

SYMBOL LEGEND			
	RECESSED LUMINAIRE		ELECTRICAL PANELBOARD - RECESSED
	SURFACE LUMINAIRE		DENOTES WEATHERPROOF DEVICE/ENCLOSURE
	WALL MOUNTED LUMINAIRE		COMBINATION VOICE/DATA OUTLET
	POLE MOUNTED LUMINAIRE		TELEVISION OUTLET
	LIGHTING BOLLARD		COMBINATION VOICE/TELEVISION OUTLET
	WALL FLUORESCENT LUMINAIRE		CEILING MOUNTED JUNCTION/SLAB BOX
	FLUORESCENT STRIP LUMINAIRE		WALL MOUNTED JUNCTION BOX
	LIGHTING LUMINAIRE TYPE TAG		MOTOR IDENTIFICATION TAG (REFER TO MECHANICAL SCHEDULE)
	SWITCH - SINGLE, TWO, THREE AND FOUR GANG		MOTOR
	SWITCH - 3 WAY		MOTOR C/W DISCONNECT
	SWITCH - 4 WAY		CHIME
	SWITCH - DIMMER SWITCH		PUSH BUTTON (CHIME)
	SINGLE/SPECIAL PURPOSE RECEPTACLE		COMMUNICATIONS PANEL - RECESSED
	DUPLEX RECEPTACLE		DAYLIGHT HARVESTING LIGHT SENSOR
	GROUND FAULT RECEPTACLE		PHOTO ELECTRIC CELL
	SPLIT CIRCUIT RECEPTACLE		TIME CLOCK
	20A T-SLOT RECEPTACLE		SINGLE PHASE DIRECT CONNECTION
	20A T-SLOT RECEPTACLE GFCI		THREE PHASE DIRECT CONNECTION
	DUPLEX RECEPTACLE WITH USB CHARGER		

**GENERAL NOTES:**

- A) COORDINATE WITH MECHANICAL CONTRACTOR FOR FINAL LOCATION OF UNITS AND ELECTRICAL CONNECTION POINTS.
- B) ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL SAFETY DISCONNECT SWITCHES AS REQUIRED BY CEC FOR FAN COIL UNITS.
- C) ELECTRICAL CONTRACTOR TO PROVIDE BREAKERS 1-15A AS REQUIRED PER FAN COIL UNIT.
- D) IN WHELPING PODS 'B' ELECTRICAL CONTRACTOR TO CONNECT FAN COILS TO PANEL 'B', PROVIDE BREAKERS AS REQUIRED.

**REFERRAL NOTES:**

- 1 EXISTING PANEL 'A'
- 2 CONNECT NEW FAN COIL UNITS TO EXISTING PANEL 'A'. EACH FAN COIL TO BE CONNECTED TO ITS OWN INDIVIDUAL 120V/15A CIRCUIT. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW BREAKERS AS REQUIRED.
- 3 PANEL IN THIS LOCATION IN WHELPING POD B WILL BE PANEL 'B'. CONNECT NEW FAN COILS IN BUILDING B TO PANEL B.

DATE	ISSUED FOR	REV
2014-11-12	90% REVIEW	A
2014-11-25	TENDER	B

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Project Component  
**Phase # - Description**

Keyplan

North Arrow

Detail Symbol

DETAIL #  
SHEET #

Symbol not to scale

Consultants	
Civil:	Civil Firm Name
Landscape:	Landscape Firm Name
Architectural:	Architectural Firm Name
Structural:	Structural Firm Name
Mechanical:	Mechanical Firm Name
Electrical:	Electrical Firm Name

Seal(s)

