

ELECTRICAL LEGEND

LIGHTING

- FLUORESCENT LIGHT FIXTURE TYPE AS INDICATED
NIGHT LIGHT OR LIGHT CONNECTED TO EMERGENCY POWER
CEILING MOUNTED WALL MOUNTED LIGHT FIXTURE
INSCRIBED LETTER DENOTES TYPE
POLE MOUNTED LIGHT FIXTURE
INSCRIBED LETTER DENOTES TYPE
CAPPED CEILING LIGHT OUTLET
TRACK LIGHT
STRIP LIGHT
UNDER CABINET FLUORESCENT LIGHT FIXTURE
CEILING MOUNTED WALL MOUNTED EXIT SIGN
EMERGENCY BATTERY PACK
OCCUPANCY SENSOR POWER PACKS
SINGLE/THREE POLE SINGLE/THREE THROU DOUBLE SWITCH RESPECTIVELY
1/2" X 1/2" DENOTES 1-WAY 4-WAY/FLYOUT LIGHT, DIMMER SWITCHED LIGHT RESPECTIVELY
MASTER LIGHTING SWITCH OFF SWITCH
SENSOR WALL SWITCH FIRE SELF POWERED
OCCUPANCY SENSOR CEILING MOUNTED

POWER

- REGULAR DUPLEX RECEPTACLE
DUPLEX RECEPTACLE GROUND FAULT INTERRUPT
9-20R 1-1/2" DUPLEX RECEPTACLE
SINGLE RECEPTACLE TYPE AND CONFIGURATION AS SPECIFIED FOR DRYER
CONNECTION FOR OVERCLOCKTOP
ABOVE COUNTER DEVICE
CEILING MOUNTED DEVICES
FLOOR MOUNTED DEVICES
DISCONNECT SWITCH NON-FUSED
DISCONNECT SWITCH FUSED
CONSERVATION STATUES
FRACTIONAL MOTOR/FAN DIRECT CONNECTION
DIRECT CONNECTION SINGLE PHASE
DIRECT CONNECTION THREE PHASE
THERMOSTAT
DRYER SENSOR
HEAT TRACE
ELECTRICAL HEATER
ELECTRICAL PANEL / SECURITY PANEL

TELECOMMUNICATION

- TYCABLE OUTLET
TELEPHONE CABLE (MULTI-PORT OUTLET)
DATA OUTLET
IN SITE TELEPHONE BOX (G) RECEPTACLE
LIFT LOCATION
VIDEO INTERCOM
RADIO RECEIVER

SECURITY

- INTERCOM / INTERPHONE
INTERCOM WITH CAMERA
PANIC BUTTON / PANIC INTERCOM STATION
CARD READER
AUTOMATIC RELEASE CARD ACCESS/RADIO RECEIVER
ELECTRIC STRIKE
HARDLOCK
DOOR CONTACT / WINDOW CONTACT
GLASS BREAK DETECTOR
AUTOMATIC DOOR OPERATOR
MOTION DETECTOR
PUSH BUTTON
SECURITY CAMERA

LIFE SAFETY

- FIRE ALARM SPOKE DETECTOR
SPOKE ALARM
FIRE ALARM DUCT TYPE SPOKE DETECTOR
FIRE ALARM DETECTOR
FIXED TEMP 68 °C DEGREE HEAT DETECTOR
MOISTURE PROOF HEAT DETECTOR
CO ALARM
CO SENSOR / NO SENSOR
FIRE ALARM MANUAL CALL STATION
FIREFIGHTERS HANDSET
FIRE ALARM SPEAKER/SPOKE WALL MTD.
FIRE ALARM SPEAKER WALL MTD.
FIRE ALARM SPEAKER CEILING MTD.
FIRE ALARM ANNUNCIATOR PANEL
FIRE ALARM CONTROL PANEL

