Exterior Landscape recessed uplight, including housing,ballast,transformer & reflector, mercury 100 watt			9.000	1.889	0.889
166 115-7400	Exterior Landscape recessed uplight, including housing,ballast,transformer & reflector, incandescent 100 watt			10.000	1.700	0.800
166 115-7440	Exterior Landscape recessed uplight, including housing,ballast,transformer & reflector, Quartz 250 watt			9.000	1.889	0.889
166 115-7460	Exterior Landscape recessed uplight, including housing,ballast,transformer & reflector, Quartz 500 watt			8.000	2.125	1.000
<b>166 130 INTERIOR LIGHTING FIXTURES (ILF)</b>						
166 130-0200	Interior fluorescent fixture recessed mounted, with lens 300 x 1200 mm, 2 x 40 watt	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	9.000	1.889	0.889
166 130-0400	Interior fluorescent fixture recessed mounted, with lens 600 x 1200 mm , 2 x 40 watt			8.000	2.125	1.000
166 130-0600	Interior fluorescent fixture recessed mounted, with lens 600 x 1200 mm, 4 x 40 watt			7.000	2.429	1.143
166 130-0660	Interior fluorescent fixture recessed mounted, with lens 600 x 600 mm, 4 x 20 watt			9.000	1.889	0.889
166 130-0900	Interior fluorescent fixture recessed mounted, with lens 1200 x 1200 mm , 8 x 40 watt			4.500	3.778	1.778

**DIVISION16: ELECTRICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
166 130-1100	Interior fluorescent fixture surface mounted, with lens & latched door frame, 300 x 1200 mm, 2 x 40 W	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	11.000	1.545	0.727
166 130-1110	Interior fluorescent fixture surface mounted, with lens & latched door frame, 300 x 1200 mm, 3 x 40 W			10.000	1.700	0.800
166 130-1500	Interior fluorescent fixture surface mounted, with lens & latched door frame, 600 x 1200 mm, 4 x 40 W			8.000	2.125	1.000
166 130-1560	Interior fluorescent fixture surface mounted, with lens & latched door frame, 600 x 600 mm, 4 x 20 W			10.000	1.700	0.800
166 130-1600	Interior fluorescent fixture surface mounted, with lens & latched door frame, 1200 x 1200 mm, 4 x 40 W			6.000	2.833	1.333
166 130-1700	Interior fluorescent fixture surface mounted, with lens & latched door frame, 1200 x 1200 mm, 6x 40 W			5.600	3.036	1.429
166 130-1800	Interior fluorescent fixture surface mounted, with lens & latched door frame, 1200 x 1200 mm, 8 x 40 W			4.800	3.542	1.667
166 130-1900	Interior fluorescent fixture surface mounted, with lens & latched door frame, 600 x 2400 mm, 4 x 40 W			5.600	3.036	1.429
166 130-2000	Interior fluorescent fixture surface mounted, with lens & latched door frame, 600 x 2400 mm, 8 x 40 W			4.800	3.542	1.667
166 130-2100	Interior Strip fluorescent fixture, surface mounted, 1200 mm long, 1 x 40 Watt, rapid start.			14.000	1.214	0.571
166 130-2200	Interior Strip fluorescent fixture, surface mounted, 1200 mm long, 2 x 40 Watt, rapid start.			13.000	1.308	0.615
166 130-2300	Interior Strip fluorescent fixture, surface mounted, 1200 mm long, 2 x 40 Watt, slimline.			13.000	1.308	0.615
166 130-2700	Interior Strip fluorescent fixture, surface mounted, 2400 mm long, 2 x 75 Watt, slimline.			11.000	1.545	0.727
166 130-2800	Interior Strip fluorescent fixture, surface mounted, 1200 mm long, 2 x 60 Watt, rapid start.			11.700	1.453	0.684
166 130-3100	Interior pendant fluorescent fixture, industrial with white porcelain enamel open reflector,			9.000	1.889	0.889
166 130-3200	Interior pendant fluorescent fixture, industrial with white porcelain enamel open reflector,			8.000	2.125	1.000
166 130-3250	Interior pendant fluorescent fixture, industrial with white porcelain enamel open reflector,			7.000	2.429	1.143
166 130-3300	Interior pendant fluorescent fixture, industrial with white porcelain enamel open reflector, 2400 mm long, 2 x 110 Watt.			6.000	2.833	1.333
166 130-3470	Interior fluorescent fixture troffer, air handling type, 600 x 1200 mm, 4 x 40 Watt rapid start, complete with 150 mm diameter air connector.			6.000	2.833	1.333
