Evaluation of UFC 4-510-01 Medical Military Facilities Design and Construction Criteria

(*Draft*)

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Task Order 0035
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8800-C Peartree Village Court
Alexandria, VA 22309

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Background.

The TriCare Management Activity (TMA) requested a comparison between the Department of Defense (DOD) criteria document for medical facility design, UFC 4-510-01, and criteria representative of that used by large-scale private sector owners and regional/national health care providers to design medical facilities. The current UFC 4-510-01 handbook provides mandatory design and construction criteria for facilities in the DOD Medical Military Construction Program. UFC 4-510-10 describes the minimum required building system features, design conditions, and design documentation required for design of the full range of medical facilities in the DOD inventory, ranging from small medical and dental clinics, to major medical centers, located worldwide.

UFC 4-510-01 also establishes the standard for the Environment of Care for DOD medical facilities, being recognized as such by the Joint Commission for the Accreditation of Healthcare Organizations (JCAHO). The UFC 4-510-01 is largely a stand-alone criteria document, but does include numerous citations of other codes, standards, and criteria of both the private sector and government. A new revised draft dated January 2007 was recently completed. The January 2007 draft document is the basis for this comparative criteria examination.

As part of an overall transformation of the DOD medical facility acquisition process, this comparison effort is to identify whether the DOD criteria unnecessarily requires a quality or standard of building system features in excess of that required by representative private sector owners, and whether the additional requirement adds unnecessary construction cost to the medical facility

Comparison Methodology.

VW International, Inc. (VWI) was directed to conduct the criteria comparison by using professional firms/individuals with an “unbiased” position regarding DOD Architect/Engineering medical facility design requirements. The reviewers were to have recent or current responsibility for establishing national codes and standards for medical facility design and, in particular, the review was to focus on UFC 4-510-01 criteria design guidance specifically for electrical and heating, ventilation and air conditioning (HVAC) systems in medical facilities.

In establishing the reviewer’s scope of work, VWI provided the following general guidance to the reviewers:

- Compare the criteria addressed in UFC 4-510-01 to the standards and codes of the 2006 International Codes, NFPA 101-2000 and the 2006 Guidelines for Design and Construction of Hospitals and Health Care Facilities, as applicable.
- Provide comments in sufficient detail to permit an initial understanding of the differences between the UFC and the standards and codes without physically looking at each code and UFC paragraph number.

- Identify unnecessary requirements placed on Military Medical Facility projects by the UFC criteria
- Provide sufficient review comments to enable the TriCare Management Activity (TMA) to make a determination if-
    - The minimum requirements only are being met.
    - The minimum requirements are being exceeded, but are inline with private sector best practices.
    - The current private sector best practices should be considered for implementation.
    - The minimum requirements are being exceeded, and they are in excess of private sector best practices. In this case, an order of magnitude cost impact associated with the UFC requirements would be helpful.
    - The exceeded requirements are necessary and cost effective.
    - The UFC requirements should be eliminated, revised or restructured.

Task Initiation.

Two firms and principal reviewers were selected to perform the criteria review. The two principal reviewers have recent, or are now serving on national code making committees affecting health care facilities.

Heating , Ventilation and Air Conditioning (HVAC):
Hammel, Green and Abrahamson, Inc. (HGA)
333 East Erie Street
Milwaukee, WI
Principal Reviewer: Mr. Roger W. Lautz, P.E., Mechanical Engineer

Electrical:
Mazzetti & Associates
530 Bush Street, Suite 300
San Francisco, CA
Principal Reviewer: Mr. Walt Vernon, P.E., Electrical Engineer

Mr. Lautz and Mr. Vernon currently serve on national code/standard making committees. To provide a broader overview of the UFC criteria, VW International asked the principals to expand their reviews to include additional areas of the UFC in which their staffs have current codes/standards knowledge. Accordingly, additional reviewed sections of the UFC are included in this report.

Numerous activities produce codes and standards for facility design. Notable among these are the National Fire Protection Association (NFPA) which publishes the NFPA 101: Life Safety Code and NFPA 70: National Electric Code (NEC). The NFPA 101 was recently updated in 2006 and the NFPA 70 was recently updated in August 2007. Another is the American Society of Heating, Refrigeration and Air-Conditioning Engineers which publishes the ASHRAE

Handbook-Fundamentals. The 2005 volume covers basic principles and provides essential data for Heating, Ventilation, Air-Conditioning and Refrigeration design. Most federal institutions and states adopt the most recent editions of the numerous published code and standards within a couple of years of publication. As with any "uniform' code, jurisdictions regularly omit or modify some sections, or add their own requirements to met their local/mission needs. Likewise, the UFC compiles numerous codes and standards in the document and duplicates many of the code/standards published and updated by the national activities.

Accordingly, the comparison of UFC codes/standards design requirements to the national codes/standards is a detail oriented, tedious, research effort. VWI developed a format for use by the respective reviewers and their staffs to insure the review comments were presented in a common format. The format allowed the reviewed to identify the applicable UFC section/paragraph number, it provided space for a textual comment or code to signify the reviewer comments applicable to the UFC requirement, and the format provided space for the reviewed to note their rationale concerning the comment(s).

The selected reviewers are considered subject matter experts (SME) in their respective disciplines. Accordingly, VWI has not changed their responses in any manner, nor do we offer any professional judgments concerning the validity of their review comments.

Overview of Review Comments.

- The reviewers found the UFC document to be in line generally with industry standards but exceptions are noted and comments are provided for TMA consideration. They found that while there does not appear to be any new code or standards information added by the UFC document, the information is better organized and easier to use than most of the nationally published standards and guidelines.
- The UFC format may be of benefit to design firms by allowing them to quickly locate codes applicable to medical facilities, provided the information is the correct code requirement. The review comments reflect many cases in which the information in the UFC and current codes and standards differ. This may be due to mission necessities, or it may be due to difficulty in updating the UFC to correctly match the revised codes and standards.
- The cost impact of a more stringent UFC requirement was provided. However, the reviewers cautioned they were not "cost estimators," but in their experience the impact should be further evaluation, that is, is the more stringent UFC requirement due to specific mission requirements.
- The QDR#8 Transformation initiatives challenged TMA to move toward use of performance specification in lieu of prescriptive specifications for the design of military medical facilities. As further review and updating of the UFC is undertaken, the documents should be edited and reduced in

scope to remove much of the redundant industry codes and standards information.
- The review comments identify that further internal TMA effort is required to determine whether DOD UFC requirements and expectant increased construction cost are justified by mission requirements.

Recommendations.

- **Department of Veterans Administration**. The Deputy Under Secretary of Defense for Installations and Environment (DUSD(I&E)) has requested TMA to conduct a joint review of the UFC with the Veterans Administration. Accordingly, this offers the opportunity for TMA to chair or participate in a study group to assess these review comments and to continue with the Veterans Administration to revise the UFC for medical facilities design.

- **Health Facilities Steering Committee.** The Health Facilities Steering Committee should oversee the update/revision of the UFC through formation of a subcommittee of TMA and Services Construction Agents participant. TMA should exercise oversight responsibility for the functional requirements, the Construction Agents should exercise responsibility over the facility engineering disciplines.

- The initial decision is whether to revise the UFC as it is currently formatted, or to restructure the UFC format to a design policy and performance document by referencing the applicable national codes/standards To oversee the effort the following options are suggested:
    - Option 1-Undertake an extended internal review/revision of the UFC using DOD staff (subject matter experts) and private sector contracted administrative support
    - Option 2-Undertake an extended review/revision of the UFC using private sector contractor resources

Private Sector Healthcare Systems Design Criteria.

As an ancillary effort, several private sector healthcare systems were contacted to request a copy of their design guidance provided to Architect/Engineers firms for design of healthcare facilities. One major healthcare system agreed to the request and provided an example of their design criteria which generally follows the Uniformat structure. (See Attachment A)

Section 3: Architecture

Name of Reviewer: Cherie Claussen Company: HGA
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e-mail: cclaussen@hga.com

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
3-1 General. This section provides the architect design guidance. All facilities shall employ an economical, completely functional architectural design. Design will be closely governed by standard heathcare, Department of Defense, and Military Department specific functional requirements and criteria herein	A (Acceptable)	No Comment.
3-2 External Design. Adhere to application installation design guidance when feasible.	A	
3-3 Exterior Design.		
3-3.1 **Energy Performance.** All facilities shall comply with ASHRAE 90.1. Obtain the thermal characteristics of single materials or wall assemblies from the American Society of Heating, Refrigeration and Air-conditioning Engineers (ASHRAE) Handbook of Fundamentals (reference 3c) or from manufacturer's certified technical information. Identify thermal resistance (R) values for each element in the building shell. Prepare "U" factor calculations following recommended procedures as documented in the ASHRAE Handbook of Fundamentals (reference 3c).	A	
3-4 **FENESTRATION AND WINDOWS**.		
3-4.1 **Required Locations**. Exterior windows must be provided in normal nursing care, Intensive Care and Cardiac Care bedrooms, Prosthodontic Dental Treatment Rooms (non-tinted), and Prosthodontic-Ceramics Laboratories (non-tinted). Natural lighting may be provided in Dermatology Clinics, if required by the using Military Department.	B	Add windows in progressive care bedrooms
3-5 **INTERIOR CONSTRUCTION**.		
3-5.1 **Aseptic Environments**. Selection of interior construction and finishes must consider the need for aseptic environments. Use smooth, nonporous, seamless materials, recessed cabinets with radiused inside corners to minimize contamination and reduce housekeeping requirements. Smooth, seamless wall and floor coverings facilitate cleaning. As a minimum, the following areas shall be designed for ease of housekeeping with elimination of materials or surfaces which could harbor contamination, and to minimize maintenance requirements:	C	Standard of the Industry allows non-recessed cabinetry, with the exception of Operation Rooms.
a) Oral Surgery Rooms, Dental Treatment Rooms b) Special Procedure Rooms – Cardiac Catherization, Angiography, Endoscopy, etc.		

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
c) Operating and Delivery Rooms d) Emergency and Trauma Rooms e) Decontamination Rooms in Surgery, Delivery, and Central Processing and Distribution (CPD) f) Sterile Storage Rooms (Surgery, Delivery, CPD) g) Substerile and Recovery Rooms (Surgery and Delivery) h) All Patient Treatment Rooms i) Intravenous Admixture and Chemotherapy Preparation Rooms in Pharmacy		
3-6 **Floors.**		
3-6.1 **Floor Finishes**. Refer to UFC 4-501-01 Appendix A.		See UFC 4-501-01 Appendix A Commentary on any changes in floor recommendations.
3-7 **WALL AND PARTITION SYSTEMS**. Select systems which permit modification with the minimum cost and difficulty within acoustical and fire criteria, except in areas subject to severe impact. Reference Appendix A.		See UFC 4-501-01 Appendix A Commentary on any changes in floor recommendations.
3-7.1 **Use of Full Height Partitions**. Full height partitions, floor to structural slab above, shall be used in the following rooms, spaces, and compartments for sound attenuation and for physical security purposes:		
a) Medical Record Storage areas (paper file areas or large centralized areas) b) Materiel Services Storage areas c) Central Processing and Distribution Storage areas d) Pharmacy e) Prosthodontics and Ceramic Laboratory f) Medical Equipment Maintenance and Repair g) Orthotic Appliance Manufacturing h) Facility Engineer Maintenance Shops i) Pulmonary Function and Laboratory j) Medical Service Account (MSA) Funds Storage k) LDR/LDRPs l) Corridors	B	Add Nursery Units All Isolation Rooms
3-7.2 **Barriers**. Design protective barrier partitions to protect occupants or equipment in rooms, spaces and compartments from fire, smoke, radiation exposure, electrical interference, MRI shielding (reference Section 16), or for physical security purposes; reference Appendix C for specific radiation shielding criteria.	A	
3-7.3 **Protection**. Use bumper guards and corner guards on walls in areas subject to frequent abrasion and impact, such as corridors, utility rooms, central processing and distribution (CPD), gurney storage and others.	B	In addition, some areas may need sheet good wall guard.

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
3-8 **CEILINGS**.		
3-8.1 **Support**. Use of suspended ceiling surfaces for the direct support of intravenous infusion tracks, cubicle curtain tracks, and ceiling lights is not acceptable. Ceiling-mounted accessories shall be secured through the ceiling to secondary support members.		
3-8.2 **Utility Access**. Provide maximum accessibility in corridor ceilings to the mechanical and electrical distribution systems. Do not use concealed-spline ceiling systems requiring special tools to lower tile assemblies. Color-code the access panels into ceiling plenums with tabs to identify the type of utility present.		
3-9 **VESTIBULES AND DOORS**.		
3-9.1 **Exterior Vestibules**. Vestibules shall be provided at primary patient entrances. Vestibules shall comply with ADA/ABAAG requirements and be of sufficient depth to allow the outside doors to close before the inside doors are opened.		
3-9.2 **Automatic Doors**. Electrically operated or hydraulically operated automatic doors shall be provided for Emergency Trauma entrances and primary patient entrances of Medical Treatment Facilities for new construction. Facility entrances are based on facility size and mission.		
3-9.3 **Doors, Frames and Hardware**. Door sizes are as indicated in Appendix A. Unless otherwise required, all doorframes shall be hollow metal. Door hardware shall be of the highest quality, provide durability in high use occupancy, meet ADA/ABAAG requirements, and be aesthetically compatible with the design of the facility. A source of guidance on appropriate hardware selections and schedules is contained in reference 3h.		
3-10 **SUSTAINABLE DESIGN**. Incorporation of sustainable design features which enhance the Environment of Care and minimize the overall impact of the facility on the environment should be a fundamental design goal, in keeping with the medical functionality and project funding limitations. When required by the Using Service, and when appropriate funding is clearly set aside for the purpose on the Project 1391, the Design Team may pursue attainment of achievement of a given ranking level, or total points accumulation, in a Sustainable Design rating system such as provided by Leadership in Energy and Environmental Design (LEED) or Green Guidelines for Healthcare (GGHC). The Design Agent shall be responsible to verify achievement of a point total equivalent to the LEED or GGHC target level, unless supplemental funds are provided by the Using Service for the certification review and documentation services by others.		

Section 4: Structural Design and Section 5: Seismic (with Appendix A Comments)

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e-mail: bgenduso@hga.com

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
4-2 **DESIGN CRITERIA**. Structural design for military health care facilities shall be in accordance with references A through G. Structural material design considerations shall be in accordance with references H through M.	Review of referenced documents not within scope of services	
4-3 **DESIGN LOADINGS**. Unless otherwise indicated herein, the minimum design loadings for military health care facilities shall be in accordance with ASCE 7-02 (reference AA).	A – Minimum requirements met.	
4-3.1 Floor live loads shall be as given in Appendix A. Roof live loads, other than snow loads which are addressed below, shall be in accordance with ASCE 7-02 (reference AA). The live load factors to be used in load combinations must include dead, wind, seismic, etc.	Floor live loads are evaluated individually in table below. Otherwise, minimum requirements met.	
4-3.2 **Wind Loads**. Determine basic wind speeds from the tables in UFC 3-310-01 (reference A), unless a site-specific study of local records indicates a higher value should be used. The tables are based on a wind speed with a recurrence interval of 50-years, an Exposure C condition (open terrain with scattered obstructions having heights generally less than 30 feet), and a 3-second gust 33-feet above the ground. Using these basic wind speeds, use ASCE 7-02 (reference AA) procedures to determine the design wind pressure loading. Design basic wind speeds will normally be based on "Exposure C" conditions; exceptions are allowed where it can be clearly established that lesser loads associated with "Exposure B" conditions (towns, city outskirts, wooded areas and rolling terrain), or where greater loads associated with a coastal waterfront site, are applicable. Give appropriate consideration to unusual channeling, lifting, or gusting effects from promontory mountain, hill, or valley exposures. Do not use "Exposure A" conditions for permanent military health facilities.	Review of reference A not within scope of services. Otherwise, minimum requirements met.	
4-3.3 **Snow Loads**. Determine ground snow loads from the tables in UFC 3-	Review of reference A not within	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
310-01 (reference A), unless a site-specific study of local records indicates a higher value should be used. If a building location is not in the referenced tables, the ground snow load map in ASCE 7-02 (reference AA) may be used. Use ASCE 7-02 procedures to determine the design roof snow loads, including drifting, sliding, etc.	scope of services. Otherwise, minimum requirements met.	
4-3.5 **Load Combinations**. The basic design loadings shall be considered to act in union in the strength design combinations given in ASCE 7-02 (reference AA). Use the combination or combinations of loadings that produce the greatest overall loading and the most unfavorable effects on the building or its structural components as the basis of design.	A – Minimum requirements met.	
4-3.6 **Frost Penetration.** Determine the minimum design depth of building foundation below finished grade using the tables and procedures in UFC 3-310-01 (reference A).	Review of reference A not within scope of services	
4-4 **SITE CONDITIONS & SOILS INVESTIGATIONS**. Soil Investigation Program. Conduct soil investigations in accordance with UFC 3-220-03FA (reference Q). If arctic or sub-arctic construction conditions are present at the site, the program will address the provisions for building foundations contained in UFC 3-130-01 (reference R) and UFC 3-130-04 (reference S), respectively. 4-4.1 **Seismic Geologic Site Hazards**. Seismic geologic site hazards include surface fault rupture, soil liquefaction, soil differential compaction (or settlement), landsliding, and flooding. Use UFC 1-200-01 (reference D) and UFC 3-310-03A (reference E) to define requirements for seismic hazard screening. 4-4.2 **Site-Specific Seismic Ground Motion Study**. Use UFC 1-200-01 (reference D) and UFC 3-310-03A (reference E) to determine when a site-specific seismic ground motion study is required, and the required scope of the study. Retain a qualified geotechnical seismic ground motion specialist to conduct these site-specific studies. Complete the study during the early preliminary stage of the soil investigation program so the results will be available during the structural system selection process.	Review of referenced documents not within scope of services	
4-5 **ADDITIONAL DESIGN CONSIDERATIONS**. Several aspects of structural design typically associated with medical facilities are addressed below. It is essential that structural design considerations enter into the earliest stages of concept planning and design, to assure compatibility with medical function, and the	Commentary only, no design provisions to evaluate	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
building architectural and equipment features. 4-5.1 **Open Area Concept**. Provide column-free functional areas as appropriate. Long-span structural construction usually increases functional area openness and flexibility. Although exceptionally long spans or special long span structural techniques are generally more costly (in terms of first cost), designers should give consideration to the life cycle cost benefits provided by the additional flexibility. 4-5.2 **Vibration**. The vibration response of the structure requires special consideration. Vibration factors qualify the geometry of the building and affect its lateral load resistance. Designs must consider the vibration potentials of floor and roof framing and floor systems, and the overall structure, to assure adequate isolation and damping of vibrations produced by HVAC equipment, emergency generators, elevator equipment, and other machinery and equipment. In addition to assuring a living environment free from distracting or annoying vibrations, designers must be aware of the requirements of vibration sensitive equipment, such as analytic scales, optical equipment, electronic equipment and X-ray machines.		
4-6 **STRUCTURAL SYSTEM TYPE**. 4-6.1 Pure shear wall box systems provide excellent seismic resistance but are generally restrictive and inflexible from a planning point of view. 4-6.2 Braced frames, both concentric and eccentric, provide good strength and drift control characteristics. They are more restrictive from a future planning perspective than moment frames, however, since the frames can be strategically placed to lessen the restrictions, they can be significantly less restrictive than shear wall box systems. 4-6.3 Dual bracing systems, combining complete moment-resisting frame system with shear walls, or braced frames have good drift control characteristics. Space frames offer stiffness and tie the building together. Individual space frame members must resist at least 25 percent of the required lateral load. Shear walls or braced frames must resist 100 percent of the lateral load. Resistant frames must	Commentary only, no design provisions to evaluate	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
resist forces based on their relative stiffness and must satisfy deformation compatibility requirements.		
4-7.1 **General**. All health care facility buildings must have a complete lateral force resisting structural system that provides a continuous and direct load path with members and connections that possess the strength and ductility to transmit seismic forces to the foundation. This structural system shall be capable of withstanding design earthquake ground motions while, (1) remaining within prescribed limits of strength, (2) maintaining deformation limits, and (3) providing adequate energy dissipation capacity.	A – Minimum requirements met.	
4-7.2 **Innovative Systems**. Both base isolation and passive energy dissipation are considered to be innovative seismic force resistant structural systems. Innovative systems shall be considered for major health care facilities in high seismic risk areas, where the design spectral response acceleration at short periods (S_{DS}) is equal to or greater than 0.50. The specific types of base isolation systems that are considered for use in health care facilities must have been researched, tested and proven to be acceptable, based on sound engineering principles and experience. Base isolation materials must be durable, i.e., have minor aging and temperature effects and have reliable, long term performance characteristics Selection considerations shall include a life-cycle cost comparison between a conventional, fixed base system and the base isolation system.	Commentary only, no design provisions to evaluate	
4-7.2.1 Certain nonstructural systems, services, and will be required for the post-earthquake life-safety or operational performance levels of the health care facility, as addressed at Section 5 of this UFC. The structural design of the restraints and anchorages of these important nonstructural elements is an integral part of the structural design of the facility.	Commentary only, no design provisions to evaluate	
5-1 **INTRODUCTION**. This Section provides criteria for permanent military health care facilities. Base seismic design requirements upon the level of operation, or seismic performance objective, as defined in UFC 1-200-01, required for a particular health care facility following an earthquake. Seismic performance levels vary from life safety (intended to reduce the likelihood of injury and loss of life) to a complete post-earthquake operational capability (defined as immediate occupancy in UFC 1-200-01). The required level of seismic performance for a facility will be as directed by the Contracting Officer, determined in coordination with the Design	Review of reference UFC 1-200-01 not within scope of services	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
Agent and the Using Military Department Representative for a specific project.		
5-2 **HEALTH CARE AND DESIGN REQUIREMENTS**. The designation of seismic performance objective for a particular health care facility will depend upon the seismic use group, the seismic performance level, and the level of design ground motion as defined in UFC 1-200-01. Certain health care facilities may require only key areas to be operational after an earthquake. Other health facilities may require only a life safety level of performance. Design requirements may include the preservation of essential utility systems such as ventilation, electricity, water supply, waste systems, steam distribution, medical gases, vacuum, medical air, and communications. Design utility systems to permit isolation of damage by shutoff of damaged areas and operation of systems at a reduced capacity.	Review of reference UFC 1-200-01 not within scope of services.	
5-3.1 **Life Safety Level**. This level, which generally applies to existing health care facilities, is the minimum requirement of seismic upgrade or alteration projects. The essential requirement is to reduce the likelihood of injury or death to personnel by providing a structure with a margin of safety against collapse. Existing health facility structural systems will be evaluated according to the requirements in UFC 1-200-01 and UFC 3-301-5A as given in Section 4, Structural Design. This evaluation will also include both geologic site hazards and the anchorage and lateral support of mechanical, electrical, architectural and other non-structural elements whose damage will threaten the life safety of occupants or might block safe means of egress. When an existing Structural Design system does not meet these requirements, the system will be strengthened according to the requirements in UFC 1-200-01 and UFC 3-301-5A as given in Section 4, Structural Design. With this level of design, the health care facility requires post-earthquake evacuation, with post-earthquake medical operations dependant upon outside assistance. No specific time is specified for re-occupancy and utilization for this class of structure.	Review of reference UFC 1-200-01 not within scope of services. Otherwise, for the remainder of this section minimum requirements met.	
5-3.2 **Partial**. The partial operational level, which is equivalent to a safe egress Structural Design performance level as defined in UFC 1-200-01, may apply to either new or existing facilities. These requirements will generally apply to new facilities to be located in areas where the design spectral response acceleration at short periods (S_{DS}) is less than 0.167 and for existing facilities where the design spectral response acceleration at short periods (S_{DS}) is greater than 0.167 but less than 0.33. In this category, critical spaces, laboratories, radiology, CMS, supply	C – Exceeds w/ cost.	The range of S_{DS} values generally corresponds to IBC Seismic Design Category A. This category does not require any nonstructural

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
storage, and Nuclear Medicine must be designed to continue in operation following a design earthquake. In those areas, fixed equipment, vertical transportation, and utilities shall be anchored/braced to resist the seismic forces, and if damaged, be restorable within several days. Facilities with this design level will continue operation with outside assistance for inpatients and disaster victims with temporary expansion of emergency facilities.		components (fixed equipment, vertical transportation, utilities, etc.) to be anchored/braced to resist seismic forces. Such anchorage may be unnecessarily conservative and costly.
5-3.3 **Selected/Full**. This level of design, which is equivalent to an immediate occupancy Structural Design performance level as defined in UFC 1-200-01, provides a higher level of seismic resistance capability than the "Partial" level. This level of seismic performance will generally apply to new facilities located in areas where the design spectral response acceleration at short periods (S_{DS}) is greater than 0.167 but less than 0.50. Health facilities with a full level of seismic performance will be designed to be prepared for post-earthquake operations and capable of restoration of minor damage within several hours following the maximum design seismic ground motion. All utilities and equipment must be prepared for isolation and/or restoration with minimum work when damage occurs. Provision for temporary emergency connection or augmentation of potable water, sanitary sewers and fuel will be required. In existing facilities where upgrade of all portions of the facility is economically impractical, upgrade may be restricted to the more critical spaces and systems identified in the program authority document.	A – Minimum requirements met.	
5-3.4 **Complete**. The complete level of seismic resistance, which is equivalent to an immediate occupancy Structural Design performance level as defined UFC 1-200-01, is the maximum level of seismic design for military health care facilities. This complete level of seismic performance applies to facilities located in areas with a high seismic risk, i.e., areas where the design spectral response acceleration at short periods (S_{DS}) is greater than 0.50. At this level, the facility will be designed for complete continuity of operation, for medical care of inpatients and for receiving earthquake casualties. Additionally, provisions for emergency supply and capability to operate a hospital immediately after a disastrous earthquake for at least a 4-day period will be made, i.e., water supply,	A – Minimum requirements met.	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
electrical generation, fuel storage, and sanitary facilities. All site utilities and systems which are dependent upon outside sources during normal operations must be completely restorable within a 4-day period. Isolation and damage control will be provided to completely restore the facility to a near normal interior environment within several hours.		
5-4 **POST-EARTHQUAKE EMERGENCY STATUS**. The disaster magnitude and the estimated duration of the post-earthquake emergency period must be reviewed and their impact on the operations of the facility assessed. The extent of curtailment, relocation, and expansion of services; the demands placed on on-site storage of potable water, fuel, sewage, and medical supplies; and the best design solutions to achieve and preserve functionality will be determined from these estimates. 5-5 **CONCEPT DESIGN DEVELOPMENT.** Seismic design will be functional and responsive to the normal operation of the facility. Because each seismically designed facility is unique, specific project criteria for various facility and health systems will be developed during concept design development. The type of Structural Design framing to be used must be coordinated in the early concept development of the functional layout so that an effective, structurally efficient seismic resistance/performance type "system" is considered. Specific project criteria will include mechanical, electrical, medical gases and communication systems design criteria. See Section 4, Structural Design, for the functional and other operational items that must be considered during the development of the building layout and concept design and for the criteria that must be used in the seismic design of the facility.	No design provisions to evaluate	
5-6.1.1 **Electrical Power**. Electrical power will be assumed to be unavailable from public utilities following an earthquake. Determine the availability, capability and capacity of the alternate power source (on-site generator(s)) to provide the necessary power to operate the facility following an earthquake. Make particular notes of all pertinent characteristics of the alternate power source, with emphasis on capacity, mounting arrangement, starter reliability, fuel supply, age, and degree of automation. Also note the general vulnerability to earthquake-induced damage of the transfer switches, electrical distribution system, and items to be serviced by the alternate source power system.	Other disciplines	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
5-6.1.2 **Site Accessibility**. Evaluate public access to the facility. Provide at least two separate on-site entrance roads to the facility, each preferably connecting to a different off-site public access road. Identify potential earthquake hazards to roads, bridges, overpasses, and retaining walls. Inspect the site to determine if a safe and reliable on-site space for emergency helicopter landings is within close proximity of the hospital buildings.	Other disciplines	
5-6.1.3 **Facility Upgrade Report**. Include all of the above considerations, along with the Structural Design system evaluation and the site hazards assessments, in a facility upgrade report (SEE SECTION 2) 5-6.2 **Final Evaluation**. Based on the review and approval of the seismic facility upgrade report, a final evaluation of the facility will determine the most satisfactory method to upgrade the seismic resistance to the prescribed criteria. Proposed solutions will be thoroughly analyzed and cost estimates prepared. As an alternate concept, a base isolation system may be considered to upgrade the seismic resistance of facility. Base isolation will limit the seismic forces transmitted to the super structure and minimize the seismic upgrade provisions for the non-structural elements. If considered, the base isolation requirements for new medical facilities apply.	No design provisions to evaluate	
5-7 **DESIGN OF ESSENTIAL NON-STRUCTURAL SYSTEMS**. The seismic restraint, protection, site-storage, and other seismic design features and requirements addressed by the following criteria will be applicable according to the level of the seismic threat and the designated operational level of the facility. 5-7.1 **Identification of Essential Systems**. Table 5-1 identifies essential non-structural systems and lists them in order of priority based on previous post-earthquake experience and input from professional health care personnel. See UFC 3-320-05A for additional requirements. 5-7.2 **Hazardous Materials** 5-7.2.1 **Special Storage Provisions**. Provide special storage equipment or accessories that are convenient for normal daily use, and functional after earthquakes. Examples of such equipment are lower profile shelves with face bars	Other disciplines	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
which restrain material on shelves and secure shelves to the wall or floor; specially designed racks for restraining reserve oxygen and nitrous oxide tanks; and special bins for storing anesthetic gas containers. 5-7.2.2 **Fuel Gas Piping**. Brace piping and provide shutoff valves. Use malleable fittings and valves, provide swing joints where necessary. 5-7.3 **Electrical Systems** 5-7.3.1 **Vibration Isolation**. Where vibration isolation is not required, bolt generators directly to an appropriate foundation. Where vibration isolation is necessary, provide restraining clips at vibration isolators to prevent failure of the isolation mountings under earthquake vibration conditions. 5-7.3.2 **Generators**. Where practicable, use generators with integral radiator cooling systems. Where auxiliary cooling systems are necessary, install cooling towers or remote radiators at grade level. Brace cooling towers or radiators and provide special bracing for piping. 5-7.3.3 **Miscellaneous Electrical Equipment**. Shall be in accordance with UFC 3-550-03FA and UFC 3-550-03N. 5-7.4 **Mechanical Systems** 5-7.4.1 **On-Site Sanitary and Water Storage Facilities**. For any facility with a designated seismic protection level in excess of “Life Safety”, the following criteria shall apply. a. Provide the water service with two independent connections to the water system. In addition, provide a water storage facility as a source of supply,		

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
sized to adequately meet fire and water demands during the post-earthquake emergency period. Design water mains to minimize service disruption from earthquakes and to facilitate post-earthquake repair. Domestic water storage considerations may factor in a reasonably reduced level of water consumption for the emergency period of operation. b. Provide an Emergency Sanitary Sewage Holding Facility for temporary retention of all sanitary sewage discharge from the hospital during the post-earthquake emergency period. 5-7.4.2 **Fuel Gas Shutoff Valve**. Equip the site gas supply line with a safety shutoff valve. 5-7.5 **Medical Systems and Equipment**. 5-7.5.1 **Autoclaves.** Anchor steam sterilizers. 5-7.5.2 **X-Ray Equipment**. Include bracing as required for the design of X-ray unit ceiling tracks. Anchor X-ray control consoles and automatic film developers. 5-7.5.3 **Miscellaneous Equipment Considerations** a. Secure equipment or shelving not required to be moved from location to location to a partition. Equipment with doors should have a positive latching device that operates automatically when access to the equipment or shelving is not continuously required.		

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
b. Blood bank, drug storage, critical refrigerators, freestanding incubators and centrifuges, should be secured. c. Secure sequential multiple blood analyzers and other fragile laboratory equipment. Anchor related shelving, and provide lips and face bars as necessary. d. Wheeled Equipment. Wheeled equipment should have wheel locks and should be assigned a specific location when not in use. Wheeled equipment should be provided with closets or alcoves, whenever possible, to limit rolling. Portable equipment should be stored in recessed cabinets which are secured to partitions, whenever possible. 5-7.5.4 **Supply Storage**. Supply cabinets should have either plastic or tempered glass in sliding doors, and the doors should slide closed automatically. Open shelving should have a shelf rim which precludes supplies being shaken from their storage position. 5-7.5.5 **Medical Gas Bottles**. Metal boxes attached to the floor and equipped with double chains should be provided for medical gas bottles. Wheeled carts carrying oxygen or other medical gases should be equipped with wheel locks and chains for fastening to walls. 5-7.6 **Architectural Systems**. 5-7.6.1 **Overhangs**. Do not use unbraced overhangs, parapets, and balconies.		

Individual evaluation of Floor Live Loads for UFC Section 4-3.1, Appendix A

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
AMB01	AMBULANCE SHELTER	A	No load information to review	
AMB02	AMBULANCE GARAGE	A	No load information to review	
ANCW1	ANESTHESIA CLEAN WORKROOM	60	A – Minimum requirements met.	
ANSW1	ANESTHESIA SOILED WORKROOM	60	A – Minimum requirements met.	
APAM1	APPLIANCE ADJUST/MODIFY FULL	.	No load information to review	
APFB1	APPLIANCE FULL BRACE SHOP	100	A – Minimum requirements met.	
APFR1	APPLIANCE FITTING ROOM	60	A – Minimum requirements met.	
APLA1	APPLIANCE LAMINATION/MOLDING	.	No load information to review	
APMS1	APPLIANCE MACHINE SHOP	.	No load information to review	
APSH1	APPLIANCE SEWING/SHOE SHOP	.	No load information to review	
APWA1	APPLIANCE WELDING AREA	.	No load information to review	
AUD01	AUDITORIUM	100	A – Minimum requirements met.	
AVB01	PROJECTION BOOTH	60	A – Minimum requirements met.	
AVPD1	AUDIOVISUAL PROGRAM DISTRIBUTION	60	A – Minimum requirements met.	
BF000	BANKING FACILITY - EQ BY OTHERS	60	A – Minimum requirements met.	
BF001*	ATM ALCOVE - EQUIPPED BY OTHERS	60	A – Minimum requirements met.	
BLND1	BLIND VENDORS AREA	60	A – Minimum requirements met.	
BMCW1	BIOMEDICAL, COMMON WORK AREA	.	No load information to review	
BMER1	BIOMEDICAL, ELECTRONIC REPAIR	.	No load information to review	
BMRA1	BIOMEDICAL, RECEIVING AREA	60	A – Minimum requirements met.	
BMWS1	BIOMEDICAL, WORKSTATION	60	A – Minimum requirements met.	
BRAR1	BEDROOM, ANTEROOM, ISOLATION, NEGATIVE	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRAR2*	BEDROOM, ANTEROOM, ISOLATION, POSITIVE	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRIC1	BEDROOM, INTENSIV/CORONARY, 1 BED	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRII1	BEDROOM, ISOLATION, ICU/CCU, NEGATIVE	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
BRII2*	BEDROOM, ISOLATION, ICU/CCU, POSITIVE	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRIP1	BEDROOM, ISOLATION, PEDIATRIC, NEGATIVE	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRIP2*	BEDROOM, ISOLATION, PEDIATRIC, POSITIVE	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRIT1	BEDROOM, ISOLATION, NEGATIVE	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRIT2	BEDROOM, ISOLATION, POSITIVE	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRLC1	BEDROOM, LIGHT CARE, 1 BED	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRLC2	BEDROOM, LIGHT CARE, 2 BEDS	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRMB1*	BEDROOM, MOBILIZATION, 1 BED	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRMB2*	BEDROOM, MOBILIZATION, 2 BED	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRMS1	BEDROOM, MEDICAL/SURGICAL, 1 BED	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRMS2	BEDROOM, MEDICAL/SURGICAL, 2 BEDS	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRNP1	BEDROOM, NEURO/PSYCH, 1 BED	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRNP2	BEDROOM, NEURO/PSYCH, 2 BEDS	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRNP5	BEDROOM, NEURO/PSYCH, SECLUSION	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRNP6	BEDROOM, N/P, SECLUSION ANTEROOM	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRPB1	BEDROOM, PEDIATRICS, 1 BED	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BRPB2	BEDROOM, PEDIATRICS, 2 BEDS	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
BRUN1*	SINGLE PATIENT ROOM ACUITY ADAPTABLE.	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
BX000	EXCHANGE AREA - EQUIP BY OTHERS	60	A – Minimum requirements met.	
BX001	EXCHANGE VENDING AREA - UTILITY RQD	.	No load information to review	
CASH1	CASHIER	60	A – Minimum requirements met.	
CHC01	CART HOLDING, CLEAN	100	A – Minimum requirements met.	
CHS01	CART HOLDING, SOILED	100	A – Minimum requirements met.	
CLR01	CLASSROOM, TABLE/CHAIR	60	C – Exceeds w/ cost.	Industry standard classroom = 40psf Estimated structural cost premium = 25%
CLR02	CLASSROOM, WRITING ARM CHAIRS	60	C – Exceeds w/ cost.	Industry standard classroom = 40psf Estimated structural cost premium = 25%
CLR03	CLASSROOM, COMPUTER	60	C – Exceeds w/ cost.	Industry standard classroom = 40psf Estimated structural cost premium = 25%
CLR04	CLASSROOM, 2 BED ROOM MOCK-UP	60	C – Exceeds w/ cost.	Industry standard classroom = 40psf Estimated structural cost premium = 25%
CLSC1	PATIENT EDUCATION, KIOSK/ALCOVE	60	C – Exceeds w/ cost.	Industry standard classroom = 40psf Estimated structural cost premium = 25%
CLSC2*	PATIENT EDUCATION CUBICLE	60	C – Exceeds w/ cost.	Industry standard classroom = 40psf Estimated structural cost premium = 25%
CMP01*	COMPUTER ROOM	.	No load information to review	
CMP02*	COMPUTER TERMINAL/SERVER	.	No load information to review	
CMP03*	COMPUTER ARCHIVE STORAGE	.	No load information to review	
COM02	COMMUNICATIONS AMBULANCE DISPATCH	60	A – Minimum requirements met.	
COM03	COMM ROOM, CENTRAL ALARM SECURITY	60	A – Minimum requirements met.	
COMC1*	COMMUNICATIONS ROOM	60	A – Minimum requirements met.	
CRA01	CONFERENCE ROOM, SMALL	60	C – Exceeds w/ cost.	Industry standard conf. room = 50psf Estimated structural cost premium = 10%
CRA02*	CONFERENCE ROOM, MEDIUM	60	C – Exceeds w/ cost.	Industry standard conf. room = 50psf Estimated structural cost premium = 10%
CRA03*	CONFERENCE ROOM, LARGE	60	C – Exceeds w/ cost.	Industry standard conf. room = 50psf Estimated structural cost premium = 10%
CRC01	CONFERENCE ROOM, COMMANDERS	60	C – Exceeds w/ cost.	Industry standard conf. room = 50psf Estimated structural cost premium = 10%

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
CROP1*	CONFERENCE ROOM, EMERGENCY OPERATIONS CENTER	60	C – Exceeds w/ cost.	Industry standard conf. room = 50psf Estimated structural cost premium = 10%
CRR01	CONFERENCE ROOM, RADIOLOGY	60	C – Exceeds w/ cost.	Industry standard conf. room = 50psf Estimated structural cost premium = 10%
CSCQ1	CENTRAL STERILE, CART ASSEMBLY/QUEUING	100	A – Minimum requirements met.	
CSCR1	CENTRAL STERILE, SOILED CART, RECEIVING	100	A – Minimum requirements met.	
CSDE1*	CENTRAL STERILE, DECONTAMINATION, SMALL	100	A – Minimum requirements met.	
CSDE2*	CENTRAL STERILE, DECONTAMINATION, MEDIUM	100	A – Minimum requirements met.	
CSDE3*	CENTRAL STERILE, DECONTAMINATION, LARGE	100	A – Minimum requirements met.	
CSIA1	CENTRAL STERILE, ASSEMBLY, STERILIZATION, SMALL	100	A – Minimum requirements met.	
CSIA2*	CENTRAL STERILE ASSEMBLY, STERILIZATION, MEDIUM	100	A – Minimum requirements met.	
CSIA3*	CENTRAL STERILE ASSEMBLY, STERILIZATION, LARGE	100	A – Minimum requirements met.	
CSSS1	CENTRAL STERILE, STERILIZATION, SMALL	100	A – Minimum requirements met.	
CSSS2	CENTRAL STERILE, STERILIZATION, MEDIUM	100	A – Minimum requirements met.	
CSSS3*	CENTRAL STERILE, STERILIZATION, LARGE	100	A – Minimum requirements met.	
CSWS3*	CENTRAL STERILE, WASHER/SCOPE	100	A – Minimum requirements met.	
CWSH1	CART WASH, MANUAL (STEAM GUN)	100	A – Minimum requirements met.	
CWSH2	CART WASH, AUTOMATED WASHER	C	No load information to review	
DAYR1	DAYROOM, WARD	60	C – Exceeds w/ cost.	Industry standard patient room = 40psf Estimated structural cost premium = 25%
DNPB1	DENT PROSTHETICS, ORTHODONTIC LAB	60	A – Minimum requirements met.	
DNPC1	DENT ROOM CERAMICS	60	A – Minimum requirements met.	
DNPF1	DENT PROSTHETICS LAB, FULL FUNCT'N	60	A – Minimum requirements met.	
DNPL1	DENT PROSTHETICS LAB, LIMITED	60	A – Minimum requirements met.	

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
DNRS1	DENT REPAIR SHOP PER MAN	60	A – Minimum requirements met.	
DNSA1	DENTAL SUPPORT SUBSTERILE	60	A – Minimum requirements met.	
DNSA2	DENTAL SUPPORT PROSTHETIC	60	A – Minimum requirements met.	
DNSB1	DENTAL SUPPORT ORTHODONTICS	60	A – Minimum requirements met.	
DNSC1	DENTAL, INSTRUMENT DECONTAMINATION	60	A – Minimum requirements met.	
DNSC2	DENTAL, INSTRUMENT, STERILIZATION	60	A – Minimum requirements met.	
DNSP1	DENTAL SELF PREP AREA	60	A – Minimum requirements met.	
DNSS1	DENTAL SUPPORT SUBSTERILE	60	A – Minimum requirements met.	
DNTB1	DENTAL TREATMENT RM, ORTHODONTICS	60	A – Minimum requirements met.	
DNTC1	DENTAL TREATMENT RM, COMPREHENSIVE	60	A – Minimum requirements met.	
DNTE1	DENTAL TREATMENT RM, ENDODONTICS	60	A – Minimum requirements met.	
DNTG1	DENTAL TREATMENT RM, GENERAL	60	A – Minimum requirements met.	
DNTG2	DENTAL TREATMENT RM, ORAL HYGIENE	60	A – Minimum requirements met.	
DNTG3	DENTAL TREATMENT RM, PATHOLOGY	60	A – Minimum requirements met.	
DNTP1	DENTAL TREATMENT RM, PROSTHODONTICS	60	A – Minimum requirements met.	
DNTP2	DENTAL TREATMENT RM, PERIODONTICS	60	A – Minimum requirements met.	
DNTP3	DENTAL TREATMENT RM, PEDIATRICS	60	A – Minimum requirements met.	
DNTR1*	DENTAL RECOVERY	60	A – Minimum requirements met.	
DNTS1	DENTAL TREATMENT RM, ORAL SURGERY	60	A – Minimum requirements met.	
DNTS2	DENT TREATMENT ORAL SURGERY SUPPORT	60	A – Minimum requirements met.	
DNTT1	DENTAL TREATMENT RM, TRAINING	60	A – Minimum requirements met.	
DNXC1	DENT XRAY CEPHALOMETRICS	60	A – Minimum requirements met.	
DNXD1	DENTAL XRAY, INTRAORAL/PANOGRAPH/CEPHALOMETRIC	60	A – Minimum requirements met.	
DNXF1	DENT XRAY FILM PROCESSING AUTO 1 PR	60	A – Minimum requirements met.	
DNXF2	DENT XRAY FILM PROCESSING AUTO 2 PR	60	A – Minimum requirements met.	
DNXI1	DENT XRAY INTRAORAL	60	A – Minimum requirements met.	
DNXR1	DENT XRAY VIEWING	60	A – Minimum requirements met.	

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
DOCK1	LOADING DOCK	200	A – Minimum requirements met.	
DR001	DRESSING ROOM/CUBICLE	60	A – Minimum requirements met.	
DUTY1	ON-CALL ROOM	60	A – Minimum requirements met.	
EVPR1	EVOKED POTENTIAL RESPONSE ROOM	100	A – Minimum requirements met.	
EXEN1	EXAMINATION ROOM, ENT	60	A – Minimum requirements met.	
EXER1*	EXAM, EMERGENCY ROOM	60	A – Minimum requirements met.	
EXOS1	EXAM/OFFICE, SPEECH THERAPIST	60	A – Minimum requirements met.	
EXPO1	EXAM ROOM, PODIATRY	60	A – Minimum requirements met.	
EXRG1	EXAM ROOM, ARMY	60	A – Minimum requirements met.	
EXRG2*	EXAM ROOM, NAVY	60	A – Minimum requirements met.	
EXRG3*	EXAM ROOM, AIR FORCE	60	A – Minimum requirements met.	
EXRG4*	EXAM, ADULT SCREENING	60	A – Minimum requirements met.	
EXRG5*	EXAM, PEDIATRIC SCREENING	60	A – Minimum requirements met.	
EXRG6*	EXAM, ISOLATION, NEGATIVE PRESSURE	60	A – Minimum requirements met.	
EXRG7*	EXAM, ISOLATION, POSITIVE PRESSURE	60	A – Minimum requirements met.	
EXRG8*	EXAM ROOM, OB/GYN	60	A – Minimum requirements met.	
EXRP1	EXAM ROOM, PEDIATRICS	60	A – Minimum requirements met.	
EXUD1	EXAM, URODYNAMICS	60	A – Minimum requirements met.	
EXVE1	EXAM, VESTIBULAR (EAR EXAM ROOM)	60	A – Minimum requirements met.	
EYCL1	EYE CONTACT LENS FITTING/DISPENSING	60	A – Minimum requirements met.	
EYEL1	EYELANE, ARMY/AIR FORCE	60	A – Minimum requirements met.	
EYEL2	EXAM/OFFICE, EYELANE, ARMY/AIRFORCE	60	A – Minimum requirements met.	
EYEL3*	EYE LANE, NAVY	60	A – Minimum requirements met.	
EYEL4*	EYE LANE, FOLDED ELECTRONIC	60	A – Minimum requirements met.	
EYER1	EYE ELECTRORETINOGRAPHY ROOM	60	A – Minimum requirements met.	
EYFC1	EYE FUNDUS CAMERA ROOM	60	A – Minimum requirements met.	
EYFD1	EYEGLASS FITTING & DISPENSING	60	A – Minimum requirements met.	
EYOF1*	EYE, OPTICAL FABRICATION	60	A – Minimum requirements met.	
EYOT2*	EYE, OPHTHALMOLOGY EXAM ROOM	60	A – Minimum requirements met.	
EYOT3*	PRK/LASIK EVALUATION ROOM	60	A – Minimum requirements met.	

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
EYPL1	EYE PROSTHETICS LAB	60	A – Minimum requirements met.	
EYVF1	EYE VISUAL FIELD/PERIMETRY ROOM	60	A – Minimum requirements met.	
EYVS1*	EYE, VISUAL SCREEN	60	A – Minimum requirements met.	
FILE1	FILE ROOM, GENERAL USE	150	A – Minimum requirements met.	
FSBR1	FOOD SERVICE, BAKE AND ROAST CENTER	B	No load information to review	
FSCB1*	FOOD SERVICE, CARBONATED BEVERAGE ROOM	.	No load information to review	
FSCD1	FOOD SERVICE, CAFETERIA DINING ROOM	100	A – Minimum requirements met.	
FSCS1	FOOD SERVICE, CART STORAGE	100	A – Minimum requirements met.	
FSDA1	FOOD SERVICE, DESSERT ASSEMBLY	100	A – Minimum requirements met.	
FSDS1	FOOD SERVICE, DISH STORAGE AREA	200	A – Minimum requirements met.	
FSDW1	FOOD SERVICE, DISH WASHING	B	No load information to review	
FSFC1	FOOD SERVICE, FRY CENTER	B	No load information to review	
FSFV1	FOOD SERVICE, FRESH FRUIT/VEGETABLE	100	A – Minimum requirements met.	
FSGB1	FOOD SERVICE, GRILL AND BROIL AREA	B	No load information to review	
FSIR1	FOOD SERVICE, INGREDIENT ROOM	150	A – Minimum requirements met.	
FSMC1	FOOD SERVICE, MIXING CENTER	B	No load information to review	
FSMP1	FOOD SERVICE, MEAT PROCESSING	B	No load information to review	
FSNP1	FOOD SERVICE, NOURISHMENT PREP AREA	B	No load information to review	
FSPP1	FOOD SERVICE, PASTRY PREPARATION	150	A – Minimum requirements met.	
FSPT1	FOOD SERVICE, PATIENT TRAY LINE	100	A – Minimum requirements met.	
FSPT2	FOOD SERVICE, PATIENT TRAY CAROUSEL	100	A – Minimum requirements met.	
FSPW1	FOOD SERVICE, POT WASHING	B	No load information to review	
FSSA1	FOOD SERVICE, SALAD ASSEMBLY	100	A – Minimum requirements met.	
FSSC1	FOOD SERVICE, STEAM CENTER	150	A – Minimum requirements met.	
FSSL1	FOOD SERVICE, CAFETERIA SERVING	150	A – Minimum requirements met.	
FSTD1	FOOD SERVICE, THERAPEUTIC DIET PREP	150	A – Minimum requirements met.	
HAFR1	HEARING AID FITTING ROOM	60	A – Minimum requirements met.	
HATL1	HEARING AID TESTING LAB/SHOP	60	A – Minimum requirements met.	
HYPR1*	HYPERBARIC CHAMBER ROOM	100	A – Minimum requirements met.	