KEY NOTES

- STARTERS AND VFD STARTERS TO BE SUPPLIED BY MECHANICAL CONTRACTOR
INTERLOCK BETWEEN ATS/GENERATOR AND ELEVATORS. ELECTRICAL CONTRACTOR TO PROVIDE NECESSARY WIRING AND DRY CONTACTS AT ATS/GENERATORS. ELEVATOR STOP/START SENSING DUE TO FIRE ALARM ACTIVATION AND/OR POWER OUTAGE SHALL BE BY ELEVATOR VENDOR
ELECTRICAL CONTRACTOR TO PROVIDE 4-CONDUCTOR RS-485 CABLE (BELDEN 9842 BELDEN 3087A OR DELCO 43807) IN 1" ENT CONDUIT. THE CONDUITS FOR CTS TO BE RIG IN CONDUIT
ALL LOADS DESIGNATED SHALL BE INTERLOCKED WITH THE FIRE PUMP. I.E. WHEN THERE IS A POWER OUTAGE AND THE FIRE PUMP STARTS, ALL THESE LOADS SHALL STOP RUNNING
HYDRO METER BASE CULAR HAMMER UNION 1 1/2" X 1 1/2" ELEC. BOX (1/2" ENT. PROVIDE 1/2" ENT TO UTILITY COMPARTMENT OF MAIN SWITCHBOARD.
EXTRA 5A 3P BREAKER FOR METERING
MAIN FEEDERS TO TOWER ELEV. MAIN RPT. SWITCHBOARD/EQUIPMENT SHALL BE RUN IN ELECTRICAL SHAF.
SWIPPING POOL. CONTRACTOR SHALL PROVIDE ALL THE ELECTRICAL EQUIPMENT THAT PERTAINS TO THE SWIPPING POOL. WIRING OF 600V VOLT LOADS TO A 200AMP 600VOLT 3 PHASE SPLITTER SUPPLIED AND INSTALLED BY DIV. 16. SIMILARLY, DIV. 16 CONTRACTOR SHALL CONNECT ALL 120V LOADS TO THE PANEL LP-P AND LP-R, WHETHER THESE LOADS ARE SHOWN ON OUR DRAWINGS OR NOT.
CONNECT AUX CONTACT TO CACF MANUAL START/STOP SWITCH FOR FIREFIGHTERS.
GENERATOR SILENCER SHALL BE HOSPITAL GRADE PLUS "HOCKEY FLYCK" AND RECTANGULAR SHAPE. CONTRACTOR TO FABRICATE SILENCER AFTER SITE MEASUREMENT.
SIZE PENDING ON EQUIPMENT SHOP DRAWING DATA.
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TORK D25000EP ELECTRIC 1-CHANNEL ASTRONOMICAL TIME CLOCK C/W SEASONAL, HOLIDAY AND EARTH HOUR OVER-RIDE.
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ROUGH-IN ONLY THIS IS AT THE OPTION OF TORONTO HYDRO AND PROVIDENT ENERGY MANAGEMENT.
SIZE OF BREAKER SHALL NOT BE LESS THAN THE OVERCURRENT PROTECTION THAT IS PROVIDED INTEGRAL WITH THE FIRE PUMP CONTROLLER (OESC-15TH EDITION-2005 SECTION 33-206(5)).
ELECTRICAL CONTRACTOR TO CONFIRM WITH EQUIPMENT SHOP DRAWINGS PRIOR TO FINAL INSTALLATION OF WIRING AND CONDUITS TO THE POOL EQUIPMENT.

REVISIONS

Table with columns: NO., DATE, DESCRIPTION. Includes revision 1: CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS ON THE JOB AND REPORT CORRECTIONS TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. THE DRAWING IS THE PROPERTY OF THE ENGINEER AND NOT TO BE REPRODUCED OR COPIED WITHOUT THE WRITTEN PERMISSION OF THE ENGINEER.



