

1. GENERAL

- 1.1. THE WORK, AS COVERED BY THESE SPECIFICATIONS AND PLANS, IS INTENDED TO COMPLY WITH THE LATEST RULES AND REGULATIONS OF THE INSPECTION AUTHORITIES, APPLICABLE CODES AND BYLAWS. THE ACCOMPANYING DOCUMENTS DO NOT DETAIL EVERY ITEM REQUIRED, BUT ARE INTENDED TO PROVIDE GUIDELINES TO THE CONTRACTOR, SO THAT THEY MAY COMPLETE THE REQUIRED SCOPE OF WORK. ALL CHANGES AND ALTERATIONS TO THE CONTRACTOR'S WORK REQUIRED BY AN AUTHORIZED INSPECTOR OR ANY AUTHORITY HAVING JURISDICTION IS TO BE CARRIED OUT AT NO EXPENSE TO THE OWNER. IF THE CONTRACT DOCUMENTS ARE SPECIFICALLY AT VARIANCE WITH A GOVERNMENT REGULATION, THE CONTRACTOR IS TO NOTIFY THE ENGINEER BEFORE INSTALLATION.
1.2. ANY CONFLICTS OR QUESTIONS THAT ARISE DURING THE TENDER PERIOD TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER AT LEAST 48 HOURS PRIOR TO TENDER CLOSE. IF THIS PROCEDURE IS NOT FOLLOWED, MODIFICATIONS REQUIRED TO COMPLETE THE WORK WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
1.3. THE CONTRACTOR WILL MAINTAIN NECESSARY INSURANCE COVERAGE TO COVER THIS CONTRACT, BE RESPONSIBLE FOR LAYING OUT THEIR WORK AND THE COORDINATION OF THEIR WORK WITH THE WORK OF OTHER TRADES.
1.4. PERSONNEL AND EQUIPMENT PROTECTION: ENSURE THAT ALL PRECAUTIONS ARE TAKEN TO PROTECT ALL PERSONNEL FROM HAZARDS DURING THE WORK. PROTECT ALL EQUIPMENT FROM DAMAGE FROM ANY CAUSE, INCLUDING WEATHER.
1.5. MATERIALS AND EQUIPMENT: USE ONLY NEW MATERIALS, FULLY CSA CERTIFIED FOR USE AS INSTALLED AND THAT MEET THIS SPECIFICATION IN ALL RESPECTS. PROTECT ALL MATERIAL FROM DAMAGE FROM ANY CAUSE, INCLUDING WEATHER. PROVIDE FOR NON-CSA MATERIAL AND EQUIPMENT, SPECIAL INSPECTION AND APPROVAL, UNLESS INDICATED OTHERWISE.
1.6. STRICTLY FIRST-CLASS WORKMANSHIP BY EXPERIENCED WORKERS WILL BE RIGIDLY INSISTED UPON IN EVERY DETAIL.
1.7. QUALIFICATIONS: TRADE WORKERS FOR THIS CONTRACT WILL BE QUALIFIED AS EITHER A REGISTERED JOURNEYMAN OR ELECTRICAL APPRENTICE WITHIN THE JURISDICTION GOVERNING THIS SITE. RATIO OF APPRENTICE TO JOURNEYMAN WILL MEET GOVERNING AUTHORITY STANDARDS. THE CONTRACTOR MAY BE REQUIRED TO LIST NAMES AND QUALIFICATIONS OF SUPERVISORY PERSONNEL ON TENDER FORM.
1.8. MANUFACTURER'S INSTRUCTIONS REGARDING THE HANDLING, INSTALLATION AND TESTING OF EQUIPMENT SPECIFIED HEREIN TO BE CONSIDERED PART OF THIS SPECIFICATION.

