.1 PROVIDE A COMPLETE AND OPERABLE ELECTRICAL SYSTEM. PROVIDE ALL EQUIPMENT, WIRING, DEVICES, ETC., NECESSARY TO ENABLE THE ELECTRICAL SYSTEM TO OPERATE IN THE INTENDED MANNER.

2 SITE VISIT

.1 E.C. SHALL VISIT THE SITE TO REVIEW EXISTING CONDITIONS AND AMOUNT OF CONDUITS BEFORE SUBMITTING A BID. ALLOW FOR ALL EXTENSIONS AND/OR MODIFICATIONS TO SUIT THE PROPOSED LAYOUTS.

.2 EXISTING DEVICES AND INSTALLATION SHOWN ON DEMOLITION PLAN IS APPROXIMATE ONLY. E.C. TO VERIFY EXACT AMOUNT ON SITE AND MAKE ALLOWANCE IN THE TENDER FOR ANY MARIATIONS.

3 MATERIAL REUSE & SALVAGE

.1 ALL WIRING DEVICES INDICATED ARE TO BE NEW AND/OR RELOCATED EXISTING IN ACCORDANCE WITH SPECIFIED ITEMS.

.2 EXISTING WIRING MAY BE RE-USED WHERE PRACTICAL AND NOT INDICATED ON THE DRAWINGS TO BE NEW.

.3 COMPLETELY REMOVE ELECTRICAL WIRING AND DEVICES WHERE WALLS ETC. ARE

INDICATED TO BE REMOVED ON ARCHITECTURAL DRAWINGS.

.4 REMOVE AND DISPOSE OF ALL REDUNDANT WIRING AND EQUIPMENT.

.5 MAKE GOOD EXISTING FINISHES (WALLS, CARPET, ETC).

- .6 REMOVE ALL UNUSED MATERIAL.
- .6 REMOVE ALL UNUSED
- 4 EXISTING SERVICES

.1 PROTECT ALL EXISTING SERVICES ENCOUNTERED. REMOVE, REROUTE, EXTEND AS REQUIRED TO ACCOMMODATE THE INTENDED SCOPE.

5 CODES AND STANDARDS

.1 MINIMUM STANDARDS TO BE IN ACCORDANCE WITH CSA C22.1-2018 (ELECTRICAL CODE).

.2 COMPLY WITH CSA ELECTRICAL BULLETINS AND LOCAL BY-LAWS.

.3 VANCOUVER BUILDING BY-LAW 2014.

- .4 ASHRAE 90.1-2016
- .5 BC ELECTRICAL SAFETY CODE
- .6 ELECTRICAL INSPECTION AUTHORITY HAVING JURISDICTION
- .7 SPECIAL REGULATIONS BY SERVICE PROVIDERS AS APPLICABLE

6 PERMITS AND FEES

.1 SUBMIT TO THE ELECTRICAL INSPECTION DEPARTMENT AND ELECTRICAL SUPPLY AUTHORITY NECESSARY NUMBER OF DRAWINGS AND SPECIFICATIONS FOR EXAMINATION AND APPROVAL PRIOR TO COMMENCEMENT OF WORK.

.2 PAY ASSOCIATED FEES.

7 INSPECTION

.1 FURNISH A CERTIFICATE OF ACCEPTANCE FROM THE LOCAL ELECTRICAL INSPECTION DEPARTMENT ON COMPLETION OF WORK.

.2 THE ELECTRICAL CONTRACTOR SHALL ATTEND FIELD REVIEW INSPECTIONS IF REQUIRES BY THE CONSULTANT

8 ALTERNATIVE MATERIAL

.1 WHERE PARTICULAR MANUFACTURERS ARE SPECIFIED OBTAIN APPROVAL FROM THE CONSULTANT BEFORE BASING THE BID ON ALTERNATIVE MATERIAL.

9 EQUIPMENT AND MATERIALS

.1 EQUIPMENT AND MATERIAL TO BE CSA CERTIFIED AND MANUFACTURED TO STANDARD SPECIFIED.

10 SCHEDULE

.1 CO-ORDINATE SCHEDULED AND POSSIBLE POWER SHUT DOWN WITH BUILDING

MANAGER/LANDLORD.

.2 ALLOW FOR OVERTIME AS REQUIRED.

.3 EC TO COORDINATE PHASING WITH LANDLORD.

11 EQUIPMENT IDENTIFICATION

.1 PROVIDE PLASTIC COVERED PANEL DIRECTORIES FOR NEW PANELBOARDS WITH CIRCUITS AND AREAS SERVED TYPED IN, AND MOUNT ON INSIDE OF DOOR.

.2 ANY CHANGES TO ELECTRICAL PANEL SCHEDULES/DIRECTORIES MUST BE NEW RETYPED,

HAND WRITTEN OR STICKERS WILL NOT BE ACCEPTED. 12 WORKMANSHIP

.1 WORKMANSHIP SHALL BE IN ACCORDANCE WITH WELL ESTABLISHED PRACTICE AND STANDARDS ACCEPTED AND RECOGNIZED BY CONSULTANTS AND THE TRADE.

.2 THE CONSULTANT SHALL HAVE THE RIGHT TO REJECT ANY ITEM OF WORK THAT DOES NOT CONFORM TO ACCEPTED STANDARDS OF PERFORMANCE, QUIETNESS OF OPERATION, FINISH AND APPEARANCE.

13 SUB CIRCUIT WIRING

.1 SUBCIRCUIT WIRING TO BE COPPER CONDUCTOR MINIMUM SIZE #12 AWG, ENCLOSED IN EMT. BX WIRING MAY BE USED IN CONCEALED LOCATIONS WHERE METALLIC CONDUIT IS NOT

.2 VOLTAGE DROP HAS NOT BEEN TAKEN INTO CONSIDERATION FOR CONDUCTOR SIZING. ELECTRICAL CONTRACTOR TO RE—SIZE CONDUCTOR IF VOLTAGE DROP EXCEEDS

14 CONDUITS, BOXES & FITTINGS

.1 UNLESS OTHERWISE SPECIFIED ALL CONDUIT SHALL BE EMT. CONDUIT AND BACK BOXES TO BE IN BASE PRICE.

.2 UNLESS OTHERWISE SPECIFIED ON DRAWINGS, ALL OUTLETS SHALL BE FLUSH.
RECEPTACLES, AND SWITCH BOXES SHALL BE #1110 (SURFACE) OR #52151 WITH 52C COVERS
(FLUSH). WHERE REQUIRED, PROVIDE COMPLETE WITH PLASTER RINGS FOR WALLS FINISHED
IN PLASTER OR PLASTER CEMENT. USE MASONRY TYPE MDB1 BOXES FOR POURED
CONCRETE, BLOCK OR BRICK WALLS WITH NO PLASTER FINISH. SECTIONAL BOXES SHALL NOT
BE LISED.

.3 E.M.T. COUPLINGS AND CONNECTORS SHALL BE STEEL. CAST TYPE COUPLINGS AND CONNECTORS (ZINC, IRON OR ANY ALLOYS) SHALL NOT BE USED ON THIS INSTALLATION. PROVIDE PLASTIC BUSHINGS FOR ALL CONNECTORS. PROVIDE RAIN TIGHT CONNECTORS AT SURFACE EQUIPMENT (E.G. PANEL BOARDS) IN ROOMS WHICH ARE SPRINKLER FIRE PROTECTED.

15 CONDUIT INSTALLATIONS

.1 INSTALL CONDUITS TO CONSERVE HEADROOM IN EXPOSED LOCATIONS AND CAUSE MINIMUM INTERFERENCE IN SPACES THROUGH WHICH THEY PASS. CONDUITS TO GENERALLY BE INSTALLED PARALLEL OR AT RIGHT ANGLES TO THE BUILDING LINES. CONCEAL CONDUITS WHEREVER PRACTICAL.

.2 USE LIQUID—TIGHT FLEXIBLE METAL CONDUIT FOR ALL CONNECTIONS TO MOTORS AND EQUIPMENT.

.3 PULL BOXES SHALL BE INSTALLED IN THE LOCATIONS SHOWN ON THE DRAWINGS AND AS REQUIRED BY THE CANADIAN ELECTRICAL CODE. BOXES SHALL BE GALVANIZED LOCATED IN INCONSPICUOUS ACCESSIBLE SPACES.

.4 CONDUIT SHALL BE STRAIGHT, SMOOTH, FREE FROM RAGS AND BURRS, ETC., AND

WHERE EXPOSED INSTALLED TO RUN ON THE SQUARE AND AT RIGHT ANGLES TO OR PARALLEL TO THE BUILDING LINES, ACCURATE IN LINE AND LEVEL. FIELD-CUT CONDUITS SHALL HAVE ENDS REAMED TO REMOVE CUTTING RIDGE.

.5 RUNS OF CONDUIT AND CABLES, WHERE SHOWN, ARE SCHEMATIC ONLY. EXACT LAYOUT SHALL BE DETERMINED ON SITE BY CO-ORDINATION WITH OTHER TRADES TO MINIMIZE

.6 CONDUITS SHALL BE SUPPORTED AT REGULAR INTERVALS WITH CORROSION—RESISTING

.7 DO NOT LOCATE CONDUITS LESS THAN 75 MM PARALLEL TO STEAM OR HOT WATER LINES WITH A MINIMUM OF 25 MM AT CROSSOVERS.

.8 ALL HORIZONTAL RUNS TO BE IN CONDUIT; B/X CABLES ARE ONLY APPROVED FOR VERTICAL DROP RUNS FOR LIGHTING LUMINARIES, MAXIMUM LENGTH 6'-0". TWO 90' BEND ALLOWED MAXIMUM IN ANY CONDUIT RUN. PROVIDE PULL BOXES ACCORDINGLY.

16 FIREPROOFING.1 WHERE CABLES OR CONDUITS PASS THROUGH FLOORS AND FIRE RATED WALLS, PACK

.9 ALL HORIZONTAL/VERTICAL RUNS TO BE BONDED TO COMPLY TO CEC AND CSA-C22.1.

