



ADDENDUM

PROJECT TITLE: FIRE STATION #1, 5, & 7 LIGHTING RETROFIT	ADD. NO: 1
TENDER NO: 2023-082301T	DATE: March 28 th , 2023
PAGE 1 of 3 (Including Confirmation Sheet)	

Make the following modifications to the above project. Include in the amount of the Tender, any additions to or deductions from the cost of the work by reason of these instructions.

Sign and attach this Addendum to the Tender documents and submit with your Tender. Failure to do so may result in the rejection of your Tender.

Please find below some clarification points/questions and answers. Also attached are revised drawings.

Drawing E-1 : Detail 4 – Notes

Note 2 Where does this apply? There is no detailed information provided with the tender docs. What remaining luminaires are we to re-feed? Not sure how we can price this...

Delete Note 2: Does not apply.

Note 3 Where does this apply? There are no luminaires indicated that are fed from essential power. Not sure how we can price this...

Delete Note 3: Does not apply. Occupancy sensors were originally specified however have been deleted from the scope.

Note 4 There are no existing switches indicated. What is required for contactors? There are no circuits indicated. Not sure how we can price this...

Delete Note 4: Does not apply.

Note 11 What areas apply to this note? How will the bidding contractors know which areas need to be painted? Not sure how we can price this...

Luminaires specified may not be the luminaires purchased, therefor contractor shall visit site to ensure the new luminaire covers the existing luminaire's footprint or paint to match, as required.

Note 12 Should this be confirmed by the consultant prior to specifying the new luminaires? Are the bidding contractors to measure all the existing luminaires on site Monday?

Delete Note 12: Does not apply.

Note 14 What are the makes/model numbers of the existing luminaires? We will need this information to get pricing on the required ballast covers.

Contractor shall verify the condition on site to determine if they want to clean the existing ballast cover or buy new ones. Exact size can be determined after contract has been awarded. Cost of ballast covers should not vary.

SIGN AND RETURN THIS ADDENDUM WITH YOUR PROPOSAL

BY: Monic MacVicar
Monic MacVicar, CCLP, CPPB
Procurement Specialist, Supply Chain Management

Contractor's Signature



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Drawing E-1 : Detail 5 – Exterior Lighting Controls Detail

There are no exterior lighting controls indicated. Not sure how to price this...

Price the luminaires with a built-in photocell as specified, and by-pass the sensor if not required.

Drawing E-2

- Are there requirements for three type A19 lamps in rooms 210 and 201A?....A19(3)?
No requirements per se, number in parentheses indicates the number of lamps in a luminaire.
- Are luminaires tagged with 1821T in room 126 supposed to be 1821TB?
No, 1821T and 1821TB are the same. Suffix "B" in the nomenclature (ie: 1821TB) is the color temperature of the lamp as described in note 5 located at the bottom of the luminaire schedule.

Drawing E-5 : Specifications

4. Wire and Cable

4.4.1 If existing luminaires installed in T-Bar ceilings are fed with AC90 are we to replace with flexible conduit and wire or reconnect the AC90 to the new luminaires?

AC90 in this application is acceptable.

9. Lighting

9.4 Are the existing luminaires currently supported independently from the T-Bar Ceilings or shall we allow for all new chain supports?

Support new luminaires to match existing support. If the existing luminaires are suspended with chains, then reuse the existing chains to support the new luminaires.

10. Lighting Control Devices

Note says to remove existing switch. This contradicts the note 5 on drawing E-1.

All existing switches are to remain in order to override the occupancy sensors.

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BY: Monic MacVicar
Monic MacVicar, CCLP, CPPB
Procurement Specialist, Supply Chain Management

Contractor's Signature



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CONFIRMATION - RECEIPT OF ADDENDUM

**Upon receipt of this document, fax this page to
(506) 658-4742 to confirm receipt of this addendum.**

CONTRACTOR'S NAME: _____

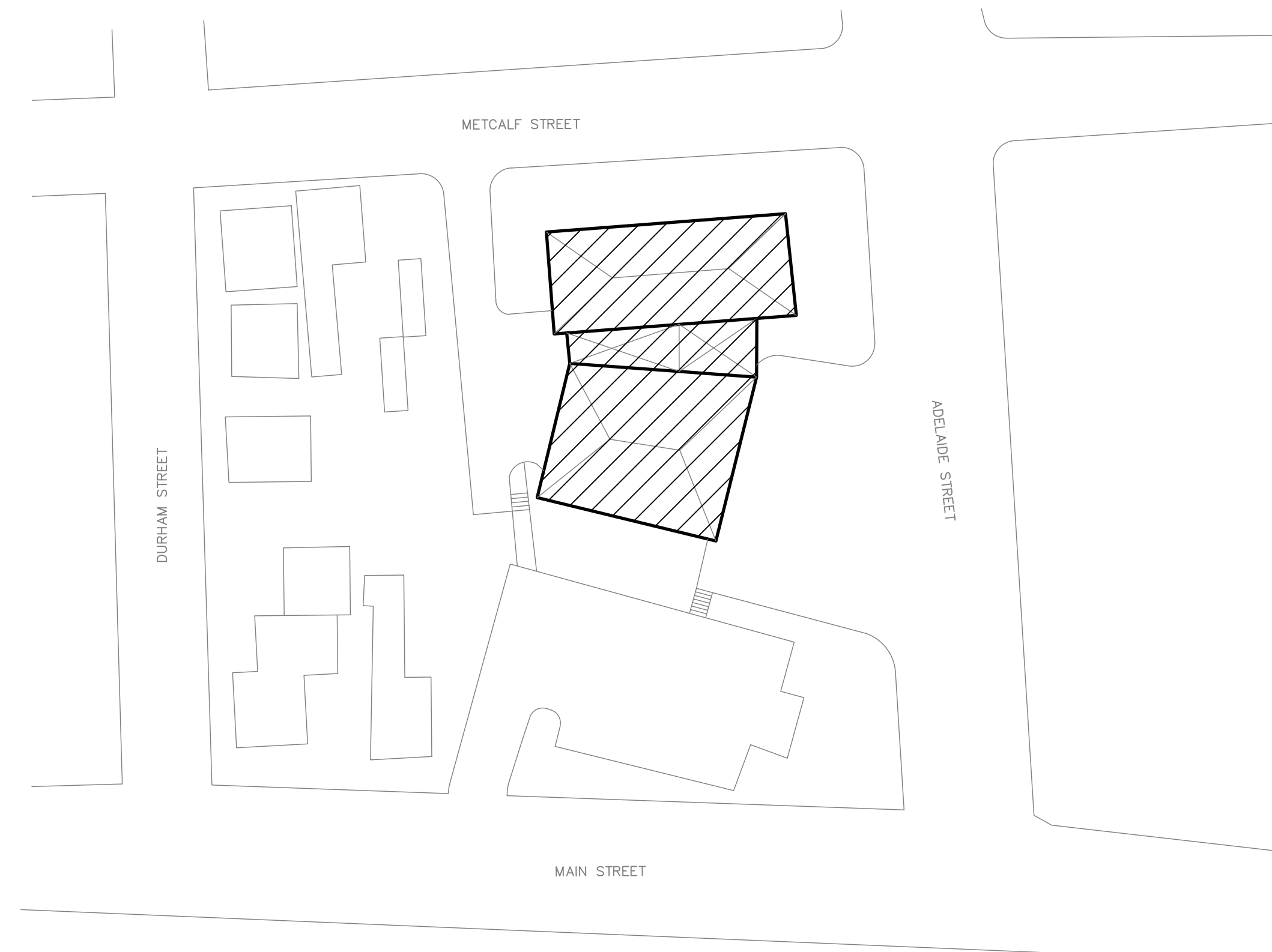
ADDRESS: _____

PHONE: _____ FAX: _____

RECEIVER NAME (PRINT) _____

RECEIVER SIGNATURE: _____


1
E-1 FIRE STATION #1 - SITE PLAN



N.T.S.  E-1 FIRE STATION #5 - SITE PLAN

3
E-1 FIRE STATION #7 - SITE PLAN

GENERAL NOTES:

1. ALL EXISTING SWITCHING, OCCUPANCY SENSORS, EXIT SIGNS AND LUMINAIRES NOT SHOWN ON DRAWINGS SHALL REMAIN (UNLESS NOTED OTHERWISE).
2. IN ROOMS WHERE LUMINAIRES ARE EMERGENCY AND EMERGENCY CIRCUITS OR UNSWITCHED NIGHT LIGHTS EXIST, ENSURE THAT EMERGENCY CIRCUITS REMAIN AND ALL EXISTING NIGHT LIGHT LUMINAIRES REMAIN UNSWITCHED. RE-FEED REMAINING LUMINAIRES AS REQUIRED.
3. OCCUPANCY SENSORS SHALL ONLY CONTROL LUMINAIRES ON NON-ESSENTIAL POWER.
4. IN ROOMS WITH MULTIPLE SENSORS, WIRE SENSORS IN PARALLEL WITH EACH OTHER, AND WIRE SWITCHES IN SERIES WITH SENSORS. SWITCHES SHALL BE WIRED FROM THE SECONDARY SIDE OF THE POWER PACK. SUPPLY AND INSTALL ALL NECESSARY CABLES AND POWER PACKS REQUIRED FOR EACH CIRCUIT CONTROL, ALONG WITH ALL BACK BOXES, CONDUIT AND WIRING FOR A FULL AND COMPLETE WORKING SYSTEM. SENSORS TO CONTROL BOTH BALLASTS IN EACH LUMINAIRE, WHERE APPLICABLE.
5. EXISTING LIGHT SWITCHES TO REMAIN WHETHER THE ROOM HAS AN OCCUPANCY SENSOR OR NOT. SWITCH USED TO OVERRIDE SENSOR.
6. ADJUST SENSITIVITY ON OCCUPANCY SENSORS TO PICK-UP PEOPLE ENTERING A ROOM, BUT NOT WALKING IN A CORRIDOR OR ANOTHER ROOM.
7. WHERE A LINE VOLTAGE SWITCH EXISTS IN A ROOM, THE CONTRACTOR MAY INSTALL A SWITCH MOUNTED OCCUPANCY SENSOR IN LIEU OF A CEILING MOUNT TYPE PROVIDING SUCH METHOD IS DEEMED ACCEPTABLE BY THE ENGINEER AND/OR SENSOR MANUFACTURER REPRESENTATIVE.
8. CONTRACTOR TO VERIFY VOLTAGES PRIOR TO SHOW DRAWING SUBMITTAL.
9. ALL NEW AND RETROFITTED LUMINAIRES SHALL BE COMPLETE WITH A LOCAL MEANS OF DISCONNECT SUCH AS THE STA-KON LUMINAIRES QUICK DISCONNECT BY THOMAS & BETTS, OR APPROVED EQUAL.
10. LUMINAIRES SHOWN ON DRAWINGS ARE FOR QUANTITIES AND APPROXIMATE LOCATION; EXACT LOCATIONS SHALL BE VERIFIED ON SITE.
11. WHERE NEW LUMINAIRES INSTALLED ON PAINTED SURFACES ARE SHORTER OR NARROWER, PATCH AND PAINT ENTIRE CEILING OR WALL. CONTRACTOR SHALL ENGAGE A TRADES PERSON IN THAT FIELD TO CARRY OUT WORK.
12. VERIFY PHYSICAL SIZE OF EXISTING LUMINAIRES TO BE RETROFITTED PRIOR TO ORDERING NEW REPLACEMENT MATERIAL TO ENSURE A COMPLETE AND WORKING SYSTEM.
13. EXISTING LUMINAIRES BEING RETROFITTED SHALL BE THOROUGHLY CLEANED INCLUDING BOTH SIDE OF LENSES AND LOUVERS AS WELL AS INSIDE AND OUTSIDE OF LUMINAIRE FRAME/BODY USING A DAMP CLOTH TO REMOVE DUST AND RESIDUE.
14. EXISTING BALAST COVERS MUST, AT TRADE CONTRACTORS OPTION, BE COMPLETELY CLEANED OF APPLAAR OR REPLACED WITH A NEW UNIT OF THE SAME CONSTRUCTION AT NO EXTRA COST.
15. ALL NEW AND RETROFITTED LUMINAIRES SHOWN ON FLOOR PLANS ARE A DIRECT ONE FOR ONE REPLACEMENT EXCEPT THOSE INDICATED BY DIAMOND NOTE  AS DESCRIBED IN THE SPECIFIC NOTES.
16. ELECTRICAL CONTRACTOR SHALL PERFORM A POWER SHUT-DOWN OF EACH FACILITY TO ENSURE THE SEQUENCE OF OPERATION OF THE LUMINAIRES CONTROLLED BY LOW VOLTAGE SWITCHES ON EMERGENCY POWER WILL OPERATE DURING A POWER OUTAGE. SWITCHES MUST BE TURNED "OFF" PRIOR TO WHEN THE EXERCISE IS PERFORMED. COORDINATE SHUT-DOWN WITH FIRE HOUSE CHIEF.

N.T.S. **4** E-1 **NOTES**

EXISTING LIGHTING CONTROL	NEW LIGHTING CONTROL
BUILDING MANAGEMENT SYSTEM (BMS) OR TIME CLOCK	BYPASS BUILT-IN PHOTOCELL
REMOTE MOUNT PHOTOCELL	BYPASS BUILT-IN PHOTOCELL
LOCAL SWITCH	DISCONNECT SWITCH AND ACTIVATE PHOTOCELL
BUILT-IN PHOTOCELL	ACTIVATE BUILT-IN PHOTOCELL

NOTE:
IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO IDENTIFY ALL THE EXISTING CONTROLS AND PROCEED AS DIRECTED IN THE TABLE ABOVE AND INDICATE HOW EACH LUMINAIRE WILL BE CONTROLLED ON THE "AS-BUILT" DRAWINGS. VERIFY ALL EXISTING CONTROLS PRIOR TO SHOP DRAWING SUBMITTAL.

5
E-1 EXTERIOR LIGHTING CONTROLS DETAIL

- ## LIGHTING

 LINEAR LUMINAIRE, TYPE AS SPECIFIED. HATCHING DENOTES CONNECTED TO EMERGENCY/NIGHT LIGHTING CIRCUIT. REFER TO LUMINAIRE SCHEDULE FOR TYPE.

- CEILING MOUNTED LUMINAIRE, REFER TO LUMINAIRE SCHEDULE FOR TYPE.
- WALL MOUNTED LUMINAIRE, REFER TO LUMINAIRE SCHEDULE FOR TYPE.

LIGHTING CONTROL

\$ \$ ONE AND TWO GANG SINGLE POLE TOGGLE SWITCHES.

- 120V LINE VOLTAGE, DUAL TECHNOLOGY SWITCH MOUNTED OCCUPANCY SENSOR
SENSORSWITCH #WSX-PDT-MATCH EXISTING COLOR.

120V LINE POWERED, SINGLE POLE WIRELESS DIMMER SWITCH,
nLIGHT WRP0DLA-DX-MVOLT-G2 MATCH EXISTING COLOR.

- 1 (CS) 120V CEILING MOUNTED NORMAL RANGE DUAL TECHNOLOGY OCCUPANCY SENSOR
SENSORSWITCH #CMR-PDT-9-120 OR APPROVED EQUAL.

2 120V CEILING MOUNTED EXTENDED RANGE DUAL TECHNOLOGY
SENSOR SWITCH #CMR-PDT-10-120 OR APPROVED EQUAL.

MISCELLANEOUS

1 ELECTRICAL DRAWING NOTES

ABBREVIATIONS

DEL - INDICATES DEVICE TO BE DELETED
EX - INDICATES EXISTING DEVICE TO REMAIN
NTS - NOT TO SCALE

6
E-1

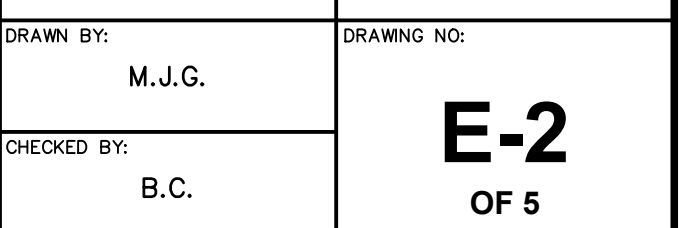
LEGEND

[illegible]



3
E-2 NOTES

N.T.S.



- ◆ REMOVE EXISTING LUMINAIRE AND EXTEND EXISTING CIRCUIT TO MATCH EXISTING AS NOTED. PROVIDE NEW ACOUSTIC CEILING TILE TO MATCH EXISTING.
- ▲ ◆ MOVE EXISTING LUMINAIRE FROM ROOM 106 TO ROOM 109. INSTALL NEW TYPE "F" AS SHOWN.
- ▲ ◆ TURN OVER EXISTING LED LUMINAIRE TO OWNER. INSTALL NEW TYPE "F" AS SHOWN.
- ▲ ◆ NO LUMINAIRE IN THIS LOCATION PRESENTLY. EXTEND EXISTING CIRCUITS WITH NEW EMT CONDUITS, OUTLET BOXES AND FIXTURES DROPS TO NEW LUMINAIRES AS SHOWN.



1 NO LUMINAIRE IN THIS LOCATION PRESENTLY. EXTEND EXISTING WIRING AS REQUIRED.


3
E-3 NOTES

N.T.S.

MCW *Maricor*
120 MILLENIUM DRIVE, SUITE 201
SAINT JOHN, NB E2E 0C6
(506) 847-8285 FAX: (506) 848-213
WWW.MCW.COM ENG. JOB NO. 12-22-076
PKG A13B

KEYPLAN:

STAMP:

