

Description of barriers according to ILAR

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Type I: Maximum-security barrier

1. Animal source-defined microbially associated animals.
2. Animals are maintained in isolator and then introduced via a port system into the barrier.
3. Sterile materials, including cages, food, bedding, and other supplies enter the barrier without contamination.
4. Animal technicians entering barrier must strip, shower, or pass through an air wash, don sterilized uniforms, wear face masks, gloves, and hair and shoe covers.
5. Investigators enter and abide by same rules as animal technicians.
6. Animal care is performed according to guidelines set forth in the ILAR Guide (ILAR 1974). In addition, all animals are transferred by forceps previously disinfected; hand handling is kept to a minimum.
7. Air supply is HEPA filtered (99.97 percent effective at 0.3- μ particle retention). Air recirculation is permitted if properly monitored.
8. Monitoring procedures should include statistically significant sampling by microbiologic, histopathologic, and physical methods.

Type II: High-security barrier

1. Animal source-barrier-maintained animals.
2. Animals are shipped in filter boxes and introduced via a secure port system (quarantine within the barrier is optional).
3. Materials-same as Type I.
4. Animal technicians-same as Type I.
5. Investigators-same as Type I.
6. Animal care-same as Type I.
7. Air supply is filtered (95 percent effective at 0.3- μ). No air recirculation is permitted unless HEPA filtered.
8. Monitoring-same as Type I.

Type III: Moderate-security barrier

1. Animals are obtained from a reputable breeder and designated as barrier or monitored animals. Monitoring results are available for review in order to select suitable animals for research projects.
2. Animal entry-same as Type II, but each shipment should be placed in room containing animals from only one vendor.
3. Materials are either sterilized or sanitized or are heat-treated to kill all pathogenic vegetative microbial forms. If cages are sanitized instead of autoclaved, water temperature sensors that shut off the washing machine (less than 85 °C) are recommended.
4. Animal technicians-same as Type I, but use of face masks and gloves may be modified.
5. Investigators must abide by same rules for entry as animal technicians.
6. Animal care-same as Type I or modified to include hand contact.
7. Air supply filtration is rated at 85 percent efficiency or better for 0.3- μ particle retention.
8. Monitoring-same as Type I, but depth and breadth of monitoring practices are reduced.

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Type IV: Minimal-security barrier

1. Source of animals-same as for Type III, except that these are usually monitored animals held within a barrier. The supply colony may therefore have antibodies to known viral pathogens, and certain bacterial agents may be present. These animals represent by far the greatest numbers presently obtained for barrier systems and for conventional animal holding areas. Knowledge of monitoring results is critical for selection and proper use of these animals.
2. Animals may be introduced via exit corridors, minimizing exposure. Containers do not enter rooms. Animals may be quarantined outside barrier then introduced via transport cages.
3. Materials: same as Type III.
4. Technicians enter through personnel lock, but security measures less stringent than Type III.
5. Investigators abide by rules for animal technicians or have an option in some areas of the barrier to enter their own animal rooms from the exit corridor after donning disposable shoe covers and clean laboratory coats and then washing hands and using disposable gloves. They cannot enter other animal rooms or enter clean corridors.
6. Animal handling-generally the same as Type III.
7. Air supply-same as Type III.
8. Monitoring-same as Type III but may be further reduced. Level of monitoring must be adequate for the purpose of the experiment.