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SINGLE LINE DIAGRAM

PROJECT TITLE: ALEXANDRA PARK
38 CAMERON STREET, BLOCK II TORONTO ONTARIO

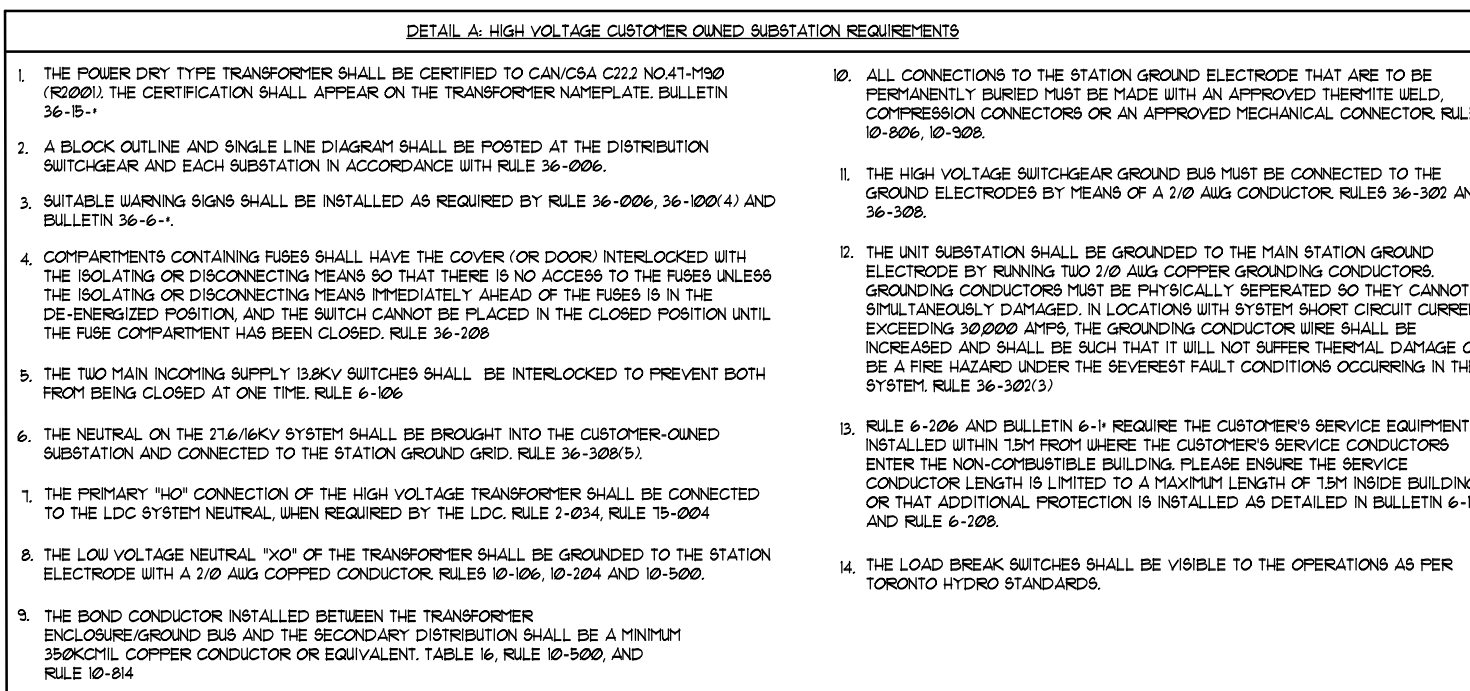
