LEGEND OF SYMBOLS

OCT 2014

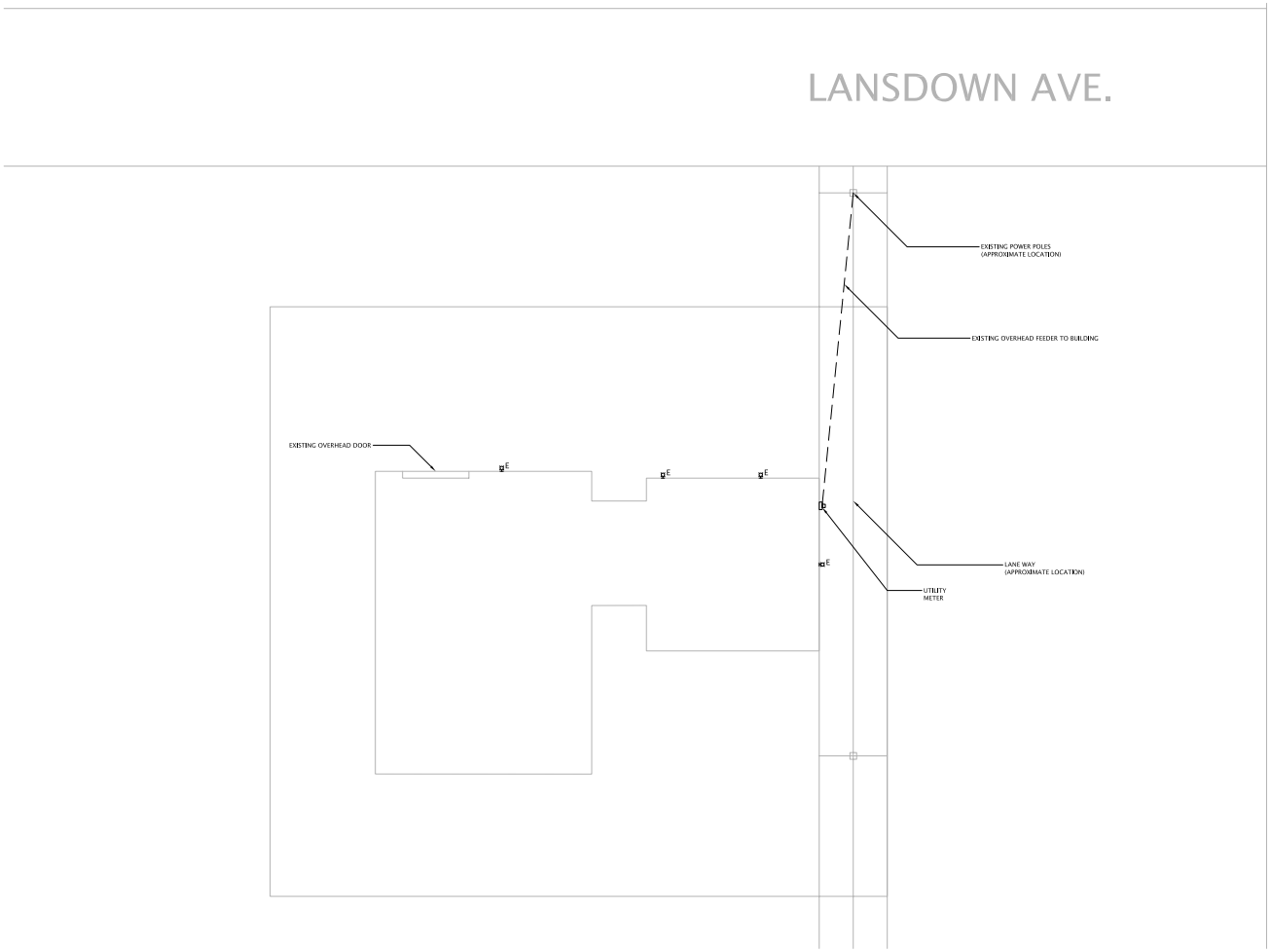
LIGHTING		POWER		COMMUNICATION SYSTEMS		SECURITY SYSTEMS	
			DUPLEX RECEPTACLE		VOICE OUTLET		CCTV CAMERA
	SURFACE LED / INCANDESCENT / COMPACT FLUORESCENT LUMINAIRE		GROUND FAULT RECEPTACLE		DATA OUTLET		FIRE ALARM
	WALL LED / INCANDESCENT / COMPACT FLUORESCENT LUMINAIRE		ELECTRICAL PANELBOARD - SURFACE MOUNTED		COMBINATION VOICE/DATA OUTLET	F	FIRE ALARM BELL
$ $ $	SWITCH - SINGLE, TWO, AND THREE GANG		ELECTRICAL PANELBOARD - RECESSED		TELEVISION OUTLET		
$2	2 POLE SWITCH		SINGLE PHASE DIRECT CONNECTION		COMBINATION VOICE/TELEVISION OUTLET		
$3	SWITCH - 3 WAY		THREE PHASE DIRECT CONNECTION		BACKBOARD		

GENERAL NOTES:

A) SITE PLAN IS FOR REFERENCE ONLY. THE LOCATION OF EQUIPMENT SHOWN HAS NOT BEEN SURVEYED.

B) GENERALLY THE WORK DESCRIBED IN THIS PACKAGE INVOLVES RENOVATIONS TO AN EXISTING BUILDING.
PRIOR TO COMMENCEMENT OF WORK, SOME INVESTIGATIONS BY THE CONTRACTOR MUST BE UNDERTAKEN TO VERIFY ON SITE CONDITIONS. WHERE SITE INVESTIGATION IS REQUIRED IN THE DRAWINGS AND SPECIFICATIONS THAT INFORMATION WILL BE PROVIDED TO THE ENGINEER FOR FINAL REVIEW PRIOR TO COMMENCEMENT OF WORK.

C) THE GENERAL INTENT OF THIS WORK IS TO BRING THE ELECTRICAL INSTALLATIONS UP TO CURRENT CODES. ANY FOUND CODE DEFICIENCIES IN THE CURRENT INSTALLATION SHOULD BE NOTED BACK TO THE ENGINEER FOR REVIEW.



01 E10-00-00 ELECTRICAL SITE PLAN
NTS.

LIST OF DRAWINGS

E10-00-00	ELECTRICAL SITE PLAN
E20-00-00	LIGHTING & POWER PLAN - BASEMENT
E20-00-01	LIGHTING & POWER PLAN - MAIN & UPPER FLOOR
E30-00-00	ELECTRICAL DETAILS AND SCHEDULE
E40-00-00	ELECTRICAL SPECIFICATION
E40-00-01	ELECTRICAL SPECIFICATION

DATE	ISSUED FOR	REV
2016-07-27	50% REVIEW	A
2016-08-17	50% REVIEW - RESUBMISSION	B
2016-09-01	90% REVIEW	C
2016-09-20	TENDER	D

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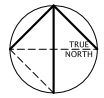
Keyplan

North Arrow



Detail Symbol

Symbol not to scale

Consultants
Civil:
Landscape:
Architectural: NORR LIMITED ARCHITECTS & ENGINEERS
Structural: NORR ARCHITECTS ENGINEERS PLANNERS
Mechanical: NORR ARCHITECTS ENGINEERS PLANNERS
Electrical: NORR ARCHITECTS ENGINEERS PLANNERS

Seal(s)

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221-10 Ave SE,
Suite 100,
Calgary, Alberta, Canada T2G 0V9
www.norr.com

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Norr Limited Architects & Planners (Alberta) and Norr Limited Planners
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Ronald M. Poon, Architect, AAA, MAcH, MRAIC
Brian G. Mcdonald, Architect, AAA, MAcH, MRAIC
A. Blake Nakamura, Architect, AAA, OAA(F), MRAIC
Arthur Tomlin, P.Eng., MEGA
Chris Pul, P.Eng., APEGA

Project Manager J.MUSIALSKI	Drawn A.MOHAMMADZADEH
Project Leader A.BUTLER	Checked D.HIDER

Client
RCMP

Project
KILLAM
RCMP DETACHMENT ADDITION
KILLAM, AB

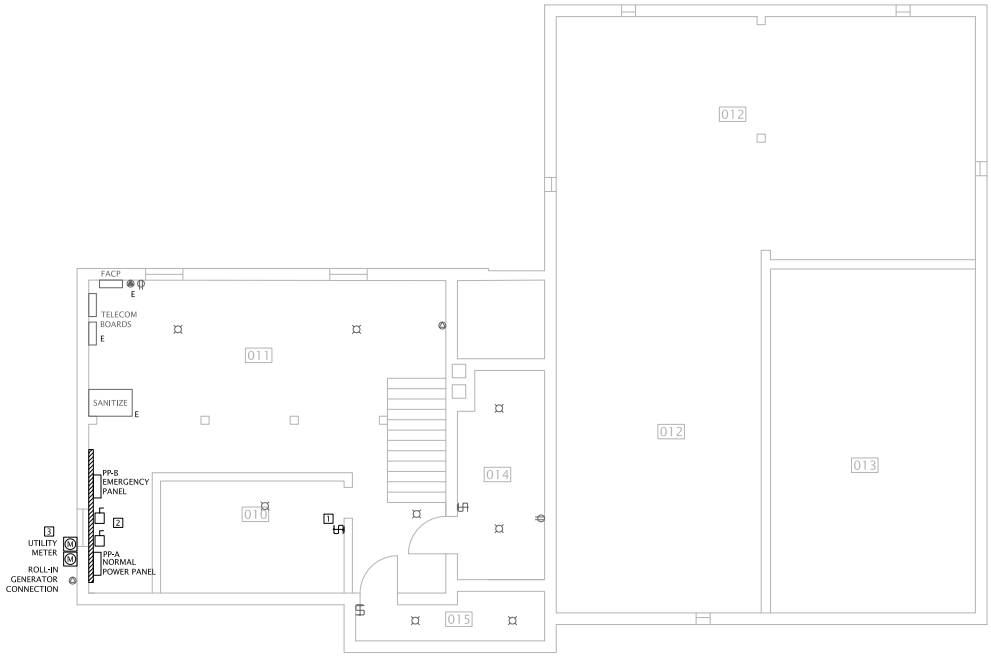
Drawing Title
ELECTRICAL
SITE PLAN

Check Scale (may be photo reduced)
0 1inch 0 10mm

Project No. NCCA-16-0096-99

Drawing No. E10-00-00

PLOT DATE: October 18, 2016 TIME: 9:31 AM FULL PATH AND FILENAME: P:\RCMP_PROJECTS\NCCA16009699 RCMP KILLAM RENOVATIONS\ELECTRICAL\SHEETS\E10-00-00.DWG PLOTSTYLE TABLE: ---



01 E20-00-00 LIGHTING & POWER PLAN - BASEMENT 1:50

GENERAL NOTES:

A) ELECTRICAL CONTRACTOR TO LABEL ALL POWER RECEPTACLES WITH CIRCUIT DESIGNATION. THIS APPLIES TO ALL RECEPTACLES IN THE BUILDING. NEW AND EXISTING.

B) ELECTRICAL CONTRACTOR TO REVIEW ALL CIRCUIT LOADING IN THE BUILDING. PROVIDE AND UPDATE "AS CURRENTLY INSTALLED" PANEL SCHEDULE FOR EACH PANEL. PANEL SCHEDULE INFORMATION WOULD INCLUDE BREAKER SIZE AND POLES, LOAD TYPE AND ESTIMATED LOAD. THIS SURVEY WILL BE COMPLETED IN THE INITIAL STAGES OF CONSTRUCTION TO THE ELECTRICAL ENGINEER FOR REVIEW.

C) ELECTRICAL CONTRACTOR SHALL COMPLETE A DETAILED SURVEY OF ALL ELECTRICAL COMPONENTS ON THE INTERIOR AND EXTERIOR OF THE BUILDING AND MARK UP ON A SET OF AS-BUILT DRAWINGS. MARKUPS WILL INCLUDE CIRCUIT DESIGNATION.

D) UNLESS OTHERWISE INDICATED ALL ELECTRICAL EQUIPMENT THAT IS EXISTING TO REMAIN.

E) ELECTRICAL CONTRACTOR SHALL REVIEW ALL WIRING FOR ALL SYSTEMS WHERE POSSIBLE AND NOTE ANY DEFICIENCIES BACK TO ENGINEER.

REFERRAL NOTES:

1 CONTRACTOR TO PROVIDE A NEW SWITCH FOR THIS SPACE. REWIRE LIGHTING TO NEW SWITCH ACCORDINGLY.

2 EXISTING NORMAL AND EMERGENCY PANELS AND DISCONNECT SWITCHES. REFER TO SINGLE LINE DIAGRAM ON DRAWING E30-00-00 FOR ADDITIONAL INFORMATION.

