1.0 **GENERAL**

1.1 **Related SFU Owners’ Technical Requirements**

- Section 12 00 00 Furnishings (Computer Workstations)
- Section 12 35 53 Laboratory Casework (Wet Laboratories)
- Section 11 82 00 Waste Handling Equipment (Waste Management)
- Section 10 00 10 Special Room Requirements (Custodial)

1.2 **Coordination Requirements**

- Coordinate with SFU EHRS Ergonomics Program, and follow SFU Ergonomics Policy.

2.0 **DESIGN REQUIREMENTS**

2.1 **Computer Workstations**

*SFU Ergonomics Checklist for Computer Workstation for Designers*

<table>
<thead>
<tr>
<th>Category</th>
<th>Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordination</td>
<td>• Coordinate with SFU EHRS Ergonomics Program</td>
</tr>
<tr>
<td>Desk Depth</td>
<td>• Depth of computer work surface is ≥30” if placing equipment on the desktop</td>
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<tr>
<td></td>
<td>• Depth of computer work surface is ≥24” if keyboard tray available</td>
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<tr>
<td>Desk Height</td>
<td>• Adjustable (electronic/pneumatic preferred): 22” to 48” for sit-stand options</td>
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<tr>
<td></td>
<td>• If work surfaces are fixed, set height at 28.5” and provide peg/brackets for height adjustments. Provide option for keyboard tray &amp; ensure installation is possible-avoid bars under desk</td>
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<tr>
<td></td>
<td>• Provide ≥1 electronic/pneumatic height adjustable desk as common resource (if using fixed height desks at individual workstations)</td>
</tr>
<tr>
<td>Desk Width</td>
<td>• Front edge of computer work surface (desk) is ≥28” width</td>
</tr>
<tr>
<td>Under desk width</td>
<td>• ≥30” wide for ADA preferred; at minimum ≥26” to provide space for keyboard tray</td>
</tr>
<tr>
<td>Under desk depth</td>
<td>• ≥23.5”–Leg clearance</td>
</tr>
<tr>
<td>Keyboard tray</td>
<td>• ≥26” width (sufficient space for keyboard and mouse)</td>
</tr>
<tr>
<td></td>
<td>• Mouse level(^1) with keyboard; no knob height adjustable; removable palm rest</td>
</tr>
</tbody>
</table>

\(^1\) Articulating swivel up mouse platform may be acceptable if it keeps mouse close and is easy to switch between the right and left
### Category | Guideline
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Monitor | • Height and tilt adjustable  
• User should have control over location on desk  
• If large iMac (high on desk) are used, monitor arms will be necessary
Monitor-glare | • Provide sufficient blinds with user control  
• Position monitors between banks of lights & perpendicular to window (reduce glare)
Chair | • See pre-approved list or refer to checklist criteria below  
• **Height Adjustable**: 15 to 22” (may need option for taller/shorter chairs)  
• **Seat Depth**: depth adjustable preferred (16 to 20”) or option for smaller seat pan  
• **Backrest Height**: ≤17.7”-support for shoulders  
• **Lumbar support**: Height adjustable required & sufficient support so that it does not flatten out with weight against it; depth adjustable preferred  
• **Backrest Angle**: Allow upright and at least 15° reclined posture.  
• **Dynamic recline**: must have tilt lock or sufficient tension control to support the user  
• **Seat Width**: 19” (with option for narrower chair or armrests that come in closer)  
• **Armrest Height**: Adjustable (7" to 11") & removable (unless they can go low enough so as not to interfere with pulling in close to the desk);  
• **Armrest Width**: Adjustable preferred if the distance between armrests can adjust between 15 and 20” or provide option for narrower seat pan  
• **Footrest**: must be provided if user’s feet do not rest firmly & comfortably on floor.
Reception Desk | • Design to allow staff and customer to be at the same height (both seated or both at standing height with a higher chair available for staff)

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2 as measured with the BIFMA chair measuring device  
3 Either lumbar support or backrest height can be adjustable  
4 If armrests do not go lower than 8” they should be removable
2.2 Wet Laboratories

.1 Preferred if work surfaces are height adjustable, electric/pneumatic preferred; peg/crank height adjustable is acceptable.

.2 For fixed height tables consider the work to be performed: large benchtop centrifuges should be placed on lower tables rather than the standard counter height of 36”.

.3 Leg clearance for seated work sections: 24”deep X 30” wide (i.e. no drawers including pencil drawers in this space).

.4 Height adjustable biosafety cabinets.