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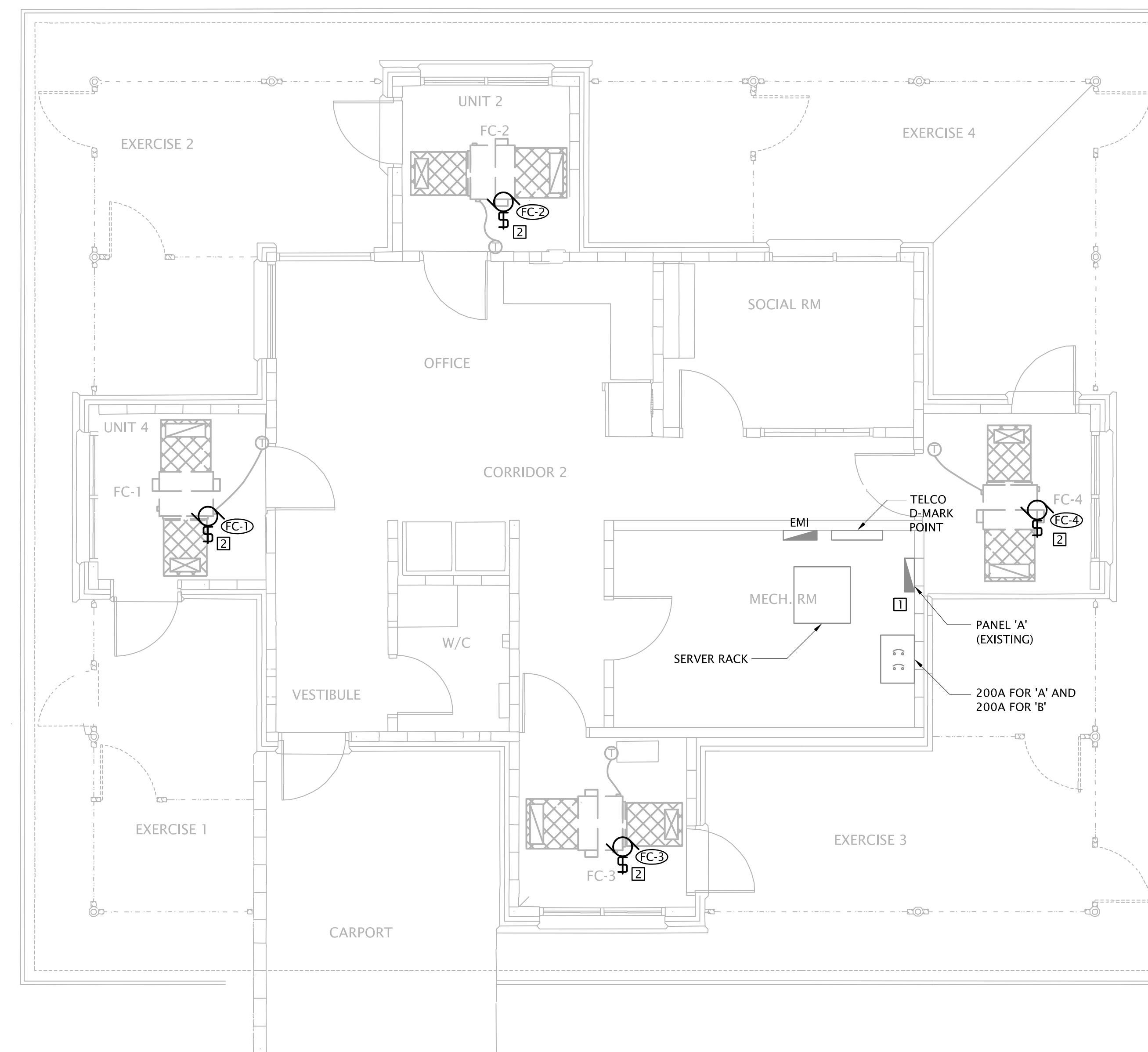
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Client	RCMP INNISFAIL
Project	INNISFAIL DOG TRAINING CENTRE WHELPING PODS INNISFAIL AB.
Drawing Title	ELECTRICAL CONNECTIONS TO MECHANICAL EQUIPMENT
Check Scale (may be photo reduced)	0 1 inch 0 10mm
Project No.	NCCA-14-0074
Drawing No.	E00-00



