GENERAL

- DENOTES CONDUIT TURNING UP IN PLAN VIEW
- → DENOTES CONDUIT TURNING DOWN IN PLAN VIEW
- KEY NOTE REFERENCE ('X' DENOTES KEY NOTE NUMBER)
- DETAIL REFERENCE ('X' DENOTES DETAIL NUMBER AND 'EO.OO' DENOTES DRAWING NUMBER WHERE DETAIL CAN BE FOUND.)
- SECTION REFERENCE ('X' DENOTES SECTION NUMBER AND 'E0.00' DENOTES DRAWING NUMBER WHERE DETAIL CAN BE FOUND.)

LIGHTING

LINEAR LUMINAIRE, TYPE 'X' AS SPECIFIED. HATCHING DENOTES CONNECTION TO EMERGENCY OR NIGHT LIGHT CIRCUIT

- XO CEILING MOUNTED LUMINAIRE, TYPE 'X' AS SPECIFIED
- WALL MOUNTED LUMINAIRE, TYPE 'X' AS SPECIFIED
- POLE MOUNTED LUMINAIRE, TYPE 'X' AS SPECIFIED
- SINGLE OR DOUBLE SURFACE MOUNTED EMERGENCY LIGHTING REMOTE HEADS, TYPE 'BU-X' INDICATES BATTERY BANK FED FROM
- CEILING MOUNTED EMERGENCY REMOTE HEAD. TYPE 'BU-X' INDICATES BATTERY
- EMERGENCY LIGHTING BATTERY UNIT C/W DUPLEX RECEPTACLE AND DOUBLE REMOTE HEADS. TYPE 'BU-X' AS SPECIFIED. WALL MOUNTED SINGLE/DOUBLE FACED EXIT SIGN, REMOTE HEADS AND
- 🙀 🗫 DIRECTIONAL ARROWS AS INDICATED. SHADED AREAS DENOTE DIRECTION OF FACES OF EXIT SIGN
- CEILING MOUNTED SINGLE/DOUBLE FACED EXIT SIGN, REMOTE HEADS AND DIRECTIONAL ARROWS AS INDICATED. SHADED AREAS DENOTE DIRECTION OF FACES OF EXIT SIGN
- FLASHING LIGHT ALARM
- \$\$## ONE, TWO, THREE, AND FOUR GANG SINGLE POLE TOGGLE SWITCHES
- SWITCH ('3' DENOTES 3-WAY SWITCH; 'D' DENOTES DIMMER SWITCH; AND 'LV' DENOTES LOW VOLTAGE SWITCH.)
- AUTOMATIC WALL SWITCH, SINGLE GANG, 120V WITH DUAL TECHNOLOGY SENSOR. C/W 0-10V DIMMING ("WATTSTOPPER" CAT#DW-311)
- AUTOMATIC WALL SWITCH, SINGLE GANG, 120V WITH DUAL TECHNOLOGY SENSOR. WATTSTOPPER CAT#DW-100
- ⊈^M LOW VOLTAGE MASTER SWITCH
- PROGRAMMABLE TIME CLOCK, TYPE 'X' AS SPECIFIED
- AUTOMATIC CEILING MOUNTED OCCUPANCY SENSOR, C/W DUAL OUTPUT RELAY AND POWER PACK
- PHOTOCELL
- CEILING MOUNTED DAYLIGHT SENSOR

POWER

- 15A, 120V DUPLEX RECEPTACLE
- 15A, 120V DUPLEX RECEPTACLE ON DEDICATED CIRCUIT. EACH DEDICATED CIRCUIT TO HAVE A SEPARATE NEUTRAL RUN DIRECTLY BACK TO PANEL BOARD.
- 15A, 120V DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER (OR HIGH LEVEL)
- 15A, 120V DUPLEX RECEPTACLE C/W (2) USB OUTLETS
- 15A, 120V SPLIT DUPLEX RECEPTACLE, C/W SEPARATE CIRCUITS (MOUNTED ABOVE COUNTER)
- 15A, 120V QUADPLEX RECEPTACLE
- 15A, 120V CEILING MOUNTED DUPLEX RECEPTACLE
- 20A, T-SLOT GROUND FAULT INTERRUPTING RECEPTACLE / ABOVE COUNTER RECEPTACLE
- 15A, 120/208V SIMPLEX RECEPTACLE, NEMA 6-15R
- DIRECT CONNECTION AS NOTED
- HARD WIRE CONNECTION TO SYSTEM FURNITURE ('C' DENOTES CEILING CONNECTION, 'F' DENOTES FLOOR CONNECTION, 'W' DENOTES WALL CONNECTION. REFER TO DETAILS ON E6.00 SERIES DRAWINGS.
- ELECTRICAL STUB UP FOR DATA, AUDIO VISUAL (A.V.) AND POWER. REFER TO DETAILS ON E.600 SERIES DRAWINGS.
- ELECTRICAL STUB UP FOR ONE (1) DATA OUTLET, POWER. REFER TO DETAILS ON E.600 SERIES DRAWINGS.
- 4" ELECTRICAL POKE-THROUGH FLOOR BOX COMPLETE WITH TWO (2) DATA PORTS AT KEYSTONE OPENINGS AND ONE (1) DUPLEX RECEPTACLE
- ELECTRICAL FLOOR BOX COMPLETE WITH ONE (1) 20A, 120V DUPLEX RECEPTACLE.
- ELECTRICAL FLOOR BOX COMPLETE WITH ONE (1) 20A, 120V DUPLEX RECEPTACLE, TWO (2) DATA OUTLETS, 1 USB-3.1 OUTLET.
- ELECTRICAL FLOOR BOX COMPLETE WITH TWO (2) 20A, 120V DUPLEX RECEPTACLE, TWO (2) DATA OUTLETS, 1 USB-3.1 OUTLET.
- DISTRIBUTION PANEL
- SURFACE MOUNTED RECEPTACLE PANEL
- FLUSH MOUNTED RECEPTACLE PANEL
- NON-FUSED DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- MOTOR STARTER / VFD (STARTER/VFD TO BE SUPPLIED BY OTHERS. INSTALLED BY DIV. 26)
- 600V-120/208V 30 4W TRANSFORMER UNLESS OTHERWISE NOTED. X DENOTES TRANSFORMER K RATING
- MOTOR CONNECTION
- ____ CIRCUIT BREAKER
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER
- JUNCTION BOX

FIRE ALARM SYSTEM

- FIRE ALARM PULL STATION (MOUNTED +1200 AFF)
- FIRE ALARM STROBE LIGHT WALL OR CEILING MOUNTED
- FIRE ALARM BELL
- FIRE ALARM ELECTRONIC HORN/SPEAKER WALL OR CEILING MOUNTED
- FIRE ALARM ELECTRONIC HORN/SPEAKER STROBE LIGHT COMBINATION UNIT WALL OR CEILING MOUNTED
- WALL OR CEILING MOUNTED
- HEAT DETECTOR FIXED TEMP WALL OR CEILING MOUNTED
- HEAT DETECTOR RATE OF RISE WALL OR CEILING MOUNTED
- DUCT MOUNTED SMOKE DETECTOR
- SINGLE STATION TYPE SMOKE DETECTOR WALL OR CEILING MOUNTED; C/W RED INDICATION LIGHT
- SINGLE STATION TYPE SMOKE/CARBON MONOXIDE DETECTOR WALL OR CEILING MOUNTED; C/W RED INDICATION LIGHT
- CARBON MONOXIDE DETECTOR WALL OR CEILING MOUNTED
- FIRE ALARM CONTROL PANEL
- FIRE ALARM ANNUNCIATOR PANEL
- ADDRESSABLE RELAY
- ADDRESSABLE MODULE
- SPRINKLER SUPERVISED VALVE BY DIV. 23. FIRE ALARM CONNECTION BY DIV.
- SPRINKLER LINE FLOW SWITCH BY DIV. 23. FIRE ALARM CONNECTION BY DIV.
- SPRINKLER LOW PRESSURE SWITCH
- EXCESS PRESSURE PUMP LOSS OF POWER
- SMOKE DAMPER FIRE ALARM CONNECTION
- FAN SHUT DOWN RELAY

SECURITY

- DOOR CONTACT. PROVIDE 3/4" CONDUIT TO SECURITY CONTROL PANEL
- MAGLOCK. DE-ENERGIZE UPON ACTIVATION OF FIRE ALARM SYSTEM. DIV. 26 TO PROVIDE ROUGH-IN, WIRING, POWER AND FIRE ALARM CONNECTION.
- PROVIDE 3/4" CONDUIT TO SECURITY CONTROL PANEL ELECTRIC STRIKE. PROVIDE 3/4" CONDUIT TO SECURITY CONTROL PANEL
- CARD READER. PROVIDE 3/4" CONDUIT TO SECURITY CONTROL PANEL
- KEY PAD. PROVIDE 3/4" CONDUIT TO SECURITY CONTROL PANEL
- MOTION DETECTOR. PROVIDE 3/4" CONDUIT TO SECURITY CONTROL PANEL
- REQUEST TO EXIT AUTOMATIC SENSOR. PROVIDE 3/4" CONDUIT TO SECURITY
- CLOSED CIRCUIT CAMERA; 'PTZ' DENOTES PAN/TILT/ZOOM
- GLASS BREAK SENSOR

	ELECTRICAL DRAWING LIST									
DWG NO.	DRAWING NAME	SCALE	FORMAL ISSUANCES							
			2025-08-06 ISSUED FOR REVIEW	2025-08-08 ISSUED FOR TENDER & PERMIT	2025-09-04 ISSUED FOR TENDER					
E0.00	ELECTRICAL LEGEND & DRAWING LIST	N.T.S	•	•	•					
E0.01	ELECTRICAL SPECIFICATIONS (1 OF 2)	N.T.S	•	•	•					
E0.02	ELECTRICAL SPECIFICATIONS (2 OF 2)	N.T.S	•	•	•					
E1.01	ELECTRICAL DEMO PLAN	1/4"=1'-0"	•	•	•					
E2.01	PROPOSED ELECTRICAL PLAN	³ / ₈ "=1'-0"	•	•	•					
E3.01		N.T.S								
E4.01		N.T.S								
E5.01	PANEL SCHEDULES	N.T.S	•	•	•					
E6.01	ELECTRICAL DETAIL AND RISER	N.T.S	•	•	•					

ABBREVIATIONS

\FFL	ABOVE FINISHED FLOOR LEVEL
OF	BOTTOM OF FIXTURE
,	CONDUIT
CT	CIRCUIT
CLG	CEILING
:/W	COMPLETE WITH
BU	EMERGENCY LIGHTING BATTERY UNIT
C	EMPTY CONDUIT
LEC	ELECTRICAL
A	FIRE ALARM
AA	FIRE ALARM ANNUMNCIATOR
ACP	FIRE ALARM CONTROL PANEL
RN	GROUND
В	JUNCTION BOX
IL	NIGHT LIGHT
ITS	NOT TO SCALE
•	EQUIPMENT TO BE REMOVED
:/R	TO BE REMOVED & REINSTALLED
R	EXISTING EQUIPMENT TO BE RELOCATED
PR	FIRE PROTECTION ROOM
UT	FUTURE

EXISTING TO REMAIN

HOUSE KEEPING

TYPICAL FOR ALL WIRE GUARD

ITEM IN RELOCATED POSITION

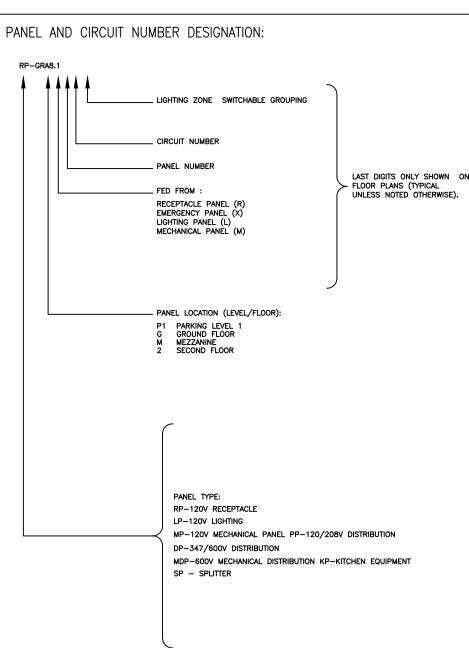
DEVICE MOUNTED AT HIGH LEVEL

DEVICE TO BE WEATHER PROOF

DIGITAL ASTRONOMICAL TIME CLOCK

PANEL AND CIRCUIT NUMBER DESIGNATION: LIGHTING ZONE SWITCHABLE GROUPING LAST DIGITS ONLY SHOWN ON - FLOOR PLANS (TYPICAL UNLESS NOTED OTHERWISE). RECEPTACLE PANEL (R) EMERGENCY PANEL (X) LIGHTING PANEL (L) MECHANICAL PANEL (M) PANEL LOCATION (LEVEL/FLOOR) RP-120V RECEPTACLE LP-120V LIGHTING MP-120V MECHANICAL PANEL PP-120/208V DISTRIBUTION DP-347/600V DISTRIBUTION MDP-600V MECHANICAL DISTRIBUTION KP-KITCHEN EQUIPMENT SP - SPLITTER

