

LEGEND
THIS LEGEND REPRESENTS THE SYMBOLS COMMONLY USED. NOT ALL SYMBOLS MAY APPEAR ON THE DRAWINGS. SHOULD A SYMBOL BE FOUND ON THE DRAWING AND NOT APPEARING ON THE LEGEND, THE CONTRACTOR SHALL SUBMIT A QUESTION TO HAVE THE SYMBOL CLARIFIED IN AN ADDENDUM PRIOR TO SUBMITTING A BID.

ABBREVIATIONS	
ZOA	DENOTES 5-20R DEVICE
AC	ABOVE COUNTER
ADO	AUTOMATIC DOOR OPENER
AE	APPROVED EQUAL
AFF	ABOVE FINISHED FLOOR
AN	FIRE ALARM ANNUNCIATOR
BD	RECEPTACLE DEDICATED FOR PATIENT BED
BH	BASEBOARD HEATER
CB	CIRCUIT BREAKER
ER	EXISTING TO BE RELOCATED
EX	EXISTING TO REMAIN
FH	FORCED-AIR HEATER
GF	EQUIPMENT SO NOTED TO BE SUPPLIED WITH A GROUND FAULT CIRCUIT INTERRUPTER
HXP	HOUSEKEEPING
JB	JUNCTION BOX
PD	POWER DOOR
R	RELAY WITH AUXILIARY CONTACTS
REL	RELOCATED ITEM IN NEW LOCATION
REM	EXISTING TO BE REMOVED IN ITS ENTIRETY
T	TRANSFORMER
LH	LINIT HEATER
UNO	UNLESS NOTED OTHERWISE
W	WALL MOUNT - VERIFY HEIGHT
WP	EQUIPMENT SO NOTED TO BE SUPPLIED WITH THE MANUFACTURER'S WEATHER-PROOFING OPTION(S)

POWER LAYOUT	
	DISCONNECT SWITCH (DS)
	COMBINATION STARTER (CS)
	MAGNETIC STARTER (MG)
	MANUAL STARTER (CS)
	POWER PANEL
	POWER TRANSFORMER
	ELECTRIC HEATING EQUIPMENT
	EQUIPMENT SUPPLIED BY OTHERS REQUIRING ELECTRICAL POWER CONNECTION REFER TO EQUIPMENT SCHEDULE
	EQUIPMENT SUPPLIED BY OTHERS REQUIRING ELECTRICAL POWER CONNECTION REFER TO OWNER EQUIPMENT SCHEDULE
	ALL MODES OF OPERATION OF EQUIPMENT SO NOTED TO BE SHUT DOWN BY THE ALARM CONDITION OF THE FIRE ALARM CONTROL PANEL
	PUSH BUTTON
	PUSH BUTTON STATION
	THERMOSTAT
	TIME CLOCK
	JIFFY POLE
	120V HARDWIRE CONNECTION
	208V, 1Ø HARDWIRE CONNECTION
	208V, 3Ø HARDWIRE CONNECTION
	400V, 3Ø HARDWIRE CONNECTION
	JUNCTION BOX
	HAND DRYER
	FLOOR BOX

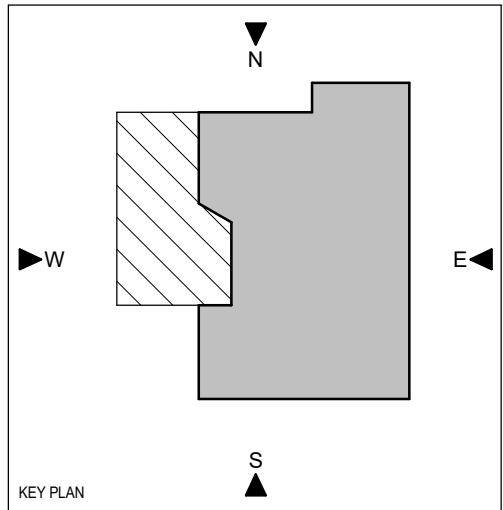
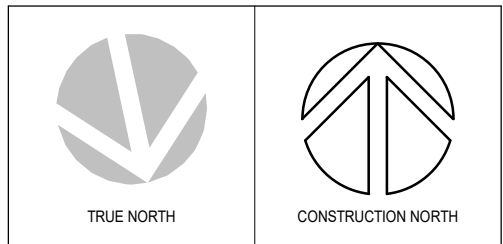
GENERAL NOTES

- THE ELECTRICAL DRAWINGS REPRESENT A PORTION OF THE CONTRACT. THE CONTRACTOR IS TO FAMILIARIZE THEMSELVES WITH ALL OF THE DRAWINGS IN THE PACKAGE AS SOME WORK MAY BE SHOWN ON OTHER DRAWINGS IN THE PACKAGE. CONTRACTOR IS TO DETERMINE FULL EXTENT OF PROJECT PRIOR TO SUBMITTING BID.
- THE DRAWINGS ARE NOT TO BE SCALED FOR INSTALLATION PURPOSES. ALL MEASUREMENTS ARE TO BE OBTAINED FROM SHOP DRAWINGS OR BE OBTAINED FROM FIELD MEASUREMENTS.
- CONTRACTOR IS TO REMOVE ALL EXISTING DEAD AND ABANDONED CONDUIT AND WIRING BACK TO SOURCE, WHERE NOT POSSIBLE TO REMOVE EXISTING CONDUIT, CONDUIT IS TO BE LEFT BEHIND AND EXISTING WIRE IS TO BE REMOVED AND REPLACED WITH A PULL ROPE.
- CONTRACTOR IS TO PROVIDE ELECTRONIC AUTOCAD 'AS-BUILT' DRAWINGS IN .DWG AND PDF FORMAT AT THE COMPLETION OF THE PROJECT. VERSION OF AUTOCAD FILES TO BE CONFIRMED WITH PRIME CONSULTANT AND PROVIDED TO MATCH ACCORDINGLY.
- UNLESS NOTED OTHERWISE ALL WIRING SHALL BE IN CONDUIT AND CONCEALED IN WALLS AND CEILING SPACES. BX IS PERMITTED IN SPECIAL CIRCUMSTANCES AND SHORT DROPS FROM JUNCTION BOXES TO LIGHT FIXTURES. REFER TO SPECIFICATIONS. CONDUIT RUNS ARE TO BE PARALLEL TO WALL STUDS AND DROP FROM JUNCTION BOXES MOUNTED IN THE CEILING SPACE. HORIZONTAL RUNS IN WALLS WILL ONLY BE ACCEPTED UNDER SPECIAL CIRCUMSTANCES (IE OFFSET TO AVOID STRUCTURAL ABOVE) WITH WRITTEN APPROVAL FROM THE OWNER/CONSULTANT.
- ALL DATA/COMM WIRING FROM EACH OUTLET IS TO BE PROVIDED IN MIN. 1" (25mm) CONDUITS FROM OUTLET TO THE SOURCE (RACK AND/OR BIX BLOCK). CONTRACTOR CAN GROUP CABLES AND INSTALL A LARGER RUN BACK TO THE SOURCE. WHERE CABLE IS PERMITTED TO RUN FREE-AIR, A CONDUIT SHALL BE INSTALLED FROM THE OUTLET INTO AN ACCESSIBLE CEILING SPACE. PROVIDE BUSHINGS AT TOP OF WALL AND TRANSITION TO J-HOOKS (WITHIN ROOM) OR CABLE TRAY (AT CORRIDOR). CABLE IS NOT PERMITTED TO BE LAYING ON CEILING. COMM WIRING SHALL BE IN CONDUIT FOR ALL EXPOSED AREAS. FREE AIR COMM WIRING TRANSITIONING FROM ACCESSIBLE CEILINGS TO EXPOSED CEILINGS SHALL BE IN CONDUIT THROUGHOUT THE EXPOSED AREA. PROVIDE 12" (300mm) STUBS INTO THE EXPOSED AREAS WITH BUSHINGS. CONDUIT SHALL NOT EXCEED 40% FILL.
- UNLESS SPECIFICALLY NOTED AS 'CABLING BY OTHERS', THE CONTRACTOR SHALL INCLUDE FOR ALL CABLING TO DEVICES, OUTLETS, ETC AS SHOWN FOR A COMPLETE AND FUNCTIONING SYSTEMS).
- CONTRACTOR IS TO MAINTAIN POWER AND COMMUNICATION CIRCUITS IN AREAS OUTSIDE OF THE CONSTRUCTION AREA. PROVIDE TEMPORARY CONNECTIONS AS REQUIRED, COORDINATE WITH OWNER.
- EQUIPMENT BEING REMOVED AND NOT BEING REUSED REMAIN THE PROPERTY OF THE OWNER AND IS TO BE STORED ON SITE. ANY EQUIPMENT THE OWNER DEEMS NO INTEREST IN IS TO BE DISPOSED OF IN A LAWFUL AND SAFE MANNER BY THIS TRADE.
- CONTRACTOR IS TO REFER TO ARCHITECTURAL PLANS AND CEILING LAYOUTS TO VERIFY THAT NO INTERFERENCES EXIST PRIOR TO THE INSTALLATION OF FIXTURES AND DEVICES IN WALLS AND CEILINGS.

