

CHAPTER 278: VETERANS HEALTH ADMINISTRATION: RESEARCH AND DEVELOPMENT

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1 PURPOSE AND SCOPE

This document outlines Space Planning Criteria for Chapter 278: Research and Development. It applies to all research and development facilities at the Department of Veterans Affairs (VA).

2 DEFINITIONS

- A. Barrier Suite: A barrier suite may be justified when the requirement for control of the microbial environment is more rigid than can be effectively attained in animal rooms located elsewhere in the VMU. The use of immunocompromised animals and life time aging studies are examples of circumstances that may require a barrier suits. A barrier suite is designed to keep harmful agents away from the area.
- B. Biomedical Research: Includes any study undertaken to test a hypothesis related to the etiology, pathogenesis, natural history, prevention, amelioration, or cure of human diseases or deformities in their biochemical, biophysical, psychological, and clinical aspects.
- C. Biosafety Level 3 Suite The Biosafety Level (BSL) required depends on the degree of risk posed by the agent(s) to be studied. The risk level in the Department of Veterans (VA) facilities is unlikely to exceed BSL 3 and more commonly will be at BSL2. The suite consists of an air lock, a procedure room, tissue culture room(s), an autoclave room, changing room, shower and toilet. Construction features in this area should be in conformance with US Department of Health and Human Services publication "Biosafety in Microbiological and Biomedical Laboratories". All materials are autoclaved out of the suite.
- D. Biosafety Level 3 Infectious Disease Suite: The Biosafety Level (BSL) required depends on the degree of risk posed by the agent(s) to be studied. The risk level in the Department of Veterans (VA) facilities is unlikely to exceed BSL 3 and more commonly will be at BSL2. Construction features in this area should be in conformance with US Department of Health and Human Services publication "Biosafety in Microbiological and Biomedical Laboratories". All materials are autoclaved out of the suite.
- E. Biohazard Area: This area is required if animal experiments are to involve biological, chemical, or physical agents that pose a particular hazard to humans or other animals. These are designated either "Chemical/Radioisotope Suite" or "BSL3 Infectious Disease Suite", depending on the type of hazardous material to be contained. The degree of risk from the material dictates the level of containment required.
- F. Cage Servicing and Sanitation Area: All movable cages and cage racks are transported to and from this area. This area is comprised of a "dirty" side where soiled cages are received and a "clean" side where sanitized cages are charged with clean bedding and stored until needed.

- G. Cage Wash Room: Soiled cages are initially placed in the “dirty” side of the cage wash room where soiled bedding is removed and cages and pans are rinsed to remove debris prior to loading into a cage washer.
- H. Chemical / Radioisotope Suite: Permits the use of Radioisotopes and hazardous chemicals in animal research projects.
- I. Clinical Research Unit: Conducts clinical research on volunteer patients/subjects that might necessitate controlled conditions, such as isolation and/or observation. Studies can range from small population of in-patient (4-5 beds) to large out-patient groups.
- J. Environmental Suite: This area accommodates animals used in research requiring rigid control of various environmental factors (e.g., light, temperature, humidity, sound, and air movement) not provided in animal rooms elsewhere in the facility.
- K. Full-Time Equivalent (FTE): A staffing parameter equal to the amount of time assigned to one full time employee. It may be composed of several part-time employees whose total time commitment equals that of a full-time employee. One FTE equals a 40 hours per week.
- L. Functional Area: The grouping of rooms and spaces based on their function within the research and development. Typical Functional Areas are Reception Areas, Laboratory Areas, Specialized Laboratory Areas, Laboratory Support Areas, Staff and Administrative Areas.
- M. Health Services Research and Development: Encompasses the continuing inquiry toward the improvement, development, replacement, or discontinuance of health care delivery systems or subsystems, with specific emphasis on the responsiveness to patient needs and quality of care provided.
- N. Input Data Statement: A set of questions designed to elicit information about the healthcare project in order to create a Program for Design (PFD) based on the criteria parameters set forth in this document. Input Data Statements could be Mission related, based in the project's Concept of Operations; and Workload or Staffing related, based on projections and data provided by the VHA or the VISN about the estimated model of operation. This information is processed through mathematical and logical operations in SEPS.
- O. Investigator: For space planning criteria purposes, an investigator is defined as individual who meets eligibility requirements and receives a minimum of \$50,000 in peer reviewed funding in support of an approved Department of Veterans Affairs (VA) research project.
- P. Net-to-department gross factor (NTDG): This number, when multiplied by the programmed net square foot (NSF) area, determines the departmental gross square feet (DGSF) The NTDG factor adopted for Research and Development is **1.30**
- Q. Program for Design (PFD): A space program based on criteria set forth in this document and specific information about Concept of Operations, workload projections and staffing levels authorized.

- R. Radiographic Suite: This suite will accommodate the various X-Ray procedures required. It should be located near the surgical suite to provide easy access from the operating rooms
- S. Research and Development: Research and Development (R&D) encompasses the investigation of biomedical problems and hypotheses related to the human health, diseases, defects and handicaps, as well as systematic study of problems and hypotheses related to the delivery of health care. It is composed of three elements: Biomedical Research, Health Services Research and Development, and Rehabilitation Research and Development. The research program is intermural and is conducted by investigators at the Department of Veterans Affairs (VA) medical facilities.
- T. Rehabilitation Research and Development (RR&D): Encompasses all research related to chronic disabling conditions in Veterans including but not limited to the nervous system diseases and injury, limb loss, hearing loss, rehabilitation engineering, wheel chairs and associated rehabilitation engineering, chronic medical conditions, rehabilitation treatment efficacy, rehabilitation outcomes, and rehabilitation strategies on cure and care.
- U. SEPS (VA-SEPS): Acronym for Space and Equipment Planning System, a digital tool developed by the Department of Defense (DoD) and the Department of Veterans Affairs to generate a Program for Design (PFD) and an Equipment List for a VA healthcare project based on specific information entered in response to Input Data Questions. VA-SEPS incorporates the propositions set forth in this chapter as well as all Space Planning Criteria chapters. VA-SEPS has been designed to aid healthcare planners in creating a space plan based on a standardized set of criteria parameters.

3 OPERATING RATIONALE AND BASIS OF CRITERIA

- A. Research staffing and space requirements are driven by Research Programs, head count and funding.
- B. Space planning criteria have been developed on the basis of an understanding of the activities involved in the functional areas of the Research and Development facilities and its relationship with other services of a medical facility. These criteria are predicated on established and/or anticipated best practice standards, as adapted to provide environments supporting the highest quality Research for Veterans.
- C. These criteria are subject to modification relative to development in the equipment, vendor requirements, and subsequent planning and design. The selection of the size and type of Research equipment is determined by VACO and upon Veterans Health Administration (VHA) anticipated research needs.

4 PROGRAM DATA REQUIRED (Input Data Questions)

- A. Input Data Statements
 - 1. Is a Biomedical Research Unit authorized? (M)
 - a. Is Radiation Laboratory authorized? (M)
 - b. Is a Mass Spectrometer Room authorized? (M)

- c. Is a High Resolution Mass Spectrometer Room authorized? (M)
 - d. Is a Nuclear Magnetic Resonance Room authorized? (M)
 - e. Is an Electron Microscope Suite authorized? (M)
 - f. Is X-Ray Crystallography authorized? (M)
 - g. Is an Ultra Low Cell Bank Freezer authorized? (M)
 - h. Is a Cell Sorter Room authorized? (M)
 - i. Is a Polymerase Chain Reaction (PCR) Suite authorized? (M)
 - j. Is a DNA Sequencing Room authorized? (M)
 - k. Is a Microscope Room authorized? (M)
 - l. Is a Cell Irradiator Room authorized? (M)
 - m. Is a Biosafety Level 3 (BSL3) Suite authorized? (M)
 - n. Is General Storage authorized? (M)
 - o. Is Recyclable Waste Storage authorized? (M)
 - p. Is Biohazardous Waste Storage authorized? (M)
 - q. Is Radioactive Waste Storage authorized? (M)
 - r. Is Acid Storage authorized? (M)
 - s. Is a Staff Shower authorized? (M)
 - t. How many Biomedical Research Unit Associate Chief FTE positions are authorized? (S)
 - u. How many Biomedical Research Unit Investigator FTE positions are authorized? (S)
 - v. How many Biomedical Research Unit Special Staff FTE positions are authorized? (S)
 - w. How many Biomedical Research Unit Technician FTE positions are authorized? (S)
 - x. How many Biomedical Research Unit Technician FTE positions are authorized to use Tissue Culture? (S)
 - y. How many Biomedical Research Unit Administrative Officer FTE positions are authorized? (S)
 - z. How many Biomedical Research Unit Clerical Support FTE positions are authorized? (S)
 - aa. How many Biomedical Research Unit FTEs will work on peak shift? (Misc)
 - bb. How many Biomedical Research Unit FTE positions are not authorized to have office or cubicle space? (Misc)
2. Is Health Services Research and Development (HSRD) authorized? (M)
- a. Is a Health Services Research and Development Data Server Room authorized? (M)
 - b. How many Health Services Research and Development Investigator FTE positions are authorized? (S)
 - c. How many Health Services Research and Development Management Analyst FTE positions are authorized? (S)
3. Is Rehabilitation Research and Development (RRD) authorized? (M)
- a. Is a Rehabilitation Research and Development Data Analysis Equipment / Work Room authorized? (M)
 - b. Is a Rehabilitation Research and Development Patient Interview Room authorized? (M)
 - c. Is a Rehabilitation Research and Development Machine Shop authorized? (M)