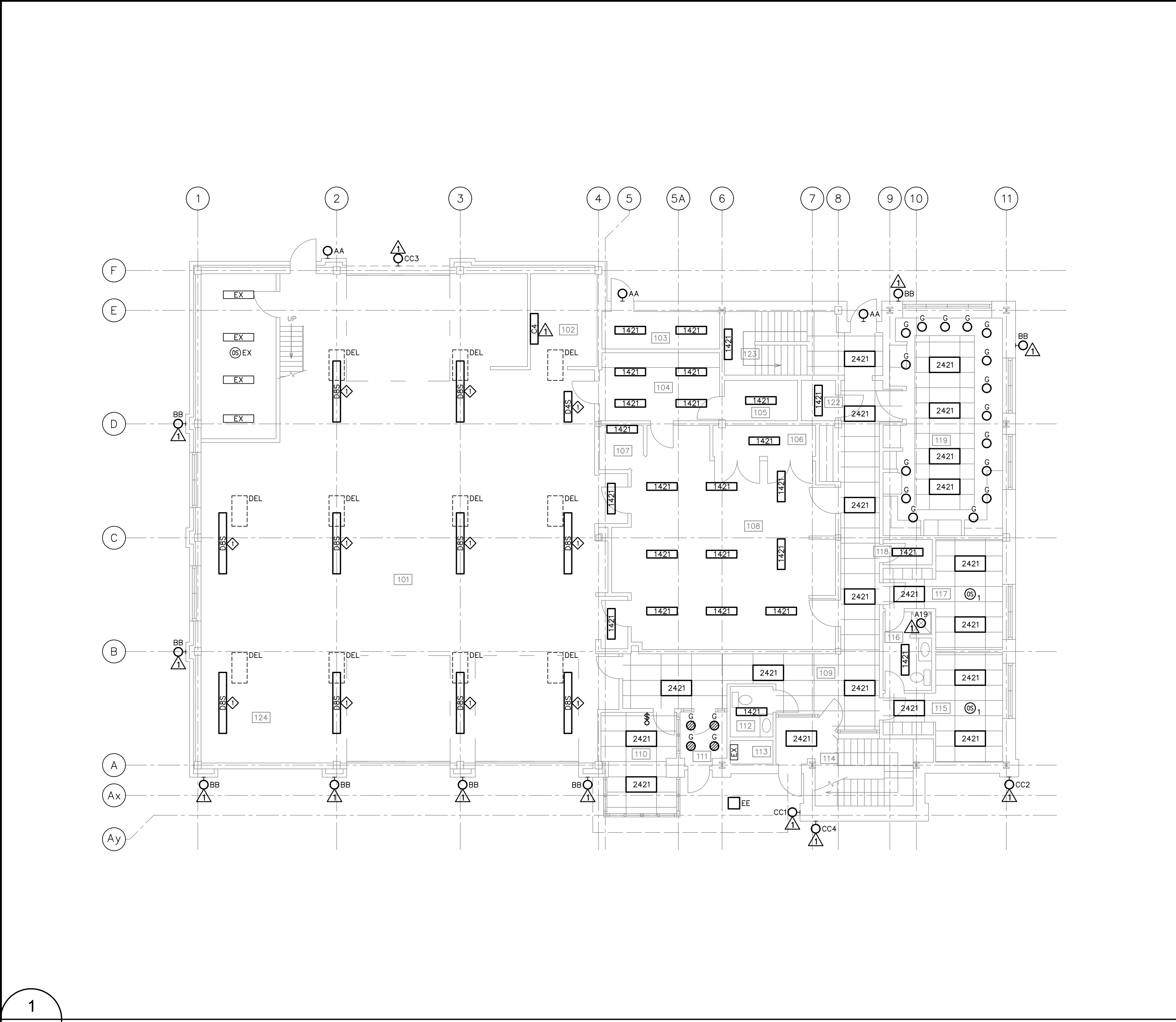
	ADDENDUM #1	2023/03/28	T.D.
0	ISSUED FOR TENDER	2023/03/20	T.D.
NO:	REVISIONS	DATE yyyy/mm/dd	INIT.

**CITY OF SAINT JOHN
FIRE STATIONS #1, 5 & 7
LIGHTING RETROFIT**

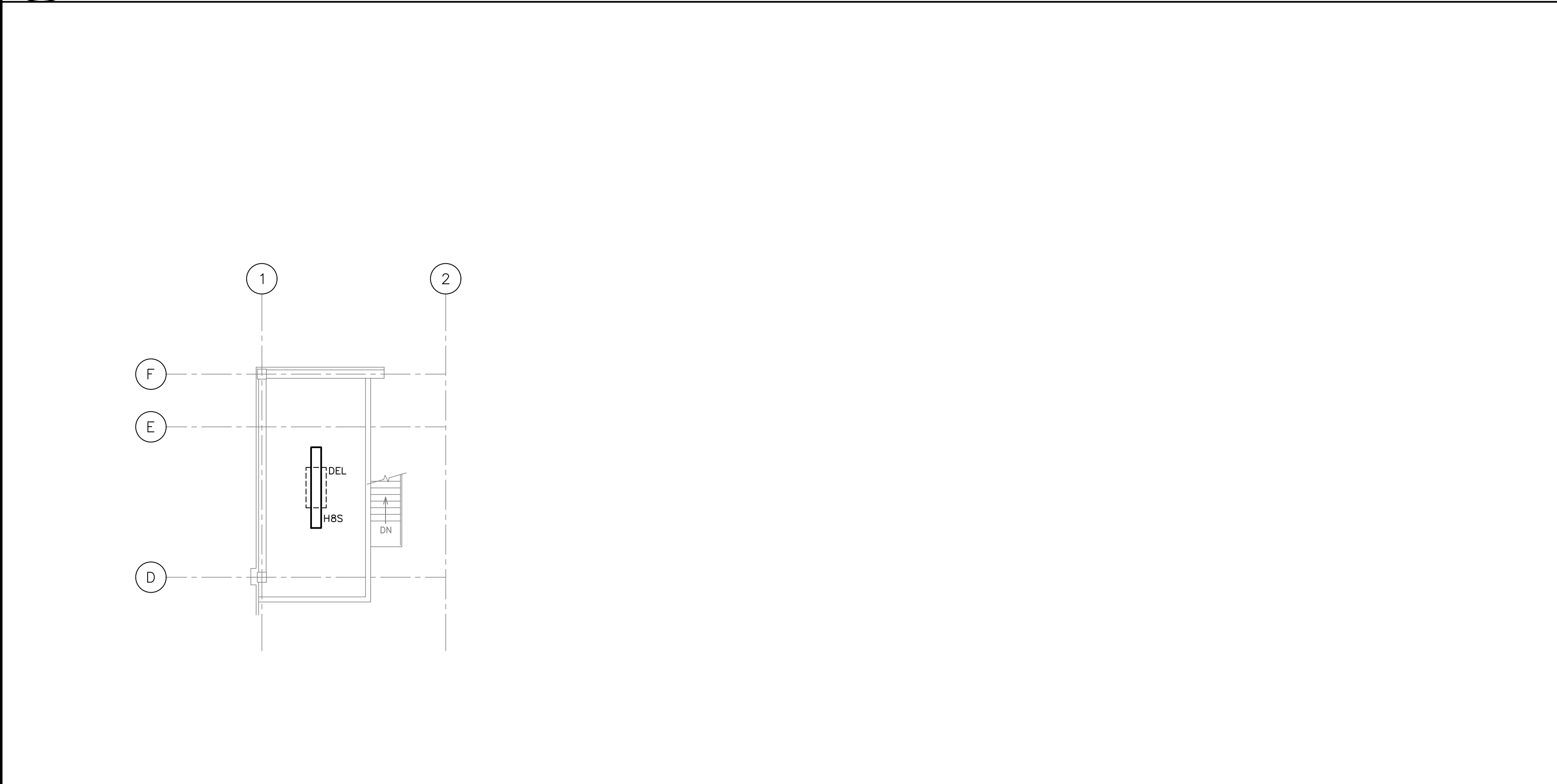
**FIRE STATION #5
35 ADELAIDE ST.
GROUND FLOOR AND
SECOND FLOOR - LIGHTING**

DRAWN BY: M.J.G.	DRAWING NO: _____
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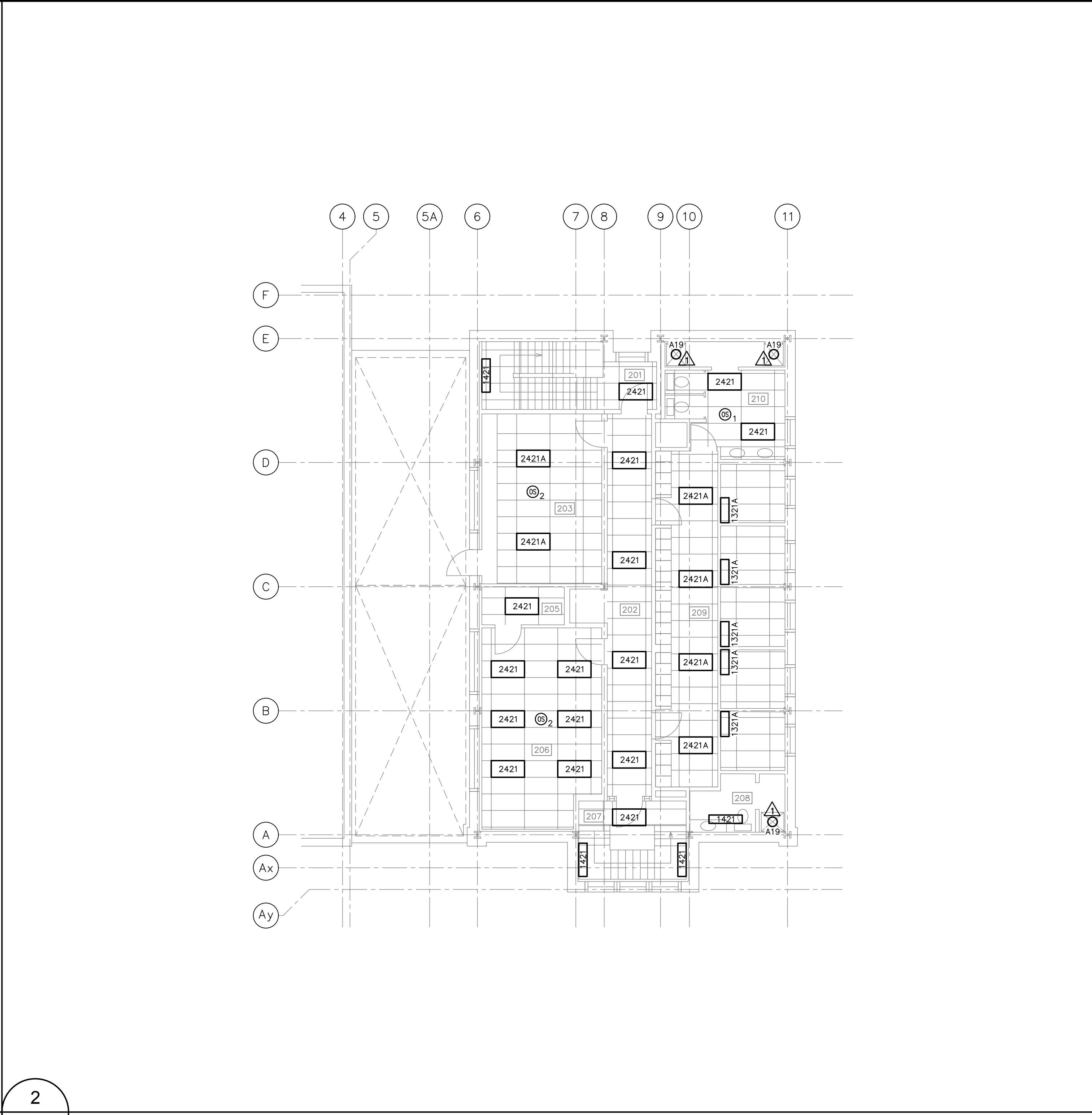
CHECKED BY: B.C.



