16.1 GENERAL REQUIREMENTS

THE GENERAL REQUIREMENTS, INSTRUCTIONS TO BIDDERS, THIS SPECIFICATION AND ANY ADDENDA HERE TO FORM PART OF THE CONTRACT DOCUMENTS & SHALL BE READ IN CONJUNCTION WITH THEM. WORK SHALL INCLUDE THE FURNISHING OF ALL LABOUR &MATERIALS UNLESS SPECIFICALLY NOTED OTHERWISE TO COMPLETE & PUT INTO OPERATING CONDITION ALL ELECTRICAL SYSTEMS AS

NDICATED ON THE DRAWINGS & SPECIFIED HEREIN. RESPONSIBILITY AS TO WHICH TRADE PROVIDES REQUIRED ARTICLES OR MATERIALS RESTS SOLELY WITH THE GENERAL CONTRACTOR. EXTRAS WILL NOT BE CONSIDERED BASED ON GROUNDS OF DIFFFRENCE IN INTERPRETATION OF SPECIFICATIONS AS TO WHICH TRADE INVOLVED SHALL PROVIDE CERTAIN SPECIALTIES OR MATERIALS.

) IT IS THE INTENT OF THESE CONTRACT DOCUMENTS TO PROVIDE FOR A COMPLETE FUNCTIONAL AND OPERATIONAL ELECTRICAL INSTALLATION. ANY WORK AND/OR DETAIL EVEN IF NOT SHOWN OR SPECIFIED. WHICH IS OBVIOUSLY NECESSARY OR REASONABLY IMPLIED TO COMPLETE THE WORK AND/OR TO MEET THE CODE REQUIREMENTS SHALL BE DONE IF BOTH SHOWN & SPECIFIED.

BIDDERS FINDING DISCREPANCIES IN, OR OMISSIONS FROM DRAWINGS SPECIFICATIONS OR OTHER DOCUMENTS, OR HAVING ANY DOUBTS A TO THE MEANING OR INTENT OF ANY PART THEREOF. SHOULD AT ONCE NOTIFY THE CONSULTANT WHO WILL SEND WRITTEN INSTRUCTIONS OR EXPLANATIONS TO ALL BIDDERS PRIOR TO TENDER CLOSING. NO ALLOWANCE WILL SUBSEQUENTLY BE MADE FOR FAILURE TO NOTIFY CONSULTANT.

THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE (AS AMENDED FOR USE IN B.C.) AND THE B.C. BUILDING CODE. THE CONTRACTOR SHALL VISIT THE BUILDING SITE & THE BUILDING, AND SHALL MAKE ALL INVESTIGATIONS NECESSARY AS TO THE CONDITION UNDER WHICH THE WORK MUST BE CARRIED OUT. NO ALLOWANCE WILL BE MADE FOR FAILURE TO MAKE SUCH EXAMINATIONS. FIELD MEASUREMENTS MUST BE TAKEN BY

THE DRAWINGS INDICATE THE GENERAL LOCATION AND ROUTING OF OUTLETS, CONDUIT AND WIRING. COORDINATE ALL WORK WITH OTHER TRADES TO AVOID CONFLICT REFER TO ARCHITECTURAL STRUCTURA & MECHANICAL DRAWINGS. IT SHALL BE UNDERSTOOD, THAT THE SMALL SCALE DRAWINGS ARE NECESSARILY DIAGRAMMATIC & THAT THE LOCATIONS SHOWN ARE SUBJECT TO SLIGHT REVISIONS AS THE WORK IS INSTALLED IN ORDER TO ACCOMMODATE CONSTRUCTION

DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ARE INTENDED TO INDICATE THE SCOPE AND GENERAL ARRANGEMENT OF WORK. DO NOT SCALE THE DRAWINGS.) ALL MATERIALS SUPPLIED SHALL BE NEW AND OF THE QUALITY INDICATED IN THE SPECIFICATION. UNLESS OTHERWISE CALLED FOR IN THE SPECIFICATION. UNIFORMITY OF MANUFACTURE SHALL BE MAINTAINED FOR ANY PARTICULAR ITEM THROUGHOUT THE BUILDING.

ALL ELECTRICAL EQUIPMENT MUST BE CERTIFIED BY AGENCY ACCREDITED BY THE STANDARDS COUNCIL OF CANADA OR APPROVED BY THE BRITISH COLUMBIA SAFETY AUTHORITY. REQUIREMENTS FOR APPROVAL OF ALTERNATE MATERIALS RECEIVED

WITHIN 5 WORKING DAYS OF TENDER CLOSE WILL NOT BE

CONSIDERED, ALTERNATE MATERIAL SUBMISSIONS, POST TENDER WILL NOT BE ACCEPTED. THE CONTRACTOR SHALL NOT REDUCE THE STANDARDS OF ACCEPTANCE DETAILED IN THE DRAWINGS TO THE MINIMUM LEVELS OF ANY OF THE CODES REFERENCED. 16.2 ELECTRICAL SERVICES

THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE MAIN SERVICE ENTRIES WITH B.C. HYDRO, TELUS AND SHAW CABLE.) ALL TRENCHING, CONCRETE AND BACKFILL WORK SHALL BE DONE BY THE GENERAL CONTRACTOR.

) ALL UTILITY CHARGES SHALL BE PAID BY THE OWNER.) CONTACT AND COORDINATE ALL SERVICE EQUIPMENT WITH B.C. HYDRO AND PROVINCIAL INSPECTION. PAY FOR ALL PERMITS, FEES AND CERTIFICATES FOR THE ELECTRICAL INSTALLATION WITH THE EXCEPTION OF THE B.C. HYDRO AND TELUS CONNECTION CHARGES.

16.3 BONDING & GROUNDING ALL GROUNDING IS TO CONFORM TO THE CURRENT C.E.C. INCLUDING

SECTION 10. THE MAIN GROUNDING SYSTEM SHALL CONSIST OF A GROUND TEST BLOCK, GROUND RODS & COPPER CONNECTED POINTS AS DETAILED ON THE DRAWINGS. ALL BONDING CONDUCTORS TO BE COPPER AND SIZED WITH TABLES 16A CURRENT C.E.C.) BOND THE TELEPHONE EQUIPMENT TO THE GROUNDING SYSTEM USING) SUPPLY AND INSTALL WIRE IDENTIFICATION TAGS ON ALL GROUNDING

CONDUCTORS AT THE TEST BLOCK. 3) RUN A SEPARATE INSULATED GROUND WIRE IN ALL P.V.C. CONDUITS. 16.4 DISTRIBUTION EQUIPMENT

) THE MAIN DISTRIBUTION CENTRE (MDC) AND MAIN BREAKER ARE TO BE SERVICE ENTRANCE RATED. THE MDC IS TO BE FREESTANDING BOARD c/w INCOMING CABLE SECTION. MAIN BREAKER SECTION, UTILITY SECTION AND DISTRIBUTION SECTIONS AS DETAILED ON THE DRAWINGS.

) CO-ORDINATE THE UTILITY SECTION AND ASSOCIATED C/T'S, P/T'S AND METERING CABINET WITH B.C. HYDRO. SECONDARY DISTRIBUTION CENTRES (SDC) ARE TO BE MANUFACTURED SIMILAR TO THE MDC, HOWEVER, THEY ARE NOT REQUIRED TO BE SERVICE ENTRANCE RATED. DOWNSTREAM FAULT LEVELS MUST BE CALCULATED BY MANUFACTURER USING SERIES BREAKER OR SERIES FUSE/BREAKER TECHNOLOGY. ALL REDUCTIONS MUST BE FROM PROVEN TESTING, THE MANUFACTURER MUST ENSURE THAT HIS FAULT AND BUS LEVELS ARE BASED ON ACCEPTABLE C.E.C. TESTS. ALL SIZING MUST CONFORM WITH C.E.C.

PROVIDE ALL BUS BARS, JOINTS AND CONNECTIONS OF SILVER TINNED COPPER AND RATED FOR CURRENT CARRYING CAPACITY & SHORT CIRCUIT BRACING. TO SUIT MAXIMUM AVAILABLE FAULT CURRENT. THE USE OF ALUMINUM BUS BARS MAY ONLY BE USED WITH DIRECT WRITTEN PERMISSION FROM THE ELECTRICAL

RULE 14-104.

PROVIDE ALL NECESSARY GROUNDING & GROUND LUGS AT THE DISTRIBUTION EQUIPMENT.) PROVIDE SPRINKLER DRIP SHIELDS ON ALL DISTRIBUTION EQUIPMENT, INCLUDING TRANSFORMERS AND PANEL BOARDS.

16.5 DRY TYPE TRANSFORMERS PROVIDE DRY TYPE TRANSFORMER TYPE ANN, AIR COOLED, CLASS H INSULATION, 150 DEG. C RISE, 3 PHASE, 60 HZ, 600 VOLTS DELTA PRIMARY. 120/208 VOLTS. 3 PHASE. 4 WIRE STAR SECONDARY WITH FOUR 2-1/2 % TAPS BROUGHT TO A TERMINAL BOARD; TWO TAPS FCAN, TWO TAPS FCBN.

TRANSFORMERS SHALL COMPLY WITH THE PROVISIONS OF THE ENERGY POLICY ACT OF 2005 WHERE APPLICABLE, AS SHOWN IN TABLE 8.4.4 OF ASHRAE STANDARD 90.1 (2016). EXCLUSIONS BASED ON NEMA TP-1 DEFINITION. TRANSFORMERS TO MEET THE NRCAN 2018 AND CSA C802.2-18 EFFICIENCY STANDARDS

) SUBMIT FOR APPROVAL MANUFACTURER'S CERTIFIED TEST RESULTS STATING THE SOUND LEVEL TEST ALL TRANSFORMERS TO APPLICABLE CSA STANDARDS AND TO INCLUDE ROTATION, POLARITY, IMPEDANCE, LOAD LOSS, NO LOAD LOSS, EXCITING CURRENT, INDUCED POTENTIAL AND APPLIED

MOUNT FLOOR MOUNTED TRANSFORMERS ON NEOPRENE VIBRATION ISOLATORS PROVIDE FLEXIBLE CONDUIT CONNECTIONS ON BOTH PRIMARY AND SECONDARY SIDES OF ALL TRANSFORMERS.) MOUNT TRANSFORMERS A MINIMUM OF 12" FROM COMBUSTIBLE SURFACES, OR 6" FROM NON-COMBUSTIBLE, AS PER C.E.C.

THE FOLLOWING INFORMATION BUT NOT BE LIMITED TO, SHALL BE

SUBMITTED BEFORE MANUFACTURING — NOISE LEVEL, NO LOAD LOSS, FULL LOAD LOSS, EFFICIENCY AT 25%, 50%, 75%, AND 100% LOAD REGULATION AT 80% AND 100% POWER FACTOR, OVERLOAD CAPACITY.

16.6 SDM COORDINATION

COORDINATE LOCATION OF ALL RECEPTACLES AND OUTLETS WITH LATEST 10 FEET OF COILED WIRE TO FACILITATE POSSIBLE RELOCATION. MERCHANDISING PLANS ISSUED BY S.D.M. PRIOR TO ROUGH-IN. NO EXTRAS WILL BE APPROVED FOR RELOCATION OF OUTLETS RESULTING FROM LACK OF COORDINATION DURING CONSTRUCTION. OBTAIN APPROVAL FROM S.D.M. FOR FINAL LOCATION OF POWER. TELEPHONE AND RECEPTACLES OUTLETS TERMINATION AND TYPE OF CONNECTION PRIOR ROUGH-IN. CONTRACTOR TO COORDINATE INSTALLATION OF OUTLIETS WITH SHOPPERS DRUG MART IN THE DISPENSARY FIXTURES. DO NOT INSTALL OUTLETS BEFORE SHOPPERS DRUG MART FIXTURE INSTALLATION IS COMPLETE ELECTRICAL CONTRACTOR TO VERIFY ALL OUTLETS AND OTHER DEVICES AND EQUIPMENT LOCATION PRIOR TO INSTALLATION WITH SHOPPERS DRUG MART.