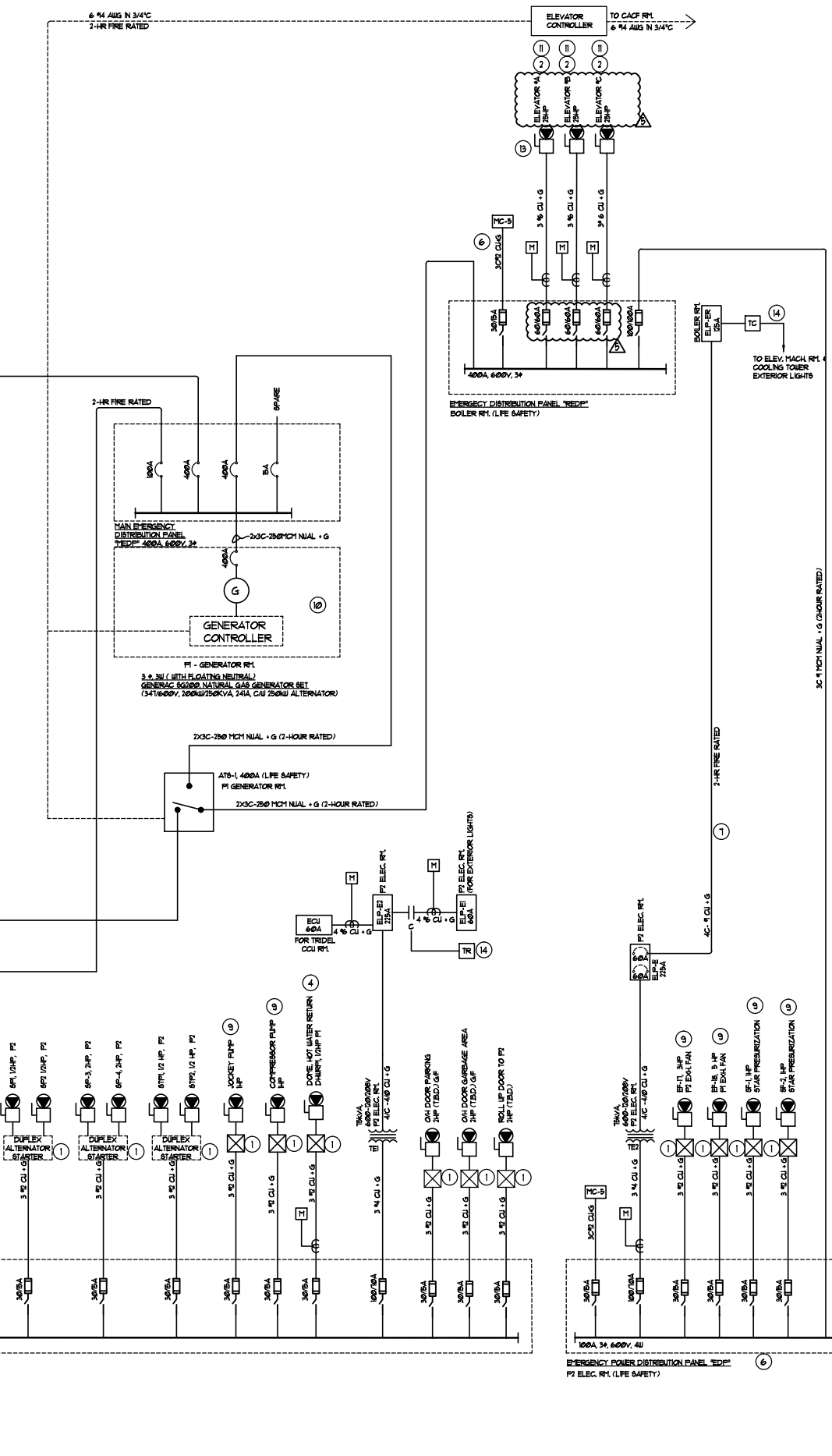
Table with columns: DATE, PROJECT NUMBER, DRAWING NUMBER. Includes date FEB 13, project number 1313, drawing number E-30.