- d. Is Rehabilitation Research and Development Patient Records Storage authorized? (M)
 - e. Is a Rehabilitation Research and Development Laboratory authorized? (M)
 - f. Is a Rehabilitation Research and Development Tissue Culture Room authorized? (M)
 - g. Is a Rehabilitation Research and Development General Storage authorized? (M)
 - h. Is a Rehabilitation Research and Development Data Server authorized? (M)
 - i. How many Rehabilitation Research and Development Associate Chief FTE positions are authorized? (S)
 - j. How many Rehabilitation Research and Development Medical Director FTE positions are authorized? (S)
 - k. How many Rehabilitation Research and Development Deputy Director FTE positions are authorized? (S)
 - l. How many Rehabilitation Research and Development Investigator FTE positions are authorized? (S)
 - m. How many Rehabilitation Research and Development Technician FTE positions are authorized? (S)
 - n. How many Rehabilitation Research and Development Technician FTE positions are authorized to use Tissue Culture? (S)
 - o. How many Rehabilitation Research and Development Special Staff FTE positions are authorized? (S)
 - p. How many Rehabilitation Research and Development Administrative Officer FTE positions are authorized? (S)
 - q. How many Rehabilitation Research and Development Secretary / Administrative Assistant FTE positions are authorized? (S)
 - r. How many Rehabilitation Research and Development Management Analyst FTE positions are authorized? (S)
 - s. How many Rehabilitation Research and Development Educational and Training Manager FTE positions are authorized? (S)
 - t. How many Rehabilitation Research and Development Graduate Student / Post-Doctoral FTE positions are authorized? (S)
 - u. How many Rehabilitation Research and Development Clerical Support FTE positions are authorized? (S)
 - v. Is a Rehabilitation Research and Development Staff Shower authorized? (Misc)
 - w. How many Rehabilitation Research and Development FTEs will work on peak shift? (Misc)
 - x. How many Rehabilitation Research and Development FTE positions are not authorized to have office or cubicle space? (Misc)
4. Is a Clinical Research Unit (CRU) authorized? (M)
5. Is a Veterinary Medical Unit (VMU) authorized? (M)
- a. Is a Surgical Suite authorized? (M)
 - b. Is a Veterinary Medical Unit Radiographic Suite authorized? (M)
 - c. Is a Chemical / Radioisotope Suite authorized? (M)
 - d. Is an Infectious Disease Suite authorized? (M)
 - e. Is a Barrier Suite authorized? (M)
 - f. Is an Environmental Suite authorized? (M)

- g. Is a Cage Wash Room Tunnel Washer Only authorized? (M)
- h. Is a Cage Wash Room, Cage / Rack Washer Only authorized? (M)
- i. Is a Cage Wash Room combined Tunnel Washer and Cage / Rack Washer authorized? (M)
- j. Is a Veterinary Medical Unit Chemical / Radioisotope Suite authorized? (M)
- k. Is a Veterinary Medical Unit Staff Shower authorized? (M)
- l. How many Veterinary Medical Unit Research Investigator FTE positions are authorized? (S)
- m. How many Veterinary Medical Unit Research Investigator FTE positions are authorized to use animals? (Misc)
- n. How many Veterinary Medical Unit Research Investigator FTE positions are authorized to use the Barrier Suite? (Misc)
- o. How many Veterinary Medical Unit Research Investigator FTE positions are authorized to use the Environmental Suite? (Misc)
- p. How many Veterinary Medical Unit FTEs will work on peak shift? (Misc)
- q. How many Veterinary Medical Unit FTE positions are not authorized to have office or cubicle space? (Misc)

5 SPACE CRITERIA: BIOMEDICAL RESEARCH UNIT (BRU)

A. Biomedical Research Unit Reception Areas

- 1. **Waiting (WRC01)****100 NSF (9.3 NSM)**
Minimum NSF; provide an additional 25 NSF per each projected Biomedical Research Unit Investigator FTE position greater than one.

Provide three seats per 100 NSF waiting area; allocate 66% of seats at 15 NSF and 33% of seats at 25 NSF.
- 2. **Reception (RECP1)****80 NSF (7.5 NSM)**
Provide one per Biomedical Research Unit.
- 3. **Toilet, Public (TLTU1)****50 NSF (4.7 NSM)**
Provide one for male and one for female.

B. Biomedical Research Unit: Research Areas

- 1. **Laboratory, Biomedical Research (LBRB1)****600 NSF (55.8 NSM)**
Provide one for each increment of three Biomedical Research Unit Technician FTE positions authorized.

Total laboratory space will generally be divided into laboratory modules. Modular approach provides for flexibility of laboratory space planning in accordance with the requirements of each individual research project.
- 2. **Tissue Culture Room, Biomedical (LBTS1)****200 NSF (18.6 NSM)**
Provide one for each increment of four Biomedical Research Unit Technician FTE positions authorized to use Tissue Culture.

The tissue culture room has two work stations per room complete with incubator, refrigerator, bio-safety cabinet and microscope, plus shared sink, centrifuge, and work counter.

3. **Cold Room, 4°C (SRR01)..... 150 NSF (14.00 NSM)**
Minimum one; provide an additional one per each increment of ten Biomedical Research Unit Technician FTE positions authorized greater than ten.

These are prefabricated rooms utilized for the performance of special procedures and the storage of research supplies that require specific temperature and humidity control. Since these rooms should be available for use by several investigators, they should be easily accessible from a number of laboratory units.

4. **Freezer Room, -20°C (SRF01) 50 NSF (4.7 NSM)**
Minimum one; provide an additional one per each increment of fifty Biomedical Research Unit Technician FTE positions authorized greater than fifty.

These are prefabricated rooms utilized for the performance of special procedures and the storage of research supplies that require specific temperature and humidity control. Since these rooms should be available for use by several investigators, they should be easily accessible from a number of laboratory units.

5. **Warm Room, 20° to 37°C (SRS01) 150 NSF (14.0 NSM)**
Minimum one; provide an additional one per each increment of fifty Biomedical Research Unit Technician FTE positions authorized greater than fifty.

These are prefabricated rooms utilized for the performance of special procedures and the storage of research supplies that require specific temperature and humidity control. Since these rooms should be available for use by several investigators, they should be easily accessible from a number of laboratory units.

6. **Equipment Room (SRSE1) 200 NSF (18.6 NSM)**
Provide one per each increment of eight Biomedical Research Unit Technician FTE positions authorized greater than eight.

7. **Microscope Room, Dark (SRL01) 50 NSF (4.7 NSM)**
Provide one per each increment of two Biomedical Research Unit Investigator FTE positions authorized greater than two.

This is a darkened room for fluorescence microscope work.

8. **Laboratory, Radiation (XXYYC) 150 NSF (14.0 NSM)**
Provide one if authorized in Concept of Operations.

This is a dedicated laboratory for the storage and use of Iodine 121 isotopes.

9. **Mass Spectrometer Room (XXYYC) 200 NSF (18.6 NSM)**
Provide one for each increment of ten Biomedical Research Unit Investigator FTE positions authorized greater than ten if Mass Spectrometer Room is authorized in Concept of Operations.

This can be a shared core facility with a cluster of spectroscopy instruments.

10. **High Resolution Mass Spectrometer Room (XXYYC).....350 NSF (32.6 NSM)**
Provide one if authorized in Concept of Operations.

This space allowance assumes one high resolution instrument with support space.

11. **Nuclear Magnetic Resonance Room (XMRE1)450 NSF (41.8 NSM)**
Provide one if authorized in Concept of Operations.