CIRCUIT KEY



LIGHTING FIXTURE SCHEDULE

L1 4" POTLIGHT NON-DIMMABLE - 3500K RECESSED SKYE LITELINE SKYE 4" FIXTURE COLOR: WHITE EX EXISTING 6" POTLIGHT EXISTING TO REMAIN EXISTING RECESSED EXISTING EXISTING VERIFY LIGHT CONDITION. REPAIR/REPLACE IF NECESSARY	TYPE MARK	TYPE	DESCRIPTION	MOUNTING HEIGHT	LAMP	MANUFACTURER	MODEL	COMMENTS
EX EXISTING 6" POTLIGHT EXISTING TO REMAIN EXISTING RECESSED EXISTING EXISTING EXISTING VERIFY LIGHT CONDITION. REPAIR/REPLACE IF NECESSARY	L1	4" POTLIGHT	NON-DIMMABLE - 3500K	RECESSED	SKYE	LITELINE	SKYE 4"	FIXTURE COLOR: WHITE
		EXISTING 6" POTLIGHT	EXISTING TO REMAIN	EXISTING RECESSED	EXISTING	EXISTING	EXISTING	VERIFY LIGHT CONDITION. REPAIR/REPLACE IF NECESSARY

DACEDOADD LIEATED COLIEDIUE									
BASEBOARD HEATER SCHEDULE									
FOR REFERENCE ONLY AND SUBJECT TO OWNER APPROVAL									
TYPE MARK	COUNT	TYPE	DESCRIPTION	PRODUCT NUMBER	MANUFACTURER	COMMENTS			
1	2	BASEBOARD HEATER	1000 WATTS	OFM1000-THACD	OUELLET	STAINLESS STEEL AND MOISTER RATED			
2	2	BASEBOARD HEATER	500 WATTS	OFM500-THACD	OUELLET	STAINLESS STEEL AND MOISTER RATED			

EMERGENCY BATTERY / REMOTE HEAD SCHEDULES
DESCRIPTION

	TYPE: SINGLE OR DOUBLE FACE EMERGENCY PICTOGRAM RUNNING MAN SIGN. RECESSED MOUNT ABOVE DOOR OPENING OR ON FINISHED CEILING AS REQUIRED. HOUSING CONSTRUCTED FROM DURABLE 20 GAUGE STEEL. INDICATORS SHALL BE SELECTED TO SUIT LIGHTING LAYOUT.									
'X1'	MANUFACTURER	MODEL	LAMP	COMMENTS						
	BEGHELLI CANADA CORPORATION	SL-RM-SP-L-U-0LR-M	LED							
	STANPRO LIGHTING SYSTEMS	RMS-0-WH-IB	LED							
	TYPE: SINGLE FACE EMERGENCY PICTOGRAM RUNNING MAN SIGN RECESSED MOUNTED ABOVE DOOR OPENING OR ON FINISHED CEILING AS REQUIRED C/W DUAL REMOTE HEAD. HOUSING CONSTRUCTED FROM DURABLE 20 GAUGE STEEL. INDICATORS SHALL BE SELECTED TO SUIT LIGHTING LAYOUT.									
'X1/R2'	MANUFACTURER	MODEL	LAMP	COMMENTS						
	BEGHELLI CANADA CORPORATION	SL-RM-12-36-L-U-0LR-M-2BTMR-7W-120/347V	LED / 2 X 7W							
	STANPRO LIGHTING SYSTEMS	PRMS10360-2M7LA	LED / 2 X 7W							
	TYPE: EMERGENCY REMOTE LIGHT SINGLE/DOUBLE HEAD BATTERY COMBINATION UNIT. SUSPEND FROM CEILING OR WALL MOUNTED.									
'BUX/R2'	MANUFACTURER	MODEL	LAMP	COMMENTS						
,	BEGHELLI CANADA CORPORATION	NV-24V-360W-BTMR2-LED-MR16-7W	360W; 2X7, 24V LED-MR16							
	STANPRO LIGHTING SYSTEMS	SLC-24360-2M-7WLA	360W; 2X7, 24V LED-MR16							
	TYPE: EMERGENCY REMOTE LIGHT SINGLE/DUAL HEAD CEILING	MOUNTED OR WALL MOUNTED or 1'-0" BELOW DROPPED CEILING.								
'no /nz'	MANUFACTURER	MODEL	LAMP	COMMENTS						

LED / 2 X 7W

LED / 2 X 7W

TAG

- . QUANTITY OF EMERGENCY LIGHTING FIXTURES SHOWN IS THE MINIMUM REQUIRED. ADDITIONAL FIXTURES MAY BE REQUIRED BY LOCAL AUTHORITIES. INCLUDE IN THIS CONTRACT FOR SUPPLY WIRING AND INSTALLATION OF ADDITIONAL (2) EXIT LIGHTS AND (3) DUAL REMOTE HEADS.
- . WIRING FOR DC CIRCUITS SHALL BE MIN. #10 AWG. FOR DISTANCES GREATER THAN 120', RUN #8 AWG.

BEGHELLI CANADA CORPORATION

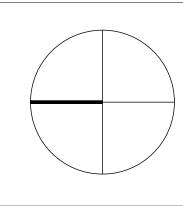
STANPRO LIGHTING SYSTEMS

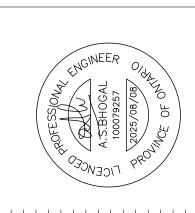
3. CONFIRM VOLTAGE DROP AT THE END OF EACH DC BRANCH CIRCUIT AND ENSURE IT DOES NOT EXCEED MAX. 5% ALLOWABLE DROP. ADEQUATELLY DISTRIBUTE LOAD ON EACH BRANCH DC CIRCUIT TO ACHIEVE THIS REQUIREMENT.

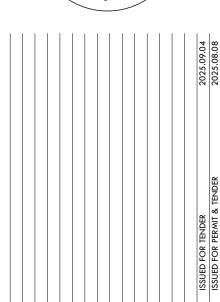
BTMR2-LED-MR16-24V-7W

M2-12-24-7W-LA









25-076

SCALE As indicated D A T E 6/26/2025

DRAWN MB CHECKED AB PROJECT NUMBER

SHEET

E0.00

ELECTRICAL SPECIFICATIONS

GENERAL INSTRUCTIONS, & BASIC MATERIALS & METHODS

1. REFERENCES

1.1. THE GENERAL CONDITIONS OF THE CONTRACT, THE SUPPLEMENTARY CONDITIONS, & ALL SECTIONS OF DIVISION 01 (GENERAL REQUIREMENT) APPLY TO & ARE A PART OF THIS SPECIFICATION.

2. SUBMITTALS

- 2.1. PRIOR TO SUPPLYING PRODUCTS TO THE SITE, SUBMIT FOR REVIEW, 8 COPIES OF SHOP DRAWINGS/PRODUCT DATA SHEETS INDICATING IN DETAIL THE DESIGN, CONSTRUCTION & PERFORMANCE OF ELECTRICAL EQUIPMENT, & ALL ELECTRICAL PRODUCTS EXCEPT CONDUIT & FITTINGS, CONDUCTORS, SLEEVES, ESCUTCHEON PLATES, & SIMILAR ITEMS. ENDORSE SHOP DRAWINGS & PRODUCT DATA SHEETS WITH "CERTIFIED TO BE IN ACCORDANCE WITH ALL REQUIREMENTS". READ THE FOLLOWING IN CONJUNCTION WITH THE WORDING ON THE CONSULTANT'S REVIEW STAMP APPLIED TO SHOP DRAWINGS/PRODUCT DATA SHEETS SUBMITTED:
- 2.1.1. "THIS REVIEW IS FOR THE SOLE PURPOSE OF ASCERTAINING CONFORMANCE WITH THE GENERAL DESIGN CONCEPT & DOES NOT APPROVE THE DETAIL DESIGN INHERENT IN THE SHOP DRAWINGS/PRODUCT DATA, RESPONSIBILITY FOR WHICH REMAINS WITH THE CONTRACTOR, & SUCH REVIEW DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR ERRORS OR OMISSIONS IN THE SHOP DRAWINGS/PRODUCT DATA OR OF HIS RESPONSIBILITY FOR MEETING REQUIREMENTS OF THE CONTRACT DOCUMENTS. BE RESPONSIBLE FOR DIMENSIONS TO BE CONFIRMED & CORRELATED AT THE JOB SITE, FOR INFORMATION THAT PERTAINS SOLELY TO FABRICATION PROCESS OR TO TECHNIQUES OF CONSTRUCTION & INSTALLATION, & FOR COORDINATION OF THE WORK OF SUB-TRADES."

2.2. SUBMIT THE FOLLOWING TO THE CONSULTANT:

- 2.2.1. PROJECT CLOSE-OUT DOCUMENTATION: O & M MANUALS, RECORD AS-BUILT DRAWINGS, & ALL ASSOCIATED DATA
- 2.2.2. PROGRESS PAYMENT BREAKDOWN: A DETAILED BREAKDOWN OF THE ELECTRICAL WORK COST SUITABLE FOR EVALUATION OF PROGRESS PAYMENTS 2.2.3. EXTENDED WARRANTIES: COPIES OF EXTENDED WARRANTIES

3. DEFINITIONS

- 3.1. THE FOLLOWING ARE DEFINITIONS OF WORDS FOUND IN THIS ELECTRICAL WORK SPECIFICATION & ON ASSOCIATED DRAWINGS:
- 3.2. "PROVIDE" (& TENSES OF PROVIDE) MEANS SUPPLY, INSTALL & TEST
- 3.3. "INSTALL" (& TENSES OF INSTALL) MEANS INSTALL, & TEST
- 3.4. "SUPPLY" MEANS SUPPLY ONLY
- 3.5. "CONSULTANT" MEANS THE ARCHITECT OR CONSULTING ENGINEER WHO HAS PREPARED THE CONTRACT DOCUMENTS ON BEHALF OF THE OWNER
- 3.6. "EQUAL TO"— MEANS THAT A PRODUCT PROPOSED FOR INSTALLATION, OTHER THAN THE SPECIFIED PRODUCT, MUST BE EQUAL TO THE SPECIFIED PRODUCT IN SIZE, MATERIALS OF CONSTRUCTION, PERFORMANCE, DURABILITY, & WARRANTY REQUIREMENTS, & THE FINAL DECISION IN THIS MATTER RESTS WITH THE CONSULTANT.
- 3.7. WHEREVER THE WORDS "PROVIDE" OR "SUPPLY AND INSTALL", ARE USED, IT SHALL BE UNDERSTOOD TO MEAN "PROVIDE AND INSTALL, INCLUSIVE OF ALL LABOUR, MATERIALS, INSTALLATION, TESTING, AND CONNECTIONS" FOR THE ITEM TO WHICH IT REFERENCES.

4. CODES, REGULATIONS, & STANDARDS

4.1. ABIDE BY THE LATEST EDITION OF CODES, REGULATIONS, AND STANDARDS REFERRED TO AND/OR APPLIED BY GOVERNING AUTHORITIES.

5. EXAMINATION OF SITE

5.1. PRIOR TO SUBMITTING A BID, VISIT THE SITE & REVIEW & INCLUDE FOR EXISTING SITE CONDITIONS.

6. DRAWINGS & SPECIFICATION

6.1. ELECTRICAL DRAWINGS ARE PERFORMANCE DRAWINGS, DIAGRAMMATIC, SHOW APPROXIMATE LOCATIONS OF EQUIPMENT & SERVICES, ARE INTENDED TO CONVEY SCOPE OF WORK, & DO NOT SHOW ARCHITECTURAL AND STRUCTURAL DETAILS. PROVIDE OFFSETS, FITTINGS, & SIMILAR PRODUCTS REQUIRED AS A RESULT OF OBSTRUCTIONS & OTHER ARCHITECTURAL & STRUCTURAL DETAILS BUT NOT SHOWN ON DRAWINGS.

7. PLANNING & LAYOUT OF THE WORK

- 7.1. PROPERLY PLAN, COORDINATE, & ESTABLISH LOCATIONS & ROUTING OF SERVICES WITH SUBCONTRACTORS SUCH THAT SERVICES WILL CLEAR EACH OTHER AS WELL AS ANY OBSTRUCTIONS.
- 7.2. CONCEAL WORK IN PARTIALLY FINISHED OR UNFINISHED AREAS TO THE EXTENT MADE POSSIBLE BY AREA CONSTRUCTION. INSTALL PIPING PARALLEL TO EACH OTHER & TO BUILDING LINES.

8. GENERAL RE: INSTALLATION OF EQUIPMENT

8.1. UNLESS OTHERWISE SPECIFIED INSTALL EQUIPMENT IN ACCORDANCE WITH EQUIPMENT MANUFACTURERS' RECOMMENDATIONS & INSTRUCTIONS. GOVERNING CODES, STANDARDS, & REGULATIONS TAKE PRECEDENCE OVER MANUFACTURER'S INSTRUCTIONS.

9. PERMITS, FEES, & CERTIFICATES

9.1. APPLY FOR, OBTAIN & PAY FOR PERMITS REQUIRED TO COMPLETE THE ELECTRICAL WORK.

10. WORKPLACE SAFETY

- 10.1. COMPLY WITH REQUIREMENTS OF THE WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS). SUBMIT WHMIS MSDS (MATERIAL SAFETY DATA SHEETS) FOR PRODUCTS WHERE REQUIRED, & MAINTAIN 1 COPY AT THE SITE.
- 10.2. COMPLY WITH REQUIREMENTS OF OCCUPATIONAL HEALTH & SAFETY REGULATIONS & ALL OTHER REGULATIONS PERTAINING TO HEALTH & SAFETY, INCLUDING WORKER'S COMPENSATION (INSURANCE BOARD & FALL PROTECTION RECULATIONS
- WORKER'S COMPENSATION/INSURANCE BOARD & FALL PROTECTION REGULATIONS.

