PART 1 Addendum #1

- 1.1 Added Electrical drawings to Tender package see below & attached.
 - .1 E0.1 Electrical Specifications
 - .2 E0.2 Electrical Legend & Schedules
 - .3 ED1 Existing / Demo Electrical Layout
 - .4 E1 New Electrical Power Layout
 - .5 E2 New Electrical Lighting Layout

END OF DOCUMENT

1. REQUIREMENTS INCLUDED A. THE GENERAL REQUIREMENTS, DIVISION 01 AND ANY SUPPLEMENTARY GENERAL CONDITIONS OF THE CONTRACT SHALL FORM A PART OF THIS SPECIFIFICATION. THE

REOUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS OF THIS SPECIFICATION. B. THE DRAWINGS AND SPECIFICATIONS COMPLIMENT EACH OTHER AND TOGETHER STIPULATE THE CONTRACT REQUIREMENTS, THE MORE RESTRICTIVE CONDITIONS APPLY WHEN INTERPRETING DISCREPANCIES BETWEEN THE DRAWINGS AND SPECIFICATIONS. C. FULLY UNDERSTAND THE INTENT AND FUNCTION OF THE SYSTEMS DESCRIBED IN THIS SPECIFICATION. ALL ELECTRICAL SYSTEMS COVERED UNDER DIVISION 16 SHALL BE FULLY COMPLETE, TESTED, OPERABLE AND READY FOR OWNER'S USE. USE THE INFORMATION CONTAINED IN THE RELEVANT DRAWINGS AND/OR SPECIFICATION SECTIONS SUPPLEMENTED WITH DATE CONTAINED WITHIN OTHER SPECIFICATION SECTIONS OR PROVIDED BY EQUIPMENT SUPPLIERS OF OTHER SUB-CONTRACTORS NO EXTRA WILL BE

ALLOWED IN ORDER TO COMPLETE SYSTEMS INADEQUATELY INSTALLED OR NOT FULLY

A. PROVIDE ALL LABOUR, MATERIAL, EQUIPMENT, TOOLS AND TRANSPORTATION FOR THE DRAWINGS, SPECIFIED HEREIN OR AS REASONABLY INFERABLE FROM EITHER.

REFERENCES

A. PROVIDE MATERIAL CONFORMING TO THE MOST UP-TO-DATE CSA AND/OR ULC

B. REGULATORY AGENCIES:

a. ELECTRICAL SAFETY AUTHORITY

4. <u>WORKMANSHIP</u>

A. ONLY FIRST-CLASS WORKMANSHIP PERFORMED BY QUALIFIED TRADE-PERSONS WILL BE ACCEPTED. NOT ONLY WITH REGARDS TO SAFETY AND DURABILITY BUT ALSO IN TERMS OF ACCESSIBILITY AND NEATNESS OF DETAIL. UNSATISFACTORY WORKMANSHIP SHALL BE

B. EMPLOY SPECIALIZED LABOUR AS REQUIRED FOR THE INSTALLATION, TESTING AND/OR COMMISSIONING OF SPECIFIC SYSTEMS TO ENSURE PROPER OPERATION. C. THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGES RESULTING FROM THE EXECUTION

DRAWINGS

A. THE DRAWINGS ARE INTENDED TO BE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF FOLIPMENT ONLY, NOT ALL BUILDING FLEMENTS ARE SHOWN, DO NOT SCALE THE DRAWINGS OR USE FOR FABRICATION PURPOSES. B. MAKE USE OF ALL AVAILABLE DOCUMENTATION, PRIOR TO TENDER, IN ORDER TO

DETERMINE THE SCOPE OF WORK. NO CONCESSION SHALL BE MADE FOR FAILURE TO MAKE USE OF THE COMPLETE PACKAGE OF DRAWINGS AND SPECIFICATIONS MADE AVAILABLE DURING THE TENDER PERIOD. C. MAKE ALLOWANCES FOR SITE CONDITIONS AND CO-ORDINATION WITH OTHER TRADES.

6. <u>RECORD DRAWINGS</u>

A. ONE SET OF PRINTS SHALL BE MAINTAINED IN GOOD CONDITION ON THE JOB-SITE AND BE MARKED WITH RED INK TO INDICATE DEVIATIONS MADE FROM THE ORIGINAL, TENDERED DRAWINGS. THESE DRAWINGS SHALL BE LABELLED "AS BUILT" AND SUBMITTED TO THE ENGINEER PRIOR TO FINAL INSPECTION.

SHOP DRAWINGS

A. SUBMIT SHOP DRAWINGS FOR EQUIPMENT AS INDICATED IN THE INDIVIDUAL SPECIFICATION SECTIONS. DO NOT ORDER EQUIPMENT PRIOR TO RECEIPT OF APPROVED SHOP DRAWINGS.

B. SHOP DRAWINGS SHALL CONTAIN THE FOLLOWING INFORMATION: a. EQUIPMENT DESIGNATION FROM DRAWINGS (E.G. POWER PANEL 'A', LIGHT FIXTURE

b. GENERAL CONTRACTOR AND ELECTRICAL SUBCONTRACTOR'S REVIEW STAMP.

c. MANUFACTURER AND CATALOGUE OR MODEL NUMBER. d. EOUIPMENT RATINGS, DIMENSIONS AND WEIGHT.

e. THE ENGINEER'S REVIEW OF SHOP DRAWINGS IS TO ENSURE GENERAL CONFORMITY WITH THE INTERNET OF THE DESIGN. THE ELECTRICAL SUB-CONTRACTOR BEARS FULL RESPONSIBILITY FOR ACTUAL EQUIPMENT DESIGN, QUALITY, FUNCTION, CODE COMPLIANCE AND INSTALLATION.

8. PERMITS AND FEES

A. OBTAIN AND PAY FOR ALL PERMITS REQUIRED FOR THE EXECUTION OF THE WORK

B. CHARGES OR FEES TO LOCAL UTILITIES IN CONJUNCTION WITH THEIR WORK ASSOCIATED WITH THE PROJECT WILL BE PAID DIRECTLY BY THE OWNER. PROVIDE TO THE UTILITIES ANY INFORMATION THEY REQUIRE IN ORDER TO DETERMINE THEIR SCOPE OF WORK. C. UPON COMPLETION OF THE WORK PROVIDE AN UNCONDITIONAL CERTIFICATE OF ACCEPTANCE FROM ONTARIO ELECTRICAL SAFETY AUTHORITY

9. RULES AND REGULATIONS

A. ENSURE THAT THE INSTALLATION CONFORMS TO ALL REQUIREMENTS OF THE MOST CSA STANDARDS, ONTARIO FIRE CODE AND/OR ANY OTHER APPLICABLE MUNICIPAL OR

B. THE DRAWINGS SHOW THE MINIMUM STANDARD ACCEPTABLE REGARDLESS OF ANY LESSER

STANDARD SET BY APPLICABLE CODE OR REGULATION.

10. INSPECTION

A. THE WORK SHALL BE AVAILABLE FOR INSPECTION BY THE ENGINEER AT ANY TIME. B. IF WORK IS DETERMINED TO BE UNACCEPTABLE IN TERMS OF THESE SPECIFICATIONS, THE CONTRACTOR SHALL TAKE IMMEDIATE MEASURES TO CORRECT THE DEFICIENCY

C. INFORM THE ENGINEER WHEN THE WORK IS READY FOR FINAL INSPECTION, DEFECTS SHALL BE MADE GOOD BEFORE FINAL PAYMENT IS AUTHORIZED

11. ABBREVIATIONS AND DEFINITIONS

A. WHEREVER WORDS SUCH AS "APPROVED", "SATISFACTORY", "DIRECTED", "PERMITTED", "REQUIRED" OR SIMILAR PHRASES ARE USED IN THIS SPECIFICATION IT SHALL BE IMPLIED THAT THE WORDS "BY (TO) THE ENGINEER" FOLLOWS. B. WHEREVER THE WORD "PROVIDE" IS USED IT SHALL BE LINDERSTOOD THAT IT IS EQUIVALENT TO "FURNISH AND INSTALL", COMPLETE AND IN PLACE, INCLUDING

ACCESSORIES, FINISHES, TESTS AND SERVICES TO RENDER ITEM SO SPECIFIED COMPLETE READY FOR USE. C. WHEREVER THE WORD "FURNISH" IS USED IT MEANS PROCUREMENT OF FABRICATION OF MATERIALS, EQUIPMENT, OR COMPONENTS, OR PERFORMANCE OF SERVICES TO EXTENT SPECIFIED AND SHOWN. WHERE USED WITH RESPECT TO MATERIALS, EQUIPMENT, OR COMPONENTS. THE TERM INCLUDES CRATING AND DELIVERY TO PROJECT SITE BUT IS NOT INTENDED TO INCLUDE INSTALLATION OF ITEM, EITHER TEMPORARY OR FINAL.

D. WHEREVER THE WORD "INSTALL" IS LISED IT MEANS PLACEMENT OF MATERIALS. OR COMPONENTS, INCLUDING RECEIVING, UNLOADING, TRANSPORTING, STORAGE, UNCRATING AND INSTALLING AND PERFORMANCE OF SUCH TESTING AND FINISH WORK AS IS COMPATIBLE WITH THE DEGREE OF INSTALLATION SPECIFIED.

• ABBREVIATIONS COMMONLY USED ON THE DRAWINGS ARE LISTED BELOW:

1/2/3P SINGLE, DOUBLE OR THREE POLE A AMPS/AMPERAGE

B/F BARRIER FREE CONDUIT

CSA CANADIAN STANDARDS ASSOCIATION DISTRIBUTION PANEL

ELECTRICAL SAFETY AUTHORITY FRACTIONAL HOSE POWER

MOUNTING HEIGHT

NBC NATIONAL BUILDING CODE OBC ONTARIO BUILDING CODE

OESC ONTARIO ELECTRICAL SAFETY CODE

SN SOLID NEUTRAL SWBRD SWITCHBOARD

ULC UNDERWRITER'S LABORITORIES OF CANADA W WATTS/WATTAGE

WP WEATHERPROOF

WM WALL MOUNTED V VOLTS/VOLTAGE

XFRMR TRANSFORMER

PART 2: PRODUCTS

1. MATERIALS AND EQUIPMENT A. MATERIALS TO BE NEW AND CSA/ULC APPROVED.

B. MATERIALS AND EQUIPMENT SPECIFIED BY TECHNICAL DESCRIPTION ONLY SHALL BE OF THE BEST QUALITY ATTAINABLE FOR APPLICATION. C. USE THE SAME MANUFACTURER, TYPE AND STYLE OF EQUIPMENT FOR PARTICULAR

GROUPINGS, CLASS OR TYPE OF EQUIPMENT USED ON THE PROJECT. D. REQUESTS FOR CHANGES TO THE PROJECT SCHEDULE, EQUIPMENT OR CONTRACT VALUE DUE TO LATE ORDERING OF EQUIPMENT WILL NOT BE CONSIDERED.

