

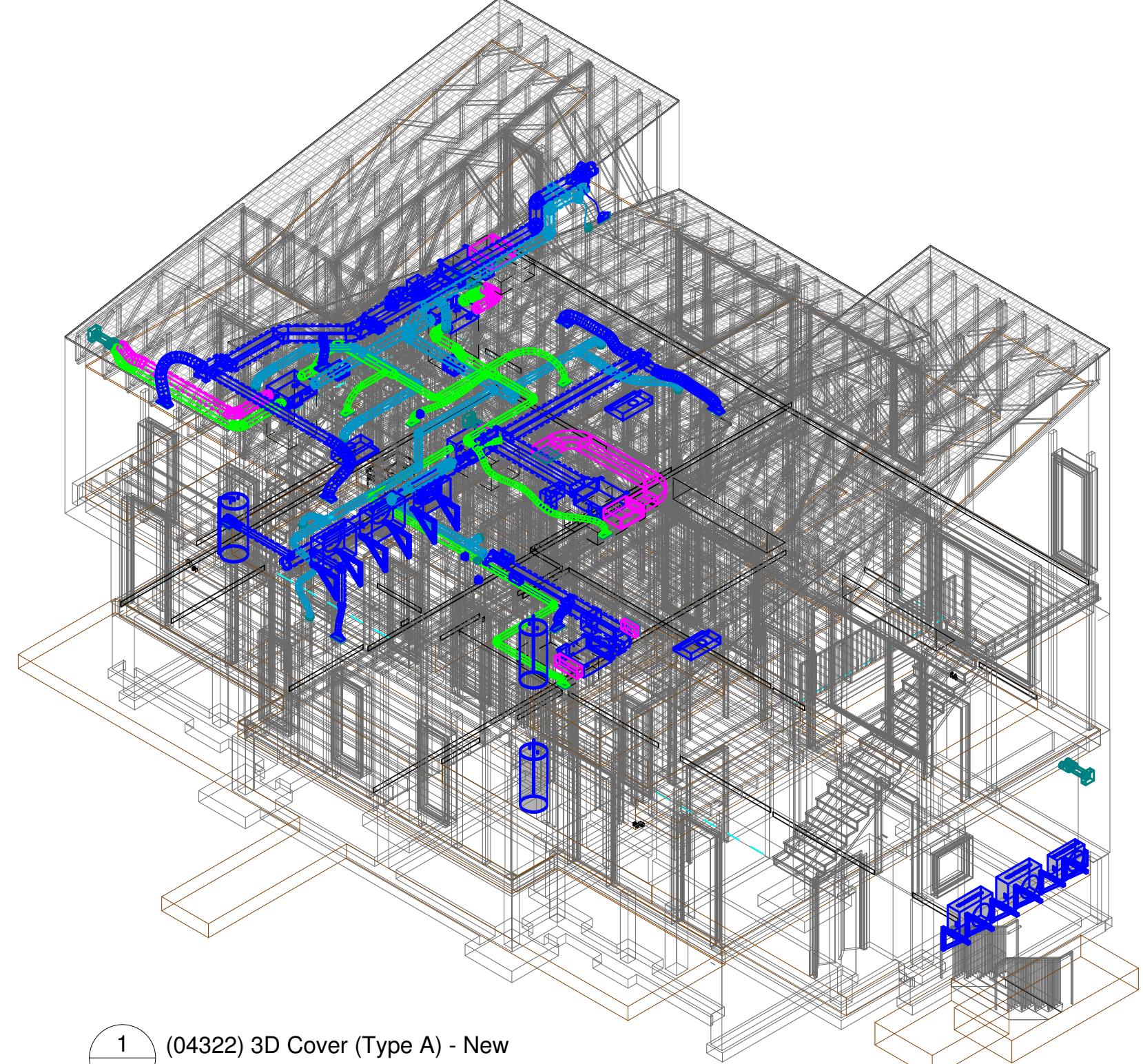
DIVISION 23 - (HVAC)

SEE HVAC PLANS FOR FULL SCHEDULES

(COVER-M) Mechanical Equipment Schedule Summary - (New)														
Level	Mark	Type Mark	Qty.	Description	Manufacturer	Model #	Voltage	Phase	Energy Source	Heating Capacity	Cooling Capacity	Air Flow	Supplied By	Controls Scheme / Comments
FFE Ground Floor	<varies>	BH-1	3	BASEBOARD HEATER / 750W / 208V 1P	OUELLET	OFM0758BL	208 V	1	ELEC.	7,680 Btu/h	0.0 ton	DIV. 23		
<varies>	DH-1	4	DUCT HEATER / 1kW / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	THERMOLEC	TER-6-1120	120 V	1	ELEC.	13,650 Btu/h	0.0 ton	DIV. 23			
FFE Lower Level	FC-1-05	DH-2	1	DUCT HEATER / 2kW / 10"x6" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-02LS	208 V	1	ELEC.	6,820 Btu/h	0.0 ton	DIV. 23		
<varies>	DH-3	2	DUCT HEATER / 3kW / 14"x6" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-03LS	208 V	1	ELEC.	20,470 Btu/h	0.0 ton	DIV. 23			
FFE Ground Floor	FFH-21	DH-4	1	DUCT HEATER / 30kW / 16"x16" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-30LS	208 V	3	ELEC.	102,360 Btu/h	0.0 ton	DIV. 23		
FFE Lower Level	FC-1-25	DHWT-1	1	HOT WATER TANK / ELECTRIC / 66 US GAL. (250L) TOP ENTRY / DUAL ELEMENT / 24 GPH FHR @100F	A.O. SMITH	DEN-66	208 V	3	ELEC.	0 Btu/h	0.0 ton	DIV. 22		
<varies>	DHWT-2	3	HOT WATER TANK / 80 US GAL. (303L) / TOP ENTRY / DOUBLE ELEC. ELEMENT	BRADFORD WHITE	E32-80R-3	208 V	1	ELEC.	0 Btu/h	0.0 ton	DIV. 23			
FFE Lower Level	FC-1-02	FC-1	1	VRF / 0.75 TON / INDOOR UNIT / CEILING CONCEALED / c/w CONDENSATE PUMP	HISENSE	AVD-09 LXXSAH	208 V	1		11,300 Btu/h	0.8 ton	280 CFM	DIV. 23	
1 - Finished Ceiling	FC-1-01	FC-2	1	VRF / 1.25 TON / INDOOR UNIT / CEILING CONCEALED / c/w CONDENSATE PUMP	HISENSE	AVD-15H3FCH	208 V	1		17,100 Btu/h	1.3 ton	425 CFM	DIV. 23	
2 - Finished Ceiling	FC-1-09	FC-3	1	VRF / 1.6 TON / INDOOR UNIT / CEILING CONCEALED / c/w CONDENSATE PUMP	HISENSE	AVD-19H3FCH	208 V	1		21,500 Btu/h	1.6 ton	530 CFM	DIV. 23	
FFE Lower Level	<varies>	HP-1	2	OUTDOOR CONDENSING UNIT / SPLIT HEAT PUMP / 0.75 TON / 208V 1Ø / WINDGUARD / c/w WALL BRKT. (STRUCTURAL BY OTHERS)	HISENSE	AS-09UW3SVEDL-O	208 V	1	ELEC.	19,000 Btu/h	1.5 ton	2,000 CFM	DIV. 23	
FFE Lower Level	<varies>	HP-2	4	OUTDOOR CONDENSING UNIT / SPLIT HEAT PUMP / 1 TON / 240V 1Ø / c/w WALL BRACKET SUPPORT (STRUCTURAL BY OTHERS)	HISENSE	AVW-28H3FH-MCO	208 V	1	ELEC.	108,000 Btu/h	9.0 ton	3,000 CFM	DIV. 23	
FFE Lower Level	FFH-22	HP-3	1	OUTDOOR CONDENSING UNIT / SPLIT HEAT PUMP / 1 TON / 240V 1Ø / c/w WALL BRACKET SUPPORT (STRUCTURAL BY OTHERS)	HISENSE	AS-12UW3SXEDL-O	208 V	1	ELEC.	13,000 Btu/h	1.0 ton	2,000 CFM	DIV. 23	
<varies>	HRV-1	4	ENERGY RECOVERY VENTILATOR / LOW PROFILE / COLD CLIMATE	PANASONIC	FX-10VEC1	120 V	1		0 Btu/h	0.0 ton	100 CFM	DIV. 23		
<varies>	KH-1	3	KITCHEN EXHAUST HOOD / DOMESTIC / UNDER CABINET / 30" / S.S. / c/w UNDER LIGHTS / DUCTLESS RECIRCULATING / c/w CHARCOAL FILTER	BROAN	BCS330SSC	120 V	1		0 Btu/h	0.0 ton	300 CFM	DIV. 23		
FFE Ground Floor	FFH-19	PS-1	1	ROOM STATIC PRESSURE SENSOR / WALL MOUNT / 0-10VDC	EH PRICE	ROOM STATIC	24 V			0 Btu/h	0.0 ton	DIV. 23		
										340,890 Btu/h	15.2 ton			

(COVER-M) Thermostat Schedule - (New)

Level	Mark	Type Mark	Qty.	Description	Manufacturer	Rm. #	Supplied By
FFE Lower Level	FC-1-21	TS-1	1	THERMOSTAT / PROGRAMMABLE / TOUCH SCREEN	HISENSE		DIV. 23
FFE Ground Floor	<varies>	TS-1	2	THERMOSTAT / PROGRAMMABLE / TOUCH SCREEN	HISENSE	<varies>	DIV. 23
2 - Floor	FFH-14	TS-1	1	THERMOSTAT / PROGRAMMABLE / TOUCH SCREEN	HISENSE	224	DIV. 23
Grand total			4				

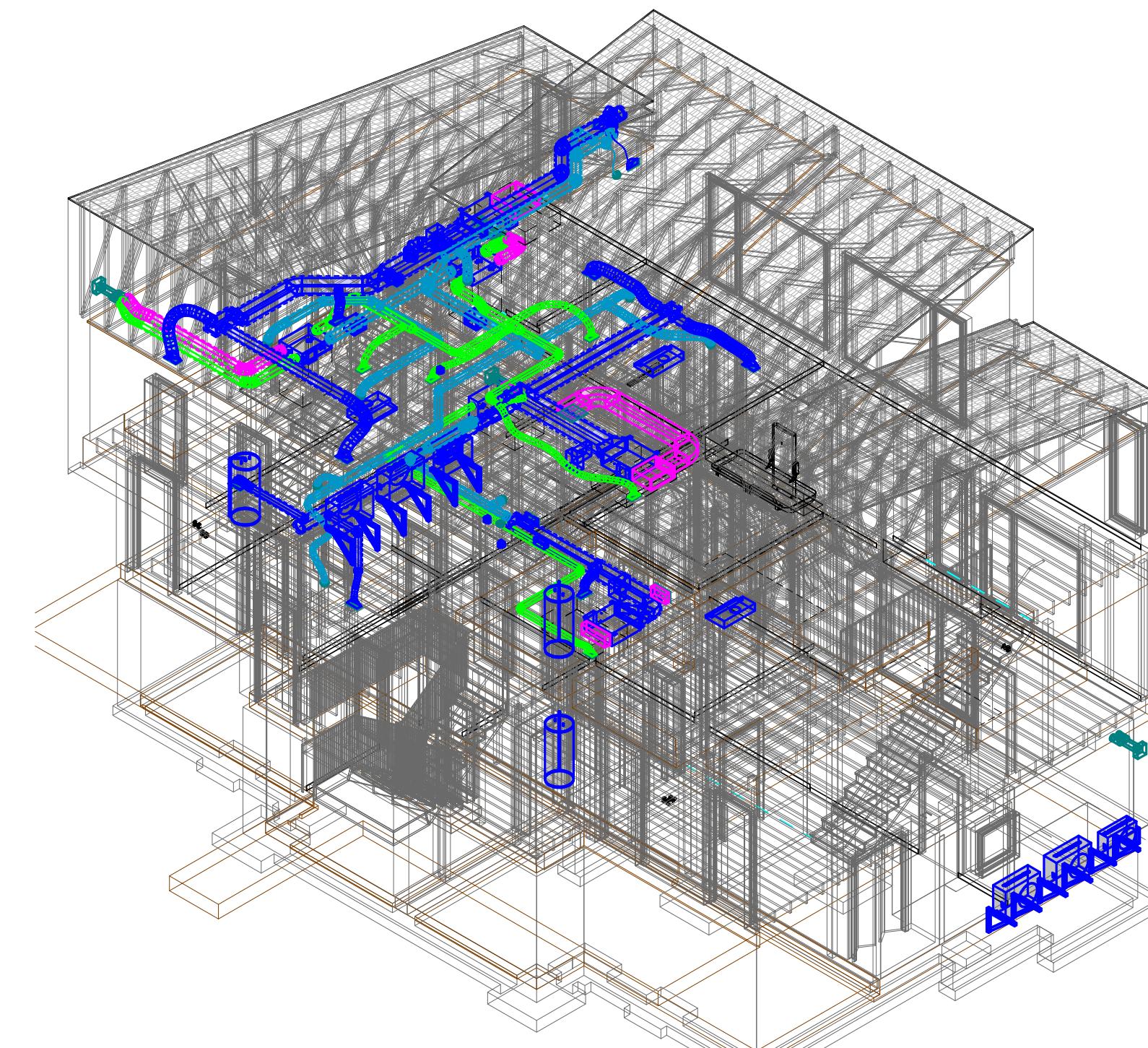


(04322) 3D Cover (Type A) - New
E1/M1/P1

DIVISION 22 - (PLUMBING)

SEE PLUMBING PLANS FOR FULL SCHEDULES

(COVER-P) Plumbing Fixture Schedule Summary - (New)												
Level	Type Mark	Qty.	Description	Manufacturer	Barrier-Free (Blank = N/A)	Supplied By						
FFE Lower Level	BF-1	1	BACKFLOW PREVENTER / "DCVA" TYPE / 2" CONN. / HORIZ. MNT.	WATTS		Div. 22						
FFE Lower Level	BF-2	1	BACKFLOW PREVENTER / "DCVA" TYPE / 1" CONN. / HORIZ. MNT.	WATTS		Div. 22						
FFE Ground Floor	CO-3F	1	3" Ø C/O / FINISHED	SEE PROJECT SPEC.		Div. 22						
FFE Lower Level	CO-4F	2	4" Ø C/O / FINISHED	SEE PROJECT SPEC.		Div. 22						
FFE Ground Floor	FD-2F	1	FLOOR DRAIN / 2" / FINISHED c/w TRAP & PRIMER	SEE PROJECT SPEC.		Div. 22						
<varies>	FD-3F	3	FLOOR DRAIN / 3" / FINISHED c/w TRAP & PRIMER	SEE PROJECT SPEC.		Div. 22						
FFE Lower Level	FD-3U	1	FLOOR DRAIN / 3" / UNFINISHED c/w TRAP & PRIMER	SEE PROJECT SPEC.		Div. 22						
FFE Ground Floor	HB-1	2	HYDRANT / NON-FREEZE / 12" WALL THICKNESS/ 3/4" NOM / c/w VACUUM BREAKER / KEY LOCK	WATTS		Div. 22						
FFE Lower Level	MS-1	1	SINK / JANITOR / FLOOR MNT. / PRECAST TERRAZZO / 24"x24"x12" / 3" DRAIN	FIAT		Div. 22						
<varies>	SH-1	2	SHOWER/5-PIECE / c/w GRAB BARS & SEAT / HANDHELD SHOWER VALVE	LONGEVITY	Yes	Div. 22						
2 - Floor	SH-2	1	SHOWER / c/w HEAD & CONTROLS	LONGEVITY	No	Div. 22						
<varies>	SNK-1	3	SINK / KITCHEN / DBL. BOWL / 7" DEEP / STAINLESS STEEL / DECK MNT. / SINGLE HANDLE FAUCET	KINDRED		Div. 22						
<varies>	SNK-2	3	LAVATORY / DROP-IN / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	Yes	Div. 22						
FFE Ground Floor	SNK-3	1	LAVATORY / B.F. / WALL MNT. @ 34" TO RIM / SINGLE HANDLE STD. FAUCET	AMERICAN STD.	Yes	Div. 22						
FFE Ground Floor	WB-1	4	WALL BOX / LAUNDRY / LEAD FREE / 1/2" SUPPLIES / c/w WATER HAMMER ARRESTOR	OATEY		Div. 22						
FFE Ground Floor	WC-1	1	TOILET / B.F. / PUBLIC / BOWL. ELONG., 16 1/2" AFF. / FLOOR MNT. / LINED TANK / OPEN SEAT no COVER	AMERICAN STD.	Yes	Div. 22						
<varies>	WC-2	3	TOILET / PRIVATE / BOWL. ELONG., 15" AFF. / FLOOR MNT. / LINED TANK / OPEN SEAT c/w COVER	AMERICAN STD.	Yes	Div. 22						
FFE Lower Level	WM-1	1	WATER METER	BY AHJ	Yes	BY AHJ						
<varies>	WM-2	3	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR	Yes	Div. 22						
FFE Lower Level	WM-3	1	WATER METER / TENANT SUB-METER c/w REMOTE READOUT	BY CONTRACTOR	Yes	Div. 22						
Grand total		36										



(04322) 3D Cover (Type B) - New
E1/M1/P1

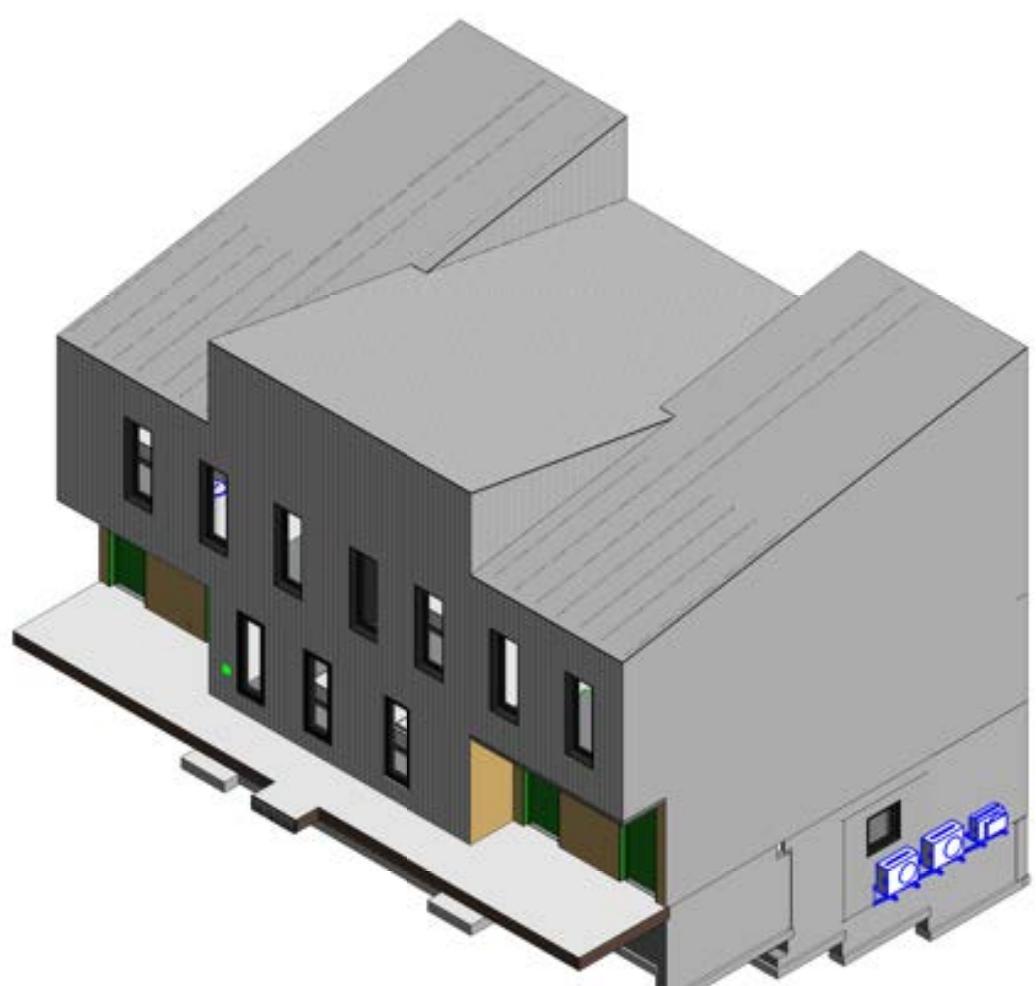
NORTHSTAR PROJECT
HVAC, PLUMBING,
ELECTRICAL
DESIGN DRAWINGS

NORTHSTAR ENGINEERING & TECHNOLOGIES LTD.			
92 Caplan Ave, Suite #517 Barrie, Ontario L4N 9J2 Tel. (705) 719-1003 Fax (705) 719-0490 dlong@nset.ca www.nset.ca			
Client:	WW Inc.		
Address:	Minden, ON		
Project Name:	Gull River Affordable Housing		
Dwg. Name:	Project Cover		
NSET Project #:	04322		
Drawn by:	Northstar Eng.	Checked by:	J.D.L.
Scale:	AS NOTED	Revision:	6.0
Drawing #:	E1/M1/P1		
Project Date:	Jan. 14/22		
Arch-D	(24 x 36)		

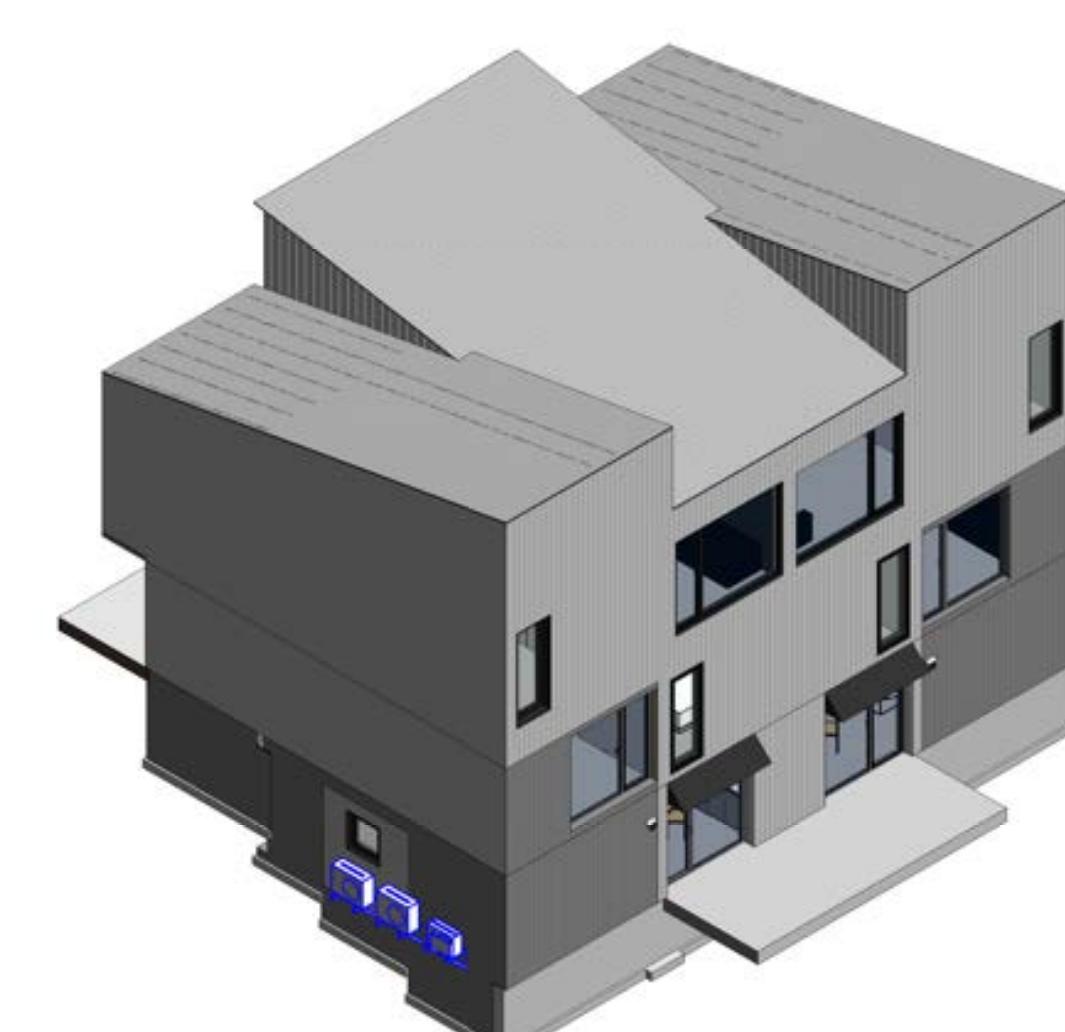


NORTHSTAR PROJECT

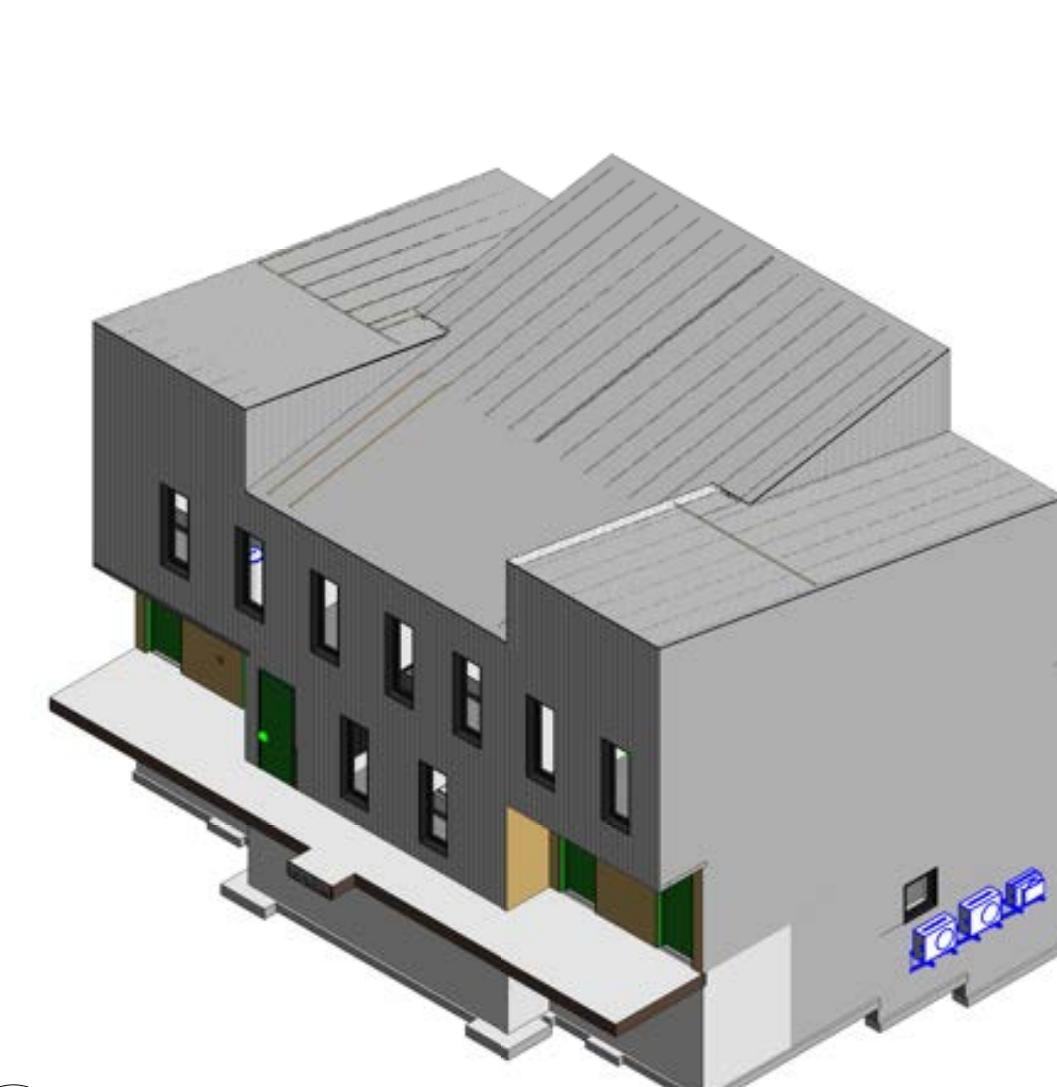
HVAC, PLUMBING,
ELECTRICAL & FIRE
PROTECTION
DESIGN DRAWINGS



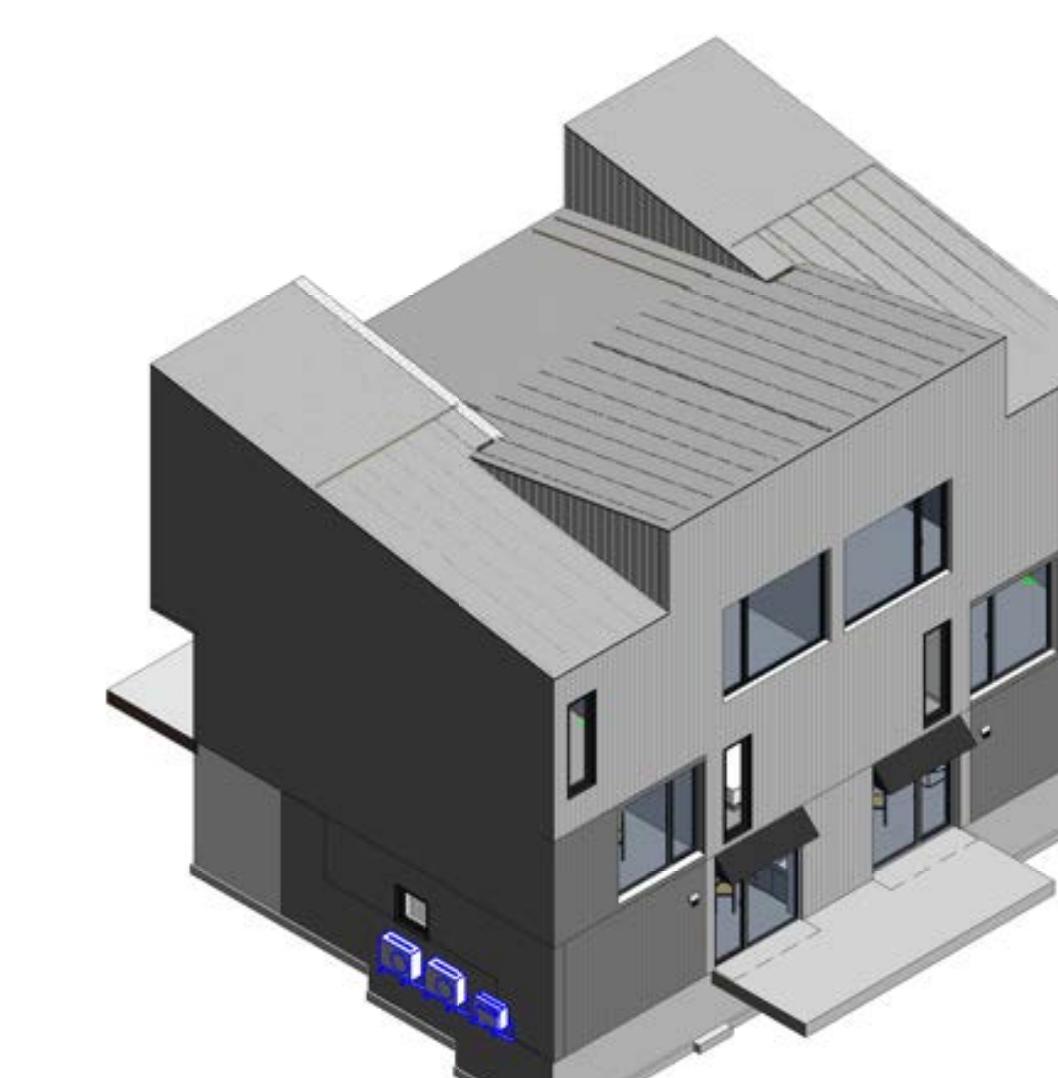
3 (04322) Bldg. Type A Front View
E2/M2/P2 N.T.S.



4 (04322) Bldg. Type A Rear View
E2/M2/P2 N.T.S.



5 (04322) Bldg. Type B Front View
E2/M2/P2 N.T.S.



6 (04322) Bldg. Type B Rear View
E2/M2/P2 N.T.S.

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Elec. Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Elec. Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Elec. Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details



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Dwg. Name:	Project Cover		
NSET Project #:	04322		
Drawn by:	Northstar Eng.	Checked by:	Checker
Scale:	A5 NOTED	Revision	5.0
Drawing #:	E2/M2/P2		
Project Date:	Jan. 14/22		
Arch-D	(24 x 36)		

26 05 00 COMMON WORK RESULTS FOR ELECTRICAL

26 05 00 - 1.0 ELECTRICAL INSTALLATION

- SUPPLY & INSTALL ALL ITEMS, ARTICLES, MATERIAL OPERATIONS INCLUDING ALL LABOUR, EQUIPMENT, MATERIALS & TOOLS NECESSARY TO COMPLETE ALL SYSTEMS SHOWN ON THE DRAWINGS RENDERING A COMPLETE INSTALLATION.
- THE INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE LATEST EDITION OF THE CANADIAN ELECTRICAL CODE, THE ELECTRICAL SAFETY CODE & ALL RULES, BY-LAWS & AUTHORITIES HAVING JURISDICTION.
- THE SCOPE OF WORK IS AS DESCRIBED HEREIN & SHOWN ON THE DRAWINGS, AS WELL AS WORK ASSOCIATED ALL CURRENT, APPLICABLE STANDARDS & CODES AS WELL AS ALL BY-LAWS

26 05 00 - 2.0 DRAWINGS & SPECIFICATIONS

- DRAWINGS ARE DIAGRAMMATIC & SHOW APPROXIMATE LOCATIONS OF EQUIPMENT & CONNECTING SERVICES, ANY INFORMATION REGARDING ACCURATE MEASUREMENT OF THE BUILDING ARE TO BE TAKEN AT THE SITE, DO NOT SCALE THE DRAWINGS, & DO NOT USE THE DRAWINGS FOR PREFABRICATION WORK.
- READ THE ELECTRICAL DRAWINGS IN CONJUNCTION WITH ALL OTHER STRUCTURAL ARCHITECTURAL SITE CIVIL, LANDSCAPE, SPRINKLER, MECHANICAL, ETC. DRAWINGS, PROPERLY PLAN, COORDINATE & ESTABLISH THE LOCATIONS & ROUTING OF SERVICES WITH ALL SUBCONTRACTORS AFFECTED PRIOR TO INSTALLATION SUCH THAT THE SERVICES WILL CLEAR EACH OTHER AS WELL AS ANY OBSTRUCTIONS, INCLUDING STRUCTURAL COMPONENTS OF THE BUILDING.
- THE DRAWINGS ARE INTENDED TO CONVEY THE SCOPE OF WORK & DO NOT SHOW ARCHITECTURAL & STRUCTURAL DETAILS. ELECTRICAL CONTRACTOR SHALL PROVIDE, AT ELECTRICAL CONTRACTOR'S COST, ALL OFFSETS, FITTINGS, TRANSFORMATIONS, & SIMILAR PRODUCTS REQUIRED AS A RESULT OF OBSTRUCTIONS & OTHER ARCHITECTURAL & STRUCTURAL DETAILS BUT NOT SHOWN ON THE DRAWINGS.
- THE DRAWINGS & SPECIFICATIONS ARE COMPLEMENTARY & INTENDED TO BE COOPERATIVE, PERFORM ALL WORK THAT IS SHOWN, SPECIFIED, OR REASONABLY IMPLIED ON THE DRAWINGS BUT NOT MENTIONED IN THE SPECIFICATION, OR VICE-VERSA, AS THOUGH FULLY COVERED BY BOTH.
- SHOULD ANY DISCREPANCY APPEAR BETWEEN THE DRAWINGS & SPECIFICATIONS WHICH LEAVES THE ELECTRICAL CONTRACTOR IN DOUBT AS TO THE MEANING OF THE DRAWINGS & SPECIFICATIONS, A RULING SHALL BE OBTAINED FROM THE ENGINEER. IF THIS IS NOT DONE, IT WILL BE ASSUMED THAT THE MOST EXPENSIVE ALTERNATE HAS BEEN ALLOWED FOR.

26 05 00 - 3.0 PERMITS, FEES, & CERTIFICATES

- CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED, ARRANGE FOR INSPECTION OF THE WORK BY INSPECTION AUTHORITY & PAY ALL FEES PROVIDED FINAL CERTIFICATE TO THE OWNER, WORK SHALL NOT COMMENCE ON THE INSTALLATION UNTIL ESA (ONTARIO ELECTRICAL SAFETY AUTHORITY) PLANS REVIEW AS WELL AS THE LOCAL UTILITY'S REVIEW COMMENTS HAVE BEEN RECEIVED & REVIEWED BY THE ENGINEER AS WELL AS THIS CONTRACTOR.

26 05 00 - 4.0 EXAMINATION OF THE SITE

- PRIOR TO SUBMITTING THEIR TENDER, THE ELECTRICAL CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE & ASCERTAIN ALL CONDITIONS, WHICH SHALL AFFECT HIS TRADE, REPORT TO THE CONSULTANT, PRIOR TO BID SUBMITTAL, ANY EXISTING SITE CONDITION THAT WILL OR MAY AFFECT PERFORMANCE OF THE WORK AS PER THE DRAWINGS & SPECIFICATIONS. FAILURE TO DO SO WILL NOT BE GROUNDS FOR ADDITIONAL COSTS.

26 05 00 - 5.0 STANDARD OF MATERIAL & WORKMANSHIP

- ALL MATERIALS & EQUIPMENT SHALL BE NEW, CSA APPROVED, BEAR CSA STAMP & BE OF THE BEST COMMERCIAL QUALITY OBTAINABLE FOR THE PURPOSE.
- ALL WORK SHALL BE EXECUTED IN A NEAT & WORKMANLIKE MANNER BY JOURNEYMAN TRADESMEN WHO PERFORM ONLY THE WORK THAT THEIR CERTIFICATES PERMIT, OR BY APPRENTICE TRADESMEN UNDER DIRECT ON SITE SUPERVISION OF AN EXPERIENCED JOURNEYMAN TRADESMAN.
- WORKMANSHIP SHALL BE OF THE HIGHEST STANDARDS THROUGHOUT & SHALL BE MINIMUM OF THE CURRENT TRADE PRACTICES FOR ELECTRICAL INSTALLATIONS IN THIS BUILDING.
- UNLESS OTHERWISE SPECIFIED ALL EQUIPMENT IS TO BE INSTALLED IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS & INSTRUCTIONS, & REQUIREMENTS OF GOVERNING CODES, STANDARDS, & REGULATIONS GOVERNING CODES, STANDARDS, & REGULATIONS TAKE PRECEDENCE OVER MANUFACTURER'S INSTRUCTIONS.
- ENSURE THAT PROPER ACCESS & SERVICE CLEARANCES ARE MAINTAINED AROUND EQUIPMENT & WHERE APPLICABLE, ACCESS SPACE FOR FUTURE EQUIPMENT REMOVAL OR REPLACEMENT IS NOT IMPEDED, REMOVE & REPLACE ANY EQUIPMENT WHICH DOES NOT MEET THIS REQUIREMENT.
- THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ALL WORK COMPLETED CONTRARY TO THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE OWNER OR ANY OF THE OTHER TRADES BY IMPROPER LOCATION OR CARRYING OUT OF HIS WORK.
- PROVIDE A CERTIFICATE OF WORKMANSHIP & MATERIAL FOR ONE YEAR FROM DATE OF ACCEPTANCE.

26 05 00 - 6.0 COORDINATION OF THE WORK

- REVIEW ALL THE CONTRACT DOCUMENTS & COORDINATE THE WORK WITH THE WORK OF ALL OTHER TRADES.
- PROPERLY PLAN, COORDINATE, & ESTABLISH THE LOCATIONS & ROUTING OF SERVICES WITH ALL SUBCONTRACTORS AFFECTED PRIOR TO INSTALLATION SUCH THAT THE SERVICES WILL CLEAR EACH OTHER AS WELL AS ANY OBSTRUCTIONS, INCLUDING STRUCTURAL COMPONENTS OF THE BUILDING.
- COORDINATE THE LOCATIONS OF THE ELECTRICAL DEVICES WITH THE MILLWORK DRAWINGS. THE CONTRACTOR SHALL REVIEW THE ARCHITECTURAL DRAWINGS & SECTIONS FOR LOCATIONS OF MILLWORK PRIOR TO ROUGH-IN. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ ENGINEER OF ANY DISCREPANCIES, CONFIRM FINAL LOCATION OF ALL DEVICES WITH THE ARCHITECT & OWNER IN WRITING.
- COORDINATE SIZE OF BREAKERS & FEEDERS WITH ALL MECHANICAL EQUIPMENT , FEEDERS ON DRAWINGS ARE BASED ON DESIGN LOADS PROVIDED IN MECHANICAL DRAWINGS. CONTRACTOR SHALL CONFIRM THE FEEDER SIZES & BREAKERS ON SHEET DRAWINGS PRIOR TO ROUGH-IN & PURCHASE OF MATERIAL/EQUIPMENT TO POWER UP MECHANICAL UNITS. DISCREPANCIES ARE TO BE NOTED TO THE ENGINEER.

26 05 00 - 7.0 PENETRATIONS

- ANY OR ALL CUTTING, CORING & PATCHING SHALL BE VERIFIED WITH THE OWNER PRIOR TO PERFORMING WORK. PAYMENT FOR SUCH SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY PENETRATION OF STRUCTURAL MEMBERS, FLOORS OR CEILINGS TO BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD.
- THIS DIVISION SHALL PREPARE SLEEVING DRAWINGS INDICATING THE SIZE & LOCATIONS OF OPENINGS REQUIRED IN CONCRETE FLOOR SLABS, ROOF SLABS/DECKS & WALLS FOR CONDUIT, BUS DUCTS & EQUIPMENT FOR REVIEW BY THE STRUCTURAL ENGINEER & ARCHITECT.
- CONTRACTORS SHALL NOTIFY THE OWNER OR GENERAL CONTRACTOR (& OTHER CONTRACTORS WHO ARE INVOLVED) OF ALL OPENINGS, FOUNDATION WORK, HANGERS, INSERTS, ANCHORS, OR OTHER PROVISIONS NECESSARY IN THEIR WORK FOR THE INSTALLATION OF HIS WORK & SHALL FURNISH ALL INFORMATION & NECESSARY MATERIALS IN AMPLE TIME SO THAT PROPER PROVISIONS CAN BE MADE FOR SAME & SHALL SUPPLY & CORRECTLY, ACCURATELY PLACE ALL INSERTS, SLEEVES, ANCHORS, ETC.
- FAILURE TO COMPLY WITH THESE REQUIREMENTS ON THE PART OF THE CONTRACTOR WILL RENDER HIM RESPONSIBLE FOR THE COST OF CUTTING OPENINGS, INSTALLING HANGERS & OTHER PROVISIONS AT A LATER DATE, & THE SUBSEQUENT PATCHING, ETC., THEREBY REQUIRED.

- NO CUTTING SHALL BE DONE WITHOUT PERMISSION. ALL SUCH WORK SHALL BE DONE BY TRADESMEN SKILLED IN & CERTIFIED FOR THIS PARTICULAR TRADE.
- ALL PENETRATIONS TO BE APPROVED BY THE ARCHITECT OR LANDLORD IN WRITING.
- ANY EXTERIOR PENETRATION TO BE APPROPRIATELY FLASHED & WEATHER PROOFED WITH APPROVED SEALING METHODS.

26 05 00 - 8.0 ACCESS DOORS

- SUPPLY ACCESS DOORS TO GIVE ACCESS TO ALL ELECTRICAL WORK WHICH MAY NEED MAINTENANCE OR REPAIR BUT WHICH IS CONCEALED IN INACCESSIBLE CONSTRUCTION, EXCEPT AS OTHERWISE SPECIFIED HEREIN OR ON THE DRAWINGS.
- ACCESS DOORS IN FIRE RATED CONSTRUCTION ARE TO BE ULC LISTED & LABELED AND OF A RATING TO MAINTAIN THE FIRE SEPARATION INTEGRITY.

26 05 00 - 9.0 FIRE STOPPING

- WHERE ELECTRICAL WORK PENETRATES FIRE RATED CONSTRUCTION, PROVIDE ULC LISTED & LABELED FIRESTOPPING & SMOKE MATERIALS INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF CAN/S-A115 (RATINGS: FT, FH, AND FT AS REQUIRED), CAN/ULC-S101, & ALL OTHER GOVERNING AUTHORITIES TO SEAL THE PENETRATIONS.

26 05 00 - 10.0 MOUNTING HEIGHTS

- MOUNTING HEIGHT OF EQUIPMENT IS FROM FINISHED FLOOR TO CENTERLINE OF EQUIPMENT UNLESS SPECIFIED OR INDICATED OTHERWISE.
- IF MOUNTING HEIGHT OF EQUIPMENT IS NOT SPECIFIED OR INDICATED, VERIFY BEFORE PROCEEDING WITH INSTALLATION.
- FOR BARRIER-FREE MOUNTING HEIGHTS FOR DEVICES, CONFORM TO REQUIREMENTS OF THE GOVERNING CODE OR REGULATION.
- INSTALL ELECTRICAL EQUIPMENT AT FOLLOWING HEIGHTS UNLESS INDICATED OTHERWISE.

- LOCAL SWITCHES: 1200 MM (48 IN.).
- WALL RECEPTACLES - GENERAL: 450 MM (18 IN.).
- WALL RECEPTACLES - ABOVE TOP OF CONTINUOUS BASEBOARD HEATER: 200 MM (8 IN.).
- WALL RECEPTACLES - ABOVE TOP OF COUNTER OR COUNTER SPLASH BACKS: 175 MM (7 IN.).
- WALL RECEPTACLES - IN MECHANICAL ROOMS: 1200 MM (48 IN.).
- PANELBOARDS: 2000 MM (80 IN.) TO TOP OF PANEL.
- TELEPHONE AND INTERPHONE OUTLETS: 450 MM (18 IN.).
- WALL MOUNTED TELEPHONE AND INTERPHONE OUTLETS: 1200 MM (48 IN.).
- FIRE ALARM STATIONS: 1150 MM TO CENTRE.
- WALL MOUNTED FIRE ALARM HORNS: 2300 MM (90 IN.).
- TELEVISION OUTLETS: 450 MM (18 IN.).
- WALL MOUNTED SPEAKERS: 2100 MM (83 IN.).
- CLOCK: 2100 MM (83 IN.).
- BARRIER FREE PUSHBUTTONS: 1100 MM (43 IN.).
- WALL MOUNTED EXIT SIGNS - FOR 2400 MM (95 IN.) TO 2500 MM (100 IN.) CEILING AREAS: 2100 MM (83 IN.).
- WALL MOUNTED EXIT SIGNS - FOR ALL CEILINGS GREATER THAN 2500 MM (100 IN.) CEILING AREAS: 2400 MM (95 IN.).
- WALL MOUNTED BATTERY PACKS & EMERGENCY HEADS - FOR 2400 MM (95 IN.) TO 2500 MM (100 IN.) CEILING AREAS: 2100 MM (83 IN.).
- WALL MOUNTED BATTERY PACKS & EMERGENCY HEADS - FOR ALL CEILINGS GREATER THAN 2500 MM (100 IN.) CEILING AREAS: 2400 MM (95 IN.).
- WALL MOUNTED OCCUPANCY SENSORS: 1200 MM (48 IN.).
- WALL MOUNTED VISIBLE SIGNAL DEVICES, ENTIRE LENGTH SHALL BE NO LESS THAN 2000 MM (79 IN.) & NO MORE THAN 2400 MM (95 IN.).
- TOP OF REMOTE ANNUNCIATOR & PASSIVE GRAPHIC PANELS SHALL BE NO MORE THAN 1800MM (72 IN.) ABOVE FINISHED FLOOR.

26 05 00 - 11.0 CONSTRUCTION SCHEDULE

- OWNER (OR OWNER'S REPRESENTATIVE) TO PROVIDE THE ENGINEER WITH ACCURATE CONSTRUCTION SCHEDULE AT THE OUTSET OF CONSTRUCTION & INCLUDE UPDATES AS APPLICABLE.
- THIS CONTRACTOR SHALL SCHEDULE & PERFORM HIS WORK TO MEET THE COMPLETION SCHEDULE, NOTED ABOVE, AS SET OUT BY THE CLIENT.

26 05 00 - 11.0 CHANGES OR REVISIONS & EXTRAS

- NO ADDITIONAL MONEY OVER THE CONTRACT PRICE SHALL BE PAID UNLESS AN APPROVED CHANGE ORDER IS ISSUED BY THE ENGINEER.
- CLAIMS FOR EXTRAS SHALL BE SUBMITTED WITH A COMPLETE BREAKDOWN OF MATERIAL, LABOUR, HOURLY RATES, ETC.
- THERE SHALL BE NO EXTRA CLAIM FOR RELOCATION OF ANY EQUIPMENT WITHIN 10 FEET FROM ORIGINAL LOCATION.
- WHENEVER THE CONSULTANT PROPOSES IN WRITING TO MAKE A CHANGE OR REVISION TO THE DESIGN ARRANGEMENT, QUANTITY OR TYPE, AND WHEN A FREE QUOTE IS REQUESTED BY THE CONTRACT DOCUMENTS, PREPARE AND SUBMIT TO THE CONSULTANT FOR APPROVAL, A QUOTATION BEING THE ELECTRICAL CONTRACTOR'S PROPOSED COST FOR EXECUTING THE CHANGE OR REVISION.
- RELOCATING ANY MECHANICAL EQUIPMENT LESS THAN 10 FEET IS NOT TO BE CONSIDERED AN EXTRA IN THE PROJECT.
- CONTRACTOR TO PROVIDE PRICING ON ALL NORTHSTAR ISSUED OFFICIAL CHANGE ORDERS IN THE FORMAT REQUESTED BASED ON THE SPECIFIC ITEM NUMBERS LISTED ON THE NORTHSTAR CHANGE REQUEST DOCUMENT. ONE PRICE FOR EACH ITEM LISTED, PRICING TO INCLUDE ALL LABOUR AND MATERIALS REQUIRED FOR THE SCOPE REQUESTED. NORTHSTAR WILL NOT NECESSARILY APPROVE THE CHANGES BASED ON THE QUOTATION. PRICE CODES SUCH AS 'ALL PRICE' OR SIMILAR FORMATS WILL NOT BE REVIEWED BASED ON FAIR MARKET CONDITIONS. CONTRACTOR TO PROVIDE CHANGE ORDER PRICING IN A TIMELY MANNER FOR NORTHSTAR'S REVIEW. NO WORK SHALL PROCEED UNTIL OFFICIAL WRITTEN ACCEPTANCE IS ISSUED BY NORTHSTAR.

26 05 00 - 12.0 SHOP DRAWINGS:

- BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW SHOP SUBMISSION DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS.
- THESE SHOP DRAWINGS SHALL INCLUDE BUT NOT LIMITED TO DISTRIBUTION, LUMINAIRES, EXIT SIGNS, OCCUPANCY SENSORS, BATTERY PACKS, FIRE ALARM EQUIPMENT, TELECOMMUNICATIONS EQUIPMENT & CABLING. ALLOW MINIMUM 5 BUSINESS DAYS TO RETURN REVIEWED SHOP DRAWINGS (BASED ON COMPLEXITY).
- ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING DIMENSIONS, THE ENGINEER REVIEW OF SHOP DRAWINGS SHALL NOT RELEASE THE ELECTRICAL CONTRACTOR OR SUPPLIER FROM THEIR RESPONSIBILITY FOR ERRORS, PROPER FITTING, & CONSTRUCTION OF THE WORK & FURNISHING OF MATERIALS. THE REVIEW SHALL NOT BE CONSTRUED AS APPROVING DEPARTURES FROM THE CONTRACT DOCUMENT REQUIREMENTS IF SUCH DEPARTURES ARE NOT SPECIFICALLY NOTED IN A COVERING LETTER ACCOMPANYING SUCH DRAWINGS.
- ANY DEVIATION FROM THE DESIGN, DRAWINGS OR COMPONENT CONFIGURATION, IS TO BE COMMUNICATED CLEARLY TO THE CONSULTANT SEPARATELY, AND MUST INCLUDE A SKETCH, SYSTEM CONTEXT RATIONALE FOR THE CHANGE, BENEFIT FOR THE CHANGE FOR THE CONSULTANTS REVIEW.

26 05 00 - 13.0 SUBSTITUTIONS

- FIXTURE / EQUIPMENT SUBSTITUTIONS, IF INITIATED BY THE CONTRACTOR, SHALL BE MADE SO AS TO ENSURE OPERATING PERFORMANCE IS NOT REDUCED. RE-REVIEW OF SPECIFICATIONS FOR SUBSTITUTED EQUIPMENT MAY RESULT IN ADDITIONAL CHARGES BY THIS CONSULTANT. ALL CORRESPONDENCE FOR CLARIFICATION OF DESIGN FEATURES, SPECIFICATIONS, & EQUIPMENT SUBSTITUTIONS SHALL BE MADE IN WRITING INCLUDING APPROVED SHOP DRAWINGS OF NEW PRODUCTS. ALLOW FOR A 1 WEEK RESPONSE TIME FROM CONSULTANT. ANY ADDITIONAL COSTS RELATED TO EQUIPMENT SUBSTITUTIONS TO BE ABSORBED BY THE CONTRACTOR.
- ALL PENETRATIONS TO BE APPROVED BY THE ARCHITECT OR LANDLORD IN WRITING.
- ANY EXTERIOR PENETRATION TO BE APPROPRIATELY FLASHED & WEATHER PROOFED WITH APPROVED SEALING METHODS.

26 05 00 - 14.0 ELECTRICAL WORK TESTING REQUIREMENTS

- SATISFACTORILY PERFORM ALL TESTING REQUIRED BY GOVERNING AUTHORITIES, CODES, REGULATION BEFORE ENERGIZING ANY PORTION OF THE ELECTRICAL SYSTEM. RESULTS OF SUCH TESTS SHALL CONFORM TO THE REQUIREMENTS OF THE CANADIAN ELECTRICAL CODE & SHALL BE TO THE SATISFACTION OF THE AUTHORIZED INSPECTION AGENCY & THE ENGINEER.
- GENERAL PURPOSE LOW VOLTAGE WIRING IN CONDUIT: 'T-90" OR "RW90" STRANDED COPPER CONDUCTORS AS SPECIFIED ABOVE.
- MOUNT DRY TYPE TRANSFORMER UP TO 75KVA ON WALL WITH ANGLE IRON FRAME SECURELY SUPPORTED FROM STRUCTURE & VIBRO-ACOUSTIC ISOLATORS.
- MOUNT DRY TYPE TRANSFORMER 75KVA & ABOVE ON 4" CONCRETE PAD C/W VIBRO-ACOUSTIC ISOLATORS.

26 05 00 - 15.0 EQUIPMENT AND SYSTEM COMMISSIONING

- AFTER SUCCESSFUL START-UP & PRIOR TO SUBSTANTIAL PERFORMANCE, COMMISSION THE ELECTRICAL WORK USING APPROVED COMMISSIONING SHEETS. SUBMIT FINAL COMMISSIONING DATA SHEETS. INCLUDE FOR EQUIPMENT MANUFACTURER'S REPRESENTATION AT THE SITE TO ASSIST IN THE COMMISSIONING PROCESS.
- GENERAL PURPOSE LOW VOLTAGE WIRING IN CONDUIT: 'T-90" OR "RW90" STRANDED COPPER CONDUCTORS AS SPECIFIED ABOVE.
- ALL EMT CONDUIT TO BE CONCEALED UNLESS APPROVED BY THE OWNER, WHERE EMT RUNS HORIZONTALLY ACROSS WALL STUDS, NOTCHES SHOULD BE CUT TO RECESS CONDUIT. NOTCHES TO BE PROTECTED BY STEEL PLATES.
- MAIN BREAKER SHALL OCCUPY A SEPARATE COMPARTMENT FROM BRANCH BREAKER PANELS WITH MAIN BREAKERS IN BRANCH BREAKER COMPARTMENT WILL NOT BE ACCEPTED.
- MAINS NUMBER OF CIRCUITS, & NUMBER & SIZE OF BRANCH CIRCUIT BREAKERS AS INDICATED.
- COPPER BUS WITH FULL SIZE COPPER MAINS & NEUTRAL.

26 05 00 - 16.0 INTERRUPTION OF SERVICES

- ANY INTERRUPTION OF THE ELECTRICAL SERVICES TO ANY PART OF THE BUILDING SHALL ONLY OCCUR AS AUTHORIZED BY THE OWNER & WITH NOTIFICATION TO ANY MONITORING ORGANIZATIONS OR PARTIES. MAKE ALL NECESSARY ARRANGEMENTS WITH THOSE CONCERNED & INCLUDE FOR ANY OVERTIME REQUIRED TO ENSURE THAT THE INTERRUPTION IS HELD TO A MINIMUM.

26 05 00 - 17.0 CLEANING AND WASTE REMOVAL

- CLEAN ALL ELECTRICAL EQUIPMENT THAT HAS BEEN EXPOSED TO CONSTRUCTION DUST & DIRT, INSIDE & OUT, PRIOR TO TURN OVER TO OWNER. EQUIPMENT IS SUBJECT TO REVIEW BY ENGINEER'S REPRESENTATIVE & OWNER.
- CONTRACTOR IS RESPONSIBLE FOR REMOVING THEIR OWN WASTE FROM THE SITE. ALL RE-USABLE MATERIALS SHALL BE RECYCLED.