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
ICE01	ICE MACHINE	B	No load information to review	
JANC1	JANITORS' CLOSET	100	A – Minimum requirements met.	
KEY01*	KEY/ACCESS CONTROL	60	A – Minimum requirements met.	
LBAP1	ALLERGEN PREPARATION	100	A – Minimum requirements met.	
LBAR1	LAB AUTOPSY ROOM	60	A – Minimum requirements met.	
LBBD1	LAB BLOOD DONOR STATION	60	A – Minimum requirements met.	
LBBD2	LABORATORY, BLOOD/PHORESIS PROCESSING	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBBG2	LAB, BLOOD GAS	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBBP1	LAB BODY PREP ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBBS1	LAB BLOOD SHIPPING - BASIC	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBBS2	LAB BLOOD SHIPPING - FROZEN BLOOD	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBBV1	LAB BODY VIEWING ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBCP1	LAB CYTOGENETICS PREPARATION	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBCR1	LAB CYTOGENETICS READING ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBDE1	LAB DERMATOLOGY	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBDR1	LAB DECONTAMINATION ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBDS1	LAB BONE DISSECTION (ENT USE)	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBEM2	LAB, ELECTRON MICROSCOPE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBEM3	LAB ELECTRON MICRO' SPECIMEN PREP	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBEN1	LAB ENTOMOLOGY	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
				Estimated structural cost premium = 30%
LBFC1	LAB FLOW CYTOMETER ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBGW1	LAB GLASSWARE WASHING ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBIH1	LAB INDUSTRIAL HYGIENE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBIR1	LAB INCUBATION ROOM WALK-IN	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBMR1	LAB MORGUE REFRIGERATOR	C	No load information to review	
LBMR2	LAB MORGUE REFRIGERATOR – WALK-IN	C	No load information to review	
LBOB1	LAB OB/GYN CLINIC - SPECIMENS	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBRB1	LAB RESEARCH BIOCHEMISTRY	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBRC1	LAB RESEARCH CLEAN	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBRC2	LAB RESEARCH CONTAINMENT ROOM	60	A – Minimum requirements met.	
LBRI1	LAB RADIOIMMUNOASSAY	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBRP1	LAB RADIATION PROTECTION	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBSC1	LAB SMALL CLINIC - STANDARD	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBSM1	LAB SOLUTION & MEDIA PREP	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBSP1	LABORATORY, SATELLITE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBSS1	LABORATORY, SHIPPING & RECEIVING, MINIMAL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBSS2*	LABORATORY, SHIPPING/RECEIVING, SMALL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBSS3*	LABORATORY, SHIPPING & RECEIVING, MEDIUM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
LBSS4*	LABORATORY, SHIPPING & RECEIVING, LARGE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBTS1	LAB TISSUE STORAGE AREA	100	A – Minimum requirements met.	
LBUL1	LAB ULTRA LOW TEMP FREEZER AREA	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBUR1	LAB, UROLOGY, URINE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBVP1	LAB VENIPUNCTURE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LBWA1	LAB WATER	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LCCL1	LINEN CONTROL, CLEAN	150	A – Minimum requirements met.	
LCFA1	LINEN CONTROL, FOLDING AREA	150	A – Minimum requirements met.	
LCS01	LINEN CONTROL, SEAMSTRESS	150	A – Minimum requirements met.	
LCSL1	LINEN CONTROL, SOILED LINEN	100	A – Minimum requirements met.	
LCUC1	LINEN CONTROL, UNIFORM CONVEYOR	100	A – Minimum requirements met.	
LDAT1	LABOR & DELIVERY, ANTEPARTUM TESTING	60	A – Minimum requirements met.	
LDDR1	LABOR & DELIVERY, C SECTION ROOM	60	A – Minimum requirements met.	
LDEP1	LABOR & DELIVERY, EXAM & PREP	60	A – Minimum requirements met.	
LDRP1*	LABOR & DELIVERY, LDRP (NARROW)	60	A – Minimum requirements met.	
LDRP2*	LABOR & DELIVERY, LDRP (WIDE)	60	A – Minimum requirements met.	
LDRP3*	LDR/LDRP ISOLATION ROOM	60	A – Minimum requirements met.	
LIBB1	LIBRARY, BOOK STACK AREA	D	No load information to review	
LIBD1	LIBRARY, REFERENCE DESK	100	A – Minimum requirements met.	
LIBP1	LIBRARY, PERIODICALS STACKS	D	No load information to review	
LIBS1	LIBRARY, SEATING AREA	60	A – Minimum requirements met.	
LIBV1	LIBRARY, PATIENT RESOURCE ROOM	150	A – Minimum requirements met.	
LIBW1	LIBRARY, WORK AREA - LIBRARY STAFF	100	A – Minimum requirements met.	
LMAB1	LABORATORY, ANAEROBIC BACT' - TB	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMBB1	LABORATORY, BLOOD BANK, SMALL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
				Estimated structural cost premium = 30%
LMBB2	LABORATORY, BLOOD BANK, MEDIUM	C	No load information to review	
LMBB3	LABORATORY, BLOOD BANK, LARGE	C	No load information to review	
LMCH1	LABORATORY, CHEMISTRY, MINIMAL	C	No load information to review	
LMCH2	LABORATORY, CHEMISTRY, SMALL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMCH3	LABORATORY, CHEMISTRY, MEDIUM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMCH4*	LABORATORY, CHEMISTRY, LARGE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMCY1	LABORATORY, CYTOLOGY, SMALL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMCY3	LABORATORY, CYTOLOGY, LARGE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMHC1	LABORATORY, HISTOPATHOLOGY, MEDIUM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMHC2*	LABORATORY, HISTOPATHOLOGY, LARGE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMHI1	LABORATORY, HEMATOLOGY, MINIMAL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMHI2*	LABORATORY, HEMOTOLOGY, SMALL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMHI3*	LABORATORY, HEMOTOLOGY, MEDIUM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMHI4*	LABORATORY, HEMOTOLOGY, LARGE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMHS1	LABORATORY, HISTOLOGY, SMALL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMHS2	LABORATORY, HISTOLOGY, LARGE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMM01	LABORATORY, MICROBIOLOGY, MINIMAL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMM02	LABORATORY, MICROBIOLOGY, SMALL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
LMM03	LABORATORY, MICROBIOLOGY, MEDIUM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMM04*	LABORATORY, MICROBIOLOGY, LARGE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMMP1	LABORATORY, MICROBIOLOGY/PARASITIOLOGY	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMMY1	LABORATORY MYCOLOGY	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMS01	LABORATORY, SEROLOGY, SMALL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMS03	LABORATORY, SEROLOGY, LARGE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMT01	LABORATORY, TOXICOLOGY	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMU01	LABORATORY, URINALYSIS, MINIMAL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMU02	LABORATORY, URINALYSIS, SMALL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMU03	LABORATORY, URINALYSIS, MEDIUM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMU04*	LABORATORY, URINALYSIS, LARGE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMV01	LABORATORY, VIROLOGY, SMALL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LMV02	LABORATORY, VIROLOGY, LARGE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
LOB01	LOBBY	100	A – Minimum requirements met.	
LOB02*	LOBBY, VESTIBULE	100	A – Minimum requirements met.	
LR001	LOCKER AREA, PERSONAL PROPERTY	100	A – Minimum requirements met.	
LR002	LOCKER ROOM, CHANGING	100	A – Minimum requirements met.	
MECH1*	MECHANICAL ROOMS	B	No load information to review	
MECH2*	AIR HANDLING ROOMS	B	No load information to review	
MEDP1	MEDICATION PREPARATION STATION	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
				Estimated structural cost premium = 30%
MICL1	MEDICAL ILLUS, COPY LABORATORY	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
MIDR1	MEDICAL ILLUS, DARKROOM, DUAL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
MIPF1	MEDICAL ILLUS, PHOTO FINISH	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
MIPP1	MEDICAL ILLUS, PRINT PROCESS DUAL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
MIST1	MEDICAL ILLUS, STUDIO	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
MMCR1	MEDICAL MATERIAL CART RECEIVING	100	A – Minimum requirements met.	
MMCR2	MEDICAL MATERIAL CART RESTOCKING AREA	100	A – Minimum requirements met.	
MMGS1	MEDICAL MATERIAL GENERAL STORAGE	125	A – Minimum requirements met.	
MMRP1	MEDICAL MATERIAL RECEIVING/PROCESS	100	A – Minimum requirements met.	
MRMB1	MAIL ROOM, DISTRIBUTION AREA	100	A – Minimum requirements met.	
MRPS1	MAIL ROOM, U.S. POST OFFICE	100	A – Minimum requirements met.	
MRRS1	MAIL ROOM, RECEIVING/SORTING	125	A – Minimum requirements met.	
MRS01	MED RECORDS, STOR, FIXED	150	A – Minimum requirements met.	
MRS02	MED RECORDS, STOR, MOVABLE	D	No load information to review	
MRT01	MED RECORDS TRANSCRIPTION	60	A – Minimum requirements met.	
MRWK1	MED RECORDS WORKROOM	100	A – Minimum requirements met.	
NBCD1	NBC DECONTAMINATION SUITE	100	A – Minimum requirements met.	
NBCD2*	DECONTAMINATION SHOWER	60	A – Minimum requirements met.	
NCWD1	NOURISHMENT CENTER, WARD	100	A – Minimum requirements met.	
NMCR1	NUCLEAR MEDICINE, COMPUTER ROOM	100	A – Minimum requirements met.	
NMDC1	NUCLEAR MEDICINE, DOSE CALIBRATION	60	A – Minimum requirements met.	
NMDS1	NUCLEAR MEDICINE, DECAY STORAGE	60	A – Minimum requirements met.	
NMGS1	NUCLEAR MEDICINE, GENERAL SCANNING	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
NMIR1	NUCLEAR MEDICINE, INJECTION ROOM	60	A – Minimum requirements met.	

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
NMRC1	NUCLEAR MEDICINE, RADIUM CART HOLD	100	A – Minimum requirements met.	
NMRP1	NUCLEAR MEDICINE, RADIOPHARMACY	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
NMSS1	NUCLEAR MEDICINE, SPECIAL SCANNING	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
NMUR1	NUCLEAR MEDICINE, UPTAKE ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
NMWB1	NUCLEAR MEDICINE, WHOLE BODY	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
NMWR1*	NUCLEAR MEDICINE, WAITING ROOM, HOT	60	A – Minimum requirements met.	
NSTA1	NURSE STATION, INPATIENT/ER	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
NSTA3	NURSE STATION, SUBSTATION	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
NSTA4	NURSE STATION, OUTPATIENT	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
NYAR1	NURSERY ANTEROOM WITH SCRUB SINK	60	A – Minimum requirements met.	
NYFA1	NURSERY FEEDING AREA	60	A – Minimum requirements met.	
NYIC1	NURSERY LEVEL II	60	A – Minimum requirements met.	
NYIC2	NURSERY LEVEL III (NICU)	60	A – Minimum requirements met.	
NYIR1	NURSERY, ISOLATION	60	A – Minimum requirements met.	
NYNN1	NURSERY, NORMAL NEWBORN, LEVEL I	60	A – Minimum requirements met.	
NYPR1	NURSERY PROCEDURE ROOM	60	A – Minimum requirements met.	
NYPT1	NURSERY TEACHING PARENTS ROOM	60	A – Minimum requirements met.	
NYTU1	NURSERY TRANSPORT UNIT ALCOVE	60	A – Minimum requirements met.	
NYWE1	NURSERY, EXAM AREA	60	A – Minimum requirements met.	
OFA01	OFFICE, ADMINISTRATIVE, STD FURN.	60	C – Exceeds w/ cost.	Industry standard office = 50psf Estimated structural cost premium = 10%
OFA02	OFFICE, ADMINISTRATIVE, SYS FURN.	60	C – Exceeds w/ cost.	Industry standard office = 50psf Estimated structural cost premium = 10%
OFA03*	OFFICE, ADMINISTRATIVE CUBICLES	60	C – Exceeds w/ cost.	Industry standard office = 50psf Estimated structural cost premium = 10%
OFC01	OFFICE, COMMANDER, SMALL FACILITY	60	C – Exceeds w/ cost.	Industry standard office = 50psf

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
				Estimated structural cost premium = 10%
OFC02	OFFICE, COMMANDER, MEDIUM FACILITY	60	C – Exceeds w/ cost.	Industry standard office = 50psf Estimated structural cost premium = 10%
OFC03	OFFICE, COMMANDER, LARGE FACILITY	60	C – Exceeds w/ cost.	Industry standard office = 50psf Estimated structural cost premium = 10%
OFD01	OFFICE, PROVIDER, ARMY	60	C – Exceeds w/ cost.	Industry standard office = 50psf Estimated structural cost premium = 10%
OFD02	OFFICE, PROVIDER, NAVY	60	C – Exceeds w/ cost.	Industry standard office = 50psf Estimated structural cost premium = 10%
OFD03	OFFICE, PROVIDER, AIR FORCE	60	C – Exceeds w/ cost.	Industry standard office = 50psf Estimated structural cost premium = 10%
OFDC1*	OFFICE, MENTAL HEALTH PROVIDER	60	C – Exceeds w/ cost.	Industry standard office = 50psf Estimated structural cost premium = 10%
OFDC2*	OFFICE, CONSULT ROOM	60	C – Exceeds w/ cost.	Industry standard office = 50psf Estimated structural cost premium = 10%
OFDR1	OFFICE, DOCTOR, RADIOLOGY	60	C – Exceeds w/ cost.	Industry standard office = 50psf Estimated structural cost premium = 10%
OFM01	OFFICE, KEY PERSONNEL, SMALL	60	C – Exceeds w/ cost.	Industry standard office = 50psf Estimated structural cost premium = 10%
OFM02	OFFICE, KEY PERSONNEL, MEDIUM	60	C – Exceeds w/ cost.	Industry standard office = 50psf Estimated structural cost premium = 10%
OFM03*	OFFICE, KEY PERSONNEL, LARGE	60	C – Exceeds w/ cost.	Industry standard office = 50psf Estimated structural cost premium = 10%
OOHR1*	OUTPATIENT OBSERVATION/HYDRATION	60	A – Minimum requirements met.	
OPAE1*	AUDITORY ELECTROPHYSIOLOGICAL LAB	60	A – Minimum requirements met.	
OPAI1	OUTPATIENT ALLERGY INJECTION ROOM	60	A – Minimum requirements met.	
OPAS1	OUTPATIENT ALLERGY SKIN TESTING	60	A – Minimum requirements met.	
OPCR1	OUTPATIENT, CASTROOM, 1 STATION	60	A – Minimum requirements met.	
OPCR2*	OUTPATIENT, CAST ROOM, 2 STATION	60	A – Minimum requirements met.	
OPCT1	OUTPATIENT CHEMOTHERAPY AREA	60	A – Minimum requirements met.	
OPCT2	OUTPATIENT CHEMOTHERAPY PREPARATION ROOM	60	A – Minimum requirements met.	
OPDC1*	OUTPATIENT DERMATOLOGY,	60	A – Minimum requirements met.	

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
	CRYOTHERAPY			
OPDU1	OUTPATIENT DERMATOLOGY UV BOOTH	60	A – Minimum requirements met.	
OPEC1	OUTPATIENT EKG TESTING	60	A – Minimum requirements met.	
OPEC2	OUTPATIENT EKG WORK AREA 1 STATION	60	A – Minimum requirements met.	
OPEE1	OUTPATIENT EEG TESTING AREA,1 STA.	60	A – Minimum requirements met.	
OPEE2	OUTPATIENT EEG WORK AREA, 1 STATION	60	A – Minimum requirements met.	
OPHM1	OUTPATIENT HOLTER MONITOR ROOM	60	A – Minimum requirements met.	
OPIR1	OUTPATIENT IMMUNIZATION ROOM	60	A – Minimum requirements met.	
OPMH1*	OUTPATIENT, GROUP THERAPY	60	A – Minimum requirements met.	
OPMH2*	OUTPATIENT, MENTAL HEALTH TESTING	60	A – Minimum requirements met.	
OPMH3*	OUTPATIENT, BIOFEEDBACK ROOM	60	A – Minimum requirements met.	
OPMH4*	OUTPATIENT, SECURED OBSERVATION ROOM	60	A – Minimum requirements met.	
OPNR1	OUTPATIENT NEPHROLOGY RENAL STUDY	60	A – Minimum requirements met.	
OPPE1	OUTPATIENT, ECHOCARDIOGRAPH	60	A – Minimum requirements met.	
OPPE2*	OUTPATIENT STRESS ECHOCARDIOGRAPH	60	A – Minimum requirements met.	
OPPF1	OUTPATIENT PULMONARY FUNCTION	60	A – Minimum requirements met.	
OPPF4	OUTPATIENT PULMO FUNCT BODY BOX	60	A – Minimum requirements met.	
OPPF5	OUTPATIENT PULMO FUNCT TREADMILL RM	60	A – Minimum requirements met.	
OPPF6	OUTPATIENT PULMO FUNCT SLEEP STUDY	60	A – Minimum requirements met.	
OPPM1	OUTPATIENT PACEMAKER WORKROOM	60	A – Minimum requirements met.	
OPPS1	OUTPATIENT PULMO FUNCT SCREENING	60	A – Minimum requirements met.	
OPRC1	OUTPATIENT RESPIRATORY CLEANING RM	60	A – Minimum requirements met.	
OPRT1	OUTPATIENT RESPIRATORY TREATMENT	60	A – Minimum requirements met.	
OPST1	OUTPATIENT NON-STRESS TESTING, MULTIPLE	60	A – Minimum requirements met.	
OPTM1	OUTPATIENT TREADMILL ROOM	60	A – Minimum requirements met.	
OPTM2*	OUTPATIENT TILT TABLE TESTING	60	A – Minimum requirements met.	
OPVL1	OUTPATIENT VASCULAR LAB	60	A – Minimum requirements met.	
ORCM1	OPERATING ROOM, CARDIAC STORAGE	60	Below industry standard	Industry standard storage = 125psf

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
				Estimated structural cost increase = 50%
ORCS1	OPERATING ROOM CYSTOSCOPIC SURGERY	60	A – Minimum requirements met.	
ORCT1	OPERATING ROOM CARDIOTHORACIC	60	A – Minimum requirements met.	
ORCW1	OPERATING ROOM CLEAN WORK AREA	60	A – Minimum requirements met.	
ORDA1	OPERATING ROOM DECONTAMINATION AR.	60	A – Minimum requirements met.	
OREC1	OPERATING ROOM EQUIPMENT CLEANUP	60	A – Minimum requirements met.	
ORGS1	OPERATING ROOM GENERAL SURGERY	60	A – Minimum requirements met.	
ORHL1	OPERATING ROOM HEART LUNG PUMP ROOM	60	A – Minimum requirements met.	
ORNE1	OPERATING ROOM NEUROSURG EQUIP STOR	125	A – Minimum requirements met.	
ORNS1	OPERATING ROOM NEUROSURGERY	60	A – Minimum requirements met.	
OROE1	OPERATING ROOM ORTHOPEDIC EQUIP SR	125	A – Minimum requirements met.	
OROS1	OPERATING ROOM ORTHOPEDIC SURGERY	60	A – Minimum requirements met.	
ORPC1	OPERATING ROOM PLASTER CART STORAGE	60	A – Minimum requirements met.	
ORPH2	OPERATING ROOM PREP/HOLD WORKSTATIO	60	A – Minimum requirements met.	
ORPP1	OPERATING ROOM PATIENT PREP/INDUCT	60	A – Minimum requirements met.	
ORSA1	OPERATING ROOM SCRUB AREA, 2 SINK	60	A – Minimum requirements met.	
ORSR1	OPERATING ROOM SUBSTERILE ROOM	60	A – Minimum requirements met.	
ORSS1	OPERATING ROOM STERILE STORAGE	125	A – Minimum requirements met.	
OTDL1	OCC. THERAPY, DAILY LIVING SKILLS TRAINING ROOM	60	A – Minimum requirements met.	
OTEV1	OCC. THERAPY, EVALUATION AREA	60	A – Minimum requirements met.	
OTGC1	OCC. THERAPY, GENERAL CLINIC AREA	60	A – Minimum requirements met.	
OTWT1	OCC. THERAPY, ERGONOMICS LABORATORY	60	A – Minimum requirements met.	
PAIA1	PATIENT ADMIN INTERVIEW AREA	60	A – Minimum requirements met.	
PEDS1*	PHYSICAL EXAM, DENTAL SCREEN	60	A – Minimum requirements met.	

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
PEHS1	PHYSICAL EVAL HEARING SCREEN 1 PERSON	60	A – Minimum requirements met.	
PEHS2	PHYSICAL EVAL HEARING SCREEN 4 PERSON	60	A – Minimum requirements met.	
PEHS3	PHYSICAL EVAL HEARING SCREEN 6 PERSON	60	A – Minimum requirements met.	
PEHS4	PHYSICAL EVAL HEARING SUITE(2 ROOM)	60	A – Minimum requirements met.	
PEHW1	PHYSICAL EVAL HEIGHT AND WEIGHT	60	A – Minimum requirements met.	
PEVH2	PHYSICAL EVAL VISION/HEARING PEDS	60	A – Minimum requirements met.	
PEVS1	PHYSICAL EVAL VISION SCREENING	60	A – Minimum requirements met.	
PHBS1*	PHARMACY BULK STORAGE LOW VOLUME	100	Below industry standard	Industry standard storage = 125psf Estimated structural cost increase = 12%
PHBS2*	PHARMACY BULK STORAGE MEDIUM VOLUME	100	Below industry standard	Industry standard storage = 125psf Estimated structural cost increase = 12%
PHBS3*	PHARMACY UNIT DOSE CENTER	100	Below industry standard	Industry standard storage = 125psf Estimated structural cost increase = 12%
PHDS1 *	PHARMACY OFF SITE SATELLITE FOR MEDIUM VOLUME	60	A – Minimum requirements met.	
PHDS2*	PHARMACY OFF SITE SATELLITE FOR HIGH VOLUME	60	A – Minimum requirements met.	
PHIV1	PHARMACY IV ADMIXTURE, LOW VOLUME	60	A – Minimum requirements met.	
PHIV2	PHARMACY IV ADMIXTURE, MED VOLUME	60	A – Minimum requirements met.	
PHIV3	PHARMACY IV ADMIXTURE, HIGH VOLUME	60	A – Minimum requirements met.	
PHMP1	PHARMACY MANUFACTURING & PREPACK, LOW VOLUME	100	A – Minimum requirements met.	
PHMP2*	PHARMACY MANUFACTURING & PREPACK, MED VOL	100	A – Minimum requirements met.	
PHMP3*	PHARMACY MANUFACTURING & PREPACK, HIGH VOL	100	A – Minimum requirements met.	
PHOD1	PHARMACY STORAGE/DISPENSING LOW VOLUME	100	Below industry standard	Industry standard storage = 125psf Estimated structural cost increase = 12%
PHOD2	PHARMACY STORAGE/DISPENSING MED VOLUME	100	Below industry standard	Industry standard storage = 125psf Estimated structural cost increase = 12%

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
PHOD3*	PHARMACY STORAGE/DISPENSING HIGH VOLUME	100	Below industry standard	Industry standard storage = 125psf Estimated structural cost increase = 12%
PHUD1	PHARMACY UNIT DOSE CENTER	60	A – Minimum requirements met.	
PLAY1	PLAYROOM, PEDIATRICS	60	A – Minimum requirements met.	
PMCC1*	PLANT MAINTENANCE CONTROL CENTER	100	A – Minimum requirements met.	
PMCW1	PLANT MAINTENANCE, COMMON WORK AREA	100	A – Minimum requirements met.	
PMWS1	PLANT MAINTENANCE, WORKSTATION	100	A – Minimum requirements met.	
PTAT1	PHYS THERAPY AMPUTEE TRAINING AREA	60	A – Minimum requirements met.	
PTBT1	PHYS THERAPY BACK THERAPY PROGRAM	60	A – Minimum requirements met.	
PTCW1	PHYS THERAPY CUBICLE WORKSTATION	60	A – Minimum requirements met.	
PTEA1	PHYS THERAPY EXERCISE AREA - GYM	60	A – Minimum requirements met.	
PTEM1	PHYS THERAPY ELECTROMYOGRAPHY (EMG)	60	A – Minimum requirements met.	
PTES1	PHYS THERAPY EXERCISE STATION	60	A – Minimum requirements met.	
PTEW1	PHYS THERAPY EXTREM WHIRLP ARM/LEG	C	No load information to review	
PTGL1	PHYS THERAPY GAIT OBS. LANE	60	A – Minimum requirements met.	
PTIS1	PHYS THERAPY ISOKINETIC STA - DIAG	C	No load information to review	
PTPR1	PHYS THERAPY PEDIATRIC REHAB	60	A – Minimum requirements met.	
PTTC1	PHYS THERAPY TREATMENT CUBICLE	60	A – Minimum requirements met.	
PTWT1	PHYS THERAPY WHIRLPOOL TREATMENT	.	No load information to review	
PTWW1	PHYS THERAPY WHIRLPOOL WORKSTATION	.	No load information to review	
RAA01	CHAPEL ALTAR	60	A – Minimum requirements met.	
RABS1	RELIGIOUS ACTIVITY, CHANCEL	60	A – Minimum requirements met.	
RAMR1	RELIGIOUS ACTIVITY MEDITATION ROOM	60	A – Minimum requirements met.	
RAS01	CHAPEL SEATING AREA, FIXED SEATS	60	A – Minimum requirements met.	
RASR1	CHAPEL, SACRISTY/STORAGE	125	A – Minimum requirements met.	
RCA01	RESUSCITATION CART ALCOVE	60	A – Minimum requirements met.	
RDC01	RENAL DIALYSIS CHAIR STATION	60	A – Minimum requirements met.	
RDC02	RENAL DIALYSIS CHAIR STATION NEG PR	60	A – Minimum requirements met.	

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
RDP01	RENAL DIALYSIS, STORAGE, PORTABLE	60	A – Minimum requirements met.	
RDPD1	RENAL DIALYSIS PERITONEAL STATION	60	A – Minimum requirements met.	
RDWT1*	RENAL DIALYSIS WATER TREATMENT RM	.	No load information to review	
RECP1	RECEPTION	60	A – Minimum requirements met.	
RECP2	RECEPTION/WORKSTATION (COF)	60	A – Minimum requirements met.	
RECP3	RECEPTION/INFORMATION DESK	60	A – Minimum requirements met.	
RER01*	REFRIGERATION EQUIPMENT ROOM	B	No load information to review	
RPR01	REPRODUCTION ROOM, STANDARD	100	A – Minimum requirements met.	
RPR02	REPRODUCTION ROOM, HIGH VOLUME	150	A – Minimum requirements met.	
RRIR1	RECOVERY ROOM, ISOLATION	60	A – Minimum requirements met.	
RROP1	RECOVERY CUBICLE, PHASE II	60	A – Minimum requirements met.	
RRSS1	RECOVERY ROOM, PHASE I	60	A – Minimum requirements met.	
RRSS3	RECOVERY ROOM OUTPATIENT SEATED	60	A – Minimum requirements met.	
SEC01	SECRETARY, GENERAL USE	60	A – Minimum requirements met.	
SEC02	SECRETARY, COMMAND	60	A – Minimum requirements met.	
SHWR1*	SHOWER ROOM	60	A – Minimum requirements met.	
SHWR2*	SHOWER, INPATIENT UNIT	60	A – Minimum requirements met.	
SINK1*	SINK STAFF HANDWASHING	60	A – Minimum requirements met.	
SL001	STAFF LOUNGE	60	A – Minimum requirements met.	
SL002*	TEAM INTERACTION STATION CLINIC OF THE FUTURE (COF)	60	A – Minimum requirements met.	
SRCH1	STORAGE RM, CHARGING, BATTERY/EQUIP	200	A – Minimum requirements met.	
SRCS1	STORAGE RM, CRUTCH AND SPLINT	125	A – Minimum requirements met.	
SRE01	STORAGE RM, EQUIPMENT	125	A – Minimum requirements met.	
SRF01	STORAGE RM, FREEZER WALK-IN	275	A – Minimum requirements met.	
SRF02	STORAGE RM, FREEZERS - FREESTANDNG	B	No load information to review	
SRGC1	STORAGE RM, GAS CYLINDERS, EXTERIOR	150	A – Minimum requirements met.	
SRGC2	STORAGE RM, GAS CYLINDERS, INTERIOR	150	A – Minimum requirements met.	
SRHM1	STORAGE RM, HAZARDOUS MATERIALS	125	A – Minimum requirements met.	
SRL01	STORAGE RM, LAB MICROSCOPE SLIDES	125	A – Minimum requirements met.	
SRL02	STORAGE RM, LAB PARAFFIN BLOCKS	125	A – Minimum requirements met.	

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
SRLW1	STORAGE RM/AREA, LITTER-WHEELCHAIR	125	A – Minimum requirements met.	
SRPB1	STORAGE RM, PATIENT BAGGAGE	125	A – Minimum requirements met.	
SRPS1	STORAGE RM, PARTS STORAGE	125	A – Minimum requirements met.	
SRR01	STOR. RM REFRIGERATOR, WALK-IN	275	A – Minimum requirements met.	
SRR02	STORAGE RM, REFRIGERATORS FREESTND	B	No load information to review	
SRS01	STORAGE RM, SHELVING	150	A – Minimum requirements met.	
SRSE1	STORAGE RM, EQUIPMENT/SHELVING	150	A – Minimum requirements met.	
SSC01	SECURE STORAGE, CAGE	125	A – Minimum requirements met.	
SSS01	SECURE STORAGE, SAFE	C	No load information to review	
SSV01	SECURE STORAGE, VAULT	125	A – Minimum requirements met.	
TCGS1	TREATMENT CUBICLE GENERAL SURGICAL	60	A – Minimum requirements met.	
TLTF0	TOILET/SHOWER, HANDICAP ACCESSIBLE	60	A – Minimum requirements met.	
TLTF1	TOILET, FEMALE, SINGLE	60	A – Minimum requirements met.	
TLTF2	TOILET FEMALE, MULTIPLE	60	A – Minimum requirements met.	
TLTM1	TOILET, MALE, SINGLE	60	A – Minimum requirements met.	
TLTM2	TOILET, MALE, MULTIPLE	60	A – Minimum requirements met.	
TLTP1	TOILET PSYCHIATRIC	60	A – Minimum requirements met.	
TLTP3	TOILET/SHOWER PSYCHIATRIC	60	A – Minimum requirements met.	
TLTS1	TOILET, SHOWER, SINGLE	60	A – Minimum requirements met.	
TLTS2*	TOILET/SINK/SHOWER INPATIENT	60	A – Minimum requirements met.	
TLTU1*	TOILET, UNISEX	60	A – Minimum requirements met.	
TREE1	TX ROOM ENDOSCOPIC EXAM (UGI)	60	A – Minimum requirements met.	
TREN1	TX ENT	60	A – Minimum requirements met.	
TREN2*	AUDIOLOGY TESTING ROOM	.	No load information to review	
TRET1	TX EMERGENCY TRAUMA ROOM 2 BED	60	A – Minimum requirements met.	
TRET3*	TX EMERGENCY TRAUMA ROOM, 1 BED	60	A – Minimum requirements met.	
TRET4*	TX ROOM, EMERGENCY CARE, 1 BED	60	A – Minimum requirements met.	
TRET5*	TX ROOM, EMERGENCY CARE, 2 BED	60	A – Minimum requirements met.	
TREY1	TX EYE - OPHTHALMOLOGY	60	A – Minimum requirements met.	
TREY2*	TX EYE - LASER	60	A – Minimum requirements met.	

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
TREY3*	TX ROOM PRK/LASIK	60	A – Minimum requirements met.	
TRGM1	TRT ROOM, GENERAL, 1 BED	60	A – Minimum requirements met.	
TRGM2*	TX ROOM, GENERAL, 2 BED	60	A – Minimum requirements met.	
TRGS1	TX ROOM GENERAL SURGICAL	60	A – Minimum requirements met.	
TRGS2*	TX RM SURGICAL NEG PRESSURE	60	A – Minimum requirements met.	
TRGS3*	TX RM GENERAL SURGICAL LASER	60	A – Minimum requirements met.	
TROB1	TX OB/GYN	60	A – Minimum requirements met.	
TROR1	TX ORTHOPEDIC	60	A – Minimum requirements met.	
TRPE1	TX ROOM PROCTOSCOPIC EXAM (LGI)	60	A – Minimum requirements met.	
TRPE2	TX PULMONARY BRONCHOSCOPY	60	A – Minimum requirements met.	
UCCL1	UTILITY CLEAN	100	A – Minimum requirements met.	
USCL1	UTILITY SOILED	100	A – Minimum requirements met.	
USCL2*	UTILITY, SCOPE WASH	100	A – Minimum requirements met.	
UTC01	UTILITY TRASH COLLECTION	125	A – Minimum requirements met.	
UTC02	UTILITY TRASH CAN DECON	B	No load information to review	
UTLC1	UTILITY TRASH AND LINEN COLLECTION	.	No load information to review	
VCWA1	VETERINARY CAGE WASH AREA	.	No load information to review	
VEX01	VETERINARY EXAMINATION/TX ROOM	.	No load information to review	
VFIL1	VETERINARY FOOD INSPECTION LAB	.	No load information to review	
VFP01	VETERINARY FOOD PREP ROOM	.	No load information to review	
VHAU1	VETERINARY HOLDING AREA UTILITY/STR	.	No load information to review	
VKEN1	VETERINARY KENNEL AREA IN/OUTSIDE	.	No load information to review	
VKEN2	VETERINARY KENNEL CONFINE CANINE	.	No load information to review	
VKEN3*	VETERINARY KENNEL CONFINE FELINE	.	No load information to review	
VLAH1	VETERINARY LARGE ANIMAL HOLDING AR	.	No load information to review	
VLB01	VETERINARY LABORATORY	.	No load information to review	
VPH01	VETERINARY PHARMACY	.	No load information to review	
VRHA1	VETERINARY RODENT HOLDING AREA	.	No load information to review	
VRRP1	VETERINARY RECOVERY ROOM/PREP AREA	.	No load information to review	
VRUN1	VETERINARY ANIMAL RUN	.	No load information to review	

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
VS001	VETERINARY SURGERY ROOM	.	No load information to review	
VXER1	VETERINARY XRAY EXPOSURE ROOM	.	No load information to review	
WRC01	WAITING ROOM	60	A – Minimum requirements met.	
WRC02	WAITING ROOM, ISOLATION	60	A – Minimum requirements met.	
WRCH1	WORKROOM, CHARTING AREA	60	A – Minimum requirements met.	
WRF01	WAITING ROOM, FAMILY	60	A – Minimum requirements met.	
WRL01	WAITING ROOM, LITTER	60	A – Minimum requirements met.	
XABP1	XRAY ANGIOGRAPHIC PROCEDURE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XACR1	XRAY ANGIOGRAPHIC CONTROL ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XACV1	XRAY ANGIOGRAPHIC SYSTEM COMPONENT ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XAIR1	XRAY ANGIO INSTRUMENT ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XCCA1	XRAY CARDIAC SYSTEM COMPONENT ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XCCC1	XRAY CARDIAC CATH CONTROL ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XCCE1	XRAY CARDIAC CATH EXPOSURE ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XCCI1	XRAY CARDIAC CATH INST. ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XCTC1	XRAY COMPUTED TOMOGRAPHY CONTROL AREA	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XCTI1	XRAY COMPUTED TOMOGRAPHY INDEP VIEW CONSO	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XCTS1	XRAY COMPUTED TOMOGRAPHY SCANNER	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XDBD1*	XRAY DIAGNOSTIC BONE DENSITOMETER	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XDCS1	XRAY DIAGNOSTIC CHEST	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
XDCY1	XRAY DIAG CYSTO RAD ONLY 800 MA	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XDM01	XRAY DIAG MAMMO	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XDM02	XRAY DIAG MAMMO STEREOTATIC	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XDMP1	XRAY DIAG MAMMO PROCESS	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XDR01	XRAY, RADIOGRAPHIC, GENERAL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XDRF1	XRAY DIAG RAD/FLUORO	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XDUS1	ULTRASOUND	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XFDS1*	XRAY FILE, DIGITAL STORAGE	100	A – Minimum requirements met.	
XFFA1	XRAY FILM FILES AREA - FIXED SHELVES	250	A – Minimum requirements met.	
XFFA2	XRAY FILM FILES AREA - MOBILE SHELVES	350	A – Minimum requirements met.	
XFP01	XRAY FILM PROCESSING DARKROOM - 1 PROCESSOR	100	A – Minimum requirements met.	
XFP02	XRAY FILM PROCESSING DARKROOM - 2 PROCESSORS	100	A – Minimum requirements met.	
XFP03*	XRAY FILM PROCESSING DAYLIGHT	100	A – Minimum requirements met.	
XFSA1	XRAY FILM SORTING AREA	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XMRC1	XRAY MAGNETIC RESONANCE CONTROL ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XMRC2	XRAY MAGNETIC RESONANCE SYSTEM COMPONENT ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XMRE1	XRAY MAGNETIC RESONANCE EQUIP ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XMRS1	XRAY MAGNETIC RESONANCE SCANNER	C	No load information to review	
XMRV1	XRAY MAGNETIC RESONANCE VIEWING RM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%

Room Code	Room Name	Load (psf)	Comment	Comment Rationale
XRM01	XRAY MOBILE RAD UNIT ALCOVE	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XRM02	XRAY MOBILE C-ARM STORAGE	100	A – Minimum requirements met.	
XTBT1*	BRACHYTHERAPY ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XTEM1	XRAY THERAPY ENTRY MAZE - ALL UNITS	C	No load information to review	
XTLA1	XRAY THERAPY LINEAR ACCELERATOR	C	No load information to review	
XTLA2	XRAY THERAPY LINEAR ACCEL HIGH VOLT	.	No load information to review	
XTLA3	XRAY THERAPY LINEAR ACCEL DUAL VOLT	.	No load information to review	
XTLB1	XRAY THERAPY PHYSICS LABORATORY	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XTLC1	XRAY THERAPY LINEAR ACCEL CONTROL	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XTLE1*	LINEAR ACCELORATOR SYSTEM COMPONENT RM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XTMF1	XRAY THERAPY MOLD FABRICATION SHOP	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XTRT1	XRAY THERAPY RADIUM TX STORAGE/PREP	100	A – Minimum requirements met.	
XTSC1	XRAY THERAPY, SIMULATOR CONTROL ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XTSG1	XRAY THERAPY SIMULATOR GANTRY ROOM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XTTP1	XRAY THERAPY TREATMENT PLANNING RM	100	C – Exceeds w/ cost.	Industry standard laboratory = 60psf Estimated structural cost premium = 30%
XVC01	XRAY VIEWING/CONSULTATION AREA	60	A – Minimum requirements met.	

Section 6: Energy and Water Conscious Design

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UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
6-1 **GENERAL**. Comply with UFC 3-400-01, Design: Energy Conservation (reference 6a).		
UFC 3-400-01 5 July 2002 **ENERGY CONSERVATION**		
1-1 **PURPOSE.** This document establishes minimum standards and policy for energy and water conservation in new construction and renovation of existing facilities. Federal facilities are required to comply with various Executive Orders and Congressional actions regarding energy and water use, conservation and efficiency standards. In addition, the services have other unique requirements to ensure the planning, programming, design and construction of energy efficient, life-cycle cost effective facilities that meet the mission requirements and needs of the services. These requirements are an integral part of the criteria and standards used by each of the services. Full compliance with this and other DoD Unified Facility Criteria documents and Unified Facility Guide Specifications, along with any service unique criteria and guidance, will ensure that facilities are planned, designed and constructed in accordance with Federal Regulations, Executive Orders, Congressional actions and similar mandates.		
1-2.1 **Major Renovation.** Building modifications should be classified as a major renovation if the overall features of the building's envelope will be substantially altered or if the changes include substantial replacement of the building's lighting, plumbing, electrical, and heating, ventilating, and air conditioning (HVAC) systems in combination with other significant alterations of the building's spaces. Other modifications to a building may be categorized as a major renovation depending on the overall magnitude and scope of the work to be accomplished. Buildings classified as major renovation projects will comply with all energy and water conservation methods and standards, to the extent life cycle cost effective and technically feasible for the application at hand. All building components and systems being renovated or replaced must comply with their respective energy and water conservation criteria. Major upgrades to "new building" energy and water conservation levels should be planned for funding as early as possible on DD Form 1391. Funding requirements to implement energy and water conservation measures will be an integral part of the concept design.	A	
1-2.2. **Minor Modifications and Renovations.** Repair and/or replacement of windows, doors, lighting fixtures, HVAC equipment, and similar type modifications to existing buildings will be classified as minor repairs or modifications. Other changes to an existing building, requiring modifications to one or several sections only, should be classified as a minor renovation. The classification of a building modification into a minor or major renovation category depends on the overall magnitude and scope of work to be accomplished. Minor repairs, modifications, and renovations will comply with applicable energy and water conservation criteria to the extent of the item or system to be replaced. Other portions of the existing	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
system(s) or building not affected by the repairs or modifications will not be replaced solely to comply with "new building" energy and water conservation standards.		
1-2.3. **Interpretation of Terms.** Interpret the terms used in ASHRAE Standard 90.1 as follows: Authority Having Jurisdiction (AHJ): The Contracting Officer or designated representative. Building Official: The Contracting Officer's Representative. Owner: The Government Permit Holder: The Contractor		
1.3 REFERENCES.		
ASHRAE Standard 90.1 – 2001, Energy Standard for Buildings Except Low-Rise Residential Buildings, American Society of Heating Refrigeration and Air Conditioning Engineers, Inc., Atlanta Georgia	A	
Executive Order 13123, Greening the Government Through Efficient Energy Management, June 3, 1999	A	
UFC 3-400-02, Engineering Weather Data (to be published)	A	
ASHRAE Handbook of Fundamentals – 2001, American Society of Heating Refrigeration and Air Conditioning Engineers, Inc., Atlanta Georgia	A	
Title 10 Code of Federal Regulations, Part 436 – Federal Energy Management and Planning Programs, Subpart A – Methodology and Procedures for Life Cycle Cost Analysis	B	The cost will depend upon the number and to what detail the analysis is done.
ASHRAE Standard 90.1 – 1999, Energy Standard for Buildings Except Low-Rise Residential Buildings, User's Manual, American Society of Heating Refrigeration and Air Conditioning Engineers, Inc., Atlanta Georgia	A	
2.0 GENERAL REQUIREMENTS		
2-1 MANDATORY ENERGY AND WATER CONSERVATION CRITERIA. Family housing (residential) shall be designed and constructed in accordance with the latest Energy Star standards, per other appropriate service-specific criteria and guidance. Other facilities shall be designed and constructed in accordance with the latest edition of ASHRAE Standard 90.1. The Simplified Approach Option for HVAC Systems may be used where the specific system and facility design meets all of the relevant ASHRAE Standard 90.1 criteria. Although the Mandatory Provisions with the Prescriptive Path may be used for any applicable facility, the use of the Mandatory Provisions with the Energy Cost Budget Method should be considered for large or complex facilities where there is a significant potential for trade offs between systems and system components and large energy and life cycle cost savings. In accordance with Executive Order 13123, appliances, HVAC equipment and other energy consuming equipment shall have an energy efficiency rating in the upper 25 percent of that available as long as these efficiency requirements are nonproprietary and life cycle cost effective. In general, the Department of Energy and Federal Energy Management Program recommendations from the Buying Energy Efficient Products Guide and the Environmental Protection Agency Energy Star products program meet these requirements. The DOE recommendations are available on the web at www.eren.doe.gov/femp/procurement.	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
2-2 **SUSTAINABLE DESIGN AND DEVELOPMENT**. In accordance with Executive Order 13123, sustainable design shall be an integral part of every project. This requires an integrated and coordinated approach to the planning, design and construction of facilities and extensive use of environmentally preferable products, recovery and recycling of materials and waste reduction as well as an emphasis on the long-term quality and productivity of the built environment. Energy and water conservation are primary goals of sustainable design and development and are major requirements in complying with Executive Order 13123.	B	This will have minor impact since it is similar to LEED and ASHRAE 90.1.
2-3 **ENERGY AND WATER CONSERVATION MEASURES.** There are numerous energy and water conservation measures that should be considered for any facility. Many are related to the siting and footprint of the facility to take advantage of solar orientations, prevailing winds and natural topography and vegetation. Some passive solar features are applicable to most buildings and active solar systems for domestic water heating and preheating are becoming cost effective in some areas, depending on the source and cost of energy. Thermal storage systems may not really reduce the total energy usage but can shift the loads to off peak hours saving significantly in energy cost and greatly improving the demand curve. Other techniques such as micro cogeneration and distributed power generation are beginning to be implemented in the Federal sector and offer great opportunities for large energy and cost savings. Other techniques such as desiccant cooling, enthalpy wheels, radiant heating and heat recovery have a proven record and should be considered for many different applications. Many super low-flow plumbing fixtures are now providing acceptable service, waterless urinals are being successfully used in a number of military applications and water recovery and recycling systems are often cost effective. Xerophytic landscaping and the use of native plants and vegetation can not only reduce first cost and maintenance requirements but also reduce or completely eliminate the need for watering. The extent of energy and water conservation measures and techniques that should be considered during the planning and design process is only limited by the imagination and innovation of the project delivery team. Alternative funding sources such as rebates from the utility companies shall be considered and used where available and appropriate for funding the additional cost of energy and water conservation measures.	A	
2-4 **FUNCTIONAL REQUIRMENTS AND COMFORT.** The mission and function of the facility and the long term comfort, health and productivity of the occupants are critical considerations in the planning, design and construction of any facility. Generally, all practical and life cycle cost effective energy and water conserving features will be included in the planning, design and construction of facilities. However, features that will adversely impact the mission or comfort, health and productivity of the occupants shall not be included. In addition, system selection and incorporation of energy and water conserving features shall be closely coordinated with the facility user and maintenance staff. Only those systems and features that can be effectively operated and maintained will be considered.	B	The cost will depend upon the number and to what detail the analysis is done
2-5 **ENERGY AND ECONOMIC ANALYSIS CALCULATION METHODS.** All analysis shall be performed based on the actual conditions expected over the life of the facility including anticipated occupancies, scheduled hours of operation and process loads. Realistic energy usage and efficiencies, maintenance cost and repairs and renovations shall be included.	A	
2-5.2 **Economic Analysis.** Life cycle costing shall be in accordance with Title 10 Code of Federal Regulations Part 436, Subpart A. The Life Cycle Costing in Design (LCCID) program is in full compliance with these regulations and is periodically updated to include the latest differential escalation rates, energy cost projections and similar economic factors. LCCID is available from the Building Systems Laboratory at the	B	The cost will depend upon the number and to what detail the analysis is done

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
University of Illinois, http://www.bso.uiuc.edu, and from the Construction Criteria Base distributed by the National Institute of Building Science. Another life cycle costing program in full compliance with the Federal Regulation and updated with the latest economic factors is the Building Life Cycle Costing (BLCC) program available from the National Institute of Standards and Technology. The Department of Energy's building energy tools web site has a link to BLCC (under Energy Economics) and it can also be found at http://www.eren.doe.gov/femp/techassist/softwaretools/softwaretools.html. The appropriate cost and savings associated with the utilization of recovered energy, solar heat, solar photovoltaic energy and other renewable or waste heat applications shall be included.		
2-5.3 **Previous Analyses.** To the extent applicable to the project under design, previous analyses or generic studies may be used for demonstrating compliance with energy conservation criteria and for selecting among various alternatives and implementing energy and water conserving features. Previous or generic studies may also be updated and revised to reflect the project under design	B	Minimal cost impact if previous analysis are made available.
2-6 **METERS.** Utility meters can be a valuable tool in the effective management of energy and water use at both the individual facility and installation level. A utility meter will be furnished at each building, for each utility serving the building (e.g. steam, high temperature hot water, electricity, natural gas, fuel oil, etc.) in the normal units of the utility (i.e. kWh, cf, gallons, etc.), in accordance with the current requirements of the respective military service or DoD component agency. Except for family housing, a water meter should be provided for each facility where potable water demand is estimated to exceed 378 541 L (100,000 gallons) per year. Design and installation of all meters shall be capable of being easily connected to a base wide energy and utility monitoring and control system directly or via the building HVAC control system.	A	
3-0 **CONCEPT DESIGN.** 3-1 **SYSTEM SELECTION.** HVAC system selection and energy and water conservation features to be incorporated into the facility design shall be selected from the viable alternatives based on an energy and life cycle cost analysis. Each of the systems, features and components considered during the concept design or to be considered later during the design process shall be identified and discussed as part of the concept design package.	B	The cost will depend upon the number and to what detail the analysis is done
3-2 **COMPLIANCE PATH AND PROJECT DOCUMENTATION.** In addition to the Mandatory Provisions, the path or method selected to ensure compliance with ASHRAE Standard 90.1 shall be clearly indicated in the concept design. The reasons and effects, on the energy usage and life cycle cost of the completed facility, of selecting the particular compliance path or method shall be presented. The engineering and economic analysis, including computer simulations and program inputs, outputs and assumptions, used to support the HVAC system selection and other concept design decisions shall be fully documented and made a part of the concept design package. The forms from the ASHRAE Standard 90.1 User's Manual may be helpful in developing the project and compliance documentation.	A	
4-0 **FINAL DESIGN.**		
4-1 **GENERAL.** The final design shall be a continuation and extension of the approved concept design. The engineering and economic analysis performed as part of the concept design shall be updated as necessary and included as part of the final design package. Each of the systems, features and components considered during the final design shall be identified and the engineering and economic analysis supporting the design decision for implementation or rejection shall be included.	A	
4-2 **ASHRAE STANDARD 90.1 COMPLIANCE.** Full compliance with the Mandatory Provisions and either	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
the Prescriptive Path or the Energy Cost Budget Method shall be clearly demonstrated. Where life cycle cost effective, the Mandatory Provisions of ASHRAE 90.1 and the selected compliance path or method should be exceeded. The engineering and economic analysis supporting the decisions should be included in the final design package. In those rare cases where the Mandatory Provisions of ASHRAE Standard 90.1 and the selected compliance path or method are not cost effective and a more energy intensive system, feature or component will provide a lower life cycle cost, a detailed justification with life cycle cost comparisons, including the assumptions used in the analysis and unusual facility features or operations, shall be included in the final design.		
4-2.1 **Mandatory Provisions.** The final design package shall identify each of the required features applicable to the facility and demonstrate compliance. Any deviations shall be clearly identified and the engineering and economic analysis supporting the deviation provided.	A	
4-2.2 **Prescriptive Path.** The Simplified Approach Option for HVAC Systems may be used where the specific system and facility design meets all of the relevant ASHRAE Standard 90.1 criteria. In all other cases the detailed requirements of the Prescriptive Path, as a minimum, shall be carefully followed. The final design package shall identify each of the features applicable to the facility and demonstrate compliance. Any deviations shall be clearly identified and the engineering and economic analysis supporting the deviation provided.	A	
4-2.3 **Energy Cost Budget Method.** The final design shall include a full description of both the prototype or reference building and the proposed design with supporting engineering and economic analyses including the inputs, outputs and assumptions used in the computer simulations and programs.	A	
5-0 **SPECIAL STUDIES.**		
5-1 **PHOTOVOLTAIC.** Photovoltaic power generation is most likely to be life cycle cost effective where there is a relatively small power requirement compared to the cost of connecting the load to the existing electrical grid or where the alternative is diesel driven generation or batteries. In these cases a study comparing the "baseline" design with prospective photovoltaic applications will be performed. Such projects would typically include cathodic protection of pipelines, cathodic protection of bridges and water towers, data links, emergency and rescue communications, lighting, load center power, marking and warning devices, military range monitoring and conditioning equipment, monitoring and sensing devices, navigational aids, perimeter security devices, remote communication sites, remote instrumentation, remote weather stations and transmitters, repeater stations, and water pumping and purification.	C	The cost will depend upon the number and to what detail the analysis is done
5-2 **WIND ENERGY CONVERSION SYSTEM.** The use of wind power should be considered if a preliminary evaluation or past experience indicates that a sufficient mean annual wind exists for the system to economically meet all or a significant fraction of the load demand. The most economical applications of these systems have typically been for small wind turbine generators, with or without storage, at remote sites. However, larger “wind farms” and grid connected systems are becoming cost effective in some areas. System reliability and the critical nature of the load should be major concerns in selecting and implementing a wind energy conversion system. Realistic projections for maintenance and repair requirements can be critical items in the life cycle cost analysis.	C	The cost will depend upon the number and to what detail the analysis is done
5-3 **GEOTHERMAL ENERGY.** The use of geothermal energy should be considered in areas of proven reserves or in areas that have a high potential for geothermal resources.	C	The cost will depend upon the number and to what detail the analysis is done

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)