DRAWING LIST	
E000	GENERAL NOTES, LEGENDS, DRAWING LIST AND SCHEDULES
E050	SPECIFICATIONS
E100	ELECTRICAL PLANS

DEMOLITION NOTES

- THE CONTRACTOR SHALL MEASURE OFF ANY DISTANCES NOT INDICATED FOR HOME RUNNING NEW SERVICES (POWER, FIRE ALARM, SECURITY ETC) AND INCLUDE MATERIALS AND LABOUR REQUIRED IN THEIR BID PRICE.
- COORDINATE ALL DEMOLITION WITH GENERAL CONTRACTOR. EVERY EFFORT HAS BEEN MADE TO OUTLINE THE DEMOLITION SCOPE OF WORK, HOWEVER THE DEMOLITION DRAWINGS REPRESENT ONLY THE GENERAL LOCATION AND NUMBER OF FITTINGS, FIXTURES, DEVICES, EQUIPMENT ETC., TO ASSIST IN EVALUATING THE DEMOLITION SCOPE OF WORK. DRAWINGS ARE BASED ON PREVIOUS AS-BUILTS OR FIELD EVALUATIONS.
- THE CONTRACTOR SHALL SUBMIT QUESTIONS OUTLINED IN HW05B PROCUREMENT METHOD.
- UNLESS EXISTING CIRCUITS NUMBERS ARE INDICATED ON THE DEMOLITION PLANS, ALL CIRCUITS SHOWN ON THE NEW LAYOUTS ARE NEW CIRCUITS. EXCEPTIONS TO THIS INCLUDE CIRCUITS SHOWN ON THE DEMOLITION PLAN AND AGAIN ON THE NEW LAYOUT. THE CIRCUIT SHOWN BOTH TIMES IS EXISTING AND LOCALIZED IN THE AREA OF WORK. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING FOR ALL NEW CIRCUITS: NEW CONDUIT, WIRING, BREAKERS, SUPPORTS, BACKBOXES, FACEPLATES, RECEPTACLES, ETC FOR A COMPLETE SYSTEM.
- EXISTING CIRCUITS BEING REUSED WILL BE INDICATED BY A CIRCUIT NUMBER (IE 2A15) OR A GENERIC NUMBER (IE CC7), CCT 7 INDICATES THAT THE LIGHTING OR DEVICE IS TO BE CONNECTED TO 1 OF 7 EXISTING CIRCUITS IN THE AREA THAT HAS BECOME FREE AFTER DEMOLITION. THE CONTRACTOR SHALL BALANCE LOADS AND SHUFFLE BREAKERS AFTER THE PANEL LOADS HAVE BEEN CONNECTED TO EQUALLY LOAD EACH PHASE.
- WHERE EXISTING LIGHTING CIRCUITS HAVE BEEN REUSED, CONTRACTOR SHALL VERIFY EXISTING VOLTAGE OF CIRCUITS PRIOR TO SUBMITTING ANY SHOP DRAWINGS OR ORDERING OF FIXTURES, SENSORS, CONTROLS, ETC. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES IN FIXTURE VOLTAGE AND EXISTING CIRCUIT VOLTAGE.



REVISIONS		
2	ISSUED FOR TENDER	2024 02 29
1	ISSUED FOR PERMIT	2024 02 22
No. 1	DESCRIPTION	DATE

DISCREPANCIES MUST BE REPORTED IMMEDIATELY TO THE ENGINEER BEFORE PROCEEDING. ONLY DIMENSIONS MUST BE USED. THE CONTRACTOR MUST CHECK THE DIMENSIONS ON SITE.

THE DRAWING IS PROTECTED BY COPYRIGHT. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS.

DO NOT SCALE THE DRAWINGS.

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SEAL



PROJECT:
HAMILTON WENTWORTH DISTRICT SCHOOL BOARD (HWDSB)

HIGHVIEW ELEMENTARY SCHOOL
1040 QUEENSDALE AVENUE EAST,
HAMILTON, ON.

DRAWING TITLE:
GENERAL NOTES, LEGENDS, DRAWING LIST AND SCHEDULES

DRAWN BY:	DATE:	JUNE 3, 2020
CHECKED BY:	SCALE:	NTS

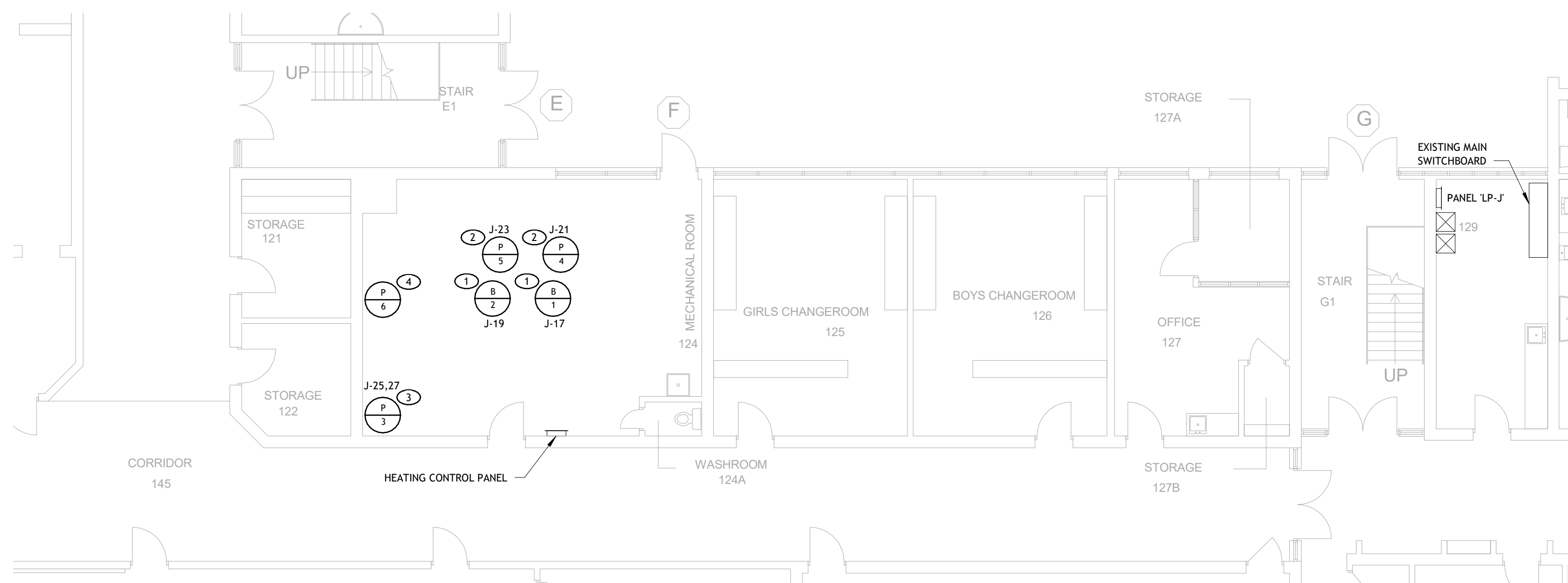
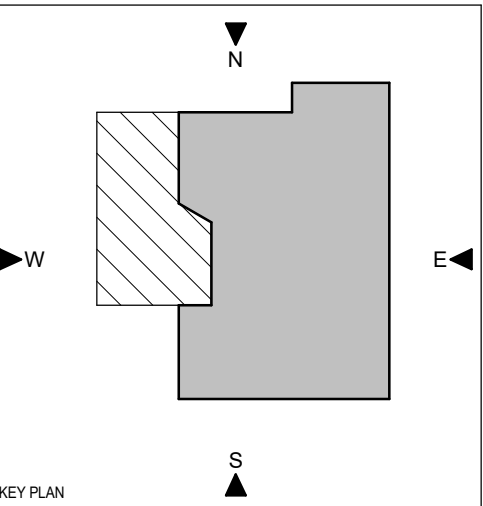
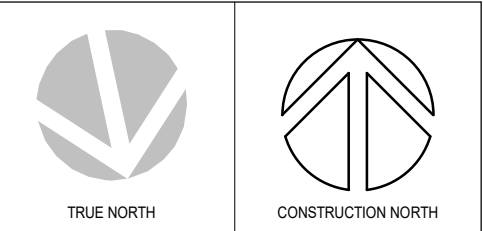
PROJECT NO. **24-023**