166 130-3480	Interior fluorescent fixture troffer, air handling type, 600 x 600 mm, 4 x 20 Watt rapid start, complete with 150 mm diameter air connector.			8.000	2.125	1.000
166 130-3700	Interior Mercury Vapor lighting fixture, integral ballast, ceiling recess mounted, prismatic glass lens, floating door, 600 x 600 mm, 250 W Deluxe white lamp.			5.000	3.400	1.600

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
166 130-3800	Interior Mercury Vapor lighting fixture,integral ballast,ceiling recess mounted, prismatic glass lens,floating door, 600 x 600 mm , 400 W Deluxe white lamp.			4.500	3.778	1.778
166 130-3900	Interior Mercury Vapor lighting fixture,integral ballast,ceiling, surface mounted, prismatic glass lens,floating door, 600 x 600 mm , 400 W Deluxe white lamp.			4.000	4.250	2.000
166 130-4000	Interior Mercury Vapor fixture,High bay,Aluminium reflector,integral ballast, 400 W Deluxe white lamp.			3.750	4.533	2.133
166 130-4100	Interior Mercury Vapor fixture,High bay,Aluminium reflector,integral ballast, 1000 W Deluxe white lamp.			3.000	5.667	2.667
166 130-4200	Interior Mercury Vapor fixture,High bay,Aluminium reflector,integral ballast, Twin unit, 400 W Deluxe white lamp.			2.500	6.800	3.200
166 130-4480	Indoor incandescent fixture, high hat can,round alzak reflector up to 150 W			13.000	1.308	0.615
166 130-4500	Indoor incandescent fixture, high hat can,round alzak reflector 300 W			11.000	1.545	0.727
166 130-4700	Indoor incandescent fixture, square glass lens with metal trim, up to 200 W			11.000	1.545	0.727
166 130-4800	Indoor incandescent fixture, square glass lens with metal trim, 300 W			10.000	1.700	0.800
166 130-4920	Indoor incandescent fixture, ceiling /wall mounted,metal cylinder, up to 150 W			16.000	1.063	0.500
166 130-5200	Indoor incandescent fixture, ceiling,surface mounted,opal glass drum, 200 mm, 1 x 60 watt lamp.			16.000	1.063	0.500
166 130-5400	Indoor incandescent fixture, ceiling,surface mounted,opal glass drum, 250 mm, 2 x 60 watt lamp.			13.000	1.308	0.615
166 130-5500	Indoor incandescent fixture, ceiling,surface mounted,opal glass drum, 300 mm, 4 x 60 watt lamp.			11.000	1.545	0.727
166 130-6010	Indoor incandescent fixture, vapor tight, ceiling mounted, 200 Watt.			12.000	1.417	0.667
166 130-6100	Indoor,Vapor tight fluorescent fixture,surface mounted, 1200 mm long,rapid start, 2 x 40 Watt.			5.000	3.400	1.600
166 130-6200	Indoor,Vapor tight Mercury Vapor fixture,integral ballast,surface mounted, 175 Watt.			6.000	2.833	1.333
166 130-6300	Indoor,Explosionproof incandescent fixture, ceiling mounted, 200W			6.000	2.833	1.333
166 130-6600	Indoor,explosionproof fluorescent fixture,1200 mm long,ceiling mounted, 2 x 40 Watt,rapid start.			4.000	4.250	2.000
166 130-6700	Indoor,Explosionproof,Mercury vapor with ballast,surface mounted, 175W			5.000	3.400	1.600
166 130-6850	Indoor,Vandalproof fluorescent fixture,surface mounted, 2 x 40 Watt.			5.000	3.400	1.600
166 130-6860	Indoor,Vandalproof incandescent fixture,surface mounted, 1 x 150 Watt.			13.000	1.308	0.615
166 130-7500	Lighting fixture,Ballast replacement, up to 4.2 m high,up to 0.9 kg ballast weight.	↓	↓	20.000	0.850	0.400
166 130-7540	Lighting fixture,Ballast replacement, up to 4.2 m high,from 0.9 to 2.3 kg ballast weight.	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	18.000	0.944	0.444
166 130-7580	Lighting fixture,Ballast replacement, up to 4.2 m high,above 2.3 kg ballast weight.			16.000	1.063	0.500

DIVISION16: ELECTRICAL										
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS				
166 130-7640	Lighting fixture,Electronic or Dimmable Ballast replacement, up to 4.2 m high,for 2 Lamp.			16.000	1.063	0.500				
166 130-7650	For Indoor Lighting fixture & Ballast s Installation in more than 1 floor building, add per additional floor to above items				0.015	0.000				
