

ELECTRICAL SPECIFICATION

Electrical installation shall be in accordance with the current edition of The Canadian Electrical Code, Provincial, Municipal and other codes, rules and regulations.

The contract shall include the furnishing of labor, new material, equipment and services necessary and reasonably implied and/or incidental to the complete installation of the electrical work as shown on the plans and as specified. Supply and install all devices required for the complete approved system, operating to the complete satisfaction of the Contract Administrator.

Prepare and submit to the proper authorities all necessary permits and pay all fees. Provide Contract Administrator a PDF copy of all electrical permits.

Upon completion and before final payment is made, present to Contract Administrator a Certificate of Approval for all electrical work from the inspection department having jurisdiction.

Electrical work shall be completed in conformance with, and subject to, all cautionary notes available to the reader including those available on the websites of the manufacturers and consultants.

Electrical installation including electrical equipment supplied, installed or connected shall be tested in the presence of the City of Winnipeg on completion of the work.

The electrical subcontractor shall visit the site and ascertain that all work indicated can be carried out without additional cost to the City of Winnipeg.

The electrical subcontractor shall guarantee the satisfactory operation of all work and apparatus included and installed under this section of the specification for a period of twelve (12) calendar months after the final acceptance of the complete building.

The electrical subcontractor shall be responsible for any damage caused the City of Winnipeg or its contractors by improperly carrying out this contract.

The electrical subcontractor shall carefully examine all drawings and specifications relating to the work to be certain that the work under this contract can be satisfactorily carried out and prior to the submission of his tender, report at once to the Contract Administrator any defect, discrepancy, omission or interference affecting the work of this section or the guarantee of same.

Submit one set of "as-built" prints or PDF documents to the Contract Administrator.

Grounding shall be in accordance with the latest edition of The Canadian Electrical Code.

Panels, boards, motor starters, disconnect switches, etc., shall be properly identified by means of engraved lamacoid nameplates.

Supply and install all motor controls unless noted otherwise on the drawings. Refer to Mechanical drawings for exact location of motors and mechanical equipment. Unless otherwise specified and/or shown on the drawings, supply and install the following motor control equipment:

- Manual motor starters.
- Magnetic motor starters which are not part of package equipment. Refer to Mechanical drawings and specifications.
- Pushbutton stations.
- Hand-off-auto selector switches.
- Motor disconnect switches.
- Interlock contacts as required for starters.
- Enclosures.
- Starter heater elements as required for starters.
- Contactors.
- Time clocks, time switches and photoelectric relays.
- Pilot lights for all starters, switches and pushbutton stations.

Mechanical and electrical subcontractors are responsible for the mutual coordination of all electrical requirements of mechanical equipment. Coordination is to include the communication of all final electrical nameplate information from the mechanical subcontractor to the electrical subcontractor, the communication of the detailed control information as well as any ancillary information required for the final systems to operate as intended by the Contract Administrator. The coordination is to occur prior to the ordering of equipment by either trade. No extra compensation will be allowed due to failure to carry out this coordination. Report at once to the Contract Administrator any defect, discrepancy, omission or interference affecting the satisfactory completion of work.

Conduits shall be electric metallic tubing unless otherwise noted on drawings or unless prohibited by regulations. Conduits in direct contact with earth or in concrete shall be rigid PVC. Conduits shall be concealed unless otherwise noted on the drawings. Conduits shall not be exposed in any area where concealed work is required without prior written approval.

Outlet, junction and switch boxes shall be galvanized pressed steel of size and type to suit the requirements of each outlet. Outlet boxes shall be accessible.

All wiring shall be in conduit, except that armoured cable may be used in stud partitions and for drops to recessed luminaires (max. 4 luminaires per drop). Armoured cable drops (including any daisy chain) shall not exceed 3m in total length.

Wire and cable shall be copper of standard AWG sizes with 600V (90 Degree C) insulation. Insulation shall be X-Link Polyethylene unless otherwise noted on drawings or prohibited by regulations. Aluminum conductors will not be accepted, unless otherwise indicated. Minimum wire size shall be #12 AWG.

Panels/breakers shall be factory-assembled custom made of size, type and arrangement as shown on drawing. Circuit breakers shall be bolt-in, moulded-case, thermal and magnetic trip. Trip values as shown on drawing. Two or three pole breakers shall have common trip units. Mount a typewritten directory behind a plastic shield on the inside of panelboard doors. All distribution equipment to be sprinkler-proof and c/w lockable door. Minimum fault rating of circuit breakers shall be 22KA S.C.I.C.

Wall-mounted flush switches shall be specification grade 15A, 125VAC, White handle, side or back wiring. Mount switches 1200mm above finished floor unless otherwise noted on the drawings.