This space allowance assumes one 400 megahertz super shielded instrument. If larger field strengths are used, space will have to be adjusted to accommodate 5 gauss field safety zone.

12. **Electron Microscope Suite, Scope Room (LBEM2)200 NSF (18.6 NSM)**
Provide one if Electron Microscope Suite is authorized in Concept of Operations.

This includes one scope room (with associated support)

13. **Electron Microscope Suite,
Preparation Room / Lab (LBEM3)200 NSF (18.6 NSM)**
Provide one if Electron Microscope Suite is authorized in Concept of Operations.

14. **Electron Microscope Suite, Microtome Alcove (XXYYC).....80 NSF (7.5 NSM)**
Provide one if Electron Microscope Suite is authorized in Concept of Operations.

15. **X-Ray Crystallography (XXYYC)150 NSF (14.0 NSM)**
Provide one if authorized in Concept of Operations.

16. **Cell Bank Freezer Room, Ultra Low (LBUL1)200 NSF (18.6 NSM)**
Provide one if authorized in Concept of Operations.

This room will accommodate ultra low temperature high density storage of cell lines with automated robotic retrieval.

17. **Freezer Room, Ultra Low (LBUL1)200 NSF (18.6 NSM)**
Provide one per each increment of sixteen Biomedical Research Unit Investigator FTE positions authorized greater than sixteen.

This room will accommodate 8 ultra low freezers. Assume 0.5 freezers per each Biomedical Research Technician FTE position.

18. **Cell Sorter Room,
Fluorescent Activated (XXYYC)150 NSF (14.0 NSM)**
Provide one if authorized in Concept of Operations.

19. **Polymerase Chain Reaction (PCR) Suite (XXYYC)500 NSF (46.5 NSM)**
Provide one if authorized in Concept of Operations.

This is a suite of spaces that include an airlock, preparation laboratory, PCR room and an electrophoresis room.

20. **DNA Sequencing Room (XXYYC) 400 NSF (37.2 NSM)**
Provide one if authorized in Concept of Operations.

This is a suite of spaces that include an airlock, preparation laboratory, PCR room and an electrophoresis room.

21. **Microscope Room, Confocal (XXYYC) 150 NSF (14.0 NSM)**
Provide one if authorized in Concept of Operations.

22. **Cell Irradiator Room (XXYYC) 50 NSF (4.7 NSM)**
Provide one if authorized in Concept of Operations.

C. Biomedical Research Unit: Biosafety Laboratory Areas

1. **BSL3 Suite, Ante Room (XXYYC) 75 NSF (7.0 NSM)**
Provide one if a BSL3 Suite is authorized in Concept of Operations.

This double door access area provides protective separation from other areas of the Biomedical Research Unit.

2. **BSL3 Suite, Procedure Room (LBRC1) 100 NSF (9.3 NSM)**
Minimum NSF if a BSL3 Suite is authorized in Concept of Operations; provide an additional 100 NSF if the total number of Biomedical Research Unit Investigator FTE positions is greater than thirty.

3. **BSL3 Suite, Tissue Culture Room (LBTS1) 150 NSF (14.0 NSM)**
Minimum NSF if a BSL3 Suite is authorized in Concept of Operations; provide an additional 150 NSF if total number of Biomedical Research Unit Investigator FTE positions is greater than thirty.

4. **BSL3 Suite, Autoclave Room (CSSS2) 50 NSF (4.7 NSM)**
Provide one if a BSL3 Suite is authorized in Concept of Operations.

All material and cages should be rendered safe by autoclaving in a pass-thru sterilizer before leaving the BSL3 infectious disease suite.

5. **BSL3 Suite, Clothes Changing Room (LR002) 75 NSF (7.0 NSM)**
Provide one for male and one for female if a BSL3 Suite is authorized in Concept of Operations.

Arrange changing rooms so personnel exit through the shower area into the changing room.

6. **BSL3 Suite, Shower Room (SHWR1) 25 NSF (2.4 NSM)**
Provide one for male and one for female if a BSL3 Suite is authorized in Concept of Operations.

7. **BSL3 Suite, Toilet Room (TLTU1)**50 NSF (4.7 NSM)
Provide one if a BSL3 Suite is authorized in Concept of Operations.

D. Biomedical Research Unit: Support Areas

1. **Washing and Sterilization Room, Glassware (LBGW1)**400 NSF (37.2 NSM)
Provide one per Biomedical Research Unit.

This room will serve a number of investigators for the majority of their glassware cleaning requirements.

2. **Storage, Gas Cylinder (SRGC1)**100 NSF (9.3 NSM)
Provide one per Biomedical Research Unit.

3. **Storage, Flammable Solvent (SRGC2)**100 NSF (9.3 NSM)
Provide one per each increment of fifty Biomedical Research Unit Technician FTE positions authorized greater than fifty.

This room will house flammable chemicals and will need to be designed to meet National and local fire and safety codes.

4. **Storage, Acid (SRHM1)**100 NSF (9.3 NSM)
Provide one if authorized in Concept of Operations.

This room will house corrosive chemicals and will need to be designed to meet National and local fire and safety codes.

5. **Storage, Radioactive Waste (SRHM1)**80 NSF (7.5 NSM)
Provide one if authorized in Concept of Operations.

6. **Storage, Biohazardous Waste (SRHM1)**80 NSF (7.5 NSM)
Provide one if authorized in Concept of Operations.

7. **Storage, Recyclable Waste (SRHM1)**80 NSF (7.5 NSM)
Provide one if in authorized Concept of Operations.

8. **Storage, General (SRS01)**150 NSF (14.0 NSM)
Minimum NSF; provide an additional 5 NSF per each Biomedical Research Technician FTE position authorized greater than thirty if General Storage is authorized in Concept of Operations.

E. Biomedical Research Unit: Staff and Administration Areas

1. **Office, Chief of Service (OFCO2)**150 NSF (14.0 NSM)
Provide one per Biomedical Research Unit.

2. **Office, Associate Chief (OFA01 / OFA02)**120 NSF (11.2 NSM)
Provide one per Biomedical Research Unit Associate Chief FTE position authorize; provide OFA01 if standard furniture is authorized; or, OFA02 if systems furniture is authorized.

3. **Office, Biomedical Research Unit Research Investigator (OFM01)** **120 NSF (11.2 NSM)**
Provide one per Biomedical Research Unit Investigator FTE Position authorized.
4. **Office, Administrative Officer (OFA01 / OFA02)** **120 NSF (11.2 NSM)**
Provide one per Biomedical Research Unit Administrative Officer FTE position authorized; provide OFA01 if standard furniture is authorized; or, OFA02 if systems furniture is authorized.
5. **Workstation, Clerical Support (OFA03)**..... **64 NSF (5.9 NSM)**
Provide one per each Biomedical Research Unit Clerical Support FTE position authorized.
6. **Equipment Room (SRE01)** **220 NSF (20.5 NSM)**
Minimum one; provide an additional one per each increment of fifteen Biomedical Research Unit Investigator FTE positions authorized greater than fifteen.
7. **Office, Special Staff (OFA01 / OFA02)** **100 NSF (9.3 NSM)**
Provide one per Biomedical Research Unit Special Staff FTE position authorized; provide OFA01 if standard furniture is authorized; or, OFA02 if systems furniture is authorized.
8. **Conference Room (CRA02)**..... **150 NSF (14.0 NSM)**
Provide one per each increment of four Biomedical Research Unit Investigator FTE positions authorized.

D. Biomedical Research Unit: Staff Lounge, Lockers and Toilets:

The spaces below provide programming of Lounge, Lockers, and Toilets at department / service / chapter level. Alternatively, sum all departments/services data for Lockers, Lounges and Toilets, and program space in Chapter 410-EMS Lockers, Lounges, Toilets and Showers. Either/or – do not duplicate space. Program locker space only for those FTEs without office or cubicle space.

1. **Lounge, Staff (SL001)**..... **80 NSF (7.5 NSM)**
Minimum NSF; provide an additional 15 NSF per each projected FTE on peak shift greater than five; maximum 210 NSF.

For less than five FTE combine Lounge facilities with adjacent department or sum in chapter 410.
2. **Locker Room, Staff (LR001)**..... **80 NSF (7.5 NSM)**
Minimum NSF if total number of FTE positions not authorized to have office or cubicle space is between five and thirteen; provide an additional 6 NSF per FTE position if total number of FTE positions not authorized to have office or cubicle space is greater than thirteen.