**WHELPING PODS ELECTRICAL CONNECTIONS TO NEW FAN COIL UNITS**

1:50

LIST OF DRAWINGS	
E00-00	ELECTRICAL CONNECTIONS TO MECHANICAL EQUIPMENT
E00-01	ELECTRICAL SPECIFICATIONS

PLOT DATE: November 25, 2014 TIME: 3:08 PM FULL PATH AND FILENAME: C:\USERS\CFREY\DESKTOP\RCMP\PDSTC\E00-01.DWG PLOTSYS TABLE: Ingenium.ctb

1. GENERAL

- 1.1. 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.
- 1.2. THE SCOPE OF WORK IS AS DESCRIBED HEREIN AND SHOWN ON THE DRAWINGS.
- 2. STANDARD OF MATERIAL AND WORKMANSHIP
  - 2.1. 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.
  - 2.2. 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.
  - 2.3. WORKMANSHIP SHALL BE OF THE HIGHEST STANDARDS THROUGHOUT AND SHALL BE MINIMUM OF THE CURRENT TRADE PRACTICES FOR ELECTRICAL INSTALLATIONS IN THIS BUILDING.
- 3. UNIFORMITY OF EQUIPMENT
  - 3.1. UNLESS OTHERWISE SPECIFICALLY CALLED FOR IN THE SPECIFICATIONS, UNIFORMITY OF MANUFACTURE SHALL BE MAINTAINED FOR ANY PARTICULAR ITEM THROUGHOUT THE BUILDING.
  - 3.2. SPECIFICATIONS, UNIFORMITY OF MANUFACTURE SHALL BE MAINTAINED FOR ANY PARTICULAR ITEM THROUGHOUT THE BUILDING.
    - 3.2.1. SPECIFICATIONS, UNIFORMITY OF MANUFACTURE SHALL BE MAINTAINED FOR ANY PARTICULAR ITEM THROUGHOUT THE BUILDING.
- 4. DRAWINGS AND SPECIFICATIONS
  - 4.1. 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.
  - 4.2. 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.
- 5. CODES, PERMITS AND INSPECTION
  - 5.1. THE INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE AND THE REGULATIONS OF THE CITY OF CALGARY ELECTRICAL INSPECTION DEPARTMENT.
  - 5.2. 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.
- 6. EXAMINATION OF THE SITE
  - 6.1. 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.
- 7. CLEAN UP
  - 7.1. 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.
  - 7.2. AT THE COMPLETION OF THE WORK, THE ELECTRICAL INSTALLATION SHALL BE LEFT IN A CLEAN FINISHED CONDITION TO THE SATISFACTION OF THE ENGINEER.
  - 7.3. ALL LUMINAIRES AND ELECTRICAL DEVICES SHALL BE WASHED, CLEANED OF GREASE, DIRT AND LINT AS REQUIRED.
  - 7.4. ALL HANDLING OF LUMINAIRES AND LAMPS SHALL BE DONE WITH CLEAN GLOVES, TO ENSURE CLEANLINESS AND LAMP LIFE.
  - 7.5. RECYCLE PACKING MATERIAL AND OTHER SUCH ITEMS THAT CAN BE DIVERTED FROM LANDFILL.
- 8. SETTING OUT OF THE WORK
  - 8.1. 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.
  - 8.2. THE ELECTRICAL CONTRACTOR SHALL GIVE THE WORK THEIR PERSONAL SUPERVISION, LAY OUT HIS OWN WORK, DO ALL NECESSARY LEVELINGS AND MEASURING OR EMPLOY A COMPETENT ENGINEER TO DO SO. FIGURES, FULL SIZE AND DETAIL DRAWINGS SHALL TAKE PRECEDENCE OVER SCALE MEASUREMENTS.
  - 8.3. 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.
  - 8.4. 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.
- 9. LOCATION OF OUTLETS
  - 9.1. 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.
- 10. CORING, CUTTING AND PATCHING
  - 10.1. 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.
  - 10.2. 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.
  - 10.3. 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.
- 11. ACCESS DOORS
  - 11.1. NUMBER OF ACCESS DOORS TO BE KEPT TO AN ABSOLUTE MINIMUM. DOOR LOCATIONS WILL BE COORDINATED WITH THE ENGINEER PRIOR TO INSTALLATION.
  - 11.2. 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.
  - 11.3. WHERE IT IS ABSOLUTELY IMPOSSIBLE TO SERVICE CERTAIN EQUIPMENT THROUGH REMOVABLE TYPE CEILING 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.
  - 11.4. 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.
  - 11.5. WHERE ACCESS PANELS WILL BE USED, PROPER SHOP DRAWINGS ARE TO BE SUBMITTED FOR APPROVAL, PRIOR TO INSTALLATION.
- 12. PAINTING AND FINISHES
  - 12.1. 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.
  - 12.2. 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.
- 13. MOUNTING HEIGHTS
  - 13.1. INSTALL ELECTRICAL EQUIPMENT AT THE FOLLOWING HEIGHTS UNLESS OTHERWISE INDICATED (MEASUREMENTS ARE TO CENTER OF DEVICE BOX):
 

