## "PROVIDE" MEANS SUPPLY AND INSTALL. "APPROVED" MEANS APPROVED IN WRITING BY ENGINEER. "INSPECTION AUTHORITY" MEANS ELECTRICAL SAFETY AUTHORITY (ESA) INSPECTION DEPARTMENT. "INSPECTION AUTHORITY" MEANS OPERATIONS AND MAINTENANCE MANUAL. CONDITIONS OF CONTRACT THE INSTRUCTIONS TO BIDDERS AND THE GENERAL CONDITIONS OF THE DESIGNERS/ARCHITECTS SPECIFICATIONS ARE AN INTEGRAL PART OF THIS DIVISION AND SHALL BE READ IN CONJUNCTION HEREWITH. THESE INSTRUCTIONS TO BIDDERS AND GENERAL CONDITIONS SHALL BE FULLY BINDING ON THE GENERAL CONTRACTOR AND HIS SUB—CONTRACTORS TO THE FULL SATISFACTION OF THE DESIGNATED GENERAL CONTRACTOR. EXTRAS WILL NOT BE CONSIDERED GENERAL CONTRACTOR. EXTRAS WILL NOT BE CONSIDERED CERTAIN GENERAL PROVIDE ENGINEER WITH MINITENANCE DATA NOTICE TO ENGINEER WITH MINIMUM 48 HOURS NOTICE PRIOR TO INSTALLATION OF CEILING AND PARTITIONS SO THAT A FIELD REVIEW OF THE SYSTEMS. BEING COMPRENEN. MATERIALS MATERIALS NOTICE MATERIALS MATERIALS NOTICE MATERIALS MATERIALS NOTICE DEACH MATERIALS MATERIALS MATERIALS NOTICE DEACH MATERIALS MATERIALS NOTICE DEACH MATERIALS MATERIALS MATERIALS NOTICE DEACH MATERIALS MATER THIS CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR LAYING OUT HIS WORK AND FOR ANY DAMAGE OR EXTRA COSTS CAUSED TO THE OWNER OR THIS CONTRACTORS BY IMPROPER LOCATION OR CARRYING OUT OF HIS WORK. CARRY ALL NECESSARY INSURANCE COVERAGE. PERMITS, CERTIFICATES, FEES, ETC. GIVE ALL NOTICES, OBTAIN ALL PERMITS AND PAY ALL FEES SO THAT THE WORK SPECIFIED HEREIN MAY BE CARRIED OUT. AT THE ENGINEER'S REQUEST, FURNISH ANY LETTERS OR CERTIFICATES AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH THE LAWS AND REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION. TURN OVER ORIGINAL OF ELECTRICAL INSPECTION CERTIFICATE AND OF FIRE ALARM VERIFICATION CERTIFICATE AT COMPLETION OF PROJECT. TEMPORARY AND TRIAL USAGE TEMPORARY OR TRIAL USAGE BY THE OWNER OF ANY ELECTRICAL EQUIPMENT OR ANY OTHER WORK OR MATERIALS SUPPLIED UNDER THE CONTRACT TEMPORARY OR TRIAL USAGE BY THE ENGINEER IS NOT TO BE CONSTRUED AS EVIDENCE OF THE ACCEPTANCE OF SAME BY THE OWNER. THE OWNER SHALL HAVE THE PRIVILEGE OF SUCH TEMPORARY AND TRIAL USAGE AS SOON AS THIS CONTRACTOR SHALL CLAIM THAT SAID WORK IS COMPLETED. ANY DAMAGE CAUSED BY DEFECTIVE MATERIAL OR WORKMANSHIP THROUGH TEMPORARY OR TRIAL USAGE BY THE OWNER SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR. EQUIPMENT AND SITE CLEANLINESS THE CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES FREE FROM THE ACCUMULATION OF WASTE MATERIAL TO THE SATISFACTION OF THE PROJECT MANAGER. PLACE DUST PROTECTION IN THE FORM OF COVER SHEETS OVER EQUIPMENT AND FURNITURE TO ENSURE NO DUST INFILTRATION. CLEANING TO BE COMPLETED AT THE END OF EACH SHIFT. TESTING TEST ALL EQUIPMENT AND MATERIAL WHERE REQUIRED BY SPECIFICATIONS OR AUTHORITIES HAVING JURISDICTION AND DEMONSTRATE ITS PROPER OPERATION TO THE OWNER'S REPRESENTATIVE. ELECTRIC MOTORS AND WIRING THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO SUPPLY ALL MOTOR STARTERS, EXCEPT ON PRE-WIRED PACKAGED EQUIPMENT, DISCONNECT SWITCHES FOR ALL MOTORS FOR THE PROJECT, AND ALL WIRING TO STARTERS AND MOTORS EXCEPT WHERE SHOWN OR NOTED OTHERWISE. EQUIPMENT REQUIRING CONNECTION TO AN ELECTRICAL POWER SOURCE SHALL BE CSA OR ULC APPROVED FOR USE AT LOCATION OF INSTALLATION. THE MECHANICAL CONTRACTOR SHALL SUPPLY CONTROL WIRING UP TO AND INCLUDING 120 VOLTS, WITHIN CONDUIT FOR A COMPLETE AND OPERATING INSTALLATION UNLESS OTHERWISE NOTED. RECORD "SS-BUIL" DRAWINGS OF EXTRA SET OF WHITE PRINTS AND SPECIFICATIONS ON WHICH ALL CHANGES AND DEVIATIONS SHALL BE RECORDED DAILY WITH A RED MARKER. SIMILARLY, KEEP A SET OF PANEL SCHEDULES AND MARK UP WITH ANY CHANGES. AT COMPLETION OF THE PROJECT TURN MARKED UP DRAWINGS AND PANEL SCHEDULES OVER TO THE ENGINEER. SHOP DRAWINGS AND PANEL SCHEDULES OF ANY MATERIALS OR EQUIPMENT, SUBMIT A MINIMUM OF FOUR (4) COMPLETE SETS OF SHOP DRAWINGS AND DATA SHEETS COVERING ALL ITEMS OF EQUIPMENT FURNISHED AND INTENDED FOR INSTALLATION UNDER THIS CONTRACT FOR REVIEW BY THE ENGINEER. ITEMS TO SUBMIT SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING: TRANSFORMERS, LIGHT FIXTURES, PANEL TYPES. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THIS WORK AND SHALL COORDINATE LOCATIONS FOR ALL HOLES FOR CONDUITS, ETC., AND PROVIDE SLEEVES REQUIRED TO EXECUTE THE ELECTRICAL INSTALLATION. SCAN FLOORS AND STRUCTURAL WALLS BEFORE CUTTING TO LOCATE EXISTING REBAR AND CONDUITS, AND TO OBTAIN OWNER'S APPROVAL FOR PROPOSED CUTTING. PROVIDE ULC APPROVED FIRESTOPPING SYSTEM FOR ALL PENETRATIONS THROUGH RATED ASSEMBLIES. REPAIR ALL EXISTING WORK DAMAGED BY CUTTING, AT NO EXTRA COST TO THE CONTRACT. PENTIFICATION IDENTIFY WITH LAMICOID NAMEPLATES ALL ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND/OR MENTIONED IN THE SPECIFICATION SUCH AS MOTORS, SWITCHES, STARTERS, PANELBOARDS, TRANSFORMERS, CONTROLS, AND SPECIAL RECEPTACLES, REGARDLESS OF WHETHER OR NOT THE ELECTRICAL EQUIPMENT WAS FURNISHED UNDER THIS SECTION OF THE SPECIFICATION. UNLESS OTHERWISE SPECIFIED, NAMEPLATES SHALL BE RIGID LAMICOID, MINIMUM 1.5 mm THICK WITH BLACK LETTERS ENGRAVED ON A WHITE BACKGROUND. NAMEPLATES TO BE NEATLY PLACED, AND SQUARE TO SURROUNDING BUILDING OR EQUIPMENT LINES AND FASTENED IN PLACE WITH MECHANICAL FASTENERS (SCREWS OR POP RIVETS). WORDING TO BE REVIEWED BY FINGINFER. ITENT IT IS THE INTENT OF THIS SPECIFICATION AND DRAWINGS TO PROVIDE FOR A COMPLETE AND FULLY OPERATING SYSTEM IN COMPLETE ACCORD WITH ALL APPLICABLE CODES. THESE DOCUMENTS MAY NOT SHOW OR DESCRIBE EACH AND EVERY ITEM REQUIRED FOR THE COMPLETE ELECTRICAL INSTALLATION; THEREFORE, THE CONTRACTOR SHALL MAKE PROVISIONS FOR ALL LABOUR, MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THE ELECTRICAL SYSTEM TO PERFORM AS INTENDED. THE PRICE SUBMITTED FOR THIS CONTRACT SHALL BE BASED ON THE USE OF MATERIALS AND EQUIPMENT AS SPECIFIED. IF THIS CONTRACTOR WISHES TO QUOTE ON EQUIVALENT MATERIALS AND EQUIPMENT HE MUST QUOTE ON PRODUCTS APPROVED BY THE ENGINEER, IN WRITING, AS AN EQUIVALENT TO THE PRODUCT SPECIFIED. THIS CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY ADDITIONAL WORK OR MATERIALS REQUIRED BY THE ELECTRICAL TRADE OR OTHER CONTRACTORS TO ACCOMMODATE APPROVED EQUIVALENT MATERIALS OR EQUIPMENT. EXTRAS WILL NOT BE APPROVED TO COVER SUCH WORK. HUT-DOWNS OF SERVICES AND SYSTEMS CONTRACTOR TO COORDINATE ALL DOWN TIME AND SYSTEM SHUTDOWNS WITH BUILDING OWNER OR USER GROUP PRIOR TO PERFORMING WORK. CONTRACTOR TO VERIFY WITH OWNER BEFORE MAKING ANY CONNECTION TO ANY EXISTING SYSTEMS. THIS WILL ENSURE THAT (1) THE OWNER IS AWARE THAT WORK WILL BE DONE ON A SYSTEM AND (2) THAT THE CONTRACTOR IS WORKING ON A SYSTEM THAT IS FUNCTIONING NORMALLY WHEN HE STARTS HIS WORK. OCATION OF OUTLETS AND MOUNTING HEIGHTS LOCATE OUTLETS GENERALLY AS SHOWN ON DRAWINGS, REFER TO ARCHITECT/INTERIOR DESIGNER DRAWINGS FOR EXACT LOCATIONS CLEARLY IDENTIFY ALL PULL AND JUNCTION BOXES, WITH PERMANENT HANDWRITTEN MARKER IDENTIFICATION INDICATING SOURCE PANEL AND CIRCUIT NUMBERS TO SATISFACTION OF ENGINEER. CLEARLY IDENTIFY WIRING WITH PERMANENT INDELIBLE IDENTIFYING MARKINGS, USING EITHER COLOUR CODED WIRING, OR NUMBERED OR COLOURED PLASTIC TAPES, ON BOTH ENDS OF PHASE CONDUCTORS OF FEEDERS AND BRANCH CIRCUIT WIRING TO SATISFACTION OF ENGINEER. THE CONSULTANT SHALL REVIEW OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT, BUT ONLY FOR THE LIMITED PURPOSES OF CHECKING FOR CONFORMANCE WITH THE DESIGN CONCEPT AND THE INFORMATION SHOWN IN THE CONSTRUCTION DOCUMENTS. THIS REVIEW SHALL NOT INCLUDE REVIEW OF THE ACCURACY OR COMPLETENESS OF DETAILS, SUCH AS QUANTITIES, DIMENSIONS, WEIGHTS OR GAUGES, FABRICATION PROCESSES, CONSTRUCTION MEANS OR METHODS, COORDINATION OF THE WORK WITH OTHER TRADES OR CONSTRUCTION SAFETY PRECAUTIONS, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ELECTRONIC SHOP DRAWING SUBMISSIONS ARE ACCEPTABLE WITH THE FOLLOWING CONDITIONS: THE SHOP DRAWINGS ARE SUBMITTED IN PDF FORMAT WITH A TRANSMITTAL AND INCLUDE THE CONTRACTOR'S REVIEW STAMP. THE NUMBER OF PAGES IN THE COMPLETE SUBMISSION (IE. NOT MULTIPLE PIECE-MEAL SUBMISSIONS) DO NOT EXCEED 25 PAGES. THE PAGE SIZE CANNOT EXCEED 11"X17" AND MUST BE FULLY LEGIBLE. IN THE EVENT THAT THE ELECTRONIC SUBMISSION CANNOT CONFORM TO THE REQUIREMENTS IDENTIFIED ABOVE, THE CONTRACTOR SHALL SUBMIT SIX (6) SETS OF HARD COPIES FOR REVIEW. ALL WORK SHOWN OR IMPLIED ON THESE DRAWINGS SHALL CONFORM TO LATEST EDITIONS OF THE ONTARIO BUILDING CODE, THE ONTARIO ELECTRICAL SAFETY CODE AND LOCAL CODE REGULATIONS AS APPLICABLE. THE CONSULTANT'S REVIEW SHALL BE CONDUCTED WITH REASONABLE PROMPTNESS WHILE ALLOWING SUFFICIENT TIME IN THE CONSULTANT'S JUDGMENT TO PERMIT ADEQUATE REVIEW. REVIEW OF A SPECIFIC ITEM SHALL NOT INDICATE THAT THE CONSULTANT HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. THE CONSULTANT SHALL NOT BE RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS NOT BROUGHT TO THE ATTENTION OF THE CONSULTANT IN WRITING BY THE CONTRACTOR. THE CONSULTANT SHALL NOT BE REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED. AMINATION OF WORK THIS PROJECT INVOLVES RENOVATIONS TO EXISTING BUILDING, THEREFORE EXAMINE THE SITE AND LOCAL CONDITIONS TO DETERMINE THE DIFFICULTIES CARRYING OUT THE WORK INDICATED AND SPECIFIED PRIOR TO SUBMITTING FINAL PRICE. NO ALLOWANCE FOR EXTRAS WILL BE MADE ON CONDITIONS EXISTING AT THE TIME OF TENDER. THE RESPONSIBILITY AND SCOPE OF EACH SUB-TRADE RESTS SOLELY WITH THE DESIGNATED GENERAL CONTRACTOR. EXTRAS WILL NOT BE CONSIDERED BASED ON THE GROUNDS OF DIFFERENCE IN INTERPRETATION OF SPECIFICATIONS AND DRAWINGS AS TO WHICH TRADE INVOLVED SHALL PROVIDE CERTAIN SPECIALTIES OR MATERIALS. ESMIC RESTRAINT PROVIDE SEISMIC RESTRAINT OF ELECTRICAL SYSTEMS IN ACCORDANCE WITH SECTION 4.1.8 OF THE ONTARIO BUILDING CODE. SUBMIT RESTRAINT DETAILS PROVIDE SEISMIC RESTRAINT OF ELECTRICAL SYSTEMS IN ACCORDANCE WITH SECTION 4.1.8 OF THE ONTARIO BUILDING CODE. SUBMIT RESTRAINT DETAILS IN FORM OF SHOP DRAWINGS, STANDING SIN WRITING AT COMPLETION OF PROJECT THE ELECTRICAL INSTALLATION IS IN GENERAL COMPLIANCE WITH THE SHOP DRAWINGS. EQUIPMENT INCLUDES BUT IS NOT LIMITED TO: SUSPENDED TRANSFORMERS, BUSDUCTS, CABLETRAYS, SUSPENDED CONDUIT RUNS, FREE STANDING DISTRIBUTION EQUIPMENT, AND SUSPENDED LIGHT FIXTURES. INCLUDE ALL COSTS FOR STRUCTURAL DESIGN, MATERIALS AND SITE REVIEW IN TENDER PRICE. PROVIDE NEATLY TYPED UPDATED CIRCUIT DIRECTORIES IN A PLASTIC HOLDER ON THE INSIDE DOOR OF NEW PANELBOARDS, CAREFULLY UPDATE PANELBOARD CIRCUIT DIRECTORIES WHENEVER ADDING, DELETING, OR MODIFYING EXISTING CIRCUITRY. SUBMISSION SHALL INCLUDE BOTH THE GENERAL CONTRACTOR AND ELECTRICAL CONTRACTOR'S STAMP, INITIALLED OR SIGNED, CERTIFYING REVIEW SUBMISSION, VERIFICATION OF FIELD MEASUREMENTS AND COMPLIANCE WITH CONTRACT DOCUMENTS. SUBMISSIONS AT LEAST 15 WORKING DAYS BEFORE DATES REVIEWED SUBMISSIONS WILL BE NEEDED. DO NOT INSTALL OUTLETS BACK-TO-BACK IN WALL; ALLOW MINIMUM 150mm HORIZONTAL CLEARANCE BETWEEN BOXES, AND LOCATE IN SEPARATE STUD