DRAWING NO. **E000**

- GENERAL**
 - THIS SPECIFICATION SHALL APPLY TO AND GOVERN ALL WORK OF DIVISION 16. THE ELECTRICAL CONTRACTOR SHALL BE A SUBCONTRACTOR TO THE GENERAL CONTRACTOR AND HIS BID SHALL BE TENDERED DIRECTLY TO THE GENERAL CONTRACTOR. THE CONTRACTOR SHALL SUPPLY, INSTALL, WIRE AND CONNECT ALL EQUIPMENT, ACCESSORIES, DEVICES ETC SHOWN UNLESS SPECIFICALLY NOTED OTHERWISE. SHOULD THE CONTRACTOR BE UNSURE, THEY ARE TO SUBMIT A QUESTION AS OUTLINED IN HWDSB PROCUREMENT METHOD.
 - IT IS THE CONTRACTORS RESPONSIBILITY TO OBTAIN ALL DRAWINGS AND SPECIFICATIONS PRIOR TO TENDER SUBMITTAL. ELECTRICAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH MECHANICAL DRAWINGS. ANY DISCREPANCIES BETWEEN THESE SPECIFICATIONS AND THE DRAWINGS THAT CAUSES DOUBT AS TO THE TRUE MEANING OF THE DRAWINGS AND SPECIFICATIONS, A QUESTION TO BE SUBMITTED THROUGH HWDSB PROCUREMENT METHOD OR TO BE RESOLVED AS REFERENCED IN THE CONTRACT.
 - LIABILITY INSURANCE:**
 - OBTAIN AND CARRY PROPER INSURANCE TO FULLY PROTECT BOTH THE OWNER AND HIMSELF FROM ANY AND ALL CLAIMS DUE TO ACCIDENTS, MISFORTUNES, ACTS OF GOD, ETC.
 - CODES, PERMITS AND INSPECTION**
 - BE RESPONSIBLE FOR AND OBTAIN ALL PERMITS, INSPECTION, ETC., AS REQUIRED BY ALL AUTHORITIES HAVING JURISDICTION OVER THIS WORK AND PAY FOR ALL FEES RELATED TO SAME.
 - DELIVER ALL PERMITS TO THE ENGINEER AS SOON AS THEY BECOME AVAILABLE.
 - CLOSE OUT DOCUMENTS AND AS-BUILT DRAWINGS:**
 - THE CONTRACTOR SHALL SUBMIT AN ENQUIRY TO THE ARCHITECT/OWNER TO OBTAIN THE FINAL ROOM NAMES AND NUMBERS TO BE USED IN ALL THE CLOSE OUT DOCUMENTS, REPORTS, FIRE ALARM/NURSE CALL PROGRAMMING, PANEL SCHEDULES ETC. FAILURE TO USE THE FINAL NAMES AND NUMBERS WILL REQUIRE THE CONTRACTOR TO REPLACE DOCUMENTATION/REPROGRAM AS REQUIRED AT THEIR EXPENSE. THEY SHALL KEEP A SEPARATE SET OF WHITE PRINTS ON THE SITE AND NOTE ALL CHANGES AND DEVIATIONS FROM THE ORIGINAL DESIGN. DEVICES ETC NOTED AS "EX (EXISTING)" AND "REL (RELOCATED)" ARE TO HAVE THE CIRCUIT TRACED AND DESIGNATED ON THE DRAWINGS. DEVICES ETC DESIGNATED AS CONNECT TO EXISTING CIRCUIT IN AREA ARE TO HAVE THE CIRCUIT INDICATED ON THE PLANS. PROVIDE AS-BUILT DRAWINGS IN AUTOCAD FORMAT (MIN. RELEASE 2010), PDF FORMAT AND (2) TWO SETS OF THESE PLANS SHOWING ALL AS-BUILT CONDITIONS TO THE OWNER AT THE COMPLETION OF THIS CONTRACT AND BEFORE APPLYING FOR FINAL PAYMENT. (INCLUDE IN SLAB CONDUIT RUNS). SHOULD NO MARKUPS BE REQUIRED TENDER AND/OR SEALED PLANS BY THE ENGINEER WILL NOT BE ACCEPTED.
 - CLOSE OUT BINDERS SHALL BE PROVIDED WITH ALL TEST RESULTS, WARRANTY LETTERS AND SHOP DRAWINGS. A PDF COPY SHALL BE PROVIDED. PDF VERSION SHALL BE ASSIGNED VERSIONS WHERE POSSIBLE. SHOULD A DOCUMENT REQUIRE SCANNING, IT SHALL BE PROVIDED IN HIGH RESOLUTION AND BE CLEARLY LEGIBLE. ILLEGIBLE DOCUMENTS WILL NOT BE ACCEPTED.
 - CODES AND STANDARDS (CURRENT EDITIONS)**
 - DO COMPLETE INSTALLATION IN ACCORDANCE WITH C.S.A. C22.1 EXCEPT WHERE SPECIFIED OTHERWISE.
 - COMPLY WITH C.S.A. ELECTRICAL BULLETINS IN FORCE AT TIME OF TENDER SUBMISSION, WHILE NOT IDENTIFIED AND SPECIFIED BY NUMBER IN THIS DIVISION, ARE TO BE CONSIDERED AS FORMING PART OF RELATED C.S.A. PART II STANDARD.
 - DO OVERHEAD AND UNDERGROUND SYSTEMS IN ACCORDANCE WITH C.S.A. C22.3 NO. 1 EXCEPT WHERE SPECIFIED OTHERWISE.
 - ABBREVIATIONS FOR ELECTRICAL TERMS: TO C.S.A. 285.
 - COMPLY ALSO WITH THE FOLLOWING CODES:
 - ONTARIO ELECTRICAL SAFETY CODE
 - NATIONAL BUILDING CODE
 - ONTARIO BUILDING CODE
 - LOCAL HYDRO UTILITY REQUIREMENTS
 - CAN/ULC 5524, 5537 AND S1001
 - LOCATION OF OUTLETS:**
 - CHANGE LOCATION OF OUTLETS, EQUIPMENT AT NO EXTRA COST OR CREDIT, PROVIDING DISTANCE DOES NOT EXCEED 10'-0" (3m) AND INFORMATION IS GIVEN BEFORE INSTALLATION.
 - CUTTING AND PATCHING:**
 - PROVIDE ALL CUTTING, PATCHING AND PAINTING FOR ELECTRICAL WORK, UNLESS NOTED OTHERWISE.
 - EQUIPMENT AND MATERIAL:**
 - ALL EQUIPMENT AND MATERIAL, UNLESS SPECIFICALLY NOTED OTHERWISE, SHALL BE NEW AND WITHOUT BLEMISH OR DEFECT. ALL MATERIAL AND EQUIPMENT SHALL BEAR U.L.C. OR C.S.A. LABELS.
 - WARRANTY:**
 - WARRANT ALL WORK AND APPARATUS INSTALLED UNDER THIS CONTRACT FOR A PERIOD OF ONE YEAR AT DATE OF SUBSTANTIAL COMPLETION.
 - MAINTENANCE OF SERVICE:**
 - PROVIDE ALL LABOUR AND MATERIALS NECESSARY TO ENSURE THAT POWER, LIGHTING AND ALL OTHER MISCELLANEOUS ELECTRICAL SERVICES ARE MAINTAINED IN FULL OPERATING CONDITION, IN ALL AREAS OF THE EXISTING BUILDING, DURING THE CONSTRUCTION PERIOD. DISCONNECT, MOVE, RELOCATE, AND RECONNECT CONDUIT AND WIRING AS NECESSARY TO ACCOMMODATE THE NEW WORK AND MECHANICAL INSTALLATION.
 - CLEANING**
 - DO FINAL CLEANING.
 - AT TIME OF FINAL CLEANING, CLEAN EQUIPMENT SURFACES THAT HAVE BEEN EXPOSED TO CONSTRUCTION DUST AND DIRT.
 - VACUUM INSIDE OF ALL PANEL BOARDS, ETC., ON COMPLETION OF THE PROJECT.
 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**
 - SUBMIT SHOP DRAWINGS, PRODUCT DATA AND/OR SAMPLES FOR ALL EQUIPMENT, POWER DISTRIBUTION, POWER DEVICES, COMMUNICATIONS DEVICES, RACEWAY, LIGHT FIXTURES, EMERGENCY LIGHTING, ETC. THE DRAWINGS ARE TO BE REVIEWED AND STAMPED BY BOTH THE GENERAL AND ELECTRICAL CONTRACTOR PRIOR TO SUBMITTAL.
 - SHOP DRAWINGS SHALL INCLUDE ALL RELEVANT ACCESSORIES AND LAYOUTS WHERE REQUESTED.
 - SHOP DRAWINGS THAT ARE ILLEGIBLE AND OF POOR QUALITY WILL BE REJECTED.
 - SHOP DRAWINGS WILL BE REVIEWED AND RETURN MARKED "REVIEWED", "REVIEWED AS MODIFIED" OR "REVISE AND RESUBMIT". THE DRAWING REVIEW DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR ITS ACCURACY OR FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS.
 - INSTALLATION OF ANY EQUIPMENT SHALL NOT START UNTIL AFTER FINAL REVIEW OF SHOP DRAWINGS BY THE CONSULTANT HAS BEEN OBTAINED.
 - INCOMPLETE OR INCORRECT SHOP DRAWINGS THAT ARE REJECTED, WHICH ADVERSELY CAUSE OR RESULT IN ANY DELAY OF THE DELIVER SCHEDULE OF ANY EQUIPMENT SHALL BE THE CONTRACTORS RESPONSIBILITY.
 - IF INCORRECT SHOP DRAWINGS ARE SUBMITTED AND REJECTED ANY SUBSEQUENT DELIVERY DELAY WILL RESULT IN THE CONTRACTOR PROVIDING TEMPORARY FACILITIES UNTIL SAID EQUIPMENT IS DELIVERED AND INSTALLED AT NO EXTRA COST TO THE OWNER.
 - PROVIDE SPACE FOR SHOP DRAWING REVIEW STAMPS FOR THE CONTRACTOR AND CONSULTANT. THIS SPACE SHALL BE CLEAR OF ALL TECHNICAL INFORMATION AND SHALL NOT BE ON THE BACK OF ANY SHEETS.
 - SUBMIT SHOP DRAWINGS IN DIGITAL (PDF) FORMAT.
 - ONE (1) ORIGINAL COPY IN DIGITAL FORMAT (PDF) WILL BE RETURNED. ALL COPIES REQUIRED BY TRADES, SUPPLIERS OR OTHER CONSULTANTS WILL BE PROVIDED AND/OR PRINTED BY THE CONTRACTOR.