COORDINATE WITH S.D.M. STORE PLANNING MANAGER FOR FINAL LOCATION OF UNDER FLOOR CONDUITS PRIOR TO INSTALLATION. ALL FINAL DIMENSIONS FOR ELECTRICAL TO BE ESTABLISHED PRIOR TO CONSTRUCTION. RECEPTACLES FOR DISPLAY SIGNS (I.E. LOTTO SPOT SELECT, ETC.) MOUNTED IN BULKHEAD AND AT LOCATIONS TO SUIT S.D.M. COORDINATOR, OBTAIN IS FNFRGI7FD. INSTRUCTIONS FROM S.D.M. COORDINATOR PRIOR TO ROUGH-IN. ALL COVER

PLATED SHALL BE STAINLESS STEEL AND TO BE INSTALLED AFTER FINAL ALL LIGHT FIXTURES TO BE INDEPENDENTLY SUSPENDED REGARDLESS IF LAY-IN, SURFACE MOUNTED OR CHAIN HUNG. COORDINATE FINAL LIGHTING LAYOUTS WITH SHOPPERS DRUG MART ARCHITECTURAL REFLECTED CEILING PLANS PRIOR TO ROUGH—IN AND INSTALLATION.

REFER TO ROOM FINISH SCHEDULE ON ARCHITECTURAL DRAWINGS FOR FINAL CEILING HEIGHTS AND FINISHES. CONTRACTOR TO COORDINATE THE INSTALLATION OF THE DISPLAY FIXTURE REFRIGERATION (DFR) SUPPLIED LOW VOLTAGE RELAY PANEL/CONTROLS WITH DFR. CONTRACTOR TO VERIFY ALL DFR DEVICES AND EQUIPMENT LOCATION PRIOR TO INSTALLATION WITH SDM. .) CONTRACTOR TO COORDINATE THE INSTALLATION OF ICON MEDIA SUPPLIED DEVICES AND EQUIPMENT WITH ICON MEDIA CONTRACTOR. TO VERIFY ALL

LOCATION AND POWER REQUIREMENTS WITH SDM AND ICON MEDIA PRIOR TO

INSTALLATION. CONTRACTOR TO OBTAIN ICON MEDIA DRAWING FROM SDM

16.7 PANELBOARDS

BOLT HEADS.

9) PROVIDE TYPEWRITTEN PANEL DIRECTORIES.

1) SUPPLY AND INSTALL ALL PANELBOARDS, FLUSH OR SURFACE MOUNTED AS INDICATED. PANELS SHALL HAVE DOORS WITH CONCEALED HINGES AND COMBINED LOCK AND LATCH, OPERATED BY ONE MASTER KEY, UNLESS OTHERWISE INDICATED. SUPPLY 2 SUCH 2) PANELBOARDS LOCATED WITHIN PUBLIC AREAS ARE TO BE RECESSED C/W PRIMED FINISH TO ACCEPT PAINT.

3) PANELBOARDS LOCATED WITHIN SERVICE AREAS ARE PERMITTED TO BE SURFACE MOUNTED C/W GRAY SHOEBOX COVER. 4) BREAKERS SHALL BE BOLT-ON SINGLE POLE OR MULTIPLE POLE OF THE COMMON TRIP TYPE. MULTI-POLE BREAKERS SHALL HAVE SINGLE HANDLE AND COMMON TRIP. HANDLE TIES, WITH OR WITHOUT COMMON TRIPPING, ARE NOT PERMITTED. STABLOCK BREAKERS (PUSH-IN TYPE) ARE ACCEPTABLE FOR RESIDENTIAL OCCUPANCIES ONLY.

5) BREAKERS SHALL BE CLEARLY MARKED WITH THEIR RESPECTIVE TRIP 6) PANELS SHALL BE ARRANGED FOR THE VOLTAGE INDICATED. 7) PROVIDE ALL REQUIRED LUGS. 8) RECESSED PANEL TRIM SHALL NOT HAVE ANY EXPOSED SCREWS OR

10) PROVIDE LOCK-ON BREAKER DEVICES FOR BRANCH CIRCUITS FEEDING

EXIT AND EMERGENCY LIGHTING, FIRE ALARM, SECURITY PANELS, AND FIRE ALARM DIALER. PAINT FIRE ALARM BREAKER RED AS PER 11) A MOULDED CASE CIRCUIT BREAKER IS PERMITTED TO BE INSTALLED IN A CIRCUIT HAVING AN AVAILABLE FAULT CURRENT HIGHER THAN ITS RATING PROVIDED THAT: A) THE CIRCUIT BREAKER IS A RECOGNIZED COMPONENT OF AN APPROVED SERIES RATED B) IT IS INSTALLED ON THE LOAD SIDE OF AN OVERCURRENT DEVICE THAT HAS AN INTERRUPTING RATING AT LEAST EQUAL TO THE AVAILABLE FAULT CURRENT.

THE OVERCURRENT DEVICE ON THE LINE SIDE OF LÓWER RATED CIRCUIT BREAKER IS AS SPECIFIED ON LOWER RATED CIRCUIT THE EQUIPMENT IN WHICH THE BREAKER IS INSTALLED.) THE EQUIPMENT IN WHICH THE LOWER RATED CIRCUIT BREAKER IS INSTALLED IS MARKED WITH A SERIES COMBINATION INTERRUPTING RATING AT LEAST EQUAL TO THE AVAILABLE

E) THE OVERCURRENT DEVICES INSTALLED IN A SERIES RATED COMBINATION ARE MARKED AT THE TIME OF INSTALLATION IN A CONSPICUOUS AND LEGIBLE MANNER TO INDICATE THAT THEY MUST BE REPLACED ONLY WITH COMPONENTS OF THE SAME TYPE AND RATING. 12) ALL PANELBOARDS TO BE CAPABLE OF ACCEPTING A MINIMUM OF TWO BREAKERS WITH AMPERAGES EQUAL TO 50% OF THE BUS RATING WITHOUT MODIFICATIONS

16.8 LIGHTING I. <u>LIGHT FIXTURES</u> 1) SUPPLY AND INSTALL A COMPLETE LIGHTING SYSTEM INCLUDING LIGHT FIXTURES, LAMPS, BALLAST, CONTROLS, JUNCTION BOXES, TRIMS, SUPPORTS AND ACCESSORIES. 2) ALL LIGHT FIXTURES MUST BE APPROVED AS PER 16.1.10 AND BEAR

3) INSTALL LIGHTING AS INDICATED ON THE ELECTRICAL DRAWINGS. COORDINATE WITH THE ARCHITECTURAL DRAWINGS WHERE APPLICABLE

EVIDENCE OF THE SAME

4) CONTRACTOR TO ALLOW FOR RECEIVING FIXTURES ON SITE, UNCRATING, STORAGE AND CLEAN UP 5) CONTRACTOR TO COORDINATE THE REPLACEMENT OF ANY DAMAGED FIXTURES, LAMPS OR BALLASTS WITH THE SUPPLIER.

6) MOUNT FIXTURES AS INDICATED ON THE DRAWINGS, LEVEL, PLUMB AND TRUE TO THE STRUCTURE OR OTHER BUILDING ELEMENTS 7) ALL SURFACE MOUNTED FIXTURES MUST BE SCREWED INTO AN APPROVED TYPE OF BACKING MATERIAL. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO ADVISE THE GENERAL CONTRACTOR WHERE THE BACKING IS REQUIRED

 EACH RECESSED LIGHT FIXTURE TO BE PROVIDE WITH A POTENTIAL TO RELOCATE A MINIMUM OF 10 FEET IN RADIUS. PROVIDE COILED ARMOURED CABLE FOR BRANCH WIRING

9) ALL RECESSED LIGHT FIXTURES SHALL HAVE HINGED LENSES INTEGRAL SEISMIC RESTRAINT LOOPS AND SHALL BE APPROPRIATELY SEISMICALLY RESTRAINED. 10) ALL LIGHTING INSTALLED IN NON-HAZARD AREA WITH VOLTAGES EXCEEDING 150 VOLTS TO GROUND SHALL BE PROVIDED WITH A DISCONNECTING MEANS INTEGRAL WITH THE FIXTURE. MARKING SHALI BE PROVIDED ADJACENT TO THE DISCONNECTING MEAN TO IDENTIFY

11) ALL FIXTURES SHALL BE WIPED DOWN OR CLEANED WITH AN APPROVED SOLUTION PRIOR TO SUBSTANTIAL PERFORMANCE

THE SPECIFIC PURPOSE

12) PROVIDE EXTENSION RINGS AND SUITABLE JUNCTION BOX SUPPORTS WHERE REQUIRED AND AS RECOMMENDED BY THE MANUFACTURER

II. LED LAMPS AND 0 TO 10 VOLT DIMMER DRIVERS 1) LED DRIVERS AND LED 0 TO 10 VOLT DIMMING DEVICES SHALL INCLUDE THE FOLLOWING FEATURES UNLESS OTHERWISE INDICATED: 2) MINIMUM EFFICIENCY: 85% FULL LOAD. 3) MINIMUM OPERATING AMBIENT TEMPERATURE: -20 DEGREES CELSIUS. 4) INPUT VOLTAGE: 120-277V or 347v (PLUS OR MINUS 10%) AT 5) INTEGRAL SHORT CIRCUIT, OPEN CIRCUIT AND OVERLOAD PROTECTION.

6) POWER FACTOR: GREATER THAN 0.96 7) TOTAL HARMAONIC DISTORTION: LESS THAN 20%. 8) LED MODULES SHALL INCLUDE THE FOLLOWING FEATURES UNLESS OTHERWISE INDICATED: 9) COMPLY WITH IES LM-79 AND LM-80 REQUIREMENTS. 10) MINIMUM CRI 80 AND COLOR TEMPERATURE 3500K UNLESS OTHERWISE SPECIFIED IN THE LIGHT FIXTURE SCHEDULE ON THE DRAWINGS.

12) MINIMUM RATED LIFE: 50,000 HOURS AS PER IES L70. 13) LIGHT OUTPUT LUMENS AS INDICATED IN THE LIGHT FIXTURE SCHEDULE ON THE DRAWINGS. 14) ALL LED DRIVERS AND 0 TO 10 VOLT DIMMING DRIVERS TO BE FACTORY INSTALLED AND TESTED.

16.9 EMERGENCY LIGHTING 1) PROVIDE EMERGENCY AND EXIT LIGHTING EGRESS SYSTEM AS REQUIRED BY THE B.C. BUILDING CODE. 2) ALL EMERGENCY HEADS TO BE MULTI VOLT 5WPAR18 LED UNLESS OTHERWISE NOTED. 3) REFER TO THE EMERGENCY BATTERY UNIT SCHEDULE FOR UNIT SIZES AND WIRING REQUIREMENTS 4) EMERGENCY PACKS TO BE RELAY CONTROLLED BY THE LIGHT CIRCUITS IN AREAS SERVED BY EMERGENCY PACK AND REMOTE THE EMERGENCY LIGHTING IS REQUIRED TO BE DESIGNED TO OPERATE

AUTOMATICALLY UPON FAILURE OF THE REGULAR POWER SUPPLY FOR

A PERIOD OF AT LEAST 30 MINUTES. B.C.B.C. [3.2.7.4] 6) PROVIDE 24-HOUR LONG (10 YEAR) LIFE BATTERY BACK-UP. 7) SELF CONTAINED EMERGENCY LIGHT UNITS ARE REQUIRED TO

CONFORM TO C22.2 #141 AND B.C.B.C. [3.2.7.4(2)]

16.10 EXIT LIGHTING 1) PROVIDE PICTOGRAM EXIT SIGNS AS SPECIFIED IN THE FIXTURE 2) CONSTRUCTION OF THE EXIT SIGN AND FACE PLATE SHALL BE IN ACCORDANCE WITH CAN/CSA-C860 STANDARDS.

3) THE EXIT SIGN IS TO BE SUITABLE FOR UNIVERSAL MOUNTING. 4) THE LIGHT SOURCE FOR BOTH A/C AND D/C OPERATION IS TO BE L.E.D. (LIGHTING EMITTING DIODES) 5) THE EXIT SIGN SHALL BE FURNISHED WITH MINIMUM 10 YEAR 6) PLACEMENT OF THE EXIT SIGNS ARE TO THE ACCEPTANCE OF THE CONSULTANT. BUILDING INSPECTOR AND THE FIRE MARSHALL. PROVIDE

16.11 TEMPORARY POWER AND LIGHTING I) THE CONTRACTOR IS TO SUPPLY TEMPORARILY POWER AND LIGHTING TO THE JOB SITE DURING THE COURSE OF CONSTRUCTION. CONTRACTOR TO APPLY FOR AND OBTAIN A TEMPORARY CONNECTION OPERATING PERMIT FOR TEMPORARY POWER CONSTRUCTION PURPOSES. THE TEMPORARY SERVICE MUST BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CEC SECTION 76 AND:

 BE PROTECTED FROM THE WEATHER AND MECHANICAL DAMAGE Y LOCATION OR BY INSTALLING THE EQUIPMENT WITHIN AN ENCLOSURE WHICH HAS BEEN MADE WEATHER PROOF. THE EQUIPMENT MUST BE CAPABLE OF BEING LOCKED. ALL PANEL COVERS MUST BE INSTALLED WHILE THE EQUIPMENT 15 AND 20 AMP RECEPTACLES SUPPLYING TEMPORARY POWER FOR CONSTRUCTION PURPOSES MUST BE GFCI PROTECTED RULE

76-016. 2) PROVIDE A PERMIT FOR THIS WORK WHERE APPLICABLE. CONTRACTOR TO SUPPLY A REMOTE POWER CART CAPABLE OF PROVIDING A MINIMUM OF TWO DEDICATED DOUBLE DUPLEX RECEPTACLES, FOUR CIRCUITS TO THE SALES AREA FIT UP SPACE.

