Part 1  General

1.1  Summary

.1 Unless otherwise indicated, follow the standards below when planning for a classroom. These standards are not intended to restrict or replace professional judgment.

.2 This document is a companion of the Teaching and Learning Spaces Working Group document: “Classroom Guidelines and Standards”, version 1.2.

.3 This document can also guide planning for the Teaching and Learning Space Requirements of Teaching Labs. For laboratory space requirements, follow the Laboratories Design Guidelines for New and Renovated Spaces, as per links below:

.1  http://www.mcgill.ca/tls/spaces/utlwg
.2  https://www.mcgill.ca/ehs/laboratory/lab-design-guidelines

.4 These guidelines should be read with the specific technical sections of McGill’s Building Design and Technical Standards.

1.2  Design Requirements for Classrooms

.1 All classroom designs and selection of new furniture must follow the “Teaching and Learning Space Committee” requirements and principles.

.2 Direct natural light and views to the outside should be favored in classrooms.

.3 The Catalogue of Academic Furniture has been available since the spring of 2015 and provides you with approved furniture options. The selection of such options is mandatory. The catalogue includes, but is not limited to, the standards for the following types of classroom furniture: non-fixed tables, non-fixed chairs and stools, fixed standard-size tables.

Refer to the following when choosing and specifying classroom furniture:


.4 The following types of classroom furniture is not included in the Catalogue of Academic Furniture: fixed (auditorium) seating, fixed non-standard (custom) tables, fixed and non-fixed podiums. These items are to be chosen and/or designed on a case-by-case basis, and are to be included in the project plans and specifications.

.5 Standards for podiums are currently: In progress.

.6 Seating layout requirements:

.1 For all requirements pertaining to fixed tables and non-fixed seating, consult the National Fire Code of Canada.
.7 Localization of new classroom:

.1 Classrooms should be located within easy access by student and equipment, preferably on the lower floors. They should also be properly located to avoid heavy student traffic passing through non-instructional floor areas. Adequate acoustic separation should be considered when gathering spaces are located immediately adjacent to classrooms. Solutions should include airlocks, acoustic wall insulation and appropriate door hardware.

.8 Architectural materials and finishes:

.1 Specified materials and finishes should be chosen primarily for durability and maintainability properties. Selection of finishes must be discussed with Building Services for maintenance related aspects. Special attention should be given to detailing and resilience of surfaces, to anticipate minimizing damages due to non-fixed seats and furniture, winter and rain gear, and general student use.

.9 Doors and frames:

.1 Specify metal doors and frames in classroom entrances wherever possible due to high traffic.

.10 Flooring finishes:

.1 Flooring is to be selected with professional judgment and be discussed with Buildings Services. Carpet shall be avoided.

.11 Window coverings:

.1 Window coverings must be specified by the Consultant. For exterior windows, window coverings shall be roller blinds of fabric adapted to the usage and sun exposure of the room. The filtering factor of the blind shall be 3-5% opening. Motorized blinds shall be specified, more specifically where Lutron lighting control is provided.

.12 Universal Accessibility requirements, in addition to those prescribed by the Quebec Construction Code:

.1 For all classrooms and teaching spaces, provide the required number of wheelchair spaces/workstations as prescribed by the Quebec Construction Code for fixed-seating assembly occupancies. See Table 3.8.2.1 ‘Designated Wheelchair Spaces’, QCC (2005).

.2 In auditoriums with fixed seating, provide space allowances for ambulatory seating for companions immediately adjacent to the wheelchair accessible spaces.

.3 In classrooms and teaching spaces with fixed workstations, accessible workstations shall be located close to the entrances/exits to facilitate evacuation in case of an emergency.

.4 Stage or platforms located in auditoriums, classrooms and teaching spaces shall be wheelchair accessible.

.13 Acoustics

.1 Two sound environment aspects have to be adjusted to achieve the required classrooms acoustics: sound privacy and room acoustics.

.2 The following list describes the required acoustical criteria applicable to typical classrooms:
Classroom | Sound privacy, NC value | RT at 500 Hz, second
--- | --- | ---
A. Small size | 30/35 | 0, 6
B. Medium size | 30/35 | 0, 7
C. Large size | 25/30 | 1, 0
D. Lecture Halls | 25 | to be discussed

Note: Classrooms and lecture halls equipped with microphones for sound recording should not exceed NC-20 for standard broadcast quality and NC-25 for "in house" use.

.3 As per Table 2 in 09 84 10 1.1.3, reverberation time must be <0.6 sec. at 500 Hz, 1000 Hz and 2000 Hz.
.4 NC values are essential to design the building systems such as air conditioning and ventilation systems.
.5 Classroom types B, C and D are normally equipped with sound amplification system for the teacher and or students thus ensuring sufficient sound volume. Classrooms type A are small size rooms where natural sound from the sources (teacher and/or students) are considered adequate.
.6 The NC values are design criteria, the measured NC curve on site after construction completion should not exceed 3 units of the recommended design criteria (NC-25 design guidelines should measure NC-28 maximum on a site after construction is complete for classroom in new building. Existing buildings undergoing classroom renovations shall be subjected to special background noise adjustments, as required and agreed by McGill University Department of Facilities, Operations and Development, vis-à-vis the "base building" existing limitations.
.7 STC (sound transmission class) value of the various sound isolation barriers should be adjusted to meet the recommended background noise criteria and derived from the importance of the nearby noise sources. A minimum STC-50 (sound transmission class) value for noise isolation to airborne noises is required for all vertical and horizontal barriers assemblies such as walls, partitions, floors and ceilings. Exceptions to the default STC-50 value could occur for specific cases requiring interior windows or other specific elements pertinent to a specific classroom, these exceptions are authorized by the McGill University Department of Facilities Development.
.8 The Reverberation Time recommended is “short” for better intelligibility of speech. As an example, the following information is provided to illustrate some special noise isolation assemblies and sound absorbing materials that are often used to achieve low ambient noise levels and reverberation control.
.1 For noise control of the mechanical systems, noise reducing strategies include lower conduit air speed, silencers and vibration control devices. The high efficiency noise reducing barriers often calls for "floating floors" assemblies, either concrete or wood, “resilient ceiling gypsum board membrane”, high transmission loss value for partitions and walls (masonry and multiple cavity drywall partitions), sound lock arrangements for doors or sound rated door assembly and multiple isolated glass layers.
.2 The NC-20 background noise is normally achieved by using of a “box within a box" construction. All sound rated partitions are full height and properly sealed. Special attention is given to “sealing” openings for building services such as ducts, pipe and technical trays through vertical and horizontal barriers.
3 Listening conditions are often achieved by “oriented geometry” (podium for the sound source, stepped audience and ceiling sound reflectors) of the room combined with the absorption coefficient of the exposed finishes. Sound absorption panels should have an NRC-0,85 minimum (noise reduction coefficient).

4 Listening conditions also applies to classrooms without specific sound sources and receivers orientation such as seminar rooms and/or active learning rooms (scale up rooms).

5 Miscellaneous noise sources such as vending machines, trash and recycling containers often located near the vending machines, restrooms and drinking fountains should be located and treated not to interfere with the classroom background noise.

6 A typical “oriented” classroom acoustical basic design would have sound reflecting surfaces at the front close to the sound source (teacher) angled toward the back of the audience and elevated on a podium. The porous absorbing materials are normally installed on the back wall and on the back portion of the ceiling and over the aisles located on the side walls. The ceiling should be sound reflecting and angled towards the back of the audience to complement the direct sounds from the sound source.

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:

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