

Part II - Animal Procedure Room Types

Overview

Animal procedure rooms (PR) are often thought of as the room adjacent to the animal holding room (AHR) where invasive procedures are performed on an animal before they are returned to the AHR. In fact, there is great variety and sophistication to the procedures performed and to the type of room and equipment that is needed. It is important to remember that in most facilities, once an animal is removed from within the boundary of the vivarium, they cannot be returned to the vivarium. Thus, the procedure room becomes the vivarium laboratory. Some non-invasive procedures can be performed in the AHR in a laminar flow cabinet or a biosafety cabinet if approved by the Institutional Animal Care and Use Committee (IACUC). However, invasive procedures can create stresses to the animal that are sensed by the other animals and therefore must be performed away from the other animals in procedure rooms. The designer must work with the veterinarians and other technical staff to determine the best approach to the procedure room design and layout and to determine the size and number of rooms.

Procedure Room Categories

Three categories of PRs follow:

- Designed for a single procedural need
- Dedicated for a single purpose, but convertible
- Generic, shared and for general use.

Examples of single purpose PRs include large animal and micro surgery, sealed source irradiator, research lasers, large imaging units and necropsy. Generally the equipment in these rooms, the procedures to be performed, species to be used; proximity to the animal holding room, security concerns and the number of investigators/ technicians who perform the procedures dictates the design. Typically they will require special HVAC and utility considerations as well.¹ Single purpose PRs may be used as shared use, central or core facilities to maximize their use and also figured into calculating net to gross space usage for budget purposes.

Procedure Rooms dedicated for a single purpose but convertible include small animal imaging, hypothermia, long term infusions, bio isolation/pathogen, quarantine rooms, stereotactic microinjection and micromanipulators, telemetry controlled activity caging, metabolic cages, audio testing, small animal surgery, plethysmography, GLP studies and rodent behavioral testing rooms. The equipment in these rooms is usually portable. Since these rooms are fairly easily deconstructed, they can be repurposed for other procedures or if there is an institutional focus change. The room should be securable to protect the moveable equipment. Utilities, drains and casework should be designed to allow adaptations for different research modalities

in the future. Dedicated PR's are typically designed for targeted studies for animals.

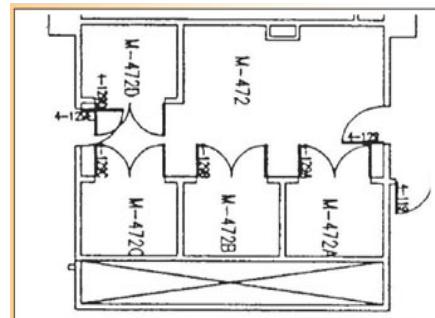


Figure 1b. Cubicles (4) opening into a common procedure space.

Single purpose convertible PRs should be located adjacent to or near the animal holding rooms that provide the animal source for the procedures.¹

There may need to be a small holding area adjacent to the procedure room where the animals can be acclimated or de-stressed. An anteroom or alcove adjacent to a PR such as a rodent behavior room would serve this purpose.

Generic PRs such as injection/sample preparation, necropsy of small animals, tissue harvest and sampling, minor surgery, therapeutic interventions, some specialized procedures and euthanasia rooms typically function as shared use space and are used for most routine procedures. Functionally, these rooms result in enhanced research efficiency. Shared procedure rooms lower equipment costs; allow for more animal holding room space; make traffic and contamination control more manageable and provide restricted access to the animals.² Generic PRs are generally equipped with stainless steel countertops, cabinets, a sink, storage space and a locked cabinet for controlled substances and possibly a biosafety cabinet. Other features may include a clinical centrifuge (bench top); various types of microscopes; incubators, balances and a refrigerator. Multiple power outlets, overhead, portable and bench lights, data collection stations, hard wire data jacks, and wireless capability are all required. HVAC that is supportive of animal holding room standards provides flexibility should the room be needed for an expanded census or for extended procedures. Adequate storage space for consumables is required and should be discussed with the users to determine what 'adequate' means for specific rooms and uses. Ease of maintenance must be considered as well. Access to maintenance and housekeeping staff may or may not be permitted without prior decontamination of the room (for example, in a BSL-3 or BSL-4 limited access suite).

¹McGarry, MJ, Huerkamp, AP, Percifield, J. Animal Facility Procedure Rooms: Design and Use. ALN September 25, 2011
<http://www.alnmag.com/article/animal-facility-procedure-rooms-design-and-use?page=0,0>

²Newcomber, C. Planning the Design of an Animal Research Facility; Presentation given at the National Institutes of Health, June 18, 2002