Comprehensive Method Statement

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1.0 Site Boundary

1.1 Site Hoarding Installation

The site boundary will be secured with 2.4-meter-high solid hoarding panels made of 12mm thick plywood fixed to a 50 mm x 100 mm timber frame. The frame will be supported at 2.5-meter intervals by 100mm x 100mm vertical timber posts anchored into the ground to a depth of 600mm with concrete footings (mix ratio 1:2:4 – cement:sand:aggregate).

Hoarding Panel Details

- Material: 12mm plywood panels
- Frame: 50mm x 100mm timber battens
- Spacing: 2.5m centers
- Anchoring: 100mm x 100mm timber posts embedded in concrete footings (depth 600mm, width 300mm)
- Finishing: Painted with RAL 7016 (Anthracite Grey) weather-resistant paint

1.2 Footpath Encroachment & Public Safety Measures

Where the site perimeter encroaches on footpaths, a temporary pedestrian walkway will be constructed using steel scaffolding (48mm diameter tubes) and timber planks (38mm thick, non-slip surface). Pedestrian walkways will have handrails (minimum height 1.1m) and will be lit by LED lights (lux level: 100) to ensure safety at night.

1.3 Noise & Aesthetic Considerations

To minimize noise and preserve aesthetics the hoarding panels will have mass-loaded vinyl sheets (5kg/m²) attached to reduce noise transmission by approximately 15-20 dB. Panels will be painted with a matte finish to reduce glare and blend with the surrounding urban environment. Site branding and public information boards (A1 size) will be displayed at 20-meter intervals.

1.4 Access & Security

A double-leaf site access gate (4m wide, 2.4m high) for vehicular entry, made of galvanized steel, will be installed at the designated entry point. A 1.2m wide personnel access gate with a security turnstile and biometric scanner will be provided. Cameras installed every 30 meters along the boundary, covering all entry/exit points, with 24/7 monitoring (CCTV).

2.0 Substructure

Upon receiving the job instruction and drawings from the consultant engineer, an initial site visit will be conducted alongside the consultant representative to verify the site boundaries, demarcations, and existing conditions. This ensures that the construction activities commence in alignment with the approved design. The site will then be secured with 1.8m high steel mesh fencing, placed at a 2m offset from the excavation edge to prevent unauthorized access. Signboards will be installed at 10m intervals, clearly marking hazardous zones, personal protective equipment (PPE) requirements, and restricted areas. Survey work will be carried out using Total Stations (±2mm accuracy) and GPS Receivers (±10mm horizontal accuracy) to ensure precise marking of excavation points. Elevations will be verified using an Auto Level (±1.5mm accuracy per km double run), and the foundation location will be marked with 12mm diameter steel pins, 600mm in length, accompanied by fluorescent paint markings for visibility.

Once the site is prepared, excavation will commence, taking into consideration the soil type and existing conditions. Excavation methods will include both mechanical and manual techniques. Mechanical excavation will be performed using an excavator with bucket sizes ranging from 600mm to 1800mm, depending on the nature of the foundation. Trench excavation for footings and strip foundations will be carried out using a 600mm-wide bucket, while pit excavation for column footings will require a 1200mm-wide bucket. For mass excavation, such as raft foundations, a 1800mm-wide bucket with a bulldozer for leveling will be used. In areas where mechanical excavation is not feasible, such as confined spaces or near existing structures, manual excavation using shovels and pickaxes will be employed to ensure precision and avoid damage to underground utilities.

For excavation depths exceeding 1.5m, safety measures will be implemented to prevent collapse. Battered slopes will be maintained at 1:1.5 (horizontal to vertical ratio) for stable soil conditions, while temporary shoring and strutting will be provided for loose or unstable soils. In cases where groundwater is encountered, dewatering systems will be installed to lower the groundwater level at least 500mm below the excavation depth. This will be achieved using either well point systems for depths less than 4m or deep wells with submersible pumps for deeper excavations. All excavated soil will be tested for suitability as backfill material, and any surplus soil will be loaded into tippers and transported to a designated disposal site. Soil stockpiles will be placed at least 2.0m away from the excavation edge, with a maximum pile height of 1.5m to prevent potential collapses. Once the required excavation depth is achieved, the surface will be cleaned and leveled, removing all loose materials. Over-excavated areas will be corrected with a 50mm layer of SRC 20 concrete (20MPa strength) to bring the foundation base to the required level. Excavated areas will be barricaded, and appropriate warning signs will be displayed. Backfilling will commence once the foundation work is completed, using approved granular fill material with a maximum particle size of 50mm and a moisture content of 8–12%. Backfilling will be carried out in layers of 250mm loose thickness, with each layer compacted using either plate compactors for confined spaces or roller compactors for open areas. The compaction process will be monitored through

CBR testing (minimum 5%) and Proctor Density tests (minimum 95% of Maximum Dry Density – MDD) to ensure stability.

As part of the substructure work, anti-termite treatment will be applied to all areas under the foundation. The treatment will use Chlorpyrifos 20% EC, applied at a rate of 5L/m² using pressure sprayers. The treated area will be left undisturbed for at least 24 hours before proceeding with further construction activities. This approach ensures that the excavation, backfilling, and associated groundwork are executed systematically, following industry standards and safety guidelines.

Table 1. Excavations

Excavation Type	**Depth Range (m)**	**Typical Location**	**Excavation Method**	**Equipment Used**	**Support & Safety Measures**	**Dewatering Requirement**
Trench Excavation	0.5 – 1.5	Strip foundations, cable trenches, utility pipelines	Mechanical (excavator), Manual (shovels & pickaxes) in confined spaces	600mm-wide bucket excavator, hand tools	Battered slope 1:1.5 for stable soil, shoring for loose soil	Not required unless groundwater is encountered
Pit Excavation	1.5 – 3.0	Isolated footings, column foundations	Mechanical (excavator), Manual (hand digging near existing structures)	1200mm-wide bucket excavator, shovels & pickaxes	Temporary shoring if soil is loose	Required if water table is high
Mass Excavation	0.3 – 2.0	Raft foundations, basement levels	Mechanical (excavator & dozer)	1800mm-wide bucket excavator, bulldozer	Battered slopes 1:1.5, deep wells for large excavations	Required for basement excavations
Deep Excavation	>3.0	Underground tanks, lift pits, multi-level basements	Mechanical (excavator & piling)	Excavator, piling rigs	Sheet piling, soldier piles with timber lagging, braced excavations	Well points or deep wells to maintain dry conditions
Confined Space Excavation	0.5 – 1.5	Inside existing buildings, narrow foundation trenches	Manual (hand digging)	Shovels, pickaxes, jackhammers	Ventilation, PPE, gas detection (if applicable)	Not required unless in flooded areas

3.0 Concrete Work

Once the excavation reaches the required depth, the bottom surface will be compacted using plate compactors or roller compactors (for larger areas) to achieve a minimum 95% of Maximum Dry Density (MDD). The compacted surface will then be offered for inspection and testing by the consultant engineer. Any over-excavation exceeding 50mm will be corrected using SRC 20 concrete (20 MPa strength) to bring it back to the required level.

Following approval, 75mm thick blinding concrete (SRC 20) will be poured over the compacted base. This concrete will be supplied from an approved ready-mix plant and will have a cement:sand:aggregate ratio of 1:3:6 (by volume) to provide a smooth and level working surface for foundation activities. A water-cement ratio of 0.45 will be maintained to achieve adequate workability and strength. The blinding concrete will be cured for at least 24 hours before further work commences. Once blinding is completed, the foundation work will begin, followed by structural elements such as columns, beams, and slabs. The footing concrete mix will be M30 (30 MPa strength), with a mix ratio of 1:1.5:3 (cement:sand:aggregate). The foundation will include reinforcement steel bars of Fe500 grade, with a minimum cover of 50mm to protect against corrosion. Curing will be carried out for at least 7 days using water sprinkling or wet hessian sheets.

After foundation completion, columns will be cast up to slab height using M40 concrete (1:1:2 mix) for high-strength vertical support. The reinforcement for columns will typically be 16mm or 20mm diameter bars for main vertical reinforcements, with 8mm or 10mm ties spaced at 150mm c/c near the base and 200mm c/c in the upper sections. Columns will be cast in staggered sequences to maintain structural stability, and formwork will be removed after 48 hours, with full strength achieved in 28 days.

For slabs and beams, M35 concrete (1:1.5:2.5 mix) will be used, ensuring adequate load-bearing capacity. Main reinforcement will be Fe500 steel, with bottom and top reinforcements as per structural design. The beam depth will be at least 300mm, with stirrups spaced at 100mm near supports and 150mm in mid-span. Slabs will be poured in one continuous operation, maintaining a minimum thickness of 150mm for residential buildings and 200mm for commercial structures. Proper vibration will be done using needle vibrators (40mm and 60mm diameter) to remove air pockets and ensure compaction.

For plinth beams, M25 concrete (1:1:2 mix) will be used, and anti-termite treatment will be applied before pouring concrete. The beam width will be 230mm to 300mm, with reinforcement consisting of 12mm or 16mm diameter bars and stirrups at 150mm c/c. All cast elements will be cured for a minimum of 7 days (for normal construction) or 14 days (for high-strength concrete). Formwork removal will follow standard guidelines, with slab supports removed after 14 days and beams after 21 days, ensuring structural integrity.

After the structural framework is completed, internal works such as flooring, partitioning, and finishing will commence, following the approved construction sequence to ensure smooth progress.

Table 2. Concrete work

Structural Element	**Location**	**Formwork Material & Removal Time**	**Reinforcement (Fe500 Grade)**	**Concrete Grade (MPa)**	**Mix Ratio (Cmt:Sand: Aggregate)**	**Curing Period (Days)**
Blinding Concrete	Below foundations	No formwork required	No reinforcement	M10-M15	1:3:6 (M10) or 1:2:4 (M15)	3-5
Footings	Foundation	Timber/Plywood, remove after 24-48 hrs	16mm-25mm dia, min. 50mm cover	M30	1:1.5:3	7-14
Plinth Beams	Above foundation level	Timber/Plywood, remove after 3-4 days	12mm-16mm dia bars, stirrups @ 150mm c/c	M25	1:1:2	7-14
Columns	Substructure & Superstructure	Steel/Plywood, remove after 48 hrs	16mm-20mm dia main bars, 8mm-10mm ties @150-200mm c/c	M40	1:1:2	10-14
Beams	Roof/Floor levels	Plywood/Steel, remove after 7-14 days	12mm-20mm dia bars, stirrups @100mm near supports, 150mm mid-span	M35	1:1.5:2.5	10-14
Slabs	Floor/Roof levels	Plywood/Steel, remove after 14 days	10mm-16mm dia bars, spacing as per design	M35	1:1.5:2.5	14
Shear Walls	Structural walls	Steel/Plywood, remove after 7-10 days	12mm-20mm dia bars, double-layer reinforcement	M40	1:1:2	14
Staircase	Vertical circulation	Timber/Plywood, remove after 7 days (sides), 14 days (soffit)	12mm dia bars, mesh @ 150mm c/c	M30	1:1.5:3	10-14

3.1 Curing Methods

- Water ponding or wet hessian covering for footings, plinth beams, and slabs
- Sprinkling or curing compounds for columns and walls
- Curing membrane for hard-to-access areas

3.2 Reinforcing Steel

Before using any reinforcement in permanent works, engineer's approval will be obtained to ensure compliance with project specifications and safety standards. All reinforcement will be carefully stored on racks inside the stores, separated by types and sizes to prevent confusion and ensure proper management. Storage areas will be protected to avoid damage, and reinforcement bars will be kept free from dirt, rust, oil, paint, or any other foreign substances that may affect the bonding quality of concrete.

As per the drawings and specifications, bar bending schedules and cutting schedules will be meticulously prepared by the contractor. These schedules will be submitted to the engineer for approval. All reinforcement bars will be cut using manual or mechanical cutters and bent using bending machines to meet the required specifications. Each reinforcement will be thoroughly cleaned, typically using wire brushes or other suitable methods, before placing them in the formwork to avoid contamination that might hinder bonding.

When binding reinforcement bars, special care will be taken to ensure the lap length is in compliance with project specifications. This ensures that the reinforcement is securely joined, maintaining the integrity of the structure.

3.3 Formwork

Formwork will be fabricated using a combination of plywood sheets, timber, or metal, depending on the specific requirements of each structural element. To ensure the safety and stability of the formwork during construction, scaffolding and supports will be constructed using GI pipes, Arco props, or sawn and round timber. The formwork surfaces will be finished smooth and mortar tight to minimize surface defects on the finished concrete.

Before erection, the dimensions and position of the formwork will be carefully checked to ensure the correct alignment with the structural drawings. To achieve a smooth surface and prevent the adhesion of mortar to the formwork, a suitable release agent such as oil or grease will be applied to all surfaces. This step is essential to ensure that the formwork is easily removed after the concrete has set without damaging the surface. Before placing concrete, all debris, such as dirt, wood chips, and hardened concrete or mortar, will be removed from the formwork to avoid compromising the integrity of the finished concrete. A detailed drawing of the formwork will be submitted to the engineer for approval, ensuring that all measurements and design details are correct before proceeding. The work will be supervised by well-qualified formwork foremen, who will ensure that all formwork and reinforcement work is performed according to specifications.

4.0 Staircase Construction

The staircase will be designed and constructed as per the **architectural** and **structural** drawings, with particular attention to load-bearing capacity, functionality, and aesthetics. The materials, dimensions, and construction methods will be outlined as follows:

Materials

1. Treads and Risers:
   The treads (the horizontal part of the step) and risers (the vertical part) will be made from reinforced concrete. The concrete mix for these elements will typically be M30 grade concrete, which is durable and suitable for use in structural elements.
   - Tread dimensions: 300 mm (width) x 150 mm (thickness)
   - Riser dimensions: 180 mm (height) x 150 mm (thickness)
2. Handrails:
   The handrails will be constructed using mild steel (MS) with a protective coating or stainless steel for aesthetic appeal. The steel handrails will be welded to vertical supports or the wall, depending on the design. The handrails will typically be 40 mm in diameter and will have a height of 900 mm to 1000 mm from the finished floor level.
3. Landing Slab:
   The landing slab will be made of reinforced concrete (M30), with dimensions typically 1.2m x 1.2m or as per the design. The landing is designed to act as a transition point between flights of stairs and will have reinforcement similar to the stair treads, ensuring it supports the load.

Reinforcement

1. Reinforcement for Treads and Risers:
   - Main reinforcement bars will be 12mm diameter (Fe500) bars placed along the length of the treads and risers.
   - Stirrups will be 8mm diameter (Fe500), spaced at 150mm c/c for ensuring proper shear resistance.
   - Top and bottom reinforcement layers will be provided with 12mm bars spaced at 200mm intervals along the length of the tread and riser.
2. Reinforcement for Handrails:
   - For handrail supports, vertical bars of 12mm diameter will be used, spaced at 150mm to 200mm c/c.
3. Landing Slab Reinforcement:

- Main reinforcement bars of 16mm diameter will be placed along the length and width of the landing slab.
- Cross bars (stirrups) will be 10mm diameter, spaced at 200mm c/c.

Formwork

- Formwork for the staircase will be made from plywood sheets or metal forms for better finish quality and quicker removal. The sides of the formwork will be supported using timber or steel props, ensuring stability during concrete placement.
- The tread and riser formwork will be adjusted to the required dimensions and must be carefully checked for alignment before pouring concrete.
- For ease of concrete placement and finishing, release oil will be applied to all formwork surfaces to ensure smooth removal once the concrete hardens.

Concrete Mix

The concrete for the staircase will generally be M30 grade, with a 1:1.5:3 mix ratio (cement: sand: aggregate). The mix will be prepared as per the specifications to achieve a compressive strength of 30 MPa at 28 days.

- Cement: Ordinary Portland Cement (OPC)
- Fine Aggregate: Clean river sand
- Coarse Aggregate: 20mm down graded stone

Curing

After the placement of concrete, curing will be performed to maintain moisture content and allow for proper hydration. The curing period will generally last for 7 to 14 days depending on the exposure conditions and concrete grade.

- The curing methods will include:
  - Water ponding or wet hessian wrapping for horizontal surfaces like treads.
  - Sprinkling water or curing compound application on vertical surfaces like risers and walls.
  - The curing will continue for a minimum of 7 days, but in high-temperature conditions, the curing period may be extended to ensure proper hydration.

5.0 Masonry Work

5.1 Block Walls

Block walls will be constructed following the approved architectural and structural drawings. These walls are typically used for both load-bearing and partition purposes. The work will begin by accurately marking the location for each wall according to the approved layout plan. Blocks used will be normal-weight hollow blocks with a minimum compressive strength of 7.0 N/mm². The blocks, typically 400mm long, 200mm high, and 200mm thick, will be laid using a mix of S.R.C cement mortar with a ratio of 1 part cement to 3 parts sand.

The construction process will start with a solid first course that is carefully checked for level and alignment. Horizontal and vertical joints will be maintained to be true, and the blocks will be placed with the necessary care to ensure that each course is plumb and aligned. Special attention will be paid to the angles and reveals, ensuring that they are kept square and plumb throughout. For reinforcement, every second course of blockwork, the top course, and courses above lintels will be reinforced using the specified steel bars as per the shop drawings. Galvanized steel anchors or ties will be used to secure the top of the partitions and the sides of openings.

Lintels made of either reinforced concrete or galvanized steel will be installed above all openings (windows, doors, etc.), ensuring the structural integrity of the wall. Once the wall sections are completed, curing will begin immediately by moistening the surfaces regularly to aid the hydration process of the mortar. After the curing period, the walls will be cleaned, and a final inspection will be carried out by the consultant to verify that the construction is in compliance with the approved drawings and specifications.

5.2 Brick Walls

Brick walls, often used for both aesthetic and structural purposes, will be constructed using fired clay bricks of standard size, typically 230mm long, 110mm high, and 75mm thick. The construction will follow the specifications laid out in the approved drawings and project guidelines. The first step in brickwork is setting out the exact location of the walls, which will be marked based on the approved layout plan. Once the location is confirmed, the mortar mix will be prepared, using a ratio of 1 part cement to 4 parts sand for standard brickwork.

Each brick will be placed using a suitable mortar that ensures good bonding. The brickwork will be carried out in courses, with care taken to maintain horizontal and vertical joints, ensuring that the walls are level and plumb. Special attention will be paid to the alignment of the brick courses, and the brickwork will be raised uniformly, with no more than 1500mm height difference between adjacent unbuilt courses. The corners, reveals, and angles will be checked regularly for squareness and plumb.

Reinforcement may be required in brick walls, particularly for load-bearing walls or around openings. Steel reinforcements will be incorporated as per the project's structural drawings, typically above lintels and sills of windows or doors. In these areas, reinforced concrete lintels or

galvanized steel lintels will be used to span openings. The brickwork above these lintels will be reinforced horizontally to ensure the structural strength of the wall.

Similar to block work, curing will begin immediately after the brickwork is completed. The walls will be kept moist to allow the mortar to set and gain strength. After the appropriate curing period, the brickwork will be inspected for any defects, cleaned, and prepared for the next phase of construction. A final inspection will be conducted to ensure that the brick walls meet the required standards before proceeding to the next stage.

Table 3. Masonry Work

Type of Wall	**Wall Location**	**Materials**	**Mortar Ratio**	**Bond Type**	**Reinforcement**	**Curing Method**	**Other Notes**
Block Wall	External Load-bearing Walls	Normal-weight hollow blocks (7.0 N/mm² compressive strength)	1 part cement : 3 parts sand	Stretcher Bond	Horizontal reinforcement every second course, top course, and above lintels. Galvanized steel anchors for top partitions and openings	Keep moist for 7 days	Reinforced concrete or GI steel lintels for openings. Suitable for heavy-duty external walls.
	Internal Partition Walls	Normal-weight hollow blocks	1 part cement : 3 parts sand	Stretcher Bond	Horizontal reinforcement every second course, and around openings. Reinforced where required.	Keep moist for 7 days	Lightweight, cost-effective for internal partitions.
Brick Wall	External Load-bearing Walls	Fired clay bricks (standard size: 230mm x 110mm x 75mm)	1 part cement : 4 parts sand	Stretcher Bond	Horizontal reinforcement above lintels, vertical reinforcement around openings (if required)	Keep moist for 7 days	Use reinforced concrete or GI steel lintels for openings. Suitable for external, load-bearing walls.
	Internal Partition Walls	Fired clay bricks (standard size: 230mm x 110mm x 75mm)	1 part cement : 4 parts sand	Stretcher Bond	Reinforced around openings if required	Keep moist for 7 days	Ideal for internal partitions. Aesthetic appeal for finishing.

6.0 Plastering

Before plastering begins, surfaces need to be prepared to ensure proper adhesion of the plaster. For non-absorbent or solid surfaces, which may lack the suction capability to receive plaster, the surfaces must be cleaned using methods such as chipping, wire brushing, or sandblasting. These techniques remove any loose material, contaminants, and dirt, allowing the plaster to bond properly to the substrate. Next, corner beads, control joints, and movement beads are installed at their designated locations. These are essential for maintaining the integrity of the plastered surface and ensuring proper expansion and contraction of the wall. The beads are plumbed and squared during installation, and they are typically fixed in place using galvanized nails or small quantities of mortar, following the manufacturer's recommendations for installation.

For mixing the plaster, a mechanical mixer is used to ensure a consistent and uniform blend. The plaster mix should contain one bag of Portland cement and five parts of aggregate, along with an aerating plasticizer as recommended by the manufacturer, especially when the plaster is applied over concrete masonry units. Sufficient water is added to achieve a workable consistency and uniform color throughout the batch.

Once mixed, water is sprayed onto the wall surface to dampen it, preparing it for the application of the **spatter dash** or **scratch coat**. This layer is applied using a spatter dash manual machine, creating a rough layer approximately 3-5mm thick. The purpose of this coat is to provide a base for the plaster to adhere to, and it is left intentionally rough. After applying the scratch coat, the surface must remain damp either by spraying with water or by covering it with a polyethylene sheet until the coat has set.

Once the scratch coat has hardened, a render coat is applied. Initially, a thin coat is troweled onto the scratch coat to ensure thorough bonding. Following this, the remainder of the render coat is built up with a wooden float to achieve the desired texture and thickness. The thickness of the render coat is carefully monitored to meet the required specifications. The final plastering layer, known as the **finish coat**, is applied using a steel trowel to the interior surface. The objective is to match the finish with the architectural sample provided. The thickness of the final coat is controlled to ensure that the surface is smooth and uniform. The coating thickness should not deviate by more than +/- 6.4mm when measured with a straight edge placed on the surface over a span of 3 meters.

For external plastering, curing is essential to prevent the plaster from drying too quickly, which could lead to cracking. The newly applied plaster should be kept moist and protected against adverse weather conditions, such as frost, heat, and rain, for the first 48 hours. This can be achieved by covering the surface with a canvas, cloth, or sheet suspended above the plastered area. Additionally, a fine fog spray of water is applied twice daily—morning and evening—to keep the plaster moist and ensure proper curing. In summary, plastering involves meticulous preparation, mixing, application of multiple coats, and strict curing conditions to ensure a durable and smooth finish. Proper attention to detail in each step ensures the long-term performance of the plastered surfaces.

7.0 Painting

Table 4. Painting

Location/Area	Paint Type	Colour	Notes
External Walls	Weather Shield/Weather Coat	Light Beige	Durable exterior finish, weather-resistant
Main Entrance Lobby	Weather Shield/Weather Coat	Light Grey	Modern and welcoming exterior for main entry
Corridors (External)	Weather Shield/Weather Coat	Cream White	Neutral, clean look, brightens up space
Reception Area	Plastic Emulsion Paint	Sky Blue	Calming and welcoming for visitors
Meeting Rooms (First Floor)	Plastic Emulsion Paint	Pale Green	Tranquil and conducive for discussion
Meeting Rooms (2nd Floor)	Plastic Emulsion Paint	Soft Beige	Warm, neutral tones to maintain focus
Offices (Third Floor)	Vinyl Emulsion Paint	Off-White	Professional and light, promoting focus
Offices (Fourth Floor)	Vinyl Emulsion Paint	Light Blue	Fresh, cool tone for productivity
Restrooms (All Floors)	Textured Coating	White + grey Accents	Easy to maintain, clean look for hygiene
Staircase (Internal)	Textured Coating	Light Grey	Neutral, non-slip finish, durable
Staircase (External)	Weather Shield/Weather Coat	Charcoal Grey	Resistant to weathering, modern aesthetic
Classrooms (Ground Floor)	Plastic Emulsion Paint	Pale Yellow	Stimulating for learning environments
Classrooms (Upper Floors)	Plastic Emulsion Paint	Mint Green	Fresh and relaxing for students
Cafeteria (Ground Floor)	Vinyl Emulsion Paint	Warm Light Brown	Cozy and inviting, promotes a comfortable atmosphere
Cafeteria (Upper Floors)	Vinyl Emulsion Paint	Light Tan	Warm, soothing atmosphere for eating areas
Gymnasium (Ground Floor)	Weather Shield/Weather Coat	Blue Grey	Energetic yet calm, suitable for sports
Library (Second Floor)	Plastic Emulsion Paint	Light Lavender	Quiet, serene space for reading and study
Community Hall (Third Floor)	Textured Coating	Pale Peach	Warm, inviting, spacious for gatherings
Conference Room (Fourth Floor)	Plastic Emulsion Paint	Charcoal Grey	Professional, sleek, modern
Storage Rooms	Vinyl Emulsion Paint	White	Clean, bright, and easy to maintain
Hallways (All Floors)	Weather Shield/Weather Coat	Light Grey	Bright, neutral tone to enhance space perception
Elevator Lobbies (All Floors)	Weather Shield/Weather Coat	Cream White	Bright and clean appearance

Prior to commencing painting work, samples of all colors, textures, and finishes must be prepared and submitted to the Engineer for approval. This ensures there are no delays in the work. Any work completed without prior approval must be redone to the Engineer's satisfaction at no additional cost to the employer. A manufacturer’s chart showing the full range of available paint or texture

coatings will be provided for color and texture selection. The Engineer will supply a schedule specifying the color and texture for each area and surface, and the paint will be mixed in accordance with the manufacturer's guidelines. The exterior surfaces of the structures or areas designated in the drawings should be painted with Weather Shield/Weather Coat paint as directed by the Engineer. For interior surfaces, plastic emulsion paint, vinyl emulsion paint, or a similar product approved by the Engineer will be used. If specified, textured coating will be applied, which is an acrylic resin-based material composed of acrylic copolymers, natural quartz, marble chips, metallic oxide, and antibacterial and antifungal additives. The textured coating should be applied following the manufacturer's recommendations.

All painting materials should be delivered to the site in their original unbroken containers, with the manufacturer's name, brand, and formula clearly labeled. These materials will be mixed and applied strictly following the manufacturer's directions. Before painting, all surfaces must be thoroughly cleaned to remove any oil, grease, dirt, dust, or loose substances using a solvent and clean wiping materials. The surface should then be further prepared by scraping, chipping, blasting, wire brushing, or any other approved method. Surfaces such as stainless steel, aluminum, bronze, and other machined metal parts should be protected during the cleaning and painting process to avoid contamination. Once cleaned, all surfaces to be painted must be free from dust, dirt, fungus, algae, and other contaminants. Oil paints, varnish, or lime wash should be removed completely before proceeding with the painting work. All painting and coating materials must be thoroughly mixed before application. The work should be carried out professionally, ensuring that the finished surface is free from drips, ridges, brush marks, or imperfections. Paint should only be applied under dry, dust-free conditions. The ambient temperature must be above 7°C, and the surface must be free from moisture at the time of painting. For primary coats, brushing is the preferred method of application, and the first coat should be applied immediately after cleaning. If spraying is used, measures must be taken to prevent paint segregation in the container, and air supply lines should be free from moisture and oil. Each coat must be allowed to dry thoroughly before the next coat is applied.

For areas that will be inaccessible after installation, all surfaces should be fully painted before installation. The number of coats for Weather Shield and textured coatings will be specified by the Engineer, in line with the manufacturer's instructions. When mixing paint, only as much material as can be used within one hour should be prepared. Over-thinning of paint will not be allowed. After the first coat, the surface should be allowed to cure for at least overnight, and subsequent coats should be applied after ensuring the previous coat is thoroughly dried. For exterior finishes, Weather Shield/Weather Coat paints or textured coatings in the approved colors and textures, as per manufacturer's instructions, will be applied. The number of coats to be applied will be specified in the drawings or as directed by the Engineer. Similarly, plastic emulsion paint, vinyl emulsion paint, or matt enamel paint will be used on interior surfaces as per the drawings, with the number of coats indicated or as directed. Finally, an inspection request should be submitted for approval from the Engineer after completing the painting work.

8.0 Finishes

8.1 Floor Finishes

For external walkways, entrances, and staircases, non-slip ceramic or vitrified tiles will be used for durability and safety. The surface will be smooth, but textured enough to prevent slipping in wet conditions. These tiles are durable and can withstand heavy foot traffic. The color will be neutral (light grey or beige) to complement the external walls. The ground floor, especially in high-traffic areas like the lobby and cafeteria, will have ceramic or porcelain tiles. These tiles will be non-porous, stain-resistant, and easy to clean, ensuring hygiene. For the cafeteria, a warm light brown or beige ceramic tile will be used, providing a welcoming atmosphere. For high-traffic corridors, a similar neutral tone will be applied for cohesion.

For offices and meeting rooms, vinyl sheet flooring or modular carpets will be used. Vinyl flooring provides a smooth and durable surface, while modular carpets in muted colors will enhance acoustics and comfort. In meeting rooms, modular carpets in muted shades like grey or beige will be preferred to promote focus and professionalism. In restrooms, slip-resistant vinyl or rubber flooring will be used for safety and to ensure easy cleaning. The flooring material will be non-porous to prevent water absorption and to maintain hygiene standards.

8.2 Wall Finishes

For external walls, a combination of weather-resistant textured coatings (such as acrylic-based coatings) will be applied. These coatings offer both durability and a modern finish. The colors will be in neutral shades like light beige or grey to complement the architectural style and environmental surroundings. Internal walls will be finished with smooth plaster and painted with vinyl emulsion paint. This finish will be selected for its durability and ability to be cleaned easily. Colors will be selected based on the room's purpose, such as soft tones like pale yellow for classrooms, light green for meeting rooms, and off-white for offices.
In restrooms, the walls will be finished with ceramic or porcelain tiles, providing a durable, waterproof, and easily maintainable surface. These tiles will be selected in neutral or light colors like white, light grey, or light blue to maintain a clean and fresh appearance.In spaces like the community hall or conference rooms, feature walls may be finished with textured coatings or wallpapers. These finishes will add a unique aesthetic touch and create an engaging focal point.

8.3 Ceiling Finishes

For general ceiling areas, a smooth plaster finish with a coat of white emulsion paint will be used. This finish is practical, easy to maintain, and provides a clean, bright look. Suspended acoustic ceiling tiles will be used in offices and meeting rooms to help reduce noise and improve sound quality. Restroom ceilings will be finished with moisture-resistant plasterboard or mineral fiber tiles. These materials are designed to withstand humidity and provide a clean finish. They will also be easy to clean and maintain. The ceiling in the cafeteria and community hall will have a suspended ceiling with acoustic tiles, helping to absorb sound and create a comfortable

environment for conversations and gatherings. The tiles will be made of mineral fiber or gypsum board, and their color will match the overall theme of the room, typically in light shades.

Table 5. Finishes

Location	**Floor Finish**	**Wall Finish**	**Ceiling Finish**
External Walkways & Entrances	Non-slip ceramic/vitrified tiles (light grey/beige)	Textured acrylic-based coating (light beige)	N/A
Ground Floor Lobby	Ceramic or porcelain tiles (beige)	Vinyl emulsion paint (off-white)	Smooth plaster, white emulsion paint
Cafeteria (Ground Floor)	Ceramic tiles (light brown)	Vinyl emulsion paint (light tan)	Suspended acoustic tiles, light beige/white
Offices (All Floors)	Vinyl sheet flooring or modular carpets (beige/grey)	Vinyl emulsion paint (light grey/white)	Suspended acoustic tiles, white
Meeting Rooms (All Floors)	Vinyl sheet flooring or modular carpets (grey)	Vinyl emulsion paint (soft beige/light green)	Suspended acoustic tiles, white
Restrooms (All Floors)	Slip-resistant vinyl or rubber flooring (grey)	Ceramic tiles (white/light grey)	Moisture-resistant plasterboard or mineral fiber tiles (white)
Staircases (Internal)	Slip-resistant rubber or vinyl tiles (grey)	N/A	N/A
Staircases (External)	Slip-resistant rubber or vinyl tiles (charcoal grey)	N/A	N/A
Community Hall	Vinyl sheet flooring (warm brown)	Vinyl emulsion paint (light peach)	Suspended acoustic tiles, light beige/white
Conference Room	Vinyl sheet flooring (charcoal grey)	Vinyl emulsion paint (light grey)	Suspended acoustic tiles, white

9.0 Roof

A flat roof will be implemented for this community center to meet the functional and aesthetic needs of the building. Flat roofs are often chosen for their modern appearance, space efficiency, and ease of maintenance. Below is a detailed description of the materials, construction techniques, and design considerations for the flat roof of the building.

9.1 Roof Structure and Design

For the construction of the flat roof, a reinforced concrete (RC) slab will be used to provide a solid and durable surface. This type of roof design will ensure that the building can support additional loads, including future installation of HVAC units, solar panels, and other equipment if needed. It will also allow for ease of installation for roof drainage systems. The roof will be designed with a slight slope (about 1-2%) to ensure that water is properly drained off. While the roof may appear flat, this subtle slope will prevent water accumulation and the potential for leaks. The slope will direct water toward the drainage points located at strategic locations around the roof.