 - FAILURE TO SUBMIT SHOP DRAWINGS WILL NOT RELIEVE THIS CONTRACTOR FROM ENSURING THAT ALL INSTALLED EQUIPMENT MEETS THE INTEND OF DESIGN DOCUMENTS. ALL COSTS ASSOCIATED WITH ANY ISSUES ASSOCIATED WITH ALTERNATE OR NOT SUBMITTED EQUIPMENT WILL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR.
 - SHOP DRAWING SUBMITTAL SHALL BE (BUT NOT LIMITED TO) FOR ANY EQUIPMENT AS LISTED:
 - HIGH VOLTAGE EQUIPMENT
 - SWITCHBOARD, METER CENTERS, PANEL BOARDS
 - FIRE ALARM SYSTEMS
 - LUMINAIRES INCLUDING LAMPS AND BALLASTS
 - LIGHTING CONTROLS
 - EMERGENCY BATTERY UNITS AND FIXTURES
 - ELECTRICAL HEATERS
 - SECURITY SYSTEM
 - MASTERS CLOCK AND PROGRAM
 - INTERCOM SYSTEM
 - PUBLIC ADDRESS SYSTEM
 - MILLWORK
 - DEVICES
 - DRAW BREAKDOWNS:**
 - THIS CONTRACTOR MUST SUBMIT A BREAKDOWN OF THE TENDER PRICE INTO SEPARATE CLASSIFICATION TO THE SATISFACTION OF THE CONSULTANT AND TOTALING THE TOTAL CONTRACT AMOUNT. EACH ITEM IS TO BE BROKEN INTO MATERIAL AND LABOUR COSTS.
 - PROGRESS DRAWS, WHEN SUBMITTED, ARE TO BE ITEMIZED AGAINST EACH OF THE DRAW BREAKDOWNS AND SHALL BE IN TABLE FORM IDENTIFYING CONTRACT AMOUNT, AMOUNT OF THIS DRAW, TOTAL TO DATE, PERCENTAGE COMPLETE AND BALANCE.
 - BREAKDOWN SHALL FOLLOW, BUT NOT BE LIMITED TO:
 - PERMITS AND FEES
 - MOBILIZATION
 - DEMOLITION
 - DISTRIBUTION EQUIPMENT (IE. SWITCHBOARDS, PANELBOARDS, ETC.)
 - INCOMING FEEDERS AND CONDUITS
 - BRANCH WIRING CONDUITS
- BRANCH WIRING**
 - MECHANICAL EQUIPMENT WIRING
 - FIRE ALARM DEVICES
 - FIRE ALARM WIRING
 - FIRE ALARM VERIFICATION AND CERTIFICATION
 - EXIT AND EMERGENCY LIGHTING
 - LIGHTING
 - LIGHTING CONTROLS
 - VOICE AND COMMUNICATION CONDUITS
 - VOICE AND COMMUNICATION WIRING AND TERMINATIONS
 - ACCESS CONTROL AND SECURITY
 - FUSIBLE AND NON-FUSIBLE DISCONNECT SWITCHES (IE. PUBLIC ADDRESS, SOUND, ETC.)
 - ABOVE BREAKDOWN MUST BE APPROVED BY THE CONSULTANT PRIOR TO SUBMISSION OF THE FIRST DRAW, MOBILIZATION AMOUNT MAY ONLY BE DRAWN WHEN ALL REQUIRED SHOP DRAWINGS HAVE BEEN REVIEWED BY THE CONSULTANT.
- REVISIONS TO CONTRACT:**
 - PROVIDE ITEMIZED LISTS OF MATERIALS/ASSOCIATED COSTS, LABOUR RATE/LABOUR FOR EACH ITEM, COPY OF MANUFACTURERS INVOICE, IF REQUESTED, FOR EACH ITEM GIVEN CHANGE NOTICE.
- ROOF AND WALL OPENINGS:**
 - LOCATION OF CONDUITS PASSING THROUGH ROOF AND WALLS TO BE COORDINATED WITH DIVISION 15. ALL OPENINGS TO BE MADE WATERTIGHT.
- SCHEDULE OF CONSTRUCTION:**
 - CONSULT GENERAL DIVISION FOR SCHEDULE OF CONSTRUCTION BEFORE COMMENCING WORK AND COORDINATE DETAILS WITH ENGINEER, OWNER AND ALL TRADES DURING CONSTRUCTION.
- DIRECTORIES AND LABELLING:**
 - IDENTIFY ALL ELECTRICAL EQUIPMENT. IDENTIFICATION SHALL CONSIST OF ENGRAVED LAMACOID NAMEPLATES HAVING BLACK BACKGROUND WITH WHITE LETTERS. FASTEN NAMEPLATES TO DEVICE USING SELF-TAPPING, COUNTERSUNK SCREWS. TAPE-TYPE NAMEPLATES WILL NOT BE ACCEPTED.
 - ALL RECEPTACLE COVER PLATES SHALL BE LABELED WITH TAPE-TYPE NAMEPLATES. THE LABEL SHALL INDICATE THE PANEL DESIGNATION AND CIRCUIT NUMBER. (IE A19). TAPE SHALL BE NEATLY TRIMMED ON EACH END AND PLACED ON LEVEL ON THE FACE PLATE. LABELS SHALL HAVE A NEAT, CLEAN AND PROFESSIONAL APPEARANCE. LABELS NOT TRIMMED OR POORLY POSITIONED WILL NOT BE ACCEPTED.
 - ALL PANELS WITH CIRCUITS ADDED OR REMOVED SHALL HAVE NEW COMPUTER-GENERATED PANEL SCHEDULES PLACED IN THEM. SCHEDULE SHALL INDICATE PANEL DESIGNATION, WHERE PANEL IS FED FROM, VOLTAGE, PHASE, BRANCH CIRCUIT NUMBERS, BREAKER AMPERAGE AND CIRCUIT DESCRIPTION.
- GROUNDING:**
 - GROUND ALL EQUIPMENT IN ACCORDANCE WITH CODE REQUIREMENTS AND AS INDICATED.
 - GROUNDING CONDUCTORS: COPPER, INSULATED (GREEN); SIZE PER CODE.
 - GROUNDING LUGS, CONNECTORS: APPROVED GROUNDING TYPE.
 - ALL GROUND CONDUCTORS #8AWG OR SMALLER SHALL BE RUN IN ENT.
- FIREPROOFING:**
 - WHERE CABLES PASS THROUGH FLOORS OR FIRE RATED WALLS, PACK SPACE BETWEEN WIRING AND SLEEVE FULL WITH APPROVED RATED FIRE STOPS AND SEAL WITH CAULKING COMPOUND CONFORMING TO CGSB 19-GP-9m).
- MOUNTING HEIGHTS:**
 - MOUNTING HEIGHT OF EQUIPMENT IS FROM FINISHED FLOOR TO CENTRELINE OF EQUIPMENT UNLESS SPECIFIED OR INDICATED OTHERWISE.
 - IF MOUNTING HEIGHT OF EQUIPMENT IS NOT SPECIFIED OR INDICATED, VERIFY BEFORE PROCEEDING WITH INSTALLATION
 - INSTALL ELECTRICAL EQUIPMENT AS SPECIFIED IN THE OBC FOR BARRIER FREE DESIGN. IF NOT NOTED, INSTALL AT FOLLOWING CENTERLINE HEIGHTS:
 - LOCAL SWITCHES: 3'-5" (1050mm).
 - WALL RECEPTACLES:
 - GENERAL: 1'-6" (450mm).
 - ABOVE TOP OF CONTINUOUS BASEBOARD HEATER: 10" (250mm).
 - ABOVE TOP OF COUNTERS OR COUNTER SPLASH BACKS: 6" (150mm).
 - MECHANICAL ROOMS: 3'-5" (1050mm)
 - PANELBOARDS: AS REQUIRED BY CODE OR AS INDICATED.
 - TELEPHONE AND INTERPHONE OUTLETS: 1'-6" (450mm).
 - TELEVISION OUTLETS: 1'-6" (450mm).
 - FIRE ALARM PULL STATIONS: 3'-9" (1150mm).
- LOAD BALANCE:**
 - MEASURE PHASE CURRENT TO PANELBOARDS WITH NORMAL LOADS (LIGHTING) OPERATING AT TIME OF ACCEPTANCE. ADJUST BRANCH CIRCUIT CONNECTIONS AS REQUIRED TO OBTAIN BEST BALANCE OF CURRENT BETWEEN PHASES AND RECORD CHANGES.
 - MEASURE PHASE VOLTAGES AT LOADS AND ADJUST TRANSFORMER TAPS TO WITHIN 2% OF RATED VOLTAGE OF EQUIPMENT.
 - SUBMIT: AT COMPLETION OF WORK, REPORT LISTING PHASE AND NEUTRAL CURRENTS ON PANELBOARDS, DRY-CORE TRANSFORMERS AND MOTOR CONTROL CENTRES, OPERATING UNDER NORMAL LOAD. STATE HOUR AND DATE ON WHICH EACH LOAD WAS MEASURED, AND VOLTAGE AT TIME OF TEST.
- SECURITY DOORS**
 - THE CONTRACTOR SHALL INCLUDE FOR ALL WORK (CUTTING, PATCHING, CONDUIT, PULLING CABLE, EQUIPMENT, LICENCES, INSTALLATION, ETC) FOR SECURITY DOORS. MAGNETIC LOCK DOORS SHALL INCLUDE POWER FOR THE CONTROLLER AND CONDUIT/CABLING TO CONNECT TO THE KEY RESET SWITCH. CONFIRM LOCATION AND ROUTING PRIOR TO BID. ALL DOORS SHALL BE FULLY FUNCTIONAL AT COMPLETION OF PROJECT. WHERE SPECIFIED VENDORS ARE INDICATED, THE CONTRACTOR SHALL COORDINATE WITH THIS VENDOR AND INCLUDE FOR ALL WORK NOT IN THE SCOPE OF THE SPECIFIED VENDOR. CONTRACTOR SHALL MAKE ANY ADJUSTMENTS AFTER INSTALLATION AS REQUIRED BY THE OWNER.
 - REFER TO THE FIRE ALARM SECTION FOR VERIFICATION AND TESTING. DOORS SHALL BE TESTED AS A SYSTEM WITH THE FIRE ALARM AND OPERATION SHALL BE CONFIRMED PRIOR TO BRINGING CITY OFFICIALS, BUILDING OWNERS AND THE ENGINEER TO SITE TO WITNESS DOORS.
- CONDUIT AND CABLE INSTALLATION:**
 - INSTALL CONDUIT AND SLEEVES PRIOR TO POURING OF CONCRETE. SLEEVES THROUGH CONCRETE: SCHEDULE 40 STEEL PIPE, SIZED FOR FREE PASSAGE OF CONDUIT, AND PROTRUDING 2" (50mm).
 - IF PLASTIC SLEEVES ARE USED IN FIRE RATED WALLS OR FLOORS, REMOVE BEFORE CONDUIT INSTALLATION.