A. REQUESTS FOR APPROVAL OF ALTERNATIVE EQUIPMENT SHALL BE SUBMITTED COMPLETE WITH ALL PHYSICAL AND PERFORMANCE SPECIFICATIONS AND SHALL NOT DELAY THE PROJECT SCHEDULE. ALTERNATE EQUIPMENT INSTALLED WITHOUT WRITTEN APPROVAL MAY BE REPLACED, AT NO COST TO THE OWNER, WITH THE SPECIFIED EQUIPMENT.

B. MAKE ALLOWANCE FOR THE WORK OF THE GENERAL CONTRACTOR OTHER SUB-CONTRACTORS AFFECTED BY THE USE OF THE ALTERNATE EQUIPMENT. OUOTATIONS SUBMITTED WITH RESPECT TO THE USE OF THE SUBSTITUTE SHALI INCLUDE THE COSTS INCURRED BY ANY OTHER TRADES AFFECTED BY THE USE OF THE PROPOSED EQUIPMENT.

CONDUCTORS

A. MINIMUM GAUGE FOR CONDUCTORS USED FOR POWER CIRCUITS IS #12 AWG COPPER, THE SIZE TO BE ADJUSTED FOR DE-RATING DUE TO CONDUIT FILL. AMBIENT TEMPERATURE AND TO LIMIT VOLTAGE DROP TO NO MORE THAN 2% ON ANY FEEDER OR BRANCH CIRCUIT.

B. INSULATION TO BE RATED AT 600 VOLT EQUAL TO CSA RATED T90 (NYLON) OR R/RW/RWU90 (CROSS-LINKED POLYETHYLENE) AND WHERE A SPECIFIC TYPE OF INSULATION IS SHOWN THAT TYPE SHALL BE USED. C. ALL CONDUCTORS SHALL BE COLOUR CODED AT TERMINATIONS TO PANEL(S) AND EQUIPMENT. FOR CONDUCTORS #10 AWG AND SMALLER THE COLOUR SHALL BE THE INSULATION OF THE CONDUCTOR. LARGER CONDUCTORS MAY BE PROVIDED WITH A

2" (50MM) BAND OF APPROPRIATELY COLOURED TAPE ADJACENT TO THE

D. INSULATION COLOUR CODING TO BE AS FOLLOWS:

PHASE "A" RED PHASE "B" BLACK PHASE "C" BLUE NEUTRAL WHITE

GROUND GREEN

4. RACEWAYS

A. PROVIDE RACEWAYS AS INDICATED ON THE DRAWINGS, WHERE SIZE IS NOT SPECIFIED PROVIDE IN ACCORDANCE WITH THE REQUIREMENTS ON THE OESC.

B. THE FOLLOWING CONDUIT TYPES ARE APPROVED FOR USE ON THIS PROJECT: C. ELECTRICAL METALLIC TUBING (EMT) FOR GENERAL USE. D. RIGID ALUMINUM CONDUIT (RAC) WHERE SUSCEPTIBLE TO MECHANICAL DAMAGE.

E. RIGID POLYVINYL CHLORIDE (PVC) CONDUIT BELOW GRADE OR IN POURED CONCRETE STRUCTURES.

F. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT FOR FINAL CONNECTIONS TO

G. UTILIZE STEEL, SETCREW CONNECTIONS AND COUPLINGS FOR EMT CONDUIT. DIE-CAST OR PRESSURE-CAST CONNECTORS AND COUPLINGS ARE NOT ACCEPTABLE LIQUID TIGHT FITTINGS ARE TO BE USED OUTDOORS OR WHERE CONDUIT IS

STANDARD OUTLET BOXES

DIRECTLY EXPOSED TO MOISTURE.

A. SIZE AND SELECT INDIVIDUAL BOXES IN ACCORDANCE WITH THE OESC BASED ON THE INSTALLED DEVICE(S) AND THE NUMBER AND GAUGE OF CONDUCTORS CONTAINED WITHIN AND FOR THE INSTALLED LOCATION.

B. WHEREVER MULTIPLE DEVICES ARE SHOWN IN A GROUP PROVIDE GANGED BOXES COMPLETE WITH A SUITABLE PLASTER-RING AND INTERNAL BARRIERS WHERE OUTLETS FOR MORE THAN ONE SYSTEM ARE GROUPED. C. CAST ALUMINUM BOXES SHALL BE USED IN SURFACE MOUNT OUTDOOR

D. PVC BOXES SHALL BE USED IN CONCRETE STRUCTURES.

E. OUTLET BOXES FOR COMMUNICATION AND DATA SYSTEMS ARE TO BE 4" (100MM) SQUARE COMPLETE WITH A SUITABLE PLASTER-RING.

6. ACCESS PANELS AND DOORS

A. ACCESS PANELS AND DOORS TO HAVE A FIRE RATING SUITABLE FOR THE INSTALLED B. ACCESS PANELS AND DOORS TO BE PRIMED AND PAINTED, MINIMUM 12 GAUGE, FLUSH MOUNTED WITH CONCEALED HINGES, ANCHOR STRAP, LOCK AND TRIM TO

SUIT THE MATERIAL OF THE SURROUNDING SURFACE. C. MINIMUM SIZE TO BE 6" X 6" (150MM X 150MM) FOR HAND ACCESS AND 24" X 18" (600MM X 450MM) FOR PERSON ACCESS.

7. <u>IN-FLOOR OUTLET BOXES</u> A. IN-FLOOR BOXES TO BE RECESSED, CONCRETE TIGHT, GALVANIZED STEEL BASE, PVC HOUSING WITH LEVELING LEGS, AN ADJUSTABLE FINISHING RING TO SUIT FLOOR FINISH AND FLUSH LID CAPABLE OF ACCEPTING A FLOORING MATERIAL INSERT.

B. THERE SHALL BE A SUITABLE NUMBER AND SIZE OF KNOCKOUTS TO FACILITATE WIRING OF THE DEVICES AS INDICATED ON THE DRAWINGS.

SPLITTERS

A. WELDED SHEET METAL ENCLOSURE MADE FROM CODE GAUGE STEEL, PRIMED, COMPLETE WITH SCREW-ON OR HINGED COVER FOR SURFACE MOUNTING. B. ENCLOSURE TO BE EEMAC RATED FOR INSTALLED LOCATION.

C. INTERNAL WIRE LUGS TO MATCH SIZE REQUIREMENTS OF FEEDER AND CIRCUIT

D. PROVIDE A MINIMUM OF THREE (3) SPARE CIRCUIT WIRE POSITIONS ON EACH SET OF LUGS FOR SPLITTERS RATED 600 AMP OR LESS. E. LENGTH OF SPLITTER TO BE 12" (300MM) LONGER THAN MINIMUM NECESSARY TO MOUNT EQUIPMENT REQUIRED FOR THE PROJECT UNLESS NOTED OTHERWISE.

9. JUNCTION AND PULL BOXES

A. SIZE AND SELECT BOXES IN ACCORDANCE WITH THE OESC FOR THE NUMBER AND GAUGE OF CONDUCTORS CONTAINED WITHIN AND FOR THE INSTALLED LOCATION. B. WELDED SHEET METAL ENCLOSURE MADE FROM CODE GALIGE STEEL, PRIMED AND PAINTED AND RATED FOR THE INSTALLED LOCATION COMPLETE WITH SCREW-ON OR HINGED COVER FOR SURFACE MOUNTING, MINIMUM SIZE TO BE 6" X 6" (150MM

C. ENCLOSURE TO BE EEMAC RATED FOR INSTALLED LOCATION. D. FLUSH MOUNTED BOXES TO BE SIMILAR TO ABOVE AND TO BE COMPLETE WITH A 1"

(25MM) TRIM TO CONCEAL WALL OR CEILING OPENING E. PVC BOXES TO BE USED IN CONCRETE STRUCTURES.

F. CONFIRM SIZE AND SPACING REQUIREMENTS FOR COMMUNICATIONS SYSTEMS' BOXES WITH APPROPRIATE AUTHORITIES AND/OR SUPPLIERS PRIOR TO INSTALLATION.

CABINETS

A. SIZE AND SELECT CABINETS IN ACCORDANCE WITH THE OESC FOR THE ENCLOSED B. CABINETS AND EQUIPMENT ENCLOSURES ARE TO BE MANUFACTURED FROM CODE GAUGE STEEL, PRIMED AND PAINTED COMPLETE WITH LOCKING DOOR, CONCEALED

HINGES AND A REMOVABLE EQUIPMENT-MOUNTING PANEL C. ENCLOSURE TO BE EEMAC RATED FOR INSTALLED LOCATION. D. FLUSH MOUNTED CABINETS TO BE PROVIDED WITH APPROPRIATE TRIM AND

11. SWITCHES

A. SWITCHES SHALL BE TOGGLE STYLE, SPECIFICATION GRADE, SILENT OPERATION. SLOW-MAKE, SLOW BREAK RATED FOR THE AMPACITY AND VOLTAGE OF THE CONNECTED CIRCUIT

B. SINGLE POLE UNLESS SHOWN AS KEY-OPERATED, 3-WAY OR 4-WAY ON THE

12. <u>LED LIGHTING</u>

A. AS SPECIFIED IN LIGHTING SCHEDULE

13. RECEPTACLES

A. GENERAL PURPOSE RECEPTACLES: • DUPLEX RECEPTACLES TO BE 15 AMP, 125 VOLT, U-GROUND, CSA #5-15R

• DUPLEX, GROUND FAULT RECEPTACLES TO BE 15 AMP, 125 VOLT, U-GROUND, CSA

#5-15R CONFIGURATION, CLASS A, TRIP LEVEL OF 4-6MA WITH TEST AND RESET PUSHBUTTONS.

C. EQUIPMENT RECEPTACLES: • EQUIPMENT RECEPTACLES TO BE RATED AS SHOWN ON THE DRAWINGS COMPLETE

WITH OUTLET BOX, MOUNTING/COVERPLATE AND ALL REQUIRED INSTALLATION

ACCESSORIES.