3 CONTRACTOR TO VERIFY THAT THE SECONDARY CABLE SIZE AND WEATHER HEAD STILL CONFORM TO CURRENT UTILITY STANDARDS AND PROVIDE THIS INFORMATION TO THE ELECTRICAL ENGINEER.

DATE	ISSUED FOR	REV
2016-07-27	50% REVIEW	A
2016-08-17	50% REVIEW - RESUBMISSION	B
2016-09-01	90% REVIEW	C
2016-09-20	TENDER	D

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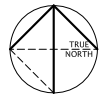
Keyplan

North Arrow



Detail Symbol

Consultants

Civil:
Landscape:
Architectural: NORR LIMITED ARCHITECTS & ENGINEERS
Structural: NORR ARCHITECTS ENGINEERS PLANNERS
Mechanical: NORR ARCHITECTS ENGINEERS PLANNERS
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Ronald M. Poon, Architect, AAA, M.Arch, MRAIC
Brian C. McDonald, Architect, AAA, M.Arch, MRAIC
A. Blake Nakamura, Architect, AAA, Sask, MRAIC
Arthur Fung, CPA, CMA
Chris Pul, PEng, APEGA

Project Manager	Drawn
J.MUSIALSKI	A.MOHAMMADZADEH
Project Leader	Checked
A.BUTLER	D.HIDER

Client
RCMP

Project
KILLAM
RCMP DETACHMENT ADDITION
KILLAM, AB

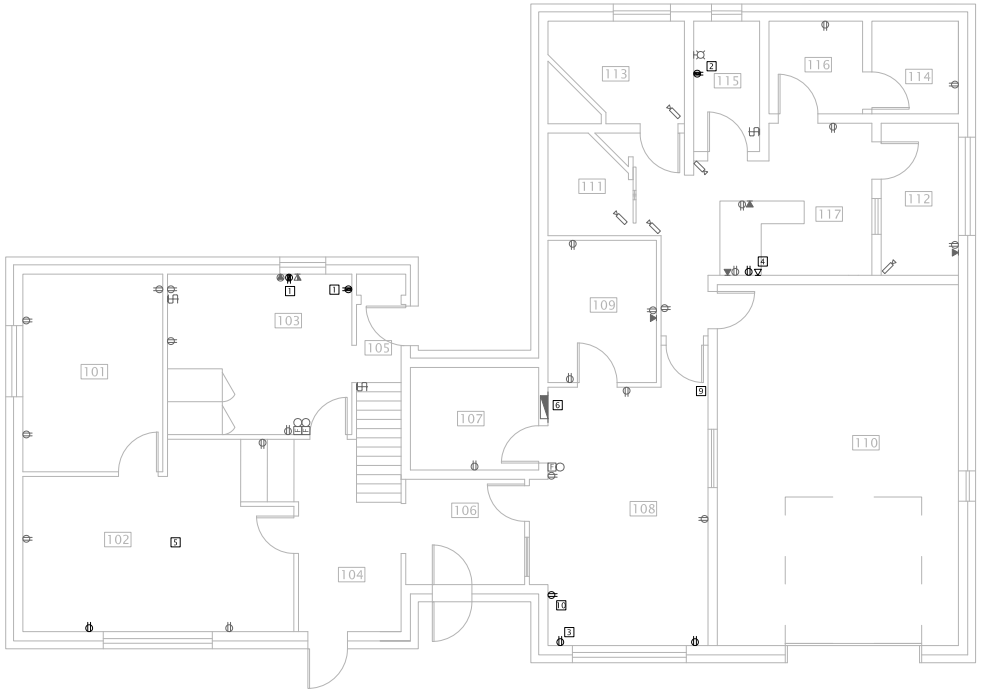
Drawing Title
LIGHTING & POWER PLAN
BASEMENT

Check Scale (may be photo reduced)
0 1inch 0 10mm

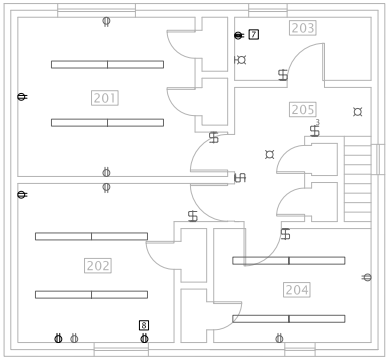
Project No. NCCA-16-0096-99

Drawing No. E20-00-00

PLOT DATE: October 18, 2016 TIME: 10:01 AM FULL PATH AND FILENAME: P:\RCMP_PROJECTS\NCCA16009699 RCMP KILLAM RENOVATIONS\ELECTRICAL\SHEETS\E20-00-00.DWG PLOTSYLE TABLE: ---



01 E20-00-01 LIGHTING & POWER PLAN - MAIN FLOOR
1:50



01 E20-00-01 LIGHTING & POWER PLAN - UPPER FLOOR
1:50

GENERAL NOTES:

A) ELECTRICAL CONTRACTOR TO LABEL ALL POWER RECEPTACLES WITH CIRCUIT DESIGNATION. THIS APPLIES TO ALL RECEPTACLES IN THE BUILDING. NEW AND EXISTING

B) ELECTRICAL CONTRACTOR TO REVIEW ALL CIRCUIT LOADING IN THE BUILDING. PROVIDE AND UPDATE "AS CURRENTLY INSTALLED" PANEL SCHEDULE FOR EACH PANEL. PANEL SCHEDULE INFORMATION WOULD INCLUDE BREAKER SIZE AND POLES, LOAD TYPE AND ESTIMATED LOAD. THIS SURVEY WILL BE COMPLETED IN THE INITIAL STAGES OF CONSTRUCTION TO THE ELECTRICAL ENGINEER FOR REVIEW.

C) ELECTRICAL CONTRACTOR SHALL COMPLETE A DETAILED SURVEY OF ALL ELECTRICAL COMPONENTS ON THE INTERIOR AND EXTERIOR OF THE BUILDING AND MARK UP ON A SET OF AS-BUILT DRAWINGS. MARKUPS WILL INCLUDE CIRCUIT DESIGNATION.

D) UNLESS OTHERWISE INDICATED ALL ELECTRICAL EQUIPMENT THAT IS EXISTING TO REMAIN.

E) ELECTRICAL CONTRACTOR SHALL REVIEW ALL WIRING FOR ALL SYSTEMS WHERE POSSIBLE AND NOTE ANY DEFICIENCIES BACK TO ENGINEER.

REFFERAL NOTES:

1 NEW RECEPTACLES ABOVE FRIDGE AND BESIDE THE SINK TO BE GFCI. THE EXISTING RECEPTACLE IN THE SAME LOCATION TO BE DEMOLISHED. THE NEW RECEPTACLES SHALL BE CONNECTED TO A NEW DEDICATED 20A CIRCUIT BREAKER FROM NEAREST AVAILABLE 120V PANEL.

2 RECEPTACLES IN WASHROOMS TO BE REPLACED WITH GFCI TYPE AND THE EXISTING OLD RECEPTACLE IN THE SAME LOCATION TO BE DEMOLISHED. CONNECT TO EXISTING CIRCUIT.

3 DEMOLISH THE EXISTING UNCOVERED RECEPTACLE IN THIS SPACE AND REPLACE WITH A NEW SURFACE MOUNTED TYPE AND CONNECT TO THE SAME CIRCUIT.

4 CONTRACTOR TO ADD NEW POWER AND DATA RECEPTACLES FOR LIVE SCAN. AND CONNECT TO THE NEW DEDICATED CIRCUIT WITH 20A-1P BREAKER AND FEEDER. THE LOCATION OF LIVE SCAN TO BE COORDINATED WITH OWNER BEFORE INSTALLATION.

5 IN THIS AREA: CONTRACTOR TO CUT THE MILLWORK FOOT FOR ACCESS TO THE WALL MOUNTED RECEPTACLES BEHIND AND/OR REINSTALL THE RECEPTACLES IN THE WALL, AND NEATLY INSTALL 8"x 8" ACCESS PANELS. CONTRACTOR TO COORDINATE WITH OWNER PRIOR TO ANY CUT.

6 CONTRACTOR TO VERIFY ALL PANELS LOCATION IN THE BUILDING.

7 RECEPTACLES IN WASHROOMS TO BE REPLACED WITH GFCI TYPE AND THE EXISTING OLD RECEPTACLE IN THE SAME LOCATION TO BE DEMOLISHED. CONTRACTOR TO NEATLY RECESS AND INSTALL THE NEW RECEPTACLES, PATCH AND REPAINT AS REQUIRED. PAINT TO MATCH EXISTING. CONTRACTOR TO CHANGE THE BREAKER IF IT IS REQUIRED.

8 CONTRACTOR TO CUT THE DRYWALL AND INSTALL NEW RECEPTACLE FOR 1000W HEATER. CONTRACTOR TO COORDINATE THE LOCATION BEFORE INSTALLATION. THE RECEPTACLE TO BE CONNECTED TO THE NEAREST CIRCUIT IN THE ROOM. CONTRACTOR TO VERIFY THE LOADS ON THE CIRCUIT NOT EXCEED 1200W.

9 CONTRACTOR TO REPAIR, PATCH UP THE DRYWALL AND REPAINT IN THIS LOCATION. PAINT WILL BE 1 PRIMER COAT AND 2 COLOR COATS. MATCH COLOR TO EXISTING WALL COLOR, AND PAINT FULL WALL TO NEAREST CORNER.

10 CONTRACTOR TO VERIFY THE CIRCUITING FOR ANY LEAKAGE OR SURGE IN THIS AREA AND REPLACE THE RECEPTACLE OR CORRECT THE WIRING, IF NEEDED.

DATE	ISSUED FOR	REV
2016-07-27	50% REVIEW	A
2016-08-17	50% REVIEW - RESUBMISSION	B
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2016-09-20	TENDER	D

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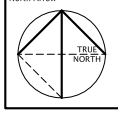
Keyplan

North Arrow



Detail Symbol

Symbol not to scale

Consultants

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Landscape:
Architectural: NORR LIMITED ARCHITECTS & ENGINEERS
Structural: NORR ARCHITECTS ENGINEERS PLANNERS
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A. Blake Nakamura, Architect, AAA, Sask. MAA, MRAIC
Walter Teskey, P.Eng., MEGA
Chris Pul, P.Eng., APEGA

Project Manager	Drawn
J.MUSIALSKI	A.MOHAMMADZADEH
Project Leader	Checked
A.BUTLER	D.HIDER

Client
RCMP

Project
KILLAM
RCMP DETACHMENT ADDITION
KILLAM, AB

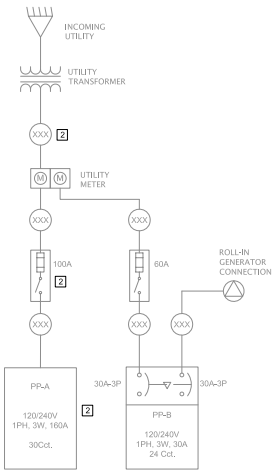
Drawing Title
LIGHTING & POWER PLAN
MAIN & UPPER FLOOR

Check Scale (may be photo reduced)
0 1inch 0 10mm

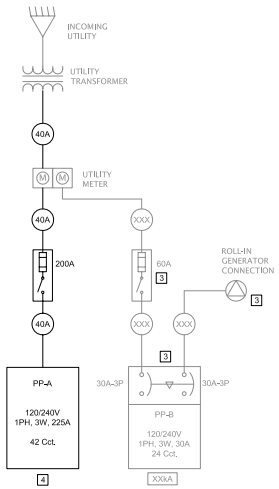
Project No. NCCA-16-0096-99

Drawing No. E20-00-01

PLOT DATE: October 18, 2016 TIME: 10:02 AM FULL PATH AND FILENAME: P:\RCMP_PROJECTS\NCCA16009699 RCMP KILLAM RENOVATIONS\ELECTRICAL\SHEETS\E20-00-01.DWG PLOTSTYLE TABLE: ---



01 E30-00-00 SINGLE LINE DIAGRAM-EXISTING
N.T.S.



02 E30-00-00 SINGLE LINE DIAGRAM-NEW
N.T.S.

SINGLE LINE - LEGEND OF SYMBOLS

- MEDIUM VOLTAGE DRAW OUT VACUUM BREAKER
- DRAW OUT CELL ONLY FOR FUTURE BREAKER
- MEDIUM VOLTAGE LOAD BREAK
- MEDIUM VOLTAGE ISOLATION SWITCH
- LOW VOLTAGE DRAW-OUT AIR CIRCUIT BREAKER
- TRANSFORMER DELTA-WYE (GENERAL PURPOSE)
- TRANSFORMER DELTA-WYE (ZIG ZAG)
- FUSE
- KIRK KEY
- GENERATOR
- LIGHTNING ARRESTOR
- VOLTAGE TRANSFORMER
- PT — POTENTIAL TRANSFORMER
- BUSDUCT/BUSWAY
- CT — CURRENT TRANSFORMER
- XXXA IC — CALCULATED SHORT CIRCUIT IC RATING TAG
- PHASE 1 INSTALLATION (SHOWN SOLID DARK)
- EXISTING EQUIPMENT (SHOWN SOLID GREY)
- FUTURE EQUIPMENT (SHOWN DASHED GREY)
- MOTOR
- MOTOR WITH DISCONNECT
- UTILITY METER
- AUTOMATIC TRANSFER SWITCH
- EF-1 — MOTOR IDENTIFICATION TAG
- TVSS — TRANSIENT VOLTAGE SURGE SUPPRESSION
- GROUND CONNECTION
- 100A — MEDIUM VOLTAGE FUSED DISCONNECT NUMBER DENOTES FUSE SIZE
- POWER FACTOR CORRECTION CAPACITOR

GENERAL NOTES:

A) CONTRACTOR TO VERIFY ALL EQUIPMENT RATING AND ALL WIRES/CABLES FOR UPGRADED SERVICE.