 - INSTALL CABLES, CONDUITS AND FITTINGS TO BE EMBEDDED OR PLASTERED OVER, NEATLY AND CLOSE TO BUILDING STRUCTURE SO FURRING CAN BE KEPT TO MINIMUM.
- DEFINITIONS:**
 - THE FOLLOWING ARE DEFINITIONS OF WORDS FOUND IN THE SPECIFICATION AND ON ASSOCIATED DRAWINGS:
 - "CONCEALED" - HIDDEN FROM NORMAL SIGHT IN FURRED IN SPACES, SHAFTS, CEILING SPACES, WALLS, UNDERFLOOR AND PARTITIONS.
 - "EXPOSED" - ALL ELECTRICAL WORK EXPOSED TO BUILDING OCCUPANTS. WIRE AND CABLING SHALL BE IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE.
 - "PROVIDE" (AND ALL TENSES OF "PROVIDE") SUPPLY, INSTALL, WIRE AND CONNECT COMPLETE.
 - "INSTALL" (AND ALL TENSES OF "INSTALL") INSTALL WIRE AND CONNECT COMPLETE, PRODUCTS AND SERVICES SPECIFIED.
 - "SUPPLY" SUPPLY ONLY
 - "OR APPROVED EQUAL" MATERIAL OR EQUIPMENT PROPOSED BY THE CONTRACTOR IN LIEU OF THAT SPECIFIED AS APPROVED BY THE CONSULTANT. MATERIAL OR EQUIPMENT SHALL MEET OR EXCEED THE SAME QUALITY, MATERIAL, EFFICIENCY, ETC AS THE SPECIFIED PRODUCTS.
 - "AS INDICATED" AS SHOWN ON DRAWINGS AND/OR NOTED IN SPECIFICATIONS.
- PRODUCTS**
 - ELECTRICAL EQUIPMENT**
 - EQUIPMENT SHALL HAVE 1.0m (39") CLEARANCE IN FRONT OF SAID EQUIPMENT
 - ELECTRICAL EQUIPMENT RATED AT 1200A AND OVER SHALL HAVE 1.5m (59") CLEARANCE IN FRONT OF SAID EQUIPMENT.
 - ALL EQUIPMENT INSTALLED IN SPRINKLERED AREAS ARE TO BE COMPLETE WITH DRIP SHIELDS.
 - BREAKERS GENERAL**
 - BOLT-ON MOLDED CASE CIRCUIT BREAKER, FULL MODULE (I.E. 1" MINIMUM WIDTH), QUICK-MAKE, QUICK-BREAK TYPE, FOR MANUAL AND AUTOMATIC OPERATION WITH TEMPERATURE COMPENSATION FOR 40OC AMBIENT. (MINI-BREAKERS NOT ACCEPTABLE)
 - MAGNETIC INSTANTANEOUS TRIP ELEMENTS IN CIRCUIT BREAKERS, TO OPERATE ONLY WHEN THE VALUE OF CURRENT REACHES SETTING.
 - DISCONNECT SWITCHES FUSED AND UNFUSED**
 - ENCLOSED MANUAL AIR BREAK SWITCHES IN NON-HAZARDOUS LOCATIONS: TO C.S.A. C22.2 NO. 4.
 - FUSE HOLDER ASSEMBLIES TO C.S.A. C22.2 NO. 39.
 - FUSIBLE AND NON-FUSIBLE DISCONNECT SWITCHES AS INDICATED.
 - PROVISION FOR PADLOCKING IN ON/OFF SWITCH POSITION BY THREE LOCKS
 - MECHANICALLY-INTERLOCKED DOOR TO PREVENT OPENING WHEN HANDLE IN "ON" POSITION
 - QUICK-MAKE, QUICK-BREAK ACTION.
 - ON/OFF SWITCH POSITION INDICATION ON SWITCH ENCLOSURE COVER.
 - C.S.A. ENCLOSURE 1 UNLESS NOTED OTHERWISE.
 - EATON CUTLER HAMMER, SQUARE D, SIEMENS CANADA MANUFACTURE.
 - CONDUCTORS**
 - ALL CONDUCTORS SHALL BE COPPER UNLESS INDICATED OTHERWISE.
 - CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID. CONDUCTORS #8 AND LARGER SHALL BE STRANDED.
 - CONDUCTORS SHALL BE SIZED #12 AWG MINIMUM, EXCEPT FOR CONTROL CIRCUITS WHERE #14 AWG MINIMUM SIZE IS PERMITTED. FEEDER SIZES AS INDICATED.
 - PANEL FEEDER LENGTHS SHALL BE CONTRACTOR VERIFIED FOR LENGTH OF PROPOSED INSTALLATION PATH SO AS NOT TO EXCEED 3% VOLTAGE DROP ON INSTALLATION. FEEDERS EXCEEDING THE LENGTH OF THE ALLOWABLE AMPACITY SHALL BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO BEGINNING ANY ROUGH-INS.
 - SIZE CONDUCTORS FOR A 2% MAXIMUM VOLTAGE DROP FROM OVERCURRENT DEVICE TO FARTHEST OUTLET.
 - CONDUCTOR INSULATION RATED FOR 600V MINIMUM UNLESS STATED OTHERWISE.
 - CONDUCTOR TYPES:
 - TW75, TWU TO C.S.A. #C22.2 NO. 75
 - RW90, RWU90 (XLPE) TO C.S.A. #C22.2 NO. 38
 - TW75, RWU90 (XLPE) - INSIDE BUILDING.
 - TWU, RWU90 (XLPE) - CONDUCTORS DIRECT BURIED OR IN CONDUIT OUTSIDE BUILDING.
 - BX (ARMoured CABLE) IS ONLY PERMITTED FOR LIGHT FIXTURE DROPS IN ACCOUSTIC CEILING (MAX LENGTH 5'-0"), AND MAY BE USED IN HOLLOW PARTITIONS FOR SWITCH (AND/OR RECEPTACLE) DROPS IN THEM. SCHEDULE SHALL INDICATE PANEL DESIGNATION, WHERE PANEL IS FED FROM, VOLTAGE, PHASE, BRANCH CIRCUIT NUMBERS, BREAKER AMPERAGE AND CIRCUIT DESCRIPTION.
- FASTENINGS AND SUPPORTS**
 - SUPPORT EQUIPMENT, CONDUIT OR CABLES USING CLIPS, SPRING-LOADED BOLTS, CABLE CLAMPS DESIGNED AS ACCESSORIES TO BASIC CHANNEL MEMBERS.
 - INSTALL FASTENING AND SUPPORTS AS REQUIRED FOR EACH TYPE OF EQUIPMENT CABLES AND CONDUIT AND IN ACCORDANCE WITH MANUFACTURERS INSTALLATION.
- CONDUITS**
 - RIGID, GALVANIZED STEEL THREADED CONDUIT TO C.S.A. C22.2, NO. 45, SIZE AS INDICATED.
 - ELECTRICAL METALLIC TUBING (EMT) WITH COUPLINGS AND EXPANDED ENDS AS REQUIRED, TO C.S.A. C22.2, NO. 83, SIZE AS INDICATED.
 - RIGID PVC (UNPLASTICIZED) CONDUIT FOR EXPOSED, ABOVE GROUND WORK, TO C.S.A. C22.2, NO. 211.2, SIZE AS INDICATED. FLEXIBLE PVC IS NOT PERMITTED.
 - FLEXIBLE METAL CONDUIT AND LIQUID-TIGHT FLEXIBLE METAL CONDUIT TO C.S.A. C22.2, NO. 56.
 - EMT CONDUIT FITTINGS, IE. CONNECTORS, COUPLINGS, TO C.S.A. C22.2, NO. 18, ZINC-PLATED STEEL/WALLABLE IRON CONSTRUCTION. ALL CONNECTIONS AND COUPLINGS TO BE SET SCREW TYPE, IE. CONCRETE TIGHT.
 - CONDUIT SIZES SHALL BE A MINIMUM OF 3/4" AND CONFORM TO ELECTRICAL SAFETY CODE. WHERE SIZES ARE INDICATED AND THEY EXCEED CODE, THEY SHALL NOT BE REDUCED.
 - CONDUIT RIGID, GALVANIZED STEEL, THREADED CONDUIT WHERE CONDUIT IS SUBJECT TO MECHANICAL INJURY.
 - RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES.
 - USE EMT FOR ALL WIRING FROM OUTLET BOX TO SOURCE.
 - INSTALL NYLON FISH WIRE IN EMPTY CONDUITS AND TERMINATE UNDER SCREW LEAVING 12" SLACK. TAG FISH WIRE IDENTIFYING SYSTEM.
 - DO NOT LOCATE CONDUITS LESS THAN 3" (75 MM) PARALLEL TO STEAM OR HOT WATER LINES WITH A MINIMUM OF 1" (25 MM) AT CROSS-OVERS.
 - IN SLAB CONDUIT: LOCATE TO SUIT REINFORCING STEEL. INSTALL IN CENTRE 1/2 OF SLAB.
 - PROVIDE AND INSTALL 4-38mm (4 1-1/2") SPARE CONDUITS TO CEILING SPACE FROM EACH FLUSH MOUNTED ELECTRICAL PANEL. TERMINATE IN 300mm X 300mm (12"x12") JUNCTION BOXES IN ACCESSIBLE CEILING SPACE.
- JUNCTION AND PULL BOXES**
 - WELDED STEEL CONSTRUCTION WIRE SCREW-ON FLAT COVERS FOR SURFACE MOUNTING.
 - COVERS WITH 1" (25 MM) MINIMUM EXTENSION ALL AROUND, FOR FLUSH-MOUNTED PULL AND JUNCTION BOXES.
 - INSTALL PULL BOXES IN CONDUIT RUNS SO AS NOT TO EXCEED 30 M OF CONDUIT RUN OR THE EQUIVALENT OF TWO (2) 90° BENDS BETWEEN PULL BOXES.
- OUTLET AND CONDUIT BOXES:**
 - ALL LIGHTING FIXTURES, RECEPTACLES AND OTHER WIRING DEVICES FOR ANY CONDUIT SYSTEM SHOWN SHALL BE PROVIDED WITH AN OUTLET BOX.
 - 4" (102 MM) OCTAGON OR SQUARE OUTLET BOXES OR LARGER, COMPLETE WITH FITTINGS FOR LIGHTING FIXTURES AND AS REQUIRED FOR SPECIAL DEVICES.
 - WALL OUTLET BOXES SHALL BE:
 - NO. 1104 SERIES, FLUSH MOUNTED IN DRYWALL PARTITIONS, U.N.O.
 - MBS SERIES MASONRY BOXES (GALVANIZED STEEL) FLUSH MOUNTED IN MASONRY WALLS (BLOCK WALLS).
 - GANG BOXES SHALL BE USED AT LOCATIONS WHERE DEVICES ARE GROUPED. PROVIDE BARRIERS AS REQUIRED.
 - BLANK COVER PLATES FOR BOXES WITHOUT WIRING DEVICES.