Section 7: Heating, Ventilating, and Air Conditioning

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UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
7-1 **GENERAL**. This section provides HVAC design requirements for DoD medical, dental, medical training, and medical research facilities. The primary requirement of the HVAC system(s) in a medical facility is the support of medical function and the assurance of occupant health, comfort, and safety. The HVAC system functions not only to maintain minimum requirements of comfort and ventilation, but is an essential tool for the control of infection, removal of noxious odors, dilution and expelling of contaminants, and establishment of special environmental conditions conducive to medical procedures and patient healing. Subject to the above, appropriate consideration shall be given to the HVAC design to ensure system maintainability, economics and energy efficiency, and adaptability to future facility modification or expansion.	A	
7-1.1 **Applicability**. This criteria applies to new and existing medical facilities including hospitals, medical and dental clinics, veterinary clinics, medical supply warehouses, medical training facilities, and medical research laboratories. Applicability to existing facilities is restricted to upgrade or replacement projects, and for those specific systems or services included in the scope of the project authorization. For existing facilities, when complete compliance with the technical criteria of this section is not economically practicable, consideration shall be given to substitution of other recognized industry standards or criteria upon application to the Healthcare Facilities Steering Committee or TMA as provided under Section 2 of this document. All facilities shall comply with the applicable standards of the National Fire Protection Association (NFPA).	A	
7-1.2 **Supporting Documents**. This guidance may be supplemented by the individual military departmental publications, including Architect-Engineer Instructions (AEIs), Technical Manuals (TMs), Engineering Technical Letters (ETLs), project-specific design instructions, and other criteria. Minimum HVAC design criteria shall be in accordance with the latest editions of the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) publications (reference 7a), the American Council of Government Hygienists (ACGIH) Publication "Manual of Recommended Practices for Industrial Ventilation" (reference 7b), and the National Fire Protection Association (NFPA) Standards (references 7c, 7d, 7e, 7f, 7g, and 7h), as well as applicable governmental regulations. Other industry and government standards shall be utilized for HVAC design as referenced herein.	A	
7-2 **Design Conditions**.		
7-2.2 **Interior Design Conditions**. Interior design conditions shall be in accordance with Appendix A.	A	
7-2.3 **Space Ventilation**. Minimum total and outside air change rates shall be as indicated at Appendix A; Computed on a per-occupant basis, minimum outside air ventilation shall meet the worst-case requirements of	A	

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either appendix A, or ASHRAE Standard 62.1. Higher air change rates may be required to meet air conditioning or makeup air requirements as supported by engineering calculations. See 7-16 of this Section for additional guidance and requirements.		
7-2.4 **Ambient Design Dry and Wet Bulb**. The HVAC cooling design for facilities housing critical care and other inpatient services shall be based on the 0.4% Dry Bulb (DB), and corresponding Mean Coincident Wet Bulb (MCWB) temperatures, and winter heating design shall be based on the 99.6% DB. Cooling towers shall be designed on the basis of the 0.4% dew point temperature. Clinical facilities shall in general be designed to the 1.0% DB/MCWB temperature for cooling, and 99% level for heating. Cooling towers shall be designed on the basis of the 1.0% Wet Bulb temperature.	A	
7-2.5 **Critical Care Spaces**. Critical Care Spaces are identified in Section 9, Electrical, of this document.		
7-2.6 **Sensitive Spaces**. Sensitive areas include Automated Data Processing (Computer) rooms, Radiology and MRI computer rooms, selected laboratories (see below), and Telephone Switch Room. Other rooms housing sensitive electronic or other equipment or processes may be designated as Sensitive Areas on an individual project basis. Design ambient temperatures shall generally be the 0.4% DB/0.4% MCWB (summer), and 99.6% DB (winter). Each application should consider using 1.0% DB/1.0% MCWB (summer), and 99% DB (winter) design conditions for less critical equipment/process air conditioning requirements.	A	
7-2.6.1 **Laboratories**. Space design temperatures for laboratories are indicated at Appendix A, generally 26C. However, designers shall be responsible to coordinate with the equipment designer and user to establish whether temperature-sensitive equipment is expected to be utilized in a laboratory space. When such equipment requires, for proper operability or to meet warranty limitations, an ambient temperature lower than can be maintained by the HVAC/Control System when set at 26C, the designer shall coordinate with the Design Agent to establish a reasonable lower design temperature for that space.	A	
7-2.7 **Temperature during Smoke Control Operation**. When a supply air system is required to operate on 100% outside air during smoke mode operation, the system shall be designed with sufficient heating capacity to maintain a minimum of 45 degrees at the air handling unit discharge under the 99.6% winter design conditions.	A	
7-2.8 **Mechanical Equipment Rooms**. In general, mechanical equipment rooms shall be designed with ventilating systems which will maintain temperatures within 5.5C of summer ambient design temperature. However when these equipment rooms house temperature-sensitive electronic components, such as microprocessor based controls, electronic circuit breakers, etc., designers shall confirm the ambient requirements of such equipment and design accordingly. In humid climates, mechanical rooms which are contiguous with the occupied building shall be conditioned to a humidity level equivalent to the occupied areas, to minimize transfer of moist, unconditioned air to the interior of the building.	A	
7-2.9 **Humid Climate Definition**. A humid climate, as referenced in this Section, is a region with 4,500 or more cooling degree days (50ºF basis) that receives 20" or more of annual precipitation.	A	
7-3 **REFRIGERANTS**. Refrigeration equipment shall utilize refrigerant having an Ozone Depletion Potential (ODP) of not greater than 0.05. Refrigeration room design shall include the safety features, such as sensing devices, purge ventilation system, etc., as required for the particular refrigerant in accordance with ASHRAE Standards 15 and 34 (references 7j and 7k).	A	
7-4 **LIFE-CYCLE-COST/ENERGY ANALYSIS**. Life cycle cost and energy analysis required in conformance with this Section, or necessary for the evaluation of building sustainability features or	B	The cost will depend upon the number and to what detail the analysis is done

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performance, shall be in accordance with criteria referenced at Section 6.		
7-5 **ELIGIBILITY FOR AIR CONDITIONING**.		
7-5.1 **Total Air Conditioning**. Air conditioning is *required* in all normally-occupied facilities and spaces in which the interior conditions listed in Appendix A cannot be met through natural ventilation alone. "Normally occupied spaces" will include such spaces incidental to medical facilities as corridors and circulation areas. Normally unoccupied, or intermittently occupied, spaces such as restrooms, locker rooms, soiled linen rooms, janitors closets, and similar spaces accessible to medical staff or the public and having exterior exposure shall be air conditioned (in addition to being provided with the required ventilation) to maintain reasonable conditions.	A	
7-5.2 **Food Service Area**. Air conditioning of the kitchen areas shall be designed to avoid the waste of energy. Designs shall consider utilizing dining room transfer air or tempered make-up air for vented equipment exhaust, spot cooling, exhaust system heat recovery, and other energy saving strategies to minimize energy costs while providing a *reasonably* comfortable environment for kitchen staff.	A	
7-5.3 **Not Authorized Air Conditioning**. In non-humid climates, the following areas shall not be provided with air conditioning. Heating and/or ventilation shall be provided as required to meet criteria. a) Motor Vehicle Storage Area b) Energy (Boiler/Chiller) Plants c) Mechanical Equipment Rooms, unless containing sensitive electronic equipment requiring temperature control. d) Toilets/Showers and Locker Rooms *not located with outside exposure.* Note that locker rooms which do not include a shower room or toilet may be recirculated.	A	
7-5.4 **Medical Warehouses**. HVAC design shall be based upon the environmental requirements of the stored materials. Spaces within medical warehouses which will be normally occupied, including Administrative or Break rooms, shall be air conditioned as required to provide the design conditions listed in Appendix A. Air conditioning will also be required for any warehouse spaces housing computer or other environmentally sensitive equipment.	A	
7-6 **MECHANICAL EQUIPMENT SPACE**.		
7-6.1 Mechanical rooms for major air handling equipment, heat exchangers, prime movers, medical gas supplies, vacuum/air compressors, and other major mechanical equipment shall generally be located within the facilities with access to the outside of the building. Exceptions to locate equipment in penthouse equipment rooms may be considered by the Design Agent if justified from a cost or functionality standpoint and if properly coordinated with the base/post engineers. Rooftop mounted air handlers should be avoided due to the difficulty of maintenance access, and consideration of safety and working conditions for O&M personnel. Mechanical room location and layout shall consider: a) Sufficiency of space to enable access for operation, maintenance, and replacement of equipment. b) Minimization of distribution runs. c) Relative location to electrical equipment rooms: NEC vertical clearance/dedicated space requirements for electrical equipment will restrict or preclude the routing of piping and ductwork through these locations.	A	

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d) Relative location to communication rooms: adjacency of fan and communications rooms will create congested above-ceiling conditions where cable trays and ductwork converge. e) Adjacency to corridors, as a path for the routing of ductwork. f) Adjacency to spaces having stringent noise control requirements, or spaces with high ceilings which may restrict duct distribution space. g) Potential future expansion of mechanical system capacity.		
7-7 **HVAC SYSTEM DESIGN FOR FUNCTIONAL AREAS**. For HVAC design, a medical facility can be considered to contain six general areas including Critical, Sensitive, Clinic, Administrative, Support areas, and Patient Bedroom areas. The primary considerations of the HVAC design are to provide the environmental conditions required to meet the functional requirements. Multizone, dual-duct, terminal reheat, variable air volume, and combinations of such air distribution systems may be considered for application in appropriate areas. If utilized, VAV systems will be of the minimum air quantity type. Furthermore, Direct Expansion (DX) coils shall not be used in Variable Air Volume systems. All-water, unitary, and fan-powered VAV systems will generally not be acceptable in medical facilities, due to their limitations in meeting ventilation requirements, increased contamination source potential, or increased maintenance requirements.	A	
7-7.1 **Critical Care Spaces**. These spaces will normally be served by single duct terminal reheat or double duct systems. Simultaneous temperature, humidity, *and pressurization* control requirements for these spaces preclude the use of other types of systems.	A	
7-7.1.1 **Operating & Delivery Room (OR and DR) Air Systems**. The room air supply system for Operating Rooms, Delivery Rooms, Cardiac Catheterization (hospital) Rooms, and Cystoscopy (hospital) Rooms shall be a ceiling supply type, located over the operating table or treatment area, using non-aspirating "low velocity" (0.2 - 0.41 m/s)(40-90 fpm) diffusers that isolate the air over the operating or treatment area. Room exhaust/return provisions shall consist of a minimum of two exhaust or return registers, located at diagonally opposing corners of the room, mounted with bottoms of registers between 150 mm (6 in) and 230 mm (9 in) above finished floor. The HVAC system for anesthetizing locations, including operating and delivery rooms, shall be designed in accordance with NFPA 99 to (a) prevent recirculation of smoke originating within the surgical suite and (b) prevent the circulation of smoke entering the system intake, without in either case interfering with the exhaust function of the system.	B	The Face velocity from the laminar ceiling supply diffuser should be 30 – 35 fpm based on the latest CFD studies. The cost impact will be for additional diffusers at an estimated cost of $1,000 for a typical 500 square foot OR.
7-7.1.2 **Continuity of Service**. The design for the HVAC systems serving Critical Care spaces shall include the following: a) The Air Handling Unit(s (AHUs) serving Operating or Delivery Room suites shall be separate, independent units serving only the respective Surgical or Obstetrical Department or portions thereof, to enhance the reliability of these systems and minimize demand on the emergency power system. The air handling unit(s) serving each suite may also provide service to other Patient Care or support areas outside the respective Surgical or Obstetrical Department. A maximum of four ORs or four DRs should be served by any single AHU. Where a facility has four or fewer ORs, these should be served by at least two separate air handling systems, to enhance reliability; a similar consideration should apply for DRs. b) HVAC equipment, including controls, which serve Critical Spaces (including ventilation and pressure controls for isolation bedrooms) shall be connected to the emergency electrical power system. This shall include a sufficient number of chillers and boilers, with necessary supporting equipment, to meet critical design loads. Boilers shall have dual-fuel burners that are not solely dependent on one source of fuel for	B	This will increase the cost of HVAC system and require additional mechanical space.

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ignition. c) Designs shall include features to minimize HVAC service interruptions to Critical Care spaces, without the provision of redundant air handling units or distribution systems. Provisions shall be such that service interruption to any Critical Care space, as a result of failure of an air handling unit component or its supporting electrical or controls systems, shall be minimized. Such features may include the provision of multiple, isolatable, heating and cooling coils, spare stock of replacement motors, drive belts, and bearings in the immediate vicinity of the equipment room, dual fan units, "manifolded" ductwork connections between AHUs, or other measures providing for continuity or expeditious restoration of service. d) Air Handling Units, with associated controls, which serve critical care spaces and patient bedrooms shall be connected to the electrical emergency power system.		
7-7.2 **Sensitive Areas**. These are spaces or areas in which equipment or processes may require special environmental control, including continuous (24 hours per day, year-round) air conditioning and individual room temperature and/or humidity control. Economic or operational considerations normally dictate provision of independent air conditioning systems for Sensitive Areas, to enable continuation of air conditioning when main building systems are shut down for repairs, or are operating in night setback or economizer mode. Minimum outside air ventilation shall be provided in normally occupied areas. For those sensitive spaces critical to continued hospital function and which require continuous cooling to remain in operation, appropriate backup or redundant features shall be provided to assure continuity of air conditioning in the event of primary air conditioning equipment failure. This may include the requirement for connection of air conditioning equipment to the emergency power system.	A	
7-7.3 **Administrative Areas**. Administrative areas may be served by single duct reheat, multi-zone, VAV, or dual-duct systems, with perimeter radiation when required or advantageous.	A	
7-7.4 **Outpatient Clinics**. Outpatient clinics may be served by single duct reheat, dual-duct, VAV, or multi-zone systems. Multi-zone systems may only be employed if the following conditions are considered: 1) ease of mechanical room duct egress, 2) no large disparity in zone size or load profile, 3) little likelihood of space repartitioning or rearrangement, and 4) proximity of space served to the mechanical room.	A	
7-7.5 **Support Service Areas**. Support service areas may be served by single duct reheat, dual-duct, VAV, or multi-zone systems.	A	
7-7.6 **Patient Bedrooms**. Normal-care Patient bedrooms may be served by dual duct, multi-zone, VAV, or single duct reheat systems. All systems utilized shall maintain minimum ventilation quantities under all conditions of operation. Perimeter radiation systems (radiant panels) may be considered in conjunction with these air systems. Fin-tube heating systems shall not be used in patient bedrooms.	A	
7-7.6.1 **Patient Isolation Bedrooms**. Isolation bedrooms shall be served by airflow systems which maintain a constant differential between supply and exhaust air flow rates to maintain the required relative pressurization of the space to the adjacent spaces and corridor. Refer to more detailed design guidance and requirements for isolation bedrooms under section 7-17 of this document. Pressurization control equipment serving Protective Isolation and Disease Isolation Bedrooms shall be connected to the emergency electrical power system.	A	
7-8 **GENERAL DESIGN CONSIDERATIONS**.		

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
7-8.1 **Plant Sizing and Optimization**. For all facilities justifying a degree of redundancy in the capacity of primary energy plants, the precise number, capacity, and configuration of primary heat exchangers and pumps shall be determined in accordance with the following requirements.		
7-8.1.1 **Facilities with Critical Environments**. These facilities include all medical facilities with inpatient functions, and for selected Research and Vivarium facilities in which loss in ability to condition the facility would result in loss of critical research or animals at prohibitive cost to the government. The plant shall be sized and configured such that: - For inpatient medical facilities, with one major heat exchanger or pump out of service, the remaining plant equipment is sufficient to serve all critical loads, including patient bedrooms and labor rooms, plus one half of all remaining loads within the facility. - For Research and Vivarium facilities, with one major heat exchanger or pump out of service, remaining capacity shall be sufficient to serve the critical environmental loads, plus all support spaces, such as computer records, critical to the continued operation of the facility. This will not include routine office, conference, classroom, or administrative areas. - For all facilities with critical environmental requirements, with one major heat exchanger or pump out of service for an extended period (one day or more) of maintenance, during the "off" season for such service, the remaining plant equipment shall be sufficient to meet the entire facility's maximum load. - For all such facilities, plant optimization shall in addition be based on life cycle cost analysis of the most life-cycle economical number, capacity, and configuration of prime heat exchangers and pumps.	A	
7-8.1.2 **Energy Plants for Outpatient Clinics**. When energy plants consisting of multiple primary heat exchangers are justified, on a project by project basis, for large Outpatient Clinics, the plant shall be designed on the basis of life cycle cost analysis of the most life-cycle economical number, capacity, and configuration of prime heat exchangers and pumps.	A	
7-8.2 **Contaminant Removal**. HVAC systems shall be designed to remove or reduce to acceptable levels volatile chemical and airborne microbiological contaminants within the facility. Systems shall be designed to remove excessive moisture in facility spaces and to control moisture and dust accumulation in air handling units, distribution elements, and chases, to avoid conditions permitting the growth of pathogenic, allergenic, or otherwise objectionable microorganisms.	A	
7-8.3 **Interdepartmental Air System Restriction**. In general, individual facility departments should be served by dedicated air handling systems in order to increase system flexibility, energy conservation, facilitate comfort control, and reduce demands upon the emergency power system.	A	
7-8.4 **Air Filtration**. Individual space air filtration shall be provided as indicated at Appendix A. MERV 8 "roughing" filters shall be provided upstream of all coils, velocity sensing devices, or other devices requiring protection from dust accumulation. "Roll filters", cleanable media, or other filtration systems requiring more intensive maintenance should be avoided. Designers shall carefully consider the location of filters relative to humidifiers to minimize the possibility of wetting the filter media. Use of bag type filters should be avoided for critical care spaces due to the propensity for bag filters to release particles during air handler startup/shutdown.	A	
7-8.5 **Balancing Ports and Features**. Necessary controls, instrumentation, and balancing ports and devices shall be provided to establish and maintain the required space temperature, relative humidity, and air	A	

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changes rate, and to facilitate balancing procedures for all systems.		
7-8.6 **Additions and Alterations to Existing Facilities**.		
7-8.6.1 **Site Investigation.** Designers shall conduct thorough investigations of existing facilities to be upgraded or modified, to become knowledgeable with facility conditions, as established by the terms of their design contracts. This includes the need to inspect concealed spaces (above-ceiling plenums, equipment rooms, chases, etc.) to permit evaluation and accurate depiction of as-built conditions which can affect new work. Design agents shall assure that this requirement is met; it is advantageous that the expected scope of the site investigation be discussed in detail with the designer during project prenegotiation and "kickoff" meetings. Generally, designers should be required to directly inspect all equipment rooms and all above-ceiling areas in such a number of locations as to reasonably establish the existing conditions. In facilities with "hard" ceilings, this may require the creation of a suitable number of inspection openings: design agents shall define in Project Design Instructions the responsibility for making and repairing such openings. Structural and architectural building elements, as well as existing equipment, that restrict equipment distribution space should be directly verified to the extent reasonably practicable. The design team must recognize the economic advantages of a detailed designer site investigation: if the designers do not verify conditions, the construction contractor must do so, normally at a cost premium reflected in higher bidding costs (unknown conditions) and change orders (changed conditions).	A	
7-8.6.2 **Modifications to Existing Systems**. Too often in the past, addition/alteration project design documents have failed to provide the detailed engineering guidance required to sustain operation of systems serving occupied areas, leaving this engineering responsibility in the hands of QA personnel or construction contractors. The results have included loss of critical services, inadequate system performance, project completion delays, and costly change orders. Therefore it is hereby emphasized that it is the responsibility of the project designer to carry out all aspects of the design which can reasonably be accomplished during the design phase. Modifications to existing equipment and systems, including temporary connections, changes to system performance, or measures necessary to sustain service, shall be shown and described in detail in project design documents. Designers shall evaluate the impact on existing systems of extensions of service which increase system demand. The locations of new connections shall clearly be shown and/or described. The designer shall determine, and document for the design agent's information, any project work which will necessitate a reduction or interruption of any service to an existing, occupied area	A	
7-8.6.3 **Protection of Patients From Construction Contaminants**. For additions or alterations to existing hospitals, measures shall be provided to minimize contamination of existing hospital areas, during the construction period, and the associated HVAC systems serving them. Measures to reduce the potential of contamination and nosocomial infections include but are not limited to negative isolation of construction areas, construction of effective dust barriers (including double barrier air locks at entrances and exits) separating construction from occupied areas, protection of air distribution systems serving occupied areas, and disinfection of any reused ductwork. Designers should consult with the facility's infection control representative during the design process to assure thorough coordination of design features that may affect patient welfare.	A	
7-8.6.4 **Construction Phasing Plan**. Designers shall develop a phasing plan, consisting of detailed written instructions as well as any graphic/drawing aids necessary to clearly communicate the content, location, and sequence of work activities. The plan shall identify the scope, duration, and timing sequence of each individually identifiable work item, with all required lead-in, preparatory, and commissioning activities.	A	

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7-8.6.5 **Commissioning Considerations**. More so than in new, stand-alone facilities, off the shelf guide specifications fall short of providing for all of the required commissioning procedures. In particular, designers shall show and specify the procedures required for interim, as well as final, commissioning for systems constructed (or altered) and placed in operation segmentally.	A	ASHRAE Standard 90.1 refers to ASHRAE Guideline 1 for commissioning of projects larger than 50,000 square feet.
7-8.7 **Cooling and Heating Load Calculations**.		
7-8.7.1 **Heating Load Calculation**. Calculations used for determination of primary and airside (including reheat) heating equipment should not include credit for internal load sources, including lighting, people, and equipment. These loads are typically not present, or are much reduced, at night and on weekends. Heat calculations should also take into consideration morning warmup loads when night setback temperatures are utilized in non-ward areas.	A	
7-8.7.2 **Equipment Heat Generation**. In many spaces within facilities, the primary component of cooling loads will be equipment heat generation. It is therefore necessary for accurate load determination that the HVAC designer coordinate on a project-by-project basis with the equipment designer, and with the individual Using Agency, to identify all individual equipment items and the corresponding load contributions. To estimate equipment usage duration and frequency, designers shall gather information from the Using Military Department, or if unavailable from that source the manufacturer, personal experience, or other sources. Determine average heat output from manufacturer's information. In performing load calculations, designers shall consider the as-designed equipment provisions of each unique space. "Rules of thumb" loading assumptions are not acceptable for final design calculations.	A	
7-8.7.3 **Lighting Loads**. Lighting loads present a significant component of medial facility cooling loads and as such require consideration of the as-designed lighting fixture numbers and characteristics of each space. "Rules of thumb" lighting load assumptions are not acceptable as the basis for final design load calculations.	A	
7-8.7.4 **Envelope Components**. Minimum insulation values for building envelope components shall be in compliance with UFC 3-400-01 (reference 7p). U-value calculations shall take into consideration the "fin effect" of metallic elements of wall and roof construction, as for example the effect of steel studs in walls which may as much as halve insulating effectiveness of batt insulation.	A	
7-8.8 **Piping Systems**.		
7-8.8.1 **Pipe Routing**. Piping distribution systems should be routed above corridors whenever practicable, to minimize leaks, maintenance intrusion, and noise in occupied areas of the medical facility. Pipes shall not be routed through telecommunications rooms per ANSI/EIA/TIA-569-A (reference 7u).	A	
7-8.8.2 **Thermal Expansion**. Designers are responsible for designing all aspects of piping systems necessary for the control of thermal expansion, and for showing the necessary control features on design drawings. This includes showing and dimensioning as applicable, the approximate locations of guides, anchors, expansion ells and offsets, and flexible couplings, as well as any other piping features which may affect expansions forces in the piping. The intent of this requirement is to assure that this critical aspect of piping design is accomplished by the qualified mechanical engineer selected for the project design, and not by a construction contractor of unknown engineering ability or qualification. In the case of direct-burial (i.e., pipe within a pipe) underground heat distribution systems, engineering of the expansion compensation features by the system manufacturer may be preferred or necessary. Designers shall design piping systems such that piping expansion forces are isolated from equipment. Design Agents shall provide that contractor's shopdrawing layout drawings of hot piping systems are reviewed by the designer or by an equally competent	A	

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engineer representative of the government.		
7-8.8.3 **Steam and Condensate Piping.** Steam in excess of 20 psig shall not be distributed in above-ceiling areas of a medical facility, or in utility corridors or chases adjacent to normally occupied spaces unless substantial concrete, masonry, or metal protective barriers are provided. Designers shall show the required direction and degree of line slope on drawings, and shall provide and show the locations and details of drip traps and other drainage features.	C	Providing additional protection for steam piping above 20 psig will add cost.
7-9 **HVAC SYSTEM CONTROLS**		
7-9.1 **Energy Conservation**. All designs shall comply with UFC 3-400-01 (reference 7p). Additional information of Energy conservation design is referenced at Section 6 of this document.	A	
7-9.2 **Temperature Control**. Individual room temperature controls shall be provided for all Critical spaces, Sensitive spaces, Patient Bedrooms, Labor Rooms and Laboratories, to closely maintain the room conditions provided at Appendix A. Zoned temperature control shall generally be utilized for other spaces within the facility. Only rooms with similar exposures and load profiles shall be served by a single zone. All conference rooms, classrooms, and other rooms with unique exposures or load profiles shall be served by a single zone. All variable volume terminal controllers serving normally occupied spaces shall be provided with a means of reheat, if a separate means of room heating (such as perimeter heating) is unavailable.	A	
7-9.3 **Control Precision**. Temperature controllers shall maintain space temperature within +/- 1.1 ^{o}C (2 ^{o}F) of design setpoint, as provided for the individual spaces at Appendix A. The summer and winter design setpoints normally differ. For some spaces, a temperature range is given as the summer, or winter, interior design condition in lieu of a specific temperature setpoint. The HVAC system for such spaces shall be designed with the capability, under design conditions, to maintain any selected temperature within that range.	A	
7-9.4 **Humidity Control**.		
7-9.4.1 Humidity controls shall be provided as necessary to meet the requirements given for individual spaces at Appendix A. Humidity controls shall be provided on a room basis for the following critical spaces: -Operating Rooms -Surgical Delivery Rooms -Cystoscopy Rooms Humidity controls for all other spaces may be provided on a zone or system basis as determined to be sufficient to maintain the required conditions. Note that for spaces for which precise relative humidity requirements are not stated, humidity controls may be required to maintain an envelope of 30% to 60% RH during normally occupied hours; for such spaces, designers shall determine the likely interior RH, based upon outside air conditions and interior latent loads. Humidifiers are problematic from a maintenance standpoint, and should not be utilized except when analysis indicates that RH will drop below 30% for significant amounts of time.	A	
7-9.4.2 **Humidifying Equipment**. Air handling system humidification shall be achieved utilizing direct steam injection, with a steam source in accordance with 7-10.1. Designers are responsible to designate the location of steam injectors relative to ductwork and air handling unit components, and so design them as to minimize concerns with moisture collection in/on the downstream elements. Provide a minimum of 3 M (10 ft) of straight ductwork, with no takeoffs, reducers, duct lining, or other components, immediately downstream of the	A	

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injection location; If this separation space is not available, the design engineer shall provide a detailed design, considering duct dimensions, airflow velocity and psychrometric condition, and number and location of injection orifices, with necessary instructions to the construction contractor, to maximize the probability of moisture reevaporation before impact with downstream.		
7-9.4.3 **Trim Humidification for Critical Spaces**. Humidifier shall be separated a minimum 4.5 M upstream from high efficiency final filtration; when this separation cannot practicably be achieved, a detailed design for the humidifier shall be provided as addressed at 7-9.4.2.	A	
7-9.5 **Direct Digital Controls (DDC)**. The Direct Digital Control System shall be a complete system suitable for the control of the heating, ventilation and air conditioning system and other building level systems as specified. When a Using Agency determines that communication between a facility's DDC system and a remote Utility Monitoring and Control System (UMCS) is required, the design shall assure that the DDC system is seamlessly compatible with the UMCS system.	A	
7-9.5.1 **Utility Monitoring and Controls Systems (UMCS**). No remote UMCS system (i.e., not located in the medical facility or its associated energy plant) shall be permitted to exercise control over any hospital HVAC system equipment providing service to Critical Care Spaces. Remote UMCS systems may be provided with monitoring, alarm, and reporting capabilities as necessary to facilitate maintenance activities.	A	
7-9.6 **Air Handling Equipment Control**		
7-9.6.1 **Building Pressure Control**. All systems shall maintain the building at relative positive pressure to the outside environment, with the exception of those spaces on perimeter walls required to maintain a negative pressure relative to contiguous spaces. For facilities in humid climates, and for all facilities of three stories or more in height, automatic controls shall be provided to actively monitor and control building pressurization via pressure monitoring at strategic locations on each level, and manipulation of outside air and/or exhaust volume flow rates. All systems which modulate outside air, including all VAV air handling systems, shall include accurate airflow measurement arrays located in accordance with manufacturer's recommendations as part of their control system.	A	
7-9.6.2 **VAV Air Handling Unit Controls**. All VAV systems shall be provided with supply and return fans, with economizer operation where economically first cost effective. Fan speeds shall be modulated by means of variable speed drivers (VFDs). Supply fans shall modulate based upon maintaining a fixed static pressure at a location remotely located in the ductwork sufficient to assure operation of all VAV terminal devices. Supply, return, and outside airflow rates shall be measured by the DDC control system, and the return fan shall modulate to maintain a fixed differential airflow below that of the supply fan. A high supply duct static sensor and shutdown capability shall be provided.	A	
7-9.6.3 **Variable Exhaust Controls**. HVAC controls for laboratories, treatment rooms with coughing booths, autopsy procedure rooms, and other rooms having equipment requiring variable or intermittent exhaust requirements, shall be provided which maintain the required room relative pressurization and room conditions for all modes of operation of the equipment (i.e., on or off, minimal to maximum sash height, etc.), according to the User's intended operation. Variable flow controls shall be provided for the general exhaust of such rooms, as well as for the equipment, to allow measurement and tracking of supply to exhaust flow differential by the DDC system.	A	
7-10 **STEAM SYSTEMS.**		
7-10.1 **Humidification Steam Source**. Steam generated by heating system boilers, or any other steam	A	

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containing harmful concentrations of amines or other treatment chemicals, shall not be used for space humidification. Separate steam generators for humidification shall be provided. The design shall include provisions to minimize the effects of system corrosion resulting from the heating of under oxygenated water.		
7-10.2 **Sterilizer Steam Source**. Steam generated by boilers located in an on-site (hospital-dedicated) boiler plant may be utilized for sterilization steam subject to approval by the individual military department. As hospital authorities cannot normally exercise a reasonable degree of supervision or control over treatment chemicals utilized in base-wide or district systems, steam from these sources may not be utilized for direct sterilization. Unlike humidification steam, which is injected directly into the air supply, little sterilizer steam will escape into a facility's general environment. Under a reasonably responsible boiler treatment program, any steam which does escape will not result in dangerously high levels (OSHA RELs, etc.)of treatment chemicals in the environment.	A	
7-10.3 **Designer Qualifications**. Projects involving the design of extensive medium or high pressure steam systems require the services of engineers highly experienced in this specialty. Too often, experience has shown that mechanical designers unfamiliar with steam system design err in the design of expansion compensation, condensate collection and handling, and equipment selection. Design Agents must insist on proper qualifications for designers of these systems.	A	
7-11 **AIR HANDLING AND DISTRIBUTION**.		
7-11.1 **Air Handling Unit Considerations**. Air handling units are to be double wall, internally-insulated, readily maintainable units suitable for utilization in medical facilities. Draw-through units are normally preferred, to utilize fan heat to increase the dry bulb air temperature above the saturation point and minimize the possibility of wetting downstream filters, attenuators, or other components. Provide for access doors immediately upstream and downstream of all coils, to facilitate cleaning and proper installation of the unit freezestat.	A	
7-11.2 **System Shutdown Capability**. To the extent practical and cost effective, non-critical, *non-bedroom* area HVAC systems shall be designed to permit shutdown (night setback/setup, outside air shutdown) of individual areas or departments not in operation on a 24-hour basis. *Ventilation of toilets, battery vaults, and other normally-exhausted spaces shall be continued without interruption as warranted.*	A	
7-11.2.1 Air distribution systems shall comply with the requirements in UFC 4-010-01 (reference 7v).	C	Additional cost to provide separate air handling unit and exhaust for the mailroom.
7-11.3 **Outdoor Air Intakes**. Outdoor air intakes shall be located as far as practical, but not less than 9000 mm (30 ft), from exhaust outlets of ventilation systems, cooling towers, combustion equipment stacks, medical/surgical vacuum systems exhaust, plumbing vent stacks, emergency generator exhaust, or from areas which may collect vehicular exhaust and other noxious fumes. Locate the bottom of air intakes serving central systems as high as practical but not less than the distance above ground level required by UFC 4-010-01 (reference 7v), or if installed above the roof, at least 900 mm (3 ft) above roof level. Outdoor air shall not be drawn from equipment rooms. Designers must utilize judgment in the location of contaminant exhausts, and not simply apply the "9M rule" without further consideration of wind direction and velocity, building geometry, and characteristics of the contaminant stream. Appropriate consideration shall be given to prevailing wind direction, summer and/or winter as applicable; however designers are cautioned not to rely on prevailing wind direction(s)as a primary factor in the avoidance of intake contamination. In particular, use extreme caution in locating outside air intakes in proximity to parking areas, ambulance garages, loading docks, exhaust air	B	Industry standard for minimum separation for outside air intakes is 25 feet.

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outlets, and equipment stacks. Where appropriate, Design Agents will provide in individual project design instructions for special computational fluid dynamics (CFD) or wind tunnel modeling to provide greater assurance of the correct location of outside air intakes.		
7-11.4 **Noise Control**. Noise Criteria (NC) for individual rooms and spaces in the facility are provided at Appendix A of this document.		Refer to review of appendix.
7-11.4.1 **Room Breakout**. The HVAC designer shall coordinate with the architectural designer to control equipment noise passing from mechanical rooms into adjacent spaces through the surrounding walls or partitions.	A	
7-11.4.2 **Crosstalk**. The compromising of patient privacy by transmission of audible speech from one room to another via ductwork is of great concern in medical facilities, and shall be addressed by HVAC designers. Examination rooms, physician's offices, and toilets require the designer's particular attention. Ductwork connecting adjacent rooms must have the necessary attenuating characteristics to eliminate audible speech transmission. Typically this is addressed by the provision of well- separated "takeoffs" and/or several duct elbows in the intervening ductwork.	A	
7-11.4.3. **Air Fixtures**. Air distribution supply, return, and exhaust fixtures (diffusers, grills, etc.,) shall be sized to provide air inlet/outlet velocities consistent with room NC level requirements as provided at Appendix A. Designers must be aware that diffuser manufacturer's published noise characteristics are based upon idealized inlet conditions: crinkled flex duct, abrupt branch duct connections, elbows located immediately at the diffuser collar, and similar poor connections may result in unacceptable noise levels. Spin-in or other 90 degree duct drop connections to diffusers shall be equipped with equalizing grids as necessary to assure uniform air distribution at the diffuser inlets.	A	
7-11.4.4 **Air Velocity**. Designers shall limit air velocities in ductwork (see additional guidance below), air transfer grills, or door undercuts to values consistent with ASHRAE recommendations to control noise generation.	A	
7-11.4.5 **VAV/CAV Terminal Units**. Variable Air Volume Terminal units and constant velocity controllers are a frequent source of noise generation in air distribution systems. Designers shall specify or schedule units with minimum inlet sizes for incremental ranges of flow, and shall indicate maximum sound power output for each unit, at the maximum inlet static pressure which the designer anticipates that the unit will be exposed to. If integral sound attenuating devices are required, these shall be indicated for the respective terminal unit(s) is specs or drawing schedules.	A	
7-11.4.6 **Exterior Noise Sources**. Designers shall evaluate the sound characteristics of exterior equipment provided as part of the project design (such as cooling towers, emergency generators, etc.) to assure that such sources do not result in interior noise levels exceeding limitations provided in Appendix A.	A	
7-11.5 **Duct Design**. Duct systems shall be designed in accordance with references 7a, 7b, 7e, and 7l. Maximum velocity in ductwork mains shall not exceed 760 M/m (2500 fps), and velocities in branch ducts and takeoffs shall not exceed recommended levels in these standards. Ductwork plans shall indicate the static pressure class required for sealing and reinforcement for all types of duct. Access panels shall be provided as necessary for access to fire dampers, smoke dampers, and control equipment, and to facilitate periodic cleaning or disinfecting of ductwork. All supply air, with the exception of air transferred between spaces for the purpose of pressurization, shall be provided in sheet metal ductwork.	A	
7-11.5.1 **Non Corrosive Ductwork Material**. Ductwork installed downstream of high efficiency final filters (90% or greater, see Appendix A) or trim humidifiers, serving critical spaces, shall be of stainless steel,	A	

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or aluminum, including all accessories such as dampers, fasteners, and turning vanes. This provision does not apply for ductwork downstream of high efficiency filters when these are located at the air handling units (filters noted in the "intermediate" column in Appendix A). Exhaust ducts for glass washers, dishwashers, and cart washers shall be non-corrosive and shall have soldered or welded joints and shall be pitched to drain. Ductwork for laboratory equipment is covered elsewhere in this section.		
7-11.5.2 **Return Air Plenums**. Corridors shall not be used as return air plenums in any portions of facilities. Exceptions allowing transfer air for toilets and janitor's closets, as provided in NFPA 90A and 101, (references 7d and 7h) shall be permitted. Utilization of above-ceiling areas as return air plenums shall not be permitted in inpatient or critical-care areas of facilities. Utilization of above-ceiling areas for return or exhaust air in portions of facilities not classified as healthcare occupancy is discouraged but may be considered on an individual project basis when justified by overriding cost or vertical space constraints.	A	
7-11.5.3 **Duct lining**. The utilization of duct lining materials is prohibited in all medical facilities. These materials may harbor dust and moisture, providing an ideal environment for the propagation of pathogenic or noxious microorganisms. Factory fabricated sound attenuators, packed type, which comply with ASTM C1071 and UL 181, shall be used to attenuate fan noise. No duct lining materials which are porous to the airstream may be utilized.	A	
7-11.5.4 **Balancing Provisions**. Duct branches serving each individual space shall be provided with a manual balancing damper, accessible above the ceiling, located as remote from the space supply or return fixture (diffuser, register, etc.) as practicable. The balancing damper provided as part of air diffusers is not to be used for system balancing.	A	
7-11.5.5 **Telecommunication Rooms**. Ducts shall not be routed through telecommunications rooms per ANSI/EIA/TIA-569-A (reference 7u).	A	
7-12 **MAINTENANCE PROVISIONS**.		
7-12.1 **General Personnel Access**. Safe and practical means of personnel access must be provided to, and within, all areas of the facility where equipment is located, to adequately provide for operation, maintenance, and replacement (O&M) of the equipment. Access to equipment rooms from outside the facility should be provided where feasible. Within equipment rooms, provide clearance to all service points to mechanical equipment to allow adequate personnel access and working space in accordance with equipment manufacturer's recommendations; but as a minimum, maintain 0.75M (2.5 ft) at all service points and 1.7M (5.5 ft) of overhead clearance for O&M accessways. Proper clearance shall be provided such that personnel do not have to climb over equipment or crawl on hands and knees. When rooftop air handling units are provided, coordinate with the architectural designer to provide pavers or other personnel access pathways which will not damage the roof.	A	
7-12.2 **Equipment Clearances**. Minimum clearances between electrical and mechanical equipment shall be as required by NFPA 70, (reference 7m). Assure that practical means are provided for the removal/replacement of the largest and/or heaviest equipment item(s) located in the facility. Provide adequate pull space for all coils, heat exchangers, chillers, boiler tubes, and filters. Sufficient space shall be provided in above-ceiling areas to facilitate equipment installation and O&M. For building designs utilizing interstitial floor distribution zones, further guidance is provided at Appendix E.	A	
7-12.3 **Suspended/Mounted Mechanical Equipment**. Where suspended and mounted equipment is	A	

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installed, provide a minimum of 1700 mm (67 in) of clearance for headroom as required. In refrigeration equipment rooms, provide overhead clearances required by ASHRAE 15, (reference 7j). For any work station or location requiring maintenance access, which is not readily accessible from a 1800 mm (6 ft) high portable ladder, provide a fixed ladder and/or catwalk.		
7-12.4 **Air Distribution System Components**. Outdoor air intake plenums, air handling unit casings, and distribution ductwork shall be designed to permit access for periodic cleaning or disinfection.		
7-12.5 **HVAC System Balancing Provisions**. Adequate access shall be provided to facilitate operation, adjustment, and testing at all HVAC balancing and measuring points and equipment, including automatic and manual damper operators, air terminal units, pilot tube ports, valves, and sensing devices.		
7-13 **VIBRATION CONTROL**. All prime moving equipment shall be isolated to prevent transmission of vibrations to the structure.	A	
7-14 **INTERDISCIPLINARY COORDINATION**.		
7-14.1 **Fire Protection Features**.		
7-14.1.1 **Smoke and Fire Dampers**. HVAC service zones should be designed to coincide with smoke compartments whenever practicable. Ductwork penetrations of fire/smoke rated walls should be minimized, to minimize the required number of smoke/fire dampers and complexity of controls. Coordinate with the architectural design to assure that necessary access for inspection or service of these dampers is provided.	A	
7-14.1.2 **Ductwork**. Air supply and exhaust systems shall be of the mechanical ventilation type and shall meet the requirements of NFPA 90A and 96, (references 7d and 7e). Grease-laden vapor exhaust ductwork shall be in accordance with NFPA 96.	A	
7-14.1.3 **Smoke Mode Operation**. Comply with Section 12, Fire Protection, of this document.	A	
7-14.1.4 **Commissioning of Fire/HVAC Systems**. Guide specifications typically do not contain provisions for the simultaneous testing of HVAC and fire protection systems, which can have complex, interwoven operational requirements in some facilities. For each project where applicable, designers shall develop or modify specifications as needed to provide for testing of HVAC systems under fire alarm conditions, to permit verification not only of correct function, but of acceptable speed of response. In more complex systems involving smoke evacuation or compartmentalization/pressurization, detailed testing protocols and/or system diagrams must be developed to clearly convey the required scope of the commissioning effort.	A	
7-14.2 **Emergency Electrical Service**.		
7-14.2.1 **Capacity**. The HVAC system equipment serving Critical areas shall be connected to the essential electrical power system, to assure service continuation in the event of normal power disruption, in accordance with the requirements of NFPA 99 (reference 7c). Cooling, as well as heating, shall be maintained to Critical areas in the event of normal power outage.	A	
7-14.2.2 **Commissioning**. Service guide specifications do not adequately address testing requirements for HVAC/Emergency Power System (EPS) interoperability. HVAC systems connected to the EPS must be shown to function as intended under conditions of normal power interruption. Testing of the EPS must be conducted in conjunction with any components of the HVAC system required for support; For example, thermostatically operated louvers may be required in emergency generator rooms for makeup air, generator radiator cooling may be a function of such HVAC components as pumps or cooling tower, etc. Testing must verify the actual	A	

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connection of HVAC equipment to the EPS in accordance with the design following normal power outage, in the priority sequence established by the design. Designers shall supplement or modify guide specifications to assure that such verification testing is adequately detailed and described.		
7-14.3 **Seismic Design Requirements**. Refer to Section 5 for seismic provisions for the HVAC system equipment and components. Designers shall be responsible to assure that seismic bracing of HVAC piping is coordinated by design with thermal expansion compensation features, to allow for the necessary pipe movement with temperature changes.	A	
7-14.4 **Design Coordination**. Designers are responsible to coordinate the HVAC with the electrical, communications, architectural, and structural aspects of the design to assure that equipment can reasonably be installed by a contractor providing equipment, and following installation procedures, within the terms of his contract. For this reason, designers are instructed to base equipment room and distribution space designs upon spatial envelopes (including maintenance clearances) which will accommodate any of at least three manufacturers of major equipment. Routes of ductwork and piping must be carefully coordinated with other elements, considering required slope, insulation, bracing, reinforcement, slope, and maintenance access. This practice in no way infringes on or substitutes for the construction contractor's responsibility, to be defined in project specifications, to coordinate the installation work of all trades and to provide detailed shopdrawings showing the proposed construction; Rather, it assures that the contractor will be able to achieve his goal without the necessity of additional design work.	A	
7-14.4.1 **Equipment Rooms**. To assure adequate coordination, designers must consider not only the HVAC equipment, but the work requirements of other trades. Assure adequate clearance around air handling units to permit bolting the units together and securing them to their housekeeping pads, meanwhile providing space for the general contractor to install wall partitions. Consider the locations of plumbing and medical gas equipment. Assure it will be possible for maintenance workers to access all controls, electrical panels, valves, and instrumentation. Be aware of NEC clearance and vertical dedicated space requirements for electrical equipment. Coordinate ductwork, outside air plenums, etc. with the locations of lighting.	A	
7-14.4.2 **Above-ceiling Plenums**, and Chases. Designers must anticipate the worst case insulation, duct reinforcement, equipment support, slope, and fitting characteristics associated with ductwork and piping distribution systems, and be careful to coordinate the location of these systems with other equipment, including in particular cable trays and lighting fixtures with their vertical access/clearance space requirements. Assure that access space is considered for damper operators, low point steam drip assemblies, VAV terminal units, reheat coil controls and instrumentation, service valves, and access doors for ductwork for cleaning or damper inspection.	A	
7-15 **FUEL STORAGE REQUIREMENTS**. Refer to Section 5 of this document, Seismic Design, for fuel storage requirements for facilities in seismic threat regions. Additional fuel storage guidance for boiler plants shall be obtained from the individual service criteria.	A	
7-16 **VENTILATION DESIGN**.		
7-16.1 **Ventilation Air Changes**. Minimum air change rates for each space, for both outside air and total air, are provided at Appendix A. Ventilation rates contained in ASHRAE Standard 62.1 (reference 7q) shall be applied for spaces or applications not addressed by Appendix A. Based on the number of occupants identified for each space, calculate the outside air requirements of ASHRAE 62.1 and compare to the rates given in Appendix A, utilizing the more stringent figure in the design. The minimum outside air change rates in Critical	A	

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Care Spaces shall be maintained at all times, except as addressed elsewhere in this Section for Operating and Delivery Rooms during periods of non-use. Reduced outside air ventilation in noncritical areas may be considered during nonoccupied times. In addition, a Corrected Outside Air Ratio, calculated in accordance with ASHRAE 62.1 section 6.2.5, may be applied for non-critical spaces. The outside air ratio for non-critical high-occupancy spaces, including classrooms, waiting rooms, auditoriums, and conference rooms, may be adjusted in accordance with the provisions of ASHRAE 62.1 section 6.2.6 when the maximum occupancy peaks for a duration of less than three hours.		
7-16.2 **General Exhaust Provisions**. Exhaust systems shall be provided for Central Sterile Decontamination(Ethylene Oxide), animal holding areas, autopsy/morgue spaces, laboratory fume hoods, radioisotope hoods, bacteriological cabinet, kitchens, laundry, toilets, isolation rooms, equipment rooms, and other areas as noted in Appendix A or as designated on an individual project basis. No duct system conveying potentially hazardous exhaust (ETO, lab hoods, etc.) shall be connected with a general or toilet exhaust system. All exhaust discharge outlets shall be located above the building roof line and located to prevent short-circuiting to air intakes or other building openings. Exhaust fans shall be located at the end of the exhaust duct run (exhaust ducts to be under negative pressure).	A	
7-16.3 **Space Pressurization**. The required pressurization of individual spaces, relative to adjacent spaces or corridors, is indicated at Appendix A. Where a negative or positive pressurization are required for a given space, that pressurization shall be maintained by the HVAC system under all conditions of operation, including periods of reduced ventilation or night setback.	A	
7-16.4 **Laboratory Ventilation**. Exit corridors shall not be utilized to directly supply or exhaust air from the laboratory, although "transfer" of air to/from corridors may be utilized to establish required room pressurization. Negative pressurization of laboratories in relation to surrounding occupancies shall be maintained under all conditions of HVAC system and fume hood operation.	A	
7-16.4.1 **Exhaust Systems**. Laboratory equipment utilized for personnel protection from hazardous chemical, microbiological, or radioactive airborne particles or gases shall be provided with independent exhaust systems in accordance with NFPA 99, (reference 7c). Exhausts from general chemical laboratory fume hoods located within a laboratory unit may be combined into central exhaust systems in accordance with guidance in references 7c and 7g. Exhausts from hoods handling perchloric acid or other strong oxidizing agents, materials or agents requiring HEPA filtration, or exhausts which, when combined, chemically interact or change the explosion/ignition limits, may not be combined. Additional guidance for hood and exhaust design is contained at references 7a, 7b, 7c, 7g, 7j, and 7q. Exhaust duct discharge height shall be above the building recirculation cavity boundary. In all cases exhaust discharge shall have sufficient stack height, velocity, and distance from building openings, outside air intakes, or recirculating air currents, to preclude reentry into the building. Air velocity in exhaust ductwork shall be sufficient to transport the contaminant vapors, fumes, dusts, or other particulate matter for which the fume hood(s) is designed.	A	
7-16.4.2 **Laboratory Fume Hoods**, **General**. Fume hoods shall be located in areas of minimal air turbulence, away from doors, windows, and traffic, to minimize disruption of required sash airflow. HVAC system/fume hood controls shall be designed such that operation or shutdown of any fume hood in a given space will not disrupt the required room air balance or the required sash airflow at other hoods operating in the space. General purpose laboratory fume hoods that control personnel exposure to chemicals and physical contaminants shall have a minimum sash face velocity of 0.508 m/s (100 fpm). Fume hoods shall be provided with audible and visual alarms to indicate inadequate sash airflow conditions.	A	

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7-16.4.3 **Radioactive Material/Radioisotope Hoods**. Duct systems serving hoods for radioactive material shall be constructed of acid resistant type stainless steel for their entire length. Ductwork shall be flanged with neoprene gasketed joints to facilitate dismantlement for decontamination. Fume hood exhaust shall remain in constant operation, and shall be filtered with carbon and/or HEPA filters as required to meet Nuclear Regulatory Commission (NRC) requirements. The location of filters in the system shall be chosen to best facilitate their safe removal, disposal, and replacement by maintenance personnel. All filters shall be automatically monitored to provide indication that changeout is required. All hoods shall comply with requirements of the Nuclear Regulatory Commission.	A	
7-16.4.4 **Canopy Hoods for Prosthetic Dental Laboratories**. Canopy hoods for Prosthetic Dental Laboratories, and exhaust ductwork extending for a distance 3000 mm (10 ft) downstream from the hood connection, shall be fabricated of material which is corrosion resistant to the caustic fumes emanating from boil-out tanks and casting activities conducted in the laboratory.	A	
7-16.4.5 **Biological Safety Cabinets** (**BSCs**). Class, Type, and location of BSCs shall be as directed by the using agency. Class II BSCs are provided with HEPA filtration of recirculated air and/or building exhaust, and are provided in such areas as Microbiology and Mycology. The required open door/sash face velocity for Class I and Class II Type A BSCs shall be 0.381 m/s (75 fpm), and for Class II Types B1, B2, and B3, shall be 0.508 m/s (100 fpm). For further information of biological safety hood Class, Type, application, and exhaust requirements, refer to references 7a, 7r, 7s, and 7t.	A	
7-16.4.6 **Perchloric Acid Hoods**. Hoods for handling of perchloric acid and other strong oxidizing agents, and the associated exhaust ductwork, shall be constructed of stainless steel. Internal water spray systems shall be provided for hood and all ductwork to facilitate the periodic washdown. Joints shall be welded and ground smooth, and all ductwork pitched back toward the hood to facilitate drainage. More detailed guidance is provided by the ACGIH publication.	A	
7-16.4.7 **Containment Laboratories BL-3 and BL-4**). These laboratories deal primarily with indigenous or exotic agents which may cause serious or potentially lethal disease as a result of exposure by inhalation. The HVAC design for these laboratories shall assure the continuous negative pressurization and exhaust of the space. The exhaust air from these spaces shall not be recirculated to any other area of the building, but shall be transported through dedicated exhaust ductwork to be directly discharged to the outside of the building. Design of BL-3 and BL-4 laboratory exhausts shall comply with latest editions of OSHA and other Federal regulations.	A	
7-16.5 **Exhaust Canopies**. Exhaust canopies shall be provided for equipment or appliances generating high heat or moisture (steam) loads, such as glassware washers, boilout tanks, drying ovens, sterilizers, and stills, as required. In some cases, specially designed canopy hoods may be necessary to control personnel exposure to hazardous chemical vapors. Canopy hood design shall comply with the ACGIH data for "Canopy Hood" (reference 7b).	A	
7-16.6 **Laminar Flow Clean Benches**. These horizontal flow hoods shall be used in pharmacy for preparing intravenous fluids and similar laboratory processes. Clean benches recirculate room air and do not require exterior air supply or exhaust systems.	A	
7-16.7 **Bench-Back Slot Hoods**. Slot hoods are typically built into the wall behind laboratory benches to exhaust vapors, gases, and odors that are released with little energy or velocity. Typical applications are laboratories, brace shops, and other spaces in which volatile chemicals are routinely used. Design of these hoods shall be in accordance with ACGIH guidelines, with a slot velocity of 10.2 m/s (2,000 ft/min).	A	