9.2 Materials Used in the Roof Construction

The primary material for the flat roof will be a reinforced concrete slab, which provides structural strength. The concrete mix for the slab will include a ratio of 1 part cement, 2 parts sand, and 3 parts aggregate, along with the required reinforcement steel bars as specified by the structural engineer. The slab will be cast in situ, and reinforcement will be placed according to the structural drawings to ensure the required load-bearing capacity. A layer of thermal insulation will be added above the concrete slab to improve energy efficiency and prevent heat loss or gain from the roof. The insulation will be made from materials such as expanded polystyrene (EPS), extruded polystyrene (XPS), or rigid mineral wool, with an average thickness of 50-100 mm. This will reduce the energy consumption of the building by maintaining a consistent internal temperature.

To prevent water penetration and leakage, the flat roof will be fitted with a high-quality waterproofing membrane. The membrane will be applied over the insulation layer and will include materials such as bituminous membranes, modified bitumen, or synthetic rubber (EPDM). This membrane will act as a barrier against moisture and ensure that the roof remains waterproof over time.

Above the waterproofing membrane, a protective layer will be applied. This layer typically consists of a layer of sand and cement screed, which will protect the waterproofing membrane from mechanical damage during construction and later maintenance. It also provides a smooth, even surface for the final finishing layer.

The final roof surface will be finished with either:

- **Gravel Ballast**: For roofs that require a durable and easily maintainable surface. Gravel ballast helps to protect the waterproof membrane from UV radiation and

physical damage. It also adds weight to the roof to prevent the membrane from lifting in windy conditions.

- **Paving Slabs or Tiles**: These can be used to create walkable areas or a rooftop garden. Paving slabs are ideal for creating usable outdoor spaces, and they can also act as a protective layer for the waterproof membrane.

A flat roof requires a well-designed drainage system to ensure that water does not accumulate and cause damage. The roof will be equipped with internal or external drains, designed to efficiently channel water away from the roof and prevent pooling. The system will include:

- **Roof Drainage Outlets**: Located strategically around the perimeter or at low points, these will be connected to downpipes that will direct water to the ground-level drainage system.
- **Overflow Drains**: In case of a blockage in the main drainage system, overflow drains will ensure that water can still escape, preventing flooding on the roof.

The flat roof will have a parapet wall around its perimeter, which serves both as a protective barrier and an aesthetic feature. The parapet wall will be constructed using the same materials as the building's external walls and will be finished with a smooth plaster or paint to match the overall design of the building. The parapet height will be in compliance with local building codes and regulations to prevent falls and provide adequate edge protection.

10.0 Doors and Windows

10.1 Doors

1. Door Types:

- Main Entrance Doors: These will be high-quality, heavy-duty galvanized steel doors with powder coating for durability and aesthetic appeal. The design will comply with Kahramaa specifications for external access.
- Internal Doors: Standard galvanized steel doors with powder coating for internal spaces.
- Fire-rated Doors: These will be installed at required locations such as stairwells and corridors, with a fire rating of at least 60 minutes, compliant with local fire safety regulations.
- Louvers: Louvers will be made of galvanized steel with powder coating, designed to allow ventilation while maintaining security.

2. Door Dimensions:

- Main Entrance Door: 1200 mm (width) x 2400 mm (height)
- Internal Doors: 900 mm (width) x 2100 mm (height)
- Fire-rated Doors: 1000 mm (width) x 2100 mm (height)
- Louvers: 600 mm (width) x 1200 mm (height)

3. Frame and Material:

- Frame: The door frames will be made of galvanized steel with appropriate thickness to support the door panels. Frame dimensions will typically be 50 mm x 75 mm, with reinforced sections where necessary.
- Finish: Powder-coated finish to protect against rust and enhance aesthetics. Color will be selected from the approved color palette.

4. Installation:

- Positioning: Doors will be positioned as per the layout and door code markings. Horizontal and vertical alignments will be verified using level bar plumbs.
- Frame Fixing: The door frame will be temporarily fixed with clamps and wedges at the top and bottom of the door opening. Screws will be drilled into the edges at specified locations and the frame will be securely fixed into the concrete wall.
- Clearance: The clearance around the door will be +/- 3 mm, unless otherwise specified, to ensure smooth operation.

- Architraves: Architraves will be accurately shaped to fit the contour of the door frame surface, ensuring neat and uniform installation.

5. Maintenance and Protection:

- Protection: Doors will be protected during the construction phase using proper coverings to prevent damage.
- Cleaning: Excess materials will be cleaned, and the area will be cleared of any debris prior to the final inspection.

10.2 Windows

1. Window Types:

- Fixed Windows: For areas where ventilation is not required, fixed glass windows will be used, made with clear toughened glass.
- Sliding Windows: For spaces requiring ventilation, sliding aluminum framed windows with clear glass will be installed. Frames will be powder-coated to prevent corrosion.
- Casement Windows: These will be used in areas where larger openings are required. The casement windows will have galvanized steel frames with powder coating.
- Louvers: Similar to doors, louvers will be used for ventilation purposes, made from galvanized steel with powder coating.

2. Window Dimensions:

- Fixed Windows: 1200 mm (width) x 1500 mm (height)
- Sliding Windows: 1500 mm (width) x 1200 mm (height)
- Casement Windows: 1000 mm (width) x 1800 mm (height)
- Louvers: 600 mm (width) x 1200 mm (height)

3. Frame and Material:

- Frame: For fixed, sliding, and casement windows, the frames will be made of galvanized steel or aluminum with powder coating to ensure corrosion resistance.
- Glass: All windows will use clear toughened glass, with a thickness of 5-6 mm, to ensure durability and safety.
- Finish: Windows will have a smooth, powder-coated finish in approved colors for aesthetic harmony with the building's exterior.

4. Installation:

- Positioning: Windows will be installed according to the approved window locations, with accurate reference levels marked on the structure to ensure proper alignment.
- Sealing: Proper sealing around the window frames will be done using silicone sealant to prevent water ingress.
- Ventilation: Louvers will be installed where specified to provide adequate natural ventilation to the building's interior spaces.

Summary Schedule

Table 6. Doors and windows

Element	Type	Material	Dimensions (W x H)	Finish	Installation Notes
Main Entrance Door	Galvanized Steel	Powder-Coated Steel	1200 mm x 2400 mm	Powder-Coated Steel	Installed with proper level and reference markings
Internal Doors	Galvanized Steel	Powder-Coated Steel	900 mm x 2100 mm	Powder-Coated Steel	Frame aligned and fixed with 3mm clearance
Fire-rated Doors	Galvanized Steel	Powder-Coated Steel	1000 mm x 2100 mm	Powder-Coated Steel	Installed as per fire safety regulations
Louvers	Galvanized Steel	Powder-Coated Steel	600 mm x 1200 mm	Powder-Coated Steel	Positioned for ventilation, protected during work
Fixed Windows	Toughened Glass	Aluminum/Steel Frame	1200 mm x 1500 mm	Powder-Coated	Mounted with sealing and proper alignment
Sliding Windows	Toughened Glass	Aluminum Frame	1500 mm x 1200 mm	Powder-Coated	Sealed and positioned per layout
Casement Windows	Toughened Glass	Galvanized Steel Frame	1000 mm x 1800 mm	Powder-Coated Steel	Installed with appropriate frame alignment
Louvers (Windows)	Galvanized Steel	Powder-Coated Steel	600 mm x 1200 mm	Powder-Coated Steel	Fixed in ventilation areas

Key Notes:

- Levels: All doors and windows must be carefully installed with reference to floor and door frame levels to ensure proper alignment and functionality.
- Clearance: Ensure a clearance of +/- 3 mm around doors for smooth operation.
- Protection: All elements should be protected during construction to prevent damage to frames, glass, and finishes.

11.0 Services

11.1 Electrical Installations

The electrical distribution system for the community centre will be central to the building's operation. A Main Distribution Board (MDB) will be installed on the ground floor, strategically located in a dedicated electrical room, ensuring ease of access for maintenance. The MDB will be connected to Sub Distribution Boards (SDB) on each floor. The SDBs will distribute power to the lighting, power, and specialized systems in each area. Electrical wiring will be installed using copper conductors and will be housed within rigid PVC conduits to ensure protection from physical damage. The wiring system will follow the layout specified in the approved drawings. For power outlets, 13A sockets will be used in offices and common areas, while specialized outlets for equipment will be provided in utility and kitchen areas.

To ensure proper grounding, a dedicated earthing system will be installed, consisting of a copper earth electrode placed at the building's base. The building will be equipped with a lighting protection system, including air terminals, down conductors, and earth rods as per the local fire safety regulations. The lighting system will be installed with energy-efficient LED lights, with motion sensors placed in corridors and common areas for energy-saving purposes. Light switches and outlets will be positioned according to the architectural drawings, with proper clearances to avoid interference with doors and furniture.

11.2 HVAC System

The HVAC system for the community centre is designed to maintain comfort across various areas, including offices, meeting rooms, and common spaces. The air handling units (AHUs) will be centrally located in the service areas of the building and connected to the ductwork system that will distribute air throughout the facility. The ducts will be made of galvanized steel, with appropriate insulation to prevent heat loss and minimize noise. Flexible ducting will be used where the routing is more complex, especially in tight spaces such as between floors and in ceiling voids.

The HVAC units will be of the split type for specific zones, including high-occupancy areas like the auditorium, and will be controlled by a centralized control system. In areas such as the kitchen and bathrooms, exhaust fans will be installed to maintain air quality and prevent moisture buildup. The system will include temperature and humidity controls to ensure a comfortable environment for the users, and ventilation systems will be installed to ensure adequate air exchange in all areas. Air diffusers and return grilles will be placed based on the room layout to ensure even air distribution.

11.3 Fire Protection System

The fire protection system for the community centre will include an extensive sprinkler system, smoke detectors, heat detectors, and a fire alarm system to ensure safety in the event of a fire. Smoke detectors will be installed in all corridors, stairwells, and other enclosed spaces. Heat detectors will be installed in the kitchen and storage areas where smoke may be a false alarm

trigger. The sprinkler heads will be installed at regular intervals throughout the building as per the fire safety regulations. These will be connected to a water supply system that includes water storage tanks and pumps for maintaining adequate pressure.

The fire alarm system will include a central control panel located in the security room. The system will be connected to manual call points, audible alarms, and visual indicators installed at strategic locations such as near exits. The building will also be equipped with fire extinguishers and fire blankets in accessible areas, including the kitchen and hallways. The sprinkler system will be inspected and tested regularly as per fire safety guidelines to ensure functionality.

11.4 Plumbing and Sanitary Installations

The water supply system for the community centre will be connected to the municipal water supply with a main water meter to monitor consumption. Water distribution will be done using CPVC and UPVC piping for both hot and cold water. The water supply system will be routed through dedicated service ducts, ensuring minimal interference with other services. The piping will be carefully installed with appropriate insulation for both thermal and acoustic purposes.

A water storage tank will be provided on the roof of the building, with a capacity of approximately 10,000 liters to ensure consistent water supply, especially during peak demand. A booster pump will be installed to maintain water pressure across all floors. The sanitary system will include soil pipes made of UPVC material, which will collect waste from toilets, kitchens, and other plumbing fixtures. These pipes will be routed through service shafts and manholes for easy maintenance and cleaning. Vent pipes will also be installed to ensure proper air circulation within the drainage system, preventing the buildup of gases.

Sanitary fixtures such as water-saving WCs, urinals, and wash basins will be installed in bathrooms. The fixtures will be made of ceramic or stainless steel and will be installed as per the layout, with adequate spacing for comfort and accessibility. In the kitchen areas, stainless steel sinks will be installed, and in the public areas, drinking fountains will be provided.

11.5 Communication and Data Systems

The community centre will be equipped with modern communication systems, including telephone lines, data cabling, and a public address system. Cat 6 data cables will be installed in all offices, meeting rooms, and common areas to provide high-speed internet and network connectivity. Telephone lines will be routed through PVC conduits, and wall-mounted phone outlets will be installed in each office.

The public address (PA) system will be installed in common areas such as the auditorium, hallways, and cafeteria. The PA system will be connected to ceiling-mounted speakers, which will be strategically placed to ensure even sound distribution. The system will also include microphones, amplifiers, and audio controllers.

BILL OF QUANTITIES - SUBSECTION I

ARCHITECTURAL
& STRUCTURAL BOQ

1 GENERAL

a. The Bidder shall read and be conversant with the full description of workmanship and materials as described in the Particular Specification and prescribed General Specification for the respective items of work/ trades prior to the preparation of the Tender.

b. Method of Measurement used in preparation of this BOQ is SLS 573 1999, where applicable. All quantities appear in the BOQ are "NET" only. No allowance is included for wastage or for any other reason.

c. The bidder shall refer to the relevant Clauses of Pricing Preamble when pricing composite items of works.

d. The rate for each item must be comprehensive and must include for complying in all respects with the requirements of the aforesaid specifications, these Pricing Preambles, covering all the obligations under the Contract, and all matters and things necessary for the proper construction, completion and maintenance of the Works. No claim for additional payment shall be allowed for any error or misunderstanding by the Contractor of the work involved.

e. The rate for each item shall include for all the following -

   i. Labour and all connected costs

   ii. Materials and goods including all connected costs

   iii. Preliminaries, preparatory works and setting out of particular item

   iv. Complying with regulations of the Municipal Council and/or any other relevant authority under which particular item of work is to be executed

   v. Fitting and fixing materials and goods in position, including hoisting to any height or lowering to any depth and all temporary works, equipment and small tools

   vi. Small plant and tools

   vii. Handling of materials and working in situation where there is very restricted working space or no working space

   viii. Square cutting and Waste of materials

   ix. Forming of ends, angles, miters and junctions between straight and raking or curved work

   x. Samples, testing and furnishing test reports

   xii. All other incidental works and necessary works which are not described in the B.O.Q. but described in the aforesaid specifications and or shown in the drawings for the proper completion of the relevant item of work

   xiii. Establishment charges, overheads and profits.

f. In addition to above, the rates for items of work in Substructure shall include for the works at depths extending below ground water table where applicable including excavation under water, removal and disposal of mud and sand and preparation of place to a condition suitable for proper execution of the works.

g. The bidder should familiar with all import procedures of duty free materials and should handle all work with regard to imports and delivery of all construction materials under his scope including until such materials are delivered to the site and used for the Works.

2 EXCAVATION AND EARTHWORK

a. Unless noted otherwise all works under this section are measured net and no working space is allowed.

b. The Contractor shall be responsible for the design and execution of the excavation method which is subject to scrutiny by the Engineer. However, scrutiny by the Engineer shall not in any way relieve the contractor of his responsibilities and duty of care.

c. Existing ground levels shown in the Drawings have been taken at the surface of the ground, with no particular differentiation to indicate buried foundations, paving etc.

d. The Contractor shall note that the rate for compacted earth fill and granular fill, stone, gravel and sand beds shall include for imported materials or materials from borrow areas.

e. Rates for Excavation & Earthwork shall include for -

   i. Accepting site as found and preparing to condition suitable for proper execution of the Works ;

   ii. Excavating by whatever means are necessary including excavation done manually or by machine in any type of ground including ground with boulders, except rock requiring blasting.

   iii. Trimming sides, keeping clean and consolidating bottom of basement, sumps, pits and trenches ;

   iv. Backfilling and disposal of surplus excavated materials as specified and directed ;

   v. Unless noted otherwise any necessary additional works required due to
      a. Working space required by the Contractor ;
      b. Earthworks supports ;
      c. Formwork ;

   vi. Any additional trimming or appropriate back- filling to provide specified or approved formations and profiles necessitated by the uneven excavation of the earth, unless otherwise measured separately ;

   vii. Any shoring or planking and strutting required for excavation

f. Rates for compacted earth fill, granular fill and gravel and sand beds shall include for finishing sub-grade to slopes and falls, depositing in layers, levelling, blinding, and machine or hand-packing to form vertical or battered or level faces, and for forming sinking where required under floor slabs or sub-floor layers.

g. Rates for approved damp-proof membrane shall include for laps, and straight, raking and circular cutting, and for notching around all obstructions.

3 CONCRETE WORK

A Concrete

Rates for concrete work shall include for -

i. Mixing as per specification, depositing, handling, hoisting and placing at any height or depth ;

ii. In case of ready-mix concrete, transporting, admixtures, handling, pumping/hoisting and placing at any height or depth ;

iii. Packing and tamping around reinforcement, including vibrating ;

iv. Contractor's designed kickers, construction joints and sealants ;

v. Finishing to slopes and falls, and preparing surface ready for screeds or paving or prescribed finish where necessary, including cutting to sizes and temporary supports to form necessary grooves.

vi. Curing ;

vii. Preparation of ground surface, grading to slope and falls, if any, and machine or hand packing to form vertical or battered or level surface and all necessary formwork to edges of blinding concrete in case of pile caps ground slab/ramps/beams.

B Formwork

a. Formwork for similar concrete members are measured together irrespective of the height or depth and the shape or form.

b. Extra-over rate for a particular type of high quality formwork should be applied only for the areas of formwork which requires such high quality type formwork as specified.

c. Formwork shall be properly designed and strictly as described in the specifications for the particular type of concrete surface finish and it should be sufficiently strong and grout tight.

d. Faces of masonry and concrete work which will be formed or used as formwork shall not be measured as formwork and no payment shall be made for same.

e. The Contractor shall be responsible for the design and execution of the form work for concrete elements and to provide method statement, shop drawings, design details and any other details related to the approval of the Engineer

f. Rate for formwork shall include for -

   i. Fabricating setting up and erection at any height or depth ;

   ii. Strutting, supporting through lower floors and supporting at any level, including additional propping, strutting and supporting decks ;

   iii. Coating with shuttering oil and or lining ;

   iv. Easing, striking and removing ;

   v. Cleaning, preparing for reuse ;

   vi. Removal when no longer required ;

vii. Props, stays, struts, wedges, bolts, incidental items and materials such as nails, screws anchors hooks etc. ;

viii. All overlaps and passing at angles ;

ix. Labour at intersections and narrow widths ;

x. Rubbing down and making concrete surface good after removal of formwork ;

xi. All fillets, to form grooves, rebates and throats, splays or chamfers, raking and circular cutting, and cutting around all pipes, sleeves, conduits, ducting, metal sections and fittings ;

xii. Providing samples as required by the Engineer of the different formed finishes specified.

C Reinforcement

a. i. Standard length of reinforcing bar for the purpose of measurement shall be 6.0 m.

ii. Reinforce steel (Tor steel and mild steel both) in different diameters are measured under following categories
- High yield steel bar reinforcement
- Mild steel bar reinforcement

iii. Payment for bar reinforcement shall be to nearest Kilogram.

iv. Following are the nominal weights per m which shall be used for the computation of quantities for the reinforcement.

25mm	-	3.854	kg/m
20mm	-	2.466	kg/m
16mm	-	1.578	kg/m
12mm	-	0.888	kg/m
10mm	-	0.616	kg/m
8mm	-	0.395	kg/m
6mm	-	0.222	kg/m

b. Rates for reinforcement shall include for -

i. Rolling margin ;

ii. Preparation of bar bending schedules ;

iii. Straightening as required and cleaning of bars ;

iv. Cutting, bending and binding ;

v. Hoisting and placing in position at any height or depth ;

vi. Binding wires, and cover blocks.

vii. Necessary supports such as chairs and spacers.

viii. Aligning and supporting in position during concreting.

D Precast concrete

a. The Contractor shall provide method statement, shop drawings, design details, manufacturer's specifications and any other details related to precast concrete work for approval of the Engineer

b. Rates for precast concrete works shall include for -

i. Moulds and for formwork with the required finish to all exposed surfaces in accordance with the specifications, hacking surfaces to form key for rendering etc., and hoisting to any height or depth including providing any lifting holes or other devices to the approval of the Engineer, building in, including bedding and jointing in mortar as required, and any necessary strutting and supporting.

ii. The requirements of the Pricing Preamble clauses which refer to Concrete Work, Reinforcement and Formwork are applicable to precast concrete elements.

iii. Loading, transporting to Site, unloading, handling and stacking.

iv. Hoisting and fixing in position at any height or depth.

4 MASONRY WORK

a. In the calculation of the volumes of brick/block wall which are not multiples of the size of standard bricks/blocks, the thickness of such walls shall be taken as the thickness of full bricks/blocks from which they can be cut. The same principle of calculation of volume shall be used for all brickwork of which the cross-sectional dimensions are not multiple of brick/block sizes.

b. Rates for brickwork/block work/precast slabs shall include for -

i. Plumbing, angles, straight cutting, forming rebates, reveals and raking out joints for plastering/painting ;

ii. Splay cutting, rough cutting, fair cutting, forming chases or grooves for slabs, partitions, staircases, roofs and the like, bonding ends of walls, building in or cutting and pinning in and making goods on lintels, timber and steel works ;

iii. Building at any level or height of slabs or beams, additional labour in kerbs, isolated and attached piers, all cutting, bonding at angles and intersections, building into or against adjacent work, wedging and pinning up to soffits;

iv. Supplying and fixing metal clamps, Galvanized, steel boundary ties, and brick/block reinforcement etc.;

v. Necessary cutting required in walls which are not multiples of brick/block size ;

vi. Preparing existing walls for raising and pinning new brick/block work ;

vii. Bonding new walls to concrete faces and old walls where necessary, and materials to be used for such bonding.

viii. Stiffeners as specified in structural drawings

c. Rates for Damp Proof Course shall include for -

i. Necessary levelling screed and trimming top of rubble/block/brick plinth wall ;

ii. Fair edges, rounded edges, drips and arises, angle fillets ;

iii. Turning nibs of asphalt into grooves ;

iv. Cutting to line and jointing new to old asphalt.

d. Rates for Rubble Masonry shall include for -

i. All joggles, cramps, dowels, ties, templates ;

ii. Plumbing, angles, fair returns, setting, jointing, eaves filling, pointing and fixing in position, hoisting to any given height or depth ;

iii. Bonding ends of walls, rough cutting and fair cutting ;

iv. Levelling up in walling for Damp Proof Courses, sills, thresholds, string courses, copings and the like ;

v. Forming straight vertical joints next to dressings, panels, brickwork etc. ;

vi. Forming openings and dressed margins ;

vii. Forming chases, throats, rebates, margin flutes, sinking, chamfered and rounded edges, and all labour connected therewith.

5 WATER PROOFING

a. The Contractor shall provide method statement, manufacturer's specification and any other details related to waterproofing for approval of the Engineer

b. The Contractor shall provide 10 years warranty as specified for the waterproofing systems

c. Rates for Waterproofing shall include for ;

i. Necessary levelling and trimming top/side of rubble/block/brick/concrete surfaces ;

ii. Fair edges, rounded edges, drips and arises, angle fillets ;

iii. Forming internal and external angles, bonding bricks/blocks and the like ;

iv. Turning nibs of asphalt into grooves and asphalting around brackets ;

v. Cutting to line and jointing new to old asphalt, notching, bending and extra material for lapping

vi. Working into recessed duct covers, shaped inserts, outlet pipes and the like

vii. Work to falls and cross falls

viii. Temporary screeds, ground and rules.

ix. Necessary testing to prove water tightness

6 METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTURAL STEEL

a. Type and quality of steel to be used for metal work shall be as per drawings and relevant specification

b. This section includes Aluminium doors and windows and other non structural steel handrails, manhole covers and the like

c. Contractor shall prepare shop drawings before fabrication of elements for approval of the Engineer.

d. Rates for Metal Work shall include for anchors, screws, dissimilar metals, cutting, fixing, hoisting, welding, bolts, nuts, galvanizing / powder coating if required and providing thermal movement and the preamble clauses for Structural Steel Work where relevant and they shall apply equally torelevent items of this section.

e. Fabrication & fixing of aluminium components shall be carried out by experienced tradesman. The Contractor shall furnish particulars of aluminium fabricator to the Engineer for his approval.

f. The Contractor shall furnish a warrantee on material and workmanship for a period of 10 years from the date of handing over of Works in the form required by the Employer, binding the aluminium manufacturer and the Contractor jointly and severally

g. Rates for aluminium doors and windows shall include for

   i. Testing as directed by the Engineer submitting test reports preparing samples etc. & trial shop assembling as requested by the Engineer/Architect ;

   ii. All shop fabrication work, making, delivery, unloading, hoisting, erecting and fixing at any given height or depth ;

   iii. Providing members of any length, cutting to size and shape and jointing to form doors and window elements as required ;

   iv. Providing GI sub frames and nails, screws, bolts,etc in stainless steel in fabricating and fixing the elements in position

   v. Taking site measurements of all openings that require Aluminium doors and windows before fabricating frames and sashes

   vi. Providing glass for Aluminium doors and windows where necessary to the thickness specified including safe delivery to site, handling with care, cut to size and fixing to door or window sashes

   vii. Providing all necessary ironmongery as specified and including all cutting, fitting, sinking, boring, mortising, fixing with stainless steel matching screws, leaving oiled and in proper working order on completion and supplying and labeling all keys and handing over to the Employer.

   viii. Providing colourless silicon sealants, beadings as specified, etc. required to provide air tight door or window

   ix. Protecting and keeping fixed elements in cleaned and proper order until handing over the Works to the Employer

   x. Furnishing shop drawings of frames, sashes, casements, etc. before fabrication and submit to the Engineer for approval

h. Glazing in doors and windows shall be as per the design of the approved specialist who will be engaged by the Contractor or as nominated by the Employer

i. Rates for Glazing shall include for

i. Glazing, fixing, bedding priming and panel pins and other materials and labour for same and cutting to size ;

ii. Templates, straight cutting, circular cutting, grinding edges or special type of edges required and sand blasting ;

iii. Glazing beads, wash-leather or neoprene strip, glazing sealant, weather stripping, caulking joint silicone joint etc;

iv. Replacing cracked or broken glass ;

v. Making holes where necessary ;

vi. Samples to be submitted for the approval of the Engineer.

7 WOOD WORK AND JOINERY

a. The given sizes of all timber are finished sizes.

b. All timber shall be well seasoned and treated against insect and termite attack before fixing.

c. Timber used for joinery works shall be in one species of special class timber recommended by the Architect/Employer for the particular item of Joinery works or as specified in the Specification.

d. Rates for timber joinery shall include for -

i. Any type of cutting required, sawing, notching, drilling, trimming, planning

ii. Forming splayed and tongued edges, rebates mortices, grooves, chamfers, scribed

iii. Working to stated sizes, for all short lengths making mitres, joints and ends ;

iv. Necessary bolts, dowels metal clips, anchors, grips and fixing joinery ;

v. Gluing, dowelling, plugging, wedging pining and the like ;

vi. Punching heads and filling with approved filler if nails or pins are used for fixing ;

vii. Countersinking and filling heads with approved filler, if brass screws are used for fixing ;

viii. Painting rebates of frames before fixing glass ;

ix. Bedding in cement mortar filling and hanging to frame lining ;

x. Keeping clean for staining, polishing or painting;

xi. Painting, Lacquering or Varnishing as specified.

e. Rates for Glazing shall include for

i. Glazing, fixing, bedding priming and panel pins and other materials and labour for same and cutting to size ;

ii. Templates, straight cutting, circular cutting, grinding edges or special type of edges required and sand blasting ;

iii. Glazing beads, wash-leather or neoprene strip, glazing sealant, weather stripping, caulking joint silicone joint ;

iv. Replacing cracked or broken glass ;

v. Making holes where necessary ;

vi. Samples to be submitted for the approval of the Engineer.

f. Rates for ironmongery shall include for -

i. All cutting, fitting, sinking, boring, mortising ;

ii. Matching screws for ironmongery

iii. Removing during decoration, refixing after decoration, leaving oiled and in proper working order on completion and supplying and labelling all keys and handing over to Employer.

8 ROOF, ROOF COVERING AND ROOF PLUMBING

a. Rates for roof, Roof covering and roof plumbing shall include for :

i. Hoisting, placing and fixing in position ;

ii. Straight cutting, raking cutting, circular cutting, notching, plaining and working around obstructions and waste ;

iii. Nails, screws, bolts and the like ;

iv. Drilling and making holes or opening and the like;

b. Rates for flashings shall include for the following in addition to the requirement of "a" above -

i. Bending and cutting to required shape and forming roll edges ;

ii. Angles, edges and ends ;

iii. Notching over roofing ribs or dressing into roof cover/concrete as the case may be ;

iv. Forming and dressing into or around walls at obstructions and the like ;

v. Stepping up ;

vi. Sealing with sealant materials.

c. Requirements of pricing preamble clauses of Wood work and Joinery section shall apply for timber frame of the roof, where applicable.

9 FLOOR WALL AND CEILING FINISHES

a. i. All works under this trade shall be measured in square meters after deduction for voids, openings, doors and windows

ii. All other small quantities/panels/narrow widths/ arises/ reveals/ angles/ ends/short lengths including those of tiling work on door and window jambs and reveals are measured together with the respective tiling item and labour in such work shall be included in the rate for the main finishing item and they shall not be measured/paid separately.

iii. All finishes shall include preparation of base or sub base to receive floor or wall or ceiling finishes or painting

b. Rates for wall, floor, ceiling finishing and wall floor screed and beddings shall include for -

i. All temporary rules, screeds, templates and supports, curing and cleaning off on completion and exact thickness required to finish ;

ii. Caulked joints and making good and cutting around bolts, pipes conduits, sleeves, ducting, fittings, sections, switches, obstructions and the like ;

iii. Tamping and compacting ;

iv. Raking out joints of new brickwork/ block work or hacking concrete to form key, including brushing, cleaning off and dampening ;

v. Forming internal and external angles and arises ;

vi. Any extra thickness required to finish to true levels ;

vii. Any additional dubbing out required to plastered surfaces of brickwork and to the finished surface of concrete to obtain the requisite standard of finish ;

viii. Samples to be submitted for the approval of the Engineer.

c. Rates per tile slab or block finishing to floor and wall shall also include for the following in addition to the b above -

i. Straight raking and circular cutting ;

ii. Dubbing out or packing to concrete surface to correct deviations within specified tolerance ;

iii. Laying or finishing to falls or cross falls ;

iv. Expansion joints at perimeter and between bays where required in case of floor tile paving ;

v. Sand blasting, cleaning, waxing and appropriate floor finishing.

d. Rates for ceiling lining shall include for the following

i. Working to sides and soffits of attached or isolated beams and soffit of staircases where relevant;

ii. Additional forming required for lighting and air-conditioning grills ;

iii. Straight, raking and circular cutting ;

iv. Neoprene sealing for air tightness around hatches if any ;

v. Matching edges where cutting occurs and for filling the heads of fixings with approved filler where relevant ;

vi. Painted mild steel hanging rods.

10 PAINTING AND DECORATING

a. Colour and the quality of all paint and other painting materials shall be approved by the Employer/Architect prior to use.

b. The Contractor shall provide 10 years warranty as specified for the paint systems

c. Rates for painting shall include for -

i. Preparation of surfaces, cleaning down, smoothing, etc. ;

ii. Submission of samples for the approval of the Engineer ;

iii. Protection of floors, walls and fittings etc. ;

vi. Working to returns, painting in any colour, multi- colour works, cutting into line at junctions of different colours at angles or plain surfaces, painting in small quantities ;

v. Cleaning down upon completion

d. Rates for work to isolated general surfaces shall include for working on door frames, linings, window sub frames (where of a differing material to the window), skirting, rails, architraves, bars, posts, balusters and the like.

e. Rates for work to glazed general surfaces, glazed windows and the like (measured both sides, flat over glass, irrespective of size and panes) shall include for work to edges and glazing rebates, returns and mouldings of frames, mullions, transoms, architraves and the like.

f Rates for work to pipes and conduits (which shall include trunking, ducting and the like) shall include for all work on hangers, supports, brackets and the like.

11 EXTERNAL WORKS

a. The clauses of all trades of pricing preambles shall apply equally to items of external works where relevant.