2. DOCUMENTS

- 2.1. THE ELECTRICAL DRAWINGS AND SPECIFICATIONS MUST BE REVIEWED IN CONJUNCTION WITH ALL OTHER TENDER DOCUMENTS AND ADDENDA. THE GENERAL AND ELECTRICAL CONTRACTORS WILL BE FULLY RESPONSIBLE FOR COMPLIANCE WITH ALL RELATED DOCUMENTS OF THESE DISCIPLINES AND THE INSTRUCTIONS RELATED TO THE ELECTRICAL PORTION OF THE SCOPE OF WORK FOR THIS CONTRACT. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO DEFINE THE SUBCONTRACTORS' RESPONSIBILITIES UNDER THIS CONTRACT. EXTRAS FOR SUBCONTRACTORS' DIFFERENCE OF OPINION REGARDING RESPONSIBILITY WILL NOT BE CONSIDERED.
2.2. REFER TO OTHER DIVISIONS TO ENSURE FULL COORDINATION. COORDINATE ALL WORK WITH OTHER TRADES.
2.3. TERMINOLOGY:
2.3.1. INSPECTION AUTHORITY: ELECTRICAL SAFETY AUTHORITY (ESA).
2.3.2. DIVISION 26: THIS CONTRACTOR.
2.3.3. REVIEWED: REVIEWED IN WRITING BY THE ENGINEER.
2.3.4. PROVIDE: SUPPLY, INSTALL, WIRE, CONNECT AND COMMISSION FOR A COMPLETE PROPER AND OPERATIONAL INSTALLATIONS.
2.3.5. BUILDING MANAGEMENT: OWNER, OWNER'S REPRESENTATIVE AND/OR LANDLORD.

3. DEMOLITION

- 3.1. CONTRACTOR TO NOTE THAT ALL DEVICES TO BE DEMOLISHED (REMOVED) MAY NOT BE IDENTIFIED ON DRAWINGS. CONTRACTOR IS TO REVIEW SITE FOR THE DEMOLITION AREAS TO ENSURE ALL DEMOLITION ITEMS CAN BE SATISFACTORILY REMOVED UNDER THIS CONTRACT.
3.2. COORDINATE WITH BUILDING MANAGEMENT FOR ANY/ALL SYSTEM SHUTDOWNS DURING THE DEMOLITION OR CONSTRUCTION PHASE OF CONTRACT FOR COORDINATION PURPOSES. ALLOW FOR ALL REQUIRED SHUTDOWNS TO BE PERFORMED OUTSIDE OF NORMAL WORKING HOURS. SHUTDOWN OF SYSTEM TO BE RE-ENERGIZED AND FULLY OPERATIONAL AT THE END OF SAME DAY'S WORK SHIFT.
3.3. WHERE EXISTING EQUIPMENT IS TO BE REMOVED, THE DEVICE, DEVICE BOX, RACEWAY AND WIRING BACK TO THE PANEL TO BE REMOVED, UNLESS OTHERWISE NOTED. REUSE EXISTING BREAKERS FOR NEW CIRCUITING, PLACE ALL FREED UP BREAKERS IN 'OFF' POSITION. MODIFY DIRECTORY CARD ON PANEL TO SUIT.
3.4. WHERE EXISTING EQUIPMENT IS TO BE RELOCATED, EXTEND EXISTING FEEDERS AND BRANCH CIRCUITS AS REQUIRED. PROVIDE JUNCTION BOXES AT CEILING LEVEL FOR BRANCH CIRCUIT WIRING EXTENSION COMPLETE WITH TERMINAL BLOCKS AND CIRCUIT NUMBER IDENTIFICATION.
3.5. MAINTAIN ALL CIRCUITS TO ALL DEVICES AND EQUIPMENT OUTSIDE CONTRACT AREA. WHERE CIRCUITS AFFECT OUTSIDE CONTRACT AREA FOR PANELS BEING MODIFIED OR RELOCATED, SCHEDULE SHUTDOWN WITH BUILDING OWNER AND TENANT. SHUTDOWN TO BE AFTER HOURS. WHERE A SYSTEM HAS BEEN ACCIDENTALLY CUT OFF, NOTIFY ENGINEER AND OWNER, AND REINSTATE IMMEDIATELY.
3.6. DISCONNECT AND REMOVE ALL ELECTRICAL DEVICES IN WALLS AND/OR CEILINGS SHOWN TO BE DEMOLISHED (NOT ALL DEVICES NECESSARILY SHOWN ON DRAWINGS). REMOVE ALL RELATED CONDUIT AND RACEWAY BACK TO SOURCE, WHERE POSSIBLE. REUSE EXISTING CIRCUITS FOR NEW LAYOUT.
3.7. ENSURE INTEGRITY OF ALL EXISTING EQUIPMENT AND DEVICES TO REMAIN IS MAINTAINED. RECONNECT ANY EQUIPMENT/DEVICE INADVERTENTLY DISCONNECTED.