17 LIGHT FIXTURES

CONFORMING TO CGSB 19-GP-9MA.

.1 PROVIDE ALL SUPPORT AND MISCELLANEOUS HARDWARE.

.2 CLEAN LENSES AND REUSE FIXTURES AS INDICATED. TYPICAL.

.3 ALL NEW AND RELOCATED EXISTING LIGHTING FIXTURES SHALL BE SEISMICALLY RESTRAINED.

SPACE BETWEEN WIRING AND SLEEVE FULL AND SEAL WITH CAULKING COMPOUND

.4 WIRE NEW EXIT LIGHT ON A SEPARATE BRANCH CIRCUIT. TYPICAL

.5 EMERGENCY LIGHT SHALL CONFORM TO CSA C22.2 NO. 141-10 AND CSA 860-141

.6 ALL SWITCHED EM LIGHTING TO BE C/W OVERRIDE RELAYS.

.7 ALL LIGHT FIXTURES TO HAVE RAPID START ELECTRONIC BALLASTS WHERE OCCUPANCY/VACANCY SENSOR CONTROL IS REQUIRED.

.8 EC TO SUPPLY AND INSTALL RECESSED LIGHTING LUMINARY TYPES THAT ARE APPROVED FOR A FIRE RATED CEILING APPLICATION; REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS—TYPICAL.

18 FIRE ALARM

.1 MAINTAIN SUPERVISED WIRING SYSTEM.

.2 RE-CERTIFY/VERIFY FIRE ALARM SYSTEM BY APPROVED TESTING AGENCY.

.3 SUBMIT VERIFICATION CERTIFICATE.

.4 INTERFACE BUILDING FA SYSTEM WITH SECURITY SYSTEM.

.5 ALL WIRING SHALL BE IN COMPLIANCE TO CEC SECTION 32-WIRING METHODS

19 POWER/PANELS

.1 CONDUCTORS TO BE COPPER RW90 XLPE, MINIMUM #12. CABLE SHALL BE SIZED AT 75°C

.2 ALL OUTLETS FEEDING COMPUTERS PROVIDE SEPARATE NEUTRAL FOR EACH CIRCUIT.

.3 MAKE GOOD EXISTING BREAKERS AND ADD PANEL TO ACCOMMODATE NEW CIRCUITS..4 ALL NEW PANELS TO BE COMPLETED WITH MAIN BREAKER AND TO COMPLY WITH CODE.

.5 MAKE GOOD EXISTING BREAKERS/PANEL TO ACCOMMODATE SCOPE.

.6 MAKE GOOD EXISTING CIRCUITS, BREAKERS/PANEL, CONDUIT AND WIRING TO ACCOMMODATE SCOPE. PANELS TO HAVE 20% SPARE CAPACITY, UPDATE EXISTING IF

.7 A 15A, 120V DUPLEX RECEPTACLE SHALL BE PROVIDED NEXT TO THE EMERGENCY
BATTERY PACK IF IT IS OPERATED AT 120V OR HARD WIRED CONNECTION IF IT IS OPERATED
AT 347V

20 RECORD DRAWINGS AND O&M MANUAL

.1 PROVIDE PROJECT RECORD DRAWINGS AND O&M MANUAL AS SPECIFIED IN DIVISION 1.

.2 DURING THE CONSTRUCTION PERIOD, KEEP ON SITE A CLEAN SET OF DRAWINGS MARKED UP TO REFLECT THE "AS-BUILT" STATE, FOR EXAMINATION BY THE CONSULTANT ON A REGULAR BASIS. INCLUDE ELEVATIONS AND DETAILED LOCATIONS OF BURIED AND HIDDEN SERVICES.

.3 AT THE END OF THE PROJECT OBTAIN THE SERVICES OF FLOW CONSULTING GROUP INC. TO TRANSFER ALL CHANGES TO AMEND THE CAD FILES IN AUTOCAD VERSION 2007 OR LATER VERSION. INCLUDE ALL REVISIONS AND CHANGE ORDERS.

21 SEISMIC PROTECTION

.1 ALL ELECTRICAL FIXTURES / EQUIPMENT IN OFFICE AREAS AND CEILING SPACES e.g. LIGHTS, CONDUITS, EXIT SIGNS, etc. ARE TO BE SUPPORTED AND BRACED WITH STRUTS OR WIRES AS REQUIRED TO RESIST SEISMIC FORCES AND AVOID INJURY TO OCCUPANTS. WHERE ACRYLIC, OR SIMILAR, LENSES ARE LOOSE LAID IN FLUORESCENT LIGHT FIXTURES, PROVIDE "QUAKESNAP" OR OTHER EQUAL AND APPROVED CLIPS TO PREVENT LENS BECOMING DISLODGED IN AN EARTHQUAKE. "QUAKESNAP" CLIPS ARE AVAILABLE FROM: QUAKESNAP DEVELOPMENT INC. 32 WEST 2ND AVENUE, VANCOUVER, B.C. V5Y 1B3, PHONE 874-2226.

.2 ALL FREE-STANDING ELECTRICAL AND TELEPHONE EQUIPMENT IN UTILITY ROOMS IS TO BE SUPPORTED, BRACED AND PROVIDED WITH SPRING MOUNTS AND PROVIDED WITH 'SNUBBERS' AS REQUIRED TO RESIST SEISMIC FORCES. DISTRIBUTION AND TELEPHONE BOARDS ARE TO BE FIRMLY SECURED TO WALLS.

.3 ALL ELECTRICAL EQUIPMENT REQUIRING SPRING MOUNTING FOR VIBRATION ISOLATION,

SHALL HAVE SPRING MOUNTS WITH INTEGRAL SEISMIC RESTRAINTS DESIGNED TO WITHSTAND SEISMIC FORCES IN ACCORDANCE WITH THE VANCOUVER BUILDING BYLAW.

4 ELECTRICAL CONTRACTOR TO INCLUDE IN THIS TENDER TO RETAIN SERVICES OF A

SEISMIC CONSULTANT TO APPROVE SEISMIC INSTALLATION.

.5 PROVIDE A SEISMIC CERTIFICATE FOR A LICENSED SEISMIC ENGINEER. PAY ALL

22 COMMUNICATION

.1 PROVIDE A COMPLETE SYSTEM AS SHOWN.

.2 PROVIDE CONDUIT IN DRYWALL CEILING AREA.

.3 REMOVE ALL UNUSED CABLES.

ASSOCIATED FEE AS REQUIRED.

23 DEMOLITION

.1 COORDINATE SALVAGE OF REMOVED ELECTRICAL EQUIPMENT WITH LANDLORD.

24 COORDINATION

.1 COORDINATE LIGHTING INSTALLATION LOCATIONS WITH MECHANICAL CONTRACTOR.

25 LOCATION

.1 E.C. TO VERIFY EXACT LOCATION WITH EQUIPMENT SUPPLIER AND ARCHITECT PRIOR TO ROUGH—IN.

26 WIRING DEVICES

.1 OUTLET TO BE LABELED WITH LABELING MACHINE. INDICATING CIRCUIT NUMBER.

.2 E.C. TO VERIFY COPIER OUTLET SIZES INCLUDING WIRES, BREAKERS WITH SUPPLIER PRIOR TO ROUGH—IN.

.3 ALL WIRING DEVICES TO BE SPECIFICATION GRADE DECORA AND COLOUR TO MATCH

EXISTING WITH POWER/TEL/DATA GANGED WHERE PRACTICAL.

.4 OUTLET HEIGHTS TO COMPLY WITH HANDICAP CODE WHERE REQUIRED BY THE BUILDING

.5 PROVIDE SEPARATE NEUTRAL CONDUCTOR FOR BRANCH CIRCUITS FEEDING COMPUTER RECEPTACLES. OTHERWISE, USE #10 AWG COMMON NEUTRAL CONDUCTOR FOR EACH

.6 OUTLETS TO BE OFFSET BY MINIMUM 12"; NO BACK TO BACK OUTLETS PERMITTED.

.7 NO OUTLETS PERMITTED ON EXTERIOR WALL.

27 EXISTING

COMPUTER RECEPTACLE.

CODE.

.1 E.C. TO ALTER THE EXISTING CIRCUITS, CONDUIT AND WIRING TO ACCOMMODATE THE TENANT SPACE. ALTER EXISTING CIRCUITS TO AVOID OVERLAP.

.2 E.C. TO VERIFY THE OUTLETS MARKED 'ETR' TO REMAIN ENERGIZED FROM PANEL.

.3 REMOVE ALL EXISTING DEVICES MARKED 'ETR' AND REINSTALL TO ACCOMMODATE WALL FINISHES.

.4 MAKE GOOD EXISTING ELECTRICAL DEVICES IN DRYWALL CEILING AREA. (TYPICAL).

.5 EC TO REPLACE ALL EXISTING WIRING DEVICES MARKED 'ETR' WITH NEW DECORA WHITE.

.6 VERIFY THAT GROUNDING OF EXISTING CABLE—TRAYS TO BE IN CONFORMANCE TO

28 CORE DRILLING

CURRENT CEC CODE REQUIREMENTS.

.1 ALLOW FOR X-RAY AND BASE BUILDING STRUCTURAL ENGINEER'S APPROVAL PRIOR TO ANY CORE DRILLING.

