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USE OF GUIDELINES

The University of Saskatchewan (USask) Design Guidelines are intended to provide information on systems and design components that must be followed for projects on campus. The information provided herein is considered minimum design standards for any system component noted. Designers are required to meet applicable Codes and standards for all systems and components not specifically mentioned within this document.

The Design Guidelines are living documents and as such, consultants are encouraged to engage the USask PD&C team to suggest updates or clarifications to the guidelines as necessary to ensure USask procedures and specifications stay up to date with industry practices. These guidelines should be read in conjunction with the specific technical sections of USask Building Design Guidelines and Technical Standards. It is the Consultant's responsibility to ensure they are using the most up to date version of each section of the Guidelines for any new projects undertaken.

ROOM SPECIFIC GUIDELINES

This section contains room specific guidelines for the following spaces:

Classroom Facilities
Communication Closets
Custodial Areas
Instructional Teaching Laboratory Spaces (in development)
Library Facilities
Main Entrances and Lobbies, Stairs and Stairwells (in development)
Meeting Rooms (in development)
Office Spaces
Research Labs (in development)
Vivaria Space
Washrooms, Change Rooms and Showers (in development)

CLASSROOM FACILITIES

1.1 Summary

.1 'Classroom Facilities' refer to learning spaces used for regularly scheduled instruction which do not require special purpose equipment for student use. Included in this category are:

Auditorium: Large tiered or sloped floor spaces containing a stage or large performance area at the front, and fixed seating.

Lecture Theatre: Large tiered or sloped floor spaces containing fixed or movable seating with writing surfaces for students.

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Tiered Classroom: Similar spaces to Lecture Theatres, however, they have smaller seat counts, have fixed or movable seating, and have writing surfaces for students. Some group work and discussion could occur in these spaces.

Seminar Classroom: Spaces designed to have less than 25 seats, typically contains movable furniture set up in a boardroom/conference style to support round table discussions and learning.

Technology-Enabled Active Learning Classroom: Spaces designed to encourage student interaction and group learning. These spaces have flexible mobile seating and tables, writable wall surfaces and some have increased technology for student interaction. They typically place the instructor in the centre of the room and allow for increased instructor/student interaction.

Studio Classroom: Classrooms with movable tables and movable seating.

.2 Appropriately designed classroom facilities will include space characteristics in accordance with USask's 'Learning Technology Ecosystem Principles'. These are:

Accessible: Learning must be found easily at any time, and all learners and teachers have equitable access, regardless of culture, language, ability etc.

Active and Social: Learning is a process of meaning-making, constructed through learning with others, and as a part of an intentional, deliberate system within a course and across experiences.

Designed for Reflection and Growth: Learning is refined and extended through prompted and supported opportunities to focus on understanding and next steps.

Designed for Student Control and Ownership of Learning: Learners create and control spaces for learning, understanding and retaining ownership, and purposefully choosing how and when they share.

Efficient and Easy to Use: Learners need to work in a system that is fluid and requires a minimum number of steps in systems that are intuitive and integrated.

Designed to Enable Connection: Learners exist in accessible networks, and connect to the experiences, concepts, people, and ideas that they need.

.3 Successful classroom facilities will include technology equipment as designed by USask ICT audio and visual design principles/guidelines.

1.2 Design Requirements

.1 **Location, Design and Dimensions**

.1 Lecture theatres and large classrooms, where possible, should be located on the ground floor, close to main building entrances, for ease of access and egress by large groups of people.

.2 Where possible, provide ample circulation space and crush space outside of classrooms & lecture theatres, unimpeded by obstacles, for the comfortable amassing and egress of large groups of people

.3 Do not locate classroom facilities adjacent to or below other spaces that produce excessive noise, such as mechanical rooms, gymnasia, performance spaces, music rooms, assembly spaces, dining facilities, etc.

.4 Locating learning spaces on exterior wall should consider mitigating or removing light (natural and artificial) and noise nuisances.

.5 Standard Classroom shape shall be designed to optimize viewing angles between seating and the instructor, projection screen/display and writable surface(s). In general rooms should be square or rectangular. Room sizes should be confirmed in consultation with USask PD&C (Planning, Design, & Construction) to align with program delivery requirements. In general, for preliminary planning and blocking exercise, use the following space/area allotments as per:

Learning Space Type	**Number of Seats**	**Recommended Net Square Meter (NSM)**
Seminar Classroom	25 or less	2.7
Studio Classroom (fine arts)	30 or less	7.5
Laboratory Classroom (Dry lab)	30 or less	7.5
Flat-floor classroom (small)	26 - 59	2.7
Flat-floor classroom (large)	60 or greater	2.5
Technology-Enabled Active Learning Classroom	55 - 155	2.7
Tiered Classroom	30 - 120	2.2
Lecture Theatre	120 or greater	1.85
Auditorium	150 - 350	1.85

.6 For lecture theatre facilities (over approximately 100 capacity), consider a structural tiered floor and vestibules or recessed entry. For tiered floors, ramped aisles are preferred over stepped aisles. Shape of the room should be considered in consultation with a qualified acoustical consultant to ensure adequate acoustical properties as required.