166 130-8250	Indoor incandescent Chandelier up to 0.70 m diameter & 1.0 m high, crystal & brass			3.000	5.667	2.667				
166 130-8250	Indoor incandescent Chandelier up to 1.25 m diameter & 1.5 m high, crystal & brass			1.000	17.000	8.000				
166 130-8250	Indoor incandescent Chandelier up to 1.50 m diameter & 2.0 m high, crystal & brass	↓	↓	0.250	68.000	32.000				
<b>166 150 TRACK LIGHTING:</b>										
166 150-0080	Track lighting, 1 circuit	LM	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	12.000	1.417	0.667				
166 150-0300	Track lighting, 3 circuit	"		10.000	1.700	0.800				
166 150-1000	Feed kit, surface mounting	EA		28.000	0.607	0.286				
166 150-1100	End cover			40.000	0.425	0.200				
166 150-1300	Feed kit, stem mounting, 3 circuit track			28.000	0.607	0.286				
166 150-2000	Electrical jointer, for continuous runs, 1 circuit track			55.000	0.309	0.145				
166 150-2100	Electrical jointer, for continuous runs, 3 circuit track			55.000	0.309	0.145				
166 150-3000	Lighting fixture spotlight	↓	↓	28.000	0.607	0.286				
<b>167 ELECTRIC UTILITIES</b>										
<b>167 100 ELECTRIC UTILITIES</b>										
<b>167 110 ELECTRIC &amp; TELEPHONE SITE WORK:</b>										
167 110-1000	Handholes,precast concrete with concrete cover,not including excavation & backfill, 1.2 x 1.2 meters, 1.2 meter deep	EA	0.125 Forman 1.000 Skilled Laborer 2.000 Helper 0.250 Equipment Operator 0.250 Truck Crane 11 Ton	3.500	7.714	0.571				
167 110-1400	Manhole,precast concrete with iron racks,pulling irons,cast iron frame & cover, not including excavation & backfill, 1.2 x 1.8 meters, 2.1 meter deep.			2.000	13.500	1.000				
167 110-2000	Poles, wood,creosoted, 6.0 meters high, not including excavation, backfill & concrete base			4.000	6.750	0.500				
167 110-2600	Poles, wood,creosoted, 9.0 meters high, not including excavation, backfill & concrete base			3.000	9.000	0.667				
167 110-3000	Poles, wood,creosoted, 12 meters high, not including excavation, backfill & concrete base			2.000	13.500	1.000				
167 110-3600	Cross arms for wooden pole, with hardware & insulators, 1.2 meter long.			6.000	4.500	0.333				

# **DIVISION16: ELECTRICAL**

CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
167 110-4000	Cross arms for wooden pole, with hardware & insulators, 2 meter long.	↓	↓	5.000	5.400	0.400
167 110-4600	Underground duct bank,PVC type,concrete encased,180 mm O.C.; 2 duct 50 mm diameter	LM	0.125 Foreman 3.000 Electricians 2.000 Common Laborers 0.250 Light Equip. Oper. 0.125 concrete mixer 0.125 Wheeled Engine Cart 1 Heat Bender 0.250 Backhoe	29.100	1.478	0.412
167 110-4800	Underground duct bank,PVC type,concrete encased,180 mm O.C.; 4 duct 50 mm diameter, complete including handling, excavation, fill, concrete & conduit laying			21.560	1.994	0.557
167 110-5600	Underground duct bank,PVC type,concrete encased,180 mm O.C.; 4 duct 100 mm diameter, complete including handling, excavation, fill, concrete & conduit laying			19.160	2.244	0.626
167 110-6000	Underground duct bank,PVC type,concrete encased, 250 mm O.C.; 4 duct 150 mm diameter, complete including handling, excavation, fill, concrete & conduit laying		↓	14.360	2.994	0.836
167 110-6200	Underground duct bank,Rigid galvanized steel type, no concrete or excavation, 180 mm O.C.; 2 duct 50 mm diameter		0.125 Electrician Foreman 1.000 Electrician 1.000 Helper 1 Tools Set	24.190	0.703	0.331
167 110-6400	Underground duct bank,Rigid galvanized steel type, no concrete or excavation, 180 mm O.C.; 4 duct 50 mm diameter			12.460	1.364	0.642
167 110-7200	Underground duct bank,Rigid galvanized steel type, no concrete or excavation, 180 mm O.C.; 2 duct 100 mm diameter			11.170	1.522	0.716
167 110-7640	Underground duct bank,Rigid galvanized steel type, no concrete or excavation, 250 mm O.C.; 4 duct 150 mm diameter			4.470	3.803	1.790
167 110-8040	PVC duct bank fittings: Elbow, 100 mm diameter			18.000	0.944	0.444
