

3.5. Animal Facilities

Four standard biosafety levels are also described for activities involving infectious disease work with commonly used experimental animals. These four combinations of practices, safety equipment, and facilities are designated Animal Biosafety Levels 1, 2, 3, and 4, and provide increasing levels of protection to personnel and the environment.

One additional biosafety level, designated BSL-3-Agriculture (or BSL-3-Ag) addresses activities involving large or loose-housed animals and/or studies involving agents designated as High Consequence Pathogens by the USDA. BSL-3-Ag laboratories are designed so that the laboratory facility itself acts as a primary barrier to prevent release of infectious agents into the environment. More information on the design and operation of BSL-3-Ag facilities and USDA High Consequence Pathogens can be found in *Biosafety in Microbiological and Biomedical Laboratories (BMBL)*.

A full description of requirements for animal facilities can be found in *Biosafety in Microbiological and Biomedical Laboratories (BMBL)*

3.5.1. Animal Biosafety Level 1 (ABSL-1)

Assigned for animal work that does not involve biological agents or involves well-characterized agents that are not known to cause disease in immunocompetent humans, and that are of minimal potential hazard to laboratory personnel and the environment.

3.5.1.1. ABSL-1 Facility Requirements

In addition to the facility requirements listed for BSL-1 laboratories, ABSL-1 laboratories must meet the following requirements:

- Animal facilities must be separated from areas that are open to unrestricted personnel traffic.
- External facility doors must be self-closing and self-locking.
- Doors to animal rooms must open inward, be self-closing, and kept closed when experimental animals are present.
- The animal care facility must be designed, constructed, and maintained to facilitate cleaning and housekeeping. The interior surfaces (walls, floors, and ceilings) must be water-resistant.
- Windows are not recommended. Any windows must be resistant to breakage. Where possible, windows should be sealed.
- If floor drains are provided, the traps should always be filled with an appropriate disinfectant.
- Ventilation should be provided in accordance with the [*Guide for Care and Use of Laboratory Animals, latest edition*](#). No recirculation of exhaust air may occur. It is recommended that animal rooms have inward directional airflow.
- The facility must have a hand washing sink.
- Cages are washed manually or in a cage washer. The mechanical cage washer should have a final rinse temperature of at least 180°F.
- Illumination is adequate for all activities, avoiding reflections and glare that could impede vision.
- Emergency eyewash and shower must be readily available.

3.5.2. Animal Biosafety Level 2 (ABSL-2)

Assigned for animal work with those agents associated with human disease that pose moderate hazards to personnel and the environment. ABSL-2 builds on the practices, procedures, containment equipment, and facility requirements of ABSL-1.

3.5.2.1. ABSL-2 Facility Requirements

In addition to the facility requirements listed for BSL-2 and ABSL-1 laboratories, ABSL-2 laboratories must meet the following requirements:

- Access to the facility is limited by secure locked doors.
- Ventilation should be provided in accordance with criteria from [Guide for Care and Use of Laboratory Animals, latest edition](#). The direction of airflow in the animal care facility is inward; animal rooms maintain inward directional airflow compared to adjoining hallways. A ducted exhaust air ventilation system is provided. Exhaust air is discharged to the outside without being recirculated to other rooms.
- An autoclave should be available in the animal care facility to decontaminate infectious waste.
- A hand washing sink must be in the animal room where infected animals are housed or manipulated, as well as elsewhere in the facility.

Facility standards and practices for invertebrate vectors of disease and hosts are not specifically addressed in this section. Refer to the [Arthropod Containment Guidelines](#) for containment requirements for experimentally infected arthropod vectors of disease.

3.5.3. Animal Biosafety Level 3 (ABSL-3)

Assigned to animal work involving indigenous or exotic agents that present the potential of aerosol transmission and of causing serious or potentially lethal disease. ABSL-3 builds on the practices, procedures, containment equipment, and facility requirements of ABSL-2.