CAVITIES WHEREVER POSSIBLE. LOCAL SWITCHES WALL RECEPTACLES: GENERAL FIRE ALARM SIGNALS (WALL MOUNTED) INSTALL ELECTRICAL EQUIPMENT AT THE FOLLOWING HEIGHTS UNLESS INDICATED OTHERWISE. VOICE/DATA OUTLETS WITH ARCHITECT/INTERIOR DESIGNER DRAWINGS PRIOR TO ROUGH-IN. CHANGE LOCATION OF OUTLETS AT NO EXTRA COST OR CREDIT, PROVIDING DISTANCE DOES NOT EXCEED INSTALLATION. MENT AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF TWELVE (12) MONTHS FROM DATE OF FINAL ACCEPTANCE OF COMPLETE WORK. 3m, AND INFORMATION IS GIVEN BEFORE HEIGHTS OF RECEPTACLES WITH COPY IN MANUAL 400 mm 2100 mm 1200 mm GROUNDING GROUND ALL FRAMES AND E LIGHTING PULL BOXES BREAK UP LONG RUNS OF CONDUITS BY A SUFFICIENT NUMBER OF PULL BOXES TO MAKE PULLING OF WIRE EASY. IN NO CASE WILL A RUN BE MORE THAN 30 METERS BETWEEN BOXES. LOCATE BOXES IN ACCESSIBLE AREAS. JUNCTION BOXES SIZED AS PER ONTARIO ELECTRICAL SAFETY CODE FOR NUMBER AND SIZE OF CONDUCTORS. USE OF EXTENSION BOXES IS PROHIBITED, EXCEPT WHERE USED TO EXTEND FOR SURFACE CONDUIT DISTRIBUTION OR BY SPECIAL PERMISSION FROM THE ENGINEER. CONDUIT AND CONDUIT FITTINGS MINIMUM CONDUIT SIZE FOR LIGHTING AND POWER CIRCUITS SHALL BE 21m FIXTURES AND INSTALLATION RELOCATE LIGHTING FIXTURES PHILIPS DYNALITE SERIES DIMMERS SHALL BE PROVIDED BASED ON FOLLOWING LOAD TYPES: 1. INCANDESCENT/HALOGEN LAMPS AND FOR SOME LED DIMMING DRIVERS. 2. FIXTURES EQUIPPED WITH MAGNETIC LOW VOLTAGE TRANSFORMERS. 3. FIXTURES EQUIPPED WITH ELECTRONIC LOW VOLTAGE TRANSFORMERS AND FOR SOME LED DIMMING DRIVERS 4. 3-WIRE FLUORESCENT DIMMING BALLASTS AND FOR SOME LED DIMMING DRIVERS. 5. 0-10V FLUORESCENT DIMMING BALLASTS AND 0-10V LED DIMMING DRIVERS. FITTINGS TO BE SUITABLY SIZED FOR CONDUIT USED. FITTINGS USED WITH EMT TO BE STEEL, NOT CAST. FACTORY 'ELLS' WHERE 90 deg BENDS ARE REQUIRED FOR 25mm AND LARGER CONDUITS, OR FIELD BENDS WITH APPROVED HYDRAULIC BENDER. RING DEVICES AND OUTLET BOXES PROVIDE GANGED BOXES AND COMMON COVER PLATES WHERE MULTIPLE DEVICES OCCUR(SWITCHES, DIMMERS, ETC) OR IF NOT POSSIBLE CAREFULLY LOCATE AND ALIGN TO MAKE A NEAT ARRANGEMENT WITH EQUAL SPACINGS BETWEEN FINISHED DEVICES, AND IN HARMONY WITH SURROUNDING BUILDING LINES. PROVIDE WHITE SPECIFICATION GRADE WIRING DEVICES AND STAINLESS STEEL COVER PLATES UNLESS OTHERWISE NOTED. PROVIDE DIMMERS AS SPECIFIED. WHERE DIMMERS ARE SHOWN TO BE GANGED THEY SHALL BE DERATED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. COORDINATE WITH OTHER TRADES SO THAT DIMMERS ARE NOT LOCATED BELOW THERMOSTATS OR TEMPERATURE SENSORS. DIMMERS SHALL BE EQUAL TO PHILIPS DYNALITE SERIES, COMPLETE WITH PUSHBUTTON PRESET OPTION, UNLESS OTHERWISE INDICATED. PROVIDE LIGHTING FIXTURES COMPLETE WITH LAMPS, CONTROLS, SUPPORTS, ETC. TO PROVIDE A COMPLETE WORKING LIGHTING SYSTEM. FOR SUSPENDED CEILING INSTALLATIONS, SUPPORT EACH NEW AND RELOCATED LUMINAIRE INDEPENDENTLY OF THE CEILING SUPPORT SYSTEM WITH SLACK CHAINS. PROVIDE P-TOUCH LABELLING ON ALL RECEPTACLES, SWITCHES AND DIMMERS INDICATING CIRCUIT NUMBER AND SOURCE PANEL. P-TOUCH LABEL SHALL HAVE BLACK LETTERING ON CLEAR BACKGROUND. HOT WIRES DIRECT FROM PANEL: RED, BLACK, BLUE SWITCH WIRES FROM LIGHT SWITCH TO LOAD: RED. NEUTRAL WIRE: WHITE. MECHANICAL GROUND WIRE: GREEN. INSULATED GROUND: GREEN WITH YELLOW STRIPE. CIRCUITING SHOWN ON DRAWINGS IS FOR GROUPING PURPOSES ONLY AND DOES NOT REFLECT ACTUAL BREAKER POSITION. CONTRACTOR TO WIRE TO ACHIEVE GROUPING SHOWN AND MARK RECORD DRAWINGS WITH CIRCUIT NUMBERS USED TO REFLECT "AS-BUILT" CONDITIONS. WHERE A CIRCUIT IS DEDICATED, ALL CONDUCT GREATER THAN 15 AMPERES, THE CONDUCTOR ELECTRICAL CODE. PROVIDE SEPARATE NEUTRAL LIGHTING LOADS. COLOUR CODE WIRING FOR 120/208V AS FOLL