13. COVER PLATES A. COVER PLATES SHALL BE PROVIDED FOR ALL OUTLET BOXES AS FOLLOWS: a. GENERAL AREAS - SMOOTH STAINLESS STEEL

C. MAIN BUS MAY BE ALUMINUM OR COPPER FOR BOLT-ON CIRCUIT BREAKERS.

E. THE SHORT CIRCUIT RATING OF THE PANEL SHALL FULLY MATCH THE LOWEST

 b. SERVICE AREAS - GALVANIZED STEEL c. WET LOCATIONS - HINGED, GASKETED, GRAY LEXAN

15. DISTRIBUTION PANELS A. LOCATION AND RATINGS AN INDICATED ON DRAWINGS. B. THE PANEL ENCLOSURE SHALL BE CODE GAUGE STEEL, BAKED GRAY ASA61 ENAMEL FINISH WITH A REMOVABLE FRONT COVER AND BE EEMAC RATED FOR THE INSTALLED LOCATION. THE BUILDING IS SPRINKLERED.

D. DIRECTORY CARD IN METAL FRAME WITH PLASTIC COVER.

PANEL BOARDS

A. LOCATION AND RATINGS AS INDICATED ON DRAWINGS B. ENCLOSURE TO BE CODE GAUGE STEEL. BAKED GRAY ASA61 FNAMFI FINISH REMOVABLE FRONT COVER, LOCKING DOOR COMPLETE WITH FLUSH MOUNTED LOCK, TWO KEYS AND TRIM FOR SURFACE OR RECESSED MOUNTING AND TO BE EEMAC RATED FOR THE INSTALLED LOCATION. C. MAIN BUS MAY BE ALUMINUM OR COPPER FOR BOLT-ON CIRCUIT BREAKERS.

RATED BRANCH OR MAIN CIRCUIT BREAKER.

D. DIRECTORY CARD IN METAL FRAME WITH PLASTIC COVER. E. COMBINATION PANELS TO HAVE FACTORY INSTALLED MAIN BREAKER IN SEPARATE COMPARTMENT AND BE RATED FOR SERVICE ENTRANCE DUTY. F. THE SHORT CIRCUIT RATING OF THE PANEL SHALL FULLY MATCH THE LOWEST RATED BRANCH OR MAIN CIRCUIT BREAKER.

17. <u>DISCONNECT SWITCHES - GENERAL</u> A. ALL EQUIPMENT OF SIMILAR TYPE SHALL BE BY ONE MANUFACTURER. B. ENCLOSURE TO BE EEMAC RATED FOR INSTALLED LOCATION. C. RATINGS TO BE MINIMUM REQUIRED MATCHING THE CONNECTED EQUIPMENT LOAD

UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS. 18. MOTOR DISCONNECT SWITCHES

A. FOR MOTORS RATED UP TO 1/6HP AND 120V USE SPECIFICATION GRADE 1P B. FOR MOTORS RATED UP TO 1/4HP TO 1HP AND 250V USE HOSE-POWER RATED, SIGNLE-THROW, QUICK-MAKE/QUICK-BREAK TOGGLE SWITCHES IN FACTORY ENCLOSURES WITH PROVISIONS TO BE LOCKED IN THE "OFF" POSITION. C. FOR MOTORS RATED GREATER THAN 1HP AND/OR 250V USE MANUFACTURED. HORSEPOWER RATED SAFETY SWITCHES COMPLETE WITH LOCKABLE, INTEGRAL OPERATING HANDLE AND OUICK-MAKE/OUICK BREAK, SILVER PLATED CONTACTS.

COVER TO BE MECHANICALLY INTER-LOCKED WITH HANDLE TO PREVENT OPENING WHEN IN THE "ON" POSITION". D. WHERE DISCONNECTS ARE REQUIRED TO BE FUSIBLE PROVIDE FUSE HOLDERS SUITABLE FOR THE TYPE AND VOLTAGE OF THE FUSE INSTALLED WITH SPRING REINFORCED FUSE CLIPS AS NECESSARY

OF THE FUSE INSTALLED WITH SPRING REINFORCED FUSE CLIPS AS NECESSARY.

19. CIRCUIT DISCONNECT SWITCHES A. FUSIBLE SWITCHES TO HAVE FUSE HOLDERS SUITABLE FOR THE TYPE AND VOLTAGE

20. CONTROLS - GENERAL A. ALL EQUIPMENT OF SIMILAR TYPE SHALL BE BY ONE MANUFACTURER.

B. EQUIPMENT TO BE EEMAC RATED FOR INSTALLED LOCATION.

21. CIRCUIT BREAKERS - GENERAL A. ALL CIRCUIT BREAKERS FOR THIS PROJECT SHALL BE BY ONE MAUFACTURER. B OHICK-MAKE OHICK-BREAK WITH ARC-OHENCHING DEVICE TRIP-FREE HANDLE THERMAL OVERLOAD AND INSTANTANEOUS MAGNETIC TRIP, AMBIENT

TEMPERATURE COMPENSATING TYPE. a. DISTRIBUTION PANELS - 22,000 AMPERES ASYMMETRICAL b. PANEL BOARDS (240V) - 10,000 AMPERES ASYMMETRICAL

c. PANEL BOARDS (600V) - 14,000 AMPERES ASYMMETRICAL d. BREAKERS SHALL BE MOUNTED TO THE BUS AS FOLLOWS • DISTRIBUTION PANELS - BOLT-ON DESIGN

PANEL BOARDS - BOLT-ON DESIGN

MULTI-POLE BREAKERS TO HAVE A COMMON/TRIP HANDLE.

22. FUSES A. FUSES SHALL BE BY ONE MANUFACTURER THROUGHOUT THE PROJECT. B. FEEDER FUSES UP TO 600V AND OVER 600A SHALL BE CSA CLASS HRC-L. C. FEEDER FUSES UP TO 600V AND 600 A SHALL BE CSA CLASS HRC-J.

D. GENERAL PURPOSE CIRCUIT PROTECTION FUSES SHALL BE CSA CLASS H. E. MOTOR AND TRANSFORMER CIRCUITS SHALL BE DUAL-ELEMENT, TIME DELAY, CSA

F. FUSES 30A OR LESS MAY BE PLUG STYLE.

23. <u>LIGHT FIXTURES</u> A. LIGHTING FIXTURES ARE TO BE COMPLETE WITH LAMPS, BALLASTS AND ALL MOUNTING OR INSTALLATION ACCESSORIES FOR THE LUMINARIES INDICATED IN THE LIGHTING FIXTURE SCHEDULE AND/OR ON THE DRAWINGS. B. REFER TO THE ARCHITECTURAL DRAWINGS FOR DETAILS RELATING TO CEILING

AND/OR WALL ORIENTATION AND CONSTRUCTION IN ORDER TO ESTABLISH THE

PROPER REQUIREMENTS FOR HANGERS, BRACKETS, PENDANTS, BALL-JOINT SWIVEL BASES, THREADED RODS AND OTHER SIMILAR INSTALLATION ACCESSORIES. 24. <u>LAMPS</u> A. FURNISH LAMPS AS REQUIRED BY THE LIGHTING FIXTURE SCHEDULE AND THE

FIXTURE SPECIFICATION.

25. BALLASTS A. PROVIDE BALLASTS AS REQUIRED BY THE FIXTURE SPECIFICATION AND THE LAMP OPERATING PARAMETERS INCLUDING SPECIALIZED BALLAST AS REQUIRED FOR DESIGNATED APPLICATIONS

B. ALL BALLASTS ARE TO BE COMPLETELY COMPATABLE WITH THE FIXTURE/LAMP

COMBINATION SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE AND LIGHTING

MANUFACTURER'S RECOMMENDATIONS.

26. <u>EMERGENCY LIGHTING- GENERAL</u> A. PROVIDE EMERGENCY BATTERY UNITS AS INDICATED ON THE DRAWINGS. B. PROVIDE LIGHTING FIXTURES WHERE INDICATED ON THE DRAWINGS. C. POWER SUPPLY VOLTAGE TO BE 347VAC. EMERGENCY SYSTEM VOLTAGE TO BE 24 27. EMERGENCY BATTERY UNIT

28. EMERGENCY LIGHT FIXTURE

POWER INPUTS.

EXIT LIGHT

A. UNIT TO HAVE LONG LIFE (10 YEAR LIFE EXPECTANCE), SEALED LEAD/ACID, LOW MAINTENANCE BATTERIES CAPABLE OF MAINTAINING THE CONNECTED LOAD PLUS 25% RESERVE CAPACITY FOR A MINIMUM DURATION OF 30 MINUTES AND BE PROVIDED WITH THE FOLLOWING FEATURES

B. CHARGER: 100% SOLID STATE, TEMPERATURE COMPENSATING, REVERSE POLARITY PROTECTED, AUTO-EQUALIZER CAPABLE OF RE-CHARCHING BATTERIES TO FULL CAPACITY WITHIN 12 HOURS ABD 2 FUSED OUTPUTS.

SUN-CONTRACTOR FOR WIRING BY DIVISION 16. C. TRANSFER UNIT: 100% SOLID STATE, CAPABLE OF INSTANTANEOUS TRANSFER OF C. OBTAIN THE ELECTRICAL RATINGS AND DATA FOR MECHANICAL EQUIPMENT, FROM ENTIRE CONNECTED LOAD ON NORMAL POWER FAILURE OR CONNECTIONS. THE MECHANICAL SUB-CONTRACTOR, PRIOR TO ROUGH-IN WIRING AND

D. CABINET: MINIMUM 18 GAUGE ENAMEL PAINTED STEEL ENCLOSURE WITH 1 METER CONNECTION OF THE EQUIPMENT. REPORT ANY DISCREPANCIES BETWEEN THE POWER CODE AND MOUNTING SHELF AS REQUIRED. F. FFATURES: "PUSH-TO-TEST" BUTTON, AC POWER "ON" LAMP, HIGH CHARGE INDICATOR AND BATTERY CONDITION INDICATOR.

A. SURFACE MOUNTED FIXTURES TO SINGLE OR DUAL, INJECTION MOLDED, HIGH

IMPACT PLASTIC, DECORATIVE DESIGN WITH 7WATT OR GREATER, HIGH INTENSITY LED LAMP(S). B. RECESSED FIXTURES TO BE WHITE BAKED ENAMEL, ADJUSTABLE GIMBAL RING TYPE WITH 7WATT OR BETTER, PAR36, HIGH INTENSITY LED LAMP.

A. ALL EQUIPMENT SHALL BE BY ONE MANUFACTURER THROUGHOUT THE PROJECT. B. NORMAL POWER SUPPLY VOLTAGE TO BE 120 VOLT-AC. EMERGENCY SYSTEM VOLTAGE TO BE 24 VOLT-AC. C. EXIT LIGHTING FIXTURE TO BE EXTRUDED ALUMINUM CONSTRUCTION, UNIVERSAL MOUNTING, SINGLE OR DOUBLE FACE AS REQUIRED, PICTOGRAM FILMS WITH

b. SELF-CONTAINED ELECTRONIC COMPONENTS TO DIRECTLY ACCEPT AC AND DC

DIRECTION INDICATION AS REQUIRED AND THE FOLLOWING FEATURES:

c. POWER CONSUMPTION SHALL BE 5W OR LESS.

a. INDIRECT LED ILLUMINATION OF FACEPLATE.