.5 Preferred if biosafety cabinets can have a 14” opening or as large as possible given other safety concerns, and angled glass to ease.

.6 2-step platform should be provided in front of mid-sized liquid nitrogen dewars and overhead lift for large liquid nitrogen dewars.

.7 Provide comfortable & supportive lab chairs (height adjustable, backrest height and angle adjustable and foot ring height adjustable).

2.3 Building Services (Custodial) Residences

.1 Refer to Section 10 00 10 Special Room Requirements, paragraph 1.11.

.2 Ensure main storage room is large enough to accommodate equipment such as auto floor cleaners and a washer/drier (for mop heads)-consider raised platform for frontload washer.

.3 Accessible service elevators in every building large enough for custodial equipment, such as trash carts, floor scrubbers and large no-touch cleaning systems.

.4 Ease of cleaning/maintenance: provide surfaces that are easy to clean and easy access to equipment for maintenance and ensure flooring is slip resistant.

.5 Ensure materials used for walls and sub-floors support the moisture of no-touch cleaning systems.

.6 Ensure flooring slopes down to drain-avoid placing drain higher than flooring.

.7 Consider installing shower hoses-this will make it easier for building service workers when cleaning showers.

.8 Water and sustainability issues are very important to consider; however, certain types of low water, high-efficiency, dual flush toilets may require additional cleaning and may be more difficult to clean than standard toilets. Install toilet systems that have a high Waste Removal Performance Measure (MaP3) rating to the amount of daily cleaning required. To see ratings, consult http://www.bewaterwise.com/pdf_rebates_toilets_01.pdf or http://www.map-testing.com/about/maximum-performance/map-search.htm.
.9 Ensure furniture in resident rooms can be moved with <30lbs of force.

.10 Ensure resident room layout provides sufficient space for staff to be able to make beds.

2.4 Food Services

.1 Pass through to customer: Provide barrier free area to allow staff to comfortably pass food to customers; keep frequent reaching to <14” and below chest level.

Rationale: minimize extended frequent reaching (CSA Z1004-12, B.3.3.2 (p.74), frequent reach zone <14”).

.2 Pass through between cook and sales attendant: Provide area that requires minimal reach for both staff and sales attendants.

Rationale: minimize extended frequent reaching (CSA Z1004-12, B.3.3.2 (p.74), frequent reach zone <14”).

.3 Working Heights: provide height adjustable preferred; if that is not possible other options for varying work heights to accommodate the different types of tasks require.

Rationale: tasks that require precision are best done at a table slightly above elbow height while tasks that require force at best done at a table below elbow height (CSA Z1004-12, tool 3b, p.80; precise work: 1.5 to 2” above elbow; light work: 2 to 4” below elbow; and, heavy work: 7 to 15” below elbow height).

.4 Garbage, compost & recycling: Provide sufficient space for compost bins near to where they will be needed; ensure compost bins are on wheels for transport or if not, the bins should be small for lifting/carrying; ensure there is a clear pathway between point of origin and destination.

.5 Storage area(s): specific square footage will vary; design to provide more than enough space to store all the needed items and allow space for expansion as it is likely that storage requirements will increase over time.

Rationale: Planning for sufficient storage space is critical to reducing musculoskeletal injury risks; insufficient space results in staff working in awkward postures and double handling products which significantly increases the risk of injury.

.6 Ease of cleaning/maintenance: provide surfaces that are easy to clean and easy access to equipment for maintenance and ensure flooring is slip resistant.

2.5 Waste Management

.1 Refer to Section 11 82 00 Waste Handling Management.

.2 Addition to 1.1.2.5: Ramp/Ground level access should be provided near the loading dock or primary point of exit when staff are bringing compost/recycling bins to designated pickup area.

Rationale: ease of access-avoid need for staff to bump bins down a set of stairs or walk long way around building.
.3 Height of waste containers (dumpsters): ≤36” at opening or provide platform/dock.
   Rationale: eliminate above shoulder level reaching for staff when throwing out garbage.

.4 Clear/smooth path with minimal distance when pushing compost/recycling bins to designated pickup area.
   Rationale: recycling/compost bins, particularly compost bins, can become heavy and/or difficult to push particularly over uneven surfaces.

.5 Compactor. Provide sufficient space for electronic assist tow to remove compactor from building when bringing to designated pick-up (confirm clearance with CAD drawings).
   Rationale: Large compactors require >50lbs of pull force; electronic assist tow will need to be provided to reduce musculoskeletal injury risk factors.

***END OF SECTION***