26 05 00 - 18.0 DEMONSTRATION OF THE SYSTEM

- DEMONSTRATE THE FUNCTION AND OPERATION OF EACH SYSTEM TO THE OWNER.

26 05 00 - 19.0 PROJECT CLOSEOUT SUBMITTALS

- PRIOR TO APPLICATION FOR SUBSTANTIAL PERFORMANCE, SUBMIT ALL REQUIRED ITEMS AND DOCUMENTATION SPECIFIED, INCLUDING THE FOLLOWING:

- ALL EQUIPMENT MANUALS & SPECIFICATION SHEETS REQUIRED FOR PROPER MAINTAINING & SERVICING OF THE EQUIPMENT
- RECORD "AS-BUILT" DRAWINGS: AS-BUILT DRAWINGS SHALL BE CLEARLY MARKED IN RED INCLUDING ALL CHANGES TO THE ORIGINAL TENDER DRAWINGS COVERED BY ADDENDA, CHANGE ORDERS, FIELD CHANGES, JOB CONDITIONS, ETC.
- ESA (ELECTRICAL SAFETY AUTHORITY) INSPECTION CERTIFICATE.

26 05 00 - 19.5 VOLTAGE DROP

- VOLTAGE DROP FOR WIRING SHALL MEET REQUIREMENTS AS Laid Out IN THE CANADIAN ELECTRICAL CODE, GENERALLY MAXIMUM BRANCH CIRCUIT CONDUCTOR DISTANCES (120VAC) TO MAINTAIN MAX. 3% VOLTAGE DROP ARE AS FOLLOWS:

- 15A-1P BREAKER - #12AWG WIRING - 80 FEET (24 METRES)
- 15A-1P BREAKER - #10AWG WIRING - 125 FEET (37 METRES)
- 20A-1P BREAKER - #12AWG WIRING - 60 FEET (18 METRES)
- 20A-1P BREAKER - #10AWG WIRING - 95 FEET (29 METRES)

26 05 00 - 20.0 GROUNDING & BONDING

- GROUNDING & BONDING WORK IS TO BE IN ACCORDANCE WITH REQUIREMENTS OF THE FOLLOWING:
 - CSA C22.2 NO. 41, GROUNDING AND BONDING EQUIPMENT (TRI-NATIONAL STANDARD WITH UL 467)
 - CSA C22.2 NO. 0.4, GROUNDING AND BONDING OF ELECTRICAL EQUIPMENT
 - REQUIREMENTS OF THE ELECTRICAL SAFETY AUTHORITY AND ANY OTHER GOVERNING AUTHORITY
 - CAN/CSA Z32, ELECTRICAL SAFETY AND ESSENTIAL ELECTRICAL SYSTEMS IN HEALTH CARE FACILITIES
- PROVIDE GROUNDING ELECTRODES, CONDUCTORS, CONNECTIONS & EQUIPMENT TO ENSURE A SOLIDLY GROUNDED ELECTRICAL SYSTEM.
- SEPARATE GROUND & BONDING CONDUCTORS SHALL BE PROVIDED IN EACH CONDUIT. ALL EXPOSED METAL PARTS & NON CURRENT CARRYING EQUIPMENT, BASES, ETC. SHALL BE GROUNDED.
- MAKE GROUNDING CONNECTIONS SO AS TO TERMINATE AT SINGLE GROUNDING POINT.
- INSTALL SEPARATE GROUND CONDUCTOR TO OUTDOOR LIGHTING STANDARDS.
- MECHANICAL EQUIPMENT SHALL BE BONDED TO THE EQUIPMENT GROUNDING SYSTEM. THIS INCLUDES BUT NOT LIMITED TO FANS, PUMPS, CHILLERS, ETC.

- RECEPTACLES SHALL BE GROUNDED TO OUTLET BOX BY MEANS OF A BONDING JUMPER, AND SHALL PROVIDE GROUNDING CLIP ON EACH TOGGLE SWITCH, SUCH THAT CONTACT IS MADE BETWEEN MOUNTING STRAP, SCREW, FACEPLATE AND OUTLET BOX.

26 05 33.16 OUTLET BOXES

- UNLESS OTHERWISE SPECIFIED, EACH BOX IS TO BE CSA CERTIFIED, SUITABLE IN ALL RESPECTS FOR THE APPLICATION, SINGLE OR MULTI-GANG AS REQUIRED, & COMPLETE WITH SUITABLE SECURING LUGS, CONNECTORS SUITABLE FOR THE CONNECTED CONDUIT, KNOCKOUTS, & WHERE NECESSARY, SUITABLE PLASTER RINGS.
- ALL LIGHTING FIXTURES, RECEPTACLES & OTHER WIRING DEVICES FOR ANY CONDUIT SYSTEM SHOWN SHALL BE PROVIDED WITH AN OUTLET BOX.
- 4" (100 MM) OCTAGON OR SQUARE OUTLET BOXES OR LARGER, C/W FITTINGS FOR LIGHTING FIXTURES & AS REQUIRED FOR SPECIAL DEVICES.
- WALL OUTLET BOXES SHALL BE:
 - NO. 110A SERIES, FLUSH MOUNTED IN DRYWALL PARTITIONS
 - MBS SERIES MASONRY BOXES (GALVANIZED STEEL) FLUSH MOUNTED IN MASONRY WALLS (BLOCK WALLS).
 - GANG BOXES SHALL BE USED AT LOCATIONS WHERE DEVICES ARE GROUPED. PROVIDE BARRIERS AS REQUIRED.
 - BLANK COVER PLATES FOR BOXES WITHOUT WIRING DEVICES.

26 27 26 WIRING DEVICES

- ALL WIRING DEVICES ARE TO BE CSA CERTIFIED AS A MINIMUM, IN ACCORDANCE WITH THE FOLLOWING STANDARDS, AS APPLICABLE:
 - CAN/CSA C22.2 NO. 42, GENERAL USE RECEPTACLE, ATTACHMENT PLUG & SIMILAR WIRING DEVICES
 - CAN/CSA C22.2 NO. 42.1, COVER PLATES FOR FLUSH MOUNTED DEVICES
 - CSA C22.2 NO. 111, GENERAL USE SNAP SWITCHES
- ALL WIRING DEVICES ARE TO BE SUPPLIED BY THE SAME MANUFACTURER.
- SWITCHES: SPECIFICATION GRADE, PREMIUM QUALITY, BACK AND SIDE WIRED, 20 AMPERE, 120-277 VOLT A.C. QUIET ACTION WHITE DECORATIVE ROCKER TYPE TOGGLE SWITCHES, SINGLE POLE, 2-POLE, 3-WAY, OR KEY TYPE AS INDICATED ON THE DRAWINGS.
- HAZARDOUS LOCATION SWITCH: EXPLOSION-PROOF, SURFACE MOUNTING, FRONT OPERATED SWITCHES SUITABLE FOR USE IN CLASS 1 DIVISION 2 LOCATIONS
- OCCUPANCY SENSOR SWITCH: DIGITAL ULTRASONIC SENSOR TYPE, 120-277 VOLT A.C. WITH INTEGRAL PHOTO SENSOR AND SELECTED TO SUIT THE AREA AND OCCUPANCY OF THE ROOM SERVED.
- STANDARD RECEPTACLES: BACK OR SIDE WIRED, U-GROUND, 2 POLE RECEPTACLES AS FOLLOWS:
 - 15 AMP, 125 VOLT DUPLEX RECEPTACLE: 3-WIRE, NEMA 5-15R
 - 15 AMP, 250 VOLT DUPLEX RECEPTACLE: 3-WIRE, NEMA 6-15R
 - 20 AMP, 125 VOLT DUPLEX RECEPTACLE: 3-WIRE, NEMA 5-20R
 - 20 AMP, 250 VOLT DUPLEX RECEPTACLE: 3-WIRE, NEMA 6-20R
 - 30 AMP, 250 VOLT SIMPLEX RECEPTACLE: 3-WIRE, NEMA 6-30R
 - 50 AMP, 125/250 VOLT SIMPLEX RECEPTACLE: 3-WIRE, NEMA 14-30R
 - 50 AMP, 125/250 VOLT SIMPLEX RECEPTACLE: 4-WIRE, NEMA 14-50R
- GROUND FAULT RECEPTACLES: HEAVY-DUTY, 15/20 AMPERE, 125 VOLT DUPLEX GROUND FAULT RECEPTACLES WITH GND FAULT CIRCUIT INTERRUPTING DUPLEX RECEPTACLES WITH GND FAULT CIRCUIT CURRENT RATING, AUTOMATIC SELF-TEST DIAGNOSTICS, GREEN POWER ON LED, AND RED GND FAULT LED. GROUND FAULT RECEPTACLES FOR INDOOR CLIMATE CONTROLLED & OUTDOOR OR NON-CLIMATE CONTROLLED AREAS ARE TO BE AS FOLLOWS:
 - INDOOR CLIMATE CONTROLLED AREAS: EQUAL TO HUBBELL CANADA NO. GFST15/GFST20 "AUTOGUARD"
 - OUTDOOR AREAS AND INDOOR NON-CLIMATE AREAS: EQUAL TO HUBBELL CANADA NO. GFR5262TR/GFR4362TR "AUTOGUARD"

- TAMPER-RESISTANT DUPLEX RECEPTACLES: SPECIFICATION GRADE, BACK OR SIDE WIRED, U-GROUND, 2-POLE, 3-WIRE TAMPER-RESISTANT DUPLEX RECEPTACLES AS SPECIFIED ABOVE, 15 AMPERE OR 20 AMPERE, 125 VOLT AS INDICATED ON THE DRAWINGS, EACH WITH THERMOPLASTIC SHUTTERS TO LIMIT ACCESS TO ENERGIZED CONTACTS.

26 28 00 CIRCUIT BREAKERS

- BREAKERS ARE TO BE MOULDED CASE, BOLT-ON BREAKERS IN ACCORDANCE WITH CSA/C22.2 NO. 5, MOULDED-CASE CIRCUIT BREAKERS, MOLDED-CASE SWITCHES, & CIRCUIT BREAKER ENCLOSURES, CALIBRATED FOR OPERATION IN A 40°C (105°F) AMBIENT TEMPERATURE.
- BRANCH CIRCUIT BREAKER INTERRUPTING CAPACITY IS TO SUIT THE PANELBOARD VOLTAGE & BE AS SCHEDULED, OR IN ACCORDANCE WITH CODE REQUIREMENTS TO SUIT THE APPLICATION.
- FOR GROUND FAULT BREAKERS, CSA CLASS A, GROUP 1 COMBINATION THERMAL MAGNETIC TRIP BREAKERS WITH SOLID-STATE GROUND DEFAULT INTERRUPTERS.
- PROVIDE SPARE BREAKERS OR SPACE FOR FUTURE BREAKERS.

26 51 00 INTERIOR LIGHTING

- ALL LIGHTING FIXTURES ARE TO BE ULC LISTED, CSA CERTIFIED & LABELED.
- LIGHTING FIXTURES & LAMPS ARE SCHEDULED ON THE DRAWINGS. PROVIDE LIGHTING FIXTURES & LAMPS WHERE SHOWN, INCLUDE FOR ALL REQUIRED SITE ASSEMBLY, & PROVIDE ALL REQUIRED INSTALLATION & SUPPORT HARDWARE.
- THE LIGHTING EQUIPMENT FOR THIS PROJECT AND SPECIFIED HEREIN HAS BEEN CAREFULLY SELECTED FOR ITS ABILITY TO MEET THE PROJECT'S LUMINOUS ENVIRONMENT REQUIREMENTS. MANUAL & COMPUTER CALCULATIONS HAVE BEEN PERFORMED TO ENSURE THAT THE LIGHTING EQUIPMENT THAT HAS BEEN SPECIFIED COMPLIES WITH ESTABLISHED CRITERIA. THE ENGINEER RESERVES THE RIGHT NOT TO ACCEPT ANY ALTERNATES OR SUBSTITUTIONS. IF ALTERNATES OR SUBSTITUTIONS ARE ENTERTAINED, THEN IT IS THE RESPONSIBILITY OF THE CONTRACTOR/SUPPLIER TO PROVIDE ALL INFORMATION REQUIRED HEREIN & DETAILED LAYOUTS & LIGHTING CALCULATIONS DEMONSTRATING THE PERFORMANCE OF THE ALTERNATE LUMINAIRE MEETS OR EXCEEDS THE ORIGINAL LIGHTING DESIGN WHILE NOT CONSUMING ANY ADDITIONAL ENERGY. THE CONTRACTOR/SUPPLIER IS RESPONSIBLE TO ENSURE THE LIGHT LEVELS PROVIDED IN THE ALTERNATE SUBMITTAL PACKAGE ARE ACHIEVED.
- COORDINATE WITH THE ARCHITECTURAL DRAWINGS (REFLECTED CEILING PLANS, SECTIONS, ELEVATION, DETAILS...) FOR ALL LIGHTING FIXTURE LOCATIONS. THE MOUNTING HEIGHTS OF THE LIGHTING FIXTURES SHALL BE CONFIRMED PRIOR TO ROUGH-IN. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

5. PRIOR TO ROUGH-IN FOR LIGHTING FIXTURE INSTALLATIONS, EXAMINE DRAWINGS & SITE CONDITIONS TO DETERMINE THAT SUITABLE SPACE IS AVAILABLE FOR THE FIXTURE INSTALLATION AS SHOWN. IF SUFFICIENT SPACE IS NOT AVAILABLE, NOTIFY THE CONSULTANT IMMEDIATELY &, IF REQUIRED, RELOCATE THE FIXTURES WITHIN REASONABLE DISTANCES WITHOUT ADDITIONAL COST.

6. INSTALLATION OF ALL LIGHTING EQUIPMENT SHALL COMPLY WITH THE CURRENT EDITION OF APPLICABLE ELECTRICAL SAFETY CODE.

7. SECURE METAL POLES TO REINFORCED CONCRETE BASES. INSTALL POLE ANCHOR BOLT SUPPORT HARDWARE IN THE BASE CONCRETE DURING THE POUR, & ENSURE THAT THE HARDWARE IS PROPERLY POSITIONED & REMAINS PROPERLY POSITIONED UNTIL CONCRETE HAS SET. PROVIDE VANDAL-PROOF ANCHOR BOLT COVERS.

8. ENSURE THAT ALL POLES ARE TRUE AND PLUMB.

27 05 00 COMMON WORK RESULTS FOR COMMUNICATION SYSTEM

- SUPPORT ALL LIGHTING FIXTURES IN SUSPENDED CEILINGS FROM THE GLAD OR BUILDING CONSTRUCTION ABOVE, INDEPENDENT OF THE SUSPENDED CEILING CONSTRUCTION USING #12 JACK CHAIN HANGERS. SUPPORT CONTINUOUS ROWS OF FIXTURES AT MINIMUM 1.2 M (48") CENTRES.
- LEVEL & PLUMB ALL LIGHTING FIXTURES WITH THE STRUCTURE & OTHER EQUIPMENT, & IN A HORIZONTAL OR VERTICAL POSITION AS INTENDED.
- WALL OR SIDE BRACKET MOUNTED FIXTURE HOUSING SHALL BE RIDGELY INSTALLED & ADJUSTED TO GIVE A NEAT FLUSH FIT TO THE SURFACE ON WHICH IT IS MOUNTED.
- WHERE LIGHTING FIXTURES PENETRATE A FIRE-RATED CEILING THEY ARE TO BE ENCLOSED IN AN ENCLOSURE WITH A RATING TO MATCH THAT OF THE CEILING. THE ENCLOSURE IS TO BE CONSTRUCTED BY THE TRADE CONSTRUCTING THE CEILING. ENSURE THAT CONDUCTORS CONNECTING THE FIXTURES ARE FIRE-RATED TYPE AND THAT CEILING PENETRATIONS FOR CONDUCTORS ARE PROPERLY SEALED WITH FIRE STOPPING AND SMOKE SEAL MATERIAL. FIXTURES INSTALLED IN THE FIRE-RATED ENCLOSURES ARE TO BE EQUIPPED WITH THERMAL OVERLOAD PROTECTION.
- INCLUDE FOR GROUND CONNECTIONS TO ALL COMMUNICATION SYSTEM RACKS.

28 46 00 FIRE DETECTION & ALARM

- PROVIDE A COMPLETE FIRE ALARM SYSTEM. FIRE ALARM SYSTEM INSTALLATION & TESTING IS TO BE IN ACCORDANCE WITH REQUIREMENTS OF THE FOLLOWING:
 - CANULC-S524-14, INSTALLATION OF FIRE ALARM SYSTEMS.
 - CANULC-S536-04, INSPECTION & TESTING OF FIRE ALARM SYSTEMS.
 - CANULC-S537-13, VERIFICATION OF FIRE ALARM SYSTEMS.
 - CANULC-S537-2018 STANDARD FOR INSTALLATION OF ANCILLARY DEVICES.
 - CURRENT EDITION OF APPLICABLE BUILDING CODE.
- AT THE COMPLETION OF CONSTRUCTION & ACCEPTANCE OF WORK, ALL LIGHTING FIXTURES SHALL BE CLEAN, COMPLETE WITH ALL NECESSARY ACCESSORIES & PROVIDED WITH THE REQUIRED OPERATING LAMP(S).

26 52 13.13 EMERGENCY LIGHTING

- ALL EMERGENCY LIGHTING IS TO BE CSA CERTIFIED IN ACCORDANCE WITH:
 - OSA 022.2 NO. 141, UNIT EQUIPMENT FOR EMERGENCY LIGHTING
 - UL 924, STANDARD FOR EMERGENCY LIGHTING & POWER EQUIPMENT
 - CAN/CSA-C860, PERFORMANCE OF INTERNALLY-LIGHTED EXIT SIGNS
 - CANULC-S572, PHOTOLUMINESCENCE & SELF-LUMINOUS SIGNS AND PATH MARKING SYSTEMS, INCLUDING APPENDIX A AS APPLICABLE
 - CSA C22.2 NO. 107.2, BATTERY CHARGERS
- WHERE REMOTE LAMP HEADS ARE INDICATED, INSTALL & CONNECT TO THE BATTERY UNIT WITH 12/24 VDC WIRING IN CONDUIT AS INDICATED.
- AIM ALL ADJUSTABLE LAMP HEADS TO PROVIDE MAXIMUM COVERAGE TO EGRESS ROUTES.
- PROVIDE SELF-CONTAINED EMERGENCY LIGHTING UNITS WHERE SHOWN. INCLUDE FOR ALL REQUIRED SITE ASSEMBLY. PROVIDE ALL REQUIRED INSTALLATION & SUPPORT HARDWARE, & PLUG THE ASSEMBLIES INTO ADJACENT RECEPTACLES. CIRCUIT TO BE IDENTIFIED IN PANELS c/w LOCK ON BREAKER. Confirm EXACT LOCATIONS & MOUNTING HEIGHTS PRIOR TO INSTALLATION.
- THE SELF-CONTAINED EMERGENCY LIGHTING UNITS SHALL BE CAPABLE OF SUPPLYING THE WATTAGE AS INDICATED.
- CONTRACTOR TO COMMISSION & TEST COMPLETED SYSTEM. PROVIDE A CERTIFICATE OF PROPER OPERATION FOR COMPLETE SYSTEM.
- TEST TO INCLUDE BATTERY MINIMUM DURATION AT FULL LIGHTING LEVEL:
 - HIGH BUILDINGS - AS A MINIMUM 2 HR.
 - GROUP B - AS A MINIMUM 1 HR.
 - ALL OTHER - AS A MINIMUM 1/2 HR.

26 52 13.16 EXIT SIGNS

- ALL EXIT SIGNS TO BE CSA CERTIFIED SAME AS EMERGENCY LIGHTING. REFER TO SECTION 26 52 13.13.
- PROVIDE EXIT SIGNS WHERE SHOWN. INCLUDE FOR ALL REQUIRED SITE ASSEMBLY, & PROVIDE ALL REQUIRED INSTALLATION & SUPPORT HARDWARE.
- CONFIRM EXACT EXIT SIGN LOCATIONS PRIOR TO ROUGHING-IN, & IN ANY CASE, ENSURE THAT EXIT SIGNS ARE NOT LESS THAN 2 M (6'-1") FROM THE UNDERSIDE OF THE FIXTURE TO THE FINISHED FLOOR.
- EXIT LIGHTS TO BE CIRCUITED TO LOCAL ROOM'S LIGHTING AS INDICATED WITH LOW VOLTAGE DC WIRING CONNECTED TO EMERGENCY BATTERY PACK. INSTALL WIRING IN CONDUIT. CIRCUIT TO BE IDENTIFIED IN PANELS c/w LOCK ON BREAKER.
- CONNECT SIGNALLING CIRCUITS TO MAIN CONTROL PANEL.
- CONNECT BILLS, HORNS & VISUAL SIGNAL DEVICES & CONNECT TO SIGNALLING CIRCUITS.
- CONNECT SIGNALLING CIRCUITS TO MAIN CONTROL PANEL.
- INSTALL END-OF-LINE DEVICES.

26 56 00 EXTERIOR LIGHTING

- ALL LIGHTING FIXTURES ARE TO BE ULC LISTED, CSA CERTIFIED & LABELED.
- LIGHTING FIXTURES & LAMPS ARE SCHEDULED ON THE DRAWINGS. PROVIDE EXTERIOR LIGHTING FIXTURES WHERE SHOWN & IN ACCORDANCE WITH THE LIGHTING SCHEDULES. INCLUDE FOR ALL REQUIRED SITE ASSEMBLY, & PROVIDE ALL REQUIRED INSTALLATION & SUPPORT HARDWARE.
- THE LIGHTING EQUIPMENT FOR THIS PROJECT AND SPECIFIED HEREIN HAS BEEN CAREFULLY SELECTED FOR ITS ABILITY TO MEET THE PROJECT'S LUMINOUS ENVIRONMENT REQUIREMENTS. MANUAL & COMPUTER CALCULATIONS HAVE BEEN PERFORMED TO ENSURE THAT THE LIGHTING EQUIPMENT THAT HAS BEEN SPECIFIED COMPLIES WITH ESTABLISHED CRITERIA. THE ENGINEER RESERVES THE RIGHT NOT TO ACCEPT ANY ALTERNATES OR SUBSTITUTIONS. IF ALTERNATES OR SUBSTITUTIONS ARE ENTERTAINED, THEN IT IS THE RESPONSIBILITY OF THE CONTRACTOR/SUPPLIER TO PROVIDE ALL INFORMATION REQUIRED HEREIN & DETAILED LAYOUTS & LIGHTING CALCULATIONS DEMONSTRATING THE PERFORMANCE OF THE ALTERNATE LUMINAIRE MEETS OR EXCEEDS THE ORIGINAL LIGHTING DESIGN WHILE NOT CONSUMING ANY ADDITIONAL ENERGY. THE CONTRACTOR/SUPPLIER IS RESPONSIBLE TO ENSURE THE LIGHT LEVELS PROVIDED IN THE ALTERNATE SUBMITTAL PACKAGE ARE ACHIEVED.
- CONFIRM EXACT LIGHTING FIXTURES LOCATIONS PRIOR TO ROUGHING-IN.
- SECURE GRADE MOUNTED BUILDING FLOODLIGHTING FIXTURES TO CONCRETE PADS SET FLUSH WITH FINISHED GRADE.
- PROVIDE POLES WITH MOUNTING BRACKETS FOR POLE MOUNTED LIGHTING FIXTURES. FOR DIRECT BURY CONCRETE POLES, BACKFILL THE EXCAVATION AROUND THE POLE WITH CONCRETE.

ELECTRICAL REPORTS REQUIRED FOR SIGN-OFF

THE FOLLOWING REPORTS MUST BE SUBMITTED TO THE ENGINEER PRIOR TO FINAL APPROVAL OF THE COMPLETED SYSTEM.

- ESA (ONTARIO ELECTRICAL SAFETY AUTHORITY) - CERTIFICATE OF ACCEPTANCE.
- EMERGENCY LIGHTING DURATION TEST - SUCCESSFUL CERTIFICATION LETTER
- SMOKE ALARM VERIFICATION REPORT
- CONTRACTOR COMPLETION & WARRANTY LETTER

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

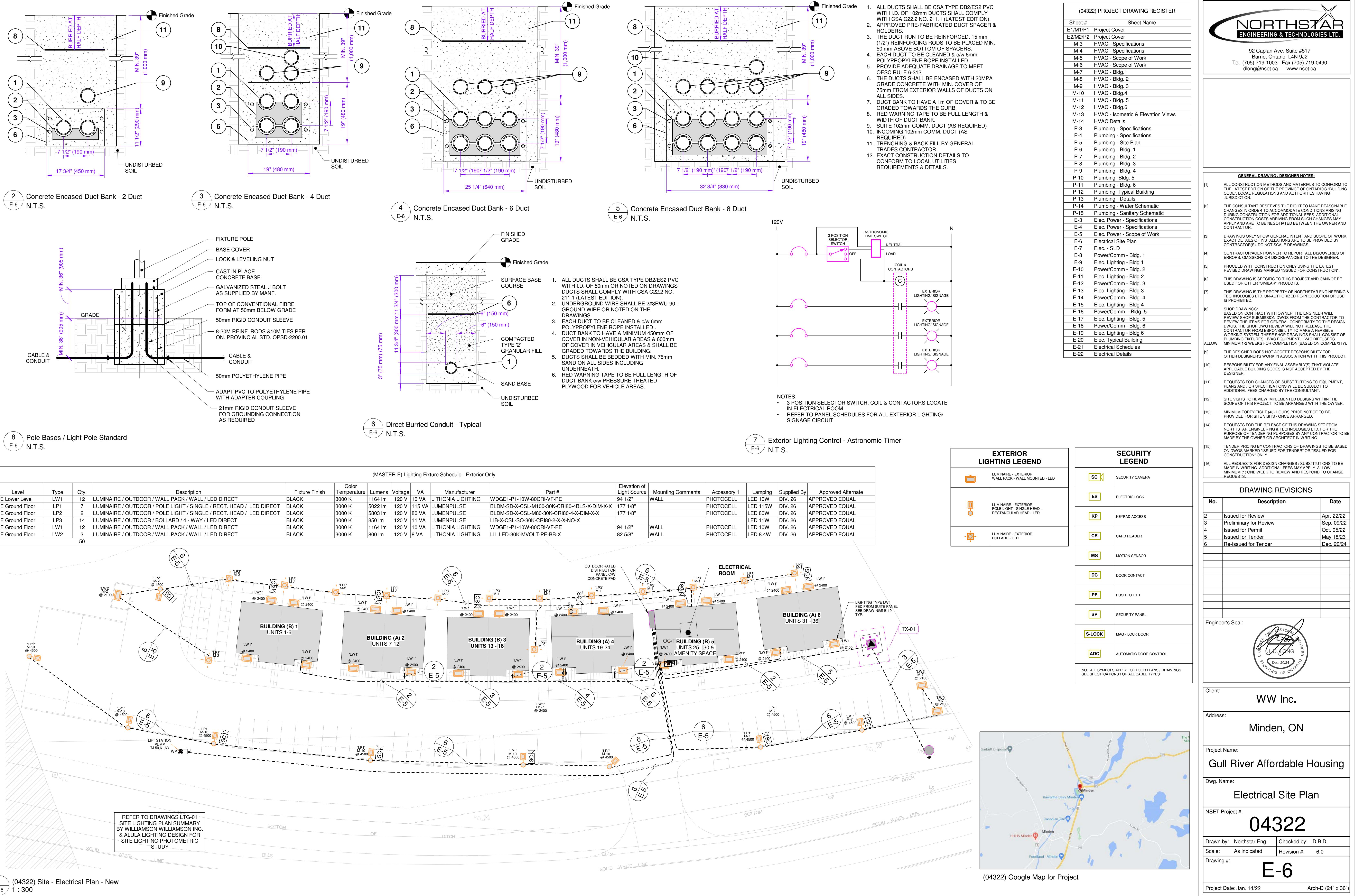
DIV. 23, DIV. 26 RESPONSIBILITIES**DIV. 26 TO SUPPLY:**
ELECTRICAL RESISTANCE HEATERS, ALL CONTROL AND ELECTRICAL POWER DEVICES OVER 50 VOLTS (ALSO TO BE INSTALLED, WIRED, & TESTED BY DIV. 26 CONT.)**DIV. 23 TO SUPPLY:**
HEATING / COOLING UNITS, GAS FIRED HVAC EQUIPMENT, EXHAUST FANS, HVAC ELECTRICAL CONTROL DEVICES UNDER 50 VOLTS (ALSO TO BE INSTALLED, WIRED & TESTED BY DIV. 23 CONT.)

NORTHSTAR ENGINEERING & TECHNOLOGIES LTD.	
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GENERAL DRAWING / DESIGNER NOTES:	
[1]	ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE CURRENT EDITION OF THE PROVINCE OF ONTARIO'S BUILDING CODE, LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
[2]	THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION. THE CONSULTANT WILL NOT BE HELD RESPONSIBLE FOR CONSTRUCTION COSTS ARRIVING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND CONTRACTOR.
[3]	DRAWINGS ONLY SHOW GENERAL INTENT & REQUIREMENTS. DETAILED DRAWINGS ARE PROVIDED AS PROVIDED BY CONTRACTOR. DO NOT SCALE DRAWINGS.
[4]	CONTRACTOR/OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.
[5]	PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".
[6]	THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.
[7]	THIS DRAWING IS THE PROPERTY OF NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUCTION OR USE IS PROHIBITED.
[8]	SHOP DRAWINGS: BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL PROVIDE COMMISSION DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS. THE SHOP DWG REVIEW IS NOT TO RELEASE THE CONTRACTOR FROM ITS RESPONSIBILITY FOR MAINTAINING THE WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS, MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).
[9]	THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.
[10]	FEASIBILITY FOR ANY FINAL ASSEMBLY THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
[11]	REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.
[12]	SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.
[13]	MINIMUM FORTY EIGHT (48) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.
[14]	REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR THE PURPOSE OF CONSTRUCTION ARE TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING. CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
[15]	TENDER PRICING BY CONTRACTOR OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.
[16]	ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM 1-2 WEEKS TO REVIEW AND RESPOND TO CHANGE REQUESTS.

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ELECTRICAL - SCOPE OF WORK	
CONTRACTOR TO VISIT THE SITE & FAMILIARIZE THEMSELVES WITH THE REQUIREMENTS OF THIS DESIGN.	
REFER TO SPECIFICATIONS & GENERAL PROJECT NOTES & DETAILS INCLUDED IN THIS SET OF DWGS.	
THE WORK SHALL CONSIST OF, BUT SHALL NOT BE LIMITED TO THE FOLLOWING:	
TENDER - PHASE - ELECTRICAL	
E 1.0. ALL CONTRACT DOCUMENTS WHERE THE WORD "NORTHSTAR" APPEARS, REFERS TO THE ENGINEERING CONSULTANT, NORTHSTAR ENGINEERING & TECHNOLOGIES LTD.	
E 1.1. THE CONTRACT SHALL BE GOVERNED BY THE LAWS OF THE CANADIAN PROVINCE BASED ON THE PROVINCIAL ADDRESS OF THE PROJECT.	
E 1.2. CONTRACTOR TO BE FAMILIAR WITH AND FULLY ABIDE BY ALL CLIENT / SITE SAFETY & CONFIDENTIALITY REQUIREMENTS FOR ACCESSING THE SITE STIPULATED IN THE CLIENT'S SAFETY REGULATIONS, RULES, POLICIES & PROTOCOLS. ALL VISITS TO BE ARRANGED WITH THE LISTED CLIENT REPRESENTATIVE IN WRITING IN ADVANCE OF THE VISIT. ENTRANCE TO THE SITE IS NOT PERMITTED WITHOUT A PRE-ARRANGED APPOINTMENT. CONTRACTOR TO CARBON COPY (CO) THE ENGINEER TO NOTIFY OF AN IMPENDING SITE VISIT IN WRITING.	
E 1.3. CONTRACTOR SHALL COMPLETE ALL REQUIRED TRAINING SUCCESSFULLY IN FULL ACCORDANCE WITH THE CLIENT'S SPECIFIC TRAINING PROGRAM / REQUIREMENTS. WRITTEN PROOF TO BE PROVIDED TO THE ENGINEER PRIOR TO ENTERING THE SITE.	
E 1.4. CONTRACTOR TO BE FAMILIAR WITH AND FULLY ABIDE BY ALL PROVINCIAL AND CLIENT / SITE SAFETY PPE REQUIREMENTS WHILE AT THE CLIENT'S SITE.	
E 1.5. CONTRACTOR TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH ALL OF THE REQUIREMENTS OF THIS PROJECT PRIOR TO THE TENDER PHASE TO REVIEW THE EXISTING CONDITIONS AND THE RELATIONSHIP TO THE NEWLY PROPOSED DESIGN. PARTICULAR ATTENTION TO BE PAID TO MODIFICATIONS TO EXISTING SERVICES (IF APPLICABLE).	
E 1.6. CONTRACTOR TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH ALL OF THE REQUIREMENTS OF THIS PROJECT.	
E 1.7. THE SPECIFICATIONS TEXT LISTED IN THE TENDER DOCUMENTS SHALL HAVE PRIORITY OVER THE DRAWINGS AND PLANS. THIS MAY IN "SHEET" FORMAT OR "BOOK" FORMAT.	
E 1.8. SHOULD THERE BE A CONFLICT OR INCONSISTENCY WITHIN THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN A TIMELY MANNER WITHIN THE TENDER PERIOD.	
E 1.9. THE DESIGN DRAWINGS PROVIDED BY NORTHSTAR ARE GENERAL LAYOUTS ONLY. THE CONTRACTOR SHALL PROVIDE A COMPLETE, WORKING INSTALLATION BASED ON THE GENERAL LAYOUTS PROVIDED BY NORTHSTAR. SHOULD COORDINATION OF THE ACTUAL INSTALLATION REQUIRE ADDITIONAL CONDUIT, MATERIAL, FITTINGS THAT SHOWN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF PROCUREMENT AND INSTALLATION. EXTRAS FOR OFFSETS AND ROUTING CHANGES WILL NOT BE APPROVED.	
E 1.10. EVERY EFFORT HAS BEEN MADE BY NORTHSTAR TO PROVIDE A WORKABLE CONCEPT FOR THIS PROJECT. THE CONTRACTOR IS REQUESTED TO REVIEW THE VIABILITY OF THE DESIGN CONCEPT AND LIST ANY CONCERN OR OBSTACLES TO THE SUCCESS OF THE PROPOSED PLAN BEFORE ORDERING OF MATERIALS OR PLANNING IS BEGUN.	
E 1.11. THERE MAY BE ADDITIONAL SCOPES OF WORK THAT THE OWNER MAY REQUIRE RELATED TO OUR CONSTRUCTION DOCUMENTS CONTAINED IN THE TENDER. THE CONTRACTOR IS ENCOURAGED TO CONTACT TO CONTACT THE OWNER OR OWNER'S REPRESENTATIVE TO ENQUIRE ABOUT ADDITIONAL WORK RELATED TO NOT CONTAINED IN THIS TENDER.	
E 1.12. CONTRACTOR TO PROVIDE THE PRICE FOR THE WORK WITH REASONABLE DETAILED CONSIDERATION OF ALL OF THE CONSTRUCTION DOCUMENTS PROVIDED BY ALL CONSULTANTS ON THIS PROJECT. THIS INCLUDES CIVIL, SITE SERVICING, PLANNING, ARCHITECTURAL, STRUCTURAL, MECHANICAL & ALL ASSOCIATED CONTROLS CONTRACTORS.	
E 1.13. CONTRACTOR TO INCLUDE COORDINATING, SUPPLYING AND INSTALLING NECESSARY ELECTRICAL CONTROLS CONDUITS TO SERVICE MECHANICAL EQUIPMENT FOR LOW-VOLTAGE (UNDER 30VAC) FOR ALL REQUIRED MECHANICAL CONTROLS.	
E 1.14. NORTHSTAR WILL NOT PROVIDE VERBAL OR WRITTEN PERMISSION TO DEVIATE FROM THE CONTRACT DOCUMENTS DURING THE TENDER PERIOD UNLESS THROUGH A FORMAL ADDENDUM ISSUED BY NORTHSTAR AND/OR THE PRIME CONSULTANT.	
E 1.15. CONTRACTOR TO FULLY REVIEW AND CONSIDER LISTED AND SPECIFIED TECHNICAL REPORTS PRIOR TO SUBMITTING THEIR BID.	
E 1.16. IT SHALL BE ASSUMED THAT ANY FINAL BID SUBMITTED ON OR BEFORE THE OFFICIAL TENDER DATE SHALL BE DEEMED TO CONTAIN AND INCLUDE COSTING FOR ALL OFFICIAL CHANGES AND ADDENDUMS ISSUED BY NORTHSTAR AND/OR THE CONSULTANT TEAM.	
E 1.17. NORTHSTAR RESERVES THE RIGHT TO APPROVE AND/OR DENY ANY CONTRACTOR SELECTED EQUIPMENT / MATERIALS / METHODS - INCLUDING SHOP DRAWINGS THAT DEVIATE FROM THE DESIGN PRESENTED.	
E 1.18. CONTRACTOR SHALL FULLY DISCLOSE IN THEIR BID A LIST OF SUB-CONTRACTORS CARRIED AND PLANNED TO BE EMPLOYED FOR THIS PROJECT BY THE CONTRACTOR.	
E 1.19. CONTRACTOR SHALL IDENTIFY LONG-LEAD ITEMS IN THEIR BID SUBMISSION.	
E 1.20. CONTRACTOR MAY IDENTIFY AN ALTERNATE SOLUTION FROM THE CONTRACT DOCUMENTS FOR NORTHSTAR'S REVIEW - AS AN OPTIONAL PRICE.	
E 1.21. CONTRACTOR SHALL BE RESPONSIBLE FOR PRICING ALL MATERIALS CONTAINED WITHIN THE CONTRACT DOCUMENTS. FAILURE OF THE CONTRACTOR TO ORDER AND PROCURE THE SPECIFIED OR APPROVED ALTERNATE MATERIALS TO MEET THE PROJECT SCHEDULE IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.	
E 1.22. EVERY EFFORT HAS BEEN MADE BY NORTHSTAR TO PROVIDE A WORKABLE CONCEPT FOR THIS PROJECT. THE CONTRACTOR IS REQUESTED TO REVIEW THE VIABILITY OF THE DESIGN CONCEPT AND LIST ANY CONCERN OR OBSTACLES TO THE SUCCESS OF THE PROPOSED PLAN ALONG WITH THE TENDER SUBMISSION.	
E 1.23. ANY DEVICES THAT REQUIRE ELECTRICAL POWER OVER 50VAC ARE TO BE WIRED ENERGIZED AND COMMISSIONED BY THE ELECTRICAL CONTRACTOR.	
E 1.24. CONTRACTOR TO OBTAIN PRICING AND CARRY THE COSTS OF ANY REQUIRED (QUALIFIED) COMPANIES TO PERFORM ANY LISTED TESTING AND OR INVESTIGATIONS PRIOR TO CONSTRUCTION. FEES FOR ALL LISTED REPORTS TO BE INCLUDED IN THE TENDER.	
E 1.25. THE ENTIRE INSTALLATION IS TO BE WARRANTED FOR A PERIOD OF NOT LESS THAN 1 YEAR INCLUDING PARTS AND LABOUR. THE WARRANTY PERIOD SHALL COMMENCE AT THE DATE OF SUBSTANTIAL COMPLETION GRANTED BY THE CONSULTANT.	
CONSTRUCTION - PHASE - ELECTRICAL	
E 3.0. THIS CONTRACTOR IS TO SUPPLY AND INSTALL ALL ELECTRICAL COMPONENTS AND COMMISSION ALL SYSTEMS CONTAINED IN THE CONSTRUCTION DOCUMENTATION PROVIDED BY NORTHSTAR SO AS TO PROVIDE TO THE OWNER A COMPLETE, WORKING INSTALLATION THAT FUNCTIONS AS INTENDED BY THE ENGINEERS. THE WORK IS TO BE COMPLETED TO THE SATISFACTION OF THE OWNER AS WELL AS NORTHSTAR.	
E 3.1. ALL INSTALLATION METHODS AND WORK SHALL COMPLY WITH ALL CURRENT APPLICABLE STANDARDS, CODES, BY-LAWS AND REGULATIONS - AS WELL AS THE LATEST EDITION OF THE PROVINCIAL BUILDING CODE.	
E 3.2. THE DESIGN DRAWINGS PROVIDED BY NORTHSTAR ARE "DIAGRAMMATIC" AND GENERAL IN NATURE. LOCATIONS SHOWN ARE APPROXIMATE. ALL DIMENSIONS ARE TO BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE A COMPLETE, WORKING INSTALLATION BASED ON THE GENERAL LAYOUTS PROVIDED BY NORTHSTAR. SHOULD COORDINATION OF THE ACTUAL INSTALLATION REQUIRE ADDITIONAL CONDUIT, MATERIAL, FITTINGS THAT SHOWN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF PROCUREMENT AND INSTALLATION. EXTRAS FOR OFFSETS AND ROUTING CHANGES WILL NOT BE APPROVED.	
E 3.3. CONTRACTOR TO READ THE INSTALLATION MANUAL OF ANY COMPONENT PRIOR TO INSTALLATION. ALL EQUIPMENT AND PURCHASED PRODUCTS USED IN THE INSTALLATION SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH THE RELEVANT MANUFACTURER'S INSTRUCTION INSTALLATION MANUAL FOR THE RESPECTIVE PRODUCT. MFG. WARRANTIES ARE TO BE PRESERVED IN PREPARATION FOR HANDING THE COMPLETED PROJECT OVER TO THE OWNER ONCE SUBSTANTIAL COMPLETION IS DETERMINED BY NORTHSTAR.	
E 3.4. THE CONTRACTOR SHALL REVIEW THE PLANS IN CONJUNCTION WITH THIS PROJECT SPECIFICATION TO PROVIDE A COMPLETED PROJECT. ANY DISCREPANCIES SHALL BE REPORTED TO NORTHSTAR IN WRITING IN A TIMELY MANNER SO AS TO NOT DELAY THE SCHEDULE. THE NORTHSTAR PROJECT SPECIFICATION SHALL TAKE PRECEDENCE OVER THE NORTHSTAR PLANS.	
E 3.5. THE CONTRACTOR SHALL ORGANIZE AND CREATE AGREEMENTS WITH ALL NECESSARY SUB-TRADES REQUIRED TO COMPLETE THE WORK. NORTHSTAR IS NOT RESPONSIBLE FOR "GAPS" OR UNCLEAR CONTRACT REQUIREMENTS BETWEEN THE GENERAL CONTRACTOR, ELECTRICAL CONTRACTOR OR ANY OTHER CONTRACTS RELATED TO THIS PROJECT.	
E 3.6. COPIES OF ALL CONSTRUCTION DOCUMENTS PLANS AND SPECIFICATIONS ISSUED AND STAMPED BY AHJ ARE TO BE PRINTED AND AVAILABLE ON SITE AT ALL TIMES.	
E 3.7. PRIOR TO COMMENCING CONSTRUCTION, A WORKING SECURITY CAMERA MONITORING SYSTEM IS TO BE INSTALLED AND TESTED FOR THE SITE AND STORAGE AND HOARDING AREAS OF THE CONSTRUCTION SITE.	
E 3.8. PRIOR TO MOBILIZING, THE CONTRACTOR IS TO HAVE IN PLACE A SUITABLE INSURANCE POLICY TO COVER THE ACTIVITIES ON THE SITE.	
E 3.9. CONTRACTOR TO HAVE A VALID CLEARANCE CERTIFICATE FOR ALL STAFF AND SUB-TRADES WORKING ON THE SITE AT ALL PHASES OF CONSTRUCTION.	
E 3.10. CONTRACTOR TO POSITIVELY IDENTIFY ALL ITEMS TO BE DEMOLISHED AND VERIFY WITH THE OWNER AND ENGINEER PRIOR TO DEMOLITION.	
E 3.11. PRIOR TO COMMENCING CONSTRUCTION, A WORKING SECURITY CAMERA MONITORING SYSTEM IS TO BE INSTALLED AND TESTED FOR THE SITE AND STORAGE AND HOARDING AREAS OF THE CONSTRUCTION SITE.	
E 3.12. PRIOR TO MOBILIZING, THE CONTRACTOR IS TO HAVE IN PLACE A SUITABLE INSURANCE POLICY TO COVER THE ACTIVITIES ON THE SITE.	
E 3.13. CONTRACTOR TO HAVE A VALID CLEARANCE CERTIFICATE FOR ALL STAFF AND SUB-TRADES WORKING ON THE SITE AT ALL PHASES OF CONSTRUCTION.	
E 3.14. CONTRACTOR TO POSITIVELY IDENTIFY ALL ITEMS TO BE DEMOLISHED AND VERIFY WITH THE OWNER AND ENGINEER PRIOR TO DEMOLITION.	
E 3.15. CONTRACTOR TO NOTIFY OF IMPENDING WORK THAT COULD AFFECT THEIR OPERATIONS WITH SUFFICIENT WARNING TIME (MIN. 48 HOURS). THIS INCLUDES POWER OUTAGES, FIRE ALARM TESTING, SERVICE INTERRUPTIONS OF ANY KIND. THE CONTRACTOR IS TO SIMULTANEOUSLY NOTIFY THE OWNER OR OWNERS' REPRESENTATIVE OF ANY SUCH EVENT IN A TIMELY MANNER WITH ADEQUATE WARNING.	
E 3.16. CONTRACTOR TO NOTIFY IN WRITING ALL AFFECTED OWNERS AND/NOT TENANTS OF IMPENDING WORK THAT COULD AFFECT THEIR OPERATIONS WITH SUFFICIENT WARNING TIME (MIN. 48 HOURS). THIS INCLUDES POWER OUTAGES, FIRE ALARM TESTING, SERVICE INTERRUPTIONS OF ANY KIND. THE CONTRACTOR IS TO SIMULTANEOUSLY NOTIFY THE OWNER OR OWNERS' REPRESENTATIVE OF ANY SUCH EVENT IN A TIMELY MANNER WITH ADEQUATE WARNING.	
E 3.17. CONTRACTOR TO CONTACT, COORDINATE, AND MEET WITH ALL LOCAL SERVICE UTILITY REPRESENTATIVES AS PART OF THE PROJECT ACTIVITIES. ANY INFORMATION PROVIDED TO THE CONTRACTOR IS TO BE SHARED WITH THE PRIME CONSULTANT AS WELL AS NORTHSTAR.	
E 3.18. CONTRACTOR TO RETAIN QUALIFIED COMPANIES TO PERFORM ANY LISTED TESTING AND OR INVESTIGATIONS PRIOR TO CONSTRUCTION. ALL REPORTS TO BE ISSUED TO THE ENGINEER IN A TIMELY MANNER. FEES FOR ALL LISTED REPORTS TO BE INCLUDED IN THE TENDER.	
E 3.19. CONTRACTOR TO PROVIDE COMPANY AND PERSONAL LOCKS AND TAGS ON ALL ELECTRICAL DISTRIBUTION EQUIPMENT REQUIRED TO BE DE-ENERGIZED DURING CONSTRUCTION.	
E 3.20. CONTRACTOR TO INCLUDE THE COST OF DELIVERY OF ALL REQUIRED EQUIPMENT AND MATERIALS TO THE SITE.	
E 3.21. CONTRACTOR TO INCLUDE THE COST OF DELIVERY OF ALL REQUIRED EQUIPMENT AND MATERIALS TO THE SITE.	
E 3.22. CONTRACTOR TO INCLUDE THE COST OF ALL REQUIRED LIFTING AND CRANE OPERATIONS FOR THE PROJECT. THIS INCLUDES ANY SUBSEQUENT LIFTS NECESSARY DUE TO ANY ERROR OR OMISSION MADE BY THE CONTRACTOR DURING THE PROJECT. THIS INCLUDES ALL NECESSARY RIGGING, LIFTING AIDS, SLINGS AND PAYLOADS OF POLICE DEPARTMENTS FOR ROAD SHUTDOWNS.	
E 3.23. CONTRACTOR SHALL RETAIN AND PAY FOR THE SERVICES OF A PROFESSIONAL STRUCTURAL ENGINEER TO DESIGN & COORDINATE ALL REQUIRED STRUCTURAL MOUNTS, BRACKETS, ROOF INSTALLATIONS, STAGING ACTIONS, LIFTS AND SUPPORTS. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT THE KNOWLEDGE AND CONSENT OF THE PROJECT STRUCTURAL ENGINEER OF RECORD.	
E 3.24. CONTRACTOR TO INITIATE DISCUSSIONS WITH THE UTILITY TO ORGANIZE CONSTRUCTION POWER FOR THE SITE.	
E 3.25. PROVIDE SIGNAGE TO THE SITE WITH AN INDICATION OF THE CONTRACTING TEAM.	
E 3.26. ELECTRICAL CONTRACTOR TO WORK CLOSELY WITH GENERAL CONTRACTORS, ARCHITECTS, & ENGINEERS TO PROVIDE SAFE, COMPLIANT & RELIABLE ELECTRICAL SYSTEMS.	
CONSTRUCTION - PHASE - ELECTRICAL	
E 3.27. ALL EQUIPMENT AND FIXTURES ARE TO BE INSTALLED SO AS TO BE EASILY SERVICABLE AND NOT OBSTRUCTED. ADEQUATE SERVICE CLEARANCE AS PER INDUSTRY STANDARDS AND MANUFACTURER'S INSTALLATION MANUALS IS TO BE STRICTLY ADHERED TO FOR ALL INSTALLATION WORK.	
E 3.28. CONTRACTOR TO CONFIRM THE STRUCTURAL INTEGRITY OF THE ROOF OR FLOOR PRIOR TO STAGING AND STOREING EQUIPMENT ON SITE. THIS MAY REQUIRE THE SERVICES OF A PROFESSIONAL STRUCTURAL ENGINEER TO BE RETAINED AT THE EXPENSE OF THE CONTRACTOR. ANY TEMPORARY STAGING THAT IS REQUIRED FOR EQUIPMENT ON THE ROOF SURFACE, OR SITE NECESSARY LOAD SPREADING RAILS TO PREVENT DAMAGE TO THE ROOF STRUCTURE IS TO BE PROVIDED. PROVIDE NECESSARY WEATHER TARPS SECURELY FIXED TO PREVENT WIND/RAIN DAMAGE.	
E 3.29. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS ON THE ROOF. COORDINATE ALL ROOF CONE INSTALLATIONS WITH THE GENERAL CONTRACTOR AND/OR THE ROOFING CONTRACTOR.	
E 3.30. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.31. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.32. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.33. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.34. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.35. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.36. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.37. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.38. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.39. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.40. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.41. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.42. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.43. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.44. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.45. CONTRACTOR TO PROVIDE A WEATHER-PROOF DURABLE SEAL TO ALL SERVICE PENETRATIONS THROUGH ANY EXTERIOR WALL. COORDINATE ALL WALL PENETRATIONS WITH THE DESIGN REQUIREMENTS. COORDINATE ALL CORING WITH THE GENERAL CONTRACTOR. PROVIDE ALL NECESSARY MEASURE TO PREVENT GROUNDWATER FROM ENTERING THE BUILDING THROUGH FOUNDATION PENETRATIONS AND ELECTRICAL CONDUITS.	
E 3.46. THE CONTRACTOR SHALL INCLUDE A DETAILED PROFESSIONAL REPORT OUTLINING THE COORDINATION OF ALL BREAKER AND FAULT LEVELS. A THIRD-PARTY SPECIALIST IS REQUIRED. THE REPORT SHALL INCLUDE A TABLE OF SETTINGS FOR ADJUSTMENT AND ADJUSTING OF ALL BREAKERS IN ACCORDANCE WITH THE APPROVED STUDY. ENERGIZATION OF THE ELECTRICAL SYSTEM SHALL BE CARRIED OUT ONLY AFTER THESE ADJUSTMENTS ARE COMPLETED AND VERIFIED BY THE CONTRACTOR TO NORTHSTAR IN WRITING.	
E 3.47. THE CONTRACTOR SHALL INCLUDE A DETAILED PROFESSIONAL ARC FAULT REPORT. ENERGIZATION OF THE ELECTRICAL SYSTEM SHALL BE CARRIED OUT ONLY AFTER THESE ADJUSTMENTS ARE COMPLETED AND VERIFIED BY THE CONTRACTOR TO NORTHSTAR IN WRITING. ALL PANELS ARE TO BE LABELLED IN ACCORDANCE WITH THE ARC FAULT REPORT.	
E 3.48. CONTRACTOR TO SUPPLY AND INSTALL THE INCOMING ELECTRICAL SERVICE CABLING &	



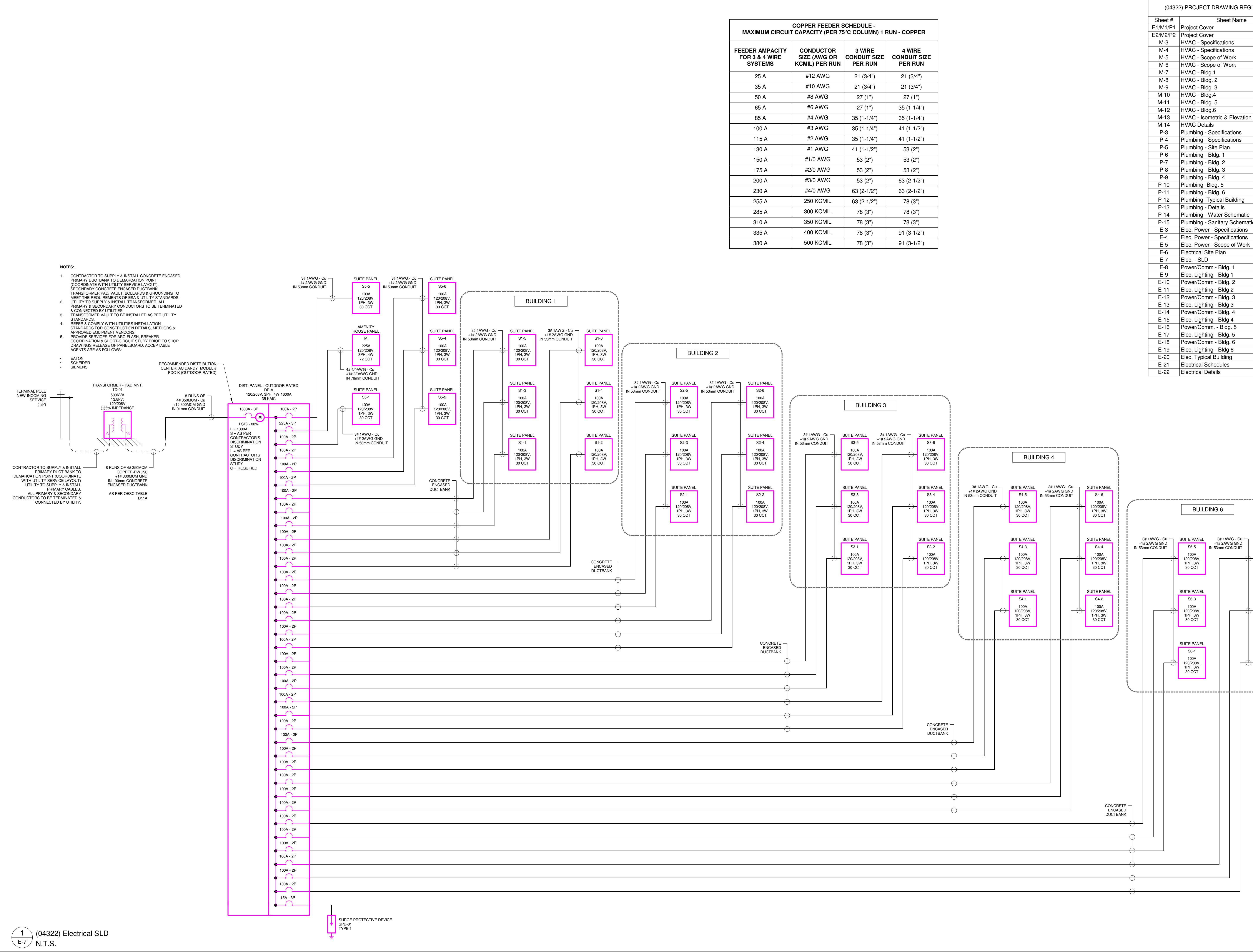
(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Elec. Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Power/Comm - Bldg. 2
E-10	Power/Comm - Bldg. 3
E-11	Power/Comm - Bldg. 4
E-12	Power/Comm - Bldg. 5
E-13	Power/Comm - Bldg. 6
E-14	Power/Comm - Bldg. 7
E-15	Power/Comm - Bldg. 8
E-16	Power/Comm - Bldg. 9
E-17	Power/Comm - Bldg. 10
E-18	Power/Comm - Bldg. 11
E-19	Power/Comm - Bldg. 12
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

