

Part 1 General**1.1 Summary**

- .1 Unless otherwise indicated, follow the standards below when planning for a mechanical room. These standards are not intended to restrict or replace professional judgment.
- .2 Mechanical closets which are small auxiliary spaces used to house limited mechanical equipment may be required to follow some of the requirements of the present standard. Applicable requirements shall be discussed during the Design phase. **The option to install mechanical equipment in mechanical closets or in the upper ceiling space shall be discussed with Project Manager during the Design phase.**
- .3 These guidelines should be read with the specific technical sections of McGill's Building Design and Technical Standards.

1.2 Design Requirements for Mechanical Rooms

- .1 Mechanical Rooms' geometry, location in the building, access and construction must be considered early at the Design phase in order to limit:
 - .1 Noise transmission to other spaces.
 - .2 Vibration transmission to other spaces.
 - .3 Conflicting circulation with the other users of the building.
- .2 Walls:
 - .1 ~~Concrete or concrete blocks are preferred.~~ **Wall compositions shall meet the applicable technical requirements (e.g. Code, acoustics, fire resistance rating, vibration, etc.).**
 - ~~.2 Gypsum boards can be used for distribution closets and rooms with dry transformers.~~
 - .3 Walls shall be painted; they cannot be left unfinished, nor simply primed.
- .3 Floors:
 - .1 ~~Concrete slab,~~ **In case of new buildings, slab shall be in concrete,** thickness as per equipment and building requirements.
 - .2 Mechanical room floors and curbs, which are not slabs on grade, shall be waterproofed to prevent leakage into occupied space below.
 - .3 Floor finish (including concrete curbs and bases): non-skid, medium-gray colored epoxy coating is preferred (painted or trowel applied). ~~Refer to section 09-91-26 for paint requirements.~~
 - .4 **Resilient floor finish can be used for mechanical closets. Carpet is to be avoided.**
- .4 Ceilings:
 - .1 Exposed structure (no ceiling).
 - .2 It is not required to paint the exposed ceiling slab nor the exposed mechanical services.

- .5 Doors:
 - .1 Standard height double doors are preferred. Door dimensions shall always be coordinated with the biggest piece of equipment to be moved-in/moved-out of the mechanical room.
 - .1 Minimum door opening shall be 1200mm (48").
 - .2 Where single 1200mm door cannot be installed, minimum width of door shall be at least 915mm (36").
 - .3 Doors shall swing in the direction of exit.
 - .2 Specify metal kick plate on push side.
 - .3 ~~Specify Card Reader Access.~~ During the Design phase, confirm with Project Manager if card reader access is required.
 - .4 Doors shall be fire rated as per Code requirements.
 - .5 Refer to section 08 71 10 for door hardware requirements.
- .6 Electricity:
 - .1 All lighting shall utilize energy efficient fixtures, refer to section 26 50 00 for specific requirements.
 - .2 Lighting shall be switched at each door to the room. Light switches shall be easy to reach when entering the room.
 - .3 At least one light shall be circuited to the emergency panel.
 - .4 One 20A electrical outlet shall be provided for every 15 m2 of floor space.
 - .5 Provision shall be made for the usage of welding equipment in the mechanical room. Consult with the Project Manager for location and type of this power point.
- .7 Plumbing:
 - .1 Mechanical Rooms shall have floor drains.
 - .2 Floor trenches shall be installed - where needed - for condensate drains from air handlers and steam condensate drains.
 - .3 One hose bib (key stop) shall be installed in Mechanical Rooms.
- .8 Heating and Ventilation:
 - .1 Temperatures in the Mechanical Rooms shall range from 13°C (minimum) to 28°C (maximum).
- .9 Equipment installation:
 - .1 Equipment mounting:
 - .1 Equipment shall be installed so that no vibrations are transmitted to surrounding areas.
 - .2 Air handling units shall be mounted high enough for adequate condensate flow.
 - .3 Unistrut Channels for support of ceiling-mount equipment shall be bolted to concrete where possible.
 - .4 Plywood panels used for equipment mounting shall be fire rated.