29 METERING

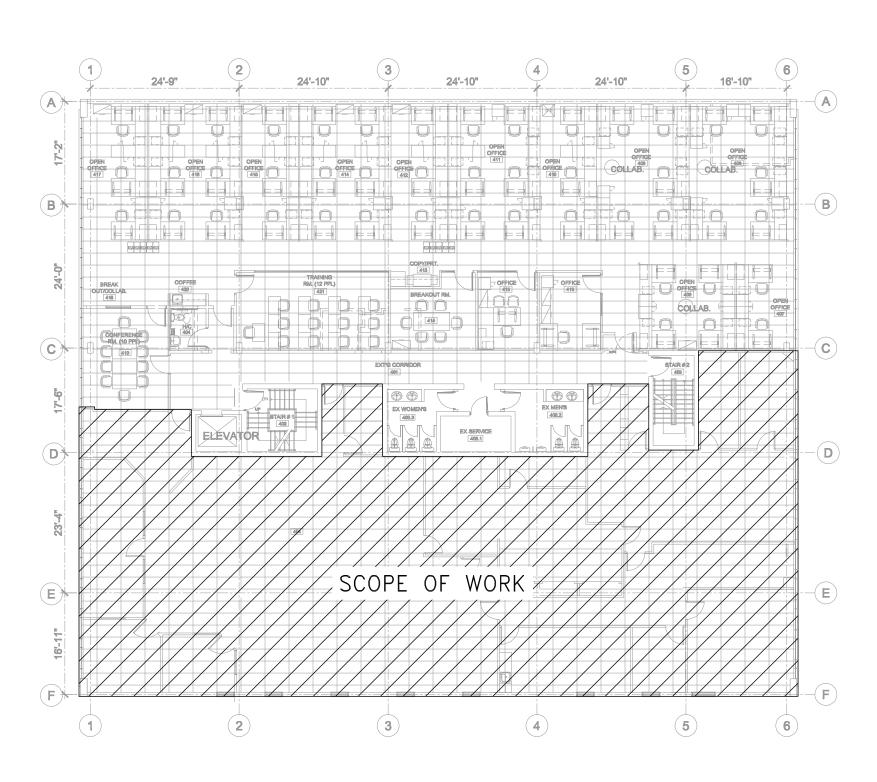
.1 ELECTRICAL CONTRACTOR TO COORDINATE ALL METERING APPLICATIONS AND INSTALLATION WITH UTILITY AND LANDLORD.

30 GENERAL .1 EXIT SIGN TYPE TO BE CONFIRMED WITH LOCAL INSPECTION AUTHORITY.

31 SECURITY

.1 CONDUIT, BACK BOXES IN BASE PRICE.

.2 ALLOW A CASH ALLOWANCE OF \$24,000 FOR CABLING, DEVICES, EQUIPMENT.



 $\mathbf{A} \setminus \mathsf{SITE} \mathsf{PLAN}$

E1 / SCALE: 1/16"=1'-0"

EXISITNG 8" CFL RECESSED POT LIGHT EXISTING WALL MOUNTED SURFACE CFL - 13W EXISTING 2'X2' 2-T8U6 RECESSED - 50W EXISTING 2'X4' 4-T8 RECESSED - 100W EXISTING 1'X4' 2-T8 SURFACE - 60W Fluxswerx Rails 1 x 4 36W 3500K 120V L•2 1963_PSS_BuzziShade 19W 3000K EUREKA LILY4040 21W 3500K 120V ____ Light Art Static Acoustic 144W 3500K 120V CREE Stylus—Linear 2' 22W 3500K 120V CREE Stylus—Linear 4' 41W 3500K 120V (0) Le6 Verner 4273-14 29W 3500K 120V L•7 \\ N/A CREE LS 40W 4000K 120V CEILING MOUNTED VACANCY SENSOR SMOKE DETECTOR SINGLE POLE SWITCH - (√)- M MASTER SWITCH LOW VOLTAGE SWITCH DUAL RELAY, DUAL TECH, VACANCY SENSOR SWITCH DIMMER SWITCH

DIMMER SWITCH

CEILING MOUNTED EXIT LIGHT - 5W SELF POWERED, RUNNING MAN MINIMUM 2hrs RATED

BATTERY PACK C/W HEADS AS INDICATED MINIMUM 2hrs RATED; 3W LED

CEILING OR WALL MOUNTED EMERGENCY REMOTE HEADS 3W LED

SINGLE RECEPTACLE

FURNITURE WHIP

1" FOR POWER, 1½" FOR COMMUNICATION.

TYPICAL TO FEED 4 WORKSTATIONS.

DUPLEX RECEPTACLE

DIRTT WALL MOUNTED DUPLEX RECEPTACLE

DAYLIGHT SENSOR (PHOTO CELL)

DIRTT WALL FURNITURE MOUNTED COMBINATION DATA/VOICE OUTLET

FOUR-PLEX RECEPTACLE

DUPLEX RECEPTACLE — MOUNTED ABOVE COUNTER

DATA OUTLET. # DENOTES NUMBER OF DATA PORTS.

FA PANEL

FA MANUAL PULL STATION

FIRE ALARM BELL

MOTOR

DISCONNECT SWI

DISCONNECT SWITCH
PANELBOARD

CARD READER SYSTEM — SEE DETAIL E/E2
ES ELECTRIC DOOR STRIKE

DC DOOR CONTACT

H

MOTION SENSOR

KP KEYPAD

TH COMMUNICATION CABLE HOOK, (CADDY) CAT 32 (CONCRETE MOUNT); 12" LONG 4" DIAMETER OPEN RING (1" OPENING).

KEEP AW/M MIN. 12" FROM ANY

MECHANICAL/PLUMBING/ELECTRICAL SERVICES. SPACING

4'-0"X4'-0" TYPICAL THROUGHOUT ACCESSIBLE DROPPED

■■■ WIREMOLD LEGRAND 4000 SERIES

REL EXISTING TO BE RELOCATED

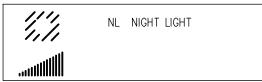
CEILING IN RENOVATED AREA.

ETR EXISTING TO REMAIN

RE EXISTING TO BE REMOVED

RL EXISTING RELOCATED

N NEW

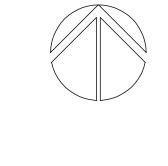


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v. 604 609 0500 f. 604 609 0588

Project:
CITY OF VANCOUVE
4TH FLOOR FLEX
WORK PROJECT



814 RICHARDS STREET

VANCOUVER, BC

Revisions

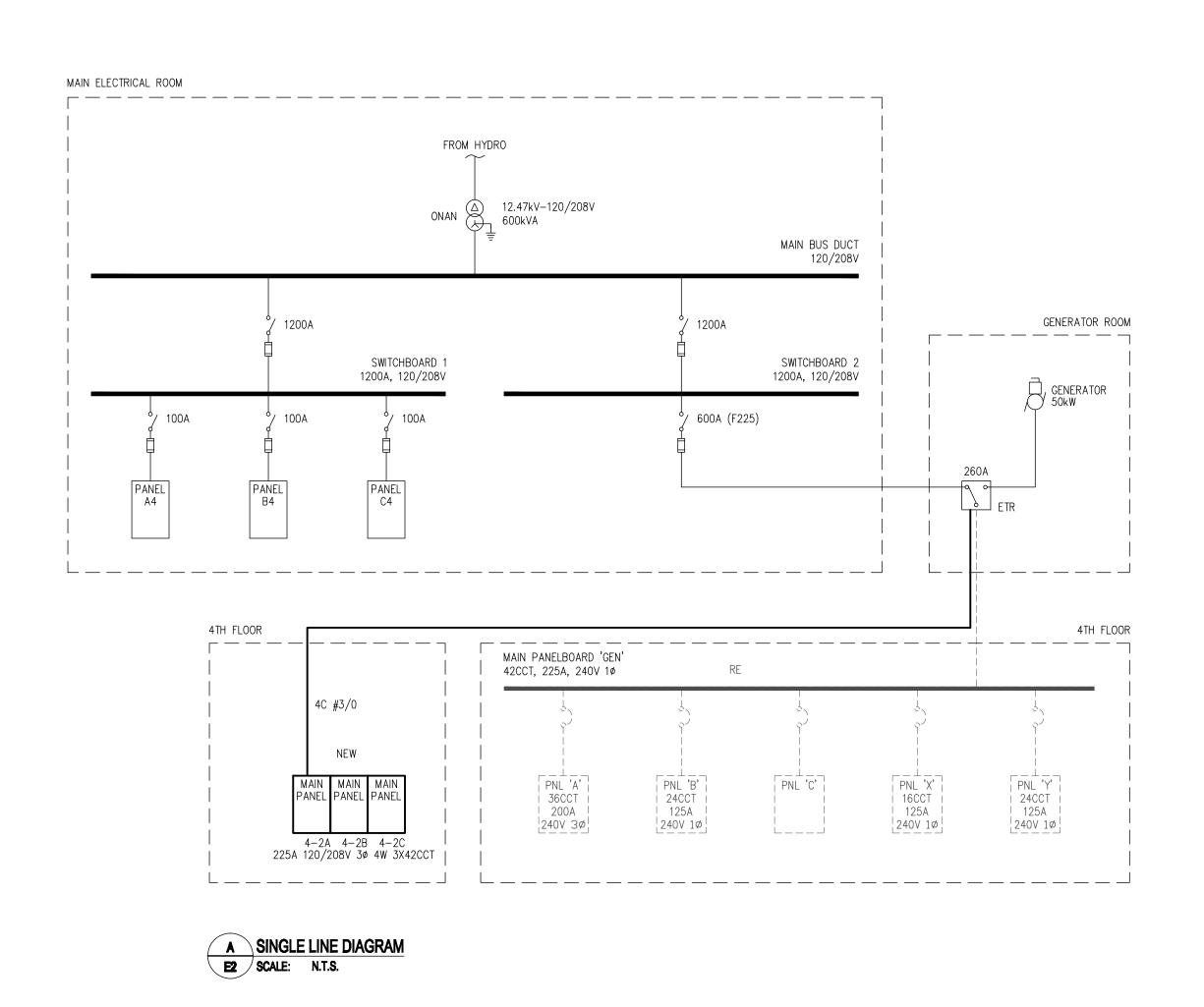
4 ISSUED FOR TENDER 19/09/30 3 ISSUED FOR BP 19/09/18 2 | ISSUED FOR BP REVIEW | 19/08/29 1 ISSUED FOR REVIEW 19/08/21 ISSUE DATE Sheet Info DATE: 19/07/08 PROJECT: 19-115 SCALE: AS NOTED DRAWN: CHECKED: APPROVED: OAB