12. SHOP DRAWINGS

- 12.1. SUBMIT ELECTRONIC (PDF) FILES OF REQUIRED SHOP DRAWINGS/DATA SHEETS FOR EQUIPMENT SPECIFIED UNDER THIS CONTRACT FOR ENGINEER'S REVIEW PRIOR TO PLACING PURCHASE ORDERS.
12.2. PROPOSED ALTERNATE PRODUCTS TO THOSE SPECIFIED, REQUIRE SUBMISSION OF SHOP DRAWINGS FOUR (4) WORKING DAYS PRIOR TO TENDER CLOSING FOR CONSIDERATION. REVIEWED SHOP DRAWINGS BY THE ENGINEER WILL BE CONSIDERED AS ACCEPTANCE OF ALTERNATE. NO CONSIDERATION WILL BE GIVEN TO AN ALTERNATE PRODUCT WITH LESS TIME GIVEN FOR EVALUATION.
12.3. ALL EXTRA COSTS ASSOCIATED WITH AN ALTERNATE PRODUCT THAT IS SPECIFIED IS THE RESPONSIBILITY OF THIS CONTRACTOR. NO EXTRAS FOR INSTALLATION OF AN ALTERNATE PRODUCT WILL BE CONSIDERED.
12.4. TEMPORARY OR TRIAL USAGE IS ALLOWED WITH AN ALTERNATE PRODUCT THAT IS SPECIFIED AND IS THE RESPONSIBILITY OF THE CONTRACTOR. NO EXTRAS FOR INSTALLATION OF AN ALTERNATE PRODUCT WILL BE CONSIDERED.
12.5. SHOP DRAWINGS ARE REQUIRED FOR:
12.5.1. LIGHTING FIXTURES.

13. WIRE AND CABLE

- 13.1. ALL WIRING TO BE COPPER, MINIMUM SIZE #12 AWG CONDUCTORS, STRANDED FOR #10 AWG AND LARGER, WITH 1000 V INSULATION OF CHEMICALLY CROSS-LINKED THERMOSETTING POLYETHYLENE MATERIAL RATED RW90, EXCEPT WHERE INDICATED OR NOTED OTHERWISE.
13.2. MINIMUM SIZE #14 AWG RW90 IS ACCEPTABLE FOR CONTROL WIRING UNLESS NOTED OTHERWISE.

- 13.3. WIRING TO BE SIZED FOR A MAXIMUM VOLTAGE DROP NOT TO EXCEED 3%.
13.4. ARMORED CABLE (AC90) CAN BE USED IN ALL T-BAR CEILINGS AND INTERIOR PARTITIONS. MAXIMUM CONTINUOUS LENGTH - 3000 MM. AC90 SHALL NOT BE USED FOR LONG BRANCH WIRING RUNS IN THE CEILING SPACE ABOVE AND BEYOND THIS LENGTH.