.7 Consult with USask ICT for AV specifications to meet requirements of the room (such as distances between rows, heights, equipment etc.)

.8 Design learning spaces with adequate furniture layouts utilizing side aisles over centre aisles. This improves circulation and promotes optimal viewing.

.9 Provide a variety of wheelchair accessible locations in all classroom facilities, not just at the front and back of the room. Strive to exceed building code requirements for accessibility/barrier free occupancy as possible.

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.10 Strive for a minimum ceiling height of 2,745mm (9'-0")
.11 Provide good room acoustics for both voice and amplified sound.

.2 **Doors and Openings**

.1 Doors should be located along the back wall. If this is not possible, the next preference would be along the side wall(s). Consider door placement in accordance with optimal furniture layout(s) and USask ICT design standards including optimal multimedia console location.
.2 Avoid positioning doors in common walls between classrooms unless there are specific requirements.
.3 Windows to exterior spaces should be orientated such that they do not pose a distraction for occupants. All windows should be adorned with accessible treatments and opacity is to be based on cardinal direction of classroom to be approved by PD&C. Black out (electric or manual) option only as required. All classroom windows are preferred to be non-operable.

.3 **Finishes (floors / walls / ceilings / acoustics)**

.1 Every learning space project shall involve an accredited, or pre-approved, Acoustic Consultant to ensure all aspects of the learning space and its adjacencies contain proper sound performances and/or attenuation.
.2 At a minimum, all learning spaces will be designed to meet a Sound Transmission Class rating (STC) of 52 or higher.
.3 Design ceilings to achieve a Noise Reduction Coefficient (NRC) of a minimum of 0.60 and with the use of wall systems should be reviewed by PD&C.
.4 All learning space mechanical systems (ductwork, diffusers, transfers, fans, equipment, etc.,) to meet a noise criteria (NC) range of NC 20 – NC 25.
.5 All learning space doors to contain acoustic jamb seals around the top and sides. Provide automatic drop-down sweeps in door-slab base (mortised preferred).
.6 For larger occupant learning spaces, provide acoustic wall treatments to break-up solid wall surfaces.
.7 Acceptable floor finish materials include polished concrete, vinyl composite tile (only where required to match existing), vinyl sheet flooring, luxury vinyl tile, rubber flooring (tile or sheet flooring). Carpet tile will be considered under certain circumstances.
.8 Acceptable wall finish materials include painted gypsum wall board, painted concrete, painted concrete block, natural brick, stained or sealed hardwood-veneer panels. Colour selections to be approved by USask Planners as part of design and in accordance with established color schemes as required on a building basis.
.9 Where painted gypsum wall board installed provide wall protection from finished floor to 900 mm AFF.
.10 Operable partitions are acceptable pending approval from USask PD&C. Operable walls must have an STC rating equal to or above standard drywall and steel stud walls.
.11 Preferred ceiling finish material is 2x2 (imperial) acoustic tiles within a suspended t-bar grid. Minimize the use of drywall bulkheads and valences in order to preserve future

flexibility and technological adaptations. In instances where an exposed ceiling is proposed, materials including wood slats, wood tiles, linear wood planks, and fabric panels may be acceptable if they meet or exceed acoustical requirements

.4 **Fittings, Furnishings and Millwork**

.1 Loose furniture will be directed by USask Planner and will be purchased directly by USask.

.2 Fixed furniture, such as fixed seating, built-in benches etc. shall be identified by the Consultant, approved by USask Planner, and be included in the construction contract.

.3 A USask standard multi-media console may be required (see Communications & Media requirements). Confirm with Client Representative. Consultant is required to coordinate millwork with infrastructure for required equipment and controls including selection of material finishes.

.4 All learning spaces to contain writable surfaces located wherever feasible around the perimeter. Writable surfaces can be back painted glass, ceramic or porcelain, magnetic, and a pen tray.

.5 Any projection screen with the width larger than 2130mm (7’-0”) should be fixed-wall-mounted.

.6 Chair guards to be installed around the perimeters (sides and back).

.5 **Mechanical Systems**

.1 To be designed to maximize occupant comfort and promote an effective user experience year-round.

.2 Provide carbon dioxide monitoring and demand control ventilation dedicated to the space.

.3 Each learning space to contain a designated operable thermostat.

.4 Use low-velocity, high volume ducting to ensure low noise levels from mechanical ventilation.

.5 All sprinkler heads should be recessed/concealed type.

.6 All diffusers to have plaque type grilles.

.6 **Electrical Systems**

.1 To be designed to maximize occupant comfort and promote sustainability through fixtures with low heat generation and energy efficiency.

.2 Design evenly distributed illumination to the level specified in Part 6, Section D50 – Electrical.

.3 Lighting should be zoned and switched to provide light levels suitable for multimedia/projection. General lighting shall be provided with LED lamps.