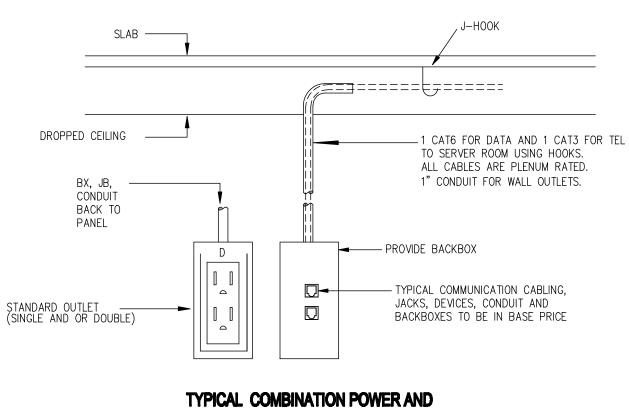
ELECTRICAL SPECIFICATION & LEGEND

Title

Sheet

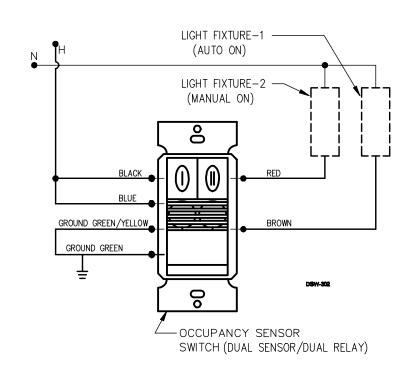
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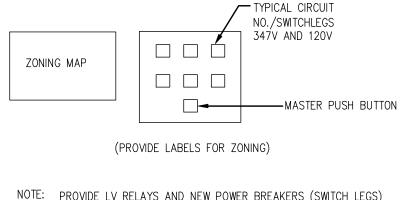


TYPICAL COMBINATION POWER AND COMMUNICATION WALL OUTLET (AT COLUMNS ONLY) E2 SCALE: N.T.S.

OCCUPANCY SENSOR SHOULD NOT TURN ALL LIGHTING ON, SHOULD TURN ON ONLY 50% OF LIGHTS CONTROLLED BY IT (ASHARE 90.1—2010 REQUIREMENT)

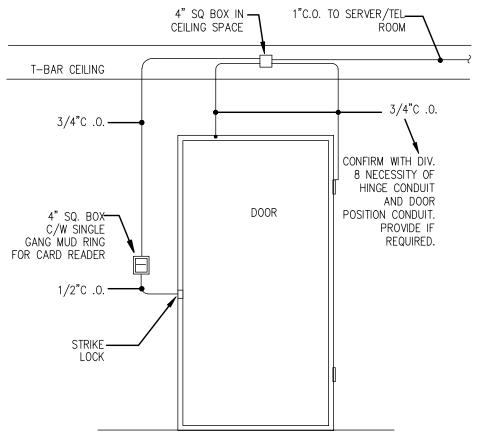


C DUAL SENSOR / DUAL RELAY (TYPICAL) E2 SCALE: N.T.S.



NOTE: PROVIDE LV RELAYS AND NEW POWER BREAKERS (SWITCH LEGS)
AND CIRCUITS AS REQUIRED TO ACCOMMODATE THE NEW LIGHTING
LAYOUT



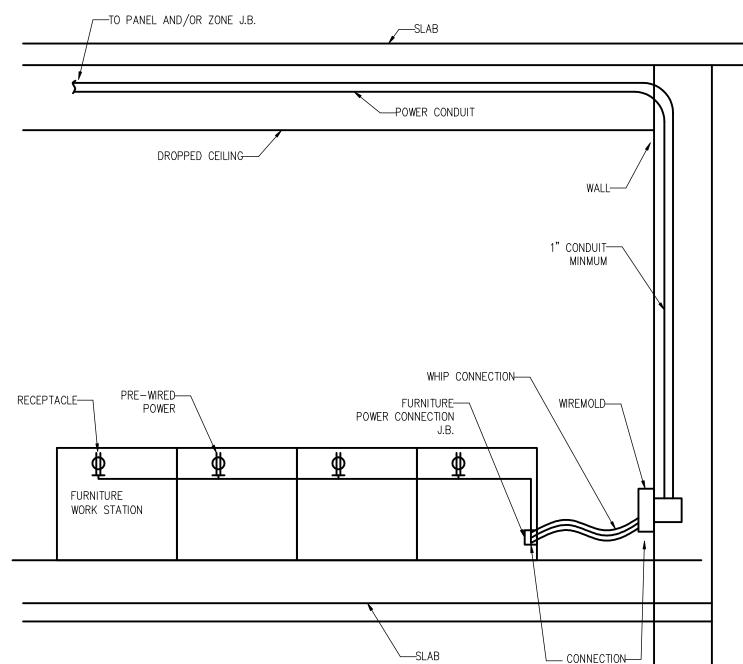


NOTES: DOOR ELECTRIC STRIKES TO BE TIED TO BUILDING FIRE ALARM SYSTEM TO RELEASE LOCKED DOORS DURING A FIRE CONDITION. SUBMIT A VERIFICATION REPORT TO CONFIRM DOOR RELEASE DURING A FIRE CONDITION.

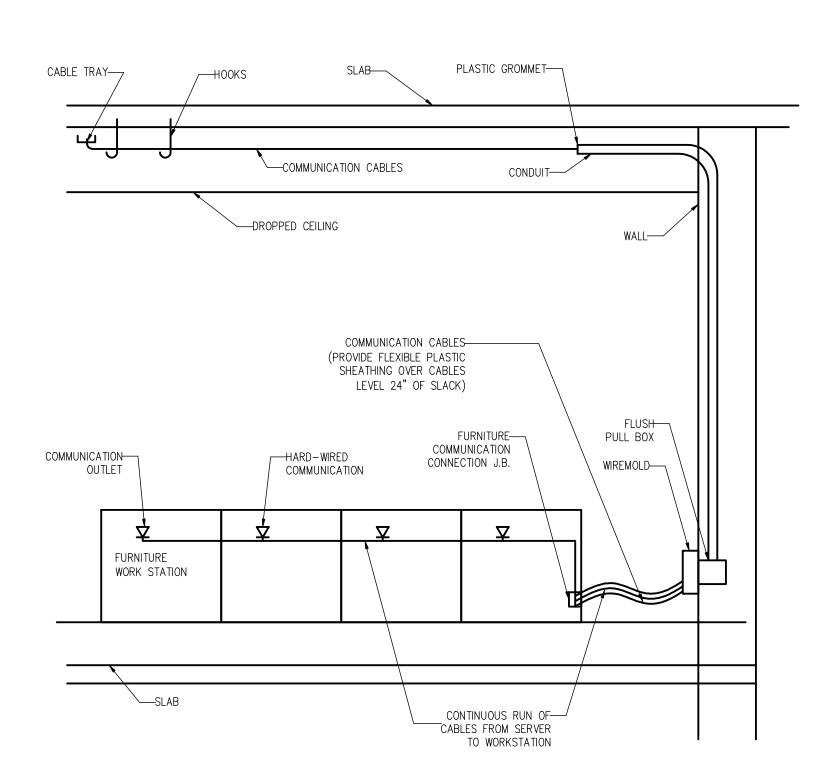
TYPICAL - SECURITY ACCESS DETAIL
FOR ALL ENTRY/EXIT DOORS

SCALE: N.T.S.









COMMUNICATION CONDUIT SIZES:

FOR TYPICAL 4-PAIR CAT6(WITH DIVIDER)
1"=6
1-1/2"=15
2"=20

FOR TYPICAL 4-PAIR CAT5E CABLE
1"=7
1-1/2"=16

2"=22

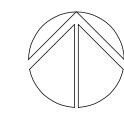
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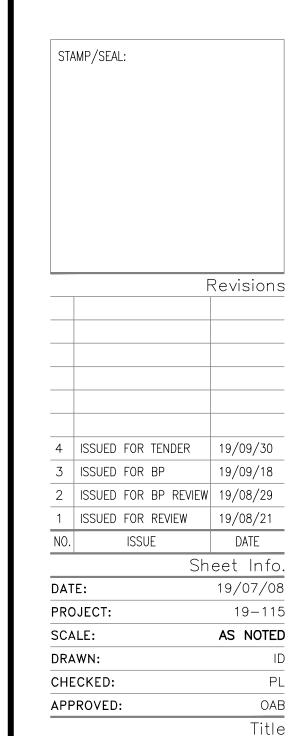
commencing work. Do not scale the drawings.

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Project: CITY OF VANCOUVER 4TH FLOOR FLEX WORK PROJECT

