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Positions of exposed or finished mechanical or electrical devices, fittings, and fixtures are indicated on architectural drawings. The locations shown on the architectural drawings govern over the Mechanical and Electrical drawings. Those items not clearly located will be located as directed by the architect.

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All work to be carried out in conformance with the Code and bylaws of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation to any party about the constructability of the represented by them, all contractors or subcontractors must satisfy themselves when bidding and at all times that they can properly construct the work represented by these plans.

notes:



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site services:
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1801 - 2500 broad st w
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electrical specifications

november 11.2019 date:
n.t.s. scale:
19-263 project:
an, fc drawn by:

drawing number:

ELECTRICAL SPECIFICATIONS

1. CODES & STANDARDS

- 1.1. COMPLETE THE INSTALLATION OF THE WORK IN ACCORDANCE WITH THE LATEST EDITIONS OF THE ONTARIO BUILDING CODE, ONTARIO ELECTRICAL SAFETY CODE, C.S.A. STANDARDS, U.L.C., N.F.P.A., O.H.S.A. AND OTHER CODES, AS REQUIRED, COMPLY WITH ELECTRICAL AND BUILDING CODE BULLETINS IN FORCE AT TIME OF BID SUBMISSION. WHILE NOT IDENTIFIED AND SPECIFIED BY NUMBER IN THIS DIVISION, THEY ARE TO BE CONSIDERED AS FORMING PART OF RELATED STANDARDS. ALSO, ALL ELECTRICAL WORK SHALL COMPLY WITH LANDLORD'S REQUIREMENTS AND BASE BUILDING STANDARDS.

2. EXISTING CONDITIONS

- 2.1. VISIT THE SITE AND EXAMINE THE EXISTING CONDITIONS AFFECTING THE WORK OF THIS DIVISION. NO CLAIM FOR EXTRA PAYMENT SHALL BE MADE FOR EXTRA WORK MADE NECESSARY BY CIRCUMSTANCES ENCOUNTERED DUE TO CONDITIONS WHICH WERE VISIBLE UPON, OR REASONABLY INFERRABLE FROM AN EXAMINATION OF THE SITE PRIOR TO SUBMISSION OF THE BID. THIS INCLUDES THE EXISTING SERVICES ABOVE CEILING.
- 2.2. BE AWARE THAT THERE MAY BE ASBESTOS FIBRES PRESENT IN VARIOUS FINISHES OR ON VARIOUS SURFACES. IN CERTAIN AREAS OF THE BUILDING, ARRANGE WORK SO AS NOT TO DISRUPT THESE MATERIALS, OR TAKE FULL AND NECESSARY MEANS TO PROTECT ALL PERSONNEL FROM CONTACT WITH THEM, IN A WAY TO BE APPROVED BY THE LANDLORD. INCLUDE ALL COSTS ASSOCIATED WITH ANY REMEDIAL WORK, IN THE BID.

3. DEFINITIONS

- 3.1. WHEREVER THE WORDS "PROVIDE" OR "SUPPLY AND INSTALL", ARE USED, IT SHALL BE UNDERSTOOD TO MEAN "PROVIDE AND INSTALL, INCLUSIVE OF ALL LABOUR, MATERIALS, INSTALLATION, TESTING, AND CONNECTIONS" FOR THE ITEM TO WHICH IT REFERENCES.
- 3.2. WHEREVER THE WORDS "EQUAL", "APPROVED", OR "APPROVED EQUAL" ARE USED, IT SHALL BE UNDERSTOOD TO MEAN "EQUAL", "APPROVED", OR "APPROVED EQUAL" IN THE OPINION OF THE CONSULTANT ONLY.

4. MATERIALS AND EQUIPMENT

- 4.1. ALL MATERIALS AND EQUIPMENT SHALL BE NEW, C.S.A. CERTIFIED AND MANUFACTURED TO THE STANDARDS SPECIFIED.
- 4.2. WHERE THERE IS NO ALTERNATIVE TO SUPPLYING EQUIPMENT WHICH IS NOT C.S.A. CERTIFIED, OBTAIN SPECIAL APPROVAL FROM THE ELECTRICAL SAFETY AUTHORITY.

5. PERMITS AND FEES

- 5.1. THE ELECTRICAL CONTRACTOR SHALL ACT AS THE OWNER'S AGENT IN ACCORDANCE WITH SECTION 2 OF THE O.E.S.C. AND SHALL IMMEDIATELY UPON AWARD OF CONTRACT, SUBMIT TO THE LOCAL ELECTRICAL INSPECTION DEPARTMENT, THE NECESSARY NUMBER OF DOCUMENTS FOR EXAMINATION, SPECIAL INSPECTION AND APPROVAL, PRIOR TO THE COMMENCEMENT OF THE WORK, AND PAY ALL COSTS AND ASSOCIATED FEES. IF REQUIRED, PREPARE ANY ADDITIONAL DRAWINGS/DOCUMENTS REQUIRED BY THE AUTHORITY.
- 5.2. THE CONSULTANT WILL PROVIDE UPON REQUEST, AT THE CONTRACTOR'S COST, THE REQUIRED QUANTITY OF DRAWINGS.
- 5.3. PROVIDE CERTIFICATE(S) OF ACCEPTANCE FROM THE AUTHORITIES INSPECTION DEPARTMENT, UPON COMPLETION OF WORK.

6. INSURANCE

- 6.1. PROVIDE AND MAINTAIN INSURANCE TO PROTECT THE LANDLORD, TENANT AND TRADES FROM ALL POSSIBLE CLAIMS. SUBMIT WITH BID FOR AN AMOUNT ACCEPTABLE TO LANDLORD AND TENANT.

7. CONTRACT DOCUMENTS

- 7.1. THE DRAWINGS FOR THE ELECTRICAL WORK ARE DIAGRAMMATIC PERFORMANCE DRAWINGS ONLY, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE SIZE AND LOCATION OF ELECTRICAL EQUIPMENT. THE DRAWINGS DO NOT INTEND TO SHOW ARCHITECTURAL, INTERIOR DESIGN, MECHANICAL, STRUCTURAL OR BASE BUILDING DETAILS. BE RESPONSIBLE FOR A THOROUGH KNOWLEDGE OF SAME BEFORE PROCEEDING WITH THE WORK.
- 7.2. DO NOT SCALE OR MEASURE DRAWINGS, BUT OBTAIN INFORMATION REGARDING ACCURATE DIMENSIONS FROM THE DIMENSIONS SHOWN ON THE DESIGN CONSULTANT'S/ARCHITECT'S DRAWINGS, OR BY SITE REQUIREMENTS.
- 7.3. ANY DISCREPANCIES BETWEEN DRAWINGS AND/OR SPECIFICATIONS AND EXISTING CONDITIONS, MUST BE REFERRED TO THE DESIGN CONSULTANT/ARCHITECT BEFORE ANY WORK AFFECTED IS BEGUN.
- 7.4. COOPERATE AND COORDINATE WITH OTHER CONTRACTORS IN LAYING OUT OF WORK SO AS NOT TO CONFLICT WITH THE WORK OF OTHER CONTRACTORS. CARRY OUT WORK PROMPTLY AS PER CONSTRUCTION SCHEDULE AND COORDINATE WITH WORK OF OTHER CONTRACTORS.
- 7.5. MAKE, AT NO ADDITIONAL COST, ANY CHANGES OR ADDITIONS TO MATERIALS AND EQUIPMENT NECESSARY TO ACCOMMODATE STRUCTURAL CONDITIONS (OFFSETS AROUND BEAMS, COLUMN, ETC.)