167 110-8080	PVC duct bank fittings: Elbow, 150 mm diameter			14.000	1.214	0.571
167 110-8140	PVC duct bank fittings: End bell,100 mm diameter			18.000	0.944	0.444
167 110-8180	PVC duct bank fittings: End bell, 150 mm diameter			12.000	1.417	0.667
167 110-8240	PVC duct bank fittings: Expansion joint,100 mm diameter	↓	↓	18.000	0.944	0.444
<b>167 120 FIBER DUCT:</b>						
167 120-0040	Underground duct bank,Fiber type,concrete encased, 180 mm O.C.; 2 duct 50 mm diameter, complete with excavation, concrete, fill & conduit laying	LM	0.125 Foreman 3.000 Electricians 2.000 Common Laborers 0.250 Light Equip. Oper. 0.125 concrete mixer 0.125 Wheeled Engine Cart 1.000 Heat Bender 0.250 Backhoe	37.460	1.148	0.320
167 120-0080	Underground duct bank,Fiber type,concrete encased, 180 mm O.C.; 2 duct 100 mm diameter			24.660	1.744	0.487
167 120-0140	Underground duct bank,Fiber type,concrete encased, 250 mm O.C.; 2 duct 150 mm diameter	↓	↓	18.480	2.327	0.649



DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
167 120-0600	Fiber duct bank fittings: Elbow, 100 mm diameter	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	14.000	1.214	0.571
167 120-0640	Fiber duct bank fittings: Elbow, 150 mm diameter			11.000	1.545	0.727
167 120-1900	Fiber duct bank fittings: End bell, 100 mm diameter			14.000	1.214	0.571
167 120-2700	Fiber duct bank fittings: Expansion joint, 150 mm diameter			14.000	1.214	0.571
168	SPECIAL SYSTEMS					
168 100 SPECIAL SYSTEMS						
168 105 CLOCKS:						
168 105-0080	Clocks, 300 mm diameter,single face	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	14.000	1.214	0.571
168 105-0100	Clocks, 300 mm diameter,double face	"	"	11.000	1.545	0.727
168 110 CLOCK SYSTEMS:						
168 110-0100	Clock systems, master clock	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	0.500	34.000	16.000
168 110-0200	Clock systems,program bell			14.000	1.214	0.571
168 110-0400	Clock systems,combination clock & speaker			5.000	3.400	1.600
168 110-0600	Clock systems,frequency generator			3.500	4.857	2.286
168 110-0800	Clock systems,job time automatic stamp recorder			6.000	2.833	1.333
168 110-1400	Clock systems,time stamp for correspondence,fully automatic			6.000	2.833	1.333
168 120 DETECTION SYSTEMS:						
168 120-0100	Burglar alarm,battery operated,mechanical or electrical trigger	EA	0.125 Electrical Foreman 1.000 Special Electrician 1.000 Helper 1.000 Tools Set	7.000	2.429	1.143
168 120-0400	Burglar alarm,for outside key control add			13.000	1.308	0.615
168 120-0600	Burglar alarm,for remote signaling circuitry,interface relay.			6.000	2.833	1.333
168 120-0800	Burglar alarm: Card reader,flush type,standard, or Multi-code.			4.500	3.778	1.778
168 120-1200	Burglar alarm: Door switches,hinge switch, or Magnetic switch.			8.000	2.125	1.000
168 120-1600	Burglar alarm: Exit control locks,horn alarm, or Flashing light alarm.			7.000	2.429	1.143

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
168 120-2200	Detection system, indicating panels, 10 channel			2.500	6.800	3.200
168 120-2800	Ultrasonic motion detector, 12V			4.000	4.250	2.000
168 120-3000	Infrared photoelectric detector			4.000	4.250	2.000
168 120-3600	Detection system, for fire,sprinkler & standpipe alarm,control panel, 4 zone			3.000	5.667	2.667
168 120-4000	Detection systems,for fire,sprinkler & standpipe alarm,control panel, 12 zone			1.250	13.600	6.400
168 120-4200	Fire alarm battery & rack			6.000	2.833	1.333
168 120-4200	Fire alarm automatic charger			10.000	1.700	0.800
168 120-4300	Fire alarm, break glass alarm switch			15.000	1.133	0.533
168 120-4500	Fire alarm, alarm bell			15.000	1.133	0.533
168 120-5000	Fire alarm heat detector,rate of rise			15.000	1.133	0.533
168 120-5200	Fire alarm smoke detector,ceiling type			12.000	1.417	0.667
168 120-5400	Fire alarm smoke detector,duct type			5.000	3.400	1.600