12 PLUMBING/ SANITARY INSTALLATIONS

a. This section includes cold and hot water installation, fixtures and appliances, fire services installation, gas installation and drainage above ground.

b. The Contractor shall provide everything necessary in jointing pipes, fittings and appliances, partitions, moulds, templates, etc. for proper installation

c. Pipes are measured over all fittings and branches along the centre line of bends, junctions, tees and fittings

d. The Contractor shall provide shop drawings, design details, manufacturer's specifications, samples, test reports and any other details related to plumbing/ sanitary installations to approval of the Engineer

e. The Contractor is responsible in coordinating the works with civil, architectural and other engineering installations

f. The Contractor is responsible in using specialized technical personals in the work.

g. Equipment installation shall include loading, unloading, hoisting, placing and the like

h. Attending to all incidental and builders work shall be the contractor's responsibility.

i. Provide guarantees, warrantees, technical specifications, maintenance manuals, etc. related to equipment and systems to the Employer

j. Rates for pipes shall include for

   i. Joints in lengthening pipes

   ii. Cutting and jointing pipes to fittings or pipe ancillaries like gullies, outlets, traps, etc.

   iii. Hoisting, placing and fixing in position

   iv. Any machinery or equipment, technical expertise, water required for testing and commissioning of the system

k. Rates for fixtures, appliances and equipment shall include for

   i. Hoisting, placing and fixing in position

   ii. Sealing joints with sealants, angle valves, supports, frames, packing, filling materials, short lengths of pipes, etc.

   iii. Plinths, foundations, levelling and working overhand

   iv. Protection, labelling if required

13 ELECTRICAL INSTALLATIONS

a. Preambles for Electrical installations are applicable as appropriate in fire installations, AC and other services trades.

b. Rates for Electrical installation items shall include for providing all necessary accessories for jointing and providing patterns, moulds, templates, samples and the like

c. Rate for point wiring shall include for
   i. Conduit accessories including conduit boxes
   ii. Bedding, cutting, screwing, jointing
   iii. Clips and saddles
   iv. Forming holes for conduit entry
   v. Draw wires, cables and the like
   vi. Components for earth continuity

vii. Cable sleeves and wall, floor and ceiling plates
viii. Determining cable routes
ix. Making good the disturbed works finished by others

14 ATTENDANCE FEE ON NOMINATED SUBCONTRACTORS

a. Trades or special trades to be procured through nominated sub contractors.

b. Main contractor is responsible in providing necessary attendance to the Employer's Direct and Nominated sub contractors for execution of the works.

c. Main Contractor's attendance fee shall include (but not limited to following) in providing

i. The supervision, assuring the quality, timely completion and administration of all the Nominated Sub-Contractors in accordance with the General and Special Conditions of Contract and will be required to arrange a Program schedule with each of the Nominated Sub Contractor. These schedules will be subjected to the approval of the Engineer/ the Project Manager

ii. Affording the available facility for the use of scaffolding, mess room , sanitary accommodation and welfare facilities

iii. Provision of a reasonable space for the Direct and Nominated Sub-Contractor to build office accommodation and stores

iv. Provision of working space

v. Provision of reasonable hoisting facilities and scaffolding. The Main Contractor is advice to check all specifications and drawings for all sub –contractors in order to ascertain the quantities and weights of all materials and equipment as well as their proposed locations. The Main Contractor shall also check with the Engineer/ the Project Manager the designated areas in the building which have been design for the purpose of hoisting equipment. The Main Contractor shall be responsible for the hoisting of all sub – contractor's/Supplier's materials and equipment to various levels and shall be responsible for any damage or loss that may occur.

vi. Provision for artificial lighting and temporary electricity supplies free of charge including power for testing and commissioning of equipment which will be from the permanents installations but any special lighting and power will be at the Direct or Nominated Sub-Contractor's expense

vii Provision of supply of water free of charge for the works including water required for testing and commissioning of equipment will be from the permanent installations. The Nominated Sub Contractor will be responsible for providing hoses/pipes to the water supply points provided by the main contractor at each floor.

viii Additional cost incurred due to the sub contractors working different hours from and extended hours to those worked by the Main contractor

ix Supply all relevant setting out and survey information including giving all necessary dimensions and taking responsibility for their accuracy

x. Programming , co-coordinating and organizing the Direct and Nominated sub contractor's work to ensure the correct timing, sequencing and completion of all operations including preparing coordinated working drawings of all services, subject to Engineer's/ the Project Manager's approval

xi. Cutting and forming holes, recesses, etc., for duct work, pipes, conduits, switches and fittings through walls, partitions, floors, ceilings, roofs etc., for the Main Contractor's work and making good after the Direct or Nominated Sub Contract works are sufficiently advanced. The Direct or Nominated Sub Contractor shall be responsible for chasing of walls and floors for pipes, conduits and fittings and making good shall be by the Main Contractor

xii. Taking delivery of any goods and materials at site or store outside the site subject to Engineer's / the Project Manager's approval

xiii. Insurance cover for loss, damage. storing and protecting until installation

xiv. Additional performance bond Insurance shall be taken as required. In the event of Direct or Nominated sub contracts being awarded the bonds and guarantees of the Nominated Sub Contractors shall be submitted to the Main Contractor. The Main Contractor shall enhance the value of the Main Contractor's bonds and guarantees to include Nominated Sub Contractor's amounts so that the Main Contractor will be responsible for the Performance of all Nominated Sub Contractors.

BILL NO. 01 - PRELIMINARIES

No	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
	GENERAL NOTES				
1	The attention of the bidder is drawn to refer Bill of Quantities, Drawings, Conditions of Contract, Specifications and any other particulars related to this tender. It is the tenderer's responsibility to see that his price includes for complying with all the requirements of the conditions of contract and other documents whether specifically referred to in this Bill of Quantities or not.				
2	The bidders shall visit the site prior to submitting the Bid and ensure that all preliminary items required as listed below and any other work required or deemed to be required for the project is included in the pricing. No claim shall be entertained for additional items due to bidders failure in obtaining information when inspect site and its surrounding.				
3	The contractor shall be responsible for maintaining the site in a clean and orderly manner at all times during the entire contract period. Materials, equipment, tools etc., shall be kept neatly stacked on the site. All dust and debris, arising out of his own work shall be continuously removed from the site. The burying or burning debris on site will not be allowed.				
4	The Contractor shall be responsible for providing adequate provisions to reduce the amount of vibration, dust and noise pollution. The Contractor is responsible for any complains, damages or claims in connection with the works and shall bear all connected costs on his own.				
5	The Contractor's staff and visitors to the site shall wear safety shoes and helmets by following all necessary safety measures to workmen at site confirming to the latest industrial safety regulations, while they are within the site for entire duration of the Contract. The cost incurred deemed included in the Contractor's Bid.				
6	The equipment, Power tools or any other tools used for the Works must be equipped with the standard safety gear and connecting devices and all the staff of the Contractor must abide by Employer's Security procedures.				
7	Any damage caused to any of the properties of the Employer, due to Contractor's default, such damages shall be rectified by the Contractor at his own expenses to the satisfaction of the Employer.				

BILL NO. 01 - PRELIMINARIES

No	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
8	No work in any trade shall be carried out in a manner so as to cause any nuisance to adjacent owners or any other users of the site or to the public.				
9	Contractor shall keep technically sound supervisor with more than 10 years experience in the Construction Industry all the time at site, having capacity to guide Contractor's team and coordinate with all relevant parties during execution of the Work.				
10	Contractor shall give notice to authorities etc., obtaining permits and the payment of fees in compliance with the requirement of the by-laws and regulations lawfully imposed by the Government or Semi Governmental or other local authorities.				
11	The contractor shall be responsible for submission of program of works. The Contractor shall prepare and submit a detailed program of work in the form acceptable to the Engineer.				
12	The Contractor is paid only for the BOQ Items actually executed at site, in full or proportionate, limiting to the maximum amount paid as indicated in Contractor's quoted price. The Employer may remove any of the work items from the Contractor's scope of work at its discretion, without entertaining any of the Claims from the Contractor.				
13	The basis of payment shall be "Measure and pay" and "Firm fixed - price" .contract without adjustments for changes in Cost as per Cl. No. 13.7				
14	The Parity Rate considered as 1 USD = LKR 326.00				

BILL NO. 01 - PRELIMINARIES

No	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
1.0	**PRELIMINARIES**				
1.1	Allow for mobilization, construction and maintenance of temporary site office, name board, stores, labour accommodation, work shops and sanitary, first-aid and welfare facilities for the Contractor and sub contractors for entire construction period.		Item		
1.2	Allow for providing temporary site office for the Engineer and his staff including necessary furniture and fittings, photocopier, computer and internet facility including sanitary facilities and maintenance for entire construction period.		Item		
1.3	Allow for connection of temporary electricity for the work with separate meter for workers' consumption including distribution system required for the work and payment for monthly consumption by workers during construction period		Item		
1.4	Allow for connection of temporary water for the work with separate meter for workers consumption, including storage and distribution system required for the work and payment for monthly consumption by workers during construction period		Item		
1.5	Allow for providing adequate site management and construction supervision work and coordination during construction.		Item		
1.6	Allow for setting out the work and obtaining necessary approvals from the Engineer/Project Manager		Item		
1.7	Allow for construction of hoarding to block access to construction site along the perimeter of the construction site, maintaining and removal on completion.(approx length 95 m)		Item		
1.8	Allow for providing scaffolding required for the entire project including shifting, maintaining and removal on completion		Item		
1.9	Allow for providing necessary lighting, watchmen, and other suitable security measures during construction until handing over.		Item		
1.10	Allow for keeping the site clean and tidy without mosquito breeding grounds during construction, by removing debris regularly.		Item		
	Page total carried to next page				

BILL NO. 01 - PRELIMINARIES

No	Description	Qty	Unit	Rate (LKR)	Amount (LKR)
	Page total brought forward from previous page				
1.11	Allow for providing Performance Guarantee acceptable to the Employer		Item		
1.12	Allow for providing Advance Payment security acceptable to the Employer		Item		
1.13	Allow for providing Contractor's All Risk Insurance acceptable to the Employer		Item		
1.14	Allow for providing Insurance cover against injuries and accidents to Contractors' personnel.		Item		
1.15	Providing Insurance cover against injuries and accidents to Consultants' personnel.		Item		
1.16	Providing safety nets around the construction area, where necessary		Item		
1.17	Allow for provision of progress reports including photographic records and other schedules relevant to contract administration monthly, as directed by the Engineer		Item		
1.18	Allow for submission of shop drawings and providing 3 sets of as built drawings with necessary technical information maintenance manuals and other document in triplicate (one electronic copy and two hard copies). - Payment for the item shall be on the approval of as built drawings and other documents.		Item		
1.19	Allow for preparing Coordinated Workinfg Drawings of all services		Item		
1.20	Allow for demobilization, removal of all temporary structures and facilities, clearing and removal of debris, making good to all damaged work and keeping entire site and areas provided for temporary facilities in good order when handing over.		Item		
1.21	Any other Preliminary Item required for the completion of the Works, Contractor to list, if any.		Item		
	TOTAL OF BILL NO. 01 PRELIMINARIES CARRIED TO SUMMARY				

BILL NO. 02 - SUBSTRUCTURE (UPTO +600 LEVEL)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
2.A	**EXCAVATION AND EARTH WORK**				
	Notes				
1.	The Bidder is requested to refer general notes, pricing preambles, drawings, specifications, conditions of contract, special conditions of contract and all other relevant documents prior to pricing of the following items.		Note		
2.	Unless noted otherwise the rate for excavation shall include for, working space and all necessary protective measures to protect adjacent buildings to the approval of the Project Manager/Engineer (PM/E) during construction.		Note		
3.	All necessary backfilling work, dewatering, compact bottom of excavation and earth work support as required except otherwise measured separately shall be included in the rate for excavation.		Note		
4	Site spot levels shall be taken before commencing any site filling or excavation work.		Note		
5	Gravely earth filling shall be well compacted to more than 95% of its dry density. Compaction test results shall be submitted to the PM/E for approval.		Note		
6	Rate shall include for removal of existing foundations, if any and cart away removed foundations and debris away from site, as directed by PM/E		Note		
7	Filling and compaction shall be done in layers. If requested, compaction test results shall be submitted to the Engineer for approval.		Note		
	Excavation				
2.A.1	Clearing site and removal of topsoil and stack in temporary spoil heaps at site for reuse	574	m^2		
2.A.2	Excavate pits for Pile Caps, depth not exceeding 3.0m, including backfilling and removing surplus soil	158	m^3		
2.A.3	Excavate trenches for ground beams, depth not exceeding 1.0 m, including backfilling and removing surplus soil	19	m^3		
2.A.4	Excavate trenches for concrete walls, depth in between 1.0 m and 2.0 m, including backfilling and removing surplus soil	19	m^3		
	Page total carried to next page				

BILL NO. 02 - SUBSTRUCTURE (UPTO +600 LEVEL)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
2.A.5	Bulk excavation for the pump room, water sump and lift walls to reduce level, average depth exceeding 1.00m and not exceeding 2.00m	82	m^3		
2.A.6	Shoring for excavations where necessary, in a methodology acceptable to the PM/E	94	m^2		
	Earth Filling				
2.A.7	Backfilling with imported soil, compacted in 200mm thick layers, as specified by the Engineer.	109	m^3		
	De-watering				
2.A.8	Disposal of surface / ground water by keeping all excavations and other working areas free from rain / ground water and percolating water by pumping or otherwise until completion of works. Contractor shall be paid upon submission of the details of incurred.cost.	1	Item		
	Anti-Termite Treatment				
2.A.9	An approved Anti - termite treatment, rechargeble system to building area by specialist sub contractor applied as per manufacturerer's specification and technical literature (Rate shall include for 10 years warranty to be issued in the name of the client, in Ground floor area)	320	m^2		
	TOTAL FOR EXCAVATION AND EARTH WORK CARRIED TO COLLECTION				

BILL NO. 02 - SUBSTRUCTURE (UPTO +600 LEVEL)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
2.B	**CONCRETE WORK**				
	Notes				
1	The Bidder is requested to refer to notes, preambles, drawings, specifications, Conditions of Contract and all other relevant documents prior to pricing.		Note		
2	All concrete works shall be in accordance with BS 8110, BS8007 and specifications or as recommended by the Engineer		Note		
3	Steel reinforcements and formwork measured separately except for composite items.		Note		
4	All concrete shall be ready mixed concrete, except for very small quantities, and the mix design as approved by the Engineer and should pass all the tests, and all test reports to be submitted to the Engineer along with all technical information.		Note		
5	Contractor shall ensure that all contacting surfaces including reinforcement dowels left out for bonding purposes is free from any organic or artificial material which can be a hindrance to achieve specified properties in the Drawings and Specifications.		Note		
6	Contractor shall ensure that the top of the lean concrete layer shall be finished semi rough.		Note		
7	All concrete shall be made dense with a vibrator and finished to receive respective finishes. The type and stability shall be agreed with the Engineer prior to commencement of concreting of each item.		Note		
8	Rates for lean concrete shall include for preparation of bottom of excavation prior to pouring of lean concrete.		Note		
9	Rates for concrete shall include for mixing, handling, hoisting, depositing, compacting, vibrating, curing, making good after removal of formwork and for any tests as necessary, forming joints in concrete as per drawings and specifications unless otherwise measured separately.		Note		
10	All concrete shall be so cast as to receive fair face finish on it's exposed faces to receive recommended paint system		Note		
11	All concrete surfaces, except those covered by form work shall be cured to the satisfactory of the consultant. - Internal members - 3 Day - External members - 7 Day				

BILL NO. 02 - SUBSTRUCTURE (UPTO +600 LEVEL)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
12	Curing of Concrete - Explode concrete surfaces should be covered with damp absorbent material after placing concrete. They should be kept continuously wet by frequent spraying of water. Curing should start immediately after removal of formwork. Minimum period of curing: 4 days		Note		
	In-situ Concrete				
	Grade 15, 50 mm thick, maximum aggregate size 20mm, in blinding screed				
2.B.1	Under Ground Beams, Pile Caps, & Sump	120	m^2		
	Reinforced Concrete in Grade 30 with maximum aggregate size 20 mm				
2.B.2	In Pile Caps	62	m^3		
2.B.3	In Ground Floor Slab	49	m^3		
2.B.4	In Ground Beams	15	m^3		
2.B.5	In Lift Pit Walls	15	m^3		
	Reinforced concrete Grade 30 (with waterproofing chemical & maximum aggregate size 20 mm)				
2.B.6	In Sump Base	8	m^3		
2.B.7	In Sump Walls	16	m^3		
	Formwork				
	Notes				
1	Rate for formwork shall include for all necessary hoarding, supporting, application of mould oil as necessary erecting, framing, cutting angles, cleaning, wetting and treatment before placing concrete and striking or removal etc.		Note		
2	All formwork shall be to provide basic finish on concrete surface, unless othherwise specifically mentioned		Note		
3	Type of formwork shall be plywood or approved type formwork with necessary supporting system to receive in followings: unless otherwise specified separately.		Note		
	Page total carried to next page				

BILL NO. 02 - SUBSTRUCTURE (UPTO +600 LEVEL)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
2.B.8	To sides of Pile Caps	107	m^2		
2.B.9	To sides of Ground Beams	94	m^2		
2.B.10	To sides of Lift Pit	71	m^2		
2.B.11	To sides of Sump Base	7	m^2		
2.B.12	Sides of Sump Wall	121	m^2		
	Reinforcement				
	Notes				
1	All reinforcement shall be free from dirt, oil, paint, grease, or loose rust before fixing in position and shall be cleaned to the acceptance of the Engineer.		Note		
2	All steel reinforcement shall be of grade 460, type 2 deformed bar or grade 250 mild steel bar in accordance with BS 4449:1997		Note		
3	Reinforcement supplied by the Employer under direct material supply.		Note		
4	Scheduling, dimensioning, bending and cutting of steel shall be in accordance with BS 8666:2000		Note		
5	The Contractor shall perform and the Rate shall include for cutting, bending, fabricating, placing in position, holding and supporting including temporary fixing supports, hangers and binding wire, ties, spaces, chairs etc.		Note		
6	All mild steel characteristic strength shall be 250 N/m^2 and tor steel 460 N/m^2 and as per the structural drawings		Note		
7	All reinforcement except 6mm dia m.s. Bars are to be steel Manufactured by Lanwa, CN or Melwa. Any other product should be approved by the Engineer.		Note		
	High yield steel bar reinforcement in all diameters				
2.B.13	In Pile Caps	6792	kg		
2.B.14	In Ground Beams	2804	kg		
2.B.15	In Ground Floor Slab	3133	kg		
2.B.16	In Lift Pit Walls	1700	kg		
	Page total carried to next page				

BILL NO. 02 - SUBSTRUCTURE (UPTO +600 LEVEL)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
2.B.17	In Sump Base	624	kg		
2.B.18	In Sump Wall	1266	kg		
	Mild steel bar reinforcement in all diameters				
2.B.19	In Ground Beams	591	kg		
2.B.20	In Lift pit	205	kg		
2.B.21	In sump walls	153	kg		
	TOTAL FOR CONCRETE WORK CARRIED TO COLLECTION				
2.C	**MASONRY WORK**				
	Notes				
1	The Bidder is requested to refer to notes, pricing preambles, drawings, specifications, Conditions of Contract and all other relevant documents prior to pricing.		Note		
2	All masonry works shall be comply with BS 5628		Note		
3	Rates shall include for preparation of surfaces of floor slab, columns and wall surfaces for proper bonding.		Note		
4	All the precast slabs should be fixed as per the instructions of the engineer.				
	Random Rubble Masonry				
2.C.1	RR Masonary, in 6"-9" rubble in Ct. Mtr. 1:5 in 380mm wide wall foundation.	68	m^2		
	TOTAL FOR MASONRY WORK CARRIED TO COLLECTION				

BILL NO. 02 - SUBSTRUCTURE (UPTO +600 LEVEL)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
2.D	**WATER PROOFING**				
	Notes				
1	The Bidder is requested to refer notes, pricing preambles, drawings, specifications, Conditions of Contract and all other relevant documents prior to pricing.		Note		
2	Waterproofing system includes preparation of surfaces , angle fillets, waterproofing layer, protective screed, etc.		Note		
	Damp Proof Membrane				
	1000 gauge polythene laid on compacted ground to receive concrete. Rate shall include for laps and upturns				
2.D.1	Under Ground Beams, Pile Caps, & Sump	208	m²		
	Damp Proof Course				
2.D.2	At wall foundations	34	m²		
	Wet Area Waterproofing				
	Approved waterproofing system as per manufacturers specification including protective layer				
2.D.3	On water sump floor and walls	128	m²		
	Water Bar				
	Supply and installation of 200mm wide, 3mm Thick MS plate water bar				
2.D.4	In Under Ground Sump & Lift Pit	46	m		
	TOTAL FOR WATER PROOFING CARRIED TO COLLECTION				

BILL NO. 02 - SUBSTRUCTURE (UPTO +600 LEVEL)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	BILL NO. 02 - SUBSTRUCTURE (UPTO +0 LEVEL)				
	COLLECTION				
2.A	EXCAVATION AND EARTH WORK				
2.B	CONCRETE WORK				
2.C	MASONRY WORK				
2.D	WATER PROOFING				
	TOTAL FOR BILL BILL NO. 02 - SUBSTRUCTURE (UPTO +600 LEVEL) CARRIED TO SUMMARY I				

BILL NO. 03 - GROUND FLOOR (FROM +600 TO +5475)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
3.B	**CONCRETE WORK**				
	Refer to Notes 2.B				
	In-situ Concrete				
	Reinforced concrete Grade 30 (Max Agg size 20 mm)				
3.B.1	In Columns	50	m^3		
3.B.2	In Lift Wall	17	m^3		
3.B.3	In Staircase	2	m^3		
	Formwork				
	Refer to Notes 2.B				
3.B.4	Sides of Columns	268	m^2		
3.B.5	Sides of Lift Walls	141	m^2		
3.B.6	Sides and Soffits of Staircase	16	m^2		
	Reinforcement				
	Refer to Notes 2.B				
	High yield steel bar reinforcement in all diameters				
3.B.7	In Columns	16052	kg		
3.B.8	In Lift Wall	1744	kg		
3.B.9	In Staircase	93	kg		
	Mild steel bar reinforcement in all diameters				
3.B.10	In Columns	1935	kg		
3.B.11	In Lift Walls	210	kg		
3.B.12	In Staircase	12	kg		
	Grade 20, including necessary reinforcement and form work.				
3.B.13	225mm x 150mm lintels	20	m		
	TOTAL FOR CONCRETE WORK CARRIED TO COLLECTION				

BILL NO. 03 - GROUND FLOOR (FROM +600 TO +5475)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
3.C	**MASONRY WORK**				
	Refer to Notes 2.C				
	Walls in Precast Slabs, "ICC" or equivalent				
3.C.1	75mm thick internal walls	51	m²		
3.C.2	140mm thick internal walls	206	m²		
	TOTAL FOR MASONRY WORK CARRIED TO COLLECTION				
3.D	**WATERPROOFING**				
	Refer to Notes 2.D				
	Wet Area Waterproofing				
	Approved waterproofing system as per manufacturers specification including protective layer				
3.D.1	In bathroom walls, 2100mm high at shower area and 1200 mm high vertical extension at other areas of wall	10	m²		
3.D.2	On bathroom floors	4	m²		
	TOTAL FOR WATER PROOFING CARRIED TO COLLECTION				

BILL NO. 03 - GROUND FLOOR (FROM +600 TO +5475)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
3.F	**METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTURAL STEEL**				
	Notes				
1	The Bidder is requested to refer general notes, pricing preambles, drawings, specifications, conditions of contract, special conditions of contract and all other relevant documents prior to pricing of the following items.		Note		
2	Shop drawings to be submitted for prior approval of the Engineer.		Note		
	Doors and Windows				
3.F.1	Type RS, roller shutter door automatic, size 3750 x 4750mm	1	nr		
3.F.2	Type RS1, roller shutter door manual, size 900 x 2100mm	1	nr		
3.F.3	Type RS2, roller shutter door	1	nr		
3.F.4	Type GD1, structural glazing with door, size 5250 x 4500mm	1	nr		
3.F.5	Type SD, structural glazing fixed low E glass, size 4000 x 4500mm	1	nr		
	Handrails				
3.F.6	Handrail, as per the given detail or as instructed by the Architect	9	m		
	TOTAL FOR METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTUAL STEEL CARRIED TO COLLECTION				

BILL NO. 03 - GROUND FLOOR (FROM +600 TO +5475)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
3.G	**JOINERY**				
	Notes				
1.	The Bidder is requested to refer notes, pricing preambles, drawings, specifications, Conditions of Contract and all other relevant documents prior to pricing.		Note		
2.	All timber shall be "Teak" timber and well seasoned, treated for insect attacks and against weather conditions unless otherwise specified.		Note		
3.	Door and window sashes shall be resist on weather conditions and finish with water base paint suitable for marine environment		Note		
4.	Unless noted otherwise all tempered glass shall be 12mm thick and plain double glass as specified by the Architect		Note		
5.	All timber doors and windows shall be with specified timber framework with water base finish and good quality ironmongery, to suit marine environment as per Architect's approval.		Note		
	Timber doors				
	Timber door, comprising timber frame and door sash				
3.G.1	Type TD2, 1hr fire rated timber engineered door, size 1000 x 2175mm	1	nr		
3.G.2	Type TD3a, moisture resistant timber enginnered door, size 1000 x 2175mm	1	nr		
3.G.3	Type TD7, painted metal double doors, size 1800 x 2175mm	1	nr		
	TOTAL FOR JOINERY CARRIED TO COLLECTION				

BILL NO. 03 - GROUND FLOOR (FROM +600 TO +5475)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
3.H	**FINISHES**				
	Notes				
1.	The Bidder is requested to refer notes, pricing preambles, drawings, specifications, Conditions of Contract and all other relevant documents prior to pricing.		Note		
2.	The Contractor shall submit samples of materials (as required) for prior approval of the Engineer when necessary		Note		
3.	For wall finishes rates shall include for forming reveals around doors and windows				
	Floor Finishes				
	Internal Floor Finishes				
	Cement finish				
3.H.1	In non-biological garbage room, organic garbage wastage collection room and transformer room	25	m²		
	Granite finish				
3.H.2	In commercial, reception and lift lobby areas	48	m²		
	600 x 600mm non slip porcelain floor tiles including 20 mm thick, 1:3 cement sand bedding with tile adhesive and grout (PC Rate per m² - Rs. 6200)				
3.H.3	In disabled toilet	4	m²		
	Terrazzo with titanium finish floor				
3.H.4	In staircases	14	m²		
	Internal Skirting				
	100 mm high cement skirting				
3.H.5	In non-biological garbage room, organic garbage wastage collection room and transformer room	98	m		
	100 mm high granite skirting				
3.H.6	In commercial, reception and lift lobby areas	33	m		
	100 mm high terrazzo with titanium finish skirting				
3.H.7	In staircases	18	m		
	Page total carried to next page				

BILL NO. 03 - GROUND FLOOR (FROM +600 TO +5475)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	External Floor Finishes				
	Interlock block, 100 x 100 mm				
3.H.8	In drive ways and outdoor areas	433	m²		
	Plinth plaster				
3.H.9	Plinth plastering, 16mm thick in 1:3 cement: sand and finish smooth with cement floating.	25	m²		
	Wall Finishes				
	Internal Wall Finishes				
	Titanium cement finish				
3.H.10	In non-biological garbage room, organic garbage wastage collection room and transformer room	161	m²		
	600 x 300m tiles up to ceiling on and including 1:3 cement and sand bedding with tile adhesive and grout to match the colour of tiles (PC Rate per m² - Rs. 5550)				
3.H.11	In disabled toilet	20	m²		
	Ceiling finishes				
	Suspended ceiling with 4.5mm asbestos free cement fibre (superflex) sheets with suitable frame work,as per Architect's approval.				
3.H.12	In commercial, reception, lift lobby areas and disabled toilet	52	m²		
	TOTAL FOR FINISHES CARRIED TO COLLECTION				

BILL NO. 03 - GROUND FLOOR (FROM +600 TO +5475)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
3.J	**PAINTING AND DECORATION**				
	Notes				
1.	The Bidder is requested to refer notes, pricing preambles, drawings, specifications, Conditions of Contract and all other relevant documents prior to pricing.		Note		
2.	The contractor shall provide 10 years warranty as specified for the paint system binding manufacturer and supplier jointly and severally		Note		
3	Rate shall include for preparation of surface to receive paint.		Note		
4	External paint shall be of 5-coat system including textured coat from "Chandrarathna decorators" or "WAPP" or equivalent, with 10 years warranty.		Note		
	Internal				
	Minimum of one coat of filler, primer and two coats of emulsion paint approved by the Architect.				
3.J.1	On walls	253	m²		
3.J.2	On ceilings in non-biological garbage room, organic garbage wastage collection room, transformer room and pathways	234	m²		
3.J.3	On ceilings in staircases	11	m²		
	External				
	Five coat system including primer and textured coat from "Chandrarathna decorators" or "WAPP" or equivalent.				
3.J.4	On walls	335	m²		
	TOTAL FOR PAINTING AND DECORATION CARRIED TO COLLECTION				

BILL NO. 03 - GROUND FLOOR (FROM +600 TO +5475)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	BILL NO. 03 - GROUND FLOOR (FROM +600 TO +5475)				
	COLLECTION				
3.B	CONCRETE WORK				
3.C	MASONRY WORK				
3.D	WATER PROOFING				
3.F	METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTUAL STEEL				
3.G	JOINERY				
3.H	FINISHES				
3.J	PAINTING AND DECORATION				
	TOTAL FOR BILL NO. 03 - GROUND FLOOR (FROM +600 TO +5475) CARRIED TO SUMMARY I				

BILL NO. 05 - FIRST FLOOR (FROM +10725 TO +15025)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
5.B	**CONCRETE WORK**				
	Refer to Notes 2.B				
	Reinforced concrete Grade 30 (Max Agg size 20 mm)				
5.B.1	In Slab	56	m^3		
5.B.2	In Columns	24	m^3		
5.B.3	In Beams	162	m^3		
5.B.4	In Lift Wall	15	m^3		
5.B.5	In Staircase	2	m^3		
5.B.6	In Non Structural Walls	6	m^3		
	Formwork				
	Refer to Notes 2.B				
5.B.7	Sides and Soffits of slabs	384	m^2		
5.B.8	Sides of Columns	220	m^2		
5.B.9	Sides of Beams	406	m^2		
5.B.10	Sides of Lift Walls	128	m^2		
5.B.11	Sides and Soffits of Staircase	19	m^2		
5.B.12	In Non structural walls	118	m^2		
	Reinforcement				
	Refer to Notes 2.B				
	High yield steel bar reinforcement in all diameters				
5.B.13	In Slabs	3859	kg		
5.B.14	In Columns	3689	kg		
5.B.16	In Lift Wall	1289	kg		
5.B.17	In Staircase	119	kg		
	Page total carried to next page				

BILL NO. 05 - FIRST FLOOR (FROM +10725 TO +15025)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
5.B.18	In Non Structural Walls	324	kg		
	Mild steel bar reinforcement in all diameters				
5.B.19	In Columns	443	kg		
5.B.20	In Beams	6966	kg		
5.B.21	In Lift Wall	155	kg		
5.B.22	In Staircase	15	kg		
	Lintels and sills				
	Grade 20, including necessary reinforcement and form work.				
5.B.23	225mm x 150mm lintels	60	m		
	TOTAL FOR CONCRETE WORK CARRIED TO COLLECTION				
5.C	**MASONRY WORK**				
	Refer to Notes 2.C				
	Walls in Precast Slabs, "ICC" or equivalent				
5.C.1	75mm thick internal walls	74	m^2		
5.C.2	140mm thick internal walls	293	m^2		
	TOTAL FOR MASONRY WORK CARRIED TO COLLECTION				

BILL NO. 05 - FIRST FLOOR (FROM +10725 TO +15025)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
5.D	**WATERPROOFING**				
	Refer to Notes 2.D				
	Wet Area Waterproofing				
	Approved waterproofing system as per manufacturers specification including protective layer				
5.D.1	In bathroom walls, 1200 mm high vertical extension along walls in areas other than shower areas	37	m²		
5.D.2	In bathroom shower areas, 2100 mm high vertical extension along walls in areas other than shower areas	27	m²		
5.D.3	On bathroom floors	22	m²		
5.D.4	On balcony floor, and balcony walls (upto 6")	102	m²		
	Approved waterproofing system as per manufacturers specification including protective screed for flower troughs				
5.D.5	On flower trough floor and internal walls	75	m²		
5.D.6	GeoTextile Membrane	95	m²		
5.D.7	50 mm aggregate/drainboard	25	m²		
	TOTAL FOR WATER PROOFING CARRIED TO COLLECTION				
5.F	**METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTURAL STEEL**				
	Refer to Notes 3.F				
	Doors and Windows				
5.F.1	Type SDa, structural glazing fixed low E glass, size 4000 x 4000mm	3	nr		
5.F.2	Type SD2, AL sliding window low E glass, size 4500 x 3450mm	1	nr		
5.F.3	Type SD3, AL sliding window low E glass, size 4275 x 3450mm	1	nr		
5.F.4	Type SD5, AL sliding window low E glass, size 3700 x 3450mm	1	nr		
	Page total carried to next page				

BILL NO. 05 - FIRST FLOOR (FROM +10725 TO +15025)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
5.F.5	Type SD5a, AL sliding window low E glass, size 3125 x 3450mm	1	nr		
5.F.6	Type SD6, AL sliding window low E glass, size 2850 x 3450mm	2	nr		
5.F.7	Type SD7, AL sliding window low E glass, size 6000 x 3450mm	1	nr		
5.F.8	Type SD8, AL sliding window low E glass, size 6900 x 3450mm	1	nr		
5.F.9	Type SD14, AL sliding window low E glass, size 4950 x 3450mm	1	nr		
5.F.10	Type SD4, AL top hung window low E glass, size 1450 x 1200mm	1	nr		
5.F.11	Type SW, AL top hung window low E glass, size 1000 x 600mm	1	nr		
5.F.12	Type SW1, AL top hung window low E glass, size 1250 x 1950mm	1	nr		
5.F.13	Type SW2, AL top hung window low E glass, size 1000 x 1950mm	1	nr		
5.F.14	Type SW5, fixed window low E glass, size 1800 x 3450mm	1	nr		
5.F.15	Type AD2, AL door and window low E glass, size 1600 x 2100mm	1	nr		
5.F.16	Type AD3, AL door and window low E glass, size 900 x 1600mm	1	nr		
	Handrails				
	Handrail, as per the given detail or as instructed by the Architect				
5.F.17	In staircases	8	m		
5.F.18	In balconies	73	m		
	TOTAL FOR METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTUAL STEEL CARRIED TO COLLECTION				