8. INTENT

- 8.1. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS THAT THE CONTRACTOR PROVIDES COMPLETE AND OPERATIONAL SYSTEMS AS REQUIRED, WHERE DIFFERENCES OCCUR, THE MAXIMUM CONDITION SHALL GOVERN.
- 8.2. ANY MISCELLANEOUS ITEMS, HARDWARE, DEVICES, WIRING, ETC., NOT SPECIFICALLY DESCRIBED, BUT REQUIRED FOR THE OPERATION OF THE SYSTEM, MUST BE PROVIDED AND INCLUDED AS PART OF THE BID.

9. SHOP DRAWINGS

- 9.1. SUBMIT FOUR (4) COPIES OF SHOP DRAWINGS OF ALL SPECIFIED EQUIPMENT FOR REVIEW AND RECORDS BEFORE COMMENCEMENT OF WORK.
- 9.2. CHANGES MADE TO THE SHOP DRAWINGS BY THE CONSULTANT WILL NOT AFFECT THE CONTRACT PRICE.

10. INSERTS, HANGERS AND SLEEVES

- 10.1. PROVIDE HANGERS, INSERTS, SLEEVES AND SUPPORTS AS REQUIRED.
- 10.2. INSERTS ARE TO BE OF A LEAD SLEED TYPE.
- 10.3. HANGERS MUST NOT BE WELDED TO STRUCTURAL STEEL MEMBERS AND BURNING OF HOLES IN STRUCTURAL STEEL IS PROHIBITED.
- 10.4. SLEEVES ARE TO BE OF A TYPE SUITABLE FOR THE APPLICATION AND BE SEALED AND MADE WATER TIGHT. SLEEVES THROUGH CONCRETE SHALL BE SCHEDULE 40 STEEL PIPES, SIZED FOR FREE PASSAGE OF CONDUIT AND INSTALLED FLUSH WITH UNDERSIZE OF CONCRETE SLAB AND EXTEND 100MM (4") ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.
- 10.5. DO NOT USE ANY BASE BUILDING SUPPORTS OR EQUIPMENT, INCLUDING CEILING SUPPORT SYSTEM.

11. CUTTING AND PATCHING

- 11.1. ALL CUTTING AND PATCHING REQUIRED TO THE EXISTING BUILDING STRUCTURE FOR THE WORK SHALL BE INCLUDED UNDER THIS CONTRACT AND BE ACCEPTABLE TO THE LANDLORD. OBTAIN WRITTEN APPROVAL FROM LANDLORD BEFORE ANY CUTTING IS CARRIED OUT.
- 11.2. WHERE CONDUITS PASS THROUGH FIRE RATED WALLS OR FLOORS, PROVIDE FIRE STOPPING MATERIAL LISTED WITH, AND BEAR LABEL OF CSA AND ULC, AND MAINTAIN SAME FIRE RATING OF BUILDING COMPONENT PENETRATION.
- 11.3. ALL OUTLETS TO BE MARKED ON JOB SITE FOR APPROVAL BY DESIGN CONSULTANT/ARCHITECT PRIOR TO INSTALLATION.

13. PLYWOOD

- 13.1. PROVIDE ALL PLYWOOD BACKBOARDS REQUIRED FOR THE WORK OF THIS DIVISION. PLYWOOD BACKBOARDS SHALL BE 21MM (3/4") THICK, OF HIGHEST QUALITY FIRE RETARDANT FIR. REFER TO DRAWINGS FOR SIZE, PRIME AND PAINT BACKBOARDS WITH FIRE RETARDANT PAINT EQUAL TO CGSB SPEC. #1-GP-151M, OF A COLOUR AS SELECTED BY THE DESIGN CONSULTANT/ARCHITECT.

14. ACCESS DOORS

- 14.1. WHEREVER ANY BASE BUILDING EQUIPMENT REQUIRES ACCESSIBILITY, MAINTENANCE OR ADJUSTMENT, PROVIDE ACCESS DOORS APPROVED BY DESIGN CONSULTANT/ARCHITECT AND LANDLORD. ARRANGE FOR ITS INSTALLATION BY THE DIVISION IN WHOSE WORK IT OCCURS.

15. CORE DRILLING

- 15.1. BEFORE CORE DRILLING FLOOR SLAB OR STRUCTURAL WALLS, X-RAY SLAB OR WALLS AND HAVE THE LOCATIONS ACCEPTED BY THE LANDLORD IN WRITING.
- 15.2. ANY EXISTING BUILDING SERVICE DAMAGED BY CORE DRILLING MUST BE REPAIRED IMMEDIATELY AT NO COST TO LANDLORD OR TENANT.
- 15.3. FLOOR DRILLING TO BE CARRIED OUT AFTER NORMAL WORKING HOURS AND AT A TIME ACCEPTABLE TO LANDLORD AND ALLOWANCES FOR THIS WORK SHALL BE INCLUDED IN BID PRICE SUBMITTED.

16. NOISE AND VIBRATION

- 16.1. ELECTRICAL EQUIPMENT IS TO OPERATE WITHOUT OBJECTIONABLE NOISE OR VIBRATION. IF, IN THE OPINION OF THE CONSULTANT, THE EQUIPMENT OPERATES WITH EXCESSIVE NOISE OR VIBRATION, THEN THE EQUIPMENT MUST BE REPLACED OR NOISE OR VIBRATION ELIMINATED.
- 16.2. CONNECTIONS TO NOISE-PRODUCING AND VIBRATING EQUIPMENT MUST BE MADE WITH FLEXIBLE CONDUIT. THIS INCLUDES TRANSFORMERS, DIMMING EQUIPMENT RACKS, AND MOTORS. USE A MINIMUM OF 1M (3 FT) OF FLEXIBLE CABLE WITH SLACK AT EACH DEVICE.
- 16.3. VIBRATION ISOLATORS ARE TO BE PROVIDED WHERE INDICATED OR REQUIRED. TRANSFORMERS TO BE ISOLATED FROM THE STRUCTURE, WITH SPRING AND RUBBER ISOLATORS WHEN WALL MOUNTED OR SUSPENDED AND 12MM (1/2") HIGH DENSITY NEOPRENE SANDWICH PADS (TYPE MWP) WHEN FLOOR MOUNTED.

17. TENANT'S EQUIPMENT

- 17.1. WHERE SPECIFIED, INSTALL ALL EQUIPMENT PROVIDED BY THE TENANT. RECEIVE, STORE AND INSTALL EQUIPMENT AND ACCEPT FULL RESPONSIBILITY FOR ITS CORRECT OPERATION. PROVIDE CONDUIT, WIRE, BOXES, SWITCHES, OUTLETS, DEVICES, FLEX CONNECTIONS, ETC., AS REQUIRED.