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3	Preliminary for Review	Sep. 09/22
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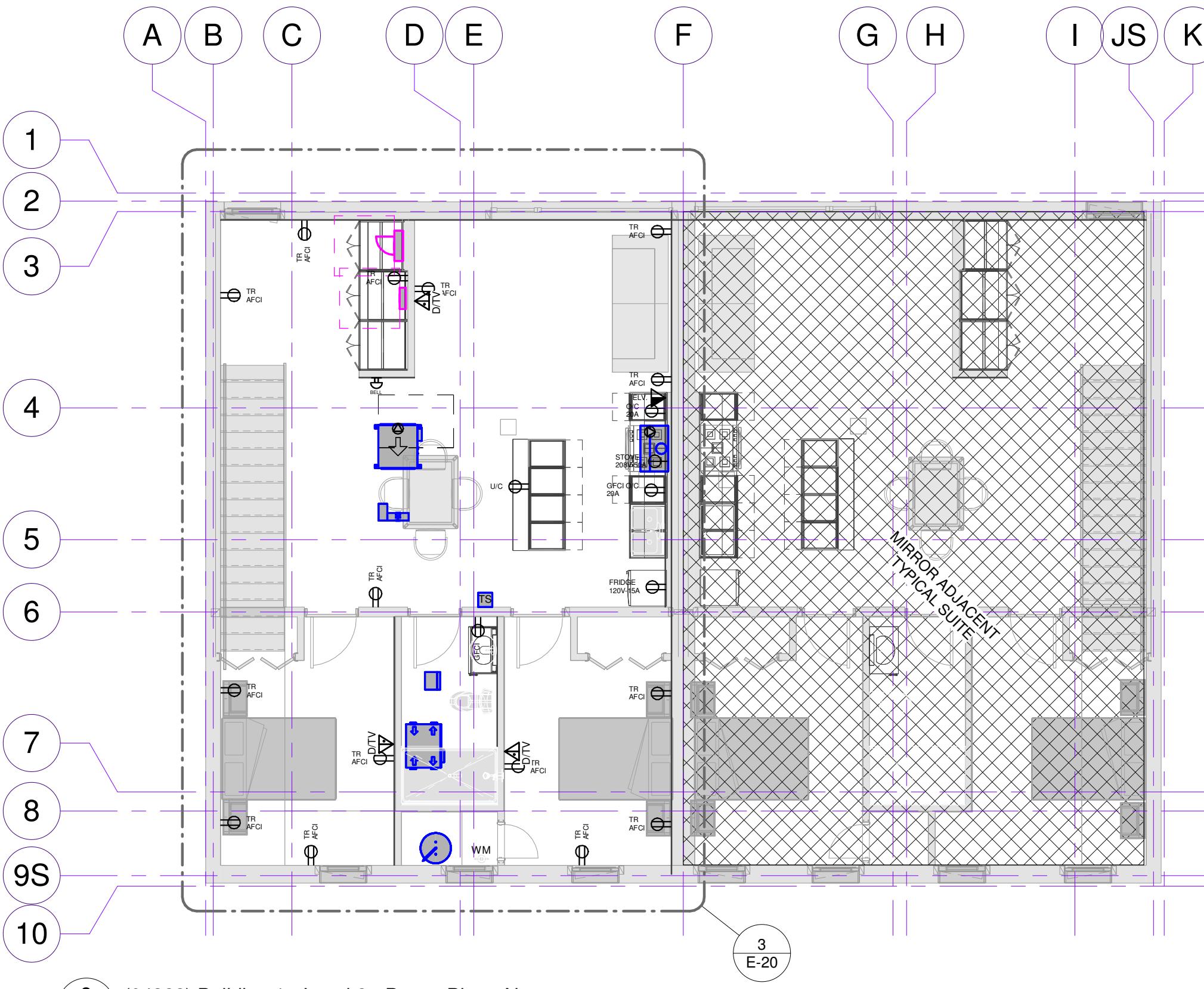
Engineer's Seal:

Client:	WW Inc.		
Address:	Minden, ON		
Project Name:	Gull River Affordable Housing		
Dwg. Name:	Elec. - SLD		
NSET Project #:	04322		
Drawn by:	Northstar Eng.	Checked by:	D.B.D.
Scale:	12' = 1'-0"	Revision #:	6.0
Drawing #:	E-7		
Project Date:	Jan. 14/22	Arch-D:	(24" x 36")

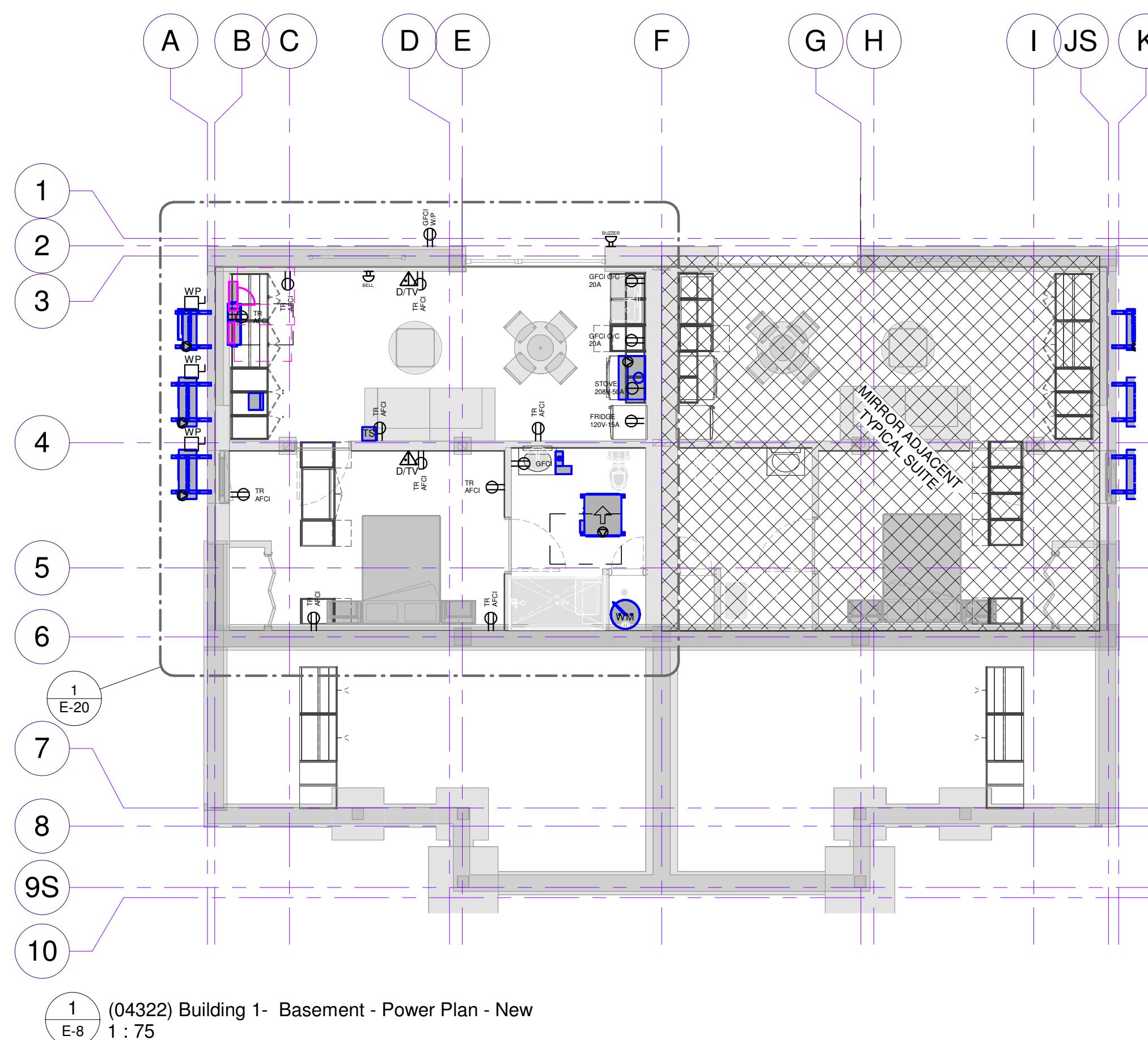


ELECTRICAL LEGEND		LIGHTING LEGEND	
(OFFICES) A - 20,22 @450mm A.F.F.	ELECTRICAL CIRCUIT TAG: <ul style="list-style-type: none">• COMMENT• PANEL NAME• CIRCUIT#• JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - FOR WALL MOUNTED - IN mm		LUMINAIRE - INTERIOR DOWNLIGHT - RECESSED - LED
		LUMINAIRE - INTERIOR DOWNLIGHT - SURFACE MOUNTED - LED	
(OFFICES) FC-1-07 A - 20	MECHANICAL EQUIPMENT CIRCUIT TAG: <ul style="list-style-type: none">• AIR SYSTEM / COMMENT• MECHANICAL EQUIP. MARK / TYPE MARK• PANEL NAME• CIRCUIT #		LUMINAIRE - INTERIOR DOME - SURFACE MOUNTED - LED
		LUMINAIRE - INTERIOR LINEAR - SURFACE MOUNTED - LED	
(OFFICES) PB-1	ELECTRICAL EQUIPMENT TAG: <ul style="list-style-type: none">• COMMENTS• PANEL NAME SEE SLD, SCHEDULES & PLAN VIEWS.		LUMINAIRE - INTERIOR LINEAR - WALL MOUNTED - LED
		LUMINAIRE - INTERIOR LINEAR PENDANT - SUSPENDED - LED	
JB	JUNCTION BOX - WALL MOUNTED		LUMINAIRE - INTERIOR TAPE - SURFACE MOUNTED - LED
JB	JUNCTION BOX - FLOOR MOUNTED	EXTERIOR LIGHTING LEGEND	
JB	JUNCTION BOX - CEILING MOUNTED		LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED
△	DIRECT CONNECTION - SINGLE PHASE		LUMINAIRE - EXTERIOR BOLLARD - LED
▲	DIRECT CONNECTION - THREE PHASE		LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED
□	DISCONNECT		
△□	DIRECT CONNECTION c/w DISCONNECT	EXIT & EMERGENCY LIGHTING LEGEND	
xxx ○	DUPLEX RECEPTACLE (REFER TO SCHEDULES FOR NEMA TYPE & AMPERAGE) x 1 - WALL MOUNTED 'XXX' DENOTES: EX - EXISTING GFCI - GROUND FAULT CIRCUIT INTERRUPTER AFCI - ARC FAULT CIRCUIT INTERRUPTER ISO GD - ISOLATED GROUND O/C - OVER COUNTER U/C - UNDER COUNTER W/P - WEATHER PROOF TR - TAMPER RESISTANT USB - CONTAINS USB PORTS		EXIT SIGN - CEILING MOUNTED <ul style="list-style-type: none">• DIRECTIONAL ARROW• INDICATES NUMBER OF EMERGENCY LIGHTS c/w BATTERY• HATCH INDICATES NUMBER OF SIDES/ FACES
	DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED		EXIT SIGN - WALL MOUNTED <ul style="list-style-type: none">• c/w BATTERY• DIRECTIONAL ARROW• INDICATES NUMBER OF EMERGENCY LIGHTS• HATCH INDICATES NUMBER OF SIDES/ FACES
○	DUPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED		BATTERY UNIT - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
○	DUPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED		BATTERY UNIT c/w 2x EMERGENCY LIGHTS - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
○	DUPLEX RECEPTACLE (120V, STD.) x 1 CAB TIRE c/w STRAIN RELIEF - SUSPENDED MOUNT		EMERGENCY LIGHT - REMOTE DOUBLE HEADS - CEILING MOUNTED
○	QUADPLEX RECEPTACLE (120V, STD.) x 1 - WALL MOUNTED		EMERGENCY LIGHT - REMOTE DOUBLE HEADS - WALL MOUNTED
○	QUADPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED		EMERGENCY LIGHT - REMOTE SINGLE HEAD - CEILING MOUNTED
○	QUADPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED		EMERGENCY LIGHT - REMOTE SINGLE HEAD - WALL MOUNTED
xxx ○	SINGLE RECEPTACLE x 1 (WALL MOUNTED) 'XXX' DENOTES: OUTLET PURPOSE VOLTAGE AMPERAGE SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)	LIGHTING CONTROLS LEGEND	
	HANDICAP PUSH BUTTON - WALL MOUNTED		LIGHTING CIRCUIT TAG: <ul style="list-style-type: none">• SWITCH GROUP• FIXTURE TYPE• PANEL NAME• CIRCUIT #• JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - WALL MOUNTED - IN mm
○	LOCK PUSH BUTTON - WALL MOUNTED		TYP. LIGHT INDICATES "NIGHT LIGHT" TO REMAIN ACTIVE AT ALL TIMES
○	EMERGENCY CALL PUSH BUTTON - WALL MOUNTED		SWITCH TAG (#1 SWITCH GROUP - LIGHTS ASSOCIATED WILL ACTIVATE ON THIS SWITCH)
○	DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED		EXTRA LOW VOLTAGE WIRE (ELV) <30V
TS	THERMOSTAT - SUPPLIED & INSTALLED BY DIV. 23 WIRE > 30V - CONNECTION BY DIV. 26 WIRE ≤ 30V - CONNECTION BY DIV. 23		LOW VOLTAGE SWITCH WIRE ≥30 TO 750V
COMMUNICATIONS LEGEND			LINE VOLTAGE SWITCH - SINGLE POLE
▽	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - WALL MOUNTED		LINE VOLTAGE SWITCH - 3 WAY
▽	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED		LINE VOLTAGE SWITCH - DIMMER
▽	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - FLOOR MOUNTED		LINE VOLTAGE SWITCH - SINGLE POLE - TO FAN
▽	DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED		LINE VOLTAGE SWITCH - OCCUPANCY SENSOR
WAP	WIRELESS ACCESS POINT DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED		LINE VOLTAGE OCCUPANCY SENSOR & TIMER - CEILING MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED		PHOTOCELL
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED		ASTRONOMIC TIME SWITCH
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED		CEILING MOUNT SD: SMOKE DETECTOR - PHOTOELECTRIC SD-D: DUCT TYPE PHOTOELECTRIC SMOKE DETECTOR SD-B: BEAM TYPE SMOKE DETECTOR SB: SMOKE DETECTOR c/w LOCAL SOUNDERBASE SA: SMOKE ALARM SA/CO: COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR C: CONVENTIONAL BLANK: ADDRESSABLE WG: C/W WIRE GUARD
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED		
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED		WEATHER PROOF - OUTDOOR RATED
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED		

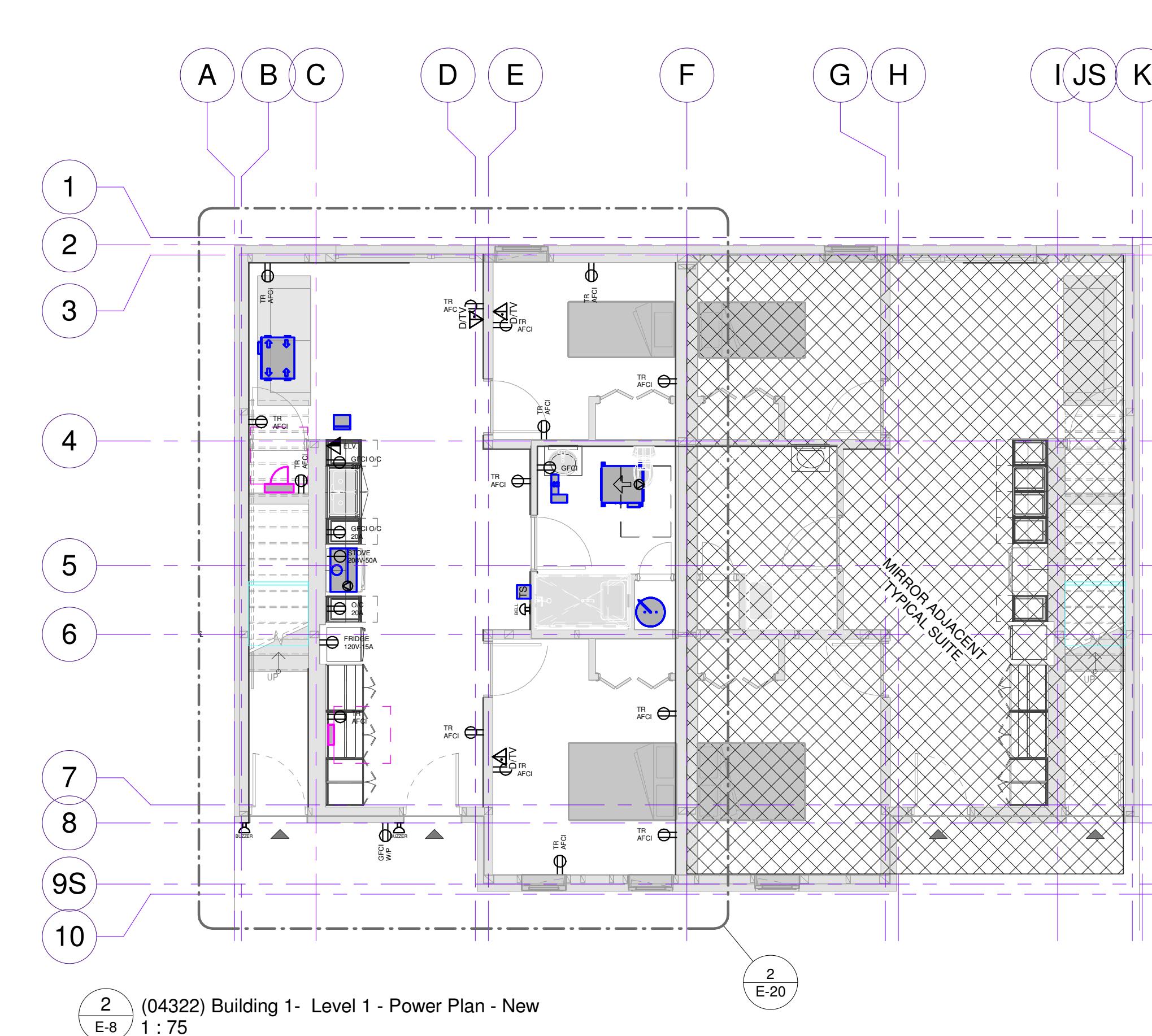
(04322) Data Device Schedule - Typical Suite Only						
Level	Rm. #	Description			Pin Config.	Qty.
FFE Lower Level	106	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED				1
FFE Lower Level	108	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED				1
						2
FFE Ground Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED				1
FFE Ground Floor	112	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED				1
FFE Ground Floor	113	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED				1
FFE Ground Floor	114	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED				1
						4
2 - Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED				1
2 - Floor	224	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED				1
2 - Floor	225	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED				1
2 - Floor	228	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED				1
						4
Grand total						10
NOTES: DATA DEVICE SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DATA DEVICES REQUIRED TOTAL NUMBER OF SUITES: 35						
(04322) Electrical Receptacle Schedule - Typical Suite Only						
Level	Rm. #	Qty.	Description			
FFE Lower Level		1	ELECTRIC DOOR BUZZER			ELECT BUZZER
FFE Lower Level		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE			NEMA 4
FFE Lower Level	106	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT			NEMA 4
FFE Lower Level	107	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI			NEMA 4
FFE Lower Level	108	1	ELECTRIC DOOR BELL			ELECT BELL
FFE Lower Level	108	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT			NEMA 4
FFE Lower Level	108	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE			NEMA 4
FFE Lower Level	108	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE			NEMA 4
FFE Lower Level	108	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER			NEMA 4
		18				
FFE Ground Floor		2	ELECTRIC DOOR BUZZER			ELECT BUZZER
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE			NEMA 4
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT			NEMA 4
FFE Ground Floor	112	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT			NEMA 4
FFE Ground Floor	113	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT			NEMA 4
FFE Ground Floor	114	1	ELECTRIC DOOR BELL			ELECT BELL
FFE Ground Floor	114	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT			NEMA 4
FFE Ground Floor	114	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE			NEMA 4
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE			NEMA 4
FFE Ground Floor	114	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER			NEMA 4
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER			NEMA 4
FFE Ground Floor	115	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI			NEMA 4
FFE Ground Floor	116	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT			NEMA 4
		25				
2 - Floor		1	ELECTRIC DOOR BELL			ELECT BELL
2 - Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT			NEMA 4
2 - Floor	223	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT			NEMA 4
2 - Floor	224	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT			NEMA 4
2 - Floor	224	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE			NEMA 4
2 - Floor	224	1	RECEPTACLE / DUPLEX / UNDER COUNTER MNT. / 120V / 15A			NEMA 4
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE			NEMA 4
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER			NEMA 4
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER			NEMA 4
2 - Floor	225	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT			NEMA 4
2 - Floor	226	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT			NEMA 4
2 - Floor	227	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI			NEMA 4
2 - Floor	228	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT			NEMA 4



(04322) Building 1- Level 2 - Power Plan - New
1 : 75



(04322) Building 1- Basement - Power Plan - Ne
1 : 75



(04322) Building 1- Level 1 - Power Plan - N
1 : 75

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
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E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
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E-22	Electrical Details



NORTHSTAR
ENGINEERING & TECHNOLOGIES LTD.

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Barrie, Ontario L4N 9J2
Tel. (705) 719-1003 Fax (705) 719-0490
dlong@nset.ca www.nset.ca

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DRAWING REVISIONS		
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A circular seal for an engineer. The outer ring contains the text "PROFESSIONAL ENGINEER" at the top and "STATE OF FLORIDA" at the bottom. The inner circle features a stylized signature of "J.D. LONG" over "J.D. LONG". At the bottom of the inner circle is the date "Dec. 20/24".

Client:	WW Inc.
Address:	

Project Name: _____

Gulf River Affordable Housing

Power/Commit - Blug. 1

04322

Drawn by: Northstar Eng.	Checked by: D.B.D.
Scale: As indicated	Revision #: 6.0

Drawing #: F-8

(04322) Lighting Fixture Schedule - Interior - Typical Suite Only

Level	Type	Qty.	Description	Fixture Finish	Color Temperature	Lumens	Voltage	VA	Manufacturer	Part #	Elevation of Light Source	Mounting Comments	Accessory 1	Lamping	Supplied By	Approved Alternate
FFE Lower Level	B	1	LUMINAIRE / INDOOR / VANTY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W DIV. 26	APPROVED EQUAL		
B1 - US Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W DIV. 26	APPROVED EQUAL		
B1 - Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE	LED 8.9W DIV. 26	APPROVED EQUAL		
B1 - Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE	LED 16W DIV. 26	APPROVED EQUAL		
B1 - Ceiling	L2	3	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W DIV. 26	APPROVED EQUAL		
FFE Ground Floor	B	1	LUMINAIRE / INDOOR / VANTY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W DIV. 26	APPROVED EQUAL		
1 - U/S Cabinet	K	4	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W DIV. 26	APPROVED EQUAL		
1 - Finished Ceiling	A1	2	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE	LED 8.9W DIV. 26	APPROVED EQUAL		
1 - Finished Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE	LED 16W DIV. 26	APPROVED EQUAL		
1 - Finished Ceiling	L2	6	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W DIV. 26	APPROVED EQUAL		
2 - Floor	B	1	LUMINAIRE / INDOOR / VANTY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W DIV. 26	APPROVED EQUAL		
2 - Floor	P	4	LUMINAIRE / INDOOR / PENDANT / SUSPENDED / LED DIRECT	WHITE	4000 K	4800 lm	120 V	34 VA	LITHONIA LIGHTING	VCVLED-V4-P2-40K-80CRI-T5W-120-PM-DWHXD	108"	SUSPENDED	LED 34W DIV. 26	APPROVED EQUAL		
2 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W DIV. 26	APPROVED EQUAL		
2 - Finished Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE	LED 8.9W DIV. 26	APPROVED EQUAL		
2 - Finished Ceiling	L2	4	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W DIV. 26	APPROVED EQUAL		
		36														

NOTES:
LIGHTING SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF LIGHTING FIXTURES REQUIRED
TOTAL NUMBER OF SUITES: 35

Level		Type	Description		Circuit #	Qty.
2 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538		4	1
2 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538		4	1
2 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538		4	1
1 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538		7	1
1 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538		7	1
1 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538		7	1
B1 - Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538		4	1
B1 - Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538		4	1

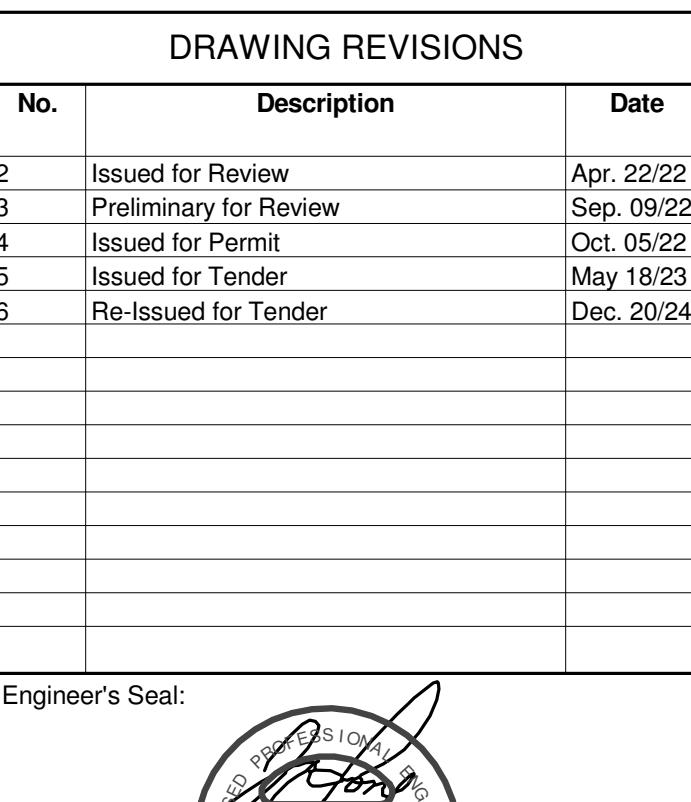
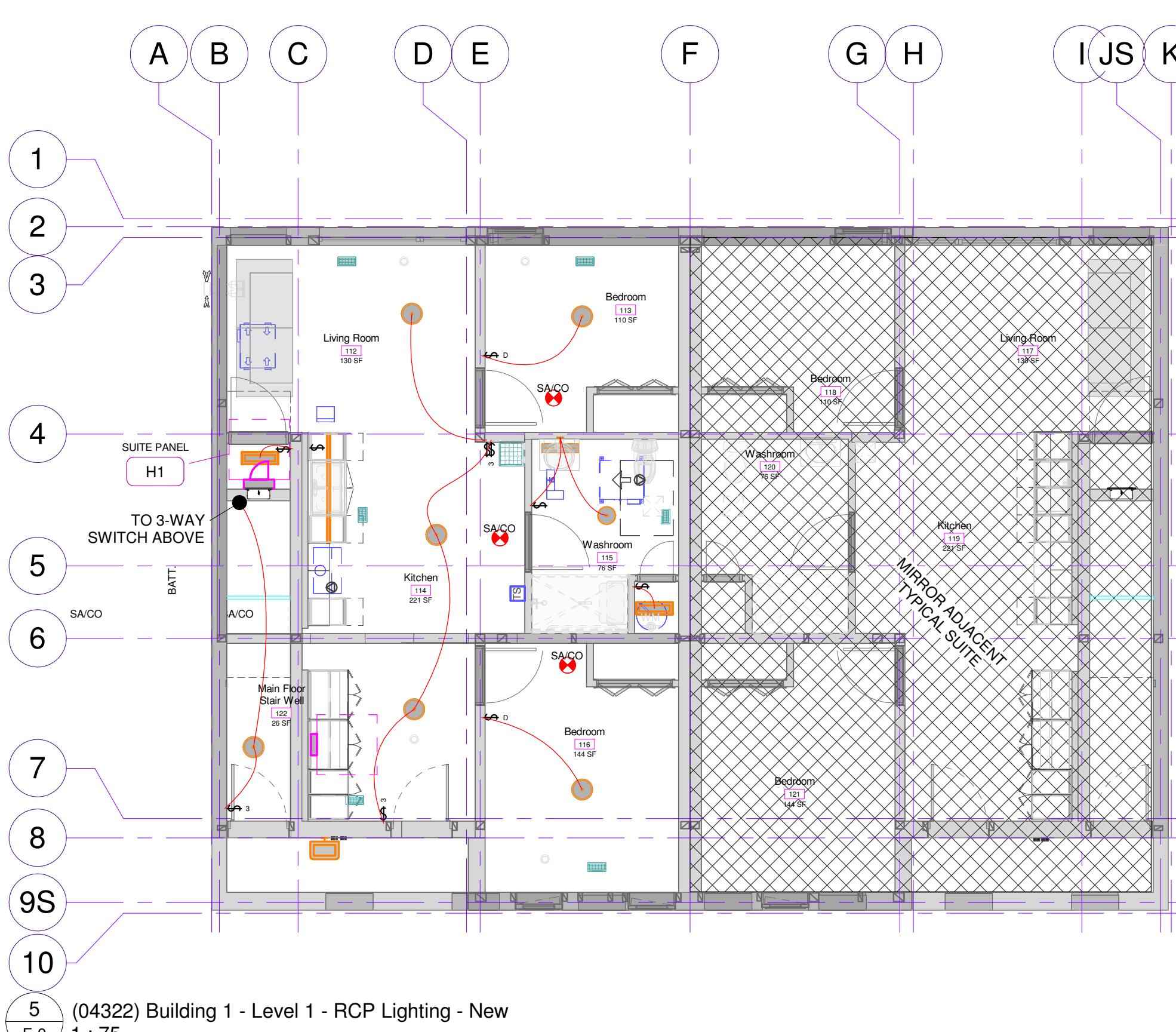
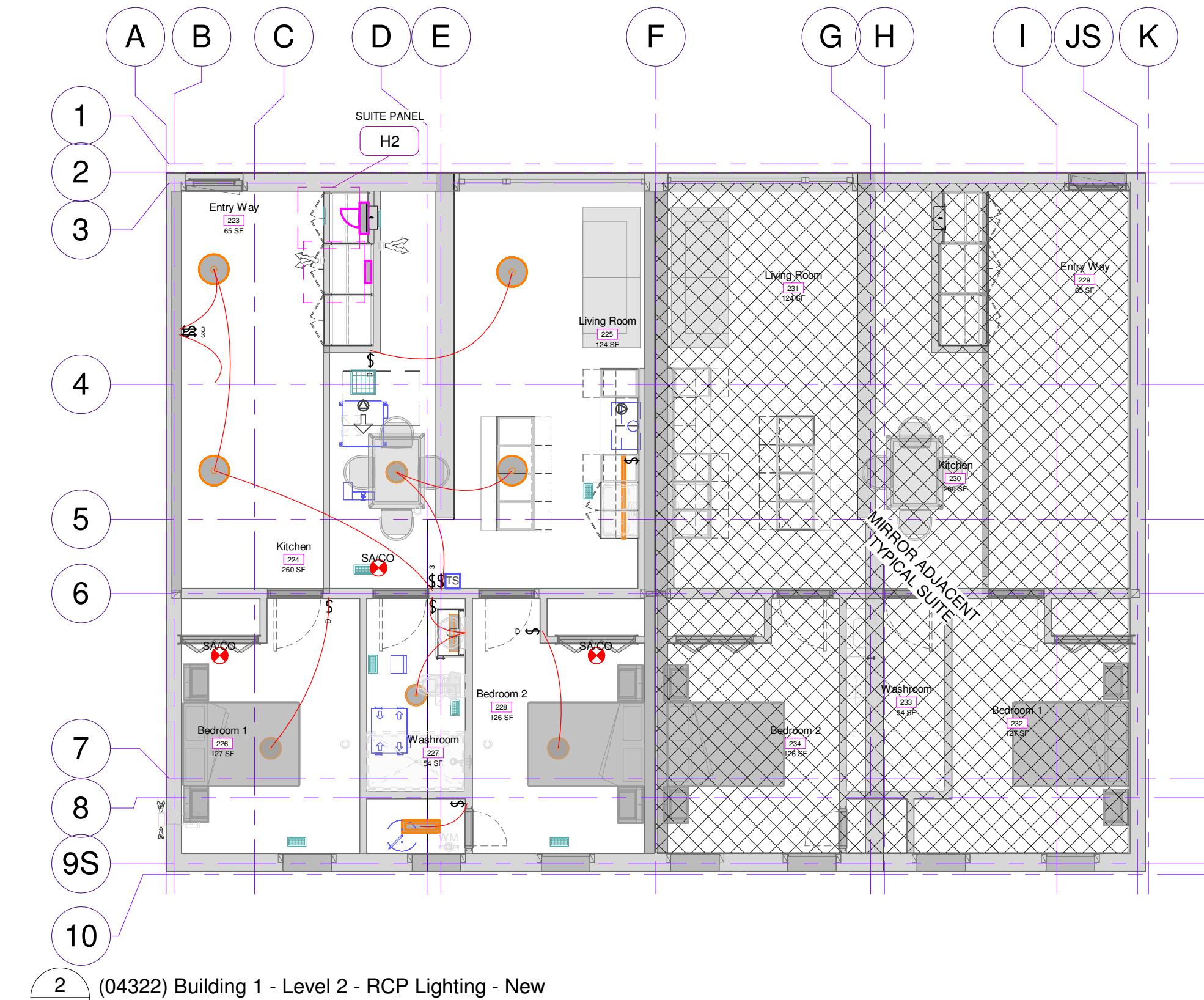
NOTES:
PIPE ALARM SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DEVICES REQUIRED
TOTAL NUMBER OF SUITES: 35

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details



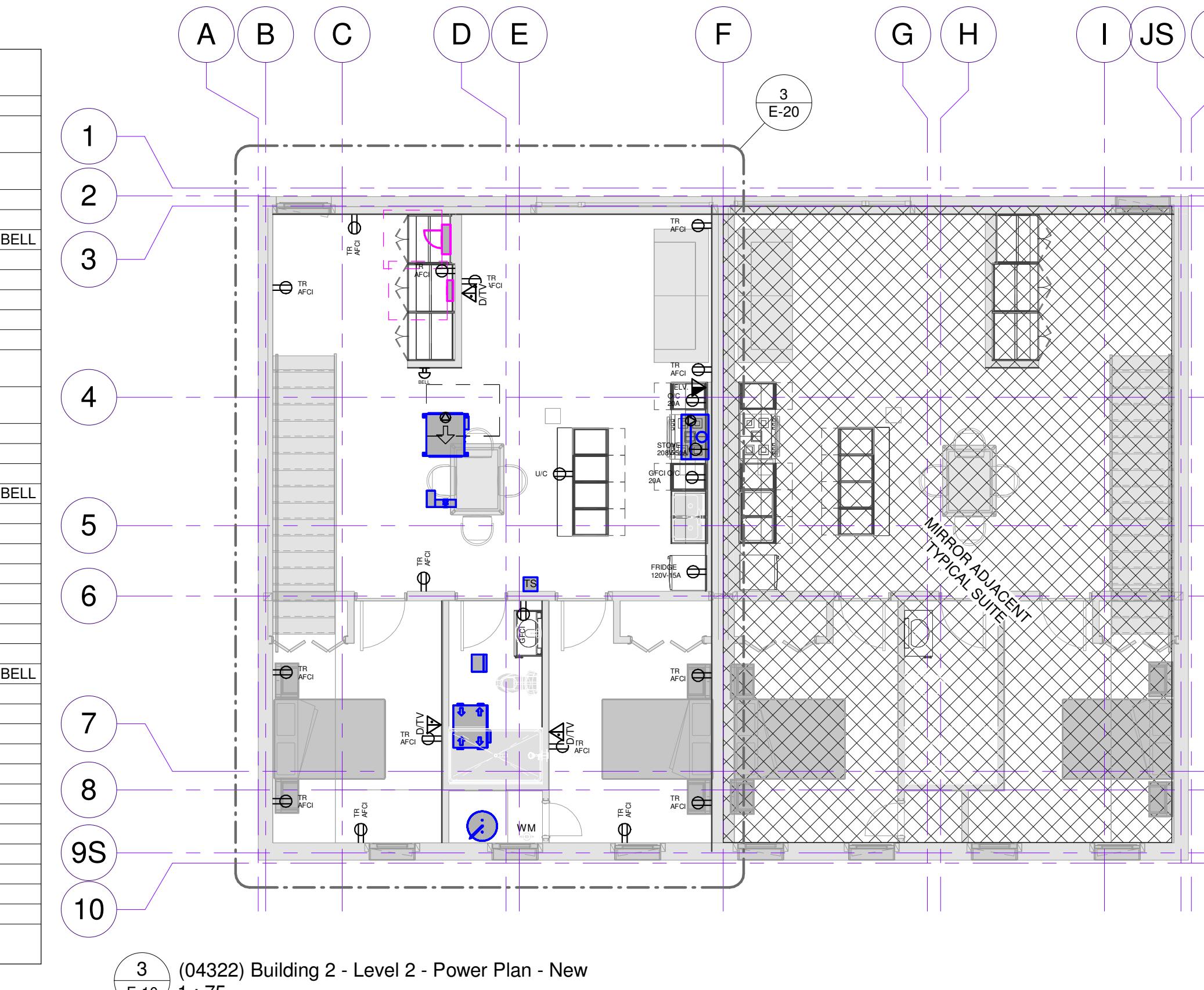
92 Caplan Ave, Suite #517
Barrie, Ontario L4N 9J2
Tel. (705) 719-1003 Fax (705) 719-0490
Elong@nset.ca www.nset.ca



Client: WW Inc.
Address: Minden, ON
Project Name: Gull River Affordable Housing
Dwg. Name: Elec. Lighting - Bldg 1
NSET Project #: 04322
Drawn by: Northstar Eng. Checked by: D.B.D.
Scale: As indicated Revision #: 6.0
Drawing #: E-9
Project Date: Jan. 14/22 Arch-D (24" x 36")

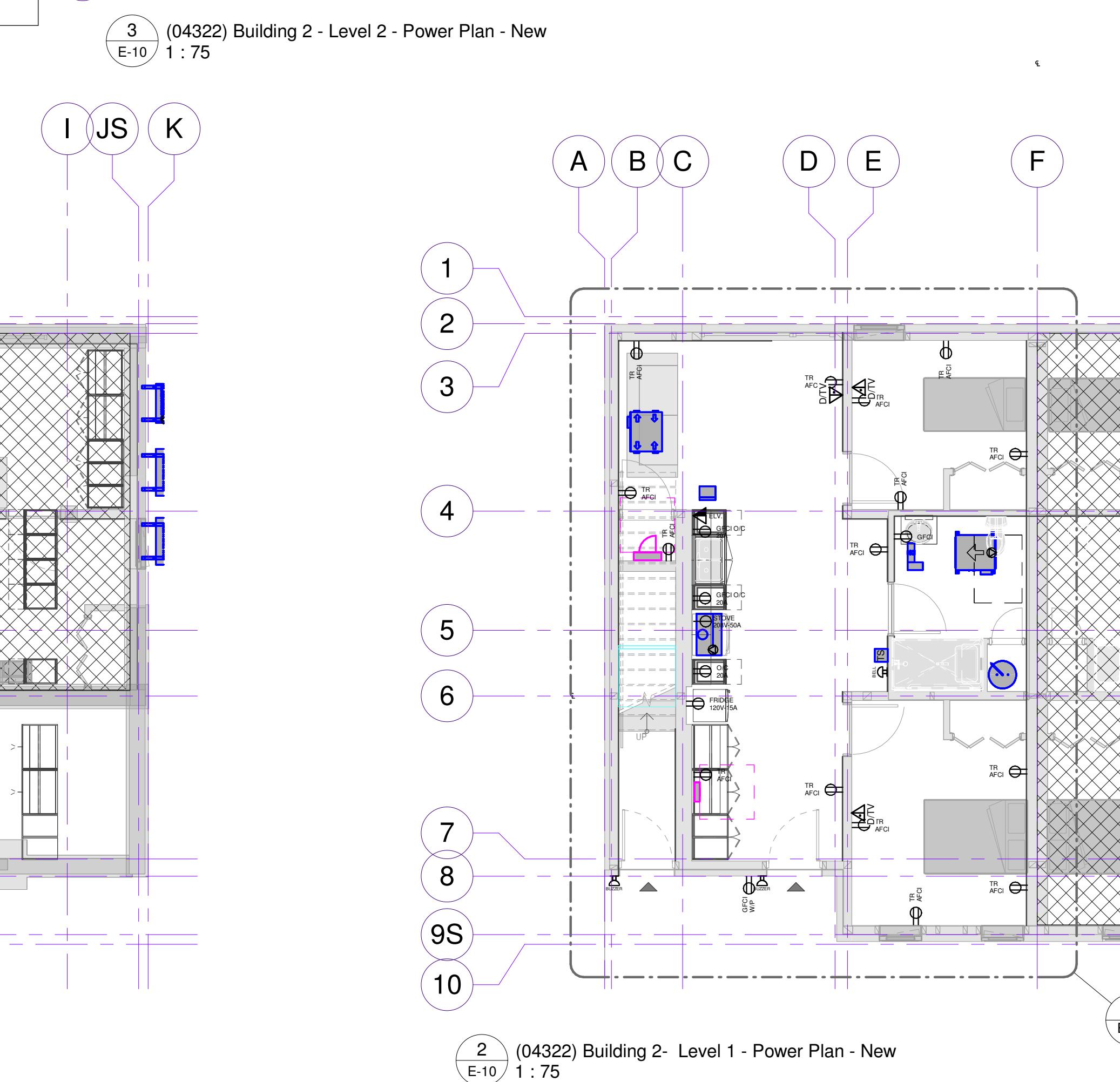
ELECTRICAL LEGEND	
(OFFICES)	ELECTRICAL CIRCUIT TAG: COMMENT: PANEL NAME: CIRCUIT #:
A - 20.22 @450mm A.F.E.	LUMINAIRE - INTERIOR DOWNLIGHT - RECESSED - LED LUMINAIRE - INTERIOR DOWNLIGHT - SURFACE MOUNTED - LED
(OFFICES)	MECHANICAL EQUIPMENT CIRCUIT TAG: AIR SYSTEM / COMMENT: MECHANICAL EQUIP. MARK / TYPE: PANEL NAME: CIRCUIT #
FC-1-07 A - 20	LUMINAIRE - INTERIOR DOME - SURFACE MOUNTED - LED
(OFFICES)	ELECTRICAL EQUIPMENT TAG: COMMENTS: PANEL NAME: SEE SLD. SCHEDULES & PLAN VIEWS.
PB-1	LUMINAIRE - INTERIOR LINEAR - SURFACE MOUNTED - LED LUMINAIRE - INTERIOR LINEAR - WALL MOUNTED - LED LUMINAIRE - INTERIOR LINEAR PENDANT - SUSPENDED - LED
JB	JUNCTION BOX - WALL MOUNTED
JB	JUNCTION BOX - FLOOR MOUNTED
JB	JUNCTION BOX - CEILING MOUNTED
JB	LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED
DIRECT CONNECTION - SINGLE PHASE	LUMINAIRE - EXTERIOR BOLLARD - LED
DIRECT CONNECTION - THREE PHASE	LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED
DISCONNECT	DISCONNECT
DIRECT CONNECTION c/w DISCONNECT	DIRECT CONNECTION c/w DISCONNECT
DUPLEX RECEPTACLE RECEPTACLE SPLIT FOR NEMA TYPE & AMPERAGE) x1 - WALL MOUNTED	DUPLEX RECEPTACLE - DIRECTIONAL ARROW INDICATES NUMBER OF EMERGENCY LIGHTS HATCH INDICATES NUMBER OF SIDES/FACES
XXX DENOTES: EX - EXISTING GFCI - GROUND FAULT CIRCUIT INTERRUPTER AFCI - ARC FAULT CIRCUIT INTERRUPTER OC - OVER CURRENT UC - UNDER COUNTER TR - TAMPER RESISTANT USB - CONTAINS USB PORTS	BATT. c/w BATTERY HATCH INDICATES NUMBER OF SIDES/FACES
DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED	BATTERY UNIT - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
DUPLEX RECEPTACLE (120V, STD.) x1 - FLOOR MOUNTED	BATTERY UNIT c/w EMERGENCY LIGHTS - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
DUPLEX RECEPTACLE (120V, STD.) x1 - CEILING MOUNTED	EMERGENCY LIGHT - REMOTE DOUBLE HEADS - CEILING MOUNTED
DUPLEX RECEPTACLE (120V, STD.) x1 - CAB TIRE c/w STRIKE RELIEF - SUSPENDED MOUNT	EMERGENCY LIGHT - REMOTE DOUBLE HEADS - WALL MOUNTED
QUADPLEX RECEPTACLE (120V, STD.) x1 - WALL MOUNTED	EMERGENCY LIGHT - REMOTE SINGLE HEAD - CEILING MOUNTED
QUADPLEX RECEPTACLE (120V, STD.) x1 - FLOOR MOUNTED	EMERGENCY LIGHT - REMOTE SINGLE HEAD - WALL MOUNTED
QUADPLEX RECEPTACLE (120V, STD.) x1 - CEILING MOUNTED	SINGLE RECEPTACLE x1 (WALL MOUNTED)
XXX DENOTES: OUTLET PURPOSE: VOLTAGE: AMPERE: SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)	LIGHTING CIRCUIT TAG: SWITCH GROUP: PANEL NAME: CIRCUIT #: JB - ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - WALL MOUNTED - IN mm
HANDICAP PUSH BUTTON - WALL MOUNTED	TYP. 1: INDICATES 'NIGHT LIGHT' TO REMAIN ACTIVE AT ALL TIMES
LOCK PUSH BUTTON - WALL MOUNTED	SW# 1: SWITCH TAG: #1 SWITCH GROUP - LIGHTS ASSOCIATED WILL ACTIVATE ON THIS SWITCH
EMERGENCY CALL PUSH BUTTON - WALL MOUNTED	EXTRA LOW VOLTAGE WIRE (ELV) <30V
DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED	LOW VOLTAGE SWITCH WIRE >30V TO 750V
TS THERMOSTAT - SUPPLIED & INSTALLED BY 3RD PARTY - CONNECTION BY DIV. 26 WIRE < 30V - CONNECTION BY DIV. 23	LINE VOLTAGE SWITCH - SINGLE POLE
COMMUNICATIONS LEGEND	LINE VOLTAGE SWITCH - 3 WAY
TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - WALL MOUNTED	LINE VOLTAGE SWITCH - DIMMER
TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED	LINE VOLTAGE SWITCH - SINGLE POLE - TO FAN
TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - FLOOR MOUNTED	LINE VOLTAGE SWITCH - OCCUPANCY SENSOR
DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED	LINE VOLTAGE OCCUPANCY SENSOR & TIMER - CEILING MOUNTED
WAP WIRELESS ACCESS POINT DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED	PHOTOCELL
COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED	ASTRONOMIC TIME SWITCH
COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED	CEILING MOUNT: SD-SMOKE DETECTOR - PHOTOELECTRIC SD-B: PHOTOELECTRIC SMOKE DETECTOR SD-B: BEAM TYPE SMOKE DETECTOR SD-B: SMOKE DETECTOR c/w LOCAL SOUNDER/BELL
D-TV COAX & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED	SA-SMOKE ALARM SA-CO: CARBON MONOXIDE DETECTOR & CARBON MONOXIDE ALARM
D-TV COAX & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED	C: CONVENTIONAL BLANK ADDRESSABLE WG: CW WIRE GUARD
D-TV COAX & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED	WEATHER PROOF - OUTDOOR RATED
NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES	NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

(04322) Data Device Schedule - Typical Suite Only					
Level	Rm. #	Description	Pin Config.	Qty.	
FFE Lower Level	106	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1	
FFE Lower Level	108	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		2	
FFE Ground Floor	112	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1	
FFE Ground Floor	113	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1	
FFE Ground Floor	114	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1	
				4	
2 - Floor	224	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1	
2 - Floor	225	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1	
2 - Floor	228	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1	
				4	
				10	
Grand total					
NOTES: DATA DEVICE SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DATA DEVICES REQUIRED TOTAL NUMBER OF SUITES: 35					



(04322) Building 2 - Level 2 - Power Plan - New
3 E-10 1 : 75

(04322) Electrical Receptacle Schedule - Typical Suite Only					
Level	Rm. #	Qty.	Description	Pin Config.	
FFE Lower Level		1	ELECTRIC DOOR BUZZER	ELECTRIC DOOR BUZZER	
FFE Lower Level		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 5-15R	NEMA 5-15R	
FFE Lower Level	106	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R	
FFE Lower Level	107	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R	
FFE Lower Level	108	1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL	
FFE Lower Level	108	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R	
FFE Lower Level	108	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R	
FFE Lower Level	108	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R	
FFE Lower Level	108	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA 5-20R	
		18			
FFE Ground Floor		2	ELECTRIC DOOR BUZZER	ELECTRIC DOOR BUZZER	
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 5-15R	NEMA 5-15R	
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R	
FFE Ground Floor	112	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R	
FFE Ground Floor	113	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R	
FFE Ground Floor	114	1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL	
FFE Ground Floor	114	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R	
FFE Ground Floor	114	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R	
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R	
FFE Ground Floor	114	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER	NEMA 5-20R	
FFE Ground Floor	115	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R	
FFE Ground Floor	116	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R	
		25			
2 - Floor		1	ELECTRIC DOOR BELL	ELECTRIC DOOR BELL	
2 - Floor	223	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R	
2 - Floor	224	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R	
2 - Floor	224	1	RECEPTACLE - DUPLEX - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA 14-50R	
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA 5-15R	
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER	NEMA 5-20R	
2 - Floor	225	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R	
2 - Floor	226	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R	
2 - Floor	227	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA 5-15R	
2 - Floor	228	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA 5-15R	
		22			
		65			
Grand total					
NOTES: RECEPTACLE SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF RECEPTACLES REQUIRED TOTAL NUMBER OF SUITES: 35					



(04322) Building 2 - Basement - Power Plan - New
1 E-10 1 : 75

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications

(04322) Lighting Fixture Schedule - Interior - Typical Suite Only																
Level	Type	Qty.	Description	Fixture Finish	Color Temperature	Lumens	Voltage	VA	Manufacturer	Part #	Elevation of Light Source	Mounting Comments	Accessory 1	Lamping	Supplied By	Approved Alternate
FFE Lower Level	B	1	LUMINAIRE / INDOOR / VANTY / WALL / 24' LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W DIV. 26	APPROVED EQUAL		
B1 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18' LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W DIV. 26	APPROVED EQUAL		
B1 - Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24' LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLLN L24 120 35K 80 CRI M4		CEILING / SURFACE	LED 8.9W DIV. 26	APPROVED EQUAL		
B1 - Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11' LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE	LED 16W DIV. 26	APPROVED EQUAL		
B1 - Ceiling	L2	3	LUMINAIRE / INDOOR / DOME / SURFACE / 14' LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W DIV. 26	APPROVED EQUAL		
FFE Ground Floor	B	1	LUMINAIRE / INDOOR / VANTY / WALL / 24' LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W DIV. 26	APPROVED EQUAL		
1 - U/S Cabinet	K	4	LUMINAIRE / INDOOR / TAPE / SURFACE / 18' LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W DIV. 26	APPROVED EQUAL		
1 - Finished Ceiling	A1	2	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24' LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLLN L24 120 35K 80 CRI M4		CEILING / SURFACE	LED 8.9W DIV. 26	APPROVED EQUAL		
1 - Finished Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11' LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE	LED 16W DIV. 26	APPROVED EQUAL		
1 - Finished Ceiling	L2	6	LUMINAIRE / INDOOR / DOME / SURFACE / 14' LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W DIV. 26	APPROVED EQUAL		
2 - Floor	B	1	LUMINAIRE / INDOOR / VANTY / WALL / 24' LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W DIV. 26	APPROVED EQUAL		
2 - Floor	P	4	LUMINAIRE / INDOOR / PENDANT / SUSPENDED / LED DIRECT	WHITE	4000 K	4800 lm	120 V	34 VA	LITHONIA LIGHTING	VCVLED-V4-P2-40K-80CRI-T5W-120-PM-DWHXD	108"	SUSPENDED	LED 34W DIV. 26	APPROVED EQUAL		
2 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18' LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W DIV. 26	APPROVED EQUAL		
2 - Finished Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24' LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLLN L24 120 35K 80 CRI M4		CEILING / SURFACE	LED 8.9W DIV. 26	APPROVED EQUAL		
2 - Finished Ceiling	L2	4	LUMINAIRE / INDOOR / DOME / SURFACE / 14' LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W DIV. 26	APPROVED EQUAL		

NOTES:
LIGHTING SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF LIGHTING FIXTURES REQUIRED
TOTAL NUMBER OF SUITES: 35

(MASTER-E) Fire Alarm Device Schedule														
Level	Type	Mark	Description	Circuit #	Qty.									
2 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1									
2 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1									
2 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1									
1 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1									
1 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1									
1 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1									
B1 - Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1									
B1 - Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1									

NOTES:
FIRE ALARM SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DEVICES REQUIRED
TOTAL NUMBER OF SUITES: 35

(04322) PROJECT DRAWING REGISTER

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

NORTHSTAR
ENGINEERING & TECHNOLOGIES LTD.

92 Caplan Ave, Suite #517
Barrie, Ontario L4N 9J2
Tel. (705) 719-1003 Fax (705) 719-0490
Elong@nset.ca www.nset.ca

GENERAL DRAWING / DESIGNER NOTES:

- [1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE REQUIREMENTS OF THE PROVINCE OF ONTARIO'S BUILDING CODE, LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
- [2] THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION COSTS ARRIVING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND CONTRACTOR.
- [3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. DETAILS ARE PROVIDED BY THE CONTRACTOR. DO NOT SCALE DRAWINGS.
- [4] CONTRACTOR/AGENT OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.
- [5] PROCEDURE FOR CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".
- [6] THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.
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- [8] SHOP DRAWINGS: BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW AND APPROVE DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM THE CONTRACTUAL OBLIGATION TO PROVIDE WORKING SYSTEMS. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS, ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).
- [9] REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.
- [10] SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.
- [11] MINIMUM FORTY EIGHT (48) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.
- [12] REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR THE PURPOSE OF REVIEW AND APPROVAL BY A CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
- [13] TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.
- [14] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Client:

WW Inc.

Address:

Minden, ON

Project Name:

Gull River Affordable Housing

Dwg. Name:

Elec. Lighting - Bldg 2

NSET Project #:

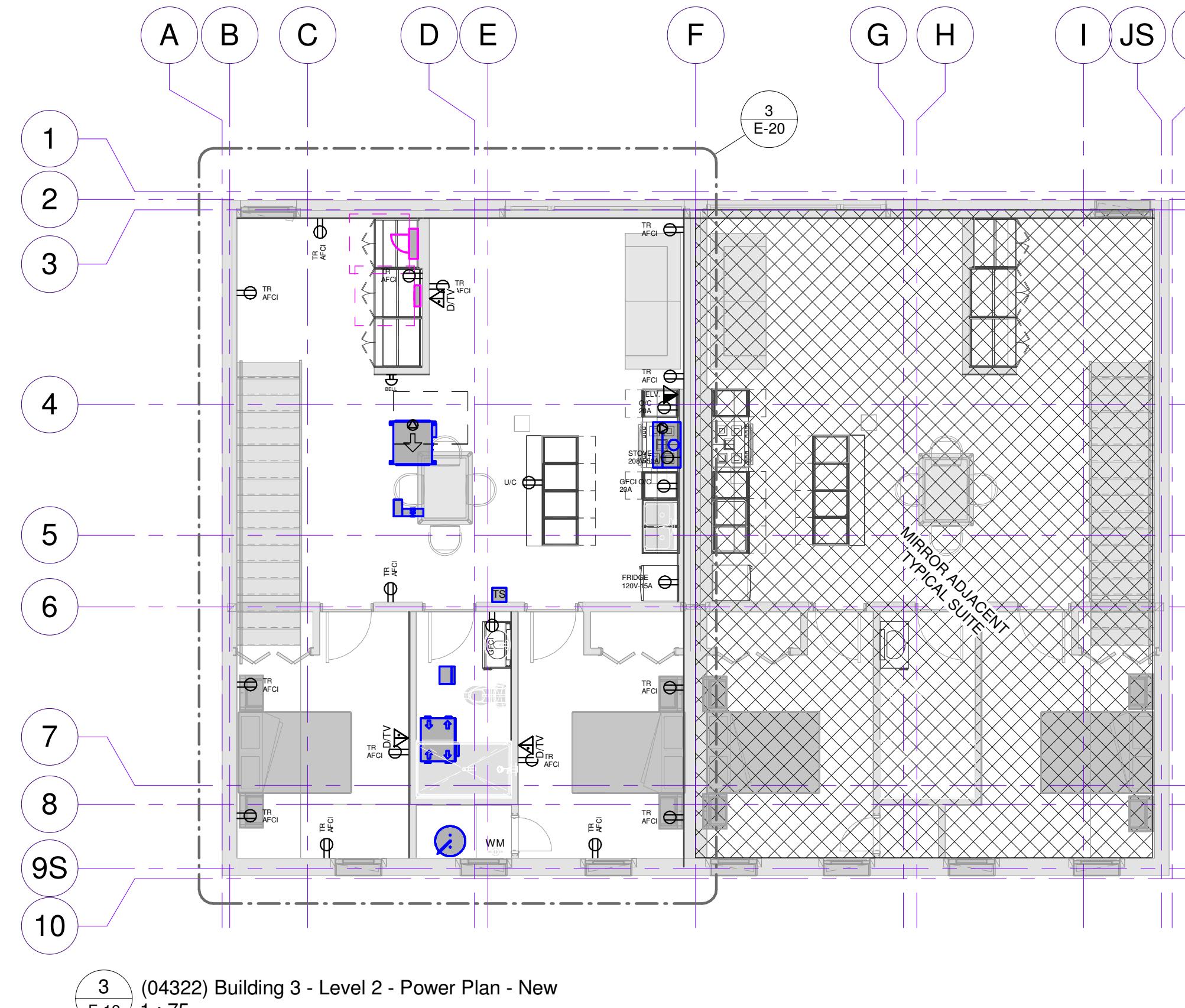
04322

Drawn by: Northstar Eng. Checked by: D.B.D.