14. CONDUITS AND FITTINGS

- 14.1. MINIMUM SIZE OF ALL CONDUITS TO BE 21 MM.
14.2. USE EMT:
14.2.1. FOR ALL WORK EXCEPT WHERE SPECIFIED OTHERWISE.
14.2.2. IN ALL DRYWALL CEILINGS AND MASONRY WALLS.
14.2.3. IN CEILING TO COLLECT UP TO A MAXIMUM OF SIX (6) CIRCUITS FOR RUNS BACK TO THE PANEL. SIZE CONDUIT AS INDICATED AND/OR AS PER ELECTRICAL SAFETY CODE, TAKING INTO CONSIDERATION CONDUIT FILL AND VOLTAGE DROP OF CONDUCTORS.
14.2.4. FITTINGS TO BE SET SCREW TYPE, ZINC-COATED STEEL CONNECTORS AND COUPLINGS. DIE CAST CONNECTORS AND COUPLINGS WILL NOT BE ACCEPTABLE.
14.3. USE RIGID GALVANIZED STEEL CONDUIT WHERE SUBJECT TO MECHANICAL INJURY.
14.4. USE LIQUIDTIGHT METAL FLEXIBLE CONDUIT FOR FINAL CONNECTION TO EQUIPMENT IN DAMP, WET OR CORROSIVE LOCATIONS, TO ALL MOTORS, TRANSFORMERS, KITCHEN EQUIPMENT AND ANY OTHER VIBRATING EQUIPMENT.

15. CONDUIT INSTALLATION

- 15.1. INSTALL CONDUITS TO CONSERVE HEADROOM IN EXPOSED LOCATIONS WITH MINIMUM INTERFERENCE IN SPACES THROUGH WHICH CONDUITS PASS. CONCEAL CONDUITS AND WIRING EXCEPT IN MECHANICAL AND ELECTRICAL SERVICE ROOMS AND UNFINISHED AREAS.
15.2. RUN CONDUITS PARALLEL OR PERPENDICULAR TO BUILDING LINES.
15.3. RUN TWO (2) 25 MM SPARE CONDUITS UP TO CEILING SPACE AND TWO (2) 25 MM SPARE CONDUITS
15.4. CONDUITS TO RUN IN FLANGED PORTION OF STRUCTURAL STEEL.
15.5. GROUP CONDUITS WHEREVER POSSIBLE ON SURFACE OR, IF NECESSARY, ON SUSPENDED CHANNELS.
15.6. ALL EMPTY CONDUITS TERMINATING OUTDOORS SHALL BE CAPPED AND IDENTIFIED AT BOTH ENDS.
15.7. USE BEAM CLAMPS TO SECURE CONDUITS TO EXPOSED STEELWORK AND CHANNEL TYPE SUPPORTS FOR TWO OR MORE CONDUITS AT 1828 MM ON CENTRES. SIX (6) MM DIAMETER THREADED RODS (MINIMUM) TO SUPPORT SUSPENDED CHANNELS. ALL SUPPORTS MUST COMPLY WITH ONTARIO BUILDING CODE SEISMIC RESTRAINT REQUIREMENTS.

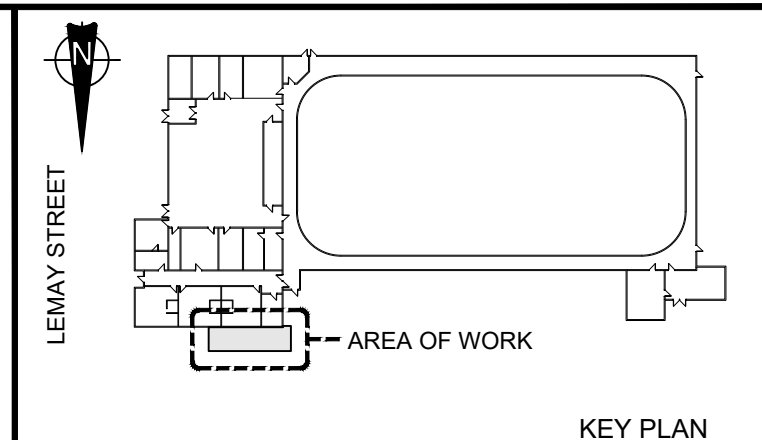
16. JUNCTION AND PULL BOXES

- 16.1. PROVIDE JUNCTION AND PULL BOXES TO MEET REQUIREMENTS OF THE ONTARIO ELECTRICAL SAFETY CODE FOR NUMBER OF CONDUCTORS AND CONDUIT SIZES AS A MINIMUM OR AS INDICATED.
16.2. PROVIDE PULL BOXES IN CONDUIT RUNS 30 METRES OR LONGER. ONE BOX REQUIRED FOR EVERY 30 METRES OF LENGTH MINIMUM.
16.3. ALL BOXES TO BE IDENTIFIED FOR PANEL AND CIRCUITS.