18. WORK IN NEW AND RENOVATED AREAS

- 18.1. WHEN DELETING AND/OR MAKING SAFE EXISTING ELECTRICAL WORK, ENSURE THAT IT INCLUDES REMOVAL OF ALL DISCONNECTED WIRING BACK TO THE ASSOCIATED PANEL BOARD OR DISTRIBUTION EQUIPMENT.
- 18.2. DISCONNECT AND REMOVE EXISTING LUMINAIRES, DEVICES, OUTLETS, ETC., WHICH ARE NOT TO BE REUSED. SUCH ITEMS SHALL BE CARTONED AND TURNED OVER TO THE LANDLORD AT A PLACE DESIGNATED BY THE LANDLORD. CUT BACK AND CAP UNUSED RACEWAY AND OUTLETS AND REMOVE UNUSED WIRING BACK TO PANELBOARD IN AN APPROVED MANNER. REMOVE ALL REDUNDANT COMMUNICATIONS CABLES BACK TO HUB ROOMS AND/OR TELEPHONE RISER ROOMS.

- 18.3. ENSURE THAT ALL EXISTING EQUIPMENT WHICH ARE TO BE REUSED AND/OR RELOCATED IS THOROUGHLY INSPECTED AND REFURBISHED TO ENSURE CORRECT OPERATION WHEN PUT BACK INTO SERVICE AND MEETS THE LOCAL ELECTRICAL SAFETY AUTHORITY'S APPROVAL. OUTLET BOXES AND WIRING AND/OR CONDUITS WHICH ARE CORRODED OR DAMAGED ARE TO BE REPLACED.
- 18.4. ALL EXISTING ELECTRICAL EQUIPMENT WHICH IS NO LONGER REQUIRED SHALL BE REMOVED AND DISPOSED OF, OFF SITE.
- 18.5. WHERE EXISTING OUTLET BOXES ARE REMOVED FROM EXISTING UNDER FLOOR DUCTS, PLUG AND CAP EXISTING HOLES FLUSH WITH FLOOR USING APPROVED FITTINGS. REMOVE ALL REDUNDANT WIRE AND CABLE BACK TO SERVICE.
- 18.6. BE RESPONSIBLE AND PAY FOR ANY DAMAGE TO THE BASE BUILDING INCURRED BY WORK OF THIS DIVISION, OR REPAIR TO THE SATISFACTION OF THE CONSULTANT.
- 18.7. CARRY OUT THE WORK WITH A MINIMUM OF NOISE, DUST AND DISTURBANCE.
- 18.8. PROVIDE TOOLS AND CLEAN UP EQUIPMENT. OBTAIN THE LANDLORD'S PERMISSION FOR THE USE OF ELECTRICAL ELEVATOR, PLUMBING OR DRAINAGE OUTLETS.
- 18.9. PROVIDE DAILY CLEAN UP AND PROPER DISPOSAL OF DEBRIS GENERATED BY DAILY OPERATIONS, ON COMPLETION OF THE WORK, ALL TOOLS, SURPLUS MATERIALS AND WASTE MATERIALS SHALL BE REMOVED AND THE PREMISES LEFT IN A CLEAN AND PERFECT CONDITION.
- 18.10. REMOVE AND REROUTS EXISTING CONDUITS WHICH ARE TO REMAIN IN "FINISHED" AREAS WHICH ARE TO BE EXPOSED.
- 18.11. CONDUITS WHICH ARE TO BE CUT BACK ARE TO TERMINATE IN A JUNCTION BOX.
- 18.12. CLEAN LUMINAIRE REFLECTORS AND LENSES, LAMPS, AND OTHER SURFACES THAT HAVE BEEN EXPOSED TO CONSTRUCTION DUST AND DIRT. CLEAN THE INSIDES AND OUTSIDES OF PANELBOARDS, SPLITTERS AND OTHER ELECTRICAL EQUIPMENT, AND COMPLETELY REMOVE ALL DEBRIS AND TOOLS FROM THE PROJECT.

19. INTERRUPTION OF SERVICES

- 19.1. INTERRUPTION OF ELECTRICAL SERVICE TO ANY PART OF THE BUILDING SHALL OCCUR ONLY BY PER-ARRANGEMENT WITH AND AT TIMES SUITABLE TO THE LANDLORD.
- 19.2. INTERRUPTIONS SHALL ONLY OCCUR DURING PREMIUM TIME PERIODS, ALL ALLOWANCES FOR THIS SHALL BE INCLUDED IN THE PRICE SUBMITTED.

20. IDENTIFICATION

- 20.1. PROVIDE LAMACOID NAMEPLATES ON ALL PANELS; DISCONNECT SWITCHES, SPLITTERS, ETC., TO MATCH BASE BUILDING. NAMEPLATES SHALL BE MECHANICALLY ATTACHED TO EQUIPMENT BY MEANS OF RIVETS OR SELF TAPPING SCREWS.
- 20.2. PROVIDE TYPEWRITTEN DIRECTORIES FOR NEW AND EXISTING PANELS. CONFIRM EXISTING IDENTIFICATION AND CORRECT WHERE NECESSARY.
- 20.3. CLEARLY MARK ALL EXPOSED CONDUIT, PULLBOXES, JUNCTION BOXES, ETC., TO INDICATE THE NATURE OF THE SERVICE TO MATCH BASE BUILDING STANDARDS.

21. VALUATION OF CHANGES

- 21.1. PROVIDE COMPLETE BREAKDOWN OF MATERIAL, LABOUR, OVERHEAD, PROFIT, ETC., WHEN SUBMITTING QUOTATIONS FOR CHANGE NOTICES ON THIS PROJECT.
- 21.2. THE HOURLY LABOUR RATE SHALL BE INCLUSIVE OF ALL CHARGES FOR SUPERVISION, VARIABLE LABOUR FACTORS, HAND TOOLS, PAYROLL BURDENS, HEIGHT FACTORS, WARRANTIES, STORAGE, RENTALS, ADDITIONAL BONDING, PARKING, CLEAN-UP, AS-BUILT DRAWINGS, HOISTING, FREIGHT AND DELIVERY, BUT EXCLUSIVE OF OVERHEAD AND PROFIT.
- 21.3. THE LABOUR HOURS SHALL BE BASED ON THE LATEST ISSUE OF THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA) LABOUR UNITS, COLUMN ONE NORMAL FOR THE DURATION OF THIS CONTRACT.
- 21.4. THE MATERIAL PRICES SHALL BE BASED ON THE CURRENT NATIONAL PRICES SYSTEM (NPS) CATALOGUE LESS APPLICABLE TRADE DISCOUNTS.

22. ENGINEERS' FINAL INSPECTION

- 22.1. FINAL INSPECTION IS IMPERATIVE. PRIOR TO CLOSING OF CEILINGS, THIS CONTRACTOR SHALL CONTACT E-LUMEN INTERNATIONAL INC. (905) 417-6881 AND THE LANDLORD'S REPRESENTATIVE TO PERFORM A FINAL INSPECTION WHEN CEILING TILES HAVE BEEN INSTALLED IT WILL BE NECESSARY FOR THE CONTRACTOR TO REMOVE PORTIONS FOR INSPECTION.

