

## Part II: Architectural Information in the “Guide” 8th Edition

### Architectural Features - 2010 ‘Guide’

Chapter 3 ‘Environment, housing, and management of research laboratory animals’ and Chapter 5 ‘Physical Plant’, are the most relevant for A/E’s in the 8th edition of the Guide for the Care and Use of Laboratory Animals (The Guide). New recommendations are added for terrestrial and aquatic animals. The A/E should note these important enhancements and additions related to architectural features.

- Detailed discussions in the use of centralized versus decentralized animal facilities are included.
- New space requirements are defined for re-derivation of animals, irradiation, behavioral testing, imaging, barrier facilities for specific pathogen free (SPF) rodents, and maintenance and repair of animal housing and equipment. Space recommendations are made for aquatic species, NHP, avian, rabbits, cats and dogs in several tables.

**Table 3.2** - provides metric measurements for rodent housing space and new space recommendations for female mice and rats with litters.

**Table 3.2** - lists recommended minimum space for commonly used laboratory rodents housed in groups. If they are housed singly or in small groups or exceed the weights in the table, more space per animal may be required, while larger groups may be housed at slightly higher densities.

- Surgeries, intensive care, necropsy spaces are defined.
- Irradiation - New subsection is added describing facilities for imaging, provisions for anesthetics in the imaging space, and special needs for MR scanners.
- Areas for preparation of special diets are defined.
- Behavioral testing - New subsection is added on behavioral testing facilities with requirements to minimize noise and vibration. When planning a behavioral facility, special attention should be given to all aspects of facility design, construction, equipment and use that may generate conditions that inappropriately stimulate **the senses of the test animals**.

#### References

1. Guide for the Care and Use of Laboratory Animals: Eighth Edition: <http://www.nap.edu/catalog/12910.html>
2. Association for Assessment and Accreditation of Laboratory Animal Care: <http://www.aaalac.org/about/guidelines.cfm>

Space recommendations are made for aquatic species, including types of water treatment, sterilization, filtration; drains, walls.

- Updates and new information is addressed for noise attenuation and vibration management. It is important to assess the potential effects of noise on an animal with respect to intensity, frequency, rapidity of onset, duration, and vibration potential of the sound and the hearing range, noise-exposure history, and sound-effect susceptibility of the species, stock, or strain. Excessive noise and vibration have been associated with biochemical and reproductive changes in laboratory animals.
- Use of protective rails or bumpers in corridors and solid or sealed curbs, guardrails etc. is recommended.
- Double door vestibules are recommended for entries to dog and nonhuman primate (NHP) rooms to serve as a noise barrier/airlock and to prevent escape.
- New flooring materials are recommended such as epoxy resins, hard-surface sealed concrete, methyl methacrylate, polyurethane, and special hardened rubber-base aggregates.
- Rooms should be designed to accommodate sensitivity to circadian rhythms. A door viewing window should have a light tight cover.
  1. Doors should fit tightly in their frames and should be approximately 42” x 84” to allow passage of equipment.
  2. Windows should be avoided except for specific species such as NHPs.
- New paragraphs are added citing the importance of social housing and the effects of increased housing densities.
- Animal biosecurity is addressed for the first time in “the Guide”.

Part III of this series will address HVAC and MEP features that are new or enhanced in the 2010 Guide. Part IV will cover aquatic facility design.