BILL NO. 05 - FIRST FLOOR (FROM +10725 TO +15025)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
5.G	**JOINERY**				
	Refer to Notes 3.G				
	Timber doors				
	Timber door, comprising timber frame and door sash				
5.G.1	Type TD2a, 1hr fire rated timber engineered door, size 1000 x 2175mm	1	nr		
5.G.2	Type TD3, timber engineered door, size 1000 x 2175mm	6	nr		
5.G.3	Type TD4, moisture resistant timber enginnered door, size 750 x 2175mm	6	nr		
5.G.4	Type TD6, 1hr fire rated timber engineered double door, size 1800 x 2175mm	2	nr		
	TOTAL FOR JOINERY CARRIED TO COLLECTION				
5.H	**FINISHES**				
	Refer to Notes 3.H				
	Floor finishes				
	Internal Floor Finishes				
	900 x 1800mm ceremic tiles, including 20 mm thick, 1:3 cement sand bedding with tile adhesive and grout (PC Rate per m² - Rs. 6200)				
5.H.1	In living room, pantry, fire lobby, stores and lift lobby	101	m²		
	600 x 600mm ceramic tiles, including 20 mm thick, 1:3 cement sand bedding with tile adhesive and grout (PC Rate per m² - Rs. 6200)				
5.H.2	In kitchen, laundry and staff room	19	m²		
	600 x 600mm non slip tiles, including 20 mm thick, 1:3 cement sand bedding with tile adhesive and grout (PC Rate per m² - Rs. 6200)				
5.H.3	In toilets	22	m²		
	Timber flooring (teak or equivalent)				
5.H.4	In bedrooms	76	m²		
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BILL NO. 05 - FIRST FLOOR (FROM +10725 TO +15025)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Terrazzo with Titanium Finish				
5.H.5	In staircases	18	m²		
	Internal skirting				
	100mm high 900 x 1800mm ceremic tile skirting				
5.H.6	In living room, pantry, fire lobby, stores and lift lobby	43	m		
	100mm high 600 x 600mm ceremic tile skirting				
5.H.7	In kitchen, laundry and staff room	35	m		
	100mm high Timber skirting				
5.H.8	In bedrooms	51	m		
	100mm high Terrazzo with Titanium skirting				
5.H.9	In staircases	24	m²		
	External Floor Finishes				
	600 x 600mm external non slip ceramic tiles, including 20 mm thick, 1:3 cement sand bedding with tile adhesive and grout (PC Rate per m² - Rs. 6200)				
5.H.10	In balconies	14	m²		
	External decking (composite timber)				
5.H.11	In balconies	78	m²		
	External Skirting				
	100 mm high 600 x 600mm external non slip ceremic tile skirting				
5.H.12	In balconies	14	m		
	100 mm high, skirting similar to decking				
5.H.13	In balconies	20	m		
	Page total carried to next page				

BILL NO. 05 - FIRST FLOOR (FROM +10725 TO +15025)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Wall Finishes				
	Internal Wall Finishes				
	330 x 330mm mosaic tiles, on and including 1:3 cement and sand bedding with tile adhesive and grout to match the colour of tiles (PC Rate per m² - Rs. 18400)				
5.H.14	In toilets	119	m²		
	600 x 300mm tiles, Ceramic wall tiles, on and including 1:3 cement and sand bedding with tile adhesive and grout to match the colour of tiles (PC Rate per m² - Rs. 5550)				
5.H.15	In toilets	16	m²		
	Ceiling Finishes				
	Suspended ceiling with 4.5mm asbestos free cement fibre (superflex) sheets with suitable frame work,as per Architect's approval.				
5.H.16	In living room, pantry, stores, laundry, kitchen, staff rooms, bedrooms, lift lobby, fire lobby and toilets	216	m²		
	TOTAL FOR FINISHES CARRIED TO COLLECTION				

BILL NO. 05 - FIRST FLOOR (FROM +10725 TO +15025)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
5.J	**PAINTING AND DECORATION**				
	Refer to Notes 3.J				
	Internal				
	Minimum of one coat of filler, primer and two coats of emulsion paint approved by the Architect.				
5.J.1	On walls	664	m²		
5.J.2	On soffits of the staircase	10	m²		
	External				
	Five coat system including primer and textured coat from "Chandrarathna decorators" or "WAPP" or equivalent.				
5.J.3	On walls and flower troughs	253	m²		
	Minimum of one coat of filler, primer and two coats of emulsion paint approved by the Architect.				
5.J.4	On ceilings in balconies	94	m²		
	TOTAL FOR PAINTING AND DECORATION CARRIED TO COLLECTION				

BILL NO. 05 - FIRST FLOOR (FROM +10725 TO +15025)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	BILL NO. 05 FIRST FLOOR (FROM +10725 TO +15025)				
	COLLECTION				
5.B	CONCRETE WORK				
5.C	MASONRY WORK				
5.D	WATER PROOFING				
5.F	METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTUAL STEEL				
5.G	JOINERY				
5.H	FINISHES				
5.J	PAINTING AND DECORATION				
	TOTAL FOR BILL NO. 05 - FIRST FLOOR (FROM +10725 TO +15025) CARRIED TO SUMMARY I				

BILL NO. 06 - SECOND FLOOR (FROM +15025 TO 19325)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
6.B	**CONCRETE WORK**				
	Refer to Notes 2.B				
	Reinforced concrete Grade 30 (Max Agg size 20 mm)				
6.B.1	In Slab	31	m^3		
6.B.2	In Columns	24	m^3		
6.B.3	In Reinforced Concrete Beams	15	m^3		
6.B.4	In Post Tensioned Beams	4	m^3		
6.B.5	In Lift Wall	15	m^3		
6.B.6	In Staircase	2	m^3		
6.B.7	In Non Structural Walls	6	m^3		
	Reinforced concrete Grade 35 (Max Agg size 20 mm)				
6.B.8	In Slabs	11	m^3		
6.B.9	In Reinforced Concrete Beams	6	m^3		
6.B.10	In Post Tensioned Beams	4	m^3		
	Formwork				
	Refer to Notes 2.B				
6.B.11	Sides and Soffits of slabs	376	m^2		
6.B.12	Sides of Columns	220	m^2		
6.B.13	Sides of Beams	252	m^2		
6.B.14	Sides of Lift Walls	128	m^2		
6.B.15	Sides and Soffits of Staircase	19	m^2		
6.B.16	In Non Structural Walls	118	m^2		
	Refer to Notes 2.B				
	High yield steel bar reinforcement in all diameters				
6.B.17	In Slabs	2690	kg		
	Page total carried to next page				

BILL NO. 06 - SECOND FLOOR (FROM +15025 TO 19325)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
6.B.18	In Columns	3689	kg		
6.B.19	In Beams	2505	kg		
6.B.20	In PT Beams	878	kg		
6.B.21	In Lift Wall	1289	kg		
6.B.22	In Staircase	119	kg		
6.B.23	In Non Structural Walls	324	kg		
	Design, supply and install post tensioned beams including high yield tensile steel wire or strand bar bonded system of prestressing tendon live end, dead end strands, etc. as per specialist details, complete including grouting, testing and all required builders work attendance insurances etc., complete all in accordance with the drawings and specification (concrete, formwork and steel bars measured separately)				
6.B.24	PT Beams	350	kg		
	Mild steel bar reinforcement in all diameters				
6.B.25	In Columns	775	kg		
6.B.26	In Beams	301	kg		
6.B.27	In PT Beams	106	kg		
6.B.28	In Lift Wall	155	kg		
6.B.29	In Staircase	15	kg		
6.B.30	In Non Structural Walls	39	kg		
	Lintels and sills				
	Grade 20, including necessary reinforcement and form work.				
6.B.31	225mm x 150mm lintels	60	m		
	TOTAL FOR CONCRETE WORK CARRIED TO COLLECTION				

BILL NO. 06 - SECOND FLOOR (FROM +15025 TO 19325)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
6.C	**MASONRY WORK**				
	Refer to Notes 2.C				
	Walls in Precast Slabs, "ICC" or equivalent				
6.C.1	75mm thick internal walls	74	m²		
6.C.2	140mm thick internal walls	293	m²		
	TOTAL FOR MASONRY WORK CARRIED TO COLLECTION				
6.D	**WATERPROOFING**				
	Refer to Notes 2.D				
	Wet Area Waterproofing				
	Approved waterproofing system as per manufacturers specification including protective layer				
6.D.1	In bathroom walls, 1200 mm high vertical extension along walls in areas other than shower areas	37	m²		
6.D.2	In bathroom shower areas, 2100 mm high vertical extension along walls in areas other than shower areas	27	m²		
6.D.3	On bathroom floors	22	m²		
6.D.4	On balcony floor, and balcony walls (upto 6")	102	m²		
	Approved waterproofing system as per manufacturers specification including protective screed for flower troughs				
6.D.5	On flower trough floor and internal walls	75	m²		
6.D.6	GeoTextile Membrane	95	m²		
6.D.7	50 mm aggregate/drainboard	25	m²		
	TOTAL FOR WATER PROOFING CARRIED TO COLLECTION				

BILL NO. 06 - SECOND FLOOR (FROM +15025 TO 19325)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
6.F	**METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTURAL STEEL**				
	Refer to Notes 3.F				
	Doors and Windows				
6.F.1	Type SDa, structural glazing fixed low E glass, size 4000 x 4000mm	3	nr		
6.F.2	Type SD2, AL sliding window low E glass, size 4500 x 3450mm	1	nr		
6.F.3	Type SD3, AL sliding window low E glass, size 4275 x 3450mm	1	nr		
6.F.4	Type SD5, AL sliding window low E glass, size 3700 x 3450mm	1	nr		
6.F.5	Type SD5a, AL sliding window low E glass, size 3125 x 3450mm	1	nr		
6.F.6	Type SD6, AL sliding window low E glass, size 2850 x 3450mm	2	nr		
6.F.7	Type SD7, AL sliding window low E glass, size 6000 x 3450mm	1	nr		
6.F.8	Type SD8, AL sliding window low E glass, size 6900 x 3450mm	1	nr		
6.F.9	Type SD14, AL sliding window low E glass, size 4950 x 3450mm	1	nr		
6.F.10	Type SD4, AL top hung window low E glass, size 1450 x 1200mm	1	nr		
6.F.11	Type SW, AL top hung window low E glass, size 1000 x 600mm	1	nr		
6.F.12	Type SW1, AL top hung window low E glass, size 1250 x 1950mm	1	nr		
6.F.13	Type SW2, AL top hung window low E glass, size 1000 x 1950mm	1	nr		
6.F.14	Type SW5, fixed window low E glass, size 1800 x 3450mm	1	nr		
6.F.15	Type AD2, AL door and window low E glass, size 1600 x 2100mm	1	nr		
	Page total carried to next page				

BILL NO. 06 - SECOND FLOOR (FROM +15025 TO 19325)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
6.F.16	Type AD3, AL door and window low E glass, size 900 x 1600mm	1	nr		
	Handrails				
	Handrail, as per the given detail or as instructed by the Architect				
6.F.17	In staircases	8	m		
6.F.18	In balconies	73	m		
	TOTAL FOR METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTUAL STEEL CARRIED TO COLLECTION				
6.G	**JOINERY**				
	Refer to Notes 3.G				
	Timber doors				
	Timber door, comprising timber frame and door sash				
6.G.1	Type TD2a, 1hr fire rated timber engineered door, size 1000 x 2175mm	1	nr		
6.G.2	Type TD3, timber engineered door, size 1000 x 2175mm	6	nr		
6.G.3	Type TD4, moisture resistant timber enginnered door, size 750 x 2175mm	6	nr		
6.G.4	Type TD6, 1hr fire rated timber engineered double door, size 1800 x 2175mm	2	nr		
	TOTAL FOR JOINERY CARRIED TO COLLECTION				

BILL NO. 06 - SECOND FLOOR (FROM +15025 TO 19325)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
6.H	**FINISHES**				
	Refer to Notes 3.H				
	Floor finishes				
	Internal Floor Finishes				
	900 x 1800 mm ceremic tiles, including 20 mm thick, 1:3 cement sand bedding with tile adhesive and grout (PC Rate per m² - Rs. 6200)				
6.H.1	In living room, pantry, fire lobby, stores and lift lobby	101	m²		
	600 x 600mm ceramic tiles, including 20 mm thick, 1:3 cement sand bedding with tile adhesive and grout (PC Rate per m² - Rs. 6200)				
6.H.2	In kitchen, laundry and staff room	19	m²		
	600 x 600mm non slip tiles, including 20 mm thick, 1:3 cement sand bedding with tile adhesive and grout (PC Rate per m² - Rs. 6200)				
6.H.3	In toilets	22	m²		
	Timber flooring (teak or equivalent)				
6.H.4	In bedrooms	76	m²		
	Terrazzo with Titanium Finish				
6.H.5	In staircases	18	m²		
	Internal skirting				
	100mm high 900 x 1800mm ceremic tile skirting				
6.H.6	In living room, pantry, fire lobby, stores and lift lobby	43	m		
	100mm high 600 x 600mm ceremic tile skirting				
6.H.7	In kitchen, laundry and staff room	35	m		
	100mm high Timber skirting				
6.H.8	In bedrooms	51	m		
	100mm high Terrazzo with Titanium skirting				
6.H.9	In staircases	24	m		
	Page total carried to next page				

BILL NO. 06 - SECOND FLOOR (FROM +15025 TO 19325)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	External Floor Finishes				
	600 x 600mm external non slip ceramic tiles, including 20 mm thick, 1:3 cement sand bedding with tile adhesive and grout (PC Rate per m² - Rs. 6200)				
6.H.10	In balconies	14	m²		
	External decking (composite timber)				
6.H.11	In balconies	78	m²		
	External Skirting				
	100 mm high 600 x 600mm external non slip ceremic tile skirting				
6.H.12	In balconies	14	m		
	100 mm high, skirting similar to decking				
6.H.13	in balconies	20	m		
	Wall Finishes				
	Internal Wall Finishes				
	330 x 330mm mosaic tiles, on and including 1:3 cement and sand bedding with tile adhesive and grout to match the colour of tiles (PC Rate per m² - Rs. 18400)				
6.H.14	In toilets	119	m²		
	600 x 300mm tiles, Ceramic wall tiles, on and including 1:3 cement and sand bedding with tile adhesive and grout to match the colour of tiles (PC Rate per m² - Rs. 5550)				
6.H.15	In toilets	16	m²		
	Ceiling Finishes				
	Suspended ceiling with 4.5mm asbestos free cement fibre (superflex) sheets with suitable frame work,as per Architect's approval.				
6.H.16	In living room, pantry, stores, laundry, kitchen, staff rooms, bedrooms, lift lobby, fire lobby and toilets	216	m²		
	TOTAL FOR FINISHES CARRIED TO COLLECTION				

BILL NO. 06 - SECOND FLOOR (FROM +15025 TO 19325)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
6.J	**PAINTING AND DECORATION**				
	Refer to Notes 3.J				
	Internal				
	Minimum of one coat of filler, primer and two coats of emulsion paint approved by the Architect.				
6.J.1	On walls	664	m²		
6.J.2	On soffits of staircases	10	m²		
	External				
	Five coat system including primer and textured coat from "Chandrarathna decorators" or "WAPP" or equivalent.				
6.J.3	On walls and flower troughs	253	m²		
	Minimum of one coat of filler, primer and two coats of emulsion paint approved by the Architect.				
6.J.4	On ceilings in balconies	94	m²		
	TOTAL FOR PAINTING AND DECORATION CARRIED TO COLLECTION				

BILL NO. 06 - SECOND FLOOR (FROM +15025 TO 19325)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	BILL NO. 06 - SECOND FLOOR (FROM +15025 TO 19325) **COLLECTION**				
6.B	CONCRETE WORK				
6.C	MASONRY WORK				
6.D	WATER PROOFING				
6.F	METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTUAL STEEL				
6.G	JOINERY				
6.H	FINISHES				
6.J	PAINTING AND DECORATION				
	TOTAL FOR BILL NO. 06 - SECOND FLOOR (FROM +15025 TO +19325) CARRIED TO SUMMARY I				

BILL NO. 07 - THIRD FLOOR (FROM +19325 TO +23625)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
7.B	**CONCRETE WORK**				
	Refer to Notes 2.B				
	Reinforced concrete Grade 30 (Max Agg size 20 mm)				
7.B.1	In Slab	31	m^3		
7.B.2	In Columns	24	m^3		
7.B.3	In Reinforced Concrete Beams	15	m^3		
7.B.4	In Post Tensioned Beams	4	m^3		
7.B.5	In Lift Wall	15	m^3		
7.B.6	In Staircase	2	m^3		
7.B.7	In Non Structural Walls	6	m^3		
	Reinforced concrete Grade 35 (Max Agg size 20 mm)				
7.B.8	In Slabs	11	m^3		
7.B.9	In Reinforced Concrete Beams	6	m^3		
7.B.10	In Post Tensioned Beams	4	m^3		
	Formwork				
	Refer to Notes 2.B				
7.B.11	Sides and Soffits of slabs	376	m^2		
7.B.12	Sides of Columns	220	m^2		
7.B.13	Sides of Beams	252	m^2		
7.B.14	Sides of Lift Walls	128	m^2		
7.B.15	Sides and Soffits of Staircase	19	m^2		
7.B.16	In Non Structural Walls	118	m^2		
	Refer to Notes 2.B				
	High yield steel bar reinforcement in all diameters				
7.B.17	In Slabs	2690	kg		
	Page total carried to next page				

BILL NO. 07 - THIRD FLOOR (FROM +19325 TO +23625)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
7.B.18	In Columns	3689	kg		
7.B.19	In Beams	2505	kg		
7.B.20	In PT Beams	878	kg		
7.B.21	In Lift Wall	1289	kg		
7.B.22	In Staircase	119	kg		
7.B.23	In Non Structural Walls	324	kg		
	Design, supply and install post tensioned beams including high yield tensile steel wire or strand bar bonded system of prestressing tendon live end, dead end strands, etc. as per specialist details, complete including grouting, testing and all required builders work attendance insurances etc., complete all in accordance with the drawings and specification (concrete, formwork and steel bars measured separately)				
7.B.24	PT Beams	350	kg		
	Mild steel bar reinforcement in all diameters				
7.B.25	In Columns	775	kg		
7.B.26	In Beams	301	kg		
7.B.27	In PT Beams	106	kg		
7.B.28	In Lift Wall	155	kg		
7.B.29	In Staircase	15	kg		
7.B.30	In Non Structural Walls	39	kg		
	Lintels and sills				
	Grade 20, including necessary reinforcement and form work.				
7.B.31	225mm x 150mm lintels	60	m		
	TOTAL FOR CONCRETE WORK CARRIED TO COLLECTION				

BILL NO. 07 - THIRD FLOOR (FROM +19325 TO +23625)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
7.C	**MASONRY WORK**				
	Refer to Notes 2.C				
	Walls in Precast Slabs, "ICC" or equivalent				
7.C.1	75mm thick internal walls	74	m²		
7.C.2	140mm thick internal walls	293	m²		
	TOTAL FOR MASONRY WORK CARRIED TO COLLECTION				
7.D	**WATERPROOFING**				
	Refer to Notes 2.D				
	Wet Area Waterproofing				
	Approved waterproofing system as per manufacturers specification including protective layer				
7.D.1	In bathroom walls, 1200 mm high vertical extension along walls in areas other than shower areas	37	m²		
7.D.2	In bathroom shower areas, 2100 mm high vertical extension along walls in areas other than shower areas	27	m²		
7.D.3	On bathroom floors	22	m²		
7.D.4	On balcony floor, and balcony walls (upto 6")	102	m²		
	Approved waterproofing system as per manufacturers specification including protective screed for flower troughs				
7.D.5	On flower trough floor and internal walls	75	m²		
7.D.6	GeoTextile Membrane	95	m²		
7.D.7	50 mm aggregate/drainboard	25	m²		
	TOTAL FOR WATER PROOFING CARRIED TO COLLECTION				

BILL NO. 07 - THIRD FLOOR (FROM +19325 TO +23625)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
7.F	**METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTURAL STEEL**				
	Refer to Notes 3.F				
	Doors and Windows				
7.F.1	Type SDa, structural glazing fixed low E glass, size 4000 x 4000mm	3	nr		
7.F.2	Type SD2, AL sliding window low E glass, size 4500 x 3450mm	1	nr		
7.F.3	Type SD3, AL sliding window low E glass, size 4275 x 3450mm	1	nr		
7.F.4	Type SD5, AL sliding window low E glass, size 3700 x 3450mm	1	nr		
7.F.5	Type SD5a, AL sliding window low E glass, size 3125 x 3450mm	1	nr		
7.F.6	Type SD6, AL sliding window low E glass, size 2850 x 3450mm	2	nr		
7.F.7	Type SD7, AL sliding window low E glass, size 6000 x 3450mm	1	nr		
7.F.8	Type SD8, AL sliding window low E glass, size 6900 x 3450mm	1	nr		
7.F.9	Type SD14, AL sliding window low E glass, size 4950 x 3450mm	1	nr		
7.F.10	Type SD4, AL top hung window low E glass, size 1450 x 1200mm	1	nr		
7.F.11	Type SW, AL top hung window low E glass, size 1000 x 600mm	1	nr		
7.F.12	Type SW1, AL top hung window low E glass, size 1250 x 1950mm	1	nr		
7.F.13	Type SW2, AL top hung window low E glass, size 1000 x 1950mm	1	nr		
7.F.14	Type SW5, fixed window low E glass, size 1800 x 3450mm	1	nr		
7.F.15	Type AD2, AL door and window low E glass, size 1600 x 2100mm	1	nr		
	Page total carried to next page				

BILL NO. 07 - THIRD FLOOR (FROM +19325 TO +23625)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
7.F.16	Type AD3, AL door and window low E glass, size 900 x 1600mm	1	nr		
	Handrails				
	Handrail, as per the given detail or as instructed by the Architect				
7.F.17	In staircases	8	m		
7.F.18	In balconies	73	m		
	TOTAL FOR METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTUAL STEEL CARRIED TO COLLECTION				
7.G	**JOINERY**				
	Refer to Notes 3.G				
	Timber doors				
	Timber door, comprising timber frame and door sash				
7.G.1	Type TD2a, 1hr fire rated timber engineered door, size 1000 x 2175mm	1	nr		
7.G.2	Type TD3, timber engineered door, size 1000 x 2175mm	6	nr		
7.G.3	Type TD4, moisture resistant timber enginnered door, size 750 x 2175mm	6	nr		
7.G.4	Type TD6, 1hr fire rated timber engineered double door, size 1800 x 2175mm	2	nr		
	TOTAL FOR JOINERY CARRIED TO COLLECTION				

BILL NO. 07 - THIRD FLOOR (FROM +19325 TO +23625)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
7.H	**FINISHES**				
	Refer to Notes 3.H				
	Floor finishes				
	Internal Floor Finishes				
	900 x 1800 mm ceremic tiles, including 20 mm thick, 1:3 cement sand bedding with tile adhesive and grout (PC Rate per m² - Rs. 6200)				
7.H.1	In living room, pantry, fire lobby, stores and lift lobby	101	m²		
	600 x 600mm ceramic tiles, including 20 mm thick, 1:3 cement sand bedding with tile adhesive and grout (PC Rate per m² - Rs. 6200)				
7.H.2	In kitchen, laundry and staff room	19	m²		
	600 x 600mm non slip tiles, including 20 mm thick, 1:3 cement sand bedding with tile adhesive and grout (PC Rate per m² - Rs. 6200)				
7.H.3	In toilets	22	m²		
	Timber flooring (teak or equivalent)				
7.H.4	In bedrooms	76	m²		
	Terrazzo with Titanium Finish				
7.H.5	In staircases	18	m²		
	Internal skirting				
	100mm high 900 x 1800mm ceremic tile skirting				
7.H.6	In living room, pantry, fire lobby, stores and lift lobby	43	m		
	100mm high 600 x 600mm ceremic tile skirting				
7.H.7	In kitchen, laundry and staff room	35	m		
	100mm high Timber skirting				
7.H.8	In bedrooms	51	m		
	100mm high Terrazzo with Titanium skirting				
7.H.9	In staircases	24	m		
	Page total carried to next page				

BILL NO. 07 - THIRD FLOOR (FROM +19325 TO +23625)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	External Floor Finishes				
	600 x 600mm external non slip ceramic tiles, including 20 mm thick, 1:3 cement sand bedding with tile adhesive and grout (PC Rate per m² - Rs. 6200)				
7.H.10	In balconies	14	m²		
	External decking (composite timber)				
7.H.11	In balconies	78	m²		
	External Skirting				
	100 mm high 600 x 600mm external non slip ceremic tile skirting				
7.H.12	In balconies	14	m		
	100 mm high, skirting similar to decking				
7.H.13	in balconies	20	m		
	Wall Finishes				
	Internal Wall Finishes				
	330 x 330mm mosaic tiles, on and including 1:3 cement and sand bedding with tile adhesive and grout to match the colour of tiles (PC Rate per m² - Rs. 18400)				
7.H.14	In toilets	119	m²		
	600 x 300mm tiles, Ceramic wall tiles, on and including 1:3 cement and sand bedding with tile adhesive and grout to match the colour of tiles (PC Rate per m² - Rs. 5550)				
7.H.15	In toilets	16	m²		
	Ceiling Finishes				
	Suspended ceiling with 4.5mm asbestos free cement fibre (superflex) sheets with suitable frame work,as per Architect's approval.				
7.H.16	In living room, pantry, stores, laundry, kitchen, staff rooms, bedrooms, lift lobby, fire lobby and toilets	216	m²		
	TOTAL FOR FINISHES CARRIED TO COLLECTION				

BILL NO. 07 - THIRD FLOOR (FROM +19325 TO +23625)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
7.J	**PAINTING AND DECORATION**				
	Refer to Notes 3.J				
	Internal				
	Minimum of one coat of filler, primer and two coats of emulsion paint approved by the Architect.				
7.J.1	On walls	664	m²		
7.J.2	On soffits of staircases	10	m²		
	External				
	Five coat system including primer and textured coat from "Chandrarathna decorators" or "WAPP" or equivalent.				
7.J.3	On walls and flower troughs	253	m²		
	Minimum of one coat of filler, primer and two coats of emulsion paint approved by the Architect.				
7.J.4	On ceilings in balconies	94	m²		
	TOTAL FOR PAINTING AND DECORATION CARRIED TO COLLECTION				

BILL NO. 07 - THIRD FLOOR (FROM +19325 TO +23625)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	BILL NO. 07 - THIRD FLOOR (FROM +19325 TO +23625) **COLLECTION**				
7.B	CONCRETE WORK				
7.C	MASONRY WORK				
7.D	WATER PROOFING				
7.F	METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTUAL STEEL				
7.G	JOINERY				
7.H	FINISHES				
7.J	PAINTING AND DECORATION				
	TOTAL FOR BILL NO. 07 - THIRD FLOOR (FROM +19325 TO +23625) CARRIED TO SUMMARY I				

BILL NO. 16 - ROOF TERRACE (FROM +58400 TO +62500)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
16.B	**CONCRETE WORK**				
	Refer to Notes 2.B				
	Reinforced concrete Grade 30 (Max Agg size 20 mm)				
16.B.1	In Roof Slab	28	m^3		
16.B.2	In Columns	7	m^3		
16.B.3	In Roof Beams	12	m^3		
16.B.4	In Post Tensioned Beams	1	m^3		
16.B.5	In Lift Wall	15	m^3		
16.B.6	In Staircase	2	m^3		
	Reinforced concrete Grade 35 (Max Agg size 20 mm)				
16.B.7	In Slabs	5	m^3		
16.B.8	In Roof Beams	2	m^3		
16.B.9	In Post Tensioned Beams	2	m^3		
	Reinforced concrete Grade 30 (with waterproofing chemical & Max Agg size 20 mm)				
16.B.10	In Pool Base	29	m^3		
16.B.11	Pool Walls / Beams	30	m^3		
	Formwork				
	Refer to Notes 2.B				
16.B.12	Sides and Soffits of slabs	223	m^2		
16.B.13	Sides of Columns	64	m^2		
16.B.14	Sides of Beams	145	m^2		
16.B.15	Sides of Lift Walls	126	m^2		
16.B.17	Pool Base	107	m^2		
16.B.18	Pool Walls/Beams	203	m^2		
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BILL NO. 16 - ROOF TERRACE (FROM +58400 TO +62500)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Reinforcement				
	Refer to Notes 2.B				
	High yield steel bar reinforcement in all diameters				
16.B.19	In Slabs	2050	kg		
16.B.20	In Columns	677	kg		
16.B.21	In Beams	1603	kg		
16.B.22	In PT Beams	304	kg		
16.B.23	In Lift Wall	1274	kg		
16.B.24	In Staircase	119	kg		
16.B.25	In Pool Base	3101	kg		
16.B.26	In Pool Walls	5856	kg		
	Design, supply and install post tensioned beams including high yield tensile steel wire or strand bar bonded system of prestressing tendon live end, dead end strands, etc. as per specialist details, complete including grouting, testing and all required builders work attendance insurances etc., complete all in accordance with the drawings and specification (concrete, formwork and steel bars measured separately)				
16.B.27	PT Beams	138	kg		
	Mild steel bar reinforcement in all diameters				
16.B.28	In Columns	677	kg		
16.B.29	In Beams	1603	kg		
16.B.30	In PT Beams	304	kg		
16.B.31	In Lift Wall	1274	kg		
16.B.32	In Staircase	119	kg		
16.B.33	In Pool Base	3101	kg		
16.B.34	In Pool Walls	5856	kg		
	Page total carried to next page				

BILL NO. 16 - ROOF TERRACE (FROM +58400 TO +62500)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Lintels and sills				
	Grade 20, including necessary reinforcement and form work.				
16.B.35	225mm x 150mm lintels	13	m		
	TOTAL FOR CONCRETE WORK CARRIED TO COLLECTION				
16.C	**MASONRY WORK**				
	Refer to Notes 2.C				
	Walls in Precast Slabs, "ICC" or equivalent				
16.C.1	75mm thick internal walls	26	m²		
16.C.2	140mm thick internal walls	104	m²		
	TOTAL FOR MASONRY WORK CARRIED TO COLLECTION				
16.D	**WATERPROOFING**				
	Refer to Notes 2.D				
	Wet Area Waterproofing				
	Approved waterproofing system as per manufacturers specification including protective layer				
16.D.1	In bathroom walls, 1200 mm high vertical extension along walls in areas other than shower areas	8	m²		
16.D.2	In bathroom shower areas, 2100 mm high vertical extension along walls in areas other than shower areas	12	m²		
16.D.3	On bathroom floors	5	m²		
	Page total carried to next page				

BILL NO. 16 - ROOF TERRACE (FROM +58400 TO +62500)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
16.D.4	On pool deck	90	m²		
16.D.5	On rooftop garden	44	m²		
16.D.6	On swimming pool floor and walls	225	m²		
	Approved waterproofing system as per manufacturers specification including protective screed for flower troughs				
16.D.7	On flower trough floor and internal walls	75	m²		
16.D.8	GeoTextile Membrane	95	m²		
16.D.9	50 mm aggregate/drainboard	25	m²		
	Water Bar				
	Supply and installation of 200mm wide, 3mm Thick MS plate water bar				
16.D.10	In swimming pools	35	m		
	TOTAL FOR WATER PROOFING CARRIED TO COLLECTION				
16.F	**METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTURAL STEEL**				
	Refer to Notes 3.F				
	Doors and windows				
16.F.1	Type TD5b, Aluminium casement double doors, size 1800 x 2175mm	2	nr		
16.F.2	Type SW7, AL sliding window low E glass, size 2450 x 3450 mm	2	nr		
16.F.3	Type SW8, AL sliding window, size 4225 x 3450 mm	1	nr		
16.F.4	Type SW5, fixed window low E glass, size 1800 x 3450mm	1	nr		
	Handrails				
	Handrail, as per the given detail or as instructed by the Architect				
16.F.5	In staircases	8	m		
	TOTAL FOR METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTUAL STEEL CARRIED TO COLLECTION				

BILL NO. 16 - ROOF TERRACE (FROM +58400 TO +62500)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
16.G	**JOINERY**				
	Refer to Notes 3.G				
	Timber doors				
	Timber door, comprising timber frame and door sash. Rate shall include for approved finishes on timber and ironmongery as specified.				
16.G.1	Type TD2, 1hr fire rated timber engineered door, size 1000 x 2175mm	1	nr		
16.G.2	Type TD4, moisture resistant timber engineered door, size 750 x 2175mm	1	nr		
	TOTAL FOR JOINERY CARRIED TO COLLECTION				

BILL NO. 16 - ROOF TERRACE (FROM +58400 TO +62500)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
16.H	**FINISHES**				
	Refer to Notes 3.H				
	Floor Finishes				
	Internal Floor Finishes				
	Granite Finishes				
16.H.1	In fire lobby and lift lobby	13	m²		
	600 x 600mm non slip tiles, including 20 mm thick, 1:3 cement sand bedding with tile adhesive and grout (PC Rate per m² - Rs. 6200)				
16.H.2	In toilets	5	m²		
	500 x 500 rubber floor matting				
16.H.3	In changing room	12	m²		
	Terrazzo with Titanium Finish Floor				
16.H.4	In staircases	16	m²		
	Internal skirting				
	100 mm high, Granite skirting				
16.H.5	In fire lobby and lift lobby	12	m		
	100 mm high, rubber wood high painted white				
16.H.6	In changing room	6	m		
	100 mm high Terrazzo with Titanium skirting				
16.H.7	In staircases	18	m²		
	External Floor Finishes				
	Planting				
16.H.8	In Roof terrace garden	90	m²		
	100 x 100mm concrete cobble stone				
16.H.9	In pool deck	44	m²		
	100 x 100mm sukabumi tiles or similar				
16.H.9	In swimming pool	138	m²		
	Page total carried to next page				

BILL NO. 16 - ROOF TERRACE (FROM +58400 TO +62500)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	External skirting				
16.H.10	100mm cement skirting				
16.H.11	In pool deck and external walls	61	m		
	Wall Finishes				
	Internal Wall finishes				
	330 x 330mm mosaic tiles, on and including 1:3 cement and sand bedding with tile adhesive and grout to match the colour of tiles (PC Rate per m² - Rs. 18400)				
16.H.12	In toilets	43	m²		
	Ceiling finishes				
	Suspended ceiling with 4.5mm asbestos free cement fibre (superflex) sheets with suitable frame work,as per Architect's approval.				
16.H.13	In changing room, lift lobby and fire lobby	26	m²		
	TOTAL FOR FINISHES CARRIED TO COLLECTION				
16.J	**PAINTING AND DECORATION**				
	Refer to Notes 3.J				
	Internal				
	Minimum of one coat of filler, primer and two coats of emulsion paint approved by the Architect.				
16.J.1	On walls	181	m²		
16.J.2	On ceilings in staircases	11	m²		
	External				
	Five coat system including primer and textured coat from "Chandrarathna decorators" or "WAPP" or equivalent.				
16.J.3	On walls	291	m²		
	Minimum of one coat of filler, primer and two coats of emulsion paint approved by the Architect.				
16.J.4	On ceilings in Pool deck	6	m²		
	TOTAL FOR PAINTING AND DECORATION CARRIED TO COLLECTION				