GENERAL NOTES

- ALL 600 + 1000V PANEL, BOARDS AND SWITCHBOARDS SHALL HAVE INTERRUPTING CAPACITY SIZED AS PER RESULTS OF SHORT STUDY.
ALL EMERGENCY FEEDERS TO BE ENCASED IN CONCRETE OF SUFFICIENT DEPTH TO PROVIDE FOR 2 HOUR FIRE SEPARATION.
BREAKERS (2) TO BE FACTORY INSTALLED 4 LINESIDE WIRED BY GENERATOR MANUFACTURER.
ALL CONDUCTOR SIZES BASED ON RMB3 COPPER, SPECIFIED. ALUMINUM CABLES MAY BE USED (NIAL AC90) FOR FEEDERS WITH AMPACITY LARGER THAN 100A, THE CONTRACTOR SHALL SIZE EQUIVALENT AL CABLES AS PER THE ELECTRICAL CODE.
ALL CLASS 'R' FUSE HOLDERS USED ON CIRCUIT IN EXCESS OF 100A OF AVAILABLE FAULT CURRENT SHALL BE EQUIPPED WITH FUSE SELECTORS TO PREVENT NON CLASS 'R' FUSES FROM BEING INSTALLED. RULE 14-02.
PROVIDE GROUND WIRE FOR ALL FEEDER CIRCUITS AS REQUIRED BY THE CODE.
GROUNDING 4 BONDING CONDUCTOR SHALL BE SIZED AS PER TABLE 16 IT OF THE 2001 ONTARIO ELECTRICAL SAFETY CODE.
UNLESS DESIGNATED AS NIAL, ALL OTHER CABLES ARE COPPER. ALUMINUM CONDUCTORS CAN ONLY BE USED AS FEEDERS FEEDING WITH OVER 100A AMPACITY THEY SHALL NOT BE USED AS FINAL CONNECTION TO EQUIPMENT.
CONTRACTOR TO PROVIDE ALTERNATE QUOTE FOR FUSED SWITCHBOARD INSTEAD OF CIRCUIT BREAKER BASED SWITCHBOARDS PROVIDED SPACE IS SUFFICIENT.
FEEDERS TO BE SIZED TO ALLOW FOR VOLTAGE DROP ALLOWED PER ESA.
QUALOGIC PANELS (TRANSFORMERS AND MC-94) TO BE SUPPLIED BY PROVIDENT ENERGY MANAGEMENT, INSTALLED BY DIV.16.
ALL FUSES INDICATED ARE THE DELAY TYPE.
A BLOCK OUTLINE AND SINGLE LINE DIAGRAM SHALL BE POSTED AT THE DISTRIBUTION SWITCHGEAR AND EACH UNIT SUBSTATION IN ACCORDANCE WITH RULE 36-006.
THE FIRE PUMP TRANSFER SWITCH SHALL BE APPROVED FOR FIRE PUMP SERVICE. RULE 31-206(1,c)
THE 1800V DRY TRANSFORMER SHALL BE CERTIFIED TO CAN/CSA C22 No.41-M90 (R2000). THE CERTIFICATION SHALL APPEAR ON THE TRANSFORMER NAMEPLATE. BULLETIN 36-15-4
1C - SINGLE CONDUCTOR CABLES TO RUN WITH 1 CABLE DIA. SEPARATION AND SUPPORTED BY INSTRUT OR TRAY AS PER ESA 3C OR 4C - 3 OR 4-CONDUCTOR CABLES (AQUA WHEN EMBEDDED CONFORM WITH MANUF. REQUIREMENTS). 3" - SINGLE CONDUCTOR CABLES RUN WITHIN EMBENT CONDUITS.
ALL CABLES CONNECTING EQUIPMENT TO EMERGENCY POWER SHALL BE FIRE RATED 2-HR OR ENCLOSED IN ON A ULC APPROVED 2-HR FIRE RESISTANT ENCLOSURE.
CONTRACTOR SHALL PROVIDE SHORT CIRCUIT STUDY AND RELAY COORDINATION STUDY WITH EQUIPMENT SUPPLIED, TO ENSURE THAT ALL POWER DISTRIBUTION DEVICES CAN WITHSTAND SHORT CIRCUIT CURRENTS AND ARE PROPERLY COORDINATED.
GENERAL NEUTRAL SHALL BE FLOATING (NOT CONNECTED TO THE FRAME GROUND). ALL POWER, CONTROLS AND COMMUNICATION CONDUCTORS SHALL BE PROTECTED AGAINST FIRE EXPOSURE AS PER OESC. RULE 46-202 AND RULE 47-202(3) OESC 2002.

