

# WAREHOUSE AND OFFICE HEADQUARTERS

45 BLOWERS CRES.  
AJAX, ONTARIO, L1Z 0N4

## CONTENT

ELECTRICAL DRAWINGS

## ISSUED FOR

PERMIT

## DATE

JUNE 30, 2025

## PROJECT No.

FH2024029

### GENERAL NOTES

- THE CONTRACTOR SHALL VISIT THE SITE AND EXAMINE ALL DRAWINGS CAREFULLY TO DETERMINE THE EXTENT OF THE DEMOLITION AND NEW WORK. EXAMINE THE SITE AND DETERMINE AND INCLUDE IN THE TOTAL PRICE OF THE TOTAL COST OF LABOUR AND MATERIAL TO DISCONNECT, REMOVE, RELOCATE, BLANK-OFF, REROUTE, MAKE SAFE AND INSTALLATION OF ALL NEW AND EXISTING CONDUITS AND WIRING, BOXES, LUMINAIRES AND EQUIPMENT IN THE SCOPE.
- NO ALLOWANCE WILL BE MADE FOR OBVIOUS CONSIDERATIONS WHICH MAY HAVE BEEN OVERLOOKED.
- THE WHOLE OF THE WORK SHALL BE CARRIED OUT AND PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE OWNER. ANY UNSATISFACTORY WORK SHALL BE REPLACED BY THIS DIVISION WITHOUT EXTRA COST TO THE OWNER.
- IN CASE EXTRA WORK OF ANY KIND IS REQUIRED, OBTAIN WRITTEN INSTRUCTIONS FROM CONSULTANT BEFORE PROCEEDING. PAYMENTS WILL BE MADE AT A FAIR AND REASONABLE RATE ONLY FOR AUTHORIZED EXTRAS. IN THE CASE OF OMISSIONS, THE SAME PROCEDURE APPLIES AND A DECREASE MADE.
- THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECTING AND REMOVING ALL ELECTRICAL EQUIPMENT FROM AREAS BEING ALTERED OR DEMOLISHED. WIRING, CONDUITS AND EQUIPMENT REQUIRED TO MAINTAIN SERVICE IN OTHER PARTS OF THE BUILDING SHALL BE TEMPORARILY SUPPORTED, REROUTED, SERVICED OR RELOCATED AS REQUIRED. OBSOLETE CONDUITS AND CABLES SHALL BE DISCONNECTED FROM THEIR SOURCE OF SUPPLY, CUT BACK AS FAR AS POSSIBLE, REMOVED AND MADE SAFE BY ELECTRICAL CONTRACTOR. ALL EXISTING WIRING NOT REMOVED SHALL BE DISCONNECTED, BLANKED-OFF AND MADE SAFE.
- WORK PERFORMED SHALL BE IN CONFORMITY WITH ALL LAWS, BYLAWS, OR REGULATIONS OF THE MUNICIPAL, PROVINCIAL OR OTHER AUTHORITIES HAVING JURISDICTION. NOTHING CONTAINED IN THESE DRAWINGS SHALL BE CONSTRUED AS TO BE IN CONFLICT WITH ANY SUCH LAWS.
- THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY DISRUPTION TO THE EXISTING SERVICES. THE EXISTING BUILDING MUST BE KEPT IN OPERATION AT ALL TIMES. ARRANGE WORK IN SUCH A MANNER THAT INTERRUPTIONS IN SERVICES OCCUR ONLY AT SCHEDULED TIMES. UNAVOIDABLE INTERRUPTION SHALL BE SCHEDULED WITH THE LANDLORD AT LEAST 14 DAYS IN ADVANCE, COORDINATE WITH THE OWNER AND CONFIRM THE REQUIRED NOTICE TIME. OVERTIME WORK THAT MAY BE REQUIRED TO TIE-IN SERVICES AT NIGHT OR ON WEEKENDS SHALL BE INCLUDED IN THE TENDER AMOUNT.
- CONTRACTOR SHALL ENSURE THAT ALL REQUIRED PERMITS ARE OBTAINED. NO WORK WHICH IS CONDITIONAL ON SUCH PERMITS SHALL BE UNDERTAKEN UNTIL NECESSARY CONDITIONS ARE MET.
- ANY DISCREPANCIES BETWEEN DRAWINGS AND SPECIFICATIONS AND/OR EXISTING CONDITIONS ARE TO BE REFERRED TO THE CONSULTANT FOR INSTRUCTIONS BEFORE ANY WORK IS BEGUN.
- CONTRACTOR SHALL ENSURE THAT ALL AREAS NOT INCLUDED IN THIS CONTRACT ARE ADEQUATELY PROTECTED FROM DUST, DEBRIS, OR ANY OTHER DAMAGE RESULTING FROM WORK PERFORMED, AND THAT ANY CLEANING OR REPAIR REQUIRED IS PERFORMED WITHOUT COST TO OWNER.
- CONTRACTOR SHALL ENSURE THAT ALL REFUSE IS REMOVED ON A DAILY BASIS AND THAT JOB SITE IS MAINTAINED IN AN ORDERLY AND SAFE CONDITION. ALL DEMOLISHED SUBSTANCES SHALL BE DISPOSED IN A CODE APPROPRIATE MANNER AS PER LOCAL LAWS, CITY'S BY-LAWS AND ONTARIO REGULATIONS.
- CONTRACTOR SHALL COORDINATE ACCESS TO SITE, DELIVERY AND REMOVAL OF GOODS WITH CLIENT AND LANDLORD.
- ALL WORK SHALL BE SCHEDULED AND COORDINATED TO AVOID ANY CONFLICTS WITH OTHER TRADES DURING OR AFTER CONSTRUCTION.
- PROVIDE TEMPORARY ELECTRICAL POWER AND LIGHTING FOR THE WORK OF ALL TRADES AS REQUIRED BY GENERAL CONTRACTOR OR OWNER.
- THE CONTRACTOR SHALL REPLACE OR REPAIR ANY ITEMS WHICH ARE DAMAGED DUE TO THIS WORK AT NO EXTRA COST TO THE OWNER.
- CONTRACTOR IS RESPONSIBLE FOR MAKING GOOD ANY SURFACES/FINISHES DAMAGED AS A RESULT OF DEMOLITION.
- VERIFY EXACT POWER REQUIREMENTS OF MECHANICAL EQUIPMENT BEFORE ROUGH-INS. REFER TO MECHANICAL SHOP DRAWINGS FOR MANUFACTURERS ELECTRICAL DATA AND INSTALLATION REQUIREMENTS. ADVISE CONSULTANT OF ANY DISCREPANCIES.
- IF MAJOR MODIFICATIONS TO THE BASE BUILDING ELECTRICAL DISTRIBUTION SYSTEM IS IN THE SCOPE OF THIS PROJECT, PROVIDE NEW UPDATED LEGIBLE FRAMED PLEXIGLASS SINGLE LINE DIAGRAM IN THE MAIN ELECTRICAL ROOM INDICATING THE MODIFICATIONS TO THE ELECTRICAL SYSTEM AS PER THE SCOPE OF THIS PROJECT.
- ALL UNUSED SUPPORT FOR FIXTURES, CONDUITS, AND WIRING IN CONSTRUCTION AREA SHALL BE REMOVED AND DISPOSED OF OFF SITE.
- UNLESS OTHERWISE NOTED IN MECHANICAL DRAWINGS, ALL EXISTING DISTRIBUTION/CONTROL EQUIPMENT RELATED TO PLUMBING & HVAC SYSTEMS SHALL REMAIN AS IS.
- PROVIDE CONDUITS, POWER CONNECTION AND ROUGH-INS TO ALL MECHANICAL EQUIPMENT AND ASSOCIATED CONTROL SYSTEMS. COORDINATE WITH MECHANICAL DRAWINGS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT. COORDINATE WITH MECHANICAL TRADES PRIOR TO INSTALLATION. CONTROL WIRING BY MECHANICAL CONTRACTOR. SUPPLY AND INSTALLATION OF REQUIRED CONDUITS BY ELECTRICAL CONTRACTOR.
- RE-ROUTE ANY WIRING AND CONDUITS THAT ARE ON WALLS OR BUILDING STRUCTURE BEING DEMOLISHED THROUGH THE CEILING SPACE FOR CONNECTED LOADS THAT ARE TO REMAIN.
- PROVIDE BLANK STAINLESS STEEL COVER PLATE FOR OUTLETS BEING REMOVED FROM EXISTING WALLS.
- THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS FOR DIMENSIONS, HEIGHTS AND CONSTRUCTION DETAILING.
- ALL CONDUIT AND FEEDER ROUTINGS ARE FOR DIAGRAMMATIC PURPOSES ONLY. CONTRACTOR TO DETERMINE EXACT ROUTING ON SITE TO MINIMIZE INTERFERENCES WITH OTHER DIVISIONS PRIOR TO COMMENCEMENT.
- PROVIDE ALL NECESSARY FITTINGS, SUPPORTS AND ANCHORS TO COMPLETE THIS WORK.
- INSTALL WATER SEAL AND FIRE STOPPING ON ALL WALL/CEILING PENETRATIONS. COORDINATE THIS WORK WITH OWNER AND FACILITY MANAGEMENT.

NO	ISSUED FOR	DATE
1	50% REVIEW	2024-05-29
2	FINAL REVIEW	2024-07-08
3	PERMIT	2025-06-30

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## STAMP:



## PROJECT NAME:

WAREHOUSE AND OFFICE HEADQUARTERS

## PROJECT ADDRESS:

45 BLOWERS CRES.  
AJAX, ON, L1Z 0N4

## NORTH:

**DRAWN BY:** A.A  
**DATE:** 2024.05.23

**CHECKED BY:** F.M  
**SCALE:** N.T.S

## DRAWING TITLE:

DRAWINGS LIST  
LEGEND  
GENERAL NOTES

**PROJECT NUMBER:** FH2024029  
**DRAWING NUMBER:** E000

POWER LEGEND	
SYMBOL	DESCRIPTION
	DUPLEX U-GROUND 15A/20A, 125 VOLT, 2 POLE, 3 WIRE RECEPTACLE MOUNTED 12" (300 mm) ABOVE FINISHED LEVEL, UNLESS OTHERWISE NOTED. (WP: WEATHER-PROOF, AC: ABOVE COUNTER, TP: TAMPER-PROOF)
	QUADRURPLEX U-GROUND 15A/20A, 125 VOLT, 2 POLE, 3 WIRE RECEPTACLE MOUNTED 12" (300 mm) ABOVE FINISHED LEVEL, UNLESS OTHERWISE NOTED. (WP: WEATHER-PROOF, AC: ABOVE COUNTER, TP: TAMPER-PROOF)
	SINGLE CSA RATED, 125/250 VOLT, 2 POLE, 3 WIRE GROUNDING RECEPTACLE MOUNTED 12" (300mm) ABOVE FINISHED FLOOR (UNLESS OTHERWISE NOTED), COMPLETE WITH NEUTRAL AND GROUND CONDUCTORS, CONFIG AS NOTED.
GFI	GROUND FAULT INTERRUPTER TYPE DUPLEX 20A, 125 VOLT, 2 POLE, 3 WIRE RECEPTACLE, MOUNTED APPROXIMATELY 3'-6" (1050 mm) ABOVE FINISHED FLOOR LEVEL OR ABOVE COUNTER, UNLESS OTHERWISE NOTED.
GFI	GROUND FAULT INTERRUPTER TYPE DUPLEX 20A, 125 VOLT, 2 POLE, 3 WIRE RECEPTACLE, MOUNTED AT MINIMUM OF 2'-6" (750 mm) ABOVE FINISHED ROOF/GROUND LEVEL COMPLETE WITH A NEMA 4X ENCLOSURE.
IG	ISOLATED GROUND HOSPITAL GRADE DUPLEX 15A/20A, 125 VOLT, 2 POLE, 3 WIRE RECEPTACLE, MOUNTED 12" (300 mm) ABOVE FINISHED LEVEL, UNLESS OTHERWISE NOTED.
	SIMILAR TO ABOVE DUPLEX U-GROUND 15A/20A, CEILING MOUNTED.
	SIMILAR TO ABOVE DUPLEX U-GROUND 15A/20A, FLOOR MOUNTED.
	POWER DIRECT CONNECTION TO EQUIPMENT.
	DISCONNECT SWITCH WITH RATING AS INDICATED AND WHERE SHOWN ON DRAWINGS OR AS REQUIRED BY CODE. (WP: WEATHER-PROOF)
	POWER POLE AND DIRECT CONNECTION FOR SYSTEM FURNITURE
	HAND DRYER TO BE PROVIDED BY GENERAL CONTRACTOR, INSTALLATION AND WIRING BY ELECTRICAL CONTRACTOR.
	DISTRIBUTION TRANSFORMER, REFER TO DRAWING FOR RATING AND SIZE.
	ELECTRICAL PANEL / SPLITTER, REFER TO DRAWING FOR RATING AND SIZE.
	FLOOR MONUMENT CONSISTING OF: 2 DATA, 2 VOICE AND TWO DUPLEX RECEPTACLES, MAN.; WELLMARK, CAT#: FM-11-22-B OR APPROVED EQUAL.
	PRE-WIRED POWER SYSTEM FURNITURE (WIREFMOLD)
	ELECTRICAL JUNCTION BOX
	ELECTRICAL CONTRACTOR TO COORDINATE WITH ELEVATOR MANUFACTURER AND PROVIDE CONNECTIONS TO ELEVATOR CONTROLLER COMPRISED OF THE FOLLOWING (WHERE APPLICABLE): 1. POWER CONNECTION TO CONTROLLER; 2. LIGHTING CONNECTION AND POWER CONNECTIONS TO CONTROLLER; 3. TELEPHONE CONNECTION TO CONTROLLER; 4. FIRE ALARM HOMING SIGNAL CONNECTIONS TO CONTROLLER FOR PRIMARY AND SECONDARY HOME ALARMS; 5. EMERGENCY POWER SIGNAL CONNECTIONS FOR BOTH EMERGENCY AND NORMAL MODES TO CONTROLLER; 6. MACHINE ROOM SMOKE DETECTOR INTERCONNECTION SIGNALING ALARM CONDITION IN MACHINE ROOM DIRECT TO ELEVATOR CONTROLS VIA AUXILIARY CONTACTS IN DETECTOR; 7. ELEVATOR MANUAL RECALL AND INTERCOM CONNECTIONS TO CONTROLLER.
	VARIABLE FREQUENCY DRIVE, TO BE PROVIDED BY MECHANICAL CONTRACTOR, INSTALLATION AND WIRING BY ELECTRICAL CONTRACTOR.

LIGHTING LEGEND	
SYMBOL	DESCRIPTION
	EXIT LIGHTS - GREEN RUNNING MAN TYPE, WALL BRACKET OR CEILING MOUNTED, COMPLETE WITH EXIT DIRECTIONAL ARROWS WHERE SHOWN OR REQUIRED. (WP: WEATHER-PROOF, WG: WIRE GUARD)
	REMOTE WALL OR CEILING MOUNTED, SINGLE OR DUAL HEAD EMERGENCY LIGHTS CONNECTED TO EMERGENCY BATTERY UNIT. (WG: WIRE GUARD)
	BATTERY UNIT WALL MOUNTED COMPLETE WITH REMOTE SINGLE OR DUAL HEAD EMERGENCY LIGHTS. (WG: WIRE GUARD)
	LINE VOLTAGE LIGHTING CONTROL SWITCH MOUNTED 4'-0" (1200mm) ABOVE FINISHED FLOOR LEVEL, UNLESS OTHERWISE NOTED.
D	"D" WHERE SHOWN, DENOTES DIMMING SWITCH
M	"M" WHERE SHOWN, DENOTES MASTER SWITCH
K	"K" WHERE SHOWN, DENOTES KEY SWITCH
3	"3" WHERE SHOWN, DENOTES 3-WAY DEVICE
4	"4" WHERE SHOWN, DENOTES 4-WAY DEVICE
P	"P" WHERE SHOWN, DENOTES DEVICE WITH PILOT LIGHT
OS	"OS" WHERE SHOWN, DENOTES OCCUPANCY SENSOR
DT	"DT" WHERE SHOWN, DENOTES DUAL TECHNOLOGY
WP	"WP" WHERE SHOWN, DENOTES DEVICE IS WEATHER PROOF
R	"R" WHERE SHOWN, DENOTES REMOTE CONTROL FUNCTIONALITY
	EXTERIOR PHOTOCCELL
	INTERIOR DAYLIGHT SENSOR
	MOTION DETECTOR - WALL MOUNTED
	MOTION DETECTOR - CEILING MOUNTED
L1 / L1A	LIGHTING FIXTURE TYPE L1 / L1A - LED DOWNLIGHT REFER TO LUMINAIRE SCHEDULE FOR SPECIFICATIONS
L2	LIGHTING FIXTURE TYPE L2 - LED LINEAR 4 FEET WRAPARROUND REFER TO LUMINAIRE SCHEDULE FOR SPECIFICATIONS
L3	LIGHTING FIXTURE TYPE L3 - LED LINEAR STRIP LIGHT 4 FEET REFER TO LUMINAIRE SCHEDULE FOR SPECIFICATIONS
L4 / L4A	LIGHTING FIXTURE TYPE L4 / L4A - LED 2x4' REFER TO LUMINAIRE SCHEDULE FOR SPECIFICATIONS
L5	LIGHTING FIXTURE TYPE L5 - LED HIGH BAY REFER TO LUMINAIRE SCHEDULE FOR SPECIFICATIONS
YY	EXTERIOR LIGHTING FIXTURE TYPE YY - LED OUTDOOR WALL PACK REFER TO LUMINAIRE SCHEDULE FOR SPECIFICATIONS
F	EXTERIOR LIGHTING FIXTURE TYPE F - 6' LED DOWNLIGHT, WET LOCATION REFER TO LUMINAIRE SCHEDULE FOR SPECIFICATIONS
A	EXTERIOR LIGHTING FIXTURE TYPE A - LED POLE MOUNTED REFER TO LUMINAIRE SCHEDULE FOR SPECIFICATIONS
ZONERX	LIGHTING CONTROL ZONERX

IT, COMMUNICATIONS AND SECURITY LEGEND	
SYMBOL	DESCRIPTION
X	DATA SIGNAL OUTLET, MOUNTED 12" (300 mm) ABOVE FINISHED FLOOR LEVEL UNLESS OTHERWISE NOTED, C/W 4" (100mm) OUTLET BOX AND BLANK FACEPLATE. 'X' REPRESENTS QUANTITY OF CABLES AND OUTLETS REQUIRED, IF NO NUMBER INDICATED, QUANTITY IS ASSUMED TO BE 1.
X	TELEPHONE/VOICE OUTLET, MOUNTED 12" (300 mm) ABOVE FINISHED FLOOR LEVEL UNLESS OTHERWISE NOTED, C/W 4" (100mm) OUTLET BOX AND BLANK FACEPLATE. 'X' REPRESENTS QUANTITY OF CABLES AND OUTLETS REQUIRED, IF NO NUMBER INDICATED, QUANTITY IS ASSUMED TO BE 1.
X	COMBINATION OF DATA/VOICE OUTLET, MOUNTED 12" (300 mm) ABOVE FINISHED FLOOR LEVEL UNLESS OTHERWISE NOTED, C/W 4" (100mm) OUTLET BOX AND BLANK FACEPLATE. 'X' REPRESENTS QUANTITY OF CABLES AND OUTLETS REQUIRED, IF NO NUMBER INDICATED, ASSUME QUANTITY OF 1.
	HANDICAP WASHROOM CALL STATION, MOUNTED APPROXIMATELY 2'-8" (800mm) ABOVE FINISHED FLOOR.
	AUTOMATIC DOOR OPERATOR PUSH-BUTTON, MOUNTED AS PER DETAIL.
	AUTOMATIC DOOR OPERATOR
	DOOR RELEASE BUTTON, MOUNTED AS PER DETAIL.
	DOOR ELECTRIC STRIKE
	DOOR CONTACT, RECESSED IN DOOR AND FRAME.
	CARD READER, MOUNTED AS PER DETAIL.
	SECURITY SYSTEM MOTION DETECTOR
	SECURITY SYSTEM DISARMING KEYPAD
	CEILING OR WALL MOUNTED CLOSED CIRCUIT TELEVISION CAMERA FOR SECURITY SYSTEM. "WP" DENOTES ENVIRONMENTAL HOUSING - WEATHERPROOF, EXTERIOR WALL MOUNT CAMERA HEIGHT AT APPROX. 10' OR AT AN ELEVATION THAT COMES STRAIGHT OUT FROM THE GROUND FLOOR CEILING PLENUM SPACE, BACKBOX TO BE RECESSED IN THE BRICK VENEER WITH COVER PLATE.

FIRE ALARM LEGEND	
SYMBOL	DESCRIPTION
SD	SMOKE DETECTOR
HD	HEAT DETECTOR
CMD	CARBON MONOXIDE DETECTOR
	4"Ø (100mm) FIRE ALARM HORN c/w RED GRILLE, WALL MOUNTED APPROX. 12" (300mm) BELOW FINISHED CEILING, UNLESS OTHERWISE NOTED.
	4"Ø (100mm) FIRE ALARM HORN c/w INTEGRAL STROBE LIGHT RED GRILLE, WALL MOUNTED APPROXIMATELY 12" (300mm) BELOW FINISHED CEILING, UNLESS OTHERWISE NOTED.
PS	FIRE ALARM PULL STATION MOUNTED 4'-0" (1200) ABOVE FINISHED FLOOR LEVEL, UNLESS OTHERWISE NOTED.
	FIRE ALARM SPEAKER
	FIRE ALARM CONTROL PANEL, RECESSED OR SURFACE MOUNTED.
	FIRE ALARM ANNUNCIATOR PANEL, RECESSED OR SURFACE MOUNTED.
	FIRE ALARM PASSIVE GRAPHIC MOUNTED ON WALL ADJACENT TO FIRE ALARM ANNUNCIATOR PANEL.
	END OF LINE RESISTOR FOR FIRE ALARM SYSTEM.
ABBREVIATIONS LEGEND	
SYMBOL	DESCRIPTION
E	DENOTES EXISTING TO REMAIN
N	DENOTES NEW EQUIPMENT, IF THERE IS NO ABBREVIATIONS ASSUME NEW.
ER	DENOTES EXISTING TO BE RELOCATED
REL	DENOTES RELOCATED EXISTING DEVICE AT THE NEW LOCATION
D	DENOTES EXISTING TO BE DEMOLISHED
AC	DENOTES ABOVE COUNTER
WP	DENOTES WEATHER PROOF
EXP	DENOTES EXPLOSION PROOF
TP	DENOTES TAMPER-PROOF

DRAWINGS LIST	
DWG NO.	DRAWING TITLE
E000	COVER SHEET, DRAWINGS LIST, LEGEND, GENERAL NOTES
E001	ELECTRICAL SPECIFICATIONS
E002	SINGLE LINE DIAGRAM
E003	PANEL SCHEDULES
E004	DETAILS - SHEET 1
E005	DETAILS - SHEET 2
E100	POWER AND SYSTEMS LAYOUT, NOTES - SITE PLAN
E101	POWER AND SYSTEMS LAYOUT, NOTES - GROUND FLOOR
E102	POWER AND SYSTEMS LAYOUT, NOTES - SECOND FLOOR
E103	POWER AND SYSTEMS LAYOUT, NOTES - ROOF
E201	LIGHTING AND FIRE ALARM LAYOUT, NOTES - GROUND FLOOR
E202	LIGHTING AND FIRE ALARM LAYOUT, NOTES - SECOND FLOOR