1
E-4 GROUND FLOOR PLAN - LIGHTING ~1:100



3
E-4 MEZZANINE - LIGHTING ~1:100



2
E-4 SECOND FLOOR PLAN - LIGHTING ~1:100



4
E-4 NOTES N.T.S.

CLIENT:

SAINT JOHN

CONSULTANT:

MCW Maricor

120 MILLENNIUM DRIVE, SUITE 201
SAINT JOHN, NB E2E 0C6
BUS: (506) 847-6285 FAX: (506) 848-2131
WWW.MCW.COM ENG. JOB NO. 1222-076
PKG A13B

KEYPLAN:

STAMP:

NO.	REVISIONS	DATE	INIT.
0	ISSUED FOR TENDER	2023/03/20	T.D.
1	ADDENDUM #1	2023/03/28	T.D.

PROJECT TITLE:

CITY OF SAINT JOHN
FIRE STATIONS #1, 5 & 7
LIGHTING RETROFIT

DRAWING TITLE:

FIRE STATION #7
41 MANCHESTER AVE.
GROUND FLOOR AND
SECOND FLOOR - LIGHTING

SCALE:

AS NOTED

DATE:

MARCH 2023

DRAWN BY:

M.J.G.

DRAWING NO.:

E-4
OF 5

CHECKED BY:

B.C.