- BREAKERS GENERAL**
 - BOLT-ON MOLDED CASE CIRCUIT BREAKER, FULL MODULE (I.E. 1" MINIMUM WIDTH), QUICK-MAKE, QUICK-BREAK TYPE, FOR MANUAL AND AUTOMATIC OPERATION WITH TEMPERATURE COMPENSATION FOR 40OC AMBIENT. (MINI-BREAKERS NOT ACCEPTABLE)
 - MAGNETIC INSTANTANEOUS TRIP ELEMENTS IN CIRCUIT BREAKERS, TO OPERATE ONLY WHEN THE VALUE OF CURRENT REACHES SETTING.
- DISCONNECT SWITCHES FUSED AND UNFUSED**
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 - FUSE HOLDER ASSEMBLIES TO C.S.A. C22.2 NO. 39.
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 - PROVISION FOR PADLOCKING IN ON/OFF SWITCH POSITION BY THREE LOCKS
 - MECHANICALLY-INTERLOCKED DOOR TO PREVENT OPENING WHEN HANDLE IN "ON" POSITION
 - QUICK-MAKE, QUICK-BREAK ACTION.
 - ON/OFF SWITCH POSITION INDICATION ON SWITCH ENCLOSURE COVER.
 - C.S.A. ENCLOSURE 1 UNLESS NOTED OTHERWISE.
 - EATON CUTLER HAMMER, SQUARE D, SIEMENS CANADA MANUFACTURE.
- CONDUCTORS**
 - ALL CONDUCTORS SHALL BE COPPER UNLESS INDICATED OTHERWISE.
 - CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID. CONDUCTORS #8 AND LARGER SHALL BE STRANDED.
 - CONDUCTORS SHALL BE SIZED #12 AWG MINIMUM, EXCEPT FOR CONTROL CIRCUITS WHERE #14 AWG MINIMUM SIZE IS PERMITTED. FEEDER SIZES AS INDICATED.
 - PANEL FEEDER LENGTHS SHALL BE CONTRACTOR VERIFIED FOR LENGTH OF PROPOSED INSTALLATION PATH SO AS NOT TO EXCEED 3% VOLTAGE DROP ON INSTALLATION. FEEDERS EXCEEDING THE LENGTH OF THE ALLOWABLE AMPACITY SHALL BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO BEGINNING ANY ROUGH-INS.
 - SIZE CONDUCTORS FOR A 2% MAXIMUM VOLTAGE DROP FROM OVERCURRENT DEVICE TO FARTHEST OUTLET.
 - CONDUCTOR INSULATION RATED FOR 600V MINIMUM UNLESS STATED OTHERWISE.
 - CONDUCTOR TYPES:
 - TW75, TWU TO C.S.A. #C22.2 NO. 75
 - RW90, RWU90 (XLPE) TO C.S.A. #C22.2 NO. 38
 - TW75, RWU90 (XLPE) - INSIDE BUILDING.
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 - BX (ARMoured CABLE) IS ONLY PERMITTED FOR LIGHT FIXTURE DROPS IN ACCOUSTIC CEILING (MAX LENGTH 5'-0"), AND MAY BE USED IN HOLLOW PARTITIONS FOR SWITCH (AND/OR RECEPTACLE) DROPS IN THEM. SCHEDULE SHALL INDICATE PANEL DESIGNATION, WHERE PANEL IS FED FROM, VOLTAGE, PHASE, BRANCH CIRCUIT NUMBERS, BREAKER AMPERAGE AND CIRCUIT DESCRIPTION.
- FASTENINGS AND SUPPORTS**
 - SUPPORT EQUIPMENT, CONDUIT OR CABLES USING CLIPS, SPRING-LOADED BOLTS, CABLE CLAMPS DESIGNED AS ACCESSORIES TO BASIC CHANNEL MEMBERS.
 - INSTALL FASTENING AND SUPPORTS AS REQUIRED FOR EACH TYPE OF EQUIPMENT CABLES AND CONDUIT AND IN ACCORDANCE WITH MANUFACTURERS INSTALLATION.
- CONDUITS**
 - RIGID, GALVANIZED STEEL THREADED CONDUIT TO C.S.A. C22.2, NO. 45, SIZE AS INDICATED.
 - ELECTRICAL METALLIC TUBING (EMT) WITH COUPLINGS AND EXPANDED ENDS AS REQUIRED, TO C.S.A. C22.2, NO. 83, SIZE AS INDICATED.
 - RIGID PVC (UNPLASTICIZED) CONDUIT FOR EXPOSED, ABOVE GROUND WORK, TO C.S.A. C22.2, NO. 211.2, SIZE AS INDICATED. FLEXIBLE PVC IS NOT PERMITTED.
 - FLEXIBLE METAL CONDUIT AND LIQUID-TIGHT FLEXIBLE METAL CONDUIT TO C.S.A. C22.2, NO. 56.
 - EMT CONDUIT FITTINGS, IE. CONNECTORS, COUPLINGS, TO C.S.A. C22.2, NO. 18, ZINC-PLATED STEEL/WALLABLE IRON CONSTRUCTION. ALL CONNECTIONS AND COUPLINGS TO BE SET SCREW TYPE, IE. CONCRETE TIGHT.
 - CONDUIT SIZES SHALL BE A MINIMUM OF 3/4" AND CONFORM TO ELECTRICAL SAFETY CODE. WHERE SIZES ARE INDICATED AND THEY EXCEED CODE, THEY SHALL NOT BE REDUCED.
 - CONDUIT RIGID, GALVANIZED STEEL, THREADED CONDUIT WHERE CONDUIT IS SUBJECT TO MECHANICAL INJURY.
 - RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES.
 - USE EMT FOR ALL WIRING FROM OUTLET BOX TO SOURCE.
 - INSTALL NYLON FISH WIRE IN EMPTY CONDUITS AND TERMINATE UNDER SCREW LEAVING 12" SLACK. TAG FISH WIRE IDENTIFYING SYSTEM.
 - DO NOT LOCATE CONDUITS LESS THAN 3" (75 MM) PARALLEL TO STEAM OR HOT WATER LINES WITH A MINIMUM OF 1" (25 MM) AT CROSS-OVERS.
 - IN SLAB CONDUIT: LOCATE TO SUIT REINFORCING STEEL. INSTALL IN CENTRE 1/2 OF SLAB.
 - PROVIDE AND INSTALL 4-38mm (4 1-1/2") SPARE CONDUITS TO CEILING SPACE FROM EACH FLUSH MOUNTED ELECTRICAL PANEL. TERMINATE IN 300mm X 300mm (12"x12") JUNCTION BOXES IN ACCESSIBLE CEILING SPACE.
- JUNCTION AND PULL BOXES**
 - WELDED STEEL CONSTRUCTION WIRE SCREW-ON FLAT COVERS FOR SURFACE MOUNTING.
 - COVERS WITH 1" (25 MM) MINIMUM EXTENSION ALL AROUND, FOR FLUSH-MOUNTED PULL AND JUNCTION BOXES.
 - INSTALL PULL BOXES IN CONDUIT RUNS SO AS NOT TO EXCEED 30 M OF CONDUIT RUN OR THE EQUIVALENT OF TWO (2) 90° BENDS BETWEEN PULL BOXES.
- OUTLET AND CONDUIT BOXES:**
 - ALL LIGHTING FIXTURES, RECEPTACLES AND OTHER WIRING DEVICES FOR ANY CONDUIT SYSTEM SHOWN SHALL BE PROVIDED WITH AN OUTLET BOX.
 - 4" (102 MM) OCTAGON OR SQUARE OUTLET BOXES OR LARGER, COMPLETE WITH FITTINGS FOR LIGHTING FIXTURES AND AS REQUIRED FOR SPECIAL DEVICES.
 - WALL OUTLET BOXES SHALL BE:
 - NO. 1104 SERIES, FLUSH MOUNTED IN DRYWALL PARTITIONS, U.N.O.
 - MBS SERIES MASONRY BOXES (GALVANIZED STEEL) FLUSH MOUNTED IN MASONRY WALLS (BLOCK WALLS).
 - GANG BOXES SHALL BE USED AT LOCATIONS WHERE DEVICES ARE GROUPED. PROVIDE BARRIERS AS REQUIRED.
 - BLANK COVER PLATES FOR BOXES WITHOUT WIRING DEVICES.

