			ELECTRICAL SPECIFICATION	S	
<ol> <li>GENERAL REQUIREMENTS:</li> <li>COMPLY WITH ALL DIVISION 1 GENERAL CONDITIONS. THE</li> </ol>	4.2.3 OPERATION AND MAINTENANCE MANUALS SHALL FORM A COMPLETE DOCUMENTATION FOR THE SUBJECTED ELECTRICAL INSTALLATION AND WILL NOT BE LIMITED TO LINE VOLTAGE POWER	8.3 CONNECTORS TO ELECTRICAL PANELS, FIRE ALARM PANEL, SWITCHBOARDS, ETC., HEAD-MAIN EQUIPMENT SHALL BE COMPLETE WITH RAIN TIGHT CONNECTORS TO ENSURE EQUIPMENT	<ul><li>14. DISTRIBUTION FEEDERS:</li><li>14.1 FEEDERS SHALL BE SIZED AS DETAILED. SUBSTITUTION OF</li></ul>	18.5ELEVATOR DISCONNECT SWITCHES SHALL BE AS PER ABOVE SECTION AND COMPLETE WITH AUXILIARY CONTACTS IDENTIFYING OPEN/CLOSE SWITCH STATUS AND WIRED TO THE ELEVATOR23. TRA	ANSFORMERS:
ELECTRICAL CONTRACTOR SHALL FOLLOW REQUIREMENTS AS IDENTIFIED BY ARCHITECT AND OTHER CONSULTANTS. COORDINATE WITH ALL TRADES TO ENSURE PROPER INSTALLATION METHODS APPLICABLE TO ALL CONSULTANT SPECIFICATIONS OF THE PROJECT.	EQUIPMENT. 4.2.4 ANY SECURITY, TELEPHONE, OR OTHER MISCELLANEOUS SYSTEMS SHALL ALSO BE INCLUDED IN THE OPERATION AND MAINTENANCE MANUALS.	<ul> <li>INTEGRITY IN CASE OF WATER SPILLAGE.</li> <li>8.4 CONDUITS SHALL BE INSTALLED OVERHEAD AND SHALL NOT BE SUSPENDED FROM THE ROOF DECK. INSTALL ALL CONDUITS AT JOIST LEVEL FROM TOP PART OF THE JOIST OR FROM THE BEAM.</li> </ul>	FEEDERS EITHER IN MATERIAL OR ROUTING WILL NOT BE PERMITTED UNLESS ENGINEER'S WRITTEN APPROVAL IS OBTAINED. FEEDERS SHALL HAVE A MAXIMUM VOLTAGE DROP OF 2% AT FULL LOAD AT THE PANELS SUPPLIED. ALL FEEDERS SHALL BE BALANCED UNDER FULL LOAD CONDITIONS TO WITHIN 5% BETWEEN PHASES.	CONTROLLER.       23.1         18.6       FUSIBLE DISCONNECTS SWITCHES SHALL MATCH SPECIFICATION         AS ITEM 18.4 HOWEVER FUSIBLE WITH CLASS J OR CLASS R FUSES       AS REQUIRED.	DRY TYPE INDOOR THREE-COIL ONLY, AIR-COOLED TYPE AND AMP RATING A CAPABLE OF WITHS
1.2 OBTAIN ALL APPROVALS FROM PUBLIC AUTHORITIES HAVING JURISDICTION BEFORE COMMENCING WORK AND PAY ALL INSPECTION FEES AND ALL PERMITS. COMPLY WITH THE REQUIREMENTS OF THE LATEST EDITION OF THE APPLICABLE C.S.A.	<ul> <li>4.3 PROJECT SUBSTANTIAL COMPLETION AND PROJECT CLOSURE:</li> <li>4.3.1 AFTER THE WORK IS COMPLETED, GIVE A WRITTEN GUARANTEE EOR ONE (1) YEAR COVERING WORKMANSHIP AND MATERIALS</li> </ul>	<ul> <li>PROVIDE ALL REQUIRED CONDUIT SUPPORT HARDWARE.</li> <li>8.5 LARGEST CONDUITS APPROVED TO BE USE FOR CONNECTION OF BRANCH CIRCUITS IS 1-1/4". ANY DEVIATION WILL TRIGGER REWORK OF INSTALLED CONDUITS.</li> </ul>	ALL PHASES AND NEUTRALS SHALL BE IDENTIFIED AND MAINTAINED IN THEIR CORRECT ORDER WHEN READING LEFT TO RIGHT THROUGHOUT THE BUILDING.	19. RECEPTACLES: 19.1 RECEPTACLES SHALL BE LINIESS OTHERWISE NOTED LLOPOLIND	THEY SHALL HAVE SHALL BE DESIGNE THE SOUND LEVEL
STANDARDS, BUILDING CODE, LOCAL ELECTRICAL SAFETY CODE APPLICABLE TO AREA HAVING JURISDICTION, APPLICABLE U.L.C. STANDARDS, AND THE OWNER'S REQUIREMENTS. SUBMIT CERTIFICATE OF INSPECTION AND APPROVAL FROM ALL AUTHORITIES HAVING JURISDICTION.	REPAIR OR REPLACE, WITHOUT EXPENSE TO THE OWNER, ANY DEFECTS DUE TO WORKMANSHIP OR MATERIALS WHICH, IN THE OWNER'S OPINION, ARE NOT DUE TO MISUSE OR NEGLECT. LED LIGHTING SHALL HAVE THREE (3) YEARS INSTALLATION AND MANUFACTURER'S WARRANTY. COORDAITNED WITH GENERAL	<ul><li>8.6 EMPTY CONDUITS SHALL BE COMPLETE WITH NYLON PULL WIRE.</li><li>9. WIRING</li></ul>	LOAD CENTRES SHALLS, HANGI ONMER, INCOMING SERVICE AND CONDITIONS TO WITHIN 5% BETWEEN PHASES. ALL PHASES AND NEUTRALS SHALL BE IDENTIFIED AND MAINTAINED IN THEIR CORRECT ORDER WHEN READING LEFT TO RIGHT THROUGHOUT THE BUILDING.	19.1       RECEPTACLES SHALL BE, SHELGS OTHERWISE NOTED, STOKEND       E         19.2       RECEPTACLES SHALL BE SPECIFICATION GRADE, MADE BY: HUBBELL, LEVITON, TANDB OR EQUIVALENT, 15 AMP, 120 VOLT       N         UNLESS OTHERWISE NOTED.       M	EQUIPPED WITH TE SUITABLE SOLDERL VENTILATED CODE HINGED REMOVABL MOUNTING BRACKE
1.3 DO NOT REDUCE THE STANDARDS ESTABLISHED BY THE DRAWINGS AND SPECIFICATIONS BY APPLYING ANY OF THE CODES REFERRED TO HEREIN.	CONDITIONS. 4.3.2 PROVIDE OWN LIST OF OUTSTANDING AND DEFICIENT WORK PRIOR TO SUBSTANTIAL COMPLETION.	9.1 ALL WIRING SHALL BE MINIMUM #12 GAUGE COPPER, EXCEPT AS OTHERWISE NOTED. ALL WIRING SHALL BE 600 VOLT TYPE RW90 FOR PANEL FEEDERS INSTALLED IN METALLIC CONDUIT, UNLESS OTHERWISE NOTED. CIRCUIT BRANCH WIRING SHALL BE T-90 CU	14.3 ALL PHASES AND NEUTRALS SHALL BE IDENTIFIED AND MAINTAINED IN THEIR CORRECT ORDER WHEN READING LEFT TO RIGHT THROUGHOUT THE BUILDING.	19.3 ROOF/PARAPET RECEPTACLES SHALL BE VERTICALLY MOUNTED, CONDUIT WORK SHALL BE CONCEALED WITHIN THE STRUCTURE CAVITY. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR SEALING AND WATER PROOFING OWN PENETRATIONS, BOOFING	MOUNT ALL TRANSF LOCATION SHOWN
1.4 PROVIDE PROOF OF PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE COVERAGE AND AMOUNT. SUBMIT WITH TENDER. COORDINATE WITH CONSTRUCTION RFP.	4.3.3 ADJUST AND RECORD LEVELS OF EMERGENCY LIGHTING THROUGHOUT THE FACILITY. AIMING ADJUSTMENT SHALL BE COMPLETED AND ADJUSTED AS NECESSARY AND AS REQUIRED BY AHJ AND CONSULTANT. PROVIDE RECORD OF EMERGENCY	JACKETED CONDUCTOR. AC-90 CABLES MAY BE USED WHERE PERMITTED BY CODE IN CEILING SPACE FOR FINAL CONNECTION TO LIGHT FIXTURE AND FROM CEILING DISTRIBUTION BOXES DOWN HOLLOW PARTITIONS TO RECEPTACLES ONLY.	14.4 MEGGER ALL FEEDERS TO MEET CODE AND LATEST NETA MANUAL. ALL FEEDERS SHALL BE MEGGER TESTED WITH 1000VDC APPROVED MEGGER TESTER, HAND CRANKED INSTRUMENTS ARE NOT PERMITTED. SUBMIT TEST RESULTS FOR CONSULTANT REVIEW	WORK SHALL BE DONE BY SENECA APPROVED ROOFING       F         CONTRACTOR.       23.4         19.4       HVAC RECEPTACLES SHALL BE 20 AMP AND COMPLETE WITH WHILE       C	REQUIRED FOR SEI THE COMPLETED A COAT AND A FINISH
1.5 THE ELECTRICAL BID, THE ELECTRICAL QUOTATIONS FOR ADDITIONAL WORK, AND ALL SUBMISSIONS RELATED TO THE ELECTRICAL SCOPE SHALL BE BY THE ELECTRICAL CONTRACTOR, OR SUBCONTRACTOR ENGAGED ON THE PROJECT BASED ON THE ELECTRICAL DRAWINGS SPECIFICATION. THE SUBMISSIONS SHALL	<ul> <li>LIGHTING TESTING AND EMERGENCY LIGHT LEVEL MEASUREMENTS PRIOR TO REQUEST FOR SUBSTANTIAL COMPLETION.</li> <li>4.3.4 PRIOR TO COMPLETING FIRE ALARM SYSTEM PROGRAMMING OBTAIN APPROVAL FOR SEQUENCE OF OPERATION BY LOCAL AND</li> </ul>	9.2 MINIMUM SIZE WIRING FOR DC WIRING SHALL BE #10 GAUGE. MAXIMUM VOLTAGE DROP SHALL NOT EXCEED 2% AT ALL FINAL OUTLET LOCATIONS.	PRIOR TO POWER ON. 14.5 REPLACE AT NO COST ALL FEEDERS THAT DO NOT MEET MINIMUM INSULATION RESISTANCE.	IN USE COVER, DIE-CAST ALUMINIUM, MADE BY INTERMATIC.	SHALL CONFORM T STANDARDS EXCEF C.S.A CODE PART 2 APPLICABLE.
BE ON THE ELECTRICAL OR SUBCONTRACTOR COMPANY LETTERHEAD, SUPPLEMENTED BY A GENERAL CONTRACTOR LETTERHEAD DOCUMENT WHERE GENERAL CONTRACTOR IS ENGAGED. ALL DOCUMENTS SHALL BE SIGNED AND SEALED WHEN	ALLOW TO COMPLETE FIRE ALARM SYSTEM PROGRAMMING ADJUSTMENTS AS REQUESTED BY AHJ AT A LATER DATE. 4.3.5 CLEAN AND TEST ALL EQUIPMENT BEFORE FINAL ACCEPTANCE IS	9.3 BRANCH CIRCUIT WIRING VOLTAGE DROP SHALL BE 2% FOR ALL FEEDER CONDUCTORS AND TOTAL 4% TO FINAL OUTLET. MINIMUM WIRE SIZE DEPICTED ON ELECTRICAL DRAWINGS CONTRACTOR TO INCREASE TO ACCOMMODATE FOR ANY VOLTAGE DROP DUE TO	<ul><li>14.6 ALL DISTRIBUTION FEEDERS SHALL BE 90°C RATED.</li><li>15. ELECTRICAL EQUIPMENT ENCLOSURE RATING:</li></ul>	20.1 PROVIDE A DISTRIBUTION COORDINATION, SHORT CIRCUIT AND ARC FLASH STUDY TO CONFIRM THAT ALL EQUIPMENT OFFERED IS SUITABLY RATED. THE REPORT TO BE SIGNED BY PROFESSIONAL ENCINEER DROVIDE THE COORDINATION SHORT CIRCUIT STUDY	TRANSFORMERS SI MEET LOCAL AND H COMPLETE TRANSF
1.6 ALL ITEMS STIPULATED AND DESIGNATED AS INSTRUCTIONS TO THE ELECTRICAL CONTRACTOR SCOPE OF WORK SHALL BE APPLICABLE TO ANY SUBCONTRACTOR ENGAGED ON THE PROJECT	4.3.6 ARRANGE FOR FINAL ELECTRICAL INSPECTION BY ELECTRICAL CONSULTANT FOR ONE WEEK PRIOR TO COMPLETION OF WORK.	9.4 ALL WIRING SHALL BE SIZED COMPLIANT WITH 75°C RATED EQUIPMENT, SUBJECT TO DERATING AS PER TABLES 5A, 5B, 5C AND 5D.	15.1 EQUIPMENT SHALL BE NEMA 2 RATED WHEN INDOOR AND NEMA 4 WHEN OUTDOOR. OUTDOOR DEVICES SHALL BE SUITABLY RATED FOR THEIR ENVIRONMENT.	ENGINEER. PROVIDE THE COORDINATION SHORT CIRCUIT STUDY       ()         WITH THE DISTRIBUTION SHOP DRAWINGS. SUBMISSION OF ALL       EQUIPMENT, SHOW ALL SWITCHGEAR AND DISTRIBUTION FROM THE         SERVICE ENTRY TO THE LAST PANEL. OBTAIN DETAILS FROM       24. ME <sup>-</sup> UTILITY AND INCORPORATE INTO STUDY. DETAILS FOR THE STUDY	TERING
WHICH SCOPE IS BASED ON THE HAMMERSCHLAG AND JOFFE ISSUED DRAWINGS. 2. DRAWINGS:	<ol> <li>VALUATION OF CHANGES:</li> <li>5.1 PROVIDE COMPLETE BREAKDOWN OF MATERIAL, LABOUR, OVERHEAD, DROET, ETC., WHEN SUBMITTING OUDTATIONS FOR</li> </ol>	9.5 UNDERGROUND WIRING FEEDERS AND BRANCH WIRES SHALL BE RWU RATED FOR DIRECT BURIAL AND INSTALLED IN SPECIFIED UNDERGROUND CONDUITS AS NOTED ON THE ELECTRICAL	<ul> <li>16. ELECTRICAL PANEL BOARDS:</li> <li>16.1 EACH PANEL BOARD SHALL BE COMPLETE WITH A KEY LOCKABLE HINGED DOOP AND A CIRCUIT DIRECTORY CIVING THE NUMBER</li> </ul>	SHALL BE PROJECT SPECIFIC, DEFAULT ANSI AND NEMA       24.1         EQUIPMENT DETAILS SHALL NOT BE ACCEPTED. COORDINATION       24.1         SHALL INCLUDE AND NOT BE LIMITED TO: LINE DIAGRAMS       24.1         COMPLETE WITH FAULT LEVELS, LINE DIAGRAMS COMPLETE WITH       24.1         WIDE LENGTHS AND WIDE SPECIFICATIONS       24.1	METERING CABINE AS REQUIRED WITH TWO DOORS AND S A CAT.6 WIRED TEL THE MAIN TELEPHO
<ul> <li>2.1 EXAMINE ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS BEFORE PROCEEDING WITH THE WORK.</li> <li>2.2 ANY DISCREPANCIES BETWEEN DRAWINGS AND/OR</li> </ul>	<ul> <li>5.2 THE HOURLY LABOUR RATE SHALL BE INCLUSIVE OF ALL CHARGES FOR SUPERVISION, VARIABLE LABOUR FACTORS, HAND TOOLS,</li> </ul>	9.6 CHANGE OF LOCATION OF WIRING DEVICES WITHIN 5m OF THE NOTED LOCATION ON THE DRAWINGS SHALL BE AT NO COST TO THE CLIENT PROVIDED THAT THE LOCATION IS CLARIFIED PRIOR TO	AND DESCRIPTION OF EACH CIRCUIT DIRECTORY GIVING THE NOMBER AND DESCRIPTION OF EACH CIRCUIT CONTROLLED. THE DIRECTORIES SHALL BE CLEARLY TYPED, LEGIBLE AND OF AMPLE SIZE AND SHALL BE MOUNTED IN A METAL FRAME WITH A CLEAR PLASTIC COVER ON THE INSIDE OF THE DOOR.	WIRE LENGTHS AND WIRE SPECIFICATIONS, LINE DIAGRAMS         COMPLETE WITH ARC FLASH LEVELS, SELECTIVE COORDINATION         PLOTS AND TABLE WITH BREAKER SETTING.         20.2       CONTRACTOR SHALL OBTAIN ALL DATA AS REQUIRED BY THE	METER SOCKET BA
<ul> <li>SPECIFICATIONS MUST BE REFERRED TO THE CONSULTANT BEFORE ANY AFFECTED WORK IS COMMENCED.</li> <li>2.3 PREPARE INTERFERENCE DRAWINGS IN CONJUNCTION WITH ALL TRADES CONCERNED, SUCHWING SUFEYES, CAPIERS AND CONDUCT</li> </ul>	PAYROLL BURDENS, HEIGHT FACTORS, WARRANTIES, STORAGE, RENTALS, ADDITIONAL BONDING, PARKING, CLEAN-UP, AS-BUILD DRAWINGS, HOISTING, FREIGHT AND DELIVERY, AND EXCLUSIVE OF OVERHEAD AND PROFIT.	<ul> <li>INSTALLATION.</li> <li>9.7 CALL FOR ROUGH-IN INSPECTION BY AUTHORITIES HAVING JURISDICTION PRIOR TO CLOSING WALLS AND CEILINGS. PAY ALL SEES AND REOVIDE RECORDS OF INSPECTION COMPLETION.</li> </ul>	16.2 THE CIRCUIT BREAKERS SHALL BE CONNECTED TO THE PANEL BY BOLTED CONNECTIONS. ALL BUS BARS, LUGS, AND BREAKER TERMINALS SHALL BE COPPER SILVER-PLATED AT THE CONNECTION POINTS. THE INTERPUTTING CARACITY OF EACH	POWER SYSTEM STUDIES IN WRITING. THE CONTRACTOR SHALL       O         EXPEDITE COLLECTION OF THE DATA TO ELIMINATE UNNECESSARY       D         DELAYS AND TO ASSURE COMPLETION OF THE STUDIES REQUIRED       FOR FINAL APPROVAL OF THE DISTRIBUTION SHOP DRAWINGS       24.3         AND/OR PRIOR TO THE RELEASE OF THE EQUIPMENT FOR       FOR FINAL APPROVAL OF THE DISTRIBUTION SHOP DRAWINGS       24.3	COMBINATION OF M ARE REQUIRED. THE CABINET SHAL
<ul> <li>ROUTES, LIGHT FIXTURES AND OPENINGS FOR PASSAGE THROUGH STRUCTURE AND ALL INSERT SIZES AND LOCATIONS.</li> <li>2.4 REFER TO ARCHITECTURAL DRAWINGS FOR EXACT MOUNTING</li> </ul>	5.3 LABOUR HOURS SHALL BE BASED ON THE LATEST ISSUE OF THE NATIONAL ELECTRICAL CONTRACTOR'S ASSOCIATION (NECA) LABOUR UNITS, COLUMN ONE NORMAL FOR THE DURATION OF THIS CONTRACT. LABOUR FOR SMALL ITEMS SUCH AS, HOWEVER NOT	9.8 UNDERGROUND WIRING FEEDERS AND BRANCH WIRES SHALL BE RWU RATED FOR DIRECT BURIAL INSTALLED IN SPECIFIED UNDERGROUND CONDUITS AS NOTED ON THE ELECTRICAL	BOARD SHALL BE DETERMINED BY THE CO-ORDINATION STUDY AS PER DRAWINGS. MINIMUM 10KA FOR 208V PANELS AND 18KA FOR 347/600V PANELS, WHEN REMOTELY LOCATED FROM THE MAIN ELECTRICAL SERVICE. ELECTRICAL PANELS INSIDE MAIN	20.3       PROVIDE ALL REQUIRED ARC FLASH LABELS AS PER Z462. LABELS       24.4         SHALL COMPLY WITH CSA Z462 Q4 STANDARD LABEL.       M	METER SOCKETS S THE CONTRACTOR WITH LOCAL HYDRO
<ul> <li>LOCATIONS OF ALL LIGHT FIXTURES AND DEVICES.</li> <li>2.5 ELECTRICAL DRAWINGS SHALL NOT BE USED FOR EQUIPMENT LAYOUT. DO NOT SCALE ELECTRICAL DRAWINGS; OBTAIN ALL DIMENSIONS FROM ARCHITECTURAL DIVISION.</li> </ul>	<ul> <li>LIMITED TO, COUPLINGS, STRAPS, MARETTES, SCREWS, ETC., WILL</li> <li>NOT BE REIMBURSED.</li> <li>5.4 THE MATERIAL PRICES SHALL BE BASED ON THE CURRENT</li> <li>NATIONAL PRICE SYSTEM (NPS) CATALOGUE LESS APPLICABLE</li> </ul>	DRAWINGS. 10. WIRE TESTING:	ELECTRICAL ROOM SHALL BE RATED NOT LESS THAN: 35KAIC FOR 347/600V PANELS AND MINIMUM 10KA FOR 208V PANELS. REFER TO COORDINATION STUDY FOR DETAILS OF REQUIRED RATING. NOT WITHSTANDING THE ABOVE ALL SUPPLIED ELECTRICAL EQUIPMENT 400AMP OR LESSER SHALL BE APPLICABLE FOR SERIES RATING	20.4 ALLOW TO FULLY COMMISSION THE SWITCHGEAR AT THE END OF THE PROJECT. WORK TO BE DONE BY AN INDEPENDENT SPECIALIST. 24.5 F CARRY OUT AN INFRARED SCAN OF THE ENTIRE DISTRIBUTION H UNDER LOAD CONDITIONS. RETORQUE ALL EQUIPMENT	PROVIDE ALL REQU HYDRO'S REQUIRE
2.6 NOTE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE; CONTRACTOR IS RESPONSIBLE TO FAMILIARIZE WITH THE PROJECT INTENT BY REVIEWING ALL DRAWINGS RELATED TO THE PROJECT.	TRADE DISCOUNTS. 6. PROGRESS BILLING:	<ul> <li>10.1 ALL FEEDERS SHALL BE MEGGER TESTED WITH 1000VDC (FOR CABLES RATED 300V OR LESS MEGGER TEST IS 500VDC) APPROVED MEGGER TEST.</li> <li>10.2 HAND CRANKED INSTRUMENTS ARE NOT ALLOWED. SUBMIT</li> </ul>	<ul> <li>LISTED WITH CLASS J FUSE AND UPSTREAM BREAKER.</li> <li>16.3 NOTWITHSTANDING THE ABOVE, PANEL BOARDS CONNECTED TO THE SECONDARY SIDE OF TRANSFORMERS, 600-120/208 VOLT AND 600-120/240 VOLT SIZED 150KVA AND HIGHER SHALL BE RATED</li> </ul>	CONNECTIONS, INCLUDING, HOWEVER NOT LIMITED TO, BUSSING, BREAKERS, WIRE TERMINATIONS. COMPLETE ONSITE BREAKER TESTING TO CONFIRM BREAKER RELAY OPERATION. PROVIDE WRITTEN RECORDS OF TESTING INCLUDING VISUAL INSPECTION OF RELAY CONTROL WIRING AND LOCATION OF ALL CT SENSORS	COORDINATE AND I REQUIRED, INCLUD UTILITY DISTRIBUTI
<ul><li>2.7 IN CASE OF CONFLICT BETWEEN THE SPECIFICATION AND THE DRAWINGS THE GREATER REQUIREMENT SHALL PREVAIL.</li><li>3. COMMON WORK REQUIREMENTS</li></ul>	<ul> <li>6.1 PROVIDE COMPLETE BREAKDOWN OF MATERIAL, LABOUR, AND GENERAL COSTS WHEN SUBMITTING PROGRESS DRAW REQUEST.</li> <li>6.2 SEPARATE BILLING SECTION FOR EACH SYSTEM INSTALLED AS DARK OF THE PROVIDENT OF PROTOCOLOUR AT A MINIMUM.</li> </ul>	MEGGER TEST RESULT READINGS IN G Ω (GIGA – OHM) PRIOR TO POWER ON.	<ul> <li>16.4 ALL TWO OR THREE POLE BREAKERS SHALL OPERATE WITH A COMMON TRIP AND WITH A SINGLE HANDLE. TWO POLE CIRCUIT</li> </ul>	20.5       PROVIDE AN ARC FLASH STUDY AND PROVIDE ARC FLASH RATING LABELS ON ALL ELECTRICAL DISTRIBUTION EQUIPMENT AND PANELS.       25. MIS	METERING DEPART
3.1 ENSURE THAT ALL ELECTRICAL EQUIPMENT SUPPLIED BY OTHER TRADES IS SUITABLE FOR THE RESPECTIVE VOLTAGE. CONFIRM POWER REQUIREMENTS OF ALL OWNER SUPPLIED EQUIPMENT.	PART OF THE PROJECT, SEPARATE SECTION SHALL AT A MINIMUM INCLUDE, HOWEVER NOT BE LIMITED TO, THE FOLLOWING: LIGHTING, POWER DISTRIBUTION, FIRE ALARM, RACEWAYS, WIRING, GENERAL COSTS, FINAL SUBMISSION (AS-BUILT, MANUALS, WARRANTY, CERTIFICATES).	<ol> <li>GROUNDING AND BONDING:</li> <li>PROVIDE GROUND/BOND WIRES WITH ALL FEEDERS INCLUDING TENANT SERVICES. GROUND/BOND WIRE IN CONDUITS SHALL BE INSULATED - GREEN STRANDED #6 AWG. MINIMUM.</li> </ol>	<ul> <li>BREAKERS CONSISTING OF TWO SINGLE POLE BREAKERS WITH A TIE HANDLE, TWIN BREAKERS.</li> <li>16.5 SELECTED PANELBOARD AND BREAKER TYPE COMBINATION SHALL ALLOW FOR INSTALLATION OF THREE POLE BREAKERS WITH</li> </ul>	21. AUTOMATIC CONTROL OF EXTERIOR LIGHTS:       25.1         21.1       CONTACTORS, PHOTO-ELECTRIC CONTROLS AND TIME SWITCHES         SHALL BE USED TO CONTROL THE EXTERIOR LIGHTING INCLUDING       25.1	PROVIDE ALL CONC IN ACCORDANCE W OF SPECIFICATION. ALL FLOOR STANDI
<ul> <li>3.2 ALL CUTTING AND PATCHING REQUIRED FOR THE WORK OF THIS DIVISION SHALL BE CARRIED OUT BY THIS DIVISION. NO CHASING BLOCKWORK WILL BE ALLOWED.</li> <li>3.3 ALL OW TO SCAN THE ELOOP PRIOR TO CUTTING IN LOCATION OF</li> </ul>	6.3 FINAL SUBMISSION COSTS SHALL BE FINE-TUNED PER VALUE OF PROJECT; SHALL INCLUDE A MINIMUM COST FOR THE BELOW PROJECT VALUES :	<ul> <li>11.2 PROVIDE BONDING GREEN INSULATED WIRE IN EACH CONDUIT. SIZE TO ONTARIO ELECTRICAL CODE REQUIREMENTS.</li> <li>11.3 PROVIDE MAIN GROUND SYSTEM TO HYDRO UTILITY SUPPLY.</li> </ul>	AMPERAGE RATING NO LESS THAN 50% OF THE PANEL AMPERAGE RATING WITHOUT USE OF SPECIAL PURPOSE BREAKER KIT AND NOT REQUIRING MORE THAN THREE SINGLE POLE BREAKER SPACES.	POLE LIGHTING. 21.2 THE PHOTO-ELECTRIC CELL AND TIME CLOCKS SHALL BE WIRED SO AS TO CONTROL A MAGNETIC CONTACTOR. EACH CONTACTOR SHALL HAVE AN 'ON OFE AUTO' SWITCH TO REPAIL MANUAL	PROVIDE ALL NECE ACCORDANCE WITH NECESSARY DRAW
5.3 ALLOW TO SCAN THE FLOOR FRIOR TO COTTING IN LOCATION OF EXISTING SERVICES. PROVIDE DUST CONTROL MEASURES DURING CUTTING. DO NOT LEAVE ANY FLOOR TRENCHES OPEN DURING THE DAY. USE TRIP FREE COVERS WITH BEVELLED EDGES. SCANNING SHALL BE DONE AFTER HOURS WITH AREA EMPTY OF OCCUPANTS	PROJECT VALUE = < \$100,000, CLOSE OUT COST = \$5,000 PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500 PROJECT VALUE = < \$1,000,000, CLOSE OUT COST = \$10,000 PROJECT VALUE > \$1,000,000, CLOSE OUT COST = 1 %	<ul> <li>11.3 PROVIDE MAIN GROUND STSTEM TO THERE OTHER SUPPLY COMPANY APPROVAL.</li> <li>11.4 MAIN ELECTRICAL ROOM GROUNDING SHALL CONSIST OF MINIMUM OF TWO (2) 3/4," DIAMETER, 10' LONG CU GROUNDING RODS INTERCONNECTED WITH 2/0 BARE CORPER CONDUCTOR</li> </ul>	<ul> <li>16.0 ALL PANEL BOARDS SHALL BE SPRINKLER PROOF AS REQUIRED TO MEET LOCAL AND HYDRO CODES.</li> <li>16.7 ALL ELECTRICAL EQUIPMENT SHALL BE 75°C RATED OR HIGHER.</li> <li>16.8 ALL PANEL BOARDS SHALL BE FULLY BUSSED AND COMPLETE WITH</li> </ul>	OPERATION OF THE INDIVIDUAL CONTACTOR. CONTACTORS TO BE       25.3         MINIMUM 20A HID LIGHTING DUTY. TIME CLOCKS TO BE DIGITAL       25.4         COMPLETE WITH ASTRONOMIC CLOCK AND DAY LIGHT SAVINGS       25.4	CONFIRM ALL LOCA ALLOW TO RELOCA LOCATION PRIOR T
3.4 COMPLY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR EQUIPMENT AND MATERIAL SUPPLIED. CONTRACTOR SHALL OBTAIN MANUFACTURER'S INSTRUCTIONS, IF NOT PROVIDED WITH	<ol> <li>7. BASIC METALS AND MATERIALS:</li> <li>7.1 ALL MATERIALS USED SHALL BE SUITABLE FOR THEIR APPLICATION.</li> </ol>	INTERCONNECTED WITH 20 DARE CONFIDENCE. INTERCONNECT MAIN ELECTRICAL ROOM GROUNDING TO THE POWER TRANSFORMER, WHERE APPLICABLE, WITH BARE COPPER CONDUCTOR. GROUND INTERCONNECTION SHALL BE COMPLETED, VISIBLE AND ACCESSIBLE FOR INSPECTION IN ADDROVED 101/2101 DVC. ILINGTION BOX EMPEDDED IN EMISSIED	<ul> <li>16.9 NO HALF-SIZE BREAKERS PERMITTED. IF NO SPACE IS AVAILABLE IN EXISTING PANELS, ADD NEW PANEL TO SUPPLY NEW LOADS.</li> </ul>	21.3 CONTACTORS SHALL HAVE LAMACOID NAMEPLATES INDICATING THAT CONTROL CIRCUIT IS SUPPLIED FROM A DIFFERENT SOURCE.	TENANT INTERIOR I REQUEST FROM GE DRAWINGS FOR CO
<ul> <li>WRENCH. ENSURE ALL EQUIPMENT IS LEVELLED. MARK FASTENERS ONCE SET, TIGHTEN. EMPLOY USE OF TORQUE MEASURING TOOL.</li> <li>BE RESPONSIBLE AND PAY FOR ANY DAMAGE TO THE BUILDING</li> </ul>	ALL EXTERIOR FASTENERS AND SUPPORTING MATERIALS FORMING A COMPLETE ELECTRICAL SYSTEM SHALL BE WEATHERPROOF. NUTS, BOLTS, SCREWS ETC. MATERIAL SHALL BE STAINLESS STEEL OR APPROVED EQUIVALENT.	FLOOR. CONTRACTOR TO SUPPLY AND INSTALL CU GROUND BUS ON THE WALL IN MAIN ELECTRICAL AND PROVIDE THE FOLLOWING GROUNDING CONNECTIONS:	<ul><li>17. COVER PLATES:</li><li>17.1 COVER PLATES FOR RECEPTACLES, SWITCHES, PILOT LIGHTS,</li></ul>	22. SERVICE ENTRANCE SWITCHBOARD. 22.1 THE SERVICE ENTRANCE BOARD SHALL CONSIST OF A COMPLETE METAL ENCLOSED FREE-STANDING STRUCTURE CONSISTING OF A MAIN OVERCURRENT DEVICE COMPARTMENT, HYDRO METERING AS	PIGTAIL, ADAPTERS ENSURE CONDUCT REQUIREMENTS OF
<ul> <li>INCURRED BY WORK OF THIS DIVISION.</li> <li>3.6 SUBMIT THREE (3) - COPIES OF SHOP DRAWINGS FOR REVIEW AND RECORDS, UNLESS ELECTRONIC SUBMISSION IS PROVIDED.</li> </ul>	7.2 ALL MATERIALS USED THROUGHOUT SHALL BE NEW, HIGHEST QUALITY C.S.A. APPROVED AND OF ONE MANUFACTURER. WHEREVER TRADE NAMES ARE NOT USED TO DESCRIBE MATERIALS, THESE MATERIALS SHALL BE OF BEST AVAILABLE QUALITY AND MANUFACTURER, OBTAIN AND PAY FOR SPECIAL	<ul> <li>2/0 CU BARE TO MAIN BOARD OR SWITCH GROUNDING LUGS</li> <li>2/0 CU BARE TO REBAR</li> <li>2/0 CU BARE TO BUILDING STEEL</li> <li>2/0 CU BARE TO WATER MAIN IF MADE OF METAL</li> <li>#6 CU TO MAIN GAS PIPE WITH GROUNDING BRIDGE ACROSS</li> </ul>	TELEPHONE OUTLETS AND OTHER DEVICES REQUIRING COVER         PLATES FOR FLUSH MOUNTED BOXES SHALL BE:         17.1.1       WHITE WHEN OUTLETS INSTALLED ON WHITE WALLS.         17.1.2       COLOURED MATCHING THE WALL COLOUR BASED ON	REQUIRED, METERING PANEL DISTRIBUTION SECTIONS AND THE         THROUGH FLOOR/WALL BUS DUCT TO THE VAULT COMPLETE WITH         FIRE BARRIER. DETAILS OF MAIN INCOMING SERVICE, VERIFY WITH         LOCAL DISTRIBUTION COMPANY PRIOR TO SUBMISSION OF SHOP         26.1         DRAWINGS.	ERRUPTION AND CONTROLOGICAL
<ul> <li>3.7 CLEARLY MARK ALL EXPOSED CONDUIT, PULL BOXES, JUNCTION BOXES, ETC., TO INDICATE THE NATURE OF THE SERVICE.</li> <li>3.8 PROVIDE LAMACOID NAMEPLATES FOR ALL DISTRIBUTION FOUR MENT INDICATING SOURCE OF POWER AND FOUR MENT.</li> </ul>	<ul> <li>HYDRO INSPECTION OF SPECIFIED NON-C.S.A. ELECTRICAL EQUIPMENT.</li> <li>7.3 MATERIALS AND EQUIPMENT PROVIDED SHALL BE LISTED FOR USAN OPUTY ADDITION AND SHALL BE SHITADLE FOR THE</li> </ul>	THE GAS METER - #6 CU TO EACH TENANT SPACE GAS LINE AS IT ENTERS THE TENANT SPACE WHERE APPLICABLE-EXTEND TENANT SERVICE GROUND/BOND WIRE TO GAS LINE. #6 CU INSULATED TO 12 POSITION GROUND BUS (2"x6" - CU)	AVAILABLE STANDARD COLOUR COVER PLATES. 17.1.3 METAL, STAINLESS STEEL, #18-8, TYPE 302 WHEN OUTLETS INSTALLED IN BACK OF HOUSE CORRIDORS, UTILITY, ELECTRICAL ROOMS AND OTHER AREAS NOT ACCESSIBLE TO THE PUBLIC	22.2 BUS WORK SHALL BE COPPER SILVER-PLATED, BRACED TO 26.2 I WITHSTAND MAXIMUM AVAILABLE SHORT CIRCUIT IN THE SYSTEM. BREAKERS AND FUSES SHALL HAVE ADEQUATE INTERRUPTING AND FULLY CAPACITY AND SHALL BE FULLY COORDINATED WITH THE	INTERRUPTIONS SH PERIODS; ALL ALLC PRICE SUBMITTED.
<ul> <li>BEING FED. PROVIDE TYPEWRITTEN DIRECTORIES FOR ALL PANELS.</li> <li>CONTRACTOR TO ENSURE THAT THE ELECTRICAL SYSTEMS ARE FUNCTIONAL AND IN GOOD WORKING ORDER AS PER THE</li> </ul>	<ul> <li>7.4 PROVIDE ALL CONDUIT, WIRING, BOXES, SWITCHES, OUTLETS, DEVICES, ETC., AS REQUIRED. MAKE FINAL CONNECTIONS TO</li> </ul>	FOR TELEPHONE SERVICE. 12 POSITION GROUND BUS ON INSULATORS TO BE PROVIDED AND INSTALLED BY THIS CONTRACTOR.	17.1.4 NOTWITHSTANDING THE ABOVE, THE COVER PLATES IN PUBLIC AREAS SHALL BE BASED ON INTERIOR DESIGN OR ARCHITECTURAL DRAWINGS.	CONNECTED EQUIPMENT ON THE LOAD AND LINE SIDE.       26.3         INTERRUPTING AND DUTY CAPACITY NO LESS THAN 50KAIC.       22.3         FUSES PROVIDED SHALL BE CLASS J OR L MADE BY BUSSMANN OR       1	WORK IDENTIFIED SHALL BE COMPLET CONTRACTOR, AT A INCLUDE FOR WOR
<ul> <li>3.10 ALL EQUIPMENT SUPPLIED BY THIS ELECTRICAL CONTRACTOR SHALL CARRY CSA OR EQUIVALENT CANADIAN CERTIFICATION.</li> </ul>	VIBRATING EQUIPMENT WITH FLEXIBLE CONDUIT. 7.5 ELECTRICAL BOXES FOR SUPPORT OF EXTERIOR OR WALL LIGHT FIXTURES SHALL BE RIGID TYPE, COMPLETE WITH POINT SUPPORT, RATED FOR A MINIMUM OF 22 5KG WEIGHT	<ul> <li>11.5 USE CADWELD LUGS FOR FINAL CONNECTION AND TERMINATION OF GROUND/BOND WIRING.</li> <li>11.6 CO-ORDINATE WITH OTHER TRADES IN LAYING OUT OF THE WORK SO AS NOT TO CONFLICT WITH THE WORK OF OTHER TRADES.</li> </ul>	17.2 WEATHERPROOF COVER PLATES SHALL BE DIECAST CORROSION RESISTANT ALUMINIUM TYPE WITH TWO SEPARATE LIDS FOR DUPLEX RECEPTACLES SUITABLE FOR MOUNTING ON F.S. TYPE BOXES. ALL WEATHERPROOF COVER PLATES SHALL HAVE RUBBER OR NEOPRENE GASKETS.	EQUIVALENT CANADIAN MANUFACTURER.         22.4       MOTOR CIRCUITS SHALL HAVE RK CLASS FUSE – TIME DELAY       27. ALT         STYLE.       27.1	TERATIONS AND AD
3.11 SHOP DRAWINGS AND EQUIPMENT SUPPLIED BY THE ELECTRICAL CONTRACTOR SHALL BE REVIEWED AND CONFIRMED IN COMPLIANCE WITH THE PROJECT DOCUMENTS. SUBMITTED SHOP DRAWINGS SHALL BE STAMPED AND REVIEWED BY THE ELECTRICAL	7.6 ALL LIGHT FIXTURES SHALL BE INDEPENDENTLY SUPPORTED FROM FINISHED DRY WALL OR T-BAR CEILING. INCLUDE FOR ALL HANGERS AND NECESSARY MISCELLANEOUS SUPPORTS FROM JOIST, BEAM, OR DECK	CARRY OUT WORK PROMPTLY. 11.7 FOR HIGH VOLTAGE SYSTEM REFER TO HIGH VOLTAGE SPECIFICATION AND UTILITY STANDARDS.	17.3 EXTERIOR COVER PLATES SHALL BE METAL IN-USE COVERS, INTERMATIC WP1010MXD, WP1250MVXD, WP3110MXD, OR APPROVED EQUIVALENT.	22.5       BALANCE OF FUSE SHALL BE SELECTED BASED ON COORDINATION STUDY AND SHALL BE DUAL ACTION CURRENT LIMITING STYLE.       E         22.6       THE MAIN OVERCURRENT DEVICE COMPARTMENT SHALL CONTAIN BREAKER OF TYPE FRAME AND SIZE OF EUSED DISCONNECT       27.2	EXISTING BUILDING EXISTING ELECTRIC CONTRACTORS AR THAT ALL WORK AS
<ul> <li>CONTRACTOR AND GENERAL CONTRACTORS AT THE TIME OF SUBMISSION.</li> <li>4. FINAL SUBMISSIONS:</li> </ul>	7.7 ANY LUMINAIRE INSTALLED IN SUSPENDED CEILING SHALL BE WIRED BY A FLEXIBLE CORD NOT EXCEEDING 3m IN LENGTH.	<ol> <li>MECHANICAL TRADES WIRING:</li> <li>PROVIDE ALL CONDUIT, WIRING, SPLITTERS, OUTLET BOXES AND</li> </ol>	<ul> <li>17.4 PLATES FOR SURFACE MOUNTED CAST BOXES SHALL BE GALVANIZED FORMED STEEL TYPE.</li> <li>17.5 COVER PLATES FOR FLUSH MOUNTED EQUIPMENT SHALL BE</li> </ul>	SWITCH WITH FUSES OF TYPE AND SIZE AS INDICATED.       F         22.7       MAIN SWITCH OR BREAKERS SHALL BE EQUIPPED WITH GROUND FAULT RELAYS AS REQUIRED BY CODE. IN ADDITION, ALL	REQUIRED BE REMO TENDER PRICE. ALS WORK CAN BE CAR SHALL ADVISE THE
<ul><li>4.1 AS-BUILT DRAWINGS:</li><li>4.1.1 AFTER COMPLETION OF THE WORK, PROVIDE THE LANDLORD AND TENANT WITH A SET OF REPRODUCIBLE 'AS-BUILT" RECORD</li></ul>	7.8 PROVIDE ALL HANGERS, INSERTS, AND SUPPORTS OF APPROVED TYPES REQUIRED FOR THE WORK OF THIS DIVISION. PROVIDE CONDUIT FOR ALL SERVICES PENETRATING THE FLOOR SLAB. SEAL ALL PENETRATIONS THROUGH FLOOR SLABS AND FIRE AND SMOKE SEPARATIONS WITH AN APPROVED NON-SHRINK, WATERPROOF	AND CONTROL WIRING PER BELOW. 120V CONTROL EQUIPMENT PROVIDED UNDER DIVISION 15. DIVISION 16 SHALL INSTALL ALL LINE VOLTAGE STARTERS, THERMOSTATS, AND WIRING. PROVIDE ALL LINE VOLTAGE WIRING AS REQUIRED.	<ul> <li>SUPPLIED OF QUALITY AND PERFORMANCE SPECIFIED BY THE MANUFACTURER OF THE EQUIPMENT.</li> <li>17.6 COVER PLATES SHALL NOT CARRY MANUFACTURER'S NAME.</li> </ul>	UNDERGROUND FEEDERS 400 AMP AND LARGER SHALL BE GROUND       FAULT PROTECTED. PROVIDE GROUND FAULT EQUIPMENT WHERE         INDICATED ON DRAWINGS AND AS REQUIRED BY CODE.       27.3         22.8       WHERE SPECIFIED ON THE DRAWINGS L-S-I-G BREAKERS: THESE       M	NO EXTRA WILL SU SUCH ERROR, OMIS MADE A THOROUGH
<ul> <li>DRAWINGS. INCORPORATE ALL CHANGES WITH RECOGNIZED DRAFTING PROCEDURES, AUTOCAD 2007 OR LATER.</li> <li>4.1.2 AFTER COMPLETION OF WORK, PROVIDE THE FOLLOWING DOCUMENTS AS APPLICABLE:</li> </ul>	AND FIREPROOF SEALANT APPROVED BY CONSULTANT: - HILTI, 3M OR APPROVED ALTERNATE.	<ol> <li>IT, LV AND COMMUNICATIONS SYSTEMS:</li> <li>SUPPLY AND INSTALL THE REQUIRED DUCT BANKS, EMPTY</li> </ol>	<ul> <li>17.7 COVER PLATES OF QUALITY SPECIFIED SHALL BE PASS AND SEYMOUR, BRYANT, LEVITON, OR HUBBELL.</li> <li>18. SWITCHES: LIGHTING:</li> </ul>	SHALL BE FULLY ADJUSTABLE ACROSS ALL REGIONS, ADJUSTABLE       0         TIME AND PICK UP SETTINGS FOR ALL L-S-I-G DOMAINS.       1         INSTANTANEOUS AND GROUND FAULT SETTINGS SHALL BE FULLY       27.4         COORDINATED WITH UPSTREAM DEVICES HAVING HIGHER       E         WITHSTAND RATING THAN DOWNSTREAM DEVICES.       0	CONDITIONS, DRAW THE ELECTRICAL C BUILDING WILL REM OPERATIONS. THEY
<ul> <li>CERTIFICATE OF FIRE ALARM VERIFICATION</li> <li>HYDRO INSPECTION CERTIFICATE</li> <li>EMERGENCY LIGHTING TEST REPORT</li> <li>TEST REPORT FOR ALL SPECIFIED TESTING</li> </ul>	<ol> <li>8. CONDUITS:</li> <li>8.1 ALL CONDUIT SHALL BE C.S.A. APPROVED, RIGID STEEL THICK WALLED OR EMT THINWALL WITH STEEL SET SCREW COUPLINGS AND CONNECTORS WITH INCLUMENT AFED SUBJECTS UNLESS OF LEDWIDE</li> </ol>	RACEWAY SYSTEM COMPLETE WITH HD PULL WIRES, PULL BOXES, TERMINATION PANELS, OUTLET BOXES, COVER PLATES, SUITABLE FOR THE INSTALLATION OF IT AND COMMUNICATIONS CABLES AND ASSOCIATED EQUIPMENT, BY THE IT COMPANY AND UTILITY. THE COMPLETE CONDUIT INSTALLATION SHALL MEET ALL THEIR	18.1 SWITCHES SHALL BE, UNLESS OTHERWISE NOTED, SPECIFICATION GRADE FOR 120V AND HEAVY-DUTY GRADE FOR 347V. TYPE & MODEL TO MATCH EXISTING.	22.9 THE HYDRO METERING CURRENT TRANSFORMER COMPARTMENT, WHERE REQUIRED, SHALL HAVE A REMOVABLE STEEL MOUNTING PLATE AND SHALL BE EQUIPPED WITH ALL HARDWARE AND BUS DUCT TO RECEIVE THE LOCAL LITUITIES CURRENT AND POTENTIAL	REQUIRED TO BE D OPERATION OF THE OR AT A TIME CONV PROVIDE TEMPORA
<ul> <li>4.2 OPERATION AND MAINTENANCE MANUALS:</li> <li>4.2.1 PROVIDE THREE (3) - SETS OF OPERATION AND MAINTENANCE MANUALS SUBMITTED IN LADD COVER DIMESSO</li> </ul>	NOTED. CONDUITS AND ELECTRICAL BOXES IN FINISHED AREAS ACCESSIBLE BY PUBLIC SHALL BE CONCEALED UNLESS OTHERWISE NOTED. EXPOSED CONDUITS AND ELECTRICAL BOXES ARE ALLOWED ONLY IN UTILITY ROOMS AND BACK OF HOUSE	<ul> <li>REQUIREMENTS.</li> <li>13.2 RACEWAYS SHALL BE RIGID, GALVANIZED STEEL CONDUIT WHERE EXPOSED TO MECHANICAL INJURY. IN ALL OTHER LOCATIONS, EMT MAY BE USED. MINIMUM CONDUIT SIZE TO BE 100000000000000000000000000000000000</li></ul>	<ul> <li>18.2 LIGHT SWITCHES OF QUALITY AS MANUFACTURED BY BRYANT, P AND S, LEVITON AND HUBBELL, SHALL BE CONSIDERED AS ACCEPTABLE AS SPECIFIED ALTERNATES.</li> <li>18.3 DIMMERS SHALL BE LUTBON SPECIFICATION OPADE OF ADDROVED</li> </ul>	TRANSFORMERS. CURRENT TRANSFORMERS SHALL BE OBTAINED FROM THE UTILITY AND INSTALLED IN THE COMPARTMENT BY THE SERVICE ENTRANCE BOARD MANUFACTURER OR AS PER UTILITIES STANDARD REQUIREMENTS.	
4.2.2 OPERATIONS AND MAINTENANCE MANUALS SHALL INCLUDE, HOWEVER NOT LIMITED TO THE FOLLOWING INFORMATION:	APPROVED SHALL BE NEAT IN APPEARANCE, RUN PARALLEL TO BUILDING LINES AND CONCENTRIC RIGHT-ANGLE BENDS ONLY SHALL BE USED. CONDUIT WORK FOR ALL EXTERIOR DEVICES SHALL BE INSTALLED CONCEALED AND ON THE INTERIOR SIDE OF	<ul> <li>13.3 ALL DATA OUTLETS SHALL BE WIRED WITH EMPTY PULL STRINGS.</li> <li>14.4 DWO DUCT CLUCT CL</li></ul>	ALTERNATE. OCCUPANCY SENSORS SHALL BE WATTSTOPPER DUAL TECHNOLOGY OR APPROVED EQUIVALENT. DISCONNECT SWITCHES:	22.10 THE ENTIRE PANEL, BUSWORK AND CONNECTIONS SHALL BE TO THE UTILITIES APPROVAL. OBTAIN THEIR REQUIREMENTS PRIOR TO INSTALLATION. SUBMIT METERING DETAILS TO THE LOCAL DISTRIBUTION COMPANY TO OBTAIN APPROVAL OF THE METERING	
<ul> <li>NAMES AND ADDRESS OF LOCAL SUPPLIERS FOR THE ITEMS INCLUDED</li> <li>TECHNICAL DATA, PRODUCT DATA, SUPPLEMENTED BY BULLETINS, COMPONENT ILLUSTRATIONS, MAINTENANCE REQUIREMENTS AND RECOMMENDED SCHEDULES. EXPLODED</li> </ul>	<ul> <li>THE BUILDING ENVELOPE.</li> <li>8.2 RIGID PVC CONDUIT TO CSA C22.2 NO. 211.1, RIGID TYPES EB1 AND DB2/ES2 PVC CONDUIT, FT-4 RATED, COMPLETE WITH SITE MADE HEAT GUN BENDS FOR CONDUIT TO AND INCLUDING 50mm (2")</li> </ul>	<ul> <li>13.4 PVC DUCT SHALL BE USED FOR UNDERGROUND SERVICE ENTRANCE.</li> <li>13.5 PROVIDE TWO DEDICATED 110V 15AMP 1POLE POWER OUTLET ADJACENT TO THE IT EQUIPMENT LOCATIONS FOR UTILITY</li> </ul>	18.4 DISCONNECT SWITCHES FOR MECHANICAL AND ALL OTHER EQUIPMENT SHALL BE HEAVY DUTY SINGLE OR DOUBLE THROW SAFETY SWITCHES AS NOTED ON THE DRAWINGS, LOAD BREAK, WITH KA RATING EQUIVALENT TO THE UPSTREAM FUSE. IN CASE OF	EQUIPMENT PRIOR TO ORDERING EQUIPMENT.	
<ul> <li>VIEWS, TECHNICAL DESCRIPTION OF ITEMS, AND PARTS LIST</li> <li>THE CONSULTANTS REVIEWED SHOP DRAWINGS</li> <li>CERTIFICATE(S) OF ACCEPTANCE FROM THE AUTHORITY'S INSPECTION DEPARTMENT</li> <li>VERIFICATION REPORTS AND CERTIFICATE(S) FOR FIRE ALARM COMPONENTS</li> </ul>	DIAMETER, FACTORY MADE FITTINGS FOR CONDUIT TO AND INCLUDING SUMM (2") DIAMETER, FACTORY MADE FITTINGS FOR CONDUIT LARGER THAN 50mm (2") DIAMETER, SOLVENT WELD JOINTS, FACTORY MADE EXPANSION JOINTS WHERE REQUIRED, AND TERMINATIONS MADE WITH PROPER AND SUITABLE CONNECTORS AND ADAPTORS. PVC CONDUITS SHALL BE USED UNDERGROUND AND WHERE APPROVED BY CONSULTANT UPON CONTRACTOR REQUEST.	<ul> <li>COMPANY REQUIREMENTS.</li> <li>13.6 UNLESS OTHERWISE SHOWN, STEEL PULL BOXES SHALL BE INSTALLED EVERY 30m OR LESS OF STRAIGHT CONDUIT RUN; EVERY 25m OR LESS OF STRAIGHT CONDUIT RUN AND ONE 90 DEGREE BEND OR EQUIVALENT; EVERY TWO 90 DEGREE BENDS OR EQUIVALENT.</li> </ul>	CIRCUIT BREAKER PROTECTION, AND NOT WITHSTANDING LINE DIAGRAMS FUSIBLE DISCONNECT SWITCHES SHALL BE PROVIDED IF NO CURRENT LIMITING DEVICE IS PROVIDED UPSTREAM IN THE ELECTRICAL SYSTEM.		
<ul> <li>LOAD BALAINCE REPORT AND WIRING</li> <li>MEGGER TESTING REPORT IN GIGA OHM (GΩ) VALUES</li> <li>WRITTEN GUARANTEE</li> <li>COORDINATION STUDY FOR EQUIPMENT INCLUDING RELAY PROTECTION EQUIPMENT, SHORT CIRCUIT AND ARC FLASH EVALUATION IS MANDATORY FOR ALL PROJECTS</li> <li>CONTACT INFORMATION</li> <li>ELECTRICAL SAFETY INSPECTION REPORT</li> </ul>		13.7 A #6 GROUND WIRE SHALL BE RUN FROM THE TELEPHONE SERVICE PANEL TO SERVICE GROUND TO PROVIDE A GROUND FOR THE TELEPHONE SYSTEM.			