B) 'X -KAIC SYM.' DENOTES CALCULATED SHORT CIRCUIT CURRENT AVAILABILITY.

C) SHORT CIRCUIT LEVELS BELOW 10KAIC SYM. ARE NOT SHOWN.

D) IC LEVELS SHOWN REPRESENT MINIMUM REQUIRED INTERRUPTING CAPACITY. EQUIPMENT CAN HAVE IC RATINGS HIGHER THAN LEVELS INDICATED.

E) ALL CONNECTIONS TO ROTATING MECHANICAL EQUIPMENT SHALL BE COPPER CONDUCTORS.

F) SERIES RATING OF EQUIPMENT SHALL ONLY BE PERMITTED WHERE CALCULATED FAULT CURRENT EXCEEDS 22kA.

G) CONTRACTOR TO FOLLOW ALL REQUIREMENT BY CANADIAN ELECTRICAL CODE AND FORTIS GUIDELINES FOR UPGRADING THE ELECTRICAL SERVICE.

REFERRAL NOTES:

1 NEW POWER PANEL WITH NEW 200A-2P BREAKER.

2 REPLACE THIS EQUIPMENT AT SAME LOCATION WITH NEW EQUIPMENT INDICATED ON SINGLE LINE DIAGRAM.

3 CONTRACTOR TO VERIFY THE CIRCUIT BREAKERS AND CIRCUITING FOR THE EXISTING PANEL AND DISCONNECT SWITCH AND ENSURE THEIR PROPER WORKING.

4 SHORT CIRCUIT (KA) RATING OF NEW PANEL TO MATCH SHORT CIRCUIT LEVEL OF EXISTING PANEL.

5 PANEL SCHEDULES TO BE COMPLETED BY ELECTRICAL CONTRACTOR FOLLOWING SITE REVIEW AND INSTALLATION OF NEW EQUIPMENT. ONCE CONSTRUCTION IS COMPLETE SUPPLY AND INSTALL A PANEL SCHEDULE ON EACH PANEL TYPE WRITTEN. CIRCUIT NUMBERS TO BE COORDINATED WITH PROJECT REQUIREMENT.

Cct NO.	*	Load Description	Volt-Amperes A	B	C	Breaker Pole	A	Wire Size		Breaker A	Pole	Volt-Amperes A	B	C	Load Description	*	Cct No.
1																	2
3																	4
5																	6
7																	8
9																	10
11																	12
13																	14
15																	16
17																	18
19																	20
21																	22
23																	24
25																	26
27																	28
29																	30
31																	32
33																	34
35																	36
37																	38
39																	40
41																	42
		Odd Circuit Number Subtotals	0	0	0	Features:						0	0	0			

Bus and Lugs Rating (A):	S.D	Total Phase A Load:	0.0 kVA	Remarks:	
Main Circuit Breaker Rating (A):		Total Phase B Load:	0.0 kVA		
Circuit Breaker IC Rating (kA):		Total Phase C Load:	0.0 kVA		
Phase:	3	Total Connected Load:	0.0 kVA		
Wires:	4	Demand Factor:	100 %	Project Title:	
Line to Line Voltage (V):	208	Demand Load:	0.0 kVA	Project Number:	
Line to Neutral Voltage (V):	120	Future Load:	0.0 kVA	Plan Drawing Number:	
Number of Poles:	42	Total Demand Load:	0.0 kVA	Date: 2014-xx-xx	Revision: 1
Mounting:		Total Demand Current:	0.0 A	Panelboard	PP-A

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5

Cct NO.	*	Load Description	Volt-Amperes A	B	C	Breaker Pole	A	Wire Size		Breaker A	Pole	Volt-Amperes A	B	C	Load Description	*	Cct No.
1																	2
3																	4
5																	6
7																	8
9																	10
11																	12
13																	14
15																	16
17																	18
19																	20
21																	22
23																	24
		Odd Circuit Number Subtotals	0	0	0	Features:						0	0	0			

Bus and Lugs Rating (A):	SLD	Total Phase A Load:	0.0 kVA	Remarks:	
Main Circuit Breaker Rating (A):		Total Phase B Load:	0.0 kVA		
Circuit Breaker IC Rating (kA):		Total Phase C Load:	0.0 kVA		
Phase:	3	Total Connected Load:	0.0 kVA		
Wires:	4	Demand Factor:	100 %	Project Title:	
Line to Line Voltage (V):	208	Demand Load:	0.0 kVA	Project Number:	
Line to Neutral Voltage (V):	120	Future Load:	0.0 kVA	Plan Drawing Number:	
Number of Poles:	24	Total Demand Load:	0.0 kVA	Date: 2014-xx-xx	Revision: 1
Mounting:		Total Demand Current:	0.0 A	Panelboard	PP-B

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5

DATE	ISSUED FOR	REV
2016-07-27	50% REVIEW	A
2016-08-17	50% REVIEW - RESUBMISSION	B
2016-09-01	90% REVIEW	C
2016-09-20	TENDER	D

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Keyplan

North Arrow — TRUE NORTH

Detail Symbol — DETAIL# / SHEET #

Symbol not to scale

Consultants
Civil:
Landscape:
Architectural: NORR LIMITED ARCHITECTS & ENGINEERS
Structural: NORR ARCHITECTS ENGINEERS PLANNERS
Mechanical: NORR ARCHITECTS ENGINEERS PLANNERS
Electrical: NORR ARCHITECTS ENGINEERS PLANNERS

Seal(s)

PROFESSIONAL ENGINEER DOUGLAS ALBERTA
PP-11944
Sept 28, 2016

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Project Leader A.BUTLER	Checked D.HIDER

Client
RCMP

Project
KILLAM
RCMP DETACHMENT ADDITION
KILLAM, AB

Drawing Title
ELECTRICAL
DETAILS & SCHEDULES

Check Scale (may be photo reduced) 0 1inch 0 10mm

Project No. NCCA-16-0096-99

Drawing No. E30-00-00

PLOT DATE: October 18, 2016 TIME: 9:32 AM FULL PATH AND FILENAME: P:\RCMP_PROJECTS\NCCA16009699 RCMP KILLAM RENOVATIONS\ELECTRICAL\SHEETS\E30-00-00.DWG PLOTSTYLE TABLE: ---

1. GENERAL

2. THE GENERAL REQUIREMENTS, INSTRUCTIONS TO BIDDERS, THIS SPECIFICATION AND ANY ADDENDA HERETO FORM PART OF THE CONTRACT DOCUMENTS AND SHALL BE READ IN CONJUNCTION WITH THEM. WORK SHALL INCLUDE THE FURNISHING OF ALL LABOR AND MATERIALS UNLESS SPECIFICALLY NOTED OTHERWISE TO COMPLETE AND PUT INTO OPERATING CONDITION ALL ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN.

2.1. THE SCOPE OF WORK IS AS DESCRIBED HEREIN AND SHOWN ON THE DRAWINGS.

3. STANDARD OF MATERIAL AND WORKMANSHIP

3.1. ALL MATERIALS SHALL BE NEW UNLESS SPECIFICALLY NOTED ON DRAWINGS AND BE OF THE QUALITY SPECIFIED AND SHALL CONFORM TO THE STANDARDS OF THE CANADIAN STANDARDS ASSOCIATION. WHERE EQUIPMENT OR MATERIALS ARE SPECIFIED BY TECHNICAL DESCRIPTION ONLY, THEY SHALL BE OF THE BEST COMMERCIAL QUALITY OBTAINABLE FOR THE PURPOSE.

3.2. ALL WORK SHALL BE EXECUTED IN A NEAT AND WORKMANLIKE MANNER BY QUALIFIED TRADESMEN. ELECTRICAL CONTRACTOR SHALL KEEP A COMPETENT FOREMAN AND NECESSARY ASSISTANTS, ALL SATISFACTORY TO THE ENGINEER, ON THE JOB DURING THE PROGRESS OF THE WORK.

3.3. WORKMANSHIP SHALL BE OF THE HIGHEST STANDARDS THROUGHOUT AND SHALL BE MINIMUM OF THE CURRENT TRADE PRACTICES FOR ELECTRICAL INSTALLATIONS IN THIS BUILDING.

4. UNIFORMITY OF EQUIPMENT

4.1. UNLESS OTHERWISE SPECIFICALLY CALLED FOR IN THE SPECIFICATIONS, UNIFORMITY OF MANUFACTURE SHALL BE MAINTAINED FOR ANY PARTICULAR ITEM THROUGHOUT THE BUILDING.

4.2. SPECIFICATIONS, UNIFORMITY OF MANUFACTURE SHALL BE MAINTAINED FOR ANY PARTICULAR ITEM THROUGHOUT THE BUILDING.

4.2.1. SPECIFICATIONS, UNIFORMITY OF MANUFACTURE SHALL BE MAINTAINED FOR ANY PARTICULAR ITEM THROUGHOUT THE BUILDING.

5. DRAWINGS AND SPECIFICATIONS

5.1. THE DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY, EACH TO THE OTHER, AND WHAT IS CALLED FOR BY ONE, SHALL BE BINDING AS IF CALLED FOR BY BOTH. WHERE INFORMATION IS CONFLICTING THE SPECIFICATIONS TRUMP THE DRAWINGS.

5.2. SHOULD ANY DISCREPANCY APPEAR BETWEEN THE DRAWINGS AND SPECIFICATIONS WHICH LEAVES THE ELECTRICAL CONTRACTOR IN DOUBT AS TO THE TRUE INTENT AND MEANING OF THE PLANS AND SPECIFICATIONS, A RULING SHALL BE OBTAINED FROM THE ENGINEER. IF THIS IS NOT DONE, IT WILL BE ASSUMED THAT THE MOST EXPENSIVE ALTERNATE HAS BEEN ALLOWED FOR.

6. CODES, PERMITS AND INSPECTION

6.1. THE INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE AND THE REGULATIONS OF THE RURAL MUNICIPALITY OF WOOD BUFFALO ELECTRICAL INSPECTION DEPARTMENT.

6.2. THE ELECTRICAL CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED AT THEIR EXPENSE AND DISPLAY THEM IN THE ELECTRICAL ROOM, AND COORDINATE INSPECTIONS AS REQUIRED AND OBTAIN A FINAL INSPECTION CERTIFICATE.

7. EXAMINATION OF THE SITE

7.1. PRIOR TO SUBMITTING THEIR TENDER, THE ELECTRICAL CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE AND ASCERTAIN ALL CONDITIONS, WHICH SHALL AFFECT HIS TRADE. NO EXTRAS WILL BE ALLOWED FOR WORK RESULTING FROM CONDITIONS THAT WOULD HAVE BEEN EVIDENT UPON A THOROUGH EXAMINATION OF THE SITE.

8. CLEAN UP

8.1. THE ELECTRICAL CONTRACTOR AND THEIR SUB-TRADES SHALL AT ALL TIMES DURING CONSTRUCTION, KEEP THE SITE FREE OF ALL DEBRIS, BOXES, PACKING, ETC., RESULTING FROM WORK OF THIS TRADE.

8.2. AT THE COMPLETION OF THE WORK, THE ELECTRICAL INSTALLATION SHALL BE LEFT IN A CLEAN FINISHED CONDITION TO THE SATISFACTION OF THE ENGINEER.