Duplex receptacles shall be specification grade 15A, 125VAC, parallel slot, U-ground, white, side and back wiring. Mount receptacles 400mm above finished floor or 150mm above counter tops unless otherwise noted on the drawings.

Cover plates for flush-mounted receptacles and switches on concealed conduit system shall be stainless steel.

Telephone raceway system shall be in separate and independent conduit system. Empty conduits shall be complete with a #12 AWG pull wire. Install as shown on drawings. Complete entire installation to local telephone utility requirements and satisfaction.

Mount surface mounted equipment such as panelboards, telephone cabinets and other electrical equipment on freigard mounting boards, c/w grey enamel finish.

Any cutting and patching in existing walls or floors required for the addition or relocation of electrical equipment shall be the responsibility of the electrical subcontractor.

Existing Work:

The electrical subcontractor shall take into account items which he is responsible for due to the changes and alterations to the existing building and allow for such items that may occur in his tendered price.

The electrical subcontractor is to notify the supply utility of all load increases to existing service.

Existing conduits, wire and outlets which are in good repair and sized to meet all code requirements, may be reused. All equipment to be reused must be approved by the local inspection department and the Contract Administrator.

Provide code conforming fire alarm system extension. Provide a verification inspection report for all fire alarm system devices added/modified.

Provide code conforming emergency lighting and exit system. Min. wire size for this system as per manufacturers recommendations. Acceptable manufacturers include: Amlite, Lumacell.

The electrical subcontractor shall relocate outlets at no additional charge if requested prior to roughing in. The electrical subcontractor shall relocate outlets at no additional charge if requested by the local authority having jurisdiction.

Electrical installation shall be in conformance with the barrier free requirements applicable in the latest edition of the National Building Code of Canada.

Where luminaires are recessed into insulated ceilings, the electrical subcontractor is responsible for providing luminaires suitable for that use.

Supply and install all indicated electric heaters, standard watt density to be Chromalox or approved equal. Thermostats to be calibrated in degrees Celsius.

Equipment and material shall be installed as specified. Requests for equal status shall be submitted to Contract Administrator 7 days prior to tender submission. No requests will be accepted past the 7 day deadline. Only one request will be considered from each supplier. If rejected for any reason, no substitutes from the same supplier will be reviewed.

Electrical subcontractor shall submit shop drawings to Contract Administrator for review prior to ordering equipment. At the request of the Contract Administrator, the successful electrical subcontractor shall submit a completed C-1 form (form available from Contract Administrator).

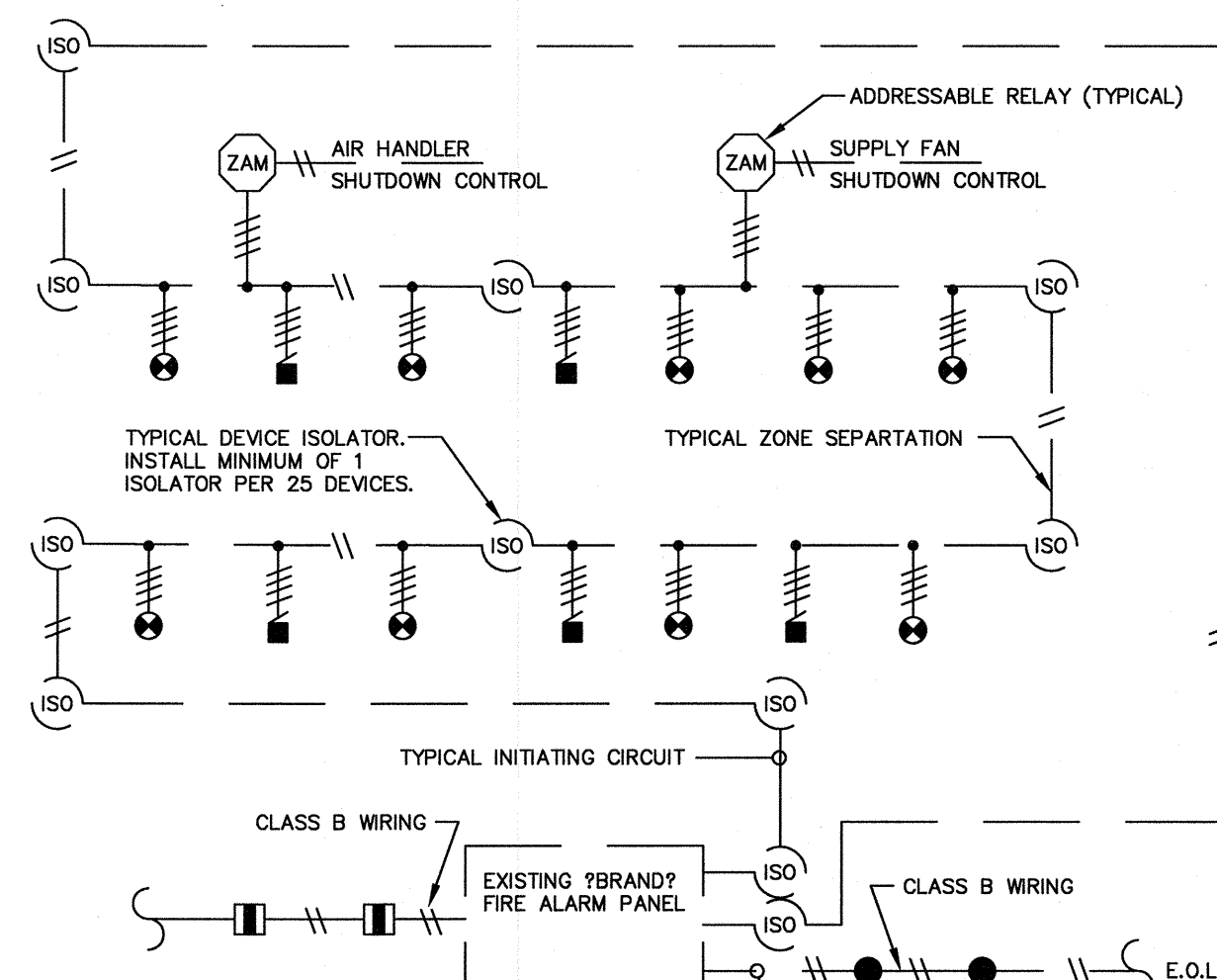
Supply and install, wire and connect all luminaires (to be complete with lamps) as indicated. All luminaires exceeding 150V shall be complete with an integral disconnecting means that will simultaneously open all circuit conductors and conductors supplying the ballast(s). All luminaires exceeding 150V shall be marked in a conspicuous, legible, and permanent manner adjacent to the disconnecting means, identifying the specific purpose. Refer to Canadian Electrical Code rule 30-308(4).