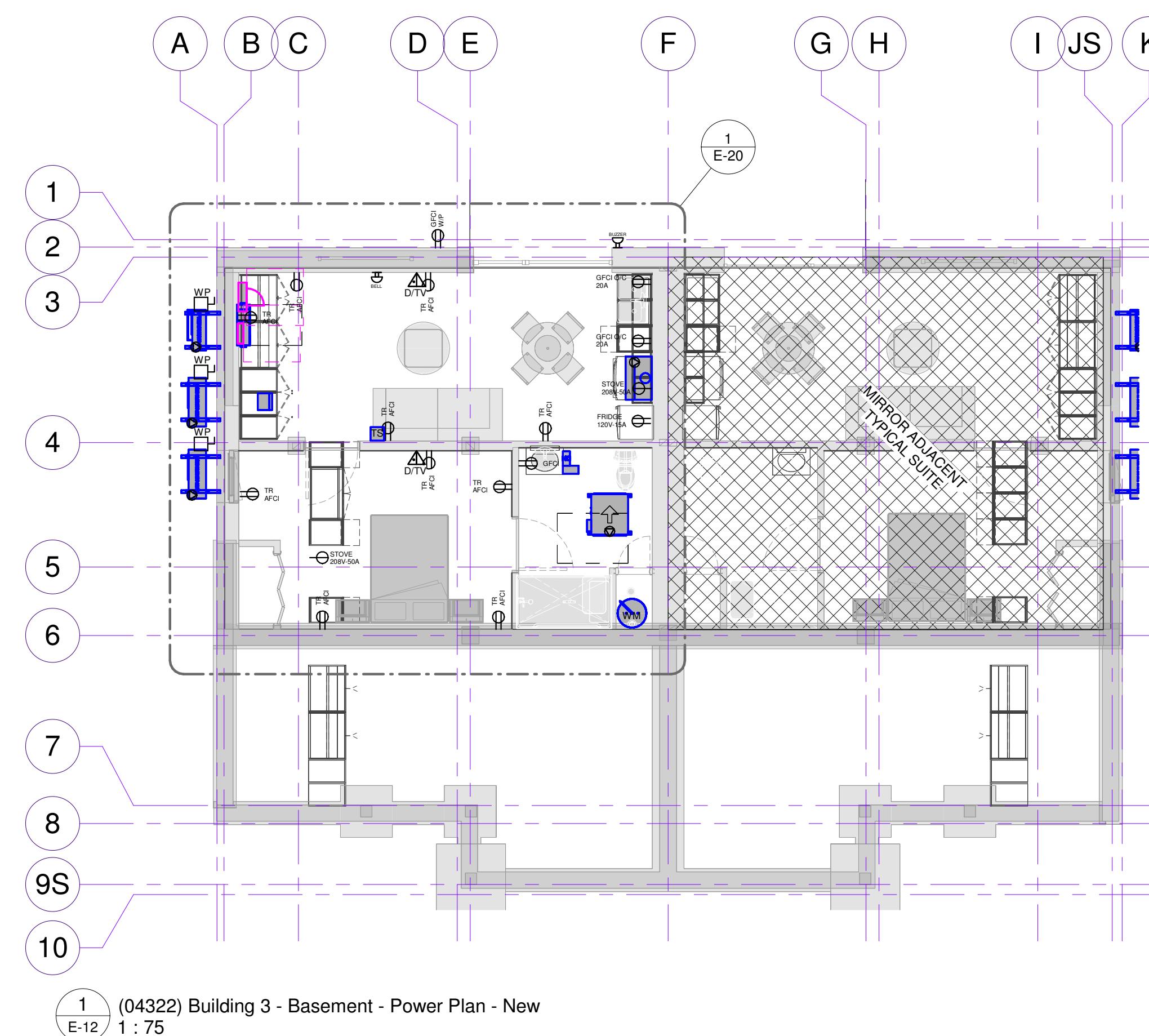
Scale: As indicated Revision #: 6.0

ELECTRICAL LEGEND		LIGHTING LEGEND	
(OFFICES) A - 20,22 @450mm A.F.F.	ELECTRICAL CIRCUIT TAG: • COMMENT • PANEL NAME • CIRCUIT# • JB ROUGH IN HEIGHT (CENTER LINE OF BOX) • ABOVE FINISHED FLOOR - FOR WALL MOUNTED - IN mm		LUMINAIRE - INTERIOR DOWNLIGHT - RECESSED - LED
		LUMINAIRE - INTERIOR DOWNLIGHT - SURFACE MOUNTED - LED	
(OFFICES) FC-1-07 A - 20	MECHANICAL EQUIPMENT CIRCUIT TAG: • AIR SYSTEM / COMMENT • MECHANICAL EQUIP. MARK / TYPE MARK • PANEL NAME • CIRCUIT #		LUMINAIRE - INTERIOR DOME - SURFACE MOUNTED - LED
		LUMINAIRE - INTERIOR LINEAR - SURFACE MOUNTED - LED	
(OFFICES) PB-1	ELECTRICAL EQUIPMENT TAG: • COMMENTS • PANEL NAME SEE SLD, SCHEDULES & PLAN VIEWS.		LUMINAIRE - INTERIOR LINEAR - WALL MOUNTED - LED
		LUMINAIRE - INTERIOR LINEAR PENDANT - SUSPENDED - LED	
JB	JUNCTION BOX - WALL MOUNTED		LUMINAIRE - INTERIOR TAPE - SURFACE MOUNTED - LED
JB	JUNCTION BOX - FLOOR MOUNTED	EXTERIOR LIGHTING LEGEND	
JB	JUNCTION BOX - CEILING MOUNTED		LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED
△	DIRECT CONNECTION - SINGLE PHASE		LUMINAIRE - EXTERIOR BOLLARD - LED
▲	DIRECT CONNECTION - THREE PHASE		LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED
□	DISCONNECT		
△□	DIRECT CONNECTION c/w DISCONNECT	EXIT & EMERGENCY LIGHTING LEGEND	
xxx ○	DUPLEX RECEPTACLE (REFER TO SCHEDULES FOR NEMA TYPE & AMPERAGE) x 1 - WALL MOUNTED 'XXX' DENOTES: EX - EXISTING GFCI - GROUND FAULT CIRCUIT INTERRUPTER AFCI - ARC FAULT CIRCUIT INTERRUPTER ISO GD - ISOLATED GROUND O/C - OVER COUNTER U/C - UNDER COUNTER W/P - WEATHER PROOF TR - TAMPER RESISTANT USB - CONTAINS USB PORTS		EXIT SIGN - CEILING MOUNTED • DIRECTIONAL ARROW • INDICATES NUMBER OF EMERGENCY LIGHTS c/w BATTERY • HATCH INDICATES NUMBER OF SIDES/ FACES
	DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED		EXIT SIGN - WALL MOUNTED c/w BATTERY • DIRECTIONAL ARROW • INDICATES NUMBER OF EMERGENCY LIGHTS • HATCH INDICATES NUMBER OF SIDES/ FACES
	DUPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED		BATTERY UNIT - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED		BATTERY UNIT c/w 2x EMERGENCY LIGHTS - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
	DUPLEX RECEPTACLE (120V, STD.) x 1 CAB TIRE c/w STRAIN RELIEF - SUSPENDED MOUNT		EMERGENCY LIGHT - REMOTE DOUBLE HEADS - CEILING MOUNTED
	QUADPLEX RECEPTACLE (120V , STD.) x 1 - WALL MOUNTED		EMERGENCY LIGHT - REMOTE SINGLE HEAD - WALL MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED		EMERGENCY LIGHT - REMOTE SINGLE HEAD - CEILING MOUNTED
	QUADPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED		EMERGENCY LIGHT - REMOTE SINGLE HEAD - WALL MOUNTED
	SINGLE RECEPTACLE x 1 (WALL MOUNTED)	LIGHTING CONTROLS LEGEND	
xxx ○	'XXX' DENOTES: OUTLET PURPOSE VOLTAGE AMPERAGE SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)		LIGHTING CIRCUIT TAG: • SWITCH GROUP • FIXTURE TYPE • PANEL NAME • CIRCUIT # • JB ROUGH IN HEIGHT (CENTER LINE OF BOX) • ABOVE FINISHED FLOOR - WALL MOUNTED - IN mm @ 2100 mm AFF
	HANDICAP PUSH BUTTON - WALL MOUNTED		SW# 1 'A' B-30 @ 2100 mm AFF TYP. LIGHT INDICATES "NIGHT LIGHT" TO REMAIN ACTIVE AT ALL TIMES
○	LOCK PUSH BUTTON - WALL MOUNTED		SW# 1 SWITCH TAG (#1 SWITCH GROUP - LIGHTS ASSOCIATED WILL ACTIVATE ON THIS SWITCH)
○	EMERGENCY CALL PUSH BUTTON - WALL MOUNTED		EXTRA LOW VOLTAGE WIRE (ELV) <30V
○	DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED		LOW VOLTAGE SWITCH WIRE ≥30 TO 750V
TS	THERMOSTAT - SUPPLIED & INSTALLED BY DIV. 23 WIRE > 30V - CONNECTION BY DIV. 26 WIRE ≤ 30V - CONNECTION BY DIV. 23		\$ LINE VOLTAGE SWITCH - SINGLE POLE
COMMUNICATIONS LEGEND			3 \$ LINE VOLTAGE SWITCH - 3 WAY
▽	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - WALL MOUNTED		D \$ LINE VOLTAGE SWITCH - DIMMER
▽	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED		\$ TO FAN LINE VOLTAGE SWITCH - SINGLE POLE - TO FAN
▽	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - FLOOR MOUNTED		OC \$ LINE VOLTAGE SWITCH - OCCUPANCY SENSOR
▽	DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED		OCT LINE VOLTAGE OCCUPANCY SENSOR & TIMER - CEILING MOUNTED
WAP	WIRELESS ACCESS POINT DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED		PHOTOCELL
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED		TC ASTRONOMIC TIME SWITCH
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED		CEILING MOUNT • SD: SMOKE DETECTOR - PHOTOELECTRIC • SD-D: DUCT TYPE PHOTOELECTRIC SMOKE DETECTOR • SD-B: BEAM TYPE SMOKE DETECTOR • SB: SMOKE DETECTOR c/w LOCAL SOUNDERBASE • SA: SMOKE ALARM • SA/CO: COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED		• C: CONVENTIONAL • BLANK: ADDRESSABLE • WG: C/W WIRE GUARD
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED		CEILING MOUNT • SD: SMOKE DETECTOR - PHOTOELECTRIC • SD-D: DUCT TYPE PHOTOELECTRIC SMOKE DETECTOR • SD-B: BEAM TYPE SMOKE DETECTOR • SB: SMOKE DETECTOR c/w LOCAL SOUNDERBASE • SA: SMOKE ALARM • SA/CO: COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED		• C: CONVENTIONAL • BLANK: ADDRESSABLE • WG: C/W WIRE GUARD
D/TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED	WP	WEATHER PROOF - OUTDOOR RATED
NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES		NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES	

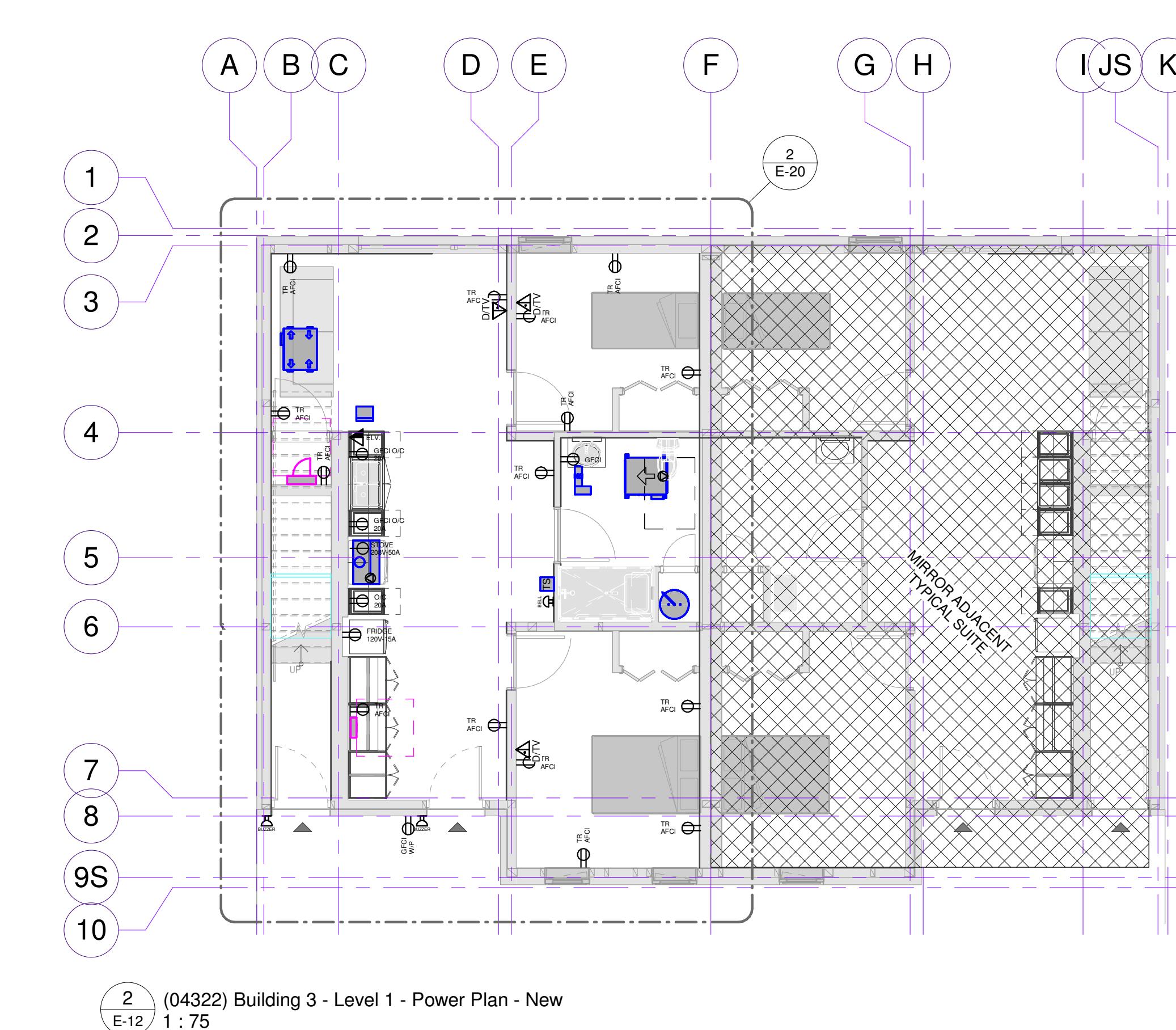
(04322) Data Device Schedule - Typical Suite Only					
Level	Rm. #	Description	Pin Config.	Qty	
FFE Lower Level	106	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1	
FFE Lower Level	108	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1	
				2	
FFE Ground Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1	
FFE Ground Floor	112	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1	
FFE Ground Floor	113	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1	
FFE Ground Floor	114	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1	
				4	
2 - Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1	
2 - Floor	224	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1	
2 - Floor	225	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1	
2 - Floor	228	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1	
				4	
Grand total					10



(04322) Building 3 - Level 2 - Power Plan - New



(04322) Building 3 - Basement - Power Plan - Ne
1 : 75



(04322) Building 3 - Level 1 - Power Plan - Net
1 : 75

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

GENERAL DRAWING / DESIGNER NOTES:

- [1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE LATEST EDITION OF THE PROVINCE OF ONTARIO'S "BUILDING CODE", LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
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- [3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. EXACT DETAILS OF INSTALLATIONS ARE TO BE PROVIDED BY CONTRACTOR(S). DO NOT SCALE DRAWINGS.
- [4] CONTRACTOR/AGENT/OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.
- [5] PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".
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BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW SHOP SUBMISSION DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM RESPONSIBILITY TO MAKE A FEASIBLE WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS.
- ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).
- [9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.
- [10] RESPONSIBILITY FOR ANY FINAL ASSEMBLY(S) THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
- [11] REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.
- [12] SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.
- [13] MINIMUM FORTY EIGHT (48) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.
- [14] REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR THE PURPOSE OF TENDERING PURPOSES BY ANY CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
- [15] TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.
- [16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM (1) ONE WEEK TO REVIEW AND RESPOND TO CHANGE

Engineer's Seal:

PROFESSIONAL ENGINEER
REGISTERED

J.D. LONG

Dec. 20/24

Long

Client:	WW Inc.		
Address:	Minden, ON		
Project Name:	Gull River Affordable Housing		
Dwg. Name:	Power/Comm - Bldg. 3		
NSET Project #:	04322		
Drawn by:	Northstar Eng.	Checked by:	D.B.D.
Scale:	As indicated	Revision #:	6.0
Drawing #:	E-12		
Project Date: Jan. 14/22		Arch-D (24" x 36")	

(04322) Lighting Fixture Schedule - Interior - Typical Suite Only

Level	Type	Qty.	Description	Fixture Finish	Color Temperature	Lumens	Voltage	VA	Manufacturer	Part #	Elevation of Light Source	Mounting Comments	Accessory 1	Lamping	Supplied By	Approved Alternate
FFE Lower Level	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W	DIV. 26	APPROVED EQUAL	
B1 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W	DIV. 26	APPROVED EQUAL	
B1 - Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RILNK L24 120 35K 80 CRI M4		CEILING / SURFACE	LED 8.9W	DIV. 26	APPROVED EQUAL	
B1 - Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE	LED 16W	DIV. 26	APPROVED EQUAL	
B1 - Ceiling	L2	3	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W	DIV. 26	APPROVED EQUAL	
FFE Ground Floor	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W	DIV. 26	APPROVED EQUAL	
1 - U/S Cabinet	K	4	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W	DIV. 26	APPROVED EQUAL	
1 - Finished Ceiling	A1	2	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RILNK L24 120 35K 80 CRI M4		CEILING / SURFACE	LED 8.9W	DIV. 26	APPROVED EQUAL	
1 - Finished Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11" / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE	LED 16W	DIV. 26	APPROVED EQUAL	
1 - Finished Ceiling	L2	6	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W	DIV. 26	APPROVED EQUAL	
2 - Floor	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W	DIV. 26	APPROVED EQUAL	
2 - U/S Cabinet	P	4	LUMINAIRE / INDOOR / PENDANT / SUSPENDED / LED DIRECT	WHITE	4000 K	4800 lm	120 V	34 VA	LITHONIA LIGHTING	VCVLLED-V4-P2-40K-80CRI-T5W-120-PM-DWHXD	108"	SUSPENDED	LED 34W	DIV. 26	APPROVED EQUAL	
2 - Finished Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W	DIV. 26	APPROVED EQUAL	
2 - Finished Ceiling	L2	4	LUMINAIRE / INDOOR / DOME / SURFACE / 14" / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W	DIV. 26	APPROVED EQUAL	

36

NOTES:
LIGHTING SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF LIGHTING FIXTURES REQUIRED

TOTAL NUMBER OF SUITES: 35

(MASTER-E) Fire Alarm Device Schedule

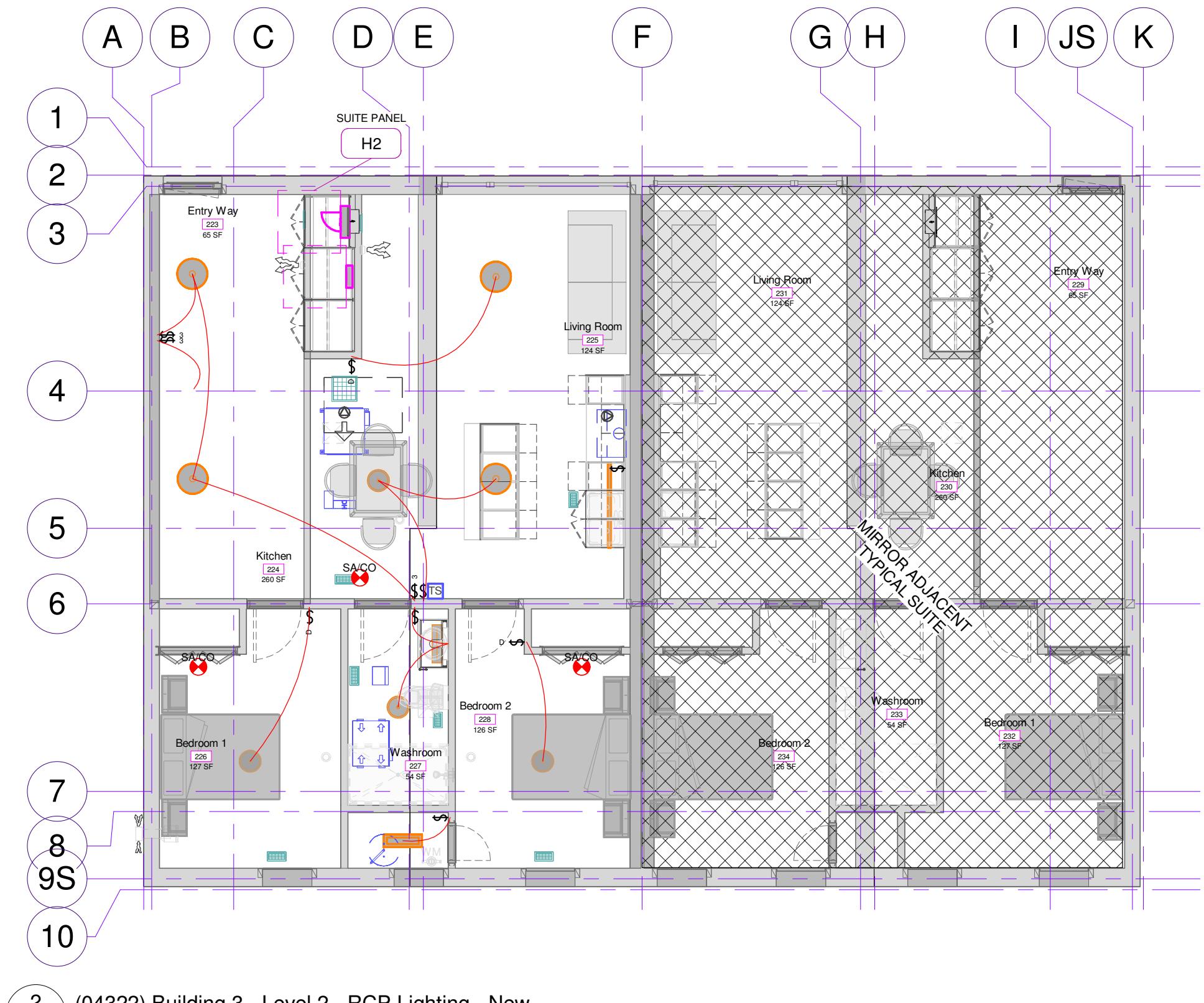
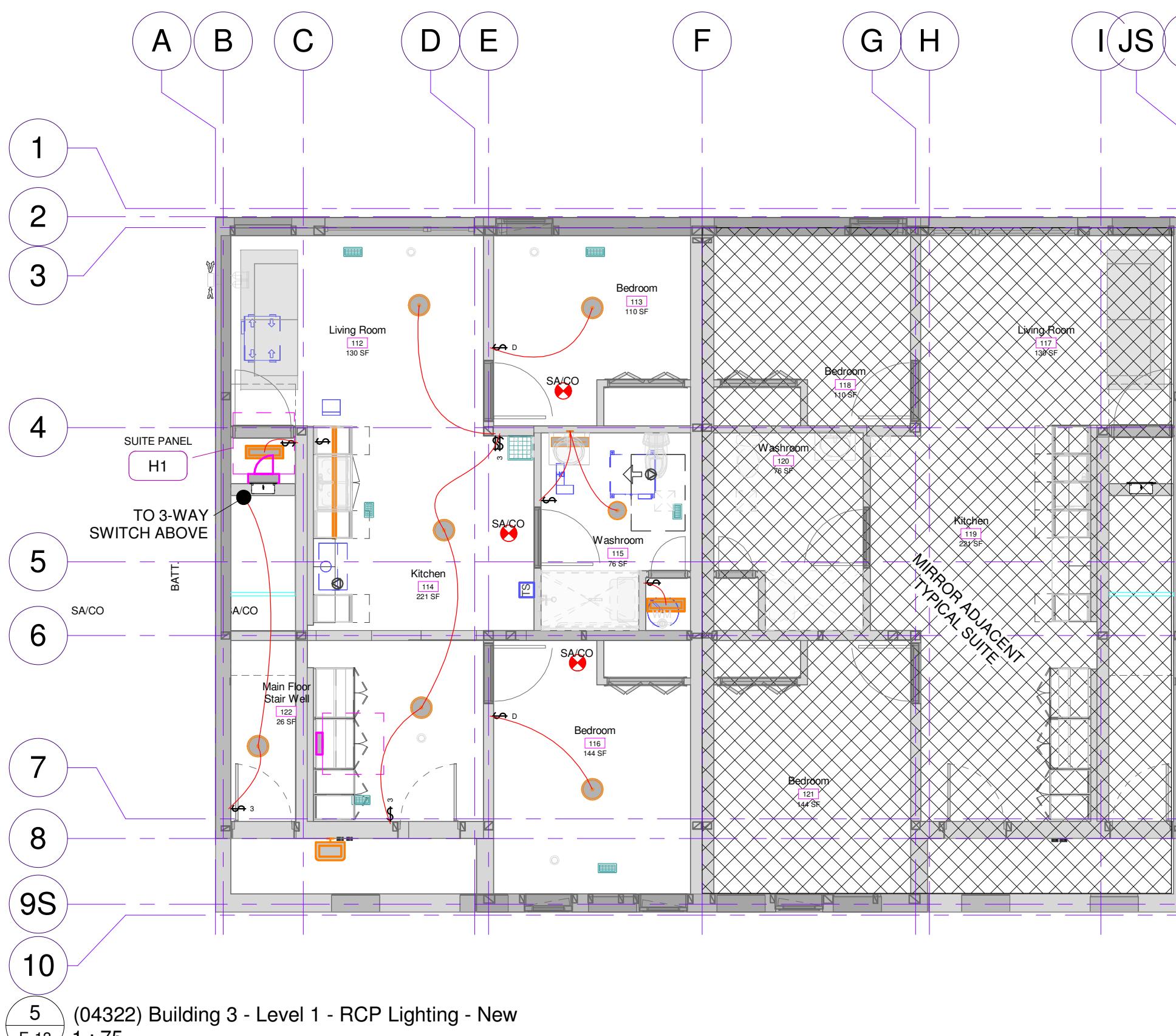
Level	Type	Mark	Description	Circuit #	Qty.
2 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
1 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
B1 - Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
B1 - Ceiling			FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1

NOTES:
FIRE ALARM SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DEVICES REQUIRED

TOTAL NUMBER OF SUITES: 35

(04322) Project Drawing Register

Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

(04322) Building 3 - Level 2 - RCP Lighting - New
E-13 1 : 75(04322) Building 3 - Level 1 - RCP Lighting - New
E-13 1 : 75

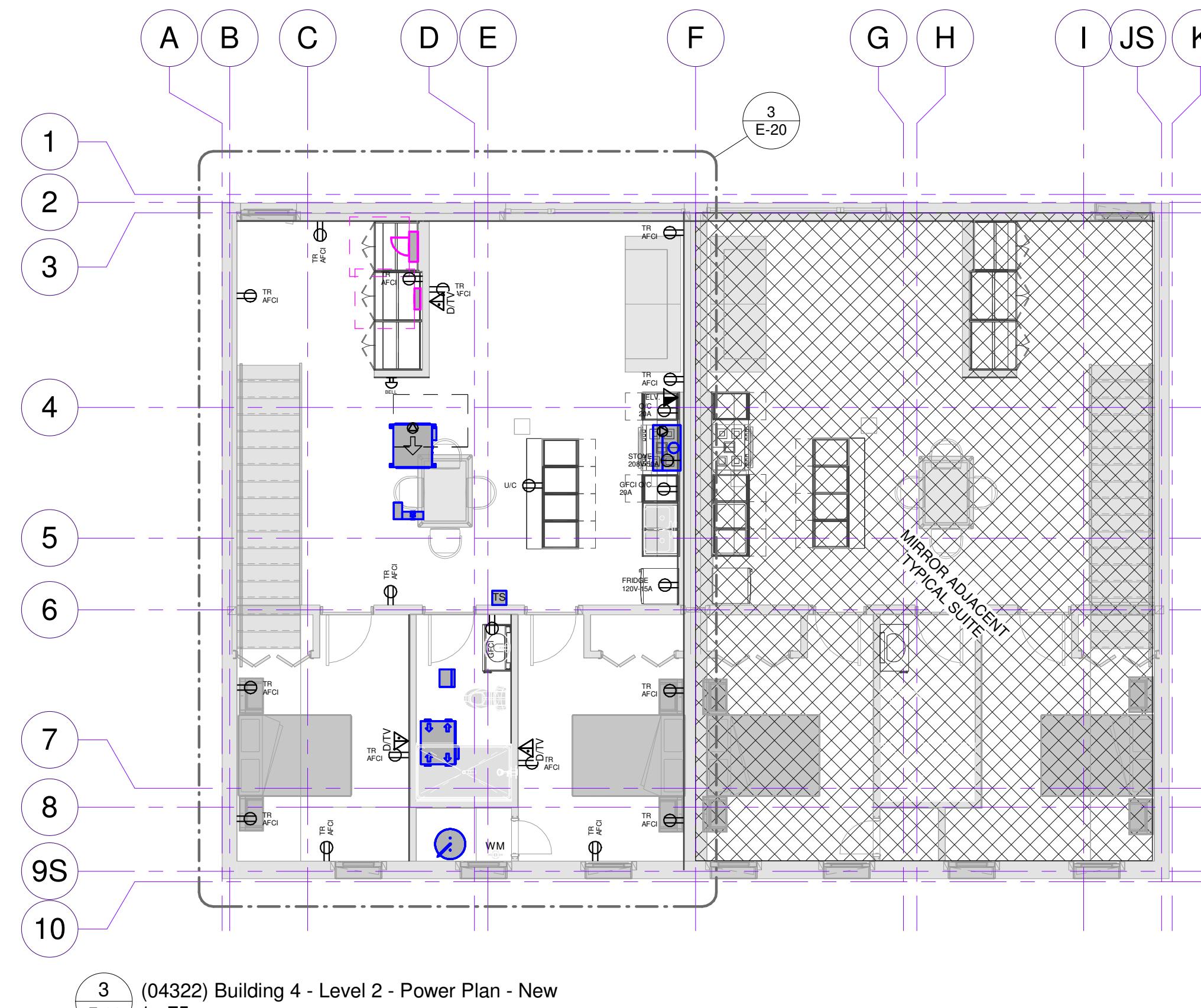
No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

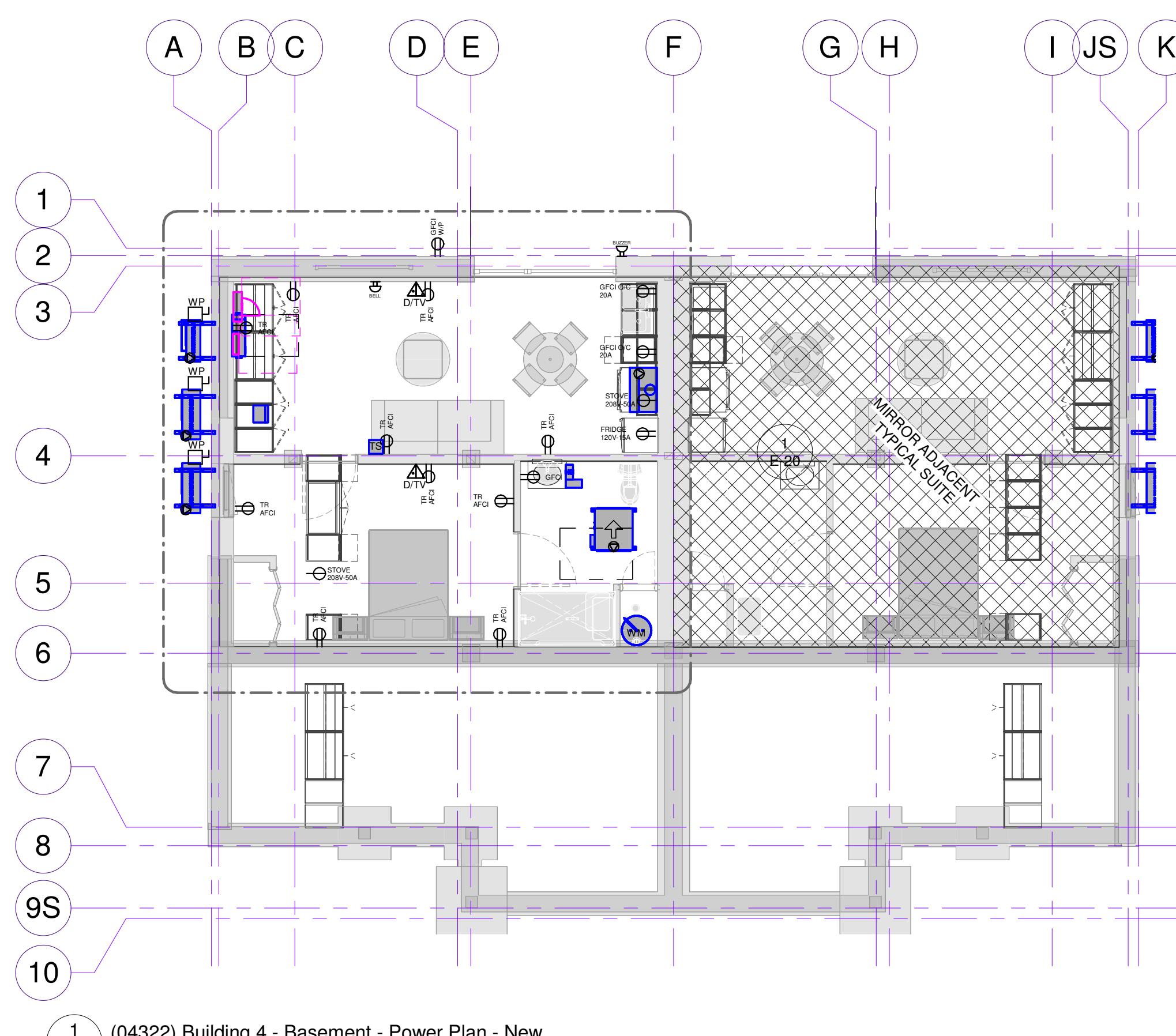
Client: WW Inc.
Address: Minden, ON
Project Name: Gull River Affordable Housing
Dwg. Name: Elec. Lighting - Bldg 3
NSET Project #: 04322
Drawn by: Northstar Eng. Checked by: D.B.D.
Scale: As indicated Revision #: 6.0
Drawing #: E-13
Project Date: Jan. 14/22 Arch-D (24" x 36")

ELECTRICAL LEGEND	
ELECTRICAL CIRCUIT TAG: OFFICES)	LUMINAIRE - INTERIOR COMMENT: DOME - SURFACE MOUNTED - LED JB ROUGH IN HEIGHT (CENTER LINE OF BOX) 1000 ABOVE FINISHED FLOOR FOR WALL MOUNTED - IN mm
A - 20.22 @450mm A.F.E.	LUMINAIRE - INTERIOR DOWNLIGHT - RECESSED - LED
OFFICES)	LUMINAIRE - INTERIOR DOWNLIGHT - SURFACE MOUNTED - LED
MECHANICAL EQUIPMENT CIRCUIT TAG: AIR SYSTEM / COMMENT: MECHANICAL EQUIP. MARK / TYPE / COMMENT: CIRCUIT #	LUMINAIRE - INTERIOR DOME - SURFACE MOUNTED - LED
FC-1-07 A - 20	LUMINAIRE - INTERIOR LINEAR - SURFACE MOUNTED - LED
OFFICES)	LUMINAIRE - INTERIOR LINEAR - WALL MOUNTED - LED
PB-1	LUMINAIRE - INTERIOR LINEAR PENDANT - SUSPENDED - LED
SEE SLD. SCHEDULES & PLAN VIEWS.	LUMINAIRE - INTERIOR TAPES - SURFACE MOUNTED - LED
JB	JUNCTION BOX - WALL MOUNTED
JB	JUNCTION BOX - FLOOR MOUNTED
JB	JUNCTION BOX - CEILING MOUNTED
JB	LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED
DIRECT CONNECTION - SINGLE PHASE	LUMINAIRE - EXTERIOR BOLLARD - LED
DIRECT CONNECTION - THREE PHASE	LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED
DISCONNECT	DISCONNECT
DIRECT CONNECTION c/w DISCONNECT	DIRECT CONNECTION c/w DISCONNECT
DUPLEX RECEPTACLE HATCH INDICATES NUMBER OF NEMA TYPE & AMPERAGE) x 1 - WALL MOUNTED	DUPLEX RECEPTACLE HATCH INDICATES NUMBER OF NEMA TYPE & AMPERAGE) x 1 - WALL MOUNTED
XXX DENOTES: EX - EXISTING GFCI - GROUND FAULT CIRCUIT INTERUPTER AFCI - ARC FAULT CIRCUIT INTERRUPTER SD - SURFACE MOUNTED O/C - OVER COUNTER UC - UNDER COUNTER WPC - WIRELESS PUSH TR - TAMPER RESISTANT USB - CONTAINS USB PORTS	XXX DENOTES: EX - EXISTING GFCI - GROUND FAULT CIRCUIT INTERUPTER AFCI - ARC FAULT CIRCUIT INTERRUPTER SD - SURFACE MOUNTED O/C - OVER COUNTER UC - UNDER COUNTER WPC - WIRELESS PUSH TR - TAMPER RESISTANT USB - CONTAINS USB PORTS
DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED	DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED
DUPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED	DUPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
DUPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED	DUPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
DUPLEX RECEPTACLE (120V, STD.) x 1 - CAB TIRE c/w STRIKE RELIEF - SUSPENDED MOUNT	DUPLEX RECEPTACLE (120V, STD.) x 1 - CAB TIRE c/w STRIKE RELIEF - SUSPENDED MOUNT
QUADPLEX RECEPTACLE (120V, STD.) x 1 - WALL MOUNTED	QUADPLEX RECEPTACLE (120V, STD.) x 1 - WALL MOUNTED
QUADPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED	QUADPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED
QUADPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED	QUADPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED
SINGLE RECEPTACLE x 1 (WALL MOUNTED)	SINGLE RECEPTACLE x 1 (WALL MOUNTED)
XXX DENOTES: OUTLET PURPOSE VOLTAGE AMPERE SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)	XXX DENOTES: OUTLET PURPOSE VOLTAGE AMPERE SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)
HANDICAP PUSH BUTTON - WALL MOUNTED	HANDICAP PUSH BUTTON - WALL MOUNTED
LOCK PUSH BUTTON - WALL MOUNTED	LOCK PUSH BUTTON - WALL MOUNTED
EMERGENCY CALL PUSH BUTTON - WALL MOUNTED	EMERGENCY CALL PUSH BUTTON - WALL MOUNTED
DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED	DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED
THERMOSTAT - SUPPLIED & INSTALLED BY 3RD PARTY WIRE <= 30V - CONNECTION BY DIV. 26 WIRE <= 30V - CONNECTION BY DIV. 23	THERMOSTAT - SUPPLIED & INSTALLED BY 3RD PARTY WIRE <= 30V - CONNECTION BY DIV. 26 WIRE <= 30V - CONNECTION BY DIV. 23
COMMUNICATIONS LEGEND	
TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - WALL MOUNTED	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - FLOOR MOUNTED	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED	DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
WAP WIRELESS ACCESS POINT DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED	WAP WIRELESS ACCESS POINT DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED
COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED
COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED
D/TV DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED	D/TV DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED
D/TV DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED	D/TV DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED
D/TV DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED	D/TV DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED
CEILING MOUNT SD-SMOKE DETECTOR - PHOTOCOELCTRIC SD-B - PHOTOELECTRIC SMOKE DETECTOR SD-C - BEAM TYPE SMOKE DETECTOR SD-D - SMOKE DETECTOR c/w LOCAL SOUNDER/BELL	CEILING MOUNT SD-SMOKE DETECTOR - PHOTOCOELCTRIC SD-B - PHOTOELECTRIC SMOKE DETECTOR SD-C - BEAM TYPE SMOKE DETECTOR SD-D - SMOKE DETECTOR c/w LOCAL SOUNDER/BELL
SA-SMKE ALRM SA-SMOKE ALARM & CARBON MONOXIDE DETECTOR	SA-SMKE ALRM SA-SMOKE ALARM & CARBON MONOXIDE DETECTOR
CONVENTIONAL BLANK ADDRESSABLE	CONVENTIONAL BLANK ADDRESSABLE
WG - CW WIRE GUARD	WG - CW WIRE GUARD
WEATHER PROOF - OUTDOOR RATED	WEATHER PROOF - OUTDOOR RATED
NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES	NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES

(04322) Data Device Schedule - Typical Suite Only						
Level	Rm. #	Description	Pin Config.	Qty.		
FFE Lower Level	106	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1		
FFE Lower Level	108	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		2		
FFE Ground Floor	112	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1		
FFE Ground Floor	113	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1		
FFE Ground Floor	114	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		4		
2 - Floor	224	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1		
2 - Floor	225	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1		
2 - Floor	228	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1		
		Grand total		4		
				10		



(04322) Building 4 - Level 2 - Power Plan - New
3 E-14 1 : 75



(04322) Building 4 - Basement - Power Plan - New
1 E-14 1 : 75

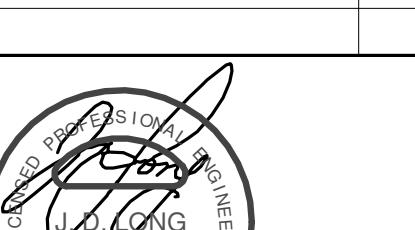
(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Elec. Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

NORTHSTAR ENGINEERING & TECHNOLOGIES LTD.	
92 Caplan Ave, Suite #517 Barrie, Ontario L4N 9J2	
Tel. (705) 719-1003 Fax (705) 719-0490 dlong@nset.ca www.nset.ca	

GENERAL DRAWING / DESIGNER NOTES:

- [1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE REQUIREMENT OF THE PROVINCE OF ONTARIO'S BUILDING JURISDICTION.
- [2] THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION COSTS ARRIVING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND CONTRACTOR.
- [3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. DETAILS ARE PROVIDED AS PERTAINING TO THE DRAWINGS PROVIDED.
- [4] CONTRACTOR/AGENT OWNER TO REPORT ALL DISCRENCES OF ERRORS, OMISSIONS OR DISCRENCES TO THE DESIGNER.
- [5] PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".
- [6] THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.
- [7] THIS DRAWING IS THE PROPERTY OF NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUCTION OR USE IS PROHIBITED.
- [8] SHOP DRAWINGS: BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW THE SUBMISSION DRAWINGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM THE RESPONSIBILITY FOR THE IMPLEMENTATION OF THE WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS, MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).
- [9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNERS WORK IN ASSOCIATION WITH THIS PROJECT.
- [10] REQUESTS FOR ANY FOR ANY FINAL ASSEMBLY THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
- [11] REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.
- [12] SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.
- [13] MINIMUM FORTY (40) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE APPROVED.
- [14] REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR PURCHASE, TRANSFER, LEASE OR LICENSES TO A CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
- [15] TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.
- [16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

 Dec. 20/24

Client: WW Inc.
 Address: Minden, ON
 Project Name: Gull River Affordable Housing
 Dwg. Name: Power/Comm - Bldg. 4
 NSET Project #: 04322
 Drawn by: Northstar Eng. Checked by: D.B.D.
 Scale: As indicated Revision #: 6.0
 Drawing #: E-14
 Project Date: Jan. 14/22 Arch-D (24" x 36")

(04322) Lighting Fixture Schedule - Interior - Typical Suite Only																
Level	Type	Qty.	Description	Fixture Finish	Color Temperature	Lumens	Voltage	VA	Manufacturer	Part #	Elevation of Light Source	Mounting Comments	Accessory 1	Lamping	Supplied By	Approved Alternate
FFE Lower Level	B	1	LUMINAIRE / INDOOR / VANTY / WALL / 24' LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W DIV. 26	APPROVED EQUAL		
B1 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18' LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W DIV. 26	APPROVED EQUAL		
B1 - Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24' LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE	LED 8.9W DIV. 26	APPROVED EQUAL		
B1 - Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11' LENGTH / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE	LED 16W DIV. 26	APPROVED EQUAL		
B1 - Ceiling	L2	3	LUMINAIRE / INDOOR / DOME / SURFACE / 14' LENGTH / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W DIV. 26	APPROVED EQUAL		
FFE Ground Floor	B	1	LUMINAIRE / INDOOR / VANTY / WALL / 24' LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W DIV. 26	APPROVED EQUAL		
1 - U/S Cabinet	K	4	LUMINAIRE / INDOOR / TAPE / SURFACE / 18' LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W DIV. 26	APPROVED EQUAL		
1 - Finished Ceiling	A1	2	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24' LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE	LED 8.9W DIV. 26	APPROVED EQUAL		
1 - Finished Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11' LENGTH / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE	LED 16W DIV. 26	APPROVED EQUAL		
1 - Finished Ceiling	L2	6	LUMINAIRE / INDOOR / DOME / SURFACE / 14' LENGTH / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W DIV. 26	APPROVED EQUAL		
2 - Floor	B	1	LUMINAIRE / INDOOR / VANTY / WALL / 24' LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W DIV. 26	APPROVED EQUAL		
2 - Floor	P	4	LUMINAIRE / INDOOR / PENDANT / SUSPENDED / LED DIRECT	WHITE	4000 K	4800 lm	120 V	34 VA	LITHONIA LIGHTING	VCVLED-V4-P2-40K-80CRI-T5W-120-PM-DWHXD	108"	SUSPENDED	LED 34W DIV. 26	APPROVED EQUAL		
2 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18' LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W DIV. 26	APPROVED EQUAL		
2 - Finished Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24' LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE	LED 8.9W DIV. 26	APPROVED EQUAL		
2 - Finished Ceiling	L2	4	LUMINAIRE / INDOOR / DOME / SURFACE / 14' LENGTH / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W DIV. 26	APPROVED EQUAL		
		36														

NOTES:
LIGHTING SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF LIGHTING FIXTURES REQUIRED

TOTAL NUMBER OF SUITES: 35

(MASTER-E) Fire Alarm Device Schedule

Level	Type Mark	Description	Circuit #	Qty.
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
B1 - Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
B1 - Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
			8	

NOTES:
FIRE ALARM SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DEVICES REQUIRED

TOTAL NUMBER OF SUITES: 35



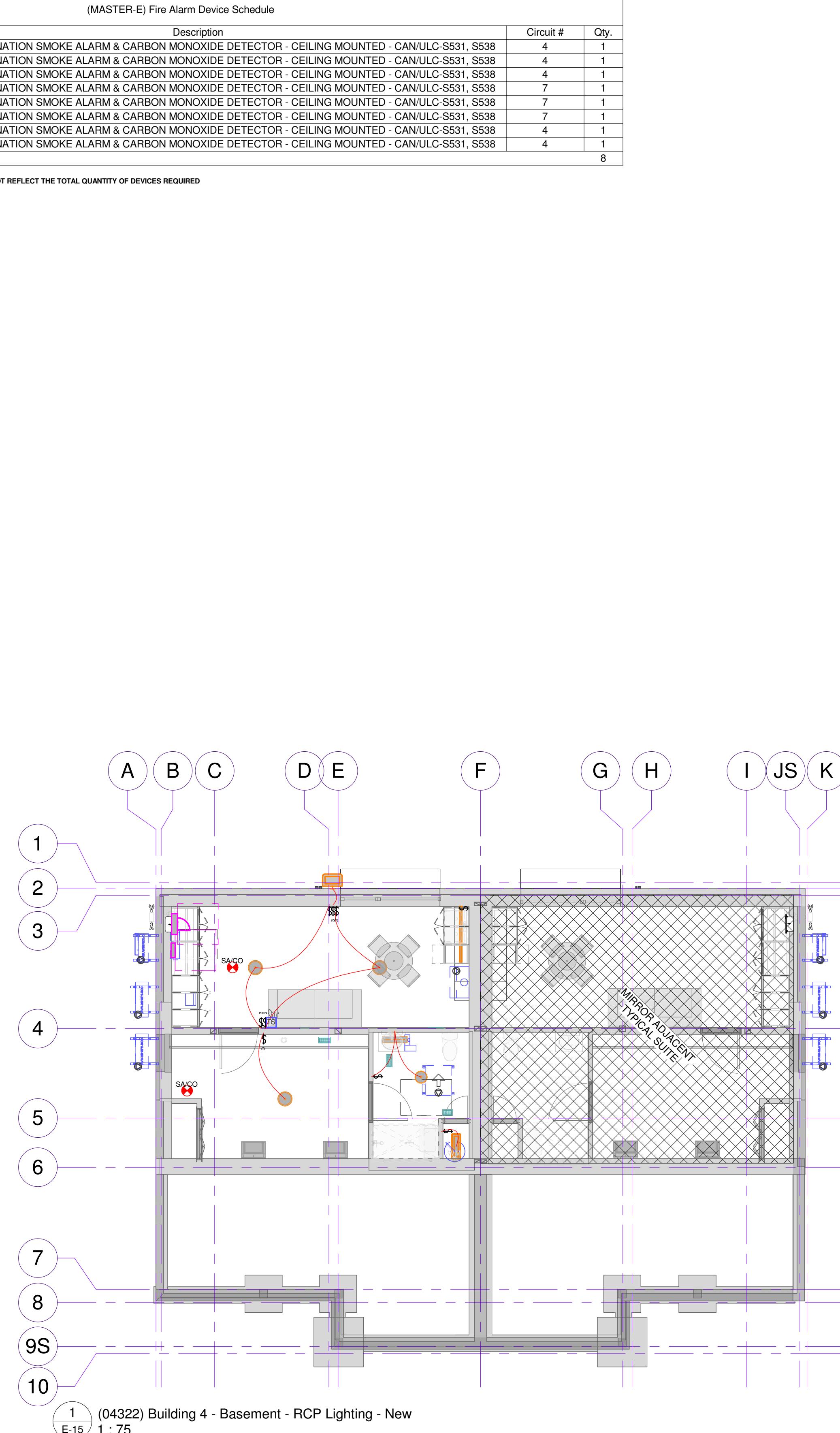
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Elec. Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

- GENERAL DRAWING / DESIGNER NOTES:
- [1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE PROVISIONS OF THE PROVINCE OF ONTARIO'S BUILDING CODE, LOCAL REGULATIONS AND OTHERS MAINTAIN JURISDICTION.
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 - [3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. DETAILS ARE PROVIDED BY CONTRACTOR(S). DO NOT SCALE DRAWINGS.
 - [4] CONTRACTOR/OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.
 - [5] PROCEDURES FOR CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".
 - [6] THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.
 - [7] THIS DRAWING IS THE PROPERTY OF NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUCTION OR USE IS PROHIBITED.
 - [8] SHOP DRAWINGS: BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW THE SUBMISSION DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM THE CONTRACTUAL REQUIREMENTS FOR THE PLUMBING SYSTEMS. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS, ALLOW MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).
 - [9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OWN DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.
 - [10] REQUESTS FOR ANY FOR AN FINAL ASSEMBLY THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
 - [11] REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.
 - [12] SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.
 - [13] MINIMUM FORTY EIGHT (48) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.
 - [14] REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR THE PURPOSE OF REVIEW AND APPROVAL BY A CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
 - [15] TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.
 - [16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client: WW Inc.
Address: Minden, ON
Project Name: Gull River Affordable Housing
Dwg. Name: Elec. Lighting - Bldg 4
NSET Project #: 04322
Drawn by: Northstar Eng. Checked by: D.B.D.
Scale: As indicated Revision #: 6.0
Drawing #: E-15
Project Date: Jan. 14/22 Arch-D (24" x 36")



ELECTRICAL LEGEND		LIGHTING LEGEND		SECURITY LEGEND	
(OFFICES) A - 20.22 @450mm A.F.E.	COMMENT: PANEL NAME: OFFICES	LUMINAIRE - INTERIOR DOWNLIGHT - RECESSED - LED	SC SECURITY CAMERA		
(OFFICES) FC-1-07 A - 20	JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - FOR WALL MOUNTED - IN mm	LUMINAIRE - INTERIOR DOWNLIGHT - SURFACE MOUNTED - LED	ES ELECTRIC LOCK		
(OFFICES) PB-1	MECHANICAL EQUIPMENT CIRCUIT TAG: AIR SYSTEM / COMMENT: MECHANICAL EQUIP. MARK / TYPE: CIRCUIT #	LUMINAIRE - INTERIOR DOM - SURFACE MOUNTED - LED	KP KEYPAD ACCESS		
	SEE SLD. SCHEDULES & PLAN VIEWS.	LUMINAIRE - INTERIOR LINEAR - SURFACE MOUNTED - LED	CR CARD READER		
JB	JUNCTION BOX - WALL MOUNTED	LUMINAIRE - INTERIOR LINEAR - WALL MOUNTED - LED	MS MOTION SENSOR		
JB	JUNCTION BOX - FLOOR MOUNTED	LUMINAIRE - INTERIOR LINEAR PENDANT - SUSPENDED - LED	DC DOOR CONTACT		
JB	JUNCTION BOX - CEILING MOUNTED	LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED	PE PUSH TO EXIT		
	NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES	LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED	SP SECURITY PANEL		
	DIRECT CONNECTION - SINGLE PHASE	LUMINAIRE - EXTERIOR BOLLARD - LED	S-LOCK MAG - LOCK DOOR		
	DIRECT CONNECTION - THREE PHASE	LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED	ADC AUTOMATIC DOOR CONTROL		
	DISCONNECT				
	DIRECT CONNECTION c/w DISCONNECT				
	DUPLEX RECEPTACLE (INDIV. CIRCUITS) x1 - WALL MOUNTED	EXIT SIGN - CEILING MOUNTED DIRECTIONAL ARROW INDICATES NUMBER OF EMERGENCY LIGHTS c/w BATTERY HATCH INDICATES NUMBER OF SIDES/FACES			
XXX	EX - EXISTING GFCI - GROUND FAULT CIRCUIT INTERRUPTER AFCI - ARC FAULT CIRCUIT INTERRUPTER GCO - OVER CURRENT PROTECTOR U/C - UNDER COUNTER WPC - WATER PURIFICATION TR - TAMPER RESISTANT USB - CONTAINS USB PORTS	BATT. BATT.			
	DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED	EXIT SIGN - WALL MOUNTED c/w BATTERY DIRECTIONAL ARROW INDICATES NUMBER OF EMERGENCY LIGHTS HATCH INDICATES NUMBER OF SIDES/FACES			
	DUPLEX RECEPTACLE (120V, STD.) x1 - FLOOR MOUNTED	BATTERY UNIT - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED			
	DUPLEX RECEPTACLE (120V, STD.) x1 - CEILING MOUNTED	BATTERY UNIT c/w 2x EMERGENCY LIGHTS - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED			
	DUPLEX RECEPTACLE (120V, STD.) x1 - CAB TIRE c/w STRIKE RELIEF - SUSPENDED MOUNT	EMERGENCY LIGHT - REMOTE DOUBLE HEADS - CEILING MOUNTED			
	QUADPLEX RECEPTACLE (120V, STD.) x1 - WALL MOUNTED	EMERGENCY LIGHT - REMOTE DOUBLE HEADS - WALL MOUNTED			
	QUADPLEX RECEPTACLE (120V, STD.) x1 - FLOOR MOUNTED	EMERGENCY LIGHT - REMOTE SINGLE HEAD - CEILING MOUNTED			
	QUADPLEX RECEPTACLE (120V, STD.) x1 - CEILING MOUNTED	EMERGENCY LIGHT - REMOTE SINGLE HEAD - WALL MOUNTED			
	SINGLE RECEPTACLE x1 (WALL MOUNTED)	LIGHTING CIRCUIT TAG: SWITCH GROUP - PANEL NAME: CIRCUIT #			
XXX	XX: DENOTES OUTLET PURPOSE VOLTAGE AMPS SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)	JB ROUGH IN HEIGHT (CENTER LINE OF BOX) ABOVE FINISHED FLOOR - WALL MOUNTED - IN mm			
	HANDICAP PUSH BUTTON - WALL MOUNTED	TYP 1 - INDICATES "NIGHT LIGHT" TO REMAIN ACTIVE AT ALL TIMES			
	LOCK PUSH BUTTON - WALL MOUNTED	SW 1 - 3 E-16 1 : 75			
	EMERGENCY CALL PUSH BUTTON - WALL MOUNTED	SW# 1 - (1# SWITCH GROUP - LIGHTS ASSOCIATED WILL ACTIVATE ON THIS SWITCH)			
	DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED	EXTRA LOW VOLTAGE WIRE (ELV) <30V			
TS	THERMOSTAT - SUPPLIED & INSTALLED BY 3RD PARTY - CONNECTION BY DIV. 26 WIRE < 30V - CONNECTION BY DIV. 23	LOW VOLTAGE WIRE <30 TO 750V			
	COMMUNICATIONS LEGEND	\$ LINE VOLTAGE SWITCH - SINGLE POLE			
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - WALL MOUNTED	\$ LINE VOLTAGE SWITCH - 3 WAY			
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED	\$ LINE VOLTAGE SWITCH - DIMMER			
	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - FLOOR MOUNTED	\$ LINE VOLTAGE SWITCH - SINGLE POLE - TO FAN			
	DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED	\$ LINE VOLTAGE SWITCH - OCCUPANCY SENSOR			
WAP	WIRELESS ACCESS POINT DATA - OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED	OCT LINE VOLTAGE OCCUPANCY SENSOR & TIMER - CEILING MOUNTED			
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED	PHOTOCELL			
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED	TC ASTRONOMIC TIME SWITCH			
DTV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED	DHWT-1 CEILING MOUNT - SD-SMOKE DETECTOR - PHOTOELECTRIC SMOKE DETECTOR - SD-B: BEAM TYPE SMOKE DETECTOR - SD-C: CONVENTIONAL SMOKE & CARBON MONOXIDE DETECTOR			
DTV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED	FFH-1 M-49.51			
DTV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED	WM M-22 @ 450			
DTV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED	WM M-22 @ 450			
WP	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED	CEILING MOUNT - SA-SMOKE ALARM - SMOKE & CARBON MONOXIDE DETECTOR			
WP	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED	WM M-22 @ 450			
	NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES	WM M-22 @ 450			