 10.3. IF, DURING THE COURSE OF WORK, ASBESTOS CONTAINING MATERIALS, BLACK MOULD, LEAD PAINT, OR ANY OTHER SUCH MATERIALS ARE ENCOUNTERED OR SUSPECTED, IMMEDIATELY REPORT THE DISCOVERY TO THE CONSULTANT & CEASE ALL WORK IN THE AREA IN QUESTION. DO NOT RESUME WORK IN AFFECTED
- AREAS UNTIL THE SITUATION HAS BEEN PROPERLY CORRECTED & WITHOUT WRITTEN APPROVAL FROM THE OWNER.

 10.4. PROVIDE AND MAINTAIN INSURANCE TO PROTECT THE LANDLORD, TENANT AND TRADES FROM ALL POSSIBLE CLAIMS. SUBMIT WITH BID FOR AN AMOUNT ACCEPTABLE TO LANDLORD AND TENANT.

11. SCAFFOLDING, RIGGING, & HOISTING

11.1. ERECT & OPERATE SCAFFOLDING, RIGGING, HOISTING EQUIPMENT & ASSOCIATED HARDWARE REQUIRED FOR YOUR WORK.

12. CLOSEOUT SUBMITTALS

- 12.1. PRIOR TO APPLICATION FOR SUBSTANTIAL PERFORMANCE, SUBMIT REQUIRED ITEMS & DOCUMENTATION SPECIFIED, INCLUDING OPERATING & MAINTENANCE MANUALS, AS-BUILT RECORD DRAWINGS, EXTENDED WARRANTIES, TEST CERTIFICATES, & FINAL COMMISSIONING REPORT.
- 12.2. OPERATING & MAINTENANCE MANUALS: SUBMIT 3 HARD COPIES OF OPERATING & MAINTENANCE MANUALS IN HARDCOVER 3 "D"-RING BINDERS, & IDENTIFIED WITH PROJECT NAME, & "ELECTRICAL OPERATING AND MAINTENANCE MANUAL" WORDING. INCLUDE AN INTRODUCTION SHEET LISTING THE CONSULTANT'S, CONTRACTOR'S, AND SUBCONTRACTOR'S NAMES, STREET ADDRESSES, TELEPHONE & FAX NUMBERS, & E-MAIL ADDRESSES, A TABLE OF CONTENTS SHEET & CORRESPONDING INDEX TAB SHEETS, A COPY OF EACH "REVIEWED" OR "REVIEWED AS NOTED" SHOP DRAWING/PRODUCT DATA SHEET WITH THE EMAIL ADDRESS FOR LOCAL SOURCE OF PARTS & SERVICE, & REQUIRED OPERATING & MAINTENANCE DATA.
- 12.3. RECORD "AS-BUILT" DRAWINGS: AS WORK PROGRESSES, CLEARLY MARK ON WHITE PRINTS OF THE CONTRACT DRAWINGS, SIGNIFICANT CHANGES FROM THE ROUTING OF SERVICES & LOCATIONS OF EQUIPMENT SHOWN ON THE CONTRACT DRAWINGS. KEEP THE SET UP-TO-DATE & AVAILABLE FOR PERIODIC REVIEW. WHEN WORK IS COMPLETE, TRANSFER AS-BUILT INFORMATION TO A RECORDABLE & IDENTIFIED CAD DISC WITH CAD WORK OF EQUAL QUALITY TO THE CONTRACT DRAWINGS. CAD DISCS WILL BE SUPPLIED FREE OF CHARGE BY THE CONSULTANT.

13. PHASING OF THE WORK

13.1. PHASING OF THE WORK IS REQUIRED TO MAINTAIN THE EXISTING BUILDING IN OPERATION. INCLUDE ALL COSTS FOR PHASING INCLUDING "OFF HOURS" PREMIUM TIME LABOUR COSTS.

14. EQUIPMENT & SYSTEM MANUFACTURER'S CERTIFICATION

14.1. PRIOR TO EQUIPMENT & SYSTEM START-UP PROCEDURES, PAY FOR EQUIPMENT/SYSTEM MANUFACTURERS' AUTHORIZED REPRESENTATIVES TO EXAMINE THE INSTALLATION, & WHEN ANY REQUIRED CORRECTIVE MEASURES HAVE BEEN MADE, TO CERTIFY IN WRITING TO THE CONSULTANT THAT THE EQUIPMENT/SYSTEM INSTALLATION IS COMPLETE & IN ACCORDANCE WITH THE EQUIPMENT/SYSTEM MANUFACTURER'S INSTRUCTIONS.

15. EQUIPMENT & SYSTEM START-UP

15.1. PRIOR TO COMMISSIONING, & UNDER SUPERVISION OF EQUIPMENT/SYSTEM MANUFACTURERS' REPRESENTATIVES, START-UP EQUIPMENT/SYSTEMS, MAKE REQUIRED ADJUSTMENTS, DOCUMENT PROCEDURES, LEAVE EQUIPMENT/SYSTEMS IN PROPER OPERATING CONDITION, & SUBMIT START-UP DOCUMENTATION SHEETS SIGNED BY THE MANUFACTURER/SUPPLIER & THE CONTRACTOR.

16. INSTALLATION OF SLEEVES

- 16.1. WHERE CONDUIT PENETRATES NEW CONCRETE AND/OR MASONRY SURFACES PROVIDE SLEEVES, MINIMUM #16 GAUGE FLANGED GALVANIZED STEEL OR, WHERE PERMITTED IN POURED CONCRETE CONSTRUCTION, FACTORY FABRICATED PLASTIC SLEEVES, & SCHEDULE 40 GALVANIZED STEEL PIPE OR CLASS 3000 CAST IRON PIPE IN CONCRETE OR MASONRY WALLS. SLEEVES IN WATERPROOFED SLABS OR WALLS ARE TO BE C/W A WATER STOP PLATE.
- 16.2. SIZE SLEEVES TO LEAVE 12 MM (1/2") CLEARANCE AROUND THE CONDUIT. PACK & SEAL THE VOID BETWEEN SLEEVES & THE CONDUIT IN INTERIOR NON-FIRE RATED CONSTRUCTION FOR THE LENGTH OF THE SLEEVES WITH MINERAL WOOL & SEAL BOTH ENDS OF THE SLEEVE WITH SILICONE BASE CAULKING. PACK SEALS IN FIRE RATED CONSTRUCTION AS ABOVE BUT USE ROCK WOOL & LEAVE SPACE AT SLEEVE ENDS FOR FIREPROOFING. SEAL SLEEVES IN EXTERIOR WALLS BELOW GRADE (& ANY OTHER WALL WHERE WATER LEAKAGE MAY BE A PROBLEM) WITH THUNDERLINE CORP. (POWER PLANT SUPPLY CO.) "LINK SEAL" MODEL S-316 OR EQUAL MECHANICAL SEALS.
- 16.3. TERMINATE SLEEVES FOR EXPOSED SO THAT THE SLEEVE IS FLUSH AT BOTH ENDS WITH THE BUILDING SURFACE CONCERNED & PROVIDE CHROME PLATED

BRASS OR BRUSHED STAINLESS STEEL ESCUTCHEON PLATES TIGHT AGAINST THE BUILDING SURFACE TO COMPLETELY COVER BOTH ENDS OF THE SLEEVE.

- 17. PRODUCT OPENINGS & RECESSES
- 17.1. PRODUCT OPENINGS & RECESSES WILL BE PROVIDED IN NEW POURED CONCRETE WORK, MASONRY, DRYWALL, & OTHER BUILDING SURFACES BY THE TRADE RESPONSIBLE FOR THE PARTICULAR CONSTRUCTION IN WHICH THE OPENING IS REQUIRED.

18. FIRESTOPPING & SMOKE SEALS

18.1. WHERE ELECTRICAL WORK PENETRATES FIRE RATED CONSTRUCTION, PROVIDE ULC LISTED & LABELED FIRESTOPPING & SMOKE SEAL MATERIALS INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF CAN4-S115 (RATINGS F, FT, FH, & FTH AS REQUIRED), CAN/ULC-S101, & OTHER GOVERNING AUTHORITIES.

19. SUPPLY OF ACCESS DOORS

19.1. SUPPLY PRIME COATED STEEL ACCESS DOORS FOR ELECTRICAL WORK WHICH MAY NEED MAINTENANCE OR REPAIR BUT WHICH IS CONCEALED IN INACCESSIBLE CONSTRUCTION. ACCESS DOORS ARE TO BE C/W MOUNTING & FINISHING FEATURES TO SUIT THE CONSTRUCTION IN WHICH THEY ARE TO BE INSTALLED, & SIZES ARE TO SUIT THE CONCEALED WORK. ACCESS DOORS IN FIRE RATED CONSTRUCTION ARE TO BE ULC LISTED & LABELLED & OF A RATING TO MAINTAIN THE FIRE SEPARATION INTEGRITY. RECESSED DOOR TYPE ACCESS DOORS LOCATED IN SURFACES WHERE SPECIAL FINISHES ARE REQUIRED ARE TO BE CONSTRUCTED OF STAINLESS STEEL WITH A #4 FINISH.

20. POWER & CONTROL WIRING FOR MECHANICAL WORK

20.1. DO LINE VOLTAGE WIRING FOR MECHANICAL WORK, INCLUDING "LINE" SIDE POWER WIRING TO MOTOR STARTERS & DISCONNECT SWITCHES & "LOAD" SIDE WIRING FROM STARTERS & DISCONNECTS EQUIPMENT, "LINE" SIDE POWER WIRING TO PRE—WIRED POWER & CONTROL PANELS & VARIABLE FREQUENCY DRIVES, & "LOAD" SIDE POWER WIRING FROM THE PANELS AND VFD'S TO THE EQUIPMENT, PROVISION OF RECEPTACLES FOR PLUG—IN EQUIPMENT, PROVISION OF DISCONNECT SWITCHES FOR MOTORS THAT ARE IN EXCESS OF 10 M (30') FROM THE STARTER LOCATION, OR THAT CANNOT BE SEEN FROM THE STARTER LOCATION & ASSOCIATED POWER WIRING, MOTOR STARTER INTERLOCKING IN EXCESS OF 24 VOLTS, & PROVISION OF DEDICATED 120V, 15A—1P CIRCUITS TERMINATED IN JUNCTION BOXES IN MECHANICAL EQUIPMENT ROOMS FOR AUTOMATIC CONTROL WIRING CONNECTIONS TO BE MADE AS PART OF THE MECHANICAL WORK.

21. IDENTIFICATION

- 21.1. IDENTIFY NEW/RELOCATED ELECTRICAL WORK IN ACCORDANCE WITH EXISTING IDENTIFICATION STANDARDS AT THE SITE, OR, IF ALL NEW WORK OR NO EXISTING SITE STANDARD, IDENTIFY SUCH THAT IT CAN BE EASILY SEEN.
- 21.2. EQUIPMENT NAMEPLATES: PROVIDE IDENTIFICATION NAMEPLATES FOR EQUIPMENT. IDENTIFICATION WORDING IS TO FOLLOW DRAWING NOMENCLATURE UNLESS OTHERWISE SPECIFIED. SECURE NAMEPLATES TO EQUIPMENT WITH STAINLESS STEEL SCREWS UNLESS SUCH A PRACTICE IS PROHIBITIVE, IN WHICH CASE USE EPOXY CEMENT APPLIED TO CLEANED SURFACES. FOR MULTI-CELL OR MULTIPLE COMPONENT EQUIPMENT PROVIDE A MAIN NAMEPLATE & A SMALLER NAMEPLATE FOR EACH CELL OR COMPONENT.
- 21.3. TERMINAL CABINETS, PULL BOXES, JUNCTION BOXES, ETC.: CLEARLY IDENTIFY TERMINAL CABINETS, MAIN PULL & JUNCTION BOXES BY NEATLY SPRAY PAINTING
 THE OUTSIDE SURFACE OF THE COVER WITH A PAINT COLOUR AS SPECIFIED FOR CONDUIT & CONDUCTOR IDENTIFICATION. PROVIDE A NAMEPLATE ON
 TERMINAL BOXES, MAIN PULL & JUNCTION BOXES.
- 21.4. PANELBOARDS: NAMEPLATES MUST IDENTIFY THE ELECTRICAL SOURCE, EACH CIRCUIT BREAKER, &, NEATLY TYPED ON THE DOOR DIRECTORY CARD, THE LOAD CONNECTED TO EACH BREAKER.
- 21.5. DISTRIBUTION PANEL: EACH PANELBOARD SHALL HAVE A LAMACOID LABEL SHOWING THE PANELBOARD'S DESIGNATION AND SOURCE. LAMACOID SHALL BE WHITE WITH BLACK LETTERING FOR NORMAL POWER PANELS AND RED WITH WHITE LETTERING FOR UPS OR DC PLANT POWER PANELS.
- WITH BLACK LETTERING FOR NORMAL POWER PANELS AND RED WITH WHITE LETTERING FOR UPS OR DC PLANT POWER PANELS. 21.6 FACH BREAKER IN DISTRIBUTION PANELS SHALL HAVE A LAMACOID LABEL SHOWING THE DESTINATION
- 21.6. EACH BREAKER IN DISTRIBUTION PANELS SHALL HAVE A LAMACOID LABEL SHOWING THE DESTINATION.
 21.7. IDENTIFY CIRCUIT NUMBERS ON RECEPTACLES. PROVIDE PERMANENT LABELED SELF ADHESIVE IDENTIFICATION TAPE ON EACH DEVICE OUTLET, IDENTIFYING
- SOURCE PANEL AND BRANCH CIRCUIT.
 21.8. MOTOR STARTERS AND DISCONNECT SWITCHES: IF PROVIDED AS PART OF THE ELECTRICAL WORK, PROVIDE NAMEPLATES FOR MOTOR STARTERS &
- DISCONNECTS. NAMEPLATES MUST INDICATE THE VOLTAGE & PHASE.