168 120-5800	Fire alarm horn			12.000	1.417	0.667
168 120-6000	Door holder,electro-magnetic			7.000	2.429	1.143
168 120-6200	Door holder; combination holder and closer			5.000	3.400	1.600
168 120-8000	Fire alarm,remote annunciator, 12 zone lamp			2.000	8.500	4.000
<b>168 125 DOORBELL SYSTEM:</b>						
168 125-0100	Doorbell system including transformer,button & signal bell or buzzer	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	8.000	2.125	1.000
168 125-0200	Doorbell system including transformer,2 button & 2 signal bell or buzzer in 2 floor house	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	5.000	3.400	1.600
<b>168 130 ELECTRIC HEATING:</b>						
168 130-2400	Electric Heating,baseboard heaters, 2.4m long, 1.5 kW	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	8.000	2.125	1.000
168 130-3150	Electric Heating,wall heaters with fan,surface mounted, residential, 4.00 kW			7.000	2.429	1.143
168 130-3150	Electric Heating,wall heaters with fan,recessed mounted, residential, 4.00 kW			5.000	3.400	1.600

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
168 130-3600	Thermostat	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	22.000	0.773	0.364
168 130-4580	Thermostat / contactor combination, 30 amp, 4 pole			4.500	3.778	1.778
168 130-4600	Thermostat / contactor combination, 50 amp, 4 pole			4.000	4.250	2.000
<b>168 140 LIGHTNING PROTECTION:</b>						
168 140-0200	Air terminal, copper, 20 mm installed on roofs 24 meter high above grade	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	14.000	1.214	0.571
168 140-0400	Air terminal, copper, 20 mm installed on roofs higher than 24 m add for every 12 m high	"		12.000	1.417	0.667
168 140-2000	Cable, Copper 70 mm2 fixed with clamps every 2 meter spacing	KG		125.000	0.136	0.064
168 140-2500	Cable, Aluminium 95 mm2 fixed with clamps every 2 meter spacing	"		140.000	0.121	0.057
168 140-3000	Lightning Arrestor 600 V to ground	EA		10.000	1.700	0.800
<b>168 145 NURSE CALL SYSTEMS:</b>						
168 145-0100	Nurse Call Systems,single bedside call station	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	14.000	1.214	0.571
168 145-0200	Nurse Call Systems,ceiling speaker station			12.000	1.417	0.667
168 145-0400	Nurse Call Systems,emergency call station			14.000	1.214	0.571
168 145-0600	Nurse Call Systems,pillow speaker			14.000	1.214	0.571
168 145-0800	Nurse Call Systems,double bedside call station			7.000	2.429	1.143
168 145-1200	Nurse Call Systems,standard call station			18.000	0.944	0.444
168 145-1400	Nurse Call Systems,lights,corridor,dome or zone indicator			18.000	0.944	0.444
168 145-1600	Nurse Call Systems,master control station for 20 stations			0.800	21.250	10.000
<b>168 150 PUBLIC ADDRESS SYSTEM:</b>						
168 150-0100	Public address system, commercial buildings, speaker including wiring rigid steel conduits & head end equip.. average	SPEAKER	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	1.580	10.759	5.063
168 150-0200	Public address system, industrial buildings, speaker including wiring & head end equip.. average			1.190	14.286	6.723
168 150-0400	Public address system, industrial buildings, explosionproof installation, speaker including wiring rigid steel conduits & head end equip.. average			0.550	30.909	14.545

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
<b>168 155</b>	<b>SOUND SYSTEM:</b>					
168 155-0100	Sound system components,Outlet, in rigid steel conduits	EA	0.125 Electrical Foreman 1.000 Electrician 1.000 Helper 1.000 Tools Set	4.080	4.167	1.961
168 155-0400	Sound system Speakers,ceiling or wall			14.000	1.214	0.571
168 155-1000	Sound system Monitor panel			6.000	2.833	1.333
168 155-1200	Sound system Antenna,AM/FM			6.000	2.833	1.333
168 155-1400	Sound system Volume control			16.000	1.063	0.500
168 155-1600	Sound system Amplifier, 250W			6.000	2.833	1.333
168 155-1800	Sound system Cabinets			2.000	8.500	4.000