23. COMPLETION OF CONTRACT

- 23.1. ALL EQUIPMENT MUST BE CLEANED AND TESTED BEFORE FINAL ACCEPTANCE BY CONSULTANT.
- 23.2. FROM THE DATE OF SUBSTANTIAL PERFORMANCE, PROVIDE A WRITTEN GUARANTEE FOR ONE YEAR COVERING ALL EQUIPMENT, MATERIALS AND WORKMANSHIP, OTHER THAN LAMPS. INSERT IN OPERATIONS AND MAINTENANCE MANUAL.
- 23.3. DEFECTS AND DEFICIENCIES WHICH ORIGINATE OR BECOME EVIDENT DURING THE WARRANTY PERIOD MUST BE REPAIRED OR REPLACED, AT NO COST.
- 23.4. REPLACE, AT NO COST, ALL INCANDESCENT LAMPS BURNED-OUT DURING A THIRTY (30) DAY PERIOD AND ALL BURNED-OUT FLUORESCENT AND HID LAMPS FOR A PERIOD OF NINETY (90) DAYS AFTER DATE OF ISSUANCE OF CERTIFICATE OF "SUBSTANTIAL PERFORMANCE" FOR THE CONTRACT FOR THE WORK.
- 23.5. IF, DURING THE FOLLOWING TRANSFORMATION IN THE OPERATIONS OR OTHER NOISE AND VIBRATION PRODUCING EQUIPMENT ARE CONSIDERED BY THE CONSULTANT TO EXCEED ACCEPTABLE STANDARDS, THEN THESE MUST BE REPLACED WITHOUT DELAY OR ADDITIONAL COST TO THE TENANT. ALL WORK RELATING TO THE REPLACEMENT OF DEFECTIVE ITEMS, MUST BE CARRIED OUT AFTER NORMAL WORKING HOURS AND AT A TIME WHICH IS ACCEPTABLE TO THE TENANT.

24. AS-BUILT DRAWINGS

- 24.1. AT THE COMPLETION OF WORK AND BEFORE FINAL ACCEPTANCE, PROVIDE AS-BUILT DRAWINGS OF THE INSTALLATION IN AUTOCAD RELEASE 2013 FORMAT. AN ELECTRONIC COPY (AUTOCAD FORMAT) OF ALL DRAWINGS WILL BE PROVIDED TO THE ELECTRICAL CONTRACTOR BY THE CONSULTANT AT NO COST. THE DRAWINGS WILL REFLECT THE TENDER AND/OR CONSTRUCTION SET OF DRAWINGS. SHOULD THE CONTRACTOR REQUIRE ADDITIONAL ELECTRONIC COPIES DURING CONSTRUCTION, A COST OF \$100.00 PER DRAWING (PLUS HST) WILL BE CHARGED BY THE CONSULTANT.
- 24.2. INCORPORATE ALL CHANGES AND DEVIATIONS FROM TENDER DRAWINGS, UTILIZING NORMAL RECOGNIZED DRAFTING PROCEDURES THAT MATCH THE ORIGINAL DRAFTING METHODOLOGY.
- 24.3. ALL MAIN BRANCH CONDUIT RUNS, JUNCTION BOX LOCATIONS, CONDUIT RUNS FOR ALL FLOOR OUTLETS, ETC., MUST BE REFLECTED ON THE DRAWINGS.
- 24.4. REMOVE THE ELECTRICAL ENGINEER'S STAMP AND COMPANY NAME FROM ALL DRAWINGS.
- 24.5. CLEARLY INDICATE THE WORDS "AS-BUILT" IN THE TITLE BLOCK COLUMN OF THE DRAWINGS AS WELL AS THE ELECTRICAL CONTRACTOR'S NAME AND ADDRESS.
- 24.6. SUBMIT A PRINT TO CONSULTANT FOR REVIEW. WHEN FOUND ACCEPTABLE BY THE CONSULTANT, SUBMIT THREE (3) SETS OF PRINTS TOGETHER WITH THE CAD-DISK FOR PRESENTATION TO THE LANDLORD AND TENANT.

25. OPERATION AND MAINTENANCE MANUALS

- 25.1. PROVIDE TWO (2) SETS OF OPERATION AND MAINTENANCE MANUALS SUBMITTED IN HARD COVER 3-RING BINDERS. INCLUDE THE FOLLOWING INFORMATION IN THE OPERATIONS AND MAINTENANCE MANUALS:
 1. NAMES AND ADDRESS OF LOCAL SUPPLIERS FOR THE ITEMS INCLUDED.
 2. TECHNICAL DATA, PRODUCT DATA, SUPPLEMENTED BY BULLETINS, COMPONENT ILLUSTRATIONS, EXPLODED VIEWS, TECHNICAL DESCRIPTIONS OF ITEMS, AND PARTS LISTS. ADVERTISING OR SALES LITERATURE IS NOT ACCEPTABLE.
 3. THE CONSULTANT'S REVIEWED SHOP DRAWINGS.
- 25.2. CERTIFICATE(S) OF ACCEPTANCE FROM THE AUTHORITIES INSPECTION DEPARTMENT.
- 25.3. VERIFICATION REPORTS AND CERTIFICATE(S) FOR ANY NEW FIRE ALARM COMPONENTS OR TIE-INS AND ANY BASE BUILDING TIE-INS FOR MISCELLANEOUS SYSTEMS (I.E. SECURITY, LIGHTING CONTROL, DIGITAL METERING).
- 25.4. LOAD BALANCE REPORT.
- 25.5. WRITTEN GUARANTEE.
- 25.6. REVIEW INFORMATION PROVIDED IN THE MAINTENANCE INSTRUCTIONS AND MANUALS WITH THE TENANT'S OPERATING PERSONNEL AND LANDLORD'S OPERATING PERSONNEL WHERE BASE BUILDING SYSTEMS ARE REVISED, TO ENSURE A COMPLETE UNDERSTANDING OF THE ELECTRICAL EQUIPMENT AND SYSTEMS AND THEIR OPERATION.