814 RICHARDS STREET VANCOUVER, BC



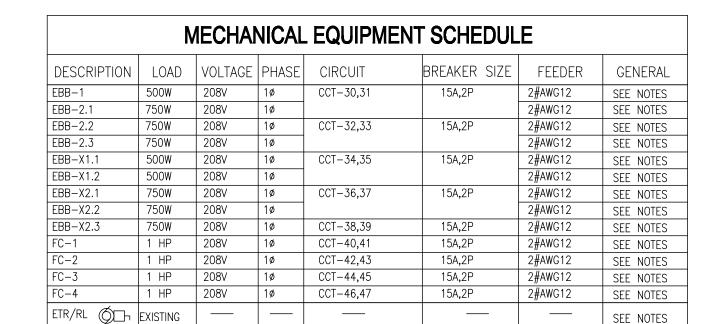


SINGLE LINE DIAGRAM AND DETAIL

Sheet

E2

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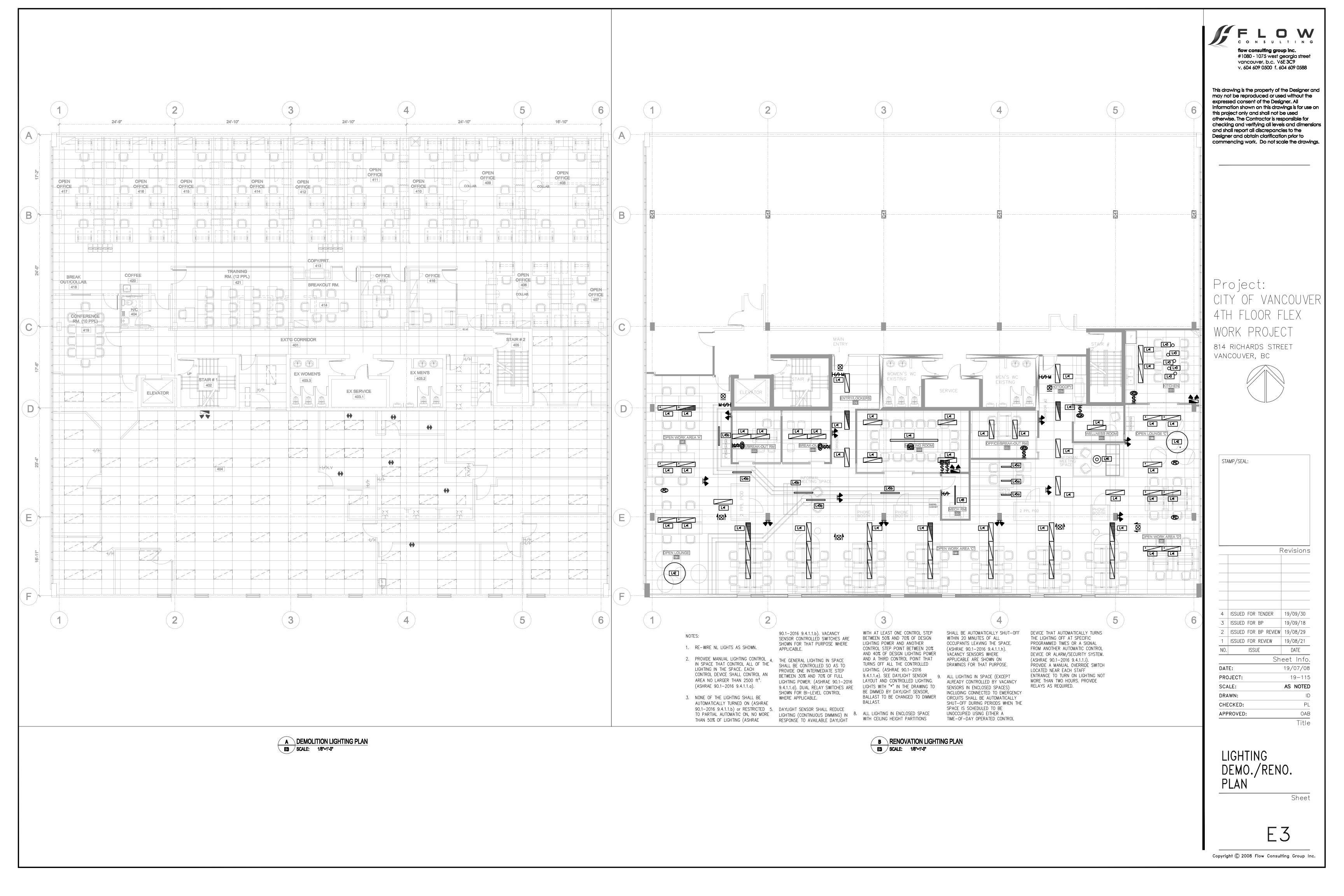
MECHANICAL EQUIPMENT NOTES

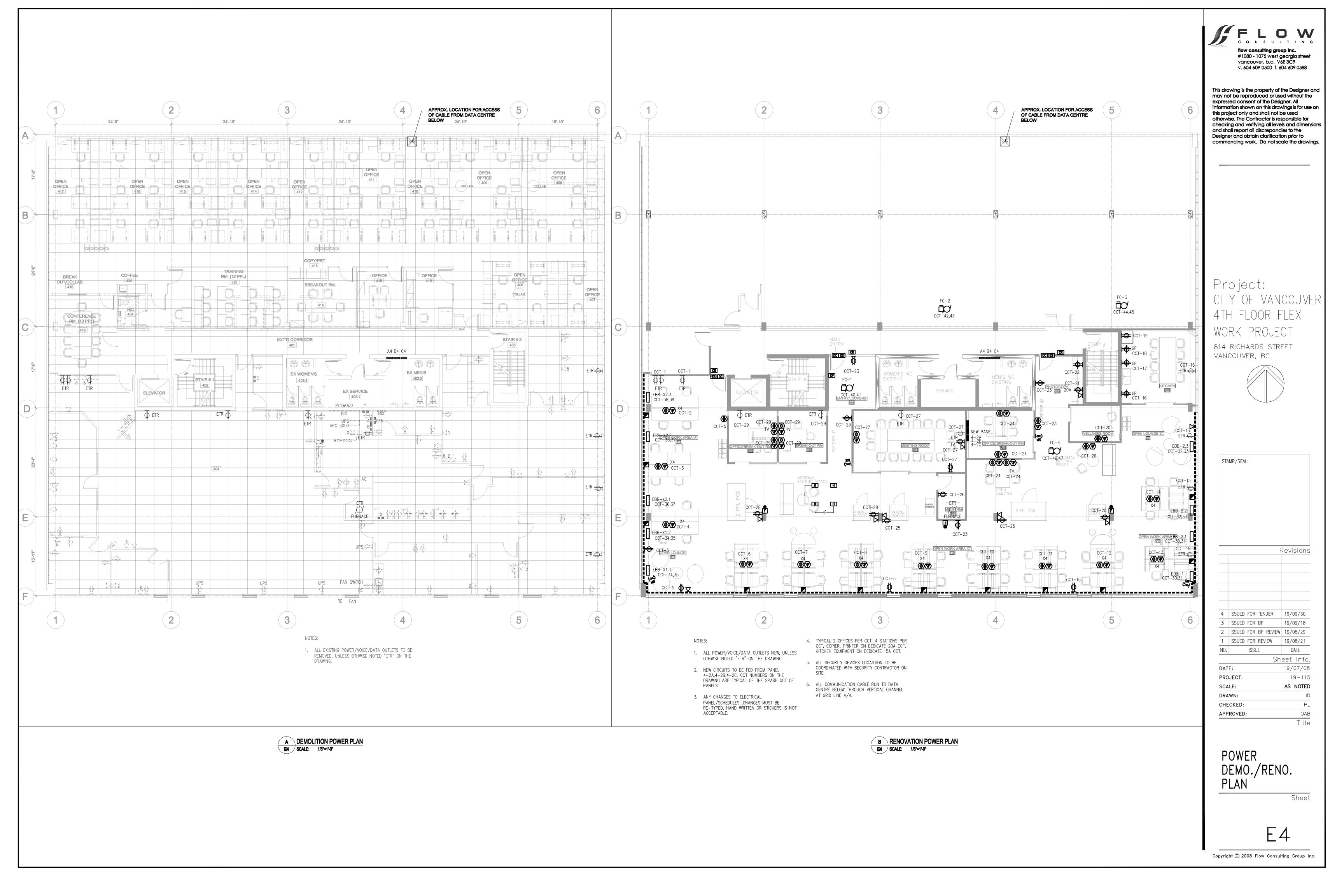
1. ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL MANUAL/MAGNETIC STARTERS C/W SINGLE PHASE PROTECTION FOR ALL MOTORS. (INSTALL IN NEAREST MECHANICAL, STORAGE OR ELECTRICAL ROOM FOR WALL MOUNTED TYPE).

2. ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL DISCONNECT SWITCHES FOR ALL MOTORS.

3. ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL ALL CONTROL WIRING AND EQUIPMENT AS REQUIRED. MECHANICAL CONTRACT DATA DRAWINGS AND SPECIFICATIONS MUST BE USED FOR REFERENCE. COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT EQUIPMENT AMOUNT/LOCATION.
4. ELECTRICAL CONTRACTOR MUST CHECK MECHANICAL DRAWINGS SPECIFICATIONS FOR EXACT AMOUNTS AND LOCATIONS FOR ALL MECHANICAL EQUIPMENT. REFER MECHANICAL DRAWINGS AND CONTRACT DOCUMENTS FOR EXACT EQUIPMENT AMOUNT/LOCATIONS/SIZES. PROVIDE ALL ELECTRICAL REQUIREMENT FOR EQUIPMENT CONNECTION.
5. CHECK EXACT LOCATION OF ROUGH—INS WITH MECHANICAL PRIOR TO INSTALLATION.

6. USE NEW MECHANICAL PANEL; MAKE GOOD PANEL. EC TO VERIFY ON SITE.
7. MECHANICAL CONTROL DEVICES IE. ON/OFF SWITCH, VARI—SPEEDSWITCH, TIMER, ETC. TO BE SUPPLIED BY MECHANICAL CONTRACTOR, INSTALLED AND CONNECTED BY ELECTRICAL CONTRACTOR. REFER TO MECHANICAL DRAWING FOR LOCATION.
8. ELECTRICAL CONTRACTOR TO CONFIRM BREAKER SIZE AND FEEDER SIZE ON SITE BEFORE





