

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 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 Stage 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.
 - .2 Walls shall be painted; they cannot be left unfinished, nor simply primed.
- .3 Floors:
 - .1 Concrete slab, 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: non-skid, epoxy coating is preferred (painted or trowel applied).
 - .4 Use sleeves for vertical pipe/conduit penetrations. Sleeves shall extend 30mm on either side of floor slab.
 - .5 Install concrete curbs around ducts or multiple pipes penetrations. Concrete curbs shall at least be 100mm x 100mm.
 - .6 Concrete base (for equipment) shall have chamfered borders, yellow color used on the height and 50mm around both upper and lower perimeters.
- .4 Ceilings:
 - .1 Exposed structure (no ceiling).
 - .2 Ceiling shall be painted.
- .5 Doors:
 - .1 Standard height double doors are preferred. Doors 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").

- .2 Specify metal kick plate on push side.
- .3 Specify Card Reader Access.

- .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 be transmitted to surrounding areas.
 - .2 Air handling units shall be mounted high enough for adequate condensate flow.
 - .3 Concrete pad (Base de propreté):
 - .1 Concrete pad shall be at least 100mm thick, with rounded edges and made of 2500psi concrete (minimum).
 - .2 Concrete pads shall be reinforced of woven wire fabric and doweled to supporting floor slab.
 - .3 Use sleeves for vertical pipe/conduit penetrations. Sleeves shall extend 100mm above the concrete pad and 30mm below floor slab.
 - .4 Install concrete curbs around ducts or multiple pipes penetrations. Concrete curbs shall be 100mm x 100mm and have rounded edges.
 - .5 Unistrut Channels shall be bolted to concrete where possible.
 - .6 Plywood panels used for equipment mounting shall be fire rated.
 - .7 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 fire proofed, same fire rating as required for the floor slab.

 - .2 Clearances:

- .1 Final equipment design must demonstrate that the minimum clearances recommended by the manufacturers have been taken into account:
 - .1 Installation clearances between equipment,
 - .2 Clearances required for maintenance,
 - .3 Minimum clearance required to bring the equipment into the mechanical room.
- .2 Clearance of fan to bearings, belts and motors, and access clearance must be at least 610mm.
- .3 Access clearance around pumps and compressors shall be at least 915mm.
- .4 The final equipment design must demonstrate that proper coordination with other Professionals has been performed, particularly for validating the necessary clearances are available from delivery point to final location of equipment.
- .3 Seismic Code requirements must be met.
- .10 Others:
 - .1 Fire Extinguisher: at least one fire extinguisher shall be installed in all Mechanical Rooms (supplied and installed by McGill). Coordinate with McGill Emergency Measures and Fire Prevention Office for number of Fire Extinguishers, location and mounting space required.
 - .2 Telephone, data point: there shall be at least one telephone and one data point in all Mechanical Rooms. Location to be determined with the Project Manager.
 - .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 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
04 05 10	Common Work for Masonry
08 11 14	Metal Doors and Frames
08 71 10	Hardware
09 91 26	Painting
21 00 00	Fire Suppression
22 00 00	Plomberie
23 00 00	Heating Ventilation and Air Conditioning
26 00 00	Électricité
26 50 00	Éclairage

END OF SECTION