Provide locker space only for those FTEs without assigned office or cubicle space. For less than five FTE combine Locker Room facilities with adjacent department or sum in chapter 410.

3. **Toilet, Staff (TLTU1)** **50 NSF (4.7 NSM)**
Minimum one; provide an additional staff toilet for each increment of five projected FTEs on peak shift greater than thirteen.
4. **Staff Shower (SHWR1)**..... **80 NSF (7.5 NSM)**
Provide one if authorized in Concept of Operations.

This area should be provided if research facilities are separated from the main medical center. Provides a private area in which an employee who has had a laboratory accident can disrobe and wash.

6 SPACE CRITERIA: HEALTH SERVICES RESEARCH AND DEVELOPMENT (HSRD)

A. Health Services Research and Development: Staff and Administrative Areas

1. **Office, Health Services Research and Development Investigator (OFM02)** **120 NSF (11.2 NSM)**
Provide one per each Health Services Research and Development Investigator FTE position authorized.
2. **Office, Health Services Research and Development Secretary (SEC01)**..... **120 NSF (11.2 NSM)**
Minimum one if Health Services Research Development is authorized in Concept of Operations; provide an additional one per each increment of four Health Services Research and Development Investigator FTE positions authorized greater than four.
3. **Office, Health Services Research and Development Management Analyst (OFA01 / OFA02)** **120 NSF (11.2 NSM)**
Provide one for each Health Services Research and Development Management Analyst FTE position authorized; provide OFA01 if standard furniture is authorized; or, OFA02 if systems furniture is authorized.
4. **Data Server Room (CMP02)** **100 NSF (9.3 NSM)**
Provide one if authorized in Concept of Operations.
5. **Data Analysis Equipment / Work Room (WRCH1)** **250 NSF (23.3 NSM)**
Provide one if Health Services Research and Development is authorized in Concept of Operations; provide an additional 25 NSF per each Health Services Research and Development Investigator FTE position authorized greater than ten.
6. **Conference Room (CRA02)** **150 NSF (14.0 NSM)**
Provide one if Health Services Research and Development is authorized in Concept of Operations.

7 SPACE CRITERIA: REHABILITATION RESEARCH AND DEVELOPMENT (RRD)

Rehabilitation Research and Development is organized into Centers of Excellence that perform three types of research; Clinical Care, Engineering, and Animal Research. Each center has its own unique requirements for space allocation. The following space criteria

addresses common needs with respect to Research, and Staff and Administrative areas. Additional space requirements for each Centers of Excellence should be addressed on an individual basis with respect to the type of research being performed and associated space needed to accomplish this research. If Animal Research is included in the Center for Excellence, refer to Section 9: Veterinary Medical Unit (VMU) for additional space criteria.

A. Rehabilitation Research and Development: Reception Areas

1. **Waiting (WRC01)** **100 NSF (9.3 NSM)**
Minimum NSF; provide an additional 25 NSF per each projected Rehabilitation Research and Development Investigator FTE position greater than one.
2. **Reception (RECP1)** **80 NSF (7.5 NSM)**
Provide one per Rehabilitation Research and Development.
3. **Toilet, Public (TLTU1)** **50 NSF (4.7 NSM)**
Provide one for male and one for female.

B. Rehabilitation Research and Development: Research Areas

1. **Laboratory, Rehabilitation Research and Development (LBRB1)** **600 NSF (55.8 NSM)**
Provide one if authorized in Concept of Operations; provide an additional per each increment of three Rehabilitation Research and Development Technician FTE positions authorized greater than two.
2. **Tissue Culture Room, Rehabilitation Research and Development (LBTS1)** **200 NSF (18.6 NSM)**
Provide one if authorized in Concept of Operations; provide an additional per each increment of four Rehabilitation Research and Development Technician FTE positions greater than two, authorized to use Tissue Culture.

The tissue culture room has two work stations per room complete with incubator, refrigerator, bio-safety cabinet and microscope, plus shared sink, centrifuge, and work counter.

3. **Data Server (CMP02)** **100 NSF (9.3 NSM)**
Provide one per Rehabilitation Research and Development if Data Server is authorized in Concept of Operations.
4. **Data Analysis Equipment / Work Room (WRCH1)** **250 NSF (23.3 NSM)**
Provide one per Rehabilitation Research and Development if Data Analysis Equipment / Work Room is authorized in Concept of Operations.
5. **Patient Interview Room (PAIA1)** **120 NSF (11.2 NSM)**
Provide one per Rehabilitation Research and Development if Patient Interview Room is authorized in Concept of Operations.

6. **Machine Shop (APMS1)****500 NSF (46.5 NSM)**
Provide one per Rehabilitation Research and Development if Machine Shop is authorized in Concept of Operations.
7. **Storage, Equipment (SRSE1)****200 NSF (18.6 NSM)**
Provide one for each increment of eight Rehabilitation Research and Development Technician FTE positions authorized greater than eight.
8. **Storage, Patient Records (MRS01)**.....**150 NSF (14.0 NSM)**
Provide one per Rehabilitation Research and Development if Patient Records Storage is authorized in Concept of Operations.
9. **Storage, General (SRS01)**.....**150 NSF (14.0 NSM)**
Minimum NSF; provide an additional 5 NSF per each Rehabilitation Research and Development Technician FTE position authorized greater than thirty if General Storage is authorized in Concept of Operations.

C. Rehabilitation Research and Development Service: Staff and Administrative Areas

1. **Office, Chief of Service (OFC02)****150 NSF (14.0 NSM)**
Provide one per Rehabilitation Research and Development.
2. **Office, Associate Chief (OFA01 / OFA02)****120 NSF (11.2 NSM)**
Provide one per Rehabilitation Research and Development Associate Chief FTE position authorized; provide OFA01 if standard furniture is authorized; or, OFA02 if systems furniture is authorized.
3. **Office, Medical Director (OFA01 / OFA02)****120 NSF (11.2 NSM)**
Provide one per Rehabilitation Research and Development Medical Director FTE position authorized; provide OFA01 if standard furniture is authorized; or, OFA02 if systems furniture is authorized.
4. **Office, Deputy Director (OFA01 / OFA02)****120 NSF (11.2 NSM)**
Provide one per Rehabilitation Research and Development Deputy Director FTE position authorized; provide OFA01 if standard furniture is authorized; or, OFA02 if systems furniture is authorized.
5. **Office, Rehabilitation Research and Development Research Investigator (OFM01)**.....**120 NSF (11.2 NSM)**
Provide one per Rehabilitation Research and Development Investigator FTE Position authorized.
6. **Office, Administrative Officer (OFA01 / OFA02)**.....**120 NSF (11.2 NSM)**
Provide one per Rehabilitation Research and Development Administrative Officer FTE position authorized; provide OFA01 if standard furniture is authorized; or, OFA02 if systems furniture is authorized
7. **Office, Secretary / Administrative Assistant (SEC01)**.....**120 NSF (11.2 NSM)**
Provide one per Rehabilitation Research and Development Secretary / Administrative Assistant FTE position authorized.

8. **Office, Management Analyst (OFA01 / OFA02)..... 120 NSF (11.2 NSM)**
Provide one per Rehabilitation Research and Development Management Analyst FTE position authorized; provide OFA01 if standard furniture is authorized; or, OFA02 if systems furniture is authorized.
 9. **Office, Special Staff (OFA01 / OFA02)..... 120 NSF (11.2 NSM)**
Provide one per Rehabilitation Research and Development Special Staff FTE positions authorized; provide OFA01 if standard furniture is authorized; or, OFA02 if systems furniture is authorized.
 10. **Office, Educational and Training Manager (OFA01 / OFA02)..... 120 NSF (11.2 NSM)**
Provide one per Rehabilitation Research and Development Educational and Training Manager FTE position authorized; provide OFA01 if standard furniture is authorized; or, OFA02 if systems furniture is authorized.
 11. **Cubicle, Graduate Student / Post-Doctorial (OFA03) 64 NSF (5.9 NSM)**
Provide one per Rehabilitation Research and Development Graduate Student / Post-Doctorial FTE position authorized.
 12. **Cubicle, Clerical Support (OFA03)..... 64 NSF (5.9 NSM)**
Provide one per Rehabilitation Research and Development Clerical Support FTE position authorized.
 13. **Storage, Equipment (SRE01) 220 NSF (20.5 NSM)**
Minimum one; provide an additional one per each increment of fifteen Rehabilitation Research and Development Investigator FTE position authorized greater than fifteen.
 14. **Storage, General (SRS01) 150 NSF (14.0 NSM)**
Provide one per Rehabilitation Research and Development.
 15. **Conference Room (CRA02)..... 300 NSF (27.9 NSM)**
Provide one per each four Rehabilitation Research and Development Investigator FTE positions authorized.
 16. **Housekeeping Aides Closet - HAC (JANC1)..... 40 NSF (3.7 NSM)**
Provide one per Rehabilitation Research and Development.
- E. **Rehabilitation Research and Development Service: Staff Lounge, Lockers and Toilets:**
The spaces below provide programming of Lounge, Lockers, and Toilets at department / service / chapter level. Alternatively, sum all departments/services data for Lockers, Lounges and Toilets, and program space in Chapter 410-EMS Lockers, Lounges, Toilets and Showers. Either/or – do not duplicate space. Program locker space only for those FTEs without office or cubicle space.
1. **Lounge, Staff (SL001)..... 80 NSF (7.5 NSM)**
Minimum NSF; provide an additional 15 NSF per each projected FTE on peak shift greater than five; maximum 210 NSF.