8.3. ALL LUMINAIRES AND ELECTRICAL DEVICES SHALL BE WASHED, CLEANED OF GREASE, DIRT AND LINT AS REQUIRED.

8.4. ALL HANDLING OF LUMINAIRES AND LAMPS SHALL BE DONE WITH CLEAN GLOVES, TO ENSURE CLEANLINESS AND LAMP LIFE.

8.5. RECYCLE PACKING MATERIAL AND OTHER SUCH ITEMS THAT CAN BE DIVERTED FROM LANDFILL.

9. SETTING OUT OF THE WORK

9.1. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ALL WORK COMPLETED CONTRARY TO THE INTENT OF THE DRAWINGS AND SPECIFICATIONS AND SHALL BEAR ALL COSTS FOR SAME. WHERE THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS NOT CLEAR, HE SHALL OBTAIN THE CLARIFICATION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

9.2. THE ELECTRICAL CONTRACTOR SHALL GIVE THE WORK THEIR PERSONAL SUPERVISION, LAY OUT HIS OWN WORK, DO ALL NECESSARY LEVELLING AND MEASURING OR EMPLOY A COMPETENT ENGINEER TO DO SO. FIGURES, FULL SIZE AND DETAIL DRAWINGS SHALL TAKE PRECEDENCE OVER SCALE MEASUREMENTS.

9.3. WHERE ANY EQUIPMENT SUPPLIED BY THE ELECTRICAL CONTRACTOR MUST BE BUILT IN WITH THE WORK OF OTHER CONTRACTORS, THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPLYING OF THE EQUIPMENT TO BE BUILT IN OR MEASUREMENTS TO ALLOW NECESSARY OPENINGS TO BE LEFT SO AS NOT TO HOLD UP THE WORK.

9.4. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE OWNER OR ANY OF THE OTHER TRADES BY IMPROPER LOCATION OR CARRYING OUT OF HIS WORK.

10. LOCATION OF OUTLETS

10.1. ENGINEER RESERVES THE RIGHT TO CHANGE LOCATION OF OUTLETS TO WITHIN 3.0 METRES OF POINTS INDICATED ON PLANS WITHOUT EXTRA CHARGE PROVIDING ELECTRICAL CONTRACTOR IS ADVISED PRIOR TO INSTALLATION.

11. CORING, CUTTING AND PATCHING

11.1. THE GENERAL TRADE WILL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED FOR THE ELECTRICAL INSTALLATION. STRUCTURAL MEMBERS SHALL NOT BE CUT WITHOUT THE CONSENT OF THE STRUCTURAL ENGINEER.

11.2. WHERE WORK BY THE ELECTRICAL CONTRACTOR DAMAGES WORK OF OTHER TRADES, THE ELECTRICAL CONTRACTOR SHALL REPAIR AND MAKE GOOD SUCH DAMAGE TO THE SATISFACTION OF THE TRADE CONCERNED AND THE ENGINEER.

11.3. WHERE THE FLOOR SLAB IS DRILLED FOR CONDUIT INSTALLATION TO WALL JUNCTION BOXES OR TO FLOOR FITTINGS THE FLOOR SHALL BE DRY CORE DRILLED, AFTER CONDUIT INSTALLATION, THE OPENING SHALL BE FIRE STOPPED. (SEE SECTION "FIRE STOPPING") ELECTRICAL CONTRACTOR TO PAY FOR ALL ASSOCIATED X-RAY COSTS, STRUCTURAL ENGINEER REVIEW, ETC.

12. ACCESS DOORS

12.1. NUMBER OF ACCESS DOORS TO BE KEPT TO AN ABSOLUTE MINIMUM. DOOR LOCATIONS WILL BE COORDINATED WITH THE ENGINEER PRIOR TO INSTALLATION.

12.2. WHERE ACCESS IS REQUIRED TO PULLBOXES AND JUNCTION BOXES, THESE BOXES ARE TO BE LOCATED IN REMOVABLE TYPE CEILING AREAS WHERE POSSIBLE OR ADJACENT TO RECESSED LUMINAIRES.

12.3. WHERE IT IS ABSOLUTELY IMPOSSIBLE TO SERVICE CERTAIN EQUIPMENT THROUGH REMOVABLE TYPE CEILINGS OR RECESSED LUMINAIRES AND WHERE SPECIAL PERMISSION HAS BEEN OBTAINED FROM THE ENGINEER, ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL ACCESS DOORS REQUIRED FOR SERVICING OF SUCH WORK.

12.4. ACCESS DOORS TO BE HELD CLOSED WITH CAPTIVE TYPE STUDS. ACCESS PANELS TO BE OF NOT LESS THAN 14 GAUGE STEEL, PRIME COATED AND PAINTED ON THE JOB TO MATCH THE WALL OR CEILING FINISH AS REQUESTED BY THE ARCHITECT.

12.5. WHERE ACCESS PANELS WILL BE USED, PROPER SHOP DRAWINGS ARE TO BE SUBMITTED FOR APPROVAL, PRIOR TO INSTALLATION.

13. PAINTING AND FINISHES

13.1. ALL ELECTRICAL FITTINGS, SUPPORTS, HANGER RODS, PULLBOXES, CHANNEL FRAMES, CONDUIT RACKS, OUTLET BOXES, BRACKETS, CLAMPS, ETC., SHALL HAVE GALVANIZED FINISH OR PAINT FINISH OVER CORROSION-RESISTANT PRIMER.

13.2. ALL PANELS OR SIMILAR FACTORY FINISHED UNITS THAT ARE SCRATCHED OR MARKED DURING INSTALLATIONS SHALL BE TOUCHED UP WITH MATCHING SPRAY OR DRY LACQUER AND IF REQUIRED TO PROVIDE SATISFACTORY JOB SHALL BE COMPLETELY REFINISHED.

14. MOUNTING HEIGHTS

14.1. INSTALL ELECTRICAL EQUIPMENT AT THE FOLLOWING HEIGHTS UNLESS OTHERWISE INDICATED (MEASUREMENTS ARE TO CENTER OF DEVICE BOX):

LOCAL LIGHT SWITCHES, DIMMERS;	1200MM
GENERAL WALL RECEPTACLES;	300MM
RECEPTACLES ABOVE COUNTERS AND BACK SPLASH;	175MM
(REFER TO DETAILS ON ARCHITECTURAL)	
RECEPTACLES IN MECHANICAL / JANITOR ROOMS;	1000MM
DOORBELL / PUSHBUTTON;	1300MM
HANDICAP DOOR PUSHBUTTON;	1067MM
CARD READER;	1150MM
SECURITY KEYPAD;	1400MM

14.2. CONFIRM ALL OTHER EQUIPMENT HEIGHTS IN WRITING.

14.3. ARCHITECTURAL DRAWINGS SUPERSEDE HEIGHTS AND LOCATIONS INDICATE ON ELECTRICAL DRAWINGS AND SPECIFICATIONS.

15. SHOP DRAWINGS

15.1. THE ELECTRICAL CONTRACTOR MUST REVIEW AND STAMP ACCEPTABLE ALL SHOP DRAWINGS PRIOR TO SUBMITTING TO THE ENGINEER.

15.2. ELECTRICAL CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW, ONE (1) SET OF ELECTRONIC SHOP DRAWINGS IN PDF FORMAT INCLUDING BUT NOT LIMITED TO DISTRIBUTION, LUMINAIRES, EXIT SIGNS, OCCUPANCY SENSORS, BATTERY PACKS, FIRE ALARM EQUIPMENT AND TELECOMMUNICATIONS EQUIPMENT AND CABLING.

15.3. ENGINEER SHALL BE ALLOWED MINIMUM 5 BUSINESS DAYS TO RETURN REVIEWED SHOP DRAWINGS.

15.4. SCANNED SHOP DRAWINGS MUST BE LEGIBLE. SHOP DRAWINGS WHICH ARE UNCLEAR WILL BE REJECTED AND RETURNED FOR RESUBMISSION.

15.5. SHOP DRAWING SHALL BE SPECIFIC TO THIS PROJECT ONLY. GENERIC DRAWINGS WILL NOT BE ACCEPTED. INDICATING ARROWS SHALL HIGHLIGHT THE PRODUCT FOR REVIEW. GENERIC DRAWINGS, DRAWINGS WITHOUT INDICATING ARROWS AND DRAWINGS WITHOUT CONTRACTOR REVIEWED STAMP WILL BE RETURNED REJECTED FOR RESUBMISSION.

15.6. THE ENGINEER'S REVIEW OF SHOP DRAWINGS SHALL BE FOR GENERAL DESIGN ONLY AND SHALL NOT RELIEVE THE ELECTRICAL CONTRACTOR OR SUPPLIER FROM THEIR RESPONSIBILITY FOR ERRORS, PROPER FITTING, AND CONSTRUCTION OF THE WORK AND FURNISHING OF MATERIALS. THE REVIEW SHALL NOT BE CONSTRUED AS APPROVING DEPARTURES FROM THE CONTRACT DOCUMENT REQUIREMENTS IF SUCH DEPARTURES ARE NOT SPECIFICALLY NOTED IN A COVERING LETTER ACCOMPANYING SUCH DRAWINGS.

15.7. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS.

15.8. ANY WORK PERFORMED PRIOR TO THE RETURN OF REVIEWED SHOP DRAWINGS IS DONE AT THE RISK OF THE CONTRACTOR.

16. RECORDS PLANS

16.1. THE ENGINEER WILL FURNISH TO THE ELECTRICAL CONTRACTOR ONE SET OF WHITE PRINTS TO BE USED FOR RECORD WORK AS ACTUALLY INSTALLED. ELECTRICAL CONTRACTOR SHALL ACCURATELY RECORD ON THIS SET OF PLANS, DAY BY DAY, ALL OUTLETS, CONDUIT, LUMINAIRES EQUIPMENT BREAKER CHANGES IN PANELS, ETC. AS ACTUALLY INSTALLED ON THE JOB. ANY CHANGES TO THE CONTRACT WORK SHALL BE SIMILARLY RECORDED.

16.2. AS-BUILT DRAWINGS SHALL BE CLEARLY MARKED IN RED INCLUDING ALL CHANGES TO THE ORIGINAL TENDER DRAWINGS COVERED BY ADDENDA, CHANGE ORDERS, FIELD CHANGES, JOB CONDITIONS, ETC.

16.3. FINAL PAYMENT TO THE CONTRACTOR WILL NOT BE RELEASED UNTIL AS-BUILT DRAWINGS ARE RECEIVED BY THE ENGINEER. AS-BUILT DRAWINGS ARE TO BE TURNED OVER TO THE ENGINEER AT TIME OF FINAL INSPECTION.

17. EQUIPMENT IDENTIFICATION

17.1. CLEARLY IDENTIFY ALL ELECTRICAL EQUIPMENT USING PRINTED PTOUCH LABELS OR LAMACOIDS. HAND-WRITTEN LABELS ARE UNACCEPTABLE.

17.2. ALL ELECTRICAL DISTRIBUTION EQUIPMENT SHALL HAVE A LAMACOID NAMEPLATE FASTENED TO THE OUTSIDE FRONT OF THE EQUIPMENT.

17.3. EQUIPMENT TAG NUMBER SHALL CONTAIN A MINIMUM OF; THE EQUIPMENT NAME, VOLTAGE, PHASE, WIRE (3 OR 4), AMPERAGE, SOURCE: XXXX, LOAD: XXXX. SUBMIT PROPOSED TAGGING FOR ENGINEER'S APPROVAL PRIOR TO FABRICATION.

17.4. PROVIDE TYPEWRITTEN CIRCUIT INDEXES FOR ALL PANELS.

17.5. JUNCTION BOXES SHALL ALL BE LABELED INDICATING THE SYSTEM AND OR CIRCUITS CONTAINED WITHIN.

17.6. ALL RECEPTACLES SHALL BE LABELED WITH THE CIRCUIT NUMBERS AND PANEL IDENTIFICATION. UTILIZE P-TOUCH ADHESIVE LABELS COMPLETE WITH A MINIMUM OF 5 LETTERING. I.E. "PNL-CCT."

17.7. ALL COMMUNICATIONS AND OTHER SYSTEMS CABLES AND DEVICES ARE TO BE IDENTIFIED AS PER THE EIA/TIA 606 STANDARDS. CONFIRM PROTOCOL WITH OWNER OR ENGINEER PRIOR TO COMMENCEMENT OF LABELS.

17.8. ALL LUMINAIRES CONNECTED TO EMERGENCY CIRCUITS TO BE LABELLED WITH P-TOUCH LABEL INDICATING PANEL AND CIRCUIT DESIGNATION. LABEL TO BE VISIBLE FROM BELOW AFTER INSTALLATION.