LUMINAIRE SCHEDULE						
TYPE	MANUFACTURER	DESCRIPTION	VOLTAGE	MOUNTING	LAMP/SOURCE	NOTES
A1 A1R A1S	LITHONIA #PANI-1X4-400LM- 80CRI-35K-MINI-ZT- MVOLT	1'x4' LED FLAT PANEL LUMINAIRE WITH INTEGRAL T-BAR CLIPS, LOW PROFILE, EXTRUDED ALUMINUM FRAME AND SATIN WHITE LENS, 0-10 VOLT DIMMING DRIVER DIMS TO 10% RATED L70/50,000HRS.	120	RECESSED IN T/BAR	37W LUMENS 3500K 80 CRI	1,2,3,4,5
A2 A2R A2S	LITHONIA #PANI-2X2-400LM- 80CRI-35K-MINI-ZT- MVOLT	2'x2' LED FLAT PANEL LUMINAIRE WITH INTEGRAL T-BAR CLIPS, LOW PROFILE, EXTRUDED ALUMINUM FRAME AND SATIN WHITE LENS, 0-10 VOLT DIMMING DRIVER DIMS TO 10% RATED L70/50,000HRS.	120	RECESSED IN T/BAR	37W LUMENS 3500K 80 CRI	1,2,3,4,5
A4 A4R A4S	LITHONIA #PANI-2X4-400LM- 80CRI-35K-MINI-ZT- MVOLT	2'x4' LED FLAT PANEL LUMINAIRE WITH INTEGRAL T-BAR CLIPS, LOW PROFILE, EXTRUDED ALUMINUM FRAME AND SATIN WHITE LENS, 0-10 VOLT DIMMING DRIVER DIMS TO 10% RATED L70/50,000HRS.	120	RECESSED IN T/BAR	38W LUMENS 3500K 80 CRI	1,2,3,4,5
B1R B1S	LITHONIA #BLT4-40L-SDSM-MVOLT-EZ1-LP835	1'x4' RECESSED VOLUMETRIC LED LUMINAIRE WITH T-BAR CLIPS AND SQUARE SMOOTH IMPACT MODIFIED ACRYLIC FROSTED CENTER DIFFUSER, 0-10 VOLT DIMMING DRIVER DIMS TO 10% RATED L80/60,000HRS.	120	RECESSED IN T/BAR	33W LUMENS 3500K 80 CRI	1,2,3,4,5
B2R B2S	LITHONIA #BLT2-40L-SDSM-MVOLT-EZ1-LP835	2'x2' RECESSED VOLUMETRIC LED LUMINAIRE WITH T-BAR CLIPS AND SQUARE SMOOTH IMPACT MODIFIED ACRYLIC FROSTED CENTER DIFFUSER, 0-10 VOLT DIMMING DRIVER DIMS TO 10% RATED L80/60,000HRS.	120	RECESSED IN T/BAR	32W LUMENS 3500K 80 CRI	1,2,3,4,5
B4R B4S	LITHONIA #BLT4-40L-SDSM-MVOLT-EZ1-LP835	2'x4' RECESSED VOLUMETRIC LED LUMINAIRE WITH T-BAR CLIPS AND SQUARE SMOOTH IMPACT MODIFIED ACRYLIC FROSTED CENTER DIFFUSER, 0-10 VOLT DIMMING DRIVER DIMS TO 10% RATED L80/60,000HRS.	120	RECESSED IN T/BAR	32W LUMENS 3500K 80 CRI	1,2,3,4,5
C2	LITHONIA #BLWP2-20L-SDSM-MVOLT-EZ1-LP835-NLTAIR2-RES7PDT-WH-ZACVH	2' LINEAR SURFACE MOUNTED LED WRAP/WALL BRACKET WITH SQUARE SMOOTH IMPACT MODIFIED ACRYLIC FROSTED CENTER DIFFUSER, 0-10 VOLT DIMMING DRIVER DIMS TO 10% RATED L80/60,000HRS.	120	WALL MOUNTED AT EXISTING LOCATION	17W LUMENS 1942 LUMENS 3500K 80 CRI	1,2
C4 CAR CAS	LITHONIA #BLWP4-40L-SDSM-MVOLT-EZ1-LP835	4' LINEAR SURFACE MOUNTED LED WRAP/WALL BRACKET WITH SQUARE SMOOTH IMPACT MODIFIED ACRYLIC FROSTED CENTER DIFFUSER, 0-10 VOLT DIMMING DRIVER DIMS TO 10% RATED L80/60,000HRS.	120	WALL MOUNTED	35W LUMENS 4391 LUMENS 3500K 80 CRI	1,2,4,5
D4S	LITHONIA #CLX-148-7000L-SEF- MVOLT-EZ1-40C- 80CRI-NLTAIR2-RES7PDT- WH-ZACVH	4' LOW PROFILE LED STRIP LUMINAIRE, HIGH GLOSS, BAKED WHITE ENAMEL FINISH WITH SOLID PLASTIC END CAPS AND WIDE DIFFUSE LENS, 0-10 VOLT DIMMING DRIVER DIMS TO 10% RATED L70/100,000HRS.	120	SURFACE MOUNTED OR SUSPENDED	45W LUMENS 4000K 80 CRI	1,2
D8S	LITHONIA #CLX-196-14000L-SEF- MVOLT-EZ1-40C- 80CRI-NLTAIR2-RES7PDT- WH-ZACVH	8' LOW PROFILE LED STRIP LUMINAIRE, HIGH GLOSS, BAKED WHITE ENAMEL FINISH WITH SOLID PLASTIC END CAPS AND WIDE DIFFUSE LENS, 0-10 VOLT DIMMING DRIVER DIMS TO 10% RATED L70/100,000HRS.	120	SURFACE MOUNTED OR SUSPENDED	93W LUMENS 13331 LUMENS 4000K 80 CRI	1,2
E	LITHONIA #MML-7-8-35-WL	7" ROUND SURFACE MOUNTED LED LUMINAIRE, ROBUST ALUMINUM HOUSING, MATTE WHITE ACRYLIC DIFFUSER, MINIMUM 80 CRI, RATED 50,000HRS.	120	SURFACE MOUNTED	10W LUMENS 642 LUMENS 80 CRI	1
F	LITHONIA #MLR-111-148-35-WL	11" ROUND SURFACE MOUNTED LED LUMINAIRE, ROBUST ALUMINUM HOUSING, MATTE WHITE ACRYLIC DIFFUSER, MINIMUM 80 CRI, RATED 50,000HRS.	120	SURFACE MOUNTED	16W LUMENS 1100 LUMENS 3500K 80 CRI	1
G	LITHONIA #BRB-AL02-SWNI-AR- LSS-WMD-MVOLT-U02	6" RECESSED LED DOWNLIGHT RETROFIT KIT C/W ADJUSTABLE LUMEN OUTPUT, SWITCHABLE COLOR TEMPERATURE, MEDIUM WIDE LIGHTING DISTRIBUTION, 0-10V DIMMING DRIVER DIMS TO 10%	120	RECESSED	19W LUMENS 2011 LUMENS 3500K 80 CRI	1
H4	LITHONIA #CSS-148-AL03-MVOLT- SWN3-80CRI	4' LINEAR LED LUMINAIRE, COMPACT DESIGN CHANNEL AND COVER FORMED FROM CODE-GAUGE COLD-ROLLED STEEL, HIGH-GLOSS, BAKED WHITE ENAMEL FINISH, DIFFUSE POLYCARBONATE LENS, 0-10V DIMMING DRIVER DIMS TO 10%	120	SURFACE MOUNTED	36W LUMENS 4135 LUMENS 3500K 80 CRI	1,2
H4S	LITHONIA #CSS-148-400LM- MVOLT-80CRI- VTA15FANL	4' LINEAR LED LUMINAIRE, COMPACT DESIGN CHANNEL AND COVER FORMED FROM CODE-GAUGE COLD-ROLLED STEEL, HIGH-GLOSS, BAKED WHITE ENAMEL FINISH, C/W VERTX SENSOR, DIFFUSE POLYCARBONATE LENS, 0-10V DIMMING DRIVER DIMS TO 10%	120	SURFACE MOUNTED OR SUSPENDED	36W LUMENS 4135 LUMENS 3500K 80 CRI	1,2
H8S	LITHONIA #CSS-196-AL04- MVOLT-SWN3-80CRI- SFR7CSS	8' LINEAR LED LUMINAIRE, COMPACT DESIGN CHANNEL AND COVER FORMED FROM CODE-GAUGE COLD-ROLLED STEEL, HIGH-GLOSS, BAKED WHITE ENAMEL FINISH, C/W VERTX SENSOR, DIFFUSE POLYCARBONATE LENS, 0-10V DIMMING DRIVER DIMS TO 10%	120	SURFACE MOUNTED OR SUSPENDED	50W LUMENS 6495 LUMENS 4000K 80 CRI	1,2
J	LITHONIA #SVT-148-AL03-MVOLT- 35K-80CRI-WLFEND2	4' LINEAR LED VAPOUR TIGHT LUMINAIRE, POLYCARBONATE HOUSING, FROSTED POLYCARBONATE LENS, POURED IN PLACE POLYURETHANE GASKET AND POLYCARBONATE LATCHES C/W HARDWARE FOR SURFACE MOUNTING, 0-10V STANDARD DIMMING, IP65 AND IP66 RATED.	120	CEILING MOUNTED AT EXISTING LOCATION	34W LUMENS 4046 LUMENS 3500K 80 CRI	1,2
AA	LITHONIA #TWSLED-AL0-SWN2- MVOLT-PE-DOB-M2	WALL MOUNTED EXTERIOR LED WALL PACK, POLYCARBONATE LENS AND FULLY GASKETED IMPACT-RESISTANT FRONT COVER, ON/OFF BUTTON TYPE PHOTOCELL, FIELD ADJUSTABLE LUMEN OUTPUT AND SWITCHABLE COLOR TEMPERATURE, RATED L90/50,000HRS.	120	SURFACE MOUNTED AT EXISTING LOCATION	12W LUMENS 1700 LUMENS 4000K 80 CRI	1,2
BB	LITHONIA #ARC2 LED-P5-30K- MVOLT-FAO-PE-DOBXD	WALL MOUNTED EXTERIOR LED WALL PACK, DIE-CAST ALUMINUM HOUSING AND DOOR FRAME FULLY GASKETED AGAINST MOISTURE (IP65), DARK BRONZE POLYESTER POWDER COAT FINISH, FIELD ADJUSTABLE LUMEN OUTPUT, RATED L90/100,000HRS.	120	WALL MOUNTED AT EXISTING LOCATION	51W LUMENS 6260 LUMENS 4000K 80 CRI	1,2
BB1	LITHONIA #WRI-LED-AL0-SWN2- MVOLT-PE-DOB7XD	WALL MOUNTED EXTERIOR LED WALL PACK, DIE-CAST ALUMINUM HOUSING AND DOOR FRAME FULLY GASKETED AGAINST MOISTURE (IP65), BROWN POLYESTER POWDER COAT FINISH, FIELD ADJUSTABLE COLOR TEMPERATURE, LUMEN OUTPUT, RATED L90/50,000HRS.	120/347	WALL MOUNTED AT EXISTING LOCATION	36W LUMENS 5301 LUMENS 4000K 80 CRI	1,2
CC1	LITHONIA #DSXF3 LED-6-P2-30K- HMF-MVOLT-IS-PE-UBV- DOBXD + FRWB-DOB-U	EXTERIOR LED FLOODLIGHT, RUGGED DIE-CAST ALUMINUM CONSTRUCTION, INTEGRAL HEAT SINK FINS, HOUSING AND LENS FRAME COMPLETELY SEALED AGAINST MOISTURE AND ENVIRONMENTAL CONTAMINANTS, IP66 RATED, FLOOD DISTRIBUTION C/W TOP MOUNT VISOR, RATED L90/100,000HRS.	120	WALL MOUNTED AT EXISTING LOCATION	138W LUMENS 19322 LUMENS 4000K 70 CRI	1,2,6,7
CC2	LITHONIA #DSXF2 LED-P2-30K- HMF-MVOLT-IS-PE-UBV- DOBXD + FRWB-DOB-U	EXTERIOR LED FLOODLIGHT, RUGGED DIE-CAST ALUMINUM CONSTRUCTION, INTEGRAL HEAT SINK FINS, HOUSING AND LENS FRAME COMPLETELY SEALED AGAINST MOISTURE AND ENVIRONMENTAL CONTAMINANTS, IP66 RATED, MEDIUM FLOOD DISTRIBUTION C/W TOP MOUNT VISOR, RATED L90/100,000HRS.	120	WALL MOUNTED AT EXISTING LOCATION	78W LUMENS 9671 LUMENS 4000K 70 CRI	1,2,6,7
CC3	LITHONIA #DSXF2 LED-P1-30K- HMF-MVOLT-IS-PE-UBV- DOBXD + FRWB-DOB-U	EXTERIOR LED FLOODLIGHT, RUGGED DIE-CAST ALUMINUM CONSTRUCTION, INTEGRAL HEAT SINK FINS, HOUSING AND LENS FRAME COMPLETELY SEALED AGAINST MOISTURE AND ENVIRONMENTAL CONTAMINANTS, IP66 RATED, HORIZONTAL FLOOD DISTRIBUTION C/W TOP MOUNT VISOR, RATED L90/100,000HRS.	120	WALL MOUNTED AT EXISTING LOCATION	54W LUMENS 6580 LUMENS 4000K 70 CRI	1,2,6,7
CC4	LITHONIA #DSXF1 LED-P2-30K- HMF-MVOLT-IS-PE-UBV- DOBXD	EXTERIOR LED FLOODLIGHT, RUGGED DIE-CAST ALUMINUM CONSTRUCTION, INTEGRAL HEAT SINK FINS, HOUSING AND LENS FRAME COMPLETELY SEALED AGAINST MOISTURE AND ENVIRONMENTAL CONTAMINANTS, IP66 RATED, NARROW SPOT DISTRIBUTION C/W TOP MOUNT VISOR, RATED L90/100,000HRS.	120	WALL MOUNTED AT EXISTING LOCATION	42W LUMENS 5242 LUMENS 4000K 70 CRI	1,2,6
DD	LITHONIA #FSX2 LED-P2-30K- HMF-MVOLT-IS-PE-NLTAIR2 PIRHN-DOBXD	EXTERIOR LED FLOODLIGHT, RUGGED DIE-CAST ALUMINUM BODY, ZINC-FINISHED THERMOSET POWDER COAT FINISH PROVIDES RESISTANCE TO CORROSION AND WEATHERING, WIDE DISTRIBUTION C/W NETWORKED, 9-LEVEL MOTION/AMBIENT SENSOR, RATED L92/100,000HRS.	120	WALL MOUNTED AT EXISTING LOCATION	111W LUMENS 15657 LUMENS 4000K 70 CRI	1,2,6
EE	NEW STAR #AGV-11-OP-12-30K	16" X 16" SURFACE MOUNTED LED LUMINAIRE, WHITE PATENT EXTRUDED ALUMINUM FRAME ENCASED IN A 16 GAUGE COLD-ROLLED STEEL FRAME WITH BEVELED EDGES TO DEFLECT THE FORCE OF AN IMPACT, POLYESTER POWDER COAT FINISH.	120	CANOPY MOUNTED AT EXISTING LOCATION	18W LUMENS 1344 LUMENS 4000K	1,2
NOTES: 1. VERIFY EXISTING VOLTAGE PRIOR TO SHOP DRAWING SUBMITTAL. 2. PROVIDE TWO (2) SPARE DRIVERS FOR ATTIC STOCK AND TAG TO MATCH LUMINAIRE TYPE. 3. PROVIDE ADDITIONAL CABLE LENGTH TO ENABLE LUMINAIRE TO BE LOWERED OR RELOCATED TO AVOID SHADOWING. 4. SUFFIX 'R' DENOTES LUMINAIRE SHALL BE ALIGHT ENABLED WITH NLTAIR2-RO CONTROL MODULE (U.I.O.). 5. SUFFIX 'S' DENOTES LUMINAIRE SHALL BE ALIGHT ENABLED WITH NLTAIR2-RES7PDT CONTROL MODULE (U.I.O.). 6. PROVIDE NEW MOUNTING HARDWARE AND CORD SETS AS REQUIRED; EXACT MOUNTING TO BE DETERMINED ON SITE. 7. PROVIDE NEW BUILDING MOUNT RIGHT ANGLE WALL BRACKET PROPERLY FASTENED TO BRICK WALL AND A WEATHERPROOF GASKET OVER EXISTING OUTLET BOX.						