(04322) Building 5 - Basement - Power Plan - New

1 : 75

E-16

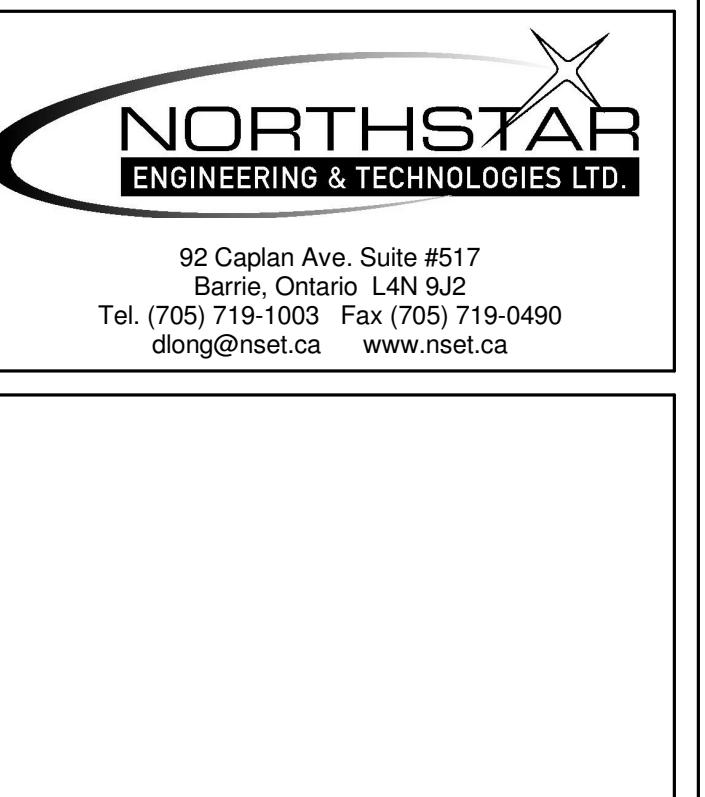
(04322) Electrical Receptacle Schedule - Service & Common Areas			
Level	Rm. #	Qty.	Description
FFE Lower Level		3	ELECTRICAL DISCONNECT
FFE Lower Level	137	3	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A
FFE Lower Level	138	4	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A
		10	
FFE Ground Floor		1	DIRECT CONNECTION - 208V 3Ø
FFE Ground Floor		1	HANDICAP DOOR PUSH BUTTON
FFE Ground Floor	142	1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE
FFE Ground Floor	142	1	AUTOMATIC DOOR OPERATOR
FFE Ground Floor	142	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - CLOTHES WASHER
FFE Ground Floor	142	1	DOOR LOCK PUSH BUTTON
FFE Ground Floor	142	1	EMERGENCY CALL PUSH BUTTON
FFE Ground Floor	142	1	HANDICAP DOOR PUSH BUTTON
FFE Ground Floor	143	2	RECEPTACLE - QUADPLEX - WALL MOUNTED - 120V 15A - Elevated
FFE Ground Floor	144	1	AUTOMATIC DOOR OPERATOR
FFE Ground Floor	144	1	DOOR LOCK PUSH BUTTON
FFE Ground Floor	144	1	EMERGENCY CALL PUSH BUTTON
FFE Ground Floor	144	1	HANDICAP DOOR PUSH BUTTON
FFE Ground Floor	144	1	JUNCTION BOX - WALL MOUNTED - 120V 10Ø
FFE Ground Floor	144	1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI
FFE Ground Floor	144	1	UNIVERSAL WASHROOM - DOME LIGHT WITH SOUNDER
FFE Ground Floor	145	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A
FFE Ground Floor	145	1	UNIVERSAL WASHROOM - DOME LIGHT WITH SOUNDER
		29	
		39	

(04322) Building 5 - Level 1 - Power Plan - New

1 : 75

E-16

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Elec. Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Power/Comm - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Power/Comm - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Power/Comm - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Power/Comm - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Power/Comm - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Power/Comm - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

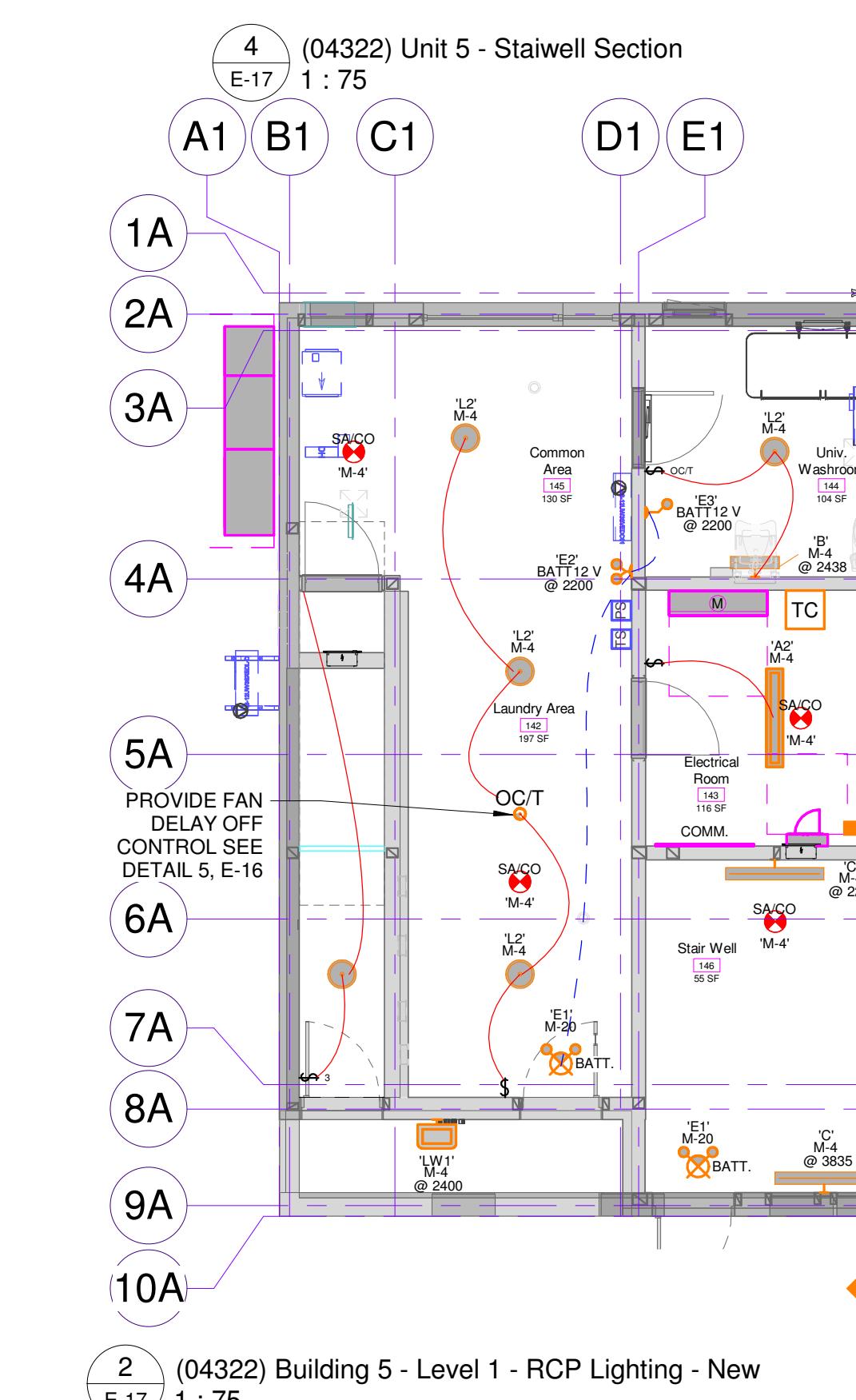
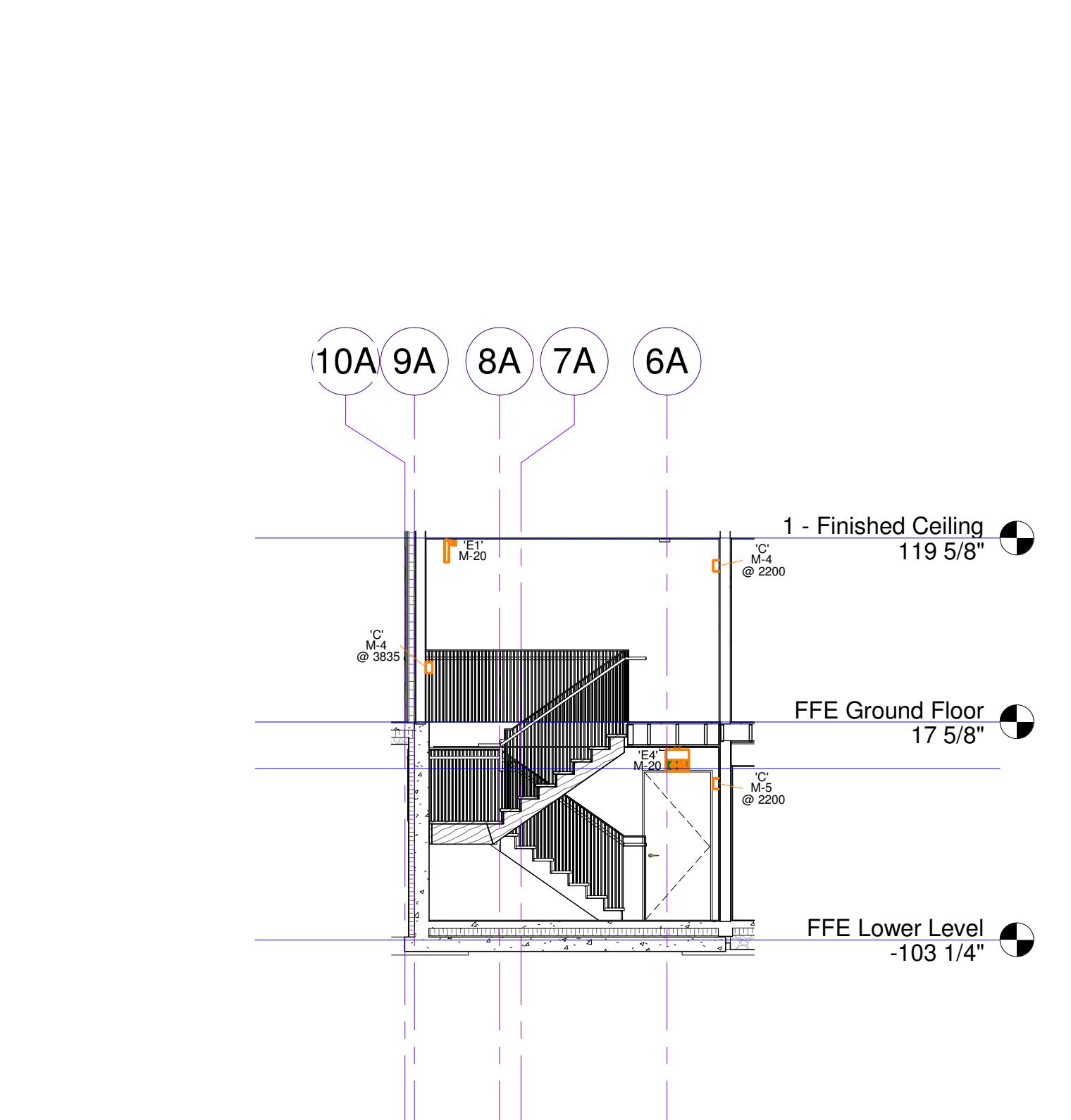
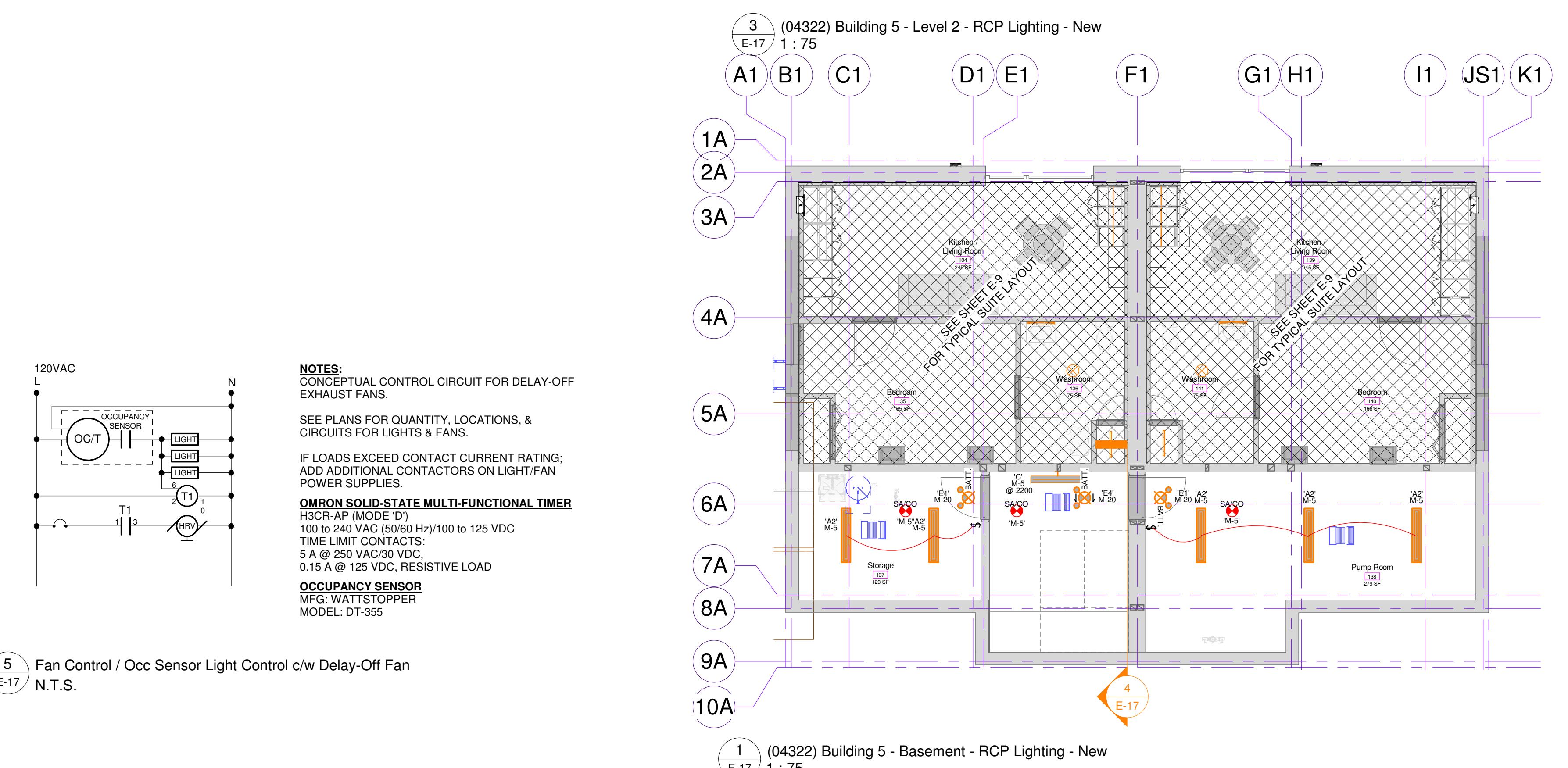
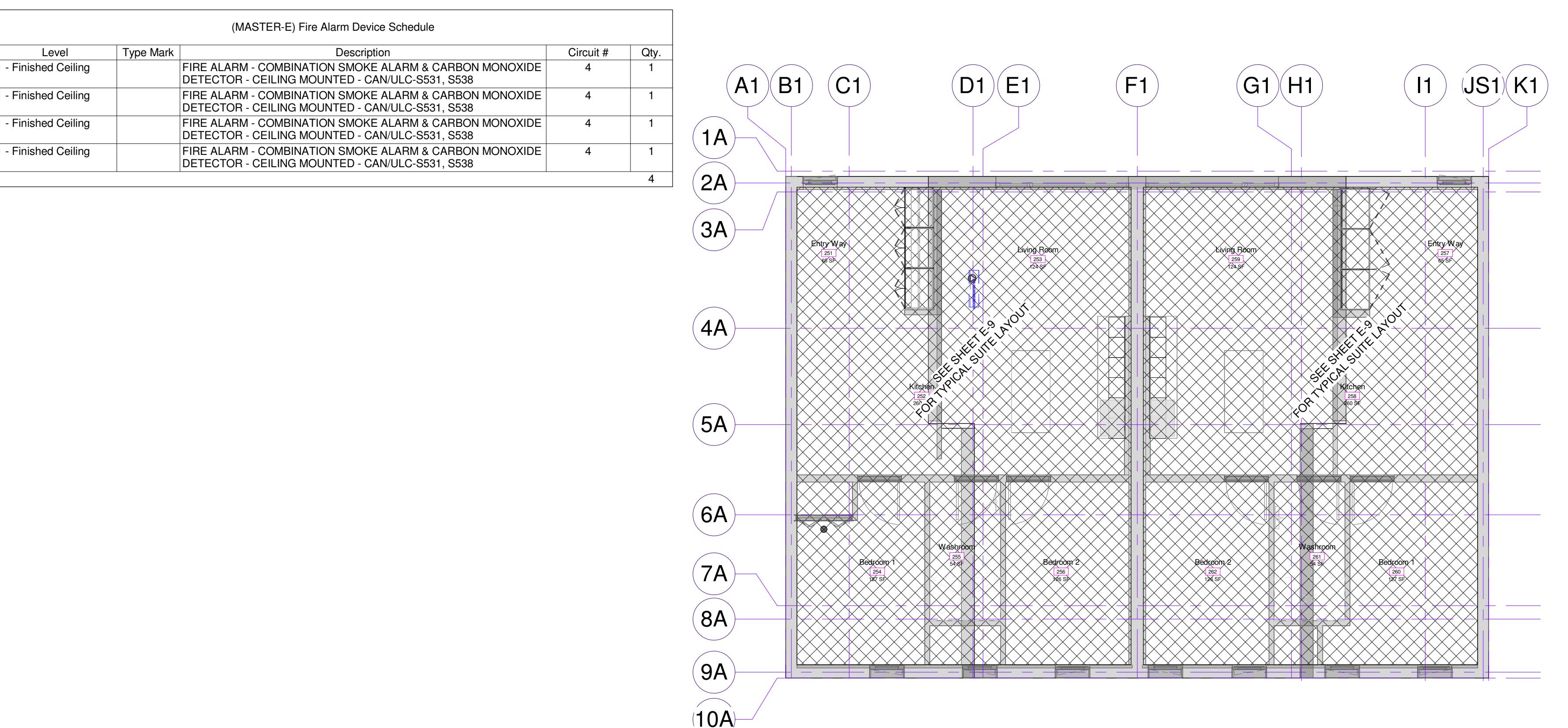


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 - THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNERS WORK IN ASSOCIATION WITH THIS PROJECT.
 - REQUESTS FOR ANY FOR ANY FINAL ASSEMBLY THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
 - REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.
 - SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.
 - MINIMUM FORTY (40) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.
 - REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR THE PURCHASE, TRANSFER, LEASE OR LICENSES TO CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
 - TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.
 - ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS		
No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

(04322) Lighting Fixture Schedule - Interior - Service & Common Areas																	
Level	Type	Qty.	Description	Fixture Finish	Color	Temperature	Lumens	Voltage	VA	Manufacturer	Part #	Elevation of Light Source	Mounting Comments	Accessory 1	Lamping	Supplied By	Approved Alternate
FFE Lower Level	C	2	LUMINAIRE / INDOOR / LINEAR / WALL / 48" LENGTH / LED DIRECT	WHITE	3500 K	1950 lm	120 V	20 VA	LITHONIA LIGHTING	RLNK L48 120 35K 80 CRI M4	<varies>	WALL		LED 20W	DIV. 26	APPROVED EQUAL	
B1 - Ceiling	E1	2	EXIT SIGN COMBO / cw BATT. & DBL. EMERG. LIGHT / CEILING / GREEN PICTOGRAM / SINGLE FACE / STRAIGHT-THRU / 120V / 12V-80W BATTERY / 12V-6W LED / WHITE				120 V	30 VA	LUMACELL	LSC1280W2LD10				2xMR16 LED 12V-6W	DIV. 26		
B1 - Finished Ceiling	A2	5	LUMINAIRE / INDOOR / LINEAR / SURFACE / 48" LENGTH / LED DIRECT	WHITE	3500 K	1950 lm	120 V	20 VA	LITHONIA LIGHTING	RLNK L48 120 35K 80 CRI M4		CEILING / SURFACE		LED 20W	DIV. 26	APPROVED EQUAL	
1 - U/S Landing	E4	1	EXIT SIGN COMBO / cw BATT. & DBL. EMERG. LIGHT / CEILING / GREEN PICTOGRAM / DOUBLE FACE / RIGHT ARROW / 120V / 12V-80W BATTERY / 12V-6W LED / WHITE				120 V	30 VA	LUMACELL	LSC1280W2LD10DF				2xMR16 LED 12V-6W	DIV. 26		
FFE Ground Floor	B	1	LUMINAIRE / INDOOR / VANITY / WALL / 24" LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	96"	WALL		LED 18W	DIV. 26	APPROVED EQUAL	
FFE Ground Floor	C	1	LUMINAIRE / INDOOR / LINEAR / WALL / 48" LENGTH / LED DIRECT	WHITE	3500 K	1950 lm	120 V	20 VA	LITHONIA LIGHTING	RLNK L48 120 35K 80 CRI M4	86 5/8"	WALL		LED 20W	DIV. 26	APPROVED EQUAL	
FFE Ground Floor	E2	1	EMERG. LIGHT / WALL / REMOTE DOUBLE HEAD / 12V / WHITE				12 V	12 VA	LUMACELL	MQM2LD10				2xMR16 LED	DIV. 26		
FFE Ground Floor	E3	1	EMERG. LIGHT / WALL / REMOTE SINGLE HEAD / 12V / WHITE				12 V	6 VA	LUMACELL	MQM1LD10				1xMR16 LED	DIV. 26		
1 - Finished Ceiling	A2	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 48" LENGTH / LED DIRECT	WHITE	3500 K	1950 lm	120 V	20 VA	LITHONIA LIGHTING	RLNK L48 120 35K 80 CRI M4		CEILING / SURFACE		LED 20W	DIV. 26	APPROVED EQUAL	
1 - Finished Ceiling	E1	2	EXIT SIGN COMBO / cw BATT. & DBL. EMERG. LIGHT / CEILING / GREEN PICTOGRAM / SINGLE FACE / STRAIGHT-THRU / 120V / 12V-80W BATTERY / 12V-6W LED / WHITE				120 V	30 VA	LUMACELL	LSC1280W2LD10				2xMR16 LED 12V-6W	DIV. 26		
1 - Finished Ceiling	L2	5	LUMINAIRE / INDOOR / DOME / SURFACE / 14" LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE		LED 24W	DIV. 26	APPROVED EQUAL	
1 - Finished Ceiling	TC	1	ASTRONOMIC TIME SWITCH						3.600 VA	INTERMATIC	ET8000 SERIES					DIV. 26	

(MASTER-E) Fire Alarm Device Schedule				
Level	Type Mark	Description	Circuit #	Qty.
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
				4



(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Scope of Work
M-8	HVAC - Bldg. 1
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details



- GENERAL DRAWING / DESIGNER NOTES:**
- [1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE REQUIREMENTS OF THE PROVINCE OF ONTARIO'S BUILDING CODE, LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
 - [2] THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION COSTS ARRIVING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND CONTRACTOR.
 - [3] DRAWINGS ONLY SHOW GENERAL INTENT AND PROVIDED BY CONTRACTOR(S). DO NOT SCALE DRAWINGS.
 - [4] CONTRACTOR/AGENT OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.
 - [5] PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".
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 - [9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OWN DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.
 - [10] REQUEST FOR PAYMENT FOR ANY FINAL ASSEMBLY VISIT THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
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 - [14] REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR PURCHASE, TRANSFER, LICENSE OR PROCESS TO A CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
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 - [16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS		
No.	Description	Date
1	Preliminary	May 19/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Client: WW Inc.
Address: Minden, ON
Project Name: Gull River Affordable Housing
Dwg. Name: Elec. Lighting - Bldg. 5
NSET Project #: 04322
Drawn by: Northstar Eng. Checked by: J.D.L.
Scale: As indicated Revision #: 6.0
Drawing #: E-17
Project Date: Jan. 14/22 Arch-D (24" x 36")

ELECTRICAL LEGEND		LIGHTING LEGEND	
(OFFICES) A - 20,22 @450mm A.F.F.	ELECTRICAL CIRCUIT TAG: • COMMENT • PANEL NAME • CIRCUIT# • JB ROUGH IN HEIGHT (CENTER LINE OF BOX) • ABOVE FINISHED FLOOR - FOR WALL MOUNTED - IN mm	-○-	LUMINAIRE - INTERIOR DOWNLIGHT - RECESSED - LED
(OFFICES) FC-1-07 A - 20	MECHANICAL EQUIPMENT CIRCUIT TAG: • AIR SYSTEM / COMMENT • MECHANICAL EQUIP. MARK / TYPE MARK • PANEL NAME • CIRCUIT #	-○-	LUMINAIRE - INTERIOR DOME - SURFACE MOUNTED - LED
(OFFICES) PB-1	ELECTRICAL EQUIPMENT TAG: • COMMENTS • PANEL NAME SEE SLD, SCHEDULES & PLAN VIEWS.	—+—	LUMINAIRE - INTERIOR LINEAR - SURFACE MOUNTED - LED
JB	JUNCTION BOX - WALL MOUNTED	— —	LUMINAIRE - INTERIOR TAPE - SURFACE MOUNTED - LED
JB	JUNCTION BOX - FLOOR MOUNTED	EXTERIOR LIGHTING LEGEND	
JB	JUNCTION BOX - CEILING MOUNTED	— —	LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED
△	DIRECT CONNECTION - SINGLE PHASE	-○-	LUMINAIRE - EXTERIOR BOLLARD - LED
▲	DIRECT CONNECTION - THREE PHASE	—□—	LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED
□	DISCONNECT	—○—	
△□	DIRECT CONNECTION c/w DISCONNECT	EXIT & EMERGENCY LIGHTING LEGEND	
xxx ○	DUPLEX RECEPTACLE (REFER TO SCHEDULES FOR NEMA TYPE & AMPERAGE) x 1 - WALL MOUNTED 'XXX' DENOTES: EX - EXISTING GFCI - GROUND FAULT CIRCUIT INTERRUPTER AFCI - ARC FAULT CIRCUIT INTERRUPTER ISO GD - ISOLATED GROUND O/C - OVER COUNTER U/C - UNDER COUNTER W/P - WEATHER PROOF TR - TAMPER RESISTANT USB - CONTAINS USB PORTS	BATT.	EXIT SIGN - CEILING MOUNTED • DIRECTIONAL ARROW • INDICATES NUMBER OF EMERGENCY LIGHTS c/w BATTERY • HATCH INDICATES NUMBER OF SIDES/ FACES
○	DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED	BATT.	EXIT SIGN - WALL MOUNTED • c/w BATTERY • DIRECTIONAL ARROW • INDICATES NUMBER OF EMERGENCY LIGHTS • HATCH INDICATES NUMBER OF SIDES/ FACES
○	DUPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED	—○—	BATTERY UNIT - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
○	DUPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED	○○	BATTERY UNIT c/w 2x EMERGENCY LIGHTS - PLUG-IN c/w DUPLEX RECEPTACLE - WALL MOUNTED
○	DUPLEX RECEPTACLE (120V, STD.) x 1 CAB TIRE c/w STRAIN RELIEF - SUSPENDED MOUNT	○○○	EMERGENCY LIGHT - REMOTE DOUBLE HEADS - CEILING MOUNTED
○	QUADPLEX RECEPTACLE (120V , STD.) x 1 - WALL MOUNTED	○○○○	EMERGENCY LIGHT - REMOTE DOUBLE HEADS - WALL MOUNTED
○	QUADPLEX RECEPTACLE (120V, STD.) x 1 - FLOOR MOUNTED	○○○○	EMERGENCY LIGHT - REMOTE SINGLE HEAD - CEILING MOUNTED
○	QUADPLEX RECEPTACLE (120V, STD.) x 1 - CEILING MOUNTED	○○○○	EMERGENCY LIGHT - REMOTE SINGLE HEAD - WALL MOUNTED
xxx ○	SINGLE RECEPTACLE x 1 (WALL MOUNTED) 'XXX' DENOTES: OUTLET PURPOSE VOLTAGE AMPERAGE SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)	LIGHTING CONTROLS LEGEND	
○	HANDICAP PUSH BUTTON - WALL MOUNTED	SW# 1 'A' B-30 @ 2100 mm AFF	LIGHTING CIRCUIT TAG: • SWITCH GROUP • FIXTURE TYPE • PANEL NAME • CIRCUIT # • JB ROUGH IN HEIGHT (CENTER LINE OF BOX) • ABOVE FINISHED FLOOR - WALL MOUNTED - IN mm
○	LOCK PUSH BUTTON - WALL MOUNTED	—NL—	TYP. LIGHT • INDICATES "NIGHT LIGHT" TO REMAIN ACTIVE AT ALL TIMES
○	EMERGENCY CALL PUSH BUTTON - WALL MOUNTED	SW# 1	SWITCH TAG (#1 SWITCH GROUP - LIGHTS ASSOCIATED WILL ACTIVATE ON THIS SWITCH)
○	DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED	—○—	EXTRA LOW VOLTAGE WIRE (ELV) <30V
TS	THERMOSTAT - SUPPLIED & INSTALLED BY DIV. 23 WIRE > 30V - CONNECTION BY DIV. 26 WIRE ≤ 30V - CONNECTION BY DIV. 23	—○—	LOW VOLTAGE SWITCH WIRE ≥30 TO 750V
COMMUNICATIONS LEGEND		\$	LINE VOLTAGE SWITCH - SINGLE POLE
▽	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - WALL MOUNTED	3 \$	LINE VOLTAGE SWITCH - 3 WAY
▽	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED	D \$	LINE VOLTAGE SWITCH - DIMMER
▽	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - FLOOR MOUNTED	\$ TO FAN	LINE VOLTAGE SWITCH - SINGLE POLE - TO FAN
▽	DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED	OC \$	LINE VOLTAGE SWITCH - OCCUPANCY SENSOR
WAP	WIRELESS ACCESS POINT DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED	OCT	LINE VOLTAGE OCCUPANCY SENSOR & TIMER - CEILING MOUNTED
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED	○○○	PHOTOCELL
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED	TC	ASTRONOMIC TIME SWITCH
TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED	SD C WG	CEILING MOUNT • SD: SMOKE DETECTOR - PHOTOELECTRIC • SD-D: DUCT TYPE PHOTOELECTRIC SMOKE DETECTOR • SD-B: BEAM TYPE SMOKE DETECTOR • SB: SMOKE DETECTOR c/w LOCAL SOUNDERBASE • SA: SMOKE ALARM • SA/CO: COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR • C: CONVENTIONAL • BLANK: ADDRESSABLE • WG: C/W WIRE GUARD
TV	DATA & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED	WP	WEATHER PROOF - OUTDOOR RATED
NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES		NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES	

(04322) Data Device Schedule - Typical Suite Only

Level	Rm. #	Description	Pin Config.	Qty
FFE Lower Level	106	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Lower Level	108	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
				2
FFE Ground Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	112	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	113	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
FFE Ground Floor	114	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1
				4
2 - Floor		OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
2 - Floor	224	OUTLET - TELEPHONE & DATA COMBINATION - WALL MOUNTED - ELEVATED		1
2 - Floor	225	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
2 - Floor	228	OUTLET - DATA & COAX CABLE COMBINATION - WALL MOUNTED		1
				4
Grand total				
				10

NOTES:

DATA DEVICE SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DATA DEVICES REQUIRED

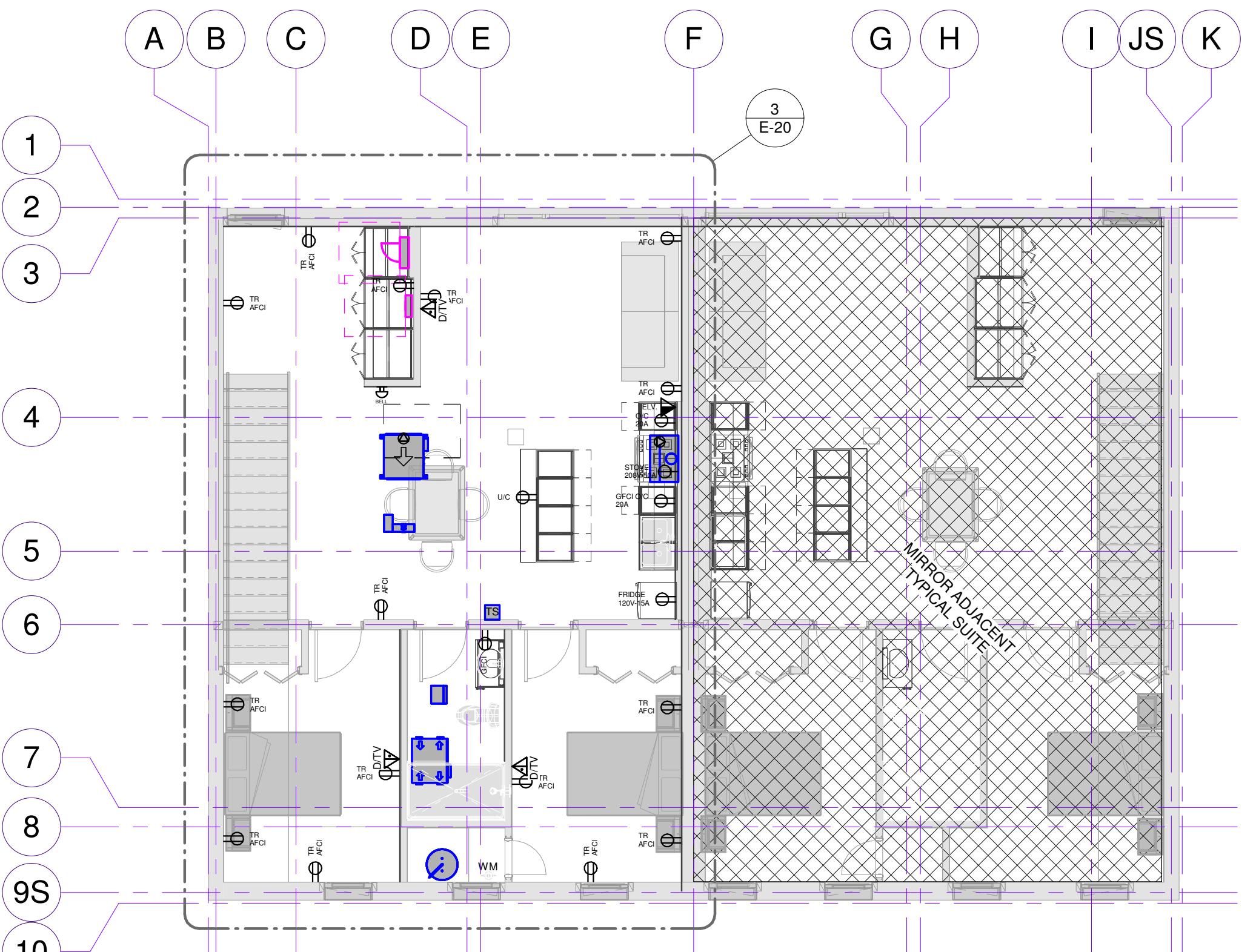
TOTAL NUMBER OF SUITES: 35

(04322) Electrical Receptacle Schedule - Typical Suite Only

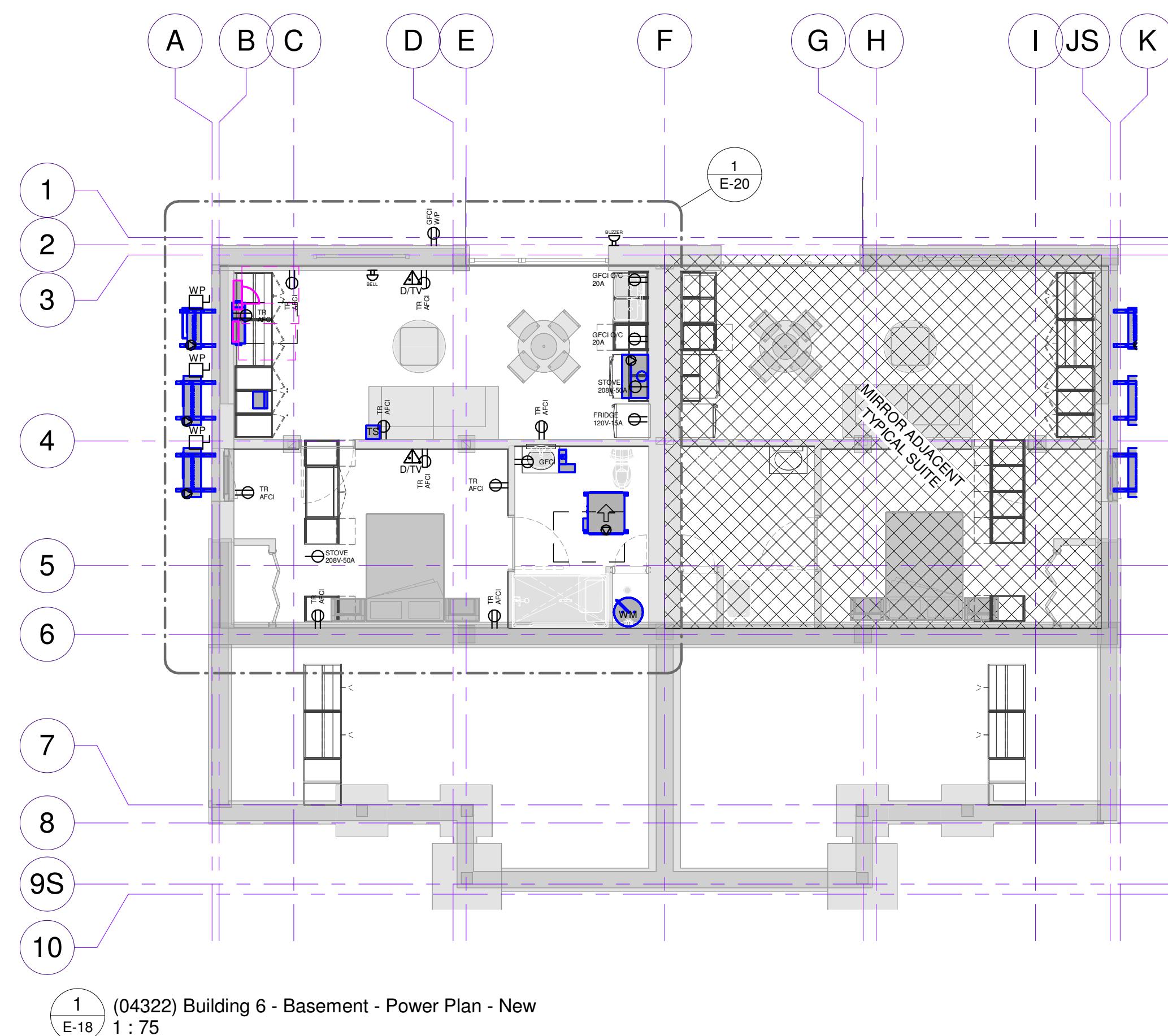
Level	Rm. #	Qty.	Description	
FFE Lower Level		1	ELECTRIC DOOR BUZZER	ELEC BUZZ
FFE Lower Level		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE	NEMA
FFE Lower Level	106	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA
FFE Lower Level	107	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA
FFE Lower Level	108	1	ELECTRIC DOOR BELL	ELEC
FFE Lower Level	108	5	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA
FFE Lower Level	108	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA
FFE Lower Level	108	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA
FFE Lower Level	108	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA
		18		
FFE Ground Floor		2	ELECTRIC DOOR BUZZER	ELEC BUZZ
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - GFCI - WEATHERPROOF c/w NEMA 4 ENCLOSURE	NEMA
FFE Ground Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA
FFE Ground Floor	112	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA
FFE Ground Floor	113	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA
FFE Ground Floor	114	1	ELECTRIC DOOR BELL	ELEC
FFE Ground Floor	114	3	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA
FFE Ground Floor	114	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA
FFE Ground Floor	114	2	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA
FFE Ground Floor	114	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER	NEMA
FFE Ground Floor	115	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA
FFE Ground Floor	116	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA
		25		
2 - Floor		1	ELECTRIC DOOR BELL	ELEC
2 - Floor		1	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA
2 - Floor	223	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA
2 - Floor	224	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA
2 - Floor	224	1	RECEPTACLE - SINGLE - WALL MOUNTED - 208V 50A - COOKING RANGE	NEMA
2 - Floor	224	1	RECEPTACLE / DUPLEX / UNDER COUNTER MNT. / 120V / 15A	NEMA
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / FRIDGE	NEMA
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / GFCI / OVER COUNTER	NEMA
2 - Floor	224	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 20A / OVER COUNTER	NEMA
2 - Floor	225	2	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA
2 - Floor	226	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA
2 - Floor	227	1	RECEPTACLE / DUPLEX / WALL MOUNTED / 120V / 15A / GFCI	NEMA
2 - Floor	228	4	RECEPTACLE - DUPLEX - WALL MOUNTED - 120V 15A - TAMPER RESISTANT	NEMA

22

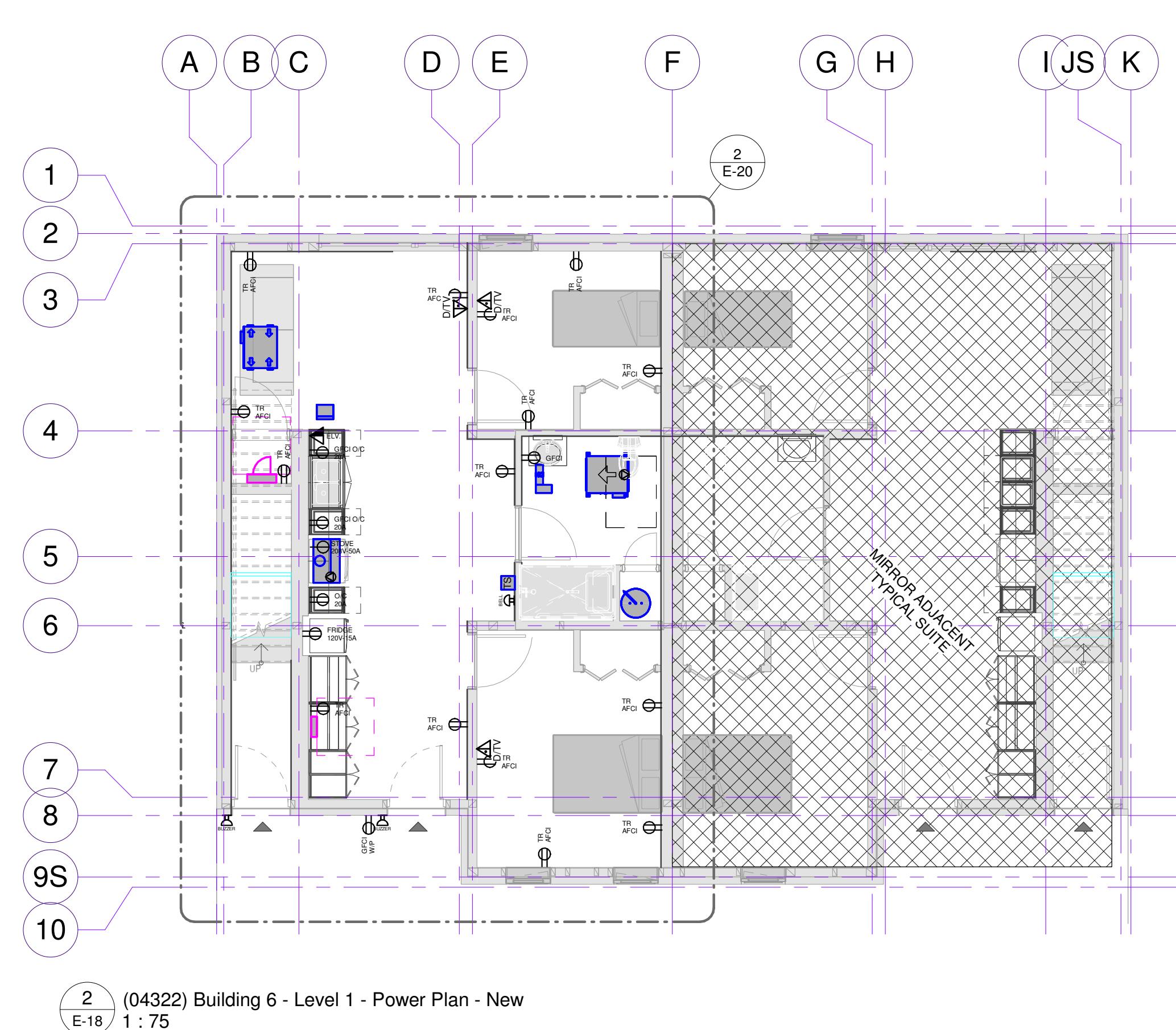
25



(04322) Building 6 - Level 2 - Power Plan - New
1 of 75



(04322) Building 6 - Basement - Power Plan - New
1 : 75



(04322) Building 6 - Level 1 - Power Plan - New
E-18 1 : 75

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg.1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg.4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg.6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing -Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing -Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm. - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

GENERAL DRAWING / DESIGNER NOTES:

ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE LATEST EDITION OF THE PROVINCE OF ONTARIO'S "BUILDING CODE", LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.

THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION FOR ADDITIONAL FEES. ADDITIONAL CONSTRUCTION COSTS ARRIVING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND CONTRACTOR.

DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. EXACT DETAILS OF INSTALLATIONS ARE TO BE PROVIDED BY CONTRACTOR(S). DO NOT SCALE DRAWINGS.

CONTRACTOR/AGENT/OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.

PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".

THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.

THIS DRAWING IS THE PROPERTY OF NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUCTION OR USE IS PROHIBITED.

SHOP DRAWINGS:

BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW SHOP SUBMISSION DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM RESPONSIBILITY TO MAKE A FEASIBLE WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS. MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).

THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OTHER DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.

RESPONSIBILITY FOR ANY FINAL ASSEMBLY(S) THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.

REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.

SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.

MINIMUM FORTY EIGHT (48) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.

REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR THE PURPOSE OF TENDERING PURPOSES BY ANY CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.

TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.

ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW

REQUESTS		
DRAWING REVISIONS		
o.	Description	Date
	Issued for Review	Apr. 22/22
	Preliminary for Review	Sep. 09/22
	Issued for Permit	Oct. 05/22
	Issued for Tender	May 18/23
	Re-Issued for Tender	Dec. 20/24

The image shows a circular seal for J.D. Long, Professional Engineer. The outer ring contains the text "LICENCED PROFESSIONAL ENGINEER" at the top and "PROFESSIONAL ENGINEER" at the bottom. The inner circle contains "J.D. LONG" at the bottom and "MARIO" at the top. A large, handwritten signature "Long" is written across the center of the seal. At the bottom of the seal, there is a small oval containing the date "Dec. 20/24".

ent:
WW Inc.
dress:

Object Name:

Wg. Name: _____

ET Project #: **04322**

rawn by: Northstar Eng.	Checked by: D.B.D.
ale: As indicated	Revision #: 6.0
rawing #:	F-18

E-18

Object Date: Jan. 14/22 Arch-D (24" x 36")

(04322) Lighting Fixture Schedule - Interior - Typical Suite Only																
Level	Type	Qty.	Description	Fixture Finish	Color Temperature	Lumens	Voltage	VA	Manufacturer	Part #	Elevation of Light Source	Mounting Comments	Accessory 1	Lamping	Supplied By	Approved Alternate
FFE Lower Level	B	1	LUMINAIRE / INDOOR / VANTY / WALL / 24' LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W DIV. 26	APPROVED EQUAL		
B1 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18" LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W DIV. 26	APPROVED EQUAL		
B1 - Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24' LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	9 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE	LED 8.9W DIV. 26	APPROVED EQUAL		
B1 - Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11' LENGTH / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE	LED 16W DIV. 26	APPROVED EQUAL		
B1 - Ceiling	L2	3	LUMINAIRE / INDOOR / DOME / SURFACE / 14' LENGTH / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W DIV. 26	APPROVED EQUAL		
FFE Ground Floor	B	1	LUMINAIRE / INDOOR / VANTY / WALL / 24' LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W DIV. 26	APPROVED EQUAL		
1 - U/S Cabinet	K	4	LUMINAIRE / INDOOR / TAPE / SURFACE / 18' LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W DIV. 26	APPROVED EQUAL		
1 - Finished Ceiling	A1	2	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24' LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	16 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE	LED 8.9W DIV. 26	APPROVED EQUAL		
1 - Finished Ceiling	L1	1	LUMINAIRE / INDOOR / DOME / SURFACE / 11' LENGTH / LED DIRECT	WHITE	4000 K	1100 lm	120 V	16 VA	LITHONIA LIGHTING	FMLRL 11 14840 M4		CEILING / SURFACE	LED 16W DIV. 26	APPROVED EQUAL		
1 - Finished Ceiling	L2	6	LUMINAIRE / INDOOR / DOME / SURFACE / 14' LENGTH / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W DIV. 26	APPROVED EQUAL		
2 - Floor	B	1	LUMINAIRE / INDOOR / VANTY / WALL / 24' LENGTH / LED DIRECT	BRUSHED NICKEL	3000 K	1300 lm	120 V	18 VA	LITHONIA LIGHTING	FMVCSL 24IN MVOLT 30K 90CRI BN M6	84"	WALL	LED 18W DIV. 26	APPROVED EQUAL		
2 - Floor	P	4	LUMINAIRE / INDOOR / PENDANT / SUSPENDED / LED DIRECT	WHITE	4000 K	4800 lm	120 V	34 VA	LITHONIA LIGHTING	VCVLED-V4-P2-40K-80CRI-T5W-120-PM-DWHXD	108"	SUSPENDED	LED 34W DIV. 26	APPROVED EQUAL		
2 - U/S Cabinet	K	3	LUMINAIRE / INDOOR / TAPE / SURFACE / 18' LENGTH / LED DIRECT	WHITE	3500 K	400 lm	120 V	9 VA	LITHONIA LIGHTING	UCES 18IN SWW6 90CRI WH M6		CEILING / SURFACE	LED 8.4W DIV. 26	APPROVED EQUAL		
2 - Finished Ceiling	A1	1	LUMINAIRE / INDOOR / LINEAR / SURFACE / 24' LENGTH / LED DIRECT	WHITE	3500 K	940 lm	120 V	16 VA	LITHONIA LIGHTING	RLNK L24 120 35K 80 CRI M4		CEILING / SURFACE	LED 8.9W DIV. 26	APPROVED EQUAL		
2 - Finished Ceiling	L2	4	LUMINAIRE / INDOOR / DOME / SURFACE / 14' LENGTH / LED DIRECT	WHITE	4000 K	1600 lm	120 V	24 VA	LITHONIA LIGHTING	FMLRL 14 20840 M4		CEILING / SURFACE	LED 24W DIV. 26	APPROVED EQUAL		
		36														

NOTES:
LIGHTING SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF LIGHTING FIXTURES REQUIRED

TOTAL NUMBER OF SUITES: 35

(MASTER-E) Fire Alarm Device Schedule

Level	Type Mark	Description	Circuit #	Qty.
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
2 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
1 - Finished Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	7	1
B1 - Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
B1 - Ceiling		FIRE ALARM - COMBINATION SMOKE ALARM & CARBON MONOXIDE DETECTOR - CEILING MOUNTED - CAN/ULC-S531, S538	4	1
				8

NOTES:
FIRE ALARM SCHEDULE ABOVE IS FOR TYPICAL SUITE TYPE AND DOES NOT REFLECT THE TOTAL QUANTITY OF DEVICES REQUIRED

TOTAL NUMBER OF SUITES: 35

(04322) PROJECT DRAWING REGISTER



92 Caplan Ave, Suite #517
Barrie, Ontario L4N 9J2
Tel. (705) 719-1003 Fax (705) 719-0490
dlong@nset.ca www.nset.ca

Sheet # Sheet Name

- | | |
|----------|------------------------------------|
| E1/M1/P1 | Project Cover |
| E2/M2/P2 | Project Cover |
| M-3 | HVAC - Specifications |
| M-4 | HVAC - Specifications |
| M-5 | HVAC - Scope of Work |
| M-6 | HVAC - Scope of Work |
| M-7 | HVAC - Bldg. 1 |
| M-8 | HVAC - Bldg. 2 |
| M-9 | HVAC - Bldg. 3 |
| M-10 | HVAC - Bldg. 4 |
| M-11 | HVAC - Bldg. 5 |
| M-12 | HVAC - Bldg. 6 |
| M-13 | HVAC - Isometric & Elevation Views |
| M-14 | HVAC Details |
| P-3 | Plumbing - Specifications |
| P-4 | Plumbing - Specifications |
| P-5 | Plumbing - Site Plan |
| P-6 | Plumbing - Bldg. 1 |
| P-7 | Plumbing - Bldg. 2 |
| P-8 | Plumbing - Bldg. 3 |
| P-9 | Plumbing - Bldg. 4 |
| P-10 | Plumbing - Bldg. 5 |
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| P-12 | Plumbing - Typical Building |
| P-13 | Plumbing - Details |
| P-14 | Plumbing - Water Schematic |
| P-15 | Plumbing - Sanitary Schematic |
| E-3 | Elec. Power - Specifications |
| E-4 | Elec. Power - Specifications |
| E-5 | Elec. Power - Scope of Work |
| E-6 | Elec. Electrical Site Plan |
| E-7 | Elec. - SLD |
| E-8 | Power/Comm - Bldg. 1 |
| E-9 | Elec. Lighting - Bldg. 1 |
| E-10 | Power/Comm - Bldg. 2 |
| E-11 | Elec. Lighting - Bldg. 2 |
| E-12 | Power/Comm - Bldg. 3 |
| E-13 | Elec. Lighting - Bldg. 3 |
| E-14 | Power/Comm - Bldg. 4 |
| E-15 | Elec. Lighting - Bldg. 4 |
| E-16 | Power/Comm - Bldg. 5 |
| E-17 | Elec. Lighting - Bldg. 5 |
| E-18 | Power/Comm - Bldg. 6 |
| E-19 | Elec. Lighting - Bldg. 6 |
| E-20 | Elec. Typical Building |
| E-21 | Electrical Schedules |
| E-22 | Electrical Details |

GENERAL DRAWING / DESIGNER NOTES:

- [1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE PROVISIONS OF THE PROVINCE OF ONTARIO'S BUILDING CODE, LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
- [2] THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION COSTS ARRIVING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND CONTRACTOR.
- [3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. DETAILS ARE PROVIDED BY CONTRACTOR(S). DO NOT SCALE DRAWINGS.
- [4] CONTRACTOR/OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.
- [5] PROCEDURES WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS MARKED "ISSUED FOR CONSTRUCTION".
- [6] THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.
- [7] THIS DRAWING IS THE PROPERTY OF NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. UN-AUTHORIZED RE-PRODUCTION OR USE IS PROHIBITED.
- [8] SHOP DRAWINGS: BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW AND APPROVE DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS. THE SHOP DWG REVIEW WILL NOT RELEASE THE CONTRACTOR FROM THE CONTRACTUAL REQUIREMENTS OF THE MECHANICAL WORKING SYSTEM. THESE SHOP DRAWINGS SHALL CONSIST OF PLUMBING FIXTURES, HVAC EQUIPMENT, HVAC DIFFUSERS, MINIMUM 1-2 WEEKS FOR COMPLETION (BASED ON COMPLEXITY).
- [9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OWNERS DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.
- [10] REQUESTS FOR ANY FOR AN FINAL ASSEMBLY THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
- [11] REQUESTS FOR CHANGES OR SUBSTITUTIONS TO EQUIPMENT, PLANS AND / OR SPECIFICATIONS WILL BE SUBJECT TO ADDITIONAL FEES CHARGED BY THE CONSULTANT.
- [12] SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.
- [13] MINIMUM FORTY EIGHT (48) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.
- [14] REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR THE PURCHASE, LEASING, TRANSFERS, PROCESS TO A CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
- [15] TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.
- [16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client: WW Inc.