LIGHT SWITCHES, DIMMERS:	1200MM
GENERAL WALL RECEPTACLES:	300MM
RECEPTACLES ABOVE COUNTERS AND BACK SPLASH:	175MM
(REFER TO DETAILS ON ARCHITECTURAL)	
DOORBELL / PUSHBUTTON:	1300MM

- 13.2. CONFIRM ALL OTHER EQUIPMENT HEIGHTS IN WRITING.
- 13.3. ARCHITECTURAL DRAWINGS SUPERSEDE HEIGHTS AND LOCATIONS INDICATED ON ELECTRICAL DRAWINGS AND SPECIFICATIONS.
- 14. SHOP DRAWINGS
  - 14.1. THE ELECTRICAL CONTRACTOR MUST REVIEW AND STAMP ACCEPTABLE ALL SHOP DRAWINGS PRIOR TO SUBMITTING TO THE ENGINEER.
  - 14.2. ELECTRICAL CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL ONE (1) SET OF ELECTRONIC SHOP DRAWINGS IN PDF FORMAT INCLUDING BUT NOT LIMITED TO DISTRIBUTION, LUMINAIRES, EXIT SIGNS, MOTION SENSORS, BATTERY PACKS, FIRE ALARM EQUIPMENT AND COMMUNICATION EQUIPMENT AND CABLING.
  - 14.3. ENGINEER SHALL BE ALLOWED MINIMUM 7 BUSINESS DAYS TO RETURN REVIEWED SHOP DRAWINGS.
  - 14.4. SCANNED SHOP DRAWINGS MUST BE LEGIBLE. SHOP DRAWINGS WHICH ARE UNCLEAR WILL BE REJECTED AND RETURNED FOR RESUBMISSION.
  - 14.5. SHOP DRAWING SHALL BE SPECIFIC TO THIS PROJECT ONLY. GENERIC DRAWINGS WILL NOT BE ACCEPTED, INDICATING ARROWS SHALL HIGHLIGHT THE PRODUCT FOR APPROVAL. GENERIC DRAWINGS, DRAWINGS WITHOUT INDICATING ARROWS AND DRAWINGS WITHOUT CONTRACTOR REVIEWED STAMP WILL BE RETURNED REJECTED FOR RESUBMISSION.
  - 14.6. THE ENGINEER'S APPROVAL 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 APPROVAL 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.
  - 14.7. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS.
  - 14.8. ANY WORK PERFORMED PRIOR TO THE RETURN OF REVIEWED SHOP DRAWINGS IS DONE AT THE RISK OF THE CONTRACTOR.
- 15. RECORDS PLANS
  - 15.1. 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.
  - 15.2. 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.
  - 15.3. 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.
- 16. EQUIPMENT IDENTIFICATION
  - 16.1. CLEARLY IDENTIFY ALL ELECTRICAL EQUIPMENT USING PRINTED P-TOUCH LABELS OR LAMACODS. HAND-WRITTEN LABELS ARE UNACCEPTABLE.
  - 16.2. ALL ELECTRICAL DISTRIBUTION EQUIPMENT SHALL HAVE A LAMACOD NAMEPLATE FASTENED TO THE OUTSIDE FRONT OF THE EQUIPMENT.
  - 16.3. 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.
  - 16.4. PROVIDE TYPEWRITTEN CIRCUIT INDEXES FOR ALL PANELS.
  - 16.5. JUNCTION BOXES SHALL ALL BE LABELED INDICATING THE SYSTEM AND OR CIRCUITS CONTAINED WITHIN.
  - 16.6. 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."