30. COMMUNICATIONS- GENERAL A. PROVIDE ALL RACEWAYS, WIRING, EQUIPMENT AND ACCESSORIES RELATING TO THE POWER SUPPLY WIRING AS GOVERNED BY OTHER SECTIONS OF THE SPECIFICATION, ALL ELECTRICAL MATERIAL TO BE AS RECOMMENDED BY THE EQUIPMENT/SYSTEM SUPPLIER UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS.

30. TELEPHONE/DATA RACEWAYS A. CONDUITS TO TELEPHONE AND DATA OUTLET BOXES INSTALLED IN WALLS TO BE

1/2" (12MM) UNLESS SPECIFICALLY NOTED OTHERWIS B. BOXES FOR TELEPHONE AND DATA OUTLETS SHALL BE 2"X4" (50MM X 100MM) UNLESS SPECIFICALLY NOTED OTHERWISE. C. CONFIRM ALL REQUIREMENTS WITH APPROPRIATE AUTHORITIES PRIOR TO

ROUGH-IN. 32. RACEWAYS THERMOSTATS

A. CONDUITS TO THERMOSTATS OUTLET BOXES INSTALLED IN WALLS TO BE $1/2^{\prime\prime}$ (12MM) UNLESS SPECIFICALLY NOTED OTHERWISE. B. BOXES SHALL BE 2"X4" (50MM X 100MM) MOUNTED HORIZONTALLY AS REQUIRED TO

C. CONFIRM ALL REQUIREMENTS WITH CONTROLS CONTRACTOR PRIOR TO ROUGH-IN.

SUIT THERMOSTAT OR SENSOR UNLESS SPECIFICALLY NOTED OTHERWISE.

PART 3: EXECUTION

GENERAL REQUIREMENTS A. ALLOW FOR THE TRANSPORTATION OF EQUIPMENT THROUGH THE CONSTRUCTION SITE AND BUILDING. REPAIR ALL SURFACES AFFECTED BY THE MOVEMENT OF

B. CLEAN ALL EQUIPMENT IMMEDIATELY PRIOR TO FINAL INSPECTION.

2. STORAGE OF MATERIALS A. PROVIDE A SUITABLE, ON-SITE OFFICE SPACE AND A DRY, PROTECTED STORAGE AREA FOR MATERIAL AND EQUIPMENT TO MAINTAIN FACTORY FINISH. B. KEEP THE SITE FREE OF DEBRIS AND SURPLUS MATERIAL.

C. UPON COMPLETION OF WORK REMOVE ALL TOOLS AND SURPLUS MATERIAL FROM

3. SLEEVING, CUTTING AND PATCHING A. ALLOW FOR ALL SLEEVING, CUTTING, PATCHING AND PAINTING REQUIRED FOR THIS WORK, USE ONLY SKILLED CRAFTSMAN FOR EACH TYPE OF WORK. B. ALL HOLES THROUGH THE EXTERIOR MEMBRANE OF THE BUILDING ARE TO BE MADE WATERPROOF. UTILIZE ACCEPTABLE METHODS OF FLASHING, CAULKING, ETC. C. ALL HOLES IN CONCRETE AND OTHER STRUCTURAL MEMBERS ARE TO BE APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO CUTTING. THE WORK IS TO BE CARRIED

OUT UNDER THE SUPERVISION OF THE GENERAL CONTRACTOR

4. GROUNDING AND TESTING A. PROVIDE A COMPLETE GROUNDING SYSTEM; THERE IS NO ATTEMPT TO INDICATE ALL OF THE GROUNDING REQUIREMENTS ON THE DRAWINGS B. BALANCE PHASE CURRENT SO THAT THE CURRENT ON ANY PHASE IS WITHIN 10%

OF THE MEAN VALUE. C. TEST BONDING CONTINUITY OF METALLIC RACEWAYS. D. TEST THE INSULATION GROUND FAULT RESISTANCE AND MERGER FEEDERS PRIOR

E. TEST FOR PROPER EQUIPMENT OPERATION.

a. <u>VOLTAGE READING AT THE FOLLOWING LOCATIONS:</u> DISTRIBUTION PANEL MAINS. POWER AND/OR LIGHTING PANEL MAINS.

F. PROVIDE THE FOLLOWING TEST AND INCLUDE DATA IN OPERATING AND MAGNA

 EOUIPMENT CONNECTIONS. • THE RECEPTACLE FURTHEST FROM THE MAIN ELECTRICAL SERVICE EQUIPMENT. b. AMPERAGE READING AT THE FOLLOWING LOCATIONS:

 DISTRIBUTION PANEL FEEDERS • POWER AND/OR LIGHTING PANEL FEEDERS.

• EQUIPMENT FEEDERS. 5. CORROSION, PROTECTION AND TOUCH-UP A. PRIME AND PAINT ALL FERROUS METAL SUPPORTS, BRACKETS, ETC.

> B. PROTECT ALL MATERIAL AND EQUIPMENT FROM ABUSE AND DAMAGE. REPAIR ANY DAMAGED SURFACE TO MATCH FACTORY FINISH.

SCREWS IN PRE-DRILLED HOLES.

6. <u>EQUIPMENT IDENTIFICATION</u> A. PROVIDE LAMACOID LABELS ON ALL DISTRIBUTION AND CONTROL EQUIPMENTS

a. LABELS TO BE 1/8" (3MM) THICK WHITE BACKGROUND WITH 1/4" (6MM) BLACK B. LABELS TO CONFIRM TO WORDING SPECIFIED IN INDIVIDUAL SPECIFICATION

C. MECHANICALLY FASTEN LAMACOID LABELS TO THE EQUIPMENT WITH SELF TAPING

D. TEMPORARY EQUIPMENT MARKINGS SHALL BE MADE IN INCONSPICUOUS LOCATIONS

PREFERABLY ON THE INSIDE OF THE PANEL OR ENCLOSURE. ALL TEMPORARY MARKINGS SHALL BE REMOVED PRIOR TO FINAL INSPECTION. E. JUNCTION BOXES TO BE EXTERNALLY LABELED WITH INDELIBLE MARKER INDICATING CIRCUITS CONTAINED INSIDE

ELECTRICAL/MECHANICAL INTERFACE

WORK INTERFACED UNDER THESE REQUIREMENTS.

CENTRELINE WHEN SHOWN TOGETHER.

A. ALL LINE VOLTAGE POWER SUPPLIES INCLUDING OVER-CURRENT PROTECTION, OVER-LOAD PROTECTION, MOTOR STARTERS AND CONTROLLERS, LINE VOLTAGE WIRING AND DISCONNECT MEANS SHALL BE PROVIDED UNDER THIS SECTION, EXCEPT IN THE CASE OF UNITIZED EQUIPMENT WHERE THE MOTOR STARTERS/CONTROLLERS FORM PART OF AN ITEM OF PACKED EQUIPMENT

B. ALL PRESSURE SWITCHES, THERMOSTATS, SOLENOID VALVES, DAMPER MOTORS AND SIMILAR EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY MECHANICAL

SUPPLIED EQUIPMENT AND THE RATINGS SHOWN ON THE ELECTRICAL DRAWINGS TO THE ENGINEER WITHOUT DELAY. D. THE MECHANICAL AND ELECTRICAL CONTRACTORS SHALL BIND THEMSELVES TO THE ACCURACY AND COMPLETENESS OF THIS WORK, AND MUTUALLY WARRANT THE

A. PROVIDE ALL SUPPORTS REQUIRED FOR THIS WORK. EVERY CONDUIT TO HAVE AT LEAST ONE SUPPORT AND ALL BOXES, FIXTURES, PANELS AND EQUIPMENT ARE TO BE SUPPORTED INDEPENDENTLY OF CONNECTING CONDUITS. B. INSTALL SWITCHES, RECEPTACLES AND OTHER OUTLETS ON A COMMON

C. MOUNT DEVICES/EQUIPMENT AT THE FOLLOWING HEIGHTS ABOVE FINISHED FLOOR TO CENTERLINE OF DEVICE. D. MOUNTING HEIGHT OF EMERGENCY LIGHT IS A MINIMUM; CONFIRM MOUNTING HEIGHTS, PRIOR TO ROUGH-IN, IN AREAS WITHOUT CEILINGS OR WHEN CEILING IS

HIGHER THAN 96" (2400MM). E. REFER TO THE ARCHITECTURAL DRAWINGS FOR AREAS OF THE BUILDING DESIGNATED AS BARRIER-FREE.

ITEM	STANDARD HEIGHT	BARRIER FREE HEIGHT
OFFICE RECEPTACLES	18" (460mm)	
DATA OUTLET	18" (460 mm)	
TELEPHONE (WM)	63" (1600 mm)	
LIGHT SWITCH	52" (1320 mm)	36" - 43" (915mm - 1093MM)
EMERGENCY LIGHT (WALL MOUNTED)	90" (2280 mm)	,
B/F DOOR PUSH BUTTON		36" (915mm)

BRANCH CIRCUIT WIRING.

H. INSTALL CONDUCTORS IN RACEWAYS AND TERMINATE AT EQUIPMENT OR SPLICES TO OTHER WIRING. I. CONDUCTORS FOR FEEDERS TO BE IDENTICAL IN TERMS OF CHARACTERISTICS AND LENGTH AND ERFF OF SPLICES. J. USE ONLY SOLDER LESS CONDUCTORS IN APPROVED BOXES FOR SPLICES/JOINTS IN

10. RACEWAYS A. INSTALL CONDUITS COMPLETE WITH ALL CONNECTORS, COUPLING, STRAPS, PULL

AND JUNCTION BOXES TO FORM A CONTINUOUS RACEWAY FOR THE INSTALLATION OF CONDUCTORS AT A LATER TIME. B. RACEWAYS ARE TO BE CONCEALED IN ALL FINISHED AREAS. IN SERVICE AND UTILITY AREAS CONDUITS MAY BE EXPOSED AND SHALL BE GROUPED AND INSTALLED PARALLEL TO BUILDING LINES. WHERE THE CONDUITS CANNOT BE INSTALLED ON BUILDING SURFACES PROVIDE CHANNELS SURFACE MOUNTED OR SUSPENDED FROM STRUCTURAL COMPONENTS OF THE BUILDING WITH THREADED

HEATING OR OTHER SIMILAR EQUIPMENT D. OPENINGS FOR RACEWAYS PASSING THROUGH STRUCTURAL MEMBERS OR LARGER THAN 1 1/4" (32MM) IN CONCRETE SLAB MUST BE REVIEWED AND APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO INSTALLATION.