1. GENERAL REQUIREMENTS

- 1.1. THESE ELECTRICAL SPECIFICATIONS SHALL BE READ IN CONJUNCTION WITH THE GENERAL REQUIREMENTS, ELECTRICAL DRAWINGS AND OTHER CONTRACT DOCUMENTS.
- 1.2. SCOPE OF WORK
1.2.1. THIS CONTRACTOR SHALL PROVIDE ALL LABOUR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE INSTALLATION OF COMPLETELY FINISHED, TESTED, BALANCED AND PROPERLY OPERATING ELECTRICAL SYSTEMS AS SPECIFIED HEREIN AND AS INDICATED ON DRAWINGS. THE INTENT TO PROVIDE FOR THE WORK COMPLETE IN ALL ESSENTIALS AS CALLED FOR BY THE CONTRACT DOCUMENTS, IN A MANNER CONSISTENT WITH GOOD WORKMANSHIP.

- 1.3. CODES AND STANDARDS
1.3.1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH CSA C22.1-21, CANADIAN ELECTRICAL CODE, PART 1, (2021 EDITION) AND THE NATIONAL BUILDING CODE OF CANADA 2015.
- 1.4. PERMITS AND BY-LAWS
1.4.1. OBTAIN PERMITS AND CERTIFICATIONS PRIOR TO START OF WORK. SUBMIT DRAWINGS TO INSPECTION AUTHORITY, COORDINATE SERVICES WITH SAINT JOHN AND SUSSEX CITIES. MAKE SURE ANY REMAINING LIVE CONNECTIONS ARE PROPERLY ISOLATED AND TAGGED PRIOR TO START OF WORK. ALL WORK PERFORMED BY THIS CONTRACTOR SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE CODES, LOCAL BY-LAWS, STANDARDS AND THEIR AMENDMENTS.

- 1.5. SITE VISIT
1.5.1. PRIOR TO TENDER CLOSE, THIS CONTRACTOR SHALL VISIT SITE AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND UTILITIES. NO ALLOWANCE SHALL BE MADE FOR PROBLEMS THAT MAY ARISE DUE TO LACK OF KNOWLEDGE OF EXISTING CONDITIONS THAT COULD REASONABLY HAVE BEEN ASCERTAINED BY A CAREFUL INSPECTION.

- 1.6. COORDINATION OF WORK
1.6.1. THIS CONTRACTOR SHALL COORDINATE THEIR WORK WITH THE GENERAL CONTRACTOR AND WITH ALL OTHER SUB-CONTRACTORS. SCHEDULE AND PERFORM ALL WORK IN EXISTING PREMISES WITH OWNERS SO AS NOT TO INTERFERE WITH NORMAL OPERATIONS OF BUILDING OCCUPANTS. ANY DISRUPTIVE WORK SHALL BE SCHEDULED OUTSIDE OPERATING HOURS AND AS APPROVED BY THE GENERAL CONTRACTOR.
1.6.3. COOPERATE WITH OTHER TRADES, OWNER AND OWNER'S FORCES IN CARRYING OUT WORK. REPORT ANY DEFICIENCIES OR DEFECTS IN WORK PERFORMED BY OTHERS THAT AFFECT THIS CONTRACT'S WORK TO ENGINEER IMMEDIATELY.
1.6.4. WHERE WORK IS CARRIED OUT IN EXISTING PREMISES, NOTIFY OWNER AT LEAST 72 HOURS IN ADVANCE OF ANY NECESSARY INTERRUPTIONS IN SERVICES OR ACCESS.

- 1.7. GUARANTEE
1.7.1. THIS CONTRACTOR SHALL PROVIDE, IN WRITING, A GUARANTEE COVERING ALL LABOR AND MATERIAL FOR A PERIOD OF ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION. REPAIR AND MAKE GOOD ALL DEFECTS DURING THE GUARANTEE PERIOD, INCLUDING ANY DAMAGE TO BUILDING INCLUDING AS A RESULT OF FAILURE OF ELECTRICAL WORK AND/OR EQUIPMENT INSTALLED.

- 1.8. DRAWINGS
1.8.1. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC ONLY. MAINTAIN ONE SET OF PLANS UNDER JURISDICTION OF THE CONTRACTOR. ANY CHANGES OR DEVIATIONS FROM THE CONTRACT, AND SUBMIT THEM AT THE END OF THE PROJECT MARKED "AS-BUILT", SIGNED AND DATED BY THE CONTRACTOR. THESE DRAWINGS SHALL BE KEPT ON SITE DURING CONSTRUCTION, UPDATED, AND MADE AVAILABLE FOR REVIEW BY ENGINEER, IF REQUESTED.

- 1.9. EXTRA WORK
1.9.1. NO ALLOWANCE SHALL BE MADE BEYOND CONTRACT PRICE UNLESS CONTRACTOR RECEIVES SHOWN APPROVAL IN ACCORDANCE WITH GENERAL CONDITIONS.

- 1.10. CUTTING, PATCHING AND FIRESTOPPING
1.10.1. ALL CUTTING, PATCHING AND FIRESTOPPING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL LOCATE THE EXACT DIMENSIONS AND POSITIONS OF OPENINGS AND HOLES WHERE CUTTING IS REQUIRED.

- 1.11. SHOP DRAWINGS
1.11.1. THIS CONTRACTOR SHALL SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH THE GENERAL REQUIREMENTS. WORK SHALL NOT PROCEED AND EQUIPMENT/MATERIAL SHALL NOT BE ORDERED UNTIL THE SHOP DRAWINGS HAVE BEEN RETURNED STAMPED AND SIGNED. THIS REVIEW DOES NOT RELIEVE THE CONTRACTOR OF THE OBLIGATION OF CHECKING THE DRAWINGS THEMSELVES OR FURNISHING THE MATERIALS SPECIFIED.

- 1.11.2. WHEN SUBMITTED, SHOP DRAWING MUST BEAR CONTRACTOR'S STAMP REPRESENTING THAT THEY HAVE BEEN DETERMINED AND VERIFIED ALL VOLTAGES, FIELD MEASUREMENTS, FIELD CONSTRUCTION CRITERIA, MATERIALS, CATALOGUE NUMBERS AND SIMILAR DATA AND THAT THEY HAVE CHECKED AND COORDINATED EACH SHOP DRAWING WITH REQUIREMENTS OF WORK AS INDICATED ON DRAWINGS AND SPECIFICATIONS.
1.11.3. SHOP DRAWINGS REQUIRED FOR: LUMINAIRES, LAMPS, BALLASTS, CONTROLS AND WIRING DEVICES. INFORMATION REQUIRED: MANUFACTURER, CONSTRUCTION DETAILS, ACCESSORIES, INSTALLATION DETAILS, CAPACITIES, PERFORMANCE DATA, FINISHES, INCLUDE WIRING SINGLE LINE AND SCHEMATIC DIAGRAMS WHERE APPLICABLE.
1.11.4. ALL MATERIAL SUPPLIED SHALL BE NEW AND CARRY C.S.A. CERTIFICATION AND/OR CERTIFICATIONS APPROVED BY LOCAL INSPECTION AUTHORITY.

- 1.12. CLEANING UP
1.12.1. THIS CONTRACTOR SHALL, AT ALL TIMES, KEEP THE SITE NEAT, CLEAN AND FREE FROM ACCUMULATION OF WASTE MATERIALS.

- 1.13. OPERATION AND MAINTENANCE INSTRUCTIONS
1.13.1. THIS CONTRACTOR SHALL INSTRUCT THE OWNER IN OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND SYSTEMS INSTALLED SUCH AS DIMMING SYSTEM AND LIGHTING CONTROL SYSTEM, ALL CONTROL FEATURES SHALL BE EXPLAINED TO THE OWNER. A SET OF OPERATION AND MAINTENANCE INSTRUCTIONS, TOGETHER WITH ALL APPROVED SHOP DRAWINGS AND SPARE PARTS LIST FURNISHED IN A BINDER, AND ONE ELECTRONIC COPY, SHALL BE SUBMITTED TO THE OWNER. MANUALS COMPLETE WITH DETAILS OF DESIGN ELEMENTS, CONSTRUCTION FEATURES, COMPONENT FUNCTION AND MAINTENANCE REQUIREMENTS, TO PERMIT EFFECTIVE START-UP, OPERATION, MAINTENANCE, REPAIR, MODIFICATION, EXTENSION AND EXPANSION OF ANY PORTION OR FEATURE OF INSTALLATION.

- TECHNICAL DATA, PRODUCT DATA, SUPPLEMENTED BY BULLETINS, DESCRIPTIONS OF ITEMS, AND PARTS LISTS. ADVERTISING OR SALES LITERATURE IS NOT ACCEPTABLE.
-WIRING AND SCHEMATIC DIAGRAMS AND PERFORMANCE CURVES.
-NAME AND ADDRESS OF LOCAL SUPPLIERS.
-COPY OF REVIEWED SHOP DRAWINGS.
-COPY OF ALL TEST CERTIFICATES.
-WARRANTY CERTIFICATE.
-PROVIDE ONE HARD COPY OF THE OPERATION AND MAINTENANCE MANUAL TO THE ENGINEER FOR REVIEW PRIOR TO SUBMISSION TO OWNER.

- 1.14. DISPOSALS
1.14.1. ADVISE OWNER OF AVAILABILITY OF SURPLUS MATERIAL. TURN OVER ITEMS REQUESTED BY OWNER AND DISPOSE OF REMAINDER IN ACCORDANCE WITH ALL BY LAWS AND LOCAL AUTHORITIES HAVING JURISDICTION.