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7-16.8 **Portable Bench-Top Hoods**. Portable hoods with glass viewing panels and interior lighting may be used to control chemical contaminants of minor toxicity and odors. They shall be attached to built-in exhaust outlets with flexible ducts. Each built-in exhaust system outlet shall provide a minimum of 0.0755 m3/s (160 cfm) or a face velocity of 0.38 m/s (75 ft/min) at the hood, whichever provides the maximum mass flow of air. The exhaust duct opening shall be provided with a blast gate and sealing plug to stop air flow when the unit is not in service.	A	
7-16.9 **Waste Anesthesia Gas Exhaust** (**WAGE**). In each space utilized routinely for the administration of inhalation anesthesia or analgesic agents, a Waste Anesthesia Gas Exhaust (WAGE) disposal system for removal of waste anesthetizing gases shall be provided, designed in accordance with NFPA 99. Coordinate required system vacuum pressure and terminal fittings with using Military Department Anesthesiology and Oral Surgery Departments on an individual project basis.	A	
7-16.10 **Medical Equipment**. See Section 15 of this document for special ventilation requirements of medical equipment.		
7-16.11 **Ethylene Oxide**. Sterilizers, aerators, manifold rooms, and disposal systems shall be directly exhausted to the outside by a dedicated exhaust system. ETO storage and supply systems and ventilation design shall be in accordance with 29 CFR 1910.1047, Section 15 of this manual, and the latest industry guidance. Ventilation provisions currently include such features as exhaust inlets above and below sterilizer door, waste water discharge, and floor drain. Ventilation of bottle storage rooms is also required. An audible and visual alarm shall be provided to warn of loss of airflow in the exhaust system. Increasingly, local and state regulations prohibit or limit the discharge of ETO to the environment. These shall be considered applicable to DOD medical facilities, and in such cases the design shall utilize ETO "scrubbers" or other approved technologies to prevent or reduce ETO emissions as required.	A	
7-16.12 **Kitchen Hoods**. Exhaust hoods in the kitchen area are to be the type utilizing 80 percent unconditioned air and having an exhaust rate of not less than 0.0022 m^3/s per square meter (50 cfm per square foot) of face area. Face area is defined for this purpose as the open area from the exposed perimeter of the hood to the average perimeter of the cooking surface. If economically justified, hood makeup air should consist of up to 80% outside air tempered, through heat recovery equipment, by the exhaust. Equip all hoods over the cooking service equipment with fire extinguishment systems, automatic washdown and grease extractors, and heat-actuated fan controls. Cleanout openings, and required fire protective enclosures and separations, shall be provided in horizontal exhaust duct systems serving these hoods grease hood exhaust ducts in accordance with NFPA 96.	A	
7-16.13 Pharmaceutical Admixture Rooms shall be in compliance with U.S. Pharmacopoeia (USP) 797 (reference 7x).	A	
7-17 **PATIENT ISOLATION ROOM DESIGN**. Isolation rooms consist of Disease Isolation and Protective Isolation rooms. The former is intended for the patient suffering from a known or suspected infectious disease, and is provided with engineering controls which assist in preventing the spread of the disease from the room. Protective Isolation rooms are provided for the patient having an immune system deficiency, and require engineering controls to assist in the protecting the patient from contamination from outside the bedroom. Rooms shall be one or the other, and not “switchable” from disease isolation to protective isolation function, or vice versa. Isolation Bedrooms shall be provided with pressure-monitoring alarms and gauges mounted on the outside corridor wall; when a central DDC control operators station is provided, the alarm should in addition be connected to that system.	A	

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7-17.1. **Disease Isolation Bedrooms**. Disease Isolation bedrooms shall be designed to incorporate requirements and guidance contained in the Guidelines for Preventing the Transmission of Mycobacterium Tuberculosis in Health-Care Facilities (the TB Guidelines), published in the Federal Register Vol. 59, No. 208, 28 Oct 94 (or latest edition thereof). These rooms shall be negatively pressurized and exhausted to the outside, and provided with the minimum total and outside air change rates (12/2, respectively) referenced at Appendix A. Exhaust ductwork from the bedrooms, the associated toilet, and the anteroom (if provided) shall be "dedicated" in the sense that the system may serve only the bedroom suite or other disease isolation bedrooms. This exhaust system shall be connected to the building emergency power system. Bedroom suites shall be supplied by air systems provided with constant-volume control and measuring terminal units which automatically maintain the supply air flowrate setpoint to each space. Exhaust systems shall be constant volume systems maintaining a fixed exhaust flow rate for each space. When bedroom exhaust is located such as to prevent reentrainment into outside air intakes or other building openings, HEPA filtration of the exhaust is not required.	A	
7-17.1.1 **Existing Facilities**. In existing facilities, only those bedrooms designated by the facility specifically for use as Tuberculosis Isolation Bedrooms are required to be designed in accordance with the TB Guidelines referenced above. TB Isolation Bedrooms shall be negatively pressurized and exhausted, and shall be provided with 12 air changes per hour if economically or physically practicable. When not practicable to achieve this air change rate, TB Isolation Bedrooms shall have a minimum of 6 air changes per hour, to be supplemented by HEPA filter or Ultra Violet Germicidal Irradiation (UVGI) systems specifically designed for TB Room applications and providing the equivalent of an additional 6 air changes per hour. Fixed-in-place HEPA filtration units are preferable to portable units, and upper-level UVGI systems are preferred over duct-mounted units, to enhance reliability. Room exhaust shall be conducted to the outside of the building; when designed to avoid reentrainment into outside air intakes or other building openings, HEPA filtration of the exhaust is not required.	A	
7-17.1.2 **Isolation Suite Relative Pressurization**. When an anteroom is provided for the isolation bedroom, interposing between the bedroom and corridor to provide a "buffer" airspace for additional protection, there are several recognized design approaches for corridor-anteroom-bedroom relative pressurization. A recommended design is to provide for the anteroom to be under negative pressure relative to the corridor, and positively pressurized relative to the bedroom.	A	
7-17.2 **Protective Isolation Bedrooms**. The air supply to the protective isolation bedroom suite shall be constant flow and shall be provided with HEPA filtration. 12/2 total and outside air changes, respectively, are required for these bedrooms. As with disease isolation bedrooms, there are several recognized approaches to the relative corridor-anteroom-bedroom pressurization; a recommended approach is to establish the anteroom positively pressurized relative to the corridor, and negatively pressurized relative to the bedroom.	A	
7-17.2.1 **Existing Facilities**. When upgrading existing protective isolation bedrooms to this criteria, 12/2 air changes per hour shall be provided if economically and physically practicable. When impractical, these bedrooms shall be provided with a minimum of 6 total air changes per hour and supplemented by HEPA filtration or UVGI systems to provide the equivalent of 12 air changes.	A	
7-17.3 **Disease Isolation Exam or Waiting Rooms**. Disease isolation exam or waiting rooms shall be provided with a minimum of 12 total air changes, as provided in Appendix A, with the room air exhausted to the outside.	A	

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REFERENCES		
7a. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) HANDBOOK Series. 7b. ACGIH, "Manual of Recommended Practices for Industrial Ventilation." 7c. NFPA 99, "Standard for Health Care Facilities." 7d. NFPA 90A, "Standard for the Installation of Air Conditioning and Ventilation System." 7e. NFPA 96, "Cooking Equipment, Vapor Removal." 7f. NFPA 801, "Facilities for Handling Radioactive Materials." 7g. NFPA 45, "Labs Using Chemicals". 7h. NFPA 101, "The Life Safety Code". 7i. UFC 3-400-02, “Design: Engineering Weather Data” 7j. ASHRAE 15, "Safety Code for Mechanical Refrigeration". 7k. ASHRAE 34, "Number Designation and Safety Classification of Refrigerants". 7l. SMACNA, "HVAC Duct System Design". 7m. NFPA 70, "National Electrical Code". 7n. UL 181, "Standard For Safety, Factory-Made Air Ducts". 8o. 7o.ASTM C 665, "Mineral-Fiber Blanket Thermal Insulation". 8s. 7p. UFC 3-400-01, “Design, Energy Conservation” 7q. ASHRAE 62.1. “Ventilation for Acceptable Indoor Air Quality” American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. 7r. OSHA - Part 1910, "Occupational Safety and Health Standards." 7s. CDC-NIH, "Biosafety in Microbiological and Biomedical .Laboratories."		

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7t Standard 49, "Class II (Laminar Flow) Biohazard Cabinetry", National Sanitation Foundation. 7u. ANSI/EIA/TIA-569-A Standard Commercial Building Standard for Telecommunications Pathways and Spaces 7v. UFC 4-010-01, "DoD Minimum Antiterrorism Standards for Buildings" 7w. UFC 3-600-01, "Fire Protection Engineering for Facilities" 7x. U.S. Pharmacopoeia (USP) Pharmacists' Pharmacopoeia General Chapter 797, Pharmaceutical Compounding — Sterile Preparations.		

Section 8: Plumbing and Medical Gases

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UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
Section 8 **PLUMBING AND MEDICAL GASES**		
8-1 **GENERAL**. This section provides design guidance for plumbing and medical gas systems for Department of Defense (DOD) medical, dental, training, and research facilities. The primary purpose of these systems is to provide safe and reliable support to the medical functional mission. In addition, appropriate design consideration shall be given to ensure system maintainability, economy and energy efficiency, and adaptability to future facility modification or expansion. For plumbing-related issues associated with fire protection systems, see the Fire Protection Section of this document.	A	
8-1.1 **Supplemental Criteria and Standards**. These criteria may be supplemented by individual Military Departmental criteria, including installation-specific requirements, as established by the Design Agent. Minimum design requirements shall be as provided by the International Plumbing Code (IPC) (reference 8b) in accordance with UFC 3-420-01 (reference 8a), the National Fire Protection Association Standards, and the other documents listed as references.	A	
8-1.2 **Plumbing Systems**. Plumbing systems include domestic cold and hot water; sanitary, storm, and industrial (acid) waste drainage; water treatment (such as softening, deionization, reverse osmosis); fuel gas; and landscape irrigation. Plumbing systems shall be designed to be safe reliable and maintainable. Selection of materials, equipment, and installation techniques shall consider life cycle cost effectiveness and maintainability in addition to medical functional requirements. Potable water distribution pipe 50 mm (2") and smaller shall be copper. Designers are specifically alerted to provide for appropriate system isolation and balancability, and necessary equipment and design practices to avoid cross connections and backflow.	A	
8-1.3 **Seismic Requirements**. Seismic design criteria are provided in the Seismic Design Section 5 of this document.	A	
8-1.4 **Corrosion Protection**. All piping which will be installed in an environment that supports galvanic reaction shall be protected from corrosion in accordance with Military Department criteria and the standards and recommended practices of the National Association of Corrosion Engineers (reference 8c).	A	
8-1.5 **Waterborne Pathogen Prevention/Control**. The Center for Disease Control (CDC) (reference 8d), the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) (reference 8e),the American Society for Healthcare Engineering (ASHE) and the Joint Commission on Accreditation of Healthcare Organizations (JCAHO)(reference 8f) have cited two main means by which waterborne pathogens are introduced into MTF's - by the water supply system and cooling towers. Water-borne bacteria, chiefly Legionella, have been documented as the infectious pathogens in a significant percentage of nosocomial infections. The diseases associated with legionella infection are legionellosis, frequently resulting	A	

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in pneumonia, and Pontiac Fever, a less severe illness. The guidance provided in this Section addresses control of Legionella in plumbing systems, and is based in principle on the recommendations found in these references. Typical water supply systems, including base or public central distribution and local wells, must be presumed to be contaminated with the Legionella bacteria. Standard water utility treatment and testing practices are not considered adequate to ensure protection against the bacteria entering a facility. It is therefore necessary that Legionella bacteria prevention and control guidelines be considered in MTF designs.		
8-1.5.1 **Legionella Characteristics and Transmission**. The legionella bacterium is found throughout earth and water (aquifers, wells, reservoirs) environments, and must be expected in all water supplies. The greatest danger to humans occurs when the organism is permitted to multiply or "amplify" in a water supply system to the point that significant numbers of bacteria are present. Factors that lead to amplification include the following: -Growth support deposits or coatings in system piping or equipment (e.g. scale, sediment, biofilm). -A water temperature range of 25-42 degrees C (77-108degrees F) of both supply domestic cold and hot water systems, including temperature at fixture discharge, hot water generator, hot water return distribution systems, and in storage or holding tanks, -Stagnation in tanks, and supply and return distribution systems, for both cold and hot water. Legionella bacteria become aerosolized in moisture droplets of less than 5 micrometer diameter (optimum transmission droplet size for sustained suspension in air), created by shower heads, faucet aerators, spray nozzles, respiratory equipment, water impacting on hard surfaces, and bubbles breaking (such as occurs in hydrotherapy bath whirlpools). Practical means for altering the aerosols that can lead to legionella infections are limited.	A	
8-1.5.2 **General Design Considerations**. Legionella protection guidance is provided in applicable locations throughout this Section; however designers should also carefully consider provisions in the latest editions of the guidelines referenced at 8-1.5 above. Healthcare facility operational procedures for legionella control, such as cleaning or decontaminating of respiratory equipment and environmental sampling, are addressed in the referenced guidelines. The referenced guidelines also address disinfection techniques for reducing Legionella colonization in existing facilities, such as superheated water flushing and hyperchlorination shocking. Generally speaking, the goal of the legionella-protection design is not to eradicate the bacteria, but to prevent or limit colonization.	A	
8-2 **POTABLE WATER SUPPLY SYSTEM**.		
8-2.1 **Quality**. All potable water supplies shall have an established potability monitoring program to be acceptable for use by an MTF. When an MTF project includes a non-potable water service (i.e., "gray water") for systems such as irrigation, heating, or cooling, the design shall provide for requirements for signage, pipe labeling, and other means as needed to clearly identify the system (including outlets) as unsafe for human consumption.	A	
8-2.2 **Continuity of Service**. To the extent economically practicable, provide a minimum of two water services for hospitals, with each service fed from separate mains and sources, and designed for full demand (serving potable, process, and fire protection systems). These services should enter the building at separate locations. The purpose of this provision is to provide an uninterrupted supply of potable water, or permit swift service restoration, in the event of a water main break. If two separate water sources are not practically available, on-site storage shall be considered. Where practical, loop the mains around the facility and provide sectionalizing valves.	A	

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8-2.3 **Backflow Prevention**, **General**. The flow of non-potable water, or any other nonpotable liquids, into the potable water supply shall be prevented. Necessary measures to prevent backflow, cross connection, or back-siphonage shall be included in the design. Cross connection of a municipal and installation-dedicated (well-based, base pumping station, etc.) system shall require approval from the local Administrative Authorities. Generally, backflow isolation will be required on the main supply mains serving an MTF; Designers shall coordinate backflow prevention requirements, including requirements for maintenance accessibility and periodic testing, with the local municipality or Base Engineer, as appropriate.	A	
8-2.3.1 **Devices and Methods**. All potable water discharge points, such as a faucet discharging into a reservoir sink or tub, shall be provided with an adequate air gap, in accordance with referenced criteria. Fixtures or equipment where the discharge point is positioned below the reservoir rim shall be fitted with a vacuum breaker. Examples of concern include the following: -Bedpan washers, or similar fixtures including a flushometer valve. -Flexible-hoses or shower heads, of length sufficient to reach below fixture rim, typically found in procedure rooms, hydrotherapy bath equipment, laboratories, and food service areas (e.g. washers, steam tables). -Laboratory or other serrated-nozzle fixtures designed to accept flexible tubing. -Water delivery outlets serving therapeutic, surgical, or autopsy/mortuary procedures. -Hose bibs. For the protection of makeup supplies to low hazard equipment (such as autoclaves and fire protection sprinkler systems), double-check backflow preventers may suffice. For the protection of sources supplying high hazard equipment and processes, reduced-pressure backflow preventers are required. Designers shall include provisions for drainage of the discharge from these devices; refer to Tables 8-1 and 8-2. **Table 8-1. Potential Backflow Preventer Discharge Rates** Assembly Pipe Size mm (inch) / Discharge L/s (GPM) at 420 kPa (60 PSI) / Discharge L/s (G/PM) at 1050 kPa (150 PSI) 19- 32 (3/4-1 1/4) — 4.7 (75) — 8.8 (140) 38- 50 (1 ½-2) — 10.7 (170) — 17.6 (280) 63- 75 (2 ½-3) — 15.8 (250) — 25.2 (400) 100-150 (4-6) — 31.6 (500) — 53.6 (850) 200-250 (8-10) — 33.1 (525) — 56.2 (890) **Table 8-2. Floor Drain Flow Rates** Drain Size mm (inch) / Flow Rate* L/s (GPM)	A	

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100 (4) 5.6 (88) 150 (6) 16.8 (264) 200 (8) 36.3 (575) 250 (10) 66.3 (1050) 300 (12) 107.3 (1700) * Flow rates for a floor drain with slotted cover and 3 mm (1/8 inch) drain pipe slope.		
8-2.4 **Water Treatment**. A water chemistry analysis reporting, as a minimum, the calcium and magnesium concentrations and the water hardness shall be used as the basis for determining the potable water treatment design scope. Water treatment equipment packages requiring regeneration of media or components shall include multiple units as required to permit routine maintenance. Water treatment technologies for the control of waterborne pathogens are discussed at 8-2.5 below.	A	
8-2.4.1 **Scale Control**. Water softening will generally be required when the water supply to the facility has a hardness of 170 mg/L (10gr/gal) or more. The softening system should be designed to deliver water with a hardness between 50 mg/L (3 gr/gal) and 85 mg/L (5 gr/gal); designer shall determine if any specialized equipment used in the MTF may require more stringent requirements. Dental facilities' water hardness shall not exceed 85 mg/L.	A	
8-2.4.2 **High Purity Water Systems**. Water purification is the process by which contaminants or impurities, which affect undesirably the performance of specific equipment, or the outcome of medical and laboratory tests, are removed from the water. Water purification systems include reverse osmosis, deionization, ultra filtration, and UV sterilization. Type I and Type III reagent grade water, as specified in ASTM D 1193 (reference 8g), are used in various applications such as for medicine preparation processes in pharmacies, in distillation units, for designated laboratory outlets, and in selected equipment for Renal Dialysis, Glassware Washing, Central Sterile Supply, and other medical and laboratory functions. Their use shall be coordinated with the Using Agency and the Government Design Agent. The designer shall consider local and central treatment options, and treatment system combinations, best meeting the User's needs and overall life cycle cost. Refer to the Heating, Ventilating, and Air Conditioning Section for make-up water treatment design guidance for steam systems.	A	
8-2.5 **Legionella Control**. The relative danger that legionellae pose in any given MTF is a function of "system" factors which promote or discourage colonization (as discussed below and in references 8d, 8e,8f), of the relative vulnerability of the patient population, and even of such factors as climate and ground water temperature. The presence of aerosol generating sources such as showers and whirlpool baths increase the risk of legionella infection. More seriously ill patients, particularly those who are immunocompromised by medical condition or treatment, are more vulnerable to legionella infection than the general population. In addition to potential contamination danger from hot water systems, cold water systems pose the risk of supporting legionella colonization if the piping systems are subjected to heat sources. The temperature of cold water systems may be elevated into ranges more conducive to legionella colonization by ground temperatures, piping located in attics, ceiling spaces, equipment rooms, crawlspaces, or other unconditioned spaces, or by being located adjacent to hot water or steam piping. All of these risk factors should be taken into consideration when designing the domestic water system to help determine what special measures, if any, are called for to help control legionella.	A	
8-2.5.1 **Scale**, **Sediment**, **and Biofilm**. Scale, sediment, and biofilm are contaminants that support Legionella bacteria colonization. The extent to which these support colonization is a function of factors including potable water service quality (including the presence of living aquatic amoebae such as are found in biofilms), system operating temperatures, and pipe material. Standard control technologies for scale and sediment deposits normally minimize the contribution of these factors		

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to legionella colonization. Biofilms are resistant to some treatments. For addition and alteration projects, designers must be aware of the potential presence of established biofilms, sediments, and scale. Exercise caution in reusing existing piping system components without an analysis of the existing conditions. It may be contributing to Legionella colonization and subsequently, may lead to contamination of new service.		
8-2.5.2 **Reducing Legionella Potential in Existing Facilities**. High velocity water flushing may be to some degree effective to purge excessive scale and sediment from existing piping or equipment. Additional measures for reducing legionella colonization potential include cleaning or replacement of hot-water storage tanks, hot water generators, faucets, and showerheads. Piping disinfection may be accomplished via hyper chlorination at levels of up to 10 mg/L of free residual chlorine, or by thermal shock (hot water flushing) using water heated to a temperature of 65 degrees C (150 degrees F) or more for a duration of at least 5 minutes.		
8-2.5.3 **Design Considerations**. Treatment systems for legionella control shall be sized on the total potable water demand – both cold and hot. Treatment shall be applied to the water service main. Designs should incorporate the following practices to minimize the potential for legionella colonization: (a) Treatment systems shall be provided for hospitals, and shall be either copper-silver ionization or chlorine dioxide. (b) Whenever practicable, specify pipe, equipment, and fixture components having direct water contact to be of materials which inhibit bacteria colonization, such as copper. For inpatient MTF's, avoid materials that support colonization, such as natural rubbers and some plastics, whenever practical. (c) Design distribution mains to maintain balanced flow throughout. Piping runs should be as short as practicable. Avoid creating piping "zones" which experience infrequent use, and therefore stagnation. As practicable, route mains close to fixtures to minimize the lengths of branch piping runs. Avoid creating stagnant piping sections, e.g. dead legs. Do not locate cold water piping near hot water piping or other heat sources. (d) Locate pressure balancing and thermostatic mixing anti-scald valves as close as practicable to the fixture discharge. The maximum pipe run should be 2 meters (6 feet). (e) Piping between fixture shutoff and discharge should be self-draining where possible. (f) Use care to properly select the operating head of the recirculation pump(s), taking into consideration system head requirements, including the pressure drop of thermostatic mixing valves. (g) Consider instantaneous hot water generators where feasible, and when on-site storage is not required by other criteria, to avoid stagnant storage conditions. (h) Water storage of holding tanks, both cold and hot, shall be designed to have continuous flow with maximum practical velocity. They shall not be piped as branched components with discharge line shutoff valves closed. Storage tank capacity shall be adequate for the application, but not oversized. The capacity sizing shall factor in the current healthcare procedures such as increased outpatient medical functions reducing the load profiles and hot water recovery demand.	A	
8-2.6 **Domestic Hot Water Systems**.	A	
8-2.6.1 **Hot Water Demand**. The demand load can be calculated using several different methods, examples of which are contained in ASHRAE and American Society of Plumbing Engineers (ASPE) handbooks (references 8h or 8i). The preferred method for calculating hot water demand for an MTF is the per-fixture method. This method provides a means to account for various uses within each facility, and permits the tabulation of the hot water load using a specified demand for each fixture. Summing individual fixture demands, the total	A	

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demand is utilized to size the heater recovery rate and storage size. Table 8-3 provides a list of representative fixtures taken from MIL-STD-1691 (reference 8j) and their demands based on data provided in ASHRAE and ASPE handbooks (references 8h and 8i). For any fixture not shown, the designer shall determine the demand rate based upon experience, standard practice, and available Using Agency input. An example of system sizing is given below: **Additional Note:** The fixture-unit method is adequate for typical usage. Expanded usage for food service, non-standard fixtures, or abnormal usage patterns (extreme low or high demand peaks or erratic peak duration and occurrence) shall be factored into the sizing calculations. For example, food-service fixture demand factors need to be adjusted if disposable service ware is used. Concentrated patient treatment for sick call, or other instance of high-peak usage, is another example of fixture hot water demand adjustment. The Demand Factor and Storage Capacity Factor are listed in References 8h and 8i for given building types, which include a hospital but not medical clinic, dental clinic, nor laboratory. A Demand Factor of 0.40 and Storage Capacity Factor of 1.00 are considered representative for a clinic upon review of the factors for the building types shown. Factors for MTF's with laboratory space greater than 10% of the total facility space shall be coordinated with the Design Agent. **Table 8-3. Hot Water Demand per Fixture for MTF's** FIXTURE — L/H — (GPH) — HW SFU Sink, Clinic — 15 — (4) — 3 Sink, Plaster — 38 — (10) — 3 Sink, Service (General) — 76 — (20) — 3 Lavatory, Public (General) — 23 — (6) — 1½ Lavatory, Patient (Private) — 8 — (2) — 1 Lavatory, Clinic — 30 — (8) — 3 Basin, Mop Service — 76 — (20) — 3 Shower, Staff or Patient Group — 284 — (75) — 3 Shower, Patient (Private) — 114 — (30) — 2 Shower, Hydrotherapeutic — 1520 — (400) — 11 Bathtub — 76 — (20) — 3 Bath, Whirlpool, Arm — 130 — (35) — 3 Bath, Whirlpool, Arm/Foot/Knee — 57 — (15) — 3 Bath, Whirlpool, Leg — 380 — (100) — 7 Bath, Body Hydrotherapy (Hubbard) — 2270 — (600) — 17 Bath, Sitz — 114 — (30) — 3 Processor, X-ray — 57 — (15) — 3		
8-2.6.2 **Hot Water Design Temperature**. Domestic hot water shall be generated and stored at 60 degrees C (140 degrees F) minimum. It shall be tempered with a thermostatic mixing valve at the hot water generator discharge to permit distribution at a temperature range between 43 and 52degrees C (110-126 degrees F). The maximum hot water temperature	A	

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distribution design set point shall be 43 degrees C (110 degrees F).However, provide the capability to increase system temperature to 52degrees C (126 degrees F) to permit an MTF the option to increase the temperature if so recommended by the Infection Control Officer. It is extremely important to note that at this temperature the exposure time for a first-degree burn is approximately 45 seconds. This is considered an adequate period for a fully aware adult to remove the exposed body area from the stream of a sink or lavatory, thereby maintaining a relatively safe condition at these fixtures without the requirement furan anti-scald valve. Infants, persons desensitized by medical condition or treatment, or those with severely limited motor capabilities, may be endangered by water at this temperature. Anti-scald valves shall be provided as close as possible to the taps of "whole-body" fixtures such as showers, bathtubs, and hydrotherapy baths. Hot water recirculation systems shall be designed to limit system temperature drop to 3 degrees C (5.5 degrees F) or less. Maximum hot water temperatures for other applications shall not exceed the following: (a) Supply and Utility Areas. Central sterile supply, soiled utility rooms equipped with bedpan washers, cart wash areas, and special pathological wash areas shall be provided with 60 degrees C (140 degrees F) hot water. (b) Kitchen Areas. The temperature normally required in dietary areas is the same as that distributed to standard hand washing and bathing plumbing fixtures. Dishwashing (automatic equipment) and pot washing normally require 82 degrees C (180 degrees F). Booster heaters shall be provided to obtain this temperature. (c) All Other. All other domestic hot water applications shall be provided with a hot water temperature the same as is distributed to standard hand washing and bathing fixtures.		
8-2.6.3 **Hot Water System Temperature Maintenance**. In most facilities, a means of controlling system heat loss (and therefore temperature decrease) will be required to maintain delivery temperatures within acceptable tolerances. Hot water recirculation is required for all patient care facilities (both inpatient and outpatient), and shall be located as close to the fixture connections as practicable. Designs shall include provisions for isolating and balancing the system. Heat tape systems may be utilized in non-patient care facilities if cost justified, but are considered less desirable due to reported system malfunctions and difficulty in locating the malfunction point.	A	
8-2.7 **Plumbing Fixtures and Other Equipment**. Plumbing fixtures should conform generally to American Society of Mechanical Engineers International, ASME standards series A112 (reference 8k) or International Association of Plumbing and Mechanical Officials, IAMPO standards seriesZ124 (reference 8l). For uniformity, all fixtures shall be identified by the Joint Schedule Number (JSN) provided in MIL-STD-1691 (reference 8j).Quantities of fixtures shall be in accordance with the Tri-Service Management Activity (TMA) Program For Design (PFD).	A	
8-2.7.1 **Handicapped Fixtures**. Provide handicapped fixtures in accordance with the requirements of the Accessibility Provisions for the Disabled Section of this document and the TMA PFD.	A	
8-2.7.2 **Drinking Water Coolers**. Locate public drinking water coolers convenient to each public waiting room and elsewhere as directed by the using Military Department. The standard rating and performance shall conform to ARI Standard 1010 (reference 8m). Refer to the Accessibility Section of this document for handicapped requirements.	A	
8-2.7.3 **Emergency Shower/Eye Wash Fixtures**. Design in accordance with the American National Standards Institute (ANSI) Standard Z358.1 (reference 8n).	A	
8-2.7.4 **Water Usage Conservation**. As of July 1992, the National Energy Policy Act (EPACT) has specified maximum consumption requirements for water closets, urinals, faucets and shower heads (for example, the water closet standard was lowered from 13.2 liters (3.5 gallons) per flush to 6.1 liters (1.6 gallons). Low-flow fixtures shall be specified for all projects.	A	
8-3 **SANITARY DRAINAGE SYSTEM**. The MTF sanitary waste system shall be connected to an approved existing sewer system, either government or private as appropriate. If an existing sewage disposal system is not available, an	A	

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approved alternative system shall be provided. For example, a holding tank may be acceptable for remote locations, for temporary service while awaiting the installation or retrofit of an approved sewage disposal system, or a backup such as for hardened or essential facilities. Any alternative to an approved central sanitary system shall be coordinated with the Installation's local approving authority. When connected to a local public system, code requirements in excess of the IPC (reference 8b) imposed by the local regulatory agencies shall be considered in the design. The system shall be designed to avoid excessive back pressure and aspiration effects. Adequate cleanouts shall be provided to permit access to all sections of the waste drainage system. The cleanouts shall be located to avoid or minimize disruption of medical functions. If a facility sanitary waste requires lifting or pumping, provide duplex pumping equipment and a backflow preventing check valve. This equipment shall be connected to the alternative power source if one exists, or is included in the project scope.		
8-3.1 **Protection of Special Fixtures and Equipment**. Fixtures and equipment used for sterilization, and food preparation, processing, or storage, shall be protected from contamination by backflow of waste. An indirect waste line, such as an air break or physical disconnection (open drain) at the associated waste outlet, shall be incorporated into the system design. These provisions also apply to equipment that cannot be easily cleaned. Included are sterilizers, glass washers, refrigerators, kitchen equipment, film X-ray processors, dental lab equipment (e.g. boilout assembly tanks), and vacuum system separator tanks.	A	
8-3.2 **Special Drainage Equipment**. Interceptors shall be provided when precious materials or heavy metals, such as silver and barium, are sediment in the waste drainage from such spaces as a Cast Room, a Prosthodontics Laboratory, barium procedure areas, film X-ray processing, and spaces employing blood analyzers. Interceptors for barium waste shall be aluminum. Flush rim floor drains shall be provided in Autopsy. Garbage grinding disposers shall be provided in Kitchens on dishwashers, pot and pan sinks, and other sinks as designated. Grease traps shall be provided with grease-producing kitchen equipment including prewash sinks, pot washers or sinks, and floor drains serving kettles. Separators shall be provided in uses where petroleum products are subject to dripping or spills, such as ambulance garages and mechanical equipment rooms.	A	
8-3.3 **Special Purpose Waste Lines**. Separate waste lines shall be provided for acid waste and radioactive waste from laboratories, darkrooms and nuclear medicine treatment rooms, when justified by the quantities and/or concentration of reagent expected to be introduced. Acid-resistant waste piping will be utilized for such applications and, if required, will pass through a neutralizing or dilution tank before combining with building waste. If large quantities of acid or strong base solutions are to be discharged into the waste system, neutralization will be required. There are various radioactive materials to be found in an MTF. The particular radioactive waste for a given facility shall be identified. The appropriate prescribed manner of disposal in accordance with federal and local safety standards shall be incorporated into the design.	A	
8-3.4 **General-purpose Floor Drains**. General floor drains shall be considered for rooms in which water-using plumbing fixtures or equipment are located. These include physical therapy rooms which are equipped with hydrotherapy equipment, central sterile areas for sterilizers and sanitizing washers, food service areas, wash-down and housekeeping spaces, and mechanical equipment rooms which contain water-using equipment. Provision of floor drains in toilets shall be at the discretion of the using Military Department. Floor drains are normally not required at emergency shower locations.	A	
8-3.5 **Trap Priming**. Where a trap seal is subject to loss by evaporation, a trap seal primer valve shall be installed per IPC (reference 8b). When utilized, automatic primers shall incorporate a backflow prevention feature. Other means of trap prime maintenance, such as using alternative sealing fluids (e.g. glycerin), are not permitted.	A	
8-3.6 **Retrofit/Alteration Considerations**. The replacement of older existing fixtures with lower-flow fixtures will alter system performance. Smaller diameter pipe or increased slope may be necessary alterations.	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
8-3.7 **Elevator Pit Sumps**. Elevator pits shall be provided with a sump, which shall be either pumped or drained by gravity. Pumped designs shall deliver fluids to an indirect connection to the sanitary or storm drainage systems, such as a floor drain. The sump discharge line shall include a check valve to prevent back flow of fluid into the sump. If permitted by the local jurisdiction, a direct connection to the storm drainage system may be considered. Designers should also determine from the base engineering office or local jurisdiction if an oil interceptor is required. No other drains or sump discharges shall be connected to the elevator pit drain or sump. This equipment shall be connected to the alternative power source if one exists or is included in the project scope.	A	
8-3.8 **Mercury Control**. Facilities containing operations which generate mercury wastes in the free or leachable (e.g. dental filling amalgams – refer to 8-6.18.1) state which are intended to be disposed to the sanitary waste system, shall consider separation provisions in accordance with federal, state or local requirements. The separation provision shall be incorporated as close to the source point as feasible. For mercury generating operations which do not require a separation provision initially, provide a 0.2 square meter (2 square foot) floor space with 0.67 meter (2 foot) clearance all around to accommodate a retrofit installation.	A	
8-4 **STORM WATER DISPOSAL**. Provide drainage and disposal of storm water, direct or from runoff, from roofs and paved areas. The means of disposal shall preferably be to an existing storm sewer. If an existing storm sewer of sufficient capacity is unavailable, alternative means of disposal, including such options as ponds, basins, or dry wells, shall be considered. Storm water disposal shall be consistent with the Installation's storm water management plan.	A	
8-4.1 **Prohibited Discharge**. Storm water shall not be discharged into sanitary sewers, unless it is rated as a combination system and no alternative cost-effective means is available. When storm water is discharged into a combination system, the connection at the point of combining with the sanitary waste shall include a trap.	A	
8-4.2 **Sizing**. Sizing of the storm water drainage system shall be based on the guidance and precipitation rates shown in the IPC (reference 8b). When approved by the Design Agent, local storm data may be utilized if based on U.S. Weather Bureau specified sampling methods.	A	
8-5 **FUEL GAS SERVICE**. Applications for fuel gas utilization in MTF's include fuel source for space heating, domestic hot water generation, cooking, generation of steam for humidification and sterilization, and as a point-of-use heat or flame source to support medical and laboratory functions. The gas service for medical and laboratory functions is discussed in the Medical Gas Systems portion of this Section. Fuel gas system design, including liquefied petroleum gas systems, shall be in accordance with NFPA 54, 58, and 59A (references 8o, 8p and 8q) as applicable.	A	
8-6 **MEDICAL GAS SYSTEMS**. Medical gas systems include: compressed air for medical and dental patient and laboratory use; vacuum for medical and dental patient use, laboratory dust collection, waste anesthesia gas disposal; and gases for patient, laboratory, and equipment use. See Table 8-4 for general information. Medical gas systems shall be designed to be safe, reliable, and maintainable. **Table 8-4 Medical Gas Systems[1]** Reference NFPA 99, "Standard for Health Care Facilities." Compressed Air ---------- Appendix A Notation Nominal Description	A	

UFC Section/Paragraph Number			Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
Medical Compressed Air	MCA	345-380 kPa (50-55 psig)		
Dental Compressed Air	DCA	620-655 kPa (90-95 psig)		
Laboratory Air - Dental	LA	210-245 kPa (30-35 psig)		
Laboratory Air - Medical	LA	345-380 kPa (50-55 psig)		
Process Air	PA	830-865 kPa (120-125 psig)		
Vacuum				

Medical Vacuum	MV	51-65 kPa (15-19 in-Hg)		
Dental High Vacuum	DHV	51-65 kPa (15-19 in-Hg)		
Dental Low Vacuum	DLV	21-27 kPa (6-8 in-Hg)		
Laboratory Dust Evacuation	LDE	10 kPa (3 in-Hg)		
Waste Anesthesia Gas Disposal	WAGD	21 kPa (6 in-Hg)		
Gases				

Oxygen	OX	345-380 kPa (50-55 psig)		
Nitrous Oxide	NO	345-380 kPa (50-55 psig)		
Nitrogen	NI	1100-1275 kPa (160-185 psig)		

Compressed Air	Appendix A Abbreviation	Nominal Description
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Medical Compressed Air	MCA	345 kPa (50 psig)
Dental Compressed Air	DCA	620 kPa (90 psig)
Laboratory Air	LA	210 kPa (30 psig)
Process Air	PA	830 kPa (120 psig)
Instrument Air	IA	100-125 kpa (160-185 psig)
Vacuum		
Medical Vacuum	MV	65 kPa (19 in-Hg)
Dental High Vacuum	DHV	65 kPa (19 in-Hg)
Dental Low Vacuum	DLV	27 kPa (8 in-Hg)
Laboratory Dust Evacuation	LDE	10 kPa (3 in-Hg)

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
Waste Anesthesia Gas Disposal WAGD 21 kPa (6 in-Hg)[2] <u>Gases</u> Oxygen OX 345 kPa (50 psig) Nitrous Oxide NO 345 kPa (50 psig) Nitrogen NI 1105 kPa (160psig) 1. Other medical gas systems included in this Section but not in Appendix A: Surgical Handpiece Drive Air (SHDA) Ethylene Oxide (ETO) Gas (natural or propane) - flame or heat source 2. This is a minimum value; vacuum controlled by healthcare provider administering the anesthesia gas.		
8-6.1 **Systems for Medical Clinics**. Centrally piped medical gas/air/vacuum systems are not normally required or authorized for outpatient medical treatment clinics. If attached to an existing facility having central systems, Designers shall consider extending service lines to the clinic if life cycle cost effective.	A	
8-6.2 **Dental Clinics**. Centrally piped systems shall normally be provided for dental compressed air (DCA), high volume oral evacuation(DLV), high vacuum oral evacuation (DHV), high volume evacuation for laboratory dust use (LDE); dental laboratory air (LA), and surgical hand piece drive air (SHDA) as required to support the planned functions. A separate system for Waste Anesthesia Gas Disposal (WAGD) may be required unless the Using Agency designates the DHV or DLV system for that purpose. Fuel gas (natural or propane) shall be provided as required to support prosthodontic and orthodontic laboratories and Dental Treatment Rooms (DTR's). For freestanding clinics with less than 5 chairs, selection of central system for gases as opposed to point-of-use systems shall be based upon life cycle cost considerations.	A	
Criteria for Medical Gas Design in the Federal Republic of Germany (FRG). Considerations of safety and practical constructability require that medical gas systems design for facilities in the FRG be in accordance with European Norm (EN) 737 Standards 1-4, and other EN and Deutsche Industrie Normen (DIN) standards cited therein, supplemented with the following requirements of this document and NFPA 99: -Pipe marking labels shall be color coded per EN standard, with German language name of the gas or vacuum. In addition, a label carrying the English language name of the gas shall be affixed at the same location. -Gas outlet and vacuum inlets shall have connections geometrically specific to a single gas or vacuum, non-interchangeable among other gases. Outlet and inlet labels shall be of a neutral color meeting EN requirements, consisting of a black or white background with white or black lettering, respectively, identifying the gas's chemical symbol. Additionally, colors on the medical gas symbols will be in accordance with NFPA 99 to assist in quickly identifying the appropriate outlet. -Piping and source producer shall be sized to meet the maximum demand identified by this document or by NFPA 99, at distribution pressures identified herein. -Flux shall not be used in the brazing process. -Continuous piping purge with oil-free nitrogen gas shall be required during brazing. -A nitrogen purge blow down of piping shall be required before connection of the gas or vacuum outlet/inlet in accordance with NFPA 99.	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
-The EN 737 "Test for Particulate Testing of the Pipeline" shall be modified to meet the more rigid testing requirements of the" Piping Particulate Test" of NFPA 99. -Two master alarm panels shall be provided for each facility. Additional alarm features required by NFPA 99, but not by EN 737, shall be provided for master, local area, and source equipment alarms panels. -Medical gas zone valves shall be in accordance with EN737, of the ball type. Pressure gauges shall be provided on the pipelines at the valve box locations. The medical vacuum line shall include a shutoff valve similarly as the other gas services. -Two vacuum producers, each sized for 100% of demand, shall be provided for the Waste Anesthesia Gas Evacuation (WAGE) system.		
8-6.4 **Medical Gas System Testing**. Medical gas systems shall be installed and tested in accordance with NFPA 99 (reference 8r).	A	
8-6.5 **System Control Valves**. All medical gas centrally piped systems shall be provided with shut-off valves and zone valve box assemblies in accordance with NFPA 99 (reference 8r). Additional shutoff valves shall be included as necessary to provide system section isolation for maintenance or alterations.	A	
8-6.6 **Alarm Systems**. Medical gas alarm systems shall be provided for all central piped systems in accordance with NFPA 99 (reference 8r).	A	
8-6.7 **Gas System Sources** (Storage). Gas system sources or storage provisions shall be designed in accordance with NFPA 99 (reference 8r).Flammable and nonflammable storage containers shall be stored in separate enclosures. Bulk oxygen storage design shall be in accordance with NFPA 50 (reference 8r).	A	
8-6.7.1 **Point-of-Use Sources**. Point-of-use cylinders are defined as B, D, or E sizes. The Designer shall coordinate with the Using Service the provisions for point-of-use cylinder storage when their use is planned. Storage in the storage room for central system cylinder banks is permissible. The point-of-use cylinder volume shall be included in the total when determining the storage room ventilation requirements. Design shall incorporate Compressed Gas Association requirements of Pamphlet P-2 (reference 8t).	A	
8-6.7.2 **Alternative Compressed Air Sources**. Alternative compressed air sources such as pneumatic control air or shop air compressors shall not be used as a source for medical compressed air, dental compressed air, laboratory air, process air, or surgical hand piece drive air.	A	
8-6.8 **Color Coding and Labeling**. Labeling and color identification of piping shall be in accordance with NFPA 99 (reference 8r) and the CGA Pamphlet C-9 (reference 8u). System components shall also be labeled for identification to prevent tampering and inadvertent closing. In particular, shutoff valves and pressure gauges shall be labeled in accordance with NFPA 99 (reference 8r).	A	
8-6.9 **Medical Gas Systems Outlets**. Appendix A contains guidance for allocation and location of medical services and outlets in the various spaces within an MTF. The amount represents the required number of outlets unless the Using Service specifies less. The Designer shall coordinate the gas types and outlet quantities with the Using Service. Additional outlets and gas types may be provided when justified by the Using Service to TMA. All outlets shall comply with the latest edition of NFPA 99 (reference 8r) and the requirements of Compressed Gas Association Pamphlet V-5 (reference 8v). There are DISS and Quick Connect type outlets, with two primary different configurations of the Quick Connect outlet. Therefore, designer shall also coordinate the outlet type configuration with the Using Service so that the Users will not have to use an outlet adapter for their existing medical equipment.	A	
8-6.9.1 **Outlets for Non-Medical Function Use**. The use of a central medical gas system to serve an outlet that indirectly	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
supports the medical function such as in a laboratory may be justified. If so, the branch piping and outlets shall be in accordance with NFPA 99 (reference 8r). Non-medical uses are not permissible except for unique circumstances with documented waiver requests, coordinated with the Using Service and Design Agent, reviewed individually.		
8-6.10 **Emergency Power Source**. Life-critical medical gas system equipment, requiring electrical power for generation, operation, or alarm, shall be connected to an emergency power source. At the discretion of the Design Agent, when requested by the Using Service, dental compressed air, vacuum, and medical gas systems serving anesthetizing treatment rooms in outpatient and dental treatment clinics may be connected to an emergency power source. Refer to the Electrical Section of this document for connection design guidance.	A	
8-6.11 **Medical Compressed Air** (**MCA**). The MCA system shall be an independent central piped system consisting of two or more medical air compressors and a central receiver, all conforming to the requirements of NFPA 99 (reference 8r). It shall be used only for medical functions requiring breathable air to support respiration or for air-driven instruments that discharge into the pharynx. The MCA system shall not be used to satisfy any other compressed air requirements. The system design shall include automatic operation of the compressors, including alternating lead/lag status.	A	
8-6.11.1 **Air Quality Standards**. The medical air compressor(s) shall be specifically designed and manufactured for this purpose. MCA quality shall be as defined in NFPA 99 (reference 8r). Intake air shall be direct from outdoors or another source of equal or better quality located in accordance with NFPA 99 (reference 8r). Designers are responsible to size and show routing of medical air intake piping.	A	
8-6.11.2 **General Requirements**. MCA shall be provided by two or more compressors with provisions for automatic, alternating, and simultaneous operation. The compressors shall be sized such that if any one compressor fails, the remaining compressor(s) shall provide 100% of maximum system demand. Provide an alarm to indicate compressor failure that annunciates at the master medical gas alarm panel. All system components downstream of the compressors shall be sized for 100% standard system demand and be duplexed. The receiver shall have an automatic drain feature specified	A	
8-6.11.3 **Air Drying**. System design shall include an air dryer of either the mechanical refrigeration or desiccant type. Designers shall closely coordinate with the Using Agency for each project, to determine whether operating conditions, facility maintenance capabilities, air dryness limitations, or other factors favor preference of one type over the other for the given application. Designers are responsible to consider the following: (a) When mechanical refrigeration systems are specified, designers shall include specification of a cycling feature for all systems under 3.7 kW (5 horsepower (hp), to minimize the possibility of icing and moisture carry-over. Designers shall evaluate whether anticipated flow conditions will require the cycling feature for systems3.7 kW (5 hp) and over. (b) When desiccant systems are specified, designers shall consult the Using Agency on dryness limitations. Desiccant dryers are capable of drying the air to a dew point as low as –40 degrees C (-40degrees F), which may be considered too low for some medical or dental applications. When required by the User, the design shall include specification of equipment accessories that will permit upward adjustment of air moisture to the required dew point. (c) The relative advantages and disadvantages of mechanical refrigeration dryers and desiccant dryers generate questions. Good arguments may be made for in favor of either dryer type. Both systems can be successfully utilized in MTF's if project-specific conditions and User needs are taken into account and the equipment is properly specified. Additional general information of this topic is provided in Annex A at the end of this Section.	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
8-6.11.4 **MCA Demand**. System demand shall be calculated utilizing the peak flow and simultaneous use data in Table 8-5, as a minimum. The simultaneous use factors shall be used with judgment and modified to adapt to special conditions if required.	B	Requirements exceed those in the *Guidelines for Design and Construction of Hospital and Health Care* but are in line with typical hospital installations.

