ANIMAL FACILITIES

Related Sections

Design Guideline 15910 Laboratory Ventilation

Requirements

The American Association for the Accreditation of Laboratory Animal Care (AAALAC) and the National Institutes of Health (NIH) have established specific criteria for the housing, handling and caring of laboratory animals. To facilitate the implementation of these criteria in a manner consistent with the construction standards of the University of Michigan, the following design criteria and special requirements have been established. If a conflict should arise during the design of a specific project, the requirements of AAALAC and NIH take precedence. Consult with the Assistant Director of the Unit for Laboratory Animal Medicine through the University Project Manager early in the Schematic Design.

Location

Separate the animal suite from offices and main pedestrian corridors to discourage unauthorized access as well as to mitigate odors.

Animal areas need to be secured to only authorized personnel. Provide access control, using the University's standard card readers, and connect the card readers to the central monitoring station. Consider the need for a closed circuit TV system.

Consider the need to provide ready access to an elevator that can be segregated and secured from the public for the transportation of animals, cages, feed, bedding, waste, etc. Consider whether there should be a dedicated elevator for the facility.

Do not locate the animal suite above electrical rooms, telephone/data rooms, or other rooms that could be damaged if water leaks down after wash-down of the animal rooms.

When positioned along a perimeter wall, do not install exterior windows in animal rooms.

House noisy species such as dogs and monkeys apart from other quieter species.

Specialized support areas (including but not limited to food and bedding storage rooms, hazardous agent storage rooms, clean and soiled cage holding rooms, cage washer rooms, refuse rooms, animal care equipment storage rooms, and animal care personnel lavatory, shower and locker rooms) shall be strategically located in relation to animal rooms to isolate the animal rooms from offices and pedestrian corridors.

Corridors

Main corridors shall be 7 feet wide. Branch corridors shall not be less than 5 feet-6 inches wide.

Surfaces

Surfaces shall be constructed of materials that are waterproof and easily sanitizable.

Epoxy painted cement block walls, epoxy painted plaster ceilings and smooth texture acid and solvent resistant monolithic floors are preferred. Water-resistant gypsum drywall-on-metal-stud partitions are acceptable with permission of the Project Manager. Vinyl-covered gypsum lay-in suspended ceiling panel ceilings in galvanized grid are acceptable with permission of the Project Manager.

Walls should be protected with guard rails. Projecting items such as thermostats are undesirable, but if absolutely necessary, shall be protected with bumpers or guards.

Exposed overhead pipes and conduits are undesirable, but if absolutely necessary, the penetrations shall be sleeved and sealed. All floor penetrations shall have sleeves and be sealed watertight.

Above-ceiling devices requiring service or maintenance are undesirable, but if absolutely necessary, shall be provided with waterproof access panels. Utility valves should be located above the corridor ceiling.

Doors

Doors shall be 42 inches wide by 84 inches high minimum, and shall open into the rooms.

Metal doors with self-sealing sweeps, tight fitting to prevent the entry and exit of small rodents, are preferred.

Doors shall be equipped with kick plates, push-pull plates (no knobs), delayed-action closers, a viewing window, and a dead bolt with a combination lock.

Ventilation Systems

See Design Guideline 15910 *Laboratory Ventilation* for vivarium ventilation requirements.

Environmental Controls

Individual room temperature shall be DDC, have remote setpoint adjustment, and maintained within plus or minus 2 degrees throughout a range of 65 - 80 degrees F.

Relative humidity within the animal suite should be maintained between 30 and 70 percent throughout the year.

Temperature and pressure within the room shall be monitored in the hallway, and contained in a flush-mounted panel. Temperature alarms should provide feedback to the U-M central BAS system.

Lighting, Power, and Fire Alarm

Typically, illumination should be dual level with a high level of 100 to 140 fc (all lights on) and a low level of 50 to 70 footcandles (one half of lights on). A manual one-hour timer located just inside of the room door, under a waterproof cover, should control one half of the lights. The other one half of the lights should be controlled by the University's Building Automation System. An optical sensor (photocell) should provide feedback to the BAS for the trending of room light levels. In special rooms, one half of the lighting may require red lamps or standard lamps with red covers.

Lighting fixtures shall be sealed to prevent entry of insects and water spray from wash-down hoses. Electrical receptacles shall have waterproof covers, and may need to be explosion-proof. Provide GFCI receptacles in all areas subject to wash-down or within 6 feet of sinks.

The fire alarm devices shall be waterproof in all areas subject to wash-down. For animal suites that house mice, the fire alarm audible sound shall be a slow warble at a frequency of less than 500 Hz. If the building is a high rise, the Code-required evacuation message shall also be less than 500 Hz. Contact the AES Electrical Department through the Project Manager for the latest recommendation on audible devices. Fire alarm visual devices (strobe lights) shall be located in corridors only because animal rooms are not considered public or common spaces.

Plumbing

Animal rooms should have hot and cold water and a stainless steel wall sink with a drain board. Heavy water use areas should have hot and cold water hose bibs located under the sink.

Cappable floor drains (4") are desirable in all rooms, but may be excluded in certain circumstances (eg., rabbit and rodent rooms). Heavy water use areas shall have the floor sloped 1/4" per yard and contain rim-flush drains. Drains should have locking covers and contain a bucket trap.

Large animal (dog, pig, sheep, etc.) rooms have special plumbing requirements (eg., trench drains, flush drains).

Consider the need for an automatic animal watering system.

Operating Rooms

Operating rooms cannot be used as offices, laboratories, or storage rooms.

Air from operating rooms shall be 100% exhausted. Supply and exhaust grilles must be located to provide proper airflow within an occupied room. Typically non-aspirating

(perforated) supply air diffusers should be selected and located so that incoming air does not disturb the natural thermal plume that develops over the surgical site. The room shall be maintained at a positive pressure with respect to the adjacent preparation area or corridor.

Provide a surgical light and an easily sanitizable surgical table.

Provide appropriate scavenging vacuum or alternate means of gas exhaust if gas anesthesia is used.

Oxygen is desirable. A source of hot and cold water is usually required.

Provide explosion-proof electrical receptacles and conductive flooring if explosive anesthesia is used.

Surgical Support Rooms

Provide at least 2 surgical support rooms separate from the operating room. One is for surgeons preparation, and the other for animal preparation. The former may also be used for instrument and pack preparation and the latter for post-operative recovery. However, prolonged and complex post-operative recovery should be performed in a recovery room separate from both the surgeon preparation room and the animal preparation room.

The surgeon preparation room should be contiguous with the operating room; whereas the animal preparation room need not be. An autoclave should be in close proximity.