- S: IDOOR DISTRIBUTION TRANSFORMERS SHALL BE ONLY, NO SCOTT-T, OF COPPER WINDINGS, INDOOR TYPE RATED THREE PHASE 60 CYCLE, OF KVA, VOLT TING AS SHOWN ON THE DRAWINGS. 1.2KV CLASS AND WITHSTANDING A 10KV BASIC IMPULSE LEVEL (BIL). HAVE STANDARD PRIMARY TAPS. THE TRANSFORMER ESIGNED WITH A CLASS B OR H INSULATION SYSTEM.
- LEVEL IN DECIBELS SHALL BE IN ACCORDANCE WITH JRRENT STANDARDS. THE TRANSFORMER SHALL BE (ITH TERMINAL BOARDS, TAP CHANGING LINKS, DIDERLESS CONNECTORS AND SHALL HAVE A CODE GAUGE STEEL ENCLOSURE COMPLETE WITH IOVABLE EXPANDED METAL SIDE PANELS AND BRACKETS FOR FLOOR OR WALL MOUNTING AS SHOWN. TRANSFORMERS 75KVA AND SMALLER AT HIGH LEVEL IN HOWN UNLESS OTHERWISE NOTED.
- ERS 112.5KVA OR LARGER SHALL BE PLACED ON A HGH CONCRETE HOUSEKEEPING PAD AND UPSIZED AS DR SEISMIC CONSTRUCTION.
- ETED ASSEMBLY SHALL BE PAINTED WITH A PRIMER FINISH COAT OF ASA#61 GRAY. THE TRANSFORMER ORM TO C.S.A-0802.2, NEMA TRI AND CEMA L2 CURRENT EXCEPT WHERE NOTED AND SHALL BE APPROVED TO PART 2 SPECIFICATION 022.2 NO.47 WHERE
- ERS SHALL BE SPRINKLERPROOF AS REQUIRED TO AND HYDRO CODES.
- RANSFORMER CONNECTION BY USE OF FLEXIBLE O ALLOW FOR VIBRATION ISOLATION.
- ABINETS SHALL BE OF SIZE SHOWN ON DRAWING OR D WITH REMOVABLE STEEL METER MOUNTING PLATE, AND SEALING HASPS TO UTILITY APPROVAL. PROVIDE ED TELEPHONE LINE FROM EACH METER CABINET TO LEPHONE ENTRY POINT AS REQUIRED BY THE LOCAL N COMPANY METERING DEPARTMENT.
- XET BASE SHALL BE PROVIDED BY THE ELECTRICAL R. FOR ELECTRICAL SERVICES 400 AMP AND HIGHER, N OF METER CABINET AND SEPARATE METER BASE ED.
- SHALL BE MOUNTED ON THE WALL AS SHOWN ON THE ND TO THE SATISFACTION OF THE LOCAL UTILITY. ETS SHALL BE TO APPROVAL OF UTILITY.
- CTOR SHALL CONFIRM METERING REQUIREMENTS HYDRO METERING DEPARTMENT PRIOR TO WORK IENT AND METERING EQUIPMENT SUPPLY.
- . REQUIRED NEUTRAL WIRES TO METER AS PER LOCAL QUIREMENT.
- E AND PAY FOR ANY HYDRO SERVICE COSTS AS NCLUDE FOR COORDINATION AND MEETING WITH RIBUTION COMPANY.
- QUIPMENT SHALL BE PRE-APPROVED BY LOCAL HYDRO EPARTMENT. OBTAIN APPROVAL BY AHJ.
- S ELECTRICAL WORK:
- L CONCRETE WORK REQUIRED FOR ELECTRICAL WORK NCE WITH ELECTRICAL AND ARCHITECTURAL DIVISION ATION. THIS INCLUDES HOUSEKEEPING PAD BELOW STANDING EQUIPMENT.
- NECESSARY DUCT BANKS AS REQUIRED BY HYDRO IN E WITH THEIR SPECIFICATIONS. SUBMIT ALL DRAWINGS TO HYDRO FOR THEIR APPROVAL.
- LOCATIONS AND OUTLETS PRIOR TO INSTALLATION. ELOCATE ANY OUTLET WITH 5 METERS OF SPECIFIED RIOR TO INSTALLATION.
- E LOCATION OF TENANT ELECTRICAL SERVICE WITH ERIOR DETAILS PRIOR TO SERVICE INSTALLATION. ROM GENERAL CONTRACTOR TENANT INTERIOR FOR COORDINATION PURPOSES.
- L REQUIRED LUGS, CONNECTORS, REDUCERS, CRIMP, NPTERS. ANY REQUIRED CONNECTING MATERIAL TO NDUCTORS COMPATIBLE WITH TERMINATOR NTS OF THE EQUIPMENT.
- AND CONTINUATION OF SERVICES:
- ON OF ELECTRICAL SERVICES SHALL OCCUR ONLY BY GEMENT AT TIMES SUITABLE TO THE LANDLORD. ONS SHALL ONLY OCCUR DURING PREMIUM TIME L ALLOWANCES FOR THIS SHALL BE INCLUDED IN THE
- TIFIED TO BE CARRIED OVER BY LOCAL HYDRO UTILITY, DMPLETED WITH ASSISTANCE BY THIS ELECTRICAL DR, AT A TIME CONVENIENT TO HYDRO COMPANY. R WORK AT PREMIUM TIME AS REQUIRED.
- AND ADDITIONS:
- RS SHALL NOTE THAT THIS IS AN EXTENSION TO AN ILDING AND SHALL THOROUGHLY INVESTIGATE THE ECTRICAL INSTALLATION AND CONDITIONS.
- ORS ARE REQUIRED TO VISIT THE SITE AND ENSURE DRK ASSOCIATED WITH THE ELECTRICAL INSTALLATION E REMOVED OR RELOCATED IS ALLOWED FOR IN THE CE. ALSO, CONTRACTORS SHALL ENSURE THAT THE BE CARRIED OUT AS INDICATED ON THE DRAWINGS OR GE THE ENGINEER IMMEDIATELY OF ANY ANTICIPATED
- /ILL SUBSEQUENTLY BE PERMITTED TO COVER ANY R, OMISSION, AND/OR OVERSIGHT FOR NOT HAVING ROUGH INSPECTION OF THE GROUNDS, EXISTING , DRAWINGS, SPECIFICATION AND DESIGN INTENT.
- CAL CONTRACTOR SHALL NOTE THAT THE EXISTING LL REMAIN IN OPERATION THROUGHOUT BUILDING S. THEY SHALL ACCORDINGLY ALLOW FOR ANY WORK O BE DONE, WHICH MAY AFFECT POWER SUPPLY AND OF THE BUILDING TO BE CARRIED OUT AFTER HOURS E CONVENIENT TO THE BUILDING MANAGEMENT. MPORARY SERVICES AS REQUIRED TO ENSURE
- OPERATION AT ALL TIMES.