Table 8-5

	Design Flow in L/s (SCFM)				
Space/Equipment	Per Unit	Per Room	Per Bed	Per Outlet	Usage Factor %
Anesthetizing Locations:					
Special Surgery & Cardio-Vascular			0.2(0.5)		100
Major Surgery & Orthopedic		0.2(0.5)			100
Minor Surgery		0.2(0.5)			75
Emergency Surgery		0.2(0.5)			25
Radiology		0.2(0.5)			10
Cardiac Catheterization		0.2(0.5)			10
Ventilators	1.7(3.5)				100
Delivery Room		0.2(0.5)			100
Acute Care Locations:					
Recovery Room/Surgical			0.9(2.0)		25
ICU/CCU			0.9(2.0)		50
Emergency Room			0.9(2.0)		10
Neonatal ICU			0.7(1.5)		75
Dialysis Unit			0.2(0.5)		10
Recovery Room/O.B.			0.9(2.0)		25
Subacute Care Locations:					
Nursery		0.2(0.5)			25
Patient Rooms		0.2(0.5)			10
Exam & Treatment	0.5(1.0)			10	
Pre-Op Holding				0.7(1.5)	10
Respiratory Care	0.5(1.0)			50	
Pulmonary Function Lab				0.5(1.0)	50

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
EEG & EKG 0.5(1.0) 50 Birthing & Labor/Delivery 0.5(1.0) 50 Other: Anesthesia Workroom 0.7(1.5) 10 Respirator Care Workroom 0.7(1.5) 10 Nursery Workroom 0.7(1.5) 10 Equipment Repair 0.7(1.5) 0.7(1.5) 10 Med. Laboratory 0.7(1.5) 25 NOTE: This is a generic listing that must be applied to the specific room names listed in Appendix A.		
8-6.12 **Dental Compressed Air (DCA)**. A central piped dental compressed air (DCA) system with two or more compressors and other components described herein shall be provided in accordance with NFPA 99 (reference 8r), Level 3 compressed air systems. DCA shall be used for drying applications during dental procedures and as a power or drive source for lifts, locks, and pneumatic dental instruments and equipment. DCA, unlike MCA, is not used for breathing or respiratory support of any kind and shall not be used to satisfy MCA requirements. Air that is normally used for dental laboratory restorative and fabrication techniques may be provided by the DCA system. Refer to 8-6.15, for handpiece drive air requirements.	A	
8-6.12.1 **Air Quality Standard**. DCA quality shall be as defined in NFPA 99 (reference 8r), Level 3 compressed air systems. Intake air shall be direct from outdoors or of quality better than outside air.	A	
8-6.12.2 **DCA Components**. DCA shall be provided by two or more equally sized compressors, with provisions for automatic, alternating, and simultaneous operation. Each compressor shall be sized such that if anyone compressor fails, the remaining compressor(s) shall provide 65% of standard demand. Provide an alarm to indicate compressor failure that annunciates to the master medical gas alarm panel. All system components downstream of compressors shall be sized for maximum combined compressor output. In-line pressure regulators shall be provided when DCA and dental LA systems are served by a common compressor. Each laboratory supply main shall have a pressure regulator. Dryer type may be of either the mechanical refrigeration or desiccant type, according to project specific operational requirements and the User's needs. Refer to 8-6.11.3 above and Annex A at the end of this Section for additional information.	A	
8-6.12.3 **DCA System Demand**. The system shall be sized using the following criteria. (a) Select a DTR Usage Factor: Number of DTR's — DTR Usage Factor (DUF 1-3 — 1.0 4-6 — 0.9 7-12 — 0.8 13-19 — 0.7 20 and up — 0.6 (b) DTR Demand = No. of DTR's X 1.42 L/s X DUF (c) Select a lab usage factor: Number of Technicians — Lab Usage Factor (LUF)	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
1-5 0.6 6-10 0.5 11-19 0.4 20 and up 0.3 (d) Lab Demand = No. of Technicians X 0.472 L/s X LUF + No. of sand/shell blasters X 1.888 L/s X LUF + No. of air chisels X 1.415 L/s X LUF + No. of denture presses X 0.472 L/s X LUF + No. of microblasters X 2.831 L/s X LUF + No. of high speed hand pieces X 1.415 L/s X LUF (e) Sterilization demand = No. of hand piece purge stations X 0.472 L/s. (f) Standard demand = DTR demand + Lab demand + Sterilization demand. (g) Select the optimum compressor grouping: COMPRESSOR GROUPING Type — System Usage Factor (SUF) Duplex 0.65 Triplex 0.33 Quadplex 0.25 (h) Compressor size = SUF X Standard demand (i) The receiver shall be sized based on Table 8-6. **Table 8-6. Receiver Size** Number of DTR's — Liters (Gallons) per DTR 1 -6 34(10) 7 -9 30(9) 10 – 12 26(8) 13 - 15 23(7) 16 - 18 19(6) 19 - 21 15(5) Over 21 15(4)		
8-6.13 **Laboratory Air (LA)**. The medical or dental laboratory air (LA) system shall be a central piped system consisting of two or more compressors and a central receiver, all conforming to the requirements of NFPA 99 (reference 8r).	A	

<table>
<tr><th>UFC Section/Paragraph Number</th><th>Comment</th><th>Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)</th></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>8-6.13.1 Air Quality Standard. Air compressors used for LA shall be specifically designed and manufactured for this purpose. LA quality shall be in accordance with the dental compressed air (DCA) requirements defined in 8-6.12.1. Intake air shall be direct from outdoors or of quality better than outside air (e.g., profiteered outdoor air or relieved return air). Locate intake in accordance with DCAs requirements as defined in NFPA 99 (reference 8r), Level 3. LA shall be supplied at a minimum of 210 kPa (30 psig) for dental laboratories and 345 kPa (50 psig) for medical laboratories, with a +35 kPa (5 psig) tolerance.</td><td>A</td><td></td></tr>
<tr><td>8-6.13.2 LA System Components. LA shall be provided by two equally sized compressors with provisions for automatic, alternate, and simultaneous operation. Each compressor shall be sized to provide 65% of maximum demand. Provide an alarm to indicate compressor failure that annunciates to the master medical gas alarm panel. All system components downstream of compressors shall be sized for maximum combined compressor output. A DCA compressed air generator package used to service a LA system shall be supplied by a dedicated main located just downstream of the final package component and inside the equipment room.</td><td>A</td><td></td></tr>
<tr><td>8-6.13.3 LA System Demand. The LA system flow demand shall be determined by the number of work stations and their function plus the requirements for laboratory equipment. The using Military Department shall provide this information. The designer in conjunction with the Design Agent shall establish the flow rates. Medical LA system flow rate demand shall be 0.5 L/s (1 cfm) per outlet. Dental LA system flow rate demand is determined by the sizing procedure shown in 8-6.12.3. The simultaneous use factors shall be as follows in Table 8-7:

Table 8-7. Medical Laboratory Air System Demand

<table>
<tr><th>No. of Outlets</th><th>Use Factor</th><th>Minimum L/s (CFM)</th></tr>
<tr><td>1-2</td><td>100</td><td></td></tr>
<tr><td>3-12</td><td>80</td><td>1.4 (3)</td></tr>
<tr><td>13-38</td><td>60</td><td>4.7 (3)</td></tr>
<tr><td>39-115</td><td>40</td><td>11.8 (25)</td></tr>
<tr><td>116-316</td><td>30</td><td>23.6 (50)</td></tr>
<tr><td>317-700</td><td>20</td><td>44.8 (95)</td></tr>
</table>
</td><td>A</td><td></td></tr>
<tr><td>8-6.14 Instrument Air (IA). An Instrument Air (IA) system is intended to be used to power medical devices not related to human respiration (e.g. to power surgical tools, surgical arms, and surgical columns). This system may be utilized in lieu of a high pressure piped nitrogen (NI) system. The using Military Department in conjunction with the Design Agent will identify IA requirements. IA shall not be used to satisfy Medical Air (MA) requirements. IA systems shall be designed in accordance with the requirements of NFPA 99 (reference 8r).</td><td>A</td><td></td></tr>
<tr><td>8-6.14.1 Air Quality Standard. Air compressors used for IA shall conform to the requirements of NFPA 99. Instrument air quality shall be as defined in NFPA 99 (reference 8r). It is recommended that intake air be direct from outdoors, but it is permitted to be within the equipment room.</td><td>A</td><td></td></tr>
<tr><td>8-6.14.2 IA System Components. The number of compressors for an IA system shall be a function of the application; however, at least two compressors or one compressor with a standby header must be provided as a minimum. Coordinate the compressor arrangement with the Using Service’s Design Agent. Each compressor shall be sized to provide 100% of the</td><td>A</td><td></td></tr>
</table>

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
demand. Provide an alarm to indicate compressor failure that annunciates to the master medical gas alarm panel in accordance with NFPA 99 (reference 8r). All system components downstream of compressors shall be sized for 100% of the system peak demand.		
8-6.14.3 **IA System Demand**. The number of workstations and their functions plus the requirement of any equipment shall determine the IA system flow demand. The using Service shall provide this information. The designer in conjunction with the Design Agent shall establish the flow rates.	A	
8-6.15 **Surgical Handpiece Drive Air** (**SHDA**). SHDA may be used as a substitute for nitrogen to power pneumatic surgical handpieces used in dental procedures. SHDA is not used for breathing or respiratory support. SHDA must be a separate system from DCA and dental LA; however, DCA may be used as a first stage of compression.	A	
8-6.16 **Medical-Surgical Vacuum System** (**MV**). The medical vacuum (MV) system shall be a centrally piped, dry vacuum system containing two or more continuous duty pumps with a central receiver. The system shall meet the requirements of NFPA 99 (reference 8r) and shall be sized so that if one pump fails, the remaining pump(s) can supply 100% of the total system demand. The system design shall include automatic operation of the vacuum pumps including alternating lead/lag status. Provide an alarm to indicate vacuum pump failure that annunciates to the master medical gas alarm panel.	A	
8-6.16.1 **Applications**. The MV shall be used only for medical functions involving patient care, therapy, and diagnostic functions as described below. It may also serve DHV requirements for dental treatment rooms and oral surgeries, and small laboratories in patient care areas that function in direct support of medical functions. Analysis, research or teaching laboratory located within a medical treatment facility may also be served by the MV, provided that a separate system connection or main is provided at the vacuum receiver, with a shutoff valve and trap with a drain valve. A laboratory not supporting medical functions shall have a vacuum system separate from the MV.	A	
8-6.16.2 **Demand**. Vacuum system pumps and piping shall be sized in accordance with NFPA 99 (reference 8r) "Recommended Vacuum Source Sizing" and "Recommended Minimum Pipe Sizing." Note to "round up" pipe sizes, especially those serving operating rooms including the risers and laterals. Ascertain the intended staff operational procedures to determine the need for an additional factor of safety. Indiscriminate opening of vacuum inlets for extended periods, whether in service or not, requires a factor increase in demand and pipe sizing. Also, the intended use of "Y-connectors" as a means of increasing available inlets is not recommended. A justified need for a vacuum inlet shall be accommodated with another wall inlet, not a Y-connector. Verify with the User's representative that the number of vacuum inlets proposed will support the planned medical function operation without the use of Y-connectors.	A	
8-6.16.3 **Performance**. System pressure drop shall be a maximum of 10 kPa (3 in-Hg) at the calculated demand flow rate. A flow rate of 1.4 L/s (3 scfm) per inlet, with no equipment attached, shall be measured while maintaining 41 kPa (12 in-Hg) vacuum at the farthest inlet. The 1.4 L/s (3 scfm) without equipment is equivalent to the recommended 0.7 L/s (1.5 scfm) with.	A	
8-6.16.4 **Slide Brackets**. Vacuum bottle slide brackets shall be provided for all medical vacuum inlets. Vacuum bottles shall be used at all vacuum inlets to prevent liquids and solids from entering the piping network. Vacuum bottles shall be provided with an overflow shut-off device to prevent carry over of fluids or solids into the piping system. Brackets shall be positioned to provide proper clearance for flow meters and adapters and to eliminate conflict with electrical receptacles. Thus, it is recommended that the vacuum outlet be located at either end of a group of medical gas outlets, with the slide bracket to the outside, e.g. in a healthcare station head wall unit. If two vacuum inlets are required at a given station, locate one at each end of the outlet group with the slide brackets to the outside. It is critical to coordinate vacuum inlet and slide locations with the Architectural Designer and the User's representative to avoid interference with other items without compromising the	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
medical function.		
8-6.16.5 **Exhaust**. Vacuum shall be exhausted in accordance with NFPA 99 (reference 8r).	A	
8-6.17 **Dental High Vacuum** (**DHV**). A central DHV system may be supplied for areas in dental clinics where MV is required as specified in Appendix "A." This system is also a dry system with a central piped distribution system and receiver; no liquids or solids shall be transported in the distribution system. Individual separators shall be located in each applicable DTR. The system shall consist of two or more vacuum pumps and a central receiver. System shall be sized so that upon failure of one pump the remaining pump(s) shall maintain the minimum vacuum specified while providing 100% of the calculated demand. The system design shall include automatic operation of the vacuum pumps including alternating lead/lag status. Provide an alarm to indicate vacuum pump failure that annunciates to the master medical gas alarm panel. For dental clinics located in a hospital, the MV system may be used in lieu of a DHV system.	A	
8-6.17.1 **Performance**. A minimum vacuum of 65 kPa (19 in-Hg) shall be maintained at the receiver. System pressure drop shall be such that the most remote inlet will have a minimum vacuum of 41 kPa (12 in-Hg) under peak demand conditions. System pressure drop shall be a maximum of 10 kPa (3 in-Hg) at the calculated demand flow rate.	A	
8-6.17.2 **Demand**. System demand shall be calculated based on 0.9 L/s (2 SCFM) for each DTR DHV inlet with the demand factors in Table 8-9: **Table 8-9 DHV Demand Factors** No. of DTR DHV Inlets — Use Factor 1 – 6 — 1.0 7 – 10 — 0.8 Over 10 — 0.6	A	
8-6.18 **Dental Low Vacuum** (**DLV**). A central low vacuum, high volume oral evacuation system or DLV shall be installed in dental clinics to provide scavenging, collection, and disposal of liquids, solids, and aerosols from dental procedures. This is a wet system with liquids and solids transported through wetted piping from the collection point to one or more liquid/air separator tanks located upstream of two or more vacuum pumps. The tank serves as a collector for the fluids and solids and provides a means of automatic draining for them by being connected, indirectly, to the sanitary sewer. The tank draining system may include an automatic wash down feature for larger systems in an MTF having greater than 10 DTR's. The system shall meet the requirements of NFPA 99 (reference 8r) Level 3 vacuum systems. The vacuum pumps shall be sized so that when one pump is inoperable, the remaining pump(s) shall provide the above vacuum pressure and fluid flow for a minimum of 70% of the system demand. The system design shall include automatic operation of the vacuum pumps including alternating lead/lag status. Provide an alarm to indicate vacuum system fault (e.g. pump failure) that annunciates to the master medical gas alarm panel. Protocol shall include alarm initiation when a pump does not operate when called for and when a pump operates when not called for.	A	
8-6.18.1 **Components**. The service inlet normally is floor mounted in a utility center at the dental chair, or wall mounted with a means of connection to clinical end items such as the high volume hose. The separator(s) shall receive all liquid, air, and solids upstream of vacuum pump(s). Liquids and solids shall be discharged from the separator(s), with piped gravity flow through an air gap into a trapped and vented receptor (e.g. a floor drain or sink, or standpipe receptor for small system suspended tank installations) connected to the sanitary waste system. Local codes may require the use of an amalgam	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
separator between the separator tank and the sanitary waste system to control the discharge of mercury into it. Refer to 8-3.8 for additional guidance. Coordinate with the Installation or local regulatory agency when discharge is to a public sanitary system. For government operated systems, coordinate with the using Military Department or the Installation. The separator tank shall discharge a minimum of once during a 24-hour interval for a one-tank system, when a high liquid level sensor activates for a two-tank system, or multiple daily discharges as recommended by the manufacturer. Separator overflow protection shall be included to protect during periods of abnormal usage or when the automatic discharge malfunctions.		
8-6.18.2 **Performance**. The system operating range shall be 21 to 27kPa (6 to 8 in-Hg). A minimum vacuum of 21 kPa (6 in-Hg) shall be maintained at the farthest inlet. System pressure drop shall be a maximum of 3 kPa (1 in-Hg) at the calculated demand flow rate. A flow rate of 3.3 L/s (7 scfm) per inlet shall be measured while maintaining 21kPa (6 in-Hg) at the farthest inlet. 8-6.18.3 **Demand**. The system demand shall be calculated based on 3.3L/s (7 scfm) per inlet-nozzle orifice. To offset piping and component losses, increase the demand flow rate by the appropriate factor from Table 8-10. **Table 8-10. Demand Flow Rate Increase** Number of Inlets — Increase (%) 1-20 — 10 21-40 — 15 41 and above — 20 The demand usage factor is normally 100 percent. Verify the specific usage factor with the User and the Design Agent.	A	
8-6.18.4 **Separator Tank**. The separator/collector tanks shall be sized according to Table 8-11. **Table 8-11. Seperator Tank Sizing** Number of DTR's — Quantity — Separator Tanks Minimum Size L (Gal) 1- 6 — 1 — 76 (20) 7-10 — 1 — 152 (40) 11-20 — 1 — 304 (80) 21-30 — 2 — 152 (40) 31 and above — 2 — 10.5 (2.75) per DTR An alternative separator tank-sizing factor is 10.45 liters (2.75gallons) per DTR. The use of multiple tanks can be considered for the lower number of DTR's if continuous operation is necessary. Tank drainage piping shall slope from the tank discharge point down to the discharge point at the floor drain or standpipe receptor.	A	
8-6.18.5 **Equipment Location**. The DLV equipment shall be located on or below the DTR floor level. The separator tank location shall be near the pump at the same level or directly above or below whenever feasible. When space constraints are unavoidable, after coordination with the Design Agent and using Service, or other circumstances dictate, vacuum pumps may be located above and remote from the separator tank. The pipe shall then be sized to maintain system pressure loss within the maximum limit. The tank drain valve discharge shall be a minimum 150 millimeter (0.5 foot) above the floor to accommodate the pipe slope, drain line turndown and the indirect connection air gap to the sanitary drainage system	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
receptor. The sanitary waste centerline of pipe shall be a minimum 0.34 meter (1 foot) below the floor to accommodate the floor drain trap. The equipment room shall be located as near the DTR's as possible to minimize distribution piping bends and pipe length. Equipment placement in the mechanical room shall be arranged to provide the most direct connection to the distribution piping, the sanitary waste line, and the exhaust discharge point, in that order.		
8-6.18.6 **Piping Distribution**. The piping run from the dental utility center, located on or recessed into the floor, should continuously slope back to the vacuum source equipment with limited rise, to facilitate transportation of fluids and particulate. Minimum required slope is 0.65 centimeter per 3.0 meter (1/4 inch per 10 feet). Vacuum shall be increased from the level specified in Table 8-4 at the rate of 1 in-Hg for every 1.1 foot of rise. Distribution system piping encased in the slab or buried below the slab shall be a minimum 50 millimeter (2 inch) in diameter. Where maintenance access is required, piping shall be installed in accessible locations in covered trenches, tunnels, or crawlspaces. Provide cleanout fittings at every change of direction greater than 45 degrees. Minimum access space shall be two feet minimum to within two feet of the cleanout and a minimum 0.5 foot from this point to the cleanout. Specify DWV fittings to facilitate movement of solids. Enlarging the pipe size shall be considered depending upon availability of the DWV fittings and relative pipe costs. When overhead pipe routing cannot be practicably avoided, provide cleanout fittings at the base of all risers and observe the following requirements: a. Minimize lift height by locating overhead horizontal pipe run as close to floor as possible. b. Vertical pipe run from inlet to overhead pipe shall be a minimum 40-millimeter (1½-inch) diameter. c. Overhead pipe shall be not less than 40 millimeter (1½ inch) minimum in diameter. d. The vertical pipe shall "tee" into the top of the overhead branch main. e. The available vacuum level to satisfy performance requirements stated in 8-6.18.2 shall be based on a reduction of the pump-generated vacuum at the rate of 3kPa (1 in-Hg) for each 0.33 meter (1.1 foot) rise.	A	
8-6.18.7 **Exhaust**. The exhaust pipe material and size, including the connection to the equipment discharge point, shall be in accordance with manufacturer's recommendation. The number of bends and total length shall be minimized. The exhaust piping shall be a dedicated run from the equipment connection to the discharge point outside the MTF. It shall not be connected to any other piping, such as a plumbing vent line. The exhaust line shall be protected from backflow of air or liquids by detailing an appropriate discharge arrangement, such as a gooseneck or shroud with screen with a check valve, or using a flapper valve approved by the manufacturer. The discharge point shall be separated a minimum of10 meters from the dental or medical compressed air system intakes and any HVAC system outdoor air intake(s).	A	
8-6.19 **Central Dental High-Volume Laboratory Dust Evacuation** (**LDE**).The LDE system shall scavenge and centrally separate, filter, and collect material trimmings, grinding debris (toxic and nontoxic), and particulates from polishing and finishing operations in the dental laboratory. Point of use dust collection may be provided for some operations per using Military Department requirements.	A	
8-6.19.1 **System Components**. The LDE system for dental laboratories shall consist primarily of one belt-driven vacuum pump complete with a preset, field-adjustable ingestion valve, exhaust silencer, and a central cyclonic separator with a filter bag system.	A	
8-6.19.2 **Performance**. The vacuum at the farthest inlet shall be a minimum of 4.2 kPa (1.25 in-Hg). A flow rate of 28 L/s (60 scfm) per technician work station inlet and 71 L/s (150 scfm) per equipment item inlet shall be measured while maintaining the 10 kPa (3 in-Hg) at the separator. Verify the equipment requirements with the using Military Department.	A	
8-6.19.3 **Demand**. The system demand shall be calculated based on the inlet flow rate requirement. Apply the usage factor values shown in Table 8-12 for the given number of inlets.	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
Table 8-12. LDE System Utilization Factors Lab Size (# of inlets) / Usage Factor (Percent) / Separator Filter m2 (Sq. Ft.) 1 to 4 / 100 / 5.6 (60) 5 to 10 / 80 / 11.2 (120) 11 to 15 / 70 / 14.9 (160) 16 to 24 / 60 / 20.5 (220)		
8-6.20 **Waste Anesthesia Gas Disposal (WAGD)**. The WAGD system shall be a centrally piped, dry vacuum system containing two or more continuous duty pumps with a central receiver. It shall meet the requirements of NFPA 99 (reference 8r) and be sized so that if one pump fails, the remaining pump(s) can supply 100% of the total system demand. The system design shall include automatic operation of the vacuum pumps including alternating lead/lag status. Provide an alarm to indicate vacuum pump failure that annunciates to the master medical gas alarm panel.	A	
8-6.20.1 **Applications**. Disposal of waste anesthesia gas shall be incorporated into the MTF design. A dedicated Waste Anesthetic Disposal (WAGD) system shall be provided in accordance with NFPA 99 (reference 8r). When permitted by NFPA 99, the vacuum system may be used for WAGD in dental clinics. Inlets shall be provided in anesthesia locations. Verify that the system vacuum pump is suitable for the high oxygen and nitrous oxide exhaust content associated with anesthetizing procedures.	A	
8-6.20.2 **Demand and Performance**. Designers shall coordinate with the Using Agency the vacuum demand level and flow requirements.	A	
8-6.20.3 **Exhaust**. Vacuum shall be exhausted in accordance with NFPA 99 (reference 8r).	A	
8-6.21 **Oxygen** (**OX**). Oxygen (OX) is used in the gaseous state to sustain life through direct delivery to the patient. Oxygen can be stored as a gas in cylinders or as a liquid in bulk tanks. It is classified as a nonflammable gas; however it can increase the range of flammability of other materials and gases when present in sufficient concentration. Its storage requires proper construction and ventilation, in accordance NFPA 99 and NFPA 50 (references 8r and 8s). The oxygen system shall not be used to supply non-patient uses, including equipment in laboratories or medical equipment maintenance/repair shops. Separate point-of-use services shall be used for such non-patient applications.	A	
8-6.21.1 **Provision of Central Systems**. When justified by the number of required outlets and frequency of use, central oxygen storage and distribution systems shall be provided, such as is typically the case with medical centers, hospitals, and large ambulatory care centers. Point-of-use ("roll-in") cylinders should be utilized for clinical applications involving few oxygen outlets and infrequent utilization.	A	
8-6.21.2 **Emergency Connection**. Provide an emergency oxygen supply connection on the building exterior when the oxygen supply system is located outside of the building. This connection shall be used as a temporary auxiliary source of supply. Valving and pressure control devices shall be in accordance with NFPA 99 (reference 8r).	A	
8-6.21.3 **System Demand**. The piping system shall be designed to deliver 20 L/min (0.7 cfm) at the outlet, utilizing a 100% usage factor for outlets in critical areas and the factors in Table 8-13 for outlets in other areas. Historical usage data from replaced or similar MTF's maybe used as a guideline when determining system demand instead of the method presented in 8-6.21.4. Refer to 8-6.21.5 below for additional design considerations for determining the required capacity of liquid bulk tanks.	B	Design information provided by medical gas vendors is 10 L/min. This will reduce the

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
Table 8-13. Oxygen System Utilization Factors Number of Outlets — Percent Usage 1-3 — 100 4-12 — 75 13-20 — 50 21-40 — 31 41 or more — 25		cost of the piping system.
8-6.21.4 **Storage Capacity Sizing Method**. In the absence of available historical oxygen consumption data, Table 8-14 shall be used in estimating required system storage capacity for MTF's having large inpatient populations (e.g. hospitals and medical centers). For facilities with predominantly outpatient functions, designers shall work with the Using Service to estimate consumption rates and appropriate storage capacities. **Table 8-14. Cylinder Manifold Systems** Number of Beds — Minimum Number of Cylinders[1] 1 -50 — 8 51 -75 — 12 76 - 100 — 16 101 - 125 — 20 126 - 150 — 24 Over 150 — Requires special study[2] [1] Per bank of "H" cylinders [2] The special study shall include an analysis of an appropriate diversity factor and the cost effective option between cylinder and bulk storage. Little published data is available at present to help establish oxygen consumption on a per-outlet basis in predominantly outpatient facilities. Oxygen usage rates and procedural duration vary widely depending upon the clinical application. For example, a typical surgical procedure begins with a preparatory oxygenating period of up to 10 minutes at a consumption of 6 to 8 L/min (0.2 to 0.3 cfm). During the actual procedure, the usage rate decreases to 1 to 3 L/min (0.04 to 0.11 cfm) for a time period ranging from a fraction of an hour to several hours depending upon the nature of the surgery. A post-surgical de-nitrogenizing period of up to 10 minutes at 6 to 8 L/min (0.2 to 0.3 cfm) follows. Post-operative demands range as high as 18 L/min for recovery rooms with an average stay that ranges from 30 to 120 minutes. Oral surgery procedures usually involve a 6 L/min rate throughout the procedure. Specialty applications (e.g. pediatrics) tend to demand relatively higher usage rates. Because of these wide variations, Designers shall closely coordinate with the Using Agency to establish system demand and size satisfactory storage capacity.	A	
8-6.21.5 **Liquid Bulk-Tank Storage**. Designers shall coordinate with the Using Agency to consider the economic aspects of storage capacity. Excessive capacity translates to higher utilization costs due to boil off. Too little capacity may	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
lead to higher costs because of more frequent tank refills, which includes vented oxygen cost as well as delivery fees. Designers shall also consider the availability of oxygen refill service. For remote locations, oversized capacity may be more practical and economical to minimize deliveries and provide for unexpected consumption increases. The selection between purchasing or leasing the bulk storage tank and ancillary equipment shall be coordinated. Both economic and logistic factors relative to the given supplier(s) shall be considered. The standard tank sizes are shown in Table 8-15. The tanks are normally leased with monthly rates typically ranging from $250 to $2000. Life cycle cost analysis will frequently show purchasing the liquid tank to be the more economical choice. In evaluating the costs associated with liquid services, be aware that the unit gas cost varies significantly with total delivery volume, presently from $0.75 to $1.25 per gallon for a 1895 liter (500 gallon) delivery, to as low as $0.40 to $0.45 per gallon for 34,065 liters (9000 gallons). Balance this consideration with boil-off costs. The average daily boil-off rate is approximately 0.5% of total tank volume. **Table 8-15. 30** Liters — Gallons 1,895 — 500 5,680 — 1,500 11,355 — 3,000 22,710 — 6,000 34,065 — 9,000 41,635 — 11,000 49,205 — 13,000 68,130 — 18,000 75,700 — 20,000 Fill (or purge) losses associated with the tank refill process may be significant. In tanks with a bottom-fill feature, gaseous oxygen must be purged prior to refill to lower the tank pressure below that of the delivery vessel, i.e. tanker truck. Depending upon local service availability, there are tank types and filling equipment which can minimize these losses. Top-filled tanks may be serviced without purge losses, if filling equipment is available with suitable pumps for overcoming tank pressure or utilizing the “top collapse” feature. These should be specified when available. The top-filling procedure must be conducted only by trained personnel to avoid uncontrolled system pressure drop below minimum service levels.		
8-6.21.6 **System Monitoring**. The central oxygen system design shall facilitate oxygen system purity monitoring with an outlet placed in the biomedical maintenance area, or other area, as directed by users. This outlet shall be upstream (on the source side) of all other oxygen outlets.	A	
8-6.22 **Nitrous Oxide (NO)**. Nitrous oxide is an anesthetic gas capable of inducing the first and second stages of anesthesia when inhaled. It is classified as a nonflammable gas; however, it can increase the range of flammability of other materials and gases when present in sufficient concentration. Its storage requires proper construction and ventilation in accordance with NFPA 99 (reference 8r).Nitrous oxide manifolds shall not be located outside in cold climates due to the low vapor pressure of nitrous oxide at low temperatures.	A	

<table>
<tr><th>UFC Section/Paragraph Number</th><th>Comment</th><th>Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)</th></tr>
<tr><td>8-6.22.1 System Demand. The piping system shall be designed to provide for a demand of 20 L/min (0.7 cfm) per outlet with the usage factors from Table 8-16 (reference 8x).

TABLE 8-16. Nitrous Oxide System Utilization Factors

<table>
<tr><th>Number of Outlets</th><th>Percent Usage</th></tr>
<tr><td>1-3</td><td>100</td></tr>
<tr><td>4-12</td><td>75</td></tr>
<tr><td>13-20</td><td>50</td></tr>
<tr><td>21-40</td><td>31</td></tr>
<tr><td>41 or more</td><td>25</td></tr>
</table>

For determining storage capacity for predominantly inpatient facilities, Designers may use Table 8-17. For predominantly outpatient facilities, designers shall determine storage requirements from historical consumption data of similar facilities, or by consulting the Using Agency as to the probable flow rate and duration for the planned healthcare procedures.

Table 8-17. Nitrous Oxide System Manifold Sizing

<table>
<tr><th>Number of Beds</th><th>Number of Cylinders/Bank[1]</th></tr>
<tr><td>50 - 100</td><td>2 expandable to 4</td></tr>
<tr><td>100 - 250</td><td>4 expandable to 6</td></tr>
<tr><td>250 - 500</td><td>6 expandable to 8</td></tr>
<tr><td>500 or More</td><td>Special Study[2]</td></tr>
</table>

1 Based on "G" cylinders and one complete change each week.
2 The special study shall include an analysis of an appropriate diversity factor and the cost effective Option between cylinder and bulk storage.</td><td>A</td><td></td></tr>
<tr><td>8-6.23 Nitrogen (NI). Nitrogen is an inert gas primarily used as an operating or driving means for medical and dental hand pieces and equipment, and as an inert gas environment for laboratory uses. The cylinder manifold system shall be designed and installed in accordance with NFPA 99 (reference 8r).</td><td>A</td><td></td></tr>
<tr><td>8-6.23.1 Control Cabinet. Each individual nitrogen use location (e.g., individual operating room, dental treatment rooms) shall be provided with a nitrogen control cabinet with pressure gauges and pressure regulating valves for the purpose of independently regulating pressures at that location.</td><td>A</td><td></td></tr>
<tr><td>8-6.23.2 Demand. The piping system shall be suitable to deliver 7 L/s (15 cfm) per outlet, with a demand usage factor of 100 percent. For the purpose of determining storage capacity, designers shall analyze the nitrogen demand of the tools and equipment intended for that facility, in consultation with the Using Service. When this information is not available, the required storage capacity may be estimated using Table 8-18 (reference 8x).

Table 8-18. Manifold Sizing for Nitrogen System</td><td>A</td><td></td></tr>
</table>

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
Number of Using Locations / Cylinders per Bank * 1-4: 2 5-8: 3 9-12: 4 13-16: 5 17-20: 6 21-24: 7 25-28: 8 * Assumes "H" cylinders and one complete change each week.		
8-6.24 **Sterilization Gas**. Gas/vapor sterilization may be used for treating contaminated medical equipment, implements, and certain infectious waste. In this method, the sterilizing agent is a gaseous or vaporized chemical. The two most commonly used chemicals are ethylene oxide (ETO) and formaldehyde, which may be carcinogenic.	A	
8-6.24.1 **Ethylene Oxide**. All precautions in the use of ETO as outlined by OSHA (reference 8y) and NIOSH CIB 52 (reference 8z) shall be strictly followed. ETO is regarded as a potential occupational carcinogen. (a) Layout. Where ETO is planned in a facility, a separate room for sterilizer, ETO supply cylinder, and associated piping shall be provided. Access to this equipment and storage room shall be from the Central Material Service work area only. The front of the sterilizer shall be accessed from the loading room. (b) Components. The cylinder supply line shall have a three-way valve to permit exhausting residual ETO vapors prior to changing the tanks. The supply, tank, and vent valves shall be labeled. (c) Ventilation. Ventilation shall also be provided for the waste gases from the sterilizer evacuation line and the drain air gap. See the Heating, Ventilating and Air Conditioning Section for exhaust system design guidance. (d) Emission Control. Some states have adopted legislation that prohibits the release of ETO sterilizer exhaust gas to the atmosphere. Presently the only available ETO emission control technology is based on a chemical conversion or scrubber. The design shall incorporate the necessary provisions to comply with both federal and state legislation. Local requirements shall be coordinated with the using Military Department and Design Agent.	A	
8-6.25 **Process Gas**. Process gas is natural or propane that is used as a point-of-use heat or flame source. The process is typically found in laboratories and sometimes in other areas such as equipment repair and DTR's to support medical or dental functions. The gas system design shall be in accordance with NFPA 54 and 58 (references 8o and 8p).	A	
8-6.25.1 **Load**. The load is the sum of the consumption rates for the given apparatus or equipment to be serviced. Laboratory burners are typically sized at 1465 W (5,000 Btuh) for small burners and 3075 W (10,500 Btuh) for large burners. For other equipment such as casting ovens, use manufacturer's data.	A	
8-6.25.2 Demand is based upon the number of outlets shown in Table 8-19. **Table 8-19. Process Gas Utilization Factors**	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
Number of Outlets / Percent Usage (%) 1-8 — 100 9-16 — 90 17-29 — 80 30-79 — 60 80-162 — 50 163-325 — 40 326-742 — 35 743-1570 — 30 1571-2900 — 25 > 2900 — 20		
REFERENCES		
8a. UFC 3-420-01 “Design: Plumbing Systems” 8b. International Code Council (ICC), “International Plumbing Code.” 8c. National Association of Corrosion Engineers (NACE), "Book of Standards and Their Applicable Recommended Practices." 8d. Center for Disease Control and Prevention, “Guideline for Prevention of Nosocomial Pneumonia.” 8e. American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc, ASHRAE Guideline 12-2000, “Minimizing the Risk of Legionellosis Associated with Building Water Systems.” 8f. American Society for Healthcare Engineering/Joint Commission on Accreditation of Healthcare Organizations, “Waterborne Pathogens– Compliance with JCAHO Requirements.” 8g. American Society of Testing and Materials, ASTM D 1193, “Reagent Water.” 8h. American Society of Heating, Refrigeration and Air-Conditioning Engineers, ASHRAE Handbook, “HVAC Applications - Service Water Heating.” 8i. American Society of Plumbing Engineers, Data Book, Chapter 4, “Service Water Heating Systems.” 8j. MIL-STD-1691, "Construction and Material Schedule for Military Medical and Dental Facilities." 8k. American Society of Mechanical Engineers International, ASME Series A112 Plumbing Fixtures and Appurtenances, e.g. “Enameled Cast Iron Plumbing Fixtures”, “Vitreous China Plumbing Fixtures”, and “Porcelain Enameled Formed Steel Plumbing Fixtures”. 8l. International Association of Plumbing and Mechanical Officials, IAMPO Series Z124 Plastic Plumbing Fixtures. 8m. Air Conditioning and Refrigeration Institute, ARI Standard 1010,"Drinking-Fountains and Self-Contained, Mechanically-Refrigerated Drinking-Water Coolers." 8n. American National Standards Institute, ANSI Standard Z358.1. 8o. NFPA 54, “National Fuel Gas Code.” 8p. NFPA 58, "Standard for Storage and Handling of Liquefied Petroleum Gases." 8q. NFPA 59A, “Standard for Liquified Natural Gas (LNG).” 8r. NFPA 99, "Standard for Health Care Facilities." 8s. NFPA 50, "Standard for Bulk Oxygen Systems at Consumer Sites." 8t. Compressed Gas Association, CGA Pamphlet P-2, “Characteristics and Safe Handling of Medical Gases.”		

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
8u. Compressed Gas Association, CGA Pamphlet C-9, "Standard Color-Marking of Compressed Gas Cylinders Intended for Medical Use." 8v. Compressed Gas Association, CGA Pamphlet V-5, “Diameter-Index Safety System – Non-Interchangeable Low Pressure Connections for Medical Gas Applications.” 8w. Not used. 8x. American Society of Plumbing Engineers, Data Book 3, Special Plumbing Systems, Chapter 2, “Plumbing Design for Health Care Facilities.” 8y. Occupational Safety and Health Administration of the U.S. Department of Labor, 29 CFR 1910.1047(a), "Ethylene Oxide." 8z. National Institute for Occupational Safety and Health, Current Intelligence Bulletin 52, "Ethylene Oxide Sterilizers in HealthCare Facilities." 8aa. European Norm (EN) 737-1, “Terminal Units for Compressed Medical Gases and Vacuum.” 8bb. EN 737-2; “Anesthetic Gas Scavenging Disposal System.” 8cc. EN 737-3, “Pipelines for Compressed Medical Gases and Vacuum.” 8dd. EN 737-4; “Terminal units for anesthetic gas scavenging systems.”		
Annex A. Additional Note - Compressed Air Systems Mechanical Refrigeration Versus Desiccant Compressed Air Dryers. There are definite advantages and disadvantages for each dryer technology, and type selection must consider the individual requirements and characteristics of each project. While there seems to be a trend toward greater utilization of desiccant systems, refrigerated dryers continue to represent the bulk of the systems sold. The principle concern with the refrigerated type is the presence in the air of excessive moisture. However, research does not clearly establish that high moisture levels are a pervasive or unavoidable problem in U.S. military MTF’s. There are also concerns in our community with desiccant systems, including excessive air dryness and higher first cost. The concerns with each system are described below:		
Refrigerated Dryers. Advantages: a. Typically lower cost. b. Lower space requirements. c. Presence of higher moisture level in air (higher dewpoint) is better for some procedures. d. Lower compressor capacity required than desiccant systems. Disadvantages: a. Limited minimum dewpoint level of 35-39 F; higher dewpoint means greater potential for system condensation. b. Moisture carryover potential due to evaporator icing, or failure of automatic receiver drainage equipment. (May be correctable by cycling controls and proper specification of components.) c. Requires regular maintenance.		

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
Desiccant Dryers. Advantages: a. Drier air (as low as –40F dew point) leads to lower probability of condensate formation or carry-over in the supply system. b. Relatively lower maintenance required. Disadvantages: a. Very low dew point can cause problems with some dental procedures (upward adjustment available in some capacity ranges from some manufacturers but required competitive procurement eliminates ability to specify). b. Larger compressor capacity required than refrigerated system (to supply additional air for desiccant regeneration). c. Higher cost.		

Section 9: Electrical

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UFC Section/ Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
9-1.1.2.c.	The requirement for "maintainability" including ability to field install wiring "without interruption to mission critical loads" does exceed both codes and industry standards, depending on how it is construed. Most non-military hospitals routinely renovate their spaces and develop work-arounds to ensure power to critical loads.	I don't know exactly how this requirement manifests in a design, and so it is difficult to assess just how it provides benefits, and what the cost impacts are.
9-1.1.2.d.	Electrical codes do not require power factor of 0.9 and phase balance of 5%.	This could have benefits in terms of the utility serving the facility. If the utility is a civilian utility company, it could have rate structures that have penalties for power factors that are too low (generally 80%). If the facility receives utility power from a military distribution system, the requirement for power factor correction will save the overall system some energy consumption. Again, it is difficult to assess just how this requirement manifests itself. It may be that designers add power factor correction prophylactically to ensure that there is no violation of the requirement, or they may wait until the facility begins operation and then measure the actual power factor and remedy any deficiency. The cost will also vary by size of system being served. The cost premium for the power factor requirement could be in the range of $0.15/sf. Similarly, it is likely that designers attempt to mathematically balance the calculated loads to within 5% at the service, but the actual loads will almost certainly vary from the calculated load,

UFC Section/ Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
		making it likely that electricians will need to come in and re-balance loads on the system after it begins operating. The cost premium for this requirement could be similar.
9-1.1.3.a.	This section requires a UPS for "essential functions" in ORs, recovery rooms, and other critical areas. This requirement exceeds codes and industry standards.	If applied to all emergency loads in all critical care areas, this requirement will require a large UPS. The requirement does not specify a battery duration, and the words used may not mean all emergency loads in all critical care areas, but if not, it is difficult to see how the UPS will insert itself into the distribution system without essentially requiring a 5th (aside from normal, life safety, critical, and equipment) distribution system throughout many areas of the hospital. Depending on the size of the hospital, this requirement could cost in the range of $1.00 - $0.50/sf. This requirement provides the facility the ability to operate during the time between loss of utility power and transfer to generator power.
9-1.1.3.b.	This section requires bypass isolation for transfer switches. This requirement exceeds national codes, though California codes (and possibly others) do have this requirement. Many owners of non-military facilities do provide this type of switches.	This requirement provides the benefit that if a switch fails, or needs to be maintained, it can be without interrupting service to the loads. This requirement could cost in the range of $0.10-$0.05/sf per switch so equipped.
9-1.1.3.c.	The UFC allows essential power cables to be installed in cable trays. Some jurisdictions interpret the national codes to prohibit this, requiring the cables to be installed in conduit.	This interpretation provides a cost-saving to the military, compared to those facilities who install feeders in conduit. This could save approximately $0.50/sf
9-1.1.3.d.	This section requires two grounding conductors in essential branch cables. This requirement exceeds national codes and industry standards.	It is not clear what benefit this requirement provides. This requirement could cost in the range of $0.10/sf.
9-1.1.3.d.	This section requires essential branch cable to be type NHXCH. This requirement exceeds national codes and industry standards.	It is not clear what benefit this requirement provides. This requirement could cost in the range of $0.20/sf.
9-1.1.3.e.	This section requires normal power cables to be type NYCY	It is not clear what benefit this requirement provides. This

UFC Section/ Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
	with a shield to be used as a second ground. This requirement exceeds national codes and industry standards.	requirement could cost in the range of $0.25/sf.
9-1.1.3.g.	This section requires "circuit protection against electromagnetic interference . . . by the use of cable shielding . . " This requirement exceeds national codes and industry standards.	It is not clear what benefit this requirement provides. This requirement could cost in the range of $0.05/sf.
9-1.2.1	This section notes which areas in a medical facility are considered to be critical care areas. Some owners and states do not interpret some of these spaces (especially dental spaces, hemodialysis, and nuclear medicine) to be critical care areas.	This requirement provides an additional level of reliability of service to the areas that some in private industry to do not consider to be critical. This requirement could cost in the range of $0.10/sf.
9-2.3	This section requires normal service to be 120% of demand load. I do not know how demand load is interpreted by the military; many engineers construe demand load to be a calculation using NFPA-70 demand factors. This requirement exceeds codes but does conform to industry standards.	This requirement provides the ability to add loads to the hospital in the future without wildly expensive service upgrades. I do not recommend changing this requirement. This requirement could cost in the range of $0.20/sf.
9-2.3	This section requires two utility services, each to a different end of a double-ended substation or to a selector switch serving a multi-ended network. This requirement exceeds national codes and the practices of most hospitals in the non-military sector.	This section provides marginally superior reliability of power to the facility. This requirement could cost in the range of $1.00/sf with continuing costs to the utility.
9-2.3	This section requires the primary feeders be encased in concrete. This requirement exceeds national codes, but does conform to industry standards.	This section provides additional protection against accidental damage to the service feeders to the facility, and, thus, marginally superior reliability of power to the facility. Although it is unlikely that damage would ever occur to the utility feeders, when it did, it would create extreme hardship for the facility, and I do not recommend changing this requirement. This requirement could cost in the range of $0.10/sf.
9-3.3	This section requires emergency power whenever there is "any concentration of inhalation or intravenous sedation." This	This requirement provides power during power outages at these facilities. This requirement could cost in the range of

UFC Section/ Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
	requirement exceeds national codes and, in some areas (dental offices, for example), industry standards.	$0.02/sf.
9-3.4	This section requires that hospitals with essential system load greater than 150 kva (not clear if referring to calculated or measured demand) must have two or more paralleled generators. This requirement exceeds national codes. For facilities in the range of 150 kva – 2000 kva it exceeds industry standards.	This requirement provides enhanced reliability of the alternate power source in facilities of this size. This requirement could cost in the range of $1.00/sf.
9-3.6	This section requires generators and emergency switchgear rooms to be located near the building exterior to facilitate initial installation and later removal and replacement. This requirement exceeds national codes, This requirement conforms to industry standards.	This requirement provides much easier maintenance and replacement of emergency generation equipment. This requirement probably adds nothing to your costs and I do not recommend changing it.
9-3.7	This section requires pneumatic start for generators rated above 1000 kw. This requirement exceeds national codes. This requirement exceeds industry standards.	It is not clear what advantage this requirement provides. However, it is a "greener" system, in that it requires no batteries, no battery maintenance, and no battery replacement. This requirement could cost in the range of $0.05/sf.
9-3.11	This section includes a number of requirements for automatic transfer switches that exceed national codes and industry standards. These include: ☝ Draw-out construction ☝ Viewing ports ☝ UL testing with the main up-stream breaker ☝ Not circuit-breaker type ☝ Bypass isolation (see discussion above) ☝ In-phase monitor	These requirements provide enhanced reliability and maintainability. The in-phase monitor is recommended by NFPA 99, though not required, and is required in some form for the situation described (when the switch serves motors largr than 25 HP.). The need could be met with a center-off position for the switch rather than an in-phase monitor. These requirements could cost in the range of $0.05/sf.
9-3.12	This section requires extensive testing of the transfer switches before installation. This requirement is an installation requirement not really covered by codes, but it significantly exceeds industry standards.	This requirement may provide additional assurance that the essential system components will function as intended. This requirement could cost in the range of $0.05/sf.

UFC Section/ Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
9-3.15	This section requires a 14-day fuel supply for prime power projects and a 7-day fuel supply for essential systems in OCONUS locations. I do not know what an OCONUS location is, but presumably it is a place where the likelihood of extended outages is higher and re-fueling is more difficult than at other locations. If so, national codes are irrelevant to the requirement, as are industry standards. I think that providing prime power through the use of diesel generators is environmentally damaging, and may require scrubbers.	This requirement could cost in the range of $1.00/sf, but, if OCONUS is a place where it is difficult to take fuel, then the cost may be justified.
9-3.17.2.h	This section requires dental oral evacuation system and dental compressed air systems to be on the critical branch of the essential system. This requirement exceeds national codes where the areas are not considered to be critical care areas, and it exceeds industry standards.	If the dental clinic is in a hospital, it is probable that the requirement adds almost no cost. However, if the space is in an outpatient facility, this requirement might trigger addition of an essential distribution system that might not otherwise be required. This requirement could cost in the range of $0.50/sf for these facilities.
9-3.17.3.b.	This section requires fire pump loads to be sized based on locked rotor current of the motor (approximately 6 times the full load current). This section significantly exceeds national codes and industry standards. This requirement does properly apply to the sizing of the overcurrent protection device on the normal service to the fire pump.	This section provides no benefit to the military hospital. This requirement could cost in the range of $1.00/sf.
9-3.17.3	This section requires the facility to put all refrigeration onto the equipment system. This section exceeds national codes. Industry standard is not clear on this point.	I do not recommend changing this requirement. It ensures that ice will not melt, food will not spoil during a power outage. This requirement could cost in the range of $0.50/sf.
9-4.1.1	This section requires transformers to be K-rated. This section exceeds national codes. Industry standard is not clear on this point.	This requirement saves some energy, longer-lasting transformers, and transformers better able to withstand non-linear loads. I do not recommend changing this requirement. This requirement could cost in the range of $0.02/sf.
9-4.1.1	This section requires switchboards to have draw-out breakers. This requirement exceeds national codes. Industry standard is	This requirement provides easier maintenance and replacement of devices in switchboards. This requirement

UFC Section/ Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
	not clear on this point.	could cost in the range of $0.10.
9-4.1.2	This section forbids series rated protective devices. This requirement exceeds national codes. Industry standard is not clear on this point.	This requirement provides much more robust power protection systems. I do not recommend changing this requirement. This requirement could cost in the range of $0.05/sf.
9-4.1.3	This section requires separate rooms for power and low-voltage systems. This requirement exceeds national codes. This section conforms to industry standards.	This requirement ensures better protection of the electrical power distribution system requirements. I do not recommend changing this requirement. This requirement could cost in the range of $0.05/sf.
9-4.1.4	This section requires a minimum of one electrical room for each smoke zone. This requirement exceeds codes. This requirement exceeds industry standards.	This section ensures local distribution of power throughout the facility. As an electrical engineer myself, I understand the motivation behind this requirement – I have to struggle with the architects to get sufficient space for the electrical equipment during the design process. However, I think this requirement is too stringent. This requirement, coupled with the requirement for stacked rooms probably cause difficulties in medical planning. It is difficult to estimate the cost impact of this requirement, but I would drop it, and provide your designers with more flexibility.
9-4.1.4	This section requires that all electrical rooms have 20% additional wall space. This requirement exceeds national codes. This requirement exceeds industry standards. It is much more common for non-military hospitals to provide a lot of spaces in their branch circuit panels in their branch rooms than to allocate lots of space for future panels.	This requirement provides for future additions. Experience shows clearly that the need in a hospital is for more breakers, and this requirement is a very good one. I would not recommend changing this requirement. This requirement could cost in the range of $0.05/sf.
9-4.5.2	This section requires 60-amp, 250-volt, twist-lock outlets for mobile x-ray units. Most non-military facilities are no longer using portable x-ray units with these requirements. I would simply double-check whether the military still uses them, and, if not, change the requirement.	This requirement could cost in the range of $0.02/sf.
9-4.6.1	This section requires all receptacles to be 20-amp rated. This	This requirement could cost in the range of $0.03/sf.

UFC Section/ Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
	requirement exceeds national codes. This requirement exceeds industry standards.	
9-4.6.1, and following sections	These sections have various requirements for numbers of outlets in various kinds of rooms. These requirements exceed national codes. These requirements exceed industry standards. However, various sections (4.6.12, etc.) have requirements for additional 250 volt devices that are no longer commonly used in most non-military hospitals. I would double-check whether the military still uses them, and, if not, change the requirement.	This requirement probably has minimal cost impact, and may save money by preventing designers from requiring MORE outlets.
9-4.6.3	This section requires dedicated circuits for outlets serving data workstations, including special labeling. This requirement exceeds national codes. This requirement exceeds industry standards.	This requirement could cost in the range of $0.03/sf.
9-4.7	On its face, this section does not appear to exceed national codes. However, if it is construed mistakenly, it could result in grounding systems that are separate from the grounding conductors installed as part of the branch circuit wiring. If so, the system will exceed both national codes and industry standards.	If the requirement is for a separate grounding system in all patient care areas, the requirement could cost in the range of $0.10/sf.
9-4.8	This section requires each OR, DR, Cath and special procedures rooms have two different branch circuit panels. This section exceeds national codes. This section exceeds industry standards.	This requirement provides an additional path for power each of the spaces, and, thus, a small degree of enhanced reliability of service. This requirement could cost in the range of $0.40/sf.
9-5.1	This section forbids electronic ballasts in areas where life support equipment is used. This requirement is outdated and denies the hospital the use of this energy-saving technology.	There is no capital cost impact of this requirement.
9-5.3	This section requires photo-cell controls for night-lights. This requirement exceeds national codes. This requirement exceeds industry standards.	This requirement ensures that the patient will have light without having to have staff intervention to turn the lights on. This requirement could cost in the range of $0.01/sf.

UFC Section/ Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
9-5.4	This section refers to darkroom lighting. Most non-military facilities do not have darkrooms. I would check to see if military hospitals still build darkrooms and then modify this section appropriately.	
Annex A	This entire section has nothing to do with electrical standards, and should be compared to FAA and other relevant codes and standards. Do you want me to try to obtain these documents and assess the UFC standard against them? I wonder why this section is part of the electrical section of the document.	
Table 9-4	I cannot understand how this table is intended to be used. It certainly exceeds industry standards.	
Annex B	This Annex appears to simply restate all of the requirements about services listed in the body of the text, while adding some additional commentary and requirements. I think this annex should be deleted.	
10-4.2.1	This section requires cable tray for support of low-voltage conductors. This requirement exceeds national codes. This requirement exceeds industry standards.	This requirement could cost in the range of $0.10/sf.
10-4.2.2	These requirements are not up to date with industry standards for utilities for voice/data rooms. I would consider updating the infrastructure requirements. Most non-military facilities are moving towards combining all low-voltage systems and voice-data systems into the same rooms.	
10-11.10.1	Be sure you know who is a Code Team. Often, the staff within a particular department (ED, Surgery) are the Code Team, and these areas are better served with an emergency call button that call staff from the department rather than staff from elsewhere in the facility. In general, consider the use of emergency call buttons (to summon help from the department staff) in lieu of Code Blue in many locations as being more	

UFC Section/ Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
	appropriate.	
10-16.1	JCAHO now considers many more refrigerators to contain medications and, therefore, needful of alarm. Most non-military facilities are now alarming many more refrigerators than those listed here.	
Section 10	In general, I gave this section only a cursory review, as most of the requirements are user-based, and not code-based.	

Section 11: Accessibility Provisions for the Disabled

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UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
11-1 **GENERAL**. This section provides design guidance on the application of accessibility requirements. Facilities are required to be accessible to disabled persons and shall be designed and constructed or retrofitted in accordance with the Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines (reference 11a). In general, all facilities worldwide which are open to the public, or to limited segments of the public, or which may be visited by the public in the conduct of normal business, shall be accessible to disabled persons.	A	
11-2 **MILITARY EXCLUSIONS**. Facilities which are intended for the use of, or occupancy by, or staffed by only able-bodied military personnel need not be designed to be accessible by disabled persons; however, accessibility is recommended. The term "able-bodied military personnel" is defined as all active duty military personnel. Temporary facilities, such as troop aide stations and fleet hospital mobilization units used during military conflicts, need not be accessible.	A	
11-3 **OVERSEAS FACILITIES**. DoD-funded facilities constructed overseas will be accessible. Facilities for which the United States contributes a portion of the construction cost but does not control design criteria (such as NATO-funded facilities) need not be accessible. Facilities being constructed by or for use by the United States under the laws, codes, rules, and regulations of another country need not be accessible. Facilities being leased by the United States in other countries should be accessible.	A	
11-4 **TMA/PPMD COMPLIANCE REQUIREMENT**		
11-4.1 TMA/PPMD policy is that all spaces serving patients, staff, and visitors shall be designed to be accessible to the disabled. TMA/PPMD programs adequate net area to design all patient dressing rooms, patient bedrooms, and patient bedroom toilets as accessible spaces even though ADA/ABAAG requires only 10 percent of these spaces to be accessible.	C	Rational is that more than 10% disabled accessible spaces are needed. Industry Standard would follow the 10% patient bedrooms/dressing room and 100% disabled accessible Rehab. Areas only.
11-5 **VISUAL ALARMS**. Provide visual alarms in common use spaces and public use spaces as defined by and in accordance with the common use and public use criteria contained in the ADA/ABAAG.	A	
11-5.1 The design agent is responsible for interpretation of ADA/ABAAG visual alarm location.	A	

11-5.2 Visual alarms are not required in areas used only by employees as work areas. These areas are defined as individual offices and individual work stations, mechanical, electrical and telephone closets, janitor's closets, and similar unoccupied spaces that are not common use areas nor assigned work areas. This may include other staff-only spaces within a facility.	A	Industry Standard is to provide Visual Alarms for any area other than single offices, single workroom, unoccupied service rooms and other similar rooms. Refer to NFPA 72.