17. LIGHTING

- 17.1. REUSE EXISTING CIRCUITS FOR NEW AND RELOCATED FIXTURES, UNLESS OTHERWISE NOTED.
17.2. PROVIDE FIXTURE COMPLETE WITH ASSOCIATED EQUIPMENT AS SHOWN IN FIXTURE SCHEDULE AND/OR AS INDICATED ON DRAWING.
17.3. ANY FIXTURES NOT REUSED TO BE TURNED OVER TO BUILDING MANAGEMENT. OBTAIN SIGNED RECEIPT.
17.4. LED LAMPS:
17.4.1. OPTICAL ASSEMBLIES: LEDS SHALL BE PROVIDED WITH DISCREET OPTICAL ELEMENTS TO PROVIDE IESNA TYPE II, III, IV OR V DISTRIBUTIONS. ADDITIONAL DISTRIBUTIONS FOR SPILL LIGHT CONTROL SHALL BE UTILIZED WHEN LIGHT TRESPASS MUST BE MITIGATED.
17.4.2. THE LUMINAIRE SHALL HAVE A MINIMUM EFFICIENCY OF 85 LUMEN/WATT AS REPORTED BY AN LM-79 REPORT FOR EACH LUMINAIRE WATTAGE AND PHOTOMETRIC DISTRIBUTION CONSIDERED.
17.4.3. ALL PHOTOMETRICS WILL BE MEASURED BY THE IESNA LM-79-08 STANDARD AND FORMATTED PER IESNA LM-63-02 AS AN ELECTRONIC FILE. LUMEN DEPRECIATION SHALL NOT DECREASE BY MORE THAN 30% OVER THE EXPECTED OPERATING LIFE OF A MINIMUM OF 80,000 HRS @ 25 DEGREES CELSIUS. THE MEASUREMENTS SHALL BE CALIBRATED TO STANDARD PHOTOPIC CALIBRATIONS. THE LED DEVICE MANUFACTURER SHALL HAVE TESTED THE LUMEN MAINTENANCE CHARACTERISTICS OF THE LED PACKAGE IN ACCORDANCE WITH THE GUIDELINES OF IESNA LM-80-08 "APPROVED METHOD OF LUMEN MAINTENANCE TESTING OF LED LIGHT SOURCE". A COPY OF THE MANUFACTURER'S LM-80 REPORTS SHALL BE SUBMITTED FOR REVIEW. ACCOMPANIED BY THE LUMEN DEPRECIATION ESTIMATES FOR 10, 15 AND 25 DEGREES CELSIUS LUMINAIRE AMBIENT OPERATING TEMPERATURES.
17.4.5. LIGHT COLOUR/QUALITY: THE LUMINAIRE SHALL HAVE A CORRELATED COLOUR TEMPERATURE (CCT) RANGE OF 3,500K TO 4,500K. THE COLOUR RENDITION INDEX (CRI) SHALL BE 80 OR GREATER. BINNING OF LEDS SHALL CONFORM TO ANSI/C. NEMA SSL 3-2010.
17.5. LED DRIVERS:
17.5.1. POWER CONSUMPTION: MAXIMUM POWER CONSUMPTION ALLOWED FOR THE LUMINAIRE SHALL BE DETERMINED BY APPLICATION. THE LUMINAIRE SHALL NOT CONSUME POWER IN THE OFF STATE.
17.5.2. OPERATION VOLTAGE: THE LUMINAIRE SHALL OPERATE FROM A 60 HZ AC LINE OVER VOLTAGE RANGING FROM 108 VAC TO 305 VAC. THE FLUCTUATIONS OF LINE VOLTAGE SHALL HAVE NO VISIBLE EFFECT ON THE LUMINOUS OUTPUT.
17.5.3. POWER FACTOR: THE LUMINAIRE SHALL HAVE A POWER FACTOR OF 0.90 OR GREATER.
17.5.4. THD: THE TOTAL HARMONIC DISTORTION (CURRENT AND VOLTAGE) INDUCED INTO AN AC POWER LINE BY A LUMINAIRE SHALL NOT EXCEED 20 PERCENT OVER ENTIRE LOAD RANGE 0-100%.
