Lab Space Design Guidelines

A. Workstations

- Work surfaces should be easily adjustable.
- Work surfaces should provide adequate thigh clearance underneath (thin work surface, no drawers).
- Sufficient space for feet and knees should be available under works surfaces. Also consider work surface cutouts to position employees closer to equipment, i.e. microscopes, water baths.
- Avoid rails/storage shelves and drawers below the front edge of bench. If file cabinets are used, use low cabinets for modular lab benches.
- Bench heights should be adjustable, especially where there is prolonged standing.

**Seated (desk height) workstations are best for tasks:**

- Performed at elbow height or below.
- Where work objects weigh 10 lbs. or less.
- Requiring fine manipulation or writing.
- Performed for at least 30 minutes.
- Which are complex precision tasks.
- Which are of longer duration.
- Where chair movement is required.
- Requiring foot controls.

**Recommended seated work heights (especially for frequently performed tasks/tasks performed for prolonged periods):**

<table>
<thead>
<tr>
<th>Task Description</th>
<th>Recommended Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microscope use</td>
<td>27.5-31 inches</td>
</tr>
<tr>
<td>Cryostat</td>
<td>26-28.5 inches</td>
</tr>
<tr>
<td>Precision work requiring micromanipulation (surgery)</td>
<td>27.5-31 inches</td>
</tr>
<tr>
<td>Light assembly (pipetting)</td>
<td>26-28.5 inches</td>
</tr>
<tr>
<td>Coarse/medium work (microtomy)</td>
<td>26-28.5 inches</td>
</tr>
</tbody>
</table>

**Standing workstations are best for tasks:**

- Which are shorter in duration.
- Where work objects weigh more than 10 lbs.
- Requiring frequent extended reaching.
- Requiring frequent movement between workstations.
- Requiring downward forces.

**Recommended standing work heights:**

<table>
<thead>
<tr>
<th>Task Description</th>
<th>Recommended Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light assembly work</td>
<td>38-42 inches</td>
</tr>
<tr>
<td>Heavy work (requiring downward force)</td>
<td>35-39 inches</td>
</tr>
</tbody>
</table>

B. Storage Space:

- Plan for extended storage space for heavy items and fluid containers (such as reagents) to be stored between thigh and shoulder level (32 inches to 48 inches).
- Provide storage space for height adjustable carts used for heavy containers.
- Consider pull out shelving or Lazy Susan devices.
- Storage areas should be readily modified to accommodate changes and laboratory practices i.e. modular rolling storage cabinets.
C. BSC/Glove Boxes/Fume Hoods (Especially when frequently used/used for prolonged periods):

- Provide leg clearance beneath.
- Should be height adjustable when possible.
- Select units which minimize forward reach over safety structures placed in front of the work surface, such as air foils

BSC:
- Recessed waste receptacles, convenient placement of petcocks and electrical controls.

Glove Box:
- Glove port diameter should be 8 inches.
- Center of glove ports should be 46” above the floor.
- Window should be sloped back about 15 degrees and 54-66 inches above the floor.
- Use foot activated height adjustable stools.

D. Chairs should have all the recommended features indicated in http://www.safety.duke.edu/ergonomics/computer-ergonomics/chairs/required-chair-features:

- Should be multi-shift for 24/7 lab functions.
- Casters should be rubber for hard floors.
- Cylinder height should be appropriate for height of BSCs if the hood is non-height adjustable.
- Avoid seat slider on stools or seat angle.