Section 13: Physical Security

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UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
13-1 **GENERAL**. This section provides facility design guidance for physical security and crime prevention. Established installation security strategies should also be taken into consideration. Physical security design and construction considerations may include features discussed in Section 14: Force Protection.	A	
13-2 **DESIGN CRITERIA**. Guidance for physical security design is provided in 21 CFR 1301.72, “Title 21 Code of Federal Regulations Section 1301.72" (reference 13a), OPNAVINST 5530.14C, "Navy Physical Security Manual" (reference 13b), and in using Military Department criteria.	A	
13-3.1 **Systems Considerations**. Electronic security systems, including Intrusion Detection Systems (IDS), duress alarms, electronic access control systems and Closed Circuit Television (CCTV) systems, shall be provided for facilities when required by the using Military Department. Multiple electronic security systems may be integrated to provide an overall facility security system. A staff identification card system with multiple levels of access control may be provided. Package inspection devices may also be considered for mail rooms. See Section 11: Communications Systems for information on electronic security systems.	A	
13-3.2 **Systems Design**. Construction documents for electronic security systems shall identify sensor locations and include floor plans, schematics, riser diagrams, security equipment schedules and typical	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
details. Floor plans shall locate all monitoring and control equipment. Security equipment schedules shall include room and door numbers, sensors, alarm control panels, switches and access control devices. Electronic security systems shall be provided with uninterruptible power sources, dedicated electrical service panels, interfaces with installation security systems, and local and remote alarms, as required by the using Military Department.		
13-4 **KEYS AND LOCKS**. The master key and lock plan for a facility shall provide multiple levels of entry control. A master key system shall be provided for all areas with the following exceptions. Separate keying systems are required for pharmacies. Separate keying systems should also be considered for medical supply storage areas or facilities; food service facilities; exchange service facilities; mail rooms; mechanical, electrical and communications equipment rooms; and housekeeping and janitorial rooms.	A	
13-5.1 **Intrusion Detection Systems (IDS)**. Exterior doors and operable windows shall be provided with IDS sensors with alarms monitored at the installation security station and at other locations if required by the using Military Department.	B	Typical hospital does not have operable windows at on-grade floors. Door contacts at exterior doors only. Cost add of $200-$500 per window.
13-5.2.1 **Remote Locking**. Remote, electrically operated locks that can be controlled from a central point such as the emergency department reception desk or a hospital command and control center. This system establishes the emergency department reception desk or the command and control center as the hospital Central Security Operations Point after daytime hours.	A	
13-5.2.2 **Intrusion Detection Systems (IDS)**. IDS planned and designed to meet the security requirements of the location and the using Military Department directives.	B	Typical hospital has IDS only in Pharmacy and Central Storage.
13-5.2.3 **Closed Circuit Television (CCTV) Systems**. CCTV systems for areas as specified by the using Military Department.	A	
13-5.2.4 **Card Access Systems**. Card access systems for exterior	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
doors and sensitive areas such as computer rooms, pharmacies, and other areas as specified by the using Military Department.		
13-6 **SPECIAL CONSIDERATIONS FOR SECURITY SENSITIVE AREAS/ROOMS**. Sensitive areas/rooms shall be designed to store valuable assets, i.e., funds, narcotics, dangerous drugs, and controlled substances/materials. The most cost-effective method of providing adequate security for these assets shall be selected.	A	
13-6.1 **Safes**. Drugs classified as Schedule I or II controlled substances under the Controlled Substance Act of 1970 must be stored in safes or vaults. Drugs classified as Schedule III through V may also be stored in safes or vaults as deemed appropriate by the using Military Department.	A	
13-6.2 **Vaults**. Features to be considered for vault storage areas are outlined in 21 CFR 1301.72 (reference 13a) and using Military Department directives.	A	
13-6.3 **Pharmacies**. Walls, floors and ceilings of pharmacies shall provide resistance to forced or surreptitious entry and, where necessary, shall be reinforced. Doors and windows shall be kept to a minimum and doors shall be keyed separately from the master key system. IDS sensors shall be installed at all doors and windows including windows opening to corridors. Walls surrounding pharmacies shall be constructed in accordance with 21 CFR 1301.72 (reference 13a). As a minimum, perimeter walls shall be full height from floor slab to structure above.	A	
13-6.3.1 **Doors**. Doors shall be provided with security hinges and shall be locked with security locksets. Doors may be lightweight, covered with 9 to 12 gauge steel security mesh or 16 gauge sheet steel fastened with smooth-headed bolts and nuts peened in place. Other considerations include “peep holes,” a cipher lock or card access system for the main staff entrance door, double locking locksets with 1-inch throws, warning signs stating doors must remain unlocked during normal operating hours (for fire egress), and warning signs stating “Controlled Area”.	B	Typical application would use hollow metal door or reinforced wood door. High security door cost adder approximately $2000 per opening.

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
13-6.3.2 **Windows**. Provisions such as roll-up shutters, shall be made for securing all service windows after normal operating hours. Frames holding roll-up shutters and security screens or bars must be securely fastened with smooth-headed bolts with nuts peened in place.	B	Security screens/bars and hardware for installation are not typical. Adds approximately $1000 per opening.
13-6.3.3 **Heating and Ventilation Ducts**. Duct terminals and connecting points must be in exposed locations where they may be readily observed to detect tampering. Openings of eight inches or larger must be protected with 9 to 12 gauge steel security mesh. The mesh will either be welded to the duct or secured with smooth-headed bolts with nuts peened in place.	C	Security screen and hardware in ductwork not typical. Cost add of approximately $750 per duct.
13-6.4 **Medical Supply Storage Areas or Facilities**. In addition to the criteria provided for Pharmacies above, high value, critical and pilferable resources stored in this type of storage area or facility shall be enclosed within two or more time-delay barriers, i.e., fences, security cages, building walls, vaults or locked doors. For specific requirements, see 21 CFR 1301.72 (reference 13a) and using Military Department directives.	A	
13.6.5 **Other Security Sensitive Areas/Rooms**. Other activities or locations may be identified by the using Military Department as security sensitive. These areas/rooms must minimize the security risk for these activities or locations.	A	

EVALUATION OF UFC 4-510-01
Dated - January 2007
DEPARTMENT OF DEFENSE
MEDICAL MILITARY FACILITIES

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UFC Section/Paragraph Number			COMMENT	Comment Rationale (details on code variations & redundancies, best practices, cost impacts)
Room Code	**Room Name**	**ARCHITECTURAL MATRL+FIN CLG DOOR NOISE FL WL CLG HT SIZE RM SC**		
AMB01	AMBULANCE SHELTER	CS SSP SSP VAR SP . . . . . VAR SP .	A	
AMB02	AMBULANCE GARAGE	CS BPT SSP VAR SP 35 50 . . . VAR SP 40	A	
ANCW1	ANESTHESIA CLEAN WORKROOM	SV GLG AT2 2400 900 35 40 ET . . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45
ANSW1	ANESTHESIA SOILED WORKROOM	SV GLG AT2 2400 900 35 40 ET . . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45
APAM1	APPLIANCE ADJUST/MODIFY FULL	VT GPT AT1 2400 1200 35 40 . . . 8'-0' 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45

APFB1	APPLIANCE FULL BRACE SHOP	VT GAF AT1 2400 1200 70 40 . . . 8'-0' 4-0 80	B	AIA Guidelines require new construction partitions to be STC 45. If room is adjecent to patient, room to be STC 65
APFR1	APPLIANCE FITTING ROOM	VT GPT AT1 2400 900 35 40 . . . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45
APLA1	APPLIANCE LAMINATION/MOLDING	VT GPT AT1 2400 900 35 40 . . . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45
APMS1	APPLIANCE MACHINE SHOP	VT GPT AT1 2600 1200 35 40 . . . 8-6 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45. If room is adjecent to patient, room to be STC 65. Doors should be 8-0; 8-6 not necessary.
APSH1	APPLIANCE SEWING/SHOE SHOP	VT GPT AT1 2600 1200 35 40 . . . 8-6 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45
APWA1	APPLIANCE WELDING AREA	CS GPT AT1 2600 1200 35 40 VT . . 8-6 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45. If room is adjecent to patient, room to be STC 65.
AUD01	AUDITORIUM	CP SSP SSP VAR B 25 50 VT . . VAR 3-0 30	B	AIA Guidelines require new construction partitions to be STC 55.
AVB01	PROJECTION BOOTH	SP SPF SPF VAR 3-0 25 50 . . . VAR SP 30	B	AIA Guidelines require new construction partitions to be STC 55.
AVPD1	AUDIOVISUAL PROGRAM DISTRIBUTION	VT GPT AT1 2400 900 25 40 . GAF . 8-0 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45
BF000	BANKING FACILITY - EQ BY OTHERS	VT GPT AT1 2600 A 35 40 SP GAF . 8-6 A 40	B	AIA Guidelines require new construction partitions to be STC 45
BF001*	ATM ALCOVE - EQUIPPED BY OTHERS	SP SSP SSP VAR VAR VAR VAR CP . AT1 VAR VAR VAR	A	
BLND1	BLIND VENDORS AREA	SP SSP SSP VAR 900 35 40 VT GPT AT1 VAR 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45
BMCW1	BIOMEDICAL, COMMON WORK AREA	VT GPT AT1 2600 1200 35 40 . GLG . 8-6 4-0 40	B C	AIA Guidelines require new construction partitions to be STC 45 Doors should be 8-0; 8-6 not necessary.
BMER1	BIOMEDICAL, ELECTRONIC REPAIR	VT GPT AT1 2600 1200 35 40 . GLG . 8-6 4-0 40	B C	AIA Guidelines require new construction partitions to be STC 45 Doors should be 8-0; 8-6 not necessary.

BMRA1	BIOMEDICAL, RECEIVING AREA	VT GPT AT1 2600 1200 35 40 . GLG . 8-6 4-0 40	B C	AIA Guidelines require new construction partitions to be STC 45 Doors should be 8-0; 8-6 not necessary.
BMWS1	BIOMEDICAL, WORKSTATION	VT GPT AT1 2600 1200 35 40 . GLG . 8-6 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
BRAR1	BEDROOM, ANTEROOM, ISOLATION, NEGATIVE	VT GPT GPT 2600 1200 30 40 SV GLG GLG 8-6 4-0 40		
BRAR2*	BEDROOM, ANTEROOM, ISOLATION, POSITIVE	VT GPT GPT 2400 1200 30 40 SV GLG GLG 8'-0' 4'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV for best infection protection.
BRIC1	BEDROOM, INTENSIV/CORONARY, 1 BED	VT GPT AT1 2600 H 25 40 SV GLG AT2 8-6 4-0 30	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV for best infection protection.
BRII1	BEDROOM, ISOLATION, ICU/CCU, NEGATIVE	VT GPT GPT 2600 H 25 40 SV GLG GLG 8-6 . 30	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV for best infection protection.
BRII2*	BEDROOM, ISOLATION, ICU/CCU, POSITIVE	VT GPT GPT 2600 H 25 40 SV GLG GLG 8'-6' . 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV for best infection protection.
BRIP1	BEDROOM, ISOLATION, PEDIATRIC, NEGATIVE	VT GPT GPT 2600 1200 35 40 SV GLG GLG 8-6 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV for best infection protection.
BRIP2*	BEDROOM, ISOLATION, PEDIATRIC, POSITIVE	VT GPT GPT 2600 1200 35 45 SV GLG GLG 8-6 4'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV for best infection protection.
BRIT1	BEDROOM, ISOLATION, NEGATIVE	SV GPT GPT 2600 1200 30 40 VT GLG GLG 8-6 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV for best infection protection.
BRIT2	BEDROOM, ISOLATION, POSITIVE	SV GPT GPT 2400 1200 30 40 VT GLG GLG 8-0 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV for best infection protection.
BRLC1	BEDROOM, LIGHT CARE, 1 BED	VT GPT AT1 2600 1200 30 40 •• • 8-6 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
BRLC2	BEDROOM, LIGHT CARE, 2 BEDS	VT GPT AT1 2600 1200 30 40 •• • 8-6 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.

BRMB1*	BEDROOM, MOBILIZATION, 1 BED	VT GPT AT1 2400 1200 30 40 •• • 8-0 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
BRMB2*	BEDROOM, MOBILIZATION, 2 BED	VT GPT AT1 2400 1200 30 40 •• • 8-0 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
BRMS1	BEDROOM, MEDICAL/SURGICAL, 1 BED	VT GPT AT1 2600 1200 30 40 •• • 8-6 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
BRMS2	BEDROOM, MEDICAL/SURGICAL, 2 BEDS	VT GPT AT1 2600 1200 30 40 •• • 8-6 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
BRNP1	BEDROOM, NEURO/PSYCH, 1 BED	VT GPT GPT 2600 1200 35 40 •• • 8-6 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
BRNP2	BEDROOM, NEURO/PSYCH, 2 BEDS	VT GPT GPT 2600 1200 35 40 •• • 8-6 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
BRNP5	BEDROOM, NEURO/PSYCH, SECLUSION	VT GPT GPT 2600 1200 35 40 •• • 8-6 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV due to patient type.
BRNP6	BEDROOM, N/P, SECLUSION ANTEROOM	VT GPT AT1 2600 1200 30 40 . . . 8-6 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV for best infection protection.
BRPB1	BEDROOM, PEDIATRICS, 1 BED	VT GPT AT1 2600 1200 35 40 . . . 8-6 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
BRPB2	BEDROOM, PEDIATRICS, 2 BEDS	VT GPT AT1 2600 1200 35 40 . . . 8-6 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
BRUN1*	SINGLE PATIENT ROOM ACUITY ADAPTABLE.	VT GPT AT1 2600 1200 30 40 SV . . 8-6 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
BX000	EXCHANGE AREA - EQUIP BY OTHERS	VT GPT AT1 2600 1200 35 40 . . . 8-6 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
BX001	EXCHANGE VENDING AREA - UTILITY RQD	VT GPT AT1 2600 1200 35 50 . . . 8-6 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
CASH1	CASHIER	VT GPT AT1 2400 OPEN	A	

		35 50 CP . . 8-0 OPEN 40		
CHC01	CART HOLDING, CLEAN	VT GPT AT1 2400 900 35 40 . . . 8-0 3-0 40	A	
CHS01	CART HOLDING, SOILED	VT GLG AT1 2400 900 35 40 . . . 8-0 3-0 40	A	
CLR01	CLASSROOM, TABLE/CHAIR	CP GPT AT1 2600 900 25 45 VT GAF . 8-6 3-0 30	A	
CLR02	CLASSROOM, WRITING ARM CHAIRS	CP GPT AT1 2600 900 25 45 VT GAF . 8-6 3-0 30	A	
CLR03	CLASSROOM, COMPUTER	CP GPT AT1 2600 900 25 45 VT GAF . 8-6 3-0 30	A	
CLR04	CLASSROOM, 2 BED ROOM MOCK-UP	VT GPT AT1 2600 1200 25 45 . . . 8-6 4-0 30	A	
CLSC1	PATIENT EDUCATION, KIOSK/ALCOVE	CP GPT AT1 2600 900 25 45 VT . . 8-6 3-0 30	A	
CLSC2*	PATIENT EDUCATION CUBICLE	CP GPT AT1 2400 900 35 50 VT . . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
CMP01*	COMPUTER ROOM	VT GPT AT1 2400 900 35 50 CP . . 8-0 3-0 40	A	
CMP02*	COMPUTER TERMINAL/SERVER	VT GPT AT1 2400 900 35 50 . . . 8-0 3-0 40	A	
CMP03*	COMPUTER ARCHIVE STORAGE	VT GPT AT1 2400 900 35 50 . . . 8-0 3-0 40	A	
COM02	COMMUNICATIONS AMBULANCE DISPATCH	VT GPT AT1 2400 900 35 40 . . . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
COM03	COMM ROOM, CENTRAL ALARM SECURITY	VT GPT AT1 2400 900 25 40 . . . 8-0 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45.

COMC1*	COMMUNICATIONS ROOM	VT GPT . 2400 900 25 40 . . . VAR 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45.
CRA01	CONFERENCE ROOM, SMALL	CP GPT AT1 2600 900 25 40 . SSP . 8-6 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45.
CRA02*	CONFERENCE ROOM, MEDIUM	CP GPT AT1 2600 900 25 40 . SSP . 8-6 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45.
CRA03*	CONFERENCE ROOM, LARGE	CP GPT AT1 2600 900 25 40 . SSP . 8-6 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45.
CRC01	CONFERENCE ROOM, COMMANDERS	CP GPT AT1 2600 900 25 40 . SSP . 8-6 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45.
CROP1*	CONFERENCE ROOM, EMERGENCY OPERATIONS CENTER	CT GPT AT1 2600 900 25 40 . SSP . 8-6 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45.
CRR01	CONFERENCE ROOM, RADIOLOGY	CP GPT AT1 2600 900 25 40 CP SSP GPT 8-6 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45.
CSCQ1	CENTRAL STERILE, CART ASSEMBLY/QUEUING	VT GLG AT2 2700 B 35 40 SV GPT GLG 9-0 ... 40	B	AIA Guidelines require new construction partitions to be STC 45.
CSCR1	CENTRAL STERILE, SOILED CART, RECEIVING	VT GLG AT2 2700 900 35 40 SV . GLG 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45. Recommend SV for infection purposes.
CSDE1*	CENTRAL STERILE, DECONTAMINATION SMALL	SV GLG GLG 2700 1200 35 40 ET . . 9'-0' 4'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45.
CSDE2*	CENTRAL STERILE, DECONTAMINATION MEDIUM	SV GLG GLG 2700 1200 35 40 ET . . 9'-0' 4'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45.
CSDE3*	CENTRAL STERILE, DECONTAMINATION LARGE	SV GLG GLG 2700 1200 35 40 ET . . 9'-0' 4'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45.
CSIA1	CENTRAL STERILE, ASSEMBLY, STERILIZATION, SMALL	SV GLG AT2 2700 1200 35 40 ET GPT GPT 9-0 4'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45.
CSIA2*	CENTRAL STERILE ASSEMBLY, STERILIZATION, MEDIUM	SV GLG AT2 2700 1200 35 40 ET GPT GPT 9'-0' 4'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45.

CSIA3*	CENTRAL STERILE ASSEMBLY, STERILIZATION, LARGE	SV GLG AT2 2700 1200 35 40 ET GPT GPT 9'-0' 4'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45.
CSSS1	CENTRAL STERILE, STERILIZATION, SMALL	SV GLG AT2 2700 1200 35 40 ET . GLG 9-0 4'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45.
CSSS2	CENTRAL STERILE, STERILIZATION, MEDIUM	SV GLG AT2 2700 1200 35 40 ET . GLG 9-0 4'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45.
CSSS3*	CENTRAL STERILE, STERILIZATION, LARGE	SV GLG AT2 2700 1200 35 40 ET . GLG 9'-0' 4'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45.
CSWS3*	CENTRAL STERILE, WASHER/SCOPE	SV GLG AT2 2700 1200 35 40 ET . GLG 9'-0' 4'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45.
CWSH1	CART WASH, MANUAL (STEAM GUN)	QT GCT GLG 2700 B 35 40 . . . 9-0 . 40	B	AIA Guidelines require new construction partitions to be STC 45.
CWSH2	CART WASH, AUTOMATED WASHER	QT GCT GLG 2700 1200 35 40 . . . 9-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
DAYR1	DAYROOM, WARD	VT GPT AT1 2400 1200 35 40 CP . . 8-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
DNPB1	DENT PROSTHETICS, ORTHODONTIC LAB	SV GLG AT1 2600 900 35 40 VT GPT . 8-6 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
DNPC1	DENT ROOM CERAMICS	SV GLG AT1 2600 1050 35 50 VT GPT . 8-6 3-0 40	B	AIA Guidelines require Service Areasn to Patient areas to be STC 65
DNPF1	DENT PROSTHETICS LAB, FULL FUNCT'N	SV GLG AT1 2600 900 35 40 VT GPT . 8-6 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
DNPL1	DENT PROSTHETICS LAB, LIMITED	SV GLG AT1 2600 900 35 40 VT GPT . 8-6 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
DNRS1	DENT REPAIR SHOP PER MAN	SV GLG AT1 2600 900 35 40 VT GPT . 8-6 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
DNSA1	DENTAL SUPPORT SUBSTERILE	SV GLG AT1 2600 900 35 40	B	AIA Guidelines require new construction partitions to be STC 45.

		VT GPT . 8-6 3-0 40		
DNSA2	DENTAL SUPPORT PROSTHETIC	SV GLG AT1 2600 900 35 40 VT GPT . 8-6 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
DNSB1	DENTAL SUPPORT ORTHODONTICS	SV GLG AT1 2600 900 35 40 VT GPT . 8-6 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
DNSC1	Dental, Instrument Decontamination	SV GLG AT2 2600 900 30 40 ET . . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNSC2	DENTAL, INSTRUMENT, STERILIZATION	SV GLG AT2 2600 900 30 40 ET . . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNSP1	DENTAL SELF PREP AREA	SV GLG AT1 2600 900 30 40 . GPT . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNSS1	DENTAL SUPPORT SUBSTERILE	SV GLG AT1 2600 900 30 40 VT . . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNTB1	DENTAL TREATMENT RM, ORTHODONTICS	SV GLG AT1 2600 900 30 40 . . . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNTC1	DENTAL TREATMENT RM, COMPREHENSIVE	SV GLG AT1 2600 900 30 40 . . . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNTE1	DENTAL TREATMENT RM, ENDODONTICS	SV GLG AT1 2600 900 30 40 . GPT . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNTG1	DENTAL TREATMENT RM, GENERAL	SV GLG AT1 2600 900 30 40 VT GPT . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNTG2	DENTAL TREATMENT RM, ORAL HYGIENE	SV GLG AT1 2600 900 30 40 VT GPT . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNTG3	DENTAL TREATMENT RM, PATHOLOGY	SV GLG AT1 2600 900 30 40 VT GPT . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNTP1	DENTAL TREATMENT RM, PROSTHODONTICS	SV GLG AT1 2600 900 30 40 VT . . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNTP2	DENTAL TREATMENT RM, PERIODONTICS	SV GLG AT1 2600 900 30	B	AIA Guidelines require new construction partitions to be STC 45.

		40 VT . . 8-6 3-0 35		
DNTP3	DENTAL TREATMENT RM, PEDIATRICS	SV GLG AT1 2600 900 30 40 VT GPT . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNTR1*	DENTAL RECOVERY	SV GLG AT1 2600 1050 30 40 VT GPT . 8-6 3-6 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNTS1	DENTAL TREATMENT RM, ORAL SURGERY	SV GLG GLG 2600 1050 30 40 . . . 8-6 3-6 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNTS2	DENT TREATMENT ORAL SURGERY SUPPORT	SV GLG AT1 2600 1050 30 40 . . . 8-6 3-6 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNTT1	DENTAL TREATMENT RM, TRAINING	SV GLG AT1 2600 900 30 40 VT . . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNXC1	DENT XRAY CEPHALOMETRICS	VT GLG AT1 2600 900 30 40 SV GPT . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNXD1	DENTAL XRAY, INTRAORAL/PANOGRAPH/CEPHALOMETRIC	VT GLG AT1 2600 1050 30 40 SV GPT . 8-6 3-6 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV flooring.
DNXF1	DENT XRAY FILM PROCESSING AUTO 1 PR	VT GPT AT1 2400 SP 30 40 SV GLG . 8-0 . 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV flooring..
DNXF2	DENT XRAY FILM PROCESSING AUTO 2 PR	VT GPT AT1 2400 900 30 40 SV GLG . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV flooring.
DNXI1	DENT XRAY INTRAORAL	SV GLG AT1 2600 1050 30 40 VT GPT . 8-6 3-6 35	B	AIA Guidelines require new construction partitions to be STC 45.
DNXR1	DENT XRAY VIEWING	VT GPT AT1 2400 900 30 40 SV GLG . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
DOCK1	LOADING DOCK	CS SSP SSP VAR I . . . . . VAR . .	A	
DR001	DRESSING ROOM/CUBICLE	VT GPT AT1 2400 900 25 40	B	AIA Guidelines require new construction partitions to be STC 45.

		CP . . 8-0 3-0 30		
DUTY1	ON-CALL ROOM	VT GPT AT1 2400 900 25 40 CP . . 8-0 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45.
EVPR1	EVOKED POTENTIAL RESPONSE ROOM	VT GPT AT1 2400 900 30 35 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EXEN1	EXAMINATION ROOM, ENT	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EXER1*	EXAM, EMERGENCY ROOM	VT GPT AT1 8'-0' 1200 30 40 . . . . 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV for infection control reasons.
EXOS1	EXAM/OFFICE, SPEECH THERAPIST	VT GAF AT1 2400 900 25 50 CP . . 8-0 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45. Prefer carpet.
EXPO1	EXAM ROOM, PODIATRY	VT GPT AT1 2400 900 30 40 SV . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EXRG1	EXAM ROOM, ARMY	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EXRG2*	EXAM ROOM, NAVY	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EXRG3*	EXAM ROOM, AIR FORCE	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EXRG4*	EXAM, ADULT SCREENING	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EXRG5*	EXAM, PEDIATRIC SCREENING	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EXRG6*	EXAM, ISOLATION, NEGATIVE PRESSURE	SV GLG GLG 2400 H 25 40 VT GPT GPT 8-0 . 30	B	AIA Guidelines require new construction partitions to be STC 45.
EXRG7*	EXAM, ISOLATION, POSITIVE PRESSURE	SV GLG GLG 2400 H 25 40 VT GPT GPT 8-0 . 30	B	AIA Guidelines require new construction partitions to be STC 45.
EXRG8*	EXAM ROOM, OB/GYN	SV GPT AT1 2400 1200 25 40	B	AIA Guidelines require new construction partitions to be STC 45.

		VT GLG . 8'-0' 4'-0' 30		
EXRP1	EXAM ROOM, PEDIATRICS	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EXUD1	EXAM, URODYNAMICS	SV GLG AT2 2400 900 30 40 VT GPT AT1 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EXVE1	EXAM, VESTIBULAR (EAR EXAM ROOM)	VT GPT AT1 2400 900 25 50 CP GAF . 8-0 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45. Prefer CP.
EYCL1	EYE CONTACT LENS FITTING/DISPENSING	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EYEL1	EYELANE, ARMY/AIR FORCE	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EYEL2	EXAM/OFFICE, EYELANE, ARMY/AIRFORCE	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EYEL3*	EYE LANE, NAVY	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EYEL4*	EYE LANE, FOLDED ELECTRONIC	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EYER1	EYE ELECTRORETINOGRAPHY ROOM	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EYFC1	EYE FUNDUS CAMERA ROOM	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EYFD1	EYEGLASS FITTING & DISPENSING	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EYOF1*	EYE, OPTICAL FABRICATION	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EYOT2*	EYE, OPHTHALMOLOGY EXAM ROOM	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EYOT3*	PRK/LASIK EVALUATION ROOM	VT GPT AT1 2400 900 30 40	B	AIA Guidelines require new construction partitions to be STC 45.

		. . . 8-0 3-0 35		
EYPL1	EYE PROSTHETICS LAB	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EYVF1	EYE VISUAL FIELD/PERIMETRY ROOM	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
EYVS1*	EYE, VISUAL SCREEN	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
FILE1	FILE ROOM, GENERAL USE	VT GPT AT1 2400 900 35 40 . . . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
FSBR1	FOOD SERVICE, BAKE AND ROAST CENTER	QT GLG GLG 2700 B 35 50 . . AT2 9-0 B 40	B	AIA Guidelines require new construction partitions to be STC 45.
FSCB1*	FOOD SERVICE, CARBONATED BEVERAGE ROOM	QT GLG GLG 2700 B 35 50 . . AT2 9-0 . 40	B	AIA Guidelines require new construction partitions to be STC 45.
FSCD1	FOOD SERVICE, CAFETERIA DINING ROOM	CP GPT AT1 2700 B 35 50 VT . . 9-0 . 40	B	AIA Guidelines require new construction partitions to be STC 55. Prefer SV in lieu of VT.
FSCS1	FOOD SERVICE, CART STORAGE	QT GLG GLG 2700 900 . 40 . . . 9-0 3-0 .	B	AIA Guidelines require new construction partitions to be STC 45. Doors should be wider.
FSDA1	FOOD SERVICE, DESSERT ASSEMBLY	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	A	
FSDS1	FOOD SERVICE, DISH STORAGE AREA	QT GLG GLG 2700 900 . 40 . . . 9-0 3-0 .	B	AIA Guidelines require new construction partitions to be STC 45.
FSDW1	FOOD SERVICE, DISH WASHING	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	B	Doors should be 3'-6" or 6"-0"
FSFC1	FOOD SERVICE, FRY CENTER	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	B	Doors not needed in an open kitchen
FSFV1	FOOD SERVICE, FRESH FRUIT/VEGETABLE	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	B	Doors not needed in an open kitchen

FSGB1	FOOD SERVICE, GRILL AND BROIL AREA	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	B	Doors not needed in an open kitchen
FSIR1	FOOD SERVICE, INGREDIENT ROOM	QT GLG GLG 2700 900 . 40 . . . 9-0 3-0 .	B	Doors not needed in an open kitchen.
FSMC1	FOOD SERVICE, MIXING CENTER	QT GLG GLG 2700 900 35 50 CS . . 9-0 3-0 40	B	Doors not needed in an open kitchen.
FSMP1	FOOD SERVICE, MEAT PROCESSING	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	B	Doors not needed in an open kitchen.
FSNP1	FOOD SERVICE, NOURISHMENT PREP AREA	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	B	Doors not needed in an open kitchen.
FSPP1	FOOD SERVICE, PASTRY PREPARATION	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	B	Doors not needed in an open kitchen.
FSPT1	FOOD SERVICE, PATIENT TRAY LINE	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	B	Doors not needed in an open kitchen.
FSPT2	FOOD SERVICE, PATIENT TRAY CAROUSEL	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	B	Doors not needed in an open kitchen.
FSPW1	FOOD SERVICE, POT WASHING	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	B	Doors not needed in an open kitchen.
FSSA1	FOOD SERVICE, SALAD ASSEMBLY	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	B	Doors not needed in an open kitchen.
FSSC1	FOOD SERVICE, STEAM CENTER	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	B	Doors not needed in an open kitchen.
FSSL1	FOOD SERVICE, CAFETERIA SERVING	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 55.
FSTD1	FOOD SERVICE, THERAPEUTIC DIET PREP	QT GLG GLG 2700 900 35 50 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 55.
HAFR1	HEARING AID FITTING ROOM	VT GAF AT1 2700 900 20 40 CP . . 9-0 3-0 25	B	AIA Guidelines require new construction partitions to be STC 55.

HATL1	HEARING AID TESTING LAB/SHOP	VT GPT AT1 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
HYPR1*	HYPERBARIC CHAMBER ROOM	SSP SSP SSP VAR VAR SSP SSP . . . VAR VAR SSP	A	
ICE01	ICE MACHINE	VT GPT AT1 2400 OPEN 35 40 CT GPT . 8-0 OPEN 40	B	AIA Guidelines require new construction partitions to be STC 45.
JANC1	JANITORS' CLOSET	VT CT GPT 2400 900 40 40 CS GPT AT1 8-0 3-0 45	B	AIA Guidelines require new construction partitions to be STC 45.
KEY01*	KEY/ACCESS CONTROL	VT GPT AT1 2400 900 30 40 . . . 8'-0' 3'-0' 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBAP1	ALLERGEN PREPARATION	VT GPT AT1 2400 900 30 40 SV . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV.
LBAR1	LAB AUTOPSY ROOM	CT GLG GLG 2700 1200 35 40 ET . . 9-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LBBD1	LAB BLOOD DONOR STATION	VT GLG AT2 2600 1200 35 40 SV GPT . 8-6 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV. Door not needed if cubicle curtain is provided.
LBBD2	LABORATORY, BLOOD/PHORESIS PROCESSING	VT GLG AT2 2700 900 30 40 SV GPT . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV .
LBBG2	LAB, BLOOD GAS	VT GLG AT2 2700 900 30 40 SV GPT . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBBP1	LAB BODY PREP ROOM	CT GLG GLG 2700 1200 35 40 ET . . 9-0 4'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45.
LBBS1	LAB BLOOD SHIPPING - BASIC	VT GLG AT2 2700 900 35 40 SV GPT . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45. Prefer 4'-0" door.
LBBS2	LAB BLOOD SHIPPING - FROZEN BLOOD	SV GLG AT2 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBBV1	LAB BODY VIEWING ROOM	VT GLG AT2 2700 1200 30 40 SV GPT . 9-0 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.

LBCP1	LAB CYTOGENETICS PREPARATION	SV GLG AT2 2700 900 35 40 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LBCR1	LAB CYTOGENETICS READING ROOM	VT GPT AT1 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBDE1	LAB DERMATOLOGY	VT GPT AT2 2700 900 30 40 SV GLG . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBDR1	LAB DECONTAMINATION ROOM	SV GLG AT2 2700 900 35 40 VT . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LBDS1	LAB BONE DISSECTION (ENT USE)	SV GLG AT2 2700 900 35 40 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LBEM2	LAB, ELECTRON MICROSCOPE	SV GLG AT2 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBEM3	LAB ELECTRON MICRO' SPECIMEN PREP	SV GLG AT2 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBEN1	LAB ENTOMOLOGY	SV GLG AT2 2700 900 35 40 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LBFC1	LAB FLOW CYTOMETER ROOM	SV GLG AT2 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBGW1	LAB GLASSWARE WASHING ROOM	SV GLG GLG 2700 900 35 40 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LBIH1	LAB INDUSTRIAL HYGIENE	SV GLG AT2 2700 900 35 40 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LBIR1	LAB INCUBATION ROOM WALK-IN	SV GLG GLG 2700 900 35 40 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LBMR1	LAB MORGUE REFRIGERATOR	SV GLG GLG 2700 1050 . 40 PF PF SSP 9-0 3-6 .	B	AIA Guidelines require new construction partitions to be STC 45. Prefer D27Prefinished Refrigerator.
LBMR2	LAB MORGUE REFRIGERATOR – WALK-IN	SV GLG GLG 2700 1050 35 40 . . . 9-0 3-6 40	B	AIA Guidelines require new construction partitions to be STC 45. Prefer Prefinished Refrigerator.

LBOB1	LAB OB/GYN CLINIC - SPECIMENS	SV GLG AT2 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBRB1	LAB RESEARCH BIOCHEMISTRY	SV GLG AT2 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBRC1	LAB RESEARCH CLEAN	SV GLG AT2 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBRC2	LAB RESEARCH CONTAINMENT ROOM	SV GLG AT2 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBRI1	LAB RADIOIMMUNOASSAY	SV GLG AT2 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBRP1	LAB RADIATION PROTECTION	SV GLG AT2 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBSC1	LAB SMALL CLINIC - STANDARD	SV GLG AT2 2400 900 30 40 VT . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBSM1	LAB SOLUTION & MEDIA PREP	SV GLG AT2 2700 900 30 40 VT GPT AT1 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBSP1	LABORATORY, SATELLITE	SV GLG AT2 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBSS1	LABORATORY, SHIPPING & RECEIVING MINIMAL	VT GPT AT1 2400 900 30 40 SV . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBSS2*	LABORATORY, SHIPPING/RECEIVING, SMALL	VT GPT AT1 2400 900 30 40 SV . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBSS3*	LABORATORY, SHIPPING & RECEIVING, MEDIUM	VT GPT AT1 2400 900 30 40 SV . . 8'-0' 3'-0' 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBSS4*	LABORATORY, SHIPPING & RECEIVING, LARGE	VT GPT AT1 2400 900 30 40 SV . . 8'-0' 3'-0' 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBTS1	LAB TISSUE STORAGE AREA	VT GPT AT1 2700 900 30 40 SV . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.

LBUL1	LAB ULTRA LOW TEMP FREEZER AREA	PF SPF SPF 2700 900 . . . . . 9-0 3-0 .	A	
LBUR1	LAB, UROLOGY, URINE	VT GPT AT1 2700 900 35 40 SV GLG . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LBVP1	LAB VENIPUNCTURE	SV GLG AT1 2700 1200 30 40 VT GPT . 9-0 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LBWA1	LAB WATER	SV GLG AT2 2700 900 30 40 VT . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LCCL1	LINEN CONTROL, CLEAN	VT GPT AT1 2400 900 35 40 . . . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LCFA1	LINEN CONTROL, FOLDING AREA	VT GPT AT1 2400 900 35 40 . . . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LCS01	LINEN CONTROL, SEAMSTRESS	VT GPT AT1 2400 900 35 40 . . . 8'-0' 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LCSL1	LINEN CONTROL, SOILED LINEN	VT GPT AT1 2400 900 35 40 . GLG . 8'-0' 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LCUC1	LINEN CONTROL, UNIFORM CONVEYOR	VT GPT AT1 2700 900 35 40 SV GLG AT2 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LDAT1	LABOR & DELIVERY, ANTEPARTUM TESTING	VT GLG AT1 2700 1200 30 45 SV GPT AT2 9-0 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LDDR1	LABOR & DELIVERY, C SECTION ROOM	ET GCT GLG 3000 J 30 45 SV GLG . 10-0 . 35	A	
LDEP1	LABOR & DELIVERY, EXAM & PREP	VT GLG AT2 2400 1200 30 45 SV . . 8-0 4-0 35	A	
LDRP1*	LABOR & DELIVERY, LDRP (NARROW)	SV GLG AT1 2700 1200 30 45 SSP SSP . 9-0 4-0 35	A	
LDRP2*	LABOR & DELIVERY, LDRP (WIDE)	SV GLG AT1 2700 1200 30 45 SSP SSP . 9-0 4-0 35	A	
LDRP3*	LDR/LDRP ISOLATION ROOM	SV GLG GPT 2700 1200 30 45	A	

		SSP SSP GLG 9-0 4-0 35		
LIBB1	LIBRARY, BOOK STACK AREA	CP GAF AT1 3000 OPEN 25 45 VT GPT . 10-0 OPEN 30	A	
LIBD1	LIBRARY, REFERENCE DESK	CP GAF AT1 3000 900 25 45 . GPT . 10-0 3-0 30	A	
LIBP1	LIBRARY, PERIODICALS STACKS	CP GAF AT1 3000 900 25 45 . GPT . 10-0 3-0 30	A	
LIBS1	LIBRARY, SEATING AREA	CP GAF AT1 3000 900 25 45 . GPT . 10-0 3-0 30	A	
LIBV1	LIBRARY, PATIENT RESOURCE ROOM	CP GAF AT1 3000 900 25 45 . GPT . 10-0 3-0 30	A	
LIBW1	LIBRARY, WORK AREA - LIBRARY STAFF	CP GPT AT1 2700 900 25 45 VT GAF . 9-0 3-0 30	A	Prefer carpet.
LMAB1	LABORATORY, ANAEROBIC BACT' - TB	SV GLG GLG 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LMBB1	LABORATORY, BLOOD BANK, SMALL	SV GLG AT2 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LMBB2	LABORATORY, BLOOD BANK, MEDIUM	SV GLG AT2 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LMBB3	LABORATORY, BLOOD BANK, LARGE	SV GLG AT2 2700 900 30 40 . . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
LMCH1	LABORATORY, CHEMISTRY, MINIMAL	SV GLG AT2 2700 900 35 40 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LMCH2	LABORATORY, CHEMISTRY, SMALL	SV GLG AT2 2700 900 35 40 . . . 9-0 3-0 40	B C	AIA Guidelines require new construction partitions to be STC 45. Can use ACT2 in lieu of GLG.
LMCH3	LABORATORY, CHEMISTRY, MEDIUM	SV GLG AT2 2700 900 35 40 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LMCH4*	LABORATORY, CHEMISTRY, LARGE	SV GLG GLG 2700 900 35 40	B	AIA Guidelines require new construction partitions to be STC 45.

		VT GPT AT2 9'-0' 3'-0' 40	C	Can use ACT2 in lieu of GLG.
LMCY1	LABORATORY, CYTOLOGY, SMALL	SV GLG AT2 2700 900 35 40 VT . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LMCY3	LABORATORY, CYTOLOGY, LARGE	SV GLG AT2 2700 900 35 40 VT . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LMHC1	LABORATORY, HISTOPATHOLOGY, MEDIUM	SV GLG AT2 2700 900 35 40 VT . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LMHC2*	LABORATORY, HISTOPATHOLOGY, LARGE	SV GLG AT2 2700 900 35 40 VT . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LMHI1	LABORATORY, HEMATOLOGY, MINIMAL	SV GLG AT2 2700 900 35 40 VT . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LMHI2*	LABORATORY, HEMOTOLOGY, SMALL	SV GLG GLG 2700 900 35 40 VT . AT2 9'-0' 3'-0' 40	B C	AIA Guidelines require new construction partitions to be STC 45. Can use ACT2 in lieu of GLG.
LMHI3*	LABORATORY, HEMOTOLOGY, MEDIUM	SV GLG GLG 2700 900 35 40 VT . AT2 9'-0' 3'-0' 40	B C	AIA Guidelines require new construction partitions to be STC 45. Can use ACT2 in lieu of GLG.
LMHI4*	LABORATORY, HEMOTOLOGY, LARGE	SV GLG GLG 2700 900 35 40 VT . AT2 9-0 3-0 40	B C	AIA Guidelines require new construction partitions to be STC 45. Can use ACT2 in lieu of GLG.
LMHS1	LABORATORY, HISTOLOGY, SMALL	SV GLG GLG 2700 900 35 40 VT . AT2 9-0 3-0 40	B C	AIA Guidelines require new construction partitions to be STC 45. Can use ACT2 in lieu of GLG.
LMHS2	LABORATORY, HISTOLOGY, LARGE	SV GLG GLG 2700 900 35 40 VT . AT2 9-0 3-0 40	B C	AIA Guidelines require new construction partitions to be STC 45. Can use ACT2 in lieu of GLG.
LMM01	LABORATORY, MICROBIOLOGY, MINIMAL	SV GLG GLG 2700 900 35 40 VT . AT2 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LMM02	LABORATORY, MICROBIOLOGY, SMALL	SV GLG GLG 2700 900 35 40 VT . AT2 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LMM03	LABORATORY, MICROBIOLOGY, MEDIUM	SV GLG GLG 2700 900 35 40 VT . AT2 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LMM04*	LABORATORY, MICROBIOLOGY, LARGE	SV GLG GLG 2700 900 35	B	AIA Guidelines require new construction partitions to be STC 45.

		40 VT . AT2 9'-0' 3'-0' 40		
LMMP1	LABORATORY MICROBIOLOGY/PARASITIOLOGY	SV GLG GLG 2700 900 35 40 VT . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LMMY1	LABORATORY MYCOLOGY	SV GLG GLG 2700 900 35 40 VT . AT2 9-0 3-0 40	B C	AIA Guidelines require new construction partitions to be STC 45. Can use ACT2 in lieu of GLG.
LMS01	LABORATORY, SEROLOGY, SMALL	SV GLG GLG 2700 900 35 40 VT . AT2 9-0 3-0 40	B C	AIA Guidelines require new construction partitions to be STC 45. Can use ACT2 in lieu of GLG.
LMS03	LABORATORY, SEROLOGY, LARGE	SV GLG GLG 2700 900 35 40 VT . AT2 9-0 3-0 40	B C	AIA Guidelines require new construction partitions to be STC 45. Can use ACT2 in lieu of GLG.
LMT01	LABORATORY, TOXICOLOGY	SV GLG GLG 2700 900 35 40 VT . AT2 9-0 3-0 40	B C	AIA Guidelines require new construction partitions to be STC 45. Can use ACT2 in lieu of GLG.
LMU01	LABORATORY, URINALYSIS, MINIMAL	SV GLG GLG 2700 900 35 40 VT . AT2 9-0 3-0 40	B C	AIA Guidelines require new construction partitions to be STC 45. Can use ACT2 in lieu of GLG.
LMU02	LABORATORY, URINALYSIS, SMALL	SV GLG GLG 2700 900 35 40 VT . AT2 9-0 3-0 40	B C	AIA Guidelines require new construction partitions to be STC 45. Can use ACT2 in lieu of GLG.
LMU03	LABORATORY, URINALYSIS, MEDIUM	SV GLG GLG 2700 900 35 40 VT . AT2 9-0 3-0 40	B C	AIA Guidelines require new construction partitions to be STC 45. Can use ACT2 in lieu of GLG.
LMU04*	LABORATORY, URINALYSIS, LARGE	SV GLG GLG 2700 900 35 40 VT . AT2 9'-0' 3'-0' 40	B C	AIA Guidelines require new construction partitions to be STC 45. Can use ACT2 in lieu of GLG.
LMV01	LABORATORY, VIROLOGY, SMALL	SV GLG GLG 2700 900 35 40 . . AT2 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LMV02	LABORATORY, VIROLOGY, LARGE	SV GLG GLG 2700 900 35 40 VT . AT2 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
LOB01	LOBBY	VT GPT AT1 VAR SP 35 40 SP SSP SSP VAR . 40	B	AIA Guidelines require new construction partitions to be STC 55 if close to Patient Room, otherwise STC 45
LOB02*	LOBBY, VESTIBULE	VT GPT AT1 VAR SP . . SP SSP SSP VAR . .	B	AIA Guidelines require new construction partitions to be STC 45.
LR001	LOCKER AREA, PERSONAL PROPERTY	VT GLG GLG 2400 900 30 40	B	AIA Guidelines require new construction partitions to be STC 45.

		SSP CT AT2 8-0 3-0 35	C	ACT1
LR002	LOCKER ROOM, CHANGING	VT GLG GLG 2400 900 30 40 CT CT AT2 8-0 3-0 35	B C	AIA Guidelines require new construction partitions to be STC 45. ACT1
MECH1*	MECHANICAL ROOMS	CS SSP SSP VAR VAR 50 55 . . . VAR VAR 70	A	
MECH2*	AIR HANDLING ROOMS	CS SSP SSP VAR VAR 50 55 . . . VAR VAR 70	A	
MEDP1	MEDICATION PREPARATION STATION	VT GLG AT2 2400 900 30 45 . GPT AT1 8-0 3-0 35	A	
MICL1	MEDICAL ILLUS, COPY LABORATORY	VT GPT AT1 2400 900 30 40 SV . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
MIDR1	MEDICAL ILLUS, DARKROOM, DUAL	VT GLG GPT 2400 L 30 40 SV . . 8-0 . 35	B	AIA Guidelines require new construction partitions to be STC 45.
MIPF1	MEDICAL ILLUS, PHOTO FINISH	VT GLG GPT 2400 900 30 40 SV . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
MIPP1	MEDICAL ILLUS, PRINT PROCESS DUAL	VT GLG GPT 2400 900 30 40 SV . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
MIST1	MEDICAL ILLUS, STUDIO	VT GPT GPT 2400 900 30 40 SV GLG . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
MMCR1	MEDICAL MATERIAL CART RECEIVING	VT GPT AT1 3000 E 35 50 . . . 10-0 . 40	B	AIA Guidelines require new construction partitions to be STC 45.
MMCR2	MEDICAL MATERIAL CART RESTOCKING AREA	VT GPT AT1 3000 E 35 50 . . . 10-0 . 40	B	AIA Guidelines require new construction partitions to be STC 45. Prefer double door.
MMGS1	MEDICAL MATERIAL GENERAL STORAGE	VT GPT AT1 B 1200 35 50 . . . . 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
MMRP1	MEDICAL MATERIAL RECEIVING/PROCESS	VT GPT AT1 B 1200 35 50 . . . . 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
MRMB1	MAIL ROOM, DISTRIBUTION AREA	VT GPT AT1 2700 900 35 50 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
MRPS1	MAIL ROOM, U.S. POST OFFICE	VT GPT AT1 2700 900 35	B	AIA Guidelines require new construction partitions to be STC 45.

		50 . . . 9-0 3-0 40		
MRRS1	MAIL ROOM, RECEIVING/SORTING	VT GPT AT1 2700 B 35 50 . . . 9-0 . 40	B	AIA Guidelines require new construction partitions to be STC 45.
MRS01	MED RECORDS, STOR, FIXED	VT GPT AT1 2700 900 35 40 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
MRS02	MED RECORDS, STOR, MOVABLE	VT GPT AT1 2700 900 35 40 CP . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
MRT01	MED RECORDS TRANSCRIPTION	VT GPT AT1 2400 900 25 40 CP . . 8-0 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45.
MRWK1	MED RECORDS WORKROOM	VT GPT AT1 2400 900 30 40 CP . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
NBCD1	NBC DECONTAMINATION SUITE	CS SSP SSP . VAR 35 50 . . . . VAR 40	A	
NBCD2*	DECONTAMINATION SHOWER	SV SSP SSP VAR VAR 35 40 CS GLG GLG VAR VAR 40	B	AIA Guidelines require new construction partitions to be STC 45.
NCWD1	NOURISHMENT CENTER, WARD	VT GLG AT1 2400 OPEN 35 40 SV GPT . 8-0 OPEN 40	B	AIA Guidelines require new construction partitions to be STC 45.
NMCR1	NUCLEAR MEDICINE, COMPUTER ROOM	VT GPT AT1 2400 900 30 40 CP . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
NMDC1	NUCLEAR MEDICINE, DOSE CALIBRATION	SV GLG AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
NMDS1	NUCLEAR MEDICINE, DECAY STORAGE	SV GLG AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
NMGS1	NUCLEAR MEDICINE, GENERAL SCANNING	SV GLG AT1 3000 1200 30 40 . . . 10-0 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer 1050 door.
NMIR1	NUCLEAR MEDICINE, INJECTION ROOM	SV GLG AT1 2400 1050 30 40 . . . 8-0 3-6 35	B	AIA Guidelines require new construction partitions to be STC 45.
NMRC1	NUCLEAR MEDICINE, RADIUM CART HOLD	SV GLG AT1 2400 900 30 40	B	AIA Guidelines require new construction partitions to be STC 45.