 21.9. LUMINAIRES ON EMERGENCY CIRCUITS: IDENTIFY LUMINAIRES ON EMERGENCY CIRCUIT WITH A 15 MM (1/2") DIA. SELF—ADHESIVE RED LABEL SECURED TO THE
- T-BAR CEILING COMPONENT ADJACENT TO THE LUMINAIRE, OR IF NOT IN A T-BAR CEILING, TO THE FRAME OF THE LUMINAIRE.

 21.10. COMMUNICATION EQUIPMENT/SYSTEMS: IDENTIFY "HEAD END" EQUIPMENT WITH NAMEPLATES & "DOWNSTREAM" DEVICES WITH SELF-ADHESIVE LABELS INDICATING
- CIRCUIT NUMBERS.

 21.11. CONDUIT & ARMOURED CABLE: COLOUR CODE CONDUIT & ARMOURED CABLE BY MEANS OF 25 MM (1") WIDE PRIMARY COLOUR PLASTIC ADHESIVE BACKED
 TAPE OR NEATLY APPLIED SUITABLE PAINT WITH, WHERE SCHEDULED, A 20 MM (3/4") WIDE AUXILIARY COLOUR AT ALL POINTS WHERE THE CONDUIT OR
 CABLE PENETRATES A WALL, CEILING, FLOOR, AT 6 M (20') INTERVALS OR AT LEAST ONCE IN EACH ROOM OR ACCESSIBLE CEILING SPACE, AT EACH ACCESS
- DOOR LOCATION, & ELSEWHERE AT 15 M (45') INTERVALS. COLOURS ARE TO BE AS LATER DIRECTED.

 21.12. WIRE & CABLE TERMINATIONS: IDENTIFY BOTH END OF WIRE & CABLE TERMINATIONS WITH THE SAME UNIQUE NUMBER. WHERE NUMBERS ARE NOT INDICATED
- OR SPECIFIED, ASSIGN A NUMBER & RECORD THEM.

 21.13. DISTRIBUTION SYSTEM SCHEMATIC DIAGRAMS: PREPARE AUTOCAD, COLOURED, 1200 MM X 900 MM (48" X 36") SCHEMATIC DIAGRAMS OF ELECTRICAL DISTRIBUTION SYSTEMS TO IDENTIFY EQUIPMENT & CIRCUITS. INSTALL FRAMED & GLAZED DIAGRAMS IN ELECTRICAL ROOMS HOUSING THE SYSTEM EQUIPMENT.

22. GENERAL POWER & SYSTEM

- 22.1. CO-ORDINATE LOCATION OF ALL RECEPTACLES AND DATA/VOICE OUTLETS WITH CONSTRUCTION SITE REPRESENTATIVE AND THE OWNER PRIOR TO ROUGH-IN.

 NO EXTRAS WILL BE APPROVED FOR RELOCATION OF OUTLETS RESULTING FROM LACK OF CO-ORDINATION DURING CONSTRUCTION
- 22.2. DO NOT INSTALL JUNCTION BOXES BACK TO BACK IN WALLS. ALLOW FOR MINIMUM 150MM HORIZONTAL CLEARANCE BETWEEN BOXES.

CONFIRM LOCATION PRIOR TO INSTALLATION. INCLUDE REDUCED SIZE COPIES OF THE DIAGRAMS IN EACH COPY OF THE O & M MANUALS.

- 22.3. CHANGE LOCATIONS OF OUTLETS AT NO EXTRA COSTS OR CREDIT PROVIDING DISTANCE DOES NOT EXCEED 3.0 M AND INFORMATION IS GIVEN PRIOR INSTALLATION.
- 22.4. CUT OPENINGS IN BACK PANELS OF MILLWORK AS REQUIRED FOR ACCESS TO POWER & DATA RECEPTACLES WHEN MOUNTED ON WALLS.

 22.5. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT OPENINGS THROUGH WALLS OR FLOORS NECESSARY TO ACCOMMODATE FOR ELECTRICAL CONDUITS, WIRING AND J-BOXES ARE PROPERLY SEALED, TO SAFEGUARD THE FIRE RATING OF RESPECTIVE FIRE ENCLOSURE. REPLACEMENT FIRE PROOFING WILL BE INSTALLED IN ACCORDANCE WITH BUILDING. AND FIRE CODES AND UNDER NO CIRCUMSTANCES SHALL THE LEVEL OF FIRE PROTECTION BE REDUCED. CONFIRM DESIGN FIRE RATING OF THE BUILDING STRUCTURE ON ARCHITECTURAL PLANS PRIOR APPLYING FIRE RETARDANT SEALANT.

23. FASTENING & SECURING HARDWARE

23.1. PROVIDE FASTENING & SECURING HARDWARE TO MAINTAIN INSTALLATIONS ATTACHED TO THE STRUCTURE OR TO FINISHED FLOORS, WALLS & CEILINGS IN A SECURE & RIGID MANNER CAPABLE OF WITHSTANDING THE DEAD LOADS, LIVE LOADS, SUPERIMPOSED DEAD LOADS, & ANY VIBRATION OF THE INSTALLED PRODUCTS. WHERE CONSTRUCTION IS NOT SUITABLE TO SUPPORT THE LOADS, PROVIDE ADDITIONAL FRAMING OR SPECIAL FASTENERS TO ENSURE PROPER SECUREMENT TO THE STRUCTURE. DO NOT ATTACH FASTENERS TO STEEL DECK WITHOUT WRITTEN CONSENT FROM THE CONSULTANT.

24. CONCRETE WORK FOR EQUIPMENT BASES/PADS

24.1. UNLESS OTHERWISE SPECIFIED, PROVIDE POURED CONCRETE WORK, INCLUDING REINFORCING & FORMWORK, REQUIRED FOR ELECTRICAL WORK. CONCRETE IS TO BE MINIMUM 20,700 KPA READY—MIX CONCRETE IN ACCORDANCE WITH CAN/CSA—A23.1 & THE BUILDING CODE. PROVIDE A 100 MM (4") HIGH CONCRETE HOUSEKEEPING PAD TYPE BASE FOR ALL FLOOR MOUNTED DISTRIBUTION EQUIPMENT. BASES ARE TO BE 100 MM (4") WIDER AND LONGER THAN EQUIPMENT BASE DIMENSIONS, & C/W CHAMFERED EDGES.

25. CUTTING, DRILLING, & PATCHING

- 25.1. DO CUTTING, DRILLING & PATCHING OF THE EXISTING BUILDING FOR THE INSTALLATION OF YOUR WORK. CONFIRM EXACT LOCATIONS PRIOR TO CUTTING AND/OR DRILLING WORK. PATCH SURFACES, WHERE REQUIRED, TO EXACTLY MATCH EXISTING FINISHES USING TRADESMEN SKILLED IN THE PARTICULAR TRADE OR APPLICATION WORKED ON.
- 25.2. WHERE NEW CONDUIT & SIMILAR PRODUCTS PENETRATE EXISTING CONSTRUCTION, CORE DRILL AN OPENING SIZED TO LEAVE 12 MM (1/2") CLEARANCE AROUND CONDUIT, ETC. IN POURED CONCRETE CONSTRUCTION, DETERMINE THE LOCATION, IF ANY, OF EXISTING CONCEALED SERVICES.
- 25.3. PACK & SEAL THE VOID BETWEEN CONDUIT, ETC., OPENINGS & THE PIPE OR PIPE INSULATION FOR THE LENGTH OF THE OPENING IN INTERIOR CONSTRUCTION WITH ROCK WOOL & SEAL BOTH ENDS OF THE OPENING WITH NON—HARDENING SILICONE BASE CAULKING. SEAL SLEEVES IN EXTERIOR WALLS BELOW GRADE (& ANY OTHER WALL WHERE WATER LEAKAGE MAY BE A PROBLEM) WITH LINK TYPE MECHANICAL SEALS.
- 25.4. PROVIDE RADAR SCREENING INSPECTION OF SLAB PRIOR TO CUTTING OR DRILLING.

26. WASTE MANAGEMENT & DISPOSAL

26.1. SEPARATE & RECYCLE WASTE MATERIALS IN ACCORDANCE WITH REQUIREMENTS OF CANADIAN CONSTRUCTION ASSOCIATION STANDARD DOCUMENT CCA 81, A BEST PRACTICES GUIDE TO SOLID WASTE REDUCTION. DO NOT LET WASTE MATERIALS ACCUMULATE AT THE SITE.

27. DEMOLITION WORK

- 27.1. WHERE INDICATED ON THE DRAWINGS, DISCONNECT & REMOVE ELECTRICAL WORK, INCLUDING CONDUIT, CONDUCTORS, & SIMILAR ITEMS. CUT BACK OBSOLETE CONDUIT BEHIND FINISHES, IDENTIFY, & CAP WATER—TIGHT. ESTIMATE THE EXTENT & COST OF THE WORK AT THE SITE DURING BIDDING PERIOD SCHEDULED SITE VISIT(S). PERFORM DEMOLITION WORK IN ACCORDANCE WITH REQUIREMENTS OF CAN/CSA—S350, CODE OF PRACTICE FOR SAFETY IN DEMOLITION OF STRUCTURES
- 27.2. CO-ORDINATE SHUT-DOWN AND INTERRUPTION TO EXISTING ELECTRICAL SYSTEMS WITH THE OWNER. GENERALLY, SHUT-DOWNS MAY BE PERFORMED ONLY BETWEEN THE HOURS OF 12:00 MIDNIGHT FRIDAY UNTIL 6:00 A.M. MONDAY MORNING. SUBMIT A LIST OF ANTICIPATED SHUT-DOWN TIMES & THEIR MAXIMUM
- 27.3. UNLESS OTHERWISE SPECIFIED, REMOVE & DISPOSE OF DEMOLISHED MATERIALS WHICH ARE NOT TO BE RELOCATED OR REUSED.
- 27.4. CLEAN ALL EXISTING PRODUCTS TO BE REINSTALLED. RE—LAMP EXISTING FIXTURES TO BE REINSTALLED

 27.5. VISIT THE SITE AND EXAMINE THE EXISTING CONDITIONS AND ALL DOCUMENTS, DRAWINGS AND SPECIFICATIONS AND MAKE NECESSARY ALLOWANCES IN TENDER PRICE FOR REMOVAL, RELOCATION, REROUTING, RECONNECTION OF EXISTING ELECTRICAL EQUIPMENT AND WIRING AS MAY BE NECESSARY FOR THE EXECUTION AND COMPLETION OF THIS PROJECT. NO ALLOWANCE WILL BE MADE LATER FOR ANY EXPENSE INCURRED BY THIS TRADE THROUGH FAILURE TO MAKE THIS
- 27.6. REMOVE AND/OR RELOCATE AND REINSTALL ALL WIRING, FIXTURES AND EQUIPMENT AS NECESSARY TO ACCOMMODATE ARCHITECTURAL AND STRUCTURAL ALTERATIONS AND ADDITIONS AS INDICATED ON THE DRAWINGS. WIRING LOCATED IN AREAS BEING ALTERED OR DEMOLISHED, BUT FEEDING OUTLETS OR EQUIPMENT REQUIRED TO REMAIN IN SERVICE SHALL BE REROUTED AS REQUIRED TO MAINTAIN THE CONTINUITY OF THESE SERVICES.
- 27.7. SUPPLY, INSTALL AND MAINTAIN ALL REQUIRED TEMPORARY WIRING TO OCCUPIED AREAS AT ALL TIMES. PROVIDE ADEQUATE PROTECTION TO EXISTING WIRING

AND EQUIPMENT SERVING THE EXISTING AND NEW AREAS AND PARTICULARLY WHERE WIRING AND ELECTRICAL EQUIPMENT HAVE BECOME EXPOSED TO MECHANICAL INJURY OR MOISTURE IN THE COURSE OF ALTERATIONS OR NEW CONSTRUCTION.

- 27.8. EXISTING ELECTRICAL EQUIPMENT REMOVED AND INDICATED FOR REUSE SHALL BE CLEANED BEFORE INSTALLATION. ALL UNUSED CONDUIT ENTRANCE OPENINGS SHALL BE SEALED BEFORE REINSTALLATION.
- 27.9. ANY REUSED LIGHTING FIXTURES SHALL BE CLEANED AND RELAMPED WITH NEW LAMPS. EXISTING LIGHTING FIXTURES INDICATED FOR REUSE SHALL BE STORED SAFELY ON THE SITE UNIT READY FOR INSTALLATION. ALL EXISTING LAMPS AND THE EXISTING FIXTURES NOT BEING REUSED SHALL BE HANDED OVER TO THE OWNERS ON COMPLETION OF THE PROJECT.
- THE OWNERS ON COMPLETION OF THE PROJECT.