COMMUNICATION SPECIFICATION

- 1.1.1. SEE ELECTRICAL SPECIFICATIONS ON THIS DRAWING 1.2. SCOPE REMOVE EXISTING CARLING, FACEPLATES, JACKS AND BIX PANELS AS INDICATED ON THE PLANS, OR WHICH ARE 1.2.1. AFFECTED BY NEW WORK. EXISTING CONDUIT AND CABLE RACEWAY SYSTEMS MAY BE REUSED. EXISTING WIRING MAY BE USED TO PULL IN NEW CABLING. NEW CONDUIT AND BACKBOXES ARE TO BE INSTALLED FOR OUTLET LOCATIONS WHERE NO CONDUIT AND BACKBOX ARE EXISTING. ALL CABLING TO BE IN CONDUIT OR RACEWAY
- 1.2.2. SUPPLY AND INSTALL A COMPLETE CATEGORY 6, TYPICALLY 2 PER COMMUNICATION OUTLET UNLESS OTHERWISE NOTED. TYPICAL (SEE NOTES FOR MORE DETAILS) STRUCTURED CABLING SYSTEM AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN.
- 1.2.3. SYSTEM TO BE COMPLETE WITH ALL COMMUNICATION OUTLETS, PATCH PANELS, FACEPLATES, CABLE MANAGEMENT SYSTEMS, WIRING BLOCKS, CONNECTING BLOCKS, WIRE AND CABLE TO FORM A COMPLETE
- 1.2.4. ENTIRE SYSTEM TO BE CATEGORY 6 STANDARD.
- 1.2.5. CONTRACTOR QUALIFICATIONS THE CABLING CONTRACTOR MUST BE A CERTIFIED SYSTEM VENDOR OF THE MANUFACTURER'S COMPONENTS AND/OR CABLE BEING BID, USE ONLY TECHNICIANS FULLY TRAINED AND QUALIFIED ON INSTALLATION AND
- TESTING OF THE COMPONENTS TO BE INSTALLED. UPON REQUEST FROM THE ENGINEER. THE CONTRACTOR SHALL PROVIDE CERTIFIED DOCUMENTATION OF THE QUALIFICATIONS DESCRIBED ABOVE. FAILURE TO MEET OR PROVIDE SUCH DOCUMENTATION WILL BE THE BASIS FOR DISQUALIFICATION OF THE CABLING CONTRACTOR.
- ALL STAFF PERFORMING ANY TYPE OF WORK CONTAINED IN THIS SPECIFICATION MUST BE CERTIFIED IN THE INSTALLATION, TERMINATION AND TESTING OF ALL ASPECTS OF UTP CABLE SYSTEMS BY: A RECOGNIZED EDUCATION INSTITUTION. OR 1.2.5.3.2. A MAJOR CABLE MANUFACTURER, OR
- BEING THE HOLDER OF THE DESIGNATION OF REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER(RCDD)
- 1.2.5.4. SYSTEM INSTALLER TO COORDINATE ALL LABELING WITH OWNER AND CONSULTANT AND TO MATCH EXISTING.
- ACCEPTABLE STANDARDS 1.3.1. ANSI-J-STD-607-A
- 1.3.2. TIA / EIA-606-A
- 1.3.3. TIA / EIA-569-B
- 1.3.4. TIA / EIA-568-B.1 & ALL ADDENDUM'S 1.3.5. TIA / EIA-568-B.2 & ALL ADDENDUM'S
- 1.3.6. TIA / EIA-568-B.3
- 1.3.7. NRCC-2005 1.3.8. BICSI STANDARDS
- 1.4. SHOP DRAWINGS
- SHOP DRAWINGS TO BE SUBMITTED AS OUTLINED HEREIN AND CONTAIN ALL ITEMS WITHIN ONE COMPLETE
- 1.4.2. SHOP DRAWINGS WHICH ARE SUBMITTED INCOMPLETE WILL BE RETURNED TO CONTRACTOR WITHOUT REVIEW. SHOP DRAWINGS TO INCLUDE A COMPLETE MATERIAL LIST WITH MANUFACTURER, STYLE, MODEL NUMBER AND
- QUANTITY. WIRE AND CABLE TO BE INCLUDED IN MATERIAL LIST. SHOP DRAWINGS TO INCLUDE MANUFACTURER'S SPECIFICATION SHEETS WITH PHOTOGRAPHIC DEPICTION OF ALL SYSTEM COMPONENTS. SPECIFICATION AND DESCRIPTIVE DATA TO INCLUDE DIMENSION, WEIGHT, APPEARANCE, CONNECTION PROVISIONS, MATERIALS, METAL GAUGES AND OPERATING SPECIFICATION, CHARACTERISTICS, FEATURES AND CONTROLS.
- 1.4.5. SHOP DRAWINGS TO INCLUDE THE FOLLOWING DIAGRAMS:
- ELEVATIONS TO INDICATE NEW EQUIPMENT INCLUDING WIRE MANAGEMENT (HORIZONTAL AND VERTICAL), CABLE ROUTING, CABLE DETAILS, PORT LABELLING, EXISTING EQUIPMENT (IF APPLICABLE). (IF APPLICABLE).
- LAYOUT DRÁWINGS FOR PATCH PANELS AND JACKFIELDS.
- CABLE DETAILS, INCLUDING TYPE AND ELECTRICAL CHARACTERISTICS. 1.4.5.3. COMPLETE ENGINEERING DRAWINGS OF ALL CUSTOM MADE COMPONENTS INDICATING ALL MATERIALS, 1.4.5.4.
- GAUGES, FINISHES AND WIRING DIAGRAMS. COMPLETE SYSTEM BLOCK DIAGRAMS INDICATING ALL COMPONENTS, INTERCONNECTION AND CABLING. 1.4.5.6. COMPLETE DETAILED SYSTEM CIRCUIT DIAGRAMS DEPICTING HOW COMPONENTS ARE INTERCONNECTED COMPONENT FUNCTIONS, CABLE TERMINATIONS, TERMINAL IDENTIFICATION AND CABLE
- COMPLETE SYSTEM WIRE AND CABLE DESIGNATION SCHEDULE INDICATING ORIGIN, TERMINUS, ORIGIN TERMINAL IDENTIFICATION, TERMINUS TERMINAL IDENTIFICATION, CABLE FUNCTION, CABLE TYPE AND CABLE DESIGNATION, AT EACH DEMARCATION POINT
- UNDER NO CIRCUMSTANCES WILL WIRING SCHEMATICS OR TYPICAL WIRING DETAILS BE CONSIDERED AS CIRCUIT DIAGRAMS.
- 1.5. ELECTRICAL SPARE PARTS AND MAINTENANCE MATERIALS
- 1.6. OPERATING MANUALS

1.7. GENERAL REQUIREMENTS

- 1.6.1. OPERATING MANUALS TO BE FURNISHED AS SPECIFIED HEREIN. OPERATING INSTRUCTIONS TO CONSIST OF FOLLOWING:
- INDIVIDUAL FACTORY ISSUED MANUALS CONTAINING ALL TECHNICAL INFORMATION ON EACH TYPE OF EQUIPMENT INSTALLED. IN EVENT SUCH MANUALS ARE NOT AVAILABLE FROM THE FACTORY, SYSTEM INSTALLER TO ESTABLISH SAME AND COMPILE WITHIN THE MANUAL TO SATISFACTION OF THE OWNER AND IS
- EACH MANUAL TO CONTAIN A SYSTEM PARTS LIST, A PARTS LIST FOR INDIVIDUAL COMPONENTS, DETAILED SCHEMATICS AND RECOMMENDED MAINTENANCE PROCEDURES. ADVERTISING BROCHURES OR OPERATIONAL INSTRUCTIONS SHALL NOT BE CONSIDERED AS TECHNICAL MANUALS. REFER TO SECTION 16031 FOR MANUAL COMPILATION.
- ENGINEERING DRAWINGS DEPICTING LAYOUT AND INTERCONNECTION OF ALL SYSTEM COMPONENTS AND AS-BUILT CONDUIT LAYOUT. 1.6.2. IN ADDITION TO THE ABOVE DESCRIBED MANUALS, SYSTEM INSTALLER TO INCLUDE ALL SHOP AND CIRCUIT
- DRAWINGS, WARRANTIES, INSTALLATION CERTIFICATION, WIRING SCHEDULES AND SINGLE LINE BLOCK DRAWINGS IN
- 1.7.1. SYSTEM TO BE COMPLETE WITH ALL NECESSARY COMPONENTS TO PROVIDE FUNCTIONS REQUIRED WHETHER OR NOT EACH AND EVERY ITEM IS NECESSARILY MENTIONED. ALL COMPONENTS TO BE PRODUCTION PROVEN MODELS. CUSTOM DESIGNED UNITS WILL ONLY BE CONSIDERED FOR THOSE ITEMS THAT ARE NOT CURRENTLY AVAILABLE ON COMMERCIAL MARKET. SYSTEM TO BE SUPPLIED AND INSTALLED BY AN ESTABLISHED COMMUNICATIONS CONTRACTING FIRM THAT IS APPROVED BY OWNER.
- SELECTION OF SYSTEM TO BE MADE ON THE BASIS OF QUALITY AND SUITABILITY OF EQUIPMENT, SERVICE FACILITIES, AND PAST PERFORMANCE OF CONTRACTING FIRM.
- 1.7.3. BEFORE PROCEEDING WITH INSTALLATION, SUCCESSFUL SYSTEM INSTALLER TO SUBMIT TO OWNER FOR APPROVAL A COMPLETE DETAILED PROPOSAL AS OUTLINED IN CLAUSE 1.4, SHOP DRAWINGS.
- 1.7.4. ALL CONDUIT, PULLBOXES, JUNCTION BOXES AND TERMINAL PANELS ARE TO BE INSTALLED TO PROVIDE A COMPLETE CONDUIT SYSTEM FOR THE TELEPHONE AND DATA SYSTEM.
- 1.7.5. ALL WIRING FOR SYSTEMS TO BE TEFLON INSULATED, UNSHIELDED, TWISTED PAIR. ALL WIRING TO BE INSTALLED IN CONDUIT AND TRAY SYSTEM UNLESS OTHERWISE SPECIFIED.
- 1.7.6. THE SYSTEM, WHEN COMPLETE, MUST PERFORM TO COMPLETE SATISFACTION OF OWNER AND MUST BE FREE OF
- PERSONNEL INSTALLING COMMUNICATIONS CABLING SHALL BE TRAINED AND CONVERSANT WITH COMMUNICATIONS CABLING PRACTICES REQUIRED FOR THIS PROJECT. PROOF OF CERTIFICATION MUST BE PROVIDED PRIOR TO COMMENCEMENT OF WORK.

ALL INTERFERENCE FROM CROSS-TALK, HUM, SWITCH AND RELAY NOISE, ETC.