4) CONTRACTOR IS TO SUPPLY AND CONNECT A MINIMUM OF 5 LED FULLY ENCLOSED CS4 APPROVED TEMPORARY WORK LIGHTS TO ILLUMINATE THE SALES AREA FIT UP SPACE. 5) THE CONTRACTOR IS TO WORK IN CONJUNCTION WITH THE BC SAFETY AUTHORITY AND THE APPOINTED SDM SAFETY OFFICER.

16.12 MECHANICAL EQUIPMENT

1) ALL 120 VOLT OR GREATER WORK TO BE DONE BY DIVISION 16. ALL LOW VOLTAGE CONTROL WIRING & SEQUENCING IS DIVISION 15, TO MECHANICAL DRAWINGS. 2) ALL LOW VOLTAGE WIRING AND CONTROLS SUPPLIED AND INSTALLED BY MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR MUST TAKE OUT AN ELECTRICAL PERMIT AND INSTALLATION MUST BE BY TRADE QUALIFIED PERSONNEI 3) CONNECT ALL MECHANICAL EQUIPMENT SUPPLIED BY THE MECHANICAL CONTRACTOR UNDER THIS CONTRACT. 4) ALL MOTORS OVER 1/4 HP REQUIRE MOTOR OVERLOAD PROTECTION. ALL MOTORS 1/2 HP AND LARGER TO BE THREE PHASE UNLESS NOTED IN THE MECH SCHEDULE S) CONNECTIONS TO MOTORS (AND ALL EQUIPMENT SUBJECT TO

STRANDED CONDUCTORS AND GROUND BONDING AS REQUIRED BY 6) ALL BASEBOARD AND FORCE FLOW HEATERS TO BE SUPPLIED INSTALLED & CONNECTED BY DIV 16. STANDARD OF ACCEPTANCE: 7) ALL HEATERS IN OCCUPIED SPACES SHALL BE CONTROLLED BY WALL-MOUNTED THERMOSTATS. THERMOSTATS SHALL BE ELECTRONIC 7-DAY PROGRAMMABLE TYPE. STANDARD OF ACCEPTANCE: STELPRO ELECTRICAL CONTRACTOR TO PROVIDE WIRING AND INSTALLATION OF ALL LINE VOLTAGE THERMOSTATS.

VIBRATION) SHALL BE "SEAL-TIGHT" FLEXIBLE CONDUIT WITH

BUILT-IN THERMOSTATS ARE ACCEPTABLE IN SERVICE ROOMS, STAIRWELLS AND OTHER NON-OCCUPIED SPACES. TEMPERATURE CONTROL SHALL BE LOCATED 1M FROM THE TUB OR SHOWER STALL, HOWEVER WHERE NOT POSSIBLE, THE CONTROL MAY BE LOCATED NOT LESS THAN 500 MM FROM THE BATH OR SHOWER STALL PROVIDED IT IS GFCI PROTECTED.

16.13 WIRING METHODS 1) ALL FEEDER WIRING TO BE COPPER AND SIZED AS PER CEC RULES AND TABLES. ENSURE FEEDER SIZING CONFORMS TO TEMPERATURE RATINGS OF CONENCTED EQUIPMENT) ALUMINUM MAY BE USED FOR MAIN-FEEDERS AND SUB-FEEDERS ONLY. IT MAY NOT BE USED FOR EQUIPMENT, MOTOR FEEDERS OR BRANCH CIRCUITS. ALL ALUMINUM FEEDS MUST BE TERMINATED BY EITHER A "HI-PRESS" COMPRESSION LUG OR AN ALCAN COMPRESSION NIPPLE. PENATROX MUST STILL BE USED AS PER MANUFACTURERS SPECIFICATIONS. THE USE OF ALUMINUM FEEDERS MAY ONLY BE USED WITH DIRECT WRITTEN PERMISSION FROM THE ELECTRICAL CONSULTANT. IF ALUMINUM IS USED FOR THE MAIN-FEEDERS AND SUB-FEEDERS. THE FEEDER AND CONDUIT SHALI BE RE-SIZED AS PER THE C.E.C. REVISED FEEDER SIZES TO BE SUBMITTED TO THE CONSULTANT FOR REVIEW PRIOR TO INSTALLATION.

3) PARTITION WALLS - AC90 OR EMT FOR LINE AND LOW VOLTAGE SYSTEMS. FOR ALL SURFACE CONDUITS USE RIGID GALVANIZED CONDUIT WHERE SUBJECT TO DAMAGE AND EMT IN ALL OTHER T-BAR CEILINGS - EMT TO OUTLET BOXES WITH FLEXIBLE ARMOURED CABLE AC90 DROPS TO LUMINAIRES AND WALL CIRCUITRY. ARMOURED CABLE RUNS FROM THE DEVICE(S) TO THE JUNCTION BOX IS NOT TO EXCEED 20' IN LENGTH WITHOUT PRIOR APPROVAL FROM THE

5) ALL UNDERGROUND WIRING SHALL BE IN PVC CONDUIT, COMPLETE WITH INSULATED BONDING CONDUCTOR SIZED TO SUIT. CONNECTIONS TO MOTORS (AND ALL EQUIPMENT SUBJECT TO VIBRATION) SHALL BE "SEAL-TIGHT" FLEXIBLE CONDUIT WITH STRANDED CONDUCTORS AND GROUND BONDING AS REQUIRED BY

) ALL CABLES AND WIRING IN PLENUMS OF NON-COMBUSTIBLE BUILDINGS ARE TO BE FT-6 RATED OR FT-4 AND INSTALLED IN NON-COMBUSTIBLE RACEWAYS AS PER THE BUILDING CODE AND ELECTRICAL CODE. FT-4 RATED CABLES AND WIRING ARE ACCEPTABLE IN COMBUSTIBLE CONSTRUCTION. 8) THE ELECTRICAL CONTRACTOR MUST COORDINATE HIS ELECTRICAL

16.14 CONDUITS 1) ALL CONDUITS SHALL BE CONCEALED WHERE POSSIBLE 2) CONDUITS SHALL BE MECHANICALLY CONTINUOUS FROM OUTLET TO OUTLET. ALL THE NECESSARY STANDARD BUSHINGS, ELBOWS AND BENDS AND STEEL FITTINGS (NOT DIE-CAST) SHALL BE PROVIDED. ALL CONDUIT BENDS SHALL HAVE A RADIUS OF NOT LESS THAN SIX (6) TIMES THE INTERNAL DIAMETER OF THE CONDUIT AND IN NO

CASE SHALL THE EQUIVALENT OF MORE THAN FOUR QUARTER BENDS

FROM OUTLET TO OUTLET BE MADE.

BEND ARE THE SAME.

WORK IN THE T-BAR CEILING CAVITY WITH ALL OTHER TRADES

3) ON SURFACE WALL RUNS. ALL CONDUIT SHALL BE INSTALLED IN TRUE VERTICAL OR HORIZONTAL DIRECTION AND ON CEILINGS IN TRUE 90 DEGREE ANGLES OR PARALLEL TO THE WALLS. CROSSINGS OF CONDUITS SHALL ALSO BE MADE AT 90 DEGREE ANGLES. PARALLEL RUNNING CONDUIT SHALL BE KEPT ON EQUAL SPACING ON THE ENTIRE LENGTH OF RUN. PARALLEL CONDUIT BENDS SHALL TURN AROUND A COMMON TURNING POINT, THUS KEEPING THE DISTANCE OF CONDUITS EQUAL THROUGHOUT THE BEND, EXCEPT WHERE CONDUIT OF EQUAL DIAMETERS RUN PARALLEL. IN SUCH CASES. CONDUIT BENDS MAY BE OF THE SAME RADIUS PROVIDED THAT THE CONDUIT SPACING ON BOTH CONDUIT LEGS BEFORE AND AFTER THE

4) ALL CONDUITS SHALL BE FASTENED TO CONCRETE AND MASONRY STRUCTURE WITH STEEL STRAPS (NO CAST TYPE STRAPS ALLOWED.) 5) E.M.T. (ELECTRIC METALLIC TUBING) MAY BE USED ON ALL INTERIOR INSTALLATIONS. CONDUITS EXPOSED TO THE WEATHER, IN WET LOCATIONS. SUBJECT TO MECHANICAL INJURY. OR IN ANY HAZARDOUS LOCATIONS, OR WHERE REQUIRED BY C.E.C. SHALL BE RIGID

THREADED, GALVANIZED STEEL CONDUIT 6) ON E.M.T. INSTALLATIONS ALL COUPLINGS AND CONNECTORS SHALL BE OF STEEL. CAST TYPE COUPLINGS AND CONNECTORS (ZINC, IRON OR ALLOYS) SHALL NOT BE USED ON THIS INSTALLATION.

7) CONDUITS SHALL BE INSTALLED TO PROVIDE FOR EXPANSION AND EXPANSION FITTINGS SHALL BE PROVIDED WHERE REQUIRED 8) JOINTS IN CONDUITS INSTALLED UNDERGROUND, IN CONCRETE SLAB ON GRADE OR IN CONCRETE DUCT BANK SHALL BE MADE COMPLETELY 9) THE USE OF ENT FLEXIBLE CONDUIT IS ONLY ACCEPTABLE RECESSED

IN CONCRETE OR UNDER CONCRETE SLAB. ENT CONDUIT IS TO

TRANSITION TO EMT IMMEDIATELY UPON SURFACING FROM SLAB. ENT,

WHERE PERMITTED, IS TO BE FT-4 RATED 16.15 WIRING DEVICES) LIGHTING SWITCHES SHALL BE TO CSA C22.2 NO. 111-00 WITH RATING 15A 125V EXCEPT OTHERWISE SPECIFIED. IT SHALL BE SINGLE POLE, DECORA TYPE, WHITE, SPECIFICATION GRADE, THREE WAY OR FOUR WAY AS INDICATED ON DRAWING.

RECEPTACLES, PLUGS AND SIMILAR DEVICES SHALL BE TO CSA C22.2 NO. 42-99 (R2004). ALL RECEPTACLES TO BE DECORA STYLE, SPECIFICATION GRADE, WHITE GENERAL PURPOSE RECEPTACLES SHALL HAVE MINIMUM RATING 15A 125V WITH CONFIGURATION 5-15R 2-POLE 3—WIRE GROUNDING, EXCEPT WHERE OTHERWISE SPECIFIED ALL RECEPTACLES OF CSA CONFIGURATION 5-15R AND 5-20R FOR RESIDENTIAL UNITS MUST BE TAMPER

RESISTANT TYPE AND SHELL BE SO MARKED. GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLES SHALL HAVE THE FOLLOWING FIXTURES: A SOLID STATE GROUND FAULT SENSING AND II) 5MA GROUND FAULT TRIP LEVEL

III) FEED-THROUGH TYPE LOCKING RECEPTACLES SHALL BE THE CONFIGURATION AS INDICATED ON THE DRAWINGS AND ARE SIDE WIRING DRYER RECEPTACLES SHALL HAVE MINIMUM RATING 30A 125/250V WITH CONFIGURATION 14-30R. 3-POLE. 4-WIRE

RANGE RECEPTACLES SHALL HAVE MINIMUM RATING 50A 125/250V WITH CONFIGURATION 14-50R, 3-POLE, 4-WIRE 3) DIMMERS TO BE COMPATIBLE WITH LIGHTING SOURCE 4) ALL COVER PLATES FOR SWITCHES, RECEPTACLES, AND DIMMERS, SHALL BE NYLON AND WHITE IN COLOR UNLESS OTHER MATERIALS/COLORS ARE SPECIFIED. ISOLATED GROUND RECEPTACLES

SHALL BE ORANGE. 5) ALL RECEPTACLES SHALL BE SUPPLIED AND MOUNTED IN STANDARD BOXES. STANDARD MOUNTING HEIGHTS TO BE +18 INCHES FROM FINISHED FLOOR UNLESS OTHERWISE INDICATED ON DRAWINGS. 6) IDENTIFY CIRCUIT NUMBER AND PANELBOARD DESIGNATION ON THE COVER PLATES OF ALL OUTLETS AND JUNCTION BOXES.