E. EMPTY CONDUITS AND RACEWAY SYSTEM CONDUITS SHALL BE PROVIDED COMPLETE WITH BOXES, COVER PLATES, BUSHINGS, CAPS AND PULL-CORDS. F. PROVIDE FULL BOXES IN COMMUNICATIONS CONDUIT SYSTEMS AS DIRECTED BY THE COMMUNICATIONS CABLE INSTALLER.

G. PROVIDE CONDUIT SEALS WHERE REQUIRED BY THE OESC.

C. MAINTAIN REQUIRED CLEARANCES FROM STEAM OR HOT WATER LINES AND

A. CABLES ARE TO BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS TO ACHIEVE DESIRED AMPERE RATING OF THE CONDUCTORS.

B. FEEDER CABLES ARE TO BE FREE OF SPLICES. C. SINGLE CONDUCTOR CABLES ARE TO BE SECURED WITH NON-FERROUS STRAPS OR CLIPS AT INTERVALS REQUIRED BY THE OESC TO A FLAT BUILDING SURFACE OR D. SECURE MULTIPLE CONDUCTOR CABLES TO STRUCTURAL COMPONENTS OF THE

E. MULTIPLE CONDUCTOR, ARMORED CABLES MAY BE USED FOR FINAL CONNECTIONS

TO LIGHTING FIXTURES OR EQUIPMENT AND FOR BRANCH CIRCUIT WIRING CONCEALED MAXIMUM EXPOSED LENGTH SHALL BE 10'-0" (3000MM).

A. ALL BOXES ARE TO BE FLUSH MOUNTED EXCEPT IN SERVICE AND UTILITY AREAS. B. GANG BOXES WHEREVER DEVICES ARE SHOWN TOGETHER. WHEN ADJACENT BOXES CANNOT BE GANGED INSTALL ON COMMON CENTERLINE IN EITHER A HORIZONTAL

BUILDING USING APPROVED METHODS. TIE-WIRE NOT ACCEPTABLE.

OF VERTICAL ORIENTATION. C. SECURE OUTLET BOXES INDEPENDENTLY FROM CONNECTING CONDUITS. D. CONFIRM MILLWORK, FURNITURE AND DOOR SWINGS FROM ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN.

E. FILL UN-USED KNOCKOUT OPENINGS WITH PURPOSE-MADE FILLERS.

OF SUPPORTING THE WEIGHT OF THE EQUIPMENT

F. INSTALL BLANK COVER PLATES ON ALL UNUSED OUTLET BOXES. BACKBOARDS

A. PROVIDE BACKBOARDS FOR THE MOUNTING OF MAIN ELECTRICAL SERVICE EQUIPMENT, TELEPHONE SERVICE EQUIPMENT AND WHERE SHOWN ELSEWHERE ON THE DRAWINGS. B. PROVIDE SELF SUPPORTING FRAMEWORK WHERE THERE IS INSUFFICIENT WALL SPACE TO MOUNT THE EOUIPMENT OR THE ADJACENT STRUCTURE IS NOT CAPABLE

14. ACCESS PANELS AND DOORS A. PROVIDE ACCESS PANELS OR DOORS WHERE REQUIRED FOR ACCESS TO ELECTRICAL

15. IN-FLOOR OUTLET BOXES

EQUIPMENT INSTALLED AS PART OF THIS WORK OR FOR EXISTING EQUIPMENT CONCEALED AS PART OF THE WORK OF OTHER TRADES. B. PROVIDE ALL PANELS, DOORS AND FRAMES TO THE APPROPRIATE DIVISION FOR THE INSTALLATION AT THE COST IF THIS DIVISION. C. PAINTING OF THE DOORS SHALL BE BY OTHERS.

A. SECURELY MOUNT BOXES ON LEVELING LEGS SO THAT THE TRIM WILL BE FLUSH

C. REMOVE MUD CAP AND INSTALL FINISHING TRIM, LID COMPLETE WITH FLOORING

B. CONNECT CONDUITS, SECURE MUD-CAP AND POUR CONCRETE.

INSERT AFTER INSTALLATION OF WIRING AND DEVICES.

AND TERMINATED AT RIGHT ANGLES TO THE DEVICE OR EQUIPMENT WITH NO EXCESS LENGTH. C. PROVIDE A SELF-SUPPORTING FRAMEWORK WHERE THERE IS INSUFFICIENT WALL

16. SPLITTERS

A. FURNISH AND INSTALL SPLITTERS IN A NEAT, LOGICAL ARRANGEMENT SQUARE TO

B. CONNECT TO POWER SUPPLY FEEDER. THE FEEDER WIRING IS TO BE IDENTIFIED

BUILDING LINES ON BACKBOARDS OR METALLIC STRUCT/CHANNELS.

SWITCHES, COMBINATION STARTERS, ETC.

REQUIRED TO INSTALL THE CONDUCTORS.

DRYWALL ACCESS PANELS AS REOUIRED.

C. SECURE BOXES INDEPENDENT OF CONNECTING CONDUITS.

B. MOUNT BACKBOARDS OR METALLIC STRUCT/CHANNELS

E. DO NOT MOUNT DEVICES BACK TO BACK

BY PAINT CONSTRUCTION.

THE UP POSITION.

20. <u>SWITCHES</u>

21. RECEPTACLES

FURNITURE.

22. COVER PLATES

23. <u>DISTRIBUTION PANELS</u>

17. JUNCTION AND PULL BOXES

CONTAINED INSIDE.

18. CABINETS

(BY PHASE) AND TERMINATED AT THE LUGS WITH NO EXCESS LENGTH.

C. PREPARE THE SPLITTER FOR THE INSTALLATION OF CIRCUIT DISCONNECT

A. SUPPLY AND INSTALL PULL AND JUNCTION BOXES IN RACEWAY SYSTEMS AS

B. INSTALL BOXES IN INCONSPICUOUS BUT ACCESSIBLE LOCATIONS, USUALLY IN

ACCESSIBLE CEILING SPACES OR IN SERVICE AND UTILITY AREAS, PROVIDE

D. JUNCTION BOXES TO BE LABELED WITH PERMANENT MARKER INDICATING CIRCUITS

SPECIFICATION OR FOR THE FUTURE INSTALLATION OF EQUIPMENT BY OTHERS.

C. PRIME FLUSH MOUNTED CABINETS IN FINISHED AREAS FOR FINISHED PAINTING BY

D. BOXES TO BE LABELED WITH DATA INDICATING EQUIPMENT CONTAINED INSIDE.

A. INSTALL ELECTRICAL DEVICES IN OUTLET BOXES CONNECT TO POWER SUPPLY

B. REFER TO THE ARCHITECTURAL DRAWINGS TO DETERMINE THE BARRIER-FREE

C. REFER TO ARCHITECTURAL MILLWORK DRAWINGS TO DETERMINE THE EXACT

D. INSTALL SWITCHES AND RECEPTACLES OR OTHER OUTLETS WITH DIFFERENT

MOUNTING HEIGHTS ON AN COMMON CENTERLINE WHEN SHOWN TOGETHER.

F. REPLACE ANY DEVICES OR COVER PLATES THAT HAVE BEEN DAMAGED OR MARKED

A. INSTALL SINGLE POLE SWITCHES SO THAT SWITCH IS CLOSED WITH THE TOGGLE IN

B. GROUP SWITCHES TOGETHER IN A COMMON OUTLET BOX WITH A MATCHING

MULTIPLE GANG COVER PLATE WHERE TWO OR MORE ARE SHOWN IN ONE

A. IN GENERAL, RECEPTACLES SHALL BE INSTALLED VERTICALLY SO THAT LINE AND

B. GANG RECEPTACLES TOGETHER IN COMMON OUTLET BOX WHERE TWO OR MORE

C. INSTALL RECEPTACLES HORIZONTALLY WHERE REQUIRED TO CLEAR MILLWORK OR

D. INSTALL OUTDOOR, WEATHERPROOF RECEPTACLES HORIZONTALLY.

A. MOUNT COVER PLATES FLUSH TO WALL FOR RECESSED DEVICES.

B. PROVIDE BLANK COVER PLATES ON ALL UNUSED DEVICE OUTLET BOXES.

C. INSTALL COVER PLATES AFTER PAINTING IS COMPLETED, WHERE IT IS TO BE

A. INSTALL PANEL ON A FIRE-RATED BACKBOARD AND/OR A SELF-SUPPORTING

OR THE STRUCTURE IS NOT CAPABLE OF SUPPORTING THE WEIGHT OF THE

B. CONNECT TO POWER SUPPLY FEEDER. THE FEEDER WIRING IS TO BE IDENTIFIED

D. PROVIDE LABEL ON THE PANEL COVER INDICATING PANEL NAME ON ONE LINE WITH

FEEDER AMPERES, VOLTAGE, PHASE AND WIRES ON A LINE BELOW (E.G. "DP-1.

400A, 347/600V, 3PH, 4W"). REFER TO DRAWINGS FOR PANEL IDENTIFICATION.

B. MOUNT ALL EQUIPMENT IN NEAT, LOGICAL ARRANGEMENT. WIRING TO BE LABELED

SPACE TO MOUNT THE EQUIPMENT OR ADJACENT STRUCTURE IS NOT CAPABLE OF

A. FURNISH AND INSTALL DISCONNECT SWITCHES COMPLETE WITH FUSES AND

ONNECT TO POWER SUPPLY WIRING TO THE CONNECTED LOAI

(BY PHASE) AND TERMINATED AT THE LUGS WITH NO EXCESS LENGTH.

C. COMPLETE A TYPE WRITTEN PANEL DIRECTORY AND INSTALL IN FRAME.

FRAMEWORK WHERE THERE IS INSUFFICIENT WALL SPACE TO MOUNT THE PANEL

NEUTRAL OPENINGS ARE ABOVE GROUND PRONG.

ARE SHOWN IN ONE LOCATION.

INSTALLED ON A PAINTED SURFACE.

AND/OR CONTROL WIRING AND AFFIX COVER PLATE OVER DEVICE AND OUTLET BOX.

AREAS OF THE BUILDING AND POSITION THE DEVICES AT THE MOUNTING HEIGHT

CONSTRUCTION DETAILS OF THE MILLWORK PRIOR TO ROUGH-IN. POSITION THE

OR REQUIRE THE COVER PLATES TO BE FIELD MODIFIED TO ALLOW THEM TO BE

DEVICES IN SUCH A MANNER SO THAT THEY ARE NOT BLOCKED BEHIND THE UNITS

THAT IS APPROPRIATE FOR THE DESIGNATION OF THE INSTALLED LOCATION.