18. TESTS

18.1. ALL PORTIONS OF THE ELECTRICAL WORK SHALL BE TESTED AND CHECKED FOR SATISFACTORY OPERATION.

18.2. BEFORE ENERGIZING ANY PORTION OF THE ELECTRICAL SYSTEM, PERFORM MEGGER TESTS ON ALL FEEDERS. RESULTS OF SUCH TESTS SHALL CONFORM TO THE REQUIREMENTS OF THE CANADIAN ELECTRICAL CODE AND SHALL BE TO THE SATISFACTION OF THE AUTHORIZED INSPECTION AGENCY AND THE ENGINEER.

18.3. SUBMIT ALL TEST RESULTS TO THE ENGINEER FOR APPROVAL

18.4. ANY TEST RESULTS THAT DO NOT MEET THE MINIMUM REQUIREMENTS OF THE MANUFACTURER, CANADIAN ELECTRICAL CODE, AUTHORIZED INSPECTION AGENCY AND THE ENGINEER SHALL BE REPAIRED IN A METHOD APPROVED BY THE ENGINEER AND RETESTED AT THE EXPENSE OF THE CONTRACTOR.

18.5. UPON COMPLETION OF THE WORK AND IMMEDIATELY PRIOR TO FINAL INSPECTION AND TAKEOVER, CHECK THE LOAD BALANCE OF ALL FEEDERS AND AT DISTRIBUTION CENTER, PANELS, ETC. THE TESTS SHALL BE CARRIED OUT BY TURNING ON ALL POSSIBLE LOADS IN THE TENANT AND CHECKING LOAD CURRENT BALANCE. IF LOAD UNBALANCE EXCEEDS 15 PERCENT, RECONNECT CIRCUITS TO BALANCE THE LOAD.

19. GUARANTEE/WARRANTY

19.1. THAT ALL WORK EXECUTED UNDER THIS CONTRACT WILL BE FREE FROM DEFECTS OF MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE FROM ENGINEER (C2 SCHEDULE) FOR THIS WORK.

19.2. THE ABOVE PARTIES FURTHER AGREE TO, AT THEIR OWN EXPENSE, REPAIR AND REPLACE ALL SUCH DEFECTIVE WORK AND OTHER WORK DAMAGED THEREBY WHICH FAILS OR BECOMES DEFECTIVE DURING THE TERM OF THE WARRANTY PROVIDED THAT SUCH FAILURE IS NOT DUE TO IMPROPER USAGE.

19.3. THE PERIOD OF THE GUARANTEE SPECIFIED SHALL IN NO WAY SUPPLANT ANY OTHER GUARANTEE OF A LONGER PERIOD BUT SHALL BE BINDING ON WORK NOT OTHERWISE COVERED.

19.4. ELECTRICAL CONTRACTOR TO ISSUE LETTER STIPULATING WARRANTY PERIOD DATES FOR ALL EQUIPMENT.

20. BUILDING WIRING

20.1. ALL WIRING SHALL BE COPPER WITH RW90 X-LINK INSULATION IN ELECTRICAL METALLIC TUBING UNLESS INDICATED OTHERWISE ON DRAWINGS.

20.2. NO WIRE SMALLER THAN NO. 12 AWG GAUGE SHALL BE USED FOR BRANCH CIRCUIT WIRING.

20.3. BX CABLE MAY BE USED **ONLY** AS FOLLOWS:

20.3.1. WITHIN NEW DRYWALL PARTITIONS WITHIN ONE ROOM TO INTERCONNECT ELECTRICAL DEVICES, EXCEPT THAT THE CONNECTION FROM THE JUNCTION BOX ABOVE THE SUSPENDED CEILING DOWN TO THE FIRST ELECTRICAL DEVICE IN THE DRYWALL SHALL BE WIRED IN THE EMT CONDUIT.

20.3.2. INDIVIDUAL DROPS FROM JUNCTION BOXES IN CEILING SPACES TO LUMINAIRES TO A MAXIMUM OF THREE (3) METRES. ("DAISY-CHAINING" OF LUMINAIRES IS NOT PERMITTED).

20.3.3. WITH THE ABOVE EXCEPTIONS, ALL 120-VOLT BRANCH CIRCUIT WIRING MUST BE INSTALLED IN EMT CONDUIT.

20.3.4. WIRING SHALL BE COLOUR CODED TO MATCH EXISTING INSTALLATION.

20.4. CONDUIT TO BE SIZED IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE.

20.5. WIRING SHALL BE COLOUR CODED AS FOLLOWS:

	120/208V	277/480V	347/600V
A PHASE	RED	ORANGE	ORANGE
B PHASE	BLACK	BROWN	BROWN
C PHASE	BLUE	YELLOW	YELLOW
NEUTRAL	WHITE	WHITE	WHITE
GROUND	GREEN	GREEN	GREEN

20.6. ALL LINE VOLTAGE WIRING SHALL BE INSTALLED IN CONDUIT.

20.7. ALUMINUM CONDUCTORS MAY ONLY BE USED WHERE INDICATED ON DRAWINGS. APPLY ZINC JOINT COMPOUND ON ALL ALUMINUM CONDUCTORS PRIOR TO INSTALLATION OF CONNECTORS OR TERMINATING CONDUCTORS.

20.8. COMPUTER RECEPTACLES SHALL BE COMPLETE WITH A DEDICATED NEUTRAL CONDUCTOR PER PHASE.

20.9. VOLTAGE DROP FOR WIRING SHALL MEET REQUIREMETNS AS LAID OUT IN THE CANADIAN ELECTRICAL CODE. GENERALLY MAXIMUM BRANCH CIRCUIT CONDUCTOR DISTANCES (120VAC) TO MAINTAIN MAX. 3% VOLTAGE DROP ARE AS FOLLOWS:

20.9.1. 15A-1P BREAKER - #12AWG WIRING - 80 FEET (24 METRES)

20.9.2. 15A-1P BREAKER - #10AWG WIRING - 125 FEET (39 METRES)

20.9.3. 20A-1P BREAKER - #12AWG WIRING - 60 FEET (18 METRES)

20.9.4. 20A-1P BREAKER - #10AWG WIRING - 95 FEET (29 METRES)

21. DEMOLITION

21.1. GENERAL

21.1.1. ALL UNUSED AND ABBANDONNED CONDUIT, WIRE, HANGERS, ETC. SHALL BE REMOVED FROM THE CEILING SPACE.

21.1.2. ABANDONED BREAKERS IN PANEL BOARDS SHALL BE MARKED AS SPARE IF THEY NO LONGER SERVICE ANY LOAD.

21.1.3. AS NOTED ON DRAWINGS THE CONTRACTOR SHALL TURN OVER EQUIPMENT BEING REMOVED TO BUILDING MANAGEMENT. EQUIPMENT NOT REQUIRED BY BUILDING MANAGEMENT SHALL BE REMOVED FROM SITE BY THE CONTRACTOR.

21.1.4. THE CONTRACTOR SHALL SEAL ALL UNUSED OPENINGS DUE TO ELECTRICAL DEMOLITION TO ENSURE THAT FIRE-RESISTANCE RATING IS MAINTAINED. REFER TO "FIRE STOPPING" SECTION OF THIS SPEC.

21.1.5. IF INDICATED ON DRAWINGS, PROVIDE BLANK COVER PLATE MATCHING WALL FINISH FOR BOXES TO REMAIN.

21.2. LIGHTING

21.2.1. ALL UNUSED AND ABANDONED CONDUIT, WIRE, HANGERS, ETC. SHALL BE REMOVED FROM THE CEILING SPACE.

21.2.2. EXISTING BUILDING LUMINAIRES SHALL BE REMOVED AS NOTED ON DRAWINGS AND RESPONSIBLY DISPOSED OF.

21.3. POWER

21.3.1. ALL CIRCUITS ORIGINATING FROM PANELBOARDS LOCATED IN ELECTRICAL ROOM WHICH ARE NOT BEING RE-USED SHALL BE PULLED BACK TO THE PANEL.

21.3.2. THE ELECTRICAL CONTRACTOR SHALL INFORM THE ENGINEER OF ANY DEFICIENCIES THAT ARE ENCOUNTERED DURING THE DEMOLITION.

21.3.3. ALL ELECTRICAL DEVICES ON EXISTING WALLS BEING DEMOLISHED ARE TO BE REMOVED.

21.3.4. ENSURE THAT ALL EXISTING RECEPTACLES LEFT ISOLATED BY THE REMOVAL OF OUTLETS IN THE SAME RUN SHALL BE RE-FED TO BECOME FULLY FUNCTIONAL TO THE SATISFACTION OF THE ENGINEER.

21.4. COMMUNICATIONS

21.4.1. ALL UNUSED AND ABANDONED CONDUIT, WIRE, HANGERS, ETC. SHALL BE REMOVED FROM THE CEILING SPACE.

21.4.2. EXISTING COMMUNICATIONS CABLING AND CONNECTORS SHOWN ON EXISTING WALLS BEING DEMOLISHED ARE TO BE REMOVED. COMMUNICATION OUTLETS THAT ARE NOT BEING REUSED SHALL BE BLANKED OFF WITH BLANK COVER PLATES, IF INDICATED ON DRAWINGS.

21.5. SYSTEMS

21.5.1. SECURITY DEVICES AND ASSOCIATED WIRING NOT BEING REUSED SHALL BE REMOVED AND RETURNED TO OWNER

22. WIRING DEVICES

22.1. BOXES, EXCEPT WHERE OTHERWISE NOTED, SHALL BE PRESSED SHEET STEEL GALVANIZED TO CSA STANDARDS.

22.2. ALL OUTLETS FOR FLUSH WALL-MOUNTING SWITCHES, RECEPTACLES, TELEPHONE AND LV OUTLETS SHALL BE NO.52151 BOX WITH APPROPRIATE PLASTER COVER FOR SINGLE OR 2-GANG OUTLETS OR 4-GANG OUTLETS.

22.3. FLUSH MOUNTING VOICE/DATA WALL OUTLETS SHALL BE NO. 52151 SERIES (4-INCH SQUARE, 1.5 INCHES DEEP WITH APPROPRIATE PLASTER OR EXTENSION RING).

22.4. USE A SINGLE COVER PLATE FOR RECEPTACLE OUTLET BOXED WHERE SHOWN GANGED.

22.5. GANG BOXES AND WIRING DEVICES ARE GROUPED. ELECTRO-GALVANIZED STEEL MULTI GANG BOXED SHALL BE USED WHERE MORE THAN 2 DEVICES ARE GANGED TOGETHER.

22.6. SECTIONAL TYPE BOXES OR HANDY BOXES SHALL NOT BE USED.

22.7. RECEPTACLES SHALL BE WHITE DECORA TO MATCH EXISTING. COMPUTER RECEPTACLES SHALL BE GREY DECORA.

22.8. SPECIAL RECEPTACLES WILL BE AS SHOWN ON THE DRAWINGS.

22.9. RECEPTACLES TO BE OF SPECIFICATION GRADE AND OF ONE MANUFACTURER. ACCEPTABLE MANUFACTURES ARE LEVITON, THOMAS AND BETTS, COOPER WIRING DEVICES.

22.10. PLATES FOR ALL FLUSH MOUNTING DEVICES SHALL BE WHITE DECORA. EXISTING DAMAGED FACEPLATES ARE TO BE REPLACED WITH NEW.

22.11. P-TOUCH ADHESIVE LABEL COMPLETE WITH A MINIMUM 5MM LETTERS TO BE PROVIDED ON ALL EXISTING AND NEW RECEPTACLES INDICATING CIRCUIT AND PANEL DESIGNATION.

22.12. TRACE CIRCUITS FOR EXISTING RECEPTACLES AND ENSURE EXISTING RECEPTACLES ARE LABELLED.

23. SUPPORTING DEVICES

23.1. CONDUIT SUPPORTS

23.1.1. SINGLE RUNS - TO BE GALVANIZED CONDUIT STRAPS OR RING BOLT RANGE 1 TYPE HANGERS

23.1.2. MULTIPLE RUNS (THREE OR MORE) - CONDUIT RACK

23.1.3. VERTICAL RUNS - CHANNEL SUPPORT WITH CONDUIT FITTINGS.

23.2. INSTALL TO MAINTAIN HEADROOM, NEAT MECHANICAL APPEARANCE AND TO SUPPORT EQUIPMENT LOADS REQUIRED.

23.3. WHERE INSERTS ARE REQUIRED IN CONCRETE, EXPANSION INSERTS, LEAD INSERTS OR PLASTIC INSERTS MAY BE USED IN DRILLED HOLES. WOOD OR FIBRE PLUGS NOT PERMITTED.

23.4. ALL ELECTRICAL DISTRIBUTION INCLUDING CABLE TRAY AND CONDUIT, WHICH IS MOUNTED ABOVE THE SUSPENDED CEILING, SHALL BE SUPPORTED DIRECTLY AND INDEPENDENTLY FROM THE CONCRETE SLAB.