.4 All learning spaces containing a projection screen and/or display board(s) must have zoned lighting that is separated by circuits and/or through controls. The electrical design must allow the ability to isolate/control the front row(s) of room lighting by way of a separate switch/control panel.

.5 Switches controlling general illumination should be located by each door. LED dimmer control to be located by the door in close proximity to the multimedia console or where audio visual controls are located. Electrical requirements will be coordinated for facilities with multimedia consoles and may utilize low voltage controls and dimming ballasts depending on the flexibility required. All other facilities may be controlled by occupancy sensors.
.6 Consideration shall be given for the provision of additional electrical outlets to accommodate laptop use. Confirm requirements with USask planner.
.7 Whiteboards should be well and evenly illuminated, without hot spots or glare.
.8 Coordinate electrical and communication requirements for the multimedia console (wired lectern).

.7 **Communications and Media**

.1 Information and Communications Technology (ICT) provides a consulting service recommending applications and equipment for media infrastructure in teaching spaces. ICT should be included by the Consultant at all stages of the design process on the integration of media equipment and necessary infrastructure support requirements.
.2 Most learning spaces will require a wired multimedia console providing the instructor with a Personal Computer and media system controls. The Consultant must confirm multimedia console requirements with Usask Planner and ICT Audio-Visual Designer.
.3 Requirements for multiple data connection points (for student use) or wireless data points will be noted in the Program of Requirements.
.4 Wireless Access Point (WAP) to be designed and specified by ICT Audio-Visual Designer.

.8 **Signage - Refer to Signage Guidelines.**

END OF SECTION

COMMUNICATION CLOSETS

1.1 Summary

.1 **Design Requirements**

.1 As per USask ICT Specifications for Network Closets

.2 **Dimensions**

.1 Network closets shall be a minimum size of 2000 mm x 3000 mm (7 feet x 10 feet) with a minimum headroom height of 2700 mm (9 feet). If the closet space is shared with other groups, such as Building Controls (CCMS) and/or Protective Services, the closet dimensions and power provisioning must be reviewed and adjusted. A typical network closet is shown below. Each closet design is unique and requires consultation with ICT Platform Services.

.3 **Location**

.1 Closets shall be located off a corridor. They shall not be located within another room or near power equipment such as transformers. Preferably, closets shall be located away from offices. Network closets with live connection counts exceeding 150 will have modern chassis-based gear with powerful cooling fans. The fans generate significant audible noise. Special sound damping, sound barriers and dedicated ventilation may be required.

.2 Network closets, in multi-story buildings, shall be located directly above each other, if possible, with two 102mm (4 inch) conduit sleeves, with fire stopping, between them.

.3 Each closet shall be located no further than 70 metres (230 feet) horizontal distance from the most distant wall plate outlet it serves. This allows 20 metres (65.5 feet) for vertical deviations, maintaining the maximum allowable permanent channel length of 90 metres.

.4 **Design**

.1 The number of active data connections in each network rack shall be a maximum of 240, for a total of 480 connections in a two-rack closet. Typically, a fully loaded network closet will contain two equipment racks with no more than 400 terminated cables in each rack.

.2 Analog service may be required in the network closet, to provide service for equipment such as fax machines. Several analog delivery options are available, depending on the location of the network closet. Analog service requirements shall be reviewed, with ICT Platform Services, to determine specifics during the design stage.

.5 **Doors and Openings**

.1 Double doors shall be 900mm x 2135mm x 45mm (35.4”x 84”x 1.75”) solid core and open outwards 180 degrees into the hallway.

.2 The closet shall not have any windows, either in the walls or in the doors.

.3 There shall be no door sills. Door grills shall be installed with attention paid to noise propagation. The door with the lock striker plate shall have two sliding bolts to immobilize the door to the floor (below) and to the door frame (above). The lock itself shall be a dead bolt style and shall be keyed to allow access only with the campus MM key. If card access is installed, ICT Platform Services shall be provided with the appropriate access card.

.6 **Finishes (floors/walls/ceilings/acoustics)**

.1 The ceiling of the closet shall not be finished with conventional ceiling materials. It shall remain open to the structure above.

.2 Floor finish shall be non-slip paint, rubber tile or vinyl sheet goods to match adjacent corridor or room, NOT carpet.

.3 Acceptable wall finishes: gypsum wall board, concrete block. Wall finish shall be painted to match adjacent walls.

.4 The closet shall be identified with a room number ONLY. The function of the room shall not be indicated in any signage.

.7 **Mechanical and Electrical Requirements**

ELECTRICAL:

.1 LED fixture shall be wall mounted above doors with the switch inside the closet on same side as the keyed door. Provide occupancy sensor with manual on.

.2 Two 208 Volt 20 Amp twist-lock (L6-20) receptacles on normal power and two 208 Volt 20 Amp twist-lock (L6-20) receptacles on emergency power, on each side of closet, on separate circuits. These outlets are for powering network equipment in a one-rack closet.