31. DEMOLITION

- 26.1. VISIT THE SITE, EXAMINE THE EXISTING CONDITIONS AND BECOME FAMILIAR WITH THE EXTENT OF THE NECESSARY REMOVAL, RELOCATION, RECONNECTING, AND REROUTING OF ELECTRICAL EQUIPMENT AND WIRING AS NECESSARY FOR THE COMPLETION OF THE PROJECT.
- 26.2. REVIEW AND CONFIRM WITH THE ARCHITECT/DESIGNER'S DRAWINGS FOR THE COMPLETE EXTENT OF DEMOLITION AND ALTERNATION.
- 26.3. MAKE SAFE AND DISCONNECT ALL POWER AND SYSTEMS, AS AND WHEN, AND TO THE EXTENT REQUIRED TO FACILITATE WITH THE DEMOLITION.
- 26.4. ENSURE THAT ALL ELECTRICAL, LIFE SAFETY SERVICES, AND SERVICES FOR EXISTING EQUIPMENT, IN AREAS OUTSIDE THE AREAS OF THIS WORK, THAT ARE REQUIRED TO REMAIN IN SERVICE, SHALL DO SO.
- 26.5. RELOCATE ANY ELECTRICAL FEEDERS OR EQUIPMENT THAT ARE REQUIRED TO REMAIN IN SERVICE, THAT ARE SECURED TO EXISTING WALLS, FLOORS OR CEILINGS TO BE DEMOLISHED OR THAT ARE BURIED AND REQUIRED TO BE EXCAVATED FOR NEW WORK.
- 26.6. REMOVE AND REPLACE ANY ELECTRICAL EQUIPMENT ON WALLS OR CEILINGS THAT WILL BE DEMOLISHED AND REBUILT.
- 26.7. WHEN DELETING AND/OR MAKING SAFE EXISTING ELECTRICAL WORK, ENSURE THAT IT INCLUDES ALL WIRING BACK TO THE ASSOCIATED PANELBOARDS OR CONTROL PANEL.
- 26.8. DISCONNECT AND REMOVE EXISTING LIGHT FIXTURES, DEVICES, OUTLETS, E.T.C. WHICH ARE NOT TO BE REUSED. SUCH ITEMS SHALL BE CARTONED AND TURN OVER TO THE OWNER AT A PLACE DESIGNATED BY THE OWNER. CUT BACK AND CAP UNUSED RACEWAY AND OUTLETS AND REMOVE UNUSED WIRING BACK TO PANELBOARD IN APPROVED MANNER.
- 26.9. INCLUDE IN DEMOLITION WORK FOR REMOVAL OF ALL COMMUNICATION DEVICES, OUTLETS, AND CABLES, E.T.C., WHICH ARE NOT TO BE REUSED. REMOVE ALL UNNECESSARY CABLES AND EQUIPMENT IN HUB ROOMS AND/OR TELEPHONE ROOMS WITH EXTREME CARE TO AVOID ANY ACCIDENTAL SHUTDOWN TO EXISTING SERVICES SERVING OTHER PARTS OF THE BUILDING.
- 26.10. PROVIDE BLANK COVERPLATE WHERE OUTLETS ARE REMOVED FROM EXISTING WALLS TO REMAIN.
- 26.11. ALL EXISTING ELECTRICAL EQUIPMENT WHICH IS NO LONGER REQUIRED SHALL BE REMOVED AND DISPOSED OF, OFF SITE.
- 26.12. BE RESPONSIBLE AND PAY FOR ANY DAMAGE TO THE BASE BUILDING INCURRED BY WORK OF THIS DIVISION, OR REPAIR TO THE SATISFACTION OF THE CONSULTANT.
- 26.13. CARRY OUT THE WORK WITH MINIMUM OF NOISE, DUST AND DISTURBANCE.

MATERIALS AND METHODS

1. CONDUITS AND CONDUIT FITTINGS

- 1.1. PROVIDE ALL CONDUIT UP TO AND INCLUDING 103MM (4") SIZE, AS EMT THIN WALL WITH STEEL SET SCREW TYPE FITTINGS AND WEATHERPROOF CONNECTORS WITH "O" RINGS IN SPRINKLERED BUILDINGS. BUSHINGS AND CONNECTORS TO BE C/W INSULATED THROAT.
 - 1.2. PROVIDE FLEXIBLE METAL CONDUIT FOR CONNECTION TO MOTORS.
 - 1.3. INSTALL CONDUITS TO CONSERVE HEADROOM, PARALLEL AND PERPENDICULAR TO BUILDING LINES. DO NOT CADDIE CLIP CONDUITS TO CEILING HANGERS.
 - 1.4. ALL EMPTY CONDUITS SHALL BE COMPLETE WITH NYLON FISH WIRE.
 - 1.5. RUN TWO (2) 27MM (1") SPARE CONDUITS UP TO CEILING SPACE FOR EACH RECESSED PANELBOARD. TERMINATE THESE CONDUITS IN A 155MMX155MMX103MM (6"x6"x4") COVERED JUNCTION BOX IN CEILING SPACE.
 - 1.6. ALL COMMUNICATIONS CONDUIT SHALL BE REAMED AND INSTALLED COMPLETE WITH INSULATED BUSHINGS AT EACH END. THE CONTRACTOR SHALL INFORM THE CONSULTANT OF ANY COMMUNICATIONS CONDUIT LENGTHS IN EXCESS OF 70M (230 FT.) PRIOR TO INSTALLATION.
 - 1.7. ALL COMMUNICATIONS CONDUIT SHALL BE REAMED AND INSTALLED COMPLETE WITH INSULATED BUSHINGS AT EACH END. THE CONTRACTOR SHALL INFORM THE CONSULTANT OF ANY COMMUNICATIONS CONDUIT LENGTHS IN EXCESS OF 70M (230 FT.) PRIOR TO INSTALLATION.
- #### 2. SPLITTERS, JUNCTION BOXES AND PULL BOXES
- 2.1. SPLITTERS SHALL HAVE SHEET STEEL ENCLOSURE, WITH WELDED CORNERS AND FORMED HINGED COVER SUITABLE FOR LOCKING IN CLOSED POSITION. CONNECTION BARS ARE TO MATCH REQUIRED SIZE AND NUMBER OF INCOMING AND OUTGOING CONDUCTORS AS INDICATED.
 - 2.2. JUNCTION BOXES AND PULLBOXES SHALL BE SUITABLE FOR SURFACE MOUNTING AND BE OF WELDED STEEL CONSTRUCTION WITH SCREW-ON FLAT COVERS.
 - 2.3. FOR FLUSH-MOUNTED PULL AND JUNCTION BOXES, PROVIDE COVERS WITH 27MM (1") MINIMUM EXTENSION ALL AROUND.
 - 2.4. INSTALL JUNCTION AND PULL BOXES IN INCONSPICUOUS BUT ACCESSIBLE LOCATIONS.
 - 2.5. A MINIMUM OF ONE PULL BOX SHALL BE INSTALLED FOR EVERY 100 FT. (30M) OF CONDUIT. (NOTE: EACH 90 DEG. BEND SHALL EQUATE TO A 30 FT. (9M) LENGTH OF CONDUIT).
 - 2.6. NO MORE THAN TWO (2) - 90 DEG. BENDS SHALL BE INSTALLED BETWEEN ANY TWO ADJACENT PULL BOXES.

3. OUTLET BOXES

- 3.1. OUTLET BOXES SHALL BE ELECTRO-GALVANIZED STEEL, SIZED AS REQUIRED BY CODE.
- 3.2. PROVIDE EACH LIGHT SWITCH, RECEPTACLE, COMMUNICATION AND OTHER OUTLET WITH AN OUTLET BOX. INSTALL PLUMB AND TRUE. PROVIDE 78MM (3") DEEP 1004 BOXES FOR DIMMING SWITCHES.
- 3.3. ADAPT ALL OUTLET BOXES TO THEIR RESPECTIVE LOCATIONS AND SUPPORT INDEPENDENTLY OF THE CONDUIT. DO NOT CADDIE CLIP TO CEILING HANGERS.
- 3.4. PROVIDE BLANK COVERPLATES FOR BOXES WITHOUT WIRING DEVICES.
- 3.5. DO NOT INSTALL OUTLET BOXES BACK TO BACK IN PARTITIONS. STAGGER TO PREVENT SOUND TRANSFER.
- 3.6. TWO OR MORE OUTLET BOXES THAT OCCUR AT THE SAME LOCATION SHALL BE GANGED TOGETHER IN THE SAME COVERPLATE UNLESS OTHERWISE NOTED.