23.5. THE USE OF ANY PART OF THE CEILING SUSPENSION SYSTEM AS A SUPPORT OR FOUNDATION FOR THE SUSPENSION OF CABLE TRAY, CONDUIT OR FLEXIBLE CONDUIT IS FORBIDDEN.

23.6. THE USE OF ANY DRYWALL OR WALL PARTITION AS A SUPPORT OR FOUNDATION FOR CABLE TRAY OR CONDUIT ROUTED HORIZONTALLY THROUGH THE CEILING SPACE IS FORBIDDEN.

23.7. SUPPORT HANGERS AND OTHER TRADES TO SUPPORT NON-ELECTRICAL SERVICES OR DEVICES SHALL NOT USE TRAYS INSTALLED BY THE ELECTRICAL CONTRACTOR.

23.8. ALL EQUIPMENT THAT MAY TRANSMIT VIBRATION TO THE BUILDING STRUCTURES IS TO BE INSTALLED USING SUITABLE METHODS TO PREVENT THE TRANSMISSION OF THE VIBRATIONS TO THE BUILDING STRUCTURE.

24.1. SUPPLY AND INSTALL COMPLETE GROUNDING SYSTEM AS INDICATED AND AS REQUIRED BY CANADIAN ELECTRICAL CODE AND ELECTRICAL INSPECTION DEPARTMENT.

24.2. ALL COMPONENTS SHALL BE SECURELY AND ADEQUATELY GROUNDED AND WHERE REQUIRED TO ACCOMPLISH THE GROUNDING STUDS AND BUSHINGS SHALL BE USED. ENSURE THAT ALL RACEWAYS, TERMINAL PANELS, ETC., FOR TELEPHONE, LOW VOLTAGE, FIRE ALARM, CABLE TRAY, SOUND, ETC., ARE SECURELY AND ADEQUATELY GROUNDED.

24.3. PROVIDE 1#6 INSULATED GROUND TO EACH DATA RACK AND TELEPHONE SWITCH.

25. FIRE ALARM AND EMERGENCY VOICE COMMUNICATION SYSTEM

25.1. ELECTRICAL CONTRACTOR SHALL EXTEND AND MODIFY EXISTING FIRE ALARM SYSTEM AS INDICATED ON DRAWINGS AND SPECIFIED HEREIN.

25.2. ALL NEW EQUIPMENT AND COMPONENTS SHALL MATCH EXISTING BASE BUILDING EQUIPMENT AND SHALL BE BY SAME MANUFACTURER.

25.3. ELECTRICAL CONTRACTOR SHALL INSTALL AND OR MODIFY FIRE ALARM SYSTEM IN ACCORDANCE WITH CAN/ULC-S524-06.

25.4. ALL SIGNALING WIRING SHALL BE MIN. #14 AWG WITH CHARACTERISTICS AS PER MANUFACTURER'S RECOMMENDATIONS.

25.5. ALL WIRE TO BE INSTALLED IN EMT CONDUIT.

25.6. ALL EXISTING AND NEW FIRE ALARM DEVICES AND ZONE WIRING WITHIN THE LEASEHOLD SPACE UNDER CONSTRUCTION SHALL BE VERIFIED IN ACCORDANCE WITH CAN/ULC-S537-04 STANDARD FOR THE VERIFICATION OF FIRE ALARM SYSTEM INSTALLATIONS.

25.7. VERIFYING ENGINEER SHALL ENSURE THAT FIRE ALARM SIGNALS ARE AT THE REQUIRED SOUND LEVELS THROUGHOUT THIS SPACE.

25.8. ELECTRICAL CONTRACTOR TO PROVIDE MANUFACTURER WITH ASSISTANCE DURING THE CERTIFICATION PROCEDURE AND TO ENSURE THAT THE MANUFACTURER IS INVOLVED IN, AND APPROVES ALL ALTERATIONS TO THE SYSTEM.

25.9. ALL VERIFYING TEST PROCEDURES SHALL BE WITNESSED BY THE LANDLORD'S REPRESENTATIVE.

25.10. THE ELECTRICAL CONTRACTOR SHALL EMPLOY THE SERVICES OF A PROFESSIONAL ENGINEER TO WITNESS THE VERIFICATION AND SHALL PROVIDE ALL REQUIRED ASSISTANCE AND EQUIPMENT FOR THE VERIFICATION.

25.11. A COMPLETE TEST OF THE FIRE ALARM SYSTEM WILL BE COMPLETED PRIOR TO ENGAGING THE VERIFICATION ENGINEER. INABILITY TO COMPLETE THE FIE ALARM VERIFICATION DUE TO WIRING OR PROGRAMMING ISSUES MAY RESULT IN ADDITIONAL FEES FOR FIRE ALARM VERIFICATION BEING REQUIRED.

25.12. IF THE ELECTRICAL CONTRACTOR CHOOSES TO HIRE THE PROFESSIONAL SERVICES OF NORR ARCHITECTS ENGINEERS PLANNERS TO COMPLETE THE FIRE ALARM VERIFICATION, THE ELECTRICAL CONTRACTOR SHALL CARRY A P.C. SUM OF $**XXXX.00** PLUS G.S.T. FOR PAYMENT TO NORR. NORR ENGINEERING REQUIRES A MINIMUM OF FIVE (5) WORKING DAYS NOTICE PRIOR TO FIRE ALARM VERIFICATION. THE ELECTRICAL CONTRACTOR IS NOT OBLIGATED TO HIRE NORR ARCHITECTS ENGINEERS PLANNERS FOR THE WITNESS OF THE FIRE ALARM VERIFICATION AND MAY CHOOSE TO HIRE AN ALTERNATE PROFESSIONAL ENGINEER IF SO DESIRED.

26. COMMUNICATION CABLING RACEWAY SYSTEM

26.1. SUPPLY AND INSTALL CABLE TRAY, CONDUIT, JUNCTION AND OUTLET BOXES TO FORM A COMPLETE EMPTY RACEWAY SYSTEM AS DESCRIBED HERE AND INDICATED ON THE DRAWINGS. ALL EMPTY CONDUITS SHALL BE COMPLETE WITH PULL WIRE.

26.2. AT EACH COMMUNICATIONS DATA, TELEPHONE OR COMBINATION DATE/TELEPHONE OUTLET PROVIDE AN APPROPRIATELY SIZED BOX, WITH PLASTER RING FOR SINGLE GANG FACEPLATE AND ASSOCIATED COMMUNICATIONS CONNECTORS. FROM EACH OUTLET BOX, STUB A CONDUIT INTO THE ABOVE CEILING SPACE TO A HEIGHT OF 150 MM ABOVE THE CEILING; PROVIDE A CONNECTOR COMPLETE WITH PLASTIC BUSHING IN EACH CONDUIT TO PREVENT CABLE DAMAGE. REFER TO INSTALLATION DETAILS ON DRAWINGS FOR ADDITIONAL INFORMATION.

27. SEALING AND FIRE PROTECTION

27.1. WHERE CABLES OR CONDUITS PASS THROUGH FIRE RATED ASSEMBLIES SUCH AS FLOORS, WALLS, CEILINGS, ETC., THE FIRE RATING OF THESE ASSEMBLIES SHALL BE MAINTAINED.

27.2. USE APPROVED AND ULC LISTED FIRE STOP MATERIAL AND METHODS.

27.3. SUBMIT ULC LISTED DETAILS AS REQUIRED TO THE AUTHORITY HAVING JURISDICTION.

27.4. CARRY ALL COST ASSOCIATED WITH SUBMISSION OF DETAILS AND INSTALLATIONS OF SUCH PRODUCTS AND ASSEMBLIES.

28. COMMUNICATION CABLE SYSTEM

28.1. A COMPLETE AND FUNCTIONING TELECOMMUNICATIONS SYSTEM WILL BE PROVIDED UNDER THIS CONTRACT. THE SYSTEM WILL CONSIST OF

28.1.1. All raceways, back boxes and cover plates and associated hardware.

28.1.2. horizontal cabling from l.t. room to data jacks. cabling will be fully terminated and tested.

28.1.3. service loop for all horizontal cabling in l.t. room of 2m for final connection to patch equipment.

28.1.4. telecom rack, patching equipment and servers will be by others.

28.2. SYSTEM DESCRIPTION

HORIZONTAL COPPER CABLING SYSTEM CONSISTS OF CATEGORY 6 CABLES WITH FOUR UNSHIELDED TWISTED PAIRS OF SOLID ANNEALED COPPER WRAPPED IN PLENUM RATED INSULATION WITH AN OVERALL PLENUM RATED JACKET. CONNECTORS ARE PLACED INTO NEMA RATED FACEPLATES AT THE WORK AREA AND PLACED INTO RACK MOUNTED PATCHING PANELS IN THE EQUIPMENT / NETWORKING ROOMS.

HORIZONTAL CABLE AND ITS CONNECTING HARDWARE PROVIDE THE MEANS OF TRANSPORTING SIGNALS BETWEEN THE TELECOMMUNICATIONS OUTLET/CONNECTOR AND THE HORIZONTAL CROSS-CONNECT LOCATED IN THE COMMUNICATIONS EQUIPMENT ROOM.

1) HORIZONTAL CABLING WILL CONTAIN NO MORE THAT ONE TRANSITION POINT OR CONSOLIDATION POINT BETWEEN THE HORIZONTAL CROSS-CONNECT AND THE TELECOMMUNICATIONS OUTLET/CONNECTOR.
2) BRIDGED TAPS AND SPLICES WILL NOT BE INSTALLED IN THE HORIZONTAL CABLING.

THE MAXIMUM ALLOWABLE HORIZONTAL CABLE LENGTH IS 295 FEET (90 M). THIS MAXIMUM ALLOWABLE LENGTH DOES NOT INCLUDE AN ALLOWANCE FOR THE LENGTH OF 16 FEET (4.9 M) TO THE WORKSTATION EQUIPMENT. THE MAXIMUM ALLOWABLE LENGTH DOES NOT INCLUDE AN ALLOWANCE FOR THE LENGTH OF 16 FEET (4.9 M) IN THE HORIZONTAL CROSS-CONNECT.

28.3 MANUFACTURER QUALIFICATIONS

1.) THE CONTRACTOR SHALL BE A BELDEN CERTIFIED SYSTEM VENDOR (CSV) EXPERIENCED AND TRAINED BY THE MANUFACTURING COMPANY, IN ALL ASPECTS OF THE PLACEMENT, TERMINATING CONNECTING AND TESTING OF PRODUCTS DESCRIBED HEREIN AND PROVIDE A CERTIFICATE OF PROOF PRIOR TO START OF WORK.
2.) THE CONTRACTOR SHALL HAVE A MINIMUM OF ONE (1) RCDD "REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER" RECOGNIZED BY BICSI "BUILDING INDUSTRY CONSULTING SERVICES INTERNATIONAL" ON STAFF AT LOCAL OFFICES (THE TERM "LOCAL OFFICES" AS APPLIED TO RCDD, REGISTERED COMMUNICATIONS DISTRIBUTIONS DESIGNERS, REFER TO ANYWHERE IN THE PROVINCE OF ALBERTA) AND PROVIDE CERTIFICATE OF PROOF PRIOR TO START OF WORK.
3.) COMMUNICATIONS CONTRACTOR SHALL SUPPLY A COMPLETE SYSTEM FOR VOICE AND DATA.
4.) THE CONTRACTOR SHALL BE EXPERIENCED IN ALL ASPECTS OF THIS WORK AND SHALL BE REQUIRED TO DEMONSTRATE DIRECT EXPERIENCE ON RECENT SYSTEMS OF SIMILAR TYPE AND SIZE. THE CONTRACTOR SHALL DEMONSTRATE PROVEN EXPERTISE IN THE IMPLEMENTATION OF NETWORK CABLING. EXPERTISE CAN BE ILLUSTRATED THOUGH THE INCLUSION OF DETAILS OF AT LEAST THREE PROJECTS INVOLVING THE DESIGN AND INSTALLATION OF A CAT 5e, CAT 6, OR AUGMENTED CAT 6 (CAT 6A) BALANCED TWISTED-PAIR CABLING SYSTEM WITHIN THE PAST TWO YEAR PERIOD. NAMES AND CONTACT INFORMATION FOR EACH OF THE THREE PROJECTS SHALL BE INCLUDED. THE CONTRACTOR SHALL OWN AND MAINTAIN TOOLS AND EQUIPMENT NECESSARY FOR SUCCESSFUL INSTALLATION AND TESTING OF OPTICAL AND PROPOSED AUGMENTED CAT 6A METALLIC PREMISE DISTRIBUTION SYSTEMS AND HAVE PERSONNEL WHO ARE ADEQUATELY TRAINED IN THE USES OF SUCH TOOLS AND EQUIPMENT.
5.) THE COMMUNICATIONS INSTALLER SHALL BE A COMMUNICATION CABLING SPECIALIST CERTIFIED BY THE DEPARTMENT OF LABOUR AND OBTAIN ALL REQUIRED PERMITS.