- 1.15. DEMOLITION
1.15.1. ANY ALTERNATE PRODUCT PROPOSED SHALL MEET SAME STANDARDS AS PRODUCT SPECIFIED BUT SHALL BE CONSIDERED ACCEPTABLE ONLY IF APPROVED PRIOR TO INSTALLATION BY ENGINEER. SUCH APPROVAL WILL NOT BE UNREASONABLY WITHHELD.
1.15.2. SPECIFIED PRODUCTS PROVIDED BY THIS CONTRACTOR SHALL BE NEW AND CAPABLE OF PROPER OPERATION. UNSPECIFIED PRODUCTS PROVIDED SHALL BE OF QUALITY BEST SUITED TO THEIR PURPOSE, CSA OR LOCAL INSPECTION AUTHORITY APPROVED AND CAPABLE OF PROPER OPERATION.
1.15.3. REUSE EXISTING PRODUCTS WHICH MEET SPECIFICATIONS WHEREVER PRACTICABLE.
1.15.4. CLEAN VISIBLE PORTIONS OF ALL DEVICES AND COVER PLATES AS RECOMMENDED BY MANUFACTURER TO RESTORE FACTORY FINISH.
1.15.5. PROTECT WORK AND OWNER'S PROPERTY FROM DAMAGE THAT MAY ARISE AS A RESULT OF THIS CONTRACTOR'S PERFORMANCE OF WORK. PROMPTLY MAKE GOOD ANY DAMAGES TO WORK AND OWNER'S PROPERTY ARISING FROM THIS CONTRACTOR'S PERFORMANCE OF WORK.
1.15.6. ARRANGE DELIVERIES AND STORAGE WITH OWNER AND AUTHORITIES HAVING JURISDICTION. MAKE CLEARLY NOTED ALL CHANGES OR DEVIATIONS FROM ABUSE, DAMAGE AND ENVIRONMENTAL CONDITIONS WHICH THEY ARE NOT INTENDED TO WITHSTAND, NOTWITHSTANDING FOREGOING, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

2. BASIC MATERIAL AND METHODS

- 2.1. EQUIPMENT AND PROPERTY
2.1.1. ANY ALTERNATE PRODUCT PROPOSED SHALL MEET SAME STANDARDS AS PRODUCT SPECIFIED BUT SHALL BE CONSIDERED ACCEPTABLE ONLY IF APPROVED PRIOR TO INSTALLATION BY ENGINEER. SUCH APPROVAL WILL NOT BE UNREASONABLY WITHHELD.
2.1.2. SPECIFIED PRODUCTS PROVIDED BY THIS CONTRACTOR SHALL BE NEW AND CAPABLE OF PROPER OPERATION. UNSPECIFIED PRODUCTS PROVIDED SHALL BE OF QUALITY BEST SUITED TO THEIR PURPOSE, CSA OR LOCAL INSPECTION AUTHORITY APPROVED AND CAPABLE OF PROPER OPERATION.
2.1.3. REUSE EXISTING PRODUCTS WHICH MEET SPECIFICATIONS WHEREVER PRACTICABLE.
2.1.4. CLEAN VISIBLE PORTIONS OF ALL DEVICES AND COVER PLATES AS RECOMMENDED BY MANUFACTURER TO RESTORE FACTORY FINISH.
2.1.5. PROTECT WORK AND OWNER'S PROPERTY FROM DAMAGE THAT MAY ARISE AS A RESULT OF THIS CONTRACTOR'S PERFORMANCE OF WORK. PROMPTLY MAKE GOOD ANY DAMAGES TO WORK AND OWNER'S PROPERTY ARISING FROM THIS CONTRACTOR'S PERFORMANCE OF WORK.
2.1.6. ARRANGE DELIVERIES AND STORAGE WITH OWNER AND AUTHORITIES HAVING JURISDICTION. MAKE CLEARLY NOTED ALL CHANGES OR DEVIATIONS FROM ABUSE, DAMAGE AND ENVIRONMENTAL CONDITIONS WHICH THEY ARE NOT INTENDED TO WITHSTAND, NOTWITHSTANDING FOREGOING, FOLLOW MANUFACTURER'S RECOMMENDATIONS.
- 2.2. WIRING METHODS
2.2.1. FOR POWER WIRING, MAINTAIN PHASE SEQUENCE AND COLOR CODING THROUGHOUT, COLOR CODING TO CSA C22.1.
2.2.2. LOCATE, DIMENSION AND MAKE ELECTRICAL SERVICES OPENINGS. PROVIDE NECESSARY SLEEVES, ESCUTCHEONS AND COVERS.
2.2.3. DRILL AND PROVIDE ANCHORS AS REQUIRED FOR EXPANSION BOLTS, HANGER RODS, BRACKETS AND SUPPORTS.
- 2.3. TESTING
2.3.1. MEGGER CIRCUITS UP TO 350V WITH A 500V INSTRUMENT.
2.3.2. MEGGER CIRCUITS BETWEEN 350V TO 600V WITH A 1000V INSTRUMENT.
2.3.3. CHECK RESISTANCE TO GROUND BEFORE ENERGIZING ANY PART OF THE WORK.
2.3.4. TEST ALL LUMINAIRES, CONTROLS, CIRCUIT BREAKERS, AND EMERGENCY LIGHTING UNIT EQUIPMENT FOR CORRECT OPERATION AND ABSENCE OF SHORTS OR GROUND.
2.3.5. PUT EQUIPMENT AND SYSTEMS IN SERVICE AS MAY BE REQUESTED BY ENGINEER FOR TRIAL USE PROVIDED NO HAZARD OR DAMAGE WILL RESULT NOR GUARANTEE OF PERFORMANCE.
2.3.6. MEASURE PHASE VOLTAGES AT LOADS AND ADJUST TRANSFORMER TAPS TO ACHIEVE A LOAD VOLTAGE OF 115-120V.

3. CONDUIT AND FITTINGS

- 3.1. WHERE NEW FEEDERS ARE REQUIRED, EMT CONDUIT WITH STEEL SET-SCREW CONNECTORS AND COUPLINGS SHALL BE USED THROUGHOUT UNLESS NOTED OTHERWISE.
3.2. ALL EMPTY CONDUITS SHALL BE COMPLETE WITH PULL CORD.
3.3. SUPPORT ALL BOXES INDEPENDENTLY OF CONNECTING CONDUITS.
3.4. DO NOT USE SUPPORTS OR EQUIPMENT INSTALLED FOR OTHER TRADES FOR CONDUIT (OR CABLE) SUPPORT, EXCEPT WITH PERMISSION OF OTHER TRADES AND APPROVAL OF ENGINEER.
3.5. DO NOT USE WIRE LASHING OR PERFORATED STRAPPING TO SUPPORT OR SECURE RACEWAYS (OR CABLES).
3.6. PROVIDE ADEQUATE SUPPORT FOR RACEWAYS (AND CABLES) DROPPED VERTICALLY TO EQUIPMENT, WHERE THERE IS NO WALL SUPPORT.
3.7. FASTEN EXPOSED CONDUIT (OR CABLES) TO BUILDING CONSTRUCTION OR SUPPORT SYSTEM USING ONE OR TWO HOLE STEEL STRAPS.
3.8. INSTALL CONNECTORS ON SURFACE CONDUITS, SO THAT SCREW HEADS DO NOT POSE A DANGER TO OCCUPANTS.

4. WIRE AND CABLE

- 4.1. ALL WIRING SHALL BE RUN IN CONDUIT CONCEALED IN FINISHED AREAS AND SHALL BE RUN PARALLEL TO BUILDING LINES. NO HORIZONTAL CONDUITS SHALL BE RUN IN WALLS.
4.2. ALL EXPOSED WIRING SHALL BE RUN PARALLEL TO BUILDING LINES (SERVICE AREAS ONLY).
4.3. ALL EXPOSED WIRING ON FINISHED DRYWALL SHALL BE RUN IN NON-METALLIC RACEWAY (WREMOLOD OR APPROVED EQUAL).
4.4. WRING:
4.4.1. ARMORED CABLE (BX) SHALL NOT BE USED.
4.4.2. FLEXIBLE CONDUIT C/W ANTI-SHORT BUSHINGS FOR LUMINAIRE DROPS IN T-BAR CEILINGS, MECHANICAL EQUIPMENT AND IN WALLS WHERE CONDUIT IS NOT POSSIBLE.
4.4.3. 1/2" EMT CONDUIT, C/W STEEL SET-SCREW CONNECTORS AND COUPLINGS
4.4.4. CONDUCTORS: #12 RW90, 600V, CU, MINIMUM, IN EMT CONDUIT.
4.5. ASSURE THAT ALL CONDUCTORS ARE SIZED FOR MAXIMUM VOLTAGE DROP:
4.5.1. BRANCH CIRCUITS - MAX. 2%
4.5.2. PANEL FEEDERS - MAX. 2%
4.5.3. DISTRIBUTION - MAX. 1%
4.6. ALL SOLID COPPER CONDUCTORS WITH THERMOPLASTIC INSULATION (TYPE RW90, 600V) BRANCH WIRING SHALL BE MINIMUM #12 AWG (MAXIMUM 70' [21.4m]); #10 AWG (MAXIMUM 120' [36.6m]); FOR RUNS EXCEEDING 120' [36.6m] VOLTAGE DROP SHALL BE CALCULATED AT THE MAXIMUM OF 2% #8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED COPPER. USE CONNECTORS, CLAMPS AND SUPPORTS TO SUIT.