 27.10. OBSOLETE CONDUITS AND CABLES SHALL BE DISCONNECTED FROM THEIR SOURCE OF SUPPLY, CUT BACK TO A SUITABLE POINT AND LEFT IN PLACE UNLESS THEY INTERFERE WITH THE NEW WORK, IN WHICH CASE THEY SHALL BE REMOVED.
- 27.11. CERTAIN ITEMS ARE IDENTIFIED ON THE DRAWINGS AS EXISTING EQUIPMENT "RELOCATED". DISCONNECT SUCH EQUIPMENT FROM ITS PRESENT SOURCE AND AFTER RELOCATION RECONNECT AND REINSTALL ALL ELECTRICAL COMPONENTS.
- 27.12. ALL EXISTING EQUIPMENT AND MATERIAL NOT REQUIRED IN THE FINAL INSTALLATION SHALL BE CAREFULLY REMOVED AT THE APPROPRIATE TIME AND SHALL BE DISPOSED OFF OR HANDED OVER TO OWNER.
- 27.13. BE RESPONSIBLE FOR CARE OF THE BUILDING. CLEAN UP ALL DEBRIS, MARKS ON WALLS, DOORS, ETC. ON A DAILY BASIS, AND REMOVE FROM THE SITE ON OR BEFORE COMPLETION OF CONTRACT. ENSURE THAT CORRIDORS ARE KEPT FREE OF DEBRIS & CONSTRUCTION MATERIAL. COOPERATE WITH ALL TRADES.

 27.14. IF POWER SHUT DOWN IS REQUIRED TO FACILITATE ANY INSTALLATION RELATED TO THIS PROJECT, THE CONTRACTOR SHALL SUBMIT IN WRITING TO OWNER'S
- REPRESENTATIVE AT LEAST (5) FIVE DAYS IN ADVANCE FOR PERMISSION. WITHOUT PERMISSION, NO SUCH WORK SHALL BE STARTED.

 27.15. DEMOLITION DRAWINGS DO NOT SHOW ALL EXISTING DEVICES OR DEVICES TO BE DEMOLISHED OR REMOVED UNDER THIS CONTRACTOR. REFER ALSO TO THE ARCHITECTS DEMOLITION DRAWINGS AND VERIFY SITE CONDITIONS FOR MORE INFORMATION. COORDINATE SCOPE OF WORK WITH CONSULTANT AND OWNER

28. GENERAL RE: ELECTRICAL WORK INSTALLATION

REPRESENTATIVE.

- 28.1. UNLESS OTHERWISE SPECIFIED, LOCATE & ARRANGE HORIZONTAL CONDUITS, RACEWAYS, & CONDUCTORS ABOVE OR AT THE CEILING ON FLOORS ON WHICH THEY ARE SHOWN, ARRANGED SO THAT UNDER CONSIDERATION OF ALL OTHER WORK IN THE AREA, THE MAXIMUM CEILING HEIGHT AND/OR USABLE SPACE IS MAINTAINED. INSTALL ALL EXPOSED CONDUITS, RACEWAYS, & CONDUCTORS PARALLEL TO BUILDING LINES & TO EACH OTHER. CONDUIT, RACEWAY, CONDUCTORS. ETC.. MUST BE SUPPORTED FROM THE STRUCTURE.
- 28.2. GENERAL ELECTRICAL WORK TESTING: SATISFACTORILY PERFORM TESTING REQUIRED BY GOVERNING AUTHORITIES, CODES, & REGULATIONS TO SUIT PHASING OF THE WORK. TEST TO ENSURE THAT THERE ARE NO LEAKS, GROUNDS, OR CROSSES, TEST & ESTABLISH PROPER MOTOR ROTATION, MEASURE FULL LOAD RUNNING CURRENTS, & CHECK OVERLOAD ELEMENTS. EXISTING MOTORS THAT HAVE BEEN DISCONNECTED & RECONNECTED MUST BE CHECKED WITH ROTATION METER, & BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY REVERSE ROTATION. DEMONSTRATE TO THE CONSULTANT THAT BRANCH CIRCUIT VOLTAGE DROP IS WITHIN SPECIFIED LIMITS.
- 28.3. GROUNDING & BONDING SYSTEM TESTING: PROVIDE VISUAL & MECHANICAL INSPECTION OF THE GROUNDING & BONDING SYSTEM & VERIFY THAT THE SYSTEM IS IN COMPLIANCE WITH REQUIREMENTS.
- 28.4. BRANCH CIRCUIT BALANCING: CONNECT BRANCH CIRCUITS TO PANELBOARDS SO AS TO BALANCE THE ACTUAL LOADS (WATTAGE) TO WITHIN 5%. IF REQUIRED, TRANSPOSE BRANCH CIRCUITS TO ACHIEVE THIS REQUIREMENT. AFTER THE BUILDING IS OCCUPIED & IF REQUESTED BY THE CONSULTANT, DEMONSTRATE THAT BRANCH CIRCUIT BALANCING HAS BEEN ACHIEVED.
- 28.5. DEVICE MOUNTING HEIGHTS: CONFORM TO OBC & AODA REQUIREMENTS.

29. COMMISSIONING

29.1. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING AND COMMISSIONING OF ALL SYSTEMS UNDER FULL LOAD IN THE PRESENCE OF AN OWNER'S REPRESENTATIVE AND/OR THE CONSULTANT. ALL TESTS SHALL BE CARRIED OUT BY QUALIFIED TECHNICIANS OF THE RESPECTIVE SYSTEMS. ELECTRICAL CONTRACTOR SHALL HAVE AT LEAST TWO ELECTRICIANS AVAILABLE DURING THE TESTING TO ASSIST THE TECHNICIANS WITH ELECTRICAL RELATED WORK.

30. <u>ELECTRICAL WORK PRODUCTS & SYSTEMS</u>

- 30.1. CONDUIT SYSTEMS
 30.1.1. PROVIDE CONDUIT FOR CONDUCTORS EXCEPT ARMOURED CABLE, MINERAL INSULATED FIRE RATED CABLE, & EXCEPT WHERE CABLE TRAY, CABLE DUCT, OR A SIMILAR RACEWAY IS USED. CONDUIT IS TO BE AS FOLLOWS:
- 30.1.2. FOR MAIN DISTRIBUTION WIRING IN ELECTRICAL ROOMS & SIMILAR AREAS, EXPOSED CONDUIT FROM FLOOR LEVEL TO 1.2 M (4') ABOVE THE FLOOR IN MECHANICAL & OTHER SERVICE ROOMS, CONCEALED CONDUIT IN EXTERIOR WALLS, & EXPOSED OUTSIDE THE BUILDING, EXCEPT WHERE RIGID PVC CONDUIT IS PERMITTED RIGID GALVANIZED STEEL TO CSA C22.2 NO. 45, WITH FACTORY MADE BENDS WHERE SITE BENDING IS NOT POSSIBLE, FACTORY MADE THREADED FITTINGS & CONNECTORS, & TERMINATIONS MADE WITH RIGID COUPLINGS, CONCRETE TIGHT WHERE REQUIRED
- 30.1.3. FOR SHORT (MINIMUM 450 MM (18"), MAXIMUM 600 MM (24"), WITH A 180° LOOP WHEREVER POSSIBLE) RUNS OF CONDUIT TO ELECTRIC MOTORS,
 DISTRIBUTION TRANSFORMERS, & VIBRATION ISOLATED EQUIPMENT FLEXIBLE GALVANIZED STEEL LIQUID—TIGHT CONDUIT TO CSA C22.2 NO. 56, C/W IDEAL INDUSTRIES INC. "STEEL TOUGH" LIQUID—TIGHT CONNECTORS AT TERMINATIONS
- 30.1.4. AT POINTS WHERE EXPOSED CONDUIT CROSSES BUILDING EXPANSION JOINTS GALVANIZED STEEL FLEXIBLE CONDUIT TO CSA C22.2 NO. 56, C/W PROPER & SUITABLE SQUEEZE TYPE CONNECTORS AT TERMINATIONS

 30.1.5. FOR BRANCH CIRCUIT CONDUCTORS UNDERGROUND INSIDE THE BUILDING, & UNDERGROUND OUTSIDE THE BUILDING BENEATH STRUCTURES & CONCRETE OR ASPHALT PAVING, FOR BRANCH CIRCUIT CONDUCTORS OUTSIDE THE BUILDING AT ROOF LEVEL, FOR BRANCH CIRCUIT CONDUCTORS IN CONCRETE SLABS ON

GRADE, & IN CONCRETE & MASONRY WALLS EXCEPT EXTERIOR WALLS - RIGID PVC CONDUIT TO CSA C22.2 NO. 211.1, C/W SITE MADE HEAT GUN BENDS

FOR CONDUIT TO & INCLUDING 50 MM (2") DIA., FACTORY MADE FITTINGS FOR CONDUIT LARGER THAN 50 MM (2") DIA., SOLVENT WELD JOINTS, FACTORY

- MADE EXPANSION JOINTS WHERE REQUIRED, & TERMINATIONS MADE WITH PROPER & SUITABLE CONNECTORS & ADAPTORS.

 30.1.6. FOR BRANCH CIRCUIT CONDUCTORS IN CONCRETE SLABS ABOVE GRADE EQUAL TO IPEX ELECTRICAL INC. "COR—LINE" FLEXIBLE, WATER—TIGHT,

 CORRUGATED PVC CONDUIT WITH IPEX "KWIKON" FITTINGS & ESU CONDUIT SUPPORTS SPACED AT EVERY 600 MM TO 900 MM (2' TO 3'), & PROPER &
- SUITABLE TERMINATIONS & ADAPTERS

 30.1.7. FOR ALL CONDUIT EXCEPT AS SPECIFIED ABOVE EMT, GALVANIZED STEEL TO CSA C22.2 NO. 83, C/W FACTORY MADE BENDS WHERE SITE BENDING IS
- NOT POSSIBLE, & JOINTS AND TERMINATIONS MADE WITH STEEL COUPLINGS &SET SCREW TYPE CONNECTORS, CONCRETE TIGHT WHERE REQUIRED.
 30.1.8. CONDUIT FITTINGS ARE TO BE OF THE SAME MATERIAL AS THE CONDUIT. PROVIDE PROPER ADAPTORS FOR JOINING CONDUIT OF DIFFERENT MATERIALS.
 30.1.9. MAKE SITE MADE BENDS USING PROPER BENDING EQUIPMENT. BENDS MUST MAINTAIN FULL CONDUIT DIA. WITH NO KINKING. CUT SQUARE AND REAM ALL
- SITE CUT CONDUIT ENDS.
 30.1.10.GENERALLY, CONDUIT IS SIZED ON THE DRAWINGS. CONDUIT NOT SIZED ON THE DRAWINGS IS TO BE SIZED IN ACCORDANCE WITH THE GOVERNING
- CODES/REGULATIONS. DO NOT USE CONDUIT LESS THAN 15 MM (1/2") DIA.

 30.1.11.PROVIDE POLYETHYLENE OR NYLON FISH CORD/TAPE WITH CABLE PULL ACCESSORIES TO SUIT THE APPLICATION.

31. LINE VOLTAGE CONDUCTORS

- 31.1. PROVIDE 98% CONDUCTIVE COPPER, COLOUR CODED & FACTORY IDENTIFIED CONDUCTORS. CONDUCTORS TO & INCLUDING NO. 10 AWG ARE TO BE SOLID.
- CONDUCTORS LARGER THAN NO. 10 AWG ARE TO BE STRANDED. NON-FIRE RATED CONDUCTORS ARE TO BE AS FOLLOWS:

 31.1.1. CONDUCTORS UNDERGROUND INSIDE OR OUTSIDE THE BUILDING, & IN NON-CLIMATE CONTROLLED AREAS RWU90XLPE SINGLE CONDUCTOR IN ACCORDANCE WITH CSA C22.2 NO. 75, PVC INSULATED
- (BX) FLEXIBLE ARMOURED CABLE TO CSA C22.2 NO. 51 WITH X-LINKED POLYETHYLENE INSULATED CONDUCTORS, A CONCENTRIC GROUND CONDUCTOR, & AN INTERLOCKING ALUMINUM ARMOUR JACKET, MAXIMUM 3.0 M (10') RUN PERMITTED

 31.1.3. FOR CONDUCTORS EXCEPT AS SPECIFIED ABOVE OR ELSEWHERE IN THE SPECIFICATION OR ON THE DRAWINGS RW90 SINGLE CONDUCTOR IN ACCORDANCE

31.1.2. CONDUCTORS IN ACCESSIBLE CEILING SPACES, WITHIN STUD WALL CONSTRUCTION, & IN FURNITURE SYSTEMS TO LUMINARIES & WIRING DEVICES — AC90

- 31.2. PROVIDE 98% CONDUCTIVE COPPER, COLOUR CODED & FACTORY IDENTIFIED CONDUCTORS. CONDUCTORS TO & INCLUDING NO. 10 AWG ARE TO BE SOLID. CONDUCTORS LARGER THAN NO. 10 AWG ARE TO BE STRANDED. NON-FIRE RATED CONDUCTORS ARE TO BE AS FOLLOWS: ALUMINUM SHEATH CABLE: PROVIDE BARE ALUMINUM SHEATH CABLE WHERE SHOWN/SPECIFIED. CABLE IS TO BE NEXANS CANADA "CORFLEX II" RA90 FLEXIBLE CABLE IN ACCORDANCE WITH REQUIREMENTS OF CSA C22.2 NO. 123, OR "FIREX II" TECK 90 CABLE IN ACCORDANCE WITH REQUIREMENTS OF CSA C22.2 NO. L3L, CONSISTING OF SINGLE OR MULTIPLE COPPER CONDUCTORS WITH X-LINK POLYETHYLENE INSULATION ENCLOSED IN A LIQUID AND VAPOUR-TIGHT SOLID CORRUGATED ALUMINIUM SHEATH &, AS REQUIRED, AN OVERALL PVC JACKET. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, INCLUDING THE FOLLOWING
- 31.2.1. SUPPORT & SECURE OVERHEAD SUSPENDED MULTIPLE CABLES ON A SYSTEM OF CABLE TRAY, & SECURE INDIVIDUAL CABLES DIRECTLY TO BUILDING SURFACES BY MEANS OF SINGLE SCREW NON-FERROUS CLAMPS
- 31.2.2. GROUND & BOND SINGLE CONDUCTOR CABLE AT BOTH ENDS WHERE THE SHEATH CURRENTS DO NOT AFFECT THE CABLE AMPACITY, & FOR CERTAIN AREAS, WHERE THE SHEATH CURRENTS WILL REDUCE THE CABLE AMPACITY, GROUND & BOND THE CABLE AT THE SUPPLY END & ISOLATE THE CABLE AT THE LOAD END AS RECOMMENDED BY THE CABLE MANUFACTURER, & PROVIDE A #3/O AWG GREEN TW GROUND CONDUCTOR FOR EACH CABLE, ALL AS PER
- SECTION NO. 10 OF THE ONTARIO ELECTRICAL SAFETY CODE
 31.2.3. TERMINATE CABLE WITH LUGS & TERMINATION KITS SUPPLIED WITH THE CABLE