Final connection to all mechanical equipment to be flexible. Obtain and refer to mechanical shop drawings of mechanical equipment for circuit breaker and wire size. Adjust circuit breaker and wire size without additional cost to the City of Winnipeg.

All existing and new City of Winnipeg equipment is to be wired and connected. Supply and install, wire and connect matching receptacle for portable equipment complete with cord and cap. Refer to equipment name plate rating for electrical characteristics prior to rough-in. All City of Winnipeg equipment which is non-portable, shall be directly connected via cab tyre cord matching electrical characteristics as determined by nameplate ratings of equipment. Confirm nameplate characteristics prior to rough-in.

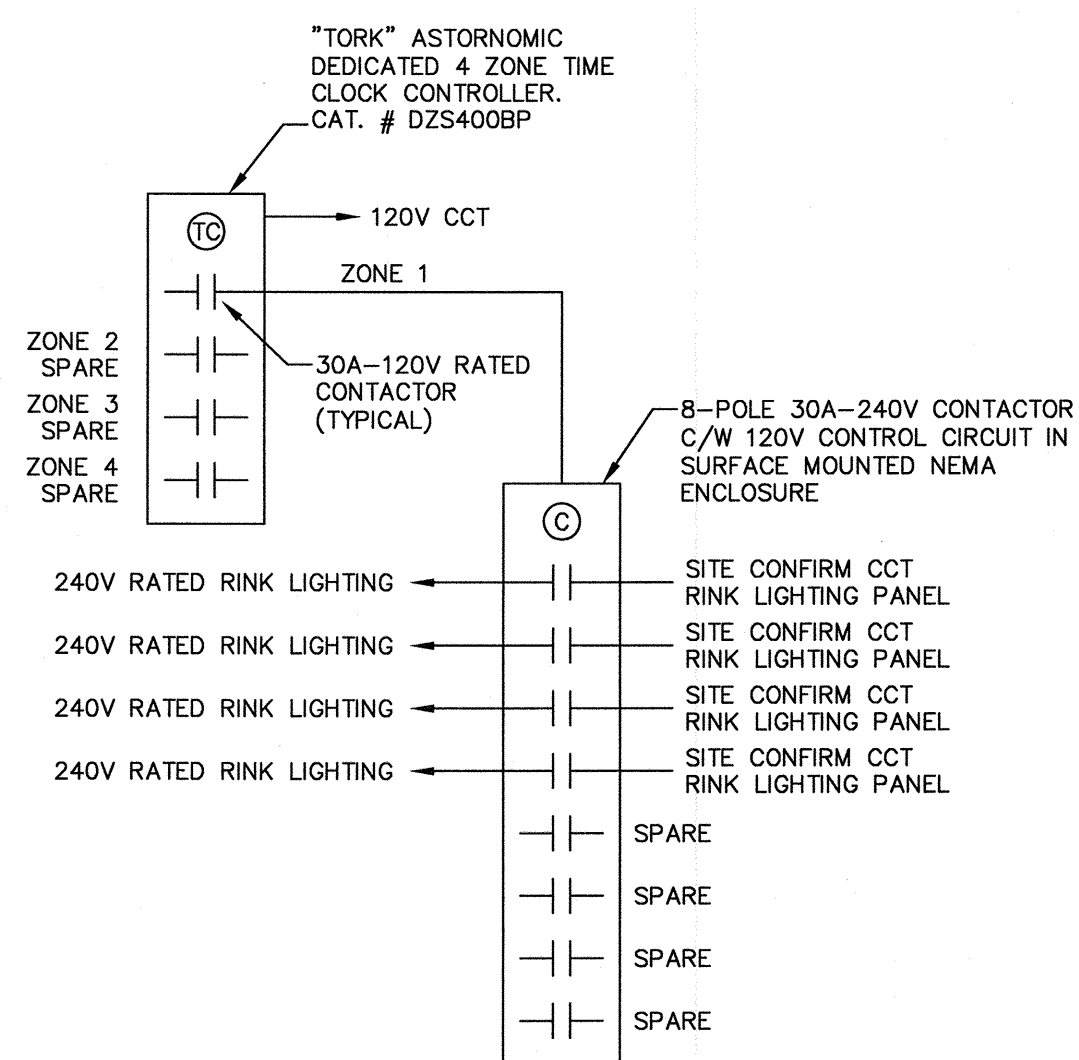
Pay all utility contribution charges for associated power and telephone services. Provide trenching and backfilling as required. Coordinate all requirements with utilities prior to tender close to ensure availability and contribution costs of services.

City of Winnipeg is responsible for the supply & installation of all communication wiring, unless otherwise noted.



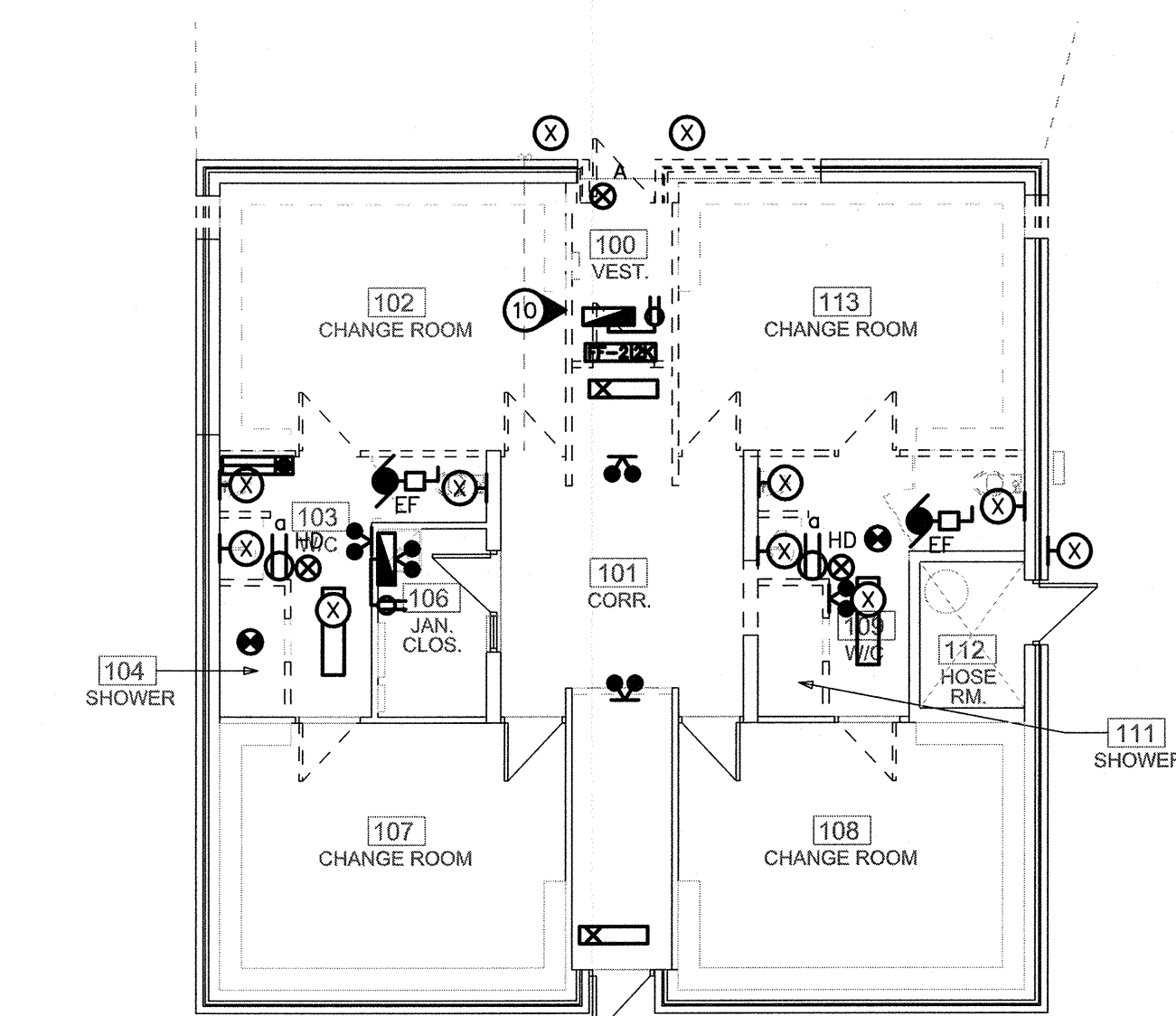
FIRE ALARM RISER DIAGRAM
N.T.S.

- FIRE ALARM SYSTEM NOTES:**
- BUILDING PRINTS WITH DEVICE ADDRESSING/LOOP LAYOUT & ISOLATOR LAYOUTS TO FOLLOW BY MANUFACTURER.
 - SHIELD (ANY RUN) TO BE CONTINUOUS, ISOLATED FROM GROUND AND TERMINATED AT FIRE ALARM PANEL GROUND ONLY.
 - DASHED LINES INDICATE EXISTING.
 - PROVIDE DEVICE ISOLATION AND SEPARATE AUDIBLE CIRCUITS IN ACCORDANCE WITH MBC 3.2.4.1B. 5. COMPLETE FIRE ALARM INSTALLATION TO CAN/ULC-S524-06.



RINK LIGHTING CONTROL DIAGRAM
N.T.S.

- SUPPLY, INSTALL, WIRE AND CONNECT TIMER AND CONTACTOR AS INDICATED. LOCATE IN JANITOR ROOM.
- SITE CONFIRM RINK LIGHTING REQUIREMENTS PRIOR TO ORDERING EQUIPMENT.



1
E10
ELECTRICAL DEMOLITION LAYOUT
SCALE: 1/8" = 1'-0"

LUMINAIRE SCHEDULE			
TYPE	DESCRIPTION	CATALOG NUMBER	LAMPS
A	LUMINAIRE MOUNTED ABOVE MIRROR - VANDAL RESISTANT	LITHONIA VWC-2-32-120 -GEBIOIS-CSA	2-32W TB
B	HID WALLPACK - VANDAL RESISTANT	LITHONIA TWP-70M-120-WG-CSA	1-70W MH
C	EXTERIOR DOWNLIGHT - VANDAL RESISTANT	LITHONIA LP6HN-70M-6LRFB73-120	1-70W MH
X	EXISTING LUMINAIRE		

LUMINAIRE SCHEDULE NOTES:
1. ALL FLUORESCENT BALLAST TO BE ELECTRONIC. MB HYDRO "POWER SMART" APPROVED.
2. ALL FLUORESCENT LAMPS TO BE 3500K & 85 CRI, UNLESS OTHERWISE NOTED.

MOTOR SCHEDULE						
NO.	DESCRIPTION	VOLTAGE	HP/W/MCA	C.B.	COND.	STARTER
EF-1	EXHAUST FAN	120V-1Ø	1/8HP	15A-1P	#12	-
EF-2	EXHAUST FAN	120V-1Ø	1/8HP	15A-1P	#12	-

SPECIFIC NOTES:
1. WIRE AND CONNECT AS REQUIRED. REFER TO MECHANICAL.
2. WIRE EXHAUST FAN TO OPERATE WHEN MUA IS ON OR OCCUPANCY IS DETECTED.

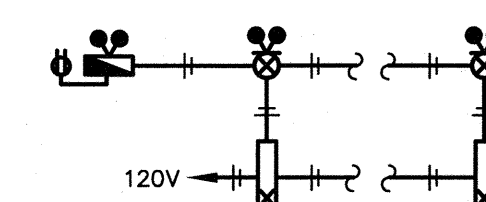
GENERAL NOTES:
A. MANUAL STARTERS TO BE C/W OVERCURRENT PROTECTION.
B. ALL DISCONNECT SWITCHES TO BE SUPPLIED BY DIV. 16.
C. ELECTRICAL SUBCONTRACTOR TO PROVIDE CIRCUIT BREAKERS AND WIRING ACCORDING TO THE FINAL NAMEPLATES OF ALL THE MECHANICAL EQUIPMENT.
D. ALL LOW VOLTAGE CONTROL WIRING BY DIV. 16.
E. ALL LINE VOLTAGE CONTROL WIRING BY DIV. 16 - REFER TO MECHANICAL SECTION.
CO-ORDINATE EXACT REQUIREMENTS WITH DIV. 15.

SPECIFIC ELECTRICAL NOTES

- DISCONNECT AND RECONNECT EXISTING ELECTRICAL IN THIS AREA TO REMAIN TO ACCOMMODATE CEILING WORK.
- EXISTING ELECTRICAL SERVICE FEEDERS TO REMAIN.
- WIRE AND CONNECT WATER FOUNTAIN AS REQUIRED.
- COORDINATE LOCATIONS OF GANTEE RECEPTACLES WITH ARCHITECTURAL.
- WIRE AND CONNECT HANDICAP DOOR OPERATOR AND ALL ASSOCIATED CONTROLS.
- WIRE AND CONNECT HANDICAP DOOR OPERATOR AND ALL ASSOCIATED CONTROLS (INCLUDING PUSHBUTTONS, ELECTRIC STRIKE, KEYSWITCH AND INDICATING LIGHT).
- EXISTING LIGHT SWITCH LOCATION. REMOVE EXISTING SWITCHING THAT IS NO LONGER REQUIRED.
- PROVIDE PHOTOCELL CONTROL FOR NEW EXTERIOR LIGHTING.
- PROVIDE ASTRONOMICAL TIMECLOCK C/W CONTACTOR PANEL FOR EXISTING RINK LIGHTING. PROGRAM TO CITY OF WINNIPEG'S SATISFACTION. SEE RINK LIGHTING CONTROL DIAGRAM.
- WIRING RUN IN/ALONG WALL AT THIS LOCATION TO BE RELOCATED TO CEILING. EXTEND AS REQUIRED.
- WIRE AND CONNECT TRANSFORMER (BY OTHERS) FOR AUTOMATIC FAUCET SENSORS.
- PROVIDE OCCUPANCY SENSOR CONTROL FOR LIGHTING. WIRE EXHAUST FAN TO OPERATE WHEN MUA IS ON OR OCCUPANCY IS DETECTED. COORDINATE WITH MECHANICAL.

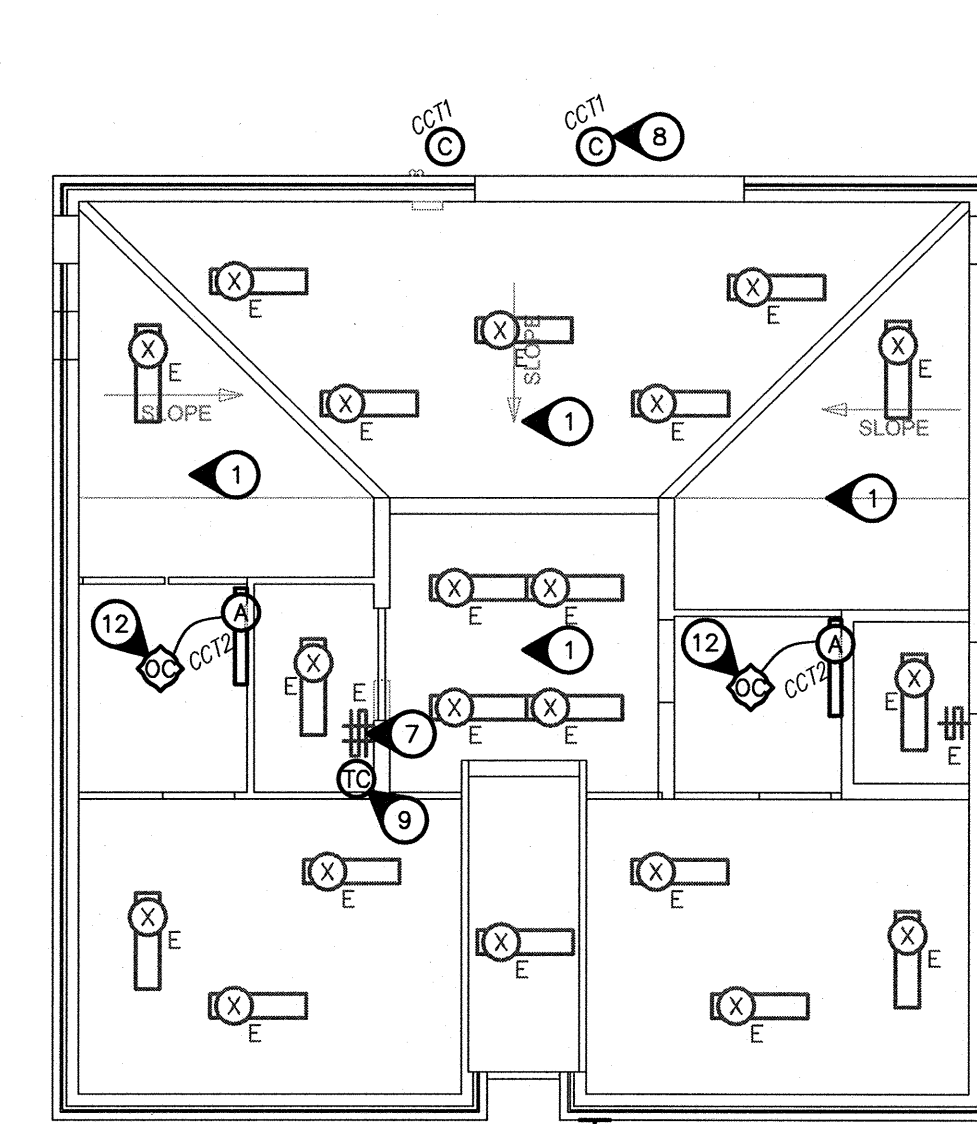
SYMBOL SCHEDULE

- Fluorescent luminaire, 'B1-a' denotes panel circuit No. and switch.
 - Wall mounted luminaire, 'A' denotes type.
 - Single pole switch.
 - Single pole switches in multiple.
 - Time clock by Div. 16. Tark ELC series.
 - Photozell by Div. 16.
 - Ceiling mounted occupancy sensor. Sensor Switch CMR-PDT-2P.
 - Duplex receptacle.
 - Duplex receptacle mounted above counter level. (See architectural elevations.)
 - Duplex receptacle on separate circuit. Provide lamacoid label indicating "SC".
 - Microwave outlet above counter. Verify location before installation.
 - Duplex receptacle weather proof.
 - Ground fault duplex receptacle.
 - 20A T-slot duplex receptacle.
 - Telephone outlet.
 - Motor. Refer to mechanical for exact location. For roof mounted equipment, supply and install wire and connect a separate circuit GF receptacle in accordance with C.E.C. rule 26-704.
 - Disconnect switch to suit application. By Div. 16.
 - Junction box.
 - Electric hand dryer by Div. 16. Surface mounted, high flow. Model: Toto HDR100GY.
 - EF-448 Electric force flow heater.
 - Electric baseboard heater.
 - Thermostat.
 - Fire alarm pull station to match existing.
 - Fire alarm audible device to match existing c/w strobe light
 - Fire alarm smoke detector to match existing.
 - Emergency battery bank c/w two(2) 5.7L LED heads. 12V, backup battery capacity to suit. Amlite EBST series.
 - LED Emergency double head fixture. Wire to battery bank. Amlite RIMD 2 12 5.7L WHI.
 - LED pictogram egress sign. Wire to battery bank
 - Emergency call switch.
 - Emergency call indicating light.
 - Security system keypad.
 - Security system motion detector.
 - Security system door contact to match existing.
- NOTE:
'E' indicates existing device to remain.
'R' indicates existing device to be relocated to location indicated.
'VR' indicates vandal resistant.

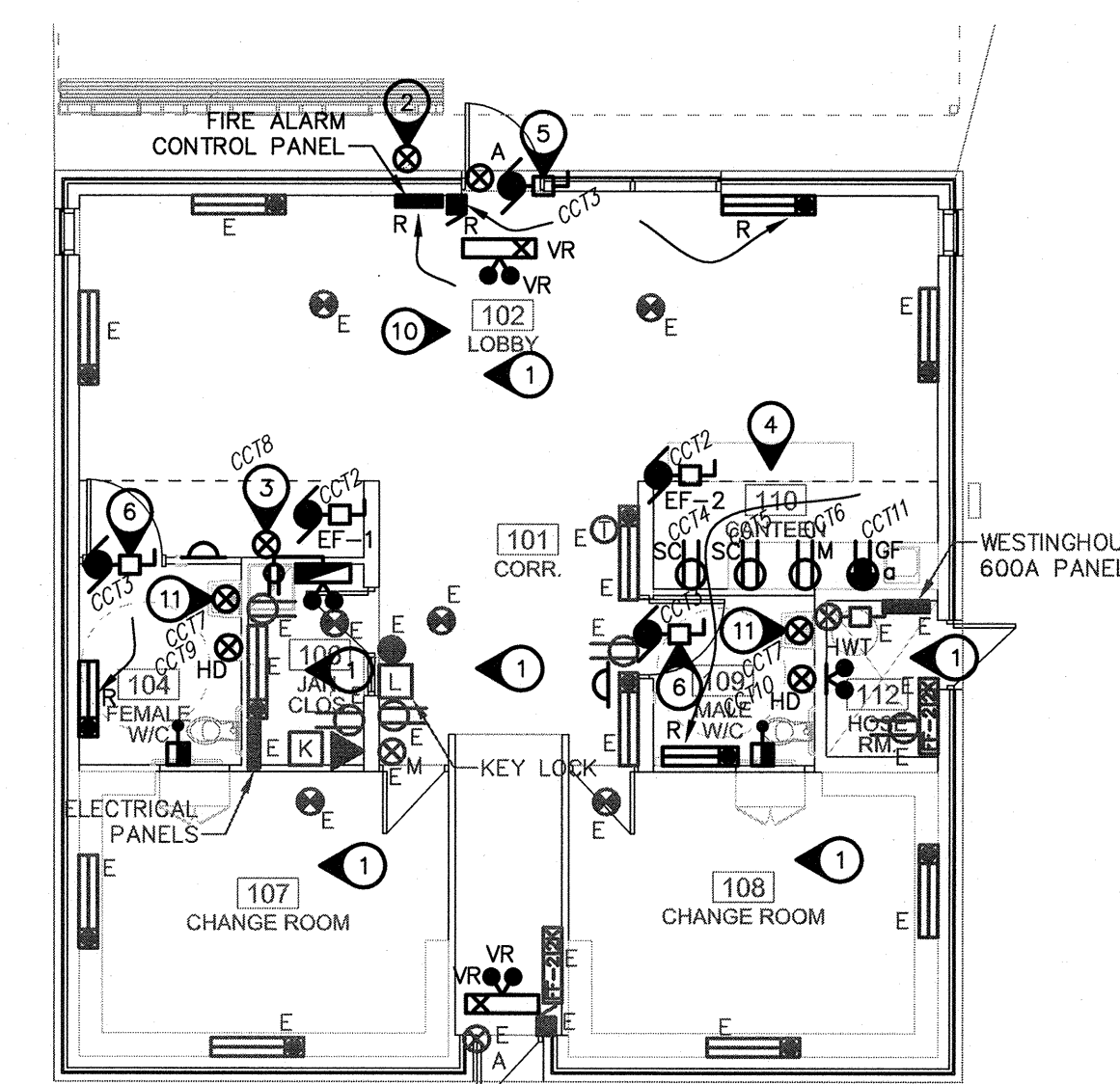


EMERGENCY LIGHTING AND SIGNAGE
N.T.S.

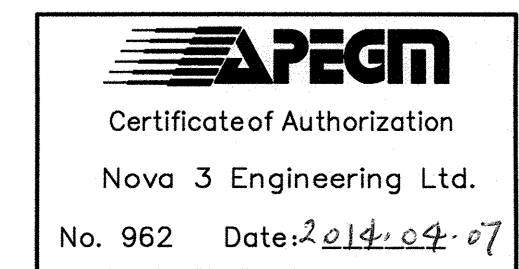
- CONDUCTORS SIZED TO MANUFACTURERS RECOMMENDATIONS. MAXIMUM 5% VOLTAGE DROP.
- WIRE AND CONNECT DC TO ALL COMPONENTS.
- PROVIDE 60 MINUTE CAPACITY UNDER FULL LOAD.
- INTERLOCK WITH NORMAL LIGHTING CIRCUIT TO ACTIVATE EMERGENCY LIGHTING UPON LOSS OF NORMAL LIGHTING IN THE AREA, FOR EACH EMERGENCY LIGHTING HEAD. PROVIDE ZONE SENSING RELAYS AS REQUIRED.



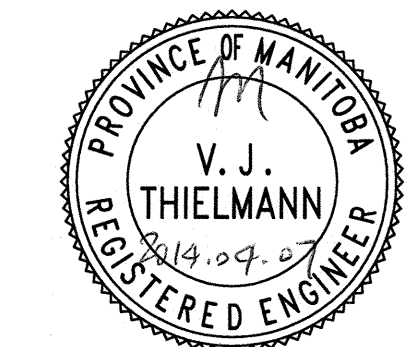
2
E10
ELECTRICAL LIGHTING LAYOUT
SCALE: 1/8" = 1'-0"



3
E10
ELECTRICAL POWER AND SYSTEMS LAYOUT
SCALE: 1/8" = 1'-0"



1 2014-03-14 ISSUED FOR CONSTRUCTION
No. DATE REVISION / ISSUANCE



Architect

Engineer

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Project

BID OPPORTUNITY 180 - 2014
CLARA HUGHES PARK FACILITY REDEVELOPMENT
281 HENDERSON HIGHWAY

Street Title

ELECTRICAL - LAYOUT

Project No. 1251 Sheet

Date 2014-03-14

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