7) ALL WET LOCATION LIDS ARE TO BE WEATHER PROOF IN-USE STYLE. 6) OUTLETS IN THE WAREHOUSE AREAS PARKING GARAGE, JANITOR CLOSETS, UTILITY CLOSETS, MECHANICAL AND ELECTRICAL SERVICE ROOMS TO HAVE PRESSED GALVANIZED STEEL OR WP-PVC TYPE FACE PLATES. 7) VACANCY SENSORS TO BE DUAL TECHNOLOGY, WHITE, AND LOW VOLTAGE, AND FIELD PROGRAMMABLE.

8) LOW VOLTAGE OVERRIDE SWITCHES FOR LOW VOLTAGE CEILING MOUNTED OCCUPANCY/VACANCY SENSORS ARE TO BE MOMENTARY DECORA STYLE. WHITE LINE VOLTAGE RELAYS WHEN USED TO BE 20A(120V) OR 15A (347V) AND RATED FOR PLUG, BALLAST AND MOTOR LOADS. 10) DAYLIGHT HARVESTING INDOOR PHOTO SENSOR TO BE USED IN

CONJUNCTION WITH SWITCH PACK RELAY COMPLETE WITH MANUAL

OVERRIDE.

16.16 OUTLET & JUNCTION BOXES

1) ALL OUTLET BOXES SHALL BE HEAVY GALVANIZED ONE PIECE STEEL ADJACENT DEVICES SHALL BE INSTALLED IN ONE COMMON BOX UNLESS OTHERWISE NOTED. 2) NO BACK-TO-BACK OUTLET BOXES WILL BE ALLOWED IN PARTITION WALLS. A MINIMUM OF 12" HORIZONTAL SEPARATION IS REQUIRED.

4) 1" EMT CONDUIT FOR MAXIMUM 4 OUTLETS) THE ELECTRICAL CONTRACTOR SHALL PROVIDE VAPOUR BARRIERS FOR ALL THE OUTLETS THAT ARE LOCATED IN THE EXTERIOR INSULATED 4) COORDINATE THE MOUNTING OF ALL OUTLETS WITH MILLWORK OR ARCHITECTURAL FINISHES TO AVOID CONFLICT. 5) ALL JUNCTION BOXES MADE NECESSARY BY THE RESTRAINTS OF THE BUILDING DESIGN SHALL BE LOCATED SO THAT NO PARTS ARE

VISIBLE EXCEPT WHERE SURFACE MOUNTED DEVICES ARE ACCEPTABLE. 6) JUNCTION BOXES REQUIRED BEYOND THOSE SHOWN ON THE PLANS SHALL BE APPROVED BY THE CONSULTANT BEFORE INSTALLATION. 16.17 WIRES AND CABLES

1) UNLESS OTHERWISE SHOWN OR SPECIFIED, BRANCH CIRCUIT AND FEEDER CONDUCTORS SHALL BE TYPE RW90 INSULATED. 2) BRANCH CIRCUIT CONDUCTORS UNLESS OTHERWISE INDICATED ON THE PLANS, SHALL BE MINIMUM #12 AWG SOLID COPPER CONDUCTORS. IN NON-COMBUSTIBLE STRUCTURE ALL WIRING SHALL BE ARMORED TYPE AC-90, TECK, ACWU AND OTHER, PERMITTED BY C.E.C. OR CONCEALED IN CONDUIT. IN COMBUSTIBLE STRUCTURE WIRING TYPE NMD SHALL BE PERMITTED IN RESIDENTIAL APPLICATIONS ONLY AND

NO LARGER THAN #2 AWG 4) COLORED JACKET FOR NMD-90 TYPE OF WIRING SHALL BE USED AS FOLLOW: -WHITE FOR #14 AWG -YELLOW FOR #12 AWG

-BLUE FOR 14-2C FOR BEDROOM RECEPTACLES WHICH IDENTIFY CIRCUITS TIED INTO THE AFCI CIRCUIT -RED FOR HEATING CIRCUITS, ON 240-VOLT SYSTEMS WHERE THERE IS NO NEUTRAL. RED COLORED WIRING SHALL NOT BE USED ON 110-VOLT SYSTEMS. WHERE TWO OR THREE CIRCUITS ARE RUN TOGETHER USING A COMMON NEUTRAL. CARE SHALL BE TAKEN TO SEE THAT EACH CIRCUIT IS CONNECTED TO A SEPARATE PHASE AND WIRES SHALL BE COLOUR CODED AS SPECIFIED UNDER THE IDENTIFICATION OF CONDUCTORS CLAUSE.

ENSURE THAT ALL SINGLE PHASE LOAD IS REASONABLY AND CLOSELY BALANCED OVER THE MAIN FEEDERS TO A MAXIMUM OF 5% 7) JOINTS IN BRANCH CIRCUIT WIRING SHALL BE MADE WITH INSULATED CONNECTORS, "WIRE -NUTS", OF APPROVED TYPE AND SIZE. SOLDERLESS PRESSURE TYPE CONNECTORS "SPLIT-BOLT" TYPE SHALL BE USED ON CONDUCTORS OF SIZE #8 AWG AND LARGER.

LINE VOLTAGE CONDUCTORS IN CONDUIT SHALL BE COLOUR CODED AS FOLLOWS: PHASE A RED PHASE B BLACK PHASE C BLUE

NEUTRAL GROUND GREEN OR BARE SWITCH LEGS IN 3-WAY AND 4-WAY SWITCHING CIRCUITS. ANY OTHER COLOUR AVAILABLE EXCEPT THOSE SPECIFIED ABOVE. ** WHERE ARMOURED CABLE USED, MARK WITH COLOURED TAPE. 9) ALL FEEDERS MUST BE SUPPORTED AS PER C.E.C. TABLE 21. 10) ALL FEEDERS CONDUCTORS TO HAVE A MAXIMUM VOLTAGE DROP OF

2% AT DESIGN LOAD. ALL BRANCH CIRCUIT CONDUCTORS TO HAVE A

16.18 SEISMIC RESTRAINTS REQUIREMENTS 1) SHOPPERS DRUG MART HAS RETAINED A SIESMIC ENGINEER TO PROVIDE SIESMIC RESTRAINT DESIGN FOR ELECTRICAL COMPONENTS. THE SIESMIC ENGINER WILL PROVIDE DESIGN, DRAWING, DETAILS AND REVIEW OF SAME.

MAXIMUM VOLTAGE DROP OF 3% AT DESIGN LOAD

2) SUPPLY & INSTALL A COMPLETE SYSTEM OF SEISMIC ANCHORAGE FOR ELECTRICAL EQUIPMENT IN ACCORDANCE WITH THE LOCAL JURISDICTION, THE CONTRACTOR SEISMIC MANUAL AND TO THE SATISFACTION OF THE SIESMIC ENGINEER.

3) THE CONTRACTOR SHALL OBSERVE AND INCLUDE THE METHODS OF SEISMIC RESTRAINT INDICATED ON THE SIESMIC ENGINEER DRAWINGS AND DETAILS FOR ELECTRICAL EQUIPMENT. ANCHOR EQUIPMENT IN ACCORDANCE WITH THE METHODS RECOMMENDED BY THE SEISMIC ENGINEER.

4) ELECTRICAL EQUIPMENT REQUIRING SEISMIC ANCHORAGE

SHALL INCLUDE,

SUSPENDED LUMINAIRES

ELECTRICAL COMPONENTS.

 RECESSED LUMINAIRES SURFACE LUMINAIRES CONDUIT FEEDER BANKS 5) UPON SATISFACTORY REVIEW OF THE ABOVE INSTALLATION, THE

SIESMIC ENGINEER WILL ISSUE A SIESMIC SCHEDULE CB FOR THE

16.19 CONNNECTION & PROTECTION

OF TRANSFORMERS 1) SEE CEC 2015 SECTIONS 26-240 TO 26-268. 2) DIELECTRIC FILLED PAD MOUNTED TRANSFORMERS LOCATED OUTSIDE ARE TO BE 3 M FROM A COMBUSTIBLE SURFACE, 6 M FROM ANY WINDOW, OR DOOR OR VENT (SEE 26-242), 3 M CLEARANCE ON ACCESS SIDE, AND 1 M FOR A 3 PHASE TRANSFORMER ON OTHER SIDES.

3) DRY-CORE OPEN VENTILATED TRANSFORMERS ARE TO HAVE A CLEARANCE OF 6 MM FOR NON-COMBUSTIBLE SURFACES AND 300 MM FOR COMBUSTIBLE. SEE 26-248. 4) A DISCONNECTING MEANS SHALL BE INSTALLED IN THE PRIMARY CIRCUIT OF EACH POWER AND DISTRIBUTION TRANSFORMER (26-250). 5) FOR POWER AND DISTRIBUTION TRANSFORMERS OVER 750 VOLTS, EACH UNGROUNDED CONDUCTOR CONNECTING TO THE TRANSFORMER PRIMARY WILL HAVE A FUSE RATING OF NOT MORE THAN 150% AND A BREAKER

3) TRANSFORMERS OVER 750 VOLTS HAVING THERMAL PROTECTION DEVICE OR OVERCURRENT PROTECTION ON THE SECONDARY RATED AT NOT MORE THAN THE VALUES IN CEC TABLE 50, SHALL NOT BE REQUIRED TO HAVE AN INDIVIDUAL PROTECTIVE DEVICE ON THE PRIMARY. EXAMPLE 7.5% Z TRANSFORMER: OVER 750 PRIMARY -CB 600%, FUSE 300%; OVER 750 SECONDARY- CB 300%, FUSE 150%; SECONDARY UNDER 750 - CB

7) TRANSFORMERS UNDER 750 VOLTS, OTHER THAN DRY TYPE TRANSFORMERS, EACH UNGROUNDED CONDUCTOR WILL HAVE PROTECTION SET AT NOT MORE THAN 150% OF PRIMARY CURRENT (APPLIES TO OVER 9 AMPS). FOR 2 TO 9 AMPS, USE 167% AND UNDER 2 AMPS USE 300%.IF THE SECONDARY HAS PROTECTION SET AT 125%, THEN FEEDER PROTECTION SET UP TO 300% IS ACCEPTABLE. SEE 26-254. 8) TRANSFORMERS UNDER 750 VOLTS OF THE DRY TYPE THE PRIMARY CURRENT PROTECTION SHALL BE SET AT 125%. TRANSFORMERS HAVING

125% SECONDARY PROTECTION REQUIRE NOT MORE THAN 300% PRIMARY TRANSFORMER OR THE SUM OF A GROUP OF PRIMARIES PLUS 25%. SEE 14-100 AND 14-104 FOR EXCEPTIONS

16.20 CONNECTION & PROTECTION

OF MOTORS 1) FOR THIS APPLICATION, EACH THREE PHASE 575 OR 480 VAC MOTOR CIRCUIT IS TO BE PROVIDED WITH ITS OWN DISCONNECTING MEANS IN ACCORDANCE WITH CEC SECTION 14-010 (2015). THE THE RATED MOTOR CURRENT AND BE CAPABLE OF MORE THAN X6 . I. THE GROUND TEST BLOCK. OVER CURRENTS FOR A LOCKED ROTOR CEC SECTION 28-010 PLUS MEET ANY OTHER SHORT CIRCUIT REQUIREMENTS. 2) EACH MOTOR FEED CIRCUIT LINE AMPACITY RATING IS NOT TO BE LESS THAN 125% OF THE RATED CURRENT OF THE MOTOR. CONDUCTORS SUPPLYING A GROUP OF MOTORS MUST ALSO BE RATED AT NOT LESS THAN 125% OF ALL THE MOTORS IN THE 6) THE ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL LABELS

S) MOTOR CIRCUITS RATED AT NOT MORE THAN 30 AMPS CAN BE PROTECTED WITH STANDARD FUSES RATED UP TO 250% OF RATED CURRENT OR 175% IF OF THE TIME DELAY TYPE. BREAKERS INSTEAD OF FUSES ARE NOT TO EXCEED 200%. 4) MOTORS CIRCUITS RATED AT MORE THAN 30 AMPS CAN BE PROTECTED WITH STANDARD FUSES RATED UP TO 200% OF RATED CURRENT OR 175% IF OF THE TIME DELAY TYPE. BREAKERS USED INSTEAD OF FUSES ARE NOT TO EXCEED 200%. 5) FOR THIS APPLICATION WHERE ALL THREE PHASE 480 OR 575 VOLT MOTORS ARE LESS THAN 100 AMPS, AND IF THERE ARE

DELAY FUSES. INVERSE TIME CIRCUIT BREAKERS CAN BE USED UP 6) IF INSTANTANEOUS TRIP BREAKERS ARE USED, THEY CAN BE RATED OR ADJUSTED FOR AC MOTOR TRIP AT NOT MORE THAN 1300% OF FULL LOAD CURRENT AND NOT MORE THAN 215% OF LOCKED ROTOR CURRENT FOLLOWING RULE CEC 28-210. 7) THE DRAWING DOES NOT COVER MOTOR FAILURE PROTECTION ISSUES SUCH AS A LOSS OF ONE PHASE OR INTERNAL MOTOR

MOTOR START OVERCURRENT TRIPPING ISSUES, MOTOR CIRCUITS

CAN BE PROTECTED WITH NON-TIME DELAY FUSES CAN RATED UP

TO 400% OF MOTOR FULL LOAD CURRENT AND 225% FOR TIME

16.21 COMMUNICATION CONDUIT PROVIDE A MAIN TELEPHONE BACKBOARD IN THE DESIGNATED AREA. INSTALL A 4FT. x 8FT. x 3/4" GOOD ONE SIDE FIREPROOFED PLYWOOD. 2) SUPPLY AND INSTALL TELEPHONE ZONE CONDUITS AS INDICATED ON THE DRAWING. 3) 3/4" EMT CONDUIT FOR MAXIMUM 2 OUTLETS.