168 155-2000	Sound system,Master station for intercom of 25 stations.			2.000	8.500	4.000
168 155-2400	Sound system,intercom outlet, in rigid steel conduit			3.670	4.632	2.180
168 155-2800	Emergency call system, 12 zones,annunciator			2.500	6.800	3.200
168 155-3600	House telephone,talking station			3.000	5.667	2.667
168 155-4200	House telephone talking system,door release			6.000	2.833	1.333
168 155-4600	House telephone talking system termination box			5.000	3.400	1.600
168 155-4800	House telephone talking system Amplifier or power supply			6.000	2.833	1.333
<b>168 157</b>	<b>Telephone System:</b>					
168 157-0100	Telephone cabinet, indoor 10 pair	EA	1.000 Electrician 1.000 Helper 1.000 Power Tools	4.000	4.000	2.000
168 157-0120	Telephone cabinet, indoor 25 pair	EA	1.000 Electrician 1.000 Helper 1.000 Power Tools	3.000	5.333	2.667
168 157-0140	Telephone cabinet, indoor 50 pair			2.000	8.000	4.000
168 157-0160	Telephone cabinet, indoor 100 pair			1.000	16.000	8.000
168 157-0180	Telephone cabinet, indoor 200 pair			0.500	32.000	16.000
168 157-0200	Telephone cabinet, outdoor 10 pair			4.000	4.000	2.000
168 157-0220	Telephone cabinet, outdoor 25 pair			3.000	5.333	2.667
168 157-0240	Telephone cabinet, outdoor 50 pair			2.000	8.000	4.000
168 157-0260	Telephone cabinet, outdoor 100 pair			1.000	16.000	8.000

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
168 157-0280	Telephone cabinet, outdoor 200 pair	↓	↓	0.500	32.000	16.000
<b>168 158</b>	<b>Telephone Cables.</b>					
168 158-0100	Telephone cable, 2 pair ,pulled in conduits.	LM	1.000 Electrician 1.000 Helper 1.000 Power Tools	800.000	0.020	0.010
168 158-0120	Telephone cable, 4 pair			700.000	0.023	0.011
168 158-0140	Telephone cable, 6 pair			550.000	0.029	0.015
168 158-0160	Telephone cable, 15 pair			400.000	0.040	0.020
168 158-0180	Telephone cable, 25 pair			325.000	0.049	0.025
168 158-0200	Telephone cable, 50 pair			250.000	0.064	0.032
168 158-0240	Telephone cable, 80 pair			200.000	0.080	0.040
168 158-0280	Telephone cable, 100 pair	↓	↓	175.000	0.091	0.046
<b>168 320</b>	<b>T.V. SYSTEMS:</b>					
168 160-0200	Master TV antenna system,VHF reception	EA	0.125 Electrical Foreman 1.000 Special Electrician 1.000 Helper 1.000 Tools Set	6.000	2.833	1.333
168 160-0800	Master TV antenna system,VHF & UHF reception			6.000	2.833	1.333
168 160-2000	Closed circuit TV system, surveillance,one station(camera & monitor)			3.000	5.667	2.667
168 160-2200	Closed circuit TV system, Add for each added camera...			5.000	3.400	1.600
168 160-2800	Closed circuit TV system, surveillance,one station, monitor & weatherproof camera			2.000	8.500	4.000
168 160-3000	Closed circuit TV system, surveillance,one station, monitor & 1 pan & tilt camera			2.000	8.500	4.000
168 160-3200	Closed circuit TV system;Industrial quality,for zoom lens-remote control,add Average.			2.000	8.500	4.000
168 160-5000	TV System distribution pedestal including 8 ports			2.500	6.800	3.200
168 160-5300	TV System distribution pedestal including splitter			4.000	4.250	2.000
168 160-5600	TV System distribution pedestal including Line or Trunk amplifier			4.000	4.250	2.000
168 160-7000	TV head end Equipment, including cabinets, amplifiers, receivers for 10 channels			0.600	28.333	13.333
168 160-7600	TV head end Satellite up to 15 m diameter installed on grade.	↓	↓	1.250	13.600	6.400
<b>168 170</b>	<b>RESIDENTIAL WIRING:</b>					
168 170-1100	Residential wiring,lighting outlet, 4 LM average run to Panel, Lighting switch conduits at 5 LM avg., including wires 3x4 mm2 PVC conduits & accessories complete wiring to panel, including lighting switch, 8 outlets per circuit	EA	0.125 Electrical Foreman 2.000 Electrician 1.000 Helpers 1.000 Tools Set	4.280	5.841	1.869

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