1.7.8. THE SYSTEM SHALL BE CERTIFIED. THE SYSTEM SHALL BE INSTALLED BY A CERTIFIED CONTRACTOR DESIGNATED

- AND TRAINED BY THE MANUFACTURER OF BEING CAPABLE TO DO SO AND SHALL PROVIDE WRITTEN CONFIRMATION OF THIS FACT.
- 1.8. SYSTEM DESCRIPTION THE COMMUNICATION CABLING DATA SYSTEM CONSISTS OF HORIZONTAL AND VERTICAL WIRING.
- HORIZONTAL COMMUNICATION (VOICE, DATA & IMAGE) WIRING: 4-PAIR UNSHIELDED TWISTED PAIR (UTP) ENHANCED CATEGORY 6 CABLÈS. SEE SYMBOL SCHEDULE FOR RUNS.
- 1.9. WARRANTY/SERVICE 1.9.1. SYSTEM INSTALLER TO INCLUDE WITH THEIR BASE TENDER PRICE A GUARANTEE STATING:
- FULL WARRANTY ON NEW SYSTEM TO BE PROVIDED TWENTY-FIVE (25) YEARS. SERVICE TO BE PROVIDED ON SYSTEM WITHIN 24 HOURS OF CALL ORIGINATION DURING THE WARRANTY
- 1.9.1.3. DURING WARRANTY PERIOD SYSTEM INSTALLER AT HIS EXPENSE TO REPAIR AND REPLACE ALL SUCH DEFECTIVE WORK AND OTHER WORK TO NEW SYSTEM DAMAGED THEREBY WHICH FAILS OR BECOMES DEFECTIVE DURING TERM OF WARRANTY, PROVIDED THAT SUCH FAILURE IS NOT CAUSED BY IMPROPER USAGE OR PHYSICAL DAMAGE.
- WARRANTY DATE TO COMMENCE FROM DATE OF SUBSTANTIAL PERFORMANCE OF THIS WORK. SYSTEM TO BE CERTIFIED TO MEET AND OR EXCEED CATEGORY 6 STANDARDS OF GIGABIT SPEED AND OF PERFORMANCE FOR THE DURATION OF THE WARRANTY AS SPECIFIED BY THE MANUFACTURER.
- 1.10.1. SYSTEM INSTALLER TO CONDUCT TRAINING PROGRAM FOR DESIGNATED MAINTENANCE AND OPERATING
- PERSONNEL. THIS PROGRAM TO INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING: OPERATION: DESIGNATED PERSONNEL TO BE TRAINED TO ACCOMPLISH AND UNDERSTAND ALL ASPECTS OF SYSTEM OPERATION.
- MAINTENANCE: DESIGNATED PERSONNEL TO BE TRAINED TO PERFORM ROUTINE MAINTENANCE ON THE
- TRAINING PERIOD SCHEDULE TO BE ESTABLISHED BY OWNER. TRAINING PERIODS TO TAKE PLACE AFTER SUBSTANTIAL PERFORMANCE OF THE WORK AND PRIOR TO SYSTEM USE.
- 1.11. INSTALLATION TO MATCH EXISTING CLIENT STANDARDS.

2. PRODUCTS

- ALL HORIZONTAL DATA AND VOICE CABLE TO BE 4-UNSHIELDED. 24 AWG, 100 OHM, SOLID COPPER CONDUCTOR INSULATED WITH A THERMOPLASTIC MATERIAL INSIDE A UNIFORMLY EXTRUDED COATING OF FLAME RETARDANT POLYMER. CONDUCTORS ARE TO BE COLOUR CODED AND TWISTED INTO 4 DISTINCT PAIRS. CABLE TO BE LISTED UNDER CSA C22.2 NO. 214 TYPE PCC FT6 AND COMPLY WITH THE FCC CLASS A LIMITS OF EMI. CABLE TO BE INDEPENDENTLY VERIFIED BY A RECOGNIZED TESTING AGENCY TO MEET OR EXCEED ALL REQUIREMENTS OF TIA/EIA-568-B.1 AND TIA/EIA-568-B.2-1 FOR CATEGORY 6 CABLING AND COMPONENTS. CABLE TO BE UL LISTED TYPE NEC-CMF AND CERTIFIED BY CSA AS TYPE PCC WITH AN FT6 CMN FLAME TEST RATING. CABLE TO BE ENHANCED CATEGORY 6 SUPPLIED BY AMP FOR AN AMP SOLUTION (OR APPROVED VENDOR)
- 2.1.2. ALL CABLES SHALL HAVE A JACKET SPLITTING CORD LAID BETWEEN THE CORE AND JACKET.
- 2.2. COMMUNICATIONS OUTLET ASSEMBLIES COMMUNICATIONS OUTLET - BOXES:
- RECESSED BOX, 63 MM MINIMUM DEPTH WITH DOUBLE GANG BOX. 25 MM EMT, STUBBED FROM BOX TO NEAREST DROPPED CEILING AS PART OF COMMUNICATIONS CONDUIT SYSTEM WITH BUSHED CABLE EXIT(S).
- 2.2.2. COMMUNICATIONS OUTLET HOUSINGS:
- FORMED OUTLET PLATE: MAXIMUM DIMENSIONS: 150 MM X 150 MM X 38 MM DEEP.
- REAR AND SIDE ENTRY OF CABLE. STRAIN RELIEF PROVISIONS FOR SIDE ENTRY OF CABLE. FLAT PLATE: MINIMUM THICKNESS 3.9 MM.
- 2.2.2.2.1. ACCEPTS MINIMUM OF FOUR SNAP-IN OR SLIDE-IN OUTLET INSERTS.
 - MOUNTS TO STANDARD ONE-DEVICE, TWO-DEVICE, ELECTRICAL BOX, OR ADAPTER RING OPENING. CONSTRUCTED OF HIGH-IMPACT FIRE-RETARDANT THERMOPLASTIC.
- 2.2.2.2.3. 2.2.2.2.4. PLATES TO BE SINGLE GANG TYPE.
- COLOUR CODE: TO MATCH EXISTING. 2.2.2.2.5. PROVIDE NECESSARY ADAPTERS AND FACEPLATE FOR INSTALLING OUTLETS IN FLOOR BOXES AND 2.2.2.2.6. SURFACE RACEWAY SYSTEM.
- 2.2.3. CATEGORY 6 UTP CABLE CONNECTORS FOR HORIZONTAL CABLING:
- 2.2.3.1. 8P/8W MODULAR FEMALE CONNECTORS AT BOTH ENDS OF HORIZONTAL CABLING. 8P/8W MODULAR MALE CONNECTORS AT BOTH ENDS OF PATCH CORDS.
- ALL CONNECTORS SHALL MEET OR EXCEED ALL REQUIREMENTS OF TIA/EIA-568-B.1 AND
- TIA/EIA-568-B.2-1. SHALL BE BACKWARD COMPATIBLE WITH CATEGORIES DEFINED IN TIA/EIA-568-B.1 AND TIA/EIA-568-B.2.
- SUBMIT A THIRD PARTY ETL TESTING VERIFYING THE COMPONENT'S PERFORMANCE IN COMPLIANCE WITH TIA/EIA-568-B.2-1.
- NON-KEYED, 4 PAIR, 8P/8W MODULAR JACKS, T568A WIRING. 2.2.3.7. USE SNAP-IN TYPE CONNECTORS AT BOTH ENDS OF CABLES.
- 2.2.3.8. BLUE FOR DATA, PINK FOR VOICE.
- 2.3. PATCH CABLES
- 2.3.1. SUPPLY AND INSTALL 2-4'-0", 1-6'-0" AND 1-8'-0" PER COMMUNICATION DROP. MODULAR PATCH CABLE
- STRANDED CONDUCTORS CATEGORY 6 PATCH CABLE, 4 PAIR, 24AWG, 8P/8W, T568A WIRED. SPECIFY REQUIRED LENGTHS AND QUANTITIES.
- LABEL EACH PATCH CABLE WITH SEQUENTIAL NUMBER AND CABLE LENGTH. E.G. 30-3 IS PATCH CABLE 30 WHICH IS 3M LONG.
- 2.4. PATCH PANEL 2.4.1. MODULAR PATCH PANEL.
- 2.4.2. 48-PORT, HIGH DENSITY, INDIVIDUAL CUT-OUTS FOR SNAP IN TYPE FEMALE 8P/8W.
- 2.5.1. COMPLETE WITH 6-OUTLETS, 12 FEET SHIELDED CORD. SUITABLE FOR RACK MOUNTING. 2.5.3. 2-POWER BAR PER RACK.
- 2.5.4. POWER COMPLETE WITH AMPERAGE DRAWING DISPLAY
- 2.6. FLUSH FACE PLATES FOR WALL MOUNTED OUTLETS
- 2.6.1. FOR USE ON ALL FLUSH MOUNTED VOICE/DATA.
- SUPPLE 4-PORT FACE PLATE. INSTALL BLANKS ON ALL UNUSED.
- 2.6.3. SINGLE GANG, FLUSH MOUNTED—WHITE.
- 2.7.1. SUPPLY AND INSTALL AN ENCLOSED RACK.
- 2.8. BACKBONE CABLING 2.8.1. EC TO SUPPLY AND INSTALL THE FOLLOWING BETWEEN MAIN TEL CLOSET TO DATA CENTRE 2.8.1.1. 1-2" C/W 12 STRAND MULTI MODE FIBRE 2.8.1.2. 1-3" C/W 50 PAIR CAT 3
- 3. <u>EXECUTION</u>
- 3.1.1. INSTALL DATA CABLE AND TELEPHONE CABLE IN CONDUIT AND CABLE TRAYS, WIREWAYS AND SURFACE RACEWAYS INDICATED ON DRAWINGS. NO FREE AIR CABLING WILL BE ACCEPTED
- 3.1.2. CONDUIT BOXES AND FITTINGS:
- ENSURE IN ADVANCE THAT OUTLET BOX/DATA OUTLET INSTALLATION METHODS YIELD VERTICALLY-MOUNTED
- 3.1.3. WIRE AND CABLE: SWAB RACEWAY SYSTEM BEFORE INSTALLING WIRING.
- DO NOT EXCEED MANUFACTURER'S MAXIMUM PULLING FORCE SPECIFICATIONS. MAINTAIN NOT LESS THAN MINIMUM BENDING RADIUS FOR FIBER AND COPPER CONDUCTORS.