4. GROUNDING

- 4.1. GROUND ALL EQUIPMENT IN ACCORDANCE WITH LATEST EDITION OF THE ELECTRICAL SAFETY CODE. PROVIDE SEPARATE GREEN INSULATED PULL BOXES IN EVERY CONDUIT TO ALL DEVICES, LUMINAIRES AND FEEDERS (PANELBOARDS, SPLITTERS, DISCONNECT SWITCHES, ETC.).

5. WIRE AND CABLE

- 5.1. ALL WIRE AND CABLE SHALL BE COPPER, MINIMUM 12 GAUGE, NO. 12 AND NO. 10 SOLID, NO. 8 AND LARGER STRANDED, WITH RW90 (75°C) INSULATION, 600VOLT RATING.
- 5.2. BX#12 MAY BE USED IN CEILING SPACE FROM CEILING DISTRIBUTION BOX DOWN TO RECEPTACLES IN PARTITIONS. BX RUNS IN CEILING SPACE NOT TO EXCEED 3048MM(10'-0") IN LENGTH. DO NOT RUN BX CABLES INTO PANELBOARDS.
- 5.3. SIZE ALL WIRE FOR MAXIMUM 2% VOLTAGE DROP.
- 5.4. ALL HOME RUNS TO BE IN CONDUIT.

6. LOCAL SWITCHES

- 6.1. PROVIDE SPECIFICATION GRADE LOCAL 20A. 120 VOLT SWITCHES, A.C. TYPE WHITE WITH WHITE MATCHING COVERPLATES:
 - P&S #2621 SERIES C/W SCREWLESS FACEPLATES
 - HUBBELL #HBL2121 SERIES C/W SCREWLESS FACEPLATES
 - LUTRON CLARO SERIES C/W SCREWLESS FACEPLATES
- 6.2. REFER TO LEGEND FOR OTHER TYPES.

7. RECEPTACLES

- 7.1. PROVIDE SPECIFICATION GRADE 15A. 120 VOLT, "U" GROUND RECEPTACLES, DUPLEX TYPE WHITE WITH WHITE MATCHING COVERPLATES:
 - P&S #26252 SERIES C/W SCREWLESS FACEPLATES
 - HUBBELL #HBL2152 SERIES C/W SCREWLESS FACEPLATES
 - LUTRON CLARO SERIES
- 7.2. REFER TO LEGEND FOR OTHER TYPES.
- 7.3. RECEPTACLES ON SEPARATE CIRCUITS ARE TO HAVE CIRCUIT NUMBER IDENTIFIED ON THE WALL PLATE AND FURTHER IDENTIFIED WITH THE EXACT LOCATION LISTED IN THE PANEL DIRECTORY.

8. LIGHTING CONTROL DIMMING SYSTEM

- 8.1. SYSTEM SHALL CONSIST OF FACTORY PRE-ASSEMBLED DIMMING AND SWITCHING PANELS, CENTRALIZED PRESET LIGHTING CONTROL(S), LOW VOLTAGE WALLSTATIONS AND/OR CONTROL INTERFACES, AND SOLID-STATE HIGH FREQUENCY FLUORESCENT DIMMING BALLAST (WHERE APPLICABLE). THE MANUFACTURER SHALL BE LUTRON ELECTRONICS CO., INC. THE LIGHTING CONTROL SYSTEM SHALL PROVIDE SHADE CONTROL CAPABILITY (WHERE APPLICABLE). ADDITIONAL ITEMS MAY ALSO BE REQUIRED AND ARE DESCRIBED HEREIN AND/OR SHOWN ON THE DRAWINGS.

9. MECHANICAL TRADE WIRING

- 9.1. UNLESS OTHERWISE NOTED, ALL STARTERS AND CONTROL WIRING TO BE PROVIDED BY DIVISION 15. DIVISION 16 TO RECEIVE, INSTALL STARTERS AND PROVIDE ALL POWER WIRING AND REQUIRED ISOLATING DISCONNECT SWITCHES.
- 9.2. CONFIRM ELECTRICAL REQUIREMENTS AND EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT WITH DIVISION 15 PRIOR TO INSTALLATION.

10. LUMINAIRES

- 10.1. PROVIDE ALL LUMINAIRES AS SHOWN ON THE DRAWINGS AND AS SPECIFIED IN THE LUMINAIRE SCHEDULE.
- 10.2. ALL LUMINAIRES SHALL BE COMPLETE WITH NEW LAMPS, BALLASTS, ACCESSORIES AND MOUNTING APPURTENANCES.
- 10.3. ALL LUMINAIRES TO BE CSA APPROVED.
- 10.4. AIM AND ADJUST ALL LUMINAIRES IN PRESENCE OF CONSULTANT.
- 10.5. ALL LUMINAIRES INSTALLED ON DRYWALL OR T-BAR CEILINGS SHALL BE INDEPENDENTLY SUPPORTED FROM BUILDING STRUCTURE WITH TENSO CHAINS UNLESS OTHERWISE NOTED.
- 10.6. COOPERATE WITH ALL OTHER TRADES FOR THE PROPER INSTALLATION OF ALL LUMINAIRES.