Address: Minden, ON

Project Name: Gull River Affordable Housing

Dwg. Name: Elec. Lighting - Bldg 6

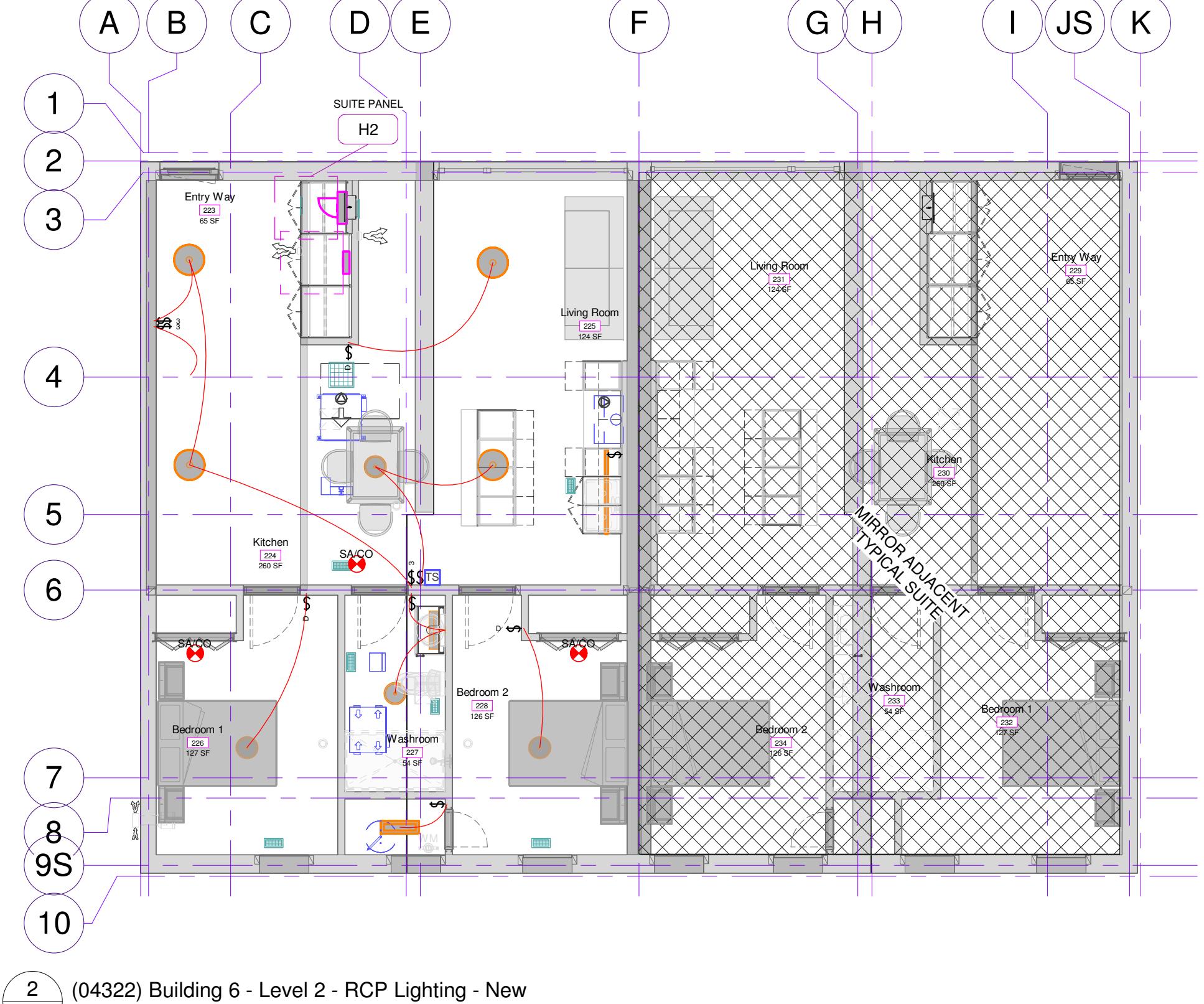
NSET Project #: 04322

Drawn by: Northstar Eng. Checked by: D.B.D.

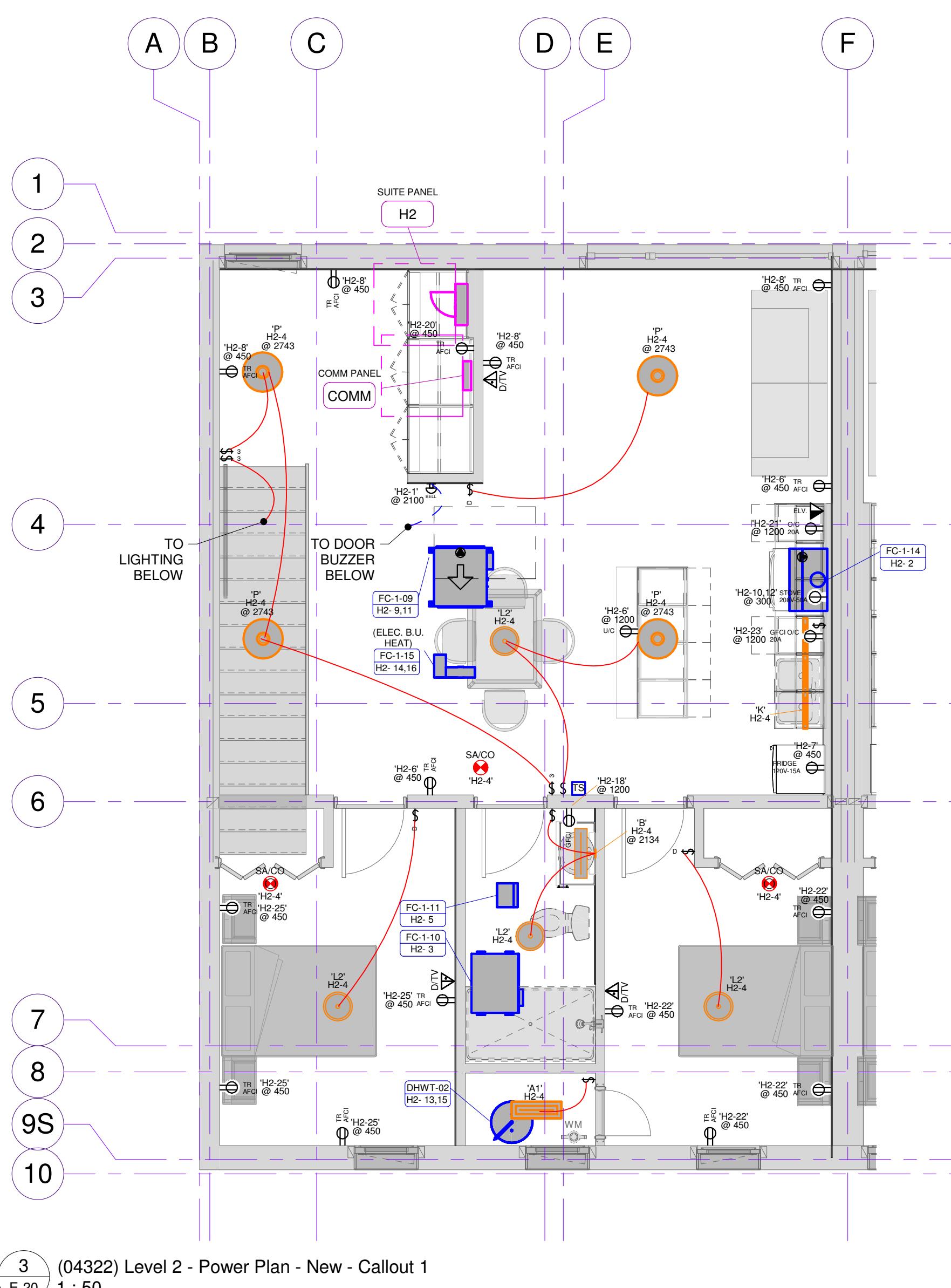
Scale: As indicated Revision #: 6.0

Drawing #: E-19

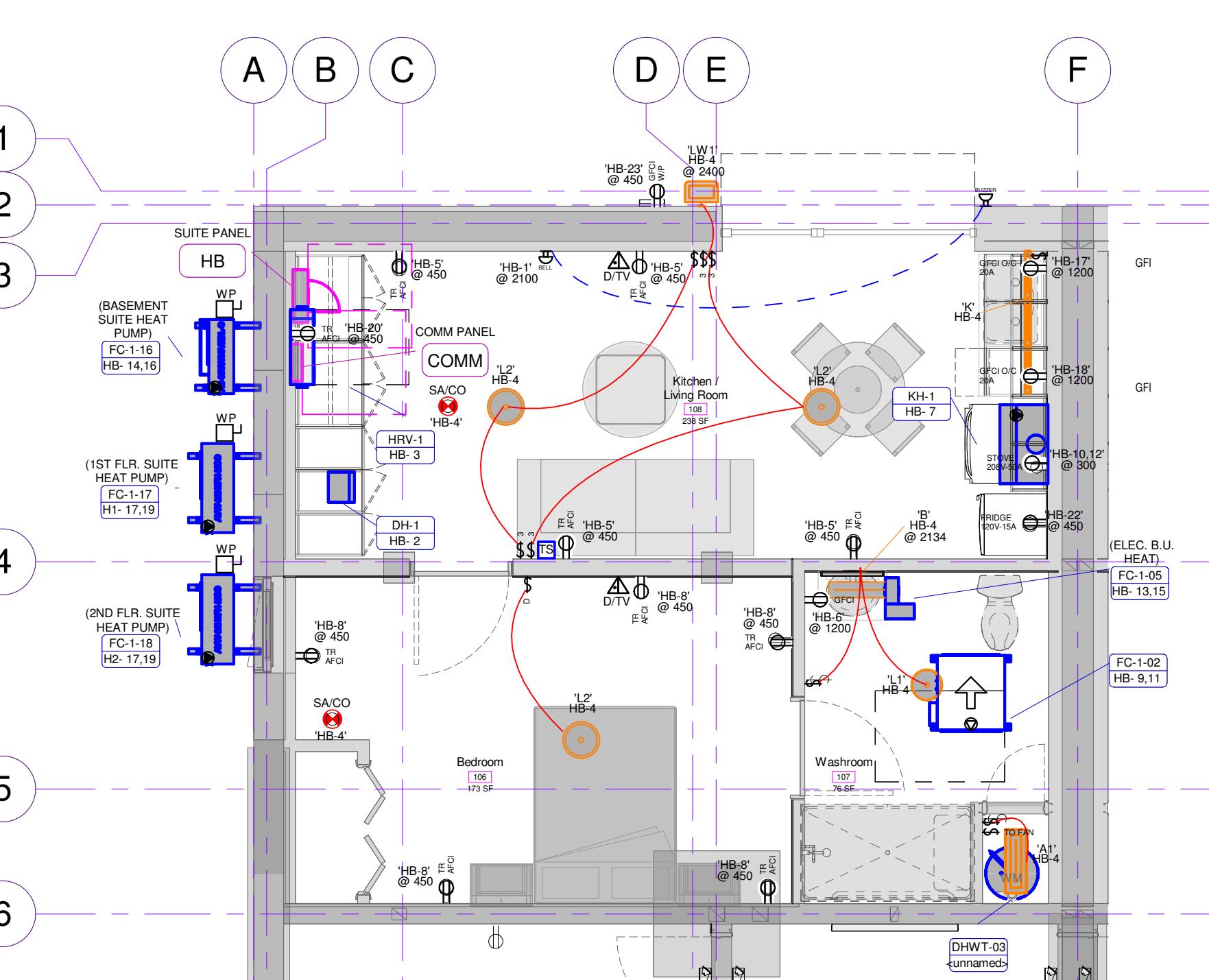
Project Date: Jan. 14/22 Arch-D (24" x 36")



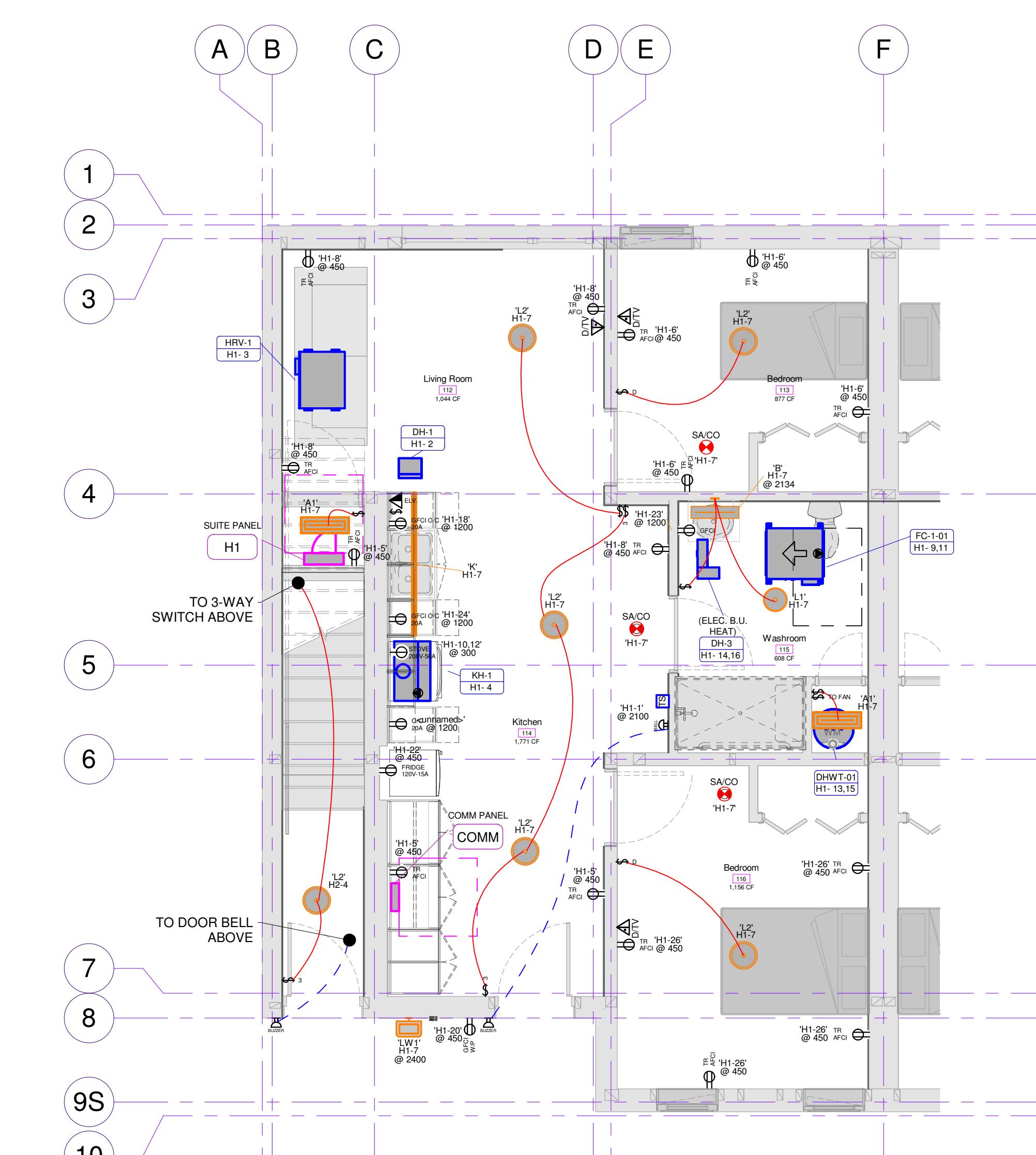
ELECTRICAL LEGEND		LIGHTING LEGEND	
(OFFICES)	ELECTRICAL CIRCUIT TAG: COMMENT: PANEL NAME: CIRCUIT #	A - 20.22 @450mm A.F.C.	LUMINAIRE - INTERIOR DOWNLIGHT - RECESSED - LED JB ROUGH IN HEIGHT (CENTER LINE OF BOX) 1000MM ABOVE FINISHED FLOOR - FOR WALL MOUNTED - IN mm
(OFFICES)	MECHANICAL EQUIPMENT CIRCUIT TAG: AIR SYSTEM / COMMENT: MECHANICAL EQUIP. MARK / TYPE: PANEL NAME: CIRCUIT #	FC-1-07 A - 20	LUMINAIRE - INTERIOR DOME - SURFACE MOUNTED - LED
(OFFICES)	ELECTRICAL EQUIPMENT TAG: COMMENTS: PANEL NAME	SEE SLD. SCHEDULES & PLAN VIEWS.	LUMINAIRE - INTERIOR LINEAR - SURFACE MOUNTED - LED LUMINAIRE - INTERIOR LINEAR - WALL MOUNTED - LED LUMINAIRE - INTERIOR LINEAR PENDANT - SUSPENDED - LED
JB	JUNCTION BOX - WALL MOUNTED		LUMINAIRE - INTERIOR TAPE - SURFACE MOUNTED - LED
JB	JUNCTION BOX - FLOOR MOUNTED		
EXTERIOR LIGHTING LEGEND			
JB	JUNCTION BOX - CEILING MOUNTED		LUMINAIRE - EXTERIOR WALL PACK - WALL MOUNTED - LED
Ⓐ	DIRECT CONNECTION - SINGLE PHASE		LUMINAIRE - EXTERIOR BOLLARD - LED
Ⓑ	DIRECT CONNECTION - THREE PHASE		LUMINAIRE - EXTERIOR POLE LIGHT - SINGLE HEAD - RECTANGULAR HEAD - LED
□	DISCONNECT		
Ⓐ	DIRECT CONNECTION w/ DISCONNECT		
EXIT & EMERGENCY LIGHTING LEGEND			
xxx	DUPLEX RECEPTACLE (NEMA TYPE & AMPEREAGE) x1 - WALL MOUNTED		DUPLX RECEPTACLE (NEMA TYPE & AMPEREAGE) x1 - WALL MOUNTED
xxx	EX - EXISTING GFCI - GROUND FAULT CIRCUIT INTERRUPTER		
	AFCI - ARC FAULT CIRCUIT INTERRUPTER		
	GFI - GROUND FAULT CIRCUIT INTERRUPTER		
O/C	OVER COUNTER		
U/C	UNDER COUNTER		
W/C	WALL COUNTER		
TR	TAMPER RESISTANT		
	USB - CONTAINS USB PORTS		
	DUPLEX RECEPTACLE SPLIT (INDIV. CIRCUITS) - WALL MOUNTED		
	DUPLEX RECEPTACLE (120V, STD.) x1 - FLOOR MOUNTED		
	DUPLEX RECEPTACLE (120V, STD.) x1 - CEILING MOUNTED		
	DUPLEX RECEPTACLE (120V, STD.) x1 - CAB TIRE - STRAIN RELIEF - SUSPENDED MOUNT		
	QUADPLEX RECEPTACLE (120V, STD.) x1 - WALL MOUNTED		
	QUADPLEX RECEPTACLE (120V, STD.) x1 - FLOOR MOUNTED		
	QUADPLEX RECEPTACLE (120V, STD.) x1 - CEILING MOUNTED		
	SINGLE RECEPTACLE x1 (WALL MOUNTED)		
xxx	XXX DENOTES OUTLET PURPOSE: VOLTAGE: AMPEREAGE: SEE SYMBOL ON PLANS (REFER TO SCHEDULES FOR NEMA TYPE)		
H	HANDICAP PUSH BUTTON - WALL MOUNTED		
L	LOCK PUSH BUTTON - WALL MOUNTED		
E	EMERGENCY CALL PUSH BUTTON - WALL MOUNTED		
NL	DOME LIGHT (STROBE) WITH SOUNDER - WALL MOUNTED		
TS	THERMOSTAT - SUPPLIED & INSTALLED BY: 20V - 30V - CONNECTION BY DIV. 26 WIRE <= 30V - CONNECTION BY DIV. 23		
COMMUNICATIONS LEGEND			
V	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - WALL MOUNTED		
V	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED		
V	TELEPHONE & DATA COMBINATION OUTLET - QUANTITY AS INDICATED - FLOOR MOUNTED		
V	DATA OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED		
WAP	WIRELESS ACCESS POINT DATA: OUTLET - QUANTITY AS INDICATED - CEILING MOUNTED		
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED		
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED		
TV	COAX CABLE TV OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED		
D/TV	D/TV & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - WALL MOUNTED		
D/TV	D/TV & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - FLOOR MOUNTED		
D/TV	D/TV & COAX COMBINATION OUTLET - QUANTITY AS INDICATED - PROVIDE RG6 CABLE - CEILING MOUNTED		
WP	WEATHER PROOF - OUTDOOR RATED		
NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES		NOT ALL SYMBOLS APPLY TO FLOOR PLANS / DRAWINGS SEE SPECIFICATIONS FOR ALL CABLE TYPES	



04322 Level 2 - Power Plan - New - Callout 1



04322 Basement - Electrical - Typical Suite Layout



04322 Level 1 - Power Plan - New - Callout 1

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
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M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
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E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Power/Comm - Bldg. 6
E-19	Elec. Lighting - Bldg 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details



GENERAL DRAWING / DESIGNER NOTES:

- [1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE REQUIREMENTS OF THE PROVINCE OF ONTARIO'S BUILDING CODE, LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
- [2] THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION COSTS ARISING FROM SUCH CHANGES MAY APPLY AND ARE TO BE NEGOTIATED BETWEEN THE OWNER AND CONTRACTOR.
- [3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. DETAILS ARE PROVIDED BY THE CONTRACTOR. DRAWINGS PROVIDED BY THE CONTRACTOR ARE THE PROPERTY OF THE OWNER.
- [4] CONTRACTOR/OWNER TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE DESIGNER.
- [5] PROCEED WITH CONSTRUCTION ONLY USING THE LATEST REVISED DRAWINGS ISSUED FOR CONSTRUCTION.
- [6] THIS DRAWING IS SPECIFIC TO THIS PROJECT AND CANNOT BE USED FOR OTHER "SIMILAR" PROJECTS.
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- [9] THE DESIGNER DOES NOT ACCEPT RESPONSIBILITY FOR OWN DESIGNER'S WORK IN ASSOCIATION WITH THIS PROJECT.
- [10] REQUESTS FOR ANY FINAL ASSEMBLY THAT VIOLATE APPLICABLE BUILDING CODES IS NOT ACCEPTED BY THE DESIGNER.
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- [12] SITE VISITS TO REVIEW IMPLEMENTED DESIGNS WITHIN THE SCOPE OF THIS PROJECT TO BE ARRANGED WITH THE OWNER.
- [13] MINIMUM FORTY (40) HOURS PRIOR NOTICE TO BE PROVIDED FOR SITE VISITS - ONCE ARRANGED.
- [14] REQUESTS FOR THE RELEASE OF THIS DRAWING SET FROM NORTHSTAR ENGINEERING & TECHNOLOGIES LTD. FOR THE PURCHASE OF EQUIPMENT ACROSS THE PROJECT CONTRACTOR TO BE MADE BY THE OWNER OR ARCHITECT IN WRITING.
- [15] TENDER PRICING BY CONTRACTORS OF DRAWINGS TO BE BASED ON DWGS MARKED "ISSUED FOR TENDER" OR "ISSUED FOR CONSTRUCTION" ONLY.
- [16] ALL REQUESTS FOR DESIGN CHANGES / SUBSTITUTIONS TO BE MADE IN WRITING. ADDITIONAL FEES MAY APPLY. ALLOW MINIMUM ONE WEEK TO REVIEW AND RESPOND TO CHANGE REQUESTS.

DRAWING REVISIONS

No.	Description	Date
2	Issued for Review	Apr. 22/22
3	Preliminary for Review	Sep. 09/22
4	Issued for Permit	Oct. 05/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client: WW Inc.
Address: Minden, ON
Project Name: Gull River Affordable Housing
Dwg. Name: Elec. Typical Building
NSET Project #: 04322
Drawn by: Northstar Eng. Checked by: D.B.D.
Scale: As indicated Revision #: 6.0
Drawing #: E-20
Project Date: Jan. 14/22 Arch-D (24" x 36")

(MASTER-E) Electric Heat Schedule - (New)											
Type Mark	Description	Mfg.	Model	Fuel Type	Voltage	Phase	Heating Capacity	Supplied By			
BBH-1	BASEBOARD HEATER / 750W / 208V 1P	OUELET	OFM0758BL	ELEC.	208	1	2,559 Btu/h	DIV. 23			
BBH-1	BASEBOARD HEATER / 750W / 208V 1P	OUELET	OFM0758BL	ELEC.	208	1	2,559 Btu/h	DIV. 23			
BBH-1	BASEBOARD HEATER / 750W / 208V 1P	OUELET	OFM0758BL	ELEC.	208	1	2,559 Btu/h	DIV. 23			
DH-1	DUCT HEATER / 1kW / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	THERMOLEC	TER-6-1120	ELEC.	120 V	1	3,412 Btu/h	DIV. 23			
DH-1	DUCT HEATER / 1kW / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	THERMOLEC	TER-6-1120	ELEC.	120 V	1	3,412 Btu/h	DIV. 23			
DH-1	DUCT HEATER / 1kW / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	THERMOLEC	TER-6-1120	ELEC.	120 V	1	3,412 Btu/h	DIV. 23			
DH-1	DUCT HEATER / 1kW / 24V SCR MODULATING CONTROLS / 6" ROUND DUCT	THERMOLEC	TER-6-1120	ELEC.	120 V	1	3,412 Btu/h	DIV. 23			
DH-2	DUCT HEATER / 2kW / 10"x6" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-02LS	ELEC.	208	1	6,824 Btu/h	DIV. 23			
DH-3	DUCT HEATER / 3kW / 14"x6" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-03LS	ELEC.	208	1	10,236 Btu/h	DIV. 23			
DH-3	DUCT HEATER / 3kW / 14"x6" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-03LS	ELEC.	208	1	10,236 Btu/h	DIV. 23			
DH-4	DUCT HEATER / 30kW / 16"x16" DUCT / 24V SCR MODULATING CONTROLS	THERMOLEC	MSC0-30LS	ELEC.	208	3	102,364 Btu/h	DIV. 23			
FFH-1	HEATER / FAN FORCED / CEILING / SURFACE / 240V 10 / 1500W / WHITE c/w BUILT-IN THERMOSTAT	OUELET	OACP1500-BL & KIT-OAC-B51	ELEC.	208	1	5,118 Btu/h	DIV. 23			
FFH-1	HEATER / FAN FORCED / CEILING / SURFACE / 240V 10 / 1500W / WHITE c/w BUILT-IN THERMOSTAT	OUELET	OACP1500-BL & KIT-OAC-B51	ELEC.	208	1	5,118 Btu/h	DIV. 23			
FFH-1	HEATER / FAN FORCED / CEILING / SURFACE / 240V 10 / 1500W / WHITE c/w BUILT-IN THERMOSTAT	OUELET	OACP1500-BL & KIT-OAC-B51	ELEC.	208	1	5,118 Btu/h	DIV. 23			
Grand total							166,342 Btu/h				

(04322) PROJECT DRAWING REGISTER

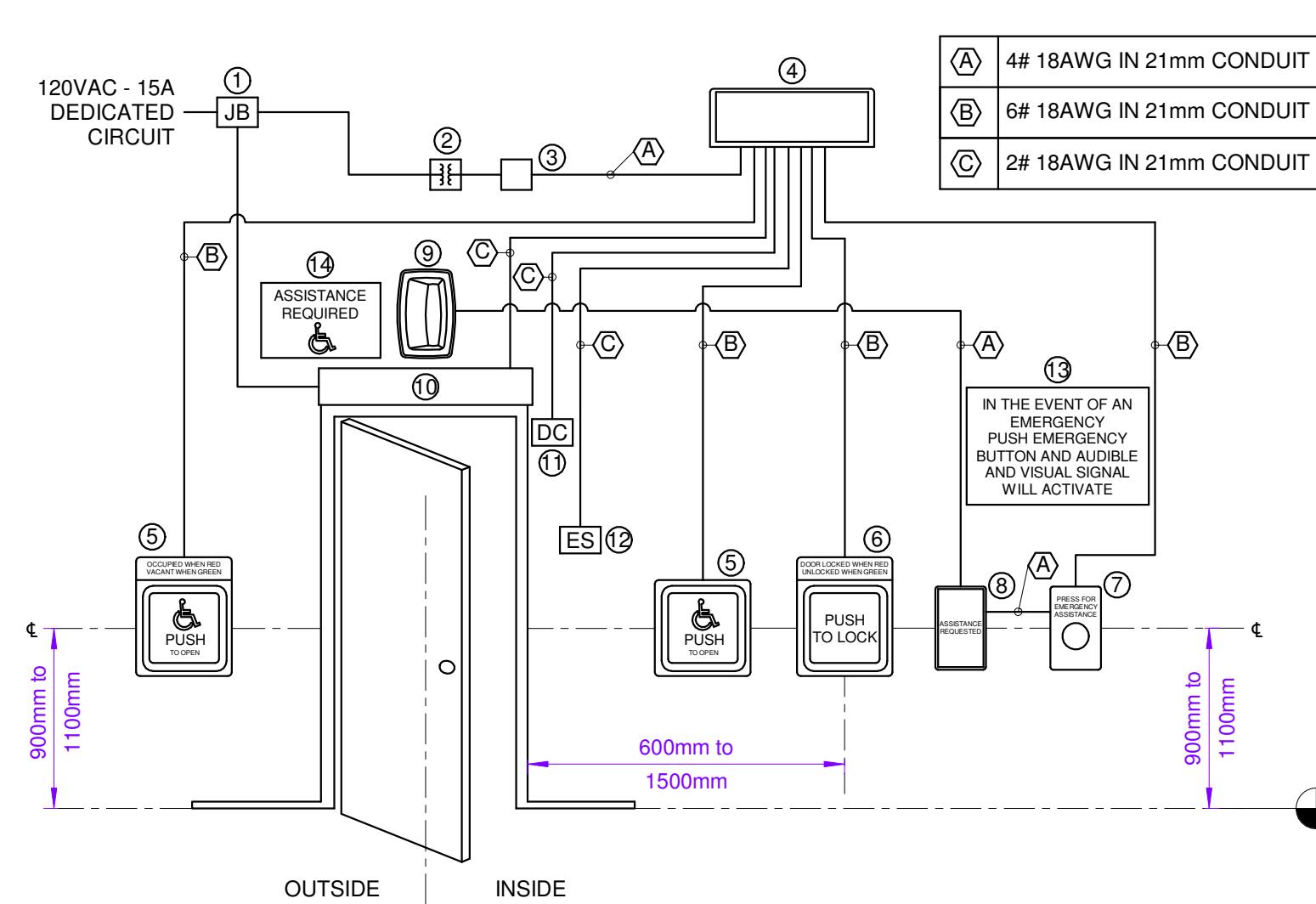
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
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WIRE SIZE NOTE: ALL 15A & 20A CIRCUITS TO BE SERVED BY 12AWG MINIMUM WIRE c/w 3/4" CONDUIT UNLESS NOTED IN THE SCHEDULE.											
Panel: H2											
Location: Volts: 120/208 Single Mains Rating: 100 A Serves: SUITE PANEL											
Supply From: RECESSED Mounting: Model: POW-R-LINE PRL1a Mfg.: EATON											
Circuit Description # L # N Item# Wire, Cond. Brkr. A B Brkr. Item# Wire, Cond. # N # L Circuit Description CKT											
1 DOOR BELL 1 1 15 A 10 VA 996 VA 15 A 1 HVAC - KH-1 2											
3 HVAC - HRV-1 1 1 15 A 96 VA 204 VA 15 A 1 HVAC - KH-1 4											
5 RECEPTACLE - AFCI KITCHEN / LIVIN... 1 1 15 A 1,080 VA 1,440 VA 15 A 1 RECEPTACLE - BEDROOM AFCI 6											
7 LIGHTING 1 1 15 A 246 VA 1,440 VA 15 A 1 RECEPTACLE - AFCI KITCHEN / LIVING ROOM 8											
9 HVAC - FC-2 2 0 15 A 135 VA 180 VA 50 A 3# 6AWG IN 27mm C 0 2 STOVE 10											
11 -- -- -- 135 VA 180 VA 15 A 1 HVAC - KH-1 12											
13 HWT 2 0 20 A 1,500 VA 1,503 VA 20 A 0 2 HVAC - DH-3 14											
15 -- -- -- 1,500 VA 1,503 VA 15 A 1 HVAC - KH-1 16											
17 HVAC - HP-2 2 0 3# 10AWG IN 21mmC 30 A 2,413 VA 360 VA 20 A 1 RECEPTACLE - GFCI KITCHEN COUNTER 18											
19 -- -- -- 2,413 VA 360 VA 15 A 1 RECEPTACLE - OUTDOOR 20											
21 RECEPTACLE - GFCI WR 1 1 15 A 360 VA 360 VA 20 A 1 RECEPTACLE - GFCI KITCHEN COUNTER 24											
23 RECEPTACLE - GFCI OUTDOOR 1 1 15 A 1,440 VA 1,440 VA 15 A 1 RECEPTACLE - BEDROOM AFCI 26											
25 -- -- -- 1,440 VA 1,440 VA 15 A 1 HVAC - KH-1 28											
27 -- -- -- 1,440 VA 1,440 VA 15 A 1 HVAC - KH-1 30											
29 Notes: Provide GND. wires as per CDN. Elec. Code. Total Load: 11,312 VA 8,690 VA Total Connected Load: Provide LOCKING CLIPS on all Life Safety Circuits. Total... 105 A 84 A 20,001 VA											



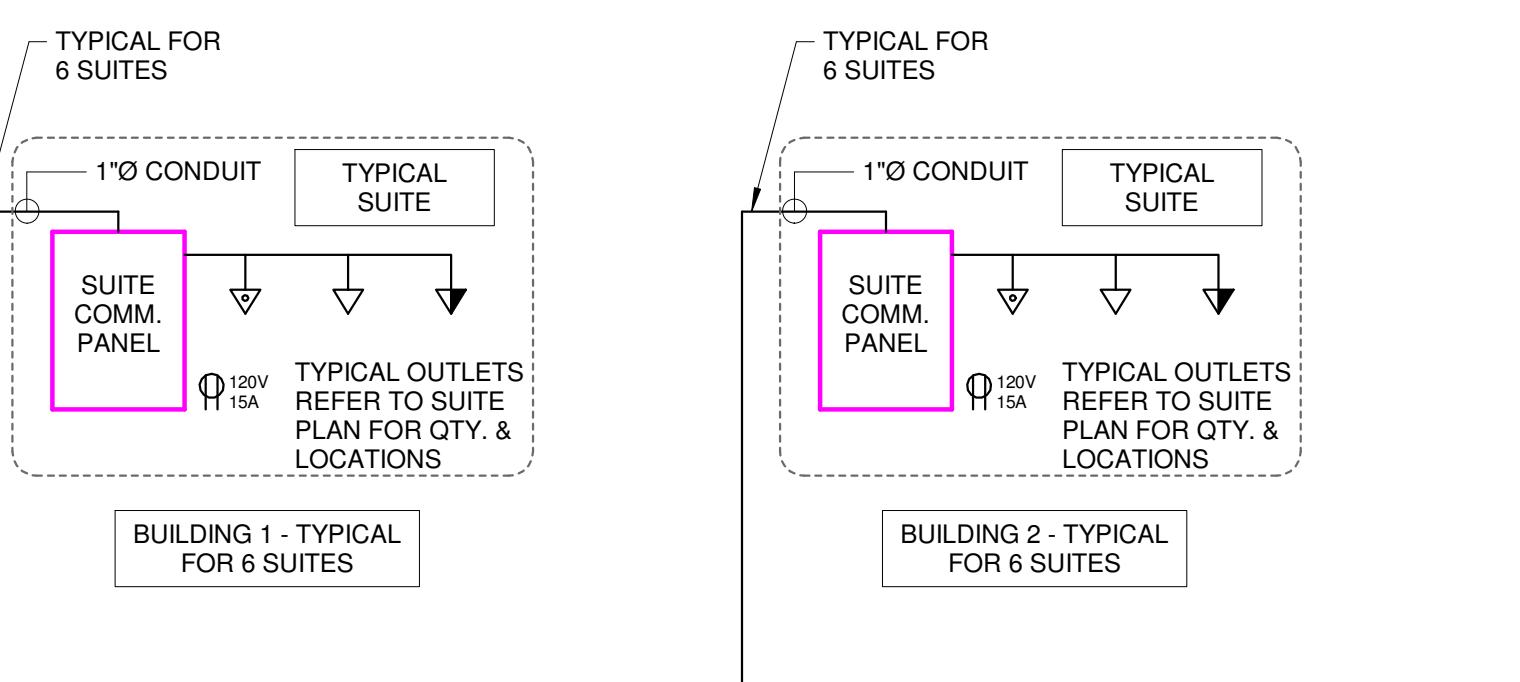
NOTES:
SUPPLY & INSTALL A COMPLETE UNIVERSAL ACCESSIBLE WASHROOM DOOR CONTROL, ELECTRONIC LOOKING & EMERGENCY SIGNAL KIT AS PER MANUFACTURERS RECOMMENDATIONS FOR ALL COMPONENTS, WIRING, INTERCONNECTIONS & MOUNTING. ALL WIRING & SERVICE INSTALLATIONS SHALL BE CONCEALED. FINAL WIRE SPECIFICATION TO BE CONFIRM WITH SHOP DRAWINGS. UNIVERSAL EMERGENCY CALL KIT TO BE CAMDEN CX-WC13XF & CX-WC10 SYSTEMS OR APPROVED EQUIAR REFER TO ARCHITECTURAL DRAWINGS FOR EXACT DEVICE LOCATIONS.

1. 120VAC - 15A DEDICATED CIRCUIT FOR UNIVERSAL ACCESSIBLE WASHROOM CONTROL.
2. 120VAC TO 24VDC TRANSFORMER.
3. 12/24VDC LINEAR POWER SUPPLY.
4. UNIVERSAL WASHROOM DOOR CONTROL / RELAY.
5. WALL MOUNTED HANICAP PUSH BUTTON WITH ILLUMINATED ENCLOSURE AND SIGN - BUTTON TO OPERABLE WITH A CLOSED FIST OF NOT MORE THAN 22.2N SYMBOL ON DRAWINGS: (◎)
6. WALL MOUNTED DOOR LOCK PUSH BUTTON WITH ILLUMINATED ENCLOSURE AND SIGN - BUTTON TO OPERABLE WITH A CLOSED FIST OF NOT MORE THAN 22.2N SYMBOL ON DRAWINGS: (◎)
7. WALL MOUNTED EMERGENCY CALL PUSH BUTTON WITH ILLUMINATED ENCLOSURE AND SIGN - BUTTON TO OPERABLE WITH A CLOSED FIST OF NOT MORE THAN 22.2N, ELECTRIC STRIKE ON DOOR TO RELEASE WHEN EMERGENCY BUTTON IS PUSHED. DOOR OPERATOR IS NOT TO ACTIVATE SYMBOL ON DRAWINGS: (◎)
8. 'ASSISTANCE REQUESTED' LED ANNUNCIATOR WITH SOUNDER.
9. DOME LIGHT WITH SOUNDER OUTSIDE OF WASHROOM TO SIGNAL ASSISTANCE IS REQUIRED WHEN EMERGENCY CALL PUSH BUTTON IS PRESSED. SOUND LEVEL TO BE 82 DBA @ 3 METERS.
10. DOOR OPERATOR SUPPLIED BY OTHERS.
11. MAGNETIC DOOR CONTACT.
12. ELECTRIC STRIKE.
13. EMERGENCY ASSISTANCE LAMACOID SIGNAGE - MOUNT SIGN ON WALL ABOVE PUSHBUTTON. SIGN TO READ AS SHOWN. LETTERS ON LAMACOID MUST BE AT LEAST 25MM HIGH WITH A 5MM STROKE.
14. PROVIDE "ASSISTANCE REQUIRED" WITH WHEELCHAIR GRAPHIC SIGNAGE OUTSIDE OF THE WASHROOM.

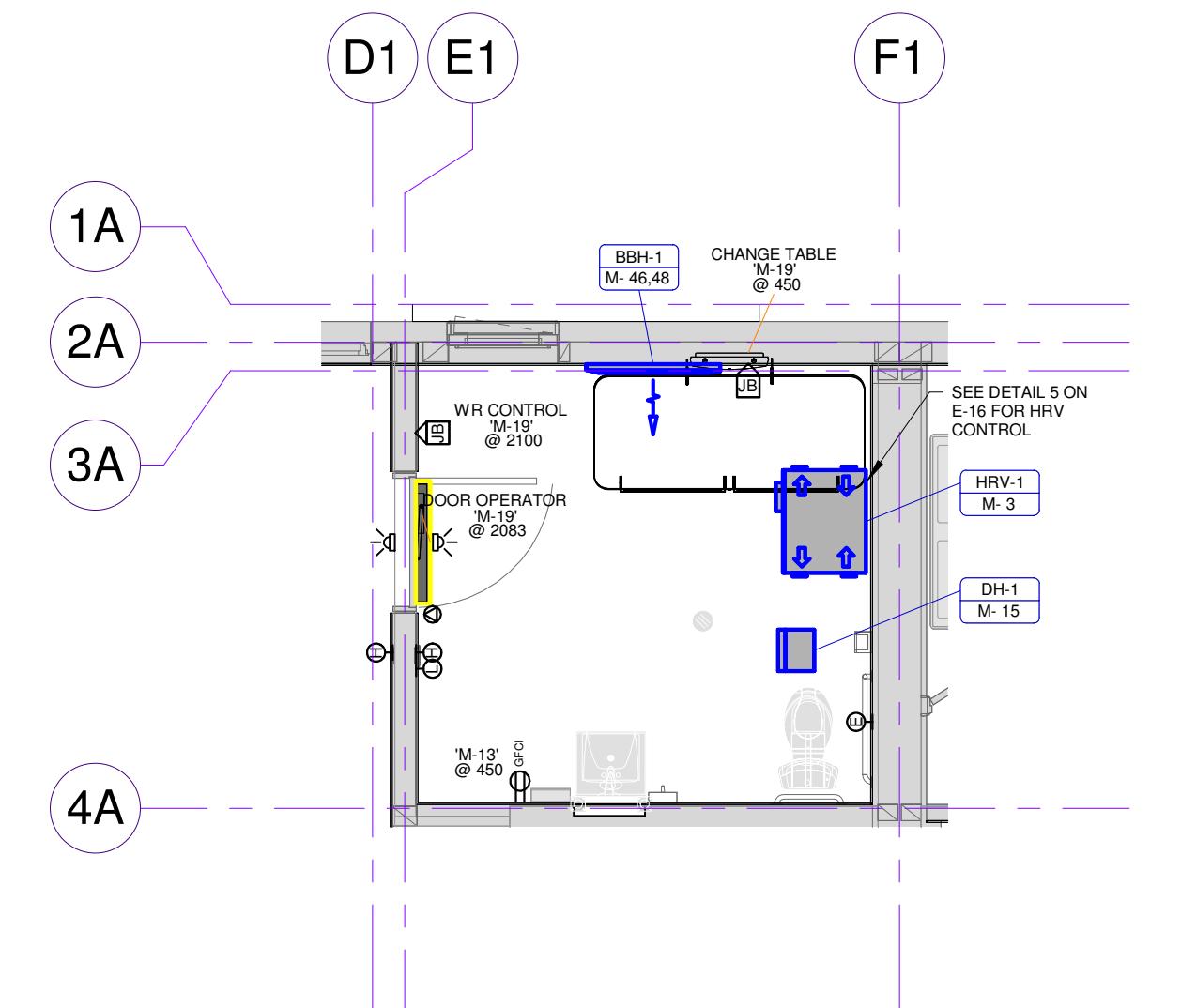
NUMBER OF CABLES PER CONDUIT		
CONDUIT SIZE (INNER DIAMETER)	# OF COAX CABLE (RG6U)	# OF CAT6a CABLE (4 PAIR)
1/2"	1	0
3/4"	2	4
1"	4	7
1-1/4"	7	12
1-1/2"	10	16
2"	16	22
2-1/2"	28	36
3"	42	50

NOTES:
1. IN-SUITE RECESSED WALL CABINET (DEMARCATION COMMUNICATION BOX - PRIMEX MODEL P3000 - 30H x 14W x 3.5D) PROVIDED BY COMMUNICATION PROVIDER.
2. MOUNTING HEIGHT IN BARRIER FREE SUITE SHALL BE 13" A.F.F. SHALL BE 30" A.F.F. FOR OTHER SUITES.
3. COORDINATE FINAL LOCATION & MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.

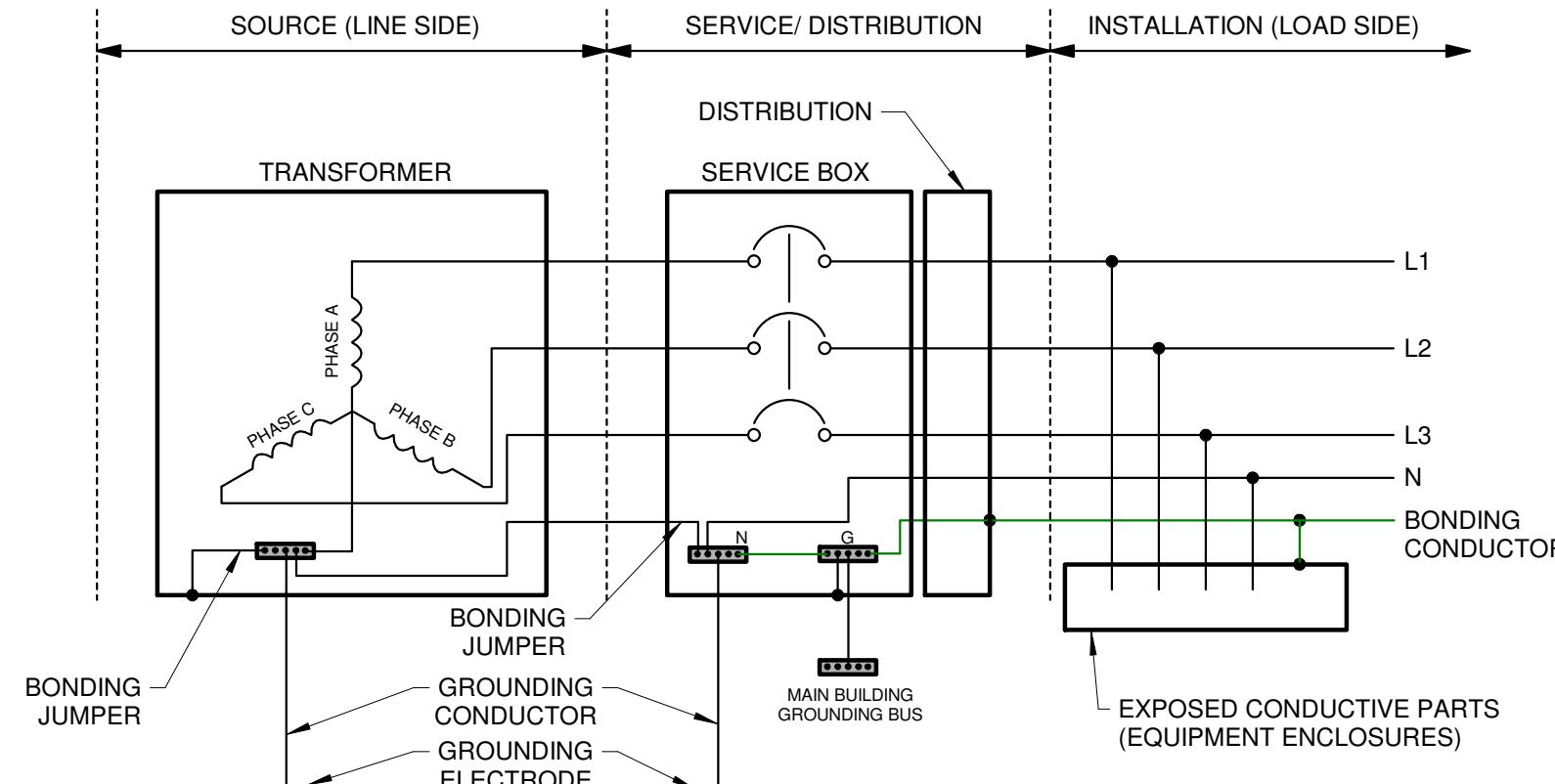
TELEVISION RISER:
1. ALL CABLE INSTALLATION & CONNECTIONS ARE BY OTHERS.
2. ELECTRICAL CONTRACTOR TO PROVIDE CONDUITS & COMM. PANEL AS SHOWN. WHEN DEVICES ARE LOCATED ON SUITE DEMISING WALLS, DATA BOXES ARE TO BE USED & PUTTY PADS WHEN REQUIRED TO MAINTAIN ACOUSTICAL & FIRE RATINGS.
3. MAXIMUM RUN OF CABLE FROM POINT OF SUPPLY TO FURTHEST OUTLET IS NOT TO EXCEED 50 METERS.
COMMUNICATION RISER:
1. ALL CABLE INSTALLATION & CONNECTIONS ARE BY OTHERS.
2. ELECTRICAL CONTRACTOR TO PROVIDE CONDUITS & COMM. PANEL AS SHOWN. WHEN DEVICES ARE LOCATED ON SUITE DEMISING WALLS, DATA BOXES ARE TO BE USED & PUTTY PADS WHEN REQUIRED TO MAINTAIN ACOUSTICAL & FIRE RATINGS.



1 Communications - Riser Diagram
N.T.S.

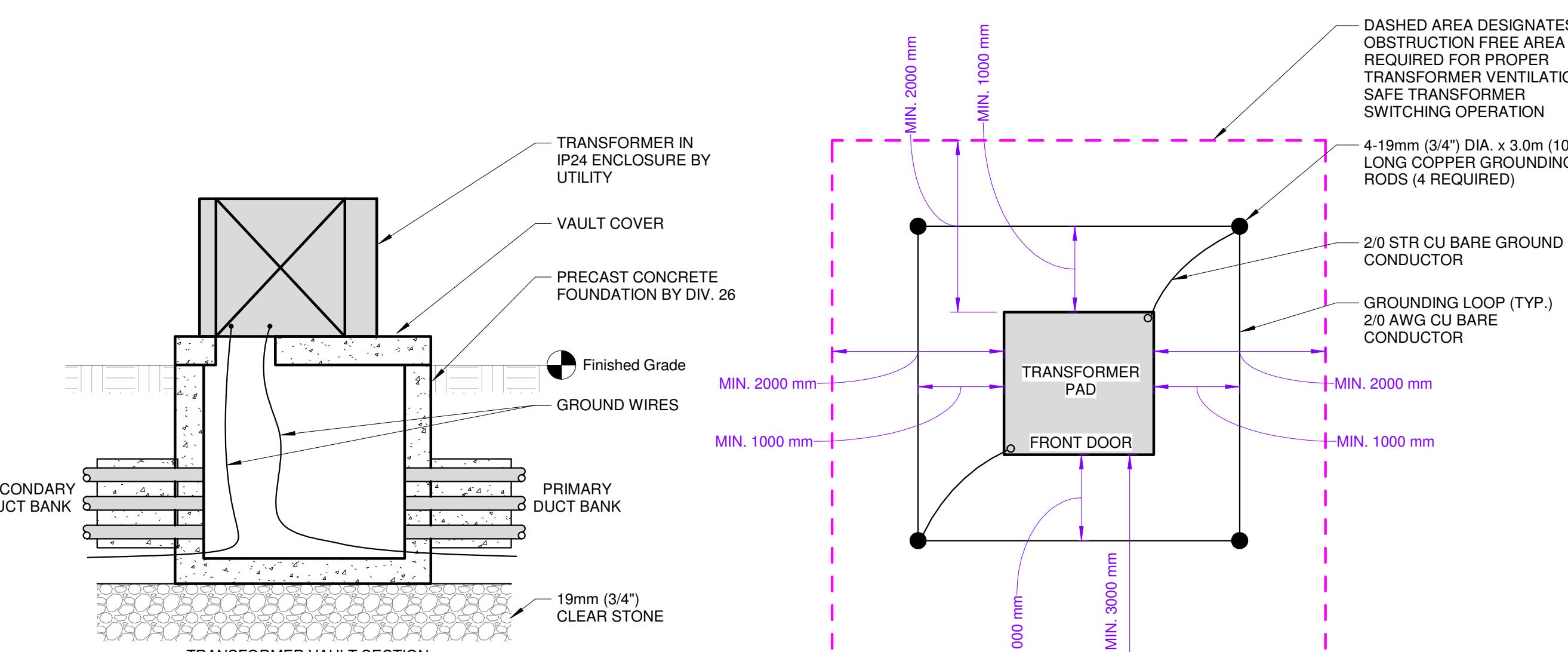


3 (04322) Building 5 - Level 1 - Power Plan - Universal WR
E-22 1 : 50



NOTES:
1. BONDING CONDUCTORS TO BE SIZED AS PER TABLE 16 IN THE CANADIAN ELECTRICAL CODE / ONTARIO ELECTRICAL SAFETY CODE.
2. THE INTENT OF THIS DETAIL IS TO OUTLINE GROUNDING & BONDING REQUIREMENTS. THIS DETAIL SHALL NOT BE INTERPRETED FOR QUANTITY OF PANELS, TRANSFER SWITCHES, LIFE-SAFETY LOADS, NON-LIFE-SAFETY LOADS, UTILITY SERVICE CONFIGURATION, OR UTILITY METERING CONFIGURATION.

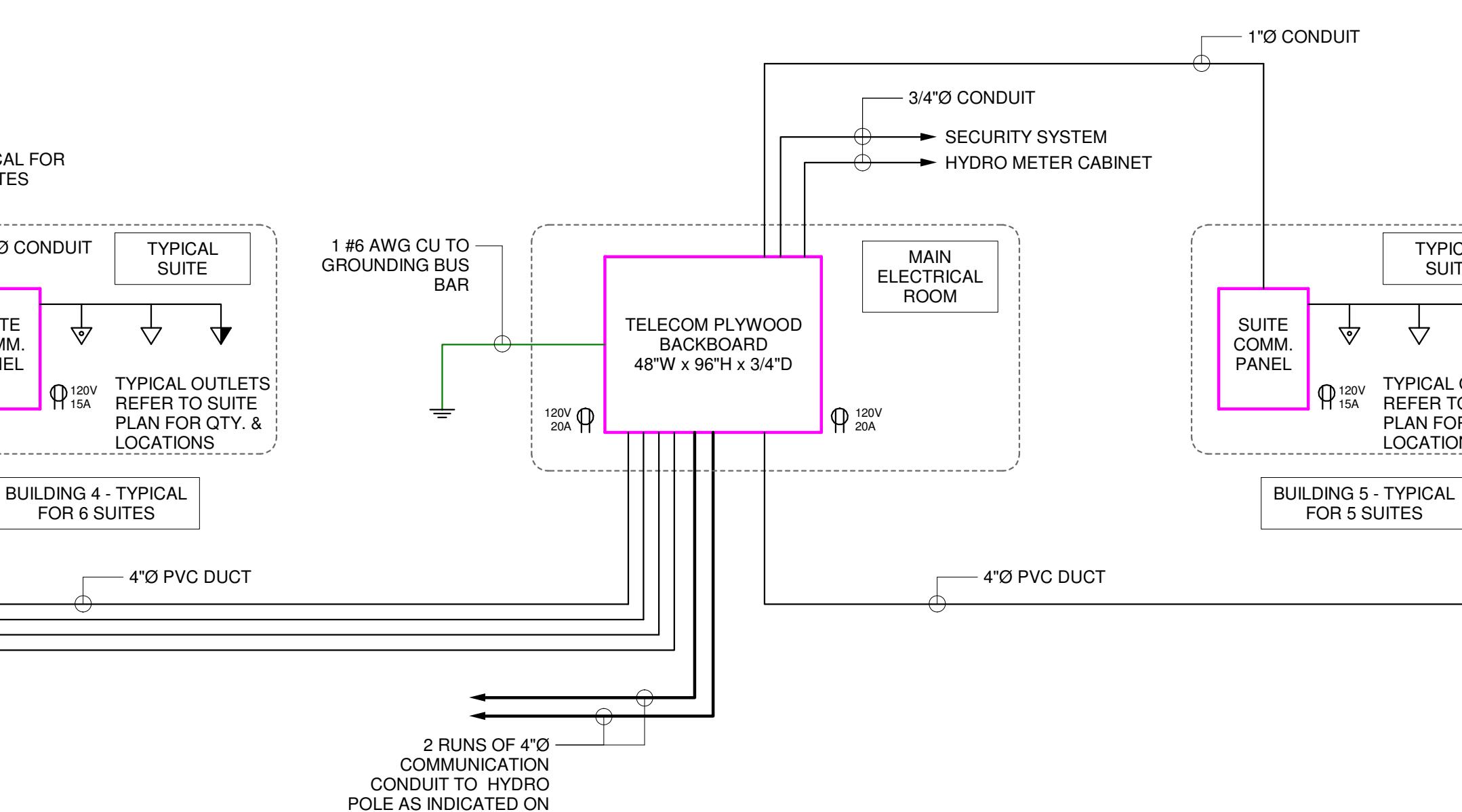
4 Grounding Bonding Detail
N.T.S.