- INSTALL CABLE ALONG OR AT RIGHT ANGLES TO BUILDING LINES UNLESS IMPRACTICAL TO DO SO. VERIFY
- SPECIFIC CASES OF DEVIATION IN ADVANCE WITH CONSULTANT MAINTAIN OPEN COPPER-CONDUCTOR CABLE AT MAXIMUM PRACTICAL DISTANCE FROM FLUORESCENT
- BALLASTS AND OTHER EMF OR DISCHARGE-GENERATING EQUIPMENT. ENSURE THAT CABLE IS NOT FLATTENED, SQUEEZED, OR CRIMPED AT ANY POINT ALONG ENTIRE RUN. NO
- SPLICES OR INTERMEDIATE TERMINATIONS IN CABLE RUNS. INSTALL CABLES AND FAN INDIVIDUAL CABLES TO APPLICABLE PATCH PANELS IN NEAT, LOGICAL FASHION.
- TIE WRAP CABLES NEATLY INTO LOGICAL BUNDLES. NO NYLON TIE STRAPS ACCEPTABLE, USE ONLY
- MINIMUM 1 M OF SLACK CABLE PER RUN IN THE TELECOM ROOM AND 305 MM AT THE WORKSTATION/DESK
- 3.1.4. CONNECTORS: USE TOOLING SPECIFIC TO CONNECTOR TYPES IN USE.
 - USE CONNECTORS SUITABLE FOR NATURE OF CONDUCTOR IN CABLE, E.G. STRANDED VS. SOLID COPPER.
- ENSURE THAT CONNECTORS' STRAIN RELIEF PROVISIONS ARE USED. STRIP JACKETS ONLY AMOUNT
- MAINTAIN PAIR TWISTS WITHIN 13 MM OF TERMINATION.
- 3.1.5. PATCH PANELS: MOUNT PATCH PANELS IN ORDERLY FASHION. SUBMIT RACK LAYOUTS FOR APPROVAL PRIOR TO
- GROUND AS REQUIRED BY SYSTEM. ATTACH HORIZONTAL WIRING IN AN ORDERED FASHION FOLLOWING GRID NUMBERING OF OUTLETS. ALPHA
- CHARACTER FIRST, E.G. A-1, A-2, ETC ATTACH HORIZONTAL WIRING IN ORDER OF GRID NUMBER OF OUTLETS.
- MOUNT PANELS TO RACKS WITH AS MANY SCREWS AS THERE ARE MOUNTING HOLES OR SLOTS IN PANELS. PROVIDE AND INSTALL NECESSARY STRAIN RELIEFS AND CABLE SUPPORT BRACKETS. UTP CONNECTION CONFIGURATION IN ACCORDANCE WITH ANSI/TIA/EIA 568-A. 3.1.5.7.
- THE CONTRACTOR SHALL ADHERE TO THE OWNER'S LABELLING SYSTEM STANDARD AND TO MATCH EXISTING. 3.1.6.1. RE-USE EXISTING CABLING SYSTEM AND NEW CABLE RUNS TO MATCH EXISTING LABELS.
- ALL LABEL PRINTING WILL BE MACHINE GENERATED USING INDELIBLE INK RIBBONS OR CARTRIDGES. SELF-LAMINATING LABELS WILL BE USED ON CABLE JACKETS, APPROPRIATELY SIZED TO THE OF THE CABLE, AND PLACED WITHIN VIEW AT THE TERMINATION POINT ON EACH END. OUTLET LABELS WILL BE THE
- MANUFACTURER'S LABELS PROVIDED WITH THE OUTLET ASSEMBLY. OUTLET LABELS TO BE RED TEXT ON WHITE BACKGROUND, PER EXISTING STANDARD. MATCH EXISTING FONT TYPE, SIZE AND STYLE.
- TEST ALL RUNS UPON COMPLETION OF PERMANENT TERMINATIONS, USING INSTRUMENTATION ACCEPTABLE TO THE CONSULTANT. BEFORE COMMENCING TESTING, SUBMIT SAMPLE TEST DATA SHEETS AND INFORMATION WITH RESPECT TO TEST INSTRUMENTATION TO BE USED. ALL TESTING MUST BE IMPLEMENTED IN BOTH DIRECTIONS. TESTS ARE TO BE DONE BY A LEVEL III TESTER IN ACCORDANCE WITH TIA/EIA-568-B.2 AND TIA/EIA-568-B.2-1.
- 3.2.2. ACCEPTABLE TEST INSTRUMENTS: COPPER: FLUKE MICROTEST OMNI SCANNER
- 3.2.3. COPPER MEDIA, TEST FOR THE FOLLOWING:
- 3.2.3.1. 3.2.3.2. CONTINUITY PAIR PLACEMENT AND POLARITY. 3.2.3.3. DC RESISTANCE
- CHARACTERISTICS AT 250MHz:
- ATTENUATION MUTUAL CAPACITANCE. 3.2.4.2.
- NEAR-END CROSSTALK (NEXT), PAIR-TO-PAIR.
- FAR-END CROSSTALK (NEXT), PAIR-TO-PAIR. 3.2.4.5. RUN LENGTH.
- 3.2.4.6. WIRE MAP. POWER SUM NEAR-END CROSSTALK (PSNEXT).
- POWER SUM FAR-END CROSSTALK (PSNEXT). EQUAL LEVEL FAR-END CROSSTALK (ELFEXT), PAIR-TO-PAIR.
- EQUAL LEVEL FAR-END CROSSTALK (ELFEXT), POWER SUM. POWER SUM EQUAL LEVEL FAR-END CROSSTALK (PSELFEXT).
- RETURN LOSS, MEASURED FROM LOCAL END. RETURN LOSS, MEASURED FROM FAR END. PROPAGATION DELAY.
- 3.2.4.15. DELAY SKEW FROM TELECOM ROOM TO THE WORKSTATION. 3.2.5. TESTING TO COMPLY TO INDUSTRY STANDARD.
- 3.2.6. TEST RESULTS ARE TO BE PROVIDED IN PDF FORMAT TO CONSULTANT AND OWNER.
- 3.2.7. MARGINAL OR CONDITIONAL PASS WILL NOT BE ACCEPTABLE.
- 3.3.1. RECORD RESULTS IN TABULAR FORM.
- SEGREGATE HORIZONTAL RUNS, INTER-ROOM RUNS, AND RISERS BY CATEGORY OR RUN AND BY TYPE OF
- PRESENT HORIZONTAL RESULTS IN ASCENDING ORDER.

FOR A PERIOD OF 25 YEARS.

- 3.3.4. REPORT SUBMISSION:
- SUBMIT TWO (2) REPORTS PRINTED ON 215 MM BY 280 M WHITE PAPER. SUBMIT TWO (2) REPORTS PREPARED IN ELECTRONIC FORM IN PDF FORMAT THROUGH EMAIL OR BY CD-ROM
- 3.4. RECORD DRAWINGS

3341

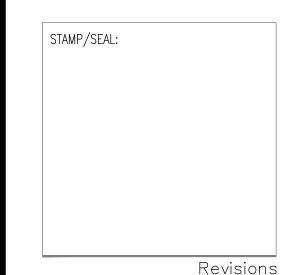
- THE AS-BUILT DOCUMENTATION MUST SHOW THE LOCATION OF EACH VOICE AND DATA DROP. PREFERABLY USING THE STANDARD TRIANGLE WITH ONE HALF WHITE AND THE OTHER HALF BLACK. LOCATIONS WHERE THERE IS A DATA DROP ONLY SHOULD HAVE A BLANK TRIANGLE AND FOR A VOICE DROP, A BLACK TRIANGLE.
- A LAMINATED AS-BUILT DRAWING, APPROXIMATELY 24x36 INCHES, IS TO BE SUPPLIED AND INSTALLED BY THE CONTRACTOR IN THE TELECOM ROOM AFTER THE PROJECT IS COMPLETED.
- RECORD DRAWINGS TO INDICATE NEW AND EXISTING OUTLETS THROUGHOUT.
- PROVIDE A CATEGORY 6 CERTIFICATE DOCUMENT ISSUED BY THE CABLE/COMPONENT MANUFACTURER, GUARANTEEING TRANSMISSION CAPABILITIES OF THE CABLING SYSTEM TO SUPPORT GIGABIT ETHERNET DEVICES
- THE INSTALLED STRUCTURED CABLING SYSTEM MUST BE COVERED BY A WARRANTY WHICH INCLUDES, AS A
- WARRANTY AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP FROM THE DATE OF INSTALLATION.
- REPAIR OR REPLACEMENT OF FAILED COMPONENT, COVERING PARTS AND LABOUR, AT NO CHARGE TO THE
- SINGLE POINT OF CONTACT FOR ALL WARRANTY SERVICE. UPON REQUEST AND AT NO ADDITIONAL COST TO OWNER, PROVIDE A MANUFACTURER'S TECHNICAL
- REPRESENTATIVE TO CONDUCT AN ON-SITE VISIT TO ENSURE COMPLETE TECHNICAL COMPLIANCE.
- 4. <u>GENERAL</u> 4.1. COMMUNICATION TO CONFIRM TO COV, COMMUNICATION REQUIRMENTS TYPICAL.



vancouver, b.c. V6E3C9 v. 604 609 0500 f. 604 609 0588

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Project: 814 RICHARDS STREET VANCOUVER, BC



4 ISSUED FOR TENDER 19/09/30 3 ISSUED FOR BP 19/09/18 2 ISSUED FOR BP REVIEW 19/08/29 1 ISSUED FOR REVIEW 19/08/21 ISSUE DATE Sheet Info DATE: 19/07/08 PROJECT: 19-115 SCALE: AS NOTED DRAWN:

COMMUNICATION

CHECKED:

APPROVED:

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Title

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