- 28. EXISTING FIRE ALARM SYSTEM:
- 28.1 OBTAIN AND PAY FOR SERVICES FROM LANDLORD APPROVED FIRE ALARM CONTRACTOR WHEN MODIFYING EXISTING FIRE ALARM SYSTEM.
- 28.2 UNLESS OTHERWISE NOTED, ALL NEW DEVICES SHALL BE MATCH EXISTING DEVICES UTILIZED AT THE PROPERTY.
- 28.3 OBTAIN SERVICES FROM THE FIRE ALARM MANUFACTURER TO CHECK AND INVESTIGATE AS REQUIRED CAPACITY OF THE EXISTING FIRE ALARM SYSTEM AND ENSURE ADDITIONAL DEVICES WILL NOT OVERLOAD FIRE ALARM SYSTEM NOTIFICATION UNITS
- 28.4 INCLUDE FOR FIRE ALARM VERIFICATION AT THE END OF THE PROJECT. VERIFICATION SHALL BE COMPLETED PER LATEST ULC 537 AND ULC S-1001.
- 28.5 INSTALLING FIRE ALARM CONTRACTOR SHALL PROVIDE ULC 524 INSTALLATION LETTER, SIGNED AND CERTIFIED BY CFAA APPROVED INSTALLING CONTRACTOR.
- 29. DEMOLITION:
- 29.1 REMOVE AND DISPOSE OFF ALL EXPOSED CONDUITS, BRANCH WIRING, OUTLETS, LUMINAIRES, EMERGENCY LIGHTING ETC., FROM CEILINGS AND WALLS BEING DEMOLISHED. REMOVE WIRING TO PANEL BOARDS.
- 29.2 REMOVE ANY AND ALL PCB BALLASTS FROM LUMINAIRES. PLACE IN STORAGE DRUMS AND REMOVE AND DISPOSE OF OFF-SITE. ALL WORK TO BE DONE IN ACCORDANCE WITH MINISTRY OF ENVIRONMENT RULES AND REGULATIONS.
- 29.3 REMOVE ALL REDUNDANT TELECOMMUNICATION WIRING BACK TO THE ENTRY POINTS.
- 29.4 EXISTING FIRE ALARM SYSTEM TO REMAIN OPERATIONAL AT ALL TIMES. FOR ALTERATIONS AND ANY TIME WHEN FIRE ALARM IS INOPERATIVE, ARRANGE FOR 24-HOUR SECURITY WATCH TO APPROVAL OF LOCAL FIRE MARSHAL.
- 29.5 ALL EXISTING EQUIPMENT BEING REMOVED SHALL BE FIRST OFFERED TO THE OWNER. ANY EQUIPMENT NOT REQUIRED BY THE OWNER SHALL BE DISPOSED OF OFF-SITE BY THE ELECTRICAL CONTRACTOR AT NO ADDITIONAL COST.
- 29.6 ANY CONCRETE FOUNDATIONS OR OTHER SUPPORTS FOR ELECTRICAL EQUIPMENT SHALL BE REMOVED TO BELOW 600mm FROM FINISHED FLOOR.
- 29.7 ALL WORK TO BE DONE IN ACCORDANCE WITH HYDRO REGULATION, MINISTRY OF LABOUR, OBC AND AHJ.
- 30. HAZARDOUS LOCATIONS:
- 32.1 ALL WIRING IN AREAS/ZONES CLASSIFIED AS HAZARDOUS SHALL BE COMPLETED WITH RIGID STEEL PIPING AND IN ACCORDANCE TO SECTION 18 OF OESC. TECK WIRING WILL NOT BE ACCEPTED.
- 31. APPROVED MANUFACTURERS:
- 33.1 SWITCHBOARD AND ELECTRICAL PANELS: EATON, SQUARE D, GE AND SIEMENS.
- 33.2 METER CENTRES: EATON AND SQUARE D
- 33.3 LV TRANSFORMER: REX, MARCUS, HAMMOND, SIEMENS, BEMAG, DELTA AND GE.
- 32. SPECIFICATION GUIDELINES:
- 34.1 ELECTRICAL SPECIFICATION IS APPLICABLE TO ALL ITEMS SHOWN ON THE ELECTRICAL DRAWINGS.34.2 SPECIFICATION REFERENCING EQUIPMENT BEYOND THE SHOWN