.3 When two equipment racks are anticipated, the number of outlets of each kind shall be doubled: four 208 Volt 20 Amp twist-lock (L6-20) receptacles on normal power and four 208 Volt 20 Amp twist-lock (L6-20) receptacles on emergency power.

.4 These outlets shall be installed above the rack positions, if possible, to prevent equipment power cables from running across the floor. If they cannot be installed above the racks, they shall be located on the side walls at 1000mm (39.4”) height and approximately 1220mm (48”) away from the back wall.

.5 A standard 115 Volt 15 Amp duplex outlet is required for utility usage. This outlet shall be installed near the front of the room near the door.

COOLING:

.1 Adequate ventilation and/or cooling required. Heat loading in the network closet is determined by the number of active connections and the percentage of those active connections that draw Power-Over-Ethernet (POE).

.2 VoIP telephones, wireless access points and security cameras currently draw about 15 watts each. This POE power is NOT dissipated within the network closets. It is dissipated in the device itself, which is located outside the network closet. However, a portion of the POE power consumed is dissipated within the network closet. Approximately 10% of the supplied POE power is dissipated as heat within the network closet. See the chart below for estimated heat loads for various configurations:

Number of Active Connections	Number of POE Devices	Estimated Heat Load (BTU/hour)
100	10	2,100
100	30	2,200
240	50	2,920
240	120	3,140
480	120	5,800
480	240	6,550

.3 There is currently a standard in place for POE consumption of 30 watts per connection and a proposed standard for 60 watts per connection. If computer/telephone/security gear adoption of these new standards is high, power dissipation for network closets will need to be reviewed.

.8 **Inspection and Testing**

.1 Arrangements shall be made, with the ICT Platform Services group, to inspect cables and installation, labeling and other network closet provisioning during the construction phase.

.2 CAT6 verification testing of all cables shall be performed by the Contractor and turned over to the Owner at the completion of testing. Submission of electronic test results shall be forwarded to ICT Platform Services.

.3 It is the responsibility of the cable installer to follow all the procedures necessary to obtain the CommScope Systimax 20-year warranty, apply for the warranty and present ICT Platform Services with the warranty certificate and associated CAT6 test results.

END OF SECTION

CUSTODIAL AREAS

1.1 Summary

.1 **'Custodial Areas'** refers to space that is used for the bulk storage of cleaning supplies, cleaning equipment, and collection points for waste, compostable materials and recycling. Included in this category are Custodial Supply Rooms (larger rooms with inventory and equipment), Custodial Closets (smaller rooms primarily used for sink and carts), and Waste & Recycling Collection Points. Design Requirements for Custodial Areas

.2 **Location, Design and Dimensions**

Custodial Supply Room:

.1 Is intended for the purposes of storing bulk cleaning supplies, cleaning equipment, paper-goods storage, and chemicals.

.2 A minimum of one Custodial Supply Room should be provided for each building, or more as required, depending on the building size.

.3 These spaces should be located close to a service entrance to facilitate the movement and handling of supplies, while also being located with immediate access to the main circulation system for the building.

.4 The size of the Custodial Supply Room should be based on the following parameters:

.5 Provide an area of 1.0m2 per caretaker for bulk storage of case supplies.

.6 Provide an area of 1.5m2 for special cleaning equipment, stepladders, and supplies.

.7 Provide space for horizontal storage of replacement LED lamps.

.8 For buildings where battery-powered floor scrubbers are required, provide space in the Custodial Supply Room for the recharging station for the floor scrubber.

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Custodial Closets:

.1 Is intended to provide space for the short-term storage of equipment such as mop buckets, brooms, paper goods, etc. for day-to-day activities and should include a floor receptor/sink.
.2 Provide at least on Custodial Closet for each custodial "territory", and a minimum of on Custodial Closet for each building.
.3 Distribute Custodial Closets so that there is at least one closet per floor.
.4 Ideally, locate Custodial Closets near washroom facilities, stairs, or elevators and central to the assigned territory.

Waste and Recycling Collection Points:

.1 Is intended for general staff and building occupant usage and should be developed with consideration and coordination of custodial staff requirements.
.2 Specify a minimum of one waste and recycling collection point per floor in each building.
.3 Waste and recycling collection points should be located in publicly accessible, visible, and convenient locations, preferably in an alcove off a public corridor so they do not impede traffic flow.
.4 These spaces should be sized to accommodate containers for recyclables (single-stream which can accept glass, aluminum, plastic, and tetra-pak beverage containers, and paper), organics including paper towels, and garbage.
.5 Each food service facility shall be provided with a waste and recycling collection point.