  - 16.7. ALL COMMUNICATIONS AND OTHER SYSTEMS CABLES AND DEVICES ARE TO BE IDENTIFIED AS PER THE IAT/IA 606 STANDARDS. CONFIRM PROTOCOL WITH OWNER OR ENGINEER PRIOR TO COMMENCEMENT OF LABELS.
  - 16.8. ALL LUMINAIRES CONNECTED TO EMERGENCY CIRCUITS TO BE LABELED WITH P-TOUCH LABEL INDICATING PANEL AND CIRCUIT DESIGNATION, LABEL TO BE VISIBLE FROM BELOW AFTER INSTALLATION.
- 17. TESTS
  - 17.1. ALL PORTIONS OF THE ELECTRICAL WORK SHALL BE TESTED AND CHECKED FOR SATISFACTORY OPERATION.
  - 17.2. BEFORE EMERGING 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.
  - 17.3. SUBMIT ALL TEST RESULTS TO THE ENGINEER FOR APPROVAL.
  - 17.4. 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.
  - 17.5. 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.
- 18. GUARANTEE/WARRANTY
  - 18.1. 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.
  - 18.2. 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.
  - 18.3. 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.
  - 18.4. ELECTRICAL CONTRACTOR TO ISSUE LETTER STIPULATING WARRANTY PERIOD DATES FOR ALL EQUIPMENT.
- 19. BUILDING WIRING
  - 19.1. ALL WIRING SHALL BE COPPER NMD-90 UNLESS INDICATED OTHERWISE ON DRAWINGS.
  - 19.2. NO WIRE SMALLER THAN NO. 12 AWG GAUGE SHALL BE USED FOR BRANCH CIRCUIT WIRING.
  - 19.3. CONDUIT TO BE SIZED IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE.
  - 19.4. 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.
  - 19.5. VOLTAGE DROP FOR WIRING SHALL MEET REQUIREMENTS AS LAID OUT IN THE CANADIAN ELECTRICAL CODE. GENERALLY MAXIMUM BRANCH CIRCUIT CONDUCTOR DISTANCES (120VAC) TO MAINTAIN MAX. 3% VOLTAGE DROP ARE AS FOLLOWS:
    - 19.5.1. 15A-1P BREAKER - #12AWG WIRING - 80 FEET (24 METRES)
    - 19.5.2. 15A-1P BREAKER - #10AWG WIRING - 125 FEET (39 METRES)
    - 19.5.3. 20A-1P BREAKER - #12AWG WIRING - 60 FEET (18 METRES)
    - 19.5.4. 20A-1P BREAKER - #10AWG WIRING - 95 FEET (29 METRES)
- 20. N/A
- 20.1.1. N/A
- 21. WIRING DEVICES
  - 21.1. BOXES, EXCEPT WHERE OTHERWISE NOTED, SHALL BE PRESSED SHEET STEEL GALVANIZED TO CSA STANDARDS.
  - 21.2. 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.
  - 21.3. FLUSH MOUNTING VOICE/DATA WALL OUTLETS SHALL BE NO. 52151 SERIES (4-INCH SQUARE, 1.5 INCHES DEEP WITH APPROPRIATE PLASTER OR EXTENSION RING).
  - 21.4. USE A SINGLE COVER PLATE FOR RECEPTACLE OUTLET BOXED WHERE SHOWN GANGED.
  - 21.5. GANG BOXES AND WIRING DEVICES ARE GROUPED, ELECTRO-GALVANIZED STEEL MULTI GANG BOXED SHALL BE USED WHERE MORE THAN 2 DEVICES ARE GANGED TOGETHER.