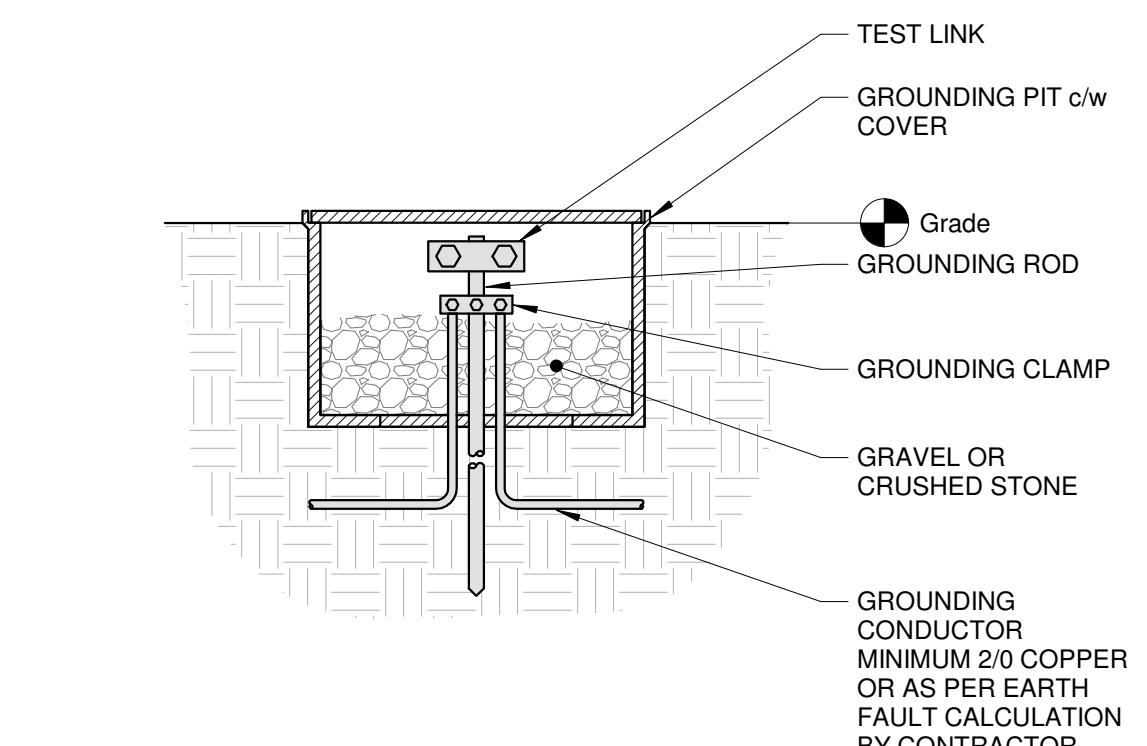
NOTES:

1. TRANSFORMER VAULT TO BE INSTALLED AS PER UTILITIES STANDARD.
2. CONTRACTOR TO SUPPLY & INSTALL CONCRETE ENCASED PRIMARY DUCT BANK TO DEMARCTION POINT (COORDINATE WITH UTILITIES), COMPLETE SECONDARY DUCT BANK & CABLES, TRANSFORMER PAD/VAULT, BOLLARDS & GROUNDING TO MEET THE REQUIREMENTS OF ESA & UTILITIES.
3. UTILITO SUPPLY & INSTALL TRANSFORMER COMPLETE WITH PRIMARY CONDUCTORS. ALL PRIMARY & SECONDARY CONDUCTORS TO BE TERMINATED BY UTILITO.
4. REFER & COMPLY WITH UTILITIES INSTALLATION STANDARDS FOR CONSTRUCTION DETAILS, METHODS & APPROVED EQUIPMENT VENDORS.

5 Pad Mount Transformer
N.T.S.



6 Grounding Pit
N.T.S.



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[3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. DETAILED INFORMATION PROVIDED BY CONTRACTOR(S). DO NOT SCALE DRAWINGS.

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DRAWING REVISIONS

No.	Description	Date
1	Preliminary	May 19/22
5	Issued for Tender	May 18/23
6	Re-Issued for Tender	Dec. 20/24

Engineer's Seal:

Client: WW Inc.
Address: Minden, ON
Project Name: Gull River Affordable Housing
Dwg. Name: Electrical Details
NSET Project #: 04322

Drawn by: Northstar Eng. Checked by: D.B.D.
Scale: As indicated Revision #: 6.0
Drawing #: E-22
Project Date: Jan. 14/22 Arch-D (24" x 36")

23.05.00 COMMON WORK RESULTS FOR HVAC

23.05.00 - 1.0 MECHANICAL HVAC INSTALLATION

- SUPPLY & INSTALL COMPLETE MECHANICAL HVAC SYSTEMS & INCLUDING ALL NECESSARY LABOUR, SERVICES, PRODUCTS, MATERIALS & EQUIPMENT. HVAC SYSTEMS TO BE FULLY FUNCTIONING OPERATING TO THE SATISFACTION OF THE OWNER & THE DESIGN PROVIDED.
- CONSTRUCTION & INSTALLATION METHODS SHALL COMPLY WITH THE CURRENT EDITION OF THE APPLICABLE BUILDING CODE, THE REGIONAL MUNICIPALITY & LOCAL BUILDING & FIRE DEPARTMENT BY-LAWS. ALL WORK SHALL ALSO COMPLY WITH OTHER CODES, STANDARDS & REGULATIONS REFERRED TO IN THE MANUFACTURER'S INSTALLATION MANUALS & DOCUMENTS AND ADOPTED BY THE AUTHORITIES HAVING JURISDICTION.
- SPECIFIED WORK IN THIS DESIGN DOES NOT IMPLY OR DETERMINE CONTRACTUAL LIMITS OR SCOPE BETWEEN SUB-CONTRACTORS, CONTRACTORS & THE OWNER.
- THE SCOPE OF WORK IS AS DESCRIBED HEREIN & SHOWN ON THE DRAWINGS.

23.05.00 - 2.0 DRAWINGS & SPECIFICATIONS

- DRAWINGS ARE DIAGRAMMATIC & SHOW APPROXIMATE LOCATIONS OF MECHANICAL SYSTEM INSTALLATION & CONNECTING SERVICES. ANY INFORMATION REGARDING ACCURATE MEASUREMENT OF THE BUILDING ARE TO BE TAKEN AT THE SITE. DO NOT SCALE THE DRAWINGS, & DO NOT USE THE DRAWINGS FOR PRE-BIDDING WORK. CONTRACTOR TO VERIFY ALL DRAWS, RUMPS & POSSIBLE INTERFERENCE WITH EXISTING SERVICES & STRUCTURAL FEATURES. ANY REQUIRED RELOCATION OF EXISTING SERVICES TO ACCOMMODATE HVAC SYSTEM TO BE INCLUDED IN COST ESTIMATE.
- READ THE MECHANICAL DRAWINGS IN CONJUNCTION WITH ALL OTHER STRUCTURAL, ARCHITECTURAL, SITE CIVIL, LANDSCAPE, SPRINKLER, PLUMBING, ELECTRICAL ETC. DRAWINGS. PROPERLY PLAN, COORDINATE, & ESTABLISH THE LOCATIONS & ROUTING OF SERVICES WITH ALL SUBCONTRACTORS AFFECTED PRIOR TO INSTALLATION SUCH THAT THE SERVICES WILL CLEAR EACH OTHER AS WELL AS ANY OBSTRUCTIONS, INCLUDING STRUCTURAL COMPONENTS OF THE BUILDING.
- THE DRAWINGS ARE INTENDED TO CONVEY THE SCOPE OF WORK & DO NOT SHOW ARCHITECTURAL & STRUCTURAL DETAILS. MECHANICAL CONTRACTOR SHALL PROVIDE, AT MECHANICAL CONTRACTOR'S COST, ALL OFFSETS, FITTINGS, & SIMILAR PRODUCTS REQUIRED AS A RESULT OF OBSTRUCTIONS & OTHER ARCHITECTURAL & STRUCTURAL DETAILS BUT NOT SHOWN ON THE DRAWINGS.
- THE DRAWINGS & SPECIFICATIONS ARE COMPLEMENTARY & INTENDED TO BE COOPERATIVE. PERFORM ALL WORK THAT IS SHOWN, SPECIFIED, OR REASONABLY IMPLIED ON THE DRAWINGS BUT NOT MENTIONED IN THE SPECIFICATION, OR VICE-VERSA, AS THOUGH FULLY COVERED BY BOTH.
- SHOULD ANY DISCREPANCY APPEAR BETWEEN THE DRAWINGS & SPECIFICATIONS WHICH LEAVES THE MECHANICAL CONTRACTOR IN DOUBT AS TO THE TRUE INTENT & MEANING OF THE PLANS & SPECIFICATIONS, A RULING SHALL BE OBTAINED FROM THE ENGINEER. IF THIS IS NOT DONE IT WILL BE ASSUMED THAT THE MOST PRACTICAL ALTERNATE HAS BEEN ALLOWED FOR.
- IN THE EVENT THAT THE CONTRACTOR OR AUTHORITY HAVING JURISDICTION DOES NOT AGREE WITH THE ENGINEER'S PLANS, THEIR REQUEST SHALL BE COMMUNICATED TO THE ENGINEER IN WRITING. CONTRACTOR SHALL CONSULT THE ENGINEER BEFORE PROCEEDING WITH CHANGES. EACH CONTRACTOR SHALL PREPARE DRAWINGS IN ADDITION TO ENGINEER'S DRAWINGS AS MAY BE REQUIRED BY VARIOUS INSPECTION DEPARTMENTS HAVING JURISDICTION, & OBTAIN THEIR APPROVAL BEFORE PROCEEDING WITH THE WORK.
- 23.05.00 - 3.0 PERMITS, FEES, & CERTIFICATES**

 - CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED, ARRANGE FOR INSPECTION OF THE WORK BY INSPECTION AUTHORITY & PAY ALL FEES PROVIDED FINAL CERTIFICATE TO THE OWNER.

23.05.00 - 4.0 EXAMINATION OF THE SITE

- PRIOR TO SUBMITTING THEIR TENDER, THE MECHANICAL CONTRACTOR SHALL FULLY EXAMINE THE SITE & ASCERTAIN ALL CONDITIONS, WHICH SHALL AFFECT HIS TRADE. REPORT TO THE CONSULTANT, PRIOR TO BID SUBMITTAL, ANY EXISTING SITE CONDITION THAT WILL OR MAY AFFECT PERFORMANCE OF THE WORK AS PER THE DRAWINGS & SPECIFICATIONS. FAILURE TO DO SO WILL NOT BE GROUNDS FOR ADDITIONAL COSTS.

23.05.00 - 5.0 STANDARD OF MATERIAL & WORKMANSHIP

- ALL MATERIALS & EQUIPMENT SHALL BE NEW, CSA APPROVED, BEAR CSA STAMP & BE OF THE BEST COMMERCIAL QUALITY. OBTAINABLE FOR THE PURPOSE. ALL ITEMS REQUIRED TO PROVIDE A COMPLETE WORKING SYSTEM - INCLUDING ITEMS NOT SPECIFIED OR SHOWN, SHALL BE INCLUDED.
- ALL WORK SHALL BE EXECUTED IN A NEAT & WORKMANLIKE MANNER BY JOURNEYMAN TRADESMEN WHO PERFORM ONLY THE WORK THAT THEIR CERTIFICATES PERMIT, OR BY APPRENTICE TRADESMEN UNDER DIRECT ON SITE SUPERVISION OF AN EXPERIENCED JOURNEYMAN TRADESMAN.
- WORKMANSHIP SHALL BE OF THE HIGHEST STANDARDS THROUGHOUT & SHALL BE MINIMUM OF THE CURRENT TRADE PRACTICES FOR MECHANICAL INSTALLATIONS IN THIS BUILDING.
- UNLESS OTHERWISE SPECIFIED ALL EQUIPMENT TO BE INSTALLED IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS & INSTRUCTIONS, & REQUIREMENTS OF GOVERNING CODES, STANDARDS, & REGULATIONS. GOVERNING CODES, STANDARDS, & REGULATIONS TAKE PRIORITY OVER MANUFACTURER'S INSTRUCTIONS.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY THAT MATERIAL AND EQUIPMENT BE BROUGHT INTO THE BUILDING IN SUCH ASSEMBLIES AND SIZES AS TO ENTER INTO THE SPACES WHERE THEY ARE TO BE LOCATED & TO BE SMALL ENOUGH TO BE HOISTED INTO THE BUILDING WITHOUT DIFFICULTY. ANY CUTTING, PATCHING, ETC. INVOLVED IN GETTING LARGE ASSEMBLIES INTO PLACE, SHALL BE THE RESPONSIBILITY OF THIS SUBCONTRACTOR.
- ENSURE THAT PROPER ACCESS & SERVICE CLEARANCES ARE MAINTAINED AROUND EQUIPMENT, & WHERE APPLICABLE, ACCESS SPACE FOR FUTURE EQUIPMENT REMOVAL OR REPLACEMENT IS NOT IMPEDED. REMOVE & REPLACE ANY EQUIPMENT WHICH DOES NOT MEET THIS REQUIREMENT.
- THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ALL WORK COMPLETED CONTRARY TO THE INTENT OF THE DRAWINGS & SPECIFICATIONS. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE OWNER OR ANY OF THE OTHER TRADES BY IMPROPER LOCATION OR CARRYING OUT OF HIS WORK.
- SUSPENSION OF ANY MECHANICAL EQUIPMENT SPECIFIED IN THIS DESIGN IS THE RESPONSIBILITY OF THE CONTRACTOR. VERIFICATION WITH OTHER CONSULTANTS MAY BE REQUIRED. MAXIMUM 3/8" DIA. THREADED HOD HANGERS ACCEPTED. EQUIPMENT MAY REQUIRE VIBRATION ISOLATION. SEE MFG. INSTALLATION MANUALS.

- ALL ROOF CURBS SHALL BE A PERIMETER TYPE WITH COMPLETE PERIMETER SUPPORT CAPABLE OF SUPPORTING ENTIRE UNIT WEIGHT OF THE MECHANICAL UNIT. THE CURB SHALL BE A MINIMUM OF 14 INCHES HIGH AND INCLUDE A NOMINAL 2 X 4 INCH WOOD STRIP. WEATHERPROOF GASKETING SHALL BE PROVIDED FOR FIELD MOUNTING BETWEEN THE UNIT BASE AND ROOF CURB.
- PROVIDE NEOPRENE PAD ISOLATORS BETWEEN ALL MECHANICAL EQUIPMENT & THE BUILDING STRUCTURE.
- ADEQUATE ALLOWANCE SHALL BE MADE FOR EXPANSION AND CONTRACTION OF DUCT AND GAS PIPING SYSTEMS. COORDINATE EQUIPMENT, PIPING AND DUCTWORK INSTALLATION TO PROVIDE ADEQUATE SERVICE CLEARANCES AND REMOVAL.
- PAINTING: ALL EQUIPMENT FABRICATED FROM STEEL AND NOT FACTORY FINISH PAINTED SHALL BE SUPPLIED WITH A PRIME COAT DONE AT THE SUPPLIER'S FACTORY. IF DAMAGED IN TRANSIT OR ON THE JOB, THIS CONTRACTOR SHALL TOUCH UP WITH RED LEAD PRIMER BEFORE FINISH PAINTING.
- INSURANCE SHALL BE MAINTAINED BY THE CONTRACTOR TO PROTECT THE OWNER AND OTHER TRADES FROM ALL CLAIMS. ALL TRADESMEN TO BE LICENSED, ADEQUATELY TRAINED, BRIEFED ON SITE SAFETY, HAVE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IN PLACE AT ALL TIMES AND MEET THE REQUIREMENTS OF ALL APPLICABLE ONTARIO GOVERNING ASSOCIATIONS AND GOVERNMENT BODIES.
- PROVIDE A CERTIFICATE OF GUARANTEE OF WORKMANSHIP & MATERIAL FOR ONE YEAR FROM DATE OF ACCEPTANCE.
- ALL DAMAGE TO ADJACENT BUILDING FEATURES OR SYSTEMS LIKE DRYWALL, PLASTER, FLOORS, WOOD FINISHES OR OTHER MATERIALS, OR DAMAGE TO OTHER EQUIPMENT, CAUSED BY SUCH DEFECTS OF THIS CONTRACTOR'S WORK OR BY SUBSEQUENT REPLACEMENTS AND REPAIRS, SHALL BE MADE GOOD AT THE EXPENSE OF THIS CONTRACTOR. ALL REPAIR WORK SHALL BE DONE BY TRADES RESPONSIBLE FOR THE ORIGINAL WORK.
- SITE VISITS DURING CONSTRUCTION ARE TO BE AGREED TO AT THE OUTSET AND AMPLE NOTIFICATION TO BE GIVEN TO VISIT THE SITE (MIN. 48 HOURS). THIS INCLUDES PRESSURE TESTS OF PIPING, DUCTWORK, SAFETY DEVICES ETC.

23.05.00 - 6.0 COORDINATION OF THE WORK

- REVIEW ALL THE CONTRACT DOCUMENTS & COORDINATE THE WORK WITH THE WORK OF ALL OTHER TRADES.
- PROPERLY PLAN, COORDINATE, & ESTABLISH THE LOCATIONS & ROUTING OF SERVICES WITH ALL SUBCONTRACTORS AFFECTED PRIOR TO INSTALLATION SUCH THAT THE SERVICES WILL CLEAR EACH OTHER AND, AS ANY OBSTRUCTIONS, INCLUDING STRUCTURAL COMPONENTS OF THE BUILDING.
- COORDINATE THE LOCATIONS OF THE MECHANICAL EQUIPMENT WITH THE ARCHITECTURAL & BUILDING INTERIOR DRAWINGS. THE CONTRACTOR SHALL REVIEW THE ARCHITECTURAL DRAWINGS, SECTIONS, & ELEVATIONS FOR LOCATIONS PRIOR TO ROUGH-IN. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES.
- THE CONTRACTOR SHALL CONFER WITH ALL OTHER CONTRACTORS INSTALLING EQUIPMENT, PLANT PIPING, OTHER WORK FOUNDATIONS, ETC., WHICH MAY AFFECT HIS INSTALLATION AND SHALL COORDINATE HIS EQUIPMENT, PIPING, ETC. IN PROPER RELATION WITH OTHER APPARATUS, AND WITH THE BUILDING CONSTRUCTION. HE SHALL ALSO CONFIRM THE ELECTRICAL CHARACTERISTICS OF THE PROJECT AND ORDER EQUIPMENT ACCORDINGLY.
- CONTRACTOR SHALL CONTACT THE LOCAL GAS COMPANY AS SOON AS POSSIBLE & VERIFY THAT GAS SERVICE IS AVAILABLE AT PRESSURE & CAPACITY REQUIRED FOR THE PROJECT. HE SHALL INFORM ENGINEER IMMEDIATELY, IF THERE IS ANY PROBLEM WITH GAS PRESSURE WHATSOEVER. IT SHALL BE THIS CONTRACTOR'S RESPONSIBILITY TO COORDINATE SERVICE REQUIREMENTS WITH THE LOCAL AUTHORITY COMPANY BEFORE ANY OF HIS WORK PROCEED WELL AS DURING CONSTRUCTION.
- ELECTRICAL COMPONENTS RELATED TO MECHANICAL EQUIPMENT ARE TO BE INCLUDED BY THE DIV. 23 CONTRACTOR (OVER 50 VOLTS WIRED BY DIV. 26 CONTRACTOR), UNLESS SPECIFIED. CONTROLS DEVICES FOR HVAC UNITS TO BE BY DIV. 23.

23.05.00 - 7.0 PENETRATIONS

- ANY OR ALL CUTTING, CORING & PATCHING SHALL BE VERIFIED WITH THE OWNER PRIOR TO PERFORMING WORK. PAYMENT FOR SUCH SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY PENETRATION OF STRUCTURAL MEMBERS, FLOORS OR CEILINGS TO BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD.
- THIS DIVISION SHALL PREPARE SLEEVING DRAWINGS INDICATING THE SIZE & LOCATIONS OF OPENINGS REQUIRED IN CONCRETE FLOOR SLABS, ROOF SLABS/DECKS & WALLS FOR REVIEW BY THE STRUCTURAL ENGINEER & ARCHITECT.
- CONTRACTORS SHALL NOTIFY THE OWNER OR THE GENERAL CONTRACTOR & OTHER CONTRACTORS WHO ARE INVOLVED OF ALL PENETRATIONS, AND THE NUMBER OF EACH PENETRATION, ANCHORS, OR OTHER FIXTURES NECESSARY IN THEIR WORK FOR THE INSTALLATION OF HIS WORK, & SHALL FURNISH ALL INFORMATION & NECESSARY MATERIALS IN AMPLE TIME SO THAT PROPER PROVISIONS CAN BE MADE FOR SAME, & SHALL SUPPLY & CORRECTLY ACCURATELY PLACE ALL INSERTS, SLEEVES, ANCHORS, ETC.
- FAILURE TO COMPLY WITH THESE REQUIREMENTS ON THE PART OF THIS CONTRACTOR WILL RENDER HIM RESPONSIBLE FOR THE COST OF CUTTING OPENINGS, INSTALLING HANGERS & OTHER PROVISIONS AT A LATER DATE, & THE SUBSEQUENT PATCHING, ETC., THEREBY REQUIRED.
- NO CUTTING SHALL BE DONE WITHOUT PERMISSION. ALL SUCH WORK SHALL BE DONE BY TRADESMEN SKILLED IN & CERTIFIED FOR THIS PARTICULAR TRADE.
- ALL PENETRATIONS TO BE APPROVED BY THE ARCHITECT OR LANDLORD IN WRITING.
- PROVIDE SLEEVES, FLASHING AND COUNTER FLASHING WHERE MECHANICAL SERVICES PENETRATE WALLS, FLOORS & ROOFS. ANNUAL SPACES BETWEEN SLEEVES & SERVICES SHALL BE CAULKED WITH FIREPROOF MATERIAL & SEALED AIR TIGHT. EX. 2-PART FLEXIBLE POLYURETHANE GROUT - SIKAFIX PU.
- ANY EXTERIOR PENETRATION TO BE APPROPRIATELY FLASHED AND WEATHER PROOFED WITH APPROVED SEALING METHODS. PROVIDE BIRD SCREENS ON ALL EXTERIOR INTAKE AND EXHAUST GRILLES. THERMAL INSULATION TO BE PROVIDED FOR DUCTS SERVING EXTERIOR GRILLES. MIN. 2" FOIL WRAPPED INSULATION REQUIRED.
- ALL PLANNED & UN-PLANNED PENETRATION OF SERVICES THROUGH RATED FIRE ASSEMBLIES TO BE COMPLETED USING AN APPROVED FIRE STOP MATERIAL AND METHOD. RATED FIRE DAMPERS AS PER ARCHITECTURAL DRAWINGS AND AS SPECIFIED ON THESE PLANS. ALL FIRE DAMPERS ARE TO BE ACCESSIBLE FOR RESETTING.

23.05.00 - 8.0 ACCESS DOORS

- SUPPLY ACCESS DOORS TO GIVE ACCESS TO ALL MECHANICAL WORK WHICH MAY NEED MAINTENANCE, REPAIR OR SHUT OFF VALVES LOCATIONS BUT WHICH IS CONCEALED IN INACCESSIBLE CONSTRUCTION, EXCEPT AS OTHERWISE SPECIFIED HEREIN OR ON THE DRAWINGS.
- LOCATE ACCESS DOORS WHERE REQUIRED & OF SUFFICIENT SIZE FOR SERVICING VALVES, DAMPERS, CLEANOUTS, ETC. DOORS SHALL BE FLUSH MOUNTING, SCREWDRIVER ACCESS, METAL TYPES, 16 GAUGE PRIMED STEEL.
- ACCESS DOORS IN FIRE RATED CONSTRUCTION ARE TO BE ULC LISTED & LABELED AND OF A RATING TO MAINTAIN THE FIRE SEPARATION INTEGRITY.

23.05.00 - 9.0 FIRE STOPPING

- CONTRACTOR TO PROVIDE ULC LISTED FOR STOPPING ASSEMBLIES WHERE PIPES & DUCTS PASS THROUGH BUILDING ASSEMBLIES THAT ARE FIRE-RATED. CONTRACTOR TO INSTALL AS PER MANUFACTURER'S WRITTEN INSTRUCTIONS. CONTRACTOR TO PROVIDE CONSULTANT WITH ULC LISTING UPON REQUEST.
- FIRE STOPPING TO BE TESTED IN ACCORDANCE WITH CAN-4-S115-M "STANDARD METHOD OF FIRE TESTING OF FIRE STOP SYSTEMS" AND THE LOCAL STANDARDS.
- FIRESTOPPING & SMOKE SEAL SYSTEMS: ASBESTOS-FREE MATERIALS AND SYSTEMS CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME, SMOKE AND GASES IN COMPLIANCE WITH REQUIREMENTS OF CAN/ULC-S115-M OR UL/1475 AND ASTM E14, AND NOT TO EXCEED OPENING SIZES FOR WHICH THEY ARE INTENDED.
- FIRE RESISTANCE RATING OF INSTALLED FIRESTOPPING ASSEMBLY SHALL NOT BE LESS THAN THE FIRE RESISTANCE RATING OF SURROUNDING FLOOR & WALL ASSEMBLY AS INDICATED.
- INSTALL FIRESTOPPING & SMOKE SEAL MATERIAL AND COMPONENTS THAT HAVE BEEN TESTED BY CERTIFIED TESTING AGENCIES, ULC, CUL, OR ULTRITEK, & MANUFACTURER'S INSTRUCTIONS TO PROVIDE A FLAME RATE SEAL NOT LESS THAN THE REQUIREMENT OF THE SURROUNDING WALL OR FLOOR ASSEMBLY. TEMPERATURE RATE RATINGS MAY BE REQUIRED IN CERTAIN INSTANCES AND SHOULD BE SPECIFIED BY THE ENGINEERING OR ARCHITECTURAL AUTHORITY.
- PROVIDE BALANCING OF AIR, WATER, RETURN AND EXHAUST FAN SYSTEMS AS INDICATED BELOW.
- PROVIDE THREE COPIES OF THE BALANCE REPORT FOR INCLUSION IN THE OPERATING AND MAINTENANCE MANUALS.
- TESTING TO BE PERFORMED IN BOTH COOLING AND HEATING MODE.
- AIR AND WATER FLOW RATES TO BE WITHIN 5% OF THOSE SPECIFIED.
- ADJUST AND BALANCE MAJOR NEW OR EXISTING EQUIPMENT COMPONENTS TO PROVIDE FLOW RATES PRIOR TO ISSUING FINAL REPORT TO ENGINEER.
- INDICATE OPERATING PERFORMANCE (DESIGN VS ACTUAL) OF ALL FANS AND AIR SYSTEMS TO BE SHOWN.

23.05.00 - 10.0 DAMPERS

- THE LOCATION OF BALANCE DAMPERS, FIRE DAMPERS, VALVES, ETC. ABOVE CEILING PANELS SHALL HAVE THEIR LOCATION IDENTIFIED BY MEANS OF A DATA DOT. IN THE CASE OF T-BAR CEILINGS, THE DATA DOT SHALL BE PLACED ON THE METAL T-BAR RAIL, NOT ON THE CEILING TILE.
- INDICATE OUTDOOR AIR FLOW FROM EACH FAN COIL UNIT WITH OUTDOOR AIR DAMPER AT MINIMUM AND MAXIMUM POSITION.
- ADJUST AND BALANCE MAJOR NEW OR EXISTING EQUIPMENT COMPONENTS TO PROVIDE FLOW RATES PRIOR TO ISSUING FINAL REPORT TO ENGINEER.
- INDICATE OPERATING PERFORMANCE (DESIGN VS ACTUAL) OF ALL FANS AND AIR SYSTEMS TO BE SHOWN.
- ALL USED MEASURING EQUIPMENT SHALL HAVE A CALIBRATION DATE NO LATER THAN ONE YEAR.
- INDICATE IF ROOM DOORS ARE CLOSED WHEN S/A, R/A, 0/A AND E/A ARE MEASURED AND ALL SYSTEMS ARE RUNNING.
- INDICATE OUTDOOR AIR FLOW FROM EACH FAN COIL UNIT WITH OUTDOOR AIR DAMPER AT MINIMUM AND MAXIMUM POSITION.
- INDICATE MOTOR HP DRAW, LOCK ROTOR AMPERAGE, RUNNING LOAD AMPERAGE PER PHASE AND FAN AND MOTOR RPM OF EACH ROOF TOP UNIT.
- BALANCING FIRM SHALL REPORT ANY DEFECTS OR DEFICIENCIES THAT AFFECT OBTAINING SPECIFIED FLOW RATES PRIOR TO ISSUING FINAL REPORT TO ENGINEER.

23.05.00 - 11.0 IDENTIFICATION OF HVAC SYSTEMS

- MANUFACTURER'S NAMEPLATES; PROVIDE FACTORY SUPPLIED AND INSTALLED NAMEPLATE ON EACH PIECE OF EQUIPMENT.
- PROVIDE REGISTRATION/APPROVAL NAMEPLATES (IE. CSA, ULC, ASME) IN ACCORDANCE WITH THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
- PROVIDE LAMAOID OR ADHESIVE LABELS WITH BLACK LETTERING ON WHITE BACKGROUNDS, ON EACH PIECE OF HVAC EQUIPMENT (RTU, BYPASS BOX, VAV BOX, FAN COIL, HEAT PUMP, CONDENSING UNIT, TERMINAL UNIT, WSH, EXHAUST FAN, BOILER, ETC.) THAT CORRESPONDS WITH THE TAGS PROVIDED ON THE PLANS AND SPECIFICATIONS IN A EASY VISIBLE LOCATION. THE CONTROL DEVICE (THERMOSTAT, SWITCH, ETC) SHALL ALSO BE PROVIDED WITH AN ADHESIVE LABEL INDICATING THE SAME TAG DESCRIPTION FOR THE PIECE OF EQUIPMENT THAT IT SERVES.
- CONTRACTOR SHALL CONTACT THE LOCAL GAS COMPANY AS SOON AS POSSIBLE & VERIFY THAT GAS SERVICE IS AVAILABLE AT PRESSURE & CAPACITY REQUIRED FOR THE PROJECT. HE SHALL INFORM ENGINEER IMMEDIATELY, IF THERE IS ANY PROBLEM WITH GAS PRESSURE WHATSOEVER. IT SHALL BE THIS CONTRACTOR'S RESPONSIBILITY TO COORDINATE SERVICE REQUIREMENTS WITH THE LOCAL AUTHORITY COMPANY BEFORE ANY OF HIS WORK PROCEED WELL AS DURING CONSTRUCTION.
- PROVIDE LABELS FOR ALL PIPING INDICATING FLUID FLOW DIRECTION & SERVICE DESCRIPTION.

23.05.00 - 12.0 CONSTRUCTION SCHEDULE

- OWNER (OR OWNER'S REPRESENTATIVE) TO PROVIDE THE ENGINEER WITH ACCURATE CONSTRUCTION SCHEDULE AT THE OUTSET OF CONSTRUCTION & INCLUDE UPDATES AS APPLICABLE.
- THIS CONTRACTOR SHALL SCHEDULE & PERFORM HIS WORK TO MEET THE COMPLETION SCHEDULE, NOTED ABOVE, AS SET OUT BY THE CLIENT.

23.05.00 - 13.0 CHANGES OR REVISIONS & EXTRAS

- NO ADDITIONAL MONEY OVER THE CONTRACT PRICE SHALL BE PAID UNLESS AN APPROVED CHANGE ORDER IS ISSUED BY THE ENGINEER.
- CLAIMS FOR EXTRAS SHALL BE SUBMITTED WITH A COMPLETE BREAKDOWN OF MATERIAL, LABOUR, HOURLY RATES, ETC.

23.05.00 - 14.0 SHOP DRAWINGS:

- BASED ON CONTRACT WITH OWNER, THE ENGINEER WILL REVIEW SHOP SUBMISSION DWGS FROM THE CONTRACTOR TO REVIEW THE ITEMS FOR GENERAL CONFORMITY TO THE DESIGN DWGS.
- THESE SHOP DRAWINGS SHALL INCLUDE BUT NOT LIMITED TO MECHANICAL EQUIPMENT, PIPING & ACCESSORIES. ALLOW MINIMUM 5 BUSINESS DAYS TO RETURN REVIEWED SHOP DRAWINGS. (BASED ON COMPLEXITY).
- Mechanical Contractor shall be responsible for verifying all dimensions. The engineer's review of shop drawings shall be for general design only & shall not relieve the mechanical contractor or supplier from their responsibility for errors, proper fitting, & construction of the work & furnishing of materials. The review shall not be construed as approving departures from the contract document requirements if such departures are not specifically noted in a covering letter accompanying such drawings.

- ALTHOUGH EVERY EFFORT HAS BEEN MADE TO QUANTIFY THE NUMBER OF EQUIPMENT REQUIRED FOR THE COMPLETE INSTALLATION, THE SHOP DRAWING REVIEW DOES NOT CONSTITUTE ANY QUALIFICATION OF QTY'S REQUIRED.
- ANY DEVIATION FROM THE DESIGN, DRAWINGS OR COMPONENT CONFIGURATION, IS TO BE COMMUNICATED CLEARLY TO THE CONSULTANT SEPARATELY, AND MUST INCLUDE A SKETCH & SYSTEM CONTEXT RATIONALE FOR THE CHANGE, BENEFIT FOR THE CHANGE FOR THE CONSULTANT'S REVIEW.

23.05.00 - 15.0 SUBSTITUTIONS

- EQUIPMENT SUBSTITUTIONS, IF INITIATED BY THE CONTRACTOR, SHALL BE MADE SO AS TO ENSURE OPERATING PERFORMANCE IS NOT REDUCED. RE-REVIEW OF SPECIFICATIONS FOR SUBSTITUTED EQUIPMENT MAY RESULT IN ADDITIONAL CHARGES BY THIS CONSULTANT. ALL CORRESPONDENCE FOR CLARIFICATION OF DESIGN FEATURES, SPECIFICATIONS, & EQUIPMENT SUBSTITUTIONS SHALL BE MADE IN WRITING INCLUDING APPROVED SHOP DRAWINGS OF NEW PRODUCTS. ALLOW FOR A 1 WEEK RESPONSE TIME FROM CONSULTANT. ANY ADDITIONAL COSTS RELATED TO EQUIPMENT SUBSTITUTIONS TO BE ABSORBED BY THE CONTRACTOR.
 - PERFORM TESTS AS INSTRUCTED BY THE ENGINEER TO DEMONSTRATE THAT THE WORK CONFORMS TO THE CONTRACT DOCUMENTS. PROVIDE WRITTEN REPORTS OF SAME.
 - CARRY OUT ALL REQUIRED TESTS ON SYSTEMS TO SATISFY THE AUTHORITIES IN ACCORDANCE WITH THE BUILDING CODE. PROVIDE WRITTEN REPORTS OF SAME.
 - EXAMPLE OF A TYPICAL HVAC EQUIPMENT AND SYSTEM CHECK- INCLUDES (BUT NOT LIMITED TO):
- PLACE ALL FANS (SUPPLY, RETURN AND EXHAUST) IN OPERATION AND VERIFY (WITH REPORTS) THE FOLLOWING ITEMS (AS APPLICABLE):
- AN FAN ROTATIONS.
 - MOTOR AMPERAGE & VOLTAGE TO GUARD AGAINST OVERLOAD.
 - OPERABILITY OF STATIC PRESSURE LIMIT SWITCH.
 - AUTOMATIC DAMPERS FOR PROPER POSITION.
 - TERMOSTAT FUNCTION.
 - ZONE CONTROL FUNCTION.
 - AIR & WATER RESETS OPERATING TO DELIVER REQUIRED TEMPERATURES.

23.05.00 - 16.0 MECHANICAL HVAC TESTING REQUIREMENTS

- HVAC DUCTWORK, PIPING, & EQUIPMENT SHALL NOT BE CONCEALED OR COVERED UNTIL INSPECTED & APPROVED BY THE AUTHORIZED INSPECTION AGENCY & THE ENGINEER. PROVIDE WRITTEN NOTICE (TWO WORKING DAYS) TO THE CONSULTANT BEFORE TESTS.
- SATISFACTORILY PERFORM ALL TESTING REQUIRED BY GOVERNING AUTHORITIES, CODES, REGULATION. RESULTS OF SUCH TESTS SHALL CONFORM TO THE REQUIREMENTS OF THE APPLICABLE BUILDING CODE & SHALL BE TO THE SATISFACTION OF THE AUTHORIZED INSPECTION AGENCY & THE ENGINEER.
- FINAL AIR BALANCING (AS REQUIRED BY LIST OF REPORTS) OF SYSTEM TO TAKE PLACE AFTER OCCUPANCY TO ADDRESS ANY CONCERN. FAN SHEAVE ADJUSTMENTS AND SIZING TO BE THE RESPONSIBILITY OF THE CONTRACTOR. AS A MINIMUM, A FINAL INSPECTION BY ENGINEERING CONSULTANT IS IMPERATIVE FOR ANY FINAL APPROVALS.
- FINAL AIR BALANCING (AS REQUIRED BY LIST OF REPORTS) OF SYSTEM TO TAKE PLACE AFTER OCCUPANCY TO ADDRESS ANY CONCERN. FAN SHEAVE ADJUSTMENTS AND SIZING TO BE THE RESPONSIBILITY OF THE CONTRACTOR. AS A MINIMUM, A FINAL INSPECTION BY ENGINEERING CONSULTANT IS IMPERATIVE FOR ANY FINAL APPROVALS.
- CONTRACTOR TO REMOVE ANY CEILING TILES / ACCESS COVERS AND PREPARE SITE FOR INSPECTIONS AS REQUIRED. CONTRACTOR TO PROVIDE CERTIFIED, GOOD CONDITION LADDERS / 'GENIE' LIFT AS REQUIRED WITH APPROPRIATE PERSONAL HARNESSSES AND SAFETY GEAR FOR USE BY THE ENGINEER ON SITE.
- PROVIDE BALANCING OF AIR, WATER, RETURN AND EXHAUST FAN SYSTEMS AS INDICATED BELOW.
- PROVIDE THREE COPIES OF THE BALANCE REPORT FOR INCLUSION IN THE OPERATING AND MAINTENANCE MANUALS.
- TESTING TO BE PERFORMED IN BOTH COOLING AND HEATING MODE.
- AIR AND WATER FLOW RATES TO BE WITHIN 5% OF THOSE SPECIFIED.
- ADJUST AND BALANCE MAJOR NEW OR EXISTING EQUIPMENT COMPONENTS TO PROVIDE FLOW RATES PRIOR TO ISSUING FINAL REPORT TO ENGINEER.
- INDICATE OPERATING PERFORMANCE (DESIGN VS ACTUAL) OF ALL FANS AND AIR SYSTEMS TO BE SHOWN.

10. PROVIDE THERMOMETERS IN THE FOLLOWING LOCATIONS IN PIPELINES: EACH HOT OR COLD WATER STORAGE TANK AND WHERE SPECIFICALLY SHOWN.

11. VALVES SHALL BE PROVIDED:
 a. AT BASE OF ALL WATER RISERS.
 b. AT INLET AND OUTLET OF ALL EQUIPMENT.
 c. A SHUT-OFF VALVE AND BALANCING VALVES AT ALL HEAT TRANSFER EQUIPMENT.
 d. AT ALL BRANCH TAKE-OFF.
 e. AT LOWEST POINTS OF LINE HAVING DRAIN VALVE ALLOWING FOR COMPLETE DRAIN OF THE SYSTEM.

23 21 00 HYDRONIC PIPING AND PUMPS

- SCHEDULE 40 WELDED STEEL TO ASTM A53-B. MAKE CONNECTIONS TO EQUIPMENT WITH UNIONS AND MECHANICAL COUPLINGS.
- SCREWED FITTINGS FOR PIPING 2" AND UNDER, FLAMED, WELDED OR GROOVED MECHANICAL COUPLINGS FOR PIPING 2-1/2" AND OVER.
- DO NOT INSTALL HEATING WATER PIPING IN EXTERIOR WALLS OR UNHEATED AREAS OF THE BUILDING.
- PRESSURE TESTING: TEST HEATING WATER PIPING AT A PRESSURE OF 860KPA (125PSIG). DEMONSTRATE THE TEST PRESSURE DOES NOT FLUCTUATE FOR A PERIOD OF EIGHT HOURS. HAVE TEST WITNESSED BY THE CONSULTANT OR THE OWNER'S DESIGNATED REPRESENTATIVE.
- PROVIDE 13-MM ISOLATION VALVES FOR ALL AIR VENTS AND GAUGES. PROVIDE ISOLATION BALL VALVES ON BOTH THE HEATING AND WATER SUPPLY AND HEATING WATER RETURN LINES SERVING ALL HYDRONIC HEATING APPLIANCES. PROVIDE TREADED UNION ON ALL PIPING CONNECTIONS TO CONTROL VALVE ASSEMBLIES.
- BALANCING VALVES: INSTALL ARMSTRONG MODEL CBV OR APPROVED EQUIVALENT CIRCUIT BALANCE VALVES WITH READ-OUTS PORTS, POSITION READ-OUT AND MEMORY AND INSULATED VALVE BODY PACKAGING.
- CHEMICAL TREATMENT: PROVIDE AND INSTALL A CHEMICAL POT FEE FROM PACE CHEMICALS, THROUGH TO PUSH ALL HYDRONIC SYSTEMS PIPING. INSTALL SCOURERS, ANTI-OXIDENTS AND INHIBITORS TO THE RECOMMENDATIONS OF PACE CHEMICALS. INSTALL 40% ETHYLENE GLYCOL IN ALL SYSTEMS SUBJECT TO FREEZING CONDITIONS EXCEPT WHERE NOTED OTHERWISE. SUBMIT PACE CHEMICAL SYSTEM FLUID TEST REPORT PRIOR TO BUILDING OCCUPANCY.

23 23 00 REFRIGERANT PIPING:

- COMPLY WITH PROVINCIAL REGULATIONS AND THE CURRENT EDITION OF CSA B52, MECHANICAL REFRIGERATION CODES.
- SCOPE:
 a. LIQUID INDICATORS.
 b. STRAINERS.
 c. HOT GAS REGULATOR AND HOT GAS PIPING, FOR LAST STAGE, PIPED BETWEEN COIL AND CONDENSING UNIT.
 d. FILTER-DRYERS.
 e. SOLENOID VALVES.
 f. EXPANSION VALVES.
 g. REFRIGERANT CHARGING VALVES.
 h. FLEXIBLE CONNECTIONS.
- SUCTION AND LIQUID LINES SHALL BE TYPE C&R COPPER WITH SOLDER TYPE FITTINGS USING 35/5 SILVER SOLDER. EVALUATE COMPLETED SYSTEM WITH VACUUM PUMP TO ENSURE REMOVAL OF MOISTURE. RECHARGE WITH FREON TO MANUFACTURER'S SPECIFICATIONS. THOROUGHLY CHECK ENTIRE SYSTEM WITH LEAK DETECTOR WHEN UNDER PRESSURE AND REPAIR ANY LEAK.

23 30 00 HVAC AIR DISTRIBUTION

- ALL AIR DUCTWORK SHALL BE FABRICATED AND SUPPORTED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE ASHRAE EQUIPMENT GUIDE, NPPA 90A-SMACNA DUCT MANUAL. SHEET METAL USED TO FABRICATE THE DUCTWORK SHALL BE GALVANIZED AND SHALL CONFORM TO ASTM A-46 WITH Z-275 METRIC COATING, AND NOT LIGHTER THAN 26 GAUGE. SEAL ALL DUCTWORK AIR TIGHT. PROVIDE RIA TRANSFER DUCTS C/W SOUND ATTENUATION BETWEEN CEILING PLUNGE AND R/A CORRIDORES COORDINATED WITH OTHER DUCTS AND SERVICES AS REQUIRED. REFER TO PLANS FOR ANY SPECIFIC DESIGN REQUIREMENTS AS APPLICABLE.
- ALL AIR DISTRIBUTION TERMINALS (AS REQUIRED) TO BE PROVIDED WITH FLOW ADJUSTING BALANCING DAMPER LOCATED AT THE TRUNK OR BRANCH DUCT TAKE-OFF - UNLESS OTHERWISE SPECIFIED ON PLANS. OWNER/ARCHITECT TO APPROVE THE LOCATION, TYPE AND APPEARANCE OF ALL AIR TERMINALS AND GRILLES. EH PRICE / GREENHECK PRODUCTS ARE SPECIFIED IN THIS DESIGN.
- ELEVATION OF EXTERIOR GRILLES TO BE ABOVE NORMAL SNOW HEIGHTS AND NOT IN AREAS PRONE TO SNOW DRIFTING. INTAKE AND EXHAUST GRILLES TO BE SEPARATED BY MINIMUM 10 FT. AS PER NPPA 96. SEE DETAIL.
- AIR MU EQUIPMENT TO BE FURNISHED WITH FLEXIBLE DUCT (DURADYNE NEOPRENE OR EQUIVALENT) AND SERVICE CONNECTIONS AS PER MFG. RECOMMENDATIONS. INTERNAL NOISE ATTENUATING ACOUSTICAL INSULATION MAY BE REQUIRED AS SPECIFIED OR REQUIRED. MINIMUM 1" MATERIAL FASTENED WITH MECHANICAL FASTENERS REQUIRED. ALL DUCT SIZES INDICATED AFTER INSULATION IS ADDED.
- GALVANIZED STEEL LOCK FORMING DUCTWORK, WITH GALVANIZED COATING CONFORMING TO ASTM A525 G90. FABRICATED TO THE REQUIREMENTS OF SMACNA STANDARDS FOR THE SPECIFIED APPLICATIONS. ALL DUCT WORK USED ON THIS PROJECT SHALL BE CLEAN AND FREE OF SCALE.
- ALL DUCTWORK ON THIS PROJECT IS CLASSIFIED AS LOW PRESSURE. SHEET METAL SCREWS MAY BE USED FOR FASTENING JOINTS. WRAP ALL JOINTS WITH FIRE AND WATER RESISTIVE DUCT TAPE AND SEAL WITH WATER RESISTANT SEALANT. USE ROBSON'S DUCT SEAL OR DURO DYNE S-2 WITH FT-2 TAPE TLEXMASTER DUCT BAND.
- DUCTS THAT PENETRATE EXTERIOR WALLS ASSEMBLIES MUST BE SEALED TO THE WEATHER BARRIER USING SELF ADHESIVE BITUMINOUS MEMBRANE AND EXPANDING FOAM SEALANT.
- DUCT ACCESS DOORS SHALL HAVE ULC LISTING AND SHALL BE 450X450 UNLESS OTHERWISE REQUIRED BY DUCT SIZE.
- FABRICATED BALANCING DAMPERS FROM MINIMUM 1.6 MM THICK GALVANIZED STEEL, WITH ADJUSTMENT ROD AND LOCK SCREW, PROVIDE AS INDICATED ON THE DRAWINGS.
- INSTALL CANVAS FLEXIBLE CONNECTIONS ON INLET TO ALL EXHAUST FANS, AND INLET AND OUTLET OF ROOF MOUNTED AIR HANDLING UNITS, ENSURE THAT FLEX DOES NOT IMPEDE AIRFLOW AND ALLOWS MODULAR EQUIPMENT WITHOUT TRANSMITTING VIBRATION INTO THE DUCTWORK. INSTALL FLEXIBLE DUCT CONNECTIONS WITH A MINIMUM 40 MM (1 1/4 INCHES) METAL-TO-METAL GAP.

- Maintain all ductwork installed on this project clean and free from dust and other workplace debris. If in the consultant's opinion any ductwork installed has not been maintained in a clean condition the contractor shall retain the services of a certified duct cleaning company to thoroughly vacuum and clean all outdoor, supply and return air ductwork installed.
- Ductwork layouts are shown as schematic information only. Provide offsets and transitions to route the ductwork required to suit the structure and maintain the design performance as close as possible without extra cost.
- Size round ducts, installed in place of rectangular ducts, from ASHRAE table of equivalent rectangular and round ducts, no variation of duct configuration or sizes permitted except by permission from consultant.
- Indicate duct size, duct function (i.e.: "SUPPLY, EXHAUST") and air handling unit or fan (i.e.: AHP-1, EF-1) to which the duct is connected, use arrow to indicate air flow direction.
- Identify duct runs at least once in every room and maximum 50 ft. between markings.
- The nomenclature for identification of equipment shall be consistent with the designations in the plans and specifications.

23 30 00 CENTRAL HEATING EQUIPMENT

23 51 00 BREECHINGS, CHIMNEYS, AND STACKS

- Install vents, complete with accessories and appurtenances, in accordance with latest editions of (CAN 1-B149.1), (CAN 4-B149.2) PROVINCIAL BUILDING CODE, MANUFACTURER'S INSTRUCTIONS AND AS FOLLOWS:
 a. TYPE TO CAN 4-S64A.
 b. TYPE A-2 TO CAN 4-S629.
 c. TYPE B-2 TO CAN 4-S605.
 d. TYPE BW TO CAN 4-S605.
 e. TYPE L TO ULC S609.
- DO NOT PENETRATE FLUE GAS CHAMBER OF VENT WITH SCREWS OR MECHANICAL FASTENERS.

- INSTALL BREECHING WITH POSITIVE SLOPE UPWARD FROM APPLIANCE, MIN. 2%.
- SUSPEND BREECHING USING TRAPEZE HANGERS AT 1500 MM CENTERS.
- INSTALL CLEANOUT AT BASE OF CHIMNEY.
- PROVIDE PROPERLY SIZED BAROMETRIC DAMPER AS REQUIRED.
- SUPPORT CHIMNEY AT BOTTOM, ROOF AND INTERMEDIATE LEVELS.
- INSTALL THIMBLES WHERE PENETRATING ROOF, FLOOR, CEILING AND WHERE BREECHING ENTERS MASONRY CHIMNEY.
- INSTALL FLY ASH SCREEN ON ALL CHIMNEYS SERVING SOLID FUEL FIRED APPLIANCES.
- INSTALL RAIN CAP ON CHIMNEY OUTLET.
- PROVIDE FOR EXPANSION AND CONTRACTION OF CHIMNEY AND BREECHING.

23 52 00 BOILERS

- ALL ELECTRICAL COMPONENTS TO BE OF A HIGH QUALITY AND ULC RATED
- BOILER MUST BE CSA-1 COMPLIANT WITH FACTORY REPORT FOR ASME CS-1
- THE BOILER SHALL BE DIRECT VENT OR DIRECT EXHAUST USING PVC, CPVC, PP OR AL29-4C APPROVED VENTING SYSTEM
- BOILER(S) SHALL BE 95% MINIMUM AHRI CERTIFIED THERMAL EFFICIENT AS REQUIRED BY BTS 2000
- WATER BOILER(S) CONTROLS FURNISHED WITH:
 a. HIGH LIMIT TEMPERATURE CONTROL WITH MANUAL RESET, FIXED 200 DEGREE F OPERATING LIMIT WITH 190 DEGREES F MAXIMUM BOILER WATER TEMPERATURE SET POINT CLEARLY MARKED AND EASY TO READ.
 b. COMBINATION PRESSURE-TEMPERATURE GAUGE. GAUGE DIAL CLEARLY MARKED AND EASY TO READ.
 c. ASME CERTIFIED PRESSURE RELIEF VALVE SET TO RELIEVE AT 30 (OPTIONAL 50, 80, OR 100) PSIG.
 d. FLUE GAS OUTLET WATER TEMPERATURE, AND RETURN WATER TEMPERATURE SENSORS.
 e. FIELD INSTALLABLE OUTDOOR TEMPERATURE SENSOR AND SYSTEM HEAD/TEMPERATURE SENSOR
 f. LOW WATER PROTECTION WITH MANUAL RESET
 g. HIGH AND LOW GAS PRESSURE SWITCHES WITH MANUAL RESET AND INDICATOR LIGHTS
 h. CIRCULATOR EXERCISING
 i. BUILT-IN FREEZE PROTECTION
 j. WARM WEATHER SHUTDOWN

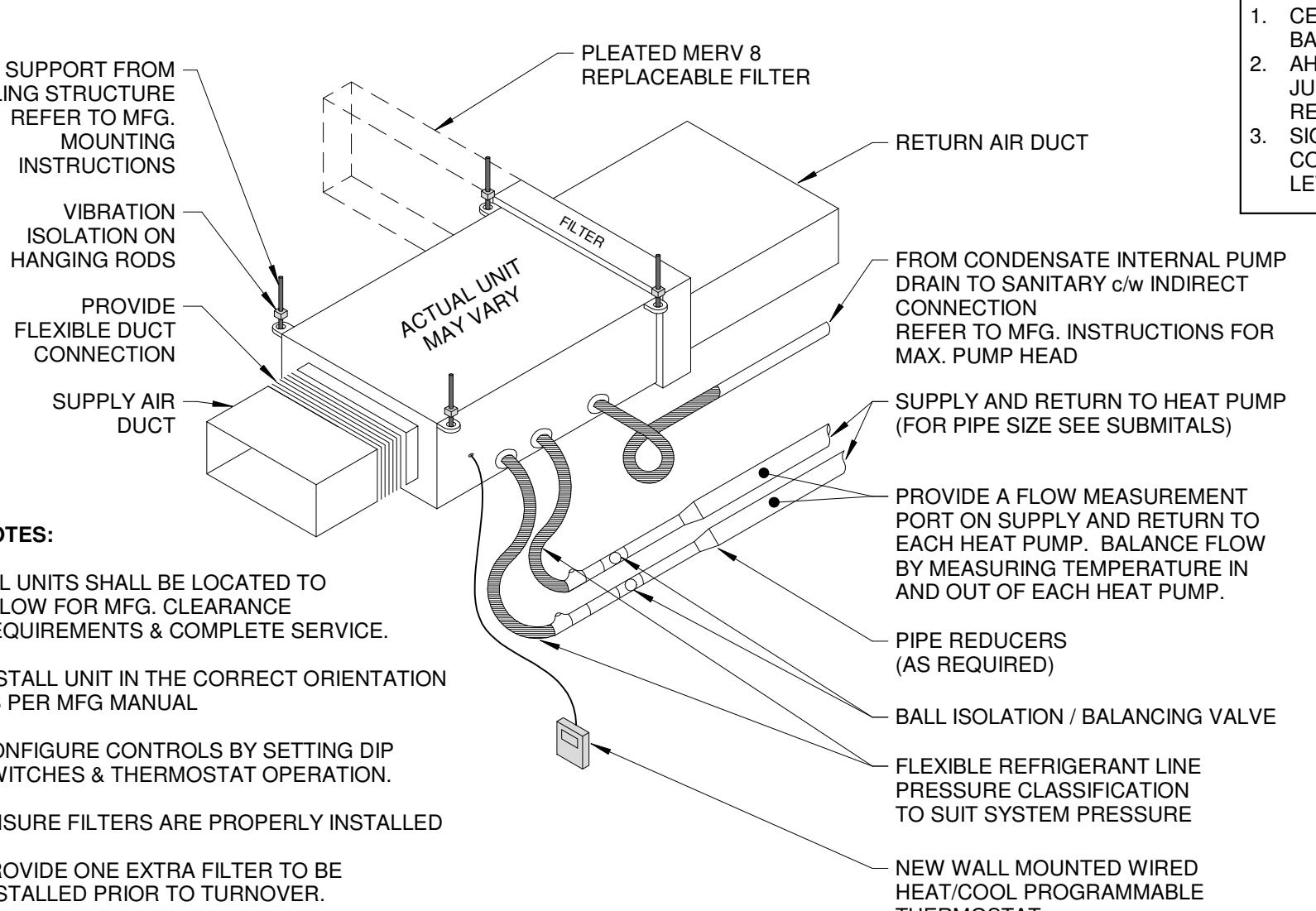
- BOILER CONTROL TO BE UL 353 LISTED WITH:
 a. 3 PUMP CONTACTS.
 b. FULLY CUSTOMIZABLE OUTDOOR RESET CURVE.
 c. MULTIPLE BOILER SYSTEM FUNCTIONALITY INCLUDING LEAD / LAG CAPABILITY, AS WELL AS LEAD BOILER ROTATION.
 d. ABILITY TO CONTROL A TOTAL OF 8 BOILERS.
 e. CENTRAL HEATING AND DOMESTIC HOT WATER PRIORITIES. LARGE LCD SCREEN TO MONITOR MULTIPLE TEMPERATURES AT ONE TIME, INCLUDING SUPPLY, RETURN, HEADER, OUTDOOR, AND FLUE GAS TEMPERATURES.
 f. AUTOMATIC CONTROL OF SWIFTS AND MANUAL RESET LOCKOUTS INCLUDING FLAME FAILURE, HIGH TEMPERATURE LIMITS, GAS PRESSURE LIMITS, AIR PRESSURE LIMIT, AND LOW WATER CUT OFF LIMIT.
- REMOTE MODULATION CAPABLE OF INTERFACING WITH BUILDING AUTOMATION SYSTEMS THROUGH MODBUS, OR AN OPTIONAL MODBUS TO BACNET TRANSLATOR

- COMMON SIZE
 • NO URGENTLY TRANSITIONS
 • MINIMIZE PRESSURE DROP
 • NEAT INSTALLATION
 • SEAL JOINTS TO PREVENT DIS-COLOURATION
 • PAINT TO SUIT INTERIOR DECOR (CONSULT OWNER)
- SUPPORT DUCTWORK WITH HANGERS AT ALL FITTINGS

23 80 00 DECENTRALIZED HVAC EQUIPMENT

23 84 13 HUMIDIFIERS

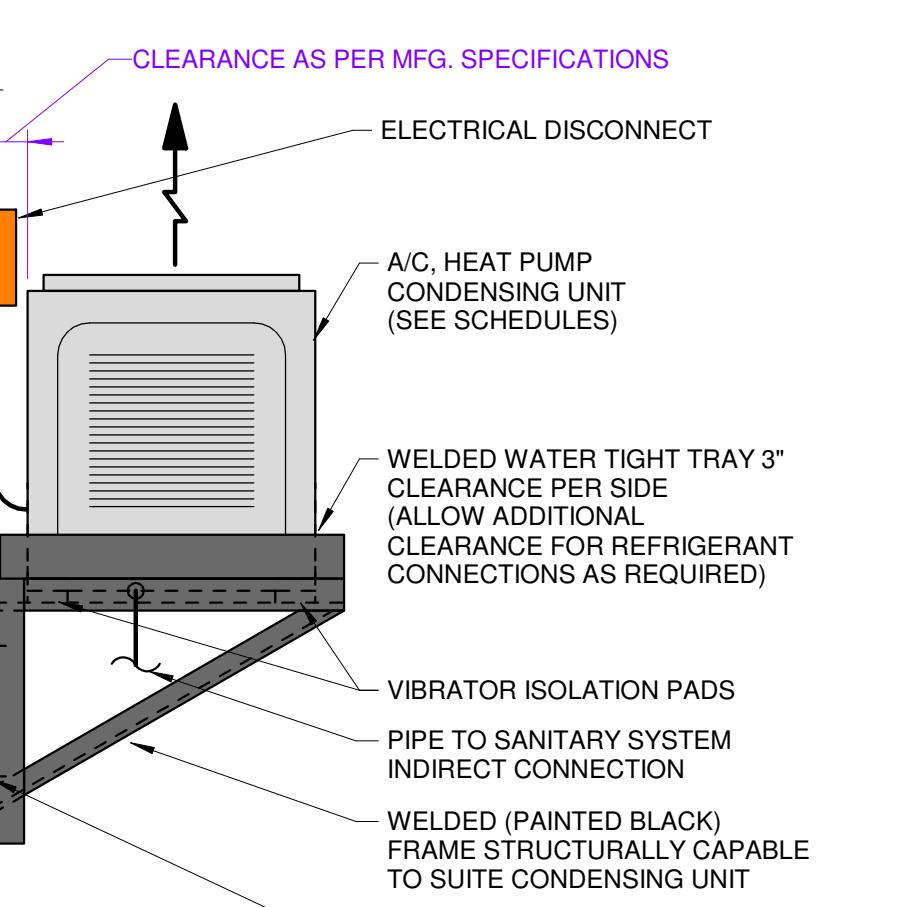
- INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS REGARDING MAXIMUM PIPING DISTANCES, CONDENSATE AND DRAIN PIPING, AND STEAM DISTRIBUTION MANIFOLD LOCATION. UNITS SHALL BE UL AND CSA LISTED.
- DUCTWORK LAYOUTS ARE SHOWN AS SCHEMATIC INFORMATION ONLY. PROVIDE OFFSETS AND TRANSITIONS TO ROUTE THE DUCTWORK REQUIRED TO SUIT THE STRUCTURE AND MAINTAIN THE DESIGN PERFORMANCE AS CLOSE AS POSSIBLE WITHOUT EXTRA COST.
- CREATE THE STEAM GENERATOR ON A WALL AT A LEVEL BELOW THE DUCT MOUNTED STEAM DISTRIBUTION MANIFOLD.
- PROVIDE A HIGH LEVEL HUMIDISTAT AND AN AIR PROVING SWITCH IN THE SUPPLY DUCTWORK DOWNSTREAM OF THE DISTRIBUTION MANIFOLD.
- CONNECT THE HUMIDIFIER CABINET WITH VALVED DOMESTIC WATER PIPING WITH BACKFLOW PREVENTER, AND INDIRECT DRAINAGE PIPING TERMINATED OVER A FUNNEL AND FLOOR DRAIN UNLESS OTHERWISE SPECIFIED OR SHOWN.
- PROVIDE TYPE "L" HARD COPPER STEAM PIPING, SLOPED 7 TO 1 MINIMUM, FROM THE HUMIDIFIER TO THE STEAM DISTRIBUTION MANIFOLD AND TYPE "L" HARD COPPER CONDENSATE PIPING SLOPED 1 TO 4 FROM THE MANIFOLD TO THE HUMIDIFIER.
- CONCEAL ALL PIPING WHEREVER POSSIBLE.
- DO ALL REQUIRED 24 VOLT CONTROL WIRING FROM HUMIDISTAT AND THE AIR PROVING SWITCH TO THE HUMIDIFIER POWER AND CONTROL PANEL. INSTALL CONTROL WIRING IN CONDUIT IN ACCORDANCE WITH REQUIREMENTS SPECIFIED IN DIV 26.
- WHEN INSTALLATION OF THE HUMIDIFIER IS COMPLETE, ARRANGE FOR THE SUPPLIER TO VISIT THE SITE TO CHECK THE INSTALLATION, TO START UP THE UNIT, TO MAKE ANY REQUIRED ADJUSTMENTS, TO ENSURE THAT THE HUMIDIFIER IS OPERATING AS INTENDED, AND WHEN THE HUMIDIFIER IS OPERATING PROPERLY, CERTIFY THIS FACT IN WRITING TO THE CONSULTANT.
- CONFIRM SIZE AND NUMBER OF STEAM PIPES FROM GENERATOR TO DISTRIBUTOR WITH SUPPLIER AND PROVIDED PIPING AS REQUIRED.
- INSULATE ALL PIPING INCLUDING WATER SUPPLY, CONDENSATE, STEAM PIPING, ETC.