.3 **Doors and Openings**

.1 Doors to Custodial Supply Rooms should be wider than typical standard of 910mm. A standard door leaf of 910mm and an operable half leaf of 450mm or 600mm to support movement of cleaning equipment is required. Custodial Closets should be minimum of 910mm. Where a Custodial Supply Room is not provided, allow for a wider door in the Custodial Closet

.4 **Finishes (floors/walls/ceilings/acoustics)**

Acceptable finishes for Custodial Supply Rooms and Custodial Closets include:

.1 Flooring: polished concrete, sealed concrete, vinyl sheet flooring.
.2 Provide coved rubber base in Custodial Supply Rooms and Custodial Closets.
.3 Wall finishes: painted gypsum wall board, sealed or painted concrete, sealed or painted concrete block.
.4 Provide stainless steel wall protection on all wall surfaces immediately adjacent to the mop sink.
.5 Provide all other lower wall surfaces with a protective thermoplastic wall protection sheet covering.
.6 Provide a floor-level mop sink.
.7 Ceilings are not normally required. Where ceilings are required, provide suspended acoustic ceiling tile system.

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As Waste and Recycling Collection Points should be located in publicly accessible, visible, and convenient locations, preferably in an alcove off a public corridor so they do not impede traffic flow, the finishes of these spaces should match and/or coordinate with adjacent spaces. Acceptable finishes include:

.1 Flooring: polished concrete, sealed concrete, ceramic tile, vinyl sheet flooring.
.2 Provide coved rubber base or a base that matches flooring i.e., ceramic tile.
.3 Wall finishes: should be durable to withstand wear and tear from waste and recycling container usage. Sealed or painted concrete, sealed or painted concrete block, ceramic tile, or drywall with impact resistant wall protection that coordinates with adjacent spaces.
.4 Ceilings: to match adjacent spaces.

.5 **Equipment**

.1 Specify adjustable wall-mounted shelving. Provide about 1500 linear mm of shelving, for the stocks of paper towels, toilet tissue, soap, waxes, detergents, polishes, new and burned-out lamps.
.2 Provide a mop and broom hanging rail, with a minimum of six broom clips.

.6 **Furnishings**

.1 Specify a cabinet storage unit approximately 2000mm high with 300mm deep shelving above a 600mm deep cabinet for smaller quantities of cleaning solutions.
.2 Provide tackboards near the door both inside and outside.

.7 **Mechanical and Electrical Requirements**

.1 All mechanical and electrical requirements are outlined in appropriate section(s) (insert name).
.2 For safety reasons, light fixtures should not be located directly over mop sinks to avoid lamp breakage by mop handles.
.3 For Custodial Closets equipped to charge battery-powered floor polishers, provide an independent, explosion-proof system to exhaust the charging fumes (hydrogen) directly to atmosphere.

END OF SECTION

LIBRARY FACILITIES

1.1 Summary

.1 'Library Facilities' refers to space, administered by the University Library, and used for the collection, storage, circulation and use of reading and reference materials or other media. Included in this category are Shelving Space, Study Space and Library Service Space.

1.2 Design Requirements

.1 Location, Design and Dimensions

.1 The library should act as a "front door" or "welcoming threshold" into the University with a clear sense of entry. As such, library facilities, where possible, should be located on the ground floor, close to main building entrances, for ease of access and egress. Space should be provided to support opportunities for gathering and public functions which support the advancement of community connectedness for both on and off campus community engagement initiatives. Public functions should be clustered at grade and close to the entry, enhancing ease of access and accommodating short visits.

.2 Library spaces should be inviting and navigable. This includes thoughtful design principles related to welcoming entries and the provision of visual connections to facilitate wayfinding and orientation. Visual connections in support of wayfinding and orientation should include views to different areas of the facility to support users to explore options before committing to a particular route. A facility that is bright and open with access to natural light and windows will improve orientation. Wayfinding and recognition should be facilitated through the creation of distinct visual identities for different areas or floors.

.3 Library facilities should be designed in terms of gradients of experience and interaction. In a multi-floor library facility, consider vertical planning where public functions are located close to ground level, with private functions located higher up. Where possible, repeating program spaces by floor will aid in maximizing legibility and orientation in relation to primary circulation routes.

.4 The development of the space and the strategic placement of programme functions should be carefully considered when making design decisions as the nature of interior spaces will influence the tendency and frequency for people to gather and utilize the space. "People spaces" should be proximal to natural light, daylight, and views, i.e., "right to light" as opposed to the location of collection storage (shelving, fixed or mobile), which should be placed so as not to hamper or restrict access to daylight and views.

.5 Design decisions related to library facilities require these spaces to be flexible and nimble to support adaptation and to allow these spaces to evolve and respond to the changing and diverse needs of its users.

.6 Library spaces should be inclusive to meet distinct user needs through the provision of a holistic environment that promotes wellness while supporting and enhancing creativity and learning. The provision of physical and digital universal access for ease of use for all users should be incorporated to further promote inclusivity.

.7 Provide space(s) where experiential learning opportunities can occur organically through access to displays, both analog and digital. Space(s) where planned performances can occur should be considered where most logical.

.8 Include a range of spaces that will accommodate private study and learning ("me" space), small group learning and collaboration ("we" space), and large group community space ("us" space).