5. OUTLET, PULL & JUNCTION BOXES

- 5.1. PROVIDE ELECTRO-GALVANIZED STEEL SINGLE OR MULTIPLE GANG BOXES FOR FLUSH INSTALLATION FOR ALL DEVICES AS INDICATED. BOXES SHALL BE CODE GAUGE AND SIZED TO MEET THE CANADIAN ELECTRICAL CODE REQUIREMENTS. EQUIP ALL BOXES WITH EXTENSION AND TILE RINGS AS REQUIRED.
5.2. PROVIDE 4(100mm) SQUARE OR OCTAGONAL OUTLET BOXES FOR FLUSH LIGHTING FIXTURES AS REQUIRED TO FACILITATE CONDUCTOR SURFACE MOUNTING AS REQUIRED TO FACILITATE CONDUCTOR INSTALLATION. GENERALLY SUCH BOXES WILL BE LOCATED SO AS NOT TO EXCEED 100' (30.5m) OF CONDUIT RUN AND 2-30 DEGREE BENDS BETWEEN PULL BOXES. PROVIDE ADDITIONAL JUNCTION/PULL BOXES AS REQUIRED. ENSURE ALL JUNCTION/PULL BOXES ARE ACCESSIBLE WHEN ALL WORK IS COMPLETE.
5.3. PROVIDE WELDED STEEL JUNCTION/PULL BOXES WITH HINGED COVERS FOR SURFACE MOUNTING AS REQUIRED TO FACILITATE CONDUCTOR INSTALLATION. GENERALLY SUCH BOXES WILL BE LOCATED SO AS NOT TO EXCEED 100' (30.5m) OF CONDUIT RUN AND 2-30 DEGREE BENDS BETWEEN PULL BOXES. PROVIDE ADDITIONAL JUNCTION/PULL BOXES AS REQUIRED. ENSURE ALL JUNCTION/PULL BOXES ARE ACCESSIBLE WHEN ALL WORK IS COMPLETE.
5.4. SUPPORT ALL BOXES INDEPENDENTLY OF CONNECTING CONDUITS.

6. WIRING DEVICES

- 6.1. EQUIPMENT MOUNTING HEIGHT IS FROM FINISHED FLOOR TO EQUIPMENT CENTERLINE UNLESS SPECIFIED OR INDICATED OTHERWISE.
6.2. IF EQUIPMENT MOUNTING HEIGHT IS NOT INDICATED, VERIFY WITH ENGINEER BEFORE PROCEEDING WITH INSTALLATION.
6.3. INSTALL ELECTRICAL EQUIPMENT AT FOLLOWING HEIGHTS UNLESS INDICATED OTHERWISE:
6.3.1. LOCAL SWITCHES: MATCH EXISTING
6.3.2. WALL MOUNTED EXT LIGHTS: 98" (2450mm), 12" (300mm) ABOVE DOOR FRAME, 9" (2700mm) O/M
6.3.3. WALL MOUNTED OCCUPANCY SENSORS: 98" (2450mm)
6.4. SWITCHES: TOGGLE TYPE 15A & 20A, 347V OR 120V AS INDICATED, SINGLE POLE, 3-WAY MANUALLY OPERATED SPECIFICATION GRADE AS INDICATED. COLOR AND TYPE TO MATCH EXISTING.
6.5. ACCEPTABLE SWITCH MANUFACTURERS: COOPER, BRYANT, HUBBELL, LEVITON, PACSAND, SEYMOUR.
6.6. ACCEPTABLE SENSOR MANUFACTURERS: SENSORSWITCH, WATTSTOPPER, LEVITON, HUBBELL.
6.7. PROVIDE COVER PLATES FROM ONE MANUFACTURER FOR EACH TYPE OR ASSEMBLY OF OUTLETS THROUGHOUT PROJECT. OPENINGS TO SUIT TYPE AND GANGING OF DEVICES, COLOR AND STYLE TO MATCH EXISTING.
6.8. SHEET STEEL UTILITY BOX COVERS FOR WIRING DEVICES INSTALLED IN SURFACE-MOUNTED UTILITY BOXES ("T" TYPE).
6.9. THERMOPLASTIC COVER PLATES FOR WIRING DEVICES MOUNTED IN A FLUSH-MOUNTED OUTLET BOX. COLOR: TO MATCH DEVICE.
6.10. PROVIDE SURFACE MOUNTED NON-METALLIC RACEWAY FOR EXPOSED RUNS WHERE INDICATED WITH ALL NECESSARY FITTING. PAINT TO MATCH SUPPORTING SURFACES. ACCEPTABLE MANUFACTURERS: HUBBELL, WREMOLOD.

- 6.11. WIRING DEVICES IN LEGEND ARE INTENDED TO SET A STANDARD BELOW WHICH EQUIPMENT WILL NOT BE ACCEPTED.
6.12. MOUNTING HEIGHTS TO MATCH EXISTING AREAS.
6.13. LOCATE NEW LIGHT SWITCHES AS INDICATED. VERIFY EXACT LOCATIONS WITH OWNER PRIOR TO ROUGHING-IN.

7. GROUNDING

- 7.1. THE ENTIRE ELECTRICAL SYSTEM, AS PERTAINS TO THIS INSTALLATION, SHALL BE GROUNDED IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE SECTION 10 AND LOCAL AUTHORITY HAVING JURISDICTION OVER INSTALLATION.
7.2. MAKE GROUNDING CONNECTIONS IN RADIAL CONFIGURATION ONLY, WITH CONDUIT TERMINATING AT SINGLE GROUNDING POINT. AVOID LOOP CONNECTIONS.
7.3. ALL METAL PIPING SUCH AS, BUT NOT LIMITED TO, WATER, SEWAGE AND GAS, SHALL BE BONDED WITH MINIMUM #6 AWG TO THE MAIN SYSTEM GROUND.

8. PANEL/BOARDS

- 8.1. UPDATE REVISED PANEL DIRECTORIES AT END OF CONSTRUCTION WITH NEW TYPE WRITTEN DIRECTORIES.
8.2. ALL CIRCUITS WHICH BECOME REDUNDANT BY THIS WORK SHALL BE MARKED "SPARE".

9. LIGHTING (SEE LUMINAIRE SCHEDULE AND LEGEND)

- 9.1. PROVIDE LUMINAIRES AS INDICATED ON THE LUMINAIRE SCHEDULE AND/OR AS SPECIFIED UNDER THIS SECTION. THESE SHALL BE COMPLETE WITH ALL NECESSARY PLASTER FRAMES, HANGERS, DRIVERS, LED BOARDS, LUMEN OUTPUT, COLOUR TEMPERATURE, CRI, LAMPS, BALLASTS, LOUVERS, DIFFUSERS, CANOPIES, SUPPORTS, BRACKETS, AND REQUIRED HARDWARE FOR A COMPLETE AND FINISHED INSTALLATION. LUMINAIRES IN SCHEDULE AND LEGEND ARE INTENDED TO SET A STANDARD BELOW WHICH EQUIPMENT WILL NOT BE ACCEPTED.
9.2. CONTRACTOR SHALL INCLUDE IN HIS TENDER, THE LUMINAIRE(S) THAT ARE BEING SPECIFIED. IF AN ALTERNATE MANUFACTURER IS NAMED, IT IS MANDATORY THAT THE LUMINAIRE BE EQUIVALENT IN ALL RESPECTS, I.E. SAME LENS, EQUIVALENT FRAME, PERFORMANCE, PAINT FINISH, DRIVERS AND LED'S, CONSTRUCTION QUALITY, ETC. ALTERNATE MANUFACTURERS OR ALTERNATE LUMINAIRE TYPES MUST BE OFFERED AS AN ALTERNATIVE TO THE BASE BID, WITH A SEPARATE PRICE STATED IN THE TENDER. LOW BIDDER WILL BE DETERMINED ON THE BASIS OF THE SPECIFIED ITEMS, NOT ON "ALTERNATE SAVINGS".
9.3. POSITION LIGHTS AS INDICATED. ADJUST LOCATIONS OF LUMINAIRES TO SUIT CEILING GRID AS INDICATED. ADVISE ENGINEER IF LOCATIONS SHOWN TO CHANGE MORE THAN 5'(1500mm).
9.4. LUMINAIRES SHOWN ON DRAWINGS ARE A (1) FOR (1) REPLACEMENT, UNLESS NOTED OTHERWISE.
9.5. THIS CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL LIGHTING NOT BEING RE-USED UNDER NEW WORK WHETHER SHOWN ON DRAWING OR NOT.
9.6. ALIGN LUMINAIRES MOUNTED IN CONTINUOUS ROWS TO FORM STRAIGHT UNINTERRUPTED LINE.
9.7. ACCEPTABLE MANUFACTURERS: COOPER, PHILIPS, CREE, LITHONIA.
9.8. ATTIC STOCK
9.8.1. PROVIDE LISTED SPARE PARTS FOR EACH DIFFERENT RETROFIT OR LAMP TYPE:
9.8.1.1. BALLASTS (120V); 3 OR 5% WHICHEVER IS GREATER.
9.8.1.2. T8 LED LAMPS; 12 OR 5% WHICHEVER IS GREATER.
9.8.1.3. H.I.D. STYLE LED REPLACEMENT LAMPS; 3 OR 5% WHICHEVER IS GREATER.
9.8.1.4. SCREW-IN INCANDESCENT STYLE LED REPLACEMENT LAMPS; 3 OR 5% WHICHEVER IS GREATER.
9.8.1.5. TWO (2) SPARE LED DRIVERS AS NOTED IN LUMINAIRE SCHEDULE.

CLIENT:



CONSULTANT: