

## Amendment Notice: Mechanical Updates

This bulletin applies to and amends the following document:

### **GO Design Requirements Manual (GO DRM)**

- Section 5.2.24.8.3 clarifications on HVAC sizing requirements for mini-hub room heat load.
- Section 5.2.24.9.1.e clarification on emergency cooling exhaust fan sizing requirements.
- Section 5.4.7 clarification of when dry fire suppression or clean agent system is required.

Amendments to the GO DRM are provided in the following attachment:

- Revisions to GO DRM March 2023 - Mechanical Updates

The Bulletin is available for staff and external users to download via the Metrolinx public download site ([http://www.gosite.ca/engineering\\_public/](http://www.gosite.ca/engineering_public/)).

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regular power panel located in the Room. Temperature and humidity requirements are on a 24 hours, 7 days a week basis, regardless of the heat generated by normally operating electrical and communications equipment.

- 5.2.24.8.3 The required capacity shall be calculated based on the following:
- For sensible heat gain from electrical equipment use a minimum 5000 Watts per rack (in the Communications Room); for mini-hub room, use minimum 2000 Watts per rack.
  - Sensible heat gain from lighting;
  - Include the future growth of systems by 25%;
  - Determine heat gain/loss to the room from the outside (heat transfer through building structures, including solar load) g the following design criteria;
  - Outdoor temperatures.
- 5.2.24.8.4 Use 1% winter & 2½% summer design temperatures per Ontario Building Code for the geographical location. Indoor temperatures:
- Winter design: 15°C;
  - Summer design: 22°C D B with a maximum of 50% relative humidity;
  - An infiltration rate from outside of 0.5 air changes per hour;
  - A recirculation rate of 100% for the air conditioning system;
  - A safety factor of 5%.
- 5.2.24.8.5 The air conditioning system shall be selected to suit the specific capacity by taking into consideration the room's very high sensible load factor. Heat loss calculation shall not include credit for equipment and lighting heat gain.
- 5.2.24.9 Emergency Cooling
- 5.2.24.9.1 Provisions for emergency cooling in Hub Room, Mini-Hub Room, Elevator Control Room, Communications Room and Electrical Room:
- Provide a ~~150-200~~mm diameter vent opening provision, secured from inside, for portable A/C unit in both electrical and communication rooms, venting to the outside. Interior of vent shall be secured with removable cap and exterior of vent opening to be provided with insect screen and weatherproof louvre with adequate waterproofing and flashing;
  - Provide dedicated 120V, 20A, 5-20R and 120V, 30A, 5-30R power receptacles (generator backed-up) from dedicated circuit breakers for portable A/C unit, in Electrical and Communication rooms;
  - Receptacles ~~to shall~~ be mounted at 300mm height above finished floor;
  - Contractor to provide Labels above receptacles stating: the respective Amps, panel and circuit numbers and "DEDICATED FOR PORTABLE A/C UNIT";
  - Provide an exhaust fan controlled by a reverse acting thermostat and an override switch; exhaust fan, exhaust louvre, intake louvre and associated ductwork and dampers to shall be adequately sized to maintain room sensible temperature below the manufacturer's maximum temperature limit for electrical & communications equipment with the worst case scenario in the room. (i.e. design room ventilation for equipment with the lowest maximum temperature limit)
  - High/low temperature alarm;
  - All alarm inputs ~~to shall~~ be placed in Metrolinx Vendor System and BAS.
- 5.2.24.9.2 The sequence of operations shall be as follows:

	electrical and communication rooms).
Standpipe and hose system	<ul style="list-style-type: none"> <li>In unheated area, dry standpipe system shall be provided.</li> <li>Drain pipe shall be drained to sanitary system instead of dumping on the floor.</li> </ul>
Fire Hydrant System	<ul style="list-style-type: none"> <li>Hydrant shall be provided as per code and include a trace line.</li> <li>Fire hydrants located in a landscaped area or snowdrift area shall be raised or marked with raised identification “flag” devices.</li> <li>Minimum burial depth of piping and pipe-marking/protection shall be to municipal requirements.</li> </ul>
Dry Fire Suppression System	<ul style="list-style-type: none"> <li>Dry Fire Suppression System or clean agent system for main communication, electrical and computer and telephone equipment room shall be provided <del>where required by Metrolinx by code.</del></li> </ul>
Portable Fire Extinguisher	<ul style="list-style-type: none"> <li>Fire extinguisher shall be available during construction and be provided as per Metrolinx for occupancy of premises.</li> </ul>

#### 5.4.7 Identification, Appearance, and Noise/ Vibration

##### 5.4.7.1 Identification Requirements

5.4.7.1.1 Equipment, piping, and systems shall be clearly identified according to industry standards. Equipment shall include manufacturer’s nameplate, CSA, and/or CUL registration plates where applicable. Piping and ducting systems shall be identified using a standard identification system, ASHRAE, CGSB or similar;

5.4.7.1.2 All labels, tags, nameplates, etc., shall be stainless steel, brass, or thick laminated plastic, as appropriate to suit application;

5.4.7.1.3 Any alteration to equipment shall be approved for use by recognized certification and/or field evaluation markings;

5.4.7.1.4 Refer to Metrolinx Standard 20 05 10 Basic Mechanical Materials and Methods Specification for detailed requirements.

##### 5.4.7.2 Appearance Requirements

5.4.7.2.1 All equipment, vent, access door, door grille, diffuser, return air grille, and exposed duct locations etc. shall be coordinated by the architect/prime consultant;

5.4.7.2.2 Roof-mounted equipment shall be screened. Where permitted, multiple exhaust ducts shall be combined to minimize building penetration. On sloping station roofs, exhaust ducts shall be directed to vertical gable vents, if applicable;

5.4.7.2.3 Exterior grade-level equipment (condensing units, etc.) shall be elevated 300 mm minimum above grade, and screened by fencing;

5.4.7.2.4 Grilles, vents and diffusers shall be recessed or flush with adjoining base-building materials, as detailed by the architect/prime consultant, and shall not be surface-mounted over base-building materials.