.9 Staff service and support space, i.e., “back-of-house” spaces, should be consolidated to the greatest degree possible to allow for collaboration and efficiencies.

.10 Public serving staff-designated spaces such as service and reference desks should be located in key user areas requiring service or monitoring.

.11 Appropriate structural considerations are required to ensure that library shelving, either fixed or mobile, are properly supported and meet or exceed contemporary library design standards. Confirm requirements with Client Representative and structural consultant.

.12 Access to power and Wi-Fi should be ubiquitous throughout library spaces. In-floor power is preferred where possible to allow for broader distribution and ready access by users.

.13 Careful consideration of HVAC infrastructure should be integrated into the design development of library spaces in general. Specialized spaces such as archives and special collections, display and exhibit spaces, etc., should be closely assessed to ensure that the appropriate systems are in place to properly support the requirements for the material(s) stored and activities that occur in these spaces, particularly if these spaces require Cultural Property designation.

.2 **Thermal & Moisture Protection**

.1 Overall, library facilities should provide appropriate environmental conditions, i.e., suitable relative humidity and temperature control, to protect and preserve the collections that are housed within the space.

.2 For specialized areas such as archival and special collections, which can include various items such as rare books, clothing, artwork and, artifacts as examples, more robust building envelopes and environmental control systems should be considered to provide a suitable space for the housing of certified cultural property. In some cases, the space may be required to meet a “Class A” status as prescribed by the Canadian Conversation Institute.

.3 **Doors and Openings**

.1 Specify a narrow side lite or a view lite in the door itself.

.2 Doors shall be finished with a satin paint or clear finish, non-absorbent and washable.

.3 Library facilities should have non-operable windows in order to maintain relative humidity and temperature control.

.4 Windows should have UV coatings and high performance glass to help mitigate heat gain.

.5 All windows should be equipped with window treatments that provide transparency based on the exposure. Exterior windows may require roller blinds. Interior windows may require window film application.

.4 **Finishes (floors / walls / ceilings / acoustics)**

.1 Finishes will be specified based on durability, maintenance requirements, aesthetics, acoustics, and sustainability.

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.2 Acceptable floor finish materials, include polished concrete, terrazzo, tile (ceramic, stone, other), vinyl sheet flooring, luxury vinyl tile (LVT), rubber flooring, and carpet tile.

.3 Acceptable wall assemblies: poured-in-place (PIP) concrete, concrete block, brick, gypsum wall board and stud. Demountable wall systems encouraged for areas deemed highly flexible. Wall structures should be taken to underside of structure whenever possible and acoustic insulation installed in wall cavities when determined necessary.

.4 Acceptable wall finish materials included painted gypsum wall board, concrete (natural or painted), concrete block (natural or painted), natural brick, and stained or sealed hardwood veneer panels. Paint colour selections to be approved by USask PD&C Planner(s) as part of the design process and in accordance with established building colour schemes, if applicable.

.5 Design library facilities to ensure a minimum Sound Transmission Class (STC) rating of 45. In the case where a library facility is adjacent to unrelated library activities, the demising walls between the two space types should have a minimum STC of 55.

.6 Acceptable ceiling finishes: Ceiling finishes may include acoustic ceiling tile, wood tile, gypsum wall board bulkhead, linear wood, or as approved by USask PD&C Planner. Design ceiling to achieve a Noise Reduction Coefficient (NRC) of 0.90.

.7 Ceilings may be partially or completely omitted, provided adequate acoustic control is achieved.

.8 Acoustic treatments should be considered for specific areas where warranted.

.5 **Equipment**

.1 Shelving for the purposes of collection storage in library spaces should be compact mobile shelving systems wherever possible and appropriate. The type of system that should be installed, i.e., electrified or manual-assist (non-electrified), will be decided at the time of design in consultation with representatives from the University Library.

.2 If electric compact mobile shelving systems are preferred as the system of choice for a particular installation, a robust service agreement must accompany any installation.

.6 **Furnishings**

.1 Standardized furnishings for certain spaces within library facilities should be considered to support flexibility and adaption of spaces and infrastructure to meet the diverse information and programming needs of the library. Standardization will also provide consistency between the various branch libraries.

.2 Consider spaces and furniture that accommodate the needs of both introverts and extroverts (me, we, us).

.3 Use furnishings and finishes that create inspirational spaces rather than reflect utilitarian purposes.

.4 Service and reference desks should be designed using flexible/adaptable furniture solutions as opposed to fixed millwork.

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OFFICE SPACES

1.1 Design Requirements

.1 **Location, Design and Dimensions**

.1 Standard office sizes and areas vary according to job classification and use. Required sizes and areas will be established and approved based on USask Space Framework.

.2 Office Spaces are categorized as follows. Reference Council of Ontario University space guidelines.