THE ELECTRICAL CONTRACTOR SHALL SUBMIT A TEMPLAIL PROPOSITION TO THE CITY TO ASSIST IN GAINING REVIEW AND RECOMMENDED ACCEPTANCE PRIOR TO ANY CCN'S/PC'S BEING ISSUED.

GENERAL REVIEW DECLARATION

BEFORE THE ENGINEER CAN ISSUE A GENERAL REVIEW DECLARATION TO THE CITY TO ASSIST IN GAINING READY FOR THE INTENDED USE. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL AS INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, MANUFACTURER'S INSTALLATION INSTRUCTION BE. ADDITIONALLY, ALL SYSTEMS ARE TO HAVE BEEN STARTED UP, BALANCED AND COMMISSIONED (IF RECOMINIMUM SHALL BE REQUIRED WITH NO DEFICIENCIES PRIOR TO THE ENGINEER ISSUING A GENERAL REVIEW OF THE ENGINEER ISSUING A GENERAL REVIEW OF THE PROPERTY THE FOLLOWING JOB EXPENSES SHALL NOT BE CONSIDIONAL CONTROL OF THE LAGE BINS/CLEAN—UP.

2 SUPERVISION AS IT IS INCLUDED IN THE LAGE BINS/CLEAN—UP.

3 SHIPPING AND DELIVERIES.

4 PROJECT MANAGEMENT.

5 ESTIMATING.

6 SPECIAL CLEANING.

7 SPECIAL HANDLING / STORAGE.

8 EQUIPMENT RENTALS FOR SMALL TOOLS.

9 EQUIPMENT START—UP.

10 ANY OTHER NON PRODUCTIVE TIME ITEMS PROVIDE DETAILED BREAKDOWNS OF MATERIAL AND NOTICES (CCN'S) OR PROPOSED CHANGES (PC'S). SIMILAR COMMODITY—TYPE MATERIALS SHALL BE B. APPLIED. SUBMIT SUPPLIER INVOICES FOR OTHER FIRE ALARM COMPONENTS, ETC. BASIC MATERIAL AND METHODS

WIRING METHODS

PROVIDE COPPER CONDUCTORS WITH RW90 INSULATION. MINIMUM CONDUCTOR SIZE SHALL BE #1
CONTROLS UNLESS OTHERWISE NOTED. INSTALL IN EMT CONDUIT UNLESS OTHERWISE NOTED. RL
AT CODE SPACINGS. USE BX ONLY FOR WIRING DROPS FROM AREA BOX TO LIGHT FIXTURES AND
PARTITION WALLS UP TO CEILING BOX FOR A MAXIMUM CEILING CABLE LENGTH OF 3M. ADJUST CO
EXCEEDING 23M IN LENGTH TO LIMIT VOLTAGE DROP TO MAXIMUM 5% FROM SERVICE ENTRANCE. THE FOLLOWING JOB EXPENSES SHALL BE CONSIDERED TO BE ACCEPTABLE IN CERTAIN PRICING EX.

1 BONDING COSTS
2 WARRANTY COSTS WHERE CONSIDERED ACCEPTABLE SHALL BE BASED ON 2% OF THE MAT.

3 DRAFTING COSTS (WHERE INTERFERENCE /COORDINATION DRAWINGS HAVE BEEN REQUESTED BASED ON 2% OF THE LABOUR COST FOR THE CHANGE. EQUIPMENT COSTS WILL NOT BE CHARGED ON 2% OF THE LABOUR COST FOR THE CHANGE. EQUIPMENT COSTS WILL NOT BE CHARGED IN THE LABOUR COSTING WHERE CONSIDERED ACCEPTABLE (IE. NOT SMALL TOOLS COVERED IN THE LABOUR CORE DRILLING WHERE CONSIDERED ACCEPTABLE SHALL BE CHARGED AS A JOB EXPENSE OF TRAVEL IN ACCORDANCE WITH THE APPLICABLE UNION AGREEMENT SHALL BE CONSIDERED. **WAGES IN THE WORK**CHANGES IN THE WORK MAY BE REQUESTED FROM TIME TO TIME BY THE ISSUANCE OF A CONTEMF CHANGE (PC). IN ADDITION TO THE NET COST OF THE CHANGE, THE CONTRACTOR SHALL BE ENTITL ON HIS WORK AND 10% FEE TO COVER OVERHEADS AND PROFIT ON SUB-TRADES. REQUIRED LABOUR SHALL BE EVALUATED BASED ON PUBLISHED NECA MANUAL OF LABOUR UNITS, "NORMAL" COLUMN FOR UNOCCUPIED AREAS AND THE "DIFFICULT" COLUMN IN OCCUPIED AREAS OR ENGINEER'S REVIEW. NO OTHER JOB FACTORS SHALL BE CONSIDERED APPLICABLE. BLENDED LABOUR RATES FOR ALL PERSONNEL FOR THE DURATION OF THE PROJECT SHALL NOT EX NORMAL WORKING HOURS: \$83.00 / HOUR PREMIUM NIGHT SHIFT (MINIMUM THREE CONSECUTIVE NIGHT SHIFTS): \$110.00 / HOUR OVERTIME: \$137.00 / HOUR PROVIDE BLANK COVER PLATES FOR ALL DEVICES REMOVED FROM WALLS TO REMAIN.

\*\*ADE QUALIFICATIONS\*\*

ALL ELECTRICAL TRADE WORKERS SHALL HAVE A CERTIFICATE OF QUALIFICATIONS AS JOURNEYMAN WHERE THE WORK IS PERFORMED OR AN INTER PROVINCIAL CERTIFICATE. THE RATIO OF APPRENTIC THE TRADES QUALIFICATION AND APPRENTICESHIP ACT OF ONTARIO. CERTIFICATES AND REGISTRATION THE TRADES QUALIFICATION AND APPRENTICESHIP ACT OF ONTARIO. DEPTRENTICES WORKING ONMAINTAIN ON SITE AN UP-TO-DATE RECORD LISTING JOURNEYMAN AND APPRENTICES WORKING ON-TURN OVER TO THE OWNER IN CLEAN AND SOUND CONDITION ANY REDUNDANT EXISTING MATERIAL SPECIFIED ON DRAWINGS. WHERE EXISTING MATERIALS ARE TO BE RE-USED, THE ELECTRICAL CONTRACTOR SHALL BE RESPONDED. CONTRACTOR IS RESPONSIBLE FOR RECONNECTING AND IDENTIFYING ANY EXISTING LOADS WHICH DBE RE-USED. ALL EQUIPMENT TO BE RE-USED IS TO BE CLEANED OF PAINT, PLASTIC, ETC. TO THE SATISFACTION WHERE EXISTING DEVICES ARE BEING RELOCATED, EXTEND EXISTING DONNECTION OF ANY SERVICES WHICH ARE TO REMAIN ANI MAINTAIN ELECTRICAL SERVICES AND SYSTEMS AT ALL TO CES DISRUPTED DURING DEMOLITION NOT INTENDED TO BE A SYSTEM AND ANY OTHER SAFETY OR SECURITY SYSTEMS OF SOME EXISTING MATERIALS OR EQUIPMENT ARE TO BE SOME TO THE COMMENCEMENT OF DEMOLITION. MAINTAIN A AND LABOUR WITH UNIT PRICES AND EXTENSIONS REIC'S). COST QUOTATIONS SHALL BE BASED ON INDUSTRIE BASED ON CURRENT TRADE SERVICE CANADIAN MONHER TYPES OF MATERIAL SUCH AS POWER DISTRIBUTION HAVE BECOME REDUNDANT UNDER THE CONTRACT OF SLAB BASE BUILDING JUNCTION BOX. ALL ITEMS F CONSIDERED ACCEPTABLE UNDER ANY CIRCUMSTANG THE LABOUR RATES NOTED AND REFERENCED ABO WIRING AND CONDUIT AS REQU