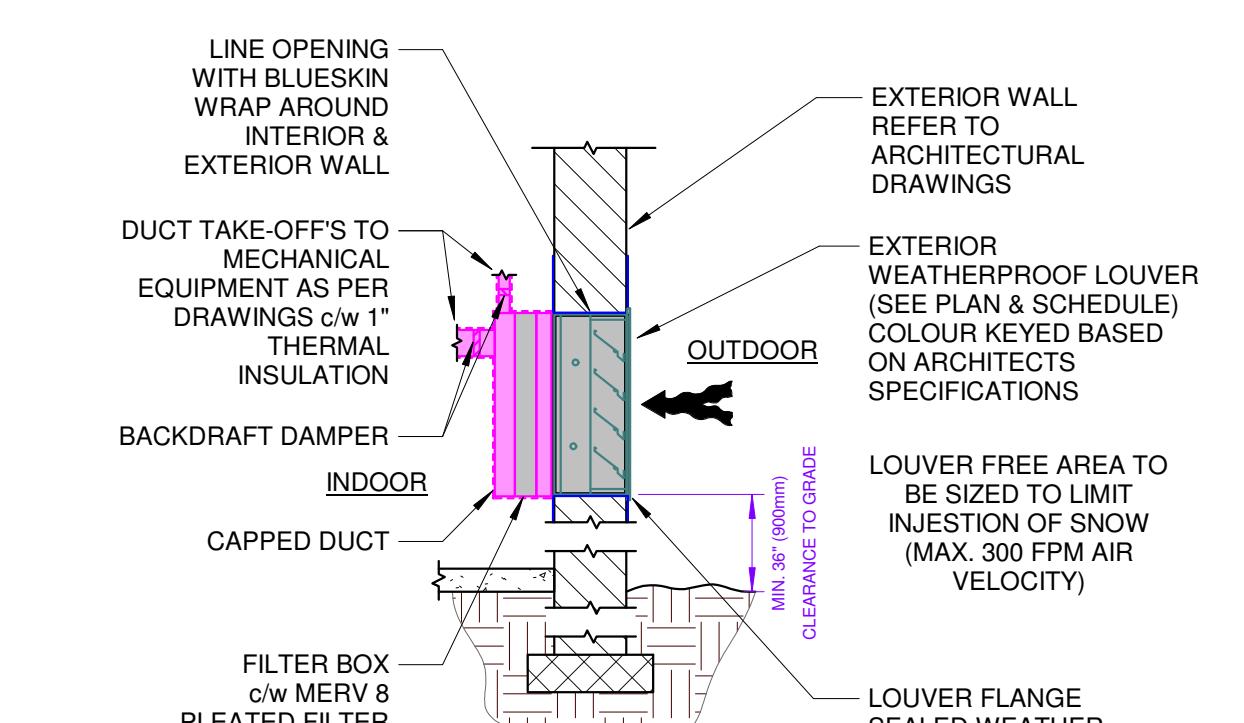
NOTES:

- ALL UNITS SHALL BE LOCATED TO ALLOW FOR MFG. CLEARANCE REQUIREMENTS & COMPLETE SERVICE.
 INSTALL UNIT IN THE CORRECT ORIENTATION AS PER MFG MANUAL
 CONFIGURE CONTROLS BY SETTING DIP SWITCHES & THERMOSTAT OPERATION.
 ENSURE FILTERS ARE PROPERLY INSTALLED
 PROVIDE ONE EXTRA FILTER TO BE INSTALLED PRIOR TO TURNOVER.
 PIPE REDUCERS (AS REQUIRED)
 BALL ISOLATION / BALANCING VALVE
 FLEXIBLE REFRIGERANT LINE
 PRESSURE CLASSIFICATION TO SUIT SYSTEM PRESSURE
 NEW WALL MOUNTED WIRED HEAT/Cool PROGRAMMABLE THERMOSTAT

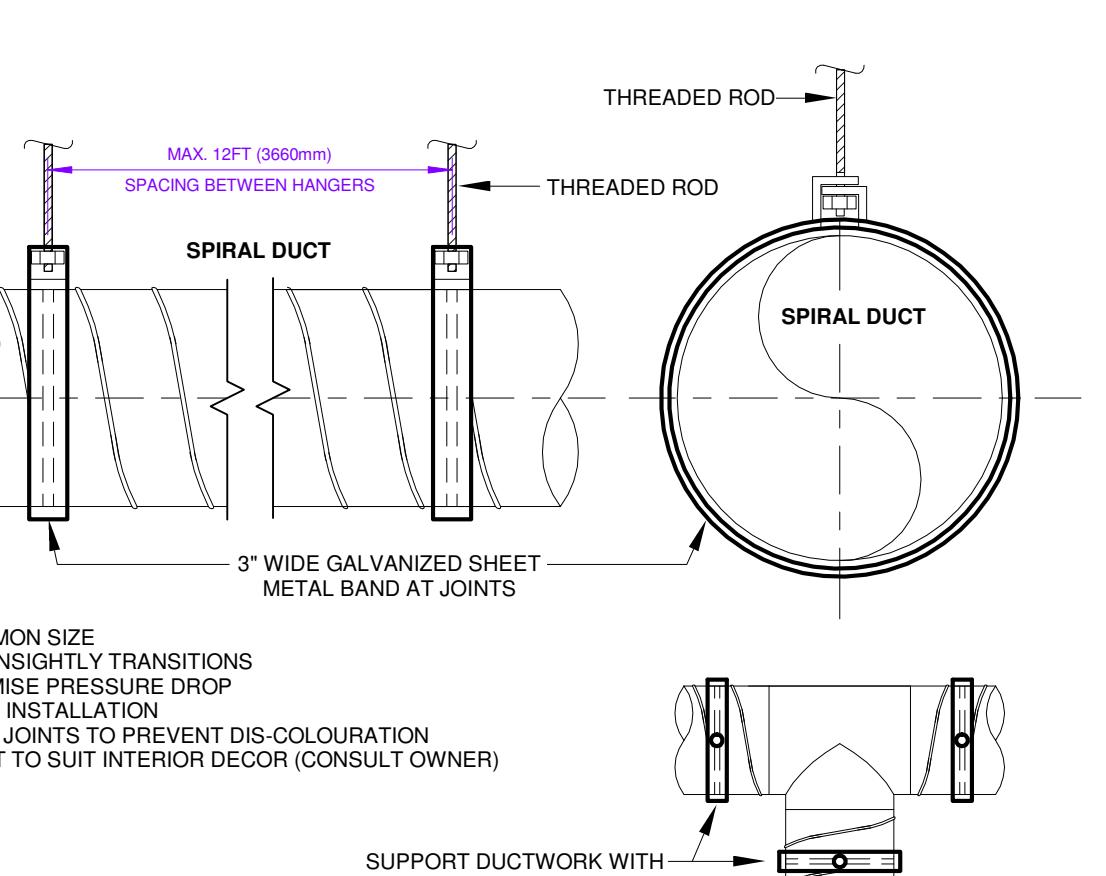
5 Split AC HP / Generic Ducted - Installation
M-4
N.T.S.



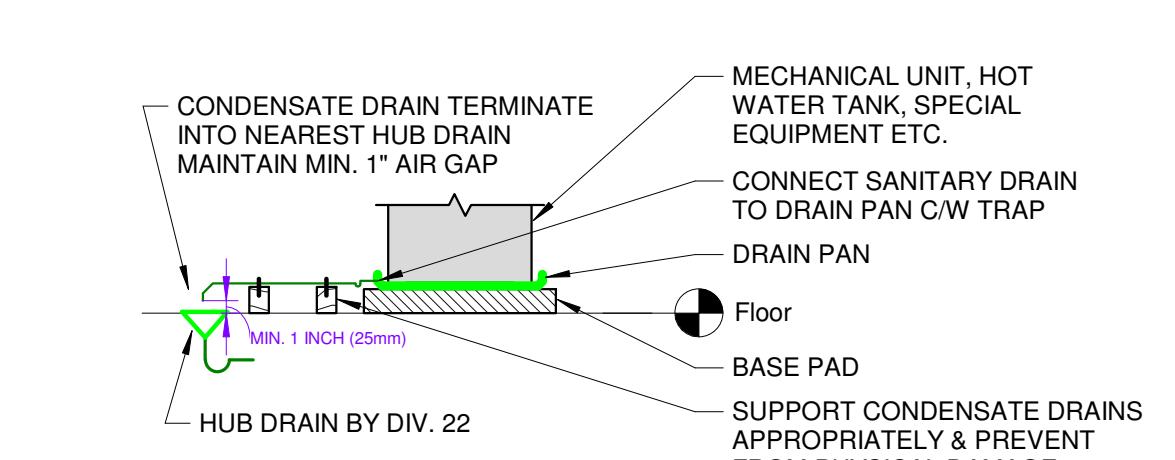
3 Split AC / Indoor Condensing Unit Installation
M-4
N.T.S.



9 Air Intake / Louver & Filter Section Detail
M-4
N.T.S.



6 Ductwork / Spiral / Support
N.T.S.



2 HWT Install / Drain Pan
N.T.S.

MECHANICAL REPORTS REQUIRED FOR SIGN-OFF	
1. CERTIFIED THIRD PARTY AIR BALANCING REPORT	
2. AHJ AUTHORITY HAVING JURISDICTION INSPECTION REPORTS	
3. SIGN & DATED CONTRACTOR COMPLETION & WARRANTY LETTER	

(04322) PROJECT DRAWING REGISTER	
Sheet #	Sheet Name
E1/M1/P1	Project Cover
E2/M2/P2	Project Cover
M-3	HVAC - Specifications
M-4	HVAC - Specifications
M-5	HVAC - Scope of Work
M-6	HVAC - Scope of Work
M-7	HVAC - Bldg. 1
M-8	HVAC - Bldg. 2
M-9	HVAC - Bldg. 3
M-10	HVAC - Bldg. 4
M-11	HVAC - Bldg. 5
M-12	HVAC - Bldg. 6
M-13	HVAC - Isometric & Elevation Views
M-14	HVAC Details
P-3	Plumbing - Specifications
P-4	Plumbing - Specifications
P-5	Plumbing - Site Plan
P-6	Plumbing - Bldg. 1
P-7	Plumbing - Bldg. 2
P-8	Plumbing - Bldg. 3
P-9	Plumbing - Bldg. 4
P-10	Plumbing - Bldg. 5
P-11	Plumbing - Bldg. 6
P-12	Plumbing - Typical Building
P-13	Plumbing - Details
P-14	Plumbing - Water Schematic
P-15	Plumbing - Sanitary Schematic
E-3	Elec. Power - Specifications
E-4	Elec. Power - Specifications
E-5	Elec. Power - Scope of Work
E-6	Electrical Site Plan
E-7	Elec. - SLD
E-8	Power/Comm - Bldg. 1
E-9	Elec. Lighting - Bldg. 1
E-10	Power/Comm - Bldg. 2
E-11	Elec. Lighting - Bldg. 2
E-12	Power/Comm - Bldg. 3
E-13	Elec. Lighting - Bldg. 3
E-14	Power/Comm - Bldg. 4
E-15	Elec. Lighting - Bldg. 4
E-16	Power/Comm - Bldg. 5
E-17	Elec. Lighting - Bldg. 5
E-18	Elec. Lighting - Bldg. 6
E-19	Elec. Lighting - Bldg. 6
E-20	Elec. Typical Building
E-21	Electrical Schedules
E-22	Electrical Details

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- GENERAL DRAWING / DESIGNER NOTES:**
- [1] ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE REQUIREMENTS OF THE PROVINCE OF ONTARIO'S BUILDING CODE, LOCAL REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
 - [2] THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES IN ORDER TO ACCOMMODATE CONDITIONS ARISING DURING CONSTRUCTION. THE CONSULTANT WILL NOT BE HELD RESPONSIBLE FOR CONSTRUCTION COSTS ARISING FROM SUCH CHANGES UNLESS AGREED UPON IN WRITING.
 - [3] DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK. DETAILS ARE NOT PROVIDED. DRAW

MECHANICAL HVAC - SCOPE OF WORK CONTRACTOR TO VISIT THE SITE & FAMILIARIZE THEMSELVES WITH THE REQUIREMENTS OF THIS DESIGN. OBTAINT ALL REQUIRED CLIENT TRAINING, HEALTH & SAFETY, ELEVATED WORK, HOT WORK TRAINING & CERTIFICATIONS. REFER TO SPECIFICATION & GENERAL PROJECT NOTES & DETAILS INCLUDED IN THIS SET OF DWGS. THE WORK SHALL CONSIST OF, BUT SHALL NOT BE LIMITED TO THE FOLLOWING: **TENDER - PHASE - MECHANICAL** M 1.0. THE CONTRACT SHALL BE GOVERNED BY THE LAWS OF THE CANADIAN PROVINCE BASED ON THE PROVINCIAL ADDRESS OF THE PROJECT. M 1.1. CONTRACTOR TO BE FAMILIAR WITH AND FULLY ADOBE BY AN APPENDIX / SITE SAFETY & CONFIDENTIALITY REQUIREMENTS FOR ACCESSING THE SITE STIPULATED IN THE CLIENT'S SECURITY REGULATIONS, RULES, POLICIES & PROTOCOLS. ALL VISITS TO BE ARRANGED WITH THE LISTED CLIENT REPRESENTATIVE IN WRITING IN ADVANCE OF THE VISIT. ENTRANCE TO THE SITE IS NOT PERMITTED WITHOUT A PRE-ARRANGED APPOINTMENT. CONTRACTOR TO CARBON COPY (CC) THE ENGINEER TO NOTIFY OF AN IMPENDING SITE VISIT IN WRITING. M 1.2. CONTRACTOR SHALL COMPLETE ALL REQUIRED TRAINING SUCCESSFULLY IN FULL ACCORDANCE WITH THE CLIENT'S SPECIFIED TRAINING PROGRAM. REQUIREMENTS, WRITTEN PROOF TO BE PROVIDED TO THE ENGINEER PRIOR TO ENTERING THE SITE. M 1.3. CONTRACTOR TO BE FAMILIAR WITH AND FULLY ADOBE BY ALL PROVINCIAL AND CLIENT / SITE SAFETY PPE REQUIREMENTS WHILE AT THE CLIENT'S SITE. M 1.4. CONTRACTOR TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH ALL OF THE REQUIREMENTS OF THIS PROJECT PRIOR TO THE TENDER PHASE TO REVIEW THE EXISTING CONDITIONS AND THE RELATIONSHIP TO THE NEWLY PROPOSED DESIGN. PARTICULAR ATTENTION TO BE PAID TO MODIFICATIONS TO EXISTING SERVICES (IF APPLICABLE). M 1.5. CONTRACTOR TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH ALL OF THE REQUIREMENTS OF THIS PROJECT. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING PRIOR TO PRICING THE ITEM. M 1.6. THE SPECIFICATIONS TEXT LISTED IN THE TENDER DOCUMENTS SHALL HAVE PRIORITY OVER THE DRAWINGS AND PLANS. THIS MAY IN "SHEET" FORMAT OR "BOOK" FORMAT. M 1.7. ANY AND ALL QUESTIONS RELATED TO THE SPECIFICATIONS AND/OR DESIGN DOCUMENTS PROVIDED BY NORTHSTAR ARE TO BE COMMUNICATED IN WRITING TO THE PRIME CONSULTANT AND CARBON COPIED TO NORTHSTAR IN A TIMELY MANNER WITHIN THE TENDER PERIOD. THE ENGINEER WILL NOT RESPOND TO TELEPHONE CALLS TO CLARIFY SCOPE. REASONABLE TIME SHALL BE ALLOWED FOR A WRITTEN RESPONSE FROM NORTHSTAR. NORTHSTAR WILL NOT PROVIDE INFORMATION OR SCOPE CHANGES VERBALLY / OR IN WRITING, TO ANY ONE BIDDING PARTY WITHOUT THE PROVISIONS OF A FORMAL ADDENDUM. M 1.8. SHOULD THERE BE A CONFLICT OR INCONSISTENCY WITHIN THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN A TIMELY MANNER WITHIN THE TENDER PERIOD. M 1.9. THE DESIGN DRAWINGS PROVIDED BY NORTHSTAR ARE GENERAL LAYOUTS ONLY. THE CONTRACTOR SHALL PROVIDE A COMPLETE, WORKING INSTALLATION BASED ON THE GENERAL LAYOUTS PROVIDED BY NORTHSTAR. SHOULD COORDINATION OF THE CONTRACTOR'S INSTALLATION REQUIRE AN ADDITIONAL CONDUIT, MATERIAL, FITTING, THAN SHOWN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF PROCUREMENT AND INSTALLATION. EXTRAS FOR OFFSETS AND ROUTING CHANGES WILL NOT BE APPROVED. M 1.10. EVERY EFFORT HAS BEEN MADE BY NORTHSTAR TO PROVIDE A WORKABLE CONCEPT FOR THIS PROJECT. THE CONTRACTOR IS REQUESTED TO REVIEW THE VIABILITY OF THE DESIGN CONCEPT AND LIST ANY CONCERN OR OBSTACLES TO THE SUCCESS OF THE PROPOSED PLAN BEFORE ORDERING OF MATERIALS OR PLANNING IS BEGUN. M 1.11. CONTRACTOR TO INCLUDE COORDINATING, SUPPLYING AND INSTALLING NECESSARY ELECTRICAL CONTROLS CONDUITS TO SERVICE MECHANICAL EQUIPMENT FOR LOW-VOLTAGE (UNDER 30VAC) FOR ALL REQUIRED MECHANICAL CONTROLS. M 1.12. NORTHSTAR WILL NOT PROVIDE VERBAL OR WRITTEN PERMISSION TO DEVIATE FROM THE CONTRACT DOCUMENTS DURING THE TENDER PERIOD UNLESS THROUGH A FORMAL ADDENDUM ISSUED BY NORTHSTAR AND OR THE PRIME CONSULTANT. M 1.13. CONTRACTOR TO FULLY REVIEW AND CONSIDER LISTED AND SPECIFIED TECHNICAL REPORTS PRIOR TO SUBMITTING THEIR BID. M 1.14. IT SHALL BE ASSUMED THAT ANY FINAL BID SUBMITTED ON OR BEFORE THE OFFICIAL TENDER DATE SHALL BE DEEMED TO CONTAIN AND INCLUDE COSTING FOR ALL OFFICIAL CHANGES AND ADDENDUMS ISSUED BY NORTHSTAR AND OR THE CONSULTANT TEAM. M 1.15. NORTHSTAR RESERVES THE RIGHT TO APPROVE AND/OR DENY ANY CONTRACTOR SELECTED EQUIPMENT / MATERIALS / METHODS - INCLUDING SHOP DRAWINGS THAT DEVIATE FROM THE DESIGN PRESENTED. M 1.16. CONTRACTOR SHALL FULLY DISCLOSE IN THEIR BID A LIST OF SUB-CONTRACTORS CARRIED AND PLANNED TO BE EMPLOYED FOR THIS PROJECT BY THE CONTRACTOR. M 1.17. CONTRACTOR SHALL IDENTIFY LONG-LEAD ITEMS IN THEIR BID SUBMISSION. M 1.18. CONTRACTOR MAY IDENTIFY AN ALTERNATE SOLUTION FROM THE CONTRACT DOCUMENTS FOR NORTHSTAR'S REVIEW - AS AN OPTIONAL PRICE. M 1.19. CONTRACTOR SHALL BE RESPONSIBLE FOR PRICING ALL MATERIALS CONTAINED WITHIN THE CONTRACT DOCUMENTS. FAILURE OF THE CONTRACTOR TO ORDER AND PROCURE THE SPECIFIED OR APPROVED ALTERNATE MATERIALS TO MEET THE PROJECT SCHEDULE IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.			M 1.20. EVERY EFFORT HAS BEEN MADE BY NORTHSTAR TO PROVIDE A WORKABLE CONCEPT FOR THIS PROJECT. THE CONTRACTOR IS REQUESTED TO REVIEW THE VIABILITY OF THE DESIGN CONCEPT AND LIST ANY CONCERN OR OBSTACLES TO THE SUCCESS OF THE PROPOSED PLAN ALONG WITH THE TENDER SUBMISSION. M 1.21. ANY DEVICES THAT REQUIRE ELECTRICAL POWER OVER 50VAC ARE TO BE WIRED ENERGIZED AND COMMISSIONED BY THE ELECTRICAL CONTRACTOR. M 1.22. CONTRACTOR TO OBTAIN PRICING AND THE COSTS OF ANY REQUIRED (QUALIFIED) COMPANIES TO PERFORM ANY LISTED TESTING AND OR INVESTIGATIONS PRIOR TO CONSTRUCTION. FEES FOR ALL LISTED REPORTS TO BE INCLUDED IN THE TENDER. M 1.23. THE ENTIRE INSTALLATION IS TO BE WARRANTED FOR A PERIOD OF NOT LESS THAN 1-YEAR INCLUDING PARTS AND LABOUR. THE WARRANTY PERIOD SHALL COMMENCE AT THE DATE OF SUBSTANTIAL COMPLETION GRANTED BY THE CONSULTANT. M 1.24. CONTRACTOR TO PROVIDE PRICING ON ALL NORTHSTAR ISSUED OFFICIAL CHANGE ORDERS IN THE FORMAT REQUESTED BASED ON THE SPECIFIC ITEM NUMBERS LISTED ON THE NORTHSTAR CHANGE REQUEST DOCUMENT, ONE PRICE FOR EACH ITEM LISTED. PRICING TO INCLUDE ALL LABOUR AND MATERIALS REQUIRED FOR THE SCOPE REQUESTED. NORTHSTAR WILL NOT NECESSARILY APPROVE PRICING BASED UPON INDUSTRY PRICE GUIDES SUCH AS "ALLPRISER" OR "SIMILAR" METHOD. PRICING WILL BE FURNISHED BASED ON THE CONTRACT CONDITIONS. CONTRACTOR TO PROVIDE CHANGE ORDER PRICING IN A TIMELY MANNER FOR NORTHSTAR'S REVIEW. NO WORK SHALL PROCEED UNTIL OFFICIAL WRITTEN ACCEPTANCE IS ISSUED BY NORTHSTAR. M 1.25. NORTHSTAR OFFICIAL ISSUED SITE INSTRUCTIONS (OR SIS) ARE DIRECTIVES TO CHANGE THE INSTALLATION AND ARE NOT SUBJECT TO PRICING FROM THE CONTRACTOR. IF THE CONTRACTOR FEELS THAT THE ITEM WARRANTS AN ADDITIONAL COST TO THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING PRIOR TO PRICING THE ITEM. M 1.26. SPECIFICATIONS AND DRAWINGS FORM AN INTEGRAL PART OF THE CONTRACT DOCUMENTS. ANY SUBJECT OR ITEM OMITTED FROM ONE BUT WHICH IS MENTIONED OR REASONABLY IMPLIED IN THE OTHER SHALL BE CONSIDERED AS PROPERLY AND SUFFICIENTLY SPECIFIED AND SHALL BE INCLUDED AS PART OF THE WORK. M 1.27. THE CONTRACTOR'S SUBMITTED PRICING IS TO CLEARLY LIST ALL OPTIONAL PRICING REQUESTED FOR IN THIS TENDER TO BE CONSIDERED A VALID TENDER SUBMISSION. M 1.28. THE CONTRACTOR'S SUBMITTED PRICING IS TO INCLUDE ALL APPLICABLE TAXES. M 1.29. THE OWNER IS TO BE RESPONSIBLE FOR ANY UTILITY FEES RELATED TO SERVICE UPGRADES. M 1.30. SUPPLY AND INSTALL ANY APPURTENANT FITTINGS OR MATERIALS NOT EXPRESSLY LISTED WITHIN THE DRAWINGS OR SPECIFICATIONS THAT ARE NECESSARY FOR THE PROPER OPERATION OF ANY OF THE CONTRACTOR'S SYSTEMS. CONTRACTOR DOCUMENTS ARE NOT INTENDED TO ENUMERATE EACH AND EVERY DETAIL THAT MAY BE NECESSARY TO FURNISH AND INSTALL THE COMPLETE SYSTEM, CONNECTED AND READY FOR SERVICE OPERATION. THE TENDER PRICE SHALL INCLUDE ALL SUCH DETAILS, AND ALL ASSOCIATED LABOUR AND MATERIALS, TO PROVIDE A COMPLETE AND WORKING SYSTEM. M 1.31. ALL OF THE MATERIALS REQUIRED FOR THE PERFORMANCE OF THE WORK SHALL BE NEW, THE BEST QUALITY OF THEIR RESPECTIVE KIND, AND INSTALLED IN A GOOD, INDUSTRY STANDARD WORKMANSHIP. M 1.32. CONTRACTOR SHALL CARRY THE COST OF ALL PERMIT APPLICATION FEES ASSOCIATED WITH THE WORK. M 1.33. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CAREFULLY REVIEW THE DRAWINGS, SPECIFICATIONS, AND OTHER INSTRUCTIONS AND NOTIFY THE CONSULTANT IN WRITING OF ANY ERRORS, OMISSIONS, AND DISCREPANCIES PRIOR TO THE CLOSING OF THE TENDER. THE CONTRACTOR SHALL ABIDE BY THE DECISION GIVEN IN WRITING. THE WORK AS SHOWN IS INTENDED TO BE COMPLETED IN ALL RESPECTS, AND FAILURE TO NOTIFY THE CONSULTANT OF ANY DISCREPANCIES WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLETING THE WORK AS INTENDED. IN NO CASE SHALL THE CONTRACTOR PROCEED IN UNCERTAINTY. M 1.34. CONTRACTOR SHALL EXAMINE ALL SECTIONS AND DIVISIONS OF THE SPECIFICATIONS AND ALL OTHER RELATED CONTRACT DOCUMENTS IN CONTEXT OF THIS DESIGN INCLUDING THE ELECTRICAL, STRUCTURAL, COLD, AND MECHANICAL SYSTEMS. THIS SPECIFICATION IS TO BE READ IN CONJUNCTION WITH ALL OTHER SECTIONS AND DIVISIONS OF THE SPECIFICATIONS. IN THE EVENT OF CONFLICT BETWEEN DOCUMENTS, THIS SPECIFICATION SHALL GOVERN. M 1.35. ALL MECHANICAL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS, STANDARDS & REGULATIONS OF CSA, NFPA, NATIONAL BUILDING CODES, ALL MUNICIPAL BY-LAWS, REGULATIONS, AND ANY RELEVANT AUTHORITIES HAVING JURISDICTION (AHU). M 1.36. CONTRACTOR SHALL INCLUDE LABOUR & MATERIAL THAT MAY BE REQUIRED TO RELOCATE ANY MECHANICAL UNIT UP TO 10 FEET (3M) FROM THE LOCATION INDICATED IN THE PLANS. **PRE-CONSTRUCTION - PHASE - MECHANICAL** M 2.0. CONTRACTOR SHALL BE RESPONSIBLE FOR PRICING ALL MATERIALS CONTAINED WITHIN THE CONTRACT DOCUMENTS. FAILURE OF THE CONTRACTOR TO ORDER AND PROCURE THE SPECIFIED OR APPROVED ALTERNATE MATERIALS TO MEET THE PROJECT SCHEDULE IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NORTHSTAR WILL NOT APPROVE EXTRA COSTS FOR THE CONTRACTOR'S FAILURE TO ORDER THE REQUIRED MATERIALS & EQUIPMENT IN A TIMELY MANNER IN ORDER TO MAINTAIN THE PROJECT PLANNING IS BEGUN. M 2.1. EVERY EFFORT HAS BEEN MADE BY NORTHSTAR TO PROVIDE A WORKABLE CONCEPT FOR THIS PROJECT. THE CONTRACTOR IS REQUIRED TO REVIEW THE VIABILITY OF THE DESIGN CONCEPT AND LIST ANY CONCERN OR OBSTACLES TO THE SUCCESS OF THE PROPOSED PLAN BEFORE ORDERING OF MATERIALS OR DETAILED PLANNING IS BEGUN. M 2.2. EVERY EFFORT HAS BEEN MADE BY NORTHSTAR TO PROVIDE A WORKABLE DESIGN CONCEPT FOR THIS PROJECT. THE CONTRACTOR IS TO REVIEW THE VIABILITY OF THE DESIGN CONCEPT AND REPORT ANY CONFLICTS OR CONSTRUCTABILITY ISSUES CONCERNING OR OBSTACLES TO THE TO THE ENGINEER BEFORE ORDERING OF MATERIALS OR DETAILED PLANNING IS BEGUN. M 2.3. CONTRACTOR IS TO APPLY FOR AND PAY FOR ANY AND ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK LISTED. M 2.4. CONTRACTOR AS WELL AS SUBCONTRACTORS ARE TO PERFORM A DETAILED CONSIDERATION OF ALL OF THE CONSTRUCTION DOCUMENTS PROVIDED BY THE CONSULTANTS ON THIS PROJECT. THIS INCLUDES CIVIL, SITE SERVICING, PLANNING, ARCHITECTURAL, STRUCTURAL, MECHANICAL & ASSOCIATED CONTROLS CONTRACTORS. M 2.5. CONTRACTOR TO REGULARLY (AND AT PROJECT MILESTONES), REQUEST ELECTRICAL SAFETY INSPECTIONS AND PROVIDE TO THE ENGINEER THE INSPECTOR'S REPORT IN A TIMELY MANNER. M 2.6. CONTRACTOR TO CONTACT AND COORDINATE THE LOCATING AND DISCOVERY OF ALL UNDERGROUND SERVICES RELATED TO THE PROJECT (IN THE VICINITY OF THE WORK). PAYMENT FOR ALL SERVICES ARE TO BE MADE BY THE CONTRACTOR. ALL RECEIVED REPORTS ON LOCATES ARE TO BE ISSUED TO THE ENGINEER IN A TIMELY MANNER. M 2.7. CONTRACTOR TO CONTACT, COORDINATE, AND MEET WITH ALL LOCAL SERVICE UTILITY REPRESENTATIVES AS PART OF THE PROJECT ACTIVITIES. ANY INFORMATION PROVIDED TO THE CONTRACTOR WITH THE PREPARATION OF THE TENDER PRICE, THE FINAL DECISION AS TO WHICH TRADE PROVIDES REQUIRED LABOUR OR MATERIALS RESTS SOLELY WITH THE CONTRACTOR. EXTRA PAYMENTS WILL NOT BE CONSIDERED BASED ON A DIFFERENCE IN INTERPRETATION OF THE CONTRACT DOCUMENTS AND WHETHER THEY INVOLVED PROVIDES SPECIFIED IN THE TYPE OF WORK AND CAPABLE OF PERFORMING TO GOOD COMMERCIAL STANDARDS. ALL DRAWINGS WILL BE PROVIDED BY THE CONTRACTOR. M 2.8. CONTRACTOR TO RETAIN QUALIFIED COMPANIES TO PERFORM ANY LISTED TESTING AND OR INVESTIGATIONS PRIOR TO CONSTRUCTION. ALL REPORTS TO BE ISSUED TO THE ENGINEER IN A TIMELY MANNER. FEES FOR ALL LISTED REPORTS TO BE INCLUDED IN THE TENDER. M 2.9. REFER TO THE ARCHITECTURAL DRAWINGS FOR ALL LOCATIONS OF MECHANICAL FIXTURES. OUR DRAWINGS ARE NOT TO BE SCALLED TO DETERMINE LOCATIONS OF EQUIPMENT. M 2.10. CONTRACTOR IS TO ALLOW FOR COSTS FOR ALL CUTTING AND PATCHING PERTAINING TO THE MECHANICAL SYSTEMS INSTALLATION UNLESS NOTED OTHERWISE. THIS SHALL INCLUDE ALL CUTTING AND PATCHING OF ROOFS, PARTITION WALLS, CEILINGS, FLOORS, AND OUTSIDE WALLS. ALL CUTTING AND PATCHING SHALL BE PERFORMED BY CONTRACTOR. CONTRACTOR FOR STAGING, COLOR OF OPERATIONS, ROUTING AND COORDINATION WITH OTHER SERVICES. M 2.11. THE CONTRACTOR TO DEMOLISH ANY REQUIRED EQUIPMENT TO PROVIDE ACCESS TO THE ROOF. CONTRACTOR FOR STAGING, COLOR OF OPERATIONS, ROUTING AND COORDINATION WITH OTHER SERVICES. M 2.12. CONTRACTOR SHALL REVIEW THE PLANS IN CONJUNCTION WITH THIS PROJECT SPECIFICATION TO COMPLETE. THE GENERAL CONTRACTOR PROVIDES THE APPROVAL AND THE OWNER & NORTHSTAR HAS BEEN NOTIFIED IN WRITING. ALL DEMOLISHED EQUIPMENT AND MATERIALS ARE TO BE DISPOSED OF IN A PROPER MANNER, COMPLETE WITH RECEIPTS. ANY CONTAMINATED FLUIDS ARE TO BE REMOVED FROM THE SITE AND DISPOSED OF BY A PROPER AGENCY. A RECEIPT OF SAME IS TO BE FURNISHED UPON REQUEST OF NORTHSTAR. M 2.13. THE CONTRACTOR SHALL ORGANIZE AND CREATE AGREEMENTS WITH ALL SEPARATE TRADES REQUIRED TO COMPLETE THE WORK. NORTHSTAR IS NOT RESPONSIBLE FOR "CAPS" OR UNCLEAN CONTRACT REQUIREMENTS BETWEEN THE GENERAL CONTRACTOR, ELECTRICAL CONTRACTOR OR ANY OTHER CONTRACTS RELATED TO THIS PROJECT. M 2.14. CONTRACTOR TO SEFLY STORE ALL MATERIALS NECESSARY FOR THE PROJECT IN A SUPERVISED, SECURE AREA UNTIL SUCH TIME AS THE MATERIALS ARE TO BE INSTALLED. ADEQUATE INSURANCE IS TO BE PAID FOR TO PROTECT ALL MATERIALS. M 2.15. THERE MAY BE ADDITIONAL SCOPES OF WORK THAT THE OWNER MAY REQUIRE RELATED TO OUR CONSTRUCTION DOCUMENTS CONTAINED IN THE TENDER. THE CONTRACTOR IS ENCOURAGED TO CONTACT TO CONTACT THE OWNER OR OWNER'S REPRESENTATIVE TO ENQUIRE ABOUT ADDITIONAL WORK RELATED TO - BUT NOT CONTAINED IN THIS TENDER. M 2.16. CONTRACTOR TO PROVIDE THE PRICE FOR THE WORK WITH REASONABLE DETAILED CONSIDERATION OF ALL OF THE CONSTRUCTION DOCUMENTS PROVIDED BY ALL CONSULTANTS ON THIS PROJECT. THIS INCLUDES CIVIL, SITE SERVICING, PLANNING, ARCHITECTURAL, STRUCTURAL, MECHANICAL & ASSOCIATED CONTROLS CONTRACTORS. M 2.17. CONTRACTOR TO CARRY THE COST OF ALL CRANE & RIGGING SERVICES FOR THE PROJECT COMPLETION. THE CONTRACTOR TO COORDINATE THE LIFTS AND WORK TO BE EFFICIENT AND COST-EFFECTIVE. LOGISTICS TO BE ORGANIZED BY THE CONTRACTOR AND RE-SCHEDULING CRANE SERVICES TO INCLUDE ADDITIONAL LIFTS IS TO BE THE RESPONSIBILITY OF THIS CONTRACTOR. COST TO BE INCLUDED ARE FOR ANY POLICE PAY-DUTY, MUNICIPAL TRAFFIC INTERRUPTION OR SHUT-DOWN. M 2.18. CONTRACTOR TO PROVIDE THE PRICE FOR THE WORK WITH REASONABLE DETAILED CONSIDERATION OF ALL OF THE CONSTRUCTION DOCUMENTS PROVIDED BY ALL CONSULTANTS ON THIS PROJECT. THIS INCLUDES CIVIL, SITE SERVICING, PLANNING, ARCHITECTURAL, STRUCTURAL, MECHANICAL & ASSOCIATED CONTROLS CONTRACTORS. M 2.19. CONTRACTOR SHALL CARRY THE COST OF ALL PERMIT APPLICATION FEES ASSOCIATED WITH THE WORK. M 2.20. CONTRACTOR SHALL CARRY THE COST OF ALL PERMIT APPLICATION FEES ASSOCIATED WITH THE WORK. M 2.21. CONTRACTOR TO OBTAIN, LIASON, AND COORDINATE THE DETAILED ENGINEERING, APPROVAL, AND PROCUREMENT OF ALL FIRE STOPPING PROVISIONS FOR THE PROJECT. M 2.22. CONTRACTOR TO SUPPLY & INSTALL ALL REQUIRED FIRESTOPPING IN ACCORDANCE WITH THE ARCHITECT'S LISTED FIRE RESISTANCE RATED ASSEMBLIES. REFER TO THE ARCHITECTURAL PLANS FOR A COMPLETE LIST. NORTHSTAR PLANS CAN ALSO BE OF ASSISTANCE FOR THIS. ALL SERVICE ROOMS SHALL BE FIRESTOPPED. M 2.23. CONTRACTOR TO OBTAIN, LIASON, AND COORDINATE THE DETAILED PROFESSIONAL ENGINEERING SERVICES FOR STRUCTURAL BUILDING CODES. M 2.24. CONTRACTOR TO HOLD REGULAR TRADES COORDINATION MEETINGS ON SITE TO ENSURE SERVICES ARE INSTALLED IN AN ORDER THAT IS REQUIRED FOR ALL THE SERVICES. CHARGES FOR ANY OUT-OF-ORDER INSTALLATION WORK WILL NOT BE APPROVED BY THE ENGINEER. M 2.25. ALL EQUIPMENT AND FIXTURES ARE TO BE INSTALLED SO AS TO BE EASILY SERVICEABLE AND NOT OBSTRUCTED. ADEQUATE SERVICE CLEARANCE AS PER INDUSTRY STANDARDS AND MANUFACTURER'S INSTALLATION MANUALS IS TO BE STRICTLY ADHERED TO FOR ALL INSTALLATION WORK. M 2.26. CONTRACTOR TO CONFIRM THE STRUCTURAL INTEGRITY OF THE ROOF OR FLOOR PRIOR TO STAGING AND STORING EQUIPMENT ON SITE. THIS MAY REQUIRE THE SERVICES OF A PROFESSIONAL STRUCTURAL ENGINEER TO BE RETAINED AT THE EXPENSE OF THE CONTRACTOR. ANY TEMPORARY STAGING THAT IS REQUIRED FOR EQUIPMENT ON THE ROOF SURFACE, OR SITE NECESSARY LOAD SPREADING RAILS TO PREVENT DAMAGE TO THE ROOF STRUCTURE IS TO BE PROVIDED. PROVIDE NECESSARY WEATHER TARPS SECURELY FIXED TO PREVENT WIN/RAIN DAMAGE. M 2.27. CONTRACTOR TO PROVIDE A WEATHER-PROOF CONDENSATE SHAFT BE CONSTRUCTED WITH ADEQUATE AIRFLOW FOR SAFE, CODE COMPLIANT, EFFICIENT REMOVAL OF THE CONDENSATE IN THE NEAREST LOCATION (OR AS INDICATED IN THE PLANS.) M 2.28. CONTRACTOR TO PROVIDE A WEATHER-PROOF FIXTURES, CONDUIT, WIRING, SWITCHING, AND CONTROLS AS PER THE PLANS AND SPECIFICATIONS. ALL MATERIALS AND EQUIPMENT SHALL BE "NEW" AND SHALL COMPLY WITH CSA STANDARDS AND BE APPROVED FOR INSTALLATION IN CANADA. THIS IS TO INCLUDE A SUPPLY AND INSTALLATION OF A NEW ADDRESSABLE FIRE ALARM SYSTEM INCLUDING THE PLANNING AND CERTIFICATION. INSTALLATION SHALL CONFORM TO THE LATEST EDITION OF CAN/CSA S524. VERIFICATION SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST EDITION OF CAN/CSA S537. M 2.29. ANY COPPER PIPE PENETRATIONS OF MASONRY AND POURED CONCRETE STRUCTURES WHERE REQUIRED, PREVENT DIRECT CONTACT OF THE MASONRY/POURED CONCRETE WITH THE COPPER PIPING. SLEEVES ARE NOT REQUIRED PROVIDED THAT DIRECT CONTACT OF COPPER AND MASONRY/POURED CONCRETE IS PREVENTED AND PROVIDED THE OPENINGS COMPLY WITH THE FIRESTOP MANUFACTURER'S REQUIREMENTS. SLEEVES SHALL BE SCAFFOLDED IN Poured CONCRETE STRUCTURES PROVIDED OPENINGS CAN BE PROVIDED WHICH COMPLY WITH THE REQUIREMENTS OF THE FIRESTOP MANUFACTURER AND THE LOCAL AUTHORITY. SLEEVES SHALL BE SIZED LARGE ENOUGH TO ALLOW FOR ANY LATER MOVEMENT OF PIPING DUE TO EXPANSION/CONTRACTION, PIPE INSULATION, FIRE STOPPING, AND SOUND PACKING. M 2.30. CONTRACTOR TO PROVIDE PRICING ON ALL NORTHSTAR ISSUED OFFICIAL CHANGE ORDERS IN THE FORM OF A QUOTE BASED ON THE NORTHSTAR CHANGE REQUEST DOCUMENT. ONE PRICE FOR EACH ITEM LISTED, PRICING TO INCLUDE ALL LABOUR AND MATERIALS REQUIRED FOR THE SCOPE REQUESTED. NORTHSTAR WILL NOT NECESSARILY APPROVE PRICING BASED UPON INDUSTRY PRICE GUIDES SUCH AS "ALLPRISER" OR "SIMILAR" METHOD. PRICING WILL BE PROVIDED BY THE CONTRACTOR AND THE OWNER AND ENGINEER PRIOR TO DEMOLITION. M 2.31. ALL EQUIPMENT, FIXTURES AND ELEMENTS NOT REQUIRED TO BE DEMOLISHED IN THE PLANS ARE TO BE PROTECTED FROM DAMAGE DURING CONSTRUCTION. M 2.32. PRIOR TO COMMENCING CONSTRUCTION, A WORKING SECURITY CAMERA MONITORING SYSTEM IS TO BE INSTALLED AND TESTED FOR THE SITE AND STORAGE AND HOARDING AREAS OF THE CONSTRUCTION SITE. M 2.33. PRIOR TO MOBILIZING, THE CONTRACTOR IS TO HAVE IN PLACE A SUITABLE INSURANCE POLICY TO COVER THE ACTIVITIES ON THE SITE. M 2.34. CONTRACTOR TO HAVE A VALID WORKPLACE SAFETY INSURANCE CLEARANCE CERTIFICATES FOR ALL STAFF AND SUB-TADES WORKING ON THE SITE AT ALL PHASES OF CONSTRUCTION. M 2.35. CONTRACTOR TO POSITIVELY IDENTIFY ALL ITEMS TO BE DEMOLISHED BY USE OF PHOTOS AND EMAIL AS WELL AS VERIFY WITH THE OWNER AND ENGINEER PRIOR TO DEMOLITION. M 2.36. CONTRACTOR TO REVIEW THE DRAWINGS WITH THE CONTRACTOR TO COORDINATE THE CONSTRUCTION. CONTRACTOR TO PROVIDE CHANGE ORDER PRICING IN A TIMELY MANNER FOR NORTHSTAR'S REVIEW. NO WORK SHALL PROCEED UNTIL OFFICIAL WRITTEN ACCEPTANCE IS ISSUED BY NORTHSTAR. ALL SUBMITTED PRICING SHALL INCLUDE A FULL BREAKDOWN OF COSTS. M 2.37. NOTIFY NORTHSTAR IN WRITING OF ANY PENDING AHU INSPECTIONS. PROVIDE A MINIMUM OF 48 HOURS NOTICE FOR ANY PERCEIVED OR REQUIRED NORTHSTAR SITE REVIEWS / MEETINGS. M 2.38. SUPPLY & INSTALL ALL REQUIRED DUCT & PIPE HANGERS TO INDUSTRY STANDARDS. M 2.39. CONTRACTOR TO PROVIDE GUARDRAILS ON THE ROOF FOR ANY LOCATIONS FOR THE RESPECTIVE MECHANICAL UNITS CLOSER TO THE ROOF EDGE THAN 8' (2.5M). M 2.40. SUPPLY & INSTALL OBC COMPLIANT GUARDRAILS ON THE MEZZANINE LOCATIONS INDICATED FOR THE HVAC CONDENSING UNITS FOR THE RESPECTIVE AREAS. M 2.41. CONTRACTOR TO NOTIFY IN WRITING TO THE OWNER OR OWNER'S REPRESENTATIVE OF IMPENDING WORK THAT COULD AFFECT THEIR OPERATIONS WITH SUFFICIENT WARNING TIME (MIN. 48 HOURS). THIS INCLUDES POWER OUTAGES, MECHANICAL TESTING, SERVER INTERRUPTIONS OF ANY KIND. THE CONTRACTOR IS TO SIMULTANEOUSLY NOTIFY THE OWNER OR OWNER'S OFFICIAL REPRESENTATIVE OF ANY SUCH EVENT IN A TIMELY MANNER WITH ADEQUATE TEAM INCLUDING NORTHSTAR. M 2.42. CONTRACTOR TO OBTAIN, LIASON, AND COORDINATE THE DETAILED ENGINEERING, APPROVAL, AND PROCUREMENT OF ALL FIRE STOPPING PROVISIONS FOR THE PROJECT. M 2.43. CONTRACTOR TO CONTACT, COORDINATE, AND MEET WITH ALL LOCAL SERVICE UTILITY REPRESENTATIVES AS PER THE PLANS AND SPECIFICATIONS. ALL INFORMATION PROVIDED TO THE CONTRACTOR TO BE SHARED WITH THE CONSULTING ENGINEER & OWNER FOR REVIEW. M 2.44. CONTRACTOR TO SAFELY REMOVE FROM THE SITE AND DISPOSE OF (IN A LEGAL RESPONSIBLE MANNER) OF ANY MECHANICAL MATERIALS FROM THE SITE. M 2.45. CONTRACTOR TO PROVIDE COMPANY AND PERSONAL LOCKS AND TAGS ON ALL ELECTRICAL DISTRIBUTION EQUIPMENT REQUIRED TO BE DE-ENERGIZED DURING CONSTRUCTION AS REQUIRED. M 2.46. CONTRACTOR TO INCLUDE THE COST OF DELIVERY OF ALL REQUIRED EQUIPMENT AND MATERIALS TO THE SITE. M 2.47. CONTRACTOR TO INCLUDE THE COST OF ALL REQUIRED LIFTING AND CRANE OPERATIONS FOR THE PROJECT. THIS INCLUDES AND SUBSEQUENT LIFTS NECESSARY DUE TO ANY ERROR OR OMISSION MADE BY THE CONTRACTOR DURING THE PROJECT. THIS INCLUDES ALL NECESSARY RIGGING, LIFTING AIDS, SLINGS AND PAY DUTIES OF POLICE DEPARTMENTS FOR ROAD SHUT-DOWNS. M 2.48. CONTRACTOR TO OBTAIN, LIASON, AND COORDINATE THE DETAILED PROFESSIONAL ENGINEERING SERVICES FOR STRUCTURAL BUILDING CODES. M 2.49. CONTRACTOR TO INCLUDE THE COST OF DELIVERY OF ALL REQUIRED EQUIPMENT AND MATERIALS TO THE SITE. M 2.50. CONTRACTOR TO INCLUDE THE COST OF ALL REQUIRED LIFTING AND CRANE OPERATIONS FOR THE PROJECT. THIS INCLUDES AND SUBSEQUENT LIFTS NECESSARY DUE TO ANY ERROR OR OMISSION MADE BY THE CONTRACTOR DURING THE PROJECT. THIS INCLUDES ALL NECESSARY RIGGING, LIFTING AIDS, SLINGS AND PAY DUTIES OF POLICE DEPARTMENTS FOR ROAD SHUT-DOWNS.	**CONSTRUCTION - PHASE - MECHANICAL** M 3.0. CONTRACTOR IS TO SUPPLY AND INSTALL ALL CONSULTANTS ON THIS PROJECT. THIS INCLUDES CIVIL, SITE SERVICING, PLANNING, ARCHITECTURAL, STRUCTURAL, MECHANICAL & ASSOCIATED CONTROLS CONTRACTORS. ANY DISCREPANCIES OR CONFLICTS ARE TO BE REPORTED IN A TIMELY MANNER. THE WORK IS TO BE COORDINATED BY THE CONSULTANT RETAINED, THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LABOUR, MATERIALS & RESOURCES TO SUPPORT ALL TESTING AND COMMISSIONING OF THE INTEGRATED SYSTEMS BASED ON THE CONSULTANT'S TESTING SCHEDULE. M 3.1. ALL INSTALLATION METHODS AND WORK SHALL COMPLY WITH ALL CURRENT APPLICABLE STANDARDS, CODES, BY-LAWS AND REGULATIONS AS WELL AS THE LATEST EDITION OF THE PROVINCIAL & NATIONAL BUILDING CODES. M 3.2. CONTRACTOR TO OBTAIN, LIASON, AND COORDINATE THE DETAILED ENGINEERING, APPROVAL, AND PROCUREMENT OF ALL FIRE STOPPING PROVISIONS FOR THE PROJECT. M 3.3. NORTHSTAR WILL MAKE EVERY EFFORT TO PUBLISH THEIR SITE REPORTS IN A TIMELY MANNER. THE REPORT WILL BE ISSUED TO THE PRIME CONSULTANT FOR REVIEW BEFORE ISSUING IT TO THE CONTRACTOR. NORTHSTAR SHALL NOT BE RESPONSIBLE FOR RE-WORK OR COSTS ASSOCIATED WITH A DELAY OF THE PROJECT DUE TO UNTIMELY RESPONSE OF THE PRIME CONSULTANT IN DELAY OF ISSUING NORTHSTAR REPORTS. M 3.4. SHOULD THE CONTRACTOR WISH TO DEVIATE FROM THE LAYOUT PROVIDED BY NORTHSTAR, THE CONTRACTOR SHALL PROVIDE A DETAILED RATIONALE AND PLAN IN A SKETCH AS MINIMUM FOR DISCUSSION AND APPROVAL BY NORTHSTAR. ONLY AFTER NORTHSTAR APPROVES THE DESIGN CHANGE IN WRITING, CAN THE WORK BE PLANNED & INITIATED BY THE CONTRACTOR. M 3.5. PROVIDE DI-ELECTRIC FITTINGS WHERE DISSIMILAR METALS ARE IN CONTACT. WHERE SUPPORTING COPPER PIPE, ISOLATE THE PIPE FROM THE HARSHER METAL. EARTHING ACTION ARE OR EQUIVALENT OF USE COPPER/PLASTIC COATED SUPPORTS. DIRECT CONTACT BETWEEN COPPER PIPING AND CONCRETE OR MASONRY CONSTRUCTION WILL NOT BE PERMITTED. M 3.6. CONTRACTOR TO HOLD REGULAR TRADES COORDINATION MEETINGS ON SITE TO ENSURE SERVICES ARE INSTALLED IN AN ORDER THAT IS REQUIRED FOR ALL THE SERVICES. CHARGES FOR ANY OUT-OF-ORDER INSTALLATION WORK WILL NOT BE APPROVED BY THE ENGINEER. M 3.7. CONTRACTOR TO OBTAIN, LIASON, AND COORDINATE THE DETAILED PROFESSIONAL ENGINEERING SERVICES FOR STRUCTURAL BUILDING CODES. M 3.8. CONTRACTOR TO HOLD REGULAR TRADES COORDINATION MEETINGS ON SITE TO ENSURE SERVICES ARE INSTALLED IN AN ORDER THAT IS REQUIRED FOR ALL THE SERVICES. CHARGES FOR ANY OUT-OF-ORDER INSTALLATION WORK WILL NOT BE APPROVED BY THE ENGINEER. M 3.9. CONTRACTOR TO OBTAIN, LIASON, AND COORDINATE THE DETAILED PROFESSIONAL ENGINEERING SERVICES FOR STRUCTURAL BUILDING CODES. M 3.10. CONTRACTOR TO HOLD REGULAR TRADES COORDINATION MEETINGS ON SITE TO ENSURE SERVICES ARE INSTALLED IN AN ORDER THAT IS REQUIRED FOR ALL THE SERVICES. CHARGES FOR ANY OUT-OF-ORDER INSTALLATION WORK WILL NOT BE APPROVED BY THE ENGINEER. M 3.11. CONTRACTOR TO OBTAIN, LIASON, AND COORDINATE THE DETAILED PROFESSIONAL ENGINEERING SERVICES FOR STRUCTURAL BUILDING CODES. M 3.12. CONTRACTOR TO HOLD REGULAR TRADES COORDINATION MEETINGS ON SITE TO ENSURE SERVICES ARE INSTALLED IN AN ORDER THAT IS REQUIRED FOR ALL THE SERVICES. CHARGES FOR ANY OUT-OF-ORDER INSTALLATION WORK WILL NOT BE APPROVED BY THE ENGINEER. M 3.13. CONTRACTOR TO HOLD REGULAR TRADES COORDINATION MEETINGS ON SITE TO ENSURE SERVICES ARE INSTALLED IN AN ORDER THAT IS REQUIRED FOR ALL THE SERVICES. CHARGES FOR ANY OUT-OF-ORDER INSTALLATION WORK WILL NOT BE APPROVED BY THE ENGINEER