17.5.5. SURGE SUPPRESSION: THE LUMINAIRE ON-BOARD CIRCUITRY SHALL INCLUDE SURGE PROTECTION DEVICES (SPD) TO WITHSTAND HIGH REPETITION NOISE TRANSIENTS AS A RESULT OF UTILITY LINE SWITCHING, NEARBY LIGHTNING STRIKES, AND OTHER INTERFERENCE. THE SPD SHALL PROTECT THE LUMINAIRE FROM DAMAGE AND FAILURE FOR COMMON MODE TRANSIENT PEAK VOLTAGES UP TO 10 KV (MINIMUM) AND TRANSIENT PEAK CURRENT UP TO 5 KA (MINIMUM). SPD PERFORMANCE SHALL BE TESTED PER THE PROCEDURES IN ANSI/IEEE C62.41-1992 (OR CURRENT EDITION) FOR CATEGORY C (STANDARD). THE SPD SHALL FAIL IN SUCH A WAY AS THE LUMINAIRE WILL NO LONGER OPERATE. THE SPD SHALL BE FIELD REPLACEABLE.
17.5.6. THE POWER SUPPLY DRIVER ENCLOSURE SHALL BE SEALED TO PROTECT AGAINST THE ENTRY OF DUST AND WATER. THIS AREA SHOULD BE SEALED TO MINIMUM INGRESS PROTECTIVE LEVEL 65 (IP65).
17.5.7. RF INTERFERENCE: LED DRIVERS MUST MEET CLASS A EMISSION LIMITS REFERRED TO IN FEDERAL COMMUNICATIONS COMMISSION (FCC) TITLE 47, SUBPART B, SECTION 15 REGULATIONS CONCERNING THE EMISSION OF ELECTRONIC NOISE.
17.5.8. THE TOTAL CURRENT HARMONIC DISTORTION OF POWER SUPPLY DRIVER INDUCED INTO AN AC POWER LINE SHALL NOT EXCEED 20%.
17.5.9. CONTRACTOR SHALL PROVIDE ALL REQUIRED EQUIPMENT AND APPURTENANCES INCLUDING, BUT NOT LIMITED TO, STEP DOWN TRANSFORMER, SUSPENSION SYSTEM, JUNCTION BOXES, UNISTRUT AND LOW VOLTAGE CABLING TO ENSURE A COMPLETE AND OPERATIONAL LIGHTING SYSTEM.

END OF SPECIFICATIONS



KEY PLAN

Table with 3 columns: No., ISSUE / REVISION, and DATE. Row 1: 0, ISSUED FOR TENDER, 21/05/20.

Table with 3 columns: No., ISSUE / REVISION, and DATE. Row 1: 0, ISSUED FOR TENDER, 21/05/20.

This drawing is copyright protected and may not be reproduced or used for purposes other than execution of the described work without the express written consent of J.L. Richards & Associates Limited.

VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE:



CONSULTANT: www.jrichards.ca
JLR J.L.Richards ENGINEERS-ARCHITECTS-PLANNERS

CONSULTANT:

PROFESSIONAL STAMP PROJECT NORTH

PROJECT: CLARENCE ARENA EXIT STAIR MODIFICATIONS
418 LEMAY STREET, CLARENCE CREEK, ONTARIO

DRAWING: SPECIFICATIONS

Table with 2 columns: DESIGN, DRAWN, CHECKED, JLR # and DRAWING #, E1.

File Location: P:\2020\28582-001 - Clarence Arena Exit Stair Rehab\3-Production\2-Arch\28582-001 - a01.dwg

PLOT DATE: Thursday, May 21, 2020 8:42:10 AM