		. . . 8-0 3-0 35		
NMRP1	NUCLEAR MEDICINE, RADIOPHARMACY	SV GLG AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
NMSS1	NUCLEAR MEDICINE, SPECIAL SCANNING	SV GLG AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer 1050 door.
NMUR1	NUCLEAR MEDICINE, UPTAKE ROOM	SV GLG AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
NMWB1	NUCLEAR MEDICINE, WHOLE BODY	SV GLG AT1 3000 1200 30 40 . . . 10-0 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
NMWR1*	NUCLEAR MEDICINE, WAITING ROOM, HOT	VT GPT AT1 2400 1200 30 45 CP . . 8'-0' 4'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45.
NSTA1	NURSE STATION, INPATIENT/ER	GPT AT1 2400 M 35 40 VT . . 8-0 . 40	B	AIA Guidelines require new construction partitions to be STC 45.
NSTA3	NURSE STATION, SUBSTATION	GPT AT1 2400 M 35 40 VT . . 8-0 . 40	B	AIA Guidelines require new construction partitions to be STC 45.
NSTA4	NURSE STATION, OUTPATIENT	CP GPT AT1 2400 M 35 40 VT GPT . 8-0 . 40	B	AIA Guidelines require new construction partitions to be STC 45.
NYAR1	NURSERY ANTEROOM WITH SCRUB SINK	SV GPT AT1 2400 1200 25 45 VT GLG AT2 8'-0' 4-0 30	A	
NYFA1	NURSERY FEEDING AREA	SV GLG AT2 2700 1200 25 45 VT GPT . 9-0 4-0 30	A	
NYIC1	NURSERY LEVEL II	SV GLG AT2 2700 F 25 45 VT GPT . 9-0 . 30	A	
NYIC2	NURSERY LEVEL III (NICU)	SV GLG AT2 2700 1200 25 45 VT . . 9-0 4-0 30	A	
NYIR1	NURSERY, ISOLATION	SV GLG AT2 2700 1200 25 45 VT . . 9-0 4-0 30	A	
NYNN1	NURSERY, NORMAL NEWBORN, LEVEL I	SV GLG AT2 2700 1200 25 45 VT . . 9-0 4-0 30	A	
NYPR1	NURSERY PROCEDURE ROOM	SV GLG AT2 2700 1200 25 45	A	

		. . . 9-0 4-0 30		
NYPT1	NURSERY TEACHING PARENTS ROOM	CP GPT AT1 2400 1200 30 45 VT . . 8-0 4-0 35	A	
NYTU1	NURSERY TRANSPORT UNIT ALCOVE	SV GLG AT2 2400 OPEN 30 45 VT GPT . 8-0 OPEN 35	A	
NYWE1	NURSERY, EXAM AREA	SV GLG AT1 2700 1200 30 45 VT GPT . 9-0 4-0 35	A	
OFA01	OFFICE, ADMINISTRATIVE, STD FURN.	CP GPT AT1 2400 900 30 40 VT . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OFA02	OFFICE, ADMINISTRATIVE, SYS FURN.	CP GPT AT1 2400 900 30 40 VT . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OFA03*	OFFICE, ADMINISTRATIVE CUBICLES	CP GPT AT1 2400 900 30 40 VT . . 8'-0' 3'-0' 35	B	AIA Guidelines require new construction partitions to be STC 45.
OFC01	OFFICE, COMMANDER, SMALL FACILITY	CP GPT AT1 2400 900 30 40 VT . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OFC02	OFFICE, COMMANDER, MEDIUM FACILITY	CP GPT AT1 2400 900 30 40 VT . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OFC03	OFFICE, COMMANDER, LARGE FACILITY	CP GPT AT1 2600 900 30 45 VT . . 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OFD01	OFFICE, PROVIDER, ARMY	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OFD02	OFFICE, PROVIDER, NAVY	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OFD03	OFFICE, PROVIDER, AIR FORCE	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OFDC1*	OFFICE, MENTAL HEALTH PROVIDER	CP GPT AT1 2400 900 30 40 VT . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OFDC2*	OFFICE, CONSULT ROOM	CP GPT AT1 2400 900 30 40	B	AIA Guidelines require new construction partitions to be STC 45.

		VT . . 8-0 3-0 35		
OFDR1	OFFICE, DOCTOR, RADIOLOGY	CP GPT AT1 2400 900 30 40 VT . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OFM01	OFFICE, KEY PERSONNEL, SMALL	CP GPT AT1 2400 900 30 40 VT . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OFM02	OFFICE, KEY PERSONNEL, MEDIUM	CP GPT AT1 2400 900 30 40 VT . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OFM03*	OFFICE, KEY PERSONNEL, LARGE	CP GPT AT1 2400 900 30 40 VT . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OOHR1*	OUTPATIENT OBSERVATION/HYDRATION	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Doors are not necessary if cubile curtains are used.
OPAE1*	AUDITORY ELECTROPHYSIOLOGICAL LAB	VT GPT AT1 2400 900 30 40 CP . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPAI1	OUTPATIENT ALLERGY INJECTION ROOM	VT GPT AT1 2400 900 30 40 SV GLG . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPAS1	OUTPATIENT ALLERGY SKIN TESTING	VT GPT AT1 2400 900 30 40 SV GLG . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPCR1	OUTPATIENT, CASTROOM, 1 STATION	VT GPT AT1 2700 G 35 50 SV GLG GPT 9-0 . 40	B	AIA Guidelines require new construction partitions to be STC 45.
OPCR2*	OUTPATIENT, CAST ROOM, 2 STATION	VT GPT AT1 2700 1200 30 50 SV GLG GPT 9-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
OPCT1	OUTPATIENT CHEMOTHERAPY AREA	SV GLG AT1 2400 900 30 40 VT . AT2 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPCT2	OUTPATIENT CHEMOTHERAPY PREPARATION ROOM	SV GLG AT1 2400 900 30 40 VT . AT2 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPDC1*	OUTPATIENT DERMATOLOGY CRYOTHERAPY	VT GPT AT1 2400 900 30 40 SV GLG . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPDU1	OUTPATIENT DERMATOLOGY UV BOOTH	VT GPT AT1 2400 900 30 40	B	AIA Guidelines require new construction partitions to be STC 45. Usually a prefabricated room.

		. . . 8-0 3-0 35		
OPEC1	OUTPATIENT EKG TESTING	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPEC2	OUTPATIENT EKG WORK AREA 1 STATION	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPEE1	OUTPATIENT EEG TESTING AREA,1 STA.	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPEE2	OUTPATIENT EEG WORK AREA, 1 STATION	VT GPT AT1 2400 900 25 40 . . . 8-0 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45.
OPHM1	OUTPATIENT HOLTER MONITOR ROOM	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPIR1	OUTPATIENT IMMUNIZATION ROOM	VT GPT AT1 2400 1050 35 40 SV GLG . 8-0 3-6 40	B	AIA Guidelines require new construction partitions to be STC 45.
OPMH1*	OUTPATIENT, GROUP THERAPY	CP GPT AT1 VAR 900 30 40 VT GAF . VAR 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPMH2*	OUTPATIENT, MENTAL HEALTH TESTING	CP GPT AT1 2400 900 30 40 VT GAF . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPMH3*	OUTPATIENT, BIOFEEDBACK ROOM	CP GPT AT1 2400 900 30 40 VT GAF . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPMH4*	OUTPATIENT, SECURED OBSERVATION ROOM	CP GPT AT1 2400 900 30 40 VT GAF . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPNR1	OUTPATIENT NEPHROLOGY RENAL STUDY	SV GLG AT2 2400 900 30 40 VT GPT AT1 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPPE1	OUTPATIENT, ECHOCARDIOGRAPH	VT GPT AT1 2400 1050 30 40	B	AIA Guidelines require new construction partitions to be STC 45.
OPPE2*	OUTPATIENT STRESS ECHOCARDIOGRAPH	VT GPT AT1 2400 1050 30 40	B	AIA Guidelines require new construction partitions to be STC 45.

		CP GAF . 8-0 3-6 35		
OPPF1	OUTPATIENT PULMONARY FUNCTION	VT GPT AT1 2700 1050 30 40 . . . 9-0 3'-6' 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPPF4	OUTPATIENT PULMO FUNCT BODY BOX	VT GPT AT1 2700 1050 35 50 . . . 9-0 3'-6' 40	B	AIA Guidelines require new construction partitions to be STC 45. Usually a prefabricated Body Box.
OPPF5	OUTPATIENT PULMO FUNCT TREADMILL RM	VT GPT AT1 2700 1050 35 50 . . . 9-0 3'-6' 40	B	AIA Guidelines require new construction partitions to be STC 45.
OPPF6	OUTPATIENT PULMO FUNCT SLEEP STUDY	CP GPT AT1 2600 1050 20 50 . . . 8-6 3'-6' 25	B	AIA Guidelines require new construction partitions to be STC 45.
OPPM1	OUTPATIENT PACEMAKER WORKROOM	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPPS1	OUTPATIENT PULMO FUNCT SCREENING	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPRC1	OUTPATIENT RESPIRATORY CLEANING RM	VT GLG AT1 2400 900 30 40 SV GPT . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV.
OPRT1	OUTPATIENT RESPIRATORY TREATMENT	VT GLG AT1 2400 900 30 40 SV GPT . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
OPST1	OUTPATIENT NON-STRESS TESTING, MULTIPLE	VT GPT AT1 2700 900 35 50 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
OPTM1	OUTPATIENT TREADMILL ROOM	VT GPT AT1 2700 1050 35 50 . . . 9-0 3-6 40	B	AIA Guidelines require new construction partitions to be STC 45.
OPTM2*	OUTPATIENT TILT TABLE TESTING	VT GPT AT1 2700 1050 35 50 . . . 9'-0' 3'-6' 40	B	AIA Guidelines require new construction partitions to be STC 45.
OPVL1	OUTPATIENT VASCULAR LAB	SV GLG AT1 2400 1050 30 40 VT GPT . 8-0 3-6 35	B	AIA Guidelines require new construction partitions to be STC 45.
ORCM1	OPERATING ROOM, CARDIAC STORAGE	VT GPT AT1 2700 900 35 50 CS GLG . 9'-0' 3'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45.

ORCS1	OPERATING ROOM CYSTOSCOPIC SURGERY	ET GLG GLG 3000 K 30 45 SV SSP . 10-0 . 35	A	Prefer SV.
ORCT1	OPERATING ROOM CARDIOTHORACIC	ET GLG GLG 3000 K 30 45 SV SSP . 10-0 . 35	A	
ORCW1	OPERATING ROOM CLEAN WORK AREA	ET GLG GLG 2700 1050 30 45 SV SSP . 9-0 3-6 35	A	
ORDA1	OPERATING ROOM DECONTAMINATION AR.	CT GLG GLG 2700 1050 30 45 SV SSP . 9-0 3-6 35	A	
OREC1	OPERATING ROOM EQUIPMENT CLEANUP	VT GLG GLG 2700 900 30 45 SV SSP . 9-0 3-0 35	A	
ORGS1	OPERATING ROOM GENERAL SURGERY	ET GLG GLG 3000 K 30 45 SV SSP . 10-0 . 35	A	
ORHL1	OPERATING ROOM HEART LUNG PUMP ROOM	ET GLG GLG 3000 K . . SV SSP . 10-0 . .	B	AIA Guidelines require new construction partitions to be STC 45. Industry Standard is SV.
ORNE1	OPERATING ROOM NEUROSURG EQUIP STOR	SV GLG GLG 3000 1200 . . . SSP . 10-0 4-0 .	B	AIA Guidelines require new construction partitions to be STC 45.
ORNS1	OPERATING ROOM NEUROSURGERY	ET GCT GLG 3000 K 30 45 SV SSP . 10-0 . 35	A	
OROE1	OPERATING ROOM ORTHOPEDIC EQUIP SR	SV GLG GLG 3000 1200 40 40 . SSP . 10-0 4-0 45	B	AIA Guidelines require new construction partitions to be STC 45.
OROS1	OPERATING ROOM ORTHOPEDIC SURGERY	ET GLG GLG 3000 K 30 45 SV SSP . 10-0 . 35	A	
ORPC1	OPERATING ROOM PLASTER CART STORAGE	SV GLG GLG 2700 1050 30 40 . SSP . 9-0 3-6 35	B	AIA Guidelines require new construction partitions to be STC 45.
ORPH2	OPERATING ROOM PREP/HOLD WORKSTATIO	VT GLG GLG 2700 1200 30 40 SV SSP . 9-0 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
ORPP1	OPERATING ROOM PATIENT PREP/INDUCT	VT GLG GLG 2700 1200 30 40	B	AIA Guidelines require new construction partitions to be STC 45. Prefer 3-6 door.

		SV SSP . 9-0 4-0 35		
ORSA1	OPERATING ROOM SCRUB AREA, 2 SINK	SV GLG GLG 2700 OPEN 30 40 SSP SSP . 9-0 OPEN 35	B	AIA Guidelines require new construction partitions to be STC 45.
ORSR1	OPERATING ROOM SUBSTERILE ROOM	ET GLG GLG 2700 900 30 40 SV SSP . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer 3-6 door
ORSS1	OPERATING ROOM STERILE STORAGE	VT GLG GLG 2700 900 40 40 SV SSP . 9-0 3-0 45	B	AIA Guidelines require new construction partitions to be STC 45.
OTDL1	OCC. THERAPY, DAILY LIVING SKILLS TRAINING ROOM	CP GPT AT1 2400 1050 35 45 VT . . 8-0 3-6 40	A	
OTEV1	OCC. THERAPY, EVALUATION AREA	CP GPT AT1 2400 1050 30 45 VT . . 8-0 3-6 35	A	
OTGC1	OCC. THERAPY, GENERAL CLINIC AREA	CP GPT AT1 2700 900 30 45 VT . . 9-0 3-0 35	A	Prefer double doors.
OTWT1	OCC. THERAPY, ERGONOMICS LABORATORY	CP GPT AT1 2400 900 30 45 VT . . 8-0 3-0 35	A	Prefer double doors.
PAIA1	PATIENT ADMIN INTERVIEW AREA	CP GPT AT1 2400 900 30 40 VT . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
PEDS1*	PHYSICAL EXAM, DENTAL SCREEN	VT GPT AT1 2400 900 30 45 SV . . 8-0 3-0 35	A	
PEHS1	PHYSICAL EVAL HEARING SCREEN 1 PERSON	CP GAF AT1 2700 900 30 45 VT GPT . 9-0 3-0 35	A	
PEHS2	PHYSICAL EVAL HEARING SCREEN 4 PERSON	CP GAF AT1 2700 900 30 45 VT GPT . 9-0 3-0 35	A	
PEHS3	PHYSICAL EVAL HEARING SCREEN 6 PERSON	CP GAF AT1 2700 900 30 45 VT GPT . 9-0 3-0 35	A	
PEHS4	PHYSICAL EVAL HEARING SUITE(2 ROOM)	CP GAF AT1 2700 900 30 45 VT GPT . 9-0 3-0 35	A	
PEHW1	PHYSICAL EVAL HEIGHT AND WEIGHT	VT GPT AT1 2400 900 35 40	B	AIA Guidelines require new construction partitions to be STC 45.

		. . . 8-0 3-0 40		
PEVH2	PHYSICAL EVAL VISION/HEARING PEDS	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
PEVS1	PHYSICAL EVAL VISION SCREENING	VT GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
PHBS1*	PHARMACY BULK STORAGE LOW VOLUME	VT GPT AT1 VAR 900 35 45 . . . VAR 3-0 40	A	
PHBS2*	PHARMACY BULK STORAGE MEDIUM VOLUME	VT GPT AT1 VAR 900 35 45 . . . VAR 3-0 40	A	Prefer double doors.
PHBS3*	PHARMACY BULK STORAGE HIGH VOLUME	VT GPT AT1 VAR 1066 35 45 . . . VAR 3-6 40	A	Prefer double doors.
PHDS1 *	PHARMACY OFF SITE SATELLITE FOR MEDIUM VOLUME	VT GPT AT1 VAR 900 30 40 . . . VAR 3-0 35	A	Prefer double doors.
PHDS2*	PHARMACY OFF SITE SATELLITE FOR HIGH VOLUME	VT GPT AT1 VAR 900 30 40 . . . VAR 3-0 35	A	Prefer double doors.
PHIV1	PHARMACY IV ADMIXTURE, LOW VOLUME	VT GLG AT2 2700 900 35 40 SV GPT AT1 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45. 3'-6 door needed for admixture hood. Ceiling should be GLG.
PHIV2	PHARMACY IV ADMIXTURE, MED VOLUME	VT GLG AT2 2700 900 35 40 SV GPT AT1 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45. 3'-6 door needed for admixture hood. Ceiling should be GLG.
PHIV3	PHARMACY IV ADMIXTURE, HIGH VOLUME	VT GLG AT2 2700 900 35 40 SV GPT AT1 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45. 3'-6 door needed for admixture hood. Ceiling should be GLG.
PHMP1	PHARMACY MANUFACTURING & PREPACK, LOW VOLUME	VT GPT AT1 2700 900 35 40 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
PHMP2*	PHARMACY MANUFACTURING & PREPACK MED VOL	VT GPT AT1 2700 900 35 40 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45. Prefer double doors.

PHMP3*	PHARMACY MANUFACTURING & PREPACK HIGH VOL	VT GPT AT1 2700 900 35 40 . . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45. Prefer double doors.
PHOD1	PHARMACY STORAGE/DISPENSING LOW VOLUME	CP GPT AT1 2700 1050 35 40 VT GPT . 9-0 3-6 40	B	AIA Guidelines require new construction partitions to be STC 45.
PHOD2	PHARMACY STORAGE/DISPENSING MED VOLUME	VT GPT AT1 2700 1050 35 40 VT GPT . 9-0 3-6 40	B	AIA Guidelines require new construction partitions to be STC 45.
PHOD3*	PHARMACY STORAGE/DISPENSING HIGH VOLUME	VT GPT AT1 2700 1066 35 45 . . . 9-0 3-6 40	A	
PHUD1	PHARMACY UNIT DOSE CENTER	VT GLG AT1 2700 900 35 40 SV GPT . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
PLAY1	PLAYROOM, PEDIATRICS	CP GPT AT1 2700 1200 35 45 VT GAF . 9-0 4-0 40	A	
PMCC1*	PLANT MAINTENANCE CONTROL CENTER	CS GPT AT1 VAR VAR 35 50 VT SSP SSP . VAR 40	A	
PMCW1	PLANT MAINTENANCE, COMMON WORK AREA	CS GPT AT1 VAR VAR 35 50 VT SSP SSP 9-0 VAR 40	A	
PMWS1	PLANT MAINTENANCE, WORKSTATION	CS GPT AT1 VAR VAR 35 50 VT SSP SSP 9-0 VAR 40	A	
PTAT1	PHYS THERAPY AMPUTEE TRAINING AREA	CP GPT AT1 2700 900 35 40 VT GLG . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
PTBT1	PHYS THERAPY BACK THERAPY PROGRAM	CP GPT AT1 2700 900 35 40 VT GPT . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
PTCW1	PHYS THERAPY CUBICLE WORKSTATION	VT GPT AT1 2700 900 35 40 CP GPT . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45. Prefer cubicle curtains in lieu of doors.
PTEA1	PHYS THERAPY EXERCISE AREA - GYM	VT GPT AT1 2700 900 35 40 CP GPT . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
PTEM1	PHYS THERAPY ELECTROMYOGRAPHY	VT GPT AT1 2700 900 35 40	B	AIA Guidelines require new construction partitions to be STC 45.

	(EMG)	. GPT . 9-0 3-0 40		
PTES1	PHYS THERAPY EXERCISE STATION	VT GPT AT1 2700 900 35 40 CP GPT . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
PTEW1	PHYS THERAPY EXTREM WHIRLP ARM/LEG	VT GLG AT2 2700 900 35 40 CT CT GLG 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
PTGL1	PHYS THERAPY GAIT OBS. LANE	VT GPT AT1 2700 900 35 40 CT CT . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45. No ceramic tile as a alternate.
PTIS1	PHYS THERAPY ISOKINETIC STA - DIAG	VT GPT AT1 2700 900 35 40 . GPT . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
PTPR1	PHYS THERAPY PEDIATRIC REHAB	VT GPT AT1 2700 900 35 40 CP GPT . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
PTTC1	PHYS THERAPY TREATMENT CUBICLE	VT GPT AT1 2700 900 35 40 CP GPT . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45. Prefer cubicle curtains in lieu of doors.
PTWT1	PHYS THERAPY WHIRLPOOL TREATMENT	CT GPT AT1 2700 900 35 40 QT CT GLG 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
PTWW1	PHYS THERAPY WHIRLPOOL WORKSTATION	CT GPT AT1 2700 900 35 40 QT CT GLG 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
RAA01	CHAPEL ALTAR	CP GPT AT1 2700 OPEN 20 40 . SP SP 9-0 OPEN 25	B	AIA Guidelines require new construction partitions to be STC 45.
RABS1	RELIGIOUS ACTIVITY, CHANCEL	CP GPT AT1 2700 900 20 40 . SP SP 9-0 3-0 25	B	AIA Guidelines require new construction partitions to be STC 45.
RAMR1	RELIGIOUS ACTIVITY MEDITATION ROOM	CP GPT AT1 2700 900 20 40 . SSP . 9-0 3-0 25	B	AIA Guidelines require new construction partitions to be STC 45.
RAS01	CHAPEL SEATING AREA, FIXED SEATS	CP GPT AT1 VAR OPEN 20 40 . SSP . VAR OPEN 25	B	AIA Guidelines require new construction partitions to be STC 45.
RASR1	CHAPEL, SACRISTY/STORAGE	CP GPT AT1 2700 900 30 40 VT . . 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.

RCA01	RESUSCITATION CART ALCOVE	VT GPT AT1 2400 OPEN 35 40 . . . 8-0 OPEN 40	B	AIA Guidelines require new construction partitions to be STC 45.
RDC01	RENAL DIALYSIS CHAIR STATION	VT GPT AT1 2600 1200 30 40 SV GLG AT2 8-6 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer cubicle curtains.
RDC02	RENAL DIALYSIS CHAIR STATION NEG PR	VT GPT AT1 2600 1200 30 40 SV GLG AT2 8-6 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
RDP01	RENAL DIALYSIS, STORAGE, PORTABLE	VT GPT AT1 2600 1200 30 40 SV GLG AT2 8-6 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
RDPD1	RENAL DIALYSIS PERITONEAL STATION	VT GPT AT1 2600 1200 30 40 SV GLG AT2 8-6 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
RDWT1*	RENAL DIALYSIS WATER TREATMENT RM	VT GPT AT1 2600 900 30 40 SV GLG AT2 8-6 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
RECP1	RECEPTION	VT GPT AT1 2700 900 35 40 CP SSP . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
RECP2	RECEPTION/WORKSTATION (COF)	VT GPT AT1 2700 900 35 40 CP SSP . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
RECP3	RECEPTION/INFORMATION DESK	VT GPT AT1 VAR OPEN 35 40 SSP SSP . VAR OPEN 40	B	AIA Guidelines require new construction partitions to be STC 45.
RER01*	REFRIGERATION EQUIPMENT ROOM	CS GPT VAR VAR 1200 35 50 VT . VAR VAR 4'-0' 40	A	
RPR01	REPRODUCTION ROOM, STANDARD	VT GPT AT1 2400 900 35 50 CP . . 8-0 3-0 40	A	
RPR02	REPRODUCTION ROOM, HIGH VOLUME	VT GPT AT1 2400 900 35 50 CP . . 8-0 3-0 40	A	
RRIR1	RECOVERY ROOM, ISOLATION	SV GLG GLG 2700 1200 30 40 . . GPT 9-0 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
RROP1	RECOVERY CUBICLE, PHASE II	SV GLG AT2 2700 1200 30 40	B	AIA Guidelines require new construction partitions to be STC 45. Industry standard is glass sliding doors.

		VT GPT AT1 9-0 4-0 35		
RRSS1	RECOVERY ROOM, PHASE I	SV GLG GLG 2700 1200 30 40 . . AT2 9-0 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Industry standard is cubicle curtains.
RRSS3	RECOVERY ROOM OUTPATIENT SEATED	SV GLG AT2 2700 1200 30 40 VT GPT AT1 9-0 4-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
SEC01	SECRETARY, GENERAL USE	CP GPT AT1 2400 900 30 40 VT GPT . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
SEC02	SECRETARY, COMMAND	CP GPT AT1 2400 900 30 40 VT . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
SHWR1*	SHOWER ROOM	CT GCT GLG VAR 900 35 45 SSP SSP . VAR 3-0 40	A	
SHWR2*	SHOWER, INPATIENT UNIT	CT GCT GLG VAR 900 35 45 SSP SSP . VAR 3-0 40	A	
SINK1*	SINK STAFF HANDWASHING	VT GPT VAR VAR 900 35 45 SSP SSP . VAR 3-0 40	A	
SL001	STAFF LOUNGE	VT GPT AT1 2400 900 35 45 CP GPT . 8-0 3-0 40	A	
SL002*	TEAM INTERACTION STATION CLINIC OF THE FUTURE (COF)	CP GPT AT1 2400 900 30 40 . . . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
SRCH1	STORAGE RM, CHARGING, BATTERY/EQUIP	VT GPT AT1 2400 900 35 40 CS . GPT 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
SRCS1	STORAGE RM, CRUTCH AND SPLINT	VT GPT AT1 2400 900 35 40 . . . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
SRE01	STORAGE RM, EQUIPMENT	VT GPT AT1 2400 E 40 40 . . GPT 8-0. 45	B	AIA Guidelines require new construction partitions to be STC 45.
SRF01	STORAGE RM, FREEZER WALK-IN	VT SPF SPF VAR SP . . SSP . . VAR SP .	A	
SRF02	STORAGE RM, FREEZERS - FREESTANDNG	PF GLG GLG VAR SP 40 40	B	AIA Guidelines require new construction partitions to be STC 45.

		SSP GPT . VAR SP 45		
SRGC1	STORAGE RM, GAS CYLINDERS, EXTERIOR	CS BPT GPT 2700 900 45 40 . GPT SSP 9-0 3-0 50	A	
SRGC2	STORAGE RM, GAS CYLINDERS, INTERIOR	VT GLG GLG 2400 900 35 40 SV GPT SSP 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
SRHM1	STORAGE RM, HAZARDOUS MATERIALS	CS BPT GPT 2400 900 45 40 . GPT . 8-0 3-0 50	B	AIA Guidelines require new construction partitions to be STC 45.
SRL01	STORAGE RM, LAB MICROSCOPE SLIDES	VT GPT AT1 2400 900 35 40 . . AT2 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
SRL02	STORAGE RM, LAB PARAFFIN BLOCKS	VT GPT AT1 2400 900 35 40 . . AT2 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
SRLW1	STORAGE RM/AREA, LITTER-WHEELCHAIR	VT GPT AT1 2400 OPEN 35 40 . . . 8-0 OPEN 40	B	AIA Guidelines require new construction partitions to be STC 45.
SRPB1	STORAGE RM, PATIENT BAGGAGE	VT GPT AT1 2400 900 35 40 . . . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
SRPS1	STORAGE RM, PARTS STORAGE	VT GPT AT1 2400 900 35 40 CS . . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
SRR01	STOR. RM REFRIGERATOR, WALK-IN	PF SPF SPF VAR SP . . . . . VAR SP .	A	
SRR02	STORAGE RM, REFRIGERATORS FREESTND	QT GLG GLG VAR SP . . SV GPT GPT VAR SP .	A	
SRS01	STORAGE RM, SHELVING	VT GPT AT1 2700 900 40 40 CS . . 9-0 3-0 45	B	AIA Guidelines require new construction partitions to be STC 45.
SRSE1	STORAGE RM, EQUIPMENT/SHELVING	VT GPT AT1 2700 900 . . CS . . 9-0 3-0 .	B	AIA Guidelines require new construction partitions to be STC 45.
SSC01	SECURE STORAGE, CAGE	VT GPT AT1 2700 900 . . CS . . 9-0 3-0 .	A	
SSS01	SECURE STORAGE, SAFE	VT SSP SSP VAR SP . . CS . . VAR SP .	A	
SSV01	SECURE STORAGE, VAULT	CS CCS CCS VAR SSP . .	A	

		SSP SSP SSP VAR SSP .		
TCGS1	TREATMENT CUBICLE GENERAL SURGICAL	SV GLG AT2 2700 900 30 40 VT . AT1 9-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45. Prefer cubicle cutains in lieu of doors.
TLTF0	TOILET/SHOWER, HANDICAP ACCESSIBLE	SV GCT GLG 2400 900 35 40 CT SPF SPF 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45. CT to match other toilets.
TLTF1	TOILET, FEMALE, SINGLE	CT GPT GPT 2400 900 35 40 SSP CT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
TLTF2	TOILET FEMALE, MULTIPLE	CT GPT GPT 2400 900 35 40 SSP CT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
TLTM1	TOILET, MALE, SINGLE	CT GPT GPT 2400 900 35 40 SSP CT SSP 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
TLTM2	TOILET, MALE, MULTIPLE	SV GPT GPT 2400 900 35 40 SSP CT SSP 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45. CT to match other toilets.
TLTP1	TOILET PSYCHIATRIC	CT GPT GPT 2400 1050 35 40 SSP CT SSP 8-0 3-6 40	B	AIA Guidelines require new construction partitions to be STC 45.
TLTP3	TOILET/SHOWER PSYCHIATRIC	CT GPT GPT 2400 1050 35 40 SSP GLG GPT 8-0 3-6 40	B	AIA Guidelines require new construction partitions to be STC 45.
TLTS1	TOILET, SHOWER, SINGLE	CT CT GPT 2400 900 35 40 SSP . SSP 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
TLTS2*	TOILET/SINK/SHOWER INPATIENT	CT CT GLG 2400 900 35 40 SV GLG GPT 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
TLTU1*	TOILET, UNISEX	CT GPT GPT 2400 900 35 40 VT CT AT1 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
TREE1	TX ROOM ENDOSCOPIC EXAM (UGI)	SV GLG GLG 2700 D 30 40 . . . 9-0 . 35	B	AIA Guidelines require new construction partitions to be STC 45.
TREN1	TX ENT	SV GLG GLG 2700 900 25 40 . . . 9-0 3-0 30	B	AIA Guidelines require new construction partitions to be STC 45.
TREN2*	AUDIOLOGY TESTING ROOM	CP GPT AT1 VAR VAR VAR VAR	A	

		VT . GPT VAR VAR VAR		
TRET1	TX EMERGENCY TRAUMA ROOM 2 BED	SV GLG GLG 2700 H 35 50 VT GPT AT2 9-0 . 40	A	
TRET3*	TX EMERGENCY TRAUMA ROOM, 1 BED	SV GLG GLG 2700 1200 35 50 VT GPT AT2 9'-0' 4'-0' 40	A	
TRET4*	TX ROOM, EMERGENCY CARE, 1 BED	SV GLG GLG 2700 1200 35 50 VT GPT AT2 9'-0' 4'-0' 40	A	
TRET5*	TX ROOM, EMERGENCY CARE, 2 BED	SV GLG GLG 2700 1200 35 50 VT GPT AT2 9'-0' 4'-0' 40	A	
TREY1	TX EYE - OPHTHALMOLOGY	VT GPT AT2 2400 900 30 40 SV . GLG 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
TREY2*	TX EYE - LASER	VT GPT AT2 2400 900 30 40 SV GLG . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.
TREY3*	TX ROOM PRK/LASIK	VT GPT GLG 2400 900 30 40 SV GPT AT2 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45. AT2 in lieu of GLG.
TRGM1	TRT ROOM, GENERAL, 1 BED	SV GLG GLG 2700 VAR 30 40 VT GPT AT2 9-0 VAR 35	B	AIA Guidelines require new construction partitions to be STC 45. AT2 in lieu of GLG.
TRGM2*	TX ROOM, GENERAL, 2 BED	SV GLG GLG 2700 VAR 30 40 VT GPT AT2 9-0 VAR 35	B	AIA Guidelines require new construction partitions to be STC 45. AT2 in lieu of GLG.
TRGS1	TX ROOM GENERAL SURGICAL	SV GLG GLG 2700 VAR 30 40 . . . 9-0 VAR 35	B	AIA Guidelines require new construction partitions to be STC 45.
TRGS2*	TX RM SURGICAL NEG PRESSURE	SV GLG GLG 2700 VAR 30 40 . . . 9-0 VAR 35	B	AIA Guidelines require new construction partitions to be STC 45.
TRGS3*	TX RM GENERAL SURGICAL LASER	SV GLG GLG 2700 VAR 30 40 . . . 9-0 VAR 35	B	AIA Guidelines require new construction partitions to be STC 45.
TROB1	TX OB/GYN	SV GLG GLG 2700 VAR 30 40 VT . . 9-0 VAR 35	B	AIA Guidelines require new construction partitions to be STC 45. AT2 in lieu of GLG.

TROR1	TX ORTHOPEDIC	SV GLG GLG 2700 VAR 30 40 VT . . 9-0 VAR 35	B	AIA Guidelines require new construction partitions to be STC 45. AT2 in lieu of GLG.
TRPE1	TX ROOM PROCTOSCOPIC EXAM (LGI)	SV GLG GLG 2700 VAR 30 40 VT . . 9-0 VAR 35	B	AIA Guidelines require new construction partitions to be STC 45.
TRPE2	TX PULMONARY BRONCHOSCOPY	SV GLG GLG 2700 VAR 30 40 VT . . 9-0 VAR 35	B	AIA Guidelines require new construction partitions to be STC 45.
UCCL1	UTILITY CLEAN	VT GPT AT1 2400 VAR 35 40 . . . 8-0 VAR 40	B	AIA Guidelines require new construction partitions to be STC 45.
USCL1	UTILITY SOILED	VT GLG AT1 2400 900 35 40 SV . AT2 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
USCL2*	UTILITY, SCOPE WASH	VT GLG AT1 2400 900 35 40 SV . AT2 8'-0' 3'-0' 40	B	AIA Guidelines require new construction partitions to be STC 45. Prefer SV.
UTC01	UTILITY TRASH COLLECTION	CS GLG GLG 2400 900 35 40 SSP SSP SSP 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
UTC02	UTILITY TRASH CAN DECON	CS CCS GLG 2400 900 . 40 SSP SSP SSP 8'-0' 3-0 .	B	AIA Guidelines require new construction partitions to be STC 45.
UTLC1	UTILITY TRASH AND LINEN COLLECTION	VT GLG GLG 2400 900 . 40 SSP SSP SSP 8-0 3-0 .	B	AIA Guidelines require new construction partitions to be STC 45.
VCWA1	VETERINARY CAGE WASH AREA	ER BEP GEP 2700 1200 35 50 . . . 9-0 4-0 40	A	
VEX01	VETERINARY EXAMINATION/TX ROOM	AR BEP GEP 2700 VET 35 50 . . . 9-0 . 40	A	
VFIL1	VETERINARY FOOD INSPECTION LAB	AR BEP GEP 2700 1200 35 50 . . . 9-0 4-0 40	A	
VFP01	VETERINARY FOOD PREP ROOM	AR BEP GEP 2700 1200 35 50 . . . 9-0 4-0 40	A	
VHAU1	VETERINARY HOLDING AREA UTILITY/STR	AR BEP GEP 2700 1200 35 50	A	

		. . . 9-0 4-0 40		
VKEN1	VETERINARY KENNEL AREA IN/OUTSIDE	ER BEP GEP 2700 1200 35 50 . . . 9-0 4-0 40	A	
VKEN2	VETERINARY KENNEL CONFINE CANINE	ER BEP GEP 2700 1200 35 50 . . . 9-0 4-0 40	A	
VKEN3*	VETERINARY KENNEL CONFINE FELINE	ER BEP GEP 2700 1200 35 50 . . . 9-0 4-0 40	A	
VLAH1	VETERINARY LARGE ANIMAL HOLDING AR	ER BEP GEP 2700 VET 35 50 . . . 9-0 . 40	B	AIA Guidelines require new construction partitions to be STC 45.
VLB01	VETERINARY LABORATORY	AR BEP GEP 2700 1200 35 40 . . . 9-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
VPH01	VETERINARY PHARMACY	ER BEP GEP 2700 1200 35 40 . . . 9-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
VRHA1	VETERINARY RODENT HOLDING AREA	ER BEP GEP 2700 VET 35 40 . . . 9-0 . 40	B	AIA Guidelines require new construction partitions to be STC 45.
VRRP1	VETERINARY RECOVERY ROOM/PREP AREA	ER BEP GEP 2700 1200 35 40 . . . 9-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
VRUN1	VETERINARY ANIMAL RUN	ER BEP GEP 2700 1200 35 40 . . . 9-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
VS001	VETERINARY SURGERY ROOM	ER BEP GEP 2700 1200 35 40 . . . 9-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
VXER1	VETERINARY XRAY EXPOSURE ROOM	ER BEL GEP 2900 1200 35 40 . . . 9-6 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
WRC01	WAITING ROOM	CP GPT AT1 2700 900 35 40 VT . . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
WRC02	WAITING ROOM, ISOLATION	SV GLG GLG 2700 900 35 40 VT GPT GPT 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
WRCH1	WORKROOM, CHARTING AREA	VT GPT AT1 2400 900 30 40	B	AIA Guidelines require new construction partitions to be STC 45.

		CP . . 8-0 3-0 35		
WRF01	WAITING ROOM, FAMILY	CP GPT AT1 2700 900 35 40 VT GPT . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
WRL01	WAITING ROOM, LITTER	VT GPT AT1 2700 1050 30 40 CP . . 9-0 3'-6" 40	B	AIA Guidelines require new construction partitions to be STC 45.
XABP1	XRAY ANGIOGRAPHIC PROCEDURE	SV GLG AT1 3000 1200 35 40 VT GPT GPT 10-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XACR1	XRAY ANGIOGRAPHIC CONTROL ROOM	SV GLG AT1 2400 900 35 40 VT GPT GPT 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XACV1	XRAY ANGIOGRAPHIC SYSTEM COMPONENT ROOM	SV GLG AT1 2400 900 35 40 VT GPT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XAIR1	XRAY ANGIO INSTRUMENT ROOM	SV GLG AT1 2400 900 35 40 VT GPT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XCCA1	XRAY CARDIAC SYSTEM COMPONENT ROOM	SV GLG AT1 2400 900 35 40 VT GPT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XCCC1	XRAY CARDIAC CATH CONTROL ROOM	SV GLG AT1 2400 900 35 40 VT GPT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XCCE1	XRAY CARDIAC CATH EXPOSURE ROOM	SV GLG AT1 3000 1200 35 40 VT GPT GPT 10-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XCCI1	XRAY CARDIAC CATH INST. ROOM	SV GLG AT1 2400 900 35 40 VT GPT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XCTC1	XRAY COMPUTED TOMOGRAPHY CONTROL AREA	SV GLG AT1 2400 1200 35 40 VT GPT . 8-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XCTI1	XRAY COMPUTED TOMOGRAPHY INDEP VIEW CONSO	SV GLG AT1 2400 1200 35 40 VT GPT . 8-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XCTS1	XRAY COMPUTED TOMOGRAPHY SCANNER	SV GLG AT1 VAR 1200 35 40 VT GPT GPT VAR 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.

XDBD1*	XRAY DIAGNOSTIC BONE DENSITOMETER	VT GPT AT1 2700 1200 35 40 SV GLG GPT 9-0 4-0' 40	B	AIA Guidelines require new construction partitions to be STC 45.
XDCS1	XRAY DIAGNOSTIC CHEST	SV GLG AT1 3000 1200 35 40 VT GPT GPT 10-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XDCY1	XRAY DIAG CYSTO RAD ONLY 800 MA	SV GLG AT1 3000 1200 35 40 VT GPT GPT VAR 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XDM01	XRAY DIAG MAMMO	SV GLG AT1 3000 1200 35 40 VT GPT GPT VAR 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XDM02	XRAY DIAG MAMMO STEREOTATIC	SV GLG AT1 3000 1200 35 40 VT GPT . VAR 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XDMP1	XRAY DIAG MAMMO PROCESS	SV GLG AT1 3000 1200 35 40 VT GPT GPT VAR 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XDR01	XRAY, RADIOGRAPHIC, GENERAL	VT GLG AT1 3000 1200 35 40 SV GPT GPT 10-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XDRF1	XRAY DIAG RAD/FLUORO	VT GLG AT1 3000 1200 35 40 SV GPT GPT 10-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XDUS1	ULTRASOUND	VT GPT AT1 VAR 1200 35 40 SV GLG . VAR 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XFDS1*	XRAY FILE, DIGITAL STORAGE	VT GPT AT1 2400 900 35 40 . . . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XFFA1	XRAY FILM FILES AREA - FIXED SHELVES	VT GPT AT1 VAR 900 35 40 . . . VAR 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XFFA2	XRAY FILM FILES AREA - MOBILE SHELVES	VT GPT AT1 VAR 900 35 40 . . . VAR 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XFP01	XRAY FILM PROCESSING DARKROOM - 1 PROCESSOR	VT GLG GLG 2400 L 35 45 SV GPT . 8-0 . 40	A	
XFP02	XRAY FILM PROCESSING DARKROOM - 2 PROCESSORS	VT GLG GLG 2400 900 35 45 SV GPT . 8-0 3-0 40	A	

XFP03*	XRAY FILM PROCESSING DAYLIGHT	VT GPT AT1 2400 900 35 45 SV . . 8-0 3-0 40	A	
XFSA1	XRAY FILM SORTING AREA	VT GLG AT1 2400 900 35 40 SV GPT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XMRC1	XRAY MAGNETIC RESONANCE CONTROL ROOM	VT GLG AT1 2400 900 35 40 SV GPT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XMRC2	XRAY MAGNETIC RESONANCE SYSTEM COMPONENT ROOM	VT GLG AT1 2400 900 35 40 SV GPT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XMRE1	XRAY MAGNETIC RESONANCE EQUIP ROOM	VT GLG AT1 2400 900 35 40 SV GPT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XMRS1	XRAY MAGNETIC RESONANCE SCANNER	VT GLG AT1 VAR 1200 35 40 SV GPT . VAR 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XMRV1	XRAY MAGNETIC RESONANCE VIEWING RM	VT GLG AT1 2400 900 35 40 SV GPT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XRM01	XRAY MOBILE RAD UNIT ALCOVE	VT GVF AT1 2400 OPEN 35 40 SV GPT . 8-0 OPEN 40	B	AIA Guidelines require new construction partitions to be STC 45.
XRM02	XRAY MOBILE C-ARM STORAGE	VT GPT AT1 2700 900 35 40 SV GLG . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XTBT1*	BRACHYTHERAPY ROOM	VT GLG AT1 VAR 900 35 40 SV GPT . VAR 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XTEM1	XRAY THERAPY ENTRY MAZE - ALL UNITS	SV GLG AT1 3000 SP 35 40 VT GPT . 10-0 . 40	B	AIA Guidelines require new construction partitions to be STC 45.
XTLA1	XRAY THERAPY LINEAR ACCELERATOR	SV GLG AT1 3000 1200 35 40 VT GPT . 10-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XTLA2	XRAY THERAPY LINEAR ACCEL HIGH VOLT	SV GLG AT1 3000 1200 35 40 VT GPT . 10-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XTLA3	XRAY THERAPY LINEAR ACCEL DUAL VOLT	SV GLG AT1 3000 1200 35 40	B	AIA Guidelines require new construction partitions to be STC 45.

		VT GPT . 10-0 4-0 40		
XTLB1	XRAY THERAPY PHYSICS LABORATORY	SV GLG AT1 2700 900 35 40 VT GPT . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XTLC1	XRAY THERAPY LINEAR ACCEL CONTROL	SV GLG AT1 2400 900 35 40 VT GPT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XTLE1*	LINEAR ACCELORATOR SYSTEM COMPONENT RM	SV GLG AT1 VAR 900 35 40 VT GPT . VAR 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XTMF1	XRAY THERAPY MOLD FABRICATION SHOP	SV GLG AT1 2700 900 35 40 VT GPT . 9-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XTRT1	XRAY THERAPY RADIUM TX STORAGE/PREP	SV GLG AT1 2400 900 35 40 VT GPT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XTSC1	XRAY THERAPY, SIMULATOR CONTROL ROOM	VT GLG AT1 2400 900 35 40 SV GPT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XTSG1	XRAY THERAPY SIMULATOR GANTRY ROOM	SV GLG AT1 3000 1200 35 40 VT GPT . 10-0 4-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XTTP1	XRAY THERAPY TREATMENT PLANNING RM	VT GLG AT1 2400 900 35 40 SV GPT . 8-0 3-0 40	B	AIA Guidelines require new construction partitions to be STC 45.
XVC01	XRAY VIEWING/CONSULTATION AREA	VT GPT AT1 2400 900 30 40 SV GLG . 8-0 3-0 35	B	AIA Guidelines require new construction partitions to be STC 45.

Name of Reviewer: Wayne Johnson	Company: HGA
Telephone Number: 414-278-3334	
e-mail: wjohnson@hga.com	

UFC Section/Paragraph Number																									Comment	Comment Rationale (details on code variations & redundancies, best practices, cost inpacts)
						MEDICAL GASES																				
												W														
		M	D				D	D	L				A					HVAC								
Room		C	C	L	P	M	H	L	D	O	N	N	G					TEMP		R	FL		E			
Code	Room Name	A	A	A	A	V	V	V	E	X	O	I	D	N	BL	AC	OA	SM	WN	H	IN	F	X	N		
AMB01	AMBULANCE SHELTER	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	A	
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AMB02	AMBULANCE GARAGE	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	4		20	.	.	.	Y	H	A	
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ANCW1	ANESTHESIA CLEAN WORKROOM	1	.	.	.	1	.	.	.	1	1	.	1	D	-	4	1.5	24			14	.	Y	.	A	
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ANSW1	ANESTHESIA SOILED WORKROOM	1	.	.	.	1	.	.	.	1	1	.	1	D	-	6	2	24		.	14	.	Y	.	A	
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APFB1	APPLIANCE FULL BRACE SHOP	.	.	1	1	.	.	.	1	.	.	.	.	J	0	6	1.5	*	21	.	.	.	.	J	A	
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APFR 1	APPLIANCE FITTING ROOM	.	.	1	1	.	.	.	1	.	.	.	.	J	0	6	1 . 5	*	2 1	.	.	.	.	J	A	
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APLA 1	APPLIANCE LAMINATION/MOLDING	.	.	.	1	.	.	.	.	.	.	.	.	J	-	6	1 . 5	*	2 1	.	.	.	Y	J	A	
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APMS 1	APPLIANCE MACHINE SHOP	.	.	.	1	.	.	.	1	.	.	.	.	J	-	6	1 . 5	*	2 1	.	.	.	Y	J	A	
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APSH 1	APPLIANCE SEWING/SHOE SHOP	.	.	.	1	.	.	.	1	.	.	.	.	J	-	6	1 . 5	*	2 1	.	.	.	Y	J	A	
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BMER1	BIOMEDICAL, ELECTRONIC REPAIR	.	.	.	.	.	.	.	.	.	.	.	.	.		4	1	*	20	.	.	.	Y	.	A		
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BMRA1	BIOMEDICAL, RECEIVING AREA	.	.	.	.	.	.	.	.	.	.	.	.	.			41		*20	.	.	.	.	.	A		
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BMWS1	BIOMEDICAL, WORKSTATION	1	1	1	1	1	.	.	.	1	1	1	1	D	0	4	1	*	20	.	.	.	.	.	A		
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	NEGATIVE													.				75	75					.			
BRAR2*	BEDROOM, ANTEROOM, ISOLATION,	.	.	.	.	.	.	.	.	.	.	.	.	.	+	10	2	24	24	.	14	.	.	E	A		
	POSITIVE													.				75	75					.			
BRIC1	BEDROOM, INTENSIV/CORONARY, 1 BED	1	.	.	.	3	.	.	.	3	.	.	.	.	+	6	2	24	24	Y	14	.	.	P	A		
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BRII1	BEDROOM, ISOLATION, ICU/CCU, NEGATIVE	1	.	.	.	3	.	.	.	3	.	.	.	.	--	12	2	24	24	Y	14	.	Y	PQ	A		
														.				75	75					E			
BRII2*	BEDROOM, ISOLATION, ICU/CCU, POSITIVE	1	.	.	.	3	.	.	.	3	.	.	.	.	++	12	2	24	24	Y	14	17	.	PQ	A		
														.				75	75					E			
BRIP1	BEDROOM, ISOLATION, PEDIATRIC,	1	.	.	.	2	.	.	.	1	.	.	.	A	--	12	2	24	24	.	14	.	Y	E	A		
	NEGATIVE													.				75	75					Q			
BRIP2*	BEDROOM, ISOLATION, PEDIATRIC, POSITIVE	1	.	.	.	2	.	.	.	1	.	.	.	A	++	12	2	24	24	.	14	17	.	E	A		
														.				75	75					Q			
BRIT1	BEDROOM, ISOLATION,	1	.	.	.	2	.	.	.	1	.	.	.	.	-	1	2	2	2	.	1	•	Y	E	A		

	NEGATIVE													-	2		4	4		4					
													.				7 5	7 5					Q		
BRIT2	BEDROOM, ISOLATION, POSITIVE	1	.	.	.	2	.	.	.	1	.	.	.	.	+ +	1 2	2	2 4	2 4	.	1 4	1 7	.	E	A	
													.				7 5	7 5					.		
BRLC 1	BEDROOM, LIGHT CARE, 1 BED	1	.	.	.	1	.	.	.	1	.	.	.	A	0	4	2	2 4	2 4	.	1 4	.	.	F	B	The Guidelines allows 4 air changes if supplemental heating and/or
													.				7 5	7 5					.		cooling is provided, otherwise 6 air changes are required.
BRLC 2	BEDROOM, LIGHT CARE, 2 BEDS	1	.	.	.	2	.	.	.	2	.	.	.	A	0	4	2	2 4	2 4	.	1 4	.	.	F	B	The Guidelines allows 4 air changes if supplemental heating and/or
													M				7 5	7 5					.		cooling is provided, otherwise 6 air changes are required.
BRMB 1*	BEDROOM, MOBILIZATION, 1 BED	1	.	.	.	1	.	.	.	1	.	.	.	M	0	4	2	2 4	2 4	.	1 4	.	.	F	B	The Guidelines allows 4 air changes if supplemental heating and/or
													.				7 5	7 5					.		cooling is provided, otherwise 6 air changes are required.
BRMB 2*	BEDROOM, MOBILIZATION, 2 BED	1	.	.	.	1	.	.	.	1	.	.	.	M	0	4	2	2 4	2 4	.	1 4	.	.	F	B	The Guidelines allows 4 air changes if supplemental heating and/or
													.				7 5	7 5					.		cooling is provided, otherwise 6 air changes are required.
BRMS 1	BEDROOM, MEDICAL/SURGICAL, 1 BED	1	.	.	.	2	.	.	.	2	.	.	.	A	0	4	2	2 4	2 4	.	1 4	.	.	F	B	The Guidelines allows 4 air changes if supplemental heating and/or
													M				7 5	7 5					.		cooling is provided, otherwise 6 air changes are required.
BRMS 2	BEDROOM, MEDICAL/SURGICAL, 2 BEDS	1	.	.	.	2	.	.	.	2	.	.	.	A	0	4	2	2 4	2 4	.	1 4	.	.	F	B	The Guidelines allows 4 air changes if supplemental heating and/or
													M				7 5	7 5					.		cooling is provided, otherwise 6 air changes are required.
BRNP 1	BEDROOM, NEURO/PSYCH, 1 BED	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	2 4	2 4	.	1 4	.	.	F	B	The Guidelines allows 4 air changes if supplemental heating and/or
													.				7 5	7 5					.		cooling is provided, otherwise 6 air changes are required.
BRNP 2	BEDROOM, NEURO/PSYCH, 2 BEDS	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	2 4	2 4	.	1 4	.	.	F	B	The Guidelines allows 4 air changes if supplemental heating and/or
													M				7	7					.		cooling is provided, otherwise 6 air changes

																	5	5								are required.
BRNP 5	BEDROOM, NEURO/PSYCH, SECLUSION	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	24	24	.	14	.	.	F	A		
													.				75	75					.			
BRNP 6	BEDROOM, N/P, SECLUSION ANTEROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	24	24	.	14	.	.	.	B	The Guidelines allows 4 air changes if supplemental heating and/or	
													.				75	75					.		cooling is provided, otherwise 6 air changes are required.	
BRPB 1	BEDROOM, PEDIATRICS, 1 BED	1	.	.	.	1	.	.	.	1	.	.	.	A	0	4	2	24	24	.	14	.	.	F	B	The Guidelines allows 4 air changes if supplemental heating and/or	
													.				75	75					.		cooling is provided, otherwise 6 air changes are required.	
BRPB 2	BEDROOM, PEDIATRICS, 2 BEDS	1	.	.	.	2	.	.	.	2	.	.		A	0	4	2	24	24	.	14	.	.	F	B	The Guidelines allows 4 air changes if supplemental heating and/or	
													.				75	75					.		cooling is provided, otherwise 6 air changes are required.	
BRUN 1*	SINGLE PATIENT ROOM ACUITY ADAPTABLE.	1	.	.	.	3	.	.	.	3	.	.	.	A	+	6	2	24	24	Y	14	.	.	P	A		
													.				75	75					.			
BX000	EXCHANGE AREA - EQUIP BY OTHERS	.	.	.	.	.	.	.	.	.	.	.	.		4	1	24	24	.	.	.	.	.	A		
													.				75	75					.			
BX001	EXCHANGE VENDING AREA - UTILITY RQD	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.	.	.	A		
													.				.	.					.			
CASH 1	CASHIER	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	21	.	.	.	.	.	A		
													.				*	70					.			
CHC01	CART HOLDING, CLEAN	.	.	.	.	.	.	.	.	.	.	.	.	+	4	1	*	21	.	14	.	.	.	A		
													.				*	70					.			
CHS01	CART HOLDING, SOILED	.	.	.	.	.	.	.	.	.	.	.	.	-	10	1	*	21	.	.	.	Y	.	A		
													.				*	70					.			
CLR01	CLASSROOM, TABLE/CHAIR	.	.	.	.	.	.	.	.	.	.	.	.	0	6	*	*	21	.	.	.	.	.	A		
													.				*	70					.			