Private Office: refers to a single occupant workspace that is enclosed by full-height walls that terminate at, or above, the plane of the ceiling. Size of private offices directed by position and existing limitations of physical structure.
Shared Office: refers to a multiple occupant workspace that is enclosed by full-height walls that terminate at, or above, the plane of the ceiling. Size of shared offices is directed by number of occupants and existing limitations of physical structure.
Landscaped Office: refers to a workspace that may be fully or partially enclosed by walls or partitions that extend to a height below the plane of the ceiling. This may also be described as an open office, office workspace, or cubicle. Range of sizes based on work function:

.2 **Doors and Openings**

.1 To meet CPTED guidelines, specify each office door to include a side lite or glazed window insert with full or partial transparency.

.2 Design to maximize interior daylighting and views. Prioritize access to natural light in landscaped office spaces over adjacent enclosed office spaces. Additional glazing should be considered for adjacent office spaces to allow access to natural light.

.3 Sill heights in office areas should permit effective use of exterior wall areas and accommodate furniture placement.

.3 **Finishes (floors / walls / ceilings / acoustics)**

.1 Acceptable flooring materials for all office types: polished concrete, luxury vinyl tile, vinyl or rubber sheet flooring, and carpet tile.

.2 Floor structures may be required to support high-density file storage. Confirm requirements with Client Representative and structural consultant.

.3 Acceptable wall assemblies: concrete block, gypsum wall board on metal studs, glazed systems, and demountable wall systems (encouraged for high flexible areas). Additional acoustical treatments or insulation should be considered for increased sound isolation.

.4 Acceptable ceiling finishes: acoustic ceiling tile, wood tile, gypsum board bulkhead (partial), linear wood, or as approved by USask Planner.

.5 Ceilings may be partially or completely omitted, provided adequate acoustic absorption is achieved.

.6 Design offices to ensure a minimum Sound Transmission Class (STC) rating of 45.

.7 Design ceiling to achieve a Noise Reduction Coefficient (NRC) of 0.90.

.4 **Furnishings**

.1 All furniture to be selected in consultation with USASK Planner.
.2 All furniture to be commercial/institutional grade.
.3 Unless otherwise specified, all furniture will be procured separated from the scope of the General Contactor/Prime Contractor.
.4 Coat Storage: Provision should be made for coat storage within each office area, either as coat hook, coat tree, or enclosed wardrobe.
.5 Specify wall-mounted shelving, marker boards/painted glass boards, tack boards, as required. Provide continuous blocking in walls to receive mountings.
.6 Ensure that furniture, millwork, and shelving is chosen and situated to avoid interference with radiant systems and service outlets. Coordinate with USASK Planner to ensure that furniture does not block the air intake grilles or outlets.
.7 All Office Spaces are to be specified using a strict colour palette and will only allow for one accent wall.

.5 **Electrical**

.1 Provide line voltage occupancy sensors in each enclosed office. Lights should be required to be manually turned on and should shut off automatically.
.2 Open landscaped offices should be zoned and switched both manually and automatically with occupancy sensors. Photocell control may be provided using either continuous or bi-level dimming.
.3 Specify LED lighting fixtures to achieve specified minimum illumination levels.

.6 **Communications and Media**

.1 Specify data and electrical connection point(s) to each workstation. Number of lines to be coordinated with Client representatives and reviewed by ICT.
.2 Provide two (2) sets of power and data service in each office with an area greater than 12.5 m2.

END OF SECTION

Vivaria Space

1.1 Summary

.1 All laboratory and research facilities to be designed with minimum biocontainment level II laboratory standards. Specific laboratories developed to align with intended research. Any alternate laboratory classification must be approved by Safety Resources in consultation with PD&C.
.2 Vivaria spaces will include but are not limited to animal holding rooms (both primary and secondary), anterooms, animal procedure rooms, surgery suites, necropsy suites, feed storage,

bedding storage, general storage, and cagewash/autoclave facilities, laundry facilities.

1.2 Design Requirements

.1 Location, Design and Dimensions

.1 Vivaria spaces should be co-located and proximal to each other and situated in an area of a building designated to the housing and care of animals. Ideally these spaces are in a separate area of a building away from other programme functions and to limit unauthorized access to the space.

.2 Room sizes/areas will vary depending on type of species to be housed in the space. Determination of area will be contingent if room is used as primary containment, i.e. animals are housed directly in the room or if they are contained in individually ventilated cages (IVC's) (secondary containment). In the former case, the room will be designed based on the maximum square meters/animal as per the Canadian Council of Animal Care (CCAC), Institute for Laboratory Animal Research (ILAR) and European Union Animal Welfare Directives. For the later, room size will be determined on required number of IVC's in each room.

.3 Vivaria facilities should not be located above electrical rooms, data closets, or other rooms that could be impacted and/or damaged from water leaks.

.4 Vivaria facilities should not be proximal to spaces that generate excess noise or vibration.

.5 In general, vivaria spaces should avoid or minimize protruding obstructions in animal cubicles and corridors to both protect animals as well as to facilitate the movement of animals throughout the space.

.6 Sub-floors to be concrete and must be designed to meet the required loading and stresses that animals may exert.