5) ALL CONDUITS TO HAVE A PULL STRING AND GROUNDING 16.22 FIRE STOPPING 1) THE GENERAL CONTRACTOR IS TO MAINTAIN ALL ARCHITECTURAL FIRE RATINGS. THE ELECTRICAL CONTRACTOR IS TO ADVISE THE GENERAL CONTRACTOR OF THE ELECTRICAL PENETRATIONS AT FIRE RATED ASSEMBLIES. THE GENERAL CONTRACTOR IS TO SUPPLY & INSTALL APPROVED FIRE STOPPING MATERIALS AS REQUIRED AROUND ALL ELECTRICAL PENETRATIONS.

LIGHT FIXTURES THAT PENETRATE FIRE RATED CEILINGS OR WALL STRUCTURES SHALL BE INSTALLED IN GYPROC ENCLOSURES TO MAINTAIN SUCH ARCHITECTURAL FIRE RATINGS OR FIREPROOF LIGHT FIXTURES SHALL BE INSTALLED IN SUCH A MANNER THAT CONTINUITY OR FIRE RATINGS ARE MAINTAINED. THE ARCHITECT TO PROVIDE APPROVAL OF ALL ASSEBLIES.

WIRING PENETRATING ANY HORIZONTAL OR VERTICAL ASSEMBLY REQUIRED TO HAVE A FIRE-RESISTANC RATING SHALL BE IN ACCORDANCE WITH BUILDING CODE 3.1.9.3. CONDUITS OR CABLES SHALL BE TIGHTLY FITTED AND FIRE STOPPED WHERE NECESSARY TO MAINTAIN FIRE RATING. AS

I) FOR PENETRATIONS THROUGH A FIRE SEPARATION WALL PROVIDE A FIRESTOP SYSTEM WITH A "F" RATING AS DETERMINED BY ULC OR CUL AS INDICATED BELOW:

> FIRE RESISTANCE RATINGEQUIRED ULC OR CUL 'f' RATIN OF SEPARATION: OF FIRESTOPPING ASSMBLY 30 MINUTES 20 MINUTES 45 MINUTES 45 MINUTES 1 HOUR 45 MINUTES 1.5 HOURS 1 HOUR 2 HOURS 1.5 HOURS 3 HOURS 2 HOURS 4 HOURS

FOR COMBUSTIBLE PENETRATIONS THROUGH A FIRE SEPARATION PROVIDE A FIRE STOP SYSTEM WITH AN "F" RATING AS DETERMINED BY ULC OR CUL WHICH IS EQUAL TO THE FIRE RESISTANCE RATING OF THE CONSTRUCTION BEING PENETRATED. COMBUSTIBLE CABLES AND RACEWAYS SHALL BE MAX. 25MM

FOR PENETRATIONS THROUGH A FIRE WALL OR HORIZONTAL FIRE SEPARATION PROVIDE A FIRESTOP SYSTEM WITH A 'FT" RATING AS DETERMINED BY ULC OR CUL WHICH IS EQUAL TO THE FIRE RESISTANCE RATING OF THE CONSTRUCTION BEING PENETRATED

A) FOR EXIT STAIR PENETRATIONS THAT DO NOT FULLY

SIDE, PROVIDE ONLY METALLIC BOXES AND CONDUIT C/W FIRESTOPPING AT ALL PENETRATIONS 5) INSTALL FIRE STOP MATERIALS IN ACCORDANCE WITH ULC FIRE RESISTANCE DIRECTORY OR UL PRODUCTS CERTIFIED

FOR CANADA (CUL) DIRECTORY. 6) COMPLY WITH MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION OF THROUGH-PRENETRATIONS MATERIALS 16.23 ADDRESSABLE FIRE ALARM SYSTEM INSTALLATION SUBJECT TO APPROVAL. INSPECTION AND TEST OF ENGINEER AND FIRE MARSHALL FOR FINAL ACCEPTANCE. 2) ALL EQUIPMENT SHALL BE LISTED BY UNDERWRITERS LABORATORY OF

CAN/ ULC-S524. 4) ALL WIRING METHODS AND MATERIALS USED IN THE INSTALLATION OF THE FIRE ALARM SYSTEM SHALL CONFORM TO THE REQUIREMENTS FOR BRANCH CIRCUIT WIRING AS OUTLINED IN THE C.E.C.

3) SYSTEM TO BE PROVIDED IN ACCORDANCE WITH LATEST EDITION OF

5) THE FIRE ALARM VERIFICATION INSPECTION (FAVI) SHALL BE IN ACCORDANCE WITH LATEST EDITION OF CAN/ULC-S537. THE SYSTEM MANUFACTURER IS PRE-APPROVED TO PERFORM THE VERIFICATION. PRIOR TO CALL FOR OCCUPANCY, THE CONTRACTOR IS TO PROVIDE A COPY OF THE SUCESSFUL FAVI. 6) THE FIRE ALARM SYSTEM IS TO BE MONITORED IN ACCORDANCE WITH

NFPA-72. BUILDING CODE SECTION 3.2.4. AND CAN/ULC S561. PANEL TO BE C/W MONITORING CARD AND ULC LISTED MONITORING PANEL FOR FIRE ALARM SIGNALS. CONNECT TELEPHONE LINES FOR OFF SITE MONITORING. CONTRACTOR TO COORDINATE THE MONITORING CONNECTION WITH THE OWNER AND MONITORING COMPANY PRIOR TO OCCUPANCY. PRIOR TO CALL FOR OCCUPANCY, THE CONTRACTOR IS TO PROVIDE A COPY OF THE ULC LISTED FIRE PROTECTIVE SINGNALLING CERTIFICATE

7) THE SPRINKLER SYSTEM SHALL BE CORRECTLY MONITORED TO INDICATE SPRINKLER SUPERVISORY ON THE BUILDING FIRE ALARM SYSTEM ANNUNCIATOR, AND AT THE CENTRAL MONITORING COMPANY. CONTRACTOR TO PROVIDE ASSURANCE FROM CENTRAL MONITORING COMPANY THAT FIRE ALARM SYSTEM IS CORRECTLY MONITORED THROUGH TELEPHONE LINES FOR 3 CONDITIONS: FIRE ALARM, FIRE ALARM SYSTEM TROUBLE, AND SPRINKLER SUPERVISORY.

8) THE FIRE ALARM SEQUENCE OF EVENTS IS AS FOLLOWS; -THE MAIN FIRE ALARM PANEL IS ZONED AND MONITORED. -UPON ACTIVATION OF A PULL STATION, FIRE DETECTOR OR SPRINKLER FLOW SWITCH ALL NOTIFICATION APPLIANCES WILL BE -THE AUTO DIALER WILL ALERT A CERTIFIED OFF SITE MONITORING COMPANY, WHO WILL IN TURN NOTIFY THE FIRE DEPARTMENT.

-THE FIRE ALARM ANNUNCIATOR WILL INDICATE THE ZONE WHICH HAS 3) NO EQUIPMENT TO BE ORDERED OR DELIVERED TO SITE UNTIL SHOP BEEN ACTIVATED. 9) AN EMERGENCY POWER SUPPLY IS REQUIRED FOR THE F/A SYSTEM THAT WILL PROVIDE SUPERVISORY POWER FOR 24 HOURS PLUS AN ADDITIONAL 30 MINUTES OF EMERGENCY POWER UNDER FULL LOAD. B.C.B.C. [3.2.7.8.] 10) THE STANDARD OF ACCEPTANCE FOR FIRE ALARM DEVICES IS LISTED

BELOW -PANEL - MIRCOM FX-2000 SERIES -INDOOR ANNUNCIATOR - MIRCOM RA-1000 SERIES -OUTDOOR ANNUNCIATOR - MIRCOM BB-1001 ASSEMBLY -HORNS - MIRCOM FH340 SERIES -MINI HORNS COMPLETE WITH SILENCE SWITCH - MIRCOM MH-S25 -PULL STATIONS - MIRCOM MS-400AD SERIES -SMOKE DETECTOR - MIRCOM MIX-200 SERIES -HEAT DETECTOR- MIRCOM MIX-5251RB -FIXED HEAT DETECTOR - MIRCOM MIX-5251B

-DUCT SMOKE DETECTOR - MIRCOM DNR SERIES 16.24 LABELING 1) THE ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL LAMICOID LABELS FOR THE FOLLOWING: A. ALL MAIN DISTRIBUTION EQUIPMENT B. ALL DISCONNECTS AND PANELBOARDS.

C. ALL METERING EQUIPMENT D. ALL OUTSIDE LIGHTING CONTROLS 9) CONDUCTORS SHALL HAVE A RATING NOT LESS THAN 125% FOR A SINGLE 2) ALL LABELS TO INDICATED AMPERAGE AND VOLTAGE AS WELL AS THE EQUIPMENTS DESIGNATION. ALL 600V EQUIPMENT TO HAVE LABELS WITH WHITE BACKGROUND AND BLACK LETTERS AND ALL 208V EQUIPMENT TO HAVE LABELS WITH BLACK BACKGROUND AND WHITE

3) THE ELECTRICAL CONTRACTOR SHALL PROVIDE TYPEWRITTEN LABELS FOR THE FOLLOWING: A. RECEPTACLES B. LIGHT SWITCHES (INDICATING CIRCUIT NUMBER) MOTOR CONTROLS D. ALL LABELS TO BE DONE WITH A BROTHER 2000

LABELER. (CLEAR TAPE) PERMANENTLY AFFIX LABELS TO FACE OF THE DISCONNECT MUST HAVE A RATING OF NOT LESS THAN 115% OF 4) PROVIDE LAMICOID WIRE TAGS FOR ALL GROUNDING CONDUCTORS AT THE FLECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL WARNING SIGNS OR LABELS FOR ELECTRICAL EQUIPMENT IN ACCORDANCE WITH RULE 2-306 OF C.E.C. 2015 TO WARN PERSONS OF POTENTIAL ELECTRIC SHOCK AND ARC FLASH HAZARDS.

> FOR ALL MDC, SMDC, AND BREAKPANELS. THE LABELS SHALL A. SHORT CIRCUIT RATING B. VOLTAGE LEVEL INSTALLATION OF MAIN BREAKERS, INTEGRAL OR REMOTE AMPERAGE OF MAIN BREAKER . MANUFACTURER NAME AND TYPE OF MAIN BREAKER . MANUFACTURER NAME OF BRANCH BREAKER

7) ELECTRICAL EQUIPMENT SUCH AS SWITCHBOARDS, PANELBOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, AND MOTOR CONTROL CENTRES AND ARE LIKELY TO REQUIRE EXAMINATION, ADJUSTMENT SERVICING, SERVICING, OR MAINTENANCE WHILE ENERGIZED SHALL BE FIELD MARKED TO WARN PERSONS OF POTENTIAL ELECTRIC SHOCK AND ARC FLASH HAZARDS. THE MARKING IS TO BE LOCATED SO AS TO BE CLEARLY VISIBLE TO PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT.