28.4 WARRANTY

1.) THE WARRANTY PERIOD WITH REGARD TO THE PROJECT IS FOR 25 YEARS FROM THE DATE OF SUBSTANTIAL PERFORMANCE OF THE WORK OR THOSE PERIODS SPECIFIED IN THE CONTRACT DOCUMENTS FOR CERTAIN PORTIONS OF THE WORK OF PRODUCTS.
2.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PERFORMANCE OF THE WORK.
3.) THE CONTRACTOR SHALL CORRECT PROMPTLY, AT THE CONTRACTORS EXPENSE, DEFECTS OR DEFICIENCIES IN THE WORK WHICH APPEAR PRIOR TO AND DURING THE WARRANTY PERIODS SPECIFIED IN THE CONTRACT DOCUMENTS.

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2016-07-27	50% REVIEW	A
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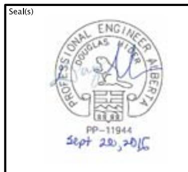

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KILLAM, AB

Drawing Title
ELECTRICAL SPECIFICATION

Check Scale (may be photo reduced) 0 1inch 0 10mm

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4.) THE OWNER, SHALL PROMPTLY GIVE THE CONTRACTOR NOTICE IN WRITING OF OBSERVED DEFECTS AND DEFICIENCIES THAT OCCUR DURING THE WARRANTY PERIOD.

5.) THE CONTRACTOR SHALL CORRECT OR PAY FOR DAMAGES RESULTING FROM CORRECTIONS MADE UNDER THE REQUIREMENTS OF PARAGRAPH 1.8.3.

6.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PRODUCT WARRANTIES IN EXCESS OF ONE YEAR ON BEHALF OF THE OWNER FROM THE MANUFACTURER, THESE PRODUCT WARRANTIES SHALL BE ISSUED BY THE MANUFACTURER TO THE BENEFIT OF THE OWNER.

7.) THE CONTRACTOR SHALL PROVIDE A TWENTY FIVE (25) YEAR EXTENDED PRODUCT WARRANTY OF LIFETIME APPLICATION ASSURANCE WARRANTY FOR THE COMMUNICATIONS NETWORK, THE WARRANTY SHALL BE BACKED UP BY THE MANUFACTURER AND TAKEN OVER BY THE MANUFACTURER OR HIS REPRESENTATIVE IF THE CONTRACTOR FAILS TO FOLLOW THROUGH WITH THE REQUIREMENTS OF THE WARRANTY.

8.) THE COMMUNICATIONS NETWORK IS DEFINED AS ALL REQUIRED PASSIVE EQUIPMENT AND CABLING, INCLUDING HARDWARE, TERMINATIONS, AND JACKS, CONFIGURED TO PROVIDE DATA AND VOICE CONNECTIVITY FROM EACH DATA OR VOICE OUTLET PROVIDED BY THE CONTRACTOR IN THIS CONTRACT.

9.) THE SYSTEM ASSURANCE SHALL COVER THE APPLICATIONS THAT THE INSTALLED SYSTEM IS DESIGNED TO SUPPORT FOR A TWENTY FIVE (35) YEAR PERIOD.

10.)THE COPPER SYSTEM SHALL BE CONSTRUCTED TO CONFORM TO ANSI/TIA-568-B.2-10-2008 - TRANSMISSION PERFORMANCE SPECIFICATIONS FOR 4 PAIR 100Ω AUGMENTED CAT 6 CABLING COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING STANDARDS.

11.)THE FIBER SYSTEM SHALL BE CONSTRUCTED TO CONFORM TO ANSI/EIA-568-B.3-2000 - OPTICAL FIBER CABLING COMPONENTS STANDARD AND ANSI/TIA/EIA-568-B.3-1-2002 - OPTICAL FIBER CABLING COMPONENTS STANDARD ADDENDUM 1 - ADDITIONAL TRANSMISSION PERFORMANCE SPECIFICATIONS FOR 50 /125 (m OPTICAL FIBER CABLES)

12.) THE EXTENDED PRODUCT WARRANTY AND THE SYSTEMS ASSURANCE TOGETHER COMPRISE THE STRUCTURED CABLING SYSTEM QUALITY ASSURANCE PROGRAM.

13.)UPON SUCCESSFUL COMPLETION OF THE STRUCTURED CABLING INSTALLATION AND SUBSEQUENT TESTING BY CERTIFIED TECHNICAL PERSONNEL THE CONTRACTOR SHALL PROVIDE TO THE OWNER A NUMBERED CERTIFICATE REGISTERING THE INSTALLATION.

29.0. COMMUNICATION WIRING SYSTEM

29.1. GENERAL

THE ELECTRICAL CODE REFERRED TO IN THESE SPECIFICATIONS IS THE NATIONAL ELECTRICAL CODE AS CURRENTLY ADOPTED BY THE PROVENCE OF ALBERTA. ALL WORK WILL BE PROVIDED IN STRICT COMPLIANCE WITH THE ELECTRICAL CODE AND ALL REGULATIONS THAT MAY APPLY.

WHERE STANDARDS EXIST, FOR A PARTICULAR CATEGORY, PRODUCTS USED ON THIS PROJECT WILL BE LISTED BY AN APPROVED NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL), AND BE APPROVED OR LISTED FOR THE INTENDED SERVICE AND APPLICATION.

THESE SPECIFICATIONS DO NOT UNDERTAKE TO REPEAT THE REQUIREMENTS OF CODES, REGULATIONS OR NRTL LISTING OR LABELING INSTRUCTIONS. THE SPECIFICATIONS OR DRAWINGS MAY REQUIRE ITEMS OR WORK BEYOND THE REQUIREMENTS OF APPLICABLE CODES OR REGULATIONS. THE STRICTER, HIGHER QUALITY, GREATER QUANTITY OR HIGHER COST WILL BE PROVIDED. IT IS INCUMBENT ON THE INSTALLER, MATERIAL AND EQUIPMENT SUPPLIERS TO MEET THESE SPECIFICATIONS, APPLICABLE CODES, REGULATIONS, AND NRTL LISTING AGENCY RESTRICTIONS.

29.2. MANUFACTURER

THE COPPER CABLING SYSTEM AND OPTICAL FIBER CABLING SYSTEM DESIGN USES LEVITON CONNECTORS AND SUPERIOR ESSEX CABLES.

THE WORD "MANUFACTURER" WILL INCLUDE THE MANUFACTURER, THE MANUFACTURER'S REPRESENTATIVE, THE DISTRIBUTOR, THE FABRICATOR, AND THE SUPPLIER OF THE PARTICULAR CLASSIFICATION OF EQUIPMENT, SYSTEM, PRODUCT, AND MATERIAL.

ALL WORK, EQUIPMENT, AND SYSTEMS WILL BE MANUFACTURED, PROVIDED, REPAIRED, INSTALLED, AND TESTED IN ACCORDANCE WITH THE LATEST EDITION AND ALL CURRENT AMENDMENTS OF THE APPLICABLE PUBLICATIONS AND STANDARDS OF THE CANADIAN ELECTRICAL CODE AND THE LATEST VERSION OF THE ANSI/EIA/TIA 568 SERIES AS OF THE DATE OF THE CONTRACT DOCUMENTS. WHEN THE SPECIFICATION REQUIREMENTS EXCEED THE REQUIREMENTS OF THESE PUBLICATIONS AND STANDARDS THE SPECIFICATIONS WILL GOVERN:

THE ABOVE REQUIREMENTS WILL NOT IN ANY WAY LIMIT RESPONSIBILITY OR REQUIREMENTS TO COMPLY WITH ALL OTHER CODES, STANDARDS AND LAWS.

29.3. PERFORMANCE

SYSTEM SHALL PROVIDE "FUTURE PROOF" CHANNEL PERFORMANCE AND GUARANTEED MARGINS AS NOTED IN THIS DOCUMENT AND IS GUARANTEED TO EXCEED ANSI/TIA/EIA-568-B.2 CATEGORY 6 SPECIFICATIONS FOR INSERTION LOSS, NEXT, PSNEXT, ACR, PSACR, ELFEXT, PSELFEXT AND RETURN LOSS TO 250 MHZ. THE SYSTEM IS ALSO GUARANTEED 12 DB PSACR HEADROOM AT 250 MHZ.

29.4. SOURCE QUALITY CONTROL

ALL MATERIALS SHALL BE PURCHASED FROM DISTRIBUTORS AUTHORIZED BY SYSTEM MANUFACTURERS TO SELL NEW AND UNUSED COMPONENTS.

29.5. WALLPLATES

MANUFACTURER - PROVIDE WALLPLATES AS SPECIFIED BELOW:

1) LEVITON QUICKPORT SINGLE GANG 2-PORT WALLPLATES WITH ID WINDOWS
   a. PART # - 42080-2(W)S
2) LEVITON QUICKPORT SINGLE GANG 4-PORT WALLPLATES WITH ID WINDOWS
   b. PART # - 42080-4(W)S
3) OR PRE-APPROVED EQUAL
4) WALL PLATES TO BE WHITE.

29.6 JACKS

MANUFACTURER - PROVIDE DATA CONNECTORS AS SPECIFIED BELOW:

1) LEVITON EXTREME® 6+ CAT 6 CONNECTOR WITH / RETENTION FORCE TECHNOLOGY
   a. PART # 61110-R(W)6
2) OR PRE-APPROVED EQUAL
3) PROVIDE BLANK MODULES FOR UNUSED PORTS
4) JACKS TO BE WHITE

29.7 PATCH CABLES

1.) PATCH CABLES SHALL BE PROVIDED FOR ALL TERMINATED VOICE AND DATA PORTS, FOR BOTH ENDS OF EACH LINE. THE CORDAGE SHALL USE 23 AWG SOLID COPPER CONDUCTORS IN A BONDED PAIR CONFIGURATION FOR RELIABLE LONG TERM CHANNEL PERFORMANCE TO 625 MHZ. THE TRANSMISSION CHARACTERISTICS OF THE CORDAGE WILL BE GUARANTEED TO 625 MHz. THAT PATCH CABLES SHALL SUPPORT 10Gb /s, FT-4, 23 AWG COPPER, BELDEN 10GX OR APPROVED EQUAL.

2.) THE QUANTITY OF THE PATCH CABLES FOR CONNECTION BETWEEN SWITCHES AND PATCH PANELS IN THE LAN ROOM IS TO BE AT LEAST THE SAME AMOUNT AS THE NUMBER OF PORTS ON THE HORIZONTAL PATCH PANELS. LENGTH OF PATCH CABLES TO BE 7ft OR 2m.

3.) THE QUANTITY OF PATCH CABLES FOR CONNECTION AT THE WORKSTATION END IS TO BE AT LEAST THE SAME AMOUNT AS THE NUMBER OF PORTS ON THE HORIZONTAL PATCH PANELS. LENGTH OF PATCH CABLES SHOULD BE 15ft OR 4.5m.

30. COPPER PATCH & EQUIPMENT CORDS

30.0.1. PROVIDE 2 METRE SERVICE LOOP AT THE PATCH PANEL END.

30.0.2. PROVIDE 1.5 METRES OF SLACK COILED NEATLY IN WORKSTATION TO ENSURE PATCH CABLES REACH INDICATED COMPUTER DEVICE LOCATION.

30.0.3. LEAVE 3.0 METRES SLACK FROM EACH WALL OUTLET NEATLY COILED TO ENSURE PATCH CABLES REACH INDICATED COMPUTER DEVICE.

31. ALL PRODUCT ALTERNATES MUST BE APPROVED ONE WEEK PRIOR TO TENDER CLOSING.

32.1. INSTALLATION

32.1.1. HORIZONTAL CABLING WILL BE RUN IN CONDUIT AND CABLE TRAY PROVIDED UNDER THIS CONTRACT.

32.1.2. THE INSTALLATION OF EXPOSED CABLES SHALL BE MANAGED TO PROVIDE A NEAT INSTALLATION AND SHALL BE RUN PARALLEL TO BUILDING LINES.

32.1.3. EXPOSED CABLE IN RETURN AIR PLENUM ARE TO BE ATTACHED TO THE CEILING EVERY 3 FEET BY J-HOOKS OR HILTI HOOKS. BUNDLES OF MULTIPLE CABLES ARE TO BE NEATLY SECURED WITH VELCRO STRIPS.