BILL NO. 16 - ROOF TERRACE (FROM +58400 TO +62500)

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	BILL NO. 16 ROOF TERRACE (FROM +58400 TO +62500)				
	COLLECTION				
16.B	CONCRETE WORK				
16.C	MASONRY WORK				
16.D	WATER PROOFING				
16.E	METAL WORK - STEEL FRAME, ROOF AND CLADDING				
16.F	METAL WORK - DOORS, WINDOWS, PARTITIONS AND NON STRUCTUAL STEEL				
16.G	JOINERY				
16.H	FINISHES				
16.J	PAINTING AND DECORATION				
	TOTAL FOR BILL NO. 16 - ROOF TERRACE (FROM +58400 TO +62500) CARRIED TO SUMMARY I				

BILL NO. 18 - EXTERNAL WORKS

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
18.1	**RAMP & STEPS**				
	Concrete Work				
	Refer to Notes 2.B				
	Reinforced concrete Grade 30 (Max Agg size 20 mm)				
18.1.1	In Ramp Wall Foundation & Wall	3	m^3		
18.1.2	In Ramp Slab	2	m^3		
18.1.3	In Steps	1	m^3		
	Formwork				
	Refer to Notes 2.B				
18.1.4	In Ramp Wall Foundation & Wall	32	m^2		
18.1.5	In Steps	2	m^2		
	Reinforcement				
	Refer to Notes 2.B				
	High yield steel bar reinforcement in all diameters				
18.1.6	In Ramp Wall Foundation & Wall	191	kg		
18.1.7	In Ramp Slab	68	kg		
18.1.8	In Steps	15	kg		
	Mild steel bar reinforcement in all diameters				
18.1.9	In Ramp Wall Foundation & Wall	23	kg		
18.1.10	In Steps	2	kg		
	TOTAL FOR RAMP AND STEPS CARRIED TO COLLECTION				

BILL NO. 18 - EXTERNAL WORKS

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
18.2	**BOUNDARY WALL CONSTRUCTION**				
	Excavation				
18.2.1	Excavate pits for column footings, depth not exceeding 1.5 m, including backfilling and removing surplus soil	59	m^3		
18.2.2	Shoring for excavations where necessary, in a methodology acceptable to the PM/E	140	m^2		
	De-watering				
18.2.3	Disposal of surface / ground water by keeping all excavations and other working areas free from rain / ground water and percolating water by pumping or otherwise until completion of works. Contractor shall be paid upon submission of the details of incurred.cost.	1	Item		
	Concrete Work				
	Refer to Notes 2.B				
	In-situ Concrete				
	Grade 15, 50 mm thick, maximum aggregate size 20mm, in blinding screed				
18.2.4	Under Ground Beams, Pile Caps, & Sump	40	m^3		
	Reinforced Concrete in Grade 30 with maximum aggregate size 20 mm				
18.2.5	In Column Footing	4	m^3		
18.2.6	In Ground Beams	4	m^3		
18.2.7	In Column	5	m^3		
18.2.8	In Tie Beam	5	m^3		
	Formwork				
	Refer to Notes 2.B				
1	Formwork shall be measured to the contact surface of concrete and formwork.		Note		
2	In all the concrete surfaces in beams need to be finished neatly for applying skim coat and painting without any plastering		Note		
18.2.9	Sides of Column Footing	15	m^2		
	Page total carried to next page				

BILL NO. 18 - EXTERNAL WORKS

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
18.2.10	Sides of Ground Beams	38	m²		
18.2.11	Sides of Columns	77	m²		
18.2.12	Sides of Tie Beams	47	m²		
	Reinforcement				
	Refer to Notes 2.B				
18.2.13	In Column Footing	359	kg		
18.2.14	In Ground Beams	366	kg		
18.2.15	In Columns	585	kg		
18.2.16	In Tie Beams	562	kg		
	TOTAL FOR BOUNDARY WALLS CARRIED TO COLLECTION				

BILL NO. 18 - EXTERNAL WORKS

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	BILL NO. 18 - EXTERNAL WORKS				
	COLLECTION				
18.1	RAMP AND STEPS				
18.2	BOUNDARY WALL				
	TOTAL FOR BILL NO. 18 - EXTERNAL WORKS CARRIED TO SUMMARY I				

BILL NO. 19 - PROVISIONAL SUMS

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
19.1	Allow provisional sum for jacuzzies on balconies from the 1st floor to the 10th floor (10 nos.) as per Architects approval		P.Sum		20,000,000.00
19.2	Allow provisional sum for pantry cupboards in pantry areas and kitchens, approx. length 75 m		P.Sum		8,600,000.00
19.3	Allow provisional sum for 150 mm thick mass concrete in typical floors, approximate area 60 m^2.		P.Sum		400,000.00
19.4	Allow provisional sum for 100 mm thick mass concrete in ground floor, approximate area 85 m^2.		P.Sum		400,000.00
19.5	Allow provisional sum for top landscaping.		P.Sum		4,000,000.00
19.6	Allow provisional sum for construction of vanity counters and work counters including finishes.		P.Sum		2,400,000.00
	TOTAL FOR BILL BILL NO. 19 - PROVISIONAL SUMS CARRIED TO SUMMARY I				**35,800,000.00**

DAY WORK SCHEDULE

General

A Bidder shall price Day Work Schedule for use at Works ordered to be executed under the day work basis by the Engineer. These rates shall apply to any quantity of Day Work ordered by the Engineer.

B Unless noted otherwise payments on day work rates are not subject to price adjustment.

C During execution of the respective work ordered under day work by the Engineer, the Contractor shall maintain daily records of such day work and get certified by the Engineer's representative. The day works record shall be on agreed format by the Engineer.

D Overhead and profit percentage added on Labour, Material and Plant shall be shown separately at the end of each section of Labour, Material and Plant bills.

Day work Labour

E The rates for labour shall be deemed to cover all costs to the Contractor including (but not limited to) the amount of wages paid to such labour, transportation time, overtime, subsistence allowances and any sums paid to or amount of wages paid to or on behalf of such labour for social benefits in accordance with Sri Lankan Law, as well as Contractor's profit, overheads, superintendence, liabilities and insurance and allowance to labour, time keeping and clerical and office work, the use of consumable stores, water, lighting and power, scaffolding, workshops and stores, portable power tools, manual plant and tools, supervision by the Contractor's staff, foremen and other supervisory personnel and charges incidental to the foregoing.

F Contractor entitles day work labour hours directly engaged on the particular day work item executed at the site (start of the work item and departure from the work item). Meal and rest break period shall be excluded. The time of gangers (charge hands) actually doing work with the gangs will also be measured but not the time of foremen or other supervisory personnel.

Day work Material

G The rates for material shall be deemed to include overhead charges and profit and cost and other expenses inspect of insurance, handling expenses, damage, losses, waste etc., and shall provide for delivery to store for stock piling at the site etc.

Day work Plant

H The rates for plant shall be deemed to include due and complete allowance for depreciation, interest, indemnity and insurance, repairs, maintenance, supplies, fuel, lubricants, and other consumables. cost of bringing to site and bringing back shall include cost of operators, drivers and helpers input during transport. The cost of drivers, operators and assistants will be paid for separately as described under the section of Day work labour.

J Contractor is entitled only for the actual number of working hours that the respective plant items used for the work.

SCHEDULE OF DAYWORK RATES

1 LABOUR (Refer Para 2)

No	Description	Unit	Rate (LKR)
1	Heavy Equipment Operator	Hr.	
2	Un Skilled worker	Hr.	
3	Mason	Hr.	
4	Carpenters	Hr.	
5	Joiner	Hr.	
6	Bar Bender	Hr.	
7	Welder	Hr.	
8	Electrician	Hr.	
9	Painter	Hr.	
10	Aluminium Fabricator	Hr.	
11	Glazier (Glass fixing)	Hr.	
12	Tiller	Hr.	
13	Plumber	Hr.	
	Overhead and profit % added on day works labour rates	%	

2 MATERIALS (Refer Para 3)

No	Description	Unit	Rate (LKR)	Amount (LKR)
1	Cement	50 kg bag		
2	River Sand	cube		
3	Sea sand	cube		
4	Metal 20mm	cube		
5	Metal 25mm	cube		
6	Plywood for lining etc. (8' X 4')	nr		
7	Plywood for formwork (8' X 4')	nr		
8	Local timber for Temporary work (- Ditto -)	sqr		
9	Reinforcing steel High Yield Steel (fy=425 N/mm2)	Ton (t)		
10	Reinforcing steel Mild Steel (fy=250 N/mm2)	Ton (t)		
11	Rubble 150mm - 225mm	cube		
12	Solid Cement Blocks 200mmX400mmX200mm	nr		
13	Solid Cement Blocks 150mmX400mmX200mm	nr		
14	Solid Cement Blocks 100mmX400mmX200mm	nr		
15	Common Bricks	nr		
16	Cement blocks 400mm x 200mm x 100mm	nr		
17	Skim coat	25kg bag		
18	Wall putty	ltr		
19	Emulsion paint	ltr		
20	Weather shield paint	ltr		
21	Metal primer	ltr		
22	Wood preservative	ltr		
23	Tile grout white	kg		
24	Tile grout coloured	kg		
25	Welding rods	kg		
26	Wire nails	kg		
	Overhead and profit % added on day works material rates	%		

3 CONSTRUCTIONAL PLANT (Refer Para 4)

No	Description	Unit	Rate (LKR)
1	Excavator, face shovel or dragline :		
	UP to and including 1 cu.m	Hr.	
2	Tractor (tracked) including bull or angle dozer	Hr.	
3	Generator :		
	Up to and including 150 KW	Hr.	
4	Tractor with Trailer		
	3.0 m^3 capacity	Hr.	
	2.0 m^3 capacity	Hr.	
5	Front End Loader/Mechanical Shovel :		
	1.0 m^3 to 2.0 m^3 capacity	Hr.	
6	Concrete Mixer :		
	14/10	Hr.	
	10/7	Hr.	
7	Concrete Pump	Hr.	
8	Poker Vibrator :		
	32mm	Hr.	
	25mm	Hr.	
9	Air Compressor		
	125 c/m	Hr.	
10	Mobile Crane :		
	10 ton (60 ft. boom)	Hr.	
	5 ton (60 ft. boom)	Hr.	
11	Tipper Truck :		
	7 m^3 capacity	Hr.	
	5 m^3 capacity	Hr.	

3.0 CONSTRUCTIONAL PLANT (cont.)

No	Description	Unit	Rate (LKR)
12	Baby Dumper :		
	1 m^3 capacity	Hr.	
13	Truck Mixers : (Concrete transporters)		
	5 to 6 m^3 capacity	Hr.	
14	Water Pumps :		
	5,000 gallons per hour	Hr.	
15	Any other plant the Tenderer wishes to use and	Hr.	
	……		
	……		
	……		
	Overhead and profit % added on day works plant rates	%	

PRICING PREAMBLES

1 List of tender drawings are given. Aforesaid documents shall be considered complementary and mutually explanatory. Bidder's/specialized contractor's price for each item shall include for the completion of the entire system to working order as described in these bidding documents, including testing and commissioning and maintaining for the period of defect liability.

2 The cost of complying with all conditions, obligations and liabilities described in the Conditions of Contact (if any), Specifications and the Bill of Quantities including all overhead charges and profit in carrying out the Works shall be deemed to be spread over and included in the prices of sums stated by the Bidder in the Bill of Quantities unless separately measured.

3 Bidder's price for each item of work shall not only include for cost of plant and equipment, but also other material, and labour for installations required for total completion of the said items of work.

4 If the specifications, capacities and sizes given for any equipment have to be increased to suit any other equipment offered by the bidder in this BOQ (or product required to satisfy the design conditions), the bidder shall be deemed to have included the cost of such changed equipment in his price.

5 Prior to the pricing and selection of equipment, bidder/specific Plumbing Contractor shall inspect the site and familiarized the scope of work and existing arrangement of the building, study the technical specification and BOQ and the tender drawings.

6 When selecting the equipment bidder shall consider the possibility of installing the equipment in the available space as given in the drawings and the site space measurements.

7 Bidders shall fill technical data pertaining to equipment offered and provide supporting catalogue pertaining to same. Failure to fill technical schedules may be considered as grounds for rejection of the Bid.

8 All materials and equipment supplied shall be new, unused and without any defects, and shall be approved by the Engineer.

9 Prices and rates quoted for equipment and other materials to be imported shall include for customs dues, taxes, transport charges, handling and clearing charges, shipping or air lifting charges, bank charges etc.

10 Prices and rates quoted for plant and equipment shall include for all necessary items for connections, and for provision of such equipment, such as collars, flexible items, covers, signs, operating panels, indication bulbs etc.

11 Bidders shall take into consideration that rates and prices quoted will be deemed to cover the entire work to be carried out under the scope of work whether such items have been specifically mentioned in the BOQ or not.

12 Bidder's price for each item of work shall include for cost for all builder works including civil and electrical, removal of existing systems and debris, accept the site debris and transport away, temporary works such as scaffolding etc and associated builders work such as making plinths, making and closing up holes, walls and roads, openings & block outs, drilling, boring, anchoring, chasing covering up etc., including restoring all finishes and the like to the entire satisfaction of the Engineer.

13 Un-priced Items: Cost relating to items which are not be priced will be deemed to have been included in the Total Amount of the Bill of Quantities.

14 Unit Rates: shall be used for valuation of variations in accordance with the provisions of the Conditions of Contract.

15 Unit Rates for Extra Works: when the Bill of Quantities does not include a measured rate for any extra work instructed to be done, or for deductions to be made, the rate to be paid shall be determined in accordance with the provisions of the Conditions of Contract.

16 Bid Price: The Bidder must satisfy himself that the Bid Amount arrived at by adding of the measured items and Provisional Sums, accurately represents the full and final cost of the works. No claims for misguidance or misinterpretation will be considered under any circumstance.

17 Method of Measurements: This Bill of Quantities has been prepared generally in accordance with the principals of the Standards Method of Measurements for Building Works in Sri Lanka (SLS: 573:1999). Bidders are to note that the measurements are taken absolute units unless otherwise stated and they must, therefore allow in their prices for all straight cutting and waste etc., throughout even though not specifically mentioned.

18 Price shall be quoted in Sri Lankan Rupees. It shall be firm and not subjected to any adjustment including variations due to parity rate.

BILL NO. 20 - PLUMBING WORK

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
20.0	**PLUMBING/ SUPPLY & INSTALLATION**				
	Notes				
1	Contractor shall refer to the drawings, specifications, notes, measurement & rate clauses and trade preambles before pricing.		Note		
2	The bidderer shall provide all dimensions, and technical information, of all builders work to the Consultant in accordance with the programmed of work.		Note		
3	Rate shall include for insurance during handling, re-handling, transport, storage, delivery to the point of installation and until handing over.		Note		
4	All fittings and pipe specials used in the plumbing installation shall be suitable and compatible with all respects to the pipe line to which fittings and specials are fixed		Note		
5	All sanitary fittings supplied shall be provided with a minimum 25 years warranty, issued jointly and severally by the local supplier and the manufacturer.		Note		
6	All taps & accessories shall be chromium plated manufactured in Europe or Japan or approved equivalent and shall have a minimum 5 years' warranty.		Note		
7	All control valves etc., shall be Hattersly, Crane, Pegler, Kitz or equivalent make to the approval of the Consultant.		Note		
8	All the items listed here shall be approved by the engineer				
9	Unless otherwise measured separately, rates for plumbing work shall include for:		Note		
	(a) Complying with the relevant Sri Lankan, British or any other standard as given under the specifications and with the regulations of the Local Authority and or any other relevant authorities.				
	(b) Cutting and waste of pipes etc., and joining pipes.				
	(c) All specials such as elbows, bends, tees, junctions, plugs, reducers and similar pipe fittings except for valves which will be measured separately.				
	(d) Connecting pipes to sanitary fixtures and appliances.				

BILL NO. 20 - PLUMBING WORK

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	(e) Casing to brick walls etc. and making good all works disturbed. (f) Necessary screws, nails sockets, connection back nuts standard pipe fixing or supporting clips, saddles, brackets, holder bats, straps etc. (g) Connecting of different types of pipes. (h) Supply , installation, testing and disinfection after completion. (i) Submitting shop drawings where necessary. (j) Excavation, backfilling, disposal of surplus soil for items which were specifically mentioned. (l) Members of any length. (m) Cutting or forming holes, mortises, chases or the like and making good (n) Cutting to size and shape and joints in the running length. (p) Grinding to a smooth finish, unless otherwise required. (q) Pipe penetrations through floor slabs or beams where necessary. (r) All necessary accessories, threaded & grooved fittings unless otherwise measured separately. (s) Sundry items related to the work where necessary as required by the Engineer.				
10	Rates for sanitary fittings shall include for:- (a) Fittings such as taps, waste water outlet, internal overflows etc. and supporting brackets, incidental materials for fixing, unless otherwise measured separately. (b) Assembling, jointing together fixing components parts, and jointing to pipes including necessary coupling and for leaving perfectly clean and in perfect working order on completion. (c) Jointing and connecting of pipes to sanitary fittings. (d) Supply, installation, testing and commissioning of the entire installation work.		Note		
	(e) Making good of the work disturbed.				

BILL NO. 20 - PLUMBING WORK

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	(f) Submitting samples for the approval by the Engineer.				
	(g) Protecting the works.				
11	Rates for drainage work shall include for :-		Note		
	(a) Laying of pipes to falls.				
	(b) Excavation, backfilling, disposal of surplus soil				
	(c) All pipe specials such as bends, junctions, elbows, tees etc.				
	(d) Connection to sides of manholes etc.				
	(e) Providing sleeves etc., when pipes pass through walls, foundations etc.				
	(f) Oil interceptor for kitchem waste.				
	(g) Giving notices, obtaining permits, paying fees, fixing, testing and commissioning etc.				
20.1	**COLD WATER DISTRIBUTION SYSTEM**				
20.1.1	Supply and installation of 2 nos water meters for residential and commertial areas for NWS&DB water metering, including isolation valve. Rate shall include for water meter cabinet on wall or water meter valve pit as applicable.	1	Item		
20.1.2	Supply and installation of uPVC Type 1000 pipe, 25mm diameter from NWS&DB supply to underground water sump completed with all necessary specials laid, buried in brick walls / floor or clipped to any location where necessary.	20	m		
20.1.3	Supply and installation of 63mm diameter PPR PN 16 pipe from transfer pump to overhead tank including running sockets and embedded to wall.	80	m		
20.1.4	Supply and installation of 2Nos (1No Standby) Capacity 2.0 lit/sec at 7.6 bar head Electrically operated Centrifugal Water transfer pump including necessary Iron Brackets valves,stainers, flexible couplings, delivery manifold and other necessary accessories etc. Rate shall include all the headers and piping inside the water pump room in PPR PN 16.	1	Item		
	Page total carried to next page				
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BILL NO. 20 - PLUMBING WORK

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
20.1.5	Supply and installation of Water pump control panels for above pumping systems with all safety features and water level sensors (sump and overhed tanks) (Stains steel rods) for good working order as per drawings and specifications.	1	nr		
20.1.6	Supply and installation of Booster pump set of 1.9 ltr/s at 1.2 bar head, one duty and one standby with 50 ltr pressure tank including all pressure switches controls and accessories gate valve, non return valve, ball clock, pressure gauges, flexible joint, flow switch, air valve,dilivery manifold, booster pump control panel,etc.	1	Item		
20.1.7	Supply and installation of Capacity 5000lt Polyurethane water Tank Including necessary drain off and over flow connections, 63mm supply header including necessary valves and accessories as shown in drawing	2	nr		
	Supply and installation of water meters including two isolation valves and necessary fittings.				
20.1.8	50mm diameter	12	nr		
20.1.9	32mm diameter	4	nr		
	Distribution Pipes				
	All cold water pipes to be type uPVC Type 1000 with following nominal diameters completed with all necessary specials laid in water distribution system buried in brick walls / floor or clipped to any location where necessary.Rate shall include for molded Type PPR fittings.				
20.1.10	20mm diameter	550	m		
20.1.11	25mm diameter	295	m		
20.1.12	32mm diameter	400	m		
20.1.13	40mm diameter	175	m		
20.1.14	50mm diameter	380	m		
20.1.15	63mm diameter	8	m		
20.1.16	90mm diameter	9	m		
	Page total carried to next page				
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BILL NO. 20 - PLUMBING WORK

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Isolation Valves				
	Notes				
1	All isolation valves shall be Hattersly, Crane, Pegler, Kitz, Ayvas make to the approval of the Consultant.		Note		
2	All globe and gate valves shall have in excess of 25 percent Teflon impregnated packing.		Note		
20.1.17	25 mm diameter gate valve	12	nr		
20.1.18	32 mm diameter gate valve	55	nr		
20.1.19	40 mm diameter gate valve	10	nr		
20.1.20	63 mm diameter gate valve	2	nr		
	Pressure reducing Valve Station				
	Supply and installation of Pressure Reducing Valve assembly (PRV) including isolation valves, strainers, pressure gauges in both side, bypass line and necessary fittings as per the drawings and specifications. Pressure range: 2 - 8 bar .				
20.1.21	PRV for 32mm pipe	2	m		
20.1.22	PRV for 50mm pipe	4	m		
20.2	**HOT WATER SUPPLY SYSTEM**				
1	Supply and installation 50 liters horizontal electric hot water geyser and all other necessary fittings and accessories complete to working order as per the Drawings and Technical Specifications.	10	nr		
2	Supply and installation 80 liters horizontal electric hot water geyser and all other necessary fittings and accessories complete to working order as per the Drawings and Technical Specifications.	11	nr		
	Distribution Pipes				
	All hot water supply and return pipes shall be PPR PN 16 with molded fittings, insulated by flexible, closed cell elastomeric insulation in tubular form and the insulation thickness shall be as per the guide given in approved drawings and specification.				
	20mm diameter	360	m		
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BILL NO. 20 - PLUMBING WORK

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	25mm diameter	340	m		
	Isolation Valves				
	Notes				
1	All isolation valves shall be Hattersly, Crane, Pegler, Kitz , Ayvas make to the approval of the Consultant.		Note		
2	All globe and gate valves shall have in excess of 25 percent Teflon impregnated packing.		Note		
20.2.1	Isolation, Dismantling & removing existing Hot water supply and return pipes at ground floor from the risers/ main headers.	1	Item		
20.2.2	20 mm diameter gate valve	42	nr		
20.2.3	20 mm diameter gate valve	10	nr		
20.3	**SEWER & WASTE WATER DRAINAGE SYSTEM**				
	Notes				
1	Follows **drainage pipes** with all necessary specials laid for internal and external waste and sewage drainage piping, buried in brick walls / floor, clipped to any location / soffit or laid through ground soil where necessary. Rate shall include for necessary fittings.		Note		
	Wastewater pipes				
20.3.1	40mm diameter PP (Polypropylene) Low noise push fit	1	m		
20.3.2	50mm diameter PP (Polypropylene) Low noise push fit	105	m		
20.3.3	63mm diameter PP (Polypropylene) Low noise push fit	205	m		
20.3.4	110mm diameter PP (Polypropylene) Low noise push fit	180	m		
	Soil pipes				
20.3.5	110mm diameter PP (polyproplene) Low noise push fit	295	m		
	Page total carried to next page				
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BILL NO. 20 - PLUMBING WORK

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Vent Pipes				
	Allow cost for **uPVC type 600** pipe with all necessary specials laid for **all vent risers**, buried in brick walls / floor, clipped to any location / soffit. Rate shall include for necessary fittings.				
20.3.6	50mm diameter	160	m		
20.3.7	Supply & installation of UPVC vent cowl 50mm diameter.	1	nr		
20.3.8	Supply & installation of UPVC vent cowl 110mm diameter.	3	nr		
20.3.9	Supplying & installation of PP (Polypropylene) multi floor gully including 150mmx150mm Stainless Steel cover with a grating.	53	nr		
20.3.10	Supplying & installation of Floor drain with 150mmx150mm Stainless Steel cover with a grating including PP (Polypropylene) P-trap.	34	nr		
	Supplying and installation of PP push fit ceiling clean out including air tight cover.				
20.3.11	63mm diameter	1	nr		
20.3.12	110mm diameter	1	nr		
20.4	**KITCHEN WASTE DRAINAGE SYSTEM**				
	Notes				
1	The selected HDPE PN 6 drainage pipes shall be able to withstand hot water drainage from the kitchen areas.		Note		
	HDPE PN 6 Drainage Pipes with all necessary specials laid for **kitchen waste drainage,** buried in brick walls / floor, clipped to any location / soffit or laid through ground soil where necessary. Rate shall include for necessary fittings.				
20.4.1	40mm diameter	1	m		
20.4.2	50mm diameter	20	m		
20.4.3	63mm diameter	50	m		
20.4.4	90mm diameter	125	m		
	Page total carried to next page				
	Page total brought forward from previous page				

BILL NO. 20 - PLUMBING WORK

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	HDPE PN 6 Drainage Pipes with all necessary specials laid for vent piping for kitchen waste drainage, buried in brick walls / floor, clipped to any location / soffit or laid through ground soil where necessary. Rate shall include for necessary fittings.				
20.4.5	50mm diameter	60	m		
20.4.6	Supply & installation of HDPE vent cowl 50mm diameter.	1	nr		
	Supplying and installation of HDPE floor clean out including air tight cover.				
20.4.7	63mm diameter	1	Nr		
20.4.8	90mm diameter	1	Nr		
	Supplying and installation of HDPE ceiling clean out including air tight cover.				
20.4.9	63mm diameter	1	Nr		
20.4.10	90mm diameter	1	Nr		
20.4.11	installation of kitchen Floor drain with 110mm outlet including HDPE p-trap. Rate shall include water proofing and all pipe and builders work where necessary to complete work.	10	Nr		
20.5	**SUPPLY & INSTALLATION OF SANITARY FITTINGS**				
	Notes				
1	All the sanitary fittings & fixtures supplied and installed under this contract shall be of Rocell or equivalent to the complete satisfaction of the Engineer.		Note		
2	All sanitary fittings supplied shall be provided with a minimum 25 years warranty		Note		
3	The tenderer shall submit the following information on the items/equipment/ fittings quoted for together with the tender. 1 Make 2. Model No. 3. Technical data 4. Country of manufacture		Note		
	Page total carried to next page				
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BILL NO. 20 - PLUMBING WORK

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
20.5.1	Supply & Installation of ceramic **wall hanging type water** closet with approved colour and complete with 4.5/3 litter capacity concealed duel flush cistern,seat cover, "P" or "S" trap (as directed), WC connection, flexible connection, angle valve etc., and all other necessary fittings and accessories complete to working order.	52	nr		
20.5.2	Supply & Installation of ceramic **floor standing type water closet (for disable washroom)** with approved colour and complete with 4.5/3 litter capacity duel flush cistern,seat cover, "P" or "S" trap (as directed), WC connection, flexible connection, angle valve etc., and all other necessary fittings and accessories complete to working order.	1	nr		
20.5.3	Supply & Installation of ceramic **wash basin (Vanity type)** of approved color complete with brackets, chromium plated **mixer tap**, waste outlet, waste plug, chromium plated chain, chromium plated bottle trap, flexible hose and angle valve inclusive of all the connections.	41	nr		
20.5.4	Supply & Installation of ceramic **wash basin (Double through sink Vanity type)** of approved color complete with brackets, chromium plated **2 nos mixer tap**, waste outlet, waste plug, chromium plated chain, chromium plated bottle trap, flexible hose and angle valve inclusive of all the connections.	10	nr		
20.5.5	Supply & installation of **semi pedestal type wash basin** of approved color, complete with brackets, chromium plated mixer tap, waste outlet, waste plug, chromium plated chain, chromium plated bottle trap, flexible hose and angle valve inclusive of all the connections.	2	nr		
20.5.6	Supply and installation of approved color **bath tub** including mixer tap flexible connection, waste outlet, waste plug, chromium plated chain, inclusive all the connections to working order.	10	nr		
20.5.7	Supply & installation of **stainless steel kitchen sink** with approved quality , **double bowl & single draining board** including complete with standard water efficient swan neck mixer tap, angle valve, flexible connection, waste outlet, waste plug, chromium plated chain, chromium plated bottle trap ect., all complete to working order.	10	nr		
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BILL NO. 20 - PLUMBING WORK

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
20.5.8	Supply & installation of **stainless steel kitchen sink** for penthouse open pantry with approved quality , **single bowl** including complete with standard water efficient Swan neck mixer tap, angle valve, flexible connection, waste outlet, waste plug, chromium plated chain, chromium plated bottle trap ect., all complete to working order.	2	nr		
20.5.9	Supply & Installation of chrome Shelf with Paper Holder installed at low heights with necessary accessories.	53	nr		
20.5.10	Supply & installation of chrome 3 way rain shower column set with necessary accessories including concealed mixer.	32	nr		
20.5.11	Supply and installation of chromium plated hand bidet shower including angle valve	53	nr		
20.5.12	Supply and installation of towel rail	32	nr		
20.5.13	Supply and installation of Robe hook.	53	nr		
20.5.14	Supply and installation of wall mounted soap dish	53	nr		
20.5.15	Supply and installation of wall mounted soap dish and tooth brush holder	42	nr		
20.5.16	Supply and installation of stainless steel Surface mounted Paper towel dispenser for public disable washroom.	1	Nr		
20.5.17	Supply and installation of stainless steel grab bar rigid & Swing Up for public disable washroom approved by architect.	1	Set		
20.5.18	Supply and installation of soap dispenser for public washrooms.	2	Nr		
20.5.19	Supply and installation of mirrors for apartment floors, approved by the engineer, dimensions as per drawings.	53	Nr		
20.5.20	Supply and installation of mirrors for public, approved by the engineer, dimensions as per drawings.	2	Nr		
20.5.21	Supply and installation of chrome garden taps approved by architect.	13	Nr		
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BILL NO. 20 - PLUMBING WORK

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
20.6	**EXTERNAL DRAINAGE SYSTEM**				
20.6.1	**Double seal Sewer Manhole**, size 450x450mm internally as per drawings with invert depth not exceeding 900mm including excavation and back filling, 150mm thick RCC grade 30 base including necessary reinforcement and form work as per the detail drawing, forming channels and 100mm thick RCC walls, mass concrete filling with neat cement grout, and cast iron double seal manhole covers with lifting arrangement. Inlet and outlet connections to complete the manhole in order.	4	nr		
20.6.2	Supplying all material and construct **Grease Trap**, size 2400x1000x1200mm (internally) as per detailed drawing, including concrete walls, base, cover slab, adjustable and fixed weir plates, internal plaster finish and inlet outlet connections to complete to working order	1	nr		
20.6.3	Supplying all material and construct **300x300 mm gully trap** as per detail drawing. Rate shall include for excavation & backfilling, concreting, benching, internal plastering, precast concrete cover slab with lifting handles, etc. a sper the detail drawings.	4	nr		
20.6.4	**Double seal Interceptor Manhole**, size 600mmx600mm internally as per drawings with invert depth not exceeding 900mm including excavation and back filling, 150mm thick RCC grade 30 base including necessary reinforcement and form work as per the detail drawing, forming channels and 100mm thick RCC walls, mass concrete filling with neat cement grout, and cast iron double seal manhole covers with lifting arrangement. Inlet and outlet connections to complete the manhole in order.	1	nr		
20.6.5	Excavation and back fill to pipe trench for normal pipe laying areas, depth not exceeding 1.0m deep as per detail drawing. (Rate shall include for screed concrete work and sand bedding and sourounding)	1	Item		
	Waste and Sewage Disposal Piping				
	HDPE PN 6 drainage pipes with all necessary specials laid in trenches (Excavation & backfilling for trenches measured separately) for external waste and sewage Disposal system.				
	110mm diameter	45	m		
	160mm diameter	15	m		
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BILL NO. 20 - PLUMBING WORK

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
20.7	**STORM WATER DISPOSAL SYSTEM**				
20.7.1	Supply and installation of roof drain as per the	2	nr		
20.7.2	Supply and installation of balcony drain as per the drawings.	41	nr		
20.7.3	110mm uPVC Type 600 rain water down pipe per drawing, buried in brick walls / floor or clipped to any location where necessary. Rate shall include for necessary fittings etc.	190	m		
20.7.4	160mm uPVC Type 600 rain water down pipe per drawing, buried in brick walls / floor or clipped to any location where necessary. Rate shall include for necessary fittings etc.	60	m		
20.7.5	110mm uPVC Type 600 under ground pipe as per drawing. Rate shall include for necessary fittings ,excavation, backfilling etc.	5	m		
20.7.6	160mm uPVC Type 600 under ground pipe as per drawing. Rate shall include for necessary fittings ,excavation, backfilling etc.	25	m		
20.7.7	Supply and installation of 110mm diameter first flush diverter kit for rainwater down pipes.	1	nr		
20.7.8	Storm water manhole with CI/DI heavey duty cover, size 450x450mm internally as per drawings including excavation and back filling, 150mm thick RCC grade 30 base including necessary reinforcement and form work as per the detail drawing, forming channels and 100mm thick RCC walls, mass concrete filling with neat cement grout, and cast iron double seal manhole covers with lifting arrangement. Inlet and outlet connections to complete the manhole in order.	2	nr		
20.7.9	Storm water catch pit with grated cover, size 450x450mm internally as per drawings including excavation and back filling, 150mm thick RCC grade 30 base including necessary reinforcement, form works, forming channels and 100mm thick RCC walls, mass concrete filling with neat cement grout, and ss screen mesh with grated cover. Inlet and outlet connections to complete as per the detail drawing.	3	nr		
20.7.10	Supply and installation of heavy duty grated cover trench for ground floor car parking area (250mm Width)	30	m		
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BILL NO. 20 - PLUMBING WORK