## ELECTRICAL SPECIFICATIONS

### GENERAL ELECTRICAL REQUIREMENTS

1. **CODES & STANDARDS**
  - 1.1. COMPLETE THE INSTALLATION OF THE WORK IN ACCORDANCE WITH LATEST EDITIONS OF THE ONTARIO BUILDING CODE, PROVINCIAL ELECTRICAL SAFETY CODE, C.S.A. STANDARDS, I.L.C., N.F.P.A. AND OTHER CODES, AS REQUIRED. ALL ELECTRICAL WORK SHALL BE PERFORMED IN COMPLIANCE WITH BASE BUILDING STANDARDS AND LANDLORD'S REQUIREMENTS.
2. **INTENT**
  - 2.1. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS THAT THE CONTRACTOR PROVIDE COMPLETE AND OPERATIONAL SYSTEMS AS REQUIRED FOR OWNERS USE.
  - 2.2. WHERE DIFFERENCES OCCUR BETWEEN DRAWINGS AND SPECIFICATIONS, THE MAXIMUM COSTLY CONDITION SHALL GOVERN.
  - 2.3. ANY MISCELLANEOUS ITEMS, HARDWARE, DEVICES, WIRING, ETC., NOT SPECIFICALLY DESCRIBED, BUT REQUIRED FOR THE OPERATION OF THE SYSTEM, MUST BE PROVIDED AND INCLUDED AS PART OF THE BID PRICE.
3. **DEFINITIONS**
  - 3.1. 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. **PERMITS AND FEES**
  - 4.1. SUBMIT TO THE LOCAL ELECTRICAL SAFETY AUTHORITY (ESA), THE NECESSARY NUMBER OF DOCUMENTS FOR EXAMINATION, SPECIAL INSPECTION AND APPROVAL, PRIOR TO THE COMMENCEMENT OF THE WORK, AND PAY ALL COSTS INCLUDING INSPECTIONS AND ASSOCIATED FEES.
  - 4.2. PROVIDE CERTIFICATE(S) OF ACCEPTANCE FROM THE ELECTRICAL SAFETY AUTHORITY, UPON COMPLETION OF WORK.
5. **INSURANCE**
  - 5.1. PROVIDE AND MAINTAIN INSURANCE TO PROTECT THE LANDLORD, TENANT AND TRADES FROM ALL POSSIBLE CLAIMS. SUBMIT WITH BID THE PROOF OF INSURANCE FOR AN AMOUNT ACCEPTABLE TO THE LANDLORD AND TENANT.
6. **EXISTING CONDITIONS**
  - 6.1. VISIT THE SITE AND EXAMINE THE EXISTING CONDITIONS AFFECTING THE WORK OF THIS DIVISION. NO CLAIM FOR EXTRA PAYMENT SHALL BE MADE FOR EXTRA WORK MADE NECESSARY BY CIRCUMSTANCES ABOVE CEILING.
7. **CONTRACT DOCUMENTS**
  - 7.1. THE DRAWINGS FOR THE ELECTRICAL WORK ARE DIAGRAMMATIC PERFORMANCE DRAWINGS ONLY. INTEND TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE LOCATION OF ELECTRICAL EQUIPMENT. THE DRAWINGS DO NOT INTEND TO SHOW ARCHITECTURAL, INTERIOR DESIGN, MECHANICAL, STRUCTURAL OR BASE BUILDING DETAILS. BE RESPONSIBLE FOR THE THOROUGH KNOWLEDGE OR SAME BEFORE PROCEEDING WITH THE WORK.
  - 7.2. DO NOT SCALE OR MEASURE DRAWINGS. OBTAIN INFORMATION REGARDING ACCURATE DIMENSIONS FROM DESIGNER/ARCHITECT'S DRAWINGS.
  - 7.3. REPORT ANY DISCREPANCIES BETWEEN DRAWINGS AND/OR SPECIFICATIONS AND EXISTING CONDITIONS OR DRAWINGS PRIOR TO INSTALLATION.
  - 7.4. COOPERATE AND COORDINATE WITH OTHER TRADES IN LAYING OUT OF WORK SO AS NOT TO CONFLICT WITH THE WORK OF OTHER TRADES. CARRY OUT WORK PROMPTLY AS PER CONSTRUCTION SCHEDULE AND COORDINATE WITH WORK OF OTHER TRADES.
  - 7.5. MAKE, AT NO ADDITIONAL COST, ANY CHANGES OR ADDITIONS TO MATERIALS AND EQUIPMENT TO ACCOMMODATE STRUCTURAL CONDITIONS (OFFSETS AROUND BEAMS, COLUMN, ETC.)
8. **SHOP DRAWINGS**
  - 8.1. SUBMIT ELECTRONIC COPIES OF SHOP DRAWINGS OF ALL SPECIFIED EQUIPMENT FOR REVIEW, APPROVAL AND RECORDS BEFORE COMMENCEMENT OF WORK.
  - 8.2. EACH SHOP DRAWING SHALL BE CHECKED, STAMPED AND DATED BY ELECTRICAL AND GENERAL CONTRACTOR PRIOR TO SUBMISSION TO THE ENGINEER FOR REVIEW AND APPROVAL. NON-STAMPED SHOP DRAWINGS WILL NOT BE APPROVED.
9. **IDENTIFICATION**
  - 9.1. PROVIDE LAMACOID NAMEPLATES ON ALL PANELS, DISCONNECT SWITCHES, SPLITTERS, ETC., TO MATCH BASE BUILDING. NAMEPLATES SHALL IDENTIFY EQUIPMENT NAME, VOLTAGE, PHASE, CURRENT RATING, AND USE. NAMEPLATES SHALL BE WHITE WITH 1/4" BLACK LETTERS, MECHANICALLY ATTACHED TO EQUIPMENT. CONFIRM WITH THE OWNER FOR THEIR EXACT REQUIREMENTS.
  - 9.2. PROVIDE TYPEWRITTEN DIRECTORIES FOR NEW AND EXISTING PANELS. CONFIRM EXISTING IDENTIFICATION AND CORRECT WHERE NECESSARY.
  - 9.3. CLEARLY MARK ALL EXPOSED CONDUIT, PULLBOXES, JUNCTION BOXES, ETC., TO INDICATE THE NATURE OF THE SERVICE TO MATCH BASE BUILDING STANDARDS.
10. **MATERIALS AND EQUIPMENT**
  - 10.1. ALL MATERIALS AND EQUIPMENT SHALL BE NEW, C.S.A. CERTIFIED AND MANUFACTURED TO THE SPECIFIED STANDARDS.
  - 10.2. WHERE THERE IS NO ALTERNATIVE TO SUPPLYING EQUIPMENT WHICH IS NOT C.S.A. CERTIFIED, OBTAIN SPECIAL APPROVAL FROM THE LOCAL ELECTRICAL SAFETY AUTHORITY.
11. **LOCATION OF OUTLETS**
  - 11.1. REFER TO DESIGNER/ARCHITECT'S DRAWINGS FOR EXACT LOCATIONS OF ALL OUTLETS.
  - 11.2. ALTER LOCATION OF OUTLETS AT NO COST OR CREDIT. PROVIDING DISTANCE DOES NOT EXCEED 3M (10'-0") AND INFORMATION IS GIVEN BEFORE ROUGH-IN.
  - 11.3. ALL OUTLETS TO BE MARKED ON JOB SITE FOR APPROVAL BY OWNER AND CONSULTANT PRIOR TO INSTALLATION.
12. **PLYWOOD BACKBOARDS**
  - 12.1. PLYWOOD BACKBOARDS SHALL BE 19MM (3/4") THICK, OF HIGHEST QUALITY FIRE RETARDANT FIR. PROVIDE SUITABLE SIZE AS REQUIRED BY DIMENSION OF EQUIPMENT. PRIME AND PAINT BACKBOARDS WITH FIRE RETARDANT PAINT EQUAL TO CGSB SPEC. #1-GP-151M. OF A COLOUR AS SELECTED BY THE OWNER.
13. **INSERTS, HANGERS AND SLEEVES**
  - 13.1. PROVIDE HANGERS, INSERTS, SLEEVES AND SUPPORTS AS REQUIRED.
  - 13.2. INSERTS ARE TO BE OF A LEAD SHIELD TYPE.
  - 13.3. HANGERS MUST NOT BE WELDED TO STRUCTURAL STEEL MEMBERS AND BURNING OF HOLES IN STRUCTURAL STEEL IS PROHIBITED.
  - 13.4. DO NOT USE ANY BASE BUILDING SUPPORTS OR EQUIPMENT, INCLUDING CEILING SUPPORT SYSTEM.
14. **CUTTING AND PATCHING**
  - 14.1. ALL CUTTING AND PATCHING REQUIRED TO THE EXISTING BUILDING STRUCTURE FOR THE WORK SHALL BE INCLUDED UNDER THIS CONTRACT AND BE ACCEPTABLE TO THE LANDLORD. OBTAIN WRITTEN APPROVAL FROM LANDLORD BEFORE ANY CUTTING IS CARRIED OUT.
  - 14.2. WHERE CONDUITS PASS THROUGH FIRE RATED WALLS OR FLOORS, PROVIDE CSA APPROVED OR ULC LISTED FIRE STOPPING MATERIAL AND MAINTAIN SAME FIRE RATING OF BUILDING ELEMENTS.
15. **ACCESS DOORS**
  - 15.1. WHEREVER ANY BASE BUILDING EQUIPMENT REQUIRES ACCESSIBILITY, MAINTENANCE OR ADJUSTMENT, PROVIDE ACCESS DOORS APPROVED BY DESIGN CONSULTANT/ARCHITECT AND LANDLORD.
16. **CORE DRILLING**
  - 16.1. BEFORE CORE DRILLING FLOOR SLAB OR STRUCTURAL WALLS, X-RAY SLAB OR WALLS AND HAVE THE LOCATIONS ACCEPTED BY THE LANDLORD IN WRITING.
  - 16.2. ANY EXISTING BUILDING SERVICE DAMAGED BY CORE DRILLING MUST BE REPAIRED IMMEDIATELY AT NO COST TO LANDLORD OR TENANT.
  - 16.3. FLOOR DRILLING TO BE CARRIED OUT AFTER NORMAL WORKING HOURS AND AT A TIME ACCEPTABLE TO LANDLORD AND ALLOWANCES FOR THIS WORK SHALL BE INCLUDED IN BID PRICE SUBMITTED.
17. **NOISE AND VIBRATION**
  - 17.1. ELECTRICAL EQUIPMENT IS TO OPERATE WITHOUT OBJECTIONABLE NOISE OR VIBRATION. IF IN THE OPINION OF THE CONSULTANT, THE EQUIPMENT OPERATES WITH EXCESSIVE NOISE OR VIBRATION, THEN THE EQUIPMENT MUST BE REPLACED OR NOISE OR VIBRATION ELIMINATED.
  - 17.2. CONNECTIONS TO NOISE-PRODUCING AND VIBRATING EQUIPMENT MUST BE MADE WITH FLEXIBLE LIQUID TIGHT CONDUIT. THIS INCLUDES TRANSFORMERS, DIMMING EQUIPMENT RACKS, AND MOTORS. USE A MINIMUM OF 1M (3 FT) OF FLEXIBLE CABLE WITH SLACK AT EACH DEVICE.

- 17.3. VIBRATION ISOLATORS ARE TO BE PROVIDED WHERE INDICATED OR REQUIRED. TRANSFORMERS TO BE ISOLATED FROM THE STRUCTURE, WITH SPRING AND RUBBER ISOLATORS WHEN WALL MOUNTED OR SUSPENDED AND 12MM (1/2") HIGH DENSITY NEOPRENE SANDWICH PADS (TYPE MWP) WHEN FLOOR MOUNTED.
18. **TENANT'S EQUIPMENT**
    - 18.1. WHERE SPECIFIED, INSTALL ALL EQUIPMENT PROVIDED BY THE TENANT. RECEIVE, STORE AND INSTALL EQUIPMENT AND ACCEPT FULL RESPONSIBILITY FOR ITS CORRECT OPERATION, PROVIDE CONDUIT, WIRE, BOXES, SWITCHES, OUTLETS, DEVICES, FLEX CONNECTIONS, ETC., AS REQUIRED.
    - 18.2. CONFIRM POWER REQUIREMENTS OF ALL EQUIPMENT SUPPLIED AND ALSO ENSURE THAT ALL ELECTRICAL EQUIPMENT SUPPLIED BY OTHER TRADES IS SUITABLE FOR THE RESPECTIVE VOLTAGE.
  19. **WORK IN NEW AND RENOVATED AREAS**
    - 19.1. WHEN DELETING AND/OR MAKING SAFE EXISTING ELECTRICAL WORK, ENSURE THAT IT INCLUDES REMOVAL OF ALL DISCONNECTED WIRING BACK TO THE ASSOCIATED PANELBOARD.
    - 19.2. DISCONNECT AND REMOVE EXISTING LUMINAIRES, DEVICES, OUTLETS, ETC., WHICH ARE NOT TO BE REUSED. SUCH ITEMS SHALL BE CARTONED AND TURNED OVER TO THE LANDLORD AT A PLACE DESIGNATED BY THE LANDLORD, CUT BACK AND CAP UNUSED RACEWAY AND OUTLETS AND REMOVE UNUSED WIRING BACK TO PANELBOARD IN AN APPROVED MANNER. REMOVE ALL REDUNDANT COMMUNICATIONS CABLES BACK TO HUB ROOMS AND/OR TELEPHONE RISER ROOMS.
    - 19.3. ENSURE THAT ALL EXISTING EQUIPMENT WHICH IS TO BE REUSED AND/OR RELOCATED IS THOROUGHLY INSPECTED AND REFURBISHED TO ENSURE CORRECT OPERATION WHEN PUT BACK INTO SERVICE AND TO MEET ONTARIO HYDRO APPROVAL.
    - 19.4. ALL EXISTING ELECTRICAL EQUIPMENT WHICH IS NO LONGER REQUIRED SHALL BE REMOVED AND DISPOSED OF, OFF SITE.
    - 19.5. WHERE EXISTING OUTLET BOXES OR CONDUITS ARE REMOVED FROM EXISTING UNDER FLOOR BOARD, PLUG AND CAP EXISTING HOLES FLUSH WITH FLOOR USING APPROVED FITTINGS.
    - 19.6. BE RESPONSIBLE AND PAY FOR ANY DAMAGE TO THE BASE BUILDING INCURRED BY WORK OF THIS DIVISION, OR REPAIR TO THE SATISFACTION OF THE CLIENT.
    - 19.7. CARRY OUT THE WORK WITH A MINIMUM OF NOISE, DUST AND DISTURBANCE.
    - 19.8. PROVIDE TOOLS AND CLEAN UP EQUIPMENT. OBTAIN THE LANDLORD'S PERMISSION FOR THE USE OF ELECTRICAL, ELEVATOR, PLUMBING OR DRAINAGE OUTLETS.
    - 19.9. PROVIDE DAILY CLEAN UP AND PROPER DISPOSAL OF DEBRIS GENERATED BY DAILY OPERATIONS. ON COMPLETION OF THE WORK, ALL TOOLS, SURPLUS MATERIALS AND WASTE MATERIALS SHALL BE REMOVED AND THE PREMISES LEFT IN A CLEAN AND PERFECT CONDITION.
  20. **INTERRUPTION OF SERVICES**
    - 20.1. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY INTERRUPTIONS OR DELAYS TO THE EXISTING SERVICES. ALL EXISTING BUILDING SERVICES MUST BE KEPT OPERATIONAL AT ALL TIMES.
    - 20.2. INTERRUPTIONS SHALL BE PERFORMED ONLY AFTER REGULAR OFFICE HOURS. INCLUDE IN THE BID PRICE ALL COST ASSOCIATED WITH THIS WORK.
    - 20.3. ARRANGE WORK SUCH THAT INTERRUPTIONS IN SERVICES OCCUR ONLY AT SCHEDULED TIMES SUITABLE TO THE LANDLORD.
    - 20.4. INTERRUPTIONS SHALL BE SCHEDULED AT LEAST 14 DAYS IN ADVANCE WITH THE LANDLORD UNLESS OTHERWISE NOTED.
  21. **VALUATION OF CHANGES**
    - 21.1. PROVIDE COMPLETE BREAKDOWN OF MATERIAL, LABOUR, OVERHEAD, PROFIT, ETC., WHEN SUBMITTING QUOTATIONS FOR CHANGE NOTICES ON THIS PROJECT.
    - 21.2. THE HOURLY LABOUR RATE SHALL BE INCLUSIVE OF ALL CHARGES FOR SUPERVISION, VARIABLE LABOUR FACTORS, HAND TOOLS, PAYROLL BURDENS, HEIGHT FACTORS, WARRANTIES, STORAGE, RENTALS, ADDITIONAL BONDING, PARKING, CLEAN-UP, AS-BUILT DRAWINGS, HOISTING, FREIGHT AND DELIVERY, BUT EXCLUSIVE OF OVERHEAD AND PROFIT.
    - 21.3. THE LABOUR HOURS SHALL BE BASED ON THE LATEST ISSUE OF THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA) LABOUR RATES.
    - 21.4. THE MATERIAL PRICES SHALL BE BASED ON THE CURRENT NATIONAL PRICES SYSTEM (NPS) CATALOGUE LESS APPLICABLE TRADE DISCOUNTS.
    - 21.5. MAXIMUM OF 5% FOR OVERHEAD AND 5% FOR PROFIT IS ACCEPTABLE, UNLESS OTHERWISE IS NOTED AND APPROVED BY THE CLIENT IN WRITTEN.
  22. **COMPLETION OF CONTRACT**
    - 22.1. ALL EQUIPMENT MUST BE CLEANED AND TESTED BEFORE FINAL ACCEPTANCE BY CONSULTANT.
    - 22.2. PRIOR TO CONTACTING THE CONSULTANT FOR FINAL INSPECTION, THE CONTRACTOR MUST CORRECT ALL DEFICIENCIES AS SPECIFIED ON THE DEFICIENCY LIST AND PROVIDE PROOF OF ACTIONS.
    - 22.3. AFTER COMPLETION OF WORK PROVIDE A COPY OF FINAL ESA INSPECTION CERTIFICATE.
    - 22.4. AFTER COMPLETION OF WORK, FINAL FIRE ALARM VERIFICATION CERTIFICATE (AS PER STANDARD ULC 537) MUST BE PROVIDED WHEN THE FIRE ALARM SYSTEM WAS MODIFIED UNDER THE CONTRACT.
    - 22.5. PROVIDE A WRITTEN WARRANTY FOR ONE (1) YEAR COVERING ALL EQUIPMENT, MATERIALS AND WORKMANSHIP FROM THE DATE OF ACCEPTANCE OF THE INSTALLATION BY THE OWNER, INCLUDE IN THE OPERATIONS AND MAINTENANCE MANUAL.
    - 22.6. PROVIDE EMERGENCY LIGHTING LEVEL TEST RESULTS AND VERIFICATION REPORT COMPLETE WITH CONTRACTOR'S STAMP. SUBMIT TEST REPORT TO CONSULTANT AND AUTHORITIES FOR REVIEW AND APPROVAL. WHERE BATTERY UNIT SYSTEM IS USED FOR EMERGENCY LIGHTING THE CONTRACTOR SHALL PROVIDE A WRITTEN STATEMENT FROM THE MANUFACTURER INDICATING THAT THE SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS AND THE READINGS OF THE EMERGENCY LIGHTING LEVEL COMPLY WITH THE ONTARIO BUILDING CODE. READING REPORT AND MANUFACTURER STATEMENT AS SHOWN ABOVE SHALL OCCUR PRIOR OCCUPANCY.
    - 22.7. ANY DEFECTS OR DEFICIENCIES WHICH ORIGINATE OR BECOME EVIDENT DURING THE WARRANTY PERIOD MUST BE REPAIRED OR CORRECTED AT NO EXTRA COST TO THE OWNER.
    - 22.8. IF, DURING THE WARRANTY PERIOD, TRANSFORMERS, BALLASTS OR OTHER NOISE AND VIBRATION PRODUCING EQUIPMENT ARE CONSIDERED BY THE CONSULTANT TO EXCEED ACCEPTABLE STANDARDS, THEN THESE MUST BE REPLACED WITHOUT DELAY OR ADDITIONAL COST TO THE OWNER. ALL WORK RELATING TO THE REPLACEMENT OF DEFECTIVE ITEMS, MUST BE CARRIED OUT AFTER NORMAL WORKING HOURS AND AT A TIME WHICH IS ACCEPTABLE TO THE TENANT AT NO EXTRA COST TO THE CLIENT.
  23. **AS-BUILT DRAWINGS**
    - 23.1. AT THE COMPLETION OF WORK AND BEFORE FINAL ACCEPTANCE, PROVIDE AS-BUILT DRAWINGS OF THE INSTALLATION (ELECTRONIC COPIES RED LINE FORMAT WITH CONTRACTOR'S STAMP AND DATE).
    - 23.2. INCORPORATE ALL CHANGES AND DEVIATIONS FROM TENDER DRAWINGS, UTILIZING NORMAL RECOGNIZED DRAFTING PROCEDURES THAT MATCH THE ORIGINAL DRAFTING METHODOLOGY.
    - 23.3. ALL MAIN BRANCH CONDUIT RUNS, JUNCTION BOX LOCATIONS, CONDUIT RUNS FOR ALL FLOOR OUTLETS, ETC., MUST BE REFLECTED ON THE DRAWINGS.
    - 23.4. REMOVE THE ELECTRICAL ENGINEER'S STAMP AND COMPANY NAME FROM ALL DRAWINGS.
    - 23.5. CLEARLY INDICATE THE WORDS "AS-BUILT" IN THE TITLE BLOCK COLUMN OF THE DRAWINGS AS WELL AS THE ELECTRICAL CONTRACTOR'S NAME AND ADDRESS.
    - 23.6. SUBMIT A COPY TO CONSULTANT FOR REVIEW AND APPROVAL PRIOR TO FINAL SUBMISSION TO LANDLORD AND TENANT.
  24. **OPERATION AND MAINTENANCE MANUALS**
    - 24.1. PROVIDE 2 (TWO) SETS OF OPERATION AND MAINTENANCE (OM&M) MANUALS. INCLUDE THE FOLLOWING INFORMATION IN THE OPERATIONS AND MAINTENANCE MANUALS:
      - 24.1.1. TECHNICAL DATA, PRODUCT DATA, SUPPLEMENTED BY BULLETINS, COMPONENT ILLUSTRATIONS, EXPLODED VIEWS, TECHNICAL DESCRIPTIONS OF ITEMS, AND PARTS LISTS, ADVERTISING OR SALES LITERATURE IS NOT ACCEPTABLE.
      - 24.1.2. THE CONSULTANT'S REVIEWED SHOP DRAWINGS.
      - 24.1.3. CERTIFICATE(S) OF ACCEPTANCE FROM AUTHORITIES HAVING JURISDICTION INCLUDING ESA, ETC.
      - 24.1.4. VERIFICATION REPORTS AND CERTIFICATE(S) FOR ANY NEW FIRE ALARM COMPONENTS OR TIENS AND ANY BASE BUILDING TIENS FOR MISCELLANEOUS SYSTEMS (I.E. SECURITY, LIGHTING CONTROL, DIGITAL METERING).
      - 24.1.5. EMERGENCY LIGHTING VERIFICATION REPORT
      - 24.1.6. LOAD BALANCING REPORT
      - 24.1.7. DATA/COMMUNICATION DRAWINGS, INSTALLATION DETAILS, AND TEST REPORTS.
      - 24.1.8. WRITTEN WARRANTY - ONE (1) YEAR FOR LABOUR AND MATERIALS.
      - 24.1.9. AS BUILT DRAWINGS.

- 24.2. REVIEW INFORMATION PROVIDED IN THE MAINTENANCE INSTRUCTIONS AND MANUALS WITH THE TENANT'S OPERATING PERSONNEL AND LANDLORD'S OPERATING PERSONNEL WHERE BASE BUILDING SYSTEMS ARE REVISED, TO ENSURE A COMPLETE UNDERSTANDING OF THE ELECTRICAL EQUIPMENT AND SYSTEMS AND THEIR OPERATION.