COMPLETE WITH ALL REDUNDANT WIRING AND CONDUIT REMOVED DURING DEMOLITION AND WHICH ARE NOT TO	LAMPS-GENERAL PROVIDE ALL REQUIRED LAMPS AS INDICATED IN FIXTURE LIST. INCANDESCENT LAMPS: EXCEPT WHERE OTHERWISE NOTED THEY SHALL BE EXTENDED LIFE TYPE, 2500 HOURS, 130V, INSIDE FROSTED.
A AND WHICH HAVE BEEN DISCONNECTED DURING THE ALL TIMES TO AREAS BEYOND THE CONSTRUCTION AREA. TO BE REMOVED AS PART OF THIS CONTRACT. RETAIN TEMS TO ALL OCCUPIED AREAS OF THE BUILDING BE RETAINED IN PLACE OR RECONNECTED, IDENTIFY AND AND ADEQUATE STRUCTURAL SUPPORT FOR EQUIPMENT AND	COMPACT FLUORESCENT LAMPS: COLOUR TEMPERATURE TO MATCH FLUORESCENT LAMPS UNLESS OTHERWISE NOTED. <b>EXIT LIGHTS</b> EXIT LIGHTS SHALL BE BILINGUAL 'EXIT—SORTIE', EDGE LIT STYLE EXIT LIGHT TO MATCH THE BASE BUILDING STANDARD IN APPEARANCE UNLESS OTHERWISE INDICATED. EXIT SIGN SHALL BE COMPLETE WITH LED LAMPS. CONNECT TO EXISTING EXIT LIGHT CIRCUIT.
OF THE ENGINEER.  NOT APPEAR ON PANEL DETAILS AND WHICH ARE	ENSURE THAT EXIT LIGHT CIRCUIT BREAKER IS LOCKED IN 'ON' POSITION.
DO NOT APPEAR ON PANEL DETAILS AND WHICH ARE TO PONSIBLE FOR THEIR REMOVAL, STORAGE, CLEANING AND	PROVIDE EMERGENCY BATTERY UNIT AS FOLLOWS:  TO CSA C22.2 NO. 141.  SEALED LEAD ACID RATTERIES 10 YEAR LIFE
ND REINSTATE IN NEW LOCATION SHOWN.  UIPMENT DESIGNATED BY THE OWNER OR	SEALED LEAD ACID BATTERIES, 10 YEAR LIFE.  SEALED LEAD ACID BATTERIES, 10 YEAR LIFE.  MINIMUM OPERATING TIME 30 MINUTES BASED ON CONNECTED LOAD PLUS 10% UNLESS OTHERWISE NOTED, MINIMUM 100 WATTS.  MULTI RATE CHARGER, REGULATED, TEMPERATURE COMPENSATED, SHORT CIRCUIT PROTECTED.  SOLID STATE TRANSFER AND LOW VOLTAGE DISCONNECT.  SIGNAL LIGHTS AND TEST SWITCH.
N OR APPRENTICE REGISTRATION FOR THE PROVINCE TICE TO JOURNEYMAN SHALL NOT EXCEED THE RATIO IN TIONS MUST BE PROVIDED ON THE ENGINEER'S REQUEST. N-SITE.  MPLATED CHANGE NOTICE (CCN) AND/OR PROPOSED TLED TO A 15% FEE TO COVER OVERHEADS & PROFIT	INLEGRAL HEADS WHERE SHOWN, AND REMOTE HEADS CELLING MOUNTED ON CANOPY PLATE, FULLY ADJUSTABLE SWIVEL TYPE, WITH 4 WATT LED LAMP WIRING TO BE SIZED TO LIMIT VOLTAGE DROP TO MAXIMUM 5% ELECTRICAL DISTRIBUTION AND EQUIPMENT DISCONNECT SWITCHES AND FUSES  FUSIBLE AND NON-FUSIBLE DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE IN CSA ENCLOSURE, TYPE 1 INDOORS, SPRINKLER PROOF IN SPRINKLERED BUILDING AND TYPE 3 OUTDOORS. WHERE FUSED, FUSES SHALL MATCH EXISTING OR SHALL BE TYPE 'J', HRC TYPE. STANDARD OF ACCEPTANCE: BUSSMANN LPJ, GOULD SHAWMUT AJT, NORAM
REQUIRED FOR REVIEW OF CONTEMPLATED CHANGE TRY ACCEPTED COSTING METHODS. WIRING, CONDUIT AND ONITOR PLUS NET PRICING WITH A 30% DISCOUNT TION EQUIPMENT, LIGHT FIXTURES, HEATING PRODUCTS, EXCEED THE FOLLOWING:	MOTOR RATED SWITCH  MOTOR RATED SWITCH SHALL BE HORSE POWER RATED FOR MOTOR USE AS FOLLOWS: SERVICE SPACES: SURFACE MOUNTED SWITCH WITH PILOT LIGHT EQUAL TO CUTLER HAMMER MS SERIES FOR MOTOR UP TO 1HP@120V/240V AND B100 SERIES FOR MOTOR UP TO 5HP@600V.  FOR MOTOR UP TO 2HP@120V/240V INDUSTRIAL HEAVY DUTY SPECIFICATION GRADE. FINISHES TO MATCH LIGHT SWITCHES THROUGHOUT.
CURRENT AT TIME OF TENDER CLOSING, USING THE R AREAS OF EXCESSIVELY HIGH CEILINGS SUBJECT TO	PANELBOARDS  PROVIDE NEW BREAKERS TO MATCH EXISTING PANELS, GE A-SERIES, AS SHOWN.  MCC  PROVIDE NEW PLUG IN TYPE BREAKERS TO MATCH EXISTING MOTOR CONTROL CENTRE, GF EVOLUTION SERIES F-9000
EXERCISES.  ATERIAL & LABOUR COST FOR THE CHANGE.  TED AS PART OF THE CONTRACT) SHALL BE CONSIDERED  BE CONSIDERED IN THE FORMULA.  BASED ON CURRENT CRANING COSTS.  ABOUR UNITS) SHALL BE CHARGED BASED ON CURRENT	ONTROL ATER, A CUTLER 1/2 H ED 'ON HOWN.
SE. D TO BE ACCEPTABLE AS A JOB EXPENSE. NOVE.	TELECOMMUNICATIONS  CONDUITS AND OUTLETS  PROVIDE EMPTY CONDUITS AS SHOWN FOR TELEPHONE/DATA SYSTEM, WITH BUSHING ON EACH CONDUIT END, AND PULL STRING IN ALL EMPTY CONDUITS. PROVIDE BACK BOX AT EACH WALL TELEPHONE/DATA OUTLET, WITH EMT CONDUIT, SIZE AND LOCATION AS NOTED ON DRAWINGS.
S/PC'S AS A FORMAL SHOP DRAWING SUBMISSION FOR	AT COMPLETION OF CABLING CONTRACT, PROVIDE BLANK COVER PLATES TO MATCH IN COLOUR, STYLE AND MATERIAL, THE COVERPLATES IN THE AREA, ON ANY UNUSED OUTLET BOX.
ANNING AN OCCUPANCY PERMIT, THE SPACE MUST BE ALL ASPECTS OF THE ELECTRICAL SYSTEMS HAVE BEEN RUCTIONS AND INDUSTRY STANDARDS AS THE CASE MAY (IF REQUESTED). THE FOLLOWING LIST OF ITEMS AS A AL REVIEW DECLARATION: 3 IS CONNECTED TO EMERGENCY POWER AS PER	
#12 AWG FOR POWER AND LIGHTING AND #14 AWG FOR RUN CONDUITS PARALLEL TO BUILDING LINES AND STRAP ND BETWEEN FIXTURES IN T-BAR CEILING, AND WITHIN CONDUCTOR SIZE FOR 120V BRANCH CIRCUIT RUNS	