16.25 RECORD DRAWINGS /MAINTENANCE

AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION THE SUBMITTAL OF COMPLIANCE DOCUMENTATION AND SUPPLEMENTAL INFORMATION SHALL BE IN ACCORDANCE WITH SECTION 4.2.2 OF ASHRAE STANDARD 90.1 (2016). 2) THE FOLLOWING REQUIREMENTS ARE MANDATORY PROVISIONS:

A. CONSTRUCTION DOCUMENTS SHALL REQUIRE THAT WITHIN 30 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS OF THE ACTUAL INSTALLATION BE PROVIDED TO THE BUILDING OWNER OR THE DESIGNATED REPRESENTATIVE OF THE BUILDING OWNER. RECORD DRAWINGS SHALL INCLUDE, AS A MINIMUM, THE LOCATION, LUMINAIRE IDENTIFIER, CONTROL, AND CIRCUITING FOR EACH PIECE OF LIGHTING CONSTRUCTION DOCUMENTS SHALL REQUIRE FOR ALL LIGHTING EQUIPMENT AND LIGHTING CONTROLS, AN OPERATING AND MAINTENANCE MANUAL BE PROVIDED TO THE BUILDING OWNER OR THE DESIGNATED

REPRESENTATIVE OF THE BUILDING OWNER WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE. THESE MANUALS SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING: SUBMITTAL DATA STATING EQUIPMENT RATING AND SELECTED OPTIONS FOR FACH PIECE OF FQUIPMENT REQUIRING MAINTENANCE. OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE. REQUIRED ROUTINE

3. NAMES AND ADDRESSES OF AT LEAST ONE QUALIFIED SERVICE 4. A COMPLETE NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO

MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.

PERTINENT TO THE WORK. KEEP DRAWINGS ON SITE AND AS NECESSARY, RECORD IN COLORED PENCIL ALL CHANGES ALTERATIONS, OR ADDITIONS IN RUNS IN CONDUIT, NUMBERS, AND LOCATION OF PANELS, LUMINAIRES AND DEVICES THAT MAY OCCUR DURING PROGRESS OF THE WORK. THESE DRAWINGS ARE FOR SUBMISSION TO: THE ENGINEER OF RECORD

THE CONTRACTOR SHALL SIGN THE MARKED-UP SET TO VERIFY

PROVINCIAL ELECTRICAL INSPECTION AUTHORITY

3) BEFORE COMMENCING WORK, OBTAIN SETS OF ALL DRAWINGS

ACCURACY OF THE RECORD DRAWING INFORMATION CONTAINED 4) WITHIN 30 DAYS OF BUILDING OCCUPANCY, FORWARD THE MARKED-UP DRAWINGS TO THE CONSULTANT FOR PROFESSIONAL CAD UPDATING OF THE ORIGINAL DOCUMENTS IN ACAD FORMAT. ALLOW \$225.00 PER DRAWING, PLUS H.S.T IN BID PRICE TO COVER THIS WORK. NOTE THAT CHANGES BY CHANGE ORDER ARE NOT INCLUDED IN THIS ALLOWANCE. INCLUDE ALLOWANCE IN CHANGE ORDER AS APPLICABLE TO COVER THIS WORK.

5) THE CONTRACTOR IS TO PREPARE & SUPPLY PROJECT MAINTENANCE MANUALS. MANUALS TO BE IN TRIPLICATE AND ELECTRONIC COPY ENCLOSED IN A LABELED THREE RING BINDER. MANUALS TO INCLUDE;

-APPROVED SHOP DRAWINGS AND OR PERTINENT DATA ON ALL ELECTRICAL SYSTEMS -PROJECT CONTACT LIST INCLUDING CONSULTANT. CONTRACTOR AND SUPPLIERS/AGENTS. -GUARANTEE OTHER DATA REQUIRED TO PERFORM REASONABL MAINTENANCE ON BUILDING ELECTRICAL SYSTEMS -ALL WARRANTIFS

-SECTION DIVIDERS

-TEST REPORTS

-RECORD DRAWINGS DRAWINGS -ELECTRICAL INSPECTION CERTIFICATES 6) THE MAINTENANCE MANUALS ARE TO BE SUBMITTED TO THE CONSULTANT FOR REVIEW IN COMPLIANCE WITH B.C. BUILDING CODE.

16.26 BUILDING ENVELOPE EXCLUSION SML CONSULTANTS GROUP LTD.'S DRAWINGS, SPECIFICATIONS, AND CORRESPONDENCE DEAL WITH DIVISION 16 ELECTRICAL WORK, AND ARE NOT MEANT TO SPECIFY OR INSTRUCT THE CONTRACTOR HOW TO ACCOMPLISH OR SEAL PENETRATIONS IN THE BUILDING ENVELOPE, OR HOW TO PREVENT INGRESS OR INFILTRATION OF MOISTURE OR PRECIPITATION, WHETHER UNEXPECTED OR NOT, OR HOW TO DEAL WITH, ELIMINATE, OR MITIGATE THE EFFECTS OF MOISTURE OR PRECIPITATION ALREADY PRESENT.

SML CONSULTANTS GROUP LTD.'S DRAWINGS, SPECIFICATIONS, AND CORRESPONDENCE DEAL WITH DIVISION 16 ELECTRICAL WORK, AND RE NOT MEANT TO SPECIFY OR INSTRUCT THE CONTRACTOR HOW TO PREVENT OR DEAL WITH MOULD, MILDEW, OR OTHER FUNGUS, WHETHER UNEXPECTED OR NOT, OR HOW TO DEAL WITH, ELIMINATE. OR MITIGATE THE EFFECTS OF MOULD, MILDEW, OR OTHER FUNGUS ALREADY PRESENT

PENETRATIONS AND/OR SEALING OF BUILDING ENVELOPE, EXTERIOR WALL OR ROOF, FOUNDATIONS, OR CONCRETE SLAB SHALL BE DONE UNDER THE GUIDANCE OF THE ARCHITECT OR APPROVED BUILDING

6.27 SHOP DRAWINGS SUBMIT A MINIMUM OF 3 PAPER COPIES OR DIGITAL VERSION OF THE SHOP DRAWINGS TO THE CONSULTANT. ALLOW A MINIMUM OF 5 WORKING DAYS FOR A RESPONSE. A COPY WILL BE RETAINED BY THE CONSULTANT. SHOP DRAWINGS ARE REQUIRED FOR THE FOLLOWING FQUIPMENT: -DISTRIBUTION EQUIPMENT -TRANSFORMERS -BRANCH CIRCUIT PANELBOARDS

-LIGHTING LUMINAIRES, EXIT LIGHTS, EMERGENCY LIGHTS,

-STARTERS, CONTACTORS, RELAYS & DISCONNECTS -RECEPTACLES AND SWITCHES. -LIGHTING CONTROLS AND RELAY PANELS () CONTRACTOR TO REVIEW AND STAMP SHOP DRAWINGS FOR DIMENSIONAL ACCURACY, SPACE PROVISIONS, & DETAILED CONFORMITY BEFORE SUBMITTING FOR THE CONSULTANTS REVIEW. THE CONSULTANTS REVIEW INCLUDES FOR A GENERAL OVERVIEW OF SHOP RAWINGS FOR CONFORMITY TO PROJECT REQUIREMENTS IN ACCORDANCE WITH THE CONSTRUCTION AGREEMENT AND DOES NOT RELIEVE THE CONTRACTOR OF ERRORS OR DISCREPANCIES.

DRAWINGS HAVE BEEN REVIEWED AND APPROVED BY SML CONSULTANTS GROUP LTD. 4) SHOP DRAWINGS SUBMITTALS SHALL BE GROUPED INTO ONE COMPLETE SUBMISSION FOR REVIEW. SHOP DRAWING REVIEW WILL NOT TAKE PLACE UNLESS ALL SHOP DRAWINGS HAVE BEEN SUBMITTED. ELECTRONIC SUBMITTAL OF SHOP DRAWINGS IS ACCEPTABLE UNDER THE SAME GUIDELINES AS ABOVE. ONLY ONE SET OF DRAWINGS REQUIRED UNDER ELECTRONIC SUBMISSION

6) THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL WORK OR FEES REQUIRED TO MODIFY THESE REQUIREMENTS TO SUIT THE NEEDS OF THE GENERAL CONTRACTOR. 7) THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL WORK OR FEES REQUIRED TO RE-REVIEW INCOMPLETE OR INCORRECT SHOP DRAWING SUBMISSIONS

16.28 SUBSTANTIAL PERFORMANCE) BEFORE THE SUBSTANTIAL PERFORMANCE FIELD REVIEW, PROVIDE A WRITTEN CONFIRMATION THAT: A. ALL WIRING DEVICES, PLATES, MOTOR CONTROLS, LIGHTING FIXTURES, AND OTHER EQUIPMENT ARE OPERATIONAL, CLEAN AND CORRECTLY

B. ALL SYSTEMS INCLUDING: POWER, LIGHTING, EMERGENCY LIGHTING, AND MECHANICAL EQUIPMENT HAVE BEEN TESTED. ALL TYPED PANEL DIRECTORIES AND LABELLING ARE COMPLETED. ALL FACTORY EQUIPMENT HAS BEEN CLEANED AND LABELED.

THE SEISMIC SCHEDULE C HAS BEEN FORWARDED TO THE ELECTRICAL CONSULTANT MAINTENANCE MANUALS SHALL BE SUBMITTED PRIOR TO SUBSTANTIAL PROVIDE COPIES OF ALL FIELD REVIEW CERTIFICATES, VERIFICATIONS AND PERTINENT INFORMATION PERTAINING TO THE ELECTRICAL INSTALLATION INCLUDING FIRE ALARM VERIFICATION REPORT

RECTIFY ALL FIELD REVIEW NOTATION BY ELECTRICAL INSPECTOR AND CONSULTANT. 16.29 GUARANTEE) THE ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND LABOUR FOR A PERIOD OF ONE YEAR (12 MONTHS) FROM THE DATE

INCLUDING MONITORING CONFIRMATION.

16.30 NOT INCLUDED

PARTS OF THE DRAWINGS

OF SUBSTANTIAL PERFORMANCE. THE ELECTRICAL CONTRACTOR SHALL BEAR THE COST OF ASSOCIATED DEFECTIVE MATERIALS AND THE LABOUR REQUIRED TO SATISFY THE INTENDED DESIGN. 2) ALL MANUFACTURER'S/SUPPLIERS SHALL BE RESPONSIBLE FOR ALL OF THE ELECTRICAL APPARATUS SUPPLIED TO THE PROJECT SITE.

THE ELECTRICAL CONTRACTOR WILL NOT INCLUDE THE FOLLOWING BUT SHALL ADVISE THE GENERAL CONTRACTOR OF THE WORK THAT WILL BE HIS RESPONSIBILITY. HE SHALL ALSO QUALIFY LENGTH, DEPTH AND REQUIREMENTS FOR TREATED PLANKING, SANDFILL AND WOOD FRAME AND PLYWOOD BACKING. A. ALL CIVIL WORK (TRENCHING, CONCRETE AND SECURITY SYSTEM WIRING. TEMPORARY CONSTRUCTION POWER

16.31 SLAB X—RAY / ULTRASOUND 1) CONTRACTOR TO X—RAY OR ULTRASOUND SLAB OR WALLS PRIOR TO CORING OR CUTTING OF SAME. CONTRACTOR TO REPAIR AT THEIR OWN COST SERVICES, WHICH ARE DISRUPTED DUE TO CORING OR CUTTING AND WHICH WOULD HAVE BEEN EVIDENT TO AN X-RAY OR ULTRASOUND.

DATA AND TELEPHONE CABLING UNLESS DETAILED IN OTHER

16.32 ASHRAE 90.1- 2016 I. ALL CONSTRUCTION PROJECTS IN BC ARE TO COMPLY WITH ASHRAE 90.1 (2016) PROVIDED THAT THEY ARE: 1.1 SYSTEM DESCRIPTION A. NEW BUILDINGS EXISTING RENOVATED AREAS AND NEW BUILDING ADDITIONS

. ALTERATIONS OF EXISTING LIGHTING SYSTEMS THAT ARE GREATER

THAN 20% OF THE CONNECTED LOAD OF THE EXISTING LIGHTING IN THE RENOVATED AREA. ALL LIGHTING SYSTEMS SHALL BE INSTALLED IN COMPLIANCE WITH ASHRAE 90.1(2016) SECTION 9. LIGHTING DESIGN MEETS OR EXCEEDS ASHRAE 90.1(2016) LIGHTING REQUIREMENTS AS ADOPTED RY THE BUILDING CODE. ANY DEVIATIONS OF LIGHTING, CONTROLS, DESIGN, BALLASTS OR LAMPS MUST BE SUBMITTED BY THE CONTRACTOR TO CONSULTANT PRIOR TO INSTALLATION AND APPROVED IN WRITING.