A. FURNISH AND INSTALL CABINETS FOR THE INSTALLATION OF ELECTRICAL

COMPONENTS INCLUDED IN THIS WORK OR COVERED BY A DIFFERENT

D. PROVIDE LAMACOID LABELS ON CIRCUIT DISCONNECTS INDICATING CONNECTED. LOADS, VOLTAGE RATING AND MAXIMUM FUSE SIZE ON THREE (3) SEPARATE LINES (E.G. "HVAC-1, *208/3*, MAX FUSE 20A). 25. CONTROLS A. FURNISH AND INSTALL CONTROL ACCESSORIES AS INDICATED ON THE DRAWINGS

SUPPORTING THE WEIGHT OF THE DISCONNECT(S).

AND REQUIRED BY THIS SPECIFICATION. CONNECT TO POWER SUPPLY AND CIRCUIT WIRING TO ACHIEVE THE CONTROL DESIRED. B. MOLINT ALL FOLIPMENT IN A NEAT, LOGICAL ARRANGEMENT, WIRING TO BE LABELED AND TERMINATED AT RIGHT ANGLES TO THE DEVICE OR EQUIPMENT WITH NO EXCESS LENGTH.

D. TEST ALL CONTROL SEQUENCES AND CONFIRM PROPER OPERATION PRIOR TO FINAL INSPECTION.

OF EQUIPMENT ENCLOSURE.

COMPLETION OF THE PROJECT.

26. <u>CIRCUIT BREAKERS</u> A. PROVIDE CIRCUIT BREAKERS AS INDICATED ON THE PANEL SCHEDULES AND/OR SINGLE LINE DIAGRAMS. B. ENSURE THAT ALL BREAKERS HAVE AN INTERRUPTING CAPACITY SUITABLE FOR THE

C. TERMINATE BRANCH CIRCUIT WIRING IN THE BREAKER LUG. WIRING TO BE LABELED

C. PROVIDE WIRING DIAGRAMS FOR CONTROL CIRCUITS AND MOUNT INSIDE COVER

AT RIGHT ANGLES TO THE CIRCUIT BREAKER WITH NO EXCESS LENGTH.

27. FUSES A. FUSES FOR FEEDERS TO BE AS INDICATED ON THE DRAWINGS. B. FUSES FOR MOTOR AND TRANSFORMER CIRCUITS TO BE BASED ON THE NAMEPLATE RATING OF THE EQUIPMENT.

E. PROVIDE THREE (3) SPARE FUSES OF EACH SIZE AND TYPE RATED 200A OR F. PROVIDE SIX (6) SPARE FUSES OF EACH SIZE AND TYPE RATED LESS THAN 200A. G. HAND OVER SPARE FUSES (IN ORIGINAL CONTAINERS) TO THE OWNER UPON

C. ENSURE THAT ALL FUSES ARE CORRECTLY RATED FOR THE APPLICATION.

D. SHIP FUSES IN THEIR ORIGINAL CONTAINERS AND INSTALL IN DISCONNECT

SWITCHES AND/OR SWITCHBOARDS IMMEDIATELY PRIOR TO ENERGIZING CIRCUIT.

28. LIGHTING

A. REVIEW ALL AVAILABLE DRAWINGS AND EXISTING SITE CONDITIONS (AS APPLICABLE) TO ENSURE THAT THE FIXTURE IS COMPLETE WITH ALL OF THE REQUIRED MOUNTING HARDWARE AND ACCESSORIES.

B. INSTALL LIGHTING FIXTURES COMPLETE WITH ALL LAMPS, TRIM AND MOUNTING

HARDWARE AND CONNECT TO POWER SUPPLY AND CONTROL WIRING AS INDICATED ON THE DRAWINGS FOR A COMPLETE AND FINISHED UNIT(S). C. INSTALL LIGHTING FIXTURES IN MECHANICAL AND OTHER SERVICE ROOMS AFTER THE MECHANICAL AND ELECTRICAL EOUIPMENT IS IN PLACE, LOCATE LUMINARIES

TO CLEAR ALL OBSTRUCTIONS. PROVIDE ADDITIONAL SUPPORT TO HANG FIXTURES BELOW DUCTS AND EQUIPMENT D. ENSURE FIXTURES ARE INSTALLED IN SUCH A MANNER AS TO FACILITATE THE REPLACEMENT OF LAMPS.

INDEPENDENTLY FROM THE CEILING GRID IN A MINIMUM OF TWO LOCATIONS BY

E. PROVIDE ALL SUPPORT BLOCKING AS NECESSARY FOR THE INSTALLATION OF LIGHTING FIXTURES. SUPPORTS SHALL BE CONCEALED BEHIND WALLS OR ABOVE F. LIGHTING FIXTURES INSTALLED IN ACOUSTIC TILE CEILINGS ARE TO BE SUPPORTED

29. <u>EMERGENCY LIGHTING</u> A. FURNISH AND INSTALL BATTERY LIGHTING UNITS AND REMOTE FIXTURES

CHAIN CONNECTED TO THE BUILDING STRUCTURE.

COMPLETE WITH ALL REQUIRED ACCESSORIES AND MOUNTING HARDWARE FOR A COMPLETE AND FUNCTIONAL INSTALLATION. B. CONNECT TO LINE AND/OR LOW VOLTAGE POWER SUPPLIES. UTILIZE WIRING METHODS AND SIZE CONDUCTORS FOR VOLTAGE DROP AS ALLOWED BY THE OESC. C. ENSURE FIXTURES ARE INSTALLED IN SUCH A MANNER AS TO FACILITATE

REPLACEMENT OF LAMPS. AIM FIXTURES TO PROVIDE OPTIMUM COVERAGE OF D. UTILIZE WIRING METHODS AND SIZE CONDUCTORS FOR VOLTAGE DROP AS ALLOWED BY OESC.

E. TEST OPERATION OF ALL EQUIPMENT PRIOR TO FINAL INSPECTION.

BATTERY UNIT UNLESS DETAILED OTHERWISE ON THE DRAWINGS.

F. PROVIDE DUPLEX RECEPTACLES ON LOCAL LIGHTING CIRCUIT ADJACENT TO

30. EXIT LIGHTING

A. PROVIDE FIXTURES WHERE INDICATED ON THE DRAWINGS. B. FURNISH AND INSTALL ALL FIXTURES COMPLETE WITH ALL LAMPS, TRIM AND MOUNTING HARDWARE FOR A COMPLETE AND FINISHED APPEARANCE. C. PROVIDE ALL SUPPORT BLOCKING AS NECESSARY FOR THE INSTALLATION OF

AND SIZE CONDUCTORS FOR VOLTAGE DROP AS ALLOWED BY OESC. E. TEST OPERATION OF ALL EQUIPMENT PRIOR TO FINAL INSPECTION. F. WHERE AN EXIT LIGHT FIXTURE IS SHOWN AT A DOOR ON THE DRAWINGS MOUNT FIXTURE ON WALL 6" (150MM) ABOVE THE DOOR AND ON THE CENTERLINE OF THE

D. CONNECT LINE AND LOW VOLTAGE POWER SUPPLIES. UTILIZE WIRING METHODS

31. MECHANICAL EQUIPMENT

LIGHTING AND BATTERY UNITS.

A. INSTALL POWER SUPPLY WIRING AND CONNECT TO MECHANICAL EQUIPMENT B. ALL LINE VOLTAGE POWER SUPPLIES INCLUDING OVER-CURRENT PROTECTION. OVER-LOAD PROTECTION, MOTOR STARTERS/CONTROLLERS, LINE VOLTAGE WIRING AND LOCAL DISCONNECTING MEANS SHALL BE PROVIDED UNDER THIS SECTION. EXCEPT IN THE CASE OF UNITIZED EQUIPMENT WHERE THE MOTOR STARTERS/CONTROLLERS FORM PART OF THE PACKED EQUIPMENT

EQUIPMENT, REPORT ANY DISCREPANCIES BETWEEN THE SUPPLIED EQUIPMENT AND THE RATINGS SHOWN ON THE ELECTRICAL DRAWINGS TO THE ENGINEER D. THE MECHANICAL AND ELECTRICAL CONTRACTORS SHALL BIND THEMSELVES TO THE ACCURACY AND COMPLETENESS OF THIS WORK, AND MUTUALLY WARRANT THE

C. OBTAIN THE ELECTRICAL RATINGS AND DATA FOR MECHANICAL EQUIPMENT, FROM

THE MECHANICAL CONTRACTOR, PRIOR TO ROUGH-IN AND CONNECTION OF THE

32. MOTORIZED ENTRY DOORS A. INSTALL POWER SUPPLY WIRING AND CONNECT TO MOTORIZED DOOR OPERATOR.

35. RACEWAYS FOR THERMOSTATS

BOX TO AN ACCESSIBLE CEILING SPACE.

B. ALL CONDUITS/WIRING TO BE CONCEALED IN WALL AND HEAD/FRAME OF DOOR. 33. MOTORIZED OVERHEAD DOORS

C. CONFIRM PROJECT SCHEDULE AND ARRANGE FOR CABLE AND SERVICE

A. PROVIDE AN OUTLET BOX FOR EACH THERMOSTAT WHERE INDICATED ON THE

B. PROVIDE 1/2" (12MM) CONDUIT WITH A 1/8" (3MM) NYLON PULL-CORD FROM EACH

A. INSTALL POWER SUPPLY WIRING AND CONNECT TO MOTORIZED DOOR OPERATOR.

WORK INTERFACED UNDER THESE REQUIREMENTS.

34. TELEPHONE/DATA RACEWAY SYSTEMS A. PROVIDE A 1/8" (3MM) NYLON PULL-CORD IN ALL EMPTY CONDUITS. B. PROVIDE PULL BOXES IN DATA COMMUNICATIONS CONDUIT SYSTEMS.

D. PROVIDE 1/2" (12MM) CONDUIT FROM EACH OUTLET TO AN ACCESSIBLE CEILING E. PROVIDE BLANK COVER PLATES ON ALL UNUSED TELEPHONE/DATA OUTLET BOXES. COVER PLATE STYLE TO MATCH ELECTRICAL DEVICES SPECIFIED ELSEWHERE.

INSTALLATION WITH APPROPRIATE AUTHORITIES.