ONNECTION.  CT SWITCH.  BOX.  FREQUENCY DRIVE BY  ION TELEPHONE/DATA (  NM PULL STATION.  ION FIRE ALARM HORN,	(#) (#) (#) (#) (#) (#) (#) (#)  DISCONNECT SWITCH.  [YFD] (VFD)	MOTOR CONNECTION.  [1]:  [2]:  [2]:  [3]:  [4]:  [4]:  [4]:  [4]:  [5]:  [5]:  [5]:  [5]:  [5]:  [5]:  [6]:  [6]:  [7]:	MOTOR CONNECTION.  LT  DISCONNECT SWITCH.  STED:  VFD  VFD  VFD  VARIABLE FREQUENCY DRIVE BY	MOTOR CONNECTION.  P DISCONNECT SWITCH.	MOTOR CONNECTION.	(HP) MOTOR CONNECTION.	SURFACE MOUNTED ELECTR	+ 中	то 🕁 🕁 🖒 вом от трубот	DIMMER SWITCH RATED MINU DIMMER SWITCH RATED M	\$ 20A, 1P, 120V LIGHT SWITCH.	EMERGENCY TWIN REMOTE HEADS.	EMERGENCY BATTERY UNIT WITH 2 I	感   章   EXIT LIGHT, WALL MOUNTED, NOTED.	EXIT LIGHT, CEILING MOUNTED, C/W AS NOTED.	$\nabla^{\text{RE}}$ $\nabla^{\text{RACK}} = \nabla^{\text{RACK}} = \nabla^$	O DOWNLIGHT FIXTURE,	F LED FIXTURE. LETTER DENOTES TYPI	D FLUORESCENT STRIP FIXTURE, LENG DENOTES TYPE.	REMOVE AND/OR REMAIN RELOCATED LEGEND	E-1 E-2 ELECTRICAL: LEGEND & SPECIFICATIONS E-2 ELECTRICAL: SYSTEMS	CTRICAL DR	
		PULL	NATION TELEPHONE/DATA OUTLET.	FREQUENCY DRIVE	ON BOX.		CE MOUNTED ELECTRICAL PANEL.		DUPLEX RECEP	SWITCH RATED NOTED.	120V LIGHT	TWIN REMOTE	BATTERY	WALL	GHT, CEILING MOUNTED, C/W DIRECTIONAL ARROWS TED.	LIGHTING SYSTEM, FIXTURE HEAD QUANTITY AS C/W TRACK, LENGTH AS SHOWN.	IGHT FIXTURE, LETTER DENOTES TYPE.	LETTER DENC	STRIP		TONS	ST	

THE PAPER COPY OF THE DRAWINGS ISSUED BUILDING PERMIT AND/OR TENDER WILL TAKE PRECEDENCE OVER ELECTRONIC COPIES.