For less than five FTE combine Lounge facilities with adjacent department or sum in chapter 410.

2. **Locker Room, Staff (LR001) 80 NSF (7.5 NSM)**
Minimum NSF if total number of FTE positions not authorized to have office or cubicle space is between five and thirteen; provide an additional 6 NSF per FTE position if total number of FTE positions not authorized to have office or cubicle space is greater than thirteen.

Provide locker space only for those FTEs without assigned office or cubicle space. For less than five FTE combine Locker Room facilities with adjacent department or sum in chapter 410.

3. **Toilet, Staff (TLTU1) 50 NSF (4.7 NSM)**
Minimum one; provide an additional staff toilet for each increment of five projected FTEs on peak shift greater than thirteen.
4. **Staff Shower (SHWR1) 80 NSF (7.5 NSM)**
Provide one if authorized in Concept of Operations.

This area should be provided if research facilities are separated from the main medical center. Provides a private area in which an employee who has had a laboratory accident can disrobe and wash.

8 SPACE CRITERIA: CLINICAL RESEARCH UNIT (CRU)

A. Clinical Research Unit Administrative Areas

1. **Cubicle, Administrative Support (OFA03) 64 NSF (5.9 NSM)**
Provide one if a Clinical Research Unit is authorized.

This space accommodates the administrative support for the Clinical Research protocols and dedicated patient records handling.

9 SPACE CRITERIA: VETERINARY MEDICAL UNIT (VMU)

A. Veterinary Medical Unit Research Area: Treatment Areas:

1. **Diagnostic Laboratory (VLB01) 120 NSF (11.2 NSM)**
Provide one if a Veterinary Medical Unit is authorized in Concept of Operations.

This room is equipped for performing diagnostic laboratory procedures such as routine bacterial cultures, serology, hematology clinical chemistry, and parasitological examinations.

2. **Holding Room, Quarantine (VHAU1) 120 NSF (11.2 NSM)**
Provide one if a Veterinary Medical Unit is authorized in Concept of Operations.

Animals entering into the VMU are “quarantined” in cubicles prior to being mixed with the existing animal colonies. This room may also be used for isolating

animals suspected of harboring an infectious disease. The quarantine room should be located adjacent to the animal receiving area.

3. **Treatment Room (VEX01)..... 120 NSF (11.2 NSM)**
Provide one if a Veterinary Medical Unit is authorized in Concept of Operations.

This room is used for the treatment of ill or injured animals and the performance of routine preventive medical procedures.

4. **Holding Room (VHAU1)..... 1800 NSF (176.2 NSM)**
Minimum NSF; provide one if a Veterinary Medical Unit is authorized in Concept of Operations; provide an additional 300 NSF per each increment of two Veterinary Medical Unit Research Investigator FTE positions authorized greater than twelve.

The primary function is to house and maintain animals. The number, size, and type of animal rooms required will be determined on an individual project basis, depending on the relative populations of smaller animals (e.g., rodents and rabbits) vs. larger animals (e.g., dogs and primates).

5. **Procedure Laboratory (VLB01)..... 450 NSF (41.8 NSM)**
Minimum NSF; provide one if a Veterinary Medical Unit is authorized in Concept of Operations; provide an additional one per each increment of two Veterinary Medical Unit Research Investigator FTE positions authorized greater than twelve.

This multi-user procedural laboratory will accommodate the performance of minor surgical procedures, specimen collection, and monitoring procedures.

B. Veterinary Medical Unit Research Area: Surgical Suite:

1. **Surgical Suite, Survival OR (VSO01)..... 200 NSF (18.6 NSM)**
Provide one if a Veterinary Medical Unit and Surgical Suite is authorized in Concept of Operations; provide an additional one if the total number of Veterinary Medical Unit Research Investigator FTE positions using animals is greater than twenty five.

The space will accommodate sterile surgical procedures.

2. **Surgical Suite, Terminal OR (VSO01)..... 200 NSF (18.6 NSM)**
Provide one if a Veterinary Medical Unit and Surgical Suite is authorized in Concept of Operations; provide an additional one if the total number of Veterinary Medical Unit Research Investigator FTE positions using animals is greater than twenty five.

This room is a separate space to accommodate all non-sterile procedures

3. **Surgical Suite, Preparation Room (VRRP1)..... 120 NSF (11.2 NSM)**
Provide one if a Veterinary Medical Unit and Surgical Suite is authorized in Concept of Operations.

This room is to accommodate the preparation of the animals prior to surgery. It should be located contiguous to and with direct access to the operating rooms.

4. **Surgical Suite, Scrub and Gown Room (VRRP1)75 NSF (7.0 NSM)**
Provide one if a Veterinary Medical Unit and Surgical Suite is authorized in Concept of Operations; provide an additional one if the total number of Veterinary Medical Unit Research Investigator FTE positions using animals is greater than twenty five.

This area will be used by the surgical team for preoperative surgical scrubbing and gowning. It should be located adjacent to and with direct access to the operating rooms.

5. **Surgical Suite, Recovery ICU (VRRP1)120 NSF (11.2 NSM)**
Provide one if a Veterinary Medical Unit and Surgical Suite is authorized in Concept of Operations; provide an additional one if the total number of Veterinary Medical Unit Research Investigator FTE positions using animals is greater than twenty five.

This room accommodates animals during the immediate post operative period. It should be located convenient to the operating rooms.

6. **Surgical Suite, Workroom and Supply (ANCW1)145 NSF (13.5 NSM)**
Provide one if a Veterinary Medical Unit and Surgical Suite is authorized in Concept of Operations; provide an additional one if the total number of Veterinary Medical Unit Research Investigator FTE positions using animals is greater than twenty five.

This room accommodates the following functions: cleaning and sterilization of surgical instruments; preparation of sterile surgical instruments packs; and storage of surgical supplies. This room should be adjacent to the operating rooms convenient access to supplies during surgery.

C. Veterinary Medical Unit Research Area: Radiographic Suite:

1. **Radiographic Suite, Procedure Room (VXER1)220 NSF (20.5 NSM)**
Provide one if a Veterinary Medical Unit with a Radiographic Suite is authorized in Concept of Operations.
2. **Radiographic Suite, Control (VXER1)25 NSF (2.4 NSM)**
Provide one if a Veterinary Medical Unit with a Radiographic Suite is authorized in Concept of Operations.
3. **Radiographic Suite, Darkroom (VXER1)60 NSF (5.6 NSM)**
Provide one if a Veterinary Medical Unit with a Radiographic Suite is authorized in Concept of Operations.
4. **Chemical / Radioisotope Suite,
Animal Holding Room (VLAH1)260 NSF (24.2 NSM)**
Provide one if a Veterinary Medical Unit with a Chemical / Radioisotope Suite is authorized in Concept of Operations.

5. **Chemical / Radioisotope Suite,
Animal Procedure Laboratory (VSO01)..... 200 NSF (18.6 NSM)**
*Provide one if a Veterinary Medical Unit with a Chemical / Radioisotope Suite is
authorized in Concept of Operations.*

This laboratory will accommodate the preparation and administration of
hazardous agents to animal subjects.

6. **Chemical / Radioisotope Suite,
Hazardous Waste Disposal Room (SRHM1) 120 NSF (11.2 NSM)**
*Provide one if a Veterinary Medical Unit with a Chemical / Radioisotope Suite is
authorized in Concept of Operations.*

This is a separate room wherein contaminated bedding can be removed from
cages inside a HEPA filtered containment dump station.