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- 1. THE POWER DRY TYPE TRANSFORMER SHALL BE CERTIFIED TO CAN/CSA C221 NO.41-M90 (R2000). THE CERTIFICATION SHALL APPEAR ON THE TRANSFORMER NAMEPLATE. BULLETIN 36-15-4
2. A BLOCK OUTLINE AND SINGLE LINE DIAGRAM SHALL BE POSTED AT THE DISTRIBUTION SWITCHGEAR AND EACH SUBSTATION IN ACCORDANCE WITH RULE 36-006.
3. SUITABLE WARNING SIGNS SHALL BE INSTALLED AS REQUIRED BY RULE 36-006, 36-100(4) AND BULLETIN 36-6-1.
4. COMPARTMENTS CONTAINING FUSES SHALL HAVE THE COVER (OR DOOR) INTERLOCKED WITH THE ISOLATING OR DISCONNECTING MEANS SO THAT THERE IS NO ACCESS TO THE FUSES UNLESS THE ISOLATING OR DISCONNECTING MEANS IMMEDIATELY AHEAD OF THE FUSES IS IN THE DE-ENERGIZED POSITION, AND THE SWITCH CANNOT BE PLACED IN THE CLOSED POSITION UNTIL THE FUSE COMPARTMENT HAS BEEN CLOSED. RULE 36-208
5. THE TWO MAIN INCOMING SUPPLY 138KV SWITCHES SHALL BE INTERLOCKED TO PREVENT BOTH FROM BEING CLOSED AT ONE TIME. RULE 6-106
6. THE NEUTRAL ON THE 216KV SYSTEM SHALL BE BROUGHT INTO THE CUSTOMER-OWNED SUBSTATION AND CONNECTED TO THE STATION GROUND GRID. RULE 36-308(5).
7. THE PRIMARY 'NO' CONNECTION OF THE HIGH VOLTAGE TRANSFORMER SHALL BE CONNECTED TO THE LDC SYSTEM NEUTRAL, WHEN REQUIRED BY THE LDC. RULE 7-034, RULE 15-004
8. THE LOW VOLTAGE NEUTRAL 'XO' OF THE TRANSFORMER SHALL BE GROUNDED TO THE STATION ELECTRODE WITH A 2/0 AWG COPPED CONDUCTOR. RULES 10-106, 10-204 AND 10-500.
9. THE BOND CONDUCTOR INSTALLED BETWEEN THE TRANSFORMER ENCLOSURE GROUND BUS AND THE SECONDARY DISTRIBUTION SHALL BE A MINIMUM 350KCMIL COPPER CONDUCTOR OR EQUIVALENT. TABLE 16, RULE 10-500 AND RULE 10-84
10. ALL CONNECTIONS TO THE STATION GROUND ELECTRODE THAT ARE TO BE PERMANENTLY BURIED MUST BE MADE WITH AN APPROVED THERMITE WELD, COMPRESSION CONNECTORS OR AN APPROVED MECHANICAL CONNECTOR. RULE 10-806, 10-808.
11. THE HIGH VOLTAGE SWITCHGEAR GROUND BUS MUST BE CONNECTED TO THE GROUND ELECTRODES BY MEANS OF A 2/0 AWG CONDUCTOR. RULES 36-302 AND 36-308.
12. THE UNIT SUBSTATION SHALL BE GROUNDED TO THE MAIN STATION GROUND ELECTRODE BY RUNNING TWO 2/0 AWG COPPER GROUNDING CONDUCTORS. GROUNDING CONDUCTORS MUST BE PHYSICALLY SEPARATED SO THEY CANNOT BE SIMULTANEOUSLY DAMAGED. IN LOCATIONS WITH SYSTEM SHORT CIRCUIT CURRENTS EXCEEDING 30000 AMP, THE GROUNDING CONDUCTOR WIRE SHALL BE INCREASED AND SHALL BE SUCH THAT IT WILL NOT SUFFER THERMAL DAMAGE OR BE A FIRE HAZARD UNDER THE SEVEREST FAULT CONDITIONS OCCURRING IN THE SYSTEM. RULE 36-307(3)
13. RULE 6-206 AND BULLETIN 6-14 REQUIRE THE CUSTOMER'S SERVICE EQUIPMENT BE INSTALLED WITHIN 12M FROM WHERE THE CUSTOMER'S SERVICE CONDUCTORS ENTER THE NON-COMBUSTIBLE BUILDING. RELEASE INSURE THE SERVICE CONDUCTOR LENGTH IS LIMITED TO A MAXIMUM LENGTH OF 12M INSIDE BUILDINGS, OR THAT ADDITIONAL PROTECTION IS INSTALLED AS DETAILED IN BULLETIN 6-1-1 AND RULE 6-208.
14. THE LOAD BREAK SWITCHES SHALL BE VISIBLE TO THE OPERATIONS AS PER TORONTO HYDRO STANDARDS.

