

Access Panels in Laboratories

Introduction

Laboratory buildings have a variety of utility systems with piping, valves, dampers, air terminals, and other components that require routine inspection, service, and maintenance. Utility systems shall be configured so that these items are located in accessible areas outside of the laboratory perimeter to the greatest possible extent; this is in order to minimize maintenance activities in laboratories, especially in containment laboratories and animal research facilities (ARFs). Access panels must be provided in the laboratory if this is not possible.

A number of functional considerations must be addressed when selecting and detailing access panels, including finish and detailing, size, and other potential factors, including fire rating.

Finish and Detailing

All laboratory walls and ceilings must be non-porous, durable, and chemical resistant. As integral parts of the walls and ceilings, access panels must meet the same functional requirements of the particular lab in which they are installed.

BSL-2 labs: Access panels must be resistant to water and the cleaning and disinfection products which will be used. Generally, they may be cold rolled steel with a baked enamel, powder coated, or field-applied painted finish, and must be gasketed to prevent air leakage.

BSL-3 labs: Access panels must be resistant to harsh decontamination agents and are generally made from stainless steel, fiber reinforced plastic (FRP), or another highly chemical resistant material. Access panels must be fully gasketed and secured by compression latches to ensure a gas-tight seal to maintain containment.

ARFs: Access panels are generally stainless steel and must be impact resistant and resistant to wash-down and harsh cleaning chemicals. Access panels must be fully gasketed and secured by compression latches to ensure a gas-tight seal.

Aseptic Production Facilities: Access panels in classified areas are typically not permitted.

Size

Access panels shall be sized to allow for unconstrained access to components and the unencumbered performance of maintenance operations. Either 'hand access' or 'person access' can be provided, depending on the nature of the component served and the service to be performed. Hand access panels, used for valves and other small components immediately inside of the panels, typically range from 6" x 6" (152 mm x 152 mm) to 12" x 12" (305 mm x 305 mm). Person access panels are used for larger components and less accessible locations, which requires the comfortable, unrestricted passage of a person's upper body. The minimum allowed size for a person access panel according to the Design Requirements Manual (DRM) is 24" x 24" (610 mm x 610 mm). Laboratory design should be reviewed by

maintenance personnel to ensure adequate access panel size, number, and location.



Ceiling Access Panel

Fire Rating and Other Considerations

Because access panels are an integral component of a laboratory's perimeter enclosure, it's important to consider other functional aspects, including:

- Access panels in fire rated assemblies shall be appropriately UL rated.
- Access panels should be located in places unobstructed by fixed casework, equipment, or furnishings. Sufficient space shall be provided adjacent to access panels to allow for full access to service components.
- Latching mechanisms are preferred over screws for securing the access panel cover for ease of use, durability, and maintenance of a positive seal.
- Panel covers should be labeled to identify the type of utility they access.

Conclusion

Access panels are a laboratory design element that should be considered throughout the planning and design process. Utility systems should be configured specifically to place components requiring access outside of critical areas, but sometimes the need for access panels is unavoidable. These necessary access panels should be properly detailed, sized and located to promote required service, inspection, and maintenance.