LIGHTING CONTROLS NARRATIVE 2.1 MANUFACTURERS 1) ALL INTERIOR LIGHTING TO BE CONTROLLED FROM LV RELAY PANEL A. ACCEPTABLE MANUFACTURER: COOPER CONTROLS. - SYSTEMS: AND OVERRIDE SWITCHING UNLESS OTHERWISE INDICATED ON THE CONTROLKEEPER FOR NETWORKED SYSTEMS, LITEKEEPER FOR STANDALONE PANELS B. PROVIDE HARDWARE THAT IS DESIGNED, TESTED, MANUFACTURED, AND) EACH LOCAL CONTROL DEVICE MUST CONTROL A MAXIMUM OF 2,500 WARRANTED BY A SINGLE MANUFACTURER. SQ. FT IN UP TO A 10,000 SQ.FT SPACE OR 10,000 SQ.FT IN

THE SPACE SHALL BE ALLOWED TO BE AUTOMATICALLY TURNED ON, AND NONE OF THE REMAINING LIGHTING SHALL BE AUTOMATICALLY TURNED 4) TOPLIGHT AND SIDELIGHT DAYLIGHT HARVESTING SHALL BE PROVIDED AS DETAILED ON THE DRAWNGS FOR PRIMARY AND SECONDARY AREAS. THE CONTROL SYSTEM SHALL HAVE THE FOLLOWING CHARACTERISTICS: 1. THE CALIBRATION ADJUSTMENT CONTROL SHALL BE LOCATED NO HIGHER THAN 11 FT ABOVE THE FINISHED FLOOR. 2. THE PHOTOCONTROL SHALL REDUCE ELECTRIC LIGHTING IN RESPONSE TO AVAILABLE DAYLIGHT USING CONTINUOUS DIMMING 3. THE CALIBRATION SHALL NOT REQUIRE THE PHYSICAL PRESENCE OF A

PERSON AT THE SENSOR WHILE THE CALIBRATION IS PROCESSING

DAYLIGHT AREAS SHALL BE CONTROLLED TOGETHER WITH GENERAL

4. GENERAL LIGHTING IN OVERLAPPING TOPLIGHTED AND SIDELIGHTED

LIGHTING IN THE DAYLIGHT AREA UNDER SKYLIGHTS

LARGER SPACES, AND MUST BE ABLE TO OVERRIDE ANY AUTOMATIC

3) AUTO ON TO 50%. NO MORE THAN 50% OF THE LIGHTING POWER FOR

SHUTOFF CONTROL FOR NO MORE THAN 2 HRS

5) AUTOMATIC PARTIAL OFF (FULL OFF COMPLIES): THE GENERAL LIGHTING POWER IN THE SPACE SHALL BE AUTOMATICALLY REDUCED BY AT LEAST 50% WITHIN 20 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE. 6) AUTOMATIC FULL OFF: ALL LIGHTING, SHALL BE AUTOMATICALLY SHUT OFF WITHIN 20 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE. A CONTROL DEVICE MEETING THIS REQUIREMENT SHALL CONTROL NO MORE THAN 5000

7) TIME SCHEDULED SHUTOFF: ALL LIGHTING IN THE SPACE SHALL BE AUTOMATICALLY SHUT OFF DURING PERIODS WHEN THE SPACE IS SCHEDULED TO BE UNOCCUPIED USING A TIME-OF-DAY OPERATED CONTROL DEVICE THAT AUTOMATICALLY TURNS THE LIGHTING OFF AT SPECIFIC PROGRAMMED TIMES. THE CONTROL DEVICE OR SYSTEM SHALL PROVIDE INDEPENDENT CONTROL SEQUENCES THAT (1) CONTROL THE LIGHTING FOR AN AREA OF NO MORE THAN 25,000 FT2, (2) INCLUDE NO MORE THAN ONE FLOOR, AND (3) SHALL BE PROGRAMMED TO ACCOUNT FOR WEEKENDS AND HOLIDAYS. ANY MANUAL CONTROL INSTALLED TO PROVIDE OVERRIDE OF THE SCHEDULED SHUTOFF CONTROL SHALL NOT TURN THE LIGHTING ON FOR MORE THAN TWO HOURS PER ACTIVATION DURING SCHEDULED OFF PERIODS AND SHALL NOT CONTROL MORE THAN 5000 FT2

8) SUPPLY AND INSTALL LOW VOLTAGE LIGHTING CONTROL C/W ZONES AS PER THE SPECIFICATION WHERE INDICATED ON THE DRAWINGS 9) OUTSIDE LIGHTING TO BE ZONED TO SEPARATE SECURITY LIGHTING FROM LANDSCAPE/DECORTIVE LIGHTING FOR STEPPED SCHEDULING. ALL OUTSIDE LIHTING TO BE ON VIA PHOTCELL AND OFF VIA TIMECLOCK OR PHOTOCELL CONTROL

III. <u>FUNCTIONAL TESTING</u>

ENSURE THAT CONTROL HARDWARE

AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED, AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS. WHEN OCCUPANT SENSORS, TIME SWITCHES, PROGRAMMABLE SCHEDULE CONTROLS, OR ARE INSTALLED. AT A MINIMUM. THE FOLLOWING PROCEDURES SHALL BE OCCUPANT SENSORS 1. CERTIFY THAT THE SENSOR HAS BEEN LOCATED AND AIMED

IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS

FOR PROJECTS WITH UP TO SEVEN (7) OCCUPANCY SENSORS, AL

OCCUPANCY SENSORS SHALL BE TESTED. FOR PROJECTS WITH MORE

IGHTING CONTROL DEVICES AND CONTROL SYSTEMS SHALL BE TESTED TO

THAN SEVEN (7) OCCUPANCY SENSORS, TESTING SHALL BE DONE FOR EACH UNIQUE COMBINATION OF SENSOR TYPE AND SPACE GEOMETRY. FOR EACH SENSOR TO BE TESTED, VERIFY THE FOLLOWING: STATUS INDICATOR (AS APPLICABLE) OPERATES CORRECTLY. CONTROLLED LIGHTS TURN OFF OR DOWN TO THE PERMITTED LEVEL WITHIN THE REQUIRED TIME. FOR AUTO-ON OCCUPANT SENSORS, THE LIGHTS TURN ON TO THE PERMITTED LEVEL WHEN SOMEONE ENTERS THE

FOR MANUAL-ON SENSORS, THE LIGHTS TURN ON ONLY WHEN

MANUALLY ACTIVATED.

PROGRAM SETTINGS

WHICH THE SWITCH IS LOCATED.

NEARBY AREAS OR BY HVAC OPERATION. AUTOMATIC TIME SWITCHES 1. CONFIRM THAT THE AUTOMATIC TIME-SWITCH CONTROL IS PROGRAMMED WITH APPROPRIATE WEEKDAY, WEEKEND, AND HOLIDAY (AS APPLICABLE) SCHEDULE: 2. DOCUMENT FOR THE OWNER AUTOMATIC TIME-SWITCH PROGRAMMING, INCLUDING WEEKDAY, WEEKEND, AND HOLIDAY SCHEDULES, AS WELL AS ALL SETUP AND PREFERENCE

THE LIGHTS ARE NOT INCORRECTLY TURNED ON BY MOVEMENT IN

3. VERIFY THAT CORRECT TIME AND DATE ARE PROPERLY SET IN THE TIME 4. VERIFY THAT ANY BATTERY BACKUP (AS APPLICABLE) IS INSTALLED AND ENERGIZED 5. VERIFY THAT THE OVERRIDE TIME LIMIT IS SET TO NO MORE THAN TWO (2) HOURS. SIMULATE OCCUPIED CONDITION. VERIFY AND DOCUMENT THE FOLLOWING 1. ALL LIGHTS CAN BE TURNED ON AND OFF BY THEIR RESPECTIVE AREA

2. THE SWITCH ONLY OPERATES LIGHTING IN THE ENCLOSED SPACE IN

3. SIMULATE UNOCCUPIED CONDITION. VERIFY AND DOCUMENT THE

a) ALL NONEXEMPT LIGHTING TURNS OFF. b) MANUAL OVERRIDE SWITCH ALLOWS ONLY THE LIGHTS IN THE ENCLOSED SPACE WHERE THE OVERRIDE SWITCH IS LOCATED TO TURN ON OR REMAIN ON UNTIL THE NEXT SHUT OFF OCCURS. DAYLIGHT CONTROLS 1. ALL CONTROL DEVICES (PHOTOCONTROLS) HAVE BEEN PROPERLY LOCATED, FIELD-CALIBRATED, AND SET FOR APPROPRIATE SET POINTS AND THRESHOLD LIGHT LEVELS. 2. DAYLIGHT CONTROLLED LIGHTING LOADS ADJUST TO APPROPRIATE LIGHT

LEVELS IN RESPONSE TO AVAILABLE DAYLIGHT.

3. THE LOCATION WHERE CALIBRATION ADJUSTMENTS ARE MADE IS

HE INDIVIDUALS RESPONSIBLE FOR THE FUNCTIONAL TESTING SHALL NOT BE

READILY ACCESSIBLE ONLY TO AUTHORIZED PERSONNEL.

DIRECTLY INVOLVED IN EITHER THE DESIGN OR CONSTRUCTION OF THE PROJECT AND SHALL PROVIDE DOCUMENTATION CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET OR EXCEED ALL DOCUMENTED PERFORMANCE CRITERIA. 16.33 TRANSIENT VOLTAGE SURGE SUPPRESSION (TVSS)

DIVISION 16 CONTRACTOR IS TO SUPPLY AND INSTALL. TVSS IS TO MEET THE FOLLOWING MINIMUM SPECIFICATION: -100KA SURGE RATING -PROTECTION MODES: L-N, L-G, N-G, L-L (COMMON/NORMAL) -LESS THAN 5 NANOSECOND RESPONSE TIME -DESIGNED AND TESTED TO IEEE AND ANSI C62.11, C62.41, C62,45 -NEMA 12 ENCLOSURE -THERMAL PROTECTION, COMPONENT LEVEL FUSING -DIAGNOSTIC LIGHTS -10 YEAR REPLACEMENT WARRANTY

-208 VOLT, 3 PHASE, 4 WIRE

RECOMMENDED METHODS.

SALES. MOUNTED AT 6'-0" A.F.F

FRONT DOOR REQUIREMENTS:

1) SURGE SUPPRESSOR TO BE SUPPLIED WITH EQUIPMENT PURCHASED

2) THE TVSS SHALL BE INSTALLED NEXT TO THE ELECTRICAL PANEL TO ENSURE MINIMUM LEAD LENGTHS TO THE CIRCUIT BREAKER AND NEUTRAL BUS. THE LENGTHS OF THE LEADS SHALL NOT EXCEED MANUFACTURER'S RECOMMENDED LENGTHS. ELECTRICAL PANELS WITH BOTTOM NEUTRAL BUS BARS, USE 3 BOTTOM BREAKER SPACES FOR TOP NEUTRAL BUS BARS, USE 3 TOP BREAKER SPACES.

3) THE TVSS UNIT SHALL BE INSTALLED USING THE MANUFACTURER'S

4) SHARP BENDS IN THE TVSS UNIT LEAD WIRES ARE NOT ACCEPTABLE. ALL 3 PHASE LEAD WIRES SHALL BE TWISTED TOGETHER OVER THEIR 16.34 BUZZER SYSTEM

-EDWARDS 762 BELL/BUZZER COMPLETE WITH EDWARDS 599

120/24V TRANSFORMER USING BELL FOR FRONT DOOR AND

BUZZER FOR RECEIVING -EDWARDS 620 SNAP IN PUSH BUTTON TO OPERATE BELL/BUZZER RECEIVING DOOR REQUIREMENTS: -SQUARE D ZB4BZ101 N/O CONTACT BLOCK FOR RECEIVING -SQUARE D ZB4BA9 22MM PUSHBUTTON

ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED METHODS.

2) INSTALL ALL LOW VOLTAGE WIRING AND TRANSFORMERS IN

1) PUSHBUTTON FOR DOOR BUZZER IN STAFF ROOM, STORAGE, AND

16.35 LOW VOLTAGE RELAY PANELS/CONTROLS

NON-CONDENSING RELATIVE HUMIDITY

AMBIENT TEMPERATURE.