WITH CAN/CSA C22.2 NO. 38, 90°, X-LINK POLYETHYLENE INSULATED

- 31.2.4. CONDUCTOR SIZING: GENERALLY, CONDUCTOR SIZES ARE INDICATED ON THE DRAWINGS. UNLESS OTHERWISE SPECIFIED, DO NOT USE CONDUCTORS SMALLER
 THAN NO. 12 AWG IN SYSTEMS OVER 30 VOLTS. UNLESS OTHERWISE SPECIFIED, DO NOT USE CONDUCTORS SMALLER THAN NO.6 AWG FOR EXTERIOR
 LUMINAIRE WIRING. CONDUCTOR SIZES INDICATED ON THE DRAWINGS ARE MINIMUM SIZES AND MUST BE INCREASED, WHERE REQUIRED, TO SUIT LENGTH OF RUN & 3% VOLTAGE DROP.
- 31.2.5. CONDUCTOR COLOUR CODING: COLOUR CODE CONDUCTORS TO IDENTIFY PHASES, NEUTRAL, & GROUND BY MEANS OF SELF-LAMINATING COLOURED VINYL TAPE, COLOURED CONDUCTOR INSULATION, OR PROPERLY COLOURED PLASTIC DISCS. COLOURS ARE TO BE PHASE A, RED, PHASE B, BLACK, PHASE C, BLUE, NEUTRAL, WHITE, & CONTROL, ORANGE.

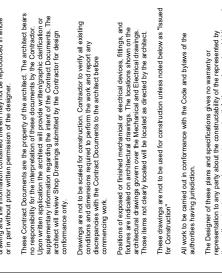
32. LOW VOLTAGE (24 VOLT) CONDUCTORS

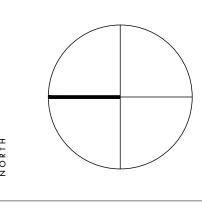
32.1. UNLESS OTHERWISE SPECIFIED, PROVIDE "T-90" OR "RW90" STRANDED COPPER CONDUCTORS IN CONDUIT AS SPECIFIED ABOVE, FOR LOW VOLTAGE WIRING.
32.2. FOR FIRE ALARM SIGNAL WIRING, SECURITY SYSTEM, & COMMUNICATION SYSTEM WIRING IN CONDUIT, PROVIDE CONDUCTORS EQUAL TO NEXANS CANADA
"SECUREX II" FAS/LVT/FT1300 VOLT WIRE TO CSA C22.2 NO. 208, CONSISTING OF SOLID COPPER CONDUCTORS (STRANDED FOR CONTROL WIRING), FLAME
RETARDANT PVC INSULATION, AN ALUMINIUM/MYLAR OPTIONAL SHIELD WITH A #22 AWG TINNED COPPER INSULATION & A DRAIN WIRE, &, IF REQUIRED FOR
THE APPLICATION, INTERLOCKING ALUMINUM ARMOUR WITH OR WITHOUT AN OVERALL JACKET.

33. GROUNDING & BONDING

- 33.1. DO ALL REQUIRED GROUNDING & BONDING WORK. PROVIDE A GREEN INSULATED GROUND CONDUCTOR IN EVERY RACEWAY, SIZED IN ACCORDANCE WITH THE OESC & CSA C22.2 NO. 41, OR, FOR HEATH CARE PROJECTS, IN ACCORDANCE WITH CAN/CSA Z32.
- 33.2. USE EXOTHERMIC WELDS OR COMPRESSION CONNECTORS FOR U/G CONDUCTOR CONNECTIONS. USE 2-HOLE COMPRESSION TYPE COPPER LUGS FOR CONNECTIONS TO GROUND BUS.









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ELECTRICAL SPECIFICATIONS CONTINUED



34. SPLITTER TROUGH, JUNCTION, PULL, AND OUTLET BOXES

UTILIZATION CODE.

- 34.1. SPLITTER TROUGH: PROVIDE TYPE 1 STEEL SPLITTER TROUGH IN ACCORDANCE WITH CSA C22.2 NO. 76 WHERE INDICATED ON DRAWING PLANS, SCHEDULES, & DETAILS. ENCLOSURES ARE TO BE NEMA/EEMAC TYPE 2 IN SPRINKLERED AREAS & TYPE 1 ELSEWHERE. RIGIDLY SECURE THE SPLITTER TROUGH IN PLACE, LEVEL AND PLUMB. ENSURE THAT THE SPLITTER TROUGH ITSELF, AND ALL BRANCH CIRCUITS, ARE PROPERLY IDENTIFIED.
- 34.2. PULL BOXES & JUNCTION BOXES: PROVIDE CSA CERTIFIED ACCESSIBLE PULL BOX IN CONDUIT SYSTEMS WHEREVER SHOWN ON THE DRAWINGS, AND/OR WHEREVER NECESSARY TO FACILITATE CONDUCTOR INSTALLATIONS. PROVIDE CSA CERTIFIED ACCESSIBLE JUNCTION BOXES WHEREVER REQUIRED AND/OR INDICATED ON THE DRAWINGS. BOXES IN RIGID CONDUIT & EMT INSIDE THE BUILDING ARE TO BE STAMPED GALVANIZED OR PRIME COATED STEEL. BOXES IN EXTERIOR RIGID CONDUIT ARE TO BE "CONDULET" CAST ALUMINIUM GASKETED BOXES, & BOXES IN PVC CONDUIT ARE TO BE RIGID PVC BOXES. ACCURATELY LOCATE & IDENTIFY CONCEALED PULL BOXES & JUNCTION BOXES ON "AS-BUILT" RECORD DRAWINGS.

33.3. OR NATURAL GAS SERVICE PIPING PROVIDE A #6 GREEN INSULATED GROUND CONDUCTOR INSTALLED IN ACCORDANCE WITH THE OESC & THE ONTARIO GAS

34.3. OUTLET BOXES: PROVIDE AN OUTLET BOX FOR EACH LUMINAIRE, WIRING DEVICE, TELEPHONE OUTLET, FIRE ALARM SYSTEM COMPONENT, COMMUNICATIONS SYSTEMS COMPONENTS, & ALL OTHER SUCH OUTLETS. OUTLET BOXES FLUSH MOUNTED IN INTERIOR CONSTRUCTION, SURFACE MOUNTED IN CONCEALED INTERIOR LOCATIONS, & SURFACE MOUNTED IN EXPOSED INTERIOR LOCATIONS WHERE THE CONNECTING CONDUIT IS EMT ARE TO BE STAMPED GALVANIZED STEEL OUTLET BOXES. OUTLET BOXES FOR SURFACE MOUNTED FOR EXTERIOR LIGHTING, RECEPTACLES, & OTHER DEVICE OUTLETS, BOXES FLUSH MOUNTED IN EXTERIOR BUILDING SURFACES, & BOXES MOUNTED IN INTERIOR DEVICE LOCATIONS WHERE THE CONNECTING CONDUIT IS RIGID, & FOR BOXES IN PERIMETER WALLS WHERE INSULATION & VAPOUR BARRIER IS PRESENT, ARE TO BE "FS" OR "FD" SERIES CAST BOXES, CAST IRON INSIDE THE BUILDING, CAST ALUMINUM OUTSIDE THE BUILDING.

35. WIRING DEVICES

- 35.1. PROVIDE WIRING DEVICES WHERE SHOWN/SPECIFIED. WIRING DEVICES ARE TO BE CSA CERTIFIED AS A MINIMUM, IN ACCORDANCE WITH CAN/CSA C22.2 NO. 42, GENERAL USE RECEPTACLE, ATTACHMENT PLUGS AND 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. WHEREVER POSSIBLE, ALL WIRING DEVICES ARE TO BE SUPPLIED BY THE SAME MANUFACTURER. ACCEPTABLE MANUFACTURERS ARE HUBBELL CANADA, COOPER INDUSTRIES (ARROW HART), LEGRAND/PASS & SEYMOUR, & LEVITON CANADA.
- 35.2. CONFIRM EXACT LOCATIONS, INCLUDING MOUNTING HEIGHTS PRIOR TO ROUGHING-IN. FOR BARRIER-FREE MOUNTING HEIGHTS FOR DEVICES, CONFORM TO CODE REQUIREMENTS. CONFIRM SWITCH, RECEPTACLE & FACEPLATE TYPES, COLOURS & FINISHES PRIOR TO ORDERING. ENSURE THAT SWITCHES LOCATED ADJACENT TO DOORS ARE LOCATED AT THE STRIKE SIDE OF THE DOOR. PROVIDE FIRE RATED GASKETS IN OUTLET BOXES FOR SWITCHES & RECEPTACLES LOCATED IN FIRE RATED CONSTRUCTION. WHEN INSTALLATION IS COMPLETE, TEST OPERATION OF DEVICES.

36. PANELBOARDS

- 36.1. PROVIDE PANELBOARDS AS SCHEDULED WHERE SHOWN. WALL MOUNT PANELBOARDS INDEPENDENT OF CONNECTED CONDUIT. ACCURATELY INSTALL WITH REFERENCE TO WALL FINISH & CONFIRM EXACT LOCATIONS PRIOR TO ROUGHING—IN.
- 36.2. PANELBOARDS: DEAD FRONT, FACTORY ASSEMBLED, DESIGNED FOR SEQUENCE PHASE CONNECTION OF BRANCH CIRCUIT DEVICES, IN ACCORDANCE WITH CAN/CSA— C22.2 NO. 29. COMPLY WITH OESC RULE 14—014 WITH REGARDS TO SERIES RATED COMBINATIONS OF OVER—CURRENT PROTECTIVE DEVICES & ENSURE THAT EQUIPMENT IN WHICH THE LOWER RATED DEVICES ARE INSTALLED ARE MARKED WITH A SERIES COMBINATION INTERRUPTING RATING AT LEAST EQUAL TO THE AVAILABLE FAULT CURRENT. EACH PANELBOARD IS TO BE C/W SILVER PLATED, ELECTRICAL GRADE, 95% CONDUCTIVITY COPPER BUS MAINS, A REMOVABLE COVER FOR MAIN LUGS, AN EEMAC 2 ENCLOSURE EQUIPPED WITH, FOR PANELBOARDS IN AREAS OTHER THAN SECURE ELECTRICAL, ETC., ROOMS, A CONCEALED HINGED DOOR & FLUSH LATCH WITH KEYED ALIKE LOCK, & CIRCUIT BREAKERS OR FUSED SWITCHES (AS SCHEDULED) AS PER CSA—C22.2 NO. 5, & FOR DEDICATED BREAKERS, HANDLE LOCK DEVICES. ACCEPTABLE MANUFACTURERS ARE EATON CANADA, SCHNEIDER ELECTRIC CANADA, & SIEMENS ELECTRIC CANADA.
- 36.3. PANELSBOARD SHALL BE COMPLETE WITH BREAKERS, SPARES AND SPACES AS SHOWN ON DRAWINGS. SPARES SHALL BE COMPLETE BREAKERS. SPACES SHALL INCLUDE NECESSARY BUS WORK SUCH THAT OWNER, AT A LATER DATE, NEED BUY ONLY BREAKERS.
- 36.4. ALL PANELBOARDS SHALL BE FULLY RATED UNLESS NOTED OTHERWISE.
- 36.5. BUSSWORK SHALL BE BRACED TO INTERRUPTING RATING OF MAIN PROTECTIVE DEVICE.
- 36.6. MOLDED CIRCUIT BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, BOLTED CONNECTION HUB MOLDED CASE TYPE WITH THERMAL MAGNETIC TRIPS AND INTERRUPTING CAPACITY AS SHOWN ON DRAWINGS.
- 36.7. DISTRIBUTION PANELBOARDS: EACH PANELBOARD IS TO BE C/W MAIN & BRANCH CIRCUIT CONDUCTOR SOLDERLESS LUGS APPROVED FOR COPPER CONDUCTORS, NEUTRAL BUS & MAIN LUGS AT THE SAME END, & A REMOVABLE COVER FOR MAIN LUGS.
- 36.8. BRANCH CIRCUIT PANELBOARDS: BREAKER TYPE BRANCH CIRCUIT PANELBOARDS ARE TO BE C/W DOUBLE NEUTRAL, MAIN & BRANCH CIRCUIT CONDUCTOR SOLDERLESS SET—SCREW TYPE LUGS APPROVED FOR COPPER CONDUCTORS, & MYLAR CIRCUIT BREAKER IDENTIFICATION STRIPS SECURED IN PLACE.