### MATERIALS AND INSTALLATION

1. **CONDUITS AND CONDUIT FITTINGS**
  - 1.1. PROVIDE ALL CONDUIT UP TO AND INCLUDING 100MM (4") SIZE, AS EMT THINWALL WITH STEEL SET SCREW COUPLINGS AND CONNECTORS.
  - 1.2. PROVIDE LIQUID TIGHT FLEXIBLE CONDUIT FOR FINAL CONNECTION TO MOTORS AND MECHANICAL EQUIPMENT.
  - 1.3. INSTALL CONDUITS TO CONSERVE HEADROOM, PARALLEL AND PERPENDICULAR TO BUILDING LINES. DO NOT CADDIE CLIP CONDUITS TO CEILING HANGERS.
  - 1.4. ALL EMPTY CONDUITS SHALL BE COMPLETE WITH NYLON FISH WIRE.
  - 1.5. ALL DATA/COMMUNICATION CONDUITS SHALL BE INSTALLED COMPLETE WITH PLASTIC BUSHINGS AT EACH END.
  - 1.6. CONDUITS FOR DATA/COMMUNICATION SHALL BE EMT, MIN 21MM (3/4"), TERMINATED 150MM (6") ABOVE 1-BAR CEILING OR AS PER DATA/COMMUNICATION CONSULTANT REQUIREMENTS.
  - 1.7. NO MORE THAN TWO (2) -90 DEG. BENDS SHALL BE INSTALLED BETWEEN ANY TWO ADJACENT PULL BOXES. SIZE ALL CONDUITS BASED ON RW 90X1PE WIRING ONLY.
  - 1.8. SIZE ALL CONDUITS FOR MAX. 40% FILL TO INCLUDE DEDICATED INSULATED GROUND WIRE.
2. **JUNCTION BOXES AND PULL BOXES**
  - 2.1. JUNCTION BOXES AND PULL BOXES SHALL BE SUITABLE FOR SURFACE MOUNTING AND BE OF WAXED STEEL CONSTRUCTION WITH SCREW-ON FLAT COVERS.
  - 2.2. FOR FLUSH-MOUNTED PULL AND JUNCTION BOXES, PROVIDE COVERS WITH 25MM (1") MINIMUM EXTENSION ALL AROUND.
  - 2.3. INSTALL JUNCTION AND PULL BOXES IN INCONSPICUOUS BUT ACCESSIBLE LOCATIONS. PROVIDE ACCESS DOOR AS REQUIRED.
  - 2.4. A MINIMUM OF ONE PULL BOX SHALL BE INSTALLED FOR EVERY 100 FT.(30M) OF CONDUIT. NOTE THAT EACH 90 DEG. BEND SHALL EQUATE TO A 30 FT. (9M) LENGTH OF CONDUIT.
3. **OUTLET BOXES**
  - 3.1. OUTLET BOXES SHALL BE ELECTRO-GALVANIZED STEEL, SIZED AS REQUIRED BY CODE.
  - 3.2. PROVIDE EACH LIGHT SWITCH, RECEPTACLE, COMMUNICATION AND OTHER OUTLET WITH AN OUTLET BOX. INSTALL PLUMBS AND TRUE. PROVIDE 76MM (3") DEEP 1004 BOXES FOR DIMMING SWITCHES.
  - 3.3. ADAPT ALL OUTLET BOXES TO THEIR RESPECTIVE LOCATIONS AND SUPPORT INDEPENDENTLY OF THE CONDUIT. DO NOT CADDIE CLIP TO CEILING HANGERS.
  - 3.4. PROVIDE BLANK COVER PLATES FOR BOXES WITHOUT WIRING DEVICES.
  - 3.5. DO NOT INSTALL OUTLET BOXES BACK TO BACK IN PARTITIONS. STAGGER TO PREVENT SOUND TRANSFER.
  - 3.6. TWO OR MORE OUTLET BOXES THAT OCCUR AT THE SAME LOCATION SHALL BE GANGED TOGETHER IN THE SAME COVER PLATE UNLESS OTHERWISE NOTED.
  - 3.7. FLOOR MOUNTED BOXES, FLUSH POKE-THRU DEVICE ASSEMBLY, WITH PRE-WIRED 15A QUAD RECEPTACLE AND COMMUNICATION OUTLETS, SLIDE COVERS, SNAP BACK, SIMILAR TO WIREMOLD SERIES R03.
4. **WIRE AND CABLE**
  - 4.1. ALL WIRE AND CABLE SHALL BE COPPER, MINIMUM 12 AWG, WITH RW 90XLPE INSULATION, WIRES #12AWG AND #10 SHALL BE SOLID, WIRES #8 AND LARGER SHALL BE STRANDED TYPE.
  - 4.2. BX TYPE WIRING MAY BE USED IN CEILING SPACE FOR LIGHTING FIXTURE CONNECTION TO JUNCTION BOXES OR PARTITIONS. BX RUNS IN CEILING SPACE NOT TO EXCEED 3048MM (10'-0") LENGTH.
  - 4.3. SIZE ALL WIRES FOR MAXIMUM 3% VOLTAGE DROP TO CODE REQUIREMENTS.
  - 4.4. ALL INDOOR RUNS TO BE IN EMT CONDUIT AND OUTDOOR IN PVC CONDUIT.
  - 4.5. DO NOT RUN CABLES OR CONDUITS HORIZONTALLY IN PARTITION WALLS.
5. **LOCAL SWITCHES**
  - 5.1. ALL DEVICES SHALL BE SPECIFICATION GRADE. LOCAL 20A, 120V OR 347V SWITCHES, A.C. TYPE WITH MATCHING COLOUR COVER PLATE. CONFIRM THE COLOUR WITH THE ARCHITECT (M.H. AT 42' A.F.F.).
  - 5.2. ACCEPTABLE MANUFACTURERS:
    - 5.2.1. LEGRAND - P8S #26014 SERIES
    - 5.2.2. HUBBELL #HBL #2121 SERIES
    - 5.2.3. LEVITON #5691-21 SERIES
6. **RECEPTACLES**
  - 6.1. ALL RECEPTACLES SHALL BE SPECIFICATION GRADE, 15A, 120V, "U" GROUND, DUPLEX TYPE WITH MATCHING COLOUR COVER PLATES. CONFIRM THE COLOUR WITH THE ARCHITECT (M.H. AT 12' A.F.F.).
  - 6.2. ACCEPTABLE MANUFACTURERS:
    - 6.2.1. LEGRAND - P8S #26252 SERIES
    - 6.2.2. HUBBELL #HBL #2121 SERIES
    - 6.2.3. LEVITON #16262 SERIES
7. **DISTRIBUTION EQUIPMENT**
  - 7.1. ALL NEW PANELBOARDS, DISCONNECT SWITCHES, TRANSFORMERS, METERS, ETC., TO BE PRODUCTS OF SAME MANUFACTURE, I.C. RATING AND TYPE AS BASE BUILDING EQUIPMENT UNLESS OTHERWISE NOTED.
  - 7.2. MOULDED GASE CIRCUIT BREAKERS TO BE BOLT-ON AND FROM SAME MANUFACTURER. RATING AND TYPE AS BASE BUILDING BREAKERS, IF UNABLE TO MATCH BASE BUILDING EQUIPMENT, THE FOLLOWING MANUFACTURERS ARE ACCEPTABLE:
    - 7.2.1. EATON
    - 7.2.2. SIEMENS
    - 7.2.3. SCHNEIDER ELECTRIC
  - 7.3. DRY TYPE TRANSFORMERS SHALL BE OF THE SAME MANUFACTURER AS THE BASE BUILDING BUT WITH A DESIGN K FACTOR OF 1.3 AND WITH ELECTROSTATICALLY SHIELDED COPPER WINDINGS. PROVIDE DOUBLE LOGS ON TRANSFORMER NEUTRALS FOR CONNECTION OF CABLES. IF UNABLE TO MATCH BASE BUILDING TRANSFORMER, THE FOLLOWING MANUFACTURERS ARE ACCEPTABLE:
    - 7.2.1. EATON
    - 7.2.2. HAMMOND
    - 7.2.3. SCHNEIDER ELECTRIC
  - 7.4. WALL/CEILING MOUNTED TRANSFORMERS UP TO 75 KVA WITH SUSPENSION RODS, SPRING ISOLATORS AND MOUNTING BRACKETS ARE ACCEPTABLE. TRANSFORMERS LARGER THAN 75 KVA SHALL BE FLOOR MOUNTED ON LOCATION PADS.
  - 7.5. ALL DISTRIBUTION EQUIPMENT INSTALLED IN SPRINKLERED AREAS SHALL BE EQUIPPED WITH SPRINKLER DRIP SHIELDS.
8. **CABLE TROUGHS**
  - 8.1. CABLE TROUGHS SHALL BE COMPLETE WITH ALL ACCESSORIES AND FITTINGS AS PER CSA C22.2-128 AND MANUFACTURED TO EMAC P5.1.
  - 8.2. CABLE TRAYS FOR POWER SYSTEMS AND DATA/COMMUNICATIONS SHALL BE MADE OF STEEL VENTILATED TYPE, CLASS C1, WITHOUT COVER, SIZED AS INDICATED UNLESS OTHERWISE INDICATED ON DATA/COMMS CONSULTANT DRAWINGS.
  - 8.3. SUPPORTS SHALL BE ROD AND CHANNEL OF A SIZE TO SUIT TOTAL LOAD.
  - 8.4. SUPPLY ALL BENDS, ELBOWS, END PLATES, DROP OUTS, TEES, WYES AND EXPANSION JOINTS FOR A COMPLETE SYSTEM AS REQUIRED, GROUND CABLE TRAYS AS REQUIRED BY CODE.
  - 8.5. REMOVE ALL SHARP EDGES TO PREVENT CABLE DAMAGE OR INJURY TO PERSONNEL.
9. **GROUNDING**
  - 9.1. GROUND ALL EQUIPMENT IN ACCORDANCE WITH THE LATEST EDITION OF THE ELECTRICAL SAFETY CODE. PROVIDE SEPARATE GREEN INSULATED GROUND CONDUCTOR IN EVERY CONDUIT TO ALL DEVICES, LUMINAIRES AND FEEDERS (PANELBOARDS, SPLITTERS, DISCONNECT SWITCHES, ETC.).
10. **MECHANICAL TRADES POWER REQUIREMENTS**
  - 10.1. ALL MECHANICAL EQUIPMENT, VFDS, STARTERS, ETC. ARE SUPPLIED BY MECHANICAL CONTRACTOR, UNLESS OTHERWISE NOTED. ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR TO RECEIVE ALL VFDS AND STARTERS AND INSTALL THEM ON SITE AT THE CONFIRMED LOCATIONS BY MECHANICAL CONTRACTOR. POWER WIRING AND CONDUITS AND REQUIRED CONDUITS FOR CONTROL TO BE PROVIDED BY ELECTRICAL CONTRACTOR. CONTROL WIRING BY MECHANICAL CONTRACTOR.
  - 10.2. SUPPLY, INSTALL AND CONNECT ALL REQUIRED DISCONNECT SWITCHES.
  - 10.3. CONFIRM ELECTRICAL REQUIREMENTS AND EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION. COORDINATE WITH MECHANICAL DRAWINGS, AS REQUIRED.

11. **LUMINAIRES (GENERAL LIGHTING, EXIT, EMERGENCY)**
  - 11.1. PROVIDE AND INSTALL NEW LIGHTING FIXTURES AS SHOWN ON LIGHTING LAYOUT AND AS INDICATED IN THE LUMINAIRE SCHEDULE.
  - 11.2. ALL NEW EXIT LIGHTING TO BE LED, GREEN RUNNING MAN TYPE.
  - 11.3. ALL LUMINAIRES TO BE CSA APPROVED.
  - 11.4. UNLESS WRITTEN CONFIRMATION CAN BE PROVIDED THAT THE EXISTING BASE BUILDING CEILING HAS BEEN DESIGNED AND CONSTRUCTED TO SUPPORT THE ADDITIONAL WEIGHT OF THE BASE BUILDING LUMINAIRES, THE ELECTRICAL CONTRACTOR SHALL PROVIDE ADDITIONAL SUPPORTS ON ALL NEW LUMINAIRES BEING ADDED AND ON ALL RELOCATED EXISTING LUMINAIRES. INCLUDE COST IN TENDER PRICE.
  - 11.5. COOPERATE WITH ALL OTHER TRADES FOR THE PROPER INSTALLATION OF ALL LUMINAIRES.
  - 11.6. PROVIDE ALL EXIT AND EMERGENCY LIGHTS TO MATCH EXISTING BASE BUILDING TYPE (MANUFACTURER AND MODEL). REFER TO LIGHTING LAYOUT FOR FIXTURE LOCATIONS AND CONNECTIONS.
  - 11.7. ACCEPTABLE MANUFACTURERS FOR EMERGENCY LIGHTING AND EXIT LIGHTS:
    - 11.7.1. BELLUCE (FORMER BEGHELLI)
    - 11.7.2. STAMPRO
    - 11.7.3. ABB (THOMAS AND BETTS, LUMACEL)
  - 11.8. ACCEPTABLE MANUFACTURERS FOR LIGHTING FIXTURES:
    - 11.8.1. SIGNIFY (FORMER PHILIPS)
    - 11.8.2. COOPER LIGHTING
    - 11.8.3. ACUIITY BRANDS
    - 11.8.4. OTHER SPECIFIED MANUFACTURERS IN LUMINAIRE SCHEDULE.
12. **MEGGERING AND BALANCING**
  - 12.1. MEGGER ALL POWER CIRCUIT FEEDERS, IF GROUND RESISTANCE ON ANY CIRCUIT IS LESS THAN THAT REQUIRED BY CSA OR OTHER GOVERNING REGULATIONS, SUCH CIRCUITS ARE TO BE CONSIDERED DEFECTIVE AND MUST BE REPLACED.
  - 12.2. MEASURE PHASE CURRENT TO PANELBOARDS WITH NORMAL LOADS OPERATING AT TIME OF ACCEPTANCE. ADJUST BRANCH CIRCUIT CONNECTIONS AS REQUIRED TO OBTAIN BEST BALANCE OF CURRENT BETWEEN PHASES AND SUBMIT A REPORT FOR INSERTION INTO MANUALS.

13. **IT, COMMUNICATIONS AND SECURITY CONDUITS AND WIRING**
  - 13.1. ALL IT, COMMUNICATIONS AND SECURITY DEVICES ALONG WITH REQUIRED WIRING TO BE SUPPLIED AND INSTALLED BY IT, COMMUNICATIONS AND SECURITY CONTRACTOR, UNLESS OTHERWISE NOTED.
  - 13.2. ELECTRICAL CONTRACTOR TO PROVIDE MINIMUM 3/4" DIA. EMT CONDUIT AND BOXES, INCLUDING PULL STRINGS, FOR ALL IT, COMMUNICATIONS AND SECURITY DEVICES SHOWN ON DRAWINGS. IT, COMMUNICATION AND SECURITY CONTRACTOR TO TERMINATE WIRING FOR ALL IT, COMMUNICATIONS AND SECURITY DEVICES. ELECTRICAL CONTRACTOR TO COORDINATE WITH IT, COMMUNICATIONS AND SECURITY CONTRACTOR FOR THE EXACT LOCATION OF DEVICES PRIOR TO ROUGH-INS.
  - 13.3. ELECTRICAL CONTRACTOR TO VERIFY WITH IT, COMMUNICATIONS AND SECURITY CONTRACTOR FOR ALL REQUIREMENTS OF CONDUITS AND CABLE TRAYS PRIOR TO INSTALLATION.

NOISSUED FOR	DATE
1 50% REVIEW	2024-05-29
2 FINAL REVIEW	2024-07-08
3 PERMIT	2025-06-30

# FARHEATER ENGINEERING INC.

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### STAMP:



### PROJECT NAME:

**WAREHOUSE AND  
OFFICE HEADQUARTERS**

### PROJECT ADDRESS:

45 BLOWERS CRES.  
AJAX, ON, L1Z 0N4

### NORTH:

DRAWN BY:	DATE:
A.A	2024.05.23

CHECKED BY:	SCALE:
F.M	N.T.S

### DRAWING TITLE:

## ELECTRICAL SPECIFICATIONS

PROJECT NUMBER:	DRAWING NUMBER:
FH2024029	E001

GENERAL NOTES

- 1. ALL GENERAL NOTES INDICATED IN DRAWING E000 ARE APPLICABLE TO THIS DRAWING. CONTRACTOR IS RESPONSIBLE TO REVIEW THE INDICATED GENERAL NOTES AND ENSURE THAT ALL NOTES ARE FOLLOWED PROPERLY.
2. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL SUITABLE NEW LABELS ON ALL NEW ELECTRICAL EQUIPMENT, LABELS TO INCLUDE BOTH PANEL AND CIRCUIT DESIGNATION, REVIEW LABEL SIZE AND TYPE WITH OWNER AND CONSULTANT PRIOR TO INSTALLATION.
3. ALL DIMENSIONS TO BE VERIFIED ON SITE BY ELECTRICAL CONTRACTOR BEFORE ANY WORK IS BEGUN, EXACT LOCATION AND HEIGHT OF DEVICES TO BE COORDINATED WITH MECHANICAL DIVISION AND ARCHITECT PRIOR TO ROUGH-INS.

DRAWING NOTES (CODED #)

- 1. COORDINATE WITH HYDRO FOR EXACT HYDRO REQUIREMENTS FOR TRANSFORMER AND DUCTBANKS. COMPLETE THE INSTALLATION AS PER HYDRO STANDARDS.
2. COORDINATE WITH HYDRO FOR EXACT HYDRO REQUIREMENTS FOR HYDRO METERING. PROVIDE THE EQUIPMENT AND COMPLETE THE INSTALLATION AS PER HYDRO STANDARDS.
3. PROVIDE THE SWITCHBOARD, ELECTRICAL DISTRIBUTION EQUIPMENT AND GROUNDING SYSTEM AS INDICATED AND AS PER ONTARIO ELECTRICAL SAFETY CODE REQUIREMENTS.

DEMAND LOAD SUMMARY (OESC)

Table with 4 columns: ITEM, ALLOWANCE, AREA / EQP. LOAD, DEMAND LOAD. Rows include Warehouse (Industrial), Office - Ground Floor, Office - Second Floor, HVAC, and EVSE (Electric Vehicles). Includes sub-totals and OESC requirements.

- NOTES:
1. LOAD CALCULATIONS INCLUDING REQUIRED WATTS PER SQ.M AND DEMAND FACTORS ARE PER ONTARIO ELECTRICAL SAFETY CODE (OESC), SECTION 8.

FEEDER SCHEDULE

Table with columns for Feeder ID, Description, Conductor Size, Conduit Size, and Max Feeder Length. Includes notes on cable types and conduit sizes.

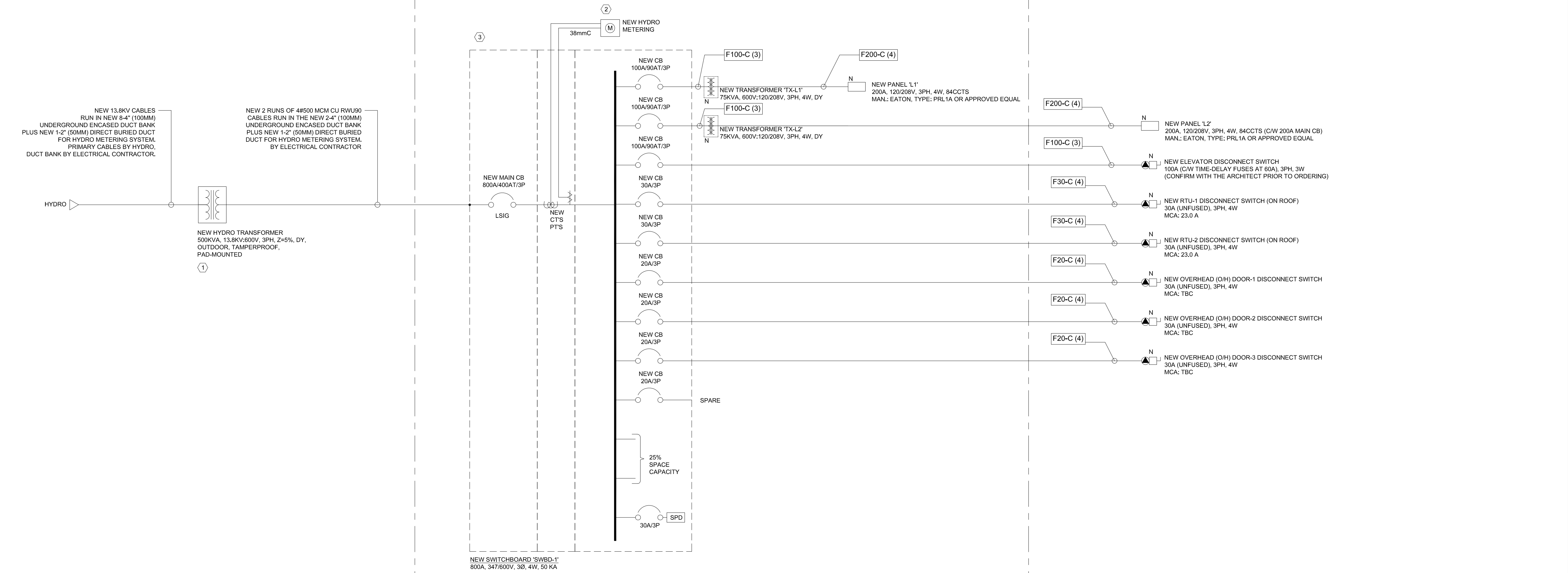
1 DEMAND LOAD SUMMARY E002

2 FEEDER SCHEDULE E002

OUTDOOR NORTH SIDE OF THE BUILDING

NEW BUILDING MAIN ELECTRICAL ROOM

NEW BUILDING VARIOUS LOCATIONS (REFER TO PLANS)



3 SINGLE LINE DIAGRAM E002

Table with 2 columns: NOISSUED FOR, DATE. Rows show 50% REVIEW (2024-05-29), FINAL REVIEW (2024-07-08), and PERMIT (2025-06-30).

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STAMP:



PROJECT NAME: WAREHOUSE AND OFFICE HEADQUARTERS

PROJECT ADDRESS: 45 BLOWERS CRES. AJAX, ON, L1Z 0N4

NORTH:

DRAWN BY: A.A DATE: 2024.05.23

CHECKED BY: F.M SCALE: N.T.S

DRAWING TITLE: SINGLE LINE DIAGRAM

PROJECT NUMBER: FH2024029 DRAWING NUMBER: E002

NEW PANEL:	L1	VOLTAGE (V):	120/208
LOCATION:	MAIN ELECTRICAL ROOM	AMPACITY (A)	200A
MOUNT:	SURFACE	PHASE/WIRE:	3PH/4W
MANUFACTURER/CATR:	-	KA:	10KA

DESCRIPTION	LOAD (W)	Breaker Size	CCT	PHASE			CCT	Breaker Size	LOAD (W)	DESCRIPTION
				A	B	C				
LIGHTING - GROUND FLOOR	1,000	20A	01				02	20A	1,000	EXTERIOR LIGHTING
LIGHTING - GROUND FLOOR	1,000	20A	03				04	20A	1,000	EXTERIOR LIGHTING
LIGHTING - GROUND FLOOR	1,000	20A	05				06	20A	1,000	EXTERIOR LIGHTING
LIGHTING - GROUND FLOOR	1,000	20A	07				08	40A	3,600	EV CHARGER
LIGHTING - GROUND FLOOR	1,000	20A	09				10	2P	3,600	
BATTERY UNITS, EXIT SIGNS (EM. LIGHTING)	1,000	20A	11				12	15A	1,000	CEO OFFICE 102 - BBH-1
BATTERY UNITS, EXIT SIGNS (EM. LIGHTING)	1,000	20A	13				14	15A	500	STAIR A - BBH-3
FIRE ALARM DEVICES	300	15A	15				16	15A	1,000	CEO OFFICE 102 - BBH-1
BOARD ROOM 117 - REC.	500	15A	17				18	15A	500	CEO OFFICE 102 - REC.
BOARD ROOM 117 - REC.	500	15A	19				20	15A	500	CEO OFFICE 102 - REC.
BOARD ROOM 117 - REC.	500	15A	21				22	20A	500	GFI RECEPTACLES
BOARD ROOM 117 - BBH-1	1,000	15A	23				24	20A	500	GFI RECEPTACLES
BOARD ROOM 117 - BBH-1	1,000	15A	25				26	15A	500	LOBBY - REC.
SECURITY OFFICE 108 & STORAGE 109 - REC.	500	15A	27				28	15A	500	LOBBY - REC.
DIRECTOR ROOM 116 - REC.	500	15A	29				30	15A	1,000	LOBBY - BBH-1
DIRECTOR ROOM 116 - BBH-1	1,000	15A	31				32	15A	500	AUTOMATIC DOOR OPERATOR
DIRECTOR ROOM 115 - REC.	500	15A	33				34	15A	500	AUTOMATIC DOOR OPERATOR
DIRECTOR ROOM 115 - BBH-1	1,000	15A	35				36	15A	1,000	VESTIBULE - BBH-1
OFFICE 114 - REC.	500	15A	37				38	15A	500	ELEVATOR CAB LIGHT
OFFICE 114 - REC.	500	15A	39				40	15A	500	ELEVATOR CONTROL
OFFICE 114 - REC.	500	15A	41				42	20A	1,000	OFFICE 114 - BBH-2
OFFICE 114 - REC.	500	15A	43				44	2P	1,000	
OFFICE 114 - REC.	500	15A	45				46	15A	500	STAIR B - BBH-3
OFFICE 114 - REC.	500	15A	47				48	15A	500	MECH 103 - REC.
KITCHENETTE 110 - DISHWASHER DW-1	2,000	20A	49				50	20A	1,500	MECH 103 - UH-2
-	-	-	51				52	15A	560	MECH 103 - EF-1
KITCHENETTE 110 - REC.	500	15A	53				54	15A	200	MECH 103 - RP-1
FORKLIFT CHARGING STATION	2,000	30A	55				56	15A	500	MECH 103 - HWT-1
-	-	-	57				58	15A	500	ELEC 104 - REC.
WAREHOUSE REC.	1,000	20A	59				60	20A	1,500	ELEC 104 - UH-2
WAREHOUSE REC.	1,000	20A	61				62	15A	560	ELEC 104 - EF-4
WAREHOUSE REC.	1,000	20A	63				64	15A	-	SPARE
WAREHOUSE REC.	1,000	20A	65				66	15A	-	SPARE
SPARE	-	20A	67				68	15A	-	SPARE
SPARE	-	20A	69				70	15A	-	SPARE
SPARE	-	20A	71				72	15A	-	SPARE
-	-	-	73				74	-	-	-
-	-	-	75				76	-	-	-
-	-	-	77				78	-	-	-
-	-	-	79				80	-	-	-
-	-	-	81				82	-	-	-
-	-	-	83				84	-	-	-
POWER PER PHASE (W)				22,160	16,960	16,700	CONSIDERING DEMAND FACTOR OF 0.7, TOTAL DEMAND WOULD BE:			
TOTAL POWER (WATTS)					55,819				39,08 kW	
TOTAL AMP (A)					163				115 A	