.∠	SPECIFICATION REFERENCING EQUIPMENT BETOND THE SHOWN
	ON THE DRAWINGS SHALL BE DISCARDED.

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PF DF TH	CCEEDING WITH AWING OR PART	H THE WORK. THE USE OF T THEREOF IS FORBIDDEN ROVAL OF THE CONSULTA	THIS WITHOUT NTS.					
		MERSCHLAG & JO	FFE INC.					
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PRINT DATE



# APPROVED CONTRACTORS/VENDORS

- Scanning Company to be engaged: Isaac Lett <<u>isaac.l@xradar.ca</u>> Xradar Estimating and Sales Xradar Canada Inc. Toronto: 416.476.8325 Ottawa: 613.325.5260 W: <u>xradar.ca</u> Sales and Estimating: <u>estimatingon@xradar.ca</u> 34-3045 Southcreek Rd. Mississauga, ON L4X 2E9
- ALL NETWORK WIRING TO BE COMPLETED BY TELECOM BY DESIGN, JAMES PATRAN, jpataran@telecombydesign.com 416-244-2525
- ALL SECURITY CAMERA WIRING TO BE COMPLETED BY 3D Network Technology 2233 Argentia Road Suite 302 Mississauga, Ontario L5N 2X7 www.3dnetworktechnology.com Devon Prasad 905-861-9082 ext 222
- CARD READERS
- Paladin Technology Jon Kristman +1 (416) 992-1017
- jkristman@paladintechnologies.com ACUITY LIGHTING CONTROL
- Richard Goode @ Acuity Brands 416-801-8644 richard.goode@accuitybrands.com)

#### FIRE ALARM Melissa May

- Customer Care Representative / Tyco Integrated Fire & Security Tel: 905-212-4607 / Cell: 905-301-3913 / Fax: 905-212-4401 Emergency Service Line: 905-212-4620 2400 Skymark Avenue / Toronto, Ontario L4W5K5 / CANADA
- melissa.may@jci.com / www.tycois.ca / www.simplexgrinnell.com

	ELECTRICAL LEGEND
SYMBOL	DESCRIPTION
	POWER LEGEND
© <sup>LB</sup> <sub>S</sub>	ELECTRICAL DIRECT CONNECTION (LB=POWER CONNECTION TO LIGHT BOX, S=SIGNAGE, M=MIRROR LIGHTS)
© <sup>C</sup> F ₩	SYSTEMS FURNITURE CONNECTION POINT (F=FLOOR, C=CEILING, W=WALL)
6	MOTOR CONNECTION
<b>₽</b>	DISCONNECT SWITCH - FUSED
C	DISCONNECT SWITCH - UNFUSED
$\sim$	CIRCUIT BREAKER
$\square$	TRANSFORMER
	ELECTRICAL PANEL BOARD - SURFACE OR FLUSH MOUNTED
$\Phi_{H,L,D}$	DUPLEX RECEPTACLE - WALL MOUNTED, 15A/120V OR AS NOTED H - DENOTE MOUNTED AT HIGH LEVEL, L - DENOTE MOUNTED AT LOW LEVEL D - DENOTE DEDICATED CIRCUIT
<b>₽</b>	DUPLEX RECEPTACLE - WALL MOUNTED ON EMERGENCY CIRCUIT
Ŷ	DUPLEX RECEPTACLE - 15/20A, 120V, T-SLOT NEMA 5-20R
P	DUPLEX RECEPTACLE - 15A/120V ISOLATED GROUND TYPE
φ	SINGLE RECEPTACLE - WALL MOUNTED, 15A/120V OR AS NOTED
#	QUAD RECEPTACLE - WALL MOUNTED, 15A/120V OR AS NOTED
⊕	COUNTERTOP DUPLEX RECEPTACLE - WALL MOUNTED, 15A/120V OR AS NOTED
=	DUPLEX RECEPTACLE - FLOOR MOUNTED, 15A/120V OR AS NOTED
Øc	DUPLEX RECEPTACLE - CEILING MOUNTED, 15A/120V OR AS NOTED
J	JUNCTION BOX
$\Box \nabla$	COMBINATION DATA OUTLET AND DUPLEX RECEPTACLE, 15A/120V OR AS NOTED - FLOOR MOUNTED, FIRE RATED. UNLESS OTHERWISE NOTED, RUN (1) 3/4"C FOR I.T./COMMS HOME RUN TO I.T. RACK. RUN AV CONDUITS AS SHOWN ON PLAN (TBC WITH AV CONTRACTOR)
ЩV	COMBINATION DATA/VOICE OUTLET AND DUPLEX RECEPTACLE, 15A/120V OR AS NOTED - FLOOR MOUNTED, FIRE RATED. UNLESS OTHERWISE NOTED, RUN (1) 3/4"C FOR I.T./COMMS HOME RUN TO I.T. RACK. RUN AV CONDUITS AS SHOWN ON PLAN (TBC WITH AV CONTRACTOR)
₩₹	COMBINATION DATA/VOICE OUTLET AND TWO DUPLEX RECEPTACLES, 15A/120V OR AS NOTED - FLOOR MOUNTED, FIRE RATED. UNLESS OTHERWISE NOTED, RUN (1) 3/4"C FOR I.T./COMMS HOME RUN TO I.T. RACK. RUN AV CONDUITS AS SHOWN ON PLAN (TBC WITH AV CONTRACTOR)
6 <del>-</del>	MOTOR CONNECTION WITH DISCONNECT SWITCH
۵	DIRECT CONNECTION WITH DISCONNECT SWITCH
M	METERING JAR
Μ	METERING CABINET
	WIRE RACEWAY
	COMMUNICATIONS LEGEND
$\nabla_{c} \square_{\#}$	DATA OUTLET - WALL OR FLOOR MOUNTED. 'C' DENOTES CEILING MOUNTED PROVIDE BACK BOX C/W 3/4"C C/W PULL STRING FROM OUTLET TO IT RACK. # DATA DROPS SHOWN FOR REFERENCE ONLY. CAT.6A CABLE SUPPLY AND INSTALL BY OTHERS.
<b>▼</b> <sub>C</sub> <b>▼</b> <sub>#</sub>	VOICE OUTLET - WALL OR FLOOR MOUNTED. 'C' DENOTES CEILING MOUNTED PROVIDE BACK BOX C/W 3/4"C C/W PULL STRING FROM OUTLET TO IT RACK. # DATA DROPS SHOWN FOR REFERENCE ONLY. CAT.6A CABLE SUPPLY AND INSTALL BY OTHERS.
<b>▼</b> <sub>C</sub> <b>⊻</b> #	COMBINATION VOICE/DATA OUTLET - WALL OR FLOOR MOUNTED. 'C' DENOTES CEILING MOUNTED PROVIDE BACK BOX C/W 3/4"C C/W PULL STRING FROM OUTLET TO IT RACK. # DATA DROPS SHOWN FOR REFERENCE ONLY. CAT.6A CABLE SUPPLY AND INSTALL BY OTHERS.
	SECURITY
SCA	SECURITY CAMERA - PROVIDE 1x1"C COMPLETE WITH PULL STRING TO I.T. RACK.
KP	KEY PAD
RTE	REQUEST-TO-EXIT SENSOR
	PUSH BUTTON
	AV LEGEND
$\nabla$ av	2 - GANG MUDRING C/W MIN. 1.5"C C/W PULL STRING TO FPD (FLAT PANEL DISPLAY)
$\mathbf{\Psi}_{TV}$	2 - GANG MUDRING FOR AV TV OR FPD (FLAT PANEL DISPLAY)
₽ <sup>av</sup>	1 - GANG BACKBOX C/W 3/4"C C/W PULL STRING TO FPD (FLAT PANEL DISPLAY)
	2 - GANG MOTORING FOR AV CAMERA
MIC	1 - GANG AV BACK BOX FOR AV MICROPHONE
(SP)	1 - GANG AV BACK BOX FOR AV SPEAKER
0	1 - GANG AV MUDRING FOR AV OCCUPANCY SENSOR