D. Veterinary Medical Unit Research Area: Biosafety Laboratory:

1. **BSL3 Infectious Disease Suite, Ante Room (XXYYC)..... 75 NSF (7.0 NSM)**
*Provide one if a Veterinary Medical Unit with an Infectious Disease Suite is
authorized in Concept of Operations.*

This double door access area provides protective separation from other areas of
the VMU.

2. **BSL3 Infectious Disease Suite, Holding Room (VLAH1)... 260 NSF (24.2 NSM)**
*Provide one if a Veterinary Medical Unit with an Infectious Disease Suite is
authorized in Concept of Operations.*

3. **BSL3 Infectious Disease Suite,
Procedure Laboratory (VLB01) 200 NSF (18.6 NSM)**
*Provide one if a Veterinary Medical Unit with an Infectious Disease Suite is
authorized in Concept of Operations.*

This laboratory will accommodate the preparation and administration of infectious
agents to animal subjects.

4. **BSL3 Infectious Disease Suite,
Autoclave Room (CSSS2) 100 NSF (9.3 NSM)**
*Provide one if a Veterinary Medical Unit with an Infectious Disease Suite is
authorized in Concept of Operations.*

All material and cages should be rendered safe by autoclaving in a pass-thru
sterilizer before leaving the BSL3 infectious disease suite.

5. **BSL3 Infectious Disease Suite,
Clothes Changing Room (XXYYC)..... 75 NSF (7.0 NSM)**
*Provide one male and one female if a Veterinary Medical Unit with an Infectious
Disease Suite is authorized in Concept of Operations.*

Arrange changing rooms so personnel exit through the shower area into the changing room.

6. **BSL3 Infectious Disease Suite,
Shower Room (NBCD2)25 NSF (2.4 NSM)**
Provide one male and one female if a Veterinary Medical Unit with an Infectious Disease Suite is authorized in Concept of Operations.
7. **BSL3 Infectious Disease Suite,
Toilet Room (TLTU1).....50 NSF (4.7 NSM)**
Provide one if a Veterinary Medical Unit with an Infectious Disease Suite is authorized in Concept of Operations.

E. Veterinary Medical Unit Research Area: Barrier Suite:

1. **Barrier Suite, Changing Room (XXYYC).....75 NSF (7.0 NSM)**
Provide one if a Veterinary Medical Unit with a Barrier Suite is authorized in Concept of Operations.
2. **Barrier Suite, Shower Room (SHRW1).....25 NSF (2.4 NSM)**
Provide one if a Veterinary Medical Unit with a Barrier Suite is authorized in Concept of Operations.
3. **Barrier Suite, Toilet Room (TLTU1).....50 NSF (4.7 NSM)**
Provide one if a Veterinary Medical Unit with a Barrier Suite is authorized in Concept of Operations.
4. **Barrier Suite, Ante Room (XXYYC)75 NSF (7.0 NSM)**
Provide one if a Veterinary Medical Unit with a Barrier Suite is authorized in Concept of Operations.
5. **Barrier Suite, Holding Room (VLAH1)260 NSF (24.2 NSM)**
Provide one if a Veterinary Medical Unit with a Barrier Suite is authorized in Concept of Operations; provide an additional one per each increment of two Veterinary Medical Unit Research Investigator FTE positions authorized using the Barrier Suite.
6. **Barrier Suite, Procedure Laboratory (VLB01)200 NSF (18.6 NSM)**
Provide one if a Veterinary Medical Unit with a Barrier Suite is authorized in Concept of Operations; provide an additional one per each increment of four Veterinary Medical Unit Research Investigator FTE positions authorized using the Barrier Suite.

F. Veterinary Medical Unit Research Area: Environmental Suite:

1. **Environmental Suite, Animal Holding (VLAH1).....120 NSF (11.2 NSM)**
Minimum NSF if a Veterinary Medical Unit with an Environmental Suite is authorized in Concept of Operations; provide an additional 120 NSF per each Veterinary Medical Unit Research Investigator FTE position greater than one using the Environmental Suite.

2. **Environmental Suite, Procedure Laboratory (VLB01) 100 NSF (9.3 NSM)**
Minimum NSF if a Veterinary Medical Unit with an Environmental Suite is authorized in Concept of Operations; provide an additional 100 NSF per each Veterinary Medical Unit Research Investigator FTE position greater than one using the Environmental Suite.

G. Veterinary Medical Unit Research Area: Support Areas:

1. **Loading Dock (DOCK1) 100 NSF (9.3 NSM)**
Provide one if a Veterinary Medical Unit is authorized in Concept of Operations.
2. **Animal Receiving and Examination Room (VEX01) 150 NSF (14.0 NSM)**
Provide one if a Veterinary Medical Unit is authorized in Concept of Operations.

This room serves as a short-term holding area for animals immediately following delivery from supplier. Animals received in shipping cartons are transferred to cages in this area.

3. **Cage Wash Room, Tunnel Washer Only (VCWA1) 500 NSF (46.5 NSM)**
Provide one if a Veterinary Medical Unit and Tunnel Washer Only are authorized in Concept of Operations.
4. **Cage Wash Room, Cage / Rack Washer Only (VCWA1).... 650 NSF (60.4 NSM)**
Provide one if a Veterinary Medical Unit and Cage / Rack Washer Only are authorized in Concept of Operations.
5. **Cage Wash Room, Tunnel Washer and Cage / Rack Washer (VCWA1) 800 NSF (74.3 NSM)**
Provide one if a Veterinary Medical Unit and both a Tunnel Washer and a Cage Rack Washer are authorized in Concept of Operations.
6. **Storage, Clean Cage (SSC01) 400 NSF (37.2 NSM)**
Minimum NSF if a Veterinary Medical Unit is authorized in Concept of Operations; provide an additional 10 NSF per each Veterinary Medical Unit Research Investigator FTE position authorized greater than fifteen.

This area accommodates the storage of clean cages and cage racks.

7. **Storage, Dry Feed and Bedding (SRS01) 120 NSF (11.2 NSM)**
Provide one if a Veterinary Medical Unit is authorized in Concept of Operations; provide an additional 120 NSF if the total number of Veterinary Medical Unit Research Investigator FTE positions authorized using animals is greater than twenty-five.

Feed and bedding storage should be located convenient to the animal holding rooms.

8. **Storage, Walk-in Cold Food (SRR01) 50 NSF (4.7 NSM)**
Provide one if a Veterinary Medical Unit is authorized in Concept of Operations.

This area accommodates the cold storage of dry feed, fresh fruits and vegetables.

9. **Kitchen (VFP01)****80 NSF (7.5 NSM)**
Provide one if a Veterinary Medical Unit is authorized in Concept of Operations.

This area accommodates the preparation and storage of special diets required for certain studies.

10. **Storage, Equipment (SRSE1)****100 NSF (9.3 NSM)**
Minimum NSF if a Veterinary Medical Unit is authorized in Concept of Operations; provide an additional 100 NSF per each increment of twenty five Veterinary Medical Unit Research Investigator FTE positions authorized greater than twenty five.

This area accommodates storage space for items such as metabolism cages and restraining devices when not in use.

11. **Necropsy Room (XXYYC)****120 NSF (11.2 NSM)**
Provide one if a Veterinary Medical Unit is authorized in Concept of Operations.

This room is used for terminal procedures such as to collect tissue specimens following euthanasia as well as for diagnostic necropsies.

12. **Storage, Walk-in Cold Carcass Holding (SRR01)**.....**50 NSF (4.7 NSM)**
Provide one if a Veterinary Medical Unit is authorized in Concept of Operations.

This area accommodates the cold storage of carcasses pending necropsy and /or tissue collection. Ideally this room is accessible from the necropsy room and the corridor.

13. **Refrigerated Holding, Waste / Carcass (SRR01)**.....**120 NSF (11.2 NSM)**
Minimum NSF if a Veterinary Medical Unit is authorized in Concept of Operations; provide an additional 120 NSF per each increment of twenty five Veterinary Medical Unit Research Investigator FTE positions greater than twenty-five.

This refrigerated room will be used for the storage of carcasses, animal waste, soiled bedding, and related waste, prior to disposal. It should be located adjacent to the "soiled dock" area.

14. **Freezer Holding, Carcass (SRF01)**.....**75 NSF (7.0 NSM)**
Minimum NSF if a Veterinary Medical Unit is authorized in Concept of Operations; provide an additional 75 NSF per each increment of twenty five Veterinary Medical Unit Research Investigator FTE positions greater than twenty five.

This refrigerated room will be used for the storage of carcasses, animal waste, soiled bedding, and related waste, prior to disposal. It should be located adjacent to the "soiled dock" area.