.7 Wall structures shall be constructed of materials that are robust and can withstand direct impact (eg. animal kicks), and are durable, waterproof, and that allow for easy and frequent cleaning and sanitation. Walls shall be constructed to underside of structure and must be seamless, free of cracks and crevices.

.2 Thermal & Moisture Protection

.1 Vivaria spaces where animals will be housed and/or interact with a space, should be designed to receive full wash down and sanitization. The extent of wash down will be dictated by the species being housed in the space. As such, these spaces should be designed to withstand various types of washdown techniques from general floor cleaning with mop and bucket to a full wash down of all surfaces with a pressure washer.

.2 All animal holding rooms should be equipped with a floor drain unless the programme dictates otherwise.

.3 **Doors and Openings**

.1 All doors and frames shall be "vermin and waterproof" at the top and bottom edges with a smooth top surface so that dust or water will not collect. The top and edges of all doors are required to be sealed with seals that provide required compliance.

.2 Size of door openings shall allow passage of all anticipated equipment and animals. Consult with Animal Care personnel to determine appropriate widths for the various vivaria spaces.

.3 Perimeter doors to the animal space shall be lockable. Card access system preferred.

.4 Features for in-door glazing to align with requirements based on animals housed and security requirements.

.5 Space to mount appropriate specialized signage related to designation of facility, safety precautions, etc. should be provided near entry door. Signage materials to be appropriate for procedures within the room (cleaning, etc.)

.6 Doors shall be finished with a paint, non-absorbent, washable and sanitizable.

.4 **Finishes (floors / walls / ceilings / acoustics)**

.1 The primary criteria used for selection of finishes is durability, cleanability and maintainability. The wall, floor, and ceiling finishes within vivaria areas shall maintain the primary (secondary for IVC housed rodents) biological barrier between the contained environment and non-containment environment. The finishes applied to these surfaces must be designed to withstand washdown and decontamination agents that are used.

.2 Acceptable wall finishes: painted concrete, painted concrete block, or thermoplastic wall protection sheet. Finishes shall be smooth, non-absorbent and high pressure washable. Joints shall be sealed where applicable. Other materials may be considered provided they will withstand expected conditions. Wall finishes and backing need to be resistant to impact from animals.

.3 Flooring shall be impervious, chemical resistant, slip resistant and allow high-pressure washing in accordance with the type of animals being housed. Spaces that house hooved animals shall be durable and withstand pressure from hooves. The movement of equipment carts, in the selection of flooring materials and transitions should be considered during flooring selection. Acceptable flooring materials: seamless epoxy, chemical-resistant resilient sheet flooring. Sealed or polished concrete may be used for some research laboratories. Confirm with Client Representative. Consultants shall ensure that the specified flooring material is resistant to damage from the functions expected in each facility. Flooring should be coved up wall to maintain seal.

.4 In vivaria spaces where floor drains are required, floors to slope towards floor drain.

.5 Ensure that animal holding facilities are acoustically isolated from adjacent spaces. For sound isolation, walls shall be constructed to underside of structure. Design vivaria spaces to ensure a minimum Sound Transmission Class (STC) rating of 50.

.6 Walls shall be protected with bumpers or guard rails, particularly in corridors, as well as any room where damage to wall surfaces from equipment could occur. Where

obstructions are present in animal spaces or corridors, all corners should receive stainless steel corner guards. Walls

.7 Acceptable ceiling materials: painted moisture-resistant gypsum wall board, suspended acoustic ceiling tile (suspension system to be humidity, corrosion and chemical resistant).

.5 **Equipment**

.1 Biosafety cabinets, if required, shall be installed in experimental areas only.

.2 Biohazard cabinets (or Biosafety cabinets) shall comply with current standards and regulations. All such installations must be approved at both the design stage and following installation by the Biosafety Manager of the Safety Resources.

.3 Where required, the provision of a dedicated elevator(s) that can be segregated and secured from the public for the transportation of animals, cages, feed, bedding, waste, etc. Consideration of designated “clean” and “soiled” elevators may be necessary, depending on programme requirements.

.6 **Furnishings & Casework**

For vivaria spaces where casework is required, the following should be considered:

.1 Closed storage and shelving, including hardware shall be smooth, impervious, chemical-resistant and washable.

.2 Drawers to be equipped with catches, to prevent the drawing from being pulled out of the cabinet. Chemical-resistant storage trays to be place on all shelves (open and closed) and in drawers.

.3 Reagent shelving to be equipped with lip edges to prevent migration of substances off the shelf.

.4 Work surfaces shall be smooth, impervious, chemical, heat, scratch, and impact resistant. If joint required, joint must be sealed. Epoxy resin counters & benchtops to be specified where required. Counters & benchtops shall include a lip to prevent run-off onto the floor. If the countertop buts a wall, it shall either be coved or have a back-splash against the wall.

.7 **Mechanical and Electrical Requirements**

.1 All mechanical and electrical requirements are outlined in appropriate section of Mechanical and Electrical Guidelines.

END OF SECTION