32.1.4. ALL CABLES BETWEEN WALL OR FURNITURE OUTLETS AND TERMINATION ROOMS SHALL BE CONTINUOUS WITHOUT ANY BREAKS OR SPLICES TO MINIMIZE POTENTIAL FAULT LOCATIONS.

32.1.5. PLENUM RATED FT4/FT6 CABLES MAY BE ROUTED EXPOSED ABOVE THE SUSPENDED CEILING IN THE RETURN AIR PLENUM. PLENUM RATED CABLES SHALL BE LABELLED FT4 OR FT6 ALONG THE LENGTH OF THE CABLE JACKET. CABLES NOT CARRYING ONE OF THESE DESIGNATIONS MUST BE ROUTED IN ENCLOSED RACEWAYS.

32.1.6. PROVIDE IDENTIFICATION TAGS AT ALL OUTLETS BLOCKS AND TERMINATION CABINETS. IDENTIFICATION TAGS TO BE KROY TYPE 200 LABELS. PROVIDE CIRCULAR CABLE IDENTIFICATION TAGS AT EACH END OF EACH CABLE; IDENTIFICATION CODES ARE TO BE SPECIFIED BY JOB NAME.

32.1.7. INSTALL ALL PATCH CORDS IN ACCORDANCE WITH THE OWNERS I.T. DEPARTMENT OR THE PERSON IN CHARGE OF THE TELECOMMUNICATIONS INFRASTRUCTURE, .

32.1.8. BEND RADIUS OF CABLES SHALL BE MAINTAINED AS RECOMMENDED BY THE MANUFACTURER AND PER TIA AND BICSI STANDARDS.

32.1.9. LOCATIONS AND QUANTITY OF OUTLETS AS SHOWN ON DRAWINGS.

32.1.10. RACK LOCATION AND PANEL INSTALLATION AS SHOWN IN DETAIL DRAWINGS.

33.0. TESTING PROCEDURES

33.0.1. CABLING SYSTEMS SHALL MEET OR EXCEED THE ELECTRICAL AND TRANSMISSION CHARACTERISTICS OF THE SYSTEMS SPECIFIED.

33.0.2. CABLE SEGMENTS AND LINKS SHALL BE TESTED FROM BOTH ENDS OF THE CABLE FOR EACH OF THE CONSTRUCTION PHASES. (VERIFY THAT CABLE LABELING MATCHES AT BOTH ENDS).

33.0.3. THE SYSTEM SHALL NOT BE CONSIDERED CERTIFIED UNTIL THE TESTER HAS ACKNOWLEDGED THAT THE PERFORMANCE OF THE PHYSICAL LAYER OF THE SYSTEM HAS BEEN FULLY TESTED AND IS OPERATIONAL AT THE COMPLETION OF THE INSTALLATION PHASE.

33.0.4. FIELD TESTING EQUIPMENT: SUBMIT DURING SHOP DRAWING REVIEW ON THE TESTING EQUIPMENT TO BE UTILIZED ON THIS PROJECT. THE INSTALLER SHALL TEST ALL CABLES INSTALLED UNDER THIS SECTION.

1) UNSHIELDED TWISTED PAIR TESTING EQUIPMENT:

a.) THE CABLE TESTER SHALL HAVE A WIDE VARIETY OF PREPROGRAMMED CABLE TYPES AS AN INTEGRAL PART OF ITS TESTING SYSTEM AND HAVE THE ABILITY TO TEST CABLES LESS THAN 6 FEET (6FT.) FROM THE TEST POINT.

b.) TESTING SHALL BE ACCOMPLISHED USING LEVEL III OR HIGHER FIELD TESTER THAT IS LOADED WITH THE MOST CURRENT VERSION OF TEST SOFTWARE BY THE MANUFACTURER OF THE TEST EQUIPMENT.

c.) PROVIDE FACTORY CALIBRATION REPORT OF FIELD TEST EQUIPMENT.

33.0.1. TEST RESULTS:

1) THE TEST RESULTS INFORMATION FOR EACH LINK SHALL BE RECORDED IN THE MEMORY OF THE FIELD TESTER UPON COMPLETION OF THE TEST. THE TESTER SHALL BE CAPABLE OF STORING TEST DATA IN EITHER INTERNAL OR EXTERNAL MEMORY. THE EXTERNAL MEDIA USED SHALL BE LEFT TO THE DISCRETION OF THE USER.

2) THREE (3) PRINTED COPIES OF THE TEST RESULTS SHALL BE PROVIDED UPON COMPLETION OF THE PROJECT TO THE OWNER.

3) TEST RESULTS SHALL INCLUDE THE FOLLOWING:

a.) APPLICABLE ROOM NUMBER OF JACK LOCATION (ROOM NUMBER PER CONTRACT DOCUMENTS).
b.) APPLICABLE TELECOMMUNICATIONS ROOM NUMBER.
c.) CIRCUIT I.D. NUMBER WITH CORRESPONDING JACK IDENTIFIER.
d.) WIRE MAP.
e.) LENGTH.
f.) INSERTION LOSS.
g.) NEAR-END CROSSTALK (NEXT) LOSS.
h.) PS-NEXT (POWER SUM NEAR END CROSS TALK).
i.) ELFEXT (EQUAL LEVEL FAR END CROSS TALK).
j.) PS-ELFEXT (POWER SUM EQUAL LEVEL FAR END CROSS TALK).
k.) PROPAGATION DELAY.
l.) DELAY SKEW.
m.) RETURN LOSS.

34.0. POWER DISTRIBUTION

34.1. PROVIDE NEW EQUIPMENT AS INDICATED ON THE DRAWINGS.

34.2. ALL EQUIPMENT TO BE CSA APPROVED.

34.3. NEW BRANCH CIRCUIT BREAKERS AND WIRING TO BE INSTALLED UNDER THIS CONTRACT.

34.4. PROVIDE TYPEWRITTEN DIRECTORY OF PANEL LOADS AND AFFIX TO PANELBOARD DOORS.

34.5. PANELBOARDS SHALL BE COMPOSED OF THE NUMBER OF CIRCUIT BREAKERS WITH POLES AND TRIP RATINGS AS LISTED IN THE SCHEDULES. WHERE SPACE ONLY IS CALLED FOR, PROVIDE ALL MOUNTING BRACKETS, BUSBAR DRILLINGS, FILLER PLATES, ETC., TO FACILITATE INSTALLATION OF FUTURE BREAKERS.

34.6. WHERE EXISTING PANELBOARDS ARE SHOWN TO BE REPLACED WITH NEW, CONTRACTOR SHALL RELOCATE ALL EXISTING BRANCH CIRCUITS TO NEW PANELBOARD AND PROVIDE NEW BREAKERS FOR EXISTING AND NEW CIRCUITS.

34.7. WHERE PANELBOARDS ARE SHOWN TO BE DOUBLE-LUGGED, CONTRACTOR SHALL PROVIDE NEW DOUBLE LUG KITS IN EXISTING AND NEW PANELBOARDS.

34.8. WHERE CALLED FOR, PROVIDE AN ISOLATED STANDOFF GROUND BUS FOR NEW OR EXISTING PANELBOARDS AND CONNECT BACK TO THE BUILDING GROUND WITH INSULATED #2 AWG.

34.9. PANELBOARDS: SHALL BE 120/208V OR 347/600V 3Ø 4W (FCN) 225A RATED AND COMPOSED OF THE NUMBER OF CIRCUIT BREAKERS WITH POLES AND TRIP RATINGS AS LISTED IN THE SCHEDULES. PANELS SHALL BE TIN-PLATED ALUMINUM BUSSING. PANELBOARD ENCLOSURE TO BE SPRINKLER-PROOF WITH FULL 3" DRIP-HOOD.

34.10. BREAKERS TO BE BOLT-ON TYPE AND MEET OR EXCEED THE AVAILABLE FAULT CURRENT INDICATED ON THE SINGLE LINE DIAGRAM. BREAKERS OF MULTIPLE POLE CONFIGURATIONS SHALL BE COMMON-TRIP SINGLE HANDLE. BREAKERS TO BE 3-POSITION (OPEN, TRIPPED, CLOSED).

34.11. ALL ELECTRICAL EQUIPMENT SHALL BE GREY ANSI 49 PAINTED.

34.12. INTERRUPTING CAPACITY/WITHSTAND RATINGS FOR DISTRIBUTION EQUIPMENT SHALL MEET OR EXCEED LEVELS INDICATED ON SINGLE LINE DRAWINGS.

35.0. LUMINAIRES

35.1. SUPPLY AND INSTALLATION OF ALL LUMINAIRES SHALL FORM PART OF THIS CONTRACT.

35.2. SUPPLY AND INSTALLATION OF LIGHTING CONTROLS WILL BE THE RESPONSIBILITY OF THIS CONTRACTOR.

35.3. LUMINAIRES SHALL BE ADDED, RELOCATED OR REMOVED AS INDICATED.

35.4. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND REPLACING ALL DAMAGED LENSES, FAULTY BALLASTS AND PROVIDE TOUCH-UP PAINT WHERE REQUIRED.

35.5. REPLACE BURNT-OUT LAMPS FOR FLUORESCENT, INCANDESCENT, AND LOW VOLTAGE LUMINAIRES WHERE REQUIRED.

35.6. ALL FLUORESCENT LUMINAIRES TO BE SUPPLIED COMPLETE WITH LAMPS AND ELECTRONIC BALLAST <10% THD, RAPID START OR PROGRAMMED START.

35.7. UNLESS OTHERWISE NOTED, ALL FLUORESCENT LAMPS SHALL BE STANDARD 3500K, T8 LOW MERCURY, CRI 85.

35.8. INCANDESCENT LAMPS TO BE 5,000 HOURS, 130 VOLT EXTENDED SERVICE TYPE.

35.9. SPECIAL LAMPS TO BE USED WHERE INDICATED WITH THE LONGEST LIFE AVAILABLE IN EACH CATEGORY.

35.10. ACCEPTABLE LAMP MANUFACTURER'S: SYLVANIA, GE, PHILLIPS.

35.11. ACCEPTABLE BALLAST MANUFACTURER'S: GE, PHILLIPS, LUTRON.

35.12. LUMINAIRE SCHEDULE - REFER TO DRAWINGS.

36.0. MECHANICAL EQUIPMENT WIRING

36.1. ELECTRICAL CONTRACTOR TO PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECT, ETC., REQUIRED FOR MECHANICAL EQUIPMENT.

36.2. ALL LOW VOLTAGE CONTROLS AND CONTROL WIRING WILL BE THE RESPONSIBILITY OF THE MECHANICAL TRADE AND/OR HIS CONTROL SUB-TRADE. 120V CONNECTION FOR CONTROLS CONTRACTOR SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR. COORDINATE WITH CONTROLS CONTRACTOR FOR LOCATION.

36.3. ELECTRICAL CONTRACTOR SHALL CONFIRM WITH THE MECHANICAL TRADE, THE SIZE, CHARACTERISTICS, AND LOCATIONS OF ALL MECHANICAL EQUIPMENT BEFORE INSTALLATION OF CONDUITS, OUTLETS, HEATERS ETC.

37.0. ENGINEER'S INSPECTIONS

37.1. AT MINIMUM, AN INSPECTION WILL BE CARRIED OUT BY THE ENGINEER AT ROUGH-IN STAGE AND AT COMPLETION.

37.2. THE ELECTRICAL CONTRACTOR SHALL ADVISE THE ENGINEER WHEN ALL WORK HAS BEEN COMPLETED ABOVE THE SUSPENDED CEILING, EITHER DRYWALL OR T-BAR.

37.3. FAILURE TO NOTIFY THE ENGINEER IN TIME WILL NECESSITATE THE REMOVAL OF ALL CEILING FOR INSPECTION PURPOSES.

37.4. THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE ENGINEER AND SHALL ALLOW AT LEAST 3 WORKING DAYS NOTICE OF THE INSTALLATION OF CEILING.

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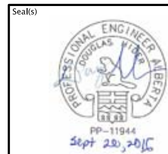

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Project Leader	Checked
A.BUTLER	D.HIDER

Client
RCMP

Project
KILLAM
RCMP DETACHMENT ADDITION
KILLAM, AB

Drawing Title
ELECTRICAL SPECIFICATION

Check Scale (may be photo reduced) 0 1inch 0 10mm

Project No. NCCA-16-0096-99

Drawing No. E40-00-01

PLOT DATE: October 18, 2016 TIME: 9:31 AM FULL PATH AND FILENAME: P:\RCMP_PROJECTS\NCCA16009699 RCMP KILLAM RENOVATIONS\ELECTRICAL\SHEETS\E40-00-00.DWG PLOTSYTLE TABLE: ----