NEW PANEL:	L2	VOLTAGE (V):	120/208
LOCATION:	2ND FLOOR - ELECTRICAL ROOM	AMPACITY (A)	200A
MOUNT:	SURFACE	PHASE/WIRE:	3PH/4W
MANUFACTURER/CATR:	-	KA:	10KA

DESCRIPTION	LOAD (W)	Breaker Size	CCT	PHASE			CCT	Breaker Size	LOAD (W)	DESCRIPTION
				A	B	C				
LIGHTING - 2ND FLOOR	1,000	20A	01				02	20A	1,000	LIGHTING - WAREHOUSE
LIGHTING - 2ND FLOOR	1,000	20A	03				04	20A	1,000	LIGHTING - WAREHOUSE
LIGHTING - 2ND FLOOR	1,000	20A	05				06	20A	1,000	LIGHTING - WAREHOUSE
BATTERY UNITS, EXIT SIGNS (EM. LIGHTING)	1,000	20A	07				08	20A	1,000	LIGHTING - WAREHOUSE
BATTERY UNITS, EXIT SIGNS (EM. LIGHTING)	1,000	20A	09				10	20A	1,000	LIGHTING - WAREHOUSE
FIRE ALARM DEVICES	300	15A	11				12	20A	1,000	LIGHTING - WAREHOUSE
OFFICE 203 - REC.	500	15A	13				14	20A	1,000	LIGHTING - WAREHOUSE
OFFICE 203 - REC.	500	15A	15				16	20A	1,000	LIGHTING - WAREHOUSE
OFFICE 203 - BBH-1	1,000	15A	17				18	15A	500	KITCHENETTE 205 - REC.
OFFICE 202 - REC.	500	15A	19				20	15A	500	KITCHENETTE 205 - REC.
OFFICE 202 - REC.	500	15A	21				22	20A	500	GFI RECEPTACLES
OFFICE 202 - BBH-1	1,000	15A	23				24	15A	500	AUTOMATIC DOOR OPERATOR
OFFICE 201 - REC.	500	15A	25				26	20A	1,000	SHOWROOM 208 - BBH-2
OFFICE 201 - REC.	500	15A	27				28	2P	1,000	
LOUNGE 200 & ELEC ROOM - REC.	500	15A	29				30	20A	1,000	SHOWROOM 208 - BBH-2
LOUNGE 200 - BBH-1	1,000	15A	31				32	2P	1,000	
WAREHOUSE - UH-1 NORTH (2)	400	20A	33				34	15A	500	SHOWROOM 208 - REC.
WAREHOUSE - UH-1 SOUTH (2)	400	20A	35				36	15A	500	SHOWROOM 208 - REC.
ROOF - EF-2	500	15A	37				38	15A	550	ROOF - MUA-1
ROOF - EF-3	500	15A	39				40	15A	550	ROOF - MUA-1
GFI RECEPTACLES ON ROOF	500	20A	41				42	15A	-	SPARE
GFI RECEPTACLES ON ROOF	500	20A	43				44	15A	-	SPARE
SPARE	-	20A	45				46	15A	-	SPARE
SPARE	-	20A	47				48	15A	-	SPARE
SPARE	-	20A	49				50	15A	-	SPARE
-	-	-	51				52	-	-	-
-	-	-	53				54	-	-	-
-	-	-	55				56	-	-	-
-	-	-	57				58	-	-	-
-	-	-	59				60	-	-	-
-	-	-	61				62	-	-	-
-	-	-	63				64	-	-	-
-	-	-	65				66	-	-	-
-	-	-	67				68	-	-	-
-	-	-	69				70	-	-	-
-	-	-	71				72	-	-	-
-	-	-	73				74	-	-	-
-	-	-	75				76	-	-	-
-	-	-	77				78	-	-	-
-	-	-	79				80	-	-	-
-	-	-	81				82	-	-	-
-	-	-	83				84	-	-	-
POWER PER PHASE (W)				11,550	9,950	9,200	CONSIDERING DEMAND FACTOR OF 0.7, TOTAL DEMAND WOULD BE:			
TOTAL POWER (WATTS)					30,700				21,49 kW	
TOTAL AMP (A)					90				63 A	

NOTES:

- ELECTRICAL CONTRACTOR TO PROVIDE NEW PANELS ALONG WITH NEW CIRCUIT BREAKERS FOR NEW LOADS AS SHOWN IN THE PANEL SCHEDULES. PROVIDE GFI BREAKER(S) FOR THE INDICATED GFI LOADS.
- CONTRACTOR TO PROVIDE NEW UPDATED TYPEWRITTEN PANEL SCHEDULES FOR ALL PANELS IN THE SCOPE OF THIS PROJECT ONCE THE WORK IS COMPLETED.
- INDICATED CIRCUIT NUMBERS ARE FOR REFERENCE ONLY. ELECTRICAL CONTRACTOR TO BALANCE THE LOAD BETWEEN PHASES WITH MAXIMUM 10% DIFFERENCE. UPDATE THE PANEL SCHEDULE AND AS-BUILT DRAWINGS ACCORDINGLY.

NO	ISSUED FOR	DATE
1	50% REVIEW	2024-05-29
2	FINAL REVIEW	2024-07-08
3	PERMIT	2025-06-30

# FARHEATER ENGINEERING INC.

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 MARKHAM, ON L3R 5B4  
 CONTACT@FARHEATER.COM  
 WWW.FARHEATER.COM  
 TEL: 437-999-2424



STAMP:



**PROJECT NAME:**  
 WAREHOUSE AND OFFICE HEADQUARTERS

**PROJECT ADDRESS:**  
 45 BLOWERS CRES.  
 AJAX, ON, L1Z 0N4

**NORTH:**

**DRAWN BY:** A.A. **DATE:** 2024.05.23

**CHECKED BY:** F.M. **SCALE:** N.T.S

**DRAWING TITLE:**  
 PANEL SCHEDULES

**PROJECT NUMBER:** FH2024029 **DRAWING NUMBER:** E003

LIGHTING FIXTURE SCHEDULE						
TYPE	MANUFACTURER	MODEL	MOUNT	QTY	WATT	REMARKS
A	COOPER LIGHTING	GAW GALLEON AREA LUMINAIRE GAW-SAZ2-740-11-11M-B2-MS	STANDARD ARM MOUNT	2	120	LUMINAIRE/POLE ASSEMBLY CONSISTING OF A SINGLE (1) LED LUMINAIRE WITH A TYPE A1 DISTRIBUTION PATTERN C/W BACKLIGHT SHIELD, UNIVERSAL VOLTAGE WITH STANDARD ARM MOUNT, ON A 27"-Ø ROUND STEEL POLE WITH POLE BASE COVER INSTALLED ON A 36" HIGH CONCRETE BASE (DIAMETER AS REQUIRED). COLOUR OF FINISH OF POLE/HEAD TO ARCHITECT'S SELECTION. FIXTURE TO HAVE FLAT LENS AND BE FULL CUT OFF. PHOTOMETRIC MODEL IS BASED UPON A FIXTURE MOUNTING HEIGHT OF 9144mm A.F.S. AND AN ASSUMED LIGHT LOSS FACTOR OF 0.8.
B	COOPER LIGHTING	GAW GALLEON WALL LUMINAIRE GAW-SAZA-740-11-11M-B2	WALL MOUNT	1	66	SINGLE (1) LED WALL MOUNTED LUMINAIRES WITH A TYPE S14 DISTRIBUTION PATTERN, UNIVERSAL VOLTAGE WITH STANDARD WALL MOUNT. COLOUR FINISH OF FIXTURE TO ARCHITECT'S SELECTION. FIXTURE TO HAVE FLAT LENS AND BE FULL CUT OFF. PHOTOMETRIC MODEL IS BASED UPON A FIXTURE MOUNTING HEIGHT OF 6097mm A.F.S. AND AN ASSUMED LIGHT LOSS FACTOR OF 0.8.
C1/C2	COOPER LIGHTING	GAW GALLEON WALL LUMINAIRE GAW-SAZA-740-11-11M-B2	WALL MOUNT	3	66	SINGLE (1) LED WALL MOUNTED LUMINAIRES WITH A TYPE T3 DISTRIBUTION PATTERN, UNIVERSAL VOLTAGE WITH STANDARD WALL MOUNT. COLOUR FINISH OF FIXTURE TO ARCHITECT'S SELECTION. FIXTURE TO HAVE FLAT LENS AND BE FULL CUT OFF. PHOTOMETRIC MODEL IS BASED UPON A FIXTURE MOUNTING HEIGHT OF 6097mm A.F.S. FOR TYPE "C1" AND 7317mm A.F.S. FOR TYPE "C2" WITH AN ASSUMED LIGHT LOSS FACTOR OF 0.8.
D	COOPER LIGHTING	GAW GALLEON WALL LUMINAIRE GAW-SAZA-740-11-11M-B2	WALL MOUNT	3	66	SINGLE (1) LED WALL MOUNTED LUMINAIRES WITH A TYPE T2 DISTRIBUTION PATTERN, UNIVERSAL VOLTAGE WITH STANDARD WALL MOUNT. COLOUR FINISH OF FIXTURE TO ARCHITECT'S SELECTION. FIXTURE TO HAVE FLAT LENS AND BE FULL CUT OFF. PHOTOMETRIC MODEL IS BASED UPON A FIXTURE MOUNTING HEIGHT OF 6097mm A.F.S. AND AN ASSUMED LIGHT LOSS FACTOR OF 0.8.
E	COOPER LIGHTING	GAW GALLEON WALL LUMINAIRE GAW-SAZA-740-11-11M-B2	WALL MOUNT	1	34	SINGLE (1) LED WALL MOUNTED LUMINAIRES WITH A TYPE S14 DISTRIBUTION PATTERN, UNIVERSAL VOLTAGE WITH STANDARD WALL MOUNT. COLOUR FINISH OF FIXTURE TO ARCHITECT'S SELECTION. FIXTURE TO HAVE FLAT LENS AND BE FULL CUT OFF. PHOTOMETRIC MODEL IS BASED UPON A FIXTURE MOUNTING HEIGHT OF 2750mm A.F.S. AND AN ASSUMED LIGHT LOSS FACTOR OF 0.8.
F	COOPER LIGHTING	HALO C18 INTEGRATED 800K DOWNLIGHT C800P1818M C/W HURDFIX FRAME	RECESSED CEILING MOUNT	6	9.2	6" RECESSED CEILING MOUNTED DOWNLIGHT, 4000K, 120V OUTDOOR USE DRIVER, WHITE FINISH, WET LOCATION LISTED. PHOTOMETRIC MODEL IS BASED UPON A FIXTURE MOUNTING HEIGHT OF 2750mm A.F.S. AND AN ASSUMED LIGHT LOSS FACTOR OF 0.8.

**NOTES:**

- EXTERIOR SITE PLAN LIGHTING DESIGN IS PROVIDED BY OTHERS. INDICATED EXTERIOR LUMINAIRE SCHEDULE IS FOR REFERENCE ONLY. COORDINATE WITH THE CLIENT AND ARCHITECT FOR THE EXACT LUMINAIRES AND REQUIREMENTS. ELECTRICAL CONTRACTOR TO COORDINATE WITH THE ARCHITECT FOR THE EXACT PRODUCT CATALOG NUMBER, INSTALLATION DETAILS AND FINISHES PRIOR TO ORDERING.
- ELECTRICAL CONTRACTOR TO VERIFY THE DIMENSIONS OF THE EQUIPMENT AND EXACT LOCATIONS ON SITE PRIOR TO ROUGHINS.

**1 E004 EXTERIOR LUMINAIRE SCHEDULE**

LUMINAIRE SCHEDULE - LIGHTING FIXTURES						
TYPE	CHARACTERISTICS			VOLTAGE	DESCRIPTION	MANUFACTURER / CAT#
	QTY	WATTAGE	LUMEN			
L1	7	20W	1500	120V	4" DIAMETER ROUND SHALLOW LED RECESSED DOWNLIGHT, CRI 80+, 1500 LUMENS, 3500K, DIMMABLE, MEDIUM WIDE OPEN REFLECTOR BLACK C/W MOUNTING ACCESSORIES	ACUTY BRANDS - GOTHAM ARCHITECTURAL, CAT# IV04S-D-15LM-35K-80CRI-MWD-MINI-ZT-P-BR OR APPROVED EQUAL (TBC BY ARCHITECT)
L1A	10	10W	700	120V	4" DIAMETER ROUND SHALLOW LED RECESSED DOWNLIGHT, CRI 80+, 700 LUMENS, 3500K, DIMMABLE, MEDIUM WIDE OPEN REFLECTOR BLACK C/W MOUNTING ACCESSORIES	ACUTY BRANDS - GOTHAM ARCHITECTURAL, CAT# IV04S-D-07LM-35K-80CRI-MWD-MINI-ZT-P-BR OR APPROVED EQUAL (TBC BY ARCHITECT)
L2	6	40W	4800	120V	LINEAR 4" LED WRAPAROUND LIGHTING FIXTURE, CRI 80+, 4800 LUMENS, 3500K, SQUARE SMOOTH LENS C/W CHAIN AND MOUNTING ACCESSORIES	ACUTY BRANDS - LITHONIA LIGHTING, CAT# BLWP4-48L-SDSM-LP835 OR APPROVED EQUAL (TBC BY ARCHITECT)
L3	5	45W	5000	120V	LINEAR 4" LED STRIP LIGHTING FIXTURE, CRI 80+, 5000 LUMENS (SWITCHABLE), 3500K, SWITCHABLE WHITE C/W CHAIN AND MOUNTING ACCESSORIES	ACUTY BRANDS - LITHONIA LIGHTING, CAT# CSS-L48-AL03(5000)-SWW3(35K)-80CRI OR APPROVED EQUAL (TBC BY ARCHITECT)
L4	66	40W	4800	120V	2x4" LED LIGHTING FIXTURE, CRI 80+, 4800 LUMENS, 3500K, DIMMABLE, CURVED SMOOTH C/W CHAIN AND MOUNTING ACCESSORIES	ACUTY BRANDS - LITHONIA LIGHTING, CAT# 2BLT4-48L-ADSMT-GZ1-LP835 OR APPROVED EQUAL (TBC BY ARCHITECT)
L4A	8	25W	3000	120V	2x4" LED LIGHTING FIXTURE, CRI 80+, 3000 LUMENS, 3500K, DIMMABLE, CURVED SMOOTH C/W CHAIN AND MOUNTING ACCESSORIES	ACUTY BRANDS - LITHONIA LIGHTING, CAT# 2BLT4-30L-ADSMT-GZ1-LP835 OR APPROVED EQUAL (TBC BY ARCHITECT)
L5	62	110W	18000	120V	HIGH BAY LED 24" LIGHTING FIXTURE, CRI 80+, 18000 LUMENS, 3500K, DIMMABLE, ACRYLIC CLEAR LENS, C/W CHAIN AND MOUNTING ACCESSORIES	ACUTY BRANDS - LITHONIA LIGHTING, CAT# IBC-1800LM-SEF-ACL-GND-GZ10-35K-80CRI OR APPROVED EQUAL (TBC BY ARCHITECT)

**NOTES:**

- INDICATED QUANTITIES ARE FOR REFERENCE ONLY. CONTRACTOR IS THE SOLE RESPONSIBLE TO REVIEW THE PLANS IN DETAIL AND CONFIRM TOTAL QUANTITY OF FIXTURES AND INCLUDE THE COST OF ALL IN THE BID PRICE.
- CONTRACTOR TO COORDINATE WITH THE ARCHITECT FOR THE EXACT PRODUCT CATALOG NUMBER AND FINISHES PRIOR TO ORDERING.
- CONTRACTOR TO CONFIRM ON SITE THE CEILING TYPE PRIOR TO ORDERING.

**2 E004 INTERIOR LUMINAIRE SCHEDULE (TO BE UPDATED IN NEXT SUBMISSION)**

**EQUIPMENT PACKAGE**

BASIS OF DESIGN MANUFACTURER: CAMDEN DOOR CONTROLS SPEC# "CX-WC11AFM-PS" OR APPROVED EQUAL.

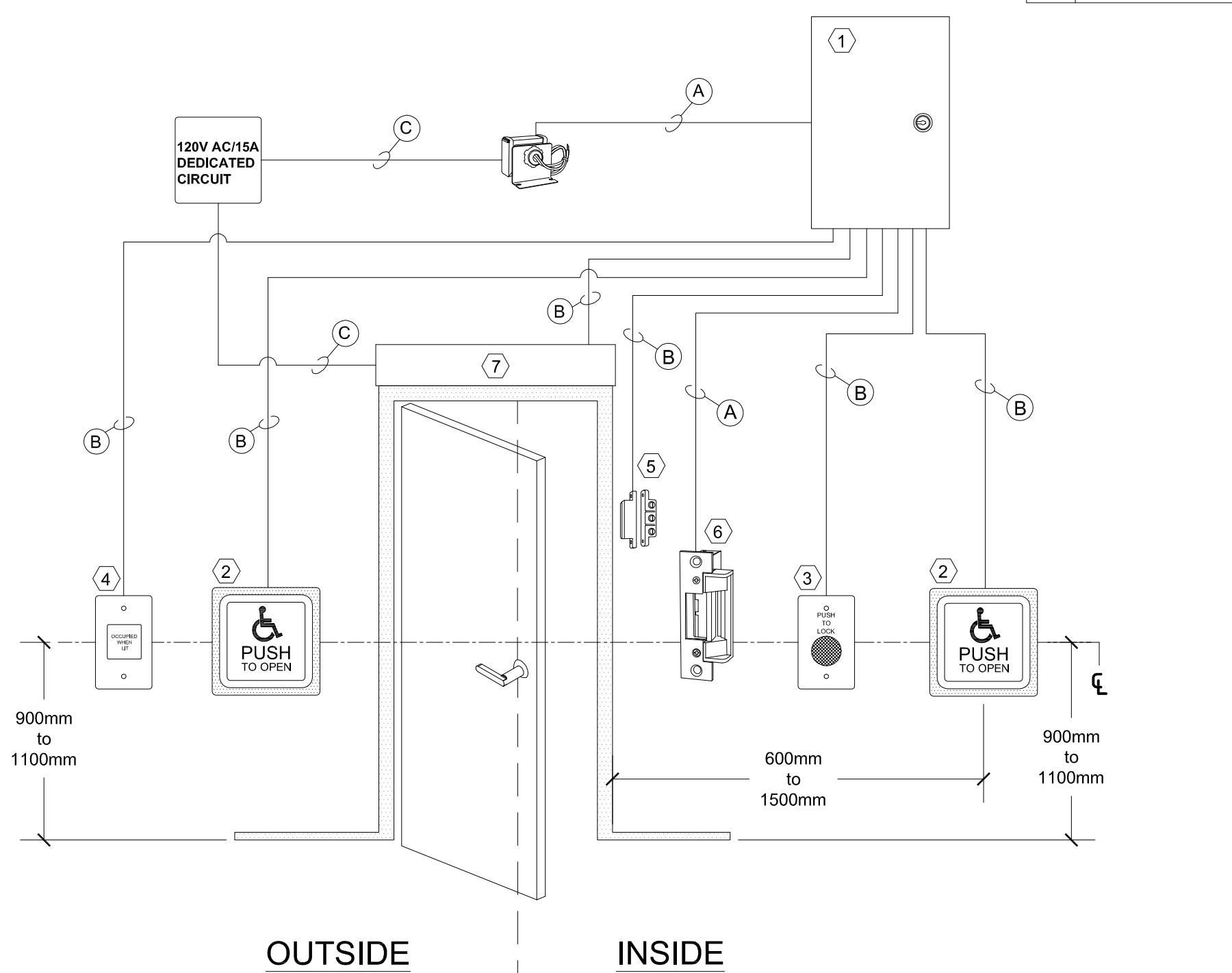
- CX-33PS (60-40E033) - POWER SUPPLY CABINET WITH A CX-TR3-4024 - 40VA, 24VAC TRANSFORMER
- CM-454 - 4 1/2" SQUARE ACTIVATION SWITCH
- CM-400B - "PUSH TO LOCK" MUSHROOM PUSH BUTTON
- CM-4F500 - "OCCUPIED WHEN LIT" LED ANNUNCIATOR
- CX-MDA - MAGNETIC DOOR CONTACT
- CX-ED2079 - GRADE 2 UNIVERSAL ELECTRIC STRIKE
- DOOR OPERATOR

**SYSTEM OPERATION**

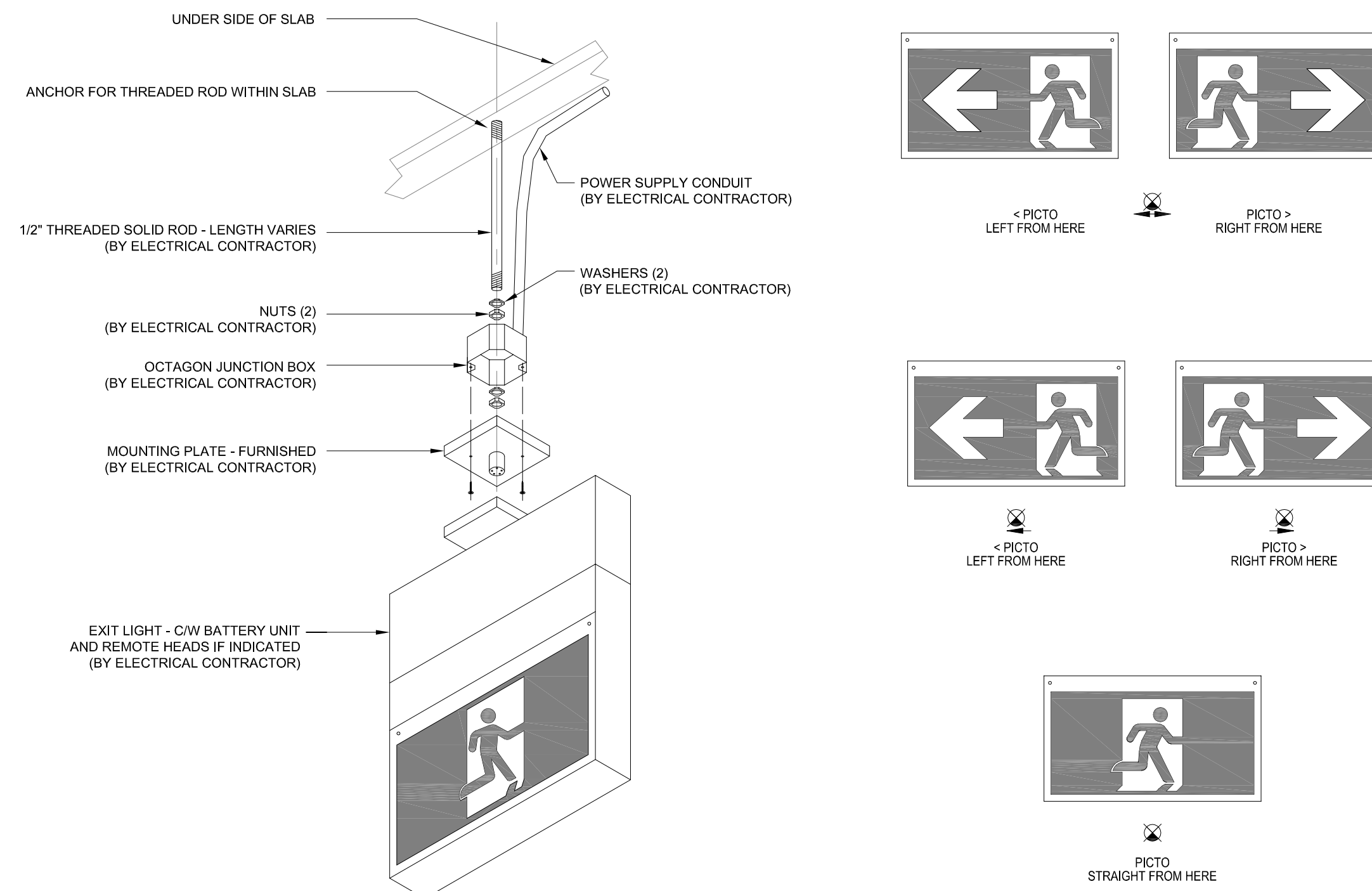
- THE DOOR IS NORMALLY CLOSED AND EITHER LOCKED OR UNLOCKED.
- PRESSING THE EXTERIOR PUSH PLATE UNLOCKS AND OPENS THE DOOR.
- ONCE INSIDE AND THE DOOR IS CLOSED, PRESSING THE "PUSH TO LOCK" MUSHROOM PUSHBUTTON, LOCKS THE DOOR, DISABLES THE EXTERIOR "PUSH TO OPEN" PUSH PLATE SWITCH AND ILLUMINATES THE EXTERIOR ANNUNCIATOR TO SHOW "OCCUPIED WHEN LIT".
- PRESSING THE INTERIOR PUSH PLATE SWITCH UNLOCKS THE DOOR, DEACTIVATES THE ILLUMINATED ANNUNCIATOR AND RESETS THE SYSTEM.
- IF THE DOOR IS OPENED MANUALLY TO EXIT THE RESTROOM, THE OVERHEAD MAGNETIC CONTACT SWITCH RESETS THE SYSTEM.

**NOTES**

- PUSH SWITCHES FOR THE POWER DOOR OPERATOR (ITEM 2) SHOULD BE MOUNTED WITH ITS CENTRE LOCATED NOT LESS THAN 900MM AND NOT MORE THAN 1100MM ABOVE THE FINISHED FLOOR AND IS LOCATED NOT LESS THAN 600MM AND NOT MORE THAN 1500MM BEYOND THE DOOR SWING WHERE DOOR OPENS TOWARDS THE CONTROL (ITEM 2).
- ELECTRICAL CONTRACTOR TO PROVIDE STRANDED, MULTI-COLOUR WIRING AND COORDINATE WITH MANUFACTURER FOR EXACT REQUIREMENTS.
- ELECTRICAL CONTRACTOR TO PROVIDE DEDICATED 120V/15A CIRCUIT FROM THE PANEL.
- ELECTRICAL CONTRACTOR TO COORDINATE THE ROUGH-INS FOR THE DOOR PUSH BUTTONS AND DOOR LOCK BUTTONS WITH INTERIOR DESIGNER/ARCHITECT.
- ALL DOOR CONTROL DEVICES TO BE SUPPLIED BY OTHERS. INSTALLATION OF DEVICES AND SUPPLY AND INSTALL OF WIRING BY ELECTRICAL CONTRACTOR.
- FINAL CONNECTION OF DEVICES SHALL BE COMMISSIONED BY THE AUTHORIZED MANUFACTURER TECHNICIAN. ALL COSTS SHALL BE INCLUDED IN THE BID PRICE.



**3 E004 BARRIER FREE / UNIVERSAL WASHROOM DOOR CONTROL SYSTEM DETAILS**



**4 E004 GREEN RUNNING MAN TYPE EXIT SIGN - SURFACE MOUNTED AND PENDANT MOUNTED DETAIL**

NO	ISSUED FOR	DATE
1	50% REVIEW	2024-05-29
2	FINAL REVIEW	2024-07-08
3	PERMIT	2025-06-30

# FARHEATER ENGINEERING INC.

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MARKHAM, ON L3R 5B4  
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TEL: 437-999-2424



**STAMP:**



**PROJECT NAME:**  
WAREHOUSE AND OFFICE HEADQUARTERS

**PROJECT ADDRESS:**  
45 BLOWERS CRES.  
AJAX, ON, L1Z 0N4

**NORTH:**

**DRAWN BY:** A.A **DATE:** 2024.05.23

**CHECKED BY:** F.M **SCALE:** N.T.S

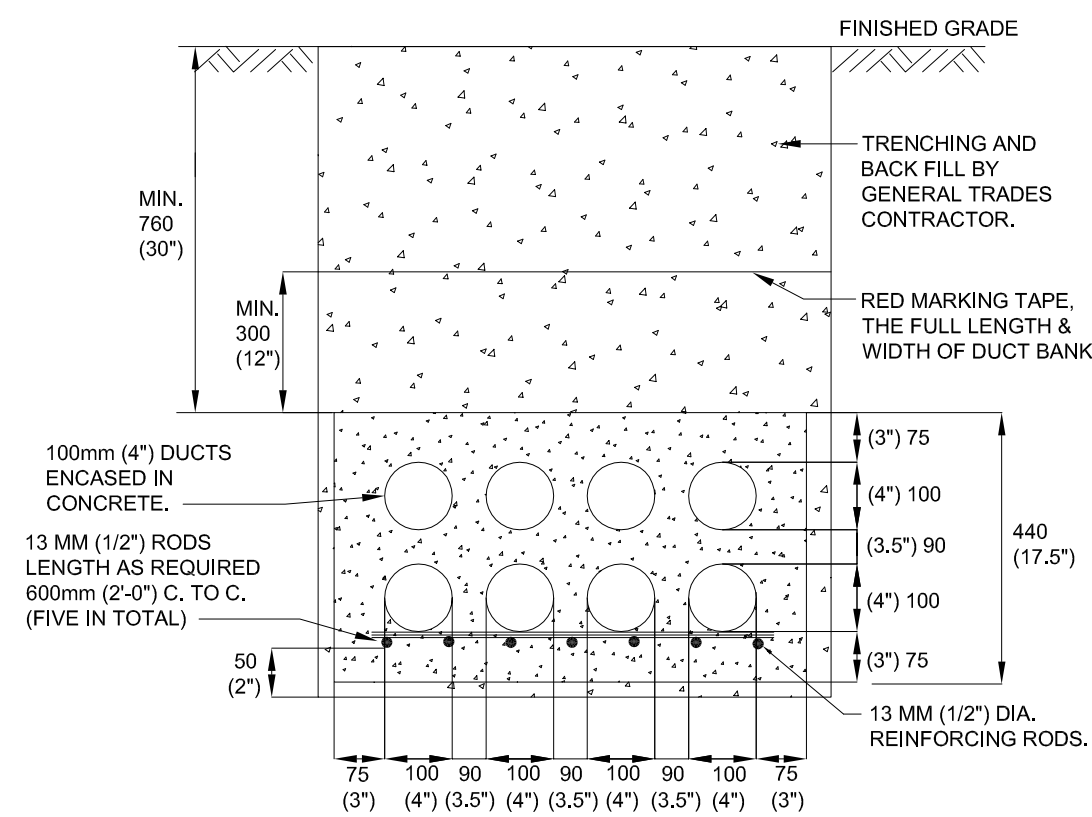
**DRAWING TITLE:**

DETAILS SHEET 1

**PROJECT NUMBER:** FH2024029 **DRAWING NUMBER:** E004

NOTES:

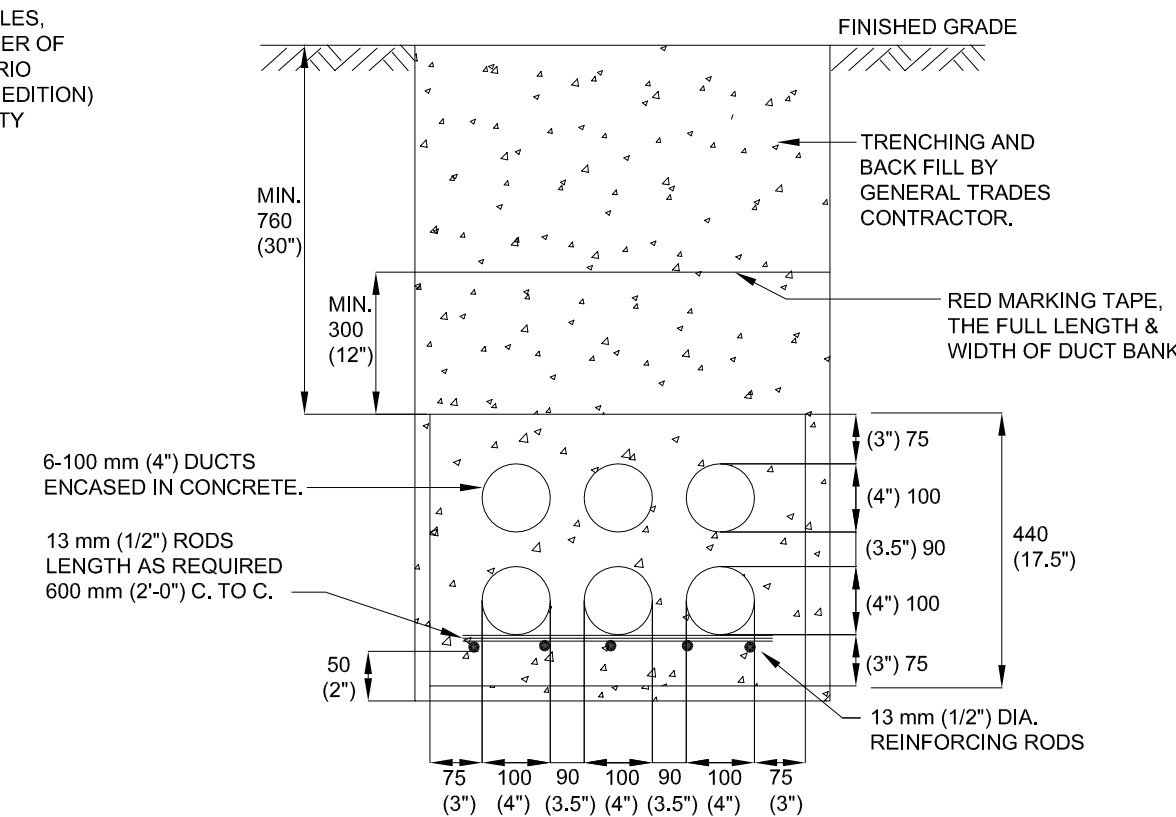
- CONTRACTOR TO SUPPLY AND INSTALL DUCT BANKS AS FOLLOWS (EXACT CONSTRUCTION DETAILS SHALL CONFORM TO LOCAL UTILITIES REQUIREMENTS AND DETAILS):
  - HIGH VOLTAGE (H.V.): DUCTS TO BE INSTALLED AS PER HYDRO STANDARD DRAWINGS. EXACT ROUTE TO BE VERIFIED ON SITE BY CONTRACTOR AND COORDINATED WITH HYDRO FOR APPROVAL AND EXACT LOCATION OF TERMINATION POINT.
  - LOW VOLTAGE (L.V.): SECONDARY CABLES, MECHANICAL PROTECTION, AND NUMBER OF SPARE CONDUITS/DUCT AS PER ONTARIO ELECTRICAL SAFETY CODE (CURRENT EDITION) AND INSPECTED BY ELECTRICAL SAFETY AUTHORITY (ESA).



1 E005 PRIMARY DUCT BANK DETAIL

NOTES:

- CONTRACTOR TO SUPPLY AND INSTALL DUCT BANKS AS FOLLOWS (EXACT CONSTRUCTION DETAILS SHALL CONFORM TO LOCAL UTILITIES REQUIREMENTS AND DETAILS):
  - HIGH VOLTAGE (H.V.): DUCTS TO BE INSTALLED AS PER HYDRO STANDARD DRAWINGS. EXACT ROUTE TO BE VERIFIED ON SITE BY CONTRACTOR AND COORDINATED WITH HYDRO FOR APPROVAL AND EXACT LOCATION OF TERMINATION POINT.
  - LOW VOLTAGE (L.V.): SECONDARY CABLES, MECHANICAL PROTECTION, AND NUMBER OF SPARE CONDUITS/DUCT AS PER ONTARIO ELECTRICAL SAFETY CODE (CURRENT EDITION) AND INSPECTED BY ELECTRICAL SAFETY AUTHORITY (ESA).

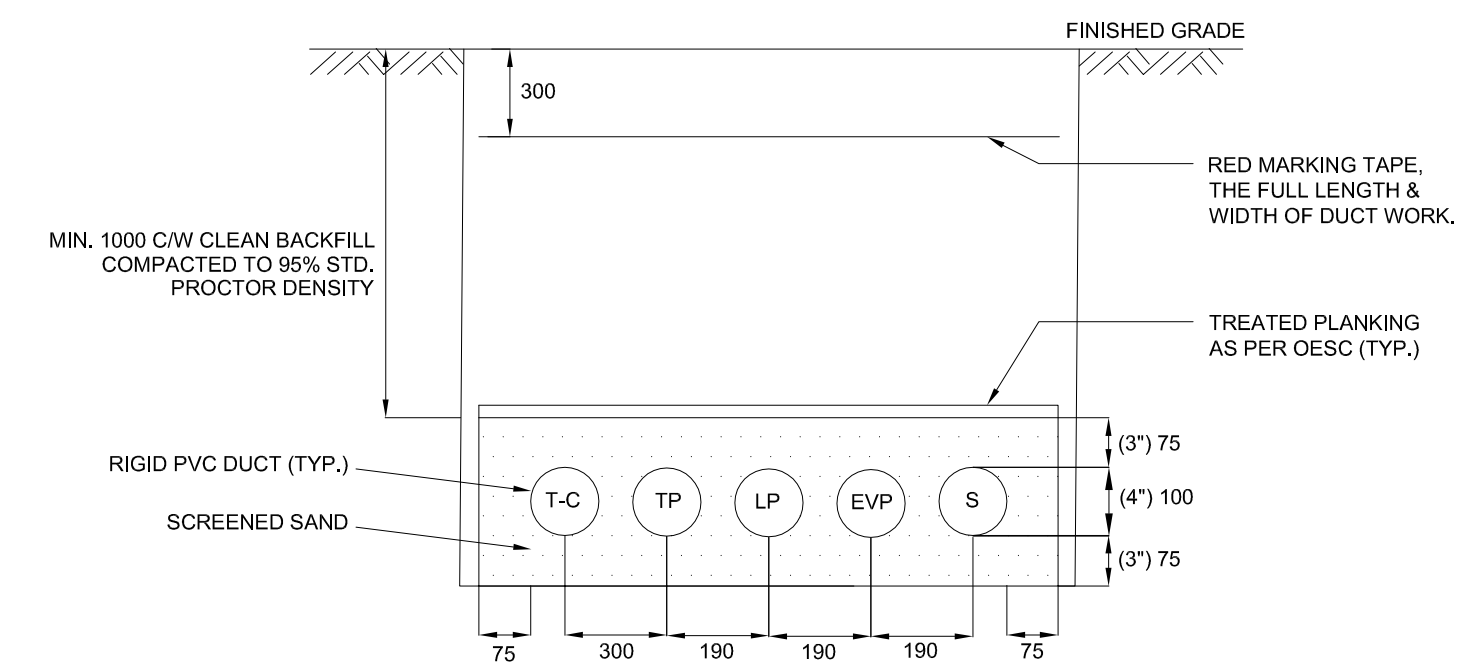


2 E005 SECONDARY DUCT BANK DETAIL

NOTES:

- CONSTRUCTION DETAILS SHALL CONFORM TO LOCAL UTILITIES AND OESC REQUIREMENTS AND DETAILS.
- UNUSED CABLE OPENINGS MUST BE CAPPED AND SEALED ON BOTH SIDES.
- THIS DETAIL IS NOT REFERENCING ANY SPECIFIC CROSS SECTION DETAIL FOR UIG INSTALLATION. THIS DETAIL REPRESENTS A GENERAL ARRANGEMENT FOR CONDUIT DEPTH/SPACING IN VICINITY OF VARIOUS SYSTEMS AND POWER DESIGNATED PVC PIPES WHICH ARE LAID AROUND THE SITE AND COULD BE EITHER DIRECT BURIED IN THE GROUND, BE COVERED/EMBEDDED BELOW LAYER OF CONCRETE OR ASPHALT.

T-C - TELECOMMUNICATION / CONTROL WIRING  
 TP - TELECOMMUNICATION POWER  
 LP - LIGHTING POWER  
 EVP - ELECTRIC VEHICLE CHARGERS POWER  
 S - SPARE



3 E005 DIRECT BURIED DUCT WORK DETAIL

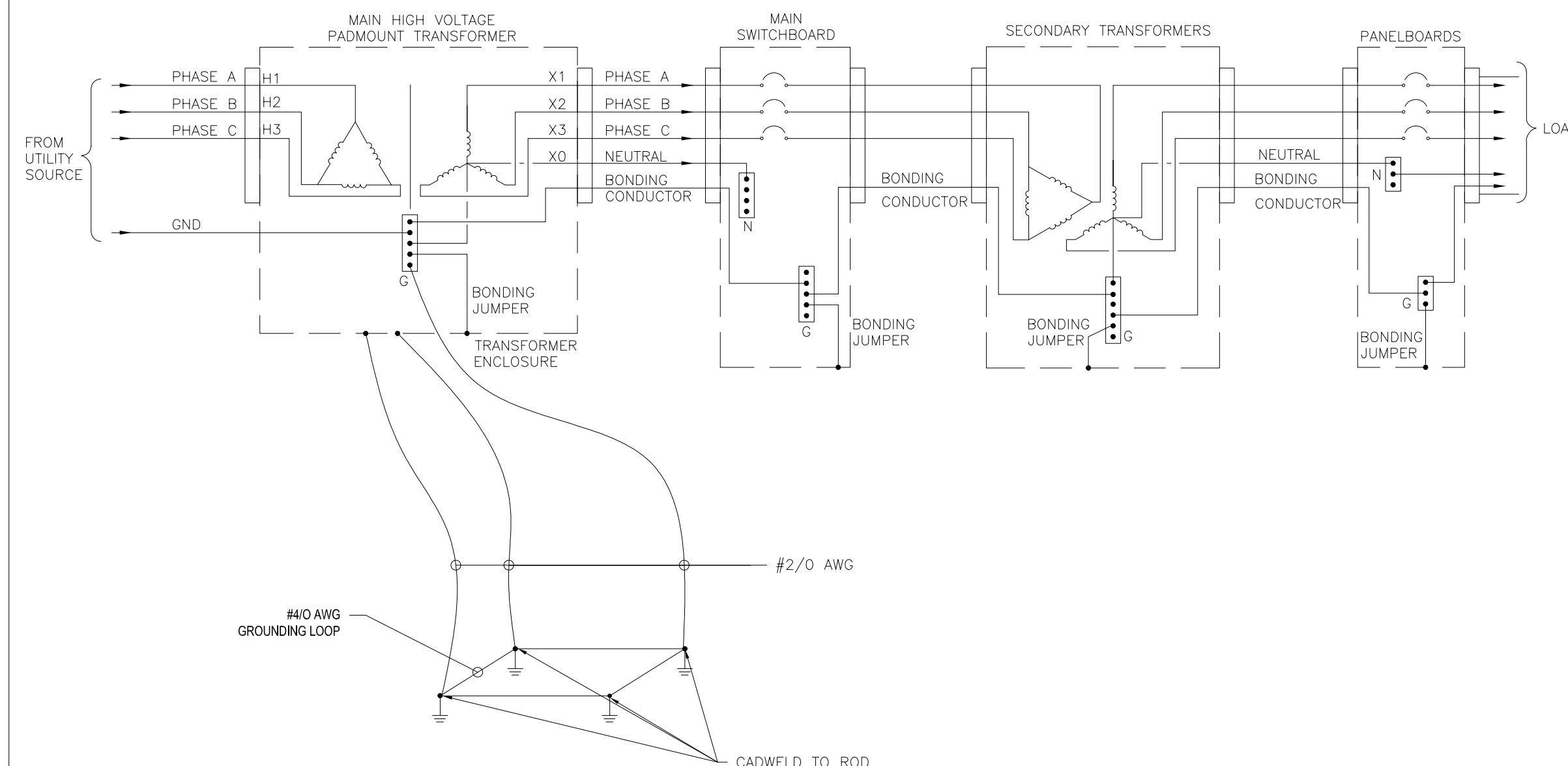
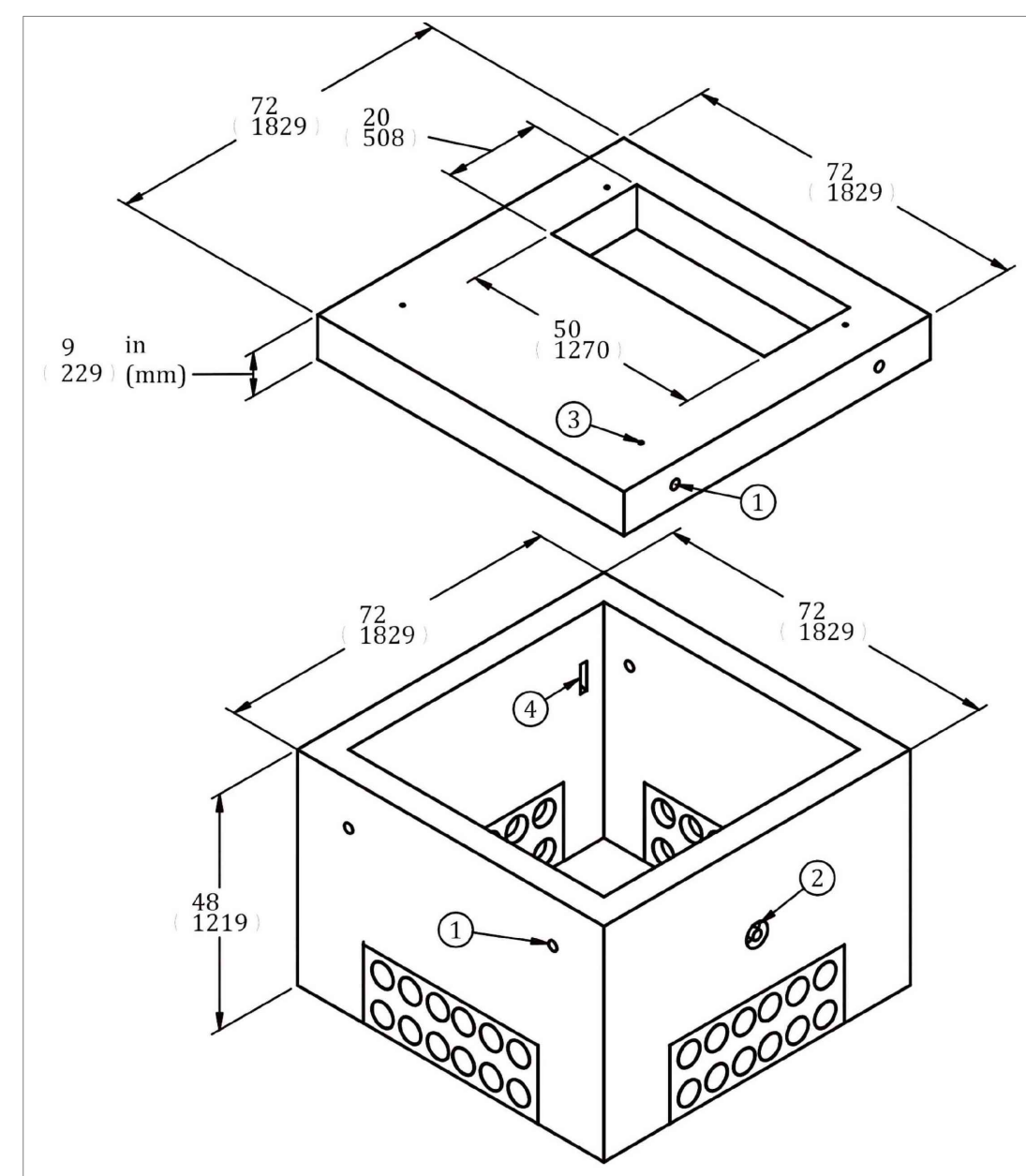
NOTES:

- TRANSFORMER LOCATION: CONTRACTOR TO PROVIDE REQUIRED CLEARANCES AS PER HYDRO REQUIREMENTS AND ONTARIO ELECTRICAL SAFETY CODE. COORDINATE WITH HYDRO FOR APPROVAL. TRANSFORMER SHALL BE ACCESSIBLE TO HYDRO VEHICLES FROM PARKING AREA, DRIVEWAY OR HARD SURFACE.
- SECONDARY CABLES: SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AS INDICATED IN SINGLE LINE DIAGRAM.
- GROUNDING: CONTRACTOR TO SUPPLY AND INSTALL FOUR (4) COPPER GROUND RODS COMPLETE WITH COPPER TAP WEDGE CONNECTORS AND DIRECT BURIED PERIMETER GROUND AS PER HYDRO STANDARD. ALLOW SUFFICIENT SLACK FOR GROUND CONDUCTOR TO REACH TRANSFORMER GROUNDING BUS BAR. THE GROUND CONDUCTOR SHALL ENTER THE FOUNDATION THROUGH A DUCT FACE (DO NOT USE LIFTING HOLES).
- INSPECTION: CONTRACTOR TO SCHEDULE CONSTRUCTION AND POURING INSPECTIONS WITH HYDRO INSPECTOR ASSIGNED TO THE PROJECT 48 HOURS PRIOR TO THE START OF ANY ON-SITE CIVIL WORK.
- FOUNDATION: PRECAST UNIT FOR TRANSFORMERS TO BE INSTALLED BY CONTRACTOR AS PER HYDRO STANDARDS DRAWING.
- THE CONTRACTOR MUST FOLLOW DUCT DRAINAGE INSTALLATION PROCEDURE. COORDINATE WITH HYDRO FOR THE EXACT REQUIREMENTS.
- DRILL 4 DRAINAGE HOLES IN BOTTOM OF EACH DUCT. 1.3cm DIAMETER AT 5cm CENTRES. FILL TO TOP OF DUCTS WITH 1.3cm (3/4") CLEAR STONES. TOP OFF WITH A LAYER OF POLY-FILM OR STYROFOAM, ETC., AND A FINAL LAYER OF CONCRETE. COORDINATE WITH HYDRO FOR THE EXACT REQUIREMENTS.
- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED.
- AREA INSIDE OF THE CLEARANCE LINE (ZONE) TO REMAIN CLEAR OF ALL SHRUBS AND TREES. WHEN THE APPARATUS IS POSITIONED WITHIN THIS ZONE, THE ZONE AND ITS ABOVE MUST REMAIN CLEAR OF INCLUDING BUT NOT LIMITED TO BUILDINGS, STRUCTURES, FENCES OR OBSTRUCTIONS INCLUDING ANY LANDSCAPING FEATURES.
- NUMBER OF GUARD POSTS AND LOCATION ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS AND NUMBERS TO BE DETERMINED ON SITE BY HYDRO. ELECTRICAL CONTRACTOR TO COORDINATE WITH HYDRO AND INCLUDE THIS COST IN THE BID PRICE.
- CONTRACTOR TO COORDINATE WITH HYDRO FOR INSPECTION PRIOR TO ENERGIZATION OF THE TRANSFORMER.
- COORDINATE WITH HYDRO FOR THE REQUIREMENTS OF THE HYDRO TRANSFORMER FOUNDATION AS PER HYDRO STANDARD.
- DELIVERY TO BE MADE BY CONTRACTOR'S CRANE-EQUIPPED TRUCKS. EXCAVATION MUST BE READY, SAFE AND ACCESSIBLE FOR UNLOADING FROM THE REAR OF THE TRUCK. CONTRACTOR TO ENSURE THE REQUIRED MINIMUM OVERHEAD CLEARANCE OF 18FT (5.5 METERS) IS PROVIDED.
- ALL UNITS MUST BE HANDLED WITH PROPER LIFTING EQUIPMENT (I.E SPREADER BAR). MANUFACTURER IS RESPONSIBLE FOR DESIGN AND P.ENG CERTIFICATION OF THE LIFTING SYSTEM FOR FOUNDATION AND LID. MANUFACTURER MUST PROVIDE THIS CERTIFICATION TO CONSULTANT AND HYDRO PRIOR TO INSTALLATION.
- CONCRETE 32MPa (4500 PSI), MINIMUM STRENGTH, 6-8% AIR-ENTRAIMENT.
- STEEL REINFORCING WITH WELDED WIRE MESH OR REINFORCING BARS MUST BE DESIGNED TO SUSTAIN THE TRANSFORMER WEIGHT. THE STEEL REINFORCING MUST COMPLY WITH CSA STANDARD - CAN/CSA A23.1/A23.2.
- 48 CABLE ENTRY OPENINGS WITH HYDRO APPROVED PVC SEALS FOR 100mm (4") INTERNAL DIAMETER HOLES AT OPPOSITE ENDS OF FOUNDATION TO BE PROVIDED AS SHOWN. CABLE ENTRY OPENINGS 4-3/4" PVC SEALS.
- APPROVED MANUFACTURERS (TO BE CONFIRMED WITH HYDRO):
  - BROOKLIN CONCRETE PRODUCTS (ARMEC), CAT#: BCP-114P C/W BCP 114T9P
  - UTILICON, CAT#: UA7272P2

DRAWING NOTES:

- FOUR (4) 2" TAPERED LIFTING HOLES
- TWO (2) 4 TON SWIFTLIFT ANCHORS
- FOUR (4) 1/2" GALV THREADED INSERTS
- FOUR (4) LIFTING POINT / PULLING EYE

4 E005 TRANSFORMER PRE-CAST CONCRETE PAD FOUNDATION DETAIL



NOTES:

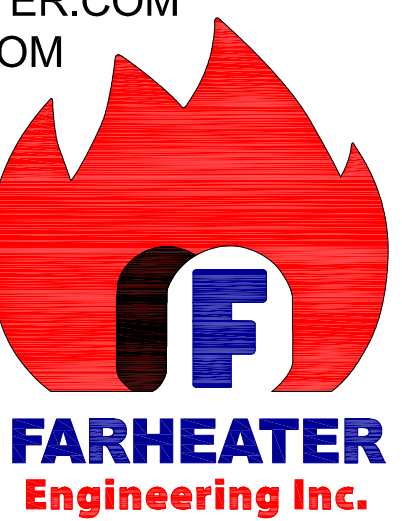
- ALL CONNECTIONS SHALL BE DOUBLE HOLE LONG BARREL COMPRESSION LUGS WITH VIEWING PORTS UNLESS OTHERWISE NOTED.
- BONDING CONDUCTORS AND JUMPERS ARE SIZED AS PER TABLE 16A AND 16B - ONTARIO ELECTRICAL SAFETY CODE (OESC). GROUNDING CONDUCTORS TO BE MINIMUM #6 AWG UNLESS OTHERWISE NOTED.
- GROUNDING CONDUCTORS TO BE COPPER.
- GROUNDING RISER IS DIAGRAMMATIC. REFER TO SINGLE LINE DIAGRAM AND FLOOR PLANS FOR QUANTITY AND LOCATION OF DISTRIBUTION EQUIPMENT. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO SUPPLY AND INSTALL ALL REQUIRED GROUNDING AND BONDING EQUIPMENT AND WIRING AS INDICATED ABOVE TO COMPLETE THE WORK AND MEET ONTARIO ELECTRICAL SAFETY CODE REQUIREMENTS.

5 E005 GROUNDING RISER DIAGRAM

NO	ISSUED FOR	DATE
1	50% REVIEW	2024-05-29
2	FINAL REVIEW	2024-07-08
3	PERMIT	2025-06-30

# FARHEATER ENGINEERING INC.

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 MARKHAM, ON L3R 5B4  
 CONTACT@FARHEATER.COM  
 WWW.FARHEATER.COM  
 TEL: 437-999-2424



STAMP:



PROJECT NAME:  
**WAREHOUSE AND OFFICE HEADQUARTERS**

PROJECT ADDRESS:  
 45 BLOWERS CRES.  
 AJAX, ON, L1Z 0N4

NORTH:

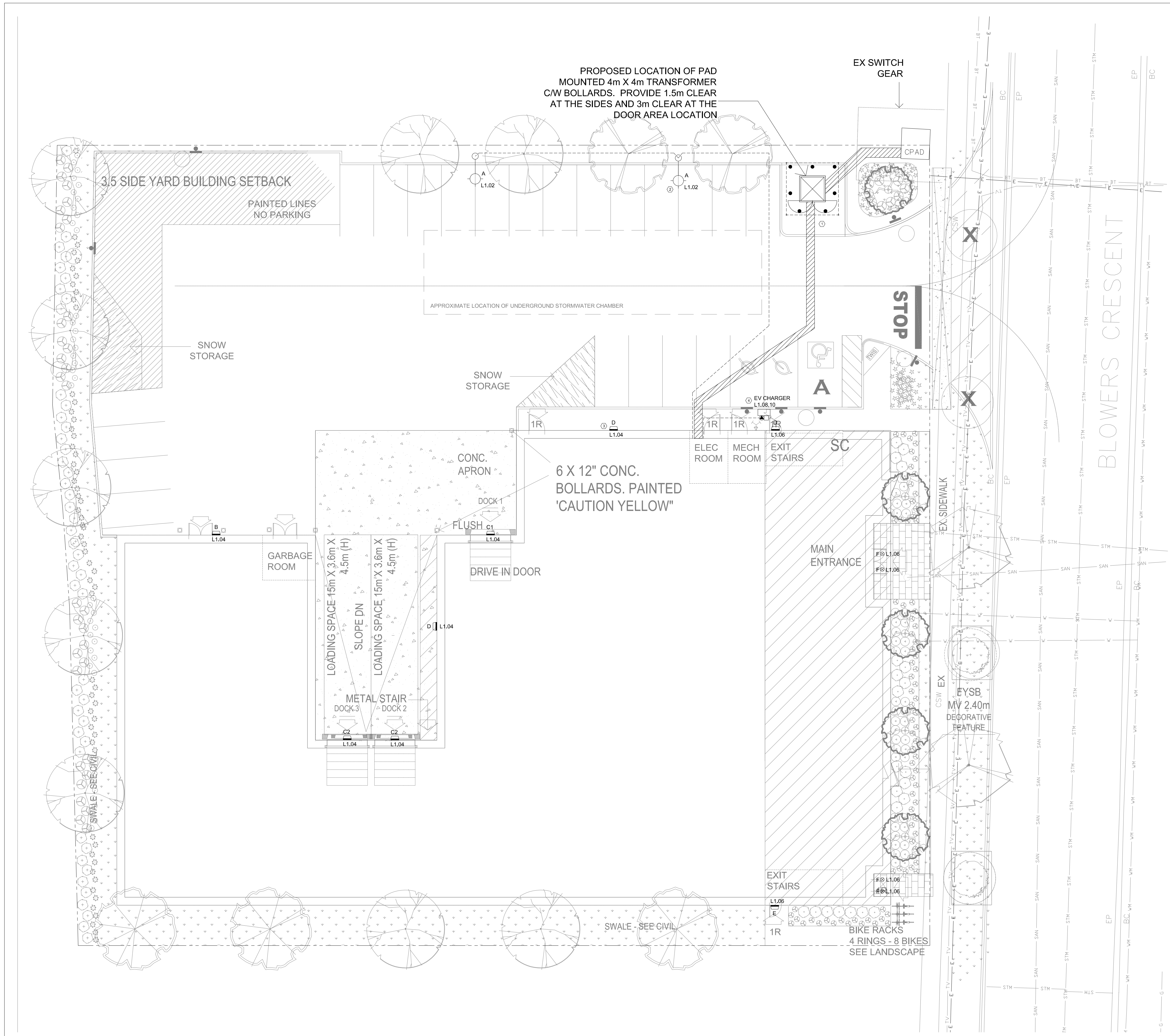
DRAWN BY: A.A DATE: 2024.05.23

CHECKED BY: F.M SCALE: N.T.S

DRAWING TITLE:

DETAILS SHEET 2

PROJECT NUMBER: FH2024029 DRAWING NUMBER: E005



- GENERAL NOTES**
- ALL GENERAL NOTES INDICATED IN DRAWING E000 ARE APPLICABLE TO THIS DRAWING. CONTRACTOR IS RESPONSIBLE TO REVIEW THE INDICATED GENERAL NOTES AND ENSURE THAT ALL NOTES ARE FOLLOWED PROPERLY.
  - VERIFY EXACT POWER REQUIREMENTS OF MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR AND MANUFACTURER PRIOR TO ROUGH-INS. REVIEW THE MECHANICAL SHOP DRAWINGS FOR MANUFACTURERS ELECTRICAL DATA AND INSTALLATION REQUIREMENTS. ADVISE CONSULTANT OF ANY DISCREPANCIES.
  - PROVIDE NEW FEEDERS, DISCONNECT SWITCH(ES) AND FUSE(S) / CIRCUIT BREAKER(S) FOR NEW EQUIPMENT AS INDICATED. COORDINATE EXACT LOCATION OF ALL NEW AND RELOCATED EQUIPMENT WITH MECHANICAL CONTRACTOR AND ARCHITECT.
  - PROVIDE SEPARATE NEUTRAL WIRE FOR EACH DEDICATED CIRCUIT.
  - THE ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL SUITABLE NEW LABELS ON ALL NEW ELECTRICAL EQUIPMENT. LABELS TO INCLUDE BOTH PANEL AND CIRCUIT DESIGNATION. REVIEW LABEL SIZE AND TYPE WITH OWNER AND CONSULTANT PRIOR TO INSTALLATION. INSTALL TYPE-WRITTEN PANEL DIRECTORY FOR NEW PANELS AND PROVIDE UPDATED TYPE-WRITTEN PANEL DIRECTORY FOR EXISTING PANELS USED IN THE SCOPE OF THIS PROJECT.
  - ENSURE THAT ALL OUTLETS ARE ACTIVE UPON COMPLETION OF THE PROJECT.
  - COORDINATE WITH THE ARCHITECT FOR THE EXACT LOCATION AND HEIGHT OF RECEPTACLES. OUTLETS TO BE GANGED WHEREVER POSSIBLE WITH A MINIMUM SPACING BETWEEN COVER PLATES.
  - ELECTRICAL CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ELECTRICAL CONNECTIONS FOR ANY EQUIPMENT MEET ALL EQUIPMENT SPECIFICATIONS AND CODE REQUIREMENTS.
  - GENERAL CONTRACTOR IS RESPONSIBLE FOR MAKING GOOD ANY SURFACES OR FINISHES DAMAGED AS A RESULT OF ELECTRICAL ALTERATIONS. COORDINATE WITH GENERAL CONTRACTOR FOR THE REQUIREMENTS.
  - ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT & PULL STRINGS FOR ALL DATA/VOICE OUTLETS AS INDICATED ON THE PLAN.
  - ALL DATA/VOICE CABLES TO BE CATEGORY 6, UNLESS OTHERWISE NOTED.
  - ALL DIMENSIONS TO BE VERIFIED ON SITE BY ELECTRICAL CONTRACTOR BEFORE ANY WORK IS BEGUN. EXACT LOCATION AND HEIGHT OF DEVICES TO BE COORDINATED WITH ARCHITECT AND ARCHITECTURAL LAYOUTS PRIOR TO ROUGH-INS.
  - ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ROUGHINS FOR DOOR HARDWARE SUCH AS ELECTRIC STRIKES, CARD READERS, ETC. DOOR HARDWARE CONTRACTOR TO PROVIDE DEVICES AND INSTALLATION.
  - ELECTRICAL CONTRACTOR TO PROVIDE POWER CONNECTION TO HOLD OPEN DEVICES AND FIRE ALARM RELAYS TO DISCONNECT POWER TO THE HOLD OPEN DEVICES IN THE EVENT OF A FIRE ALARM, RESULTING IN CLOSURE OF DOORS.

- DRAWING NOTES (CODED #)**
- REFER TO DETAIL 4/E005 FOR TRANSFORMER PRE-CAST CONCRETE PAD FOUNDATION, DETAIL 1/E005 FOR PRIMARY DUCT BANK AND DETAIL 2/E005 FOR SECONDARY DUCT BANK REQUIREMENTS. CONTRACTOR TO COORDINATE WITH HYDRO FOR EXACT REQUIREMENTS AND CONFIRMATION. CONTRACTOR TO PROVIDE CONCRETE PAD FOUNDATION, GROUNDING SYSTEM, PRIMARY AND SECONDARY DUCTBANKS AND SECONDARY FEEDERS. PRIMARY FEEDERS BY HYDRO. DUCTBANKS ROUTES ARE DIAGRAMMATIC AND FOR REFERENCE ONLY. COORDINATE WITH THE OWNER, ARCHITECT, CIVIL AND LANDSCAPING CONSULTANTS FOR THE EXACT ROUTING OF DUCTBANKS.
  - TYPICAL FOR EXTERIOR POLE MOUNTED LIGHTING FIXTURES - ELECTRICAL CONTRACTOR TO PROVIDE LIGHTING FIXTURES, POLES AND FEEDERS. REFER TO DETAIL 3/E005 FOR DUCTBANK REQUIREMENTS. FEEDER ROUTES ARE DIAGRAMMATIC AND FOR REFERENCE ONLY. COORDINATE WITH THE OWNER, ARCHITECT, CIVIL AND LANDSCAPING CONSULTANTS FOR THE EXACT ROUTING OF DUCTBANKS.
  - TYPICAL FOR WALL PACK LIGHTING FIXTURES - ELECTRICAL CONTRACTOR TO PROVIDE LIGHTING FIXTURES AND FEEDERS. COORDINATE WITH ARCHITECT FOR THE EXACT LOCATIONS AND HEIGHT.
  - ELECTRICAL CONTRACTOR TO PROVIDE ONE (1) LEVEL 2 - DUAL PORT COMMERCIAL EV CHARGING STATION ON CONCRETE PAD FOUNDATION ALONG WITH FEEDERS. CABLE LENGTH OF 18' (5.5M) PEDESTAL MOUNTED. BASIS OF DESIGN: CHARGEPOINT, MODEL CT4000. ELECTRICAL CONTRACTOR TO COORDINATE WITH MANUFACTURER FOR THE EXACT REQUIREMENTS AND INCLUDE THE COST IN BID PRICE.

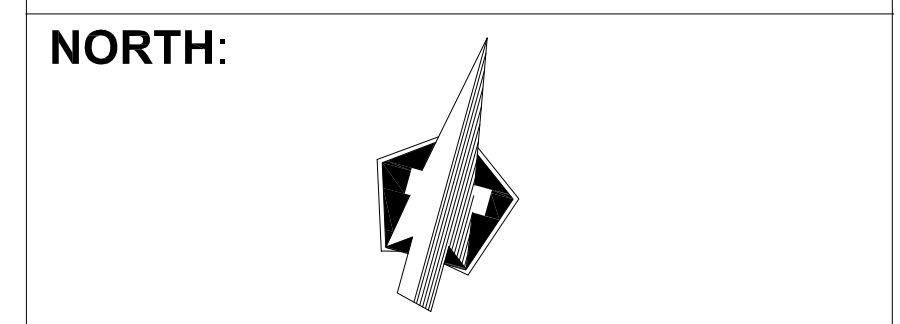
NO	ISSUED FOR	DATE
1	50% REVIEW	2024-05-29
2	FINAL REVIEW	2024-07-08
3	PERMIT	2025-06-30

**FARHEATER ENGINEERING INC.**  
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 TEL: 437-999-2424



**PROJECT NAME:**  
 WAREHOUSE AND OFFICE HEADQUARTERS

**PROJECT ADDRESS:**  
 45 BLOWERS CRES.  
 AJAX, ON, L1Z 0N4



**DRAWN BY:** A.A.      **DATE:** 2024.05.23

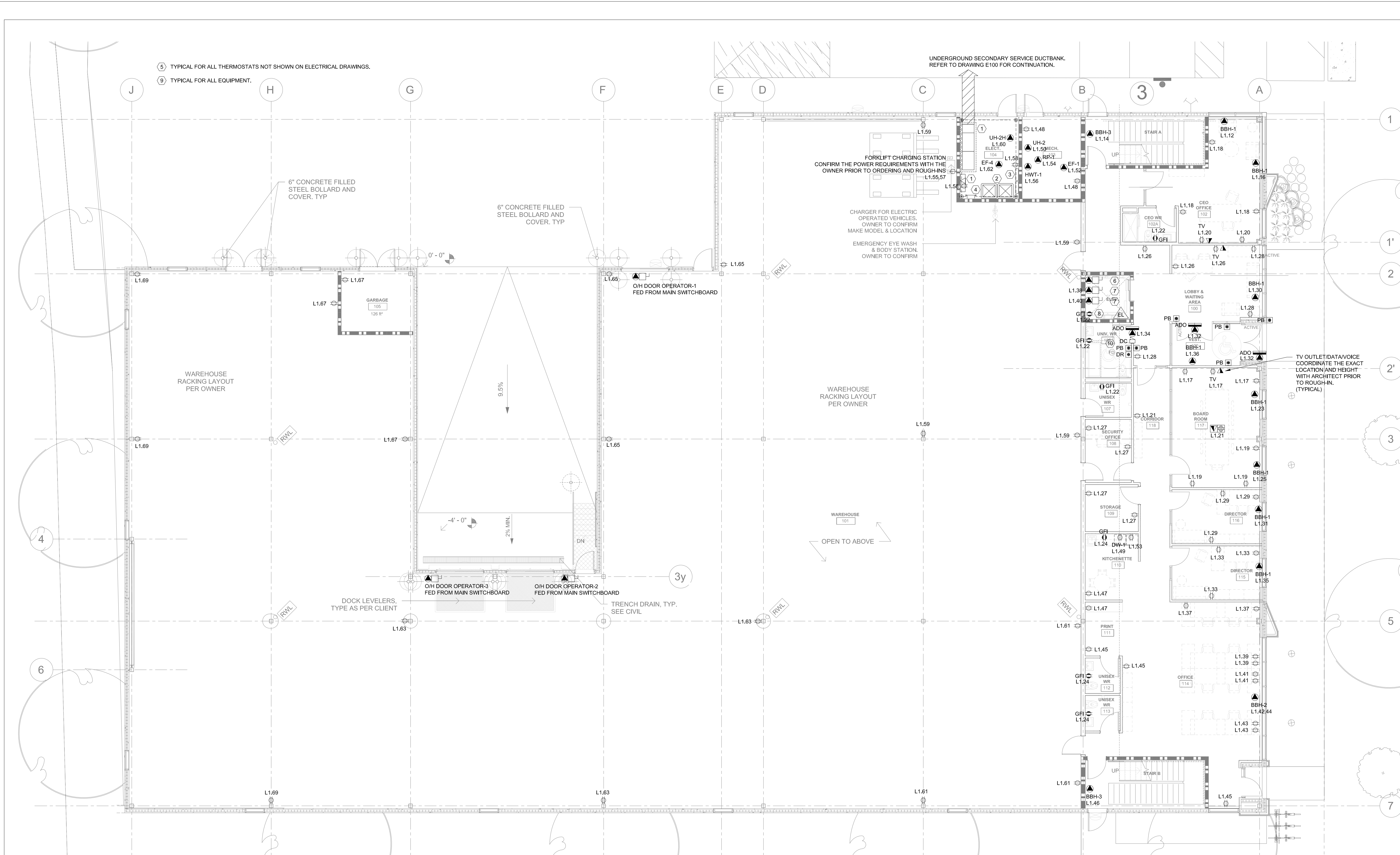
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**DRAWING TITLE:**

POWER AND SYSTEMS  
 SITE PLAN  
 LAYOUT  
 NOTES

**PROJECT NUMBER:** FH2024029

**DRAWING NUMBER:** E100



NOISSUED FOR	DATE
1 50% REVIEW	2024-05-29
2 FINAL REVIEW	2024-07-08
3 PERMIT	2025-06-30

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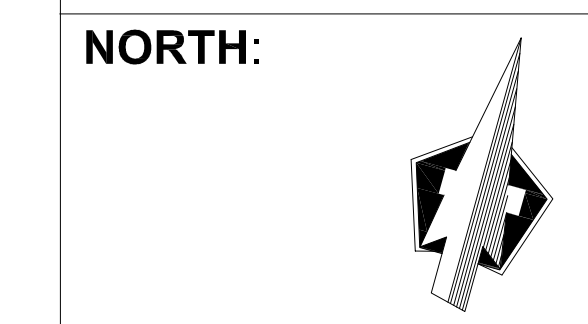


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**PROJECT NAME:**  
 WAREHOUSE AND OFFICE HEADQUARTERS

**PROJECT ADDRESS:**  
 45 BLOWERS CRES.  
 AJAX, ON, L1Z 0N4



**DRAWN BY:** A.A  
**DATE:** 2024.05.23

**CHECKED BY:** F.M  
**SCALE:** 1/8"=1'-0"

**DRAWING TITLE:**  
 POWER AND SYSTEMS  
 GROUND FLOOR  
 LAYOUT  
 NOTES

**PROJECT NUMBER:** FH2024029  
**DRAWING NUMBER:** E101

**GENERAL NOTES**

- ALL GENERAL NOTES INDICATED IN DRAWING E000 ARE APPLICABLE TO THIS DRAWING. CONTRACTOR IS RESPONSIBLE TO REVIEW THE INDICATED GENERAL NOTES AND ENSURE THAT ALL NOTES ARE FOLLOWED PROPERLY.
- VERIFY EXACT POWER REQUIREMENTS OF MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR AND MANUFACTURER PRIOR TO ROUGHINS. REVIEW THE MECHANICAL SHOP DRAWINGS FOR MANUFACTURERS ELECTRICAL DATA AND INSTALLATION REQUIREMENTS. ADVISE CONSULTANT OF ANY DISCREPANCIES.
- PROVIDE NEW FEEDERS, DISCONNECT SWITCHES AND FUSE(S) / CIRCUIT BREAKER(S) FOR NEW EQUIPMENT AS INDICATED. COORDINATE EXACT LOCATION OF ALL NEW AND RELOCATED EQUIPMENT WITH MECHANICAL CONTRACTOR AND ARCHITECT.
- PROVIDE SEPARATE NEUTRAL WIRE FOR EACH DEDICATED CIRCUIT.
- THE ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL SUITABLE NEW LABELS ON ALL NEW ELECTRICAL EQUIPMENT. LABELS TO INCLUDE BOTH PANEL AND CIRCUIT DESIGNATION. REVIEW LABEL SIZE AND TYPE WITH OWNER AND CONSULTANT PRIOR TO INSTALLATION. INSTALL TYPE-WRITTEN PANEL DIRECTORY FOR NEW PANELS AND PROVIDE UPDATED TYPE-WRITTEN PANEL DIRECTORY FOR EXISTING PANELS USED IN THE SCOPE OF THIS PROJECT.
- ENSURE THAT ALL OUTLETS ARE ACTIVE UPON COMPLETION OF THE PROJECT.
- COORDINATE WITH THE ARCHITECT FOR THE EXACT LOCATION AND HEIGHT OF RECEPTACLES. OUTLETS TO BE GANGED WHEREVER POSSIBLE WITH A MINIMUM SPACING BETWEEN COVER PLATES.
- ELECTRICAL CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ELECTRICAL CONNECTIONS FOR ANY EQUIPMENT MEET ALL EQUIPMENT SPECIFICATIONS AND CODE REQUIREMENTS.
- GENERAL CONTRACTOR IS RESPONSIBLE FOR MAKING GOOD ANY SURFACES OR FINISHES DAMAGED AS A RESULT OF ELECTRICAL ALTERATIONS. COORDINATE WITH GENERAL CONTRACTOR FOR THE REQUIREMENTS.
- ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT & PULL STRINGS FOR ALL DATA/VOICE OUTLETS AS INDICATED ON THE PLAN.
- ALL DATA/VOICE CABLES TO BE CATEGORY 6, UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS TO BE VERIFIED ON SITE BY ELECTRICAL CONTRACTOR BEFORE ANY WORK IS BEGUN. EXACT LOCATION AND HEIGHT OF DEVICES TO BE COORDINATED WITH ARCHITECT AND ARCHITECTURAL LAYOUTS PRIOR TO ROUGHINS.
- ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ROUGHINS FOR DOOR HARDWARE SUCH AS ELECTRIC STRIKES, CARD READERS, ETC. DOOR HARDWARE CONTRACTOR TO PROVIDE DEVICES AND INSTALLATION.
- ELECTRICAL CONTRACTOR TO PROVIDE POWER CONNECTION TO HOLD OPEN DEVICES AND FIRE ALARM RELAYS TO DISCONNECT POWER TO THE HOLD OPEN DEVICES IN THE EVENT OF A FIRE ALARM, RESULTING IN CLOSURE OF DOORS.