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A.S.BHOGAL 100079257 2025/08/08

OOM RENOVATION

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DATE 6/26/2025

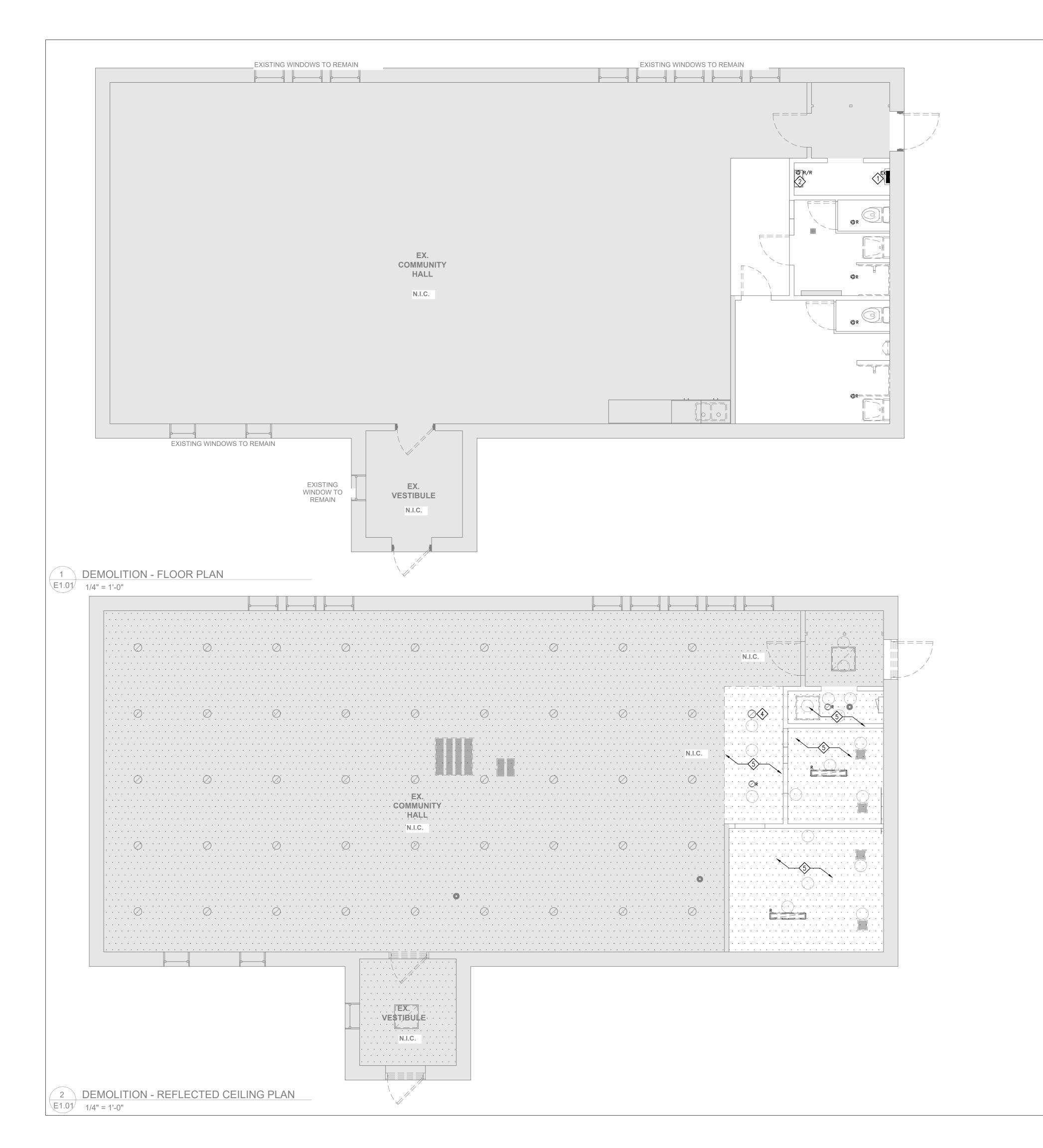
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(1) EXISTING PANEL BOARD, SPLITTER AND DISTRIBUTION EQUIPMENT SHALL REMAIN.

(2) REMOVE BRANCH WIRING TO EXISTING HOT WATER TANK. HWT SHALL BE RE-WIRED REEFER TO DRAWING E3.01.

DISCONNECT AND REMOVE ALL RECEPTACLES AND MISCELLANEOUS ELECYTICAL DEVICES IN THE WALLS BEING REMOVED. QUANTITY OF RECEPTACLES TO BE FIELD VERIFIED DURING SITE WALK THROUGH

DISCONNECT AND REMOVE ALL EXISTING LUMINARIES AND LIGHT SWITCHES WITHIN THE SCOPE OF WORK AREA. LUMINARIES TO BE FIELD VERIFIED DURING SITE WALK THROUGH.

REMOVE AND REINSTALL EXISTING SMOKE ALARMS WITHIN THE SCOPE OF WORK AREA . FIELD VERIFY THE LOCATION AND QUANTITY OF SMOKE ALARMS

DEMOLITION NOTES (BY THIS CONTRACTOR):

THIS CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING ELECTRICAL EQUIPMENT AND DEVICE, INCLUDING (BUT NOT LIMITED) TO THE FOLLOWING UNDER THE SCOPE OF WORK:

1.1. REMOVE ALL REDUNDANT CONDUITS, BRANCH WIRING, OUTLETS, LUMINAIRES, EMERGENCY LIGHTING, ETC. FROM CEILINGS AND WALLS BEING DEMOLISHED. REMOVE WIRING AND CUT BACK TO PANELBOARDS.

1.2. REMOVE ALL REDUNDANT TELECOMMUNICATION WIRING, BACK TO THE ENTRY POINTS. ELECTRICAL EQUIPMENT TO BE REMOVED MUST BE ISOLATED & DISCONNECTED AT THE SOURCE PRIOR TO REMOVAL

OPERATIONS. DURING ISOLATION & DISCONNECTION PROCEDURES DANGER TAGS MUST BE USED TO IDENTIFY ANY FEEDERS OR EQUIPMENT REMAINING ENERGIZED TO ACCOMMODATE NEW CONSTRUCTION. ALL WIRING & CONDUIT FOR EXISTING ELECTRICAL EQUIPMENT BEING REMOVED OR RELOCATED MUST BE REMOVED

BACK TO THE SOURCE OF POWER (DISTRIBUTION BOARD) UNLESS SPECIFICALLY DESIGNATED FOR RE-USE OR PRIOR WRITTEN APPROVAL HAS BEEN RECEIVED FROM ENGINEER ALLOWING RE-USE.

DISCONNECT & REMOVE THE EXISTING EQUIPMENT AS IDENTIFIED ON SITE. PORTIONS OF EXISTING CIRCUITS OR EQUIPMENT TO REMAIN EITHER TEMPORARILY FOR STAGING PURPOSES OR PERMANENTLY TO ACCOMMODATE EQUIPMENT & DEVICES BEYOND THE LIMITS OF RENOVATION WORK MUST BE MADE GOOD. ALL EXISTING EQUIPMENT BEING REMOVED SHALL BE FIRST OFFERED TO THE OWNER. ANY EQUIPMENT NOT REQUIRED BY THE OWNER, SHALL BE DISPOSED OF OFF SITE BY THE ELECTRICAL CONTRACTOR AT NO ADDITIONAL COST.

ALL WORK TO BE DONE IN ACCORDANCE WITH ESA REGULATIONS. APPROVAL FROM BASE BUILDING AUTHORITY SHALL BE REQUIRED PRIOR TO COMMENCING ANY WORK OUTSIDE PREMISES AND WHEN ALTERATION OF EXISTING BASE BUILDING SERVICES IS REQUIRED.

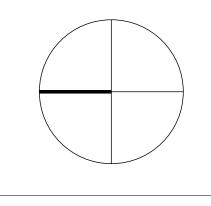
A SITE VISIT IS MANDATORY FOR CONTRACTORS BIDDING ON THIS PROJECT TO CONFIRM EXACT EXTENT OF DEMOLITION WORK REQUIRED. COORDINATE ALL WORK WITH GENERAL CONTRACTOR & OWNER AND FIELD VERIFY ALL EXISTING EQUIPMENT AND DEVICES WITHIN THE DEMOLITION AREAS REQUIRING REMOVAL.

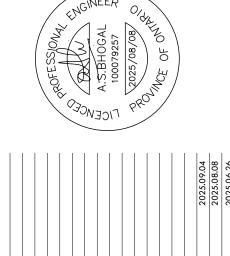
8. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH MECHANICAL AND ARCHITECTURAL DRAWINGS. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALLOWANCE FOR ANY RE-LOCATION WORK

REQUIRED. ALL CONDUITS, WIRING ETC. AND ANY EXTRA LABOR HOURS REQUIRED. SHALL BE AT CONTRACTOR'S COST.

WHEN REMOVING FLOOR MONUMENTS ELECTRICAL CONTRACTOR SHALL ENSURE THAT OPENING IS PROPERLY CAPPED.

COORDINATE WITH LANDLORD TO CONFIRM IF BASE BUILDING LIGHT FIXTURES REMOVED DURING DEMOLITION AND REMAIN UNUSED AFTER CONSTRUCTION ARE TO BE GIVEN BACK TO THE LANDLORD. DUE TO THE REMOVAL OF THE ADJACENT WALL, ELECTRICAL CONDUIT AND POWER SUPPLY ROUTING TO THE ELECTRIC WATER HEATER SHALL BE REVISED ACCORDINGLY. CONTRACTOR SHALL COORDINATE THE NEW ROUTING AND ENSURE COMPLIANCE WITH APPLICABLE CODES AND SITE CONDITIONS.





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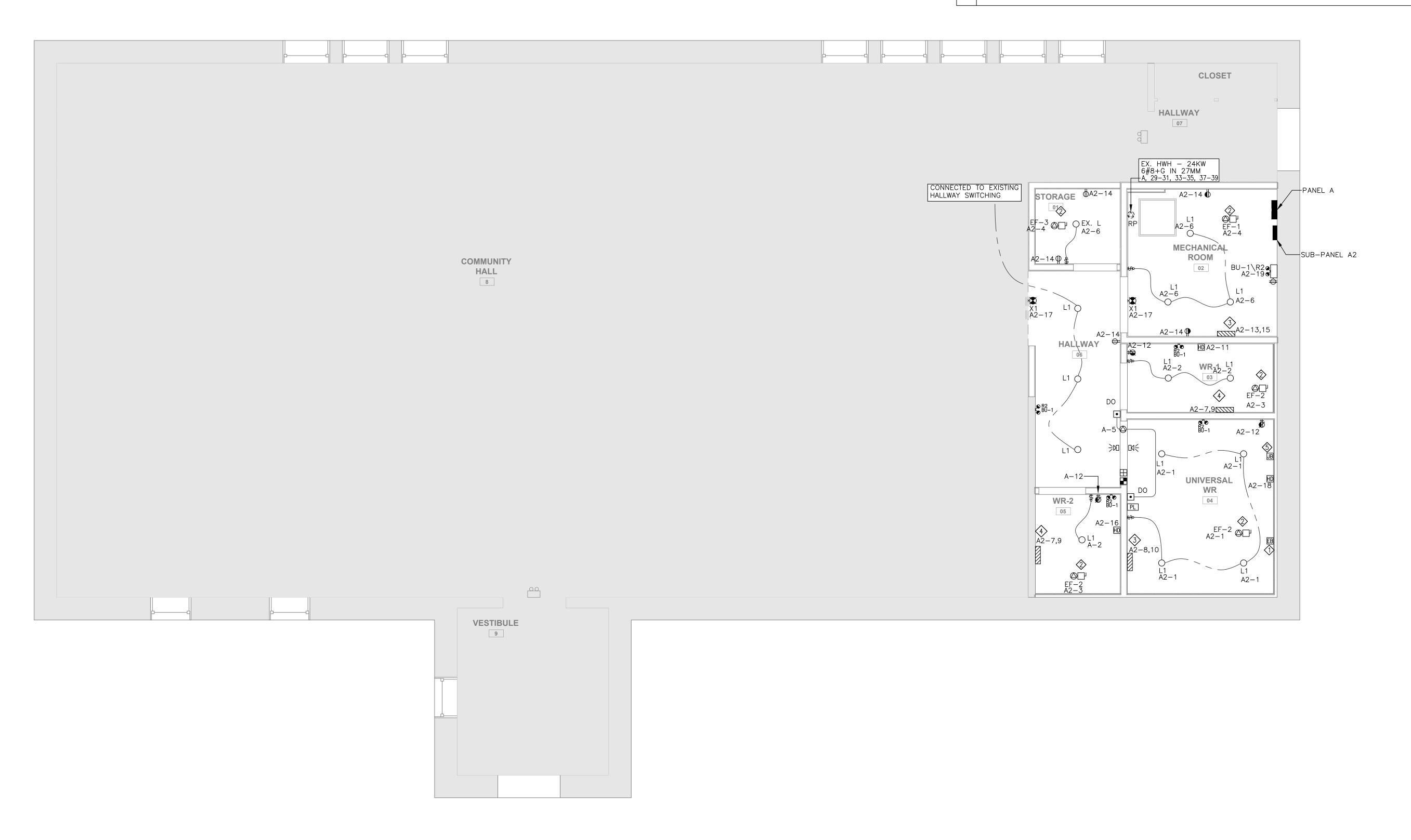
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Mechanical & Electrical Engineers
#15-7015 Tranmere Drive, Mississauga, Ordario LSS 177
905-497-8388 I info@splinegroup.ca I www.splinegroup.ca

NOTES:

1. CONTRACTOR SHALL REPLACE ALL EXISTING RED EXIT SIGNS WITH GREEN RUNNING MAN TYPE.
FIELD VERIFY AND MATCH THE EXISTING SUPPLY VOLTAGES TO THE SIGNS. INCLUDE COST TO
REPLACE A MINIMUM OF FIVE SIGNS. FIELD VERIFY THE EXACT QUANTITY OF EXISTING SINGS
DURING THE SITE WALK THROUGH.