- GENERAL**
 - THIS SPECIFICATION SHALL APPLY TO AND GOVERN ALL WORK OF DIVISION 16. THE ELECTRICAL CONTRACTOR SHALL BE A SUBCONTRACTOR TO THE GENERAL CONTRACTOR AND HIS BID SHALL BE TENDERED DIRECTLY TO THE GENERAL CONTRACTOR. THE CONTRACTOR SHALL SUPPLY, INSTALL, WIRE AND CONNECT ALL EQUIPMENT, ACCESSORIES, DEVICES ETC SHOWN UNLESS SPECIFICALLY NOTED OTHERWISE. SHOULD THE CONTRACTOR BE UNSURE, THEY ARE TO SUBMIT A QUESTION AS OUTLINED IN HWDSB PROCUREMENT METHOD.
 - IT IS THE CONTRACTORS RESPONSIBILITY TO OBTAIN ALL DRAWINGS AND SPECIFICATIONS PRIOR TO TENDER SUBMITTAL. ELECTRICAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH MECHANICAL DRAWINGS. ANY DISCREPANCIES BETWEEN THESE SPECIFICATIONS AND THE DRAWINGS THAT CAUSES DOUBT AS TO THE TRUE MEANING OF THE DRAWINGS AND SPECIFICATIONS, A QUESTION TO BE SUBMITTED THROUGH HWDSB PROCUREMENT METHOD OR TO BE RESOLVED AS REFERENCED IN THE CONTRACT.
 - LIABILITY INSURANCE:**
 - OBTAIN AND CARRY PROPER INSURANCE TO FULLY PROTECT BOTH THE OWNER AND HIMSELF FROM ANY AND ALL CLAIMS DUE TO ACCIDENTS, MISFORTUNES, ACTS OF GOD, ETC.
 - CODES, PERMITS AND INSPECTION**
 - BE RESPONSIBLE FOR AND OBTAIN ALL PERMITS, INSPECTION, ETC., AS REQUIRED BY ALL AUTHORITIES HAVING JURISDICTION OVER THIS WORK AND PAY FOR ALL FEES RELATED TO SAME.
 - DELIVER ALL PERMITS TO THE ENGINEER AS SOON AS THEY BECOME AVAILABLE.
 - CLOSE OUT DOCUMENTS AND AS-BUILT DRAWINGS:**
 - THE CONTRACTOR SHALL SUBMIT AN ENQUIRY TO THE ARCHITECT/OWNER TO OBTAIN THE FINAL ROOM NAMES AND NUMBERS TO BE USED IN ALL THE CLOSE OUT DOCUMENTS, REPORTS, FIRE ALARM/NURSE CALL PROGRAMMING, PANEL SCHEDULES ETC. FAILURE TO USE THE FINAL NAMES AND NUMBERS WILL REQUIRE THE CONTRACTOR TO REPLACE DOCUMENTATION/REPROGRAM AS REQUIRED AT THEIR EXPENSE. THEY SHALL KEEP A SEPARATE SET OF WHITE PRINTS ON THE SITE AND NOTE ALL CHANGES AND DEVIATIONS FROM THE ORIGINAL DESIGN. DEVICES ETC NOTED AS "EX (EXISTING)" AND "REL (RELOCATED)" ARE TO HAVE THE CIRCUIT TRACED AND DESIGNATED ON THE DRAWINGS. DEVICES ETC DESIGNATED AS CONNECT TO EXISTING CIRCUIT IN AREA ARE TO HAVE THE CIRCUIT INDICATED ON THE PLANS. PROVIDE AS-BUILT DRAWINGS IN AUTOCAD FORMAT (MIN. RELEASE 2010), PDF FORMAT AND (2) TWO SETS OF THESE PLANS SHOWING ALL AS-BUILT CONDITIONS TO THE OWNER AT THE COMPLETION OF THIS CONTRACT AND BEFORE APPLYING FOR FINAL PAYMENT. (INCLUDE IN SLAB CONDUIT RUNS). SHOULD NO MARKUPS BE REQUIRED TENDER AND/OR SEALED PLANS BY THE ENGINEER WILL NOT BE ACCEPTED.
 - CLOSE OUT BINDERS SHALL BE PROVIDED WITH ALL TEST RESULTS, WARRANTY LETTERS AND SHOP DRAWINGS. A PDF COPY SHALL BE PROVIDED. PDF VERSION SHALL BE ASSIGNED VERSIONS WHERE POSSIBLE. SHOULD A DOCUMENT REQUIRE SCANNING, IT SHALL BE PROVIDED IN HIGH RESOLUTION AND BE CLEARLY LEGIBLE. ILLEGIBLE DOCUMENTS WILL NOT BE ACCEPTED.
 - CODES AND STANDARDS (CURRENT EDITIONS)**
 - DO COMPLETE INSTALLATION IN ACCORDANCE WITH C.S.A. C22.1 EXCEPT WHERE SPECIFIED OTHERWISE.
 - COMPLY WITH C.S.A. ELECTRICAL BULLETINS IN FORCE AT TIME OF TENDER SUBMISSION, WHILE NOT IDENTIFIED AND SPECIFIED BY NUMBER IN THIS DIVISION, ARE TO BE CONSIDERED AS FORMING PART OF RELATED C.S.A. PART II STANDARD.
 - DO OVERHEAD AND UNDERGROUND SYSTEMS IN ACCORDANCE WITH C.S.A. C22.3 NO. 1 EXCEPT WHERE SPECIFIED OTHERWISE.
 - ABBREVIATIONS FOR ELECTRICAL TERMS: TO C.S.A. 285.
 - COMPLY ALSO WITH THE FOLLOWING CODES:
 - ONTARIO ELECTRICAL SAFETY CODE
 - NATIONAL BUILDING CODE
 - ONTARIO BUILDING CODE
 - LOCAL HYDRO UTILITY REQUIREMENTS
 - CAN/ULC 5524, 5537 AND S1001
 - LOCATION OF OUTLETS:**
 - CHANGE LOCATION OF OUTLETS, EQUIPMENT AT NO EXTRA COST OR CREDIT, PROVIDING DISTANCE DOES NOT EXCEED 10'-0" (3m) AND INFORMATION IS GIVEN BEFORE INSTALLATION.
 - CUTTING AND PATCHING:**
 - PROVIDE ALL CUTTING, PATCHING AND PAINTING FOR ELECTRICAL WORK, UNLESS NOTED OTHERWISE.
 - EQUIPMENT AND MATERIAL:**
 - ALL EQUIPMENT AND MATERIAL, UNLESS SPECIFICALLY NOTED OTHERWISE, SHALL BE NEW AND WITHOUT BLEMISH OR DEFECT. ALL MATERIAL AND EQUIPMENT SHALL BEAR U.L.C. OR C.S.A. LABELS.
 - WARRANTY:**
 - WARRANT ALL WORK AND APPARATUS INSTALLED UNDER THIS CONTRACT FOR A PERIOD OF ONE YEAR AT DATE OF SUBSTANTIAL COMPLETION.
 - MAINTENANCE OF SERVICE:**
 - PROVIDE ALL LABOUR AND MATERIALS NECESSARY TO ENSURE THAT POWER, LIGHTING AND ALL OTHER MISCELLANEOUS ELECTRICAL SERVICES ARE MAINTAINED IN FULL OPERATING CONDITION, IN ALL AREAS OF THE EXISTING BUILDING, DURING THE CONSTRUCTION PERIOD. DISCONNECT, MOVE, RELOCATE, AND RECONNECT CONDUIT AND WIRING AS NECESSARY TO ACCOMMODATE THE NEW WORK AND MECHANICAL INSTALLATION.
 - CLEANING**
 - DO FINAL CLEANING.
 - AT TIME OF FINAL CLEANING, CLEAN EQUIPMENT SURFACES THAT HAVE BEEN EXPOSED TO CONSTRUCTION DUST AND DIRT.
 - VACUUM INSIDE OF ALL PANEL BOARDS, ETC., ON COMPLETION OF THE PROJECT.
 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**
 - SUBMIT SHOP DRAWINGS, PRODUCT DATA AND/OR SAMPLES FOR ALL EQUIPMENT, POWER DISTRIBUTION, POWER DEVICES, COMMUNICATIONS DEVICES, RACEWAY, LIGHT FIXTURES, EMERGENCY LIGHTING, ETC. THE DRAWINGS ARE TO BE REVIEWED AND STAMPED BY BOTH THE GENERAL AND ELECTRICAL CONTRACTOR PRIOR TO SUBMITTAL.
 - SHOP DRAWINGS SHALL INCLUDE ALL RELEVANT ACCESSORIES AND LAYOUTS WHERE REQUESTED.
 - SHOP DRAWINGS THAT ARE ILLEGIBLE AND OF POOR QUALITY WILL BE REJECTED.
 - SHOP DRAWINGS WILL BE REVIEWED AND RETURN MARKED "REVIEWED", "REVIEWED AS MODIFIED" OR "REVISE AND RESUBMIT". THE DRAWING REVIEW DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR ITS ACCURACY OR FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS.
 - INSTALLATION OF ANY EQUIPMENT SHALL NOT START UNTIL AFTER FINAL REVIEW OF SHOP DRAWINGS BY THE CONSULTANT HAS BEEN OBTAINED.
 - INCOMPLETE OR INCORRECT SHOP DRAWINGS THAT ARE REJECTED, WHICH ADVERSELY CAUSE OR RESULT IN ANY DELAY OF THE DELIVER SCHEDULE OF ANY EQUIPMENT SHALL BE THE CONTRACTORS RESPONSIBILITY.
 - IF INCORRECT SHOP DRAWINGS ARE SUBMITTED AND REJECTED ANY SUBSEQUENT DELIVERY DELAY WILL RESULT IN THE CONTRACTOR PROVIDING TEMPORARY FACILITIES UNTIL SAID EQUIPMENT IS DELIVERED AND INSTALLED AT NO EXTRA COST TO THE OWNER.
 - PROVIDE SPACE FOR SHOP DRAWING REVIEW STAMPS FOR THE CONTRACTOR AND CONSULTANT. THIS SPACE SHALL BE CLEAR OF ALL TECHNICAL INFORMATION AND SHALL NOT BE ON THE BACK OF ANY SHEETS.
 - SUBMIT SHOP DRAWINGS IN DIGITAL (PDF) FORMAT.
 - ONE (1) ORIGINAL COPY IN DIGITAL FORMAT (PDF) WILL BE RETURNED. ALL COPIES REQUIRED BY TRADES, SUPPLIERS OR OTHER CONSULTANTS WILL BE PROVIDED AND/OR PRINTED BY THE CONTRACTOR.
 - FAILURE TO SUBMIT SHOP DRAWINGS WILL NOT RELIEVE THIS CONTRACTOR FROM ENSURING THAT ALL INSTALLED EQUIPMENT MEETS THE INTEND OF DESIGN DOCUMENTS. ALL COSTS ASSOCIATED WITH ANY ISSUES ASSOCIATED WITH ALTERNATE OR NOT SUBMITTED EQUIPMENT WILL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR.
 - SHOP DRAWING SUBMITTAL SHALL BE (BUT NOT LIMITED TO) FOR ANY EQUIPMENT AS LISTED:
 - HIGH VOLTAGE EQUIPMENT
 - SWITCHBOARD, METER CENTERS, PANEL BOARDS
 - FIRE ALARM SYSTEMS
 - LUMINAIRES INCLUDING LAMPS AND BALLASTS
 - LIGHTING CONTROLS
 - EMERGENCY BATTERY UNITS AND FIXTURES
 - ELECTRICAL HEATERS
 - SECURITY SYSTEM
 - MASTERS CLOCK AND PROGRAM
 - INTERCOM SYSTEM
 - PUBLIC ADDRESS SYSTEM
 - MILLWORK
 - DEVICES
 - DRAW BREAKDOWNS:**
 - THIS CONTRACTOR MUST SUBMIT A BREAKDOWN OF THE TENDER PRICE INTO SEPARATE CLASSIFICATION TO THE SATISFACTION OF THE CONSULTANT AND TOTALING THE TOTAL CONTRACT AMOUNT. EACH ITEM IS TO BE BROKEN INTO MATERIAL AND LABOUR COSTS.
 - PROGRESS DRAWS, WHEN SUBMITTED, ARE TO BE ITEMIZED AGAINST EACH OF THE DRAW BREAKDOWNS AND SHALL BE IN TABLE FORM IDENTIFYING CONTRACT AMOUNT, AMOUNT OF THIS DRAW, TOTAL TO DATE, PERCENTAGE COMPLETE AND BALANCE.
 - BREAKDOWN SHALL FOLLOW, BUT NOT BE LIMITED TO:
 - PERMITS AND FEES
 - MOBILIZATION
 - DEMOLITION
 - DISTRIBUTION EQUIPMENT (IE. SWITCHBOARDS, PANELBOARDS, ETC.)
 - INCOMING FEEDERS AND CONDUITS
 - BRANCH WIRING CONDUITS
- BRANCH WIRING**
 - MECHANICAL EQUIPMENT WIRING
 - FIRE ALARM DEVICES
 - FIRE ALARM WIRING
 - FIRE ALARM VERIFICATION AND CERTIFICATION
 - EXIT AND EMERGENCY LIGHTING
 - LIGHTING
 - LIGHTING CONTROLS
 - VOICE AND COMMUNICATION CONDUITS
 - VOICE AND COMMUNICATION WIRING AND TERMINATIONS
 - ACCESS CONTROL AND SECURITY
 - FUSIBLE AND NON-FUSIBLE DISCONNECT SWITCHES (IE. PUBLIC ADDRESS, SOUND, ETC.)
 - ABOVE BREAKDOWN MUST BE APPROVED BY THE CONSULTANT PRIOR TO SUBMISSION OF THE FIRST DRAW, MOBILIZATION AMOUNT MAY ONLY BE DRAWN WHEN ALL REQUIRED SHOP DRAWINGS HAVE BEEN REVIEWED BY THE CONSULTANT.
- REVISIONS TO CONTRACT:**
 - PROVIDE ITEMIZED LISTS OF MATERIALS/ASSOCIATED COSTS, LABOUR RATE/LABOUR FOR EACH ITEM, COPY OF MANUFACTURERS INVOICE, IF REQUESTED, FOR EACH ITEM GIVEN CHANGE NOTICE.
- ROOF AND WALL OPENINGS:**
 - LOCATION OF CONDUITS PASSING THROUGH ROOF AND WALLS TO BE COORDINATED WITH DIVISION 15. ALL OPENINGS TO BE MADE WATERTIGHT.
- SCHEDULE OF CONSTRUCTION:**
 - CONSULT GENERAL DIVISION FOR SCHEDULE OF CONSTRUCTION BEFORE COMMENCING WORK AND COORDINATE DETAILS WITH ENGINEER, OWNER AND ALL TRADES DURING CONSTRUCTION.
- DIRECTORIES AND LABELLING:**
 - IDENTIFY ALL ELECTRICAL EQUIPMENT. IDENTIFICATION SHALL CONSIST OF ENGRAVED LAMACOID NAMEPLATES HAVING BLACK BACKGROUND WITH WHITE LETTERS. FASTEN NAMEPLATES TO DEVICE USING SELF-TAPPING, COUNTERSUNK SCREWS. TAPE-TYPE NAMEPLATES WILL NOT BE ACCEPTED.
 - ALL RECEPTACLE COVER PLATES SHALL BE LABELED WITH TAPE-TYPE NAMEPLATES. THE LABEL SHALL INDICATE THE PANEL DESIGNATION AND CIRCUIT NUMBER. (IE A19). TAPE SHALL BE NEATLY TRIMMED ON EACH END AND PLACED ON LEVEL ON THE FACE PLATE. LABELS SHALL HAVE A NEAT, CLEAN AND PROFESSIONAL APPEARANCE. LABELS NOT TRIMMED OR POORLY POSITIONED WILL NOT BE ACCEPTED.
 - ALL PANELS WITH CIRCUITS AD