- 21.6. SECTIONAL TYPE BOXES OR HANDY BOXES SHALL NOT BE USED.
- 21.7. RECEPTACLES SHALL BE WHITE DECORA.
- 21.8. SPECIAL RECEPTACLES WILL BE AS SHOWN ON THE DRAWINGS.
- 21.9. RECEPTACLES TO BE OF SPECIFICATION GRADE AND OF ONE MANUFACTURER. ACCEPTABLE MANUFACTURERS ARE LEVITON, THOMAS AND BETTS, COOPER WIRING DEVICES.
- 21.10. PLATES FOR ALL FLUSH MOUNTING DEVICES SHALL BE WHITE DECORA.
- 21.11. N/A.
- 22. SUPPORTING DEVICES
  - 22.1. INSTALL TO MAINTAIN HEADROOM, NEAT MECHANICAL APPEARANCE AND TO SUPPORT EQUIPMENT LOADS REQUIRED.
  - 22.2. WHERE INSERTS ARE REQUIRED IN CONCRETE, EXPANSION INSERTS, LEAD INSERTS OR PLASTIC INSERTS MAY BE USED IN DRILLED HOLES. WOOD OR FIBRE PLAGS NOT PERMITTED.
  - 22.3. ALL ELECTRICAL DISTRIBUTION WHICH IS MOUNTED ABOVE THE SUSPENDED CEILING, SHALL BE SUPPORTED DIRECTLY AND INDEPENDENTLY FROM THE CONCRETE SLAB.
  - 22.4. THE USE OF ANY PART OF THE CEILING SUSPENSION SYSTEM AS A SUPPORT OR FOUNDATION FOR THE SUSPENSION OF ELECTRICAL EQUIPMENT IS FORBIDDEN.
  - 22.5. SUPPORT HANGERS AND OTHER TRADES TO SUPPORT NON-ELECTRICAL SERVICES OR DEVICES SHALL NOT USE TRAYS INSTALLED BY THE ELECTRICAL CONTRACTOR.
  - 22.6. 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.
- 23. GROUNDING
  - 23.1. SUPPLY AND INSTALL COMPLETE GROUNDING SYSTEM AS INDICATED AND AS REQUIRED BY CANADIAN ELECTRICAL CODE AND ELECTRICAL INSPECTION DEPARTMENT.
  - 23.2. 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, WATER, GAS ARE SECURELY AND ADEQUATELY GROUNDED.
  - 23.3. N/A
  - 24. N/A
  - 24.1. N/A
  - 25. N/A
  - 25.1. N/A
  - 26. SEALING AND FIRE PROTECTION
    - 26.1. WHERE CABLES OR CONDUITS PASS THROUGH FIRE RATED ASSEMBLIES SUCH AS FLOORS, WALLS, CEILING, ETC., THE FIRE RATING OF THESE ASSEMBLIES SHALL BE MAINTAINED.
    - 26.2. USE APPROVED AND ULC LISTED FIRE STOP MATERIAL AND METHODS.
    - 26.3. SUBMIT ULC LISTED DETAILS AS REQUIRED TO THE AUTHORITY HAVING JURISDICTION.
    - 26.4. CARRY ALL COST ASSOCIATED WITH SUBMISSION OF DETAILS AND INSTALLATIONS OF SUCH PRODUCTS AND ASSEMBLIES.
  - 27. COMMUNICATION CABLE SYSTEM
    - 27.1. A COMPLETE AND FUNCTIONING TELECOMMUNICATIONS SYSTEM WILL BE PROVIDED UNDER THIS CONTRACT. THE SYSTEM WILL CONSIST OF
      - 27.1.1. ALL RACEWAYS, BACK BOXES AND COVER PLATES AND ASSOCIATED HARDWARE.
      - 27.1.2. HORIZONTAL CABLING FROM TELECOM CABINET TO DATA JACKS.