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DESCRIPTION	WATTS	BRKR	CCT NO.	PH	CCT NO.	BRKR	WATTS	DESCRIPTION
UNIVERSAL W/R LIGHTS, EXHAUST FAN	120	15A	1	А	2	15A	75	LIGHT WR1, WR2
EXHAUST FAN WR1, WR2	800	15A	3	В	4	15A	800	EXHAUST FAN MECH. ROOM, STORAGE
UNIVERSAL W/R DOOR OPENER	600	15A	5	А	6	15A	100	LIGHTS MECH. ROOM, STORAGE
BBH WR1, WR2	1000	15A	7	В	8	15A	1000	BBH UNIVERSAL W/R
DDH WKI, WKZ	1000	2P	9	А	10	2P	1000	DDIT ONIVERSAL W/TC
HAND DRYER WR1	1200	15A	11	В	12	15A	1400	UNIVERSAL W/R, W/R1, W/R2 RCPT
DDII MEGIL DOOM	1000	15A	13	А	14	15A	800	MECH. ROOM, STORAGE RCPT
BBH MECH. ROOM	1000	2P	15	В	16	15A	1200	HAND DRYER WR1
EXIT SIGN	100	15A	17	А	18	15A	600	HAND DRYER UNIVERSAL W/R
EMERGENCY LIGHTING PACK	720	15A	19	В	20			SPACE
SPACE			21	Α	22			SPACE
SPACE			23	В	24			SPACE
PANEL:		SUB-PANEL 'A	.–2'		NO	OTES:		* LOCK ON ** GFI BREAKER
VOLTAGE:		120/2	40V		FL	USH		
PHASE: 2			2		SU	SURFACE		
WIRE: 3			3		SF	PRINKLERPROOF		
MAINS:			00A		FE	ED THRU LUGS		
I.C [kA]:		1	0kA		M/	AIN BRAKER		

1. PROVIDE PRINTED PANEL DIRECTORY WITH CIRCUIT NUMBER, TYPE, AND LOCATION OF ALL LOADS, LABEL ALL SPARE BREAKERS WITH PENCIL FOR FUTURE UPDATE. PROVIDE LABEL INSIDE PANEL COVER STATING YEAR OF INSTALLATION, PANEL SOURCE LOCATION, OVERCURRENT PROTECTION, AND FEEDER SIZE.

2. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO PROPERLY BALANCE ALL BRANCH CIRCUITS BETWEEN THE PHASES OF THE SYSTEM WITHIN 10% REGARDLESS OF WIRING.

3. CIRCUITS 11 AND 13 FROM PANEL 'A' ARE REASSIGNED TO SUB-PANEL 'A-2'.
FEEDING EXISTING LOADS SHALL BE RELOCATED TO NEW SUB-PANEL 'A-2'.
CONTRACTOR SHALL ALSO REVIEW AND IMPLEMENT ANY REQUIRED EXTENSION TO EXISTING LOAD WIRING TO ACCOMMODATE THE NEW PANEL LOCATION.

15A 15A 15A 15A	1 3 5 7	A B	2 4	15A		MAIN ROOM
15A 15A	5		4		+	
15A		٨	1	15A		FRIDGE
	7	Α	6	15A		BACK ELECTRICAL
151	/	В	8	15A		PLUGS
IJA	9	А	10	15A		BACK HALL
70A	11	В	12	15A		SMOKES
2P	13	А	14	15A		KITCHEN GFCI **
15A	15	В	16	15A		PLUGS
15A	17	А	18	15A		MICROWAVE
15A	19	В	20	20A		COFFE
15A	21	А	22	704		LIEATED
15A	23	В	24	SUA		HEATER
1 E A	25 A 26		ПЕЧТЕР			
ACT	27	В	28			HEATER
404	29	А	30	7 O A		LIEATED
4UA	31	В	32	JUA		HEATER
404	33	А	34	- 30A		LIEATED
4UA	35	В	36			HEATER
404	37	А	38	704		LICATED
40A	39	В	40	30A		HEATER
	15A 15A 15A	15A 17 15A 19 15A 21 15A 23 15A 25 15A 27 40A 31 33 40A 35	15A 17 A 15A 19 B 15A 21 A 15A 23 B 15A 25 A 27 B 29 A 40A 31 B 40A 35 B 40A 37 A	15A 17 A 18 15A 19 B 20 15A 21 A 22 15A 23 B 24 15A 25 A 26 27 B 28 40A 30 31 B 32 40A 35 B 36 40A 37 A 38	15A 17 A 18 15A 15A 19 B 20 20A 15A 21 A 22 30A 15A 23 B 24 30A 15A 25 A 26 26 30A 27 B 28 30A 40A 31 B 32 30A 40A 35 B 36 36 40A 37 A 38 30A	15A 17 A 18 15A 15A 19 B 20 20A 15A 21 A 22 30A 15A 23 B 24 30A 15A 25 A 26 30A 27 B 28 30A 40A 29 A 30 30A 40A 31 B 32 30A 40A 35 B 36 36 40A 37 A 38 30A

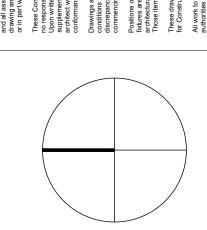
PANEL:	PANEL	'A'	N	OTES:	* LOCK ON ** GFI BREAKER
VOLTAGE:	120/24	0V	FL	USH	
PHASE:		2	Sl	IRFACE	\boxtimes
WIRE:		4	SF	PRINKLERPROOF	
MAINS:	20	0A	FE	ED THRU LUGS	
I.C [kA]:	-		M,	AIN BRAKER	\boxtimes

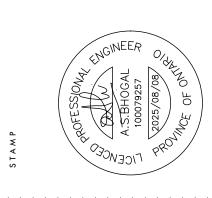
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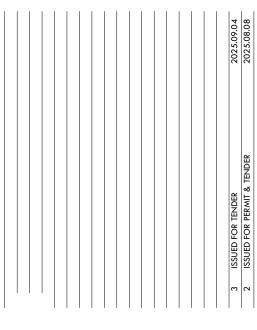
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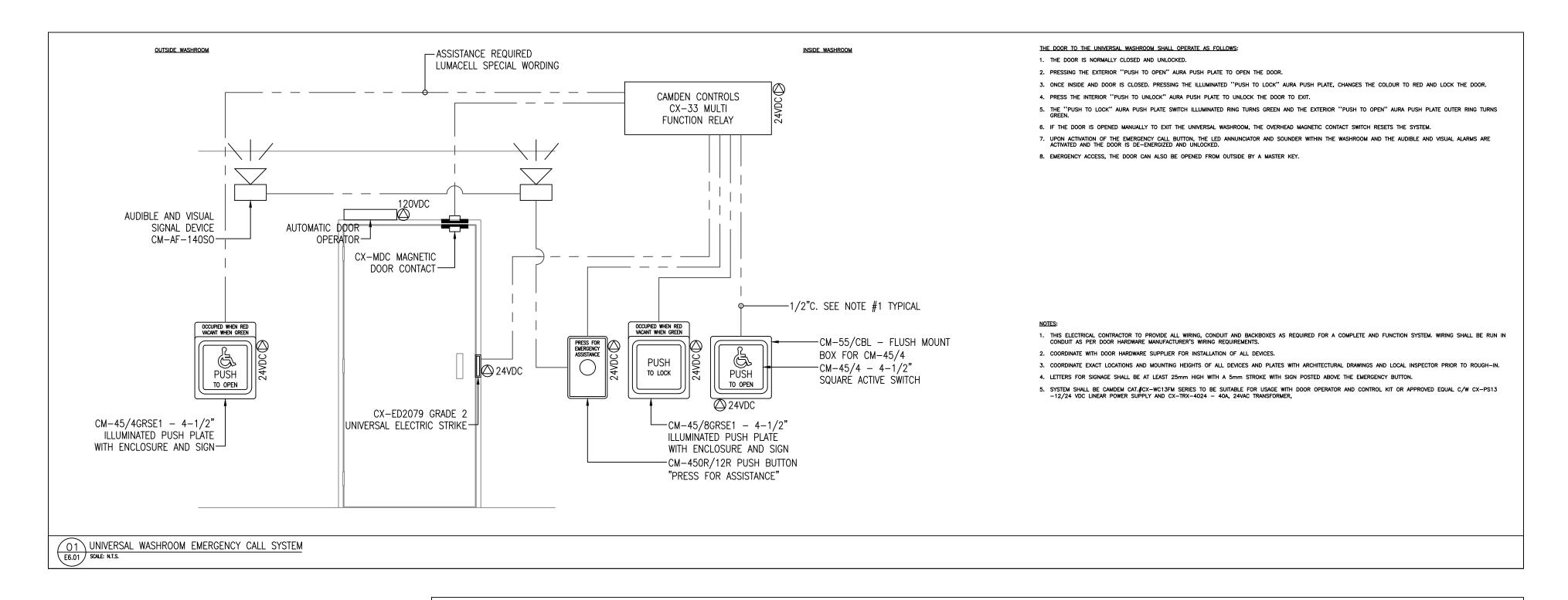
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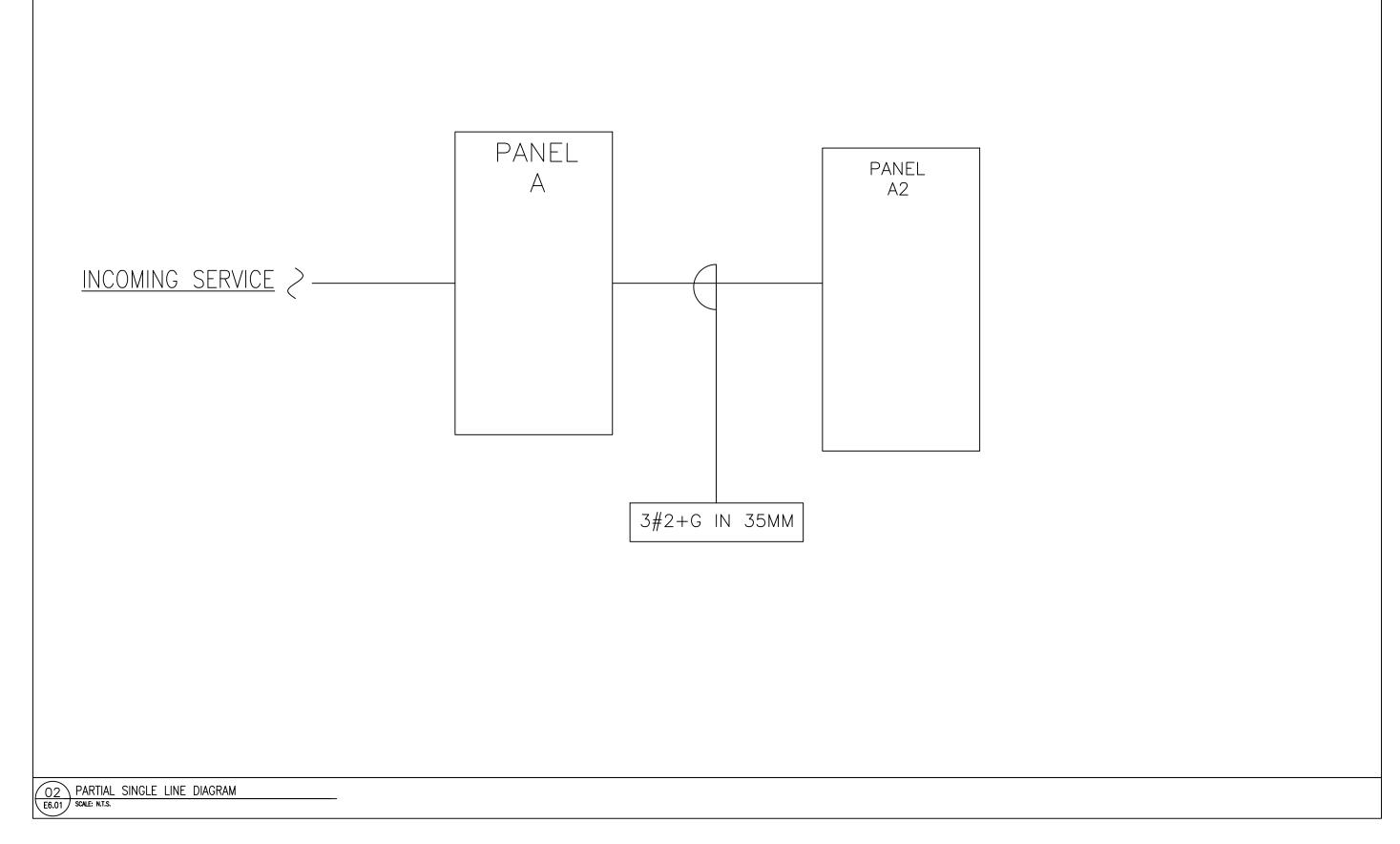
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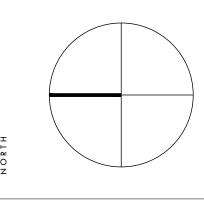
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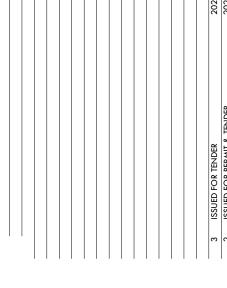












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