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DESCRIPTION

ISSUED

SPH ENGINEERING INC REAL WORLD ENGINEERING SOLUTIO 65 SPRINGBANK AVE. N - UNIT #1 WOODSTOCK, ONTARIO N4S 8V8 TEL: 519-539-5700 www.spheng.com

DATE

BUS SHELTER

EXPANSION

CITY OF WOODSTOCK

SPECIFICATIONS

ELECTRICAL

AS NOTED PLOT DATE PROJECT No DRAWING No 2020-12-04 20162

ELECTRICAL LEGEND					
	4 X 2 CEILING LIGHT FIXTURE				
	10-1/3" x 10-1/3" LED FIXTURE				
	EXTERIOR WALL PACK				
*	COMBINATION EXIT / EMERGENCY LIGHTING UNIT				
¥	REMOTE LIGHTING UNIT				
♦	ELECTRIC MOTOR/ELECTRICAL EQUIPMENT				
FS	FAN STARTER				
MS	MOTION SENSOR				
DO	DOOR OPERATOR				

					\bigcirc	ELECTRIC	MOTOR/ELECTR	ICAL EQUIPMENT	
					FS	FAN STAR	TER		
					MS	MOTION S	ENSOR		
				DO	DOOR OPE	ERATOR			
		LIGHTING	SCHEDU	<u>LE</u>					
MANUFACTURER	ARTICLE NAME	ITEM NUMBER	LUMINOUS	FLUX	CONNECTED LOAD	VOLTAGE	QUANTITY	MOUNTING	
PHILIPS / KEENE	GARAGE & CANOPY LED	GC57-NW-G1-SM-5-6-BZ	6319		57.2 W	347	12	PENDANT MOUNT AT SAME HEIGHT AS EXISTING LIGHTS	
BEGHELLI	QUADRO RUNNING MAN COMBO	QR-RM-6-36-L-1-O-W-2BTMR- 7WLED	-		7 W	120 / 347	1	WALL MOUNT @10' A.F.F.	

6V

WALL MOUNT @10' A.F.F.

DAMPERS SCHEDULE TAG ID DESCRIPTION SIZE MODEL <u>REMARKS</u> TO SUIT LOUVER & EXHAUST FAN TAMCO SERIES 9000 BF THERMALLY BROKEN BLADES, BELIMO DAMPER MOTOR & ALL CONTROLS, END POSITION SWITCHES MOTOR ELECTRICAL: 120/1/60 $\frac{\text{MD-1, 2,}}{3, 4}$ MOTORIZED DAMPER

	EXHAUST FAN SCHEDULE								
FAN #	DESCRIPTION	MAKE	MODEL	AIR FLOW (CFM)	FAN MOTOR HP	STATIC PRESSURE	<u>VOLTAGE</u>	UNIT WEIGHT kg (lbs)	<u>REMARKS</u>
<u>EF-1</u>	SIDEWALL EXHAUST FAN	GREENHECK	SBE-1H20-4	500	0.13	0.25 IN WG	115/60/1	75 (166)	C/W MOTOR GUARD. PROVIDE MS-1P MOTOR STARTER FOR FAN CONTROL.
<u>EF-2</u>	SIDEWALL EXHAUST FAN	GREENHECK	SBE-1H24-4	3200	0.31	0.25 IN WG	115/60/1	101 (223)	C/W MOTOR GUARD. PROVIDE MS-1P MOTOR STARTER FOR FAN CONTROL. INTERLOCK EXHAUST FAN WITH GAS DETECTION SYSTEM.

BOL-R-2-6V-7W-LED

PART NUMBER | MANUFACTURER |

BOLLA 6V LED REMOTE

NOTE: ALTERNATE LIGHTING OF EQUAL PERFORMANCE IS ACCEPTABLE.

RADIANT TUBE HEATER SCHEDULE								
UNIT #	DESCRIPTION	MAKE	MODEL #	HEATING INPUT KW (MBH)	VOLTAGE	FLA	<u>MOCP</u>	<u>REMARKS</u>
RTH-1/2	NEW 50' LONG RADIANT TUBE HEATER	SCHWANK	STS-JZ 200	32 (110)	120/60/1	1	15	c/w T-STAT, VENT TERMINATION KIT, SIDE REFLECTOR. INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS, MOUNTING HEIGHT TO MATCH EXISTING HEATERS.
NOTE: ALTERNATE EQUIPMENT OF EQUAL PERFORMANCE IS ACCEPTABLE.								

	THE PERMISSION	OF THE OWNER.
ΙΤ	STAMP PROFESSION R. W. SPENCER 100191633 R. W. SPENCER 100191633	NORTH ARROW

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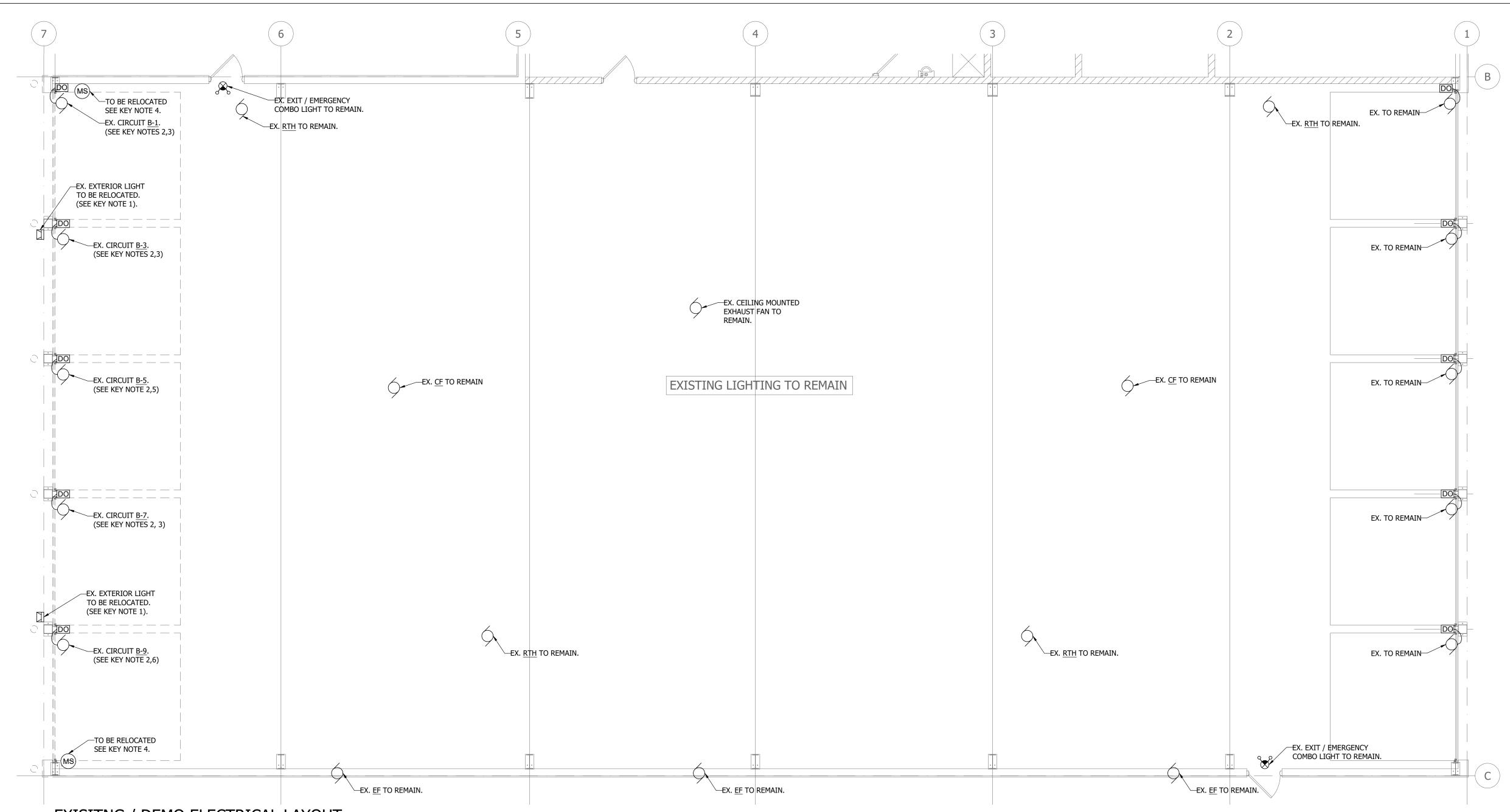
CITY OF WOODSTOCK

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BUS SHELTER EXPANSION

ELECTRICAL LEGEND, & SCHEDULES

AS NOTED RS PLOT DATE PROJECT No DRAWING No E0.2 2020-12-04 20162



EXISITNG / DEMO ELECTRICAL LAYOUT

SCALE:3/16"=1'-0"

GENERAL ELECTRICAL DEMOLITION NOTES

- 1. THIS DRAWING IS TO BE READ WITH ARCHITECTURAL AND MECHANICAL DEMOLITION DRAWINGS.
- 2. THE CONTRACTOR MUST COORDINATE WITH CUSTOMER PRIOR TO ANY EQUIPMENT SHUTDOWN OR REMOVAL.
- 3. THE DEMOLITION OF THE ELECTRICAL SYSTEMS MUST BE PHASED TO CORRESPOND TO THE PHASES OF THE CONSTRUCTION OF THIS PROJECT. IF ANY SYSTEM OR PORTION OF A SYSTEM IS REMOVED WHILE THAT SYSTEM IS STILL REQUIRED TO BE OPERATIONAL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY PROVISIONS TO KEEP THE SYSTEM OPERATIONAL AND FOR RESTORING IT TO A FULLY OPERATIONAL STATE AS NECESSARY.
- 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING POWER TO ALL AREAS OF THE EXISTING BUILDING AS NECESSARY TO ACCOMMODATE THE PHASING OF THE BUILDING CONSTRUCTION AND ALLOW THE EXISTING BUILDING TO REMAIN CONTINUOUSLY OPERATIONAL.
- 5. UNLESS OTHERWISE STATED, REMOVAL SHALL INCLUDE ALL WIRE, EXPOSED CONDUIT, LIGHT FIXTURES, SENSORS, RECEPTACLES, CONNECTIONS TO MECHANICAL EQUIPMENT, SWITCHES, FIRE ALARM EQUIPMENT AND DEVICES, DATA EQUIPMENT WIRING AND DEVICES, INTERCOM SPEAKERS, INTERCOM COMPONENTS, SUPPORTING DEVICES, AND ANY OTHER MISCELLANEOUS EQUIPMENT ASSOCIATED WITH THE ELECTRICAL SYSTEM WHICH WILL INTERFERE WITH DEMOLITION.
- 6. EXCEPT WHERE NOTED, ALL EXISTING ELECTRICAL EQUIPMENT OUTSIDE THE AREAS OF DEMOLITION WORK IS TO REMAIN. THIS EQUIPMENT IS NOT SHOWN FOR DRAWING CLARITY.
- 7. THE CONTRACTOR MUST CONFIRM THE PROPERTY OWNER'S WISHES PRIOR TO DISCARDING ANY SALVAGEABLE MATERIAL.