    - 27.2. SYSTEM DESCRIPTION
      - HORIZONTAL COPPER CABLING SYSTEM CONSISTS OF CATEGORY 5E 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 THAN 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.
  - 27.3. MANUFACTURER QUALIFICATIONS
    - MANUFACTURER SHALL BE A TELECOMMUNICATIONS PRODUCT MANUFACTURER WITH AT LEAST 20 YEARS EXPERIENCE.
  - 27.4. WARRANTY
    - CONTRACTOR SHALL PROVIDE A 1 YEAR PARTS AND LABOR WARRANTY AGAINST DEFECTIVE WORKMANSHIP AND/OR SYSTEM COMPONENT FAILURE.
    - CONTRACTOR SHALL EXECUTE A LIFETIME (WHICH IS DEFINED AS THE USABLE LIFE OF THE BUILDING AND IS REFERRED TO AS THE "WARRANTY PERIOD") APPLICATIONS ASSURANCE WARRANTY FOR PARTS AND LABOR TO SUPPORT STATED APPLICATIONS FROM THE CONNECTIVITY MANUFACTURER.
    - THIS WARRANTY COVERS THE COPPER AND FIBER OPTIC PERMANENT LINKS OF THE NETWORK AS DEFINED BY TIA-568-C WHICH INCLUDES THE CABLE AND CONNECTING HARDWARE. THIS WARRANTY WILL BE EXTENDED TO INCLUDE THE ENTIRE CHANNEL PROVIDED THAT THE APPLICABLE MANUFACTURE PATCH CORDS AND MANUFACTURE EQUIPMENT CORDS ARE UTILIZED, AND ALL PRODUCTS ARE INSTALLED WITHIN AREAS PROTECTED FROM OUTSIDE ELEMENTS.
  - 28. POWER DISTRIBUTION
    - 28.1. PROVIDE NEW EQUIPMENT AS INDICATED ON THE DRAWINGS.
    - 28.2. ALL EQUIPMENT TO BE CSA APPROVED.
    - 28.3. NEW BRANCH CIRCUIT BREAKERS AND WIRING TO BE INSTALLED UNDER THIS CONTRACT.
    - 28.4. PROVIDE TYPEWRITTEN DIRECTORY OF PANEL LOADS AND AFFIX TO PANELBOARD DOORS.
    - 28.5. 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.
    - 28.6. 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.
    - 28.7. WHERE PANELBOARDS ARE SHOWN TO BE DOUBLE-LUGGED, CONTRACTOR SHALL PROVIDE NEW DOUBLE LUG KITS IN EXISTING AND NEW PANELBOARDS.
    - 28.8. 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.
    - 28.9. PANELBOARDS SHALL BE 120/208V 1Ø 3W AND COMPOSED OF THE NUMBER OF CIRCUIT BREAKERS WITH POLES AND TRIP RATINGS AS LISTED IN THE SCHEDULES. PANELS SHALL BE TIN-PLATED ALUMINUM BUSHINGS.
    - 28.10. 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 POSITION (OPEN, TRIPPED, CLOSED).
    - 28.11. ALL ELECTRICAL EQUIPMENT SHALL BE GREY ANS1 49 PAINTED.
    - 28.12. INTERRUPTING CAPACITY/WITHSTAND RATINGS FOR DISTRIBUTION EQUIPMENT SHALL MEET OR EXCEED LEVELS INDICATED ON SINGLE LINE DRAWINGS.