- .5 Penetration in Fire rated assemblies shall always be sealed to maintain the fire rating of the assembly. Space between conduits and sleeve wall to be fireproofed, same fire rating as required for the floor slab.
- .6 Seismic Code requirements must be met.
- .2 Concrete bases (Bases de propreté):
 - .1 Concrete bases for equipment shall be finished with the same epoxy coating as the floor. Yellow color shall be used on the height and 50mm around both upper and lower perimeters for visual contrast to avoid tripping hazards.
 - .2 Concrete bases shall be at least 100mm thick, shall have chamfered or rounded borders, and shall be made of 2500psi concrete (minimum) and according to Structural Engineer's recommendation.
 - .3 Concrete bases shall be reinforced of woven wire fabric and doweled to supporting floor slab.
 - .4 For small equipment, metal bases may be permitted. Its approval shall be discussed during the Design phase.
- .3 Sleeves for vertical pipe/conduit penetrations:
 - .1 Use sleeves for vertical pipe/conduit penetrations. Sleeves shall extend 100mm above the concrete base or above the floor slab and shall extend 30mm below floor slab.
 - .2 Space between conduits and sleeve wall to be fireproofed, same fire rating as required for the floor slab.
- .4 Concrete curbs:
 - .1 Install concrete curbs around ducts or multiple pipes penetrations. Concrete curbs shall be 100mm x 100mm and have rounded or chamfered edges.
- .5 Clearances:
 - .1 Proper coordination with other Professionals shall be done during the Design phase to validate that the necessary clearances are available from delivery point to final location of equipment.
 - .2 Final equipment design and location must demonstrate that the minimum clearances recommended by the manufacturers have been considered:
 - .1 Installation clearances between equipment,
 - .2 Clearances required for maintenance,
 - .3 Clearances required to bring the equipment into the mechanical room.
 - .3 Clearance of fan to bearings, belts and motors, and access clearance must be at least 610mm.
 - .4 Access clearance around pumps and compressors shall be at least 915mm.
- .10 Others:
 - .1 Fire Extinguisher:
 - .1 ~~At least one fire extinguisher shall be installed in all Mechanical Rooms (supplied and installed by McGill).~~ **Coordinate with McGill Fire Prevention Office for number of fire extinguishers, their locations and mounting space requirements.**
 - .2 Telephone, data outlets, Wi-Fi connectivity:
 - .1 There shall be at least one telephone and one data outlet in all Mechanical Rooms. Location to be determined with the Project Manager during Design phase.

- .2 The Wi-Fi signal must be strong enough to allow the building operators' electronic devices (computers and mobile phones) to access McGill's Network. If required, additional antennas or signal boosters need to be provided to relay the Wi-Fi signal.
- .3 When a secure storage area is required within a mechanical room, specify chain link type fence:
 - .1 Galvanized steel,
 - .2 Minimum 2400mm high,
 - .3 Secured to the floors and walls,
 - .4 With at least one hinged door (width to be coordinated with the Project Manager, minimum 915mm),
 - .5 Door (s) lockable with a padlock.
- .4 Verify with the Project Manager if additional space shall be planned within the Mechanical Room for future needs.

Part 2 Related Technical Sections

The technical sections of the McGill Building Design and Technical Standards should be consulted with the current document, most notably (but not limited to) the following:

Section Number	Title of Section
03 05 10	Concrete
03 30 00	Béton coulé en place
04 05 10	Common Work for Masonry
08 11 14	Metal Doors and Frames
08 71 10	Hardware
09 21 16	Gypsum Board Assemblies
09 91 26	Painting
21 07 18	Fire Suppression
22 00 00	Plomberie
23 00 00	Heating Ventilation and Air Conditioning
26 00 00	Électricité
26 05 29	Fixations Parasismiques
26 50 00	Éclairage

END OF SECTION