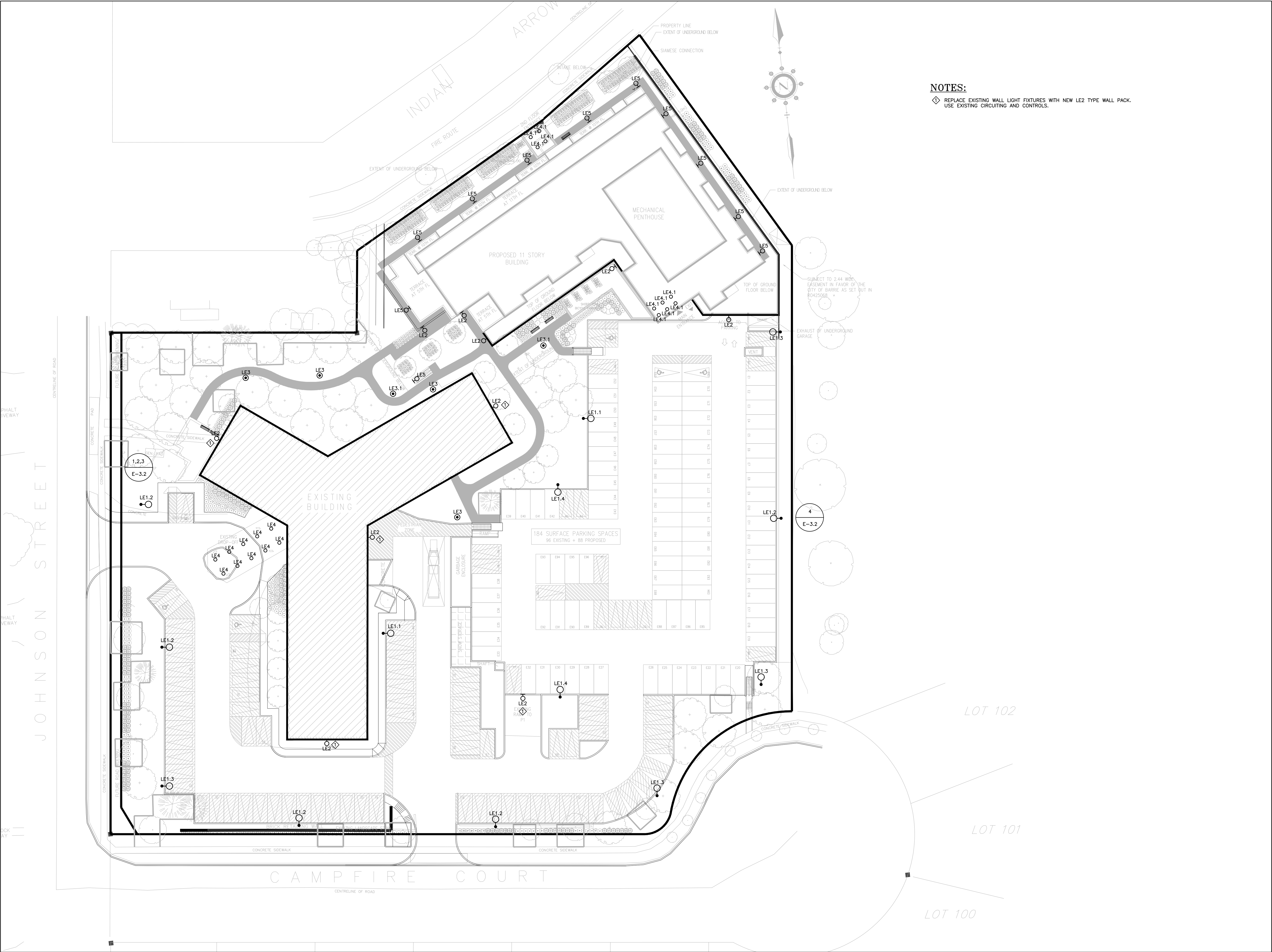
11. MEGGERING AND BALANCING

- 11.1. MEGGER ALL POWER CIRCUIT FEEDERS. IF GROUND RESISTANCE ON ANY CIRCUIT IS LESS THAN THAT REQUIRED BY CSA OR OTHER GOVERNING REGULATIONS, SUCH CIRCUITS ARE TO BE CONSIDERED DEFECTIVE AND MUST BE REPLACED.
- 11.2. MEASURE PHASE CURRENT TO PANELBOARDS WITH NORMAL LOADS OPERATING AT TIME OF ACCEPTANCE. ADJUST BRANCH CIRCUIT CONNECTIONS AS REQUIRED TO OBTAIN BEST BALANCE (NOT MORE THAN 10%) OF CURRENT BETWEEN PHASES AND SUBMIT A REPORT FOR INSERTION INTO MANUALS.

12. SERVICE EQUIPMENT

- 12.1. ALL NEW PANELBOARDS SHALL BE WITH COPPER LUGS, DISCONNECT SWITCHES, METERS, ETC., TO BE SAME MANUFACTURE, RATING AND TYPE AS BASE BUILDING EQUIPMENT UNLESS OTHERWISE NOTED. MOLDED CASE CIRCUIT BREAKERS TO BE BOLT-ON AND SAME MANUFACTURER, RATING AND TYPE AS BASE BUILDING BREAKERS. IF UNABLE TO MATCH BASE BUILDING EQUIPMENT, ONE OF THE FOLLOWING MANUFACTURER'S EQUIPMENT MUST BE PROVIDED: SCHNEIDER, CUTLER-HAMMER AND SIEMENS.
- 12.2. DRY TYPE TRANSFORMERS TO BE COPPER WINDINGS AND SHALL BE OF THE SAME MANUFACTURER AS THE BASE BUILDING BUT WITH A DESIGN K FACTOR OF 1.3 C/W WITH ELECTROSTATICALLY SHIELDED WINDINGS AND MEET CSA C802/NEMA TP-1 REQUIREMENTS. PROVIDE DOUBLE LUGS ON TRANSFORMER NEUTRALS FOR CONNECTION OF CABLES. IF UNABLE TO MATCH BASE BUILDING TRANSFORMER, ONE OF THE FOLLOWING MANUFACTURER'S TRANSFORMERS MUST BE PROVIDED: SCHNEIDER, DELTA, ACME, HAMMOND, OR MAGNETEK/POLYGON.
- 12.3. CEILING MOUNT TRANSFORMERS UP TO 45 KVA WITH SUSPENSION RODS AND SPRING ISOLATORS, TRANSFORMERS 75 KVA AND LARGER TO BE FLOOR MOUNTED ON KORFUD ISOLATION PADS UNLESS OTHERWISE NOTED.
- 12.4. PROVIDE SHORT CIRCUIT PROTECTION AND COORDINATION STUDY OF THE ENTIRE DISTRIBUTION SYSTEM. ENSURE PROPER INFORMATION IS OBTAINED INCLUDING HYDRO TRANSFORMER RATINGS. COORDINATION STUDY SHALL BE SUBMITTED TO CONSULTANT PRIOR TO SHOP DRAWINGS APPROVAL. NO EXTRA CHARGE WILL BE GRANTED FOR ADJUSTMENT TO BREAKER RATINGS OR FEEDER SIZES.

13. NOT USED.



NOTES:
◇ REPLACE EXISTING WALL LIGHT FIXTURES WITH NEW LE2 TYPE WALL PACK.
USE EXISTING CIRCUITING AND CONTROLS.

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notes:

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4
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2
1 Issued for S.P.A. 02-04-2020
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electrical:
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mechanical:

landscape:
mhbc
interior:

site services:
wmi & associates ltd.

project:
37 johnson st. (infill)

client:
starlight investments
1803 - 3500 bisson st w
toronto, on
m5h 2Z2

electrical site plan

november 11.2019
1:300
19-263
an, fc

date:
scale:
project:
drawn by:

drawing number:
E-3.0

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219 dufferin street, suite 203b, toronto, on. m5x 1y9 tel. (416) 601.5476 info@unfolds.ca

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
2ND FL CANOPY ENTR	+	21.6 fc	30.2 fc	13.3 fc	2.3:1	1.6:1
HANDICAP PRKG 1	+	3.0 fc	4.5 fc	1.4 fc	3.2:1	2.1:1
LIGHT SPILL	+	0.0 fc	0.0 fc	0.0 fc	N/A	N/A
MAIN ENTRANCE CANOPY	+	27.7 fc	40.9 fc	11.5 fc	3.6:1	2.4:1
NEW BACK PATHS	+	3.4 fc	23.8 fc	0.3 fc	79.3:1	11.3:1
NEW BLDG PERIMETER	+	2.7 fc	17.2 fc	0.0 fc	N/A	N/A
PARKING LOT	+	2.3 fc	9.8 fc	0.4 fc	24.5:1	5.8:1
PATH 1	+	1.8 fc	4.7 fc	0.4 fc	11.8:1	4.5:1
UNDER CANOPY	+	20.8 fc	30.4 fc	7.3 fc	4.2:1	2.8:1

[illegible]

DSX1	'LE1.1,LE1.2,LE1.3,LE1.4'
N.T.S.	

RADPT 'LE3'

N.T.S.

WDGE2 'LE2'

T.S.

6Q500 'LE5'
T.S.

notes:

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4
3
2
1 Issued for S.P.A. 02-04-2020
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planning:
mhbc

structural:

electrical:
e-lumen international

mechanical:

site services:
wmi & associates ltd.