	ELECTRICAL LEGEND
SYMBOL	DESCRIPTION
	LIGHTING LEGEND
C	LIGHTING CONTACTOR
\$	TOGGLE SWITCH
₽D	DIMMER SWITCH. COORDINATE TYPE WITH LIGHT FIXTURE.
\$м	MASTER SWITCH
$\mathcal{F}_{1,2}^{OS}$	WALL MOUNTED OCCUPANCY SENSOR SWITCH. 1 - DENOTES PRESSURE INFRARED, 2 - DENOTES DUAL TEC
<b>√</b> s	TIME SWITCH
$\bigotimes \bigoplus_{1,2}$	OCCUPANCY SENSOR - CEILING OR WALL MOUNTED. 1 - DENOTES PASSIVE INFRARED, 2 - DENOTES DUAL TECK
Α	LUMINAIRE FIXTURE TYPE IDENTIFIER (REFER TO LUMINAIRI
	LUMINAIRE FIXTURE - NEW OR EXISTING IN RELOCATED POS
Ø	LUMINAIRE ON EMERGENCY POWER
0 오	LUMINAIRES - CEILING OR WALL MOUNTED
	TRACK LIGHTING - NUMBER OF HEADS AS SHOWN
<b>₹</b>	EMERGENCY LIGHTING REMOTE HEAD(S) - WALL MOUNTED
•~• ९	EMERGENCY LIGHTING REMOTE HEAD(S) - CEILING MOUNTE
	EMERGENCY LIGHTING BATTERY UNIT WITH HEADS - WALL I
	EMERGENCY LIGHTING BATTERY UNIT - WALL MOUNTED
₩ Ř	EXIT SIGN WITH DIRECTIONAL ARROWS AND FACE AS SHOW MOUNTED
Φ	JUNCTION BOX FOR LIGHTING
	FIRE ALARM LEGEND
	FIRE ALARM PULL STATION
	DUCT TYPE SMOKE DETECTOR
$\Theta$	FIRE ALARM SMOKE DETECTOR
Ø	FIRE ALARM HEAT DETECTOR
	FIRE ALARM PANEL
© 、 ź	FIRE ALARM SPEAKER (TYPE TO MATCH EXISTING)
ΧXΧ	FIRE ALARM STROBE LIGHT (TYPE TO MATCH EXISTING)
	FIRE ALARM BELL (NEW TYPE TO MATCH EXISTING)
$\nabla$	FIRE ALARM HORN (NEW TYPE TO MATCH EXISTING)
	FIRE ALARM HORN / STROBE (NEW TYPE TO MATCH EXISTIN
§ §	FIRE ALARM SPEAKER (NEW TYPE TO MATCH EXISTING)
<u>ğ</u> ğ	FIRE ALARM SPEAKER / STROBE (NEW TYPE TO MATCH EXIS

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# ADDITIONAL NOMENCLATURE & ABBREVIATIONS

EX	EXISTING TO REMAIN
R	EXISTING TO BE REMOVED
R/R	REMOVE/RE-INSTALL
ER	EXISTING TO BE RELOCATED
RE	EXISTING IN RELOCATED POSITION
AFF	ABOVE FINISHED FLOOR
WP	WEATHERPROOFED
TL	TWIST LOCK
GFI	GROUND FAULT INTERRUPTER
RT	ROOF TOP, RAIN TIGHT
LV	LOW VOLTAGE
NIC	NOT IN CONTRACT
C/W	COMPLETE WITH
UON	UNLESS OTHERWISE NOTED
NL	NIGHT LIGHT
AFCI	ARC FAULT CIRCUIT INTERRUPTER
HD	HAND DRYER
TP	TAMPER PROOF
AD	AUTODOOR
AV	AUDIO VIDEO (REFER TO AV DRAWINGS FOR EQUIPMEN
FPD	FLAT PANEL DISPLAY (REFER TO AV DRAWINGS FOR EQ

Ξ.	
сн	
K	
IRE SCHEDULE)	
OSITION	

ED

MOUNTED

WN - CEILING OR WALL

NG)

(ISTING)

ENT AND/OR OUTLET DETAILS) QUIPMENT DETAILS)

# **DRAWING LIST**

IEET No.	SHEET TITLE
E1.0	ELECTRICAL SPECIFICATIONS
E1.1	ELECTRICAL LEGEND AND GENERAL NOTES
E2.0	SINGLE LINE DIAGRAM AND PANEL SCHEDULES
E3.0	FLOOR PLAN - DEMOLITIONS
E4.0	FLOOR PLAN - POWER LAYOUT
E5.0	FLOOR PLAN - LIGHTING LAYOUT
E6.0	ELECTRICAL DETAILS

#### **GENERAL NOTES:**

- ALL PENETRATIONS THRU SLAB, CORE DRILLING AND CUTTING IN BUILDING CONCRETE STRUCTURE MUST BE REVIEWED AND APPROVED BY BASE BUILDING STRUCTURAL ENGINEER.
- X-RAY SCAN REQUIRED FOR ANY DRILLING AND/OR CUTTING OF CONCRETE STRUCTURE. SUBMIT X-RAY RESULTS TO THE OWNER AND BASE BUILDING STRUCTURAL ENGINEER FOR THEIR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF WORK. X-RAY SCANNING MUST BE DONE AFTER HOURS WITH NO OCCUPANTS IN THE AREA OF SCANNING.
- ANY PENETRATIONS THRU FIRE RATED WALLS, PARTITIONS, FLOORS ETC... SHALL BE FIRE STOPPED USING APPROVED METHODS TO MAINTAIN FIRE RESISTANCE TESTING.
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH INTERIOR DESIGNER AND FOR FINAL LOCATION OF ALL OUTLETS PRIOR TO INSTALLATION.
- ALL FIRE ALARM WORK SHALL BE PERFORMED BY BASE BUILDING APPROVED FIRE ALARM CONTRACTOR. INCLUDE FOR ALL COSTS.
- REFER TO DESIGNER'S PLANS AND ELEVATIONS FOR EXACT LOCATION AND MOUNTING HEIGHTS FOR ALL POWER AND DATA OUTLETS IN MILLWORK AND PERIMETER WALLS. CONFIRM OUTLETS AND COVER PLATE COLOUR WITH DESIGNER'S PLANS. RESERVED.
- BE ADVISED THAT REMOVAL OF ALL REDUNDANT EQUIPMENT AND ASSOCIATED COMPONENTS SHALL BE INCLUDED IN CONTRACT. CONFIRM IN ADVANCE OF REMOVAL WITH THE CONSULTANT AND COMPONENT THAT CONTRACTOR HAS CONCERN OR QUESTIONS AS TO IT'S STATUS AND/OR

CONDITION.

- UPDATE PANEL DIRECTORY AND SINGLE LINE DIAGRAM ONCE CONSTRUCTION IS COMPLETED.
- 10. CONTRACTOR SHALL READ THE ELECTRICAL DRAWINGS THOROUGHLY AND IN CONJUCTION WITH ALL OTHER DRAWINGS, ESPECIALLY ARCHITECTURAL, INTERIOR DESIGN, MECHANICAL, SECURITY AND AV DRAWINGS. SUBMIT ALL CHANGES AND/OR EXTRA WITH MARKED UP DRAWING FOR REVIEW PRIOR TO STARTING OF WORK. IF NO CHANGES ARE SUBMITTED, CONTRACTOR IS TO ACKNOWLEDGING THAT THE TENDER LAYOUT IS PROPER AND WILL BUILD THE SYSTEM ACCORDINGLY. NO EXTRAS WILL BE ENTERTAINED AFTER THE WORK IS STARTED. IF CONTRACTOR MUST MODIFY THE DEEMED NECESSARY BY THE INSPECTOR DURING THE FINAL INSPECTIONS, THIS SHALL BE DONE AT NO EXTRA COST TO SENECA.

# CLOSE OUT DOCUMENTATION

THE FOLLOWING INFORMATION SHALL BE PROVIDED TO THE ENGINEER PRIOR TO FINAL SITE INSPECTION AND ISSUANCE OF ENGINEERING'S FINAL SIGN OFF LETTER TO OBTAIN OCCUPANCY.

- 1. FIRE ALARM VERIFICATION REPORT.
- 2. LETTER OF ACCEPTANCE FROM THE ELECTRICAL SAFETY AUTHORITY.
- 3. EMERGENCY LIGHTING LETTER CONFIRMING ALL EMERGENCY LIGHTING HAS BEEN INSTALLED AS PER THE ELECTRICAL DRAWINGS AND OPERATES TO MEET LOCAL BUILDING CODE REQUIREMENTS.

4. LOAD BALANCING REPORT.

- THE FOLLOWING INFORMATION SHALL BE PROVIDED TO THE OWNER UPON PROJECT COMPLETION.
- 1. WARRANTY LETTER FROM ELECTRICAL CONTRACTOR.
- 2. AS-BUILT DRAWINGS AND MANUALS.



DESCRIPTION	LOAD kw	BRKR (A)	CCT No	РН	CCT No	BRKR (A)	LOAD kw	DESCRIPTION	
REC RM K3265 (EX)		15	1	Α	2	15		REC FLOOR BOXES RM K3265	(EX)
REC FLOOR BOXES RM K3265 (EX)		15	3	в	4	15		SPARE	(EX)
REC CEILING QUAD AV RM K3265 (EX)		15	5	С	6	15		REC FLOOR BOXES RM K3260, K3110	(EX)
REC RM K3260 (EX)		-	7	Α	8	15		REC FLOOR BOXES RM K3260	(EX)
REC FLOOR BOXES RM K3260 (EX)		15	9	В	10	15		DC - PROJECTOR SCREENS RM K3260	(EX)
		15	11	С	12	15		REC RM K3110	(EX)
REC FLOOR BOXES RM K3110 (EX)	0.2	15	13	Α	14	15		REC FLOOR BOXES RM K3260	(EX)
WALL PROJECTORS RM 3110 (EX)		15	15	В	16	15	0.5	REC FLOOR BOX K3175 (N	1EM)
REC HOUSEKEEPING CORRIDOR B, E (EX)		15	17	С	18	15		REC DEDICATED DUPLEX CORRIDOR B	(EX)
REC DEDICATED QUAD AV CORRIDOR B (EX)		15	19	A	20	15		REC EAST WALL CORRIDOR B	(EX)
-SPACE REC CAPSTONE K3171 (NEW)		15	21	В	22	15		REC EAST WALL CORRIDOR C	(EX)
REC CORRIDOR B ELEV 1 K1157 (EX)		15	23	С	24	15	0.5	REC FLOOR BOX K3175 (N	1EM)
REC FLOOR BOXES RM K3200 (EX)		15	25	A	26	15		REC FLOOR BOXES RM K3200	(EX)
REC FLOOR BOXES RM K3200 (EX)		15	27	В	28	15		REC FLOOR BOXES RM K3200	(EX)
REC FLOOR BOXES RM K3200 (EX)		15	29	С	30	20		4th FLR. PROJECTOR SCREENS RM K3200	(EX)
REC FLOOR BOXES RM K3200 (EX)		15	31	A	32	20		REC FLOOR BOXES RM K3200	(EX)
REC FLOOR BOXES RM K3200 (EX)		15	33	В	34	15		5th FLR. PROJECTOR LIFT AV RM K3200	(EX)
REC <del>RM K3155</del> MEET. RM K3160 (EX)		15	35	С	36	15		REC DEDICATED QUAD AV RM K3155	(EX)
REC DEDICATED QUAD AV RM K3211- MEET. RM K3160 (EX)		15	37	A	38	15		REC DED. QUAD 3210- CAPSTONE K3173	(EX)
RECDEDICATED QUAD AV RM K3267- CAPSTONE K3172 (EX)		15	39	В	40	15		-REC K3155, K3269 K3160 MEET ROOM	(EX)
RECQUAD AV RM K3211, K3210 CAPSTONE K3173 (EX)		15	41	С	42	15		-REC K3267, K3230 CAPSTONE K3172	(EX)
NEW EXHAUST FAN (NEW)	0.2	15	43	A	44	15		REC CEILING QUAD AV RM K3275	(EX)
REC <del>RM K3275</del> CAPSTONE K3177 (EX)		15	45	В	46	15		REG K3275         REC CAPSTONE K3177	(EX)
REC RM K3276 (EX)		15	47	С	48	15		REC MAKER SPACE K3175	(EX)
REC RM K3276 REC MAKER SPACE K3175 (EX)		15	49	A	50	15		REC MAKER SPACE K3175	(EX)
REC <del>RM K2341</del> <b>REC MAKER SPACE K3175</b> (EX)		15	51	В	52	15		-REC RM K3243 REC K3170	(EX)
FURNITURE FEED K3243 (EX)		15	53	С	54	15		-FURNITURE FEED K3243- REC K3170	(EX)
FURNITURE FEED K3243 (EX)		15	55	A	56	15		REC CEILING QUAD AV RM K3243	(EX)
FURNITURE FEED K3243 (EX)		15	57	В	58	15		FURNITURE FEED K3243	(EX)
FURNITURE FEED K3243 (EX)		15	59	С	60	15		DC-AV SCREENS RM K3243	(EX)
FURNITURE FEED K3243 (EX)		15	61	A	62	15		FURNITURE FEED K3243	(EX)
FURNITURE FEED K3243 (EX)		15	63	В	64	20		REC - XEROX K3276	
BEC - XEROX K3276 (EX)		20	65	С	66	2P		NEG XENOX N3270	
		2P	67	A	68	15		REC QUAD 3243	(EX)
L 5th FLR PROJECTOR AV RM K3200 (EX)		15	69	В	70	15	0.2	REC MEETING ROOM 3160 (N	1EM)
		2P	71	С	72	20		AV RACK RM 3269	(EX)
AV RACK RM 3269 (EX)		20	73	A	74	15		REC FLOOR BOXES RM K3265	(EX)
REC PROJECTOR (NEW)	0.6	15	75	В	76	15	0.5	DOOR OPERATOR K3171, K3172, K3173 (N	IEM)
REC PROJECTOR SCREEN (NEW)	0.6	15	77	С	78	15	0.5	DOOR OPERATOR K3177, K3175 (N	IEM)
		100	79	A	80	15	0.4	REC OPEN SPACE K3170 (N	1EM)
PANEL RP-3D1 (NEW)	22.76		81	В	82	15	0.6	REC OPEN SPACE K3170 (N	1EM)
		/ 3P	83	С	84	15	0.24	REC OPEN SPACE K3170 (N	1EM)
PANEL: 'RP-3D' (EXISTING)	NOT	ES: (R) (*	) DEN ) DEN	OTES OTES	RELA			CONTROLLED CIRCUIT	
		∆ (NEW	DEN	OTES	NEW (		BREAK	REALER ER	
		(EX	) DEN	OTES	EXIST	ING CIR	CUIT BF	REAKER	
VOLTS: 120/208V		Ξ:						FLUSH 🛛	
PHASE: 3Ø		N.LOAD	(KW):	-					
WIRE: 4W		DEMAND LOAD(AMPS):A (@KW) FEED THRU' LUGS						FEED THRU' LUGS	
MAINS: 200A	LOC	ATION:	-					MAIN BRKR	
	FED	FROM:	۲۲-G	iA					