OCUMENTS ARE PREPARED SOLELY

THE PARTY WITH WHOM THE

SIONAL HAS ENTERED INTO A

THERE ARE NO REPRESENTATIONS

DE BY THE DESIGN

O ANY PARTY WITH WHOM THE

SIONAL HAS NOT ENTERED INTO A

CIRCUITS 120/208V 3 PH 4 W 100 MAINS  DESCRIPTION BR CIR A B C C  HOUSE(SOLARIUM) 0125L 15 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PANEL BP.B-B7S (EXISTING FED FROM DP.SB-BB1S)	XISTING	FED	FROM	DP.	SB-	-BB1S)
DESCRIPTION         BR         CIR         A         B         C         CIR         BR           LARIUM) 0125L         15         1         4         15           LARIUM) PLUG         20         3         4         15           LARIUM) PLUG         20         5         4         15           IUM)-LIGHTING         20         9         4         10         15           RIUM)-LIGHTING         15         11         12         15           15         11         13         14         12         15           18         20         15         16         12         15         16         12         15         16         18         20         18         20         18         20         18         20         18         20         20         20         20         22         20         22         22         22         22         22         22         22         23         22         23         22         23         28         23         22         23         24         23         33         33         33         33         33         33         34         33         34		<b>3</b> PH	<b>4</b> w	100 MAIN	S	SUF	RFACE MOUNTED
HOUSE(SOLARIUM) 0125L 15 1 2 20 HOUSE(SOLARIUM) PLUG 20 3 6 20 HSE(SOLARIUM) PLUG 20 7 8 20 HSE(SOLARIUM)-LIGHTING 20 9 10 10 15 HSE(SOLARIUM)-LIGHTING 20 9 10 10 15 HSE(SOLARIUM)-LIGHTING 20 9 110 15 HSE(SOLARIUM)-LIGHTING 20 9 10 10 10 10 10 10 10 10 10 10 10 10 10	)ES	BR	>	ВС	CIR	BR	DESCRIPTION
HOUSE(SOLARIUM) PLUG 20 3 4 15 HOUSE(SOLARIUM) PLUG 20 5 5 8 20 HSE(SOLARIUM)-20A TSLOT PLUG 20 9 10 12 15 HSE(SOLARIUM)-LIGHTING 20 9 10 12 15  15 11 15 11 12 15  16 20 17 11 12 15 18 20 18 20 18 20 18 20 18 20 18 20 28 21 29 20 2	GREEN HOUSE(SOLARIUM) 0125L	15 <b>1</b>	•		2		GREEN HSE(SOLARIUM)—LIGHTING
HOUSE(SOLARIUM) PLUG 20 5 6 20 HSE(SOLARIUM)-20A TSLOT PLUG 20 7 9 10 15 HSE(SOLARIUM)-LIGHTING 20 9 10 15 15 11 13 11 12 15 17 17 18 18 19 18 19 19 19 19 19 19 19 19 19 19 19 19 19	GREEN HOUSE(SOLARIUM) PLUG		-	•	4	-	EMERGENCY BATTERY UNIT
HSE(SOLARIUM)-20A TSLOT PLUG 20 7	GREEN HOUSE(SOLARIUM) PLUG			<b>→</b>	တ	-	GRN HSE(SOLARIUM)-FUTURE TRACK LIGH
HSE(SOLARIUM)-LIGHTING 20 9	3reen hse(solarium)—20a tslot plu	20	<b>)</b>	-	00	_	SPARE
15     11     12     15       13     14     16       15     17     18       21     22     24       23     24     26       27     28     30       31     32     34       33     34     36       33     34     40       41     42	GREEN HSE(SOLARIUM)—LIGHTING		_	•	10	_	SPARE
	SPARE			<b>→</b>	12		SPARE
		13	<b>)</b>	_	14		
		15	-(	<del>)</del>	16		
		17		<del>-</del> €	18		
		19	•		20		
		21	_	•	22		
• • • •		23		<b>→</b>	24		
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• • •		27	-	•	28		
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•		33		<b>&gt;</b>	34		
•		35		<b>•</b>	36		
•		37	<b>&gt;</b>		38		
		39	-	•	40		
		41		•	42		

ORS SHALL BE UNIQUE, NOT COMMON WITH OTHER CIRCUITS. WHERE LOAD OR BREAKER RATINGS ARE SHALL BE AS SHOWN ON DRAWINGS OR OF THE CAPACITY EQUAL TO THE BREAKER TRIP SIZE PER THE FOR EVERY PHASE CONDUCTOR IN BRANCH CIRCUITS FEEDING RECEPTACLE LOADS, AND FOR ANY DIMMED

ISSUED FOR REVIEW

DESCRIPTION

DATE

MAY 17/13

23/13

SSUED FOR TENDER

WOUNTING HEIGHT OF EQUIPMENT IS FROM FINISHED FLOOR TO

CENTRE LINE OF EQUIPMENT UNLESS SPECIFIED BEFORE PROCEEDING WITH INSTALLATION.

ENCLOSURES TO CO

REQUIREMENTS.

PROVIDE SEPARATE GROUND

IN ALL CONDUITS

HUBBELL, COOPER, CANLYTE, PEERLESS, DAY-BRITE, LUMEC,

HOLOPHANE, U.O.N

13 - 144

DRAWN BY:

**≅**P

CHECKED BY: B.T

N X

PROVIDE DIRECT CONNECTIONS TO FIXTURES

									:		Z		TURE TRACK LIGHTING N	N UNIT N	M)-LIGHTING N	RIPTION	Ö			
DESIGNED BY: M.P	DATE: MAY 2013		& SPECIFICATIONS	ELECTRICAL LEGEND	DRAWING.	7	OTTAWA, ONTARIO	CTO MICLEOD SINEE!	ONO MALEOD STREET	CANADIAN MUSEUM OF NATURE		SOLVEIN CYEL	PROJECT:		www.mckeeoffawa.ca	Fax.:(613) 723-9584	CANADA Tel.:(613) 723-9585		CKTT R.J. McKEE	