168 170-1200	Residential wiring, lighting outlet, 4 LM average run to Panel, including wires 3x4 mm2, PVC conduits & accessories complete wiring to panel, not including lighting switch, 8 outlets per circuit			9.410	2.657	0.850
168 170-1300	Residential wiring, lighting outlet, 4 LM average run to Panel, including wires 3x4 mm2, PVC conduits & accessories complete wiring to panel, not including lighting switch, 6 outlets per circuit			6.680	3.743	1.198
168 170-1600	Residential wiring,Power Receptacle Outlet average run to panel 12 LM,including wires 3x6 mm2 PVC conduits & accessories complete wiring to panel Average.1 outlet per circuit			3.300	7.576	2.424
168 170-1900	Residential wiring,Range Receptacle Outlet average run 15 LM,including wires 4x16 mm2 PVC conduits & accessories complete wiring to panel, 1 outlet per circuit			1.540	16.234	5.195
168 170-2100	Residential wiring,Dryer Receptacle Outlet average run 15 LM,including wires 3x10 mm2 PVC conduits & accessories complete wiring to panel,, 1 outlet per circuit			2.120	11.792	3.774
168 170-3000	Residential wiring,lighting outlet average spacing 4 LM,including wires 3x4 mm2 EMT conduits & accessories complete wiring to panel, 8 outlets per circuit, lighting switch not included			7.280	3.434	1.099
168 170-3200	Residential wiring,Receptacle Outlet, 6 LM average run per outlet to panel, including wires 3x4 mm2, EMT conduits & accessories complete wiring to panel, 6 outlets per circuit			9.530	2.623	0.839
168 170-5600	Residential wiring,Power Receptacle Outlet average run to panel 12 LM,including wires 3x6 mm2 IMC conduits & accessories complete wiring to panel Average.1 outlet per circuit			2.680	9.328	2.985
168 170-5700	Residential wiring, Dryer Receptacle Outlet average run 15 LM, including wires 3x10 mm2, IMC conduits & accessories complete wiring to panel,1 outlet per circuit			1.630	15.337	4.908
168 170-6600	Residential wiring,Range Receptacle Outlet average run to panel 15 LM,including wires 3x16 mm2, Galv. rigid steel conduits & accessories complete wiring to panel average, 1 outlet per circuit	EA	0.125 Electrical Foreman 2.000 Electrician 1.000 Helpers 1.000 Tools Set	1.170	21.368	6.838
<b>169</b>	<b>POWER TRANSMISSION &amp; DISTRIBUTION</b>					
<b>169 100</b>	<b>POWER TRANSMISSION &amp; DISTRIBUTION</b>					
<b>169 110</b>	<b>LINE POLES &amp; FIXTURES:</b>					
169 110-0010	Digging holes in earth,for pole, up to 18 m high	EA	0.125 Labor Foreman 1.000 Common Laborer 1.000 Tools Set	2.750	3.273	2.909
169 110-0105	Digging holes in earth,for pole up to 18 m high,in rock,average	EA	0.125 Labor Foreman 1.000 Common Laborer 1.000 Equip. operator 1.000 compressor & hoses	1.500	11.333	5.333
169 110-0200	Wood poles up to 20 meter long,material handling and spotting		1.000 Skilled Foreman 5.000 Electrician Groundmen 1.000 truck driver 2.000 Common Laborers 1.000 Crew Truck	8.000	9.000	1.000

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
169 110-0220	Erect wood poles up to 18 m above ground,in earth		1.000 Skilled Foreman 2.000 Equipment Operators 4.000 Electrician Lineman 4.000 Electrician Groundmen 1.000 Crew Truck 1.000 Tool Van 1.000 Pick-up Truck 0.250 Crane,11 metric ton	5.000	17.600	5.200
169 110-0250	Erect wood poles up to 18 m above ground,in rock			4.500	19.556	5.778
169 110-0260	Disposal of surplus material	1000 LM	1.000 Skilled Foreman 5.000 Electrician Groundmen 1.000 truck driver 2.000 Common Laborers 1.000 Crew Truck	15.000	4.800	0.533
169 110-0320	Install crossarms for wood structures	EA	1.000 Skilled Foreman 2.000 Equipment Operators 4.000 Electrician Lineman 4.000 Electrician Groundmen 1.000 Crew Truck 1.000 Tool Van 1.000 Pick-up Truck 0.250 Crane,11 metric ton	7.000	12.571	3.714
169 110-0420	Erect formed steel plate pole, up to 18 m above ground			1.000	88.000	26.000
169 110-0500	Guys,anchors and hardware for pole up to 18 m above ground,in earth			6.000	14.667	4.333
169 110-0510	Guys,anchors and hardware for pole up to 18 m high above ground,in rock			4.000	22.000	6.500