15. **Holding, Radioisotope Waste Decay (XXYYC)**.....**225 NSF (21.0 NSM)**
Provide one if a Veterinary Medical Unit and a Chemical / Radioisotope Suite are authorized in Concept of Operations.

This area accommodates the holding for decay and disposal of hazardous waste bedding and materials from the chemical/radioisotope suite. Radioactive carcasses should be held in a chest freezer for isotope decay prior to disposal.

16. **NaOH Digester Room (XXYYC)..... 225 NSF (21.0 NSM)**
Provide one if a Veterinary Medical Unit is authorized in Concept of Operations.

H. Veterinary Medical Unit Staff and Administrative Areas

1. **Office, Chief of Service (OFC02)..... 150 NSF (14.0 NSM)**
Provide one if a Veterinary Medical Unit is authorized in Concept of Operations.
2. **Office, Supervisor (OFA01 / OFA02)..... 120 NSF (11.2 NSM)**
Provide one if a Veterinary Medical Unit is authorized in Concept of Operations; provide OFA01 if standard furniture is authorized; or, OFA02 if systems furniture is authorized.
3. **Office, Veterinary Medical Unit Investigator (OFA01 / OFA02) 120 NSF (11.2 NSM)**
Provide one per Veterinary Medical Unit Investigator FTE position authorized; provide OFA01 if standard furniture is authorized; or, OFA02 if systems furniture is authorized.

F. Staff Lounge, Lockers and Toilets:

The spaces below provide programming of Lounge, Lockers, and Toilets at department / service / chapter level. Alternatively, sum all departments/services data for Lockers, Lounges and Toilets, and program space in Chapter 410-EMS Lockers, Lounges, Toilets and Showers. Either/or – do not duplicate space. Program locker space only for those FTEs without office or cubicle space.

1. **Lounge, Staff (SL001)..... 80 NSF (7.5 NSM)**
Minimum NSF; provide an additional 15 NSF per each projected FTE on peak shift greater than five; maximum 210 NSF.

For less than five FTE combine Lounge facilities with adjacent department or sum in chapter 410.

2. **Locker Room, Staff (LR001)..... 80 NSF (7.5 NSM)**
Minimum NSF if total number of FTE positions not authorized to have office or cubicle space is between five and thirteen; provide an additional 6 NSF per FTE position if total number of FTE positions not authorized to have office or cubicle space is greater than thirteen.

Provide locker space only for those FTEs without assigned office or cubicle space. For less than five FTE combine Locker Room facilities with adjacent department or sum in chapter 410.

3. **Toilet, Staff (TLTU1)..... 50 NSF (4.7 NSM)**
Minimum one; provide an additional staff toilet for each increment of five projected FTEs on peak shift greater than thirteen.

4. **Staff Shower (SHWR1)****80 NSF (7.5 NSM)**
Provide one if authorized in Concept of Operations.

This area should be provided if research facilities are separated from the main medical center. Provides a private area in which an employee who has had a laboratory accident can disrobe and wash.

5. **Housekeeping Aides Closet - HAC (JANC1)****40 NSF (3.7 NSM)**
Provide one per Rehabilitation Research and Development.

10 PLANNING AND DESIGN CONSIDERATIONS

- A. Net-to-department gross factor (NTDG) for Research and Development is 1.30. This number when multiplied by the programmed net square foot (NSF) area determines the departmental gross square feet.
- B. Biomedical Research Investigator offices will be provided in the Biomedical Research area only for those investigators who do not have office space assigned elsewhere in the VA Medical Center complex.
- C. The Biomedical Research Laboratory space should be divided into modules. The modular approach provides for flexibility of laboratory space planning in accordance with the requirements of each individual research project.
- D. Electron Microscope Suite should not be duplicated elsewhere in the Medical Center.
- E. Common instrument / equipment rooms house equipment and scientific instruments (ultracentrifuge, lyophilizers, scintillation counters, etc.) which should be available for use by several investigators.
- F. The criteria for the waste storage facilities assumed the research laboratory is integrated into a medical center. When Research and Development is located in a facility separate from a medical center, a Waste Management Center may be required.
- G. Health Services requires a dedicated server, separate from the main medical center and research.
- H. Rehabilitation Research and Development is organized into Centers of Excellence that perform three types of research; Clinical Care, Engineering, and Animal Research. Space requirements vary greatly based on the type of research being performed. Flexibility is extremely important to provide for the many different kinds of programs and tasks associated with this program.
- I. Clinical Research Unit requires security due to storage of patient / research subject records.
- J. The Veterinary Medical Unit should provide all that is required for the proper management of animals used in biomedical research. It employs a system of housing and care that permits animals to grow, mature, reproduce and behave normally, and

to be maintained in physical comfort and health. Proper management of laboratory animals is essential to the welfare of the animals, to the validity of research data, and to the health and safety of the animal-care staff.

- K. The Veterinary Medical Unit, if authorized should be located near the Biomedical Research Unit. It should not be located near Patient Care Units.

11 FUNCTIONAL RELATIONSHIPS

Relationship of Research and Development to services listed below:

TABLE 1: FUNCTIONAL RELATIONSHIP MATRIX

SERVICES	RELATIONSHIP	REASON
Administration Offices - SCI	2	I
Prosthetics and Sensory Aids Service	2	H,I
Ambulatory Care	3	H
Day Hospital	3	H
Day Treatment Center	3	H
Dialysis Center	3	H
Mental Hygiene Clinic	3	H
Patient Care Units - SCI	3	H
Physical Medicine and Rehabilitation Service	3	H
Psychiatric Service Administration	4	H
Patient Care Units – Substance Abuse	4	H
Patient Care Units – MS&N	4	H
Patient Care Units – Nursing Home Care	4	H
Patient Care Units - Psychiatric	4	H
Patient Care Units - Respiratory	4	H

Legend:

Relationship

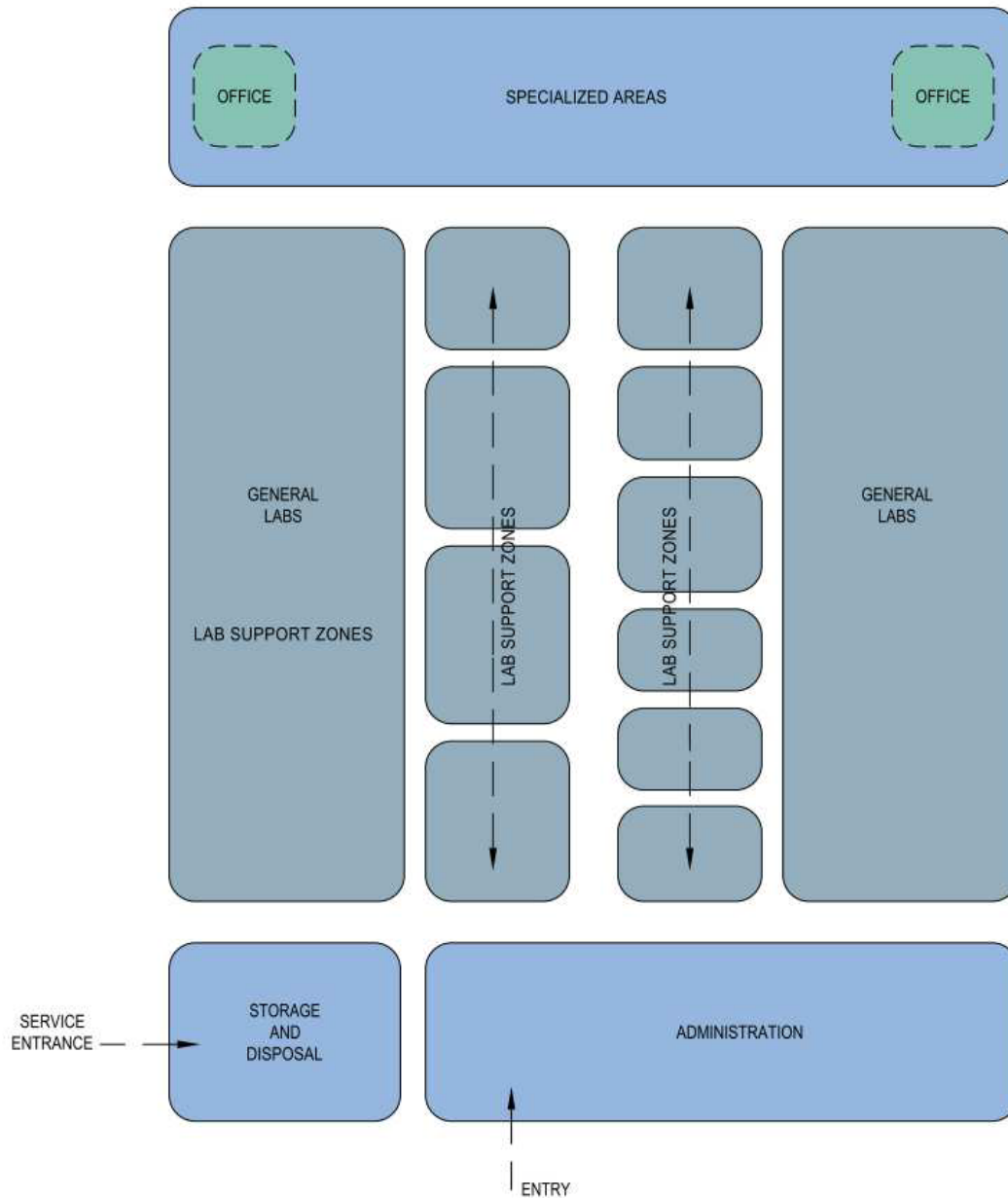
1. Adjacent
2. Close / Same Floor
3. Close / Different Floor
- Acceptable
4. Limited Traffic
- X. Separation Desirable

