

Last Update: July 01, 2009

A. Government Guidelines:

1. As a general rule the following guidelines should be followed:

The National Institute of Health (NIH) Design Requirements Manual:

<http://orf.od.nih.gov/PoliciesAndGuidelines/FacilitiesPoliciesandGuidelines/>

Center for Disease Control (CDC) "Biosafety in Microbiological and Biomedical Laboratories":

<http://www.cdc.gov/od/ohs/biosfty/bmb14/bmb14toc.htm>

2. Even when these are followed, there are specific requirements and limitations that need to be kept in mind when designing laboratories at Purdue. Descriptions of these specific items can be found in the following sections.

B. Room Layout:

1. Labs are set up using a 10'-0" to 10'-6" planning module.
2. Wall-mounted bench depth is 30". For the standard 22" deep base cabinet, this leaves a 1" overhang in front and a 7" space behind that is used as a utility chase.
3. Peninsula or island benches are 5'-0" to 5'-3" wide.
4. Standard aisle width is 5'-0" to 5'-3".
5. Approximately 10% of the laboratory floor space is planned for freestanding equipment. Freestanding equipment includes, but is not limited to, refrigerators, freezers, centrifuges, etc. Equipment lists should be obtained from the occupant early in the design process to establish exact size, heat contribution to space and electrical power requirements.
6. Balance tables are located off of high traffic paths and out of direct flow from supply air diffusers. Screens are sometimes provided to prevent air turbulence.
7. Utility clusters usually consist of cold water, cupsink, natural gas, compressed air, RO water, and occasionally vacuum. Two cold-water faucets may be required per cup sink as identified by client. Utility clusters are placed on benches where identified by client.
8. Service sinks are normally 21" to 24" long, 15" to 18" wide, and 7" to 10" deep with a hot and cold mixing faucet and an RO water faucet. Pegboards are provided at service sink locations above the backsplash with a drip trough.
9. If the lab requires a higher degree of water purification than is provided by the building RO system, we provide space for a polisher (Millipore-type unit) at a central service sink along with a 120v outlet located at 7'-0" AFF and a stubbed RO water line.
10. At least one door into the lab should provide a 48" wide opening filled with a 36" active leaf and a 12" inactive leaf. This provides adequate space to get large equipment into and out of the lab.

C. Graduate Student Desks:

1. Graduate student desks are provided where requested within the lab, giving attention to safest location.
2. Generally, we provide 5 to 6 linear feet of floor space at the end of the bench farthest from the door for the installation of a student desk. Student desks are located away from the fume hoods to provide safer egress in the event of an accident. In lieu of the typical student desk, provide a

work surface at 30" above finish floor with a base cabinet below, one drawer of which is a file drawer.

3. If visual privacy between desk units is needed, we provide painted Masonite panels between Unistrut above the desk. Shelving is provided on the Unistrut above the desk, with task lighting being provided beneath the lowest shelf. Telephone and data outlets are provided at these locations when requested.

**D. Room Finishes:**

1. Room finishes are intended to provide long life and low maintenance.
2. Floors are typically sealed concrete. Other flooring materials include sheet vinyl with welded seams, quartz epoxy, and in some cases 12" x 12" vinyl tile. Vinyl base is installed at all walls and in toe spaces of base cabinets.
3. Ceilings, when installed, are 24"x 48" lay-in acoustical tile. When no ceiling is installed the building structure above, ductwork, conduit and wall surface above 8'-0" is painted white.
4. Walls, whether block, drywall or plaster, are painted with a color that has a light reflectance value of 70+.

**E. Furniture:**

1. Base and wall cabinets are to be similar to Legacy Oak series by Hamilton Industries (Hamilton is used here as reference not preference). Base cabinets have removable back panel to provide access to the utility chase. Minimum 24" wide knee spaces with finished back panels and electrical outlet are provided where requested by the lab occupant. The lab occupant determines the proportional mix of drawers and doors provided by the cabinets. Knee space is sometimes provided for under-counter refrigerators, ice machines or glassware washers.
2. Countertops are 1" thick black modified epoxy. A 4" backsplash occurs at peninsula end-sink units and at all wall-mounted locations. Countertops are continuously flat surfaces at peninsulas penetrated only by Unistrut, utility lines and cupsinks.
3. Shelving is constructed of 3/4" plywood with a hardwood edge strip. Shelves are cut out around Unistrut to abut wall or shelf on other side of peninsula. The lowest shelf is provided with a wooden light apron that runs the full length of the shelf, with an optional recessed tack-strip where requested by client. Where task lighting is provided beneath shelf, the shelf brackets are cut to accommodate the light fixture(s).
4. Floor to ceiling P4004 Unistrut at 24" centers divides the peninsula bench and provides a structure on which to hang utilities (above and below the countertop), upper cabinets and shelving as identified by need. P3300 at 24" centers is used at wall-mounted conditions starting just above the backsplash. Mounting height for upper cabinets and shelving is 24" above countertop unless specified otherwise. Additional shelving is at 14" centers above lowest shelf.

**F. Power Distribution:**

1. Electrical power is provided through Wiremold that is mounted on the wall or on Unistrut directly beneath the lowest shelf bracket. Similar service is provided at perimeter locations where freestanding equipment occurs.
2. Ordinarily, one data outlet is provided on each side of each peninsular or island bench.

3. Emergency power requirements need to be identified prior to beginning design work. Generators may need to be sized to accommodate building needs.