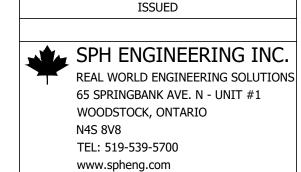
8. ALL CIRCUITS TO BE CONFIRMED ONSITE. KEY ELECTRICAL DEMOLITION NOTES

- 1. WALL PACK IS TO BE REMOVED FOR RELOCATION. CABLE AND CONDUIT SERVING WALL PACK IS TO BE PULLED BACK TO CLEAR WORK AREA. CIRCUIT WILL BE EXTENDED TO POWER RELOCATED WALL PACKS.
- 2. DOOR LIFT AND CONTROLS ARE TO BE REMOVED AND RETURNED TO OWNER.
- 3. CABLE AND CONDUIT SERVING DOOR LIFT IS TO BE MADE SAFE AND PULLED BACK TO CLEAR WORK AREA. CIRCUIT WILL BE EXTENDED AND REPURPOSED TO POWER DOOR LIFT IN ADDITION.
- 4. SECURITY MOTION SENSOR TO BE REMOVED FOR RELOCATION. SENSOR WIRING TO BE PULLED BACK
- TO CLEAR WORK AREA. CONTRACTOR IS TO COORDINATE WORK WITH SECURITY SERVICE PROVIDER.
- 5. CABLE AND CONDUIT SERVING DOOR LIFT IS TO BE MADE SAFE AND PULLED BACK TO CLEAR WORK AREA. CIRCUIT WILL BE EXTENDED AND REPURPOSED TO POWER UNIT HEATERS.
- 6. CABLE AND CONDUIT SERVING DOOR LIFT IS TO BE MADE SAFE AND PULLED BACK TO CLEAR WORK AREA. CIRCUIT WILL BE EXTENDED AND REPURPOSED TO POWER EXHAUST FANS AND DAMPERS.

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DESCRIPTION

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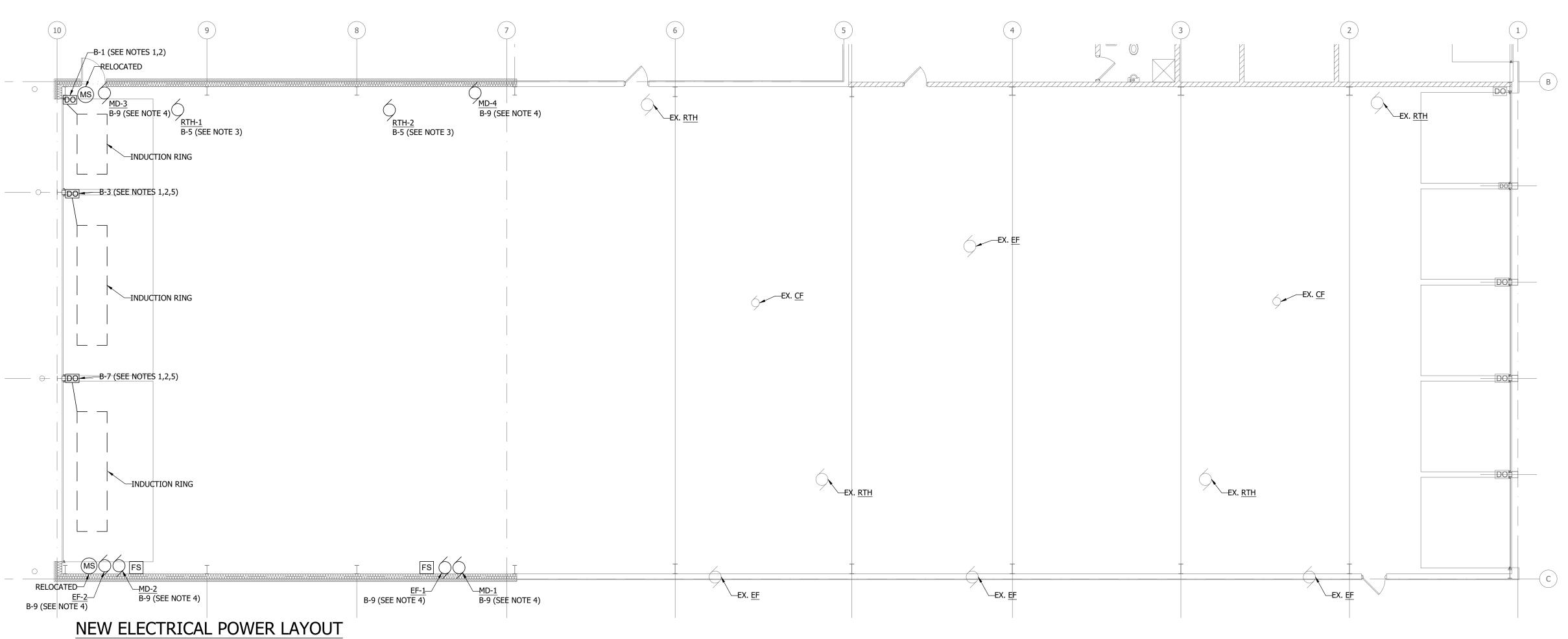
EXISTING / DEMO

ELECTRICAL LAYOUT

AS NOTED RS PLOT DATE PROJECT No DRAWING No ED1

20162

2020-12-04



SCALE:1/8"=1'-0"

- 1. CONTRACTOR IS TO EXTEND EXISTING DOOR CIRCUITS TO POWER NEW DOOR OPERATORS. CIRCUITS TO BE CONFIRMED ONSITE.
- 2. DOOR OPERATORS ARE TO BE INSTALLED WITH A LOCAL DISCONNECT.
- 3. CONTRACTOR IS TO REPURPOSE AND EXTEND OLD DOOR OPERATOR CIRCUITS TO POWER NEW RADIANT TUBE HEATERS. CIRCUITS TO BE CONFIRMED ONSITE.
- 4. CONTRACTOR IS TO REPURPOSE AND EXTEND OLD DOOR OPERATOR CIRCUITS TO POWER NEW
- EXHAUST FANS AND MOTORIZED DAMPERS.
- 5. CONTRACTOR IS TO PROVIDE A 1/2HP DORRLEC LJH MOTOR OR EQUIVALENT FOR SMALLER DOOR AND A 3/4HP DORRLEC LJH MOTOR OR EQUIVALENT FOR EACH LARGER DOOR. DOOR OPERATORS ARE TO BE CONTROLLED BY AN INDUCTION GROUND LOOP AND PUSHBUTTON MANUAL CONTROL. CONTRACTOR IS TO PROVIDE A 4'X8' LOOP FOR THE SMALL DOOR AND 4'X16' LOOP FOR EACH LARGER DOOR. GROUND LOOPS ARE TO BE INSTALLED 2' AWAY FROM DOOR EDGE, AND CENTERED ON DOOR CONTROLLED.

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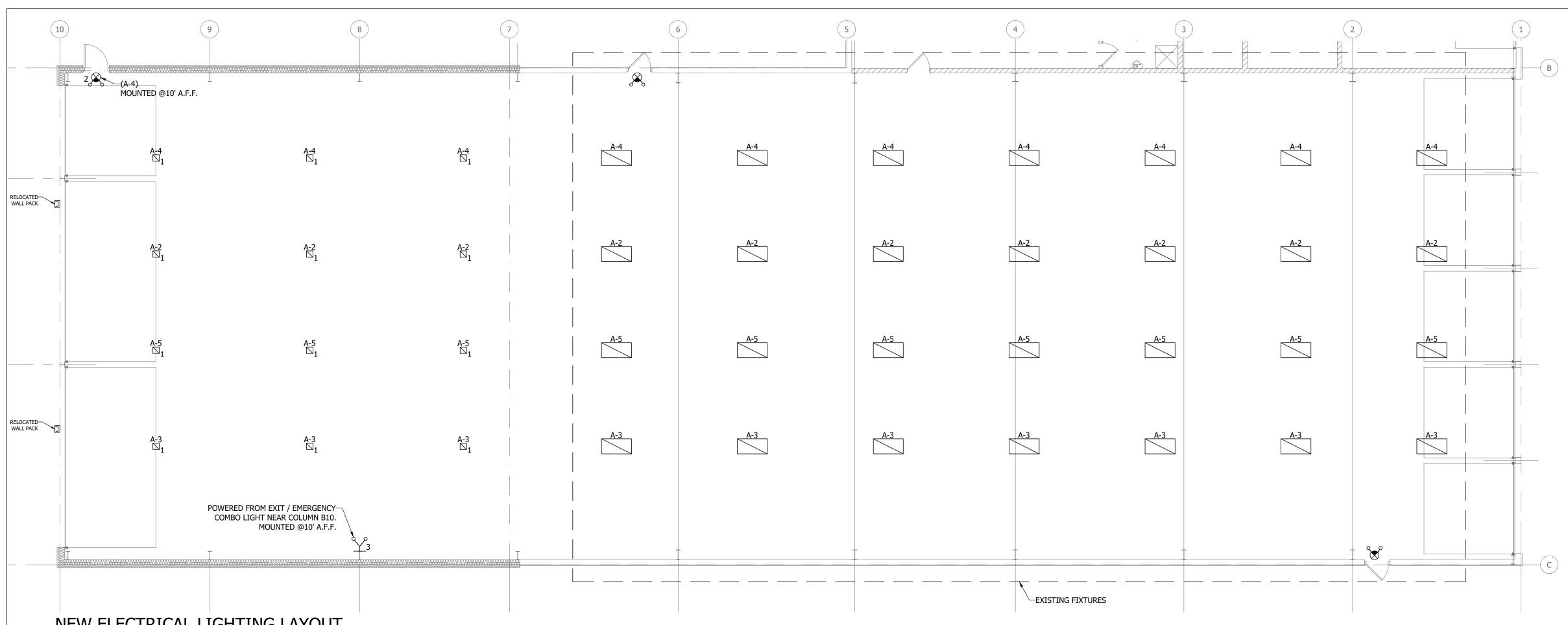
CITY OF WOODSTOCK

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EXPANSION

NEW ELECTRICAL POWER LAYOUT

AS NOTED RS PLOT DATE PROJECT No DRAWING No 2020-12-04 20162



NEW ELECTRICAL LIGHTING LAYOUT

SCALE:½"=1'-0" LIGHTING NOTES

1. CONTRACTOR IS TO EXTEND EXISTING LIGHTING CIRCUITS IN ORDER TO ACCOMODATE NEW AND RELOCATED LED FIXTURES. CIRCUITS TO BE CONFIRED

2. LIGHTS TO BE PENDANT MOUNTED AT MATCHING HEIGHT OF EXISTING FIXTURES.

3. NEW FIXTURES TO BE ADDED TO EXISTING LIGHTING CONTROLS.

4. EMERGENCY LIGHTS ARE TO BE CONNECTED TO NEAREST LIGHTING CIRCUIT.

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NEW ELECTRICAL LIGHTING LAYOUT

SCALE	DRAWN	CHECKED
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