

BIOLOGY/CHEMISTRY LAB

SPACE DESCRIPTION

Biology/Chemistry Labs facilitate hands-on learning for programs including Biology, Microbiology, Biotechnology, and Chemistry. Flexibility is key as these spaces need to adapt to various learning exercises with minimal effort.

Biology/ Chemistry Labs are designed for programs that conduct laboratory experiments involving chemical reactions that may offput gases or waste. Special equipment such as fume hoods will be required.

Chemical Storage Room:

Ventilated, secure room with key fob restricted access for the storage of potentially hazardous chemicals.

ADD ALTERNATE ADVANCED LAB: At some service areas, additional space may be needed for specific department programs such as Organic Chemistry. A separate Advanced Lab may be included adjacent to the main laboratory to house additional fume hoods and equipment. See Advanced Chemistry Lab standard.

SUCCESS FACTORS

Flexibility: Biology/Chemistry Labs must have the infrastructure needed for all equipment required by Biology and Chemistry programs for flexibility in usage among departments.

Equipment: Biology/Chemistry Labs require ample counter space and storage, multiple sinks, and lab benches for students and the Instructor. In typical Biology/Chemistry Labs, (4) fume hoods are required.

Technology: Instruction wall displays must be clearly legible from all locations within the classroom. The display interface must be intuitive and able to adapt to multiple types of mobile and personal devices.

Safety: Lab layout and equipment must be carefully coordinated and up to code for safety of all users.

Collaborative: Layouts must promote a high level of interaction among students and faculty for both traditional instruction and small group collaboration.

GENERAL

All perimeter walls shall be full height to deck.

ACOUSTIC

Acoustic ratings for lab perimeter walls: STC 50. Special accommodations may be required due to location in the building.

Maximum NC Level for VAVs shall be less than 30 at maximum CFM

MECHANICAL

- Ventilation for (4) Fume hoods

PLUMBING

- Single-bowl sinks at each lab bench, with tall faucet and integral emergency eye wash
- Emergency shower (1/ lab) with integral eye wash and floor drain
- Acid piping at all drain locations
- Distilled water system

ELECTRICAL & DATA

Provide enough outlets for students with multiple devices. Required (2 min.) outlets per student at workstations plus outlets around the perimeter of the room.

Provide power and data for the following standard classroom equipment:

- 2 (+/-) 75" touchscreen TVs on the front teaching wall.
- ALTERNATE: provide power and data in ceiling for 2 projectors at the front wall, in lieu of touchscreen TVs.
- Instructor bench with electrical and data connections for PC
- Audio/ sound system to include instructor microphone, soundbars and wireless connection to student headsets as needed.

LIGHTING

Provide LED lighting system with appreciable indirect component and good diffusion for maximum visibility from all directions.

Provide controls for zoning and dimming. Front row shall be switched separately with three preset dimmable levels: low, medium, high.

Provide low-brightness luminaires with high visual comfort probability (VCP) in all viewing directions. Average 40fc at 30" A.F.F. Min CRI 80.

Lighting watts per square foot and controls shall meet the latest requirements of ASHRAE 90.1

DOORS AND WINDOWS

Classroom doors shall be minimum STC 30 with 6" x 30" Window Lite preferred.

TECHNOLOGY

Instruction wall with projectors with whiteboards, or touchscreen TVs

ACCESSORIES AND EQUIPMENT

Review program requirements at intervals during the design phase. Provide at minimum:

- (4) 60" Fume Hoods per lab
- Gas, Air and vacuum at each workstation
- Fire blankets – wall mounted in box
- Fire extinguisher – wall mounted
- Lockable storage cabinets (base and wall cabinets). Microscope storage and glassware storage is required.

- On side walls, provide 8'-0" tack strip mounted 72" A.F.F. and 8'-wide whiteboard with marker tray. Rolling whiteboards may also be used.
- Provide a Student drop-zone, or Storage cubbies/ lockers for students' belongings.

FINISHES

Ceilings

Recommended Height: 9' to 10', with special consideration to acoustics when greater than 10'.

Ceilings shall have an NRC of .70 to .85.

In renovations, Labs without full height perimeter walls shall have ceilings with high CAC (Ceiling Attenuation Class) values.

Floors

Hard flooring such as VCT or epoxy.

Countertops

Countertops shall be Lab Grade phenolic resin or equal, with extremely high resistance to heat and chemicals. Countertops shall have integrated sinks.