2 PANEL / RELAY PERFORMANCE REQUIREMENTS

POWER INTERRUPTION WITHIN 3 SECONDS

CAPACITIVE, AND RESISTIVE LOADS.

4 FLUSH INTO WALL OR SURFACE MOUNTED

. INTEGRAL CONTACT CLOSURE INPUTS.

4. INTEGRAL SERIAL COMMUNICATION PORT

6. INTEGRAL ETHERNET COMMUNICATION PORT

D. REAL TIME ENERGY METER PER CIRCUIT. ELECTRICAL DEVICE TO

A. PRODUCT: GREENGATE DIGITAL SWITCH OR MOMENTARY SWITCH

1. UPON BUTTON PRESS, LEDS TO IMMEDIATELY ILLUMINATE

A. COMPATIBLE SENSORS TO BE USED IN CONJUNCTION WITH THE

. EXTERIOR DAYLIGHT SENSORS: CALIBRATED WITH INDEPENDENT

A. PERFORM FULL-FUNCTION TESTING ON COMPLETED ASSEMBLIES AT

END OF LINE. STATISTICAL SAMPLING IS NOT ACCEPTABLE.

THE CONTROL SYSTEM SHALL BE INSTALLED AND FULLY WIRED AS

CONTRACTOR SHALL COMPLETE ALL ELECTRICAL CONNECTIONS TO ALL

THE CONTRACTOR IS RESPONSIBLE FOR COMPLETE INSTALLATION OF THE

SHOWN ON THE PLANS BY THE INSTALLING CONTRACTOR. THE

ENTIRE SYSTEM ACCORDING TO STRICT FACTORY STANDARDS AND

REQUIREMENTS. THE FOLLOWING ITEMS SHALL CONSTITUTE FACTORY

1. ALL SYSTEM EQUIPMENT SHALL OPERATE IN ACCORDANCE WITH

2. AN OPERATIONAL USER PROGRAM SHALL EXIST IN THE CONTROI

REQUIRED TO EFFECTIVELY OPERATE THE SITE ACCORDING TO THE

SYSTEM. THE PROGRAM SHALL EXECUTE AND PERFORM ALL FUNCTIONS

3. DEMONSTRATION OF PROGRAM INTEGRITY DURING NORMAL OPERATION

MANUFACTURER SHALL SUPPLY A 3-YEAR WARRANTY ON ALL HARDWARE

AND SOFTWARE. A LIMITED 10-YEAR WARRANTY SHALL BE PROVIDED ON

INSTALLATIONS. SYSTEMS THAT PROVIDE SPECIAL WARRANTIES BASED ON

EQUAL ALTERNATE SYSTEMS AS MANUFACTURED BY THE FOLLOWING

ALL RELAY CARDS. THESE WARRANTIES WILL BE IN AFFECT FOR ALL

4. CONTRACTOR SHALL PROVIDE A MINIMUM OF TWO TRAINING HOURS ON

SPECIFICATION AND INDUSTRIAL STANDARD PROCEDURES.

THE OPERATION AND USE OF THE CONTROL SYSTEM.

3.01 - EQUIPMENT INSTALLATION AND DOCUMENTATION

CONTROL CIRCUITS AND OVERRIDE WIRING.

3.03 - SYSTEM DELIVERY AND ACCEPTANCE

STANDARDS AND REQUIREMENTS:

AND PURSUANT TO A POWER OUTAGE.

INSTALLATION SHALL NOT BE ACCEPTABLE

3.05 — ALTERNATE MANUFACTURERS.

C. PROVIDE FACEPLATES WITH LOW VOLTAGE WALL STATIONS

2. LEDS TO REFLECT THE TRUE SYSTEM STATUS. LED STATE IS

PROVIDE REAL TIME POWER METERING OF VOLTAGE AND CURRENT

1. USE COOPER CONTROLS LCCP OR LCCNP WIRE FOR LOW VOLTAGE

2. USE PLENUM RATED 18AWG WIRE FOR LOW VOLTAGE DRY CONTACT

SWITCHES. NUMBER OF CONDUCTS IS BASED ON TYPE OF SWITCH.

PROGRAMMABLE TO REFLECT EITHER RELAY STATE OR BUTTON PUSH

TURN-ON AND TURN-OFF THRESHOLDS; MINIMUM 2 FOOT-CANDLES

DIFFERENCE BETWEEN THE TURN-ON AND TURN-OFF THRESHOLDS

ENCLOSED IN WEATHERPROOF HOUSING WITH SHADING AND LENS

COMMUNICATION WIRING FOR THE GREENGATE DIGITAL SWITCH.

5. INTEGRAL USB COMMUNICATION PORT

SHALL BE PROVIDED WITH EACH RELAY.

P. INTEGRAL O-10V ANALOG INPUTS

3. INTEGRAL DIGITAL SWITCH PORT

FANS OR OTHER MEANS.

C. TOUCHSCREEN PANEL PROCESSOR

CIRCUIT BREAKER.

2.4 LOW-VOLTAGE WALL STATIONS

LIGHTING CONTROL SYSTEM.

PROTECTION VISOR

2.6 SOURCE QUALITY CONTROL

PART 3 – EXECUTION

A. INSTALLATION

A. DELIVERY

REQUIREMENTS

3.04 – WARRANTY

ARE ACCEPTABLE

ACUITY

DOUGLAS

WATTSTOPPER

A. WARRANTY

B. FUNCTIONALITY:

2.5 SENSORS

3 POWER PANELS

1. RATED LIFE OF RELAY: MINIMUM 1,000,000 CYCLES.

1. FIELD WIRING ACCESSIBLE FROM FRONT OF PANEL WITHOUT NEED

3. ALL PANELS INCLUDE INDIVIDUAL RELAY OVERRIDE AND STATUS LED

AS WELL AS A MASTER OVERRIDE SWITCH. THIS ALLOWS THE

RELAYS TO BE INDIVIDUALLY CONTROLLED WITHOUT USING THE

2. PANELS PASSIVELY COOLED VIA FREE-CONVECTION, UNAIDED BY

TO REMOVE RELAY ASSEMBLIES OR OTHER COMPONENTS.

A. LIGHTING CONTROL SYSTEM 1. FACTORY ASSEMBLED SWITCHING PANELS, INTERFACES AND MODULES 2. LOW VOLTAGE WALL STATIONS, CONTROL INTERFACES AND SENSORS. A. MAKE ORDERING OF NEW EQUIPMENT FOR EXPANSIONS, REPLACEMENTS, AND SPARE PARTS AVAILABLE TO END USER. B. MAKE NEW REPLACEMENT PARTS AVAILABLE FOR MINIMUM OF TEN YEARS FROM DATE OF MANUFACTURE. C. PROVIDE TOLL FREE FACTORY DIRECT TECHNICAL SUPPORT HOTLINE. D. PROVIDE ON-SITE SERVICE SUPPORT FOR TROUBLESHOOTING WITHIN E. OFFER RENEWABLE SERVICE CONTRACT ON YEARLY BASIS, TO INCLUDE PARTS, FACTORY LABOR, AND ANNUAL TRAINING VISITS. MAKE SERVICE CONTRACTS AVAILABLE UP TO TEN YEARS AFTER DATE OF SYSTEM COMMISSIONING

DEDICATED MECHANICAL ELECTRICAL FXHAUST FA C. LIGHTING CONTROLS: TEN-YEAR OPERATIONAL LIFE WHILE OPERATING ELR END OF LINE RESISTOR CONTINUALLY AT ANY TEMPERATURE IN AN AMBIENT TEMPERATURE ELECTRICAL METALLIC TUBING RANGE OF 0°C (32°F) TO 40°C (104°F) AND 90 PERCENT EXPLOSION PROOF A. ELECTROLYTIC CAPACITORS TO OPERATE AT LEAST 20° C BELOW THE FACP FIRE ALARM CONTROL PANEL COMPONENT MANUFACTURER'S MAXIMUM TEMPERATURE RATING WHEN FORCE FLOW HEATER DEVICE IS UNDER FULLY-LOADED CONDITIONS IN 40°C (104°F) FULL LOAD AMPERAGE B. CAPABLE OF WITHSTANDING REPETITIVE INRUSH CURRENT OF 50 TIMES GROUND FAULT CIRCUIT INTERRUPTER HORSEPOWER ISOLATED GROUND

CANADIAN STANDARDS ASSOCIATION

AMERICAN NATIONAL STANDARDS INSTITUTE

INSTITUTE OF ELECTRICAL AND ELECTRONICS

CANADIAN ELECTRICAL CODE

IPCEA INSULATED POWER CABLE ENGINEERS ASSOC.

NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOC.

UNDERWRITERS' LABORATORIES INC

AMPERES (RMS SYMMETRICAL)

ABOVE FINISHED FLOOR

BASEBOARD HEATER

CIRCUIT BREAKER

CEILING MOUNTED

BATTERY UNIT

FIRE ALARM ANNUNCIATOR

CURRENT TRANSFORMERS

CIRCUIT DISTRIBUTION PANEL

CANADIAN ELECTRICAL COI

OPERATING CURRENT WITHOUT IMPACTING LIFETIME OF DIMMER/RELAY. 1. DESIGN AND TEST RELAYS TO WITHSTAND LINE-SIDE SURGES WITHOUT IMPAIRMENT TO PERFORMANCE. PANELS: WITHSTAND JUNCTION BOX SURGES WITHOUT IMPAIRMENT OF PERFORMANCE WHEN SUBJECTED THOUSAND CIRCULAR MILL TO SURGES OF 6.000 VOLTS, 3.000 AMPS PER ANSI/IEEE C62.41B. C. UTILIZE AIR GAP OFF, ACTIVATED WHEN USER SELECTS "OFF" AT ANY CONTROL TO DISCONNECT THE LOAD FROM LINE SUPPLY. D. POSSESS POWER FAILURE MEMORY SUCH THAT IF POWER IS INTERRUPTED AND SUBSEQUENTLY RETURNED, LIGHTS WILL AUTOMATICALLY RETURN TO SAME LEVELS (ON OR OFF) PRIOR TO E. NON-DIM CIRCUITS TO MEET THE FOLLOWING REQUIREMENTS: 2. LOAD SWITCHED IN MANNER THAT PREVENTS ARCING AT MECHANICAL CONTACTS WHEN POWER IS APPLIED TO LOAD CIRCUITS 3. FULLY RATED OUTPUT CONTINUOUS DUTY FOR INDUCTIVE

KILO VOLT-AMPERES KII OWATT LOCKED ROTOR AMPS MAIN BREAKER MCA MINIMUM CIRCUIT AMPACITY MCC MAIN CONTROL CENTRE MDC MAIN DISTRIBUTION CENTRI MAXIMUM OVERCURRENT PROTECTION MICROWAVE NEUTRAL(GROUNDED CIRCUIT CONDUCTOR NIGHT LIGHT OPEN WEB STEEL JOIST POWER FACTOR POINT OF SALE POTENTIAL TRANSFORMERS RESISTANCE RIGID GALVANIZED STEEL ROOT MEAN SOUARE SHORT CIRCUIT AMPERES SECONDARY DISTRIBUTION CENTRE TAMPER RESISTANT UNINTERRUPTIBLE POWER SUPPLY VOLT (LINE TO LINE RMS) WEATHERPROOF WFT LOCATION PERCENT IMPEDANCE

SITE CONDITIONS AND REPORT ANY ERRORS OR OMISSIONS TO THE ENGINEER THE CONTENTS OF THIS DRAWING REMAINS THE COPYRIGHT PROPERTY OF INTEGRATED ENGINEERING REPRODUCTION OF THESE DOCUMENTS IN PART OR IN WHOLE WITHOUT WRITTEN PERMISSION OF THE ENGINEER IS STRICTLY PROHIBITED 1/2 inch 10 mr

DO NOT SCALE THE DRAWING THE CONTRACTOR IS RESPONSIBLE TO VERIFY

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PO/GLH

OF 8

ALTERATIONS TO EXISTING RETAIL BUILDING SHOPPERS DRUG MART #830 FAIRVIEW MALL

MARCH 2025 ELECTRICAL SPECIFICATIONS

3/16" = 1'-0"2025-830

1800 SHEPPARD AVENUE EAST, UNIT 2075 TORONTO, ONTARIO

E8 / NTS

PROJECT MANAGER FOR SPECIFICATIONS.

\ ELECTRICAL SPECIFICATIONS