REC. +MAKER K3175 - EQ.# 3 - AIR SQRUB       16       20       1       A       2       20       12       REC PODIUM K3170         REC. +MAKER K3175 - EQ.# 3 - AIR SQRUB       0.11       15       3       B       4       20       12       REC PODIUM K3170         REC. +MAKER K3175 - EQ.# 3 - AIR SQRUB       0.11       15       7       A       8       15       0.24       REC OPEN ENG. K3170       AV         REC MAKER K3175 - FOAM'S PRAVER       0.1       15       15       16       0.4       15       0.4       RECOPEN ENG. K3170       PC         REC MAKER K3175 - FOAM'S PRAVER       0.1       15       16       16       16       16       16       0.4       RECOPEN ENG. K3170       PC         REC MAKER K3175 - EQ.# 49       0.23       15       17       C       18       15       0.4       RECOPEN ENG. K3170       PC         REC MAKER K3175 - EQ.# 40       0.38       15       17       C       18       10       0.4       RECOPEN ENG. K3170       PC         REC MAKER K3175 - EQ.# 40       0.38       15       17       C       18       12       16       48       16       44       16       40       41	DESCRIPTION	LOAD kw	BRKR (A)	CCT No	PH	CCT No	BRKR (A)	LOAD kw	DESCRIPTION	
RECMAKER K3175 - EQ.4 2 - REWORK       0.1       15       3       8       4       20       12       RECMAKER K3175 - EQ.4 - MULTI-METER       0.2       15       7       A       B       4       50       SPARE       Image: Comment of the second of	REC MAKER K3175 - EQ.# 1 - DRILL PRESS	1.8	20	1	Α	2	20	1.2	REC PODIUM K3170	
RECMAKER K3175 - EQ.4 8 - MULTI-METER       0.4       15       7       A       B       15       0.24       RECOPEN ENG. K3170       AV         RECMAKER K3175 - EQ.4 8 - MULTI-METER       0.2       15       9       B       10       15       0.4       RECOPEN ENG. K3170       PC         RECMAKER K3175 - FOLA 74 SAINT SPRAVER       0.1       15       15       16       15       0.4       16       0.4       REC. OPEN ENG. K3170       PC	REC MAKER K3175 - EQ.# 3 - AIR SCRUB	0.11	15	3	В	4	20	1.2	REC PODIUM K3170	
IPECMAKER K3175 - EO # 6 - MULTI-METER       02       15       7       A       8       15       0.24       REC OPEN ENG.       K3170       AV         RECMAKER K3175 - CONVENIENCE       0.2       15       10       15       0.4       REC OPEN ENG.       K3170       PC         RECMAKER K3175 - IEAT GUN       12       15       13       A       14       15       0.4       REC OPEN ENG.       K3170       AV         RECMAKER K3175 - IEAT GUN       12       15       15       16       15       0.4       REC OPEN ENG.       K3170       AV         RECMAKER K3175 - EQ.JF & M9       0.25       15       17       G       16       15       0.4       REC OPEN ENG.       K3170       AV         RECMAKER K3175 - EQ.JF & M9       0.25       15       17       G       16       15       0.4       REC OPEN ENG.       K3170       AV         RECMAKER K3175 - EQ.JF & MULTI-METER       0.2       15       23       G       15       0.4       REC OPEN ENG.       K3170       AV         RECMAKER K3175 - EQ.JF & MULTI-METER       22       15       24       15       0.5       WIREMOLD - CAPSTONE K3171 - EQ.JE       SPARE       -	REC MAKER K3175 - EQ.# 2 - REWORK	0.4	15	5	С	6	15	-	SPARE	
REC MAKER \$3175 - CONVENIENCE       12       15       15       16       6.8       REC OPEN ENG. \$3170       PC         REC MAKER \$3175 - FEL AT & BYNTER       0.1       15       13       14       15       0.4       REC OPEN ENG. \$3170       PC         REC MAKER \$3175 - FEL AT & BYNTER       0.1       15       13       14       15       0.4       REC OPEN ENG. \$3170       PC         REC MAKER \$3175 - FEL AT & BYNTER       0.26       15       15       14       45       0.4       REC OPEN ENG. \$3170       PC         REC MAKER \$3175 - FEL AT & BYNTER       0.26       15       17       C       18       16       15       0.4       REC OPEN ENG. \$3170       PC         REC MAKER \$3175 - FEL AT SINDER       0.36       15       19       A       20       15       0.4       REC OPEN ENG. \$3170       PC         REC MAKER \$3175 - FEL AT SINDE \$4717       0.21       15       21       8       22       15       0.4       REC - OPEN ENG. \$3170       PC         REC MAKER \$3175 - FEL AT SINDE \$4717       0.16       21       21       8       22       15       0.4       REC - OPEN ENG. \$3170       PC       11.13         SPARE       -	REC MAKER K3175 - EQ.# 6 - MULTI-METER	0.2	15	7	Α	8	15	0.24	REC OPEN ENG. K3170 AV	
REC MAKER K3175 - PANT SPRAYER       0.1       15       11       C       12       15       0.4       REC OPEN ENG. K3170       PC         REC MAKER K3175 - EQ.# 8 PG       0.26       15       15       16       15       0.8       REC OPEN ENG. K3170       PC         REC MAKER K3175 - EQ.# 8 - DC SUPPLY       0.8       15       17       C       18       15       0.4       REC OPEN ENG. K3170       PC         REC MAKER K3175 - EQ.# 8 - DC SUPPLY       0.8       15       17       C       18       15       0.4       REC OPEN ENG. K3170       PC         REC MAKER K3175 - EQ.# 6-MULTI-METER       0.38       15       17       C       18       22       15       0.4       REC OPEN ENG. K3170       PC         SPARE       -       15       27       8       28       15       0.4       REC OPEN ENG. K3170       PC         SPARE       -       15       27       8       28       15       0.4       REC OPEN ENG. K3170       PC         SPARE       -       15       37       A       28       15       0.5       WIREMOLD - CAPSTONE K3171 - EQ.#5         WIREMOLD - CAPSTONE K3177 - EQ.#10.11.13       18       35	REC MAKER K3175 - CONVENIENCE	0.2	15	9	В	10	15	0.6	REC OPEN ENG. K3170 PC	
REC MAKER K3175 - HEAT GUN       12       15       13       A       14       15       02       REC MAKER K3175 - EQ.#7 & #9       0.25       15       15       16       16       15       0.4       REC OPEN ENG, K3170       PC         REC MAKER K3175 - EQ.#7 & #9       0.8       15       17       C       18       15       0.4       REC OPEN ENG, K3170       PC         REC MAKER K3175 - BENCH GRINDER       0.8       15       17       24       15       0.4       REC OPEN ENG, K3170       AV         REC MAKER K3175 - ROTAR' TOOL KIT       0.12       15       21       B       24       15       0.4       REC OPEN ENG, K3170       AV         REC MAKER K3175 - ROTAR' TOOL KIT       0.15       23       C       24       15       0.4       REC OPEN ENG, K3170       PC         SPARE       -       15       27       B       28       15       0.4       REC OPEN ENG, K3171 - E0,# 5         SPARE       -       15       27       B       28       15       0.4       REC OPEN ENG, K3171 - E0,# 10,11,13         SPARE       -       15       35       A       32       15       0.5       WIREMOLD - CAPSTONE K3172 - E0,# 10,11,13	REC MAKER K3175 - PAINT SPRAYER	0.1	15	11	С	12	15	0.4	REC OPEN ENG. K3170 PC	
NEEC - MAKER K3175 - EC.#F & #9     0.25     15     15     16     16     16     0.4     REC - OPEN ENG. K3170     PC       REC - MAKER K3175 - EC.# 6 GNINDER     0.8     15     17     C     18     0.4     18C - OPEN ENG. K3170     PC       REC - MAKER K3175 - EC.MAKER K3175 - EC.MAINER KS175 - EC.MAKER K3175 - EC.MAKE	REC MAKER K3175 - HEAT GUN	1.2	15	13	Α	14	15	0.24	REC OPEN ENG. K3170 AV	
REC - MAKER K3175 - EQ.# 8- DC SUPPLY       0.8       15       17       C       18       15       0.4       REC - OPEN ENG.       K3170       PC         REC - MAKER K3175 - BENCH GRINDER       0.36       15       10       A       20       15       0.4       REC - OPEN ENG.       K3170       PC         REC - MAKER K3175 - BENCH GRINDER       0.2       15       21       8       22       15       0.4       REC - OPEN ENG.       K3170       PC         SPARE       -       15       26       A       26       15       0.4       REC - OPEN ENG.       K3170       PC         SPARE       -       15       27       8       28       15       0.5       WIREMOLD - CAPSTONE K3171 - EQ.# 10,11,13         SPARE       -       15       27       8       28       15       0.5       WIREMOLD - CAPSTONE K3171 - EQ.# 10,11,13         WIREMOLD - CAPSTONE K3177 - EQ.# 10,11,13       10       15       33       8       34       15       10       WIREMOLD - CAPSTONE K3172 - EQ.# 12         WIREMOLD - CAPSTONE K3177 - EQ.# 10,11,13       10       15       33       8       40       15       10       WIREMOLD - CAPSTONE K3172 - EQ.# 12         SPARE       -	REC MAKER K3175 - EQ.#7 & #9	0.25	15	15	В	16	15	0.6	REC OPEN ENG. K3170 PC	
REC MAKER K3175 - BENCH GRINDER     0.36     15     15     15     15     0.24     REC OPEN ENG. K3170     AV       REC MAKER K3175 - ROTARY TOOL KIT     0.12     15     21     8     22     15     0.4     REC OPEN ENG. K3170     PC       REC MAKER K3175 - ROTARY TOOL KIT     0.2     15     23     C     24     15     0.4     REC OPEN ENG. K3170     PC       SPARE     -     15     27     8     28     15     10     WIREMOLD - CAPSTONE K3171 - EQ.# 10.11.13       SPARE     -     15     27     8     28     15     10     WIREMOLD - CAPSTONE K3171 - EQ.# 10.11.13       SPARE     -     15     15     31     4     42     15     0.5     WIREMOLD - CAPSTONE K3171 - EQ.# 12       WIREMOLD - CAPSTONE K3177 - EQ.# 10     110     15     35     C     36     15     10     WIREMOLD - CAPSTONE K3172 - EQ.# 10.11.13       WIREMOLD - CAPSTONE K3177 - EQ.# 12     0.8     15     35     C     36     10     10     WIREMOLD - CAPSTONE K3172 - EQ.# 10.11.13       WIREMOLD - CAPSTONE K3177 - EQ.# 12     0.8     15     4     4     10     10     WIREMOLD - CAPSTONE K3172 - EQ.# 10.11.13       WIREMOLD - CAPSTONE K3177 - EQ.# 12     0.8     15<	REC MAKER K3175 - EQ.# 8 - DC SUPPLY	0.8	15	17	С	18	15	0.4	REC OPEN ENG. K3170 PC	
REC MAKER K3175 - ROTARY TOOL KIT       0.12       15       21       B       22       15       0.6       REC OPEN ENG. K3170       PC         REC MAKER K3175 - EQ.# 6 - MULTI-METER       0.2       15       23       C       24       15       0.4       REC OPEN ENG. K3170       PC         SPARE       -       15       25       A       26       15       0.5       WIREMOLD - CAPSTONE K3171 - EQ.# 0.11,13         SPARE       -       15       25       A       26       15       0.5       WIREMOLD - CAPSTONE K3171 - EQ.# 0.11,13         SPARE       -       15       23       A       32       15       0.5       WIREMOLD - CAPSTONE K3171 - EQ.# 10.11,13       10       15       33       B       34       15       10.5       WIREMOLD - CAPSTONE K3171 - EQ.# 10.11,13         WIREMOLD - CAPSTONE K3177 - EQ.# 10.11,13       10       15       33       B       34       15       0.5       WIREMOLD - CAPSTONE K3172 - EQ.# 10.11,13         WIREMOLD - CAPSTONE K3177 - EQ.# 10.11,13       10       15       38       B       40       15       0.5       WIREMOLD - CAPSTONE K3173 - EQ.# 10.11,13         REC - 30 PRINTER - EO.# 4       0.50       15       41       C       42       15	REC MAKER K3175 - BENCH GRINDER	0.36	15	19	Α	20	15	0.24	REC OPEN ENG. K3170 AV	
REC. MAKER K3175 - EQ.# 6 - MULTI-METER       02       15       23       C       24       15       0.4       REC OPEN ENG. K3170 PC         SPARE       -       15       27       8       28       15       0.5       WIREMOLD - CAPSTONE K3171 - EQ.# 10.11.13         SPARE       -       15       27       8       28       15       10       WIREMOLD - CAPSTONE K3171 - EQ.# 10.11.13         SPARE       -       15       27       8       28       15       10       WIREMOLD - CAPSTONE K3171 - EQ.# 10.11.13         WIREMOLD - CAPSTONE K3177 - EQ.# 10.11.13       10       15       38       8       34       15       10       WIREMOLD - CAPSTONE K3171 - EQ.# 10.11.13         WIREMOLD - CAPSTONE K3177 - EQ.# 10.11.13       10       15       37       A       38       15       0.5       WIREMOLD - CAPSTONE K3172 - EQ.# 10.11.13         WIREMOLD - CAPSTONE K3177 - EQ.# 10       15       47       A       38       15       0.5       WIREMOLD - CAPSTONE K3172 - EQ.# 10.11.13         WIREMOLD - CAPSTONE K3177 - EQ.# 10       10       15       47       A       40       15       0.8       WIREMOLD - CAPSTONE K3173 - EQ.# 10.11.13         REC - SHOP VAC - EQ.# 5       110       15       41       C	REC MAKER K3175 - ROTARY TOOL KIT	0.12	15	21	В	22	15	0.6	REC OPEN ENG. K3170 PC	
SPARE     -     15     25     A     26     15     0.5     WIREMOLD - CAPSTONE K3171 - EQ.# 0.11.13       SPARE     -     15     27     8     28     15     0.8     WIREMOLD - CAPSTONE K3171 - EQ.# 10.11.13       SPARE     -     15     29     C     30     15     0.8     WIREMOLD - CAPSTONE K3171 - EQ.# 10.11.13       WIREMOLD - CAPSTONE K3177 - EQ.# 10.11.13     10     15     33     8     34     15     1.0     WIREMOLD - CAPSTONE K3172 - EQ.# 12       WIREMOLD - CAPSTONE K3177 - EQ.# 12     0.8     15     33     8     34     15     1.0     WIREMOLD - CAPSTONE K3172 - EQ.# 12       TSP     0.0     15     35     85     40     15     1.0     WIREMOLD - CAPSTONE K3173 - EQ.# 12       TSP     0.0     15     37     A     38     15     0.8     WIREMOLD - CAPSTONE K3173 - EQ.# 12       TSP     0.0     15     37     A     38     40     15     10     WIREMOLD - CAPSTONE K3173 - EQ.# 12       SPARE     1.10     15     41     C     42     15     0.8     WIREMOLD - CAPSTONE K3173 - EQ.# 10.11.13       SPARE     -     15     45     8     46     SPACE     SPACE       SPARE     - </td <td>REC MAKER K3175 - EQ.# 6 - MULTI-METER</td> <td>0.2</td> <td>15</td> <td>23</td> <td>С</td> <td>24</td> <td>15</td> <td>0.4</td> <td>REC OPEN ENG. K3170 PC</td>	REC MAKER K3175 - EQ.# 6 - MULTI-METER	0.2	15	23	С	24	15	0.4	REC OPEN ENG. K3170 PC	
SPARE       -       15       27       B       28       15       1.0       WIREMOLD - CAPSTONE K3171 - EQ.# 10.11.13         SPARE       -       15       29       C       30       15       0.8       WIREMOLD - CAPSTONE K3171 - EQ.# 12         WIREMOLD - CAPSTONE K3177 - EQ.# 10.11.13       10       15       31       A       32       15       0.8       WIREMOLD - CAPSTONE K3171 - EQ.# 12         WIREMOLD - CAPSTONE K3177 - EQ.# 10.11.13       10       15       35       C       36       15       0.8       WIREMOLD - CAPSTONE K3172 - EQ.# 10.11.13         WIREMOLD - CAPSTONE K3177 - EQ.# 10.11.13       10       15       37       A       38       15       0.5       WIREMOLD - CAPSTONE K3173 - EQ.# 10.11.13         WIREMOLD - CAPSTONE K3177 - EQ.# 10       0.8       15       39       B       40       15       1.0       WIREMOLD - CAPSTONE K3173 - EQ.# 12         TSP       0.10       15*       43       A       44       L       SPACE         SPARE       -       15       43       A       44       L       SPACE         SPARE       -       15       45       B       62       L       SPACE         SPARE       -       15       53	SPARE	-	15	25	Α	26	15	0.5	WIREMOLD - CAPSTONE K3171 - EQ.# 5	
SPARE       -       15       29       C       30       15       0.8       WIREMOLD - CAPSTONE K3171 - EQ.# 12         WIREMOLD - CAPSTONE K3177 - EQ.# 10.11.13       10       15       33       8       32       15       0.5       WIREMOLD - CAPSTONE K3177 - EQ.# 10.11.13       10       15       33       8       10       WIREMOLD - CAPSTONE K3177 - EQ.# 10.11.13       10       15       33       8       15       0.8       WIREMOLD - CAPSTONE K3172 - EQ.# 10.11.13         WIREMOLD - CAPSTONE K3177 - EQ.# 10.11.13       10       15       33       8       15       0.8       WIREMOLD - CAPSTONE K3172 - EQ.# 12         SPARE       0.10       15       37       A       38       15       0.8       WIREMOLD - CAPSTONE K3173 - EQ.# 12         SPARE       0.10       15       43       A       40       15       10       WIREMOLD - CAPSTONE K3173 - EQ.# 10.11.13         REC SHOP VAC - EQ.# 5       110       15       41       C       42       15       0.8       WIREMOLD - CAPSTONE K3173 - EQ.# 10.11.13         SPARE       -       15       43       A       40       15       58       SPACE       SPACE         SPARE       -       15       51       8       52	SPARE	-	15	27	В	28	15	1.0	WIREMOLD - CAPSTONE K3171 - EQ.# 10,11,13	
WIREMOLD - CAPSTONE K3177 - EQ.# 5         0.5         15         31         A         32         15         0.5         WIREMOLD - CAPSTONE K3177 - EQ.# 10,11,13           WIREMOLD - CAPSTONE K3177 - EQ.# 10,11,13         10         15         33         B         34         15         10         WIREMOLD - CAPSTONE K3172 - EQ.# 10,11,13           WIREMOLD - CAPSTONE K3177 - EQ.# 12         0.8         15         35         C         36         15         0.8         WIREMOLD - CAPSTONE K3172 - EQ.# 12           TSP         0.10         15*         37         A         38         15         0.5         WIREMOLD - CAPSTONE K3173 - EQ.# 12           TSP         0.10         15*         37         A         38         15         0.5         WIREMOLD - CAPSTONE K3173 - EQ.# 12           TSP         0.10         15*         41         C         42         15         0.8         WIREMOLD - CAPSTONE K3173 - EQ.# 10,11,13           RECSHOP VAC - EQ.# 5         1.10         15         47         C         48         C         SPACE           SPARE         -         15         47         C         48         50         SPACE           SPARE         -         15         53         C         54<	SPARE	-	15	29	С	30	15	0.8	WIREMOLD - CAPSTONE K3171 - EQ.# 12	
WIREMOLD - CAPSTONE K3177 - EQ.# 10,11,13         1.0         15         33         B         34         15         1.0         WIREMOLD - CAPSTONE K3172 - EQ.# 10,11,13           WIREMOLD - CAPSTONE K3177 - EQ.# 12         0.8         15         35         C         36         15         0.8         WIREMOLD - CAPSTONE K3172 - EQ.# 12           TSP         0.10         15*         37         A         38         15         0.5         WIREMOLD - CAPSTONE K3173 - EQ.# 12           REC 3D PRINTER - EQ.# 4         0.50         15         41         C         42         15         0.8         WIREMOLD - CAPSTONE K3173 - EQ.# 10,11,13           REC SD PRINTER - EQ.# 4         0.50         15         41         C         42         15         0.8         WIREMOLD - CAPSTONE K3173 - EQ.# 12           SPARE         -         15         41         A         44         C         SPACE           SPARE         -         15         47         C         48         C         SPACE           SPARE         -         15         51         8         52         C         SPACE           SPARE         -         15         51         8         52         SPACE         SPACE	WIREMOLD - CAPSTONE K3177 - EQ.# 5	0.5	15	31	Α	32	15	0.5	WIREMOLD - CAPSTONE K3171 - EQ.# 5	
WIREMOLD - CAPSTONE K3177 - EQ,# 12       0.8       15       35       C       36       15       0.8       WIREMOLD - CAPSTONE K3172 - EQ,# 12         TSP       0.10       15 *       37       A       38       15       0.5       WIREMOLD - CAPSTONE K3173 - EQ,# 5         REC 3D PRINTER - EQ,# 4       0.50       15       39       B       40       15       10       WIREMOLD - CAPSTONE K3173 - EQ,# 12         SPARE       .5       10       15       41       C       42       15       0.8       WIREMOLD - CAPSTONE K3173 - EQ,# 12         SPARE       .5       15       41       C       42       15       0.8       WIREMOLD - CAPSTONE K3173 - EQ,# 12         SPARE       .5       15       41       C       42       15       0.8       WIREMOLD - CAPSTONE K3173 - EQ,# 12         SPARE       .5       43       A       44       C       SPACE       SPACE         SPARE       .5       47       6       48       C       SPACE       SPACE         SPARE       .5       15       51       8       52       L       SPACE       SPACE         SPARE       .5       57       8       58       SPACE	WIREMOLD - CAPSTONE K3177 - EQ.# 10,11,13	1.0	15	33	В	34	15	1.0	WIREMOLD - CAPSTONE K3172 - EQ.# 10,11,13	
TSP       0.10       15*       37       A       38       15       0.5       WIREMOLD - CAPSTONE K3173 - EQ.# 5         REC 3D PRINTER - EQ.# 4       0.50       15       39       B       40       15       1.0       WIREMOLD - CAPSTONE K3173 - EQ.# 10.11,13         REC SHOP VAC - EQ.# 5       110       15       41       C       42       15       0.8       WIREMOLD - CAPSTONE K3173 - EQ.# 12         SPARE       -       15       43       A       44       C       45       SPACE         SPARE       -       15       47       C       48       C       SPACE       SPACE         SPARE       -       15       47       C       48       C       SPACE       SPACE         SPARE       -       15       47       C       48       C       SPACE       SPACE         SPARE       -       15       51       8       52       C       SPACE       SPACE         SPARE       -       15       53       C       54       C       SPACE       SPACE         SPARE       -       15       53       C       60       C       SPACE       SPACE         TVSS	WIREMOLD - CAPSTONE K3177 - EQ.# 12	0.8	15	35	С	36	15	0.8	WIREMOLD - CAPSTONE K3172 - EQ.# 12	
REC 3D PRINTER - EQ.# 4       0.50       15       39       B       40       15       1.0       WIREMOLD - CAPSTONE K3173 - EQ.# 10, 11, 13         REC SHOP VAC - EQ.# 5       1.10       15       41       C       42       15       0.8       WIREMOLD - CAPSTONE K3173 - EQ.# 10, 11, 13         SPARE       -       15       43       A       44       C       SPACE         SPARE       -       15       43       A       44       C       SPACE         SPARE       -       15       47       C       48       C       SPACE         SPARE       -       15       47       C       48       C       SPACE         SPARE       -       15       47       C       48       SPACE       SPACE         SPARE       -       15       51       8       52       SPACE       SPACE       SPACE         SPARE       -       15       51       8       52       SPACE       SPACE       SPACE         SPARE       -       15       53       8       52       SPACE       SPACE       SPACE         TVSS       -       15       58       58       SPACE       SP	TSP	0.10	15*	37	Α	38	15	0.5	WIREMOLD - CAPSTONE K3173 - EQ.# 5	
REC SHOP VAC - EQ.# 5       1.10       15       41       C       42       15       0.8       WIREMOLD - CAPSTONE K3173 - EQ.# 12         SPARE       -       15       43       A       44       C       SPACE         SPARE       -       15       45       B       46       C       SPACE         SPARE       -       15       47       C       48       C       SPACE         SPARE       -       15       47       C       48       C       SPACE         SPARE       -       15       49       A       50       C       SPACE         SPARE       -       15       51       B       52       C       SPACE       SPACE         SPARE       -       15       51       B       52       C       SPACE       SPACE         SPARE       -       15       53       C       54       C       SPACE       SPACE         SPARE       -       15       53       C       54       C       SPACE       SPACE         SPARE       -       -       15       78       8       60       SPACE       SPACE         TVSS	REC 3D PRINTER - EQ.# 4	0.50	15	39	В	40	15	1.0	WIREMOLD - CAPSTONE K3173 - EQ.# 10,11,13	
SPARE       -       15       43       A       44       SPACE         SPARE       -       15       45       8       46       SPACE         SPARE       -       15       47       C       48       SPACE         SPARE       -       15       51       B       52       SPACE         SPARE       -       15       53       C       54       SPACE         SPARE       -       15       53       C       54       SPACE         TVSS       -       15       53       C       54       SPACE       SPACE         TVSS       -       -       155       A       56       SPACE       SPACE       -         PANEL:       'RP-3D1'       .       .       .       .       .       .       .       .       .       .       .       .       .       .         VOLTS:	REC SHOP VAC - EQ.# 5		15	41	С	42	15	0.8	WIREMOLD - CAPSTONE K3173 - EQ.# 12	
SPARE         -         15         45         8         46         SPACE           SPARE         -         15         47         C         48         SPACE           SPARE         -         15         49         A         50         SPACE           SPARE         -         15         51         8         52         SPACE           SPARE         -         15         51         8         52         SPACE           SPARE         -         15         53         C         54         SPACE           SPARE         -         15         53         C         54         SPACE           TVSS         -         15         53         C         54         SPACE           TVSS         -         -         15         59         C         60         SPACE           TVSS         -         -         -         57         8         58         SPACE         SPACE           PANEL:         'RP-3D1'         NOTES:         (R) ENVITES RELAY CONTACTOR CONTROLLED CIRCUIT         (*) DENVIS         SPACE           VOLTS:         120/208V         TYPE:         CONN.LOAD         (KW: 22.76) <t< td=""><td>SPARE</td><td>-</td><td>15</td><td>43</td><td>Α</td><td>44</td><td></td><td></td><td>SPACE</td></t<>	SPARE	-	15	43	Α	44			SPACE	
SPARE       -       15       47       C       48       SPACE         SPARE       -       15       49       A       50       SPACE         SPARE       -       15       51       B       52       SPACE         SPARE       -       15       51       B       52       SPACE         SPARE       -       15       53       C       54       SPACE         TVSS       -       15       53       C       54       SPACE         TVSS       -       15       53       C       54       SPACE         PANEL:       'RP-3D1'       .       .       .       .       .       .         VOLTS:       120/208V       TYPE:       .       .       .       .       .       .         VOLTS:       120/208V       TYPE:       .       .       .       .       .       .       .         VOLTS:       100A       CONN.LOAD       (KW: 22.76       .       .       .       .       .       .       .       .         MAINS:       100A       LOCATION:       MAKER SPACE K3175       .       .       .       . <t< td=""><td>SPARE</td><td>-</td><td>15</td><td>45</td><td>В</td><td>46</td><td></td><td></td><td>SPACE</td></t<>	SPARE	-	15	45	В	46			SPACE	
SPARE       -       15       49       A       50       SPACE         SPARE       -       15       51       B       52       SPACE       SPACE         SPARE       -       15       53       C       54       SPACE       SPACE         TVSS       -       15       53       C       54       SPACE       SPACE         TVSS       -       -       15       57       B       56       SPACE       SPACE         PANEL:       'RP-3D1'       NOTES:       -       60       SPACE       SPACE       -         VOLTS:       'RP-3D1'       NOTES:       NOTES:       RN DENOTES RELAY / CONTACTOR CONTROLLED CIRCUIT       -       -         VOLTS:       'RP-3D1'       NOTES:       CONN.LOAD       OENOTES FCI CIRCUIT BREAKER       SURFACE       SURFACE         PHASE:       30       CONN.LOAD       (KW): 22.76       SURFACE       SURFACE       SPRINKLERPROOF       SPRINKLERPROOF       SPRINKLERPROOF       SPRINKLERPROOF       SPRINKLERPROOF       SPRINKLERPROF       SPRINKLERPROF       SPRINKLERPROF       SPRINKLERPROF       SPRINKLERPROF       SPRINKLERPROF       SPRINKLERPROF       SPRINKLERPROF       SPRINKIAN BRKR       SPRINKLERPROF       SPRI	SPARE	-	15	47	С	48			SPACE	
SPARE         -         15         51         B         52         SPACE           SPARE         -         15         53         C         54         SPACE           TVSS         30         55         A         56         SPACE           TVSS         30         57         B         58         SPACE           PANEL:         'RP-3D1' (NEW)         NOTES:         (R) DENOTES RELAY / CONTACTOR CONTROLLED CIRCUIT (*) DENOTES GFCI CIRCUIT BREAKER         SPACE           VOLTS:         120/208V         TYPE:	SPARE	-	15	49	Α	50			SPACE	
SPARE       -       15       53       C       54       SPACE         TVSS       30       55       A       56       A       56       SPACE         TVSS       57       B       58       0       SPACE       SPACE         PANEL:       'RP-3D1' (NEW)       NOTES: (R)       CONTES: RELAY / CONTACTOR CONTROLLED CIRCUIT (*)       SPACE       SPACE         VOLTS:       120/208V       TYPE:       REVENTES       RELAY / CONTACTOR CONTROLLED CIRCUIT (*)       SURFACE       SURFACE       SURFACE         PHASE:       30       CONN.LOAD       (KW):       22.76       SURFACE	SPARE	-	15	51	В	52			SPACE	
TVSS       30       55       A       56       SPACE         TVSS       57       B       58       SPACE         PANEL:       'RP-3D1' (NEW)       NOTES: (R) DENOTES RELAY / CONTACTOR CONTROLLED CIRCUIT (*) DENOTES GFCI CIRCUIT BREAKER $\Delta$ DENOTES GFCI CIRCUIT BREAKER       SPACE         VOLTS:       120/208V       TYPE:       FLUSH       SURFACE         PHASE:       30       CONN.LOAD       (KW): 22.76       SURFACE         WIRE:       4W       DEMAND LOAD(AMPS): 44.23 70% (16KW)       SPRINKLERPROOF       SPRINKLERPROOF         MAINS:       100A       LOCATION:       MAKER SPACE K3175       MAIN BRKR       Interval         KA:       10kA       FED FROM: RP-3D       FED SPRES       Interval       Interval       Interval	SPARE	-	15	53	С	54			SPACE	
TVSS       57       B       58       SPACE         3P       59       C       60       SPACE         PANEL:       'RP-3D1' (NEW)       NOTES: (R) DENOTES RELAY / CONTACTOR CONTROLLED CIRCUIT (*) DENOTES GFCI CIRCUIT BREAKER			30 /	55	A	56			SPACE	
3P       59       C       60       SPACE         PANEL:       'RP-3D1' (NEW)       NOTES: (R) DENOTES RELAY / CONTACTOR CONTROLLED CIRCUIT (*) DENOTES GFCI CIRCUIT BREAKER △ DENOTES PROVIDE LOCK-ON BREAKER       FLUSH       Image: Control Contecting Control Control Control Contecting	TVSS			57	В	58			SPACE	
PANEL:       'RP-3D1' (NEW)       NOTES:       (R) DENOTES RELAY / CONTACTOR CONTROLLED CIRCUIT (*) DENOTES GFCI CIRCUIT BREAKER △ DENOTES PROVIDE LOCK-ON BREAKER         VOLTS:       120/208V       TYPE:       FLUSH       X         PHASE:       3Ø       CONN.LOAD       (KW): 22.76       SURFACE       SPRINKLERPROOF         WIRE:       4W       DEMAND LOAD(AMPS): 44.23 70% (16KW)       TVSS       X         MAINS:       100A       LOCATION:       MAKER SPACE K3175       MAIN BRKR       I         kA:       10KA       FED FROM:       RP-3D       IG BUS       I			3P	59	С	60			SPACE	
VOLTS:       120/208V       TYPE:       FLUSH       Image: solution of the	PANEL: 'RP-3D1' (NEW)	NOTES: (R) DENOTES RELAY / CONTACTOR CONTROLLED CIRCUIT (*) DENOTES GFCI CIRCUIT BREAKER		CONTROLLED CIRCUIT ER REAKER						
PHASE:       3Ø       CONN.LOAD       (KW):       22.76       SURFACE       D         WIRE:       4W       DEMAND LOAD(AMPS):       44.23 70% (16KW)       TVSS       M         MAINS:       100A       LOCATION:       MAKER SPACE K3175       MAIN BRKR       D         KA:       10kA       FED FROM:       RP-3D       IG BUS       D	VOLTS: 120/208V	TYPE	=:						FLUSH 🛛	
WIRE:       4W       DEMAND LOAD (AMPS):       44.23 70% (16KW)       SPRINKLERPROOF       Image: Main sector of the secto	PHASE: 3Ø		N.LOAD	(	KW):	22.76			SURFACE	
MAINS:     100A     LOCATION:     MAKER SPACE K3175     MAIN BRKR     III       kA:     10kA     FED FROM:     RP-3D     IG BUS     III	WIRE: 4W	DEM	AND LO	AD(AN	1PS):	44.23	SPRINKLERPROOF			
kA: 10kA FED FROM: RP-3D IG BUS	MAINS: 100A	LOC	ATION:	MAK						
	kA: 10kA FED FROM: RP-3D									