<b>169 120 LINE TOWERS &amp; FIXTURES:</b>						
169 120-0200	Line towers ,steel footings (grillage) in earth	TON	1.000 Skilled Foreman 2.000 Equipment Operators 4.000 Electrician Lineman 4.000 Electrician Groundmen 1.000 Crew Truck 1.000 Tool Van 1.000 Pick-up Truck 0.250 Crane,11 metric ton 0.250 Auger, Truck Mounted.	3.000	29.333	9.333
169 120-0400	Line tower,concrete foundations	<b>See also Div. 033</b>				
169 120-0500	Towers-material handling and spotting	TON	1.000 Skilled Foreman 4.000 Electrician Groundmen 1.000 Equipment Operator 1.000 truck driver 2.000 Common Laborers 1.000 Crew Truck 1.000 Crane Mobile 50 Ton.	20.000	3.600	0.800

DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
169 120-0540	Steel Tower erection, up to 66 KV	"	1.000 Skilled Foreman 2.000 Equipment Operators 4.000 Electrician Lineman 4.000 Electrician Groundmen 1.000 Crew Truck 1.000 Tool Van 1.000 Pick-up Truck 0.250 Crane,11 metric ton 0.250 Auger, Truck Mounted.	3.000	29.333	9.333
169 120-0560	Painting tower structure, average	VERT. LM	2.000 Painters 1.000 Common Laborer 1.000 Consumable Tools	12.000	2.000	0.000
169 130 OVERHEAD LINE CONDUCTORS & DEVICES:						
169 130-0110	Conductors,primary circuits,material handling and spotting	1000 LM	1.000 Skilled Foreman 1.000 Equip. Operators 4.000 Electrician Groundmen 1.000 Truck Driver 2.000 Common Laborer 1.000 Crew Truck 1.000 Crane, 50 metric ton	15.000	4.800	1.067
169 130-0150	Installing conductors,per wire, 100 mm2 - 300 mm2	1000 LM	1.000 Skilled Foreman 4.000 Electrician Lineman 1.250 Equip. Operators 4.000 Electrician Groundmen 2.000 Drivers 1.000 Crew Truck 1.000 Tool Van 1.000 Pick-up Truck 0.250 Crane,50 metric ton 3.000 Cable Trailer 1.000 Cable Winch	2.000	49.000	29.000
169 130-0160	Installing conductors,per wire, 300 mm2 - 500 mm2	1000 LM	1.000 Skilled Foreman 4.000 Electrician Lineman 1.250 Equip. Operators 4.000 Electrician Groundmen 2.000 Drivers 1.000 Crew Truck 1.000 Tool Van 1.000 Pick-up Truck 0.250 Crane,50 metric ton 3.000 Cable Trailer 1.000 Cable Winch	1.800	54.444	32.222
169 130-0300	Conductors,joints and dead ends	EA	1.000 skilled Foreman 3.000 Electrician Lineman 2.000 Electrician Groundmen 1.000 Pick-up Truck 1.000 Crew Truck	5.000	9.600	3.200





DIVISION16: ELECTRICAL						
CSI CODE	ITEM DESCRIPTION	UNIT	CREW STRUCTURE	DAILY OUTPUT	MAN HOURS	EQUIP. HOURS
169 150-1050	Power transformers, 11 to 33 KV	KVA	1.000 skilled Foreman 4.000 Electrician, Specialist 1.000 Equip. Operator 1.000 Driver 2.000 Common Laborer 1.000 Crew Truck 1.000 Crane,11 metric ton	0.750	96.000	21.333
169 150-1300	Station capacitors synchronous 11 to 33 KV	MVAR		2.500	28.800	6.400
169 150-1600	Voltage regulators, 11 to 33 KV	EA		0.750	96.000	21.333
169 150-2050	Power circuit breakers,oil circuit breakers, 11 to 33 KV			1.000	72.000	16.000
169 150-2100	Air circuit breakers, 11 to 33 KV			0.500	144.000	32.000
169 150-2150	Gas circuit breakers, 11 to 33 KV			0.500	144.000	32.000
169 150-2200	Vacuum circuit breakers, 11 to 33 KV			0.500	144.000	32.000
169 150-3060	Disconnecting switches,gang operated>manual operation, 11 to 33 KV	EA	1.000 skilled Foreman 4.000 Electrician, Specialist 1.000 Equip. Operator 1.000 Driver 2.000 Common Laborer 1.000 Crew Truck 1.000 Crane,11 metric ton	1.750	41.143	9.143
169 150-4050	Instrument transformers,current transformers, 11 to 33 KV			12.000	6.000	1.333
169 150-4100	Instrument transformers,potential transformers, 11 to 33 KV			9.000	8.000	1.778
169 150-8000	Protective equipment,lightning arresters, 11 to 33 KV			15.000	4.800	1.067
169 150-8150	Protective equipment,reactors and resistors, 11 to 33 KV			20.000	3.600	0.800
169 150-8250	Protective equipment,fuses, 11 to 33 KV			15.000	4.800	1.067
169 150-9120	Station Battery charges			12.000	6.000	1.333
169 150-9200	Station control batteries			12.000	6.000	1.333