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
20.7.11	Supply and installation of light duty grated cover trench for rooftop garden area (200mm Width)	21	m		
	Testing and Commissioning				
20.7.12	Allow for Testing & commissioning the entire plumbing installation.	1	Item		
20.7.13	Allow for prepare and submission of 03 sets of "shop" drawings and "As Built" drawings on completion for Plumbing Work, each as color printed with soft copies with AutoCAD 2014 compatible version.	1	Item		
20.7.14	Allow for all works which are not included above and are required to provide a complete and fully operational installation in accordance with the Electrical, Mechanical, Specification and Drawings. (Please specify)	1	Item		
	TOTAL FOR BILL NO. 20 - PLUMBING WORK CARRIED TO SUMMARY II				

BILL NO. 22 - HVAC SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
22.0	**SUPPLY AND INSTALLATION OF VRC/VRF AC SYSTEM**				
	Notes				
1	The tenderers are advised to refer the "General Notes, Specification and Pricing Preamble Notes" prior to pricing of this section of work.		Note		
2	The tenderer is requested to refer the General Note, Pricing Preambles, Drawing, Specification, Condition of Contract, Special Conditions of Contract and other relevant documents prior to pricing of the following items.		Note		
3	Rates shall include for supply, installation, commissioning and maintaining during the defect liability period of the following items for mechanical ventilation and air-conditioning system according to the drawings and specifications and all complete to working order.		Note		
4	Rates for all plants and equipment's shall include for: a) Importation, clearing, transportation to site and installation at given position and necessary insurance. b) Electrical connection, piping connection to equipment, sound lining insulation, hardware fixing and other material require for trouble free operation of the plant. c) Testing and commissioning of total air conditioning and mechanical ventilation system unless otherwise measured separately. d) All other items which are not specifically described in the Bill of Quantities but necessary for satisfactory completion to working order. e) Tender shall select the any rotating equipment given due consideration to maintain required acceptable sound levels within the premises and the premise boundary to meet the governing regulation stipulated by CEB.		Note		
5	The tenderers shall submit following information's on the equipment's and items quoted with the tender. All equipment's and accessories shall be strictly as per specification, drawings. a) Make b) Model No.		Note		

BILL NO. 22 - HVAC SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	c) Selection data(Capacity,Air flow rate, Sound Level etc.) d) Country of manufacture e) Schedule of equipment's and materials. f) Optional items and their additional cost. (submitted separately) g) Details of all special features h) Schedule of rates for after sales service. i) After sales agreement format				
6	All equipment's and accessories shall be strictly as per specification, drawings.		Note		
7	The Tenderer shall provide all dimensions, technical information of all builders work in advance.		Note		
8	All equipment shall be guaranteed for a period of **12 months, (All compressor 60 months)** from the date of commissioning.		Note		
9	One year free maintenance, service and repair costs of the air-conditioning system after handing-over cost of four services need to be carried out during this period.		Note		
10	Should be replace of any accessories, components, controls, valves, etc. If found defective during one year guarantee period.		Note		
11	Tenderer shall submit a full set of operation and maintenance manuals, circuit wiring diagrams in triplicate.		Note		
12	All the Indoor and Outdoor Air conditioning units used under this Contract shall be of "DAIKIN", "MITSUBISHI", or an equivalent make/Engineer approved quality. **All VRF units shall be tested under AHRI1230 & shall met the minimum efficiency stipulated by the ASHRAE 90.1/2010**		Note		
13	The thickness of refrigerant circuit piping shall be as per detail given below: a) Outer Dia.(mm) — Minimum wall thickness (mm) 6.35 mm — 0.80 mm 9.5 mm — 0.80 mm 12.7 mm — 0.80 mm 15.9 mm — 1.00 mm 22.1 mm — 1.00 mm 22.2 mm — 1.00 mm 28.6 mm — 1.00 mm 34.9 mm — 1.10 mm 41.3 mm — 1.25 mm		Note		

BILL NO. 22 - HVAC SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	b) Before joining any copper pipe or fittings, its internals shall be thoroughly cleaned by passing a clean cloth via wire or cable through its entire length. The piping shall be continuously kept clean of dirt etc. while constructing the joints. Subsequently it shall be thoroughly blown out using nitrogen gas. c) After completion of installation of the refrigerant piping, the refrigerant piping system shall be pressure tested using nitrogen gas at a suitable pressure as specified by OEM (Original Equipment Manufacturer). Pressure shall be maintained in the system for 48 hours. The system shall then be evacuated to vacuum of not less than 700 mm Hg and held for 24 hours. d) The supplier of air-conditioning system shall choose sizes as designed and erect proper interconnections of the complete refrigerant circuit. e) The suction line pipe size and the liquid line pipe sizes shall be selected according to the manufacturer's specified diameter. All refrigerant pipes shall be properly supported and anchored to the building/structure using steel hangers, fasteners, brackets and supports which shall be fixed to the building/structure by means of inserts or expansion shields or anchor fasteners of adequate size with number of support.				
14	All exterior pipe insulation should be covered with pvc water resistant tape.		Note		
15	All builder's work related to the VRF air conditioning system should be included to the relevant boq item rate.		Note		
22.1	**<u>VRV / VRF AC SYSTEM</u>** **VRV / VRF OUTDOOR UNIT** <u>Supply and installation of following air cooled VRF/VRV outdoor units suit to the respective indoor unit combinations given in the specification, complete with function controller, inverter capacity controller and weather resistance condenser coils and all other accessorieswith heavy anti-corrosion treatment including base coat + top coat (≥50µ) for condenser coil, evaporator coil, bottom frame, mounting plate, partition plate and SUS410 Stainless steel screws.</u>				
22.1.1	Outdoor Unit Capacity : 28kW (Units interconnected)	2	nr		
22.1.2	Outdoor Unit Capacity : 33.5kW	10	nr		
	Page total carried to next page				

BILL NO. 22 - HVAC SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	VRV/VRF INDOOR UNIT - FAN COIL UNITS				
	Notes				
1	Price for each FCU shall include all necessary valves as indicated in the typical detail drawing including all necessary brackets etc.		Note		
2	Supply and installation of approved quality Ceiling Mounted Ducted type VRV Indoor units c/w wired remote controller (Unit height not exceeding 200mm & sound level should be less than 40 db(A)) , Wall Mounted type VRV & Ceiling Mounted Cassette Corner Type VRV Indoor units units c/w wireless remore controller & all necessary accessories to complete the installation as specified.		Note		
	In G/F, Fire Stair Transfer - Commercial Area				
22.1.3	Total Cooling Capacity : 5.6kW	5	nr		
	In Apartment Floors				
22.1.4	Total Cooling Capacity : 2.8kW (Wall Mounted)	2	nr		
22.1.5	Total Cooling Capacity : 3.6kW (Ceiling Mounted Cassette Corner Type)	9	nr		
22.1.6	Total Cooling Capacity : 4.5kW	19	nr		
22.1.7	Total Cooling Capacity : 5.6kW	1	nr		
22.1.8	Total Cooling Capacity : 7.1kW	30	nr		
22.1.9	Total Cooling Capacity : 9.0kW	2	nr		
	Fresh Air Fans				
	Living room fresh air fan				
22.1.10	Supply & Installation of In Line Fresh air fan, 230-1-50Hz. Noise 40 dBA and shall be operated with CO2 sensor signals, Air Flow 100 L/s @ 20Pa	10	nr		
	Dining room fresh air fan				
22.1.11	Supply & Installation of In Line Fresh air fan, 230-1-50Hz. Noise 40 dBA and shall be operated with CO2 sensor signals, Air Flow 100 L/s @ 20Pa	1	nr		
	Page total carried to next page				

BILL NO. 22 - HVAC SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Pantry fresh air fan				
22.1.12	Supply & Installation of In Line Fresh air fan, 230-1-50Hz. Noise 40 dBA and shall be operated with CO2 sensor signals, Air Flow 100 L/s @ 20Pa	9	nr		
	Fresh air intake louvre				
22.1.13	Fresh Air Intake Corrosive and Marine Environment Air Filter with Weather proof Single Louver Grill. Face Size - 200x200mm	20	nr		
	Refrigerant Piping (for all AC units)				
	Notes				
1	Contractor shall verify at site their exact positions and piping to be done accordingly based on the design drawings and manufacturers recommendations.		Note		
2	Supply and installation of Refrigerant piping and condensate water piping including Closed cell nitrite rubber insulation (class O) tube and fittings rates shall include with Ref net Joints, bends, tees, elbows, stop ends, junctions, reducers, nipples, connectors, hangers and supports, inspection openings as per the specification with consultant's satisfaction.		Note		
22.1.14	Supply & installation of the Hard drawn Refrigerant Copper pipes to ASTM B 280 Type K / L (Compatible to R410a) complete with Class 'O'closed cell Nitrile rubber tubes & covering of all the joint with 6mm one layer. (minimum 25mm Thickness), necessary fittings, supports, fixing, connections and necessary accessories include with Ref net Joints,. Outdoor unit to indoor unit piping sizes shall be selected with the computer software as per the layout drawing. Insulation shall met the minimum VOC limits stipulated by local green building Council	1	Item		
	Condensate Drain Piping (for all AC units)				
22.1.15	Contractor shall verify at site their exact positions and piping to be done accordingly based on the design drawings and manufacturers recommendations.	1	Note		
22.1.16	Supply & installation of the Condensate drain pipes c/w 13mm tk Class 'O' closed cell Nitrile rubber insulations, necessary fittings, supports, fixing, connections and necessary accessories to the UPVC PNT07 pipes for drain shall include for cost of connecting them to the separate drain riser and finally connect to storm water manholes through suitable "U" traps.	1	Item		
	Page total carried to next page				

BILL NO. 22 - HVAC SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Ducting				
	Notes				
1	Rectangular ducting rates shall include fabricating installation and balancing of duct work including necessary flanges, sealant, hangers, access hatches, rods, hot dipped galvanized angle iron cross bars, duct flanges and hangers etc.		Note		
	PRE-INSULATED DUCTWORK				
	Notes				
1	Fabricating, installion, balancing of pre-insualated ductwork made out of sandwich panels with external aluminum sheeting covering a closed cell insulating material, 20mm thick, density 52kg/m^3, thermal conductivity 0.022W/mk, One side plain and other side embossed sheeting. Rate shall include all bends, reducers, flange joints, silicon sealent for all joints, anti vibration joint, hangers etc. all required to complete the work.		Note		
22.1.17	Pre Insulated Duct work for supply & return air	1	Item		
22.1.18	Pre Insulated Duct work for fresh air fans	1	Item		
	Supply Air Outlets				
	Notes				
1	Supply, installation of power coated Diffuser as per specification & drawings. The diffuser shall be made of extruded Aluminium sections. Rate shall include for flexible liner on connections (to avoid vibration), all fixing accessories, etc.		Note		
	Supply Linear Bar Slot Diffuser				
	Acoustically treated plenum Box shall be to architect approved Finsh/colour				
	In G/F, Fire Stair Transfer - Commercial Area				
22.1.19	25mm Slot width, 1 Slot Supply air Slot Diffuser with Acoustic Plenum Box. - 1500mm	1	nr		
22.1.20	25mm Slot width, 1 Slot Supply air Slot Diffuser with Acoustic Plenum Box. - 3700mm	1	nr		
	Page total carried to next page				

BILL NO. 22 - HVAC SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
22.1.21	25mm Slot width, 1 Slot Supply air Slot Diffuser with Acoustic Plenum Box. - 5000mm	4	nr		
	In Apartment Floors				
22.1.22	25mm Slot width, 1 Slot Supply air Slot Diffuser with Acoustic Plenum Box. - 2000mm	20	nr		
22.1.23	25mm Slot width, 1 Slot Supply air Slot Diffuser with Acoustic Plenum Box. - 3000mm	10	nr		
22.1.24	25mm Slot width, 1 Slot Supply air Slot Diffuser with Acoustic Plenum Box. - 3500mm	4	nr		
22.1.25	25mm Slot width, 1 Slot Supply air Slot Diffuser with Acoustic Plenum Box. - 9000mm	10	nr		
	Return Linear Bar Slot Diffuser				
	Acoustically treated plenum Box shall be to architect approved Finsh/colour				
	In G/F, Fire Stair Transfer - Commercial Area				
22.1.26	25mm Slot width, 1 Slot return air Slot Diffuser with Acoustic Plenum Box. - 2000mm	4	nr		
22.1.27	25mm Slot width, 1 Slot return air Slot Diffuser with Acoustic Plenum Box. - 4000mm	2	nr		
22.1.28	25mm Slot width, 1 Slot return air Slot Diffuser with Acoustic Plenum Box. - 5000mm	2	nr		
	In Apartment Floors				
22.1.29	25mm Slot width, 1 Slot return air Slot Diffuser with Acoustic Plenum Box. - 2800mm	20	nr		
22.1.30	25mm Slot width, 1 Slot return air Slot Diffuser with Acoustic Plenum Box. - 3000mm	10	nr		
22.1.31	25mm Slot width, 1 Slot return air Slot Diffuser with Acoustic Plenum Box. - 3500mm	10	nr		
22.1.32	25mm Slot width, 1 Slot return air Slot Diffuser with Acoustic Plenum Box. - 9000mm	10	nr		
	Page total carried to next page				

BILL NO. 22 - HVAC SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Return Air Grill				
	In Apartment Floors				
22.1.33	Face Size -1500x300mm	1	nr		
22.2	**SPLIT AC SYSTEM**				
	Notes				
1	**Supply and installation of following air cooled Split Inveter type AC units suit to the respective indoor unit combinations given in the specification, complete with function controller, inverter capacity controller and weather resistance condenser coils and all other accessories.**		Note		
22.2.1	Wall mounted split type air conditioners for the Ground Floor Organic Garbage room having minimum cooling capacity 3.6kW each complete with refrigerant pipes, insulation, wiring, condensate drain pipes, mounting brackets and other necessary ancillary items as specified. (Within 5m distance of indoor and outdoor units)	1	nr		
22.3	**ELECTRICAL & CONTROL WIRING**				
	N.B. Power supply to both outdoor and indoor units shall be drawn from the relevant isolators and socket outlets provided closed to indoor & outdoor units by others.				
	Power Supply for VRV/ VRF Indoor				
22.3.1	Supply and installation of power supply for indoor unit/fresh air unit of VRV/VRF air conditioning system, c/w power cables, fixings, cable management accessories, and fittings as required from nearest socket outlets provided within a 2m range to the unit.				
	Power Supply for VRF Outdoor Units				
22.3.2	Supply and installation of Air Conditioning system Main power panel complete with MCCB' s, MCB' s, starters, relays, power cables, fixings, fittings and necessary electrical installation components to the VRF outdoor/indoor units as per the specification.				
	Page total carried to next page				

BILL NO. 22 - HVAC SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
22.4	Allow for all works which are not included above and are required to provide a complete and fully operational installation in accordance with the Electrical, Mechanical, Specification and Drawings: (Please specify)				
22.5	Allow for prepare and submission of 03 sets of "Shop" drawings and "As Built" drawings. Shop Drawings and As Built drawings to be submitted in 3 sets of hard copies each as colour printed on A2 size paper and 01 set of soft copies in AutoCAD 2014 compatible version in a compact disc.				
22.6	Any other items deemed necessary for completion of the installation as indicated in the specification and drawings for fully functioning of the system (Please Specify)				
22.7	**TESTING & COMMISSIONING**				
22.7.1	Allow for installing, testing and commissioning of AC System items and submission of commissioning report, manuals and other documents as per the specification in triplicate, including necessary accessories to complete to working order as per the detail drawings and specifications.				
22.7.2	Submission of technical literature, maintenance and operational manuals, and maintenance during defect liability Period.				
	TOTAL FOR BILL NO. 22 - HVAC SYSTEM CARRIED TO SUMMARY II				

BILL NO. 23 - SUPPLY AND INSTALLATION OF MECHANICAL VENTILATION AND PROTECTED STAIRCASE PRESSURIZATION SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	MECHANICAL VENTILATION SYSTEM				
	Notes				
1	All builder's work related to the mechanical ventilation and protected stiarcase pressurization system should be included to the relevant boq item rate.		Note		
23.1	**Toilet Exhaust Fans at each Toilet / Toilet Block**				
	Notes				
1	Supply and installation of duct mounted axial flow toilet exhaust fans having following flow rates complete with all other accessories, as indicated in the drawing. Rate shall include for all fixtures and fittings required for complete fan installation. The noise level of the fan shall be below 30 dB(A) at 1m distance.		Note		
	Capacity [flow rate - 5**0cfm**@ ESP of **120Pa**]				
23.1.1	Supply Cost	9	nr		
23.1.2	Installation Cost	9	nr		
	Capacity [flow rate - 7**0cfm**@ ESP of **120Pa**]				
23.1.3	Supply Cost	39	nr		
23.1.4	Installation Cost	39	nr		
	Capacity [flow rate - 10**0cfm**@ ESP of **120Pa**]				
23.1.5	Supply Cost	1	nr		
23.1.6	Installation Cost	1	nr		
	Capacity [flow rate - **150cfm**@ ESP of 12**0Pa**]				
23.1.7	Supply Cost	10	nr		
23.1.8	Installation Cost	10	nr		
	Capacity [flow rate - **200cfm**@ ESP of 120**Pa**]				
23.1.9	Supply Cost	11	nr		
23.1.10	Installation Cost	11	nr		
	Page total carried to next page				

BILL NO. 23 - SUPPLY AND INSTALLATION OF MECHANICAL VENTILATION AND PROTECTED STAIRCASE PRESSURIZATION SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
23.2	**Toilet Exhaust Ducting System**				
	Notes				
1	Rate for ducts shall include for insulation, supports, hangers, acoustic lining where necessary, balancing dampers, volume control dampers, fire dampers, flexible connectors etc. for completion of installations.		Note		
2	Supply and installation of low pressure pre-insulated ducts with following diameters to be installed above ceiling from exhaust grille to vertical riser duct.		Note		
3	Supply and installation of non-insulated low pressure galvanized steel ducts to be installed as the vertical ducts up to roof terrace		Note		
23.2.1	Supply Cost	200	m^2		
23.2.2	Installation Cost	200	m^2		
23.3	**Toilet Exhaust Grilles**				
	Notes				
1	Supply and installation of powder coated sheet steel **Egg Crate type Ceiling Exhaust Grilles** for toilet exhaust system, completed with a galvanized steel plenum box, volume control damper and a flexible duct used to connect the diffuser assembly to the duct.		Note		
	Neck Size - 150mm x 150mm				
23.3.1	Supply Cost	70	nr		
23.3.2	Installation Cost	70	nr		
23.3.3	Wall Mounted Exhaust Air Louver with insect net filter and all accessories.				
	Neck Size - 150mm x 150mm				
23.3.4	Supply Cost	5	nr		
23.3.5	Installation Cost	5	nr		
	Neck Size - 450mm x 450mm				
23.3.6	Supply Cost	1	nr		
23.3.7	Installation Cost	1	nr		
	Page total carried to next page				

BILL NO. 23 - SUPPLY AND INSTALLATION OF MECHANICAL VENTILATION AND PROTECTED STAIRCASE PRESSURIZATION SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Neck Size - 600mm x 600mm				
23.3.8	Supply Cost	1	nr		
23.3.9	Installation Cost	1	nr		
23.4	**Other Miscellaneous Areas**				
	Notes				
1	Supply and installation of wall mounted **axial flow exhaust fans** having specified flow rates complete with gravity shutters / insect net. Rate shall include for all fixtures and fittings required for complete fan installation.		Note		
	Air Flow Rates - 1,500cfm @30Pa				
23.4.1	Supply Cost	1	nr		
23.4.2	Installation Cost	1	nr		
	Air Flow Rates - 400 cfm@ 30Pa				
23.4.3	Supply Cost	1	nr		
23.4.4	Installation Cost	1	nr		
	Air Flow Rates - 150 cfm@ 30Pa				
23.4.5	Supply Cost	2	nr		
23.4.6	Installation Cost	2	nr		
	Air Flow Rates - 70 cfm@ 30Pa				
23.4.7	Supply Cost	3	nr		
23.4.8	Installation Cost	3	nr		
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BILL NO. 23 - SUPPLY AND INSTALLATION OF MECHANICAL VENTILATION AND PROTECTED STAIRCASE PRESSURIZATION SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	PROTECTED STAIRWAY PRESSURIZATION SYSTEM				
	Notes				
1	All fans shall be complete with inertia bases, flexible connectors, hangers, mountings, vibration isolators, duct collars etc.		Note		
2	All fans shall be either 'UL Listed and FM Approved' or 'LPCB Certified and VdS Approved' and dedicated for Fire Protection System applications and rated in F300 rating (300ºC temperature for minimum 2hrs).		Note		
23.5	**Pressurization Fan**				
	Note				
1	Supply and installation of **Fire Protected Lobby Pressurization Fans** at the roof top with **7,500cfm @ 400 Pa ESP**. The fans shall be spark resist and flame proof . The fan motor shall be insulation class F and IP 54 or higher.		Note		
23.5.1	Supply Cost	2	nr		
23.5.2	Installation Cost	2	nr		
23.6	**Protected Stairway Pressurization Ducting System**				
	Note				
1	Rate for ducts shall include for insulation, supports, hangers, acoustic lining where necessary, balancing dampers, volume control dampers, fire dampers, flexible connectors etc. for completion of installations.		Note		
	Supply and installation of non-insulated medium pressure galvanized steel ducts to be installed as the vertical ducts up to roof terrace and branch ducts to stair well				
23.6.1	Supply Cost	300	m^2		
23.6.2	Installation Cost	300	m^2		
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BILL NO. 23 - SUPPLY AND INSTALLATION OF MECHANICAL VENTILATION AND PROTECTED STAIRCASE PRESSURIZATION SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
23.7	**Staircase Pressurization Grilles**				
	Supply and installation of powder coated sheet steel double deflection type grilles of specified sizes, with a galvanized steel plenum box, volume control damper and a flexible duct used to connect the diffuser assembly to the duct.				
	Neck Size -300 mm x 300 mm				
23.7.1	Supply Cost	5	nr		
23.7.2	Installation Cost	5	nr		
23.8	**Weather Resistant Louvers**				
	Supply and installation of Weather Resistant Louvers to induce outdoor air for pressurization fans of specified sizes. Rate shall include for back draft shutter, insect screen, all fixtures and fittings required for complete louver installation				
	Neck Size -1200 mm x 600 mm				
23.8.1	Supply Cost	2	nr		
23.8.2	Installation Cost	2	nr		
	Supply and installation of fire rated pressure dampers to release the excess pressure of above lobbies having specified sizes. Rate shall include for back draft shutter, insect screen, all fixtures and fittings required for complete damper installation				
	Neck Size -300 mm x 300 mm				
23.8.3	Supply Cost	5	nr		
23.8.4	Installation Cost	5	nr		
23.9	**Power Panels**				
	Notes				
1	Rate for power panels shall include MCCB' s, MCB' s, RCCB' s, starters, relays, power cables, fixings, fittings, power factor correction devices and necessary electrical connections between equipment as per specifications.		Note		
	Page total carried to next page				

BILL NO. 23 - SUPPLY AND INSTALLATION OF MECHANICAL VENTILATION AND PROTECTED STAIRCASE PRESSURIZATION SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Supply and installation of **Sub Distribution electrical (SDB-VT) power Panels for Staircase Pressurization System** completed with valves, dampers, sensors, actuators, etc. Panel shall have indication for power, equipment status, fault conditions. Panel shall provide dry contactors to controlling and monitoring panel. Panel shall have relays/contacts to communicate with FACP..				
23.9.1	Supply Cost	1	item		
23.9.2	Installation Cost	1	item		
23.10	**MISCELLANEOUS WORKS**				
	Notes				
1	Cost of Civil and Electrical Works to complete the installation of Mechanical Ventilation System and make fully functioning the system.		Note		
23.10.1	Any other items, specified but not listed in the price schedule (Please specify).	1	item		
23.10.2	Any other items the bidder suggest to complete the system for proper operation (Please Specify).	1	item		
23.10.3	Testing and commissioning of Fire Protection, Detection and Alarm system as per the specifications.	1	item		
	BILL NO. 23 - SUPPLY AND INSTALLATION OF MECHANICAL VENTILATION AND PROTECTED STAIRCASE PRESSURIZATION SYSTEM CARRIED TO SUMMARY II				

BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
24.0	**ELECTRICAL INSTALLATION**				
	Notes				
1	All materials, equipments, wiring and workmanship shall confirm to local authority requirements, B.S Standards, latest I.E.E regulations (17th edition).		Note		
2	Contractor shall obtain sample approvals for all the items used in electrical Installation before commencing installation.		Note		
3	Contractor shall propose shop drawings/conduit layouts drawings and shall obtain approval from Consultant Engineer before commencing installation.		Note		
4	Rates in Bill of Quantities shall include all necessary materials Cables, conduits, PVC sunk box, bulbs, switches etc.) and labour required to complete the electrical installation to good working order.		Note		
5	Except where specifically stated, all costs associated with provision of all holes, openings, chases, ducts and other builders' work required for installation and make them good, shall be included in the rates.		Note		
6	Where reference is made to certain manufactures' products and items identified by registered trade marks, this has been done for the sole purpose of defining and establishing standards of quality and performance and not with the intention of restricting the procurement of material or fitting to a particular manufacturer.		Note		
7	Electrical Items (MCB,RCCB etc.) without and accredited agent in Sri Lanka shall not be accepted and guarantee cards (Fans etc.) should be provided from Accredited agent when necessary.		Note		
8	All the main feeder cables quated below shall be on measure and pay basis.		Note		
9	All contractors shall work with proper coordination with other contractor's without any damage to other contractor's work.		Note		
10	All builder's work related to the electrical installation should be included to the relevant boq item rate.		Note		

BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
24.1	**INSPECTION AND TESTING**				
	Notes				
1	Testing and commissioning of the electrical installation is to be carried out by the contractor and inspection report to be submitted according to the requirements of the Power Supply Authority. Cost of such testing and reports to be included in the rates. As built electrical drawing to be submitted.		Note		
24.1.1	Testing of the complete Electrical Installation and issuing a certificate by a chartered Electrical Engineer, registered with Ceylon Electricity Board.	1	Item		
24.1.2	As built drawings, Testing and Commissioning providing operation and maintenance manual.	1	Item		
24.2	**POWER RECEIVING FROM CEB**				
	Notes				
2	The Contractor shall provide necessary support to CEB personal and employer in obtaining CEB power supply.		Note		
24.2.1	Provisional sum for the authority charges relevant for Obtaining Power Bulk Supply of 250VA, /400V/230V/3ph/50 Hz	1	P.Sum		
24.2	**FEEDER CABLES**				
	Notes				
1	Rates shall be included for all necessary cable accessories such as cable ties, Cable Lugs, Glands, identification tags, warning tiles and accessories All horizontal and vertical Cable trays should be adequately sized to provide 40% spare space.		Note		
2	For Underground Cables Rates shall be included, excavation, cable laying, backfilling, warning tiles, tapes and all necessary accessories.		Note		
3	All Main, Medium and Sub Feeder cables shall be tagged by Aluminum tags that have the information of the cable (Identification no. , Origin, destination, Cable Size etc.)		Note		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	In Ground Floor				
24.2.1	Supply,Installation & Termination of 2x4C x 95 mm^2 , Cu/XLPE/PVC Cable from **CEB BULK SUPPLY METER** to **MSB through Bus Bar Panel**	25	m		
24.2.2	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **MSB** to **DB-GF**	12	m		
24.2.3	Supply,Installation & Termination of 4C x 16mm^2 Cu/PVC/PVC + 16mm2 Cu/PVC(E) Cable from **MSB** to **DB-C.HOIST**	25	m		
24.2.4	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **SDB.COM** to **DB.GF-COM**	22	m		
24.2.5	Supply,Installation & Termination of 4C x 4mm^2 Cu/PVC/PVC + 4mm2 Cu/PVC(E) Cable from **MSB** to **DB-BP1**	18	m		
24.2.6	Supply,Installation & Termination of 4C x 4mm^2 Cu/PVC/PVC + 4mm2 Cu/PVC(E) Cable from **MSB** to **DB-WP**	18	m		
	In Mezzanine Floor				
24.2.7	Supply,Installation & Termination of 2x4C x 95mm^2, Cu/XLPE/PVC+ 95mm2 Cu/PVC(E) Cable from **Generator CB** to **DB-GEN**	15	m		
24.2.8	Supply,Installation & Termination of 2x4C x 95mm^2, Cu/XLPE/PVC+ 95mm2 Cu/PVC(E) Cable from **DB-GEN** to **MSB**	15	m		
24.2.9	Supply,Installation & Termination of 4C x 6mm^2, Cu/PVC/PVC+ 6mm2 Cu/PVC(E) Cable from **DB-GEN** to **SDB-COM**	15	m		
24.2.10	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **SDB-COM** to **MF.DB-COM**	15	m		
24.2.11	Supply,Installation & Termination of 2C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **MSB** to **MF.DB**	15	m		
	Page total carried to next page				
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
24.2.12	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **CEB Meter** to **SDB-COM**	20	m		
24.2.13	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **Generator CB** to **SDB-COM**	10	m		
	In First Floor				
24.2.14	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **MSB** to **DB-1**	30	m		
	In Second Floor				
24.2.15	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **MSB** to **DB-2**	34	m		
	In Third Floor				
24.2.16	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **MSB** to **DB-3**	38	m		
24.2.17	Supply,Installation & Termination of 2C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **MSB** to **COM.DB-1**	38	m		
	In Fourth Floor				
24.2.18	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **MSB** to **DB-4**	42	m		
	In Fifth Floor				
24.2.19	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **MSB** to **DB-5**	46	m		
	In Sixth Floor				
24.2.20	Supply,Installation & Termination of 4C x 10mm^2 Cu/PVC/PVC + 10mm2 Cu/PVC(E) Cable from **MSB** to **DB-6**	50	m		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	In Seventh Floor				
24.2.21	Supply,Installation & Termination of 4C x 10mm^2 Cu/PVC/PVC + 10mm2 Cu/PVC(E) Cable from **MSB** to **DB-7**	54	m		
	In Eighth Floor				
24.2.22	Supply,Installation & Termination of 4C x 10mm^2 Cu/PVC/PVC + 10mm2 Cu/PVC(E) Cable from **MSB** to **DB-8**	58	m		
24.2.23	Supply,Installation & Termination of 2C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **MSB** to **COM.DB-2**	58	m		
	In Ninth Floor				
24.2.24	Supply,Installation & Termination of 4C x 10mm^2 Cu/PVC/PVC + 10mm2 Cu/PVC(E) Cable from **MSB** to **DB-9**	62	m		
	In Tenth Floor				
24.2.25	Supply,Installation & Termination of 4C x 10mm^2 Cu/PVC/PVC + 10mm2 Cu/PVC(E) Cable from **MSB** to **DB-10**	66	m		
	In Tenth Mezzanine Floor				
24.2.26	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **MSB** to **DB-10M**	30	m		
	In Roof Floor				
24.2.27	Supply,Installation & Termination of 2C x 10mm^2 Cu/PVC/PVC + 10mm2 Cu/PVC(E) Cable from **MSB** to **DB-ROOF**	70	m		
24.2.28	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **MSB** to **DB-POOL**	75	m		
24.2.29	Supply,Installation & Termination of 4C x 95mm^2 Cu/XLPE/PVC + 50mm2 Cu/PVC(E) Cable from **MSB** to **Fire Sprinkler DB-1**(Fire Resistive Cable)	100	m		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
24.2.30	Supply,Installation & Termination of 4C x 95mm^2 Cu/XLPE/PVC + 50mm2 Cu/PVC(E) Cable from **DB-GEN** to **Fire Sprinkler DB-2** (Fire Resistive Cable)	100	m		
24.2.31	Supply,Installation & Termination of 4C x 16mm^2 Cu/PVC/PVC + 16mm2 Cu/PVC(E) Cable from **Fire Sprinkler DB-1&2** to **Sprinkler Duty Pump** (Fire Resistive Cable)	20	m		
24.2.32	Supply,Installation & Termination of 4C x 16mm^2 Cu/PVC/PVC + 16mm2 Cu/PVC(E) Cable from **Fire Sprinkler DB-1&2** to **Sprinkler Stand By Pump** (Fire Resistive Cable)	20	m		
24.2.33	Supply,Installation & Termination of 4C x 4mm^2 Cu/PVC/PVC + 4mm2 Cu/PVC(E) Cable from **Fire Sprinkler DB-1&2** to **Sprinkler Jocky Pump** (Fire Resistive Cable)	20	m		
24.2.34	Supply,Installation & Termination of 4C x 10mm^2 Cu/PVC/PVC + 10mm2 Cu/PVC(E) Cable from **Fire Sprinkler DB-1&2** to **ATS-PL** (Fire Resistive Cable)	20	m		
24.2.35	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **ATS-PL** to **Staircase Pressurization Fan** (Fire Resistive Cable)	20	m		
	In Machine Room Level				
24.2.36	Supply,Installation & Termination of 4C x 35mm^2 Cu/XLPE/PVC + 16mm2 Cu/PVC(E) Cable from **Fire Sprinkler DB-1** to **Fire Hydrent DB-1**(Fire Resistive Cable)	25	m		
24.2.37	Supply,Installation & Termination of 4C x 35mm^2 Cu/XLPE/PVC + 16mm2 Cu/PVC(E) Cable from **Fire Sprinkler DB-2** to **Fire Hydrent DB-2**(Fire Resistive Cable)	25	m		
24.2.38	Supply,Installation & Termination of 4C x 25mm^2 Cu/XLPE/PVC + 16mm2 Cu/PVC(E) Cable from **Fire Hydrent DB-1&2 to Hydrent Duty Pump** (Fire Resistive Cable)	20	m		
24.2.39	Supply,Installation & Termination of 4C x 25mm^2 Cu/XLPE/PVC + 16mm2 Cu/PVC(E) Cable from **Fire Hydrent DB-1&2 to Hydrent Stand By Pump** (Fire Resistive Cable)	20	m		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
24.2.40	Supply,Installation & Termination of 4C x 4mm^2 Cu/PVC/PVC + 4mm2 Cu/PVC(E) Cable from **Fire Hydrent DB-1&2 to Hydrent Jocky Pump** (Fire Resistive Cable)	20	m		
24.2.41	Supply,Installation & Termination of 4C x 10mm^2 Cu/PVC/PVC + 10mm2 Cu/PVC(E) Cable from **Fire Hydrent DB-1&2 to ATS-WTL** (Fire Resistive Cable)	20	m		
24.2.42	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **ATS-WTL to Fire Lift** (Fire Resistive Cable)	15	m		
24.2.43	Supply,Installation & Termination of 4C x 16mm^2 Cu/PVC/PVC + 16mm2 Cu/PVC(E) Cable from **MSB** to **DB-LIFT 2**	97	m		
24.2.44	Supply,Installation & Termination of 4C x 6mm^2 Cu/PVC/PVC + 6mm2 Cu/PVC(E) Cable from **MSB** to **DB-BP2**	102	m		
24.3	**LV DISTRIBUTION SYSTEM**				
	Distribution Boards.				
	Notes				
1	All Distribution Boards shall be complete with powder coated steel enclosure with lockable doors and earth connection for the doors.		Note		
2	The Panel board should have wire numbering and a laminated circuit diagram pasted on the inside surface of the door. RAL color standard of all Panel Boards shall be RAL 7032.		Note		
3	Name of the outgoing Feeder shall be indicate in the cover plate and breaker it self for the identification purpose.		Note		
4	MCB & RCCB, shall be manufactured by ABB, F&G,Schneider,EATON,Terasaki or equivalent & approved by the Engineer.		Note		
5	Distribution Boards shall be complete with necessary protection as per the drawing.		Note		
6	Locations of the distribution bords shall be slightly moved for better MEP cordinations or as per the client's/architecturer's requirement.		Note		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
7	All out door panel bracketing accessories should be stainless steel 304		Note		
8	Panel Manufacture shall be KIK, EMP, Pubudu, Dimo, Venora or equvilant approved by Engineer		Note		
	In Ground Floor				
24.3.1	DB-GF	1	nr		
24.3.2	DB.GF-COM	1	nr		
24.3.3	DB-WP	1	nr		
24.3.4	DB-BP1	1	nr		
24.3.5	DB-C.HOIST	1	nr		
24.3.6	SDB-COM	1	nr		
	In Mezzanine Floor				
24.3.7	400A Bus Bar Panel	1	nr		
24.3.8	Main Switch Board (MSB)	1	nr		
	Supply and installation of Main Switch Board (MSB) Consisting of ,CEB In CB,ATS,Surge arrestors (With Indicators), Circuit Breakers,PFR,EFR,MFM…etc and all the mounting & supporting accessories etc. as per the drawings and specifications.				
24.3.9	DB-MF	1	nr		
24.3.10	DB.MF-COM	1	nr		
24.3.11	DB-GEN	1	nr		
	In First Floor				
24.3.12	DB-1	1	nr		
	In Second Floor				
24.3.13	DB-2	1	nr		
	In Third Floor				
24.3.14	DB-3	1	nr		
24.3.15	COM.DB-1	1	nr		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	In Fourth Floor				
24.3.16	DB-4	1	nr		
	In Fifth Floor				
24.3.17	DB-5	1	nr		
	In Sixth Floor				
24.3.18	DB-6	1	nr		
	In Seventh Floor				
24.3.19	DB-7	1	nr		
	In Eighth Floor				
24.3.20	DB-8	1	nr		
24.3.21	COM.DB-2	1	nr		
	In Ninth Floor				
24.3.22	DB-9	1	nr		
	In Tenth Floor				
24.3.23	DB-10	1	nr		
	Tenth Mezzanine Floor				
24.3.24	DB-10M	1	nr		
	In Roof Floor				
24.3.25	DB-ROOF	1	nr		
24.3.26	DB-POOL	1	nr		
24.3.27	DB-FP1	2	nr		
24.3.28	ATS-PL	1	nr		
	In Machine Room Level				
24.3.29	DB-FP2	2	nr		
24.3.30	ATS-WTL	1	nr		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
24.3.31	DB-LIFT2	1	nr		
24.3.32	DB-BP2	1	nr		
24.4	**WIRING FOR LIGHT POINTS,FAN POINTS**				
	Note				
1	Rate point wiring shall include for all the conduits, conduit fittings, casings,surface cable trunks, fixing material, switches, wiring and terminations, holders for light fittings and socket outlets for power points. Contractor shall obtain approvals from the Consultant Engineer for above items.		Note		
	GROUND FLOOR				
24.4.1	Wiring of light/fan points/Exit sign board, from the respective consumer unit using 2x1mm^2 Cu/PVC/PVC + 2.5mm^2 Cu/PVC(E) cable drawn through securely fixed concealed PVC conduit with 10A flush switch as shown in layout drawings.	36	nr		
24.4.2	Supply and Installation of 13A Single switched socket outlet for **Exhaust fan** fixed on wall , wired from the respective Consumer Unit using 2 x 1mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	2	nr		
24.4.3	Supply and Installation of 13A Single switched socket outlet fixed on wall for **Emergency Lamp**, wired from the respective Consumer Unit using 2 x 1mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	4	nr		
	FIRST PARKING FLOOR				
24.4.4	Wiring of light/fan points/Exit sign board, from the respective consumer unit using 2x1mm^2 Cu/PVC/PVC + 2.5mm^2 Cu/PVC(E) cable drawn through securely fixed concealed PVC conduit with 10A flush switch as shown in layout drawings.	65	nr		
24.4.5	Supply and Installation of 13A Single switched socket outlet for **Exhaust fan** fixed on wall , wired from the respective Consumer Unit using 2 x 1mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	4	nr		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
24.4.6	Supply and Installation of 13A Single switched socket outlet fixed on wall for **Emergency Lamp**, wired from the respective Consumer Unit using 2 x 1mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	4	nr		
	TYPICAL FIRST TO NINTH FLOOR				
24.4.7	Wiring of light/fan points/Exit sign board, from the respective consumer unit using 2x1mm^2 Cu/PVC/PVC + 2.5mm^2 Cu/PVC(E) cable drawn through securely fixed concealed PVC conduit with 10A flush switch as shown in layout drawings.	657	nr		
24.4.8	Wiring of Bell Point with 2 x 1sq.mm Cu/PVC/PVC Cables and 2.5sq.mm Protective Earth in PVC conduit including accessories and push button.	9	nr		
24.4.9	Supply and Installation of Shaver socket outlet fixed on wall, wired from the respective Consumer Unit using 2 x 1mm2 Cu/PVC/PVC cable with 2.5 mm2 Cu/PVC(E) earth wire as shown in layout drawings.	45	nr		
24.4.10	Supply and Installation of 13A Single switched socket outlet for **Exhaust fan** fixed on wall , wired from the respective Consumer Unit using 2 x 1mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	45	nr		
24.4.11	Supply and Installation of 13A Single switched socket outlet fixed on wall for **Emergency Lamp**, wired from the respective Consumer Unit using 2 x 1mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	9	nr		
	TENTH FLOOR				
24.4.12	Wiring of light/fan points/Exit sign board, from the respective consumer unit using 2x1mm^2 Cu/PVC/PVC + 2.5mm^2 Cu/PVC(E) cable drawn through securely fixed concealed PVC conduit with 10A flush switch as shown in layout drawings.	65	nr		
24.4.13	Wiring of Bell Point with 2 x 1sq.mm Cu/PVC/PVC Cables and 2.5sq.mm Protective Earth in PVC conduit including accessories and push button.	1	nr		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
24.4.14	Supply and Installation of Shaver socket outlet fixed on wall, wired from the respective Consumer Unit using 2 x 1mm2 Cu/PVC/PVC cable with 2.5 mm2 Cu/PVC(E) earth wire as shown in layout drawings.	2	nr		
24.4.15	Supply and Installation of 13A Single switched socket outlet for **Exhaust fan** fixed on wall , wired from the respective Consumer Unit using 2 x 1mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	2	nr		
24.4.16	Supply and Installation of 13A Single switched socket outlet fixed on wall for **Emergency Lamp**, wired from the respective Consumer Unit using 2 x 1mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	1	nr		
	TENTH MEZZANINE FLOOR				
24.4.17	Wiring of light/fan points/Exit sign board, from the respective consumer unit using 2x1mm^2 Cu/PVC/PVC + 2.5mm^2 Cu/PVC(E) cable drawn through securely fixed concealed PVC conduit with 10A flush switch as shown in layout drawings.	43	nr		
24.4.18	Supply and Installation of Shaver socket outlet fixed on wall, wired from the respective Consumer Unit using 2 x 1mm2 Cu/PVC/PVC cable with 2.5 mm2 Cu/PVC(E) earth wire as shown in layout drawings.	3	nr		
24.4.19	Supply and Installation of 13A Single switched socket outlet for **Exhaust fan** fixed on wall , wired from the respective Consumer Unit using 2 x 1mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	3	nr		
24.4.20	Supply and Installation of 13A Single switched socket outlet fixed on wall for **Emergency Lamp**, wired from the respective Consumer Unit using 2 x 1mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	1	nr		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	ROOF FLOOR				
24.4.21	Wiring of light/fan points/Exit sign board, from the respective consumer unit using 2x1mm^2 Cu/PVC/PVC + 2.5mm^2 Cu/PVC(E) cable drawn through securely fixed concealed uPVC conduit with 10A flush switch as shown in layout drawings.	30	nr		
24.4.22	Supply and Installation of 13A Single switched socket outlet for **Exhaust fan** fixed on wall , wired from the respective Consumer Unit using 2 x 1mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	1	nr		
24.4.33	Supply and Installation of 13A Single switched socket outlet fixed on wall for **Emergency Lamp**, wired from the respective Consumer Unit using 2 x 1mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	1	nr		
24.5	**SUPPLY AND INSTALLATION OF LIGHT FITTINGS**				
	Notes				
1	Each fitting shall include bulbs, internal wiring, hanging and fixing material and be complete without any additional item/material being required to make it so.		Note		
2	All light fitting mounting bracket should be stainless steel 304		Note		
	Ground Floor				
24.5.1	Supply and installation of Surface mounted down light LED (20W) c/w driver.	13	nr		
24.5.2	Supply and installation of Surface mounted down light LED (12W) c/w driver.	17	nr		
24.5.3	Supply and installation of Hazardous free 18W LED Tube lamp c/w driver.	1	nr		
24.5.4	Supply and installation of Surface mounted down light LED (7W) c/w driver.	3	nr		
24.5.5	Supply and installation of Internal wall lamp fitting LED (9W) c/w driver.	2	nr		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
24.5.6	Supply and Installation of Emergency 2x5W LED light (sunk box,dummy cup & connector) c/w long life maintainance free lead acid battery with switch mode electronic charger	4	nr		
	First Parking Floor				
24.5.7	Supply and installation of Surface mounted down light LED (12W) c/w driver.	52	nr		
24.5.8	Supply and installation of Surface mounted down light LED (7W) c/w driver.	4	nr		
24.5.9	Supply and installation of Internal wall lamp fitting LED (9W) c/w driver.	6	nr		
24.5.10	Supply and Installation of Emergency 2x5W LED light (sunk box,dummy cup & connector) c/w long life maintainance free lead acid battery with switch mode electronic charger	1	nr		
	Typical First to Ninth Floor				
24.5.11	Supply and installation of Surface mounted down light LED (9W) c/w driver.	198	nr		
24.5.12	Supply and installation of Surface mounted down light LED (5W) c/w driver.	108	nr		
24.5.13	Supply and installation of Ceiling recessed down light LED (15W) c/w driver.	36	nr		
24.5.14	Supply and installation of Ceiling recessed down light LED (9W) c/w driver.	72	nr		
24.5.15	Supply and installation of Ceiling recessed down light LED (7W) c/w driver.	72	nr		
24.5.16	Supply and installation of Surface mounted down light LED (12W) c/w driver.	27	nr		
24.5.17	Supply and installation of Mirror lamp LED (7W) c/w driver.	45	nr		
24.5.18	Supply and installation of Internal wall lamp fitting LED (9W) c/w driver.	27	nr		
24.5.19	Supply and installation of 1400mm Sweep Ceilling Fan with regulator	63	nr		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
24.5.20	Supply and installation of Bell unit	9	nr		
24.5.21	Supply and Installation of Emergency 2x5W LED light (sunk box,dummy cup & connector) c/w long life maintainance free lead acid battery with switch mode electronic charger	9	nr		
	Tenth Floor				
24.5.22	Supply and installation of Surface mounted down light LED (9W) c/w driver.	29	nr		
24.5.23	Supply and installation of Surface mounted down light LED (5W) c/w driver.	15	nr		
24.5.24	Supply and installation of Ceiling recessed down light LED (15W) c/w driver.	2	nr		
24.5.25	Supply and installation of Ceiling recessed down light LED (9W) c/w driver.	3	nr		
24.5.26	Supply and installation of Ceiling recessed down light LED (7W) c/w driver.	1	nr		
24.5.27	Supply and installation of Surface mounted down light LED (7W) c/w driver.	1	nr		
24.5.28	Supply and installation of Surface mounted down light LED (12W) c/w driver.	3	nr		
24.5.29	Supply and installation of Mirror lamp LED (7W) c/w driver.	2	nr		
24.5.30	Supply and installation of Internal wall lamp fitting LED (9W) c/w driver.	2	nr		
24.5.31	Supply and installation of 1400mm Sweep Ceilling Fan with regulator	6	nr		
24.5.32	Supply and installation of Bell unit	1	nr		
24.5.33	Supply and Installation of Emergency 2x5W LED light (sunk box,dummy cup & connector) c/w long life maintainance free lead acid battery with switch mode electronic charger		nr		
	Tenth Mezzanine Floor				
24.5.34	Supply and installation of Surface mounted down light LED (9W) c/w driver.	16	nr		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
24.5.35	Supply and installation of Surface mounted down light LED (5W) c/w driver.	5	nr		
24.5.36	Supply and installation of Ceiling recessed down light LED (9W) c/w driver.	6	nr		
24.5.37	Supply and installation of Ceiling recessed down light LED (7W) c/w driver.	4	nr		
24.5.38	Supply and installation of Surface mounted down light LED (12W) c/w driver.	3	nr		
24.5.39	Supply and installation of Mirror lamp LED (7W) c/w driver.	2	nr		
24.5.40	Supply and installation of Internal wall lamp fitting LED (9W) c/w driver.	3	nr		
24.5.41	Supply and installation of 1400mm Sweep Ceilling Fan with regulator	4	nr		
24.5.42	Supply and Installation of Emergency 2x5W LED light (sunk box,dummy cup & connector) c/w long life maintainance free lead acid battery with switch mode electronic charger	1	nr		
	Roof Floor				
24.5.43	Supply and installation of Ceiling recessed down light LED (9W) c/w driver.	11	nr		
24.5.44	Supply and installation of Surface mounted down light LED (7W) c/w driver.	1	nr		
24.5.45	Supply and installation of Surface mounted down light LED (12W) c/w driver.	2	nr		
24.5.46	Supply and installation of Mirror lamp LED (7W) c/w driver.	1	nr		
24.5.47	Supply and installation of Internal wall lamp fitting LED (9W) c/w driver.	2	nr		
24.5.48	Supply and installation of External wall lamp fitting LED (13W) c/w driver.	5	nr		
24.5.49	Supply and installation of Garden lamp-IP 65 (9W) c/w driver.	3	nr		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
24.5.50	Supply and Installation of Emergency 2x5W LED light (sunk box,dummy cup & connector) c/w long life maintainance free lead acid battery with switch mode electronic charger	3	nr		
24.6	**WIRING FOR SOCKET OUTLETS & ISOLATORS**				
	Notes				
1	Rate point wiring shall include for all the conduits, conduit fittings, casings,surface cable trunks, fixing material, switches, wiring and terminations, holders for light fittings and socket outlets for power points. Contractor shall obtain approvals from the Consultant Engineer for above items		Note		
	Ground Floor				
24.6.1	Supply and Installation of 13A Single switched socket outlet fixed on wall, wired in **ring** circuit from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	14	nr		
24.6.2	Supply and Installation of 13A Single switched socket outlet fixed on soffit or above ceilling for **AC Indoor Unit**, wired in **ring** circuit from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	2	nr		
24.6.3	Supply and Installation of 16A 4P MCB (with enclosure) for Car Hoist points fixed on wall, wired from the respective Consumer Unit using 5C x 2.5mm^2 Cu/PVC/SWA/PVC cable as shown in layout drawings.	8	nr		
24.6.4	Supply and Installation of 20A 4P MCB complete with enclosure(IP 65) for VRV outdoor unit fixed on outdoor balcany area wired in **radial** circuit from the respective Consumer Unit using 4C x4mm^2 Cu/PVC/PVC cable with 4 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	1	nr		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	First Parking Floor				
24.6.5	Supply and Installation of 13A Single switched socket outlet fixed on wall, wired in **ring** circuit from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	16	nr		
24.6.6	Supply and Installation of 13A Single switched socket outlet fixed on soffit or above ceilling for **AC Indoor Unit**, wired in **ring** circuit from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	8	nr		
24.6.7	Supply and Installation of 20A 4P MCB complete with enclosure(IP 65) for VRV outdoor unit fixed on outdoor balcany area wired in **radial** circuit from the respective Consumer Unit using 4C x4mm^2 Cu/PVC/PVC cable with 4 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	1	nr		
	Typical First to Ninth Floor				
24.6.8	Supply and Installation of 13A Single switched socket outlet fixed on wall, wired in **ring** circuit from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	495	nr		
24.6.9	Supply and Installation of 13A Single switched socket outlet fixed on soffit or above ceilling for **AC Indoor Unit**, wired in **ring** circuit from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	54	nr		
24.6.10	Supply and Installation of 13A Single switched socket outlet fixed on wall for **Electric Gyser**, wired in **radial** circuit **through 20A DP switch** from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	18	nr		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
24.6.11	Supply and Installation of 20A 4P MCB complete with enclosure(IP 65) for VRV outdoor unit fixed on outdoor balcany area wired in **radial** circuit from the respective Consumer Unit using 4C x4mm^2 Cu/PVC/PVC cable with 4 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	9	nr		
	Tenth Floor				
24.6.12	Supply and Installation of 13A Single switched socket outlet fixed on wall, wired in **ring** circuit from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	38	nr		
24.6.13	Supply and Installation of 13A Single switched socket outlet fixed on soffit or above ceilling for **AC Indoor Unit**, wired in **ring** circuit from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	6	nr		
24.6.14	Supply and Installation of 13A Single switched socket outlet fixed on wall for **Electric Gyser**, wired in **radial** circuit **through 20A DP switch** from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	1	nr		
24.6.15	Supply and Installation of 20A 4P MCB complete with enclosure(IP 65) for VRV outdoor unit fixed on outdoor balcany area wired in **radial** circuit from the respective Consumer Unit using 4C x4mm^2 Cu/PVC/PVC cable with 4 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	1	nr		
	Tenth Mezzanine Floor				
24.6.16	Supply and Installation of 13A Single switched socket outlet fixed on wall, wired in **ring** circuit from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	31	nr		
24.6.17	Supply and Installation of 13A Single switched socket outlet fixed on soffit or above ceilling for **AC Indoor Unit**, wired in **ring** circuit from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	4	nr		
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
24.6.18	Supply and Installation of 13A Single switched socket outlet fixed on soffit or above ceilling for **AC Indoor Unit**, wired in **ring** circuit from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	4	nr		
24.6.19	Supply and Installation of 13A Single switched socket outlet fixed on wall for **Electric Gyser**, wired in **radial** circuit **through 20A DP switch** from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	2	nr		
	Roof Floor				
24.6.20	Supply and Installation of 13A Single switched socket outlet fixed on wall, wired in **ring** circuit from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	8	nr		
24.6.21	Supply and Installation of 13A Single switched socket outlet fixed on soffit or above ceilling for **AC Indoor Unit**, wired in **ring** circuit from the respective Consumer Unit using 2 x 2.5mm^2 Cu/PVC/PVC cable with 2.5 mm^2 Cu/PVC(E) earth wire as shown in layout drawings.	1	nr		
24.7	**CABLE TRAYS**				
	Notes				
1	Supply and installation of perforated cable trays/ladders(vertical,Horizontal) with bends, joints, mounting brackets and all required accessories complete with perforated cover.	Note			
2	All the cables trays,ladders must be used Hot Dip Galvanized with all necessary accessories as shown in the drawing.	Note			
3	All the cables trays,ladders quated below shall be on measure and pay basis.	Note			
4	All the cables trays,ladders mounting bracket should be stainless steel 304.	Note			
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BILL NO. 24 - ELECTRICAL SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Cable Ladder				
24.7.1	Supply and installation of 300x50mm heavy duty Hot diped galvanized **Cable Ladder** ,clamps,and fixing brackets with all accessories.(For Electrical)	m	80		
24.7.2	Supply and installation of 200x50mm heavy duty Hot diped galvanized **Cable Ladder** ,clamps,and fixing brackets with all accessories.(For ELV)	m	80		
	Cable Tray				
24.7.3	Supply and installation of 450x100mm Single Compartment Hot diped galvanized Perforated **Cable Tray** with all necessary accessories as shown in the drawing.	m	30		
24.7.4	Supply and installation of 100x50mm Single Compartment Hot diped galvanized Perforated **Cable Tray** with all necessary accessories as shown in the drawing.	m	30		
24.8	**LIGHTNING PROTECTION SYSTEM**				
	Note				
1	ESE Air terminal should have remote system testing facility to ensure the performance of the unit & conforming that the installation is fully functional.		Note		
2	Duval Messier (France), Halite (France) Inderal, Eve International,INDELEC, DEHN or equivalent (Earth resistance should be less than 1 ohms)		Note		
24.8.1	Supply, Install and commission of lightning protection system (Early streamer Emission type) Complete with ESE type Air terminal, 25x3mm Cu tape for Down conductor, cu rods or cu plate for Earth electrodes, Test clamps & other accessories.(All mounting bracket such as nuts,bolits,bracket...etc should be stainless steel 304)	1	Item		
	Supply and Installation of Earth Electrode				
24.8.2	Supply and installation of earth electrodes c/w the required accessories (earth resistance should be below **10 Ohms**) and connect to **MSB** using **95sq.mm** Earth cable	1	nr		
	TOTAL FOR BILL NO. 24 - ELECTRICALSYSTEM CARRIED TO SUMMARY II				

BILL NO. 25 - ELV SYSTEM INSTALLATIONS

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
25.1	**HD DIGITAL CCTV CAMERAS SYSTEM**				
	Notes				
1	Supply and installation of CCTV Cameras including mounting brackets, Poles for the freestanding cameras and all other necessary accessories required, complete to working order as per the drawings and technical specifications in following areas.		Note		
2	All contractors shall work with proper coordination with other contractor's without any damage to other contractor's work.		Note		
3	All builder's work related to the electrical installation should be included to the relevant boq item rate.		Note		
	Fixed IP HD Camera (Day / Night / Indoor)				
25.1.1	Ground Floor	2	nr		
25.1.2	Mezzanine Floor	2	nr		
25.1.3	1st Floor to 9th Floor	10	nr		
25.1.4	10th Floor	1	nr		
25.1.5	11th Mezzanine Floor	1	nr		
25.1.6	Roof Terrace Floor	1	nr		
	Fixed IP HD Camera (Day / Night / Outdoor)				
25.1.7	Ground Floor	6	nr		
25.1.8	Roof Terrace Floor	1	nr		
	Fixed IP HD Camera (Day / Night / Indoor) - For Lift				
25.1.9	Lift Camera	2	nr		
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BILL NO. 25 - ELV SYSTEM INSTALLATIONS

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	CCTV Wiring				
	Supply and installation of CCTV Cameras Point by CAT 6 cable including, face plates, Patch leads, PVC Pipes for underground cabling, condits/trunkings and all other necessary accessories required, complete to working order as per the drawings and technical specifications				
25.1.10	Ground Floor	8	nr		
25.1.11	Mezzanine Floor	2	nr		
25.1.12	1st Floor to 10th Floor	12	nr		
25.1.13	Roof Terrace Floor	2	nr		
25.1.14	Lift Camera	2	nr		
	Network Accessories				
25.1.15	Supply and installation of Network Switch 48 port, Patch panel, POE Injectors, Power supply, Patch Cord, Network rack 7U,	1	nr		
	Digital HD Network Video Recorder				
	Supply and Installation of Digital Network Video Recorder (NVR) for the CCTV system including all necessary equipments and accessories required for recording and play back video files as per the specifications and drawing. NVRs shall be installed as shown.				
25.1.16	32 Channel Digital Video Recorder for 30 days recording	1	nr		
	CCTV Monitoring station				
25.1.17	Supply and Installation of equipment related to the CCTV monitoring c/w below items at the security room: - Central Processing Unit & necessary cabling - LED Monitors (32 inch 1 nr) with all the mounting brackets - Keyboards and controllers - Uninterrupted Power Supply Units - Software	1	Lot		
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BILL NO. 25 - ELV SYSTEM INSTALLATIONS

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
25.1.18	Allow cost for Supply and Installation of necessary Software for Close Circuit Television System (CCTV).	1	Item		
	Testing & Commissioning of the system				
25.1.19	Testing and commissioning of the Close Circuit Television System (CCTV) to the entire satisfaction of the engineer and submission of commissioning report in triplicate.	1	Item		
	TOTAL FOR HD DIGITAL CCTV CAMERAS SYSTEM CARRIED TO COLLECTION				

BILL NO. 25 - ELV SYSTEM INSTALLATIONS

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
25.2	**IP TV/Telephone System With Fiber optic back bone**				
	Notes				
1	Service provider will lay the Fiber cables up to each floor through the Riser with Fiber Splitters and Contractor shall do the installation and termination of Fibers from that point to each Appartment ONT unit		Note		
2	All contractors shall work with proper coordination with other contractor's without any damage to other contractor's work.		Note		
3	All builder's work related to the electrical installation should be included to the relevant boq item rate.		Note		
25.2.1	Supply and installation of Indoor Fiber Optic Cablinng(1C Armoured) Single mode with PVC accesserios,From Each Apartment (ONT) to the Distribution Point(Locate in the Electrical/ELV Duct.(meter)	300	m		
25.2.2	Supply and installation of Indoor Fiber Optic Cablinng(1C Armoured) Single mode with PVC accesserios,From Security room & Reception area (ONT) to the Distribution Point(Locate in the Electrical/ELV Duct.(meter)	50	m		
	IP TV System With Fiber optic back bone				
25.2.3	Wiring of IP TV outlet with wiring CAT 6 cable in concealed PVC conduits termination of outlet plates from apartment termination box to end point.	20	nr		
	Telephone System - Using Fiber Optic Backbone				
25.2.4	Wiring of Telephone outlets using CAT 6 cable in PVC conduits from ONT to each telephone outlet complete with all conduit, fixing accessories and termination and including of RJ45 outlet plate & splitter . (Parallel Telephone).	12	nr		
25.2.5	Testing and commissioning of each point of the system and submit a test certificate including detail test report acceptable to the Service Provider .	1	Item		
	TOTAL FOR IP TV/TELEPHONE SYSTEM WITH FIBER OPTIC BACK BONE SYSTEM CARRIED TO COLLECTION				

BILL NO. 25 - ELV SYSTEM INSTALLATIONS

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	BILL NO. 21 - ELV SYSTEM **COLLECTION**				
25.1	HD DIGITAL CCTV CAMERAS SYSTEM				
25.2	IP TV/TELEPHONE SYSTEM WITH FIBER OPTIC BACK BONE SYSTEM				
	TOTAL FOR BILL NO. 25 - ELV SYSTEM CARRIED TO SUMMARY II				

BILL NO. 26 - SUPPLY AND INSTALLATION OF FIRE PROTECTION, DETECTION, ALARM SYSTEMS & FIREMEN COMMUNICATION SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
26.1	**WET RISER FIRE PROTECTION SYSTEM**				
	Note				
1	Wet Riser Fire Protection system equipped with Hose Reel and Landing Valve connected to the vertical fire water risers. The Fire Water Tanks are located at the Roof Slab of the Machine Room floor level having capacity of 45,000m3, above the Fire Pump room, which is at the Machine Room floor level at the Roof Top Area of the building .		Note		
2	The Fire Water Riser [For Landing Valve and Hose Reel] (Ø150mm) is located at each protected stairway of the building.		Note		
3	**Wet Riser Fire Hydrant Pumps and Pump Room Accessories** (at the pump room)		Note		
4	Fire Hydrant Pump capacities are selected such a way that, to the requirements for the operation of Landing Valves, Hose Reel systems complied with CIDA Fire Regulation.		Note		
5	All the Fire pumps, Control Panels and accessories shall be manufactured, dedicated for Fire Protection system application.		Note		
	Supply and Installation of Centrifugal End Suction type **Fire Pumps** having minimum capacity of 1500 l/min at delivery head of 70 m (1 nr for Main, 1 nr for Stand-by) with all necessary accessories.				
26.1.1	Supply Cost	2	nr		
26.1.2	Installation Cost	2	nr		
	Supply and Installation of Centrifugal Multi Stage In lined **(Jockey Pump)** Pump having minimum capacity of 60 l/min at the delivery head of 80m with all necessary accessories.				
26.1.3	Supply Cost	1	nr		
26.1.4	Installation Cost	1	nr		
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BILL NO. 26 - SUPPLY AND INSTALLATION OF FIRE PROTECTION, DETECTION, ALARM SYSTEMS & FIREMEN COMMUNICATION SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Supply and Installation of **Fire Pumps Control Panel** for automatic operation of the above pumps complete with control, power wiring and other relevant accessories.				
26.1.5	Supply Cost	1	nr		
26.1.6	Installation Cost	1	nr		
	Supply and Installation of **Delivery Manifold** complete with fittings, isolation valves, check valves, gauges, switches etc, as given in the layout.				
26.1.7	Supply Cost	1	item		
26.1.8	Installation Cost	1	item		
	Supply and Installation of 300 liters steel **Pressure Vessel** with other necessary accessories.				
26.1.9	Supply Cost	1	nr		
26.1.10	Installation Cost	1	nr		
	Supply and installation of **Pressure Switches** completed with control wiring, connections etc.				
26.1.11	Supply Cost	3	nr		
26.1.12	Installation Cost	3	nr		
	Supply and installation of standard Bourdon tube **Pressure Gauges.**				
	Operating Pressure Range - (0~10bar)				
26.1.13	Supply Cost	4	nr		
26.1.14	Installation Cost	4	nr		
	Supply and installation of **Pressure Relief Valve** completed with all accessories, piping and connections. (Dia -ø1/2", operating pressure range (0~16bar).				
26.1.15	Supply Cost	1	nr		
26.1.16	Installation Cost	1	nr		
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BILL NO. 26 - SUPPLY AND INSTALLATION OF FIRE PROTECTION, DETECTION, ALARM SYSTEMS & FIREMEN COMMUNICATION SYSTEM

NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Supply and installation of **Manifold Drain Valve** competed with all accessories. (Dia -Ø2").				
26.1.17	Supply Cost	1	nr		
26.1.18	Installation Cost	1	nr		
	Cost of **civil works** associate for installation of Wet Riser Fire Protection System [plinths, foundations, cover slab, valve pits, brackets etc] and other relevant medications, paintings etc.				
26.1.19	Supply Cost	lot	item		
26.1.20	Installation Cost	lot	item		
	Supply and installation of **Water Level Indicator** for overhead Fire Water Tank with all necessary accessories including water level gauges, sensors, power and control wiring, alarm buzzer, interface module for Fire Alarm Control Panel etc.				
26.1.21	Supply Cost	1	item		
26.1.22	Installation Cost	1	item		
	Wet Riser Fire Hydrant System Pipes and Valves				
	Delivery Pipes				
	Notes				
1	Rate for the G.I., heavy duty piping, complied to BS EN 10255 Heavy Grade, in all floors for the Hydrant system at ceiling/slab level and connected to the riser mains, complete with all necessary pipe specials, fittings, brackets, clips, supports, anchors, jointing materials, flexible connectors, expansion joints, etc as per Specification and Drawings.		Note		
	Supply and Installation of Ø**150mm dia**. heavy duty **GI Pipe** for pump delivery side, manifold and manifold to Wet Risers from Ground Floor to Machine Room Floor, connections to the fire water overhead tank, connection for the Breeching Inlets and all other relevant connections required for efficient operation of the system.				
26.1.23	Supply Cost	100	m		
26.1.24	Installation Cost	100	m		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Supply and Installation of **ø100mm dia**. heavy duty **GI Pipes** with necessary accessories required for efficient operation of the system.				
26.1.25	Supply Cost	10	m		
26.1.26	Installation Cost	10	m		
	Supply and Installation of **ø65mm** dia heavy duty **GI Pipes** from Fire Riser to Landing valve, Jockey Pump piping etc with necessary connections, fittings etc.				
26.1.27	Supply Cost	20	m		
26.1.28	Installation Cost	20	m		
	Supply and Installation of **ø50mm** dia. heavy duty **GI pipes** with necessary accessories and connections from Jockey Pumps to the Delivery Manifold, Drain Lines etc, required for efficient operation of the system.				
26.1.29	Supply Cost	40	m		
26.1.30	Installation Cost	40	m		
	Supply and Installation of **ø25mm** dia heavy duty **GI Pipes** from Fire Riser to Hose Reel, pump header to drain line, connections for pressure gauges, pressure switches etc with necessary connections, fittings etc and other installations.				
26.1.31	Supply Cost	20	m		
26.1.32	Installation Cost	20	m		
	Valves and Accessories				
	Note				
1	All the valves and accessories shall be of proven make and the minimum pressure rating of all valves and accessoeis shall be PN 16.		Note		
	Supply and installation of **ø150 mm dia**. cast iron **Gate Valve** (inside the Fire Pump room, overhead Fire water tank, connection to the Foam system).				
26.1.33	Supply Cost	6	nr		
26.1.34	Installation Cost	6	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Supply and installation of ø100 mm dia. cast iron **Gate Valve.**				
26.1.35	Supply Cost	1	nr		
26.1.36	Installation Cost	1	nr		
	Supply and installation of ø65 mm dia. bronze **Gate Valve**				
26.1.37	Supply Cost	2	nr		
26.1.38	Installation Cost	2	nr		
	Supply and installation of ø50 mm dia. bronze **Gate Valve .**				
26.1.39	Supply Cost	2	nr		
26.1.40	Installation Cost	2	nr		
	Supply and installation of ø25 mm dia. bronze **Ball Valve.**				
26.1.41	Supply Cost	20	nr		
26.1.42	Installation Cost	20	nr		
	Supply and installation of ø150 mm dia. cast iron **Non-Return Valve** with (spring loaded Lift Check valve) couplings.				
26.1.43	Supply Cost	2	nr		
26.1.44	Installation Cost	2	nr		
	Supply and installation of ø65 mm dia. cast iron **Non-Return Valve** (spring loaded Lift Check valve) with couplings.				
26.1.45	Supply Cost	1	nr		
26.1.46	Installation Cost	1	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Supply and installation of ø25 mm dia. Bronze automatic **Air Release Valve** and necessary fittings etc.(Operating Pressure Range - (0~20bar))				
26.1.47	Supply Cost	2	nr		
26.1.48	Installation Cost	2	nr		
	Supply and installation of ø150mm dia. **Strainer** with necessary accessories. (Y-Strainer with Stainless Steel 316 Bucket)				
26.1.49	Supply Cost	2	nr		
26.1.50	Installation Cost	2	nr		
	Supply and installation of ø65mm dia. **Strainer** with necessary accessories. (Y-Strainer with Stainless Steel 316 Bucket)				
26.1.51	Supply Cost	1	nr		
26.1.52	Installation Cost	1	nr		
	Supply and installation of ø50mm dia. bronze **Drain valves/cocks**. (for 1 wet riser)				
26.1.53	Supply Cost	1	nr		
26.1.54	Installation Cost	1	nr		
	Supply and installation of ø150mm dia. Steel **Flexible Coupling / Expansion joints** for discharge pipes and riser connections with necessary accessories.				
26.1.55	Supply Cost	2	nr		
26.1.56	Installation Cost	2	nr		
	Supply and installation of ø65mm dia. **Flexible Coupling** for suction and discharge pipes with necessary accessories.				
26.1.57	Supply Cost	2	nr		
26.1.58	Installation Cost	2	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Landing Valves, Pillar Hydrants. Hose Reels and Breaching Inlet				
	Supply and Installation of self pressure controlled type **Landing Valves** with necessary Accessories.				
26.1.59	Supply Cost	13	nr		
26.1.60	Installation Cost	13	nr		
	Ø65mm diameter 2x15m length **Fire Hose** for each landing valve and external pillar hydrant completed with instantiations coupling and branch pipe with nozzle complete all fittings and accessories for connecting the landing valves.				
26.1.61	Supply Cost	13	nr		
26.1.62	Installation Cost	13	nr		
	Supply and Installation of drum mounted manual swing type **Fire Hose Reels** Ø20mm diameter and 30 m length complete with all bracket, piping fittings, union couplings and accessories.				
26.1.63	Supply Cost	13	nr		
26.1.64	Installation Cost	13	nr		
	Supply and Installation of **Fire Box Cabinet Door** (H=1,000mm x W=900mm) for vertical riser duct in each floor level with standard fire safety sign [ISO 7010-F004], mounting brackets, break glass and enclosed key and all other relevant accessories.				
26.1.65	Supply Cost	13	nr		
26.1.66	Installation Cost	13	nr		
	Supply and Installation of **Landing Valve Cabinet** (H=1,000mm x W=900mm x D=500mm) with standard fire safety sign [ISO 7010-F004], mounting brackets, break glass and enclosed key and all other relevant accessories.				
26.1.67	Supply Cost	1	nr		
26.1.68	Installation Cost	1	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Supply and Installation of 04 Way ø150mm diameter **Breeching inlet** complete with necessary signage, mounting brackets, enclosed cabinet with break glass and key (dimension - 600mm(W) x 600mm(H) x 500mm(D))and all accessories for hydrant system.				
26.1.69	Supply Cost	1	nr		
26.1.70	Installation Cost	1	nr		
26.2	**AUTOMATIC SPRINKLER PROTECTION SYSTEM**				
	Sprinkler Fire Protection System Pumps and Pump Room Accessories (at the pump room)				
	Notes				
1	Sprinkler fire protection systems consists of Centrifugal End Suction Fire Pumps. All the Fire Sprinkler pumps, Control Panels and accessories shall be shall be dedicated for Fire Protection system application, complied to BS 12845 or NFPA 20, NFPA 13 and dedicated for Fire Protection system application.		Note		
2	Water Supply for the Sprinkler system is taken form the Roof Top Swimming Pool.		Note		
	Supply and Installation of Centrifugal End Suction **Fire Pumps** for **Sprinkler Fire Protection System** having nominal demand of 725l/min (at delivery head of 34m) with maximum demand 1000l/min (at delivery head of 30m) (1 - Main, 1 - standby) with necessary other accessories.				
26.2.1	Supply Cost	2	nr		
26.2.2	Installation Cost	2	nr		
	Supply and Installation of Centrifugal Multi Stage In lined (Jockey Pump) Pump for Low Pressure Sprinkler System having nominal demand of 90l/min (at delivery head of 40m) with necessary other accessories.				
26.2.3	Supply Cost	1	nr		
26.2.4	Installation Cost	1	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Supply and Installation of **Fire Pumps Control Panel** for automatic operation of the above sprinkler pumps complete with control, power wiring and other relevant accessories.				
26.2.5	Supply Cost	1	nr		
26.2.6	Installation Cost	1	nr		
	Supply and Installation of **Delivery Manifold** complete with fittings, isolation valves, check valves, gauges, switches etc as given in the layout.				
26.2.7	Supply Cost	1	item		
26.2.8	Installation Cost	1	item		
	Supply and Installation of 300 liters steel **Pressure Vessel** with other necessary accessories.				
26.2.9	Supply Cost	2	nr		
26.2.10	Installation Cost	2	nr		
	Supply and installation of standard Bourdon tube **Pressure Gauges.**				
	Operating Pressure Range - (0~10bar)				
26.2.11	Supply Cost	8	nr		
26.2.12	Installation Cost	8	nr		
	Supply and installation of **Pressure Switches** completed with control wiring, connections etc.				
26.2.13	Supply Cost	4	nr		
26.2.14	Installation Cost	4	nr		
	Supply and installation of **Pressure Relief Valve** completed with all accessories, piping and connections. (Dia -ø1/2", operating pressure range (0~10bar).				
26.2.15	Supply Cost	1	nr		
26.2.16	Installation Cost	1	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Supply and installation of **Manifold Drain Valve** competed with all accessories. (Dia -Ø2").				
26.2.17	Supply Cost	1	nr		
26.2.18	Installation Cost	1	nr		
	Supply and installation of **Water Level Indicator** for Swimming Pool with all necessary accessories including water level gauges, sensors, power and control wiring, alarm buzzer, interface module for Fire Alarm Control Panel etc.				
26.2.19	Supply Cost	1	item		
26.2.20	Installation Cost	1	item		
	Cost of **civil works** associate for installation of Sprinkler Fire Protection System [plinths, foundations, cover slab, valve pits, brackets etc] and other relevant modifications, paintings etc.				
26.2.21	Supply Cost	lot	item		
26.2.22	Installation Cost	lot	item		
	Suction and Delivery Pipes				
	Notes				
1	Rate for the G.I. heavy duty piping, complied to BS EN 10255 Heavy Grade, in all floors for the Sprinkler system at ceiling/slab level and connected to the riser mains, complete with all necessary pipe specials, brackets, clips, supports, anchors, jointing materials, flexible connectors, expansion joints, etc.		Note		
	150 mm Diameter pipes				
26.2.23	Supply Cost	100	m		
26.2.24	Installation Cost	100	m		
	100 mm Diameter pipes				
26.2.25	Supply Cost	20	m		
26.2.26	Installation Cost	20	m		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	80 mm Diameter pipes				
26.2.27	Supply Cost	1	m		
26.2.28	Installation Cost	1	m		
	65 mm Diameter pipes				
26.2.29	Supply Cost	20	m		
26.2.30	Installation Cost	20	m		
	50 mm Diameter pipes				
26.2.31	Supply Cost	40	m		
26.2.32	Installation Cost	40	m		
	40 mm Diameter pipes				
26.2.33	Supply Cost	80	m		
26.2.34	Installation Cost	80	m		
	32 mm Diameter pipes				
26.2.35	Supply Cost	100	m		
26.2.36	Installation Cost	100	m		
	25 mm Diameter pipes				
26.2.37	Supply Cost	120	m		
26.2.38	Installation Cost	120	m		
	15 mm Diameter pipes				
26.2.39	Supply Cost	25	m		
26.2.40	Installation Cost	25	m		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Valves and Accessories				
	Supply and installation of ø**150** mm dia. cast iron **Gate Valve.**				
26.2.41	Supply Cost	2	nr		
26.2.42	Installation Cost	2	nr		
	Supply and installation of ø**100** mm dia. cast iron **Gate Valve.**				
26.2.43	Supply Cost	6	nr		
26.2.44	Installation Cost	6	nr		
	Supply and installation of **65** mm dia.cast iron **Gate Valve.**				
26.2.45	Supply Cost	3	nr		
26.2.46	Installation Cost	3	nr		
	Supply and installation of **50** mm dia. bronze **Gate Valve.**				
26.2.47	Supply Cost	16	nr		
26.2.48	Installation Cost	16	nr		
	Supply and installation of **25** mm dia. bronze **Ball Valve.**				
26.2.49	Supply Cost	16	nr		
26.2.50	Installation Cost	16	nr		
	Supply and installation of **Zone Subsidiary Butterfly Valves** having diameter Ø50mm completed with all power and control wiring and all other accessories.				
26.2.51	Supply Cost	16	nr		
26.2.52	Installation Cost	16	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Supply and installation of Ø**100** mm dia. cast iron **Non-Return Valve** (spring loaded Lift Check valve) with couplings.				
26.2.53	Supply Cost	2	nr		
26.2.54	Installation Cost	2	nr		
	Supply and installation of Ø**65** mm dia. **Non-Return Valve** (spring loaded Lift Check valve) with couplings.				
26.2.55	Supply Cost	1	nr		
26.2.56	Installation Cost	1	nr		
	Supply and installation of ø25 mm dia. Bronze automatic **Air Release Valve** and necessary fittings etc.(Operating Pressure Range - (0~10bar))				
26.2.57	Supply Cost	2	nr		
26.2.58	Installation Cost	2	nr		
	Supply and installation of ø100mm dia. **Flexible Coupling** for discharge pipes with necessary accessories.				
26.2.59	Supply Cost	4	nr		
26.2.60	Installation Cost	4	nr		
	Supply and installation of ø65mm dia. **Flexible Coupling** for suction and discharge pipes with necessary accessories.				
26.2.61	Supply Cost	2	nr		
26.2.62	Installation Cost	2	nr		
	Supply and installation of **Flushing Connections** with permanently installed valves. (The outlet connections shall be diverted to the nearest floor gullies).				
26.2.63	Supply Cost	24	nr		
26.2.64	Installation Cost	24	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Supply and Installation of 04 Way Ø150mm diameter **Breeching inlet** complete with necessary signage, mounting brackets, enclosed cabinet with break glass and key (dimension - 600mm(W) x 600mm(H) x 500mm(D))and all accessories for Sprinkler System.				
26.2.65	Supply Cost	1	nr		
26.2.66	Installation Cost	1	nr		
	Sprinkler Heads, Alarm valve and other fittings				
	Quartzoid type **Ceiling Recessed Pendent Sprinkler Heads** inclusive of pipe connections and all fittings and accessories. (treaded connection -Ø12.7mm, K_f - 5.6)				
26.2.67	Supply Cost	105	nr		
26.2.68	Installation Cost	105	nr		
	Quartzoid type **Pendant Sprinkler Heads** inclusive of pipe connections and all fittings and accessories. (treaded connection -Ø12.7mm, Kf - 5.6)				
26.2.69	Supply Cost	1	nr		
26.2.70	Installation Cost	1	nr		
	Upright Sprinkler Heads inclusive of pipe connections and all fittings and accessories. (treaded connection -Ø19.05mm, Kf - 8.0)				
26.2.71	Supply Cost	10	nr		
26.2.72	Installation Cost	10	nr		
	Wall mounted type **Sprinkler Heads** inclusive of pipe connections and all fittings and accessories. (treaded connection -Ø12.7mm, Kf - 5.6)				
26.2.73	Supply Cost	1	nr		
26.2.74	Installation Cost	1	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
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	Fire Sprinkler System Alarm Check Valve (Control Valve, diameter Ø150mm) and Water Turbine Alarm Gong completed with gauges, drain valves, by-pass valve, flow switch and all other accessories for complete operation of the Sprinkler system.				
26.2.75	Supply Cost	1	nr		
26.2.76	Installation Cost	1	nr		
	Supply and installation of **Flow Switches** having following diameters completed with all power and control wiring and all other accessories.				
	Ø50 mm pipe diameter				
26.2.77	Supply Cost	13	nr		
26.2.78	Installation Cost	13	nr		
	Ø65 mm pipe diameter				
26.2.79	Supply Cost	1	nr		
26.2.80	Installation Cost	1	nr		
	Supply and installation of **Sight Glasses** having diameter of Ø25mm completed with drain valve and all other accessories.				
26.2.81	Supply Cost	14	nr		
26.2.82	Installation Cost	14	nr		
26.3	**PORTABLE FIRE EXTINGUISHERS**				
	Supply and Installation of 2kg CO_2 portable fully charged fire extinguisher comply with standard [ISO EN 7010:2012] safety signage, metal bracket firmly fixed on to the wall with accessories .				
26.3.1	Supply Cost	14	nr		
26.3.2	Installation Cost	14	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
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	Supply and Installation of 6kg CO2 portable fully charged fire extinguisher comply with standard [ISO EN 7010:2012] safety signage, metal bracket firmly fixed on to the wall with accessories.				
26.3.3	Supply Cost	6	nr		
26.3.4	Installation Cost	6	nr		
	Supply and Installation of 6kg ABC dry chemical powder portable fully charged fire extinguisher comply with standard [ISO EN 7010:2012] safety signage, metal bracket firmly fixed on to the wall with accessories.				
26.3.5	Supply Cost	6	nr		
26.3.6	Installation Cost	6	nr		
	Supply and Installation of **9 liters wate**r fully charged **portable fire extinguisher** comply with standard [ISO EN 7010:2012] safety signage, metal bracket firmly fixed on to the wall with accessories at the locations shown in the drawings.				
26.3.7	Supply Cost	14	nr		
26.3.8	Installation Cost	14	nr		
	Supply and Installation of automatic ceiling mounted 5kg ABC dry chemical powder fully charged fire extinguisher comply with metal bracket firmly fixed on to the concrete soffit with accessories.				
26.3.9	Supply Cost	2	nr		
26.3.10	Installation Cost	2	nr		
	Supply and Installation of standard [BS EN 1869:1997] **Fire Blanket** having minimum size of 1.8m x 1.8m comply with standard [ISO EN 7010:2012] safety & usage signage, fixing bracket firmly attached on to the wall with accessories to the Kitchen of the Service Building.				
26.3.11	Supply Cost	1	nr		
26.3.12	Installation Cost	1	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
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	Supply and Fixing of 9 liters volume **Sand Buckets** for car park and Generator Room fuel tank area, complete with standard fire safety sign [ISO 7010-F004], metal bracket fixed on to the wall.				
26.3.13	Supply Cost	1	nr		
26.3.14	Installation Cost	1	nr		
	Instruction Charts and Warning Signs				
	Supply and fixing of Photo luminescent Instruction Charts, Warning Signs and Operational Sign Boards having minimum dimensions of (450mm (H) x 300mm (W)) and other relevant standards with all relevant fixing accessories.				
26.3.15	Supply Cost	2	nr		
26.3.16	Installation Cost	2	nr		
26.4	**MEANS OF WARNING, SIGNS & EMERGENCY EXIT**				
	Ceiling mounted FIRE EXIT with arrow Sign, maintained type LED Luminaire with running man pictogram complied to BS EN ISO 7010 and BS 5499-4 **on single side** and comprising Ni-Cd battery for one hour duration complete with necessary fixing and installation accessories.				
26.4.1	Supply Cost	17	nr		
26.4.2	Installation Cost	17	nr		
	Wall mounted FIRE EXIT with arrow Sign, maintained type LED Luminaire with running man pictogram complied to BS EN ISO 7010 and BS 5499-4 **on single side** and comprising Ni-Cd battery for one-hour duration complete with necessary fixing and installation accessories.				
26.4.3	Supply Cost	1	nr		
26.4.4	Installation Cost	1	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
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	Standard ISO-7010-E007 [ISO EN 7010:2012] photo luminescent **Safety Signage** "**Evacuation Assembly Point**" (WxH =600x800mm) completed with metal bracket firmly fixed on to the ground with accessories.				
26.4.5	Supply Cost	1	nr		
26.4.6	Installation Cost	1	nr		
	Standard ISO-7010-P002 [ISO EN 7010:2012] photo luminescent **Safety Signage** for "**No Smoking** in red colour in white back ground for basement car park completed with metal bracket firmly fixed on to the ceiling with accessories.				
26.4.7	Supply Cost	1	nr		
26.4.8	Installation Cost	1	nr		
	Supply and fixing of other standard photo luminescent Safety Signage (H=450mm x W=450mm)completed with metal bracket firmly fixed on to the ceiling with accessories, as required.				
26.4.9	Supply Cost	1	nr		
26.4.10	Installation Cost	1	nr		
26.5	**ADDRESSABLE TYPE FIRE DETECTION & ALARM SYSTEM**				
	Notes				
1	Fire Alarm Control Panel, Repeater Panels, Point Detectors, Alarming's devices, Control/Monitor/Interface modules and associated equipment shall be confirming to the BS EN 54or NFPA 72		Note		
2	Fire Detection System shall be comprises of looped powered **Single Loop Addressable type Fire Alarm Control Panel** located at Fire Command Center, Addressable type Smoke Detectors, Heat Detectors and Addressable Type Manual Call Points & Repeater Panels.		Note		
3	Fire Alarm Control Panel shall be supportive systems to energize the Protected Staircase Pressurizations System. Number of loop can be selected as per manufacturer's recommendation.		Note		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
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	Fire Alarm Control Panel and Display Accessories				
	Supply and installation of minimum **Single Loop, Addressable Type** fire alarm control panel completed with inbuilt power supply unit, sealed battery and battery charger. (The rate shall include all interconnection wirings, software, cost for software license etc.)				
26.5.1	Supply Cost	1	nr		
26.5.2	Installation Cost	1	nr		
	Supply and installation of Fire Alarm **Repeater Panel** completed with LCD Panel with Audible and Visual Alarm indicators and other necessary accessories. (The rate of this BOQ item shall the cost for electrical and signal wiring)				
26.5.3	Supply Cost	1	nr		
26.5.4	Installation Cost	1	nr		
	Point Detectors & Alarming Devices				
	Supply and installation of addressable type photo electric **Smoke Detectors** with necessary mounting base and other accessories.				
26.5.5	Supply Cost	78	nr		
26.5.6	Installation Cost	78	nr		
	Supply and installation of addressable type **Heat Detector** with necessary mounting base and other accessories.				
26.5.7	Supply Cost	16	nr		
26.5.8	Installation Cost	16	nr		
	Supply and installation of addressable type photo electric **Smoke Detectors** with **Inbuilt Electronic Sounder** and necessary mounting base and other accessories.				
26.5.9	Supply Cost	22	nr		
26.5.10	Installation Cost	22	nr		
	Page total carried to next page				

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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Supply and installation of addressable type **Manual Call Point** (break glass type) with necessary standard [ISO EN 7010:2012] fire safety signage and other accessories.				
26.5.11	Supply Cost	16	nr		
26.5.12	Installation Cost	16	nr		
	Supply and installation of addressable type combined **Electronic Sounders with Strobe Light** having capability to control the volume with mounting base and other necessary accessories.				
26.5.13	Supply Cost	16	nr		
26.5.14	Installation Cost	16	nr		
	Supply and installation of addressable type **Strobe Light** with mounting base and other necessary accessories.				
26.5.15	Supply Cost	1	nr		
26.5.16	Installation Cost	1	nr		
	Interface (Control) Modules				
	Supply and Installation of following addressable Interface Modules (Monitor/ Control) to integrate the Fire Alarm Control Panel (FACP) with following equipment/ items as per specifications. (The rate shall include all wiring from control module to required control/ monitor point and all necessary material required.)				
	Control Module for **Lifts** (Passenger & Fire Fighter's Lifts)				
26.5.17	Supply Cost	2	nr		
26.5.18	Installation Cost	2	nr		
	Control Module for S**taircase Pressurization Fans**				
26.5.19	Supply Cost	1	nr		
26.5.20	Installation Cost	1	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Control/Interface Module for **Public Address System.**				
26.5.21	Supply Cost	1	nr		
26.5.22	Installation Cost	1	nr		
	Control/Interface Module (Spare)				
26.5.23	Supply Cost	1	nr		
26.5.24	Installation Cost	1	nr		
	Interface (Monitor) Modules				
	Supply and Installation of following addressable Interface Modules (Monitor/ Control) to integrate the Fire Alarm Control Panel (FACP) with following equipment/ items as per specifications. (The rate shall include all wiring from control module to required control/ monitor point and all necessary material required.)				
	Monitor Module for **Flow Switches and Zone Subsidiary Stop valve** (tamper switch) in Fire Sprinkler System.				
26.5.25	Supply Cost	32	nr		
26.5.26	Installation Cost	32	nr		
	Monitor Module for monitoring **Wet Riser and Sprinkler System Fire Pump Operation.**				
26.5.27	Supply Cost	2	nr		
26.5.28	Installation Cost	2	nr		
	Monitor Module for monitoring failure of **mains power supply to fire pumps** (Sprinkler, Hydrant and Water Mist) control panel.				
26.5.29	Supply Cost	1	nr		
26.5.30	Installation Cost	1	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Monitor Module for monitoring the operation of **Staircase Pressurization System.**				
26.5.31	Supply Cost	1	nr		
26.5.32	Installation Cost	1	nr		
	Supply and installation of addressable **short circuit isolator** unit with all accessories to suit to the system.				
26.5.33	Supply Cost	16	nr		
26.5.34	Installation Cost	16	nr		
	Supply and installation of L**Remote Indicators** for with all accessories to suit to the system.				
26.5.35	Supply Cost	1	nr		
26.5.36	Installation Cost	1	nr		
	Fire Resistant Cables for Power Supplies and Signaling				
	Notes				
1	Supply and installation of circuit wiring from the Fire Alarm Control Panel to the system peripheral equipment complete with all cables, conduits and all other necessary materials. Conduits in false ceiling spaces shall be PVC conduits, exposed surface running conduits shall be GI conduits. Floor to floor vertical sections shall be installed in the cable ladder. Cables dropping from the concrete slab to the false ceiling shall be drawn in flexible steel conduits not more than 1m in length.		Note		
2	Supply and installation of following cables with conduits, casings, bends and other necessary relevant accessories specified on the specification including termination of both ends.		Note		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Main Power Supply to Fire Alarm Control Panel by minimum 2.5mm^2 fire resistant twin copper cables with earth complied to BS6387 with category CWZ rating and BS 7629 completed will all necessary connections and accessories. (The rate shall include the cost of conduits and all other materials required).				
26.5.37	Supply Cost	1	item		
26.5.38	Installation Cost	1	item		
	Signaling / Circuit Wiring to Manual Call Points, Interface Modules, Detectors by minimum 1.5mm^2 fire resistant twin copper cables with earth complied to BS6387 with category CWZ rating and BS 7629 completed will all necessary connections and accessories. (The rate shall include the cost of conduits and all other materials required).				
26.5.39	Supply Cost	206	nr		
26.5.40	Installation Cost	206	nr		
	Instruction Charts and Warning Signs				
	Supply and fixing of Photo luminescent Instruction Charts, Warning Signs and Operational Sign Boards having minimum dimensions of (450mm (H) x 300mm (W)) complied to [ISO EN 7010:2012] and other relevant standards with all relevant fixing accessories.				
26.5.41	Supply Cost	2	nr		
26.5.42	Installation Cost	2	nr		
	Supply and installation of all cable supporting system.				
26.5.43	Supply Cost	lot	item		
26.5.44	Installation Cost	lot	item		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
26.6	**FIREMEN TWO WAY COMMUNICATION SYSTEM**				
	Note				
1	Firemen Two way communication system shall be provide to allow the Firemen's to communicate both ways between the Fire Command Center, Fire Pump Room, Lift Machine Rooms and Fire Lobbies on each floor level. The two way communication system compatible to BS 5839-9, shall be independent of all other communication systems within the building and it consists of control unit with a master hand set located at Fire Command Center at the Ground Floor level.		Note		
2	Firemen Two Way Communication Panel, Master Hand Set, Firemen Jack and associated equipment shall be confirming to the BS EN 54or NFPA 72		Note		
	Supply and Installation of **Firemen Two (2) Way Communication Panel** with Minimum of **16 Communication zones** with inbuilt fixed master handset, power supply unit, sealed Li-Iron battery and battery charger. (The rate shall include all interconnection wirings, software, cost for software license etc.)				
26.6.1	Supply Cost	1	nr		
26.6.2	Installation Cost	1	nr		
	Supply and Installation of **Firemen Two Way communication Selector Panel** includes 16 zone selector switches, 16 zone Call-In LEDs (Green) and 16 zone trouble LEDs (Amber) with all necessary accessories.				
26.6.3	Supply Cost	1	nr		
26.6.4	Installation Cost	1	nr		
	Supply and install enclosure for **Firemen Intercom Phone Red Finish Cover** complete with break glass, lock and key and ability of holding 5 telephone handsets.				
26.6.5	Supply Cost	1	nr		
26.6.6	Installation Cost	1	nr		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Supply of Firemen red colour **Portable Communication (Telephone) Handset** completed with a coiled cord and a male phone plug which plugs into the Firemen's Telephone Jack with relevant accessories.				
26.6.7	Supply Cost	5	nr		
	Supply and installation of **Firemen's Telephone Jack** completed with a single phone jack with single gang, mounted on Steel red colour plate with reliable screw type terminals for quick and accurate wiring to the system. The plate shall be clearly marked "FIREFIGHTER'S PHONE JACK" and standard [ISO EN 7010:2012] fire safety signage (ISO-7010 F006).				
26.6.8	Supply Cost	16	nr		
26.6.9	Installation Cost	16	nr		
	Supply and installation of **Firemen's Telephone Outstation unit** completed with in-built handset, 'push-to-open' red steel enclosure (200 W x 280 H x 100 D mm), .The plate shall be clearly marked "FIREFIGHTER'S TELEPHONE" and standard [ISO EN 7010:2012] fire safety signage (ISO-7010 F006).				
26.6.10	Supply Cost	1	nr		
26.6.11	Installation Cost	1	nr		
	Fire Resistant Cables for Power Supplies and Signaling				
	Notes				
1	Supply and installation of circuit wiring from the Firemen Two Way Communication Panel to the system peripheral equipment including Firemen's Telephone Jacks and Telephone Outstations units, completed with all cables, conduits and all other necessary materials. Conduits in false ceiling spaces shall be PVC conduits, exposed surface running conduits shall be GI conduits. Floor to floor vertical sections shall be installed in the cable ladder. Cables dropping from the concrete slab to the false ceiling shall be drawn in flexible steel conduits not more than 1m in length.		Note		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
2	Supply and installation of following cables with conduits, casings, bends and other necessary relevant accessories specified on the specification including termination of both ends.		Note		
	Main Power Supply to Firemen Two Way Communication Panel by minimum $2.5mm^2$ fire resistant twin copper cables with earth complied to BS6387 with category CWZ rating and BS 7629 completed will all necessary connections and accessories. (The rate shall include the cost of conduits and all other materials required).				
26.6.12	Supply Cost	1	item		
26.6.13	Installation Cost	1	item		
	Circuit wiring for Firemen's Telephone Jacks and Telephone Outstations units from the Firemen Two Way Communication Panel using 1.5mm2 fire resistance twin copper cables comply to BS 6387 with category CWZ rating and BS 7629. (The rate shall include the cost of conduits).				
26.6.14	Supply Cost	16	item		
26.6.15	Installation Cost	16	item		
26.7	**VOICE EVACUATION SYSTEM**				
	Notes				
1	Voice Evacuation (One way communication system) shall be provide to notify and alarm the possible Fire Condition to the occupants of the Building, which shall allow the automatically and manually communicate The one way Voice communication system compatible to BS 5839-8 shall be independent of all other communication systems within the building and it consists of control unit with a Voice Evacuation Panel, Central Amplifier and Speakers, Microphones, etc. The panel shall be able to interconnect with FACP for automatic operation.		Note		
2	Voice Evacuation Panel, Master Microphone, Speakers and associated equipment shall be confirming to the BS EN 54or NFPA 72		Note		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
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	Supply and Installation of **Voice Evacuation Broadcasting Panel** with inbuilt fixed microphone, central rack power amplifier, zone selector, auto and manual mode selector, power supply unit, sealed Li-Iron battery and battery charger. (The rate shall include all interconnection wirings, software, cost for software license etc.)				
26.7.1	Supply Cost	1	nr		
26.7.2	Installation Cost	1	nr		
	Supply and Installation of **Digital Announcer** with inbuild memory not less than 1TB completed with USB Connection, record play back facility, radio connection, wireless communication interface etc.				
26.7.3	Supply Cost	1	nr		
26.7.4	Installation Cost	1	nr		
	Supply and installation of weatherproof **Horn Speakers** completed with vandal resistant cage and fixing bracket suitable for outdoor application with all necessary accessories.				
26.7.5	Supply Cost	15	nr		
26.7.6	Installation Cost	15	nr		
	Fire Resistant Cables for Power Supplies and Signaling				
	Notes				
1	Supply and installation of circuit wiring from the Panel to the system peripheral equipment including Speakers, completed with all cables, conduits and all other necessary materials. Conduits in false ceiling spaces shall be GI conduits, exposed surface running conduits shall be GI conduits. Floor to floor vertical sections shall be installed in the cable ladder. Cables dropping from the concrete slab to the false ceiling shall be drawn in flexible steel conduits not more than 1m in length.		Note		
2	Supply and installation of following cables with conduits, casings, bends and other necessary relevant accessories specified on the specification including termination of both ends.		Note		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
	Page total brought forward from previous page				
	Main Power Supply to the Voice Evacuation Panel and supportive panels by minimum 2.5mm^2 fire resistant twin copper cables with earth complied to BS6387 with category CWZ rating and BS 7629 completed will all necessary connections and accessories. (The rate shall include the cost of conduits and all other materials required).				
26.7.7	Supply Cost	1	item		
26.7.8	Installation Cost	1	item		
	Circuit wiring for the Loudspeakers from the Amplifier and Voice Evacuation Panel using 1.5mm2 fire resistance twin copper cables comply to BS 6387 with category CWZ rating and BS 7629. (The rate shall include the cost of conduits).				
26.7.9	Supply Cost	15	item		
26.7.10	Installation Cost	15	item		
26.8	**MISCELLANEOUS WORKS**				
26.8.1	All the civil work associate to deliver, supply, installation and completion of complete Fire Systems as describes in the above BOQ items.	1	item		
26.8.2	Any other items, specified but not listed in the price schedule (Please specify).	1	Item		
26.8.3	Any other items the bidder suggest to complete the system for proper operation (Please Specify).	1	Item		
26.8.4	Preparation and maintain of Fire dry riser for the building during the construction of the building as per the guidelines stipulated in CIDA Fire Regulation. This shall include all the supply, installation and maintenance cost for pipes, accessories and equipment. The installation of Dry riser shall be complied to BS9990, BS50306 or NFPA 14.	1	Item		
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NO	DESCRIPTION	QTY	UNIT	RATE (RS)	AMOUNT (RS)
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26.9	**TESTING & COMMISSIONING OF THE SYSTEMS**				
	On Site Testing and Field Acceptance Tests				
26.9.1	Testing and commissioning of **Wet Rise Fire Protection System, Portable Fire Extinguishers and Means of Warning**.	1	Item		
26.9.2	Testing and commissioning of **Automatic Sprinkler** Fire Protection System	1	Item		
26.9.3	Testing and commissioning of **Fire Detection and Alarm** System	1	Item		
26.9.4	Testing and commissioning of **Two Way Firemen Communication** System	1	Item		
26.9.5	Testing and commissioning of **Voice Evacuation** System	1	Item		
	BILL NO. 26 - SUPPLY AND INSTALLATION OF FIRE PROTECTION, DETECTION, ALARM SYSTEMS & FIREMEN COMMUNICATION SYSTEM CARRIED TO SUMMARY II				