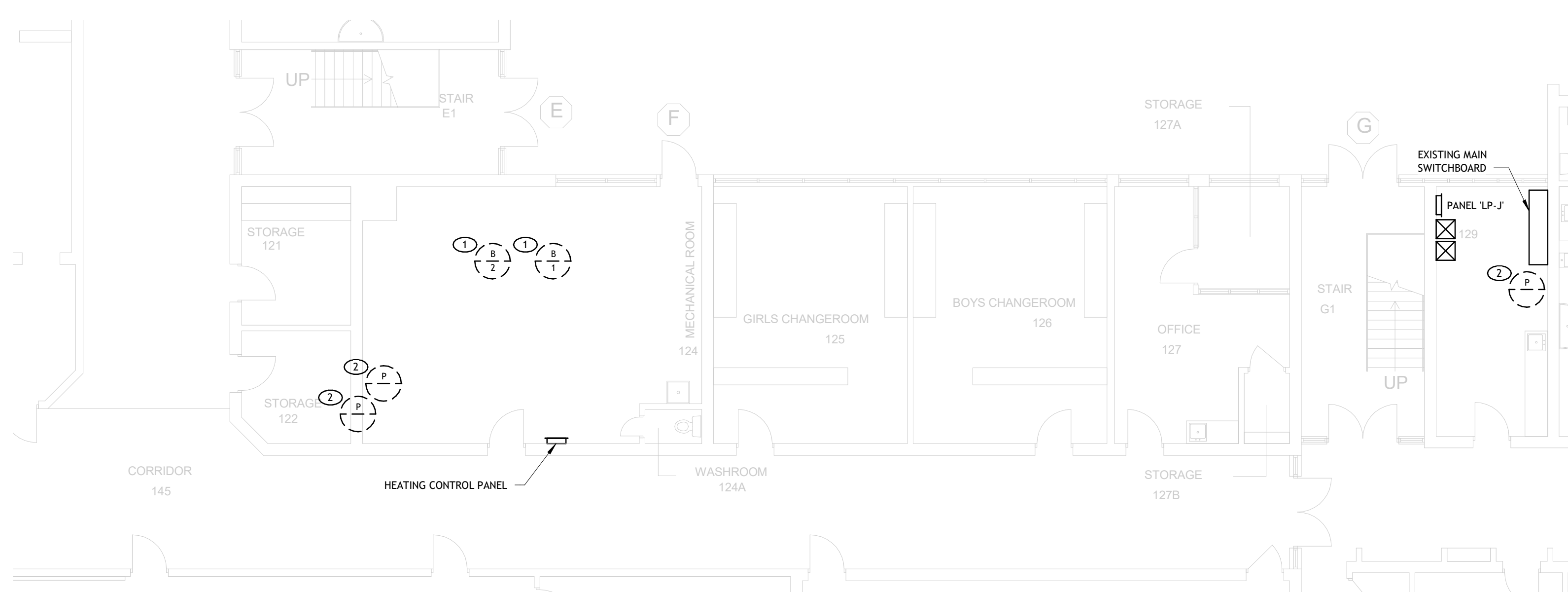


ELECTRICAL PROPOSED PLAN 1
1:100 E100

GENERAL NOTE:
REFER TO MECHANICAL DRAWING M0.01 FOR MECHANICAL EQUIPMENT SCHEDULES.

ELECTRICAL PROPOSED PLAN - DRAWING NOTES:

- NEW BOILER TO BE INSTALLED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO COORDINATE AND INSTALL POWER AND CONTROLS WIRING. PROVIDE NEW 30A 1-POLE BREAKER IN PANEL LP-J.
- NEW PUMP TO BE INSTALLED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO COORDINATE AND INSTALL POWER AND CONTROLS WIRING. PROVIDE NEW 15A 1-POLE BREAKER IN PANEL LP-J.
- NEW PUMP TO BE INSTALLED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO COORDINATE AND INSTALL POWER AND CONTROLS WIRING. PROVIDE NEW 15A 2-POLE BREAKER IN PANEL LP-J.
- NEW BACK PUMP TO BE INSTALLED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO COORDINATE AND INSTALL POWER AND CONTROLS WIRING. PROVIDE NEW 20A 600V 3-POLE BREAKER IN MAIN SWITCHBOARD.



ELECTRICAL DEMOLITION PLAN 2
1:100 E100

ELECTRICAL DEMOLITION PLAN - DRAWING NOTES:

- EXISTING BOILER TO BE REMOVED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO COORDINATE TO REMOVE POWER AND CONTROLS WIRING. EXISTING BREAKER IN HEATING CONTROL PANEL TO BE SWITCHED OFF AND MARKED AS SPARE.
- EXISTING PUMP TO BE REMOVED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO COORDINATE TO REMOVE POWER AND CONTROLS WIRING. EXISTING BREAKER IN HEATING CONTROL PANEL TO BE SWITCHED OFF AND MARKED AS SPARE.

2	ISSUED FOR TENDER	2024 02 29
1	ISSUED FOR PERMIT	2024 02 22
No.	DESCRIPTION	DATE

REVISIONS:

DISCREPANCIES MUST BE REPORTED IMMEDIATELY TO THE ENGINEER BEFORE PROCEEDING. ONLY DIMENSIONS SHOWN ON THIS DRAWING MUST BE USED. THE CONTRACTOR MUST CHECK THE DIMENSIONS ON SITE. THE DRAWING IS PROTECTED BY COPYRIGHT. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS.

DO NOT SCALE THE DRAWINGS.

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DRAWING TITLE:
ELECTRICAL PLANS

DRAWN BY:	DATE:	JUNE 3, 2020
CHECKED BY:	SCALE:	1:100

PROJECT NO: **24-023**

DRAWING NO: **E100**