**DRAWING NOTES (CODED Ⓟ)**

- PROVIDE NEW HYDRO METER AND SWITCHBOARD, 800A, 347/600V, 3PH, 4W, MAN.; EATON, TYPE: POW-R-LINE OR APPROVED EQUAL CW CIRCUIT BREAKERS AS INDICATED.
- PROVIDE NEW WALL MOUNTED TRANSFORMERS TX-L1 & TX-L2, 75KVA, 600V/120/208V, 3PH, 4W, DY, MAN.; EATON OR APPROVED EQUAL CW WALL MOUNTING ACCESSORIES AND FEEDERS.
- PROVIDE NEW PANEL L11, 200A, 120/208V, 3PH, 4W, 84CCTS, MAN.; EATON, TYPE: PRL1A OR APPROVED EQUAL CW CIRCUIT BREAKERS AS INDICATED IN PANEL SCHEDULE AND FEEDERS.
- ELECTRICAL CONTRACTOR TO PROVIDE NEW DISCONNECT SWITCH, 600V, 3PH, 3W, 100A-3P, FUSED AT 60A (TIME-DELAY) COMPLETE WITH AUXILIARY CONTACTS FOR ELEVATOR EQUIPMENT, FED FROM MAIN SWITCHBOARD. COORDINATE WITH ARCHITECT AND ELEVATOR MANUFACTURER FOR THE EXACT POWER REQUIREMENTS.
- ELECTRICAL CONTRACTOR SHALL PROVIDE AN EMPTY SINGLE GANG BACKBOX WITH A 21mm (3/4") EMPTY CONDUIT (STUBBED INTO CEILING SPACE OF ROOM AND COMPLETE WITH PULL STRING) FOR MECHANICAL CONTROL THERMOSTATS. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR CONFIRMING EXACT QUANTITIES AND LOCATIONS OF THERMOSTATS WITH MECHANICAL CONTROLS CONTRACTOR ON SITE. REFER TO MECHANICAL DRAWINGS FOR EXACT QUANTITY AND LOCATIONS OF THERMOSTATS.
- ELECTRICAL CONTRACTOR TO PROVIDE NEW DISCONNECT SWITCH, 600V, 3PH, 3W, 100A-3P, FUSED AT 60A (TIME-DELAY) COMPLETE WITH AUXILIARY CONTACTS FOR ELEVATOR EQUIPMENT, FED FROM MAIN SWITCHBOARD. COORDINATE WITH ARCHITECT AND ELEVATOR MANUFACTURER FOR THE EXACT POWER REQUIREMENTS.
- PROVIDE NEW 120V, 1Ø, 3ØA-1P DISCONNECT SWITCHES, FUSED AT 15A FOR ELEVATOR CAB LIGHTS AND CONTROL.
- PROVIDE NEW GFI RECEPTACLE AS PER OESC RULE 38-085. EXACT LOCATION TO BE CONFIRMED ON SITE.
- REFER TO SINGLE LINE DIAGRAM FOR MORE INFORMATION. FINAL LOCATION OF ALL EQUIPMENT TO BE CONFIRMED ON SITE BY ELECTRICAL CONTRACTOR. ENSURE 1m CLEARANCE IS PROVIDED AS PER CODE REQUIREMENTS. PROVIDE NEW WIRING AND CONDUITS FOR NEW EQUIPMENT, SIZE THEM AS PER CODE REQUIREMENTS AND ENSURE VOLTAGE DROP IS CONSIDERED PROPERLY. (TYPICAL FOR ALL EQUIPMENT)
- ELECTRICAL CONTRACTOR TO PROVIDE REQUIREMENTS OF UNIVERSAL BARRIER-FREE WASHROOM DOOR HARDWARE REQUIREMENTS AS INDICATED IN DETAIL 3E004.



NO	ISSUED FOR	DATE
1	50% REVIEW	2024-05-29
2	FINAL REVIEW	2024-07-08
3	PERMIT	2025-06-30

# FARHEATER ENGINEERING INC.

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 WWW.FARHEATER.COM  
 TEL: 437-999-2424

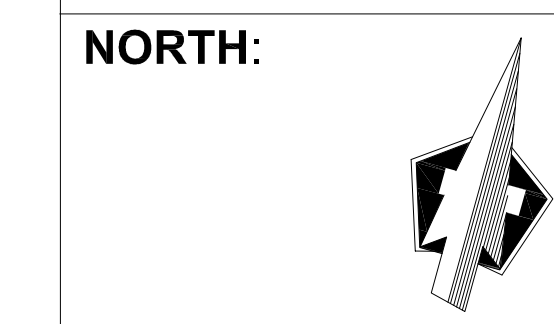


STAMP:



**PROJECT NAME:**  
 WAREHOUSE AND OFFICE HEADQUARTERS

**PROJECT ADDRESS:**  
 45 BLOWERS CRES.  
 AJAX, ON, L1Z 0N4

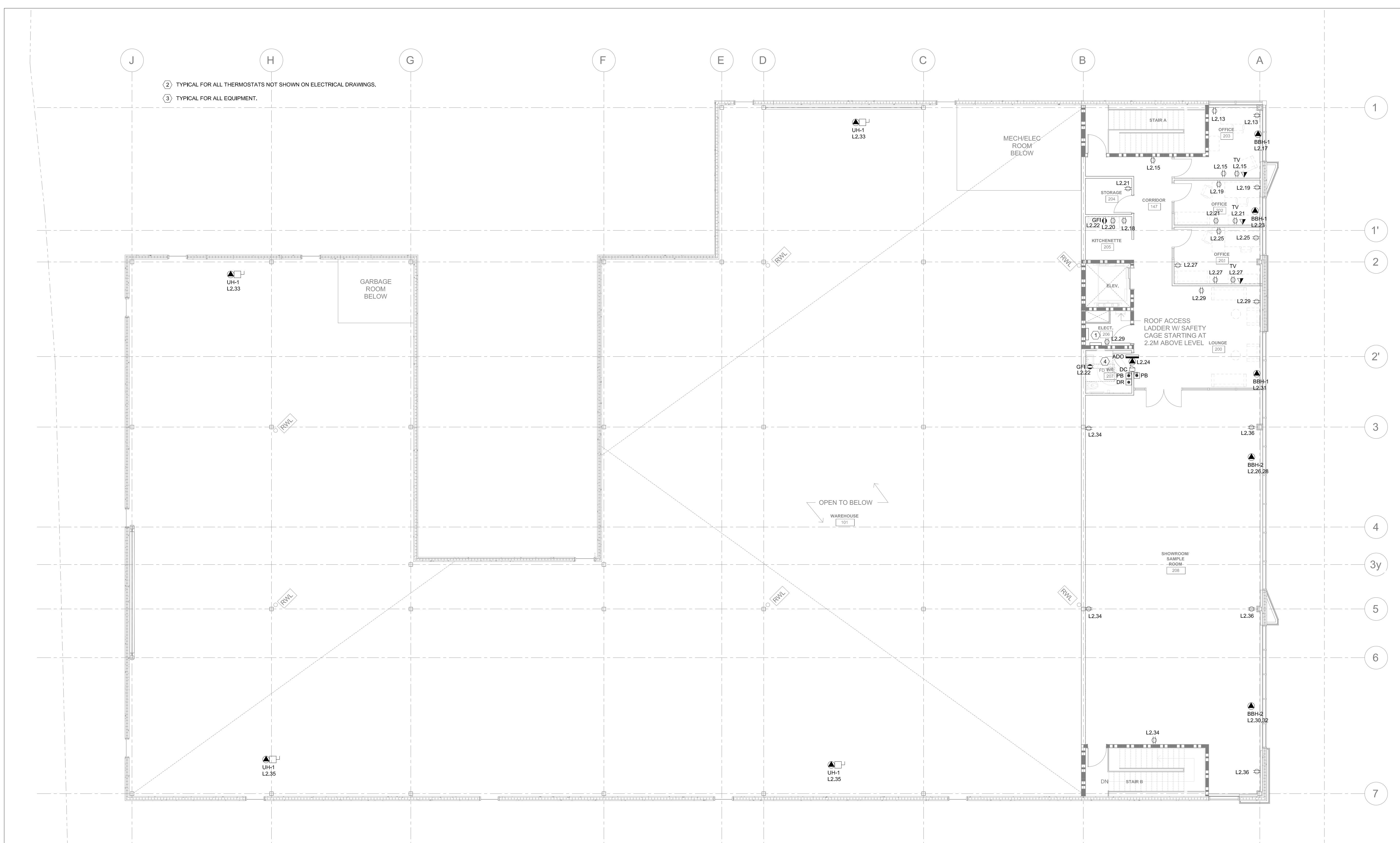


**DRAWN BY:** A.A.      **DATE:** 2024.05.23

**CHECKED BY:** F.M.      **SCALE:** 1/8"=1'-0"

**DRAWING TITLE:**  
 POWER AND SYSTEMS  
 SECOND FLOOR  
 LAYOUT  
 NOTES

**PROJECT NUMBER:** FH2024029      **DRAWING NUMBER:** E102



**GENERAL NOTES**

- ALL GENERAL NOTES INDICATED IN DRAWING E000 ARE APPLICABLE TO THIS DRAWING. CONTRACTOR IS RESPONSIBLE TO REVIEW THE INDICATED GENERAL NOTES AND ENSURE THAT ALL NOTES ARE FOLLOWED PROPERLY.
- VERIFY EXACT POWER REQUIREMENTS OF MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR AND MANUFACTURER PRIOR TO ROUGH-INS. REVIEW THE MECHANICAL SHOP DRAWINGS FOR MANUFACTURERS ELECTRICAL DATA AND INSTALLATION REQUIREMENTS. ADVISE CONSULTANT OF ANY DISCREPANCIES.
- PROVIDE NEW FEEDERS, DISCONNECT SWITCH(ES) AND FUSE(S) / CIRCUIT BREAKER(S) FOR NEW EQUIPMENT AS INDICATED. COORDINATE EXACT LOCATION OF ALL NEW AND RELOCATED EQUIPMENT WITH MECHANICAL CONTRACTOR AND ARCHITECT.
- PROVIDE SEPARATE NEUTRAL WIRE FOR EACH DEDICATED CIRCUIT.
- THE ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL SUITABLE NEW LABELS ON ALL NEW ELECTRICAL EQUIPMENT. LABELS TO INCLUDE BOTH PANEL AND CIRCUIT DESIGNATION. REVIEW LABEL SIZE AND TYPE WITH OWNER AND CONSULTANT PRIOR TO INSTALLATION. INSTALL TYPE-WRITTEN PANEL DIRECTORY FOR NEW PANELS AND PROVIDE UPDATED TYPE-WRITTEN PANEL DIRECTORY FOR EXISTING PANELS USED IN THE SCOPE OF THIS PROJECT.
- ENSURE THAT ALL OUTLETS ARE ACTIVE UPON COMPLETION OF THE PROJECT.
- COORDINATE WITH THE ARCHITECT FOR THE EXACT LOCATION AND HEIGHT OF RECEPTACLES. OUTLETS TO BE GANGED WHEREVER POSSIBLE WITH A MINIMUM SPACING BETWEEN COVER PLATES.
- ELECTRICAL CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ELECTRICAL CONNECTIONS FOR ANY EQUIPMENT MEET ALL EQUIPMENT SPECIFICATIONS AND CODE REQUIREMENTS.
- GENERAL CONTRACTOR IS RESPONSIBLE FOR MAKING GOOD ANY SURFACES OR FINISHES DAMAGED AS A RESULT OF ELECTRICAL ALTERATIONS. COORDINATE WITH GENERAL CONTRACTOR FOR THE REQUIREMENTS.
- ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT & PULL STRINGS FOR ALL DATA/VOICE OUTLETS AS INDICATED ON THE PLAN.
- ALL DATA/VOICE CABLES TO BE CATEGORY 6, UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS TO BE VERIFIED ON SITE BY ELECTRICAL CONTRACTOR BEFORE ANY WORK IS BEGUN. EXACT LOCATION AND HEIGHT OF DEVICES TO BE COORDINATED WITH ARCHITECT AND ARCHITECTURAL LAYOUTS PRIOR TO ROUGH-INS.
- ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ROUGH-INS FOR DOOR HARDWARE SUCH AS ELECTRIC STRIKES, CARD READERS, ETC. DOOR HARDWARE CONTRACTOR TO PROVIDE DEVICES AND INSTALLATION.
- ELECTRICAL CONTRACTOR TO PROVIDE POWER CONNECTION TO HOLD OPEN DEVICES AND FIRE ALARM RELAYS TO DISCONNECT POWER TO THE HOLD OPEN DEVICES IN THE EVENT OF A FIRE ALARM, RESULTING IN CLOSURE OF DOORS.

**DRAWING NOTES (CODED Ⓟ)**

- PROVIDE NEW PANEL 'L2' 200A, 120/208V, 3PH, 4W, 84CCTS C/W 200A MAIN CIRCUIT BREAKER, MANL: EATON, TYPE: PRL1A OR APPROVED EQUAL C/W CIRCUIT BREAKERS AS INDICATED IN PANEL SCHEDULE AND FEEDERS.
- ELECTRICAL CONTRACTOR SHALL PROVIDE AN EMPTY SINGLE GANG BACKBOX WITH A 21mm (3/4") EMPTY CONDUIT (STUBBED INTO CEILING SPACE OF ROOM AND COMPLETE WITH PULL STRING) FOR MECHANICAL CONTROL THERMOSTATS. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR CONFIRMING EXACT QUANTITIES AND LOCATIONS OF THERMOSTATS WITH MECHANICAL CONTROLS CONTRACTOR ON SITE. REFER TO MECHANICAL DRAWINGS FOR EXACT QUANTITY AND LOCATIONS OF THERMOSTATS.
- REFER TO SINGLE LINE DIAGRAM FOR MORE INFORMATION. FINAL LOCATION OF ALL EQUIPMENT TO BE CONFIRMED ON SITE BY ELECTRICAL CONTRACTOR. ENSURE 1m CLEARANCE IS PROVIDED AS PER CODE REQUIREMENTS. PROVIDE NEW WIRING AND CONDUITS FOR NEW EQUIPMENT. SIZE THEM AS PER CODE REQUIREMENTS AND ENSURE VOLTAGE DROP IS CONSIDERED PROPERLY. (TYPICAL FOR ALL EQUIPMENT)
- ELECTRICAL CONTRACTOR TO PROVIDE REQUIREMENTS OF UNIVERSAL/BARRIER-FREE WASHROOM DOOR HARDWARE REQUIREMENTS AS INDICATED IN DETAIL 3E004.

NOISSUED FOR	DATE
1 50% REVIEW	2024-05-29
2 FINAL REVIEW	2024-07-08
3 PERMIT	2025-06-30

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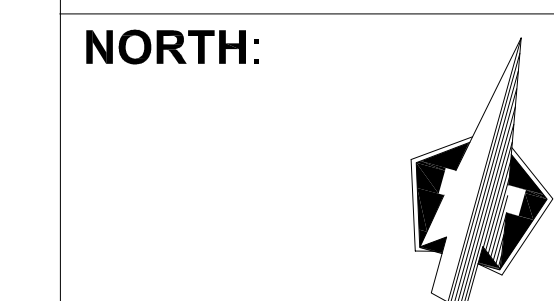


STAMP:



**PROJECT NAME:**  
 WAREHOUSE AND OFFICE HEADQUARTERS

**PROJECT ADDRESS:**  
 45 BLOWERS CRES.  
 AJAX, ON, L1Z 0N4

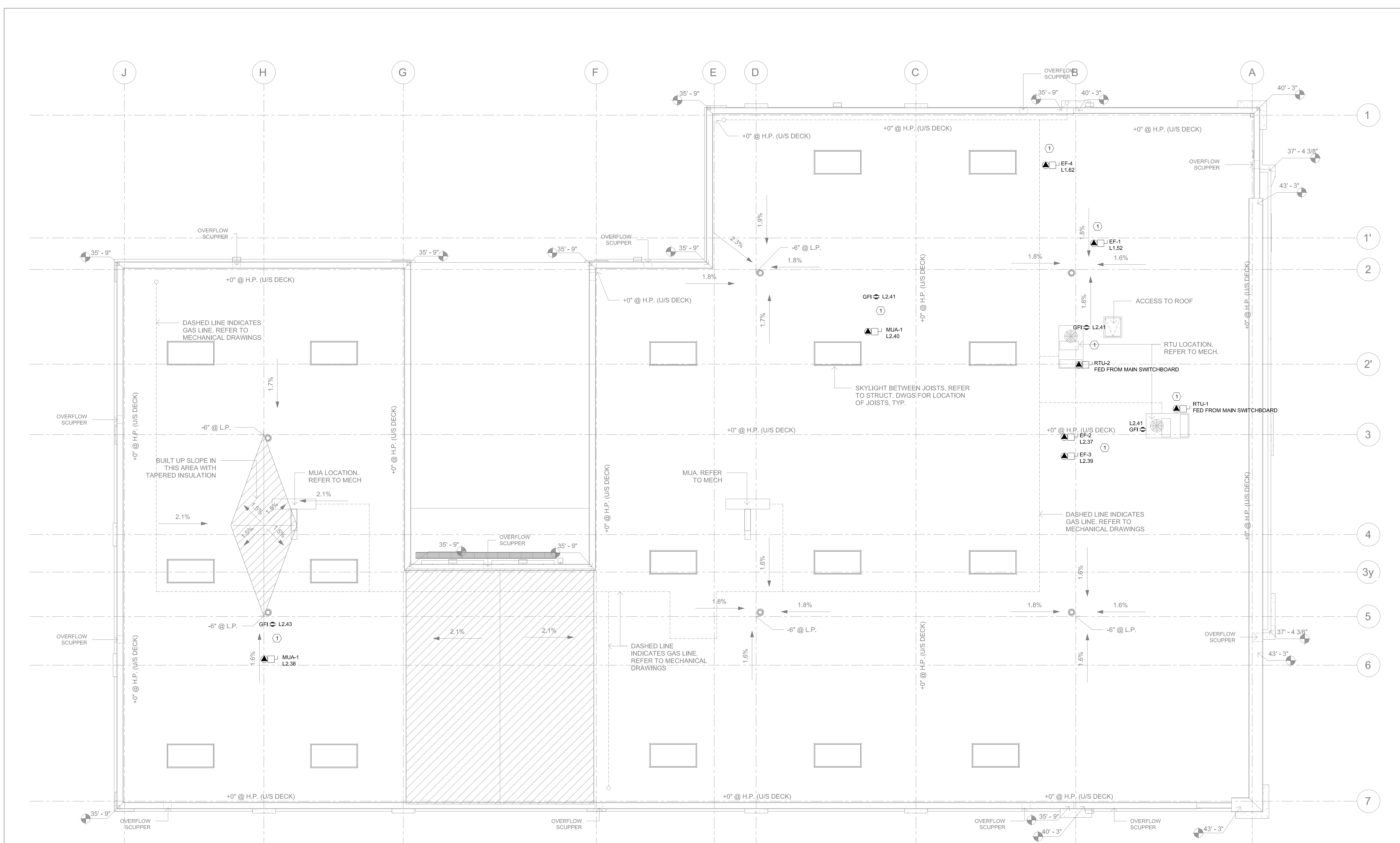


**DRAWN BY:** A.A.      **DATE:** 2024.05.23

**CHECKED BY:** F.M.      **SCALE:** 1/8"=1'-0"

**DRAWING TITLE:**  
 POWER AND SYSTEMS  
 ROOF  
 LAYOUT  
 NOTES

**PROJECT NUMBER:** FH2024029      **DRAWING NUMBER:** E103



**GENERAL NOTES**

- ALL GENERAL NOTES INDICATED IN DRAWING E000 ARE APPLICABLE TO THIS DRAWING. CONTRACTOR IS RESPONSIBLE TO REVIEW THE INDICATED GENERAL NOTES AND ENSURE THAT ALL NOTES ARE FOLLOWED PROPERLY.
- VERIFY EXACT POWER REQUIREMENTS OF MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR AND MANUFACTURER PRIOR TO ROUGH-INS. REVIEW THE MECHANICAL SHOP DRAWINGS FOR MANUFACTURERS ELECTRICAL DATA AND INSTALLATION REQUIREMENTS. ADVISE CONSULTANT OF ANY DISCREPANCIES.
- PROVIDE NEW FEEDERS, DISCONNECT SWITCHES) AND FUSE(S) / CIRCUIT BREAKER(S) FOR NEW EQUIPMENT AS INDICATED. COORDINATE EXACT LOCATION OF ALL NEW AND RELOCATED EQUIPMENT WITH MECHANICAL CONTRACTOR AND ARCHITECT.
- PROVIDE SEPARATE NEUTRAL WIRE FOR EACH DEDICATED CIRCUIT.
- THE ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL SUITABLE NEW LABELS ON ALL NEW ELECTRICAL EQUIPMENT. LABELS TO INCLUDE BOTH PANEL AND CIRCUIT DESIGNATION. REVIEW LABEL SIZE AND TYPE WITH OWNER AND CONSULTANT PRIOR TO INSTALLATION. INSTALL TYPE-WRITTEN PANEL DIRECTORY FOR NEW PANELS AND PROVIDE UPDATED TYPE-WRITTEN PANEL DIRECTORY FOR EXISTING PANELS USED IN THE SCOPE OF THIS PROJECT.
- ENSURE THAT ALL OUTLETS ARE ACTIVE UPON COMPLETION OF THE PROJECT.
- COORDINATE WITH THE ARCHITECT FOR THE EXACT LOCATION AND HEIGHT OF RECEPTACLES. OUTLETS TO BE GANGED WHEREVER POSSIBLE WITH A MINIMUM SPACING BETWEEN COVER PLATES.
- ELECTRICAL CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ELECTRICAL CONNECTIONS FOR ANY EQUIPMENT MEET ALL EQUIPMENT SPECIFICATIONS AND CODE REQUIREMENTS.
- GENERAL CONTRACTOR IS RESPONSIBLE FOR MAKING GOOD ANY SURFACES OR FINISHES DAMAGED AS A RESULT OF ELECTRICAL ALTERATIONS. COORDINATE WITH GENERAL CONTRACTOR FOR THE REQUIREMENTS.
- ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT & PULL STRINGS FOR ALL DATA/VOICE OUTLETS AS INDICATED ON THE PLAN.
- ALL DATA/VOICE CABLES TO BE CATEGORY 6, UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS TO BE VERIFIED ON SITE BY ELECTRICAL CONTRACTOR BEFORE ANY WORK IS BEGUN. EXACT LOCATION AND HEIGHT OF DEVICES TO BE COORDINATED WITH ARCHITECT AND ARCHITECTURAL LAYOUTS PRIOR TO ROUGH-INS.
- ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ROUGH-INS FOR DOOR HARDWARE SUCH AS ELECTRIC STRIKES, CARD READERS, ETC. DOOR HARDWARE CONTRACTOR TO PROVIDE DEVICES AND INSTALLATION.
- ELECTRICAL CONTRACTOR TO PROVIDE POWER CONNECTION TO HOLD OPEN DEVICES AND FIRE ALARM RELAYS TO DISCONNECT POWER TO THE HOLD OPEN DEVICES IN THE EVENT OF A FIRE ALARM, RESULTING IN CLOSURE OF DOORS.