Reasons:

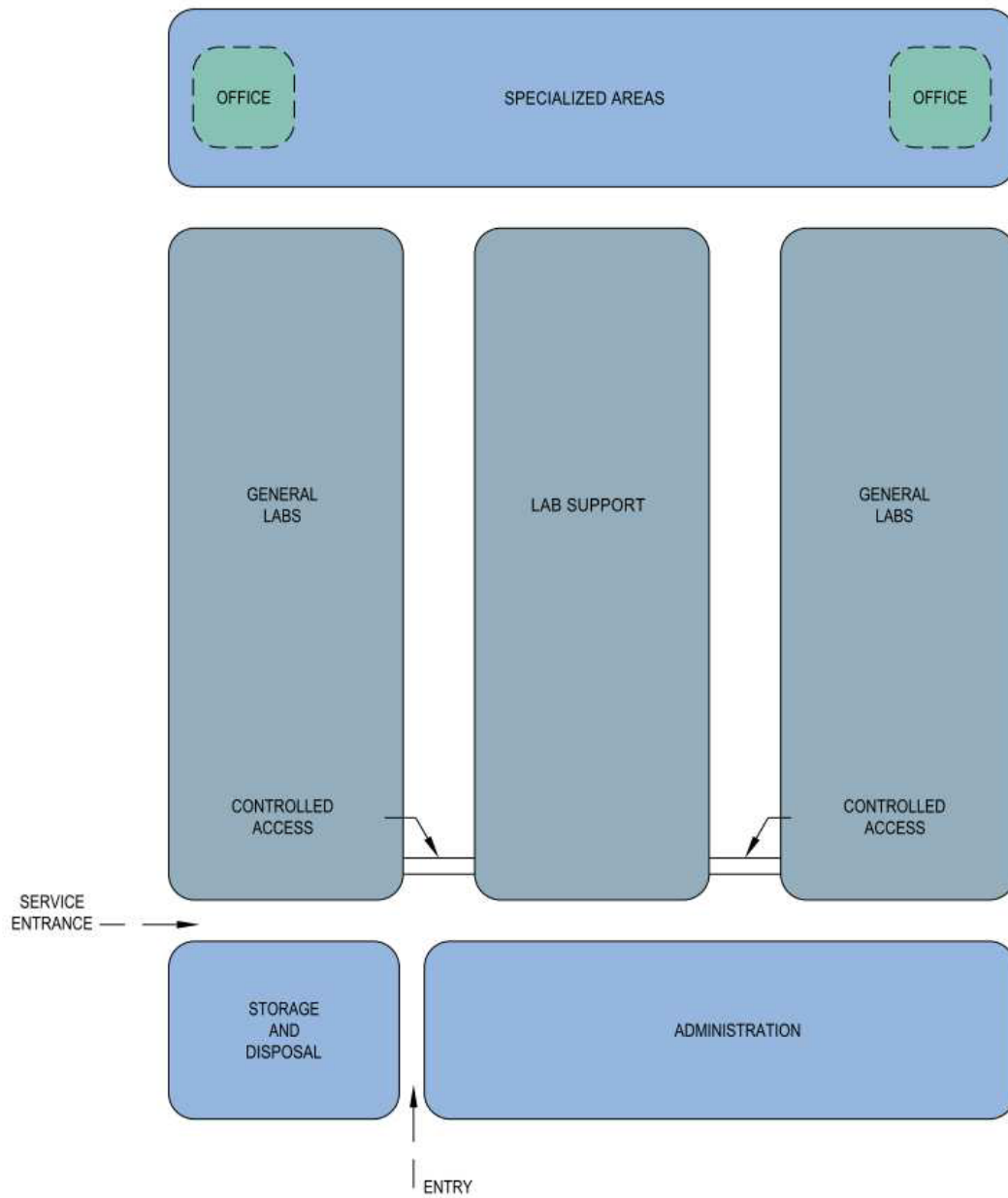
(Use as many as appropriate)

- A. Common use of resources
- B. Accessibility of supplies
- C. Urgency of contact
- D. Noise or vibration
- E. Presence of odors or fumes
- F. Contamination hazard
- G. Sequence of work
- H. Patient's convenience
- I. Frequent contact
- J. Need for security
- K. Others (specify)

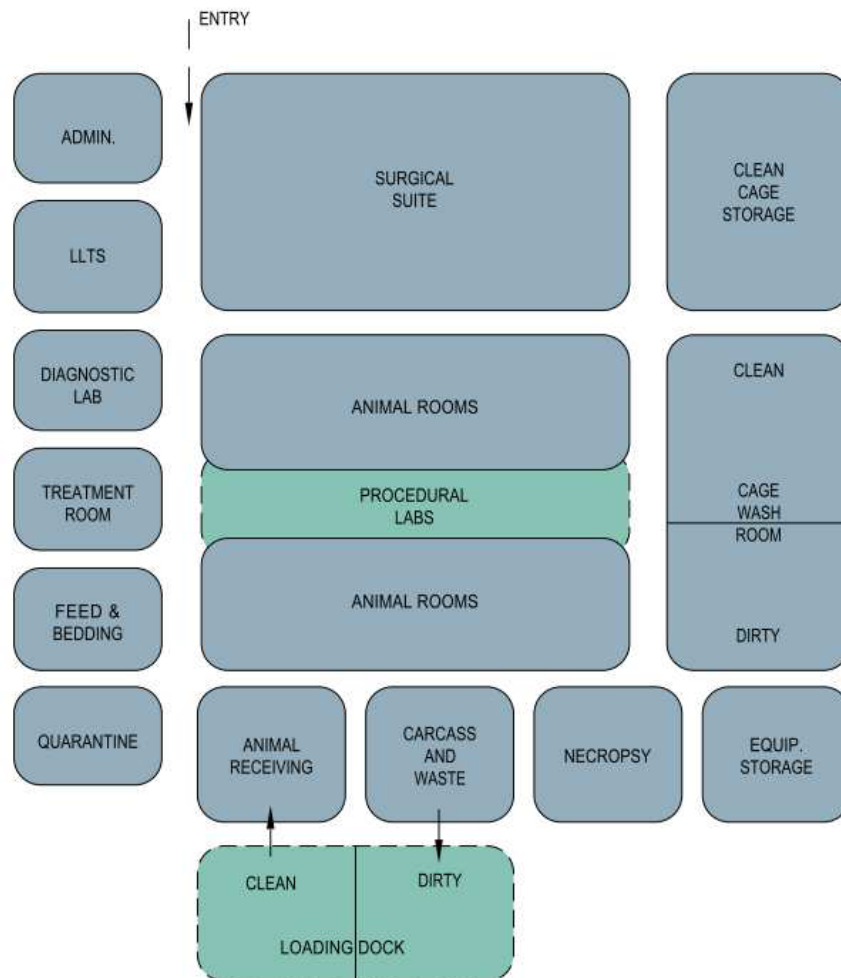
12 FUNCTIONAL DIAGRAM 1: Biomedical Research Unit, Single Corridor Configuration



13 FUNCTIONAL DIAGRAM 2: Biomedical Research Unit, Racetrack Corridor Configuration



14 FUNCTIONAL DIAGRAM 3: Veterinary Medical Unit, Standard Spaces



15 FUNCTIONAL DIAGRAM 4: Veterinary Medical Unit, Standard and Special Spaces