37 johnson st. (infill)

client:
starlight investments
1801 - 3300 bloor st w
toronto, on
m8x 2x2

site plan analysis

november 11.2019
n.t.s.
19-263
an, fc

drawing number:

E-3.1

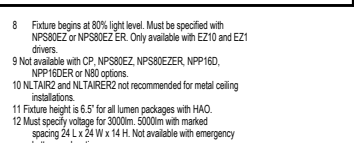
1. STANDARD COLOUR SAMPLES AT SHOP DRAWING
2. CAMERA INFRASTRUCTURE, AS SHOWN IN PLAN WHERE REQUIRED, SHALL CONSIST OF A SEPARATE CONDUIT FOR POWER, 21mm and AN ADDITIONAL SEPARATE 21mm CONDUIT TO IT INFRASTRUCTURE.
3. CARLTON CURVED LID J-BOX (8"x8") E88C24 TO BE INSTALLED INTO POLE BASE AT 2" BELOW DECORATIVE RING. EACH POLE TO HAVE CARLTON J-BOXES.



1. INTERNAL CLEARANCE OF TENON/POLE MOUNTING BOLTS DICTATES ALLOWABLE AREA FOR STUB-UPS.



1. POLE TO BE FASTENED TO CONCRETE CURB. CONTRACTOR TO HIRE STRUCTURAL ENGINEER TO DESIGN CLAMPS RATED FOR POLE DIAMETER AND HEIGHT.
2. SURFACE MOUNT PVC CONDUITS.
3. ALLOW FOR TALLER POLE WITHOUT ANCHOR PLATE FOR THIS APPLICATION.

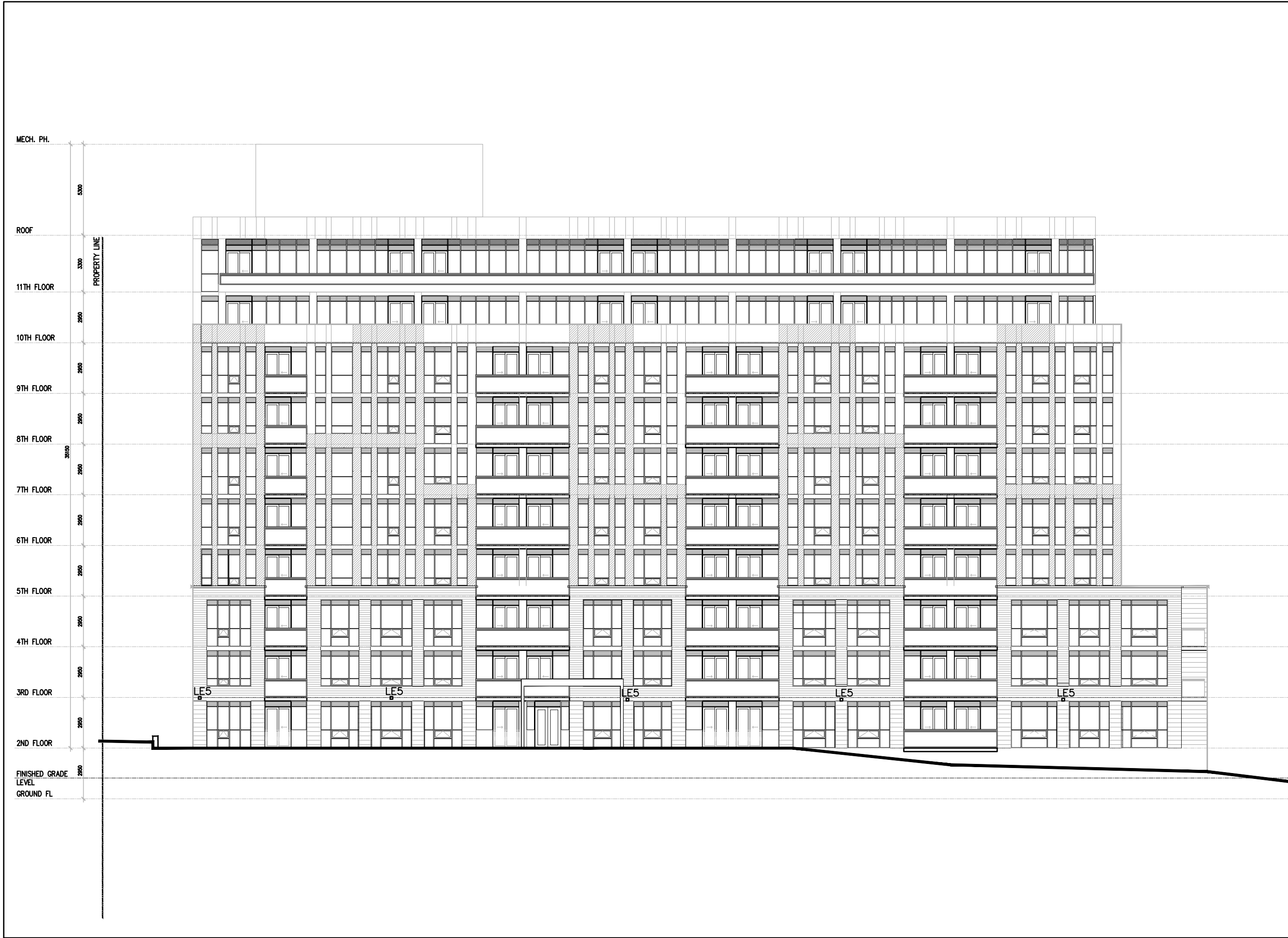


E-3.2 SCALE: XXX

1. PROVIDE ALL WORK ASSOCIATED WITH THIS DETAIL. EXACT LOCATION OF POLE MOUNTED LUMINAIRES TO BE COORDINATED WITH SITE PLAN.
2. REFER TO MANUFACTURERS DRAWINGS FOR FORMS AND POLES FOR DETAILS OF BASE DEPTH AND CONSTRUCTION – FOLLOW ALL REQUIREMENTS AND RECOMMENDATIONS. THE BASE SHALL BE PROVIDED AND COMPLETELY INSTALLED BY DIVISION 16. ALL DETAILS ARE TO BE SUBMITTED AT SHOP DRAWING REVIEW. MINIMUM ACCEPTABLE CONSTRUCTION REQUIREMENTS ARE AS SET BY MINISTRY OF TRANSPORTATION LIGHTING POLE DETAILS FOR HEIGHTS REQUIRED.
3. ALL POLE BASES ARE COMPLETE WITH ARTFORM NEWAVEA SERIES COMPATIBLE FOR THE POLE HEIGHT BEING REQUESTED IN CHATHAM AREA SOIL CONDITIONS.
4. CONSULT A STRUCTURAL ENGINEER TO CONFIRM POLE BASE REQUIREMENTS

number:

E-3.2



1 NORTH ELEVATION
E-4.0 SCALE=1:200



3 SOUTH ELEVATION
E-4.0 SCALE=1:200



2 EAST ELEVATION
E-4.0 SCALE=1:200



4 WEST ELEVATION
E-4.0 SCALE=1:200

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elevations

november 11.2019 date:
1:200 scale:
19-263 project:
an, fc drawn by:

drawing number:

E-4.0

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