ELECTRICAL LOAD ESTIMATE								
DESCRIPTION	CONNECTED LOAD (KW)	DEMAND FACTOR (%)	DEMAND LOAD (KW)					
NEW WORKSHOP & PC LOAD	22.76	75%	17.01					
NEW MECHANICAL - FANS	0.1	100%	0.1					
TOTAL	22.86	1	17.11					
VOLTAGE: 208V								
DEMAND (AMPS). 41.43								

PANEL RP-3D1 MAINS SIZE: 100A

#### LEGEND

\_\_\_\_\_

NEW TO BE PROVIDED ----- EXISTING TO REMAIN 
 X
 X
 EXISTING TO BE REMOVED

NOTES:

1. CONTRACTOR TO ENSURE ALL EXISTING ELECTRICAL EQUIPMENT IS IN GOOD OPERATING CONDITION. 2. RESERVED.

— MERSEN STXP-100kA FLUSH MOUNTED ON THE WALL

	Æ	PROJECT TRUE NORTH NORTH	1
NO	٦	REVISIONS	DATE
3	ISSUED FOR	TENDER PERMIT	04/12/2024
1 NO	ISSUED FOR	CLIENT REVIEW	03/26/2024 DATE
DF CF OI DI	RAWINGS ARE NO HECK AND VERIF N THE PROJECT; SCREPANCIES T	OT TO BE SCALED. CONTR/ Y ALL DIMENSIONS AND CO AND MUST REPORT ANY O THE CONSULTANTS BEF J THE WORK THE USE OF	ACTOR MUST ONDITIONS ORE
DF DF TH	ROCEEDING WIT RAWING OR PAR HE WRITTEN APP	THE WORK. THE USE OF T THEREOF IS FORBIDDEN ROVAL OF THE CONSULTA	NTS WITHOUT NTS.
		MERSCHLAG & JO	FFE INC.
	43 Ca T:	B Lesmill Road, Toronto, G anada M3B 2T8 (416) 444.9263	Dntario
	E:	(416) 444.1463 dwg@hamjof.com	
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	SENECA ( 1750 F	COLLEGE, NEWNHAM CA FINCH AVE E., TORONTO	AMPUS )
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	31 PLYMBRIDGE EMAIL: DIAN	ECRESCENT, TORONTO, ON TEL: 416-414-7095 IA@ARTIFACTDEVELOPMEN	I M2P 1P4 IT.CA
SC	ALE N.T.S.		007
DA DR	TE MARCH 2024 AWN BY	Z4-U18-	
СН	IM/JZ ECKED BY J7	E2	2.0
PR	INT DATE		

#### **DEMOLITION KEY NOTES:**

	ANY EXISTING FIRE ALARM SPEAKERS TO REMAIN TO BE RELOCATED AS SHOWN ON NEW RCP PLAN. PROVIDE TEMPORARY SUPPORT DURING DEMOLITION AS REQUIRED.
2	EXISTING POWER CONNECTION TO HVAC INCLUDING ALL ASSOCIATED CONTROLS STARTERS ETC., SHALL REMAIN.
	ALL EXISTING ELECTRICAL PROVISIONS AND EQUIPMENT IN EXISTING OFFICE TO REMAIN.
$\langle 4 \rangle$	EXISTING ELECTRICAL SURFACE MOUNTED FLOOR BOX FOR POWER AND DATA TO THE PARTITIONS TO BE REMOVED. MAINTAIN PORTION OF THE CONDUIT AND CIRCULATING FOR NEW FLOOR BOX. REFER TO NEW POWER LAYOUT FOR DETAILS.
5	EXISTING AV BUTTONS PANEL TO BE RELOCATED. TO BE RE-PROGRAMMED BY THE AV CONTRACTOR. CONFIRM NEW LOCATION WITH AV PLANS.
6	ALLOW TO DISCONNECT POWER CONNECTION TO EXISTING MECHANICAL VAV UNIT THAT IS BEING REPLACED WITH NEW. RE-CONNECT NEW UNIT TO EXISTING CIRCUIT CONFIRM POWER REQUIREMENTS AND CIRCUIT WITH NEW EQUIPMENT BEFORE MAKING THE FINAL CONNECTION.
$\langle 7 \rangle$	RE & RE POWER CONNECTION FOR EXISTING AV EQUIPMENT MOUNTED IN CEILING.