**DRAWING NOTES (CODED Ⓟ)**

- ELECTRICAL CONTRACTOR TO PROVIDE POWER FEEDER AND DISCONNECT SWITCH FOR THE EXHAUST FANS, ROOFTOP UNITS AND MUA UNITS. COORDINATE THE EXACT LOCATION AND POWER REQUIREMENT WITH MECHANICAL DIVISION PRIOR TO ROUGH-INS. PROVIDE NEW 20A GFI MAINTENANCE RECEPTACLE MOUNTED ON THE EQUIPMENT AND INSTALL AS PER OESC REQUIREMENTS.

NO	ISSUED FOR	DATE
1	50% REVIEW	2024-05-29
2	FINAL REVIEW	2024-07-08
3	PERMIT	2025-06-30

# FARHEATER ENGINEERING INC.

15 ALLSTATE PARKWAY, SUITE 633  
 MARKHAM, ON L3R 5B4  
 CONTACT@FARHEATER.COM  
 WWW.FARHEATER.COM  
 TEL: 437-999-2424



STAMP:



**PROJECT NAME:**  
 WAREHOUSE AND OFFICE HEADQUARTERS

**PROJECT ADDRESS:**  
 45 BLOWERS CRES.  
 AJAX, ON, L1Z 0N4

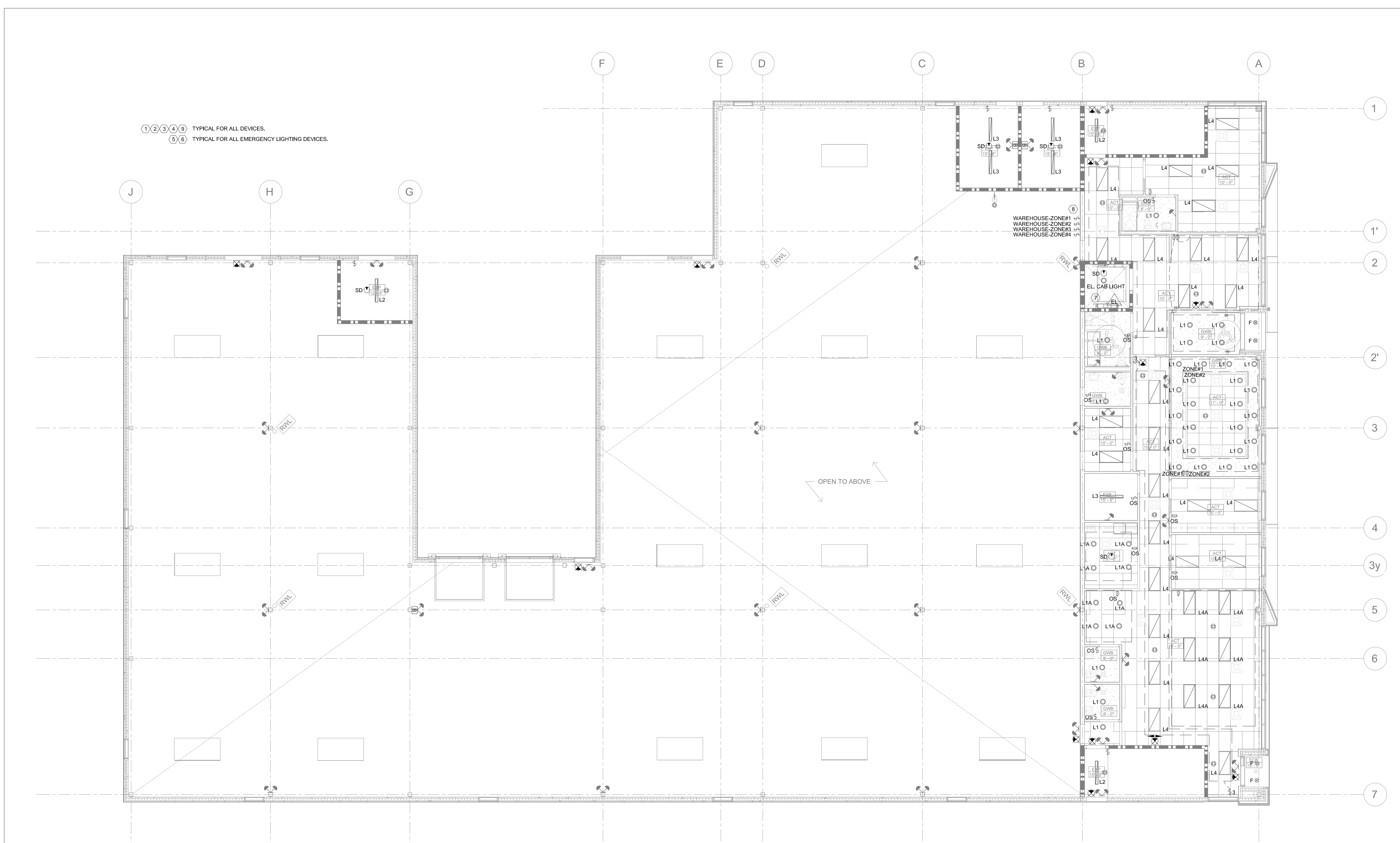
**NORTH:**

**DRAWN BY:** A.A. **DATE:** 2024.05.23

**CHECKED BY:** F.M. **SCALE:** 1/8"=1'-0"

**DRAWING TITLE:**  
 LIGHTING AND FIRE ALARM  
 GROUND FLOOR  
 LAYOUT  
 NOTES

**PROJECT NUMBER:** FH2024029 **DRAWING NUMBER:** E201



①②③④⑨ TYPICAL FOR ALL DEVICES.  
 ⑤⑥ TYPICAL FOR ALL EMERGENCY LIGHTING DEVICES.

### GENERAL NOTES

- ALL GENERAL NOTES INDICATED IN DRAWING E000 ARE APPLICABLE TO THIS DRAWING. CONTRACTOR IS RESPONSIBLE TO REVIEW THE INDICATED GENERAL NOTES AND ENSURE THAT ALL NOTES ARE FOLLOWED PROPERLY.
- ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL REQUIRED WIRING AND CONDUIT FOR LIGHTING AND EMERGENCY LIGHTING SYSTEM.
- ALL LIGHTING FIXTURES SHALL BE INSTALLED ACCURATELY IN LINE & LEVEL. COORDINATE THE EXACT HEIGHT AND COLOR WITH THE ARCHITECT.
- PROVIDE REQUIRED MOUNTING ACCESSORIES FOR LIGHTING FIXTURES. ALL SUSPENDED LIGHTING FIXTURES TO BE CHAINED TO THE SLAB ABOVE.
- ANY RELOCATION OF LIGHTING FIXTURES REQUIRED DUE TO THE SITE CONDITIONS SHALL BE APPROVED BY THE OWNER, ELECTRICAL CONSULTANT AND ARCHITECT PRIOR TO PROCEEDING WITH WORK.
- ELECTRICAL CONTRACTOR TO PROVIDE LOCAL LIGHT SWITCHES AND DIMMERS.
- RE-USE EXISTING FIRE ALARM (FA) DEVICES WHERE POSSIBLE AND PROVIDE NEW FA DEVICES AS INDICATED. TEST ALL FA DEVICES AS PER CANULC STANDARDS. IF THE BUILDING HAS BASE BUILDING FIRE ALARM CONTRACTOR, ALL CHANGES TO THE FIRE ALARM SYSTEM MUST BE DONE BY BASE BUILDING FA CONTRACTOR AS PER CANULC STANDARDS. COORDINATE AND CONFIRM WITH THE OWNER AND FACILITY MANAGER.
- AFTER COMPLETION OF INSTALLATION AS PER STANDARD CANULC S524, THE FIRE ALARM SYSTEM MUST BE TESTED AND VERIFIED AS PER STANDARD CANULC S537. SUBMIT FIRE ALARM VERIFICATION REPORT / CERTIFICATE WITH CLOSE-OUT DOCUMENTS (IF APPLICABLE).
- ANY TIE-INS INTO LIFE SAFETY SYSTEM OF THE BUILDING TO BE COORDINATED WITH FACILITY MANAGEMENT AND BASE BUILDING CONTRACTOR (IF APPLICABLE).
- THE EMERGENCY LIGHTING SYSTEM WILL BE BASED ON COMBINATION OF BATTERY UNIT(S), REMOTE HEADS AND EXIT LIGHTS, UNLESS OTHERWISE NOTED, CONTRACTOR
- REFER TO DRAWINGS FOR LOCATIONS AND CIRCUITING. SUPPLY AND INSTALL GREEN RUNNING MAN TYPE EXIT SIGNS AS INDICATED. REFER TO THE DRAWING FOR SINGLE OR DOUBLE FACE AND ARROW DIRECTION(S) (AS REQUIRED).
- AFTER COMPLETION OF INSTALLATION, THE EMERGENCY LIGHTING SYSTEM MUST BE TESTED AND VERIFIED AS PER ONTARIO BUILDING CODE REQUIREMENTS. SUBMIT EMERGENCY LIGHTING VERIFICATION REPORT WITH CLOSE-OUT DOCUMENTS.

### DRAWING NOTES (CODED Ⓡ)

- SUPPLY AND INSTALL NEW LIGHTING FIXTURES, CONTROL SWITCHES/DIMMERS AND OCCUPANCY SENSORS AS INDICATED. COORDINATE EXACT LOCATION AND HEIGHT OF ALL LIGHTING FIXTURES WITH ARCHITECTURAL DRAWINGS. PROVIDE REQUIRED CONTROL WIRING AND DEVICES AS REQUIRED.
- PROVIDE NEW WIRING/CONDUITS FOR NEW LIGHTING LOADS FROM EXISTING PANEL(S) TO LIGHTING CONTROL SWITCHES AND FROM THE SWITCHES TO THE LIGHTING FIXTURES AS INDICATED. PROVIDE NEW CIRCUIT BREAKERS FEEDING LIGHTING LOADS AS INDICATED IN PANEL SCHEDULE(S).
- PROVIDE MOUNTING ACCESSORIES FOR ALL LIGHTING FIXTURES AS REQUIRED. COORDINATE WITH THE ARCHITECT FOR THE CEILING TYPES PRIOR TO ORDERING THE MATERIAL.
- COORDINATE COLOUR OF EQUIPMENT AND ALL LIGHTING FIXTURES WITH ARCHITECT PRIOR TO PLACING THE ORDERS.
- PROVIDE NEW GREEN RUNNING MAN TYPE EXIT SIGNS, BATTERY UNIT(S) AND REMOTE HEADS AS SHOWN TO COMPLETE REQUIREMENTS AS PER OBC.
- CONNECT NEW EMERGENCY REMOTE HEADS AND EXIT LIGHTS TO THE NEW EMERGENCY BATTERY UNIT(S). WIRE THEM WITH MINIMUM #10 AWG WIRING IN 3/4" (21mm) EMT CONDUIT.
- COORDINATE THE ELEVATOR LIGHTING REQUIREMENT WITH MANUFACTURER AND PROVIDE THE REQUIRED FEEDERS. PROVIDE ELEVATOR SMOKE DETECTOR WIRING REQUIREMENTS.
- PROVIDE LIGHTING CONTROL SWITCHES FOR INDICATED ZONES IN WAREHOUSE. REFER TO DRAWING E-202 FOR THE ZONING IN THE WAREHOUSE.
- LIGHTING AND LIGHTING CONTROL SYSTEM BASIS OF DESIGN IS ACUITY BRANDS. ELECTRICAL CONTRACTOR TO COORDINATE WITH ACUITY BRANDS FOR THE EXACT REQUIREMENTS FOR PRICING. APPROVED EQUAL PRODUCTS WITH THE SAME CHARACTERISTICS WOULD BE ACCEPTABLE. CONTACT INFO: EDWIN MOK SPECIFICATION SALES REP ACUITY BRANDS TORONTO CELL: (416) 460-7517 E-MAIL: Edwin.Mok@acuitybrands.com

NO	ISSUED FOR	DATE
1	50% REVIEW	2024-05-29
2	FINAL REVIEW	2024-07-08
3	PERMIT	2025-06-30

# FARHEATER ENGINEERING INC.

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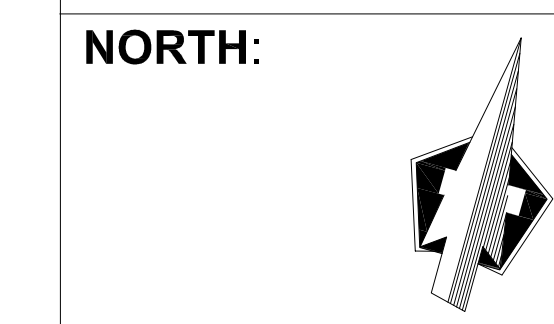


STAMP:



**PROJECT NAME:**  
 WAREHOUSE AND OFFICE HEADQUARTERS

**PROJECT ADDRESS:**  
 45 BLOWERS CRES.  
 AJAX, ON, L1Z 0N4

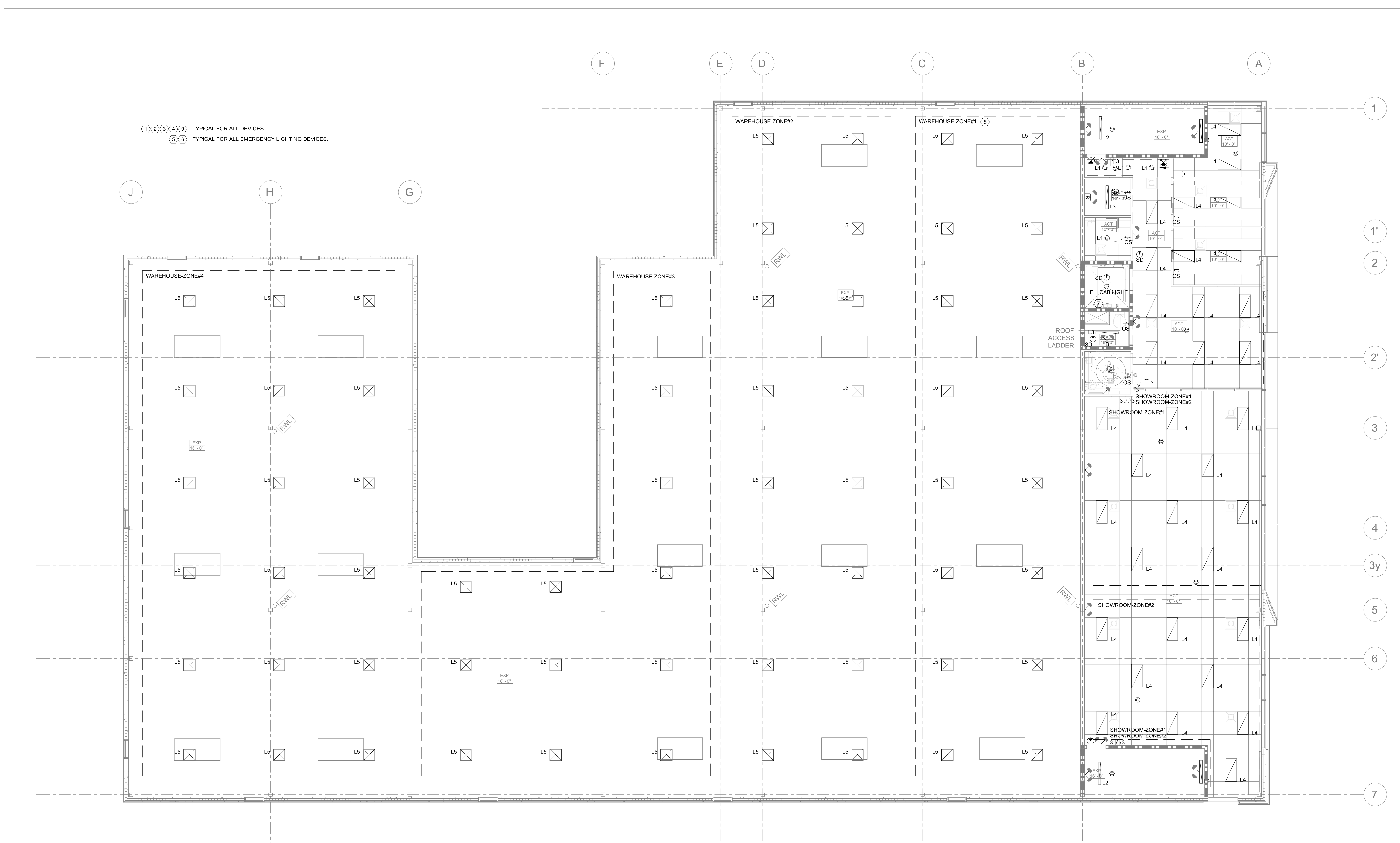


**DRAWN BY:** A.A.      **DATE:** 2024.05.23

**CHECKED BY:** F.M.      **SCALE:** 1/8"=1'-0"

**DRAWING TITLE:**  
 LIGHTING AND FIRE ALARM  
 SECOND FLOOR  
 LAYOUT  
 NOTES

**PROJECT NUMBER:** FH2024029      **DRAWING NUMBER:** E202



①②③④⑨ TYPICAL FOR ALL DEVICES.  
 ⑤⑥ TYPICAL FOR ALL EMERGENCY LIGHTING DEVICES.

**GENERAL NOTES**

- ALL GENERAL NOTES INDICATED IN DRAWING E000 ARE APPLICABLE TO THIS DRAWING. CONTRACTOR IS RESPONSIBLE TO REVIEW THE INDICATED GENERAL NOTES AND ENSURE THAT ALL NOTES ARE FOLLOWED PROPERLY.
- ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL REQUIRED WIRING AND CONDUIT FOR LIGHTING AND EMERGENCY LIGHTING SYSTEM.
- ALL LIGHTING FIXTURES SHALL BE INSTALLED ACCURATELY IN LINE & LEVEL. COORDINATE THE EXACT HEIGHT AND COLOR WITH THE ARCHITECT.
- PROVIDE REQUIRED MOUNTING ACCESSORIES FOR LIGHTING FIXTURES. ALL SUSPENDED LIGHTING FIXTURES TO BE CHAINED TO THE SLAB ABOVE.
- ANY RELOCATION OF LIGHTING FIXTURES REQUIRED DUE TO THE SITE CONDITIONS SHALL BE APPROVED BY THE OWNER, ELECTRICAL CONSULTANT AND ARCHITECT PRIOR TO PROCEEDING WITH WORK.
- ELECTRICAL CONTRACTOR TO PROVIDE LOCAL LIGHT SWITCHES AND DIMMERS.
- RE-USE EXISTING FIRE ALARM (FA) DEVICES WHERE POSSIBLE AND PROVIDE NEW FA DEVICES AS INDICATED. TEST ALL FA DEVICES AS PER CANULC STANDARDS. IF THE BUILDING HAS BASE BUILDING FIRE ALARM CONTRACTOR, ALL CHANGES TO THE FIRE ALARM SYSTEM MUST BE DONE BY BASE BUILDING FA CONTRACTOR AS PER CANULC STANDARDS. COORDINATE AND CONFIRM WITH THE OWNER AND FACILITY MANAGER.
- AFTER COMPLETION OF INSTALLATION AS PER STANDARD CANULC S524, THE FIRE ALARM SYSTEM MUST BE TESTED AND VERIFIED AS PER STANDARD CANULC S537. SUBMIT FIRE ALARM VERIFICATION REPORT / CERTIFICATE WITH CLOSE-OUT DOCUMENTS (IF APPLICABLE).
- ANY TIE-INS INTO LIFE SAFETY SYSTEM OF THE BUILDING TO BE COORDINATED WITH FACILITY MANAGEMENT AND BASE BUILDING CONTRACTOR (IF APPLICABLE).
- THE EMERGENCY LIGHTING SYSTEM WILL BE BASED ON COMBINATION OF BATTERY UNIT(S), REMOTE HEADS AND EXIT LIGHTS, UNLESS OTHERWISE NOTED, CONTRACTOR
- REFER TO DRAWINGS FOR LOCATIONS AND CIRCUITING. SUPPLY AND INSTALL GREEN RUNNING MAN TYPE EXIT SIGNS AS INDICATED. REFER TO THE DRAWING FOR SINGLE OR DOUBLE FACE AND ARROW DIRECTION(S) AS REQUIRED.
- AFTER COMPLETION OF INSTALLATION, THE EMERGENCY LIGHTING SYSTEM MUST BE TESTED AND VERIFIED AS PER ONTARIO BUILDING CODE REQUIREMENTS. SUBMIT EMERGENCY LIGHTING VERIFICATION REPORT WITH CLOSE-OUT DOCUMENTS.

**DRAWING NOTES (CODED Ⓟ)**

- SUPPLY AND INSTALL NEW LIGHTING FIXTURES, CONTROL SWITCHES/DIMMERS AND OCCUPANCY SENSORS AS INDICATED. COORDINATE EXACT LOCATION AND HEIGHT OF ALL LIGHTING FIXTURES WITH ARCHITECTURAL DRAWINGS. PROVIDE REQUIRED CONTROL WIRING AND DEVICES AS REQUIRED.
- PROVIDE NEW WIRING/CONDUITS FOR NEW LIGHTING LOADS FROM EXISTING PANEL(S) TO LIGHTING CONTROL SWITCHES AND FROM THE SWITCHES TO THE LIGHTING FIXTURES AS INDICATED. PROVIDE NEW CIRCUIT BREAKERS FEEDING LIGHTING LOADS AS INDICATED IN PANEL SCHEDULE(S).
- PROVIDE MOUNTING ACCESSORIES FOR ALL LIGHTING FIXTURES AS REQUIRED. COORDINATE WITH THE ARCHITECT FOR THE CEILING TYPES PRIOR TO ORDERING THE MATERIAL.
- COORDINATE COLOUR OF EQUIPMENT AND ALL LIGHTING FIXTURES WITH ARCHITECT PRIOR TO PLACING THE ORDERS.
- PROVIDE NEW GREEN RUNNING MAN TYPE EXIT SIGNS, BATTERY UNIT(S) AND REMOTE HEADS AS SHOWN TO COMPLETE REQUIREMENTS AS PER OBC.
- CONNECT NEW EMERGENCY REMOTE HEADS AND EXIT LIGHTS TO THE NEW EMERGENCY BATTERY UNIT(S). WIRE THEM WITH MINIMUM #10 AWG WIRING IN 3/4" (21mm) EMT CONDUIT.
- COORDINATE THE ELEVATOR LIGHTING REQUIREMENT WITH MANUFACTURER AND PROVIDE THE REQUIRED FEEDERS. PROVIDE ELEVATOR SMOKE DETECTOR WIRING REQUIREMENTS.
- TYPICAL FOR ALL HIGH BAY LIGHTING FIXTURES (TYPE L5) - MOUNTING HEIGHT TO BE AT 34FT. ENSURE THE ADJACENT STRUCTURAL ELEMENTS, RACKS, CRANES, ETC. ARE NOT BLOCKING THE LIGHTS AND WILL NOT CREATE SHADOWS. COORDINATE WITH THE ARCHITECT PRIOR TO INSTALLATION. REFER TO DRAWING E-201 FOR THE LOCATION OF LIGHTING CONTROL SWITCHES OF THE WAREHOUSE ZONES.
- LIGHTING AND LIGHTING CONTROL SYSTEM BASIS OF DESIGN IS ACUITY BRANDS. ELECTRICAL CONTRACTOR TO COORDINATE WITH ACUITY BRANDS FOR THE EXACT REQUIREMENTS FOR PRICING. APPROVED EQUAL PRODUCTS WITH THE SAME CHARACTERISTICS WOULD BE ACCEPTABLE. CONTACT INFO: EDWIN MOK SPECIFICATION SALES REP ACUITY BRANDS TORONTO CELL: (416) 460-7517 E-MAIL: Edwin.Mok@acuitybrands.com