- 29. LUMINAIRES
    - 29.1. SUPPLY AND INSTALLATION OF ALL LUMINAIRES SHALL FORM PART OF THIS CONTRACT.
    - 29.2. SUPPLY AND INSTALLATION OF LIGHTING CONTROLS WILL BE THE RESPONSIBILITY OF THIS CONTRACTOR.
    - 29.3. LUMINAIRES SHALL BE ADDED, RELOCATED OR REMOVED AS INDICATED.
    - 29.4. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND REPLACING ALL DAMAGED LENSES, FAULTY BALLASTS AND PROVIDE TOUCH-UP PAINT WHERE REQUIRED.
    - 29.5. REPLACE BURNT-OUT LAMPS FOR FLUORESCENT, INCANDESCENT, AND LOW VOLTAGE LUMINAIRES WHERE REQUIRED.
    - 29.6. ALL FLUORESCENT LUMINAIRES TO BE SUPPLIED COMPLETE WITH LAMPS AND ELECTRONIC BALLAST <10% THD, RAPID START OR PROGRAMMED START.
    - 29.7. UNLESS OTHERWISE NOTED, ALL FLUORESCENT LAMPS SHALL BE STANDARD 3500K, T8 LOW MERCURY, CRI 85.
    - 29.8. INCANDESCENT LAMPS TO BE 5,000 HOURS, 130 VOLT EXTENDED SERVICE TYPE.
    - 29.9. SPECIAL LAMPS TO BE USED WHERE INDICATED WITH THE LONGEST LIFE AVAILABLE IN EACH CATEGORY.
    - 29.10. ACCEPTABLE LAMP MANUFACTURERS: SYLVANIA, GE, PHILLIPS.
    - 29.11. ACCEPTABLE BALLAST MANUFACTURERS: GE, PHILLIPS, LUTRON.
    - 29.12. LUMINAIRE SCHEDULE - REFER TO DRAWINGS.
  - 30. MECHANICAL EQUIPMENT WIRING
    - 30.1. ELECTRICAL CONTRACTOR TO PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECT, ETC., REQUIRED FOR MECHANICAL EQUIPMENT.
    - 30.2. 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.
    - 30.3. ELECTRICAL CONTRACTOR SHALL CONFIRM WITH THE MECHANICAL TRADE, THE SIZE, CHARACTERISTICS, AND LOCATIONS OF ALL MECHANICAL EQUIPMENT BEFORE INSTALLATION OF CONDUITS, OUTLETS, HEATERS ETC.
  - 31. ENGINEER'S INSPECTIONS
    - 31.1. AT MINIMUM, AN INSPECTION WILL BE CARRIED OUT BY THE ENGINEER AT ROUGH-IN STAGE AND AT COMPLETION.
    - 31.2. THE ELECTRICAL CONTRACTOR SHALL ADVISE THE ENGINEER WHEN ALL WORK HAS BEEN COMPLETED ABOVE THE SUSPENDED CEILING.
- FAILURE TO NOTIFY THE ENGINEER IN TIME WILL NECESSITATE THE REMOVAL OF ALL CEILING TILES FOR INSPECTION PURPOSES.
- THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE ENGINEER AND SHALL ALLOW AT LEAST 3 WORKING DAYS NOTICE OF THE INSTALLATION OF CEILING TILES.

DATE	ISSUED FOR	REV
2014-11-12	90% REVIEW	A
2014-11-25	TENDER	B

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Project Component  
Phase # - Description

Keyplan

North Arrow

Detail Symbol

Symbol not to scale

Consultants	
Civil:	Civil Firm Name
Landscape:	Landscaping Firm Name
Architectural:	Architectural Firm Name
Structural:	Structural Firm Name
Mechanical:	Mechanical Firm Name
Electrical:	Electrical Firm Name

Seal(s)

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A Partnership of Limited Companies

Paul J. Basmajian, License No. 9888, dated Nov 23, 2014. The seal includes the text 'PROFESSIONAL ENGINEER', 'ELECTRICAL', 'PP-11944', and 'Nov 23, 2014'.

Project Manager	Drawn C.F.
Project Leader	Checked D.H.

Client  
**RCMP INNISFAIL**

Project  
**INNISFAIL DOG TRAINING CENTRE WHELPING PODS INNISFAIL AB.**

Drawing Title  
**ELECTRICAL SPECIFICATIONS**

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

Project No. **NCCA-14-0074**  
Drawing No. **E00-01**