CIRCUIT NUMBERS SHOWN FOR GROUPING PURPOSE ONLY. CONFIRM EXACT CIRCUITS ON SITE.

#### DEMOLITION GENERAL NOTES:

- 1. THE INTENT OF THIS CONTRACT IS TO REMOVE PORTIONS OF THE EXISTING INSTALLATION AS CONTEMPLATED WITH THIS PROJECT, TO RE-WORK AND RE-ROUTE EXISTING SERVICES AND TO PROVIDE NEW LUMINAIRES, DEVICES AND SERVICES AS REQUIRED.
- CONTRACTOR SHALL CONFIRM AND REVIEW ALL CONSULTANTS AND ARCHITECT DOCUMENTS FOR THE EXTENT OF WORK. COORDINATE WITH CONSTRUCTION MANAGER REGARDING THE PHASING OF WORK AND EXITING ROUTE DURING CONSTRUCTION.
- UNLESS OTHERWISE NOTED, DISCONNECT REMOVE AND DISPOSE OF ELECTRICAL LUMINAIRES, DEVICES, HANGERS, SUPPORTS, WIRING WITHIN DEMOLITION AREA, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
- a. LUMINAIRES, BRANCH WIRING AND CONDUIT, SWITCHERS, DIMMERS, ETC.
- b. MECHANICAL EQUIPMENT DISCONNECT SWITCHES, WIREMOLD, WIRING, CONDUIT, ETC. REMOVE WIRING TO PANEL BOARDS.
- c. SIGNAL WIRING, CONDUIT, COMMUNICATION DEVICES, TV OUTLETS, CABLE TRAY, ETC. REMOVE ALL REDUNDANT TELECOMMUNICATION WIRING BACK TO THE ENTRY POINTS
- d. WHERE LUMINAIRES, DEVICES AND SERVICES CONNECTED TO SOURCES OUTSIDE DEMOLITION AREA, PULL ALL FEEDERS AND ASSOCIATED FITTINGS BACK TO SOURCE, OR LAST LUMINAIRE AND/OR DEVICE TO REMAIN, AND REMOVE.
- REMOVE ANY AND ALL PCB BALLASTS FROM LUMINAIRES. PLACE IN STORAGE DRUMS AND REMOVE AND DISPOSE OF OFF-SITE. ALL WORK TO BE DONE IN ACCORDANCE WITH MINISTRY OF ENVIRONMENT RULES AND REGULATIONS.
- ALLOW TO SURVEY ALL CONDUITS AND FEEDERS IN WALLS AND ABOVE CEILINGS BEING REMOVED. IDENTIFY ALL ITEMS THAT ARE REQUIRED TO REMAIN, AS THEY SERVICE EXISTING AND REMAINING CIRCUIT LOADS AND OUTLETS. ALLOW TO RELOCATE, REROUTE AND PROVIDE SUPPORTS AS REQUIRED FOR DEMOLITION.
- 5. DO NOT REUSE EXISTING EMERGENCY EXIT SIGNS, DC HEADS OR BATTERY UNITS REMOVED AS PART OF THIS SCOPE OF WORK.
- 6. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL, STRUCTURAL AND MECHANICAL DEMOLITION DRAWINGS.
- 7. EXISTING ELECTRICAL INSTALLATION THAT IS REQUIRED TO STAY SHALL BE RE-SUPPORTED FROM JOIST. INCLUDE TO REWORK CONDUITS PASSING THROUGH THE SPACE FOR ELECTRICAL, TELEPHONE, I.T. RE-SUPPORT ALL COMMUNICATION, POWER CONDUITS PASSING THROUGH ETC. SYSTEMS THAT ARE NOT SPECIFIC FOR THIS SPACE.
- 8. ALL MATERIALS AND/OR EQUIPMENT DESIGNATED FOR SALVAGE SHALL BE TURNED OVER TO THE OWNER. ALL OTHER MATERIALS AND/OR EQUIPMENT FOR REMOVAL BECOMES THE PROPERTY OF THE ELECTRICAL CONTRACTOR AND SHALL PROMPTLY BE REMOVED FROM THE SITE.
- 9. CONTACT THE OWNER PRIOR TO ANY DEMOLITION WORK. THE OWNER WILL DESIGNATE WHICH EQUIPMENT AND/OR MATERIAL TO BE SALVAGED. DEMOLITION WORK IS TO PROCEED ONLY AFTER OWNER'S APPROVAL IS OBTAINED.
- 10. FOR EXACT LOCATION AND QUANTITY OF EXISTING MECHANICAL EQUIPMENT WHICH SHALL BE REMOVED, COORDINATE WITH MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR.
- 11. ENSURE DEVICES THAT ARE LOCATED BEYOND THE AREA OF THE NOTED DEMOLITION SCOPE ARE NOT AFFECTED WITH THE REMOVAL OF THE POWER CONNECTIONS IN THE AREA OF DEMOLITION. REWIRE AS NEED POWER TO DEVICES BEYOND THE NOTED AREA OF DEMOLITION TO ENSURE POWER SUPPLY IS MAINTAINED THROUGHOUT THE FACILITY.
- 12. ALL ELECTRICAL WIRING IS TO BE REMOVED BACK TO SOURCE, INCLUDING SERVICES AND SERVICE CONDUITS. INTERIOR WIRING INSIDE THE TENANT SPACE SHOULD BE MADE SAFE, DISCONNECTED AND REMOVED.
- 13. ALL EXISTING EQUIPMENT BEING REMOVED SHALL BE FIRST OFFERED TO THE OWNER. ANY EQUIPMENT NOT REQUIRED BY THE OWNER SHALL BE DISPOSED OF OFF-SITE BY THE ELECTRICAL CONTRACTOR AT NO ADDITIONAL COST.
- 14. COORDINATE WITH OWNER REPRESENTATIVE TO RELOCATE EQUIPMENT REQUIRED TO REMAIN FOR STORE OPERATION PRIOR TO DEMOLITION, RELOCATE AND EXTEND POWER/ COMMUNICATION/ CONTROL WIRING TO SUIT OWNER REQUIREMENTS
- 15. ANY CONCRETE FOUNDATIONS OR OTHER SUPPORTS FOR ELECTRICAL EQUIPMENT SHALL BE REMOVED TO BELOW 600mm FROM FINISHED FLOOR.
- 16. EXISTING FIRE ALARM SPEAKERS TO REMAIN, AND TO BE RE-USED/RE-LOCATED.
- 17. ALL WORK TO BE DONE IN ACCORDANCE WITH HYDRO REGULATION, MINISTRY OF LABOUR, AND AHJ.



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ALL EXISTING ELECTRICAL-

EQUIPMENT AND POWER

CONNECTIONS INCLUDING BUT

OPERATOR PUSH BUTTONS ETC,

NOT LIMITED TO AUTODOOR

AT THIS DOOR TO REMAIN.

CIRCUITS TO REMAIN.

			ELECTRICAL EQUIP	MEI	NT S	SCH	EDl	JLE		
									ELECTRICAL DATA	
EQ.#	EQUIPMENT	QTY	DESCRIPTION	HP	VOLT	AMP	KW	OUTLET TYPE	NOTES	6
	MAKER AREA									
1	DRILL PRESS	1	KING CANADA 83705 NOVA VIKING DVR 16" DRILL PRESS	1	120	15.0	1.8	5-15R	C/W EMERGENCY STOP	SPE
2	REWORK STATION	1	WELLER WR3000 REWORK STATIONS		120	3.3	0.4	5-15R	C/W LOCAL SWITCH ON THE UNIT	PC
3	AIR SCRUBBER FOR SOLDERING IRON	1	FA-430 WITH DUCT & ROUND NOZZLE (USD TO CAD)		120	0.9	0.11	5-15R	C/W LOCAL SWITCH ON THE UNIT	
4	3D PRINTER	1	ULTIMAKER S7		120	4.2	0.5	5-15R	C/W LOCAL SWITCH ON THE UNIT	PC
5	SHOP VAC	1	RIDGID NXT 45L (12 GAL.) 5.0 PEAK HP	5	120	9.0	1.08	5-15R	C/W LOCAL SWITCH ON THE UNIT	PC
6	DIGITAL MULTI-METER	2	34461A DIGITAL MULTI-METER		120	0.2	0.025	5-15R	C/W LOCAL SWITCH ON THE UNIT	PC
7	DIGITAL STORAGE OSCILLOSCOPE	1	MSOX2004A MIXED SIGNAL OSCILLOSCOPE: 70 MHZ, 4 ANALOG PLUS 8 DIGITAL CHANNELS		120	0.8	0.1	5-15R	C/W LOCAL SWITCH ON THE UNIT	PC
8	DC VARIABLE POWER SUPPLY	1	KEYSIGHT E36234A BENCH POWER SUPPLY		120	6.7	0.8	5-15R	C/W LOCAL SWITCH ON THE UNIT	PC
9	WAVEFORM GENERATOR	1	KEYSIGHT 33521B WAVEFORM GENERATOR, 30 MHZ, 1-CHANNEL WITH ARB		120	1.3	0.15	5-15R	C/W LOCAL SWITCH ON THE UNIT	PC
	HARDWARE TOOLS	1	PILERS, WIRE CUTTERS, SCREW DRIVERS, HAND SAWS, POWER TOOLS							
	STARTUP SUPPLIES (10%)		DRILL BIT, FILAMENT							
	CAPSTONE ROOM (EACH)									
10	DIGITAL MULTI-METER	2	34461A DIGITAL MULTI-METER		120	0.2	0.025	5-15R	C/W LOCAL SWITCH ON THE UNIT	PC
11	DIGITAL STORAGE OSCILLOSCOPE	1	NSOX2004A MIXED SIGNAL OSCILLOSCOPE: 70 MHZ, 4 ANALOG PLUS 8 DIGITAL CHANNELS		120	0.8	0.1	5-15R	C/W LOCAL SWITCH ON THE UNIT	PC
12	DC VARIABLE POWER SUPPLY	1	KEYSIGHT E36234A BENCH POWER SUPPLY		120	6.7	0.8	5-15R	C/W LOCAL SWITCH ON THE UNIT	PC
13	WAVEFORM GENERATOR	1	KEYSIGHT 33521B WAVEFORM GENERATOR, 30 MHZ, 1-CHANNEL WITH ARB		120	1.3	0.15	5-15R	C/W LOCAL SWITCH ON THE UNIT	PC
14	SOLDERING IRON	1	WELLER WE1010NA SOLDERING STATION		120	0.6	0.07	5-15R	C/W LOCAL SWITCH ON THE UNIT	
15	3D PRINTER	1	ULTIMAKER 3 EXTENDED 3D		120	4.2	0.5	5-15R	C/W LOCAL SWITCH ON THE UNIT	PC
16	AIR SCRUBBER FOR SOLDERING IRON	1	FA-430 WITH DUCT & ROUND NOZZLE (USD TO CAD)		120	0.9	0.11	5-15R	C/W LOCAL SWITCH ON THE UNIT	
	MONITOR (MOUNTED ON TABLE)	1			120	2.1	0.25	5-15R	ASSUMED POWER	
	WI-FI ROUTER OR SWITCH	1			120	0.4	0.05	5-15R	ASSUMED POWER	
	TV (MOUNTED ON WALL)	1			120	2.0	0.24	5-15R	ASSUMED POWER	
	POWER + MONITORING	1			120	2.0	0.24	5-15R	ASSUMED POWER	

ALL PENETRATIONS THRU SLAB, CORE DRILLING AND CUTTING IN BUILDING CONCRETE STRUCTURE MUST BE REVIEWED AND APPROVED BY OWNER AND BASE BUILDING STRUCTURAL ENGINEER.

X-RAY SCAN REQUIRED FOR ANY DRILLING AND/OR CUTTING OF CONCRETE STRUCTURE. SUBMIT X-RAY RESULTS TO OWNER AND BASE BUILDING STRUCTURAL ENGINEER FOR THEIR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF WORK. X-RAY SCANNING TO BE COMPLETED AFTER HOURS WITH NO OCCUPANTS IN THE AREA

CIRCUIT NUMBERS SHOWN FOR GROUPING PURPOSE ONLY. CONFIRM EXACT CIRCUITS ON SITE.

ELECTRICAL CONTRACTOR TO REFER TO AV DRAWINGS TO CONFIRM ALL AV BACK BOXES / MUDRING SIZES, AV BOXES MOUNTING HEIGHTS AND POWER OUTLETS TYPES FOR AV EQUIPMENT PRIOR TO ROUGH IN.

NUMBER OF DATA DROPS SHOWN FOR REFERENCE ONLY. THIS ELECTRICAL CONTRACTOR TO PROVIDE BACK BOX AND CONDUIT C/W PULL STRING. THE SUPPLY AND INSTALL DATA CABLING AND BY SENECA IT CONTRACTOR.

KEY NOTES:							
	REFER TO LATEST AV DRAWINGS FOR EXACT SIZE OF BACKBOX / MUDRING AND CONDUITS REQUIREMENTS IN BETWEEN THE AV DEVICES.						
2	REFER TO ARCHITECTURAL/DESIGNER AND AV DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHT OF ALL POWER, DATA AND AV OUTLETS.						
3	ALLOW TO ADJUST WIREMOLD OUTLETS 6 FEET TO CLIENT FINAL LAYOUT. WIRING LAYOUT ON ENGINEERING DRAWINGS IS SHOWN FOR CIRCUITING SCHEDULE. FINAL LOCATION TO BE ADJUSTED BASED ON EQUIPMENT LAYOUT ON SITE.						
4	PROVIDE LAMACOID LABEL FOR EACH OUTLET INDICATING EQUIPMENT NAME AND CIRCUIT NUMBER						





EMERGENCY EXIT SIGNS SCHEDULE (BY THIS ELECTRICAL CONTRACTOR)								
EMERGENCY EXIT SIGNS X1	X1 ₩ X↓ IXI	CEILING RECESSED OR WALL MOUNTED, EDGE-LIT, GREEN PICTOGRAM "RUNNING MAN" EXIT SIGN, EXTRUDED ALUMINIUM CONSTRUCTION SINGLE OR DOUBLE FACE WITH DIRECTIONAL INDICATORS AS SHOWN. FULLY RECESSED. SUITABLE FOR CONNECTION TO 120VAC POWER SUPPLY, SELF POWERED.	3W LED	LUMACELL CAT#. LDE SERIES OR APPROVED EQUAL				
EMERGENCY EXIT SIGNS X2	₩ ₩ X↓  X	CEILING RECESSED OR WALL MOUNTED, GREEN PICTOGRAM "RUNNING MAN" EXIT SIGN, EXTRUDED ALUMINIUM CONSTRUCTION SINGLE OR DOUBLE FACE WITH DIRECTIONAL INDICATORS AS SHOWN. SUITABLE FOR CONNECTION TO 120VAC POWER SUPPLY, SELF POWERED.	3W LED	LUMACELL CAT#. LA SERIES OR APPROVED EQUAL				
NOTES:								

MINIMUM ILLUMINATION ALONG MEANS OF EGRESS PATH SHALL BE 10 LUX AT THE WALKING SURFACE. 1 EXIT SIGNS SHALL BE ILLUMINATED AT ALL TIME AND EQUIPPED WITH MIN. 30 MINUTES BATTERY BACKUP POWER. 2. 3. EXIT SIGNS SHALL BE CENTRED OVER EXIT DOORS.

# **KEY NOTES**: 1 PROVIDE FIRE ALARM MUSIC SHUT DOWN RELAY AND INTERFACE TO THE

- TENANT AUDIO SYSTEM TO TURN OFF MUSIC SYSTEM UPON FIRE ALARM SYSTEM ACTIVATION.
- 2 LIGHT FIXTURE SUSPENDED FROM CEILING. CONFIRM EXACT MOUNTING HEIGHT WITH DESIGNER AND/OR ARCHITECT'S PLANS AND ELEVATIONS.
- SECURITY CAMERAS SUPPLIED AND INSTALLED BY SENECA SECURITY 3 SECURITY CAMERAS SUPPLIED AND INSTALLED BY SENECA SECURITY VENDOR. THIS ELECTRICAL CONTRACTOR SHALL PROVIDE 1"C CONDUIT COMPLETE WITH PULL STRING FROM EACH CAMERA HOME RUN TO THE SECURITY SYSTEM IN I.T. ROOM K3153. CONFIRM CABLE TYPE WITH SECURITY CONTRACTOR PRIOR TO INSTALLING. RUN IN CONDUIT TO NEAREST CABLE TRAY FOR HOME RUN TO I.T. CABINET IN I.T. ROOM K3153. ALLOW FOR 10 FEET SLACK FOR FUTURE CONNECTION TO IT RACK BY SECURITY CONTRACTOR. RJ DATA JACKS SUPPLY AND INSTALL BY THIS ELECTRICAL CONTRACTOR.
- (4) WAP DEVICE INCLUDING DATA WIRING SUPPLIED AND INSTALLED BY SENECA I.T. CONTRACTOR. PROVIDE BACKBOX AND 3/4" CONDUIT C/W PULL STRING TO IT RACK.
- $\left< 5 \right>$  CONFIRM EXACT LOCATION WITH AV CONTRACTOR PRIOR TO ROUGH-IN.
- 6 REPROGRAM THE LIGHT SWITCHES TO MATCH NEW AREA LIGHTING AND SENECA LIGHTING CONTROL SEQUENCE OF OPERATION. PROVIDE FINAL LIGHTING CONTROL SEQUENCE OF OPERATION AND LIGHTING CONTROL COMMISSIONING RECORD TO CONFIRM LIGHTING OPERATING TO THE INTENDED SEQUENCE OF OPERATION. INCLUDE FOR NEW DATA WIRING FROM SWITCH TO THE LIGHT FIXTURES AS REQUIRED. INCLUDE TO HIRE ENCEILIUM TO REPROGRAM ALL THE LIGHT FIXTURES.

CIRCUIT NUMBERS SHOWN FOR GROUPING PURPOSE ONLY. CONFIRM EXACT CIRCUITS ON SITE.

NUMBER OF DATA DROPS SHOWN FOR REFERENCE ONLY. THIS ELECTRICAL CONTRACTOR TO PROVIDE BACK BOX AND CONDUIT C/W PULL STRING. THE SUPPLY AND INSTALL DATA CABLING AND BY SENECA IT CONTRACTOR.



PRINT DATE