CLR02	CLASSROOM, WRITING ARM CHAIRS	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	*	*	21	.	.	.	.	.	A	
												.				*	70					.		
CLR03	CLASSROOM, COMPUTER	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	*	*	21	.	.	.	.	N	A	
												.				*	70					.		
CLR04	CLASSROOM, 2 BED ROOM MOCK-UP	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	*	*	21	.	.	.	.	.	A	
												.				*	70					.		
CLSC1	PATIENT EDUCATION, KIOSK/ALCOVE	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	*	*	21	.	.	.	.	.	A	
												.				*	70					.		
CLSC2*	PATIENT EDUCATION CUBICLE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	*	.	.	.	.	.	.	A	
												.				*	.					.		
CMP01*	COMPUTER ROOM	.	.	.	.	.	.	.	.	.	.	.	.	.	+	4	1	20	20	.	.	.	.	N	A	
												.				68	68					.		
CMP02*	COMPUTER TERMINAL/SERVER	.	.	.	.	.	.	.	.	.	.	.	.	.	+	4	1	20	20	.	.	.	.	N	A	
												.				68	68					.		
CMP03*	COMPUTER ARCHIVE STORAGE	.	.	.	.	.	.	.	.	.	.	.	.	.	+	4	1	20	20	.	.	.	.	N	A	
												.				68	68					.		
COM02	COMMUNICATIONS AMBULANCE DISPATCH	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	21	.	.	.	.	.	A	
												.				*	70					.		
COM03	COMM ROOM, CENTRAL ALARM SECURITY	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	21	.	.	.	.	.	A	
												.				*	70					.		
COMC1*	COMMUNICATIONS ROOM	.	.	.	.	.	.	.	.	.	.	.	.	.	+	1	.	*	20	.	.	.	.	N	A	
												.				*	68					.		
CRA01	CONFERENCE ROOM, SMALL	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	*	*	21	.	.	.	.	.	A	
												.				*	70					.		

CRA02*	CONFERENCE ROOM, MEDIUM	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	*	*	21	.	.	.	.	.	A	
													.				*	70					.		
CRA03*	CONFERENCE ROOM, LARGE	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	*	*	21	.	.	.	.	.	A	
													.				*	70					.		
CRC01	CONFERENCE ROOM, COMMANDERS	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	*	*	21	.	.	.	.	.	A	
													.				*	70					.		
CROP1*	CONFERENCE ROOM, EMERGENCY	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	*	*	21	.	.	.	.	.	A	
	OPERATIONS CENTER												.				*	70					.		
CRR01	CONFERENCE ROOM, RADIOLOGY	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	*	*	21	.	.	.	.	.	A	
													.				*	70					.		
CSCQ1	CENTRAL STERILE, CART	.	.	.	.	.	.	.	.	.	.	.	.	.	-	6	1	*	20	.	.	.	Y	.	A	
	ASSEMBLY/QUEUING												.				*	68					.		
CSCR1	CENTRAL STERILE, SOILED CART,	.	.	.	.	.	.	.	.	.	.	.	.	.	+	6	1	*	20	.	.	.	.	.	A	
	RECEIVING												.				*	68							
CSDE1*	CENTRAL STERILE, DECONTAMINATION	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2	*	20	.	14	.	Y	.	A	
	SMALL												.				*	68					.		
CSDE2*	CENTRAL STERILE, DECONTAMINATION	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2	*	20	.	14	.	Y	.	A	
	MEDIUM												.				*	68					.		
CSDE3*	CENTRAL STERILE, DECONTAMINATION	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2	*	20	.	14	.	Y	.	A	
	LARGE												.				*	68					.		
CSIA1	CENTRAL STERILE, ASSEMBLY,	1	.	.	.	1	.	,	.	,	.	1	.	.	+	6	1.5	*	20	.	14	.	.	.	A	
	STERILIZATION, SMALL												.				*	68					.		
CSIA2*	CENTRAL STERILE ASSEMBLY,	1	.	.	.	1	.	,	.	,	.	1	.	.	+	6	1.5	*	20	.	14	.	.	.	A	

	STERILIZATION, MEDIUM												.				*	68					.				
CSIA3*	CENTRAL STERILE ASSEMBLY,	1	.	.	.	1	.	,	.	,	.	1	.	.	+	6	15	*	20	.	14	.	.	.	A		
	STERILIZATION, LARGE												.				*	68					.				
CSSS1	CENTRAL STERILE, STERILIZATION, SMALL	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2.5	*	20	.	14	.	Y	M	A		
													.				*	68					.				
CSSS2	CENTRAL STERILE, STERILIZATION, MEDIUM	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2.5	*	20	.	14	.	Y	M	A		
													.				*	68					.				
CSSS3*	CENTRAL STERILE, STERILIZATION, LARGE	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2.5	*	20	.	14	.	Y	M	A		
													.				*	68					.				
CSWS3*	CENTRAL STERILE, WASHER/SCOPE	1	.	.	.	1	.	.	.	.	.	.	.	.	-	10	2.5	*	20	.	14	.	Y	M	A		
													.				*	68					.				
CWSH1	CART WASH, MANUAL (STEAM GUN)	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2.5	*	20	.	14	.	Y	M	A		
													.				*	68					.				
CWSH2	CART WASH, AUTOMATED WASHER	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2.5	*	20	.	14	.	Y	M	A		
													.				*	68					.				
DAYR1	DAYROOM, WARD	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	14	.	.	.	A		
													.				*	68					.				
DNPB1	DENT PROSTHETICS, ORTHODONTIC LAB	.	1	1	.	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A		
													L				*	68					.				
DNPC1	DENT ROOM CERAMICS	.	1	1	.	.	.	.	1	.	.	.	.	B	+	10	2.5	*	20	.	13	.	Y	M	A		

													L				*	68					.			
DNPF1	DENT PROSTHETICS LAB, FULL FUNCT'N	.	1	1	.	.	.	.	1	.	.	.	.	B	-	10	2.5	*	20	.	13	.	Y	M	A	
													L				*	68					.			
DNPL1	DENT PROSTHETICS LAB, LIMITED	.	1	1	.	.	.	.	1	.	.	.	.	B	-	10	2.5	*	20	.	13	.	Y	M	A	
													L				*	68					.			
DNRS1	DENT REPAIR SHOP PER MAN	.	1	1	1	.	.	1	1	.	.	.	.	B	-	6	2.5	*	20	.	13	.	Y	M	A	
													.				*	68					.			
DNSA1	DENTAL SUPPORT SUBSTERILE	.	1	2	.	.	.	1	1	.	.	.	.	B	0	6	2	*	20	.	13	.	.	.	A	
													.				*	68					.			
DNSA2	DENTAL SUPPORT PROSTHETIC	.	1	2	.	.	.	1	1	.	.	.	.	B	0	6	2	*	20	.	.	.	.	.	A	
													.				*	68					.			
DNSB1	DENTAL SUPPORT ORTHODONTICS	.	1	2	.	.	.	1	1	.	.	.	.	B	0	6	2	*	20	.	.	.	.	.	A	
													.				*	68					.			
DNSC1	DENTAL, INSTRUMENT DECONTAMINATION	.	1	.	.	.	.	1	.	.	.	.	.	B	-	10	2	24	20	.	14	.	.	.	A	
													.				75	68					.			
DNSC2	DENTAL, INSTRUMENT, STERILIZATION	.	1	.	.	.	.	1	.	.	.	.	.	B	+	6	2	24	20	.	14	.	.	.	A	
													.				75	68					.			
DNSP1	DENTAL SELF PREP AREA	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	.	.	.	.	A	
													.				*	68					.			
DNSS1	DENTAL SUPPORT SUBSTERILE	.	1	2	.	.	.	1	1	.	.	.	.	.B	0	6	2	*	20	.	13	.	.	.	A	
													.				*	68					.			
DNTB1	DENTAL TREATMENT RM, ORTHODONTICS	.	2	.	.	.	.	2	.	.	.	.	.	K	0	6	2	24	20	.	.	.	.	.	A	
													.				7	6					.			

																		5	8								
DNTC 1	DENTAL TREATMENT RM, COMPREHENSIVE	.	2	.	.	.	1	2	.	1	1	1	1	D	+ +	1 2	3	2 4	2 0	.	1 4	.	.	I	A	
														K				7 5	6 8					.		
DNTE 1	DENTAL TREATMENT RM, ENDODONTICS	1	2	.	.	.	1	2	.	.	1	.	,	D	0	6	2	2 4	2 0	.	1 4	.	.	I	A	
			.											K				7 5	6 8					.		
DNTG 1	DENTAL TREATMENT RM, GENERAL	.	2	.	.	.	.	2	.	.	.	.	.	K	0	6	2	2 4	2 0	.	1 4	.	.	D	A	
			.											.				7 5	6 8					.		
DNTG 2	DENTAL TREATMENT RM, ORAL HYGIENE	.	2	.	.	.	.	2	.	.	.	.	.	K	0	6	2	2 4	2 0	.	1 4	.	.	D	A	
														.				7 5	6 8					.		
DNTG 3	DENTAL TREATMENT RM, PATHOLOGY	.	2	.	.	.	.	2	.	1	.	.	.	K	0	6	2	2 4	2 0	.	1 4	.	.	D	A	
														.				7 5	6 8					.		
DNTP 1	DENTAL TREATMENT RM,	.	2	1	.	.	.	2	.	.	.	.	.	L	0	6	2	2 4	2 0	.	1 4	.	.	D	A	
	PROSTHODONTICS													K				7 5	6 8					.		
DNTP 2	DENTAL TREATMENT RM, PERIODONTICS	.	2	.	.	.	1	2	.	1	1	.	1	D	+ +	1 2	3	2 4	2 0	.	1 4	.	.	I	A	
														K				7 5	6 8					.		
DNTP 3	DENTAL TREATMENT RM, PEDIATRICS	.	2	.	.	.	1	2	.	1	1	.	1	D	0	6	2	2 4	2 0	.	1 4	.	.	I	A	
														K				7 5	6 8					.		
DNTR 1*	DENTAL RECOVERY	.	1	.	.	.	.	1	.	1	.	.	.	.	+	6	2	2 4	2 0	.	1 4	.	.	.	A	
														.				7 5	6 8					.		
DNTS 1	DENTAL TREATMENT RM, ORAL SURGERY	.	2	.	.	.	1	2	.	1	1	1	1	N	+ +	1 2	3	2 4	2 0	.	1 4	.	.	I	A	
														D				7 5	6 8					.		
DNTS 2	DENT TREATMENT ORAL SURGERY	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	2 4	2 0	.	1 4	.	.	.	A	
	SUPPORT																	7 5	6 8					.		
DNTT 1	DENTAL TREATMENT RM, TRAINING	.	2	.	.	.	.	2	.	.	.	.	.	.	+ +	1 2	3	2 4	2 0	.	1 4	.	.	I	A	
														K				7	6					.		

																	5	8									
DNXC 1	DENT XRAY CEPHALOMETRICS	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	24	20	.	14	.	.	.	A			
													.				75	68					.				
DNXD 1	DENTAL XRAY,	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	24	20	.	14	.	.	.	A			
	INTRAORAL/PANOGRAPH/CEPHALOMETRIC												.				75	68					.				
DNXF 1	DENT XRAY FILM PROCESSING AUTO 1 PR	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2.5	24	20	.	.	.	Y	.	A			
													.				75	68					.				
DNXF 2	DENT XRAY FILM PROCESSING AUTO 2 PR	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2.5	24	20	.	.	.	Y	.	A			
													.				75	68					.				
DNXI1	DENT XRAY INTRAORAL	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	24	20	.	14	.	.	.	A			
													.				75	68					.				
DNXR 1	DENT XRAY VIEWING	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	24	20	.	14	.	.	.	A			
													.				75	68					.				
DOCK 1	LOADING DOCK	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	A			
													.					.					.				
DR00 1	DRESSING ROOM/CUBICLE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A			
													.				*	68					.				
DUTY 1	ON-CALL ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	.	.	.	.	A			
													.				*	68					.				
EVPR 1	EVOKED POTENTIAL RESPONSE ROOM	1	.	.	.	1	.	.	.	.	.	.	.	4	4	2	*	20	.	14	.	.	.	A			
													.				*	68					.				
EXEN 1	EXAMINATION ROOM, ENT	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A			
													.				*	73					.				
EXER 1*	EXAM, EMERGENCY ROOM	.	.	.	.	1	.	.	.	1	.	.	.	0	4	2	*	23		14	.	.	.	A			

													.				*	73					.				
EXOS 1	EXAM/OFFICE, SPEECH THERAPIST	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EXPO 1	EXAM ROOM, PODIATRY	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EXRG 1	EXAM ROOM, ARMY	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EXRG 2*	EXAM ROOM, NAVY	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EXRG 3*	EXAM ROOM, AIR FORCE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EXRG 4*	EXAM, ADULT SCREENING	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EXRG 5*	EXAM, PEDIATRIC SCREENING	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EXRG 6*	EXAM, ISOLATION, NEGATIVE PRESSURE	.	.	.	.	.	.	.	.	.	.	.	.	--	12	2	*	23	.	14	.	Y	.	A	
													.				*	73					.				
EXRG 7*	EXAM, ISOLATION, POSITIVE PRESSURE	.	.	.	.	.	.	.	.	.	.	.	.	--	12	2	*	23	.	14	17	.	.	A	
													.				*	73					.				
EXRG 8*	EXAM ROOM, OB/GYN	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EXRP 1	EXAM ROOM, PEDIATRICS	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EXUD 1	EXAM, URODYNAMICS	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	

													.				*	73					.				
EXVE 1	EXAM, VESTIBULAR (EAR EXAM ROOM)	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EYCL 1	EYE CONTACT LENS FITTING/DISPENSING	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EYEL 1	EYELANE, ARMY/AIR FORCE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EYEL 2	EXAM/OFFICE, EYELANE, ARMY/AIRFORCE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EYEL 3*	EYE LANE, NAVY	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EYEL 4*	EYE LANE, FOLDED ELECTRONIC	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EYER 1	EYE ELECTRORETINOGRAPHY ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EYFC 1	EYE FUNDUS CAMERA ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EYFD 1	EYEGLASS FITTING & DISPENSING	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EYOF 1*	EYE, OPTICAL FABRICATION	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	13	.	Y	M	A	
													.				*	73					.				
EYOT 2*	EYE, OPHTHALMOLOGY EXAM ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EYOT 3*	PRK/LASIK EVALUATION ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	

													.				*	73					.				
EYPL1	EYE PROSTHETICS LAB	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EYVF1	EYE VISUAL FIELD/PERIMETRY ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
EYVS1*	EYE, VISUAL SCREEN	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
FILE1	FILE ROOM, GENERAL USE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	.	.	.	.	A	
													.				*	73					.				
FSBR1	FOOD SERVICE, BAKE AND ROAST CENTER	.	.	.	.	.	.	.	.	.	.	.	.	0	10	2	*	20	.	.	.	Y	M	A	
													.				*	68					.				
FSCB1*	FOOD SERVICE, CARBONATED BEVERAGE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	10	.	.	.	.	.	A	
	ROOM												.					20					.				
FSCD1	FOOD SERVICE, CAFETERIA DINING ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	12	2	*	20	.	.	.	.	.	A	
													.				*	68					.				
FSCS1	FOOD SERVICE, CART STORAGE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A	
													.				*	68					.				
FSDA1	FOOD SERVICE, DESSERT ASSEMBLY	.	.	.	.	.	.	.	.	.	.	.	.	0	10	2	*	20	.	13	.	.	.	A	
													.				*	68					.				
FSDS1	FOOD SERVICE, DISH STORAGE AREA	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A	
													.				*	68					.				
FSDW1	FOOD SERVICE, DISH WASHING	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2	*	20	.	.	.	Y	M	A	
													.				*	68					.				
FSFC1	FOOD SERVICE, FRY CENTER	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2	*	20	.	13	.	Y	M	A	

													.				*	68					.				
FSFV1	FOOD SERVICE, FRESH FRUIT/VEGETABLE	.	.	.	.	.	.	.	.	.	.	.	.	0	10	2	*	20	.	13	.	.	.	A	
													.				*	68					.				
FSGB1	FOOD SERVICE, GRILL AND BROIL AREA	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2	*	20	.	.	.	Y	M	A	
													.				*	68					.				
FSIR1	FOOD SERVICE, INGREDIENT ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	10	2	*	20	.	13	.	.	.	A	
													.				*	68					.				
FSMC1	FOOD SERVICE, MIXING CENTER	.	.	.	.	.	.	.	.	.	.	.	.	0	10	2	*	20	.	13	.	.	.	A	
													.				*	68					.				
FSMP1	FOOD SERVICE, MEAT PROCESSING	.	.	.	.	.	.	.	.	.	.	.	.	0	10	2	*	20	.	13	.	.	.	A	
													.				*	68					.				
FSNP1	FOOD SERVICE, NOURISHMENT PREP AREA	.	.	.	.	.	.	.	.	.	.	.	.	0	10	2	*	20	.	13	.	.	.	A	
													.				*	68					.				
FSPP1	FOOD SERVICE, PASTRY PREPARATION	.	.	.	.	.	.	.	.	.	.	.	.	0	10	2	*	20	.	13	.	.	.	A	
													.				*	68					.				
FSPT1	FOOD SERVICE, PATIENT TRAY LINE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	13	.	.	.	A	
													.				*	68					.				
FSPT2	FOOD SERVICE, PATIENT TRAY CAROUSEL	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2	*	20	.	.	.	Y	.	A	
													.				*	68					.				
FSPW1	FOOD SERVICE, POT WASHING	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2	*	20	.	.	.	Y	M	A	
													.				*	68					.				
FSSA1	FOOD SERVICE, SALAD ASSEMBLY	.	.	.	.	.	.	.	.	.	.	.	.	0	10	2	*	20	.	13	.	.	.	A	
													.				*	68					.				
FSSC1	FOOD SERVICE, STEAM CENTER	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2	*	20	.	.	.	Y	M	A	

													.				*	68					.			
FSSL1	FOOD SERVICE, CAFETERIA SERVING	.	.	.	.	.	.	.	.	.	.	.	.	0	12	2	*	20	.	.	.	Y	.	A		
													.				*	68					.			
FSTD1	FOOD SERVICE, THERAPEUTIC DIET PREP	.	.	.	.	.	.	.	.	.	.	.	.	0	10	2	*	20	.	.	.	Y	.	A		
													.				*	68					.			
HAFR1	HEARING AID FITTING ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A		
													.				*	68					.			
HATL1	HEARING AID TESTING LAB/SHOP	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A		
													.				*	68					.			
HYPR1*	HYPERBARIC CHAMBER ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A		
													.				*	68					.			
ICE01	ICE MACHINE	.	.	.	.	.	.	.	.	.	.	.	.	0	6	1.5	*	20	.	.	.	Y	.	A		
													.				*	68					.			
JANC1	JANITORS' CLOSET	.	.	.	.	.	.	.	.	.	.	.	.	-	10	.	.	.	.	.	.	Y	.	A		
													.				.	.					.			
KEY01*	KEY/ACCESS CONTROL	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A		
													.				*	68					.			
LBAP1	ALLERGEN PREPARATION	.	.	.	.	.	.	.	.	.	.	.	.	+	6	2	*	20	.	14	14	.	M	A		
													.				*	68					.			
LBAR1	LAB AUTOPSY ROOM	2	.	.	.	2	.	.	.	.	.	.	.	-	12	3	*	20	.	13	.	Y	M	A		
													.				*	68					.			
LBBD1	LAB BLOOD DONOR STATION	.	.	.	.	1	.	.	.	1	.	.	.	B	0	4	2	*	20	.	14	.	.	.	A		
													.				*	68					.			
LBBD2	LABORATORY, BLOOD/PHORESIS	.	.	.	.	1	.	.	.	.	.	.	.	B	0	6	2	*	20	.	13	.	Y	.	A		

	PROCESSING												.				*	68					.				
LBBG2	LAB, BLOOD GAS	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	13	.	Y	.	A			
													.				*	68					.				
LBBP1	LAB BODY PREP ROOM	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2	*	20	.	13	.	Y	M	A			
													.				*	68					.				
LBBS1	LAB BLOOD SHIPPING - BASIC	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	13	.	Y	.	A			
													.				*	68					.				
LBBS2	LAB BLOOD SHIPPING - FROZEN BLOOD	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	13	.	.	.	A			
													.				*	68					.				
LBBV1	LAB BODY VIEWING ROOM	.	.	.	.	.	.	.	.	.	.	.	.	-	12	3	*	20	.	13	.	Y	M	A			
													.				*	68					.				
LBCP1	LAB CYTOGENETICS PREPARATION	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	13	.	Y	M	A			
													.				*	68					.				
LBCR1	LAB CYTOGENETICS READING ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	13	.	Y	M	A			
													.				*	68					.				
LBDE1	LAB DERMATOLOGY	.	.	.	.	1	.	.	.	1	.	.	.	B	0	6	2	*	20	.	13	.	.	M	A			
													.				*	68					.				
LBDR1	LAB DECONTAMINATION ROOM	.	.	.	1	1	.	.	.	1	.	.	.	B	-	10	2	*	20	.	13	.	Y	M	A			
													.				*	68					.				
LBDS1	LAB BONE DISSECTION (ENT USE)	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A			
													.				*	68					.				
LBEM2	LAB, ELECTRON MICROSCOPE	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	13	.	.	.	A			
													.				*	68					.				
LBEM3	LAB ELECTRON MICRO' SPECIMEN PREP	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	13	.	.	.	A			

													.				*	68					.				
LBEN1	LAB ENTOMOLOGY	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A		
													.				*	68					.				
LBFC1	LAB FLOW CYTOMETER ROOM	.	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	20	.	13	.	Y	M	A		
													.				*	68					.				
LBGW1	LAB GLASSWARE WASHING ROOM	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2	*	20	.	13	.	Y	M	A		
													.				*	68					.				
LBIH1	LAB INDUSTRIAL HYGIENE	.	.	.	.	.	1	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A		
													.				*	68					.				
LBIR1	LAB INCUBATION ROOM WALK-IN	.	.	.	.	1	.	.	.	.	.	.	.	B	+	6	2	*	20	.	13	.	Y	M	A		
													.				*	68					.				
LBMR1	LAB MORGUE REFRIGERATOR	.	.	.	.	1	.	.	.	.	.	.	.	B	-	10	2	SP	.	.	.	.	Y	.	A		
													.				.	.					.				
LBMR2	LAB MORGUE REFRIGERATOR – WALK-IN	.	.	.	.	1	.	.	.	.	.	.	.	B	-	.	2	SP	.	.	.	.	.	.	A		
													.				.	.					.				
LBOB1	LAB OB/GYN CLINIC - SPECIMENS	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	13	.	Y	M	A		
													.				*	68					.				
LBRB1	LAB RESEARCH BIOCHEMISTRY	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A		
																		*	68					.				
LBRC1	LAB RESEARCH CLEAN	.	.	1	.	1	.	.	.	.	.	.	.	B	+	6	2	*	20	.	13	.	.	M	A		
																		*	68					.				
LBRC2	LAB RESEARCH CONTAINMENT ROOM	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A		
																		*	68					.				
LBRI1	LAB RADIOIMMUNOASSAY	.	,	1	.	1	.	.	1	.	.	.	.	. B	+	6	2	*	20	.	13	.	.	.	A		
																		*	6					.				

																		8										
LBRP 1	LAB RADIATION PROTECTION	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	2 0	.	1 3	.	.	.	A				
												.				*	6 8					.						
LBSC 1	LAB SMALL CLINIC - STANDARD	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	2 0	.	1 3	.	Y	M	A				
												.				*	6 8					.						
LBSM 1	LAB SOLUTION & MEDIA PREP	.	.	1	.	1	.	.	.	.	.	.	B	+	6	2	*	2 0	.	1 4	1 7	.	M	A				
												.				*	6 8					.						
LBSP 1	LABORATORY, SATELLITE	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	2 0	.	1 3	.	.	.	A				
												.				*	6 8					.						
LBSS 1	LABORATORY, SHIPPING & RECEIVING	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	2 0	.	1 3	.	.	.	A				
	MINIMAL											.				*	6 8					.						
LBSS 2*	LABORATORY, SHIPPING/RECEIVING, SMALL	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	2 0	.	1 3	.	.	.	A				
												.				*	6 8					.						
LBSS 3*	LABORATORY, SHIPPING & RECEIVING,	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	2 0	.	1 3	.	.	.	A				
	MEDIUM											.				*	6 8											
LBSS 4*	LABORATORY, SHIPPING & RECEIVING,	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	2 0	.	1 3	.	.	.	A				
	LARGE											.				*	6 8					.						
LBTS 1	LAB TISSUE STORAGE AREA	.	.	.	.	.	.	.	.	.	.	.	.	+	6	2	*	2 0	.	1 3	.	.	.	A				
												.				*	6 8					.						
LBUL 1	LAB ULTRA LOW TEMP FREEZER AREA	.	.	.	.	.	.	.	.	.	.	.	.	+	6	2	S P	.	.	.	.	.	.	A				
												.				.	.					.						
LBUR 1	LAB, UROLOGY, URINE	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	2 0	.	1 3	.	Y	M	A				
												.				*	6 8					.						
LBVP 1	LAB VENIPUNCTURE	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	2 0	.	1 4	.	.	.	A				
												.				*	6 8					.						

LBWA 1	LAB WATER	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	13	.	.	.	A	
													.				*	68					.		
LCCL 1	LINEN CONTROL, CLEAN	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	14	.	.	.	A	
													.				*	70					.		
LCFA 1	LINEN CONTROL, FOLDING AREA	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	14	.	.	.	A	
													.				*	70					.		
LCS0 1	LINEN CONTROL, SEAMSTRESS	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A	
													.				*	70					.		
LCSL 1	LINEN CONTROL, SOILED LINEN	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2	*	20	.	.	.	Y	.	A	
													.				*	70					.		
LCUC 1	LINEN CONTROL, UNIFORM CONVEYOR	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A	
													.				*	70					.		
LDAT 1	LABOR & DELIVERY, ANTEPARTUM TESTING	1	.	.	.	3	.	.	.	1	.	.	.	B	0	6	2	24	24	.	14	.	.	.	A	
													.				24	24					.		
LDDR 1	LABOR & DELIVERY, C SECTION ROOM	7				13				5	2	2	2	C	++	25	5	R	R	Y	14	14	.	C	A	
																		R	R					P		
LDEP 1	LABOR & DELIVERY, EXAM & PREP	1	.	.	.	1	.	.	.	1	.	.	.	B	0	6	2	24	24	.	14	.	.	.	A	
																		75	75					.		
LDRP 1*	LABOR & DELIVERY, LDRP (NARROW)	.	.	.	.	2	.	.	.	2	.	.	.	E	0	6	2	24	24	.	14	.	.	.	A	
													.				75	75				.	.		
LDRP 2*	LABOR & DELIVERY, LDRP (WIDE)	.	.	.	.	2	.	.	.	2	.	.	.	E	0	6	2	24	24	.	14	.	.	.	A	
													.				75	75					.		
LDRP 3*	LDR/LDRP ISOLATION ROOM	.	.	.	.	2	.	.	.	2	.	.	.	E	-	12	2	24	24	Y	14	.	Y	E	A	
													.				75	75					.		

LIBB1	LIBRARY, BOOK STACK AREA	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.		
LIBD1	LIBRARY, REFERENCE DESK	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.		
LIBP1	LIBRARY, PERIODICALS STACKS	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.		
LIBS1	LIBRARY, SEATING AREA	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	1.5	*	20	.	.	.	.	.	A	
													.				*	68					.		
LIBV1	LIBRARY, PATIENT RESOURCE ROOM	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68				.	.		
LIBW1	LIBRARY, WORK AREA - LIBRARY STAFF	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.		
LMAB1	LABORATORY, ANAEROBIC BACT' - TB	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
													.				*	68				.	.		
LMBB1	LABORATORY, BLOOD BANK, SMALL	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	13	.	.	.	A	
													.				*	68					.		
LMBB2	LABORATORY, BLOOD BANK, MEDIUM	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20		13	.	.	.	A	
													.				*	68					.		
LMBB3	LABORATORY, BLOOD BANK, LARGE	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	13	.	.	.	A	
													.				*	68					.		
LMCH1	LABORATORY, CHEMISTRY, MINIMAL	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
													.				*	68					.		
LMCH2	LABORATORY, CHEMISTRY, SMALL	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
													.				*	6					.		

																		8									
LMCH 3	LABORATORY, CHEMISTRY, MEDIUM	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	2 0	.	1 3	.	Y	M	A	
														.				*	6 8					.		
LMCH 4*	LABORATORY, CHEMISTRY, LARGE	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	2 0	.	1 3	.	Y	M	A	
														.				*	6 8					.		
LMCY 1	LABORATORY, CYTOLOGY, SMALL	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	2 0	.	1 3	.	Y	M	A	
														.				*	6 8					.		
LMCY 3	LABORATORY, CYTOLOGY, LARGE	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	2 0	.	1 3	.	Y	M	A	
														.				*	6 8					.		
LMHC 1	LABORATORY, HISTOPATHOLOGY, MEDIUM	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	2 0	.	1 3	.	Y	M	A	
														.				*	6 8					.		
LMHC 2*	LABORATORY, HISTOPATHOLOGY, LARGE	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	2 0	.	1 3	.	Y	M	A	
														.				*	6 8					.		
LMHI1	LABORATORY, HEMATOLOGY, MINIMAL	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	2 0	.	1 3	.	Y	M	A	
														.				*	6 8					.		
LMHI2 *	LABORATORY, HEMOTOLOGY, SMALL	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	2 0	.	1 3	.	Y	M	A	
														.				*	6 8					.		
LMHI3 *	LABORATORY, HEMOTOLOGY, MEDIUM	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	2 0	.	1 3	.	Y	M	A	
														.				*	6 8					.		
LMHI4 *	LABORATORY, HEMOTOLOGY, LARGE	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	2 0	.	1 3	.	Y	M	A	
														.				*	6 8					.		
LMHS 1	LABORATORY, HISTOLOGY, SMALL	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	2 0	.	1 3	.	Y	M	A	
														.				*	6 8					.		
LMHS 2	LABORATORY, HISTOLOGY, LARGE	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	2 0	.	1 3	.	Y	M	A	
														.				*	6					.		

																		8										
LMM01	LABORATORY, MICROBIOLOGY, MINIMAL	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
														.				*	68					.		
LMM02	LABORATORY, MICROBIOLOGY, SMALL	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
														.				*	68					.		
LMM03	LABORATORY, MICROBIOLOGY, MEDIUM	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
														.				*	68					.		
LMM04*	LABORATORY, MICROBIOLOGY, LARGE	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
														.				*	68					.		
LMMP1	LABORATORY	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
	MICROBIOLOGY/PARASITIOLOGY													.				*	68							
LMMY1	LABORATORY MYCOLOGY	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
														.				*	68					.		
LMS01	LABORATORY, SEROLOGY, SMALL	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
														.				*	68					.		
LMS03	LABORATORY, SEROLOGY, LARGE	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
														.				*	68					.		
LMT01	LABORATORY, TOXICOLOGY	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
														.				*	68					.		
LMU01	LABORATORY, URINALYSIS, MINIMAL	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
														.				*	68					.		
LMU02	LABORATORY, URINALYSIS, SMALL	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
														.				*	68					.		
LMU03	LABORATORY, URINALYSIS, MEDIUM	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
														.				*	6					.		

																		8										
LMU04*	LABORATORY, URINALYSIS, LARGE	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
														.				*	68					.		
LMV01	LABORATORY, VIROLOGY, SMALL	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
														.				*	68					.		
LMV02	LABORATORY, VIROLOGY, LARGE	.	.	1	.	1	.	.	.	.	.	.	.	B	-	6	2	*	20	.	13	.	Y	M	A	
														.				*	68					.		
LOB01	LOBBY	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	.	.	.	.	A	
														.				*	68					.		
LOB02*	LOBBY, VESTIBULE	.	.	.	.	.	.	.	.	.	.	.	.	.	+	6	2	*	20	.	.	.	.	.	A	
														.				*	68					.		
LR001	LOCKER AREA, PERSONAL PROPERTY	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
														.				*	68					.		
LR002	LOCKER ROOM, CHANGING	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	2	*	20	.	.	.	.	.	A	
														.				*	68					.		
MECH1*	MECHANICAL ROOMS	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.	10	.	.	.	.	K	A	
														.				.	50					.		
MECH2*	AIR HANDLING ROOMS	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.	10	.	.	.	.	K	A	
														.				.	50					.		
MEDP1	MEDICATION PREPARATION STATION	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1		*21	.	90	.	.	.	B	Filter should be a 13
														.					*70					.		
MICL1	MEDICAL ILLUS, COPY LABORATORY	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1		*20	.	.	.	.	.	A	
														.					*6					.		

																		8								
MIDR 1	MEDICAL ILLUS, DARKROOM, DUAL	.	.	.	.	.	.	.	.	.	.	.	.	-	1 0	2	2 4	2 0	.	.	.	Y	.	A		
													.				7 5	6 8					.			
MIPF1	MEDICAL ILLUS, PHOTO FINISH	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2 0	.	.	.	.	.	A		
													.				*	6 8					.			
MIPP 1	MEDICAL ILLUS, PRINT PROCESS DUAL	.	.	.	.	.	.	.	.	.	.	.	.	0	6	1 . 5	*	2 0	.	.	.	.	.	A		
													.				*	6 8					.			
MIST1	MEDICAL ILLUS, STUDIO	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2 0	.	.	.	.	.	A		
													.				*	6 8					.			
MMC R1	MEDICAL MATERIAL CART RECEIVING	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2 0	.	.	.	.	.	A		
													.				*	6 8					.			
MMC R2	MEDICAL MATERIAL CART RESTOCKING	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2 0	.	.	.	.	.	A		
	AREA												.				*	6 8					.			
MMG S1	MEDICAL MATERIAL GENERAL STORAGE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2 0	.	.	.	.	.	A		
													.				*	6 8					.			
MMR P1	MEDICAL MATERIAL RECEIVING/PROCESS	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	2 4	1 0	.	.	.	.	.	A		
													.				7 5	5 5					.			
MRM B1	MAIL ROOM, DISTRIBUTION AREA	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2 0	.	.	.	.	.	A		
													.				*	6 8					.			
MRPS 1	MAIL ROOM, U.S. POST OFFICE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2 0	.	.	.	.	.	A		
													.				*	6 8					.			
MRRS 1	MAIL ROOM, RECEIVING/SORTING	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2 0	.	.	.	.	.	A		
													.				*	6 8					.			
MRS0 1	MED RECORDS, STOR, FIXED	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2 0	.	.	.	.	.	A		

													.				*	68					.				
MRS02	MED RECORDS, STOR, MOVABLE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.		
MRT01	MED RECORDS TRANSCRIPTION	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.		
MRWK1	MED RECORDS WORKROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.		
NBCD1	NBC DECONTAMINATION SUITE	1	.	.	1	1	.	.	.	1	.	.	.	B	-	6	2	*	20	.	14	.	Y	M	A	
													.				*	68					.		
NBCD2*	DECONTAMINATION SHOWER	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	20	.	14	.	Y	M	A	
													.				*	68					.		
NCWD1	NOURISHMENT CENTER, WARD	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	14	.	.	.	A	
													.				*	68					.		
NMCR1	NUCLEAR MEDICINE, COMPUTER ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	.	.	.	.	A	
													.				*	68					.		
NMDC1	NUCLEAR MEDICINE, DOSE CALIBRATION	1	.	.	.	1	.	.	.	1	.	.	.	-	6	2	*	20	.	14	.	Y	M	A	
													.				*	68					.		
NMDS1	NUCLEAR MEDICINE, DECAY STORAGE	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	20	.	14	.	Y	.	A	
													.				*	68					.		
NMGS1	NUCLEAR MEDICINE, GENERAL SCANNING	1	.	.	.	1	.	.	.	1	.	.	.	-	6	2	*	20	.	.	.	Y	.	A	
			.										.				*	68					.		
NMIR1	NUCLEAR MEDICINE, INJECTION ROOM	1	.	.	.	1	.	.	.	1	.	.	.	-	6	2	*	20	.	14	.	Y	.	A	
			.										.				*	68					.		
NMRC1	NUCLEAR MEDICINE, RADIUM CART HOLD	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	

													.				*	68					.				
NMRP1	NUCLEAR MEDICINE, RADIOPHARMACY	1	.	.	.	1	.	.	.	.	.	.	.	-	6	2	*	20	.	.	.	Y	M	A			
													.				*	68					.				
NMSS1	NUCLEAR MEDICINE, SPECIAL SCANNING	1	.	.	.	1	.	.	.	1	.	.	.	0	6	2	*	20	.	14	.	.	.	A			
													.				*	68					.				
NMUR1	NUCLEAR MEDICINE, UPTAKE ROOM	1	.	.	.	1	.	.	.	1	.	.	.	0	6	2	*	20	.	.	.	.	.	A			
													.				*	68					.				
NMWB1	NUCLEAR MEDICINE, WHOLE BODY	1	.	.	.	1	.	.	.	1	.	.	.	0	6	2	*	20	.	14	.	.	.	A			
													.				*	68					.				
NMWR1*	NUCLEAR MEDICINE, WAITING ROOM, HOT	.	.	.	.	.	.	.	.	.	.	.	.	-	6	1	*	20	.	14	.	Y	.	A			
													.				*	68					.				
NSTA1	NURSE STATION, INPATIENT/ER	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	14	.	.	.	A			
													.				*	68					.				
NSTA3	NURSE STATION, SUBSTATION	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	14	.	.	.	A			
													.				*	68					.				
NSTA4	NURSE STATION, OUTPATIENT	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	14	.	.	.	A			
													.				*	68					.				
NYAR1	NURSERY ANTEROOM WITH SCRUB SINK	.	.	.	.	.	.	.	.	.	.	.	.	+	12	3	23	27	Y	14	.	.	P	A			
													.				74	80					.				
NYFA1	NURSERY FEEDING AREA	.	.	.	.	1	.	.	.	1	.	.	.	0	6	1.5	23	27	Y	14	.	.	P	A			
													.				74	80					.				
NYIC1	NURSERY LEVEL II	2	.	.	.	2	.	.	.	2	.	.	.	G	++	12	5	23	27	Y	14	.	.	P	B	This excedes the Guidelines recommendation of 6 air changes with	
													.				74	80					.		2 air changes of outside air	

NYIC2	NURSERY LEVEL III (NICU)	3	.	.	.	3	.	.	.	3	.	.	.	G	+ +	1 2	5	2 3	2 7	Y	1 4	.	.	P	B	This excedes the Guidelines recommendation of 6 air changes with
													.				7 4	8 0					O		2 air changes of outside air
NYIR1	NURSERY, ISOLATION	3	.	.	.	3	.	.	.	3	.	.	.	.	- -	1 2	2	2 3	2 7	Y	1 4	.	Y	P	B	This excedes the Guidelines recommendation of 6 air changes with
													.				7 4	8 0					A		2 air changes of outside air
NYNN 1	NURSERY, NORMAL NEWBORN, LEVEL I	1	.	.	.	1	.	.	.	1	.	.	.	H	+ +	1 2	5	2 3	2 7	Y	1 4	.	.	P	B	This excedes the Guidelines recommendation of 6 air changes with
													.				7 4	8 0					.		2 air changes of outside air
NYPR 1	NURSERY PROCEDURE ROOM	.	.	.	.	1	.	.	.	1	.	.	.	G	+ +	1 2	5	2 3	2 7	Y	1 4	1 4	.	P	B	This excedes the Guidelines recommendation of 6 air changes with
													.				7 4	8 0					.		2 air changes of outside air
NYPT 1	NURSERY TEACHING PARENTS ROOM	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	2 3	2 7	Y	.	.	.	P	A	
													.				7 4	8 0					.		
NYTU 1	NURSERY TRANSPORT UNIT ALCOVE	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2 0	.	1 4	.	.	.	A	
													.				*	6 8					.		
NYW E1	NURSERY, EXAM AREA	.	.	.	.	1	.	.	.	1	.	.	.	G	+ +	1 2	5	2 3	2 7	Y	1 4	.	.	P	B	This excedes the Guidelines recommendation of 6 air changes with
													.				7 4	8 0					.		2 air changes of outside air
OFA0 1	OFFICE, ADMINISTRATIVE, STD FURN.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2 0	.	.	.	.	.	A	
													.				*	6 8					.		
OFA0 2	OFFICE, ADMINISTRATIVE, SYS FURN.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2 0	.	.	.	.	.	A	
													.				*	6 8					.		
OFA0 3*	OFFICE, ADMINISTRATIVE CUBICLES	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2 0	.	.	.	.	.	A	
													.				*	6 8					.		
OFC0 1	OFFICE, COMMANDER, SMALL FACILITY	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2 0	.	.	.	.	.	A	
													.				*	6 8					.		
OFC0	OFFICE, COMMANDER, MEDIUM	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	2	.	.	.	.	.	A	

2	FACILITY																	0									
													.				*	68					.				
OFC03	OFFICE, COMMANDER, LARGE FACILITY	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A			
													.				*	68					.				
OFD01	OFFICE, PROVIDER, ARMY	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	14	.	.	.	A			
													.				*	68					.				
OFD02	OFFICE, PROVIDER, NAVY	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	14	.	.	.	A			
													.				*	68					.				
OFD03	OFFICE, PROVIDER, AIR FORCE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	14	.	.	.	A			
													.				*	68					.				
OFDC1*	OFFICE, MENTAL HEALTH PROVIDER	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	14	.	.	.	A			
													.				*	68					.				
OFDC2*	OFFICE, CONSULT ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	14	.	.	.	A			
													.				*	68					.				
OFDR1	OFFICE, DOCTOR, RADIOLOGY	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A			
													.				*	68					.				
OFM01	OFFICE, KEY PERSONNEL, SMALL	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A			
													.				*	68					.				
OFM02	OFFICE, KEY PERSONNEL, MEDIUM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A			
													.				*	68					.				
OFM03*	OFFICE, KEY PERSONNEL, LARGE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A			
													.				*	68					.				
OOHR1*	OUTPATIENT OBSERVATION/HYDRATION	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	14	.	.	.	A			
													.				*	68					.				
OPAE	AUDITORY	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	2	.	1	.	.	.	A			

1*	ELECTROPHYSIOLOGICAL LAB																	0		4							
												.				*	68					.				
OPAI1	OUTPATIENT ALLERGY INJECTION ROOM					1	.	.	.	1	.	.	.	B	0	4	2	*	20	.	14	.	.	.	A		
													.				*	68					.				
OPAS1	OUTPATIENT ALLERGY SKIN TESTING					1	.	.	.	1	.	.	.	B	0	4	2	*	20	.	14	.	.	.	A		
													.				*	68					.				
OPCR1	OUTPATIENT, CASTROOM, 1 STATION	1	.	.	.	1	.	.	.	1	.	.	.	B	0	10	2	*	21	.	14	.	Y	.	A		
													.				*	70					.				
OPCR2*	OUTPATIENT, CAST ROOM, 2 STATION	1	.	.	.	1	.	.	.	1	.	.	.	.	0	10	2	*	21	.	14	.	Y	.	A		
													.				*	70					.				
OPCT1	OUTPATIENT CHEMOTHERAPY AREA	.	.	.	.	1	.	.	.	1	.	.	.	B	0	4	2	*	20	.	14	.	.	.	A		
													.				*	68					.				
OPCT2	OUTPATIENT CHEMOTHERAPY	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	14	.	.	.	A		
	PREPARATION ROOM												.				*	68					.				
OPDC1*	OUTPATIENT DERMATOLOGY	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	68	.	14	.	.	.	A		
	CRYOTHERAPY												.				*	20					.				
OPDU1	OUTPATIENT DERMATOLOGY UV BOOTH	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	14	.	.	.	A		
													.				*	68					.				
OPEC1	OUTPATIENT EKG TESTING	.	.	.	.	1	.	.	.	1	.	.	.	.	0	4	2	*	21	.	14	.	.	.	A		
													.				*	70					.				
OPEC2	OUTPATIENT EKG WORK AREA 1 STATION	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	14	.	.	.	A		
													.				*	68					.				
OPEE1	OUTPATIENT EEG TESTING AREA,1 STA.	.	.	.	.	1	.	.	.	1	.	.	.	.	0	4	2	*	20	.	14	.	.	.	A		
													.				*	68					.				
OPEE	OUTPATIENT EEG WORK AREA,	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	2	.	1	.	.	.	A		

2	1 STATION																	0		4								
													.				*	68					.					
OPHM1	OUTPATIENT HOLTER MONITOR ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	14	.	.	.	A					
													.				*	68					.					
OPIR1	OUTPATIENT IMMUNIZATION ROOM	.	.	.	.	1	.	.	.	1	.	.	.	B	0	4	1	*	20	.	14	.	.	.	A					
													.				*	68					.					
OPMH1*	OUTPATIENT, GROUP THERAPY	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	.	.	.	.	A					
													.				*	68					.					
OPMH2*	OUTPATIENT, MENTAL HEALTH TESTING	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	14	.	.	.	A					
													.				*	68					.					
OPMH3*	OUTPATIENT, BIOFEEDBACK ROOM	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	14	.	.	.	A					
													.				*	68					.					
OPMH4*	OUTPATIENT, SECURED OBSERVATION	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	14	.	.	.	A					
	ROOM												.				*	68										
OPNR1	OUTPATIENT NEPHROLOGY RENAL STUDY	1	.	.	.	1	.	.	.	1	.	.	.	.	+	6	1	*	21	.	14	.	.	.	A					
													.				*	70					.					
OPPE1	OUTPATIENT, ECHOCARDIOGRAPH					1	.	.	.	1	.	.	.	.	0	4	1	*	21	.	14	.	.	.	A					
													.				*	70					.					
OPPE2*	OUTPATIENT STRESS ECHOCARDIOGRAPH	.	.	.	.	1	.	.	.	1	.	.	.	.	0	4	2	*	21	.	14	.	.	.	A					
													.				*	70					.					
OPPF1	OUTPATIENT PULMONARY FUNCTION	1	.	.	.	1	.	.	.	1	.	.	.	B	-	6	1.5	*	21	.	14	.	Y	.	A					
													M				*	70					.					
OPPF4	OUTPATIENT PULMO FUNCT BODY BOX	1	.	.	.	1	.	.	.	1	.	.	.	B	0	4	2	*	21	.	14	.	.	.	A					
													M				*	70					.					

OPPF 5	OUTPATIENT PULMO FUNCT TREADMILL RM	1	.	.	.	1	.	.	.	1	.	.	.	.	0	6	2	*	21	.	14	.	.	.	A	
														.				*	70					.		
OPPF 6	OUTPATIENT PULMO FUNCT SLEEP STUDY	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	21	.	14	.	.	.	A	
														.				*	70					.		
OPPM 1	OUTPATIENT PACEMAKER WORKROOM	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	21	.	14	.	.	.	A	
														.				*	70					.		
OPPS 1	OUTPATIENT PULMO FUNCT SCREENING	1	.	.	.	1	.	.	.	1	.	.	.	B	0	4	2	*	21	.	14	.	.	.	A	
														.				*	70					.		
OPRC 1	OUTPATIENT RESPIRATORY CLEANING RM	1	.	.	.	1	.	.	.	1	.	.	.	B	-	6	2	*	20	.	14	.	Y	M	A	
														.				*	68					.		
OPRT 1	OUTPATIENT RESPIRATORY TREATMENT	1	.	.	.	1	.	.	.	1	.	.	.	B	0	6	2	*	21	.	14	.	.	.	A	
														.				*	70					.		
OPST 1	OUTPATIENT NON-STRESS TESTING,	1	.	.	.	1	.	.	.	1	.	.	.	B	0	4	2	*	21	.	14	.	.	.	A	
	MULTIPLE																	*	70							
OPTM 1	OUTPATIENT TREADMILL ROOM	1	.	.	.	1	.	.	.	1	.	.	.	B	0	4	2	*	21	.	14	.	.	.	A	
														.				*	70					.		
OPTM 2*	OUTPATIENT TILT TABLE TESTING	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	*	.	.	14	.	.	.	A	
														.				*	.					.		
OPVL 1	OUTPATIENT VASCULAR LAB	1	.	.	.	1	.	.	.	1	.	.	.	B	0	4	2	*	21	.	14	.	.	.	A	
													.					*	70					.		
ORCM1	OPERATING ROOM, CARDIAC STORAGE	.	.	.	.	.	.	.	.	.	.	.	.	.		6	2	24	20	.	14	.	.	.	A	
														.				75	70					.		
ORCS 1	OPERATING ROOM CYSTOSCOPIC SURGERY	6	.	.	.	12	.	.	.	8	2	4	2	C	++	25	5	R	R	Y	14	14	Y	C	A	
														D				R	R					.		
ORCT	OPERATING ROOM	6	.	.	.	1	.	.	.	8	2	4	2	C	+	2	5	R	R	Y	1	1	Y	C	A	

1	CARDIOTHORACIC					2								+	5					4	7					
													D				R	R					.			
ORCW1	OPERATING ROOM CLEAN WORK AREA	.	.	.	.	.	.	.	.	.	.	.	.	+	6	2	20	20	.	14	.	.	.	A			
													.				68	68					.			
ORDA1	OPERATING ROOM DECONTAMINATION AR.	1	.	.	.	1	.	.	.	1	.	1	.	1	-	10	2	*	20	.	14	.	Y	M	A		
																	*	68					.			
OREC1	OPERATING ROOM EQUIPMENT CLEANUP	1	.	.	.	1	.	.	.	1	.	1	.	1	+	6	2	24	20	.	14	.	Y	.	A		
																	75	68					.			
ORGS1	OPERATING ROOM GENERAL SURGERY	6	.	.	.	12	.	.	.	8	2	4	2	C	++	25	5	R	R	Y	14	14	.	C	A		
														D				R	R					.			
ORHL1	OPERATING ROOM HEART LUNG PUMP	.	.	.	.	.	.	.	.	.	.	.	.	.	++	25	5	R	R	Y	14	17	.	C	A		
	ROOM													.				R	R					.			
ORNE1	OPERATING ROOM NEUROSURG EQUIP	.	.	.	.	.	.	.	.	.	.	.	.	.	+	6	1.5	24	24	.	14	.	.	.	A		
	STOR													.				75	75					.			
ORNS1	OPERATING ROOM NEUROSURGERY	6	.	.	.	12	.	.	.	8	2	4	2	C	++	25	5	R	R	Y	14	17	.	C	A		
														D				R	R					.			
OROE1	OPERATING ROOM ORTHOPEDIC EQUIP SR	.	.	.	.	.	.	.	.	.	.	.	.	.	+	6	1.5	24	20	.	14	.	.	.	A		
														.				75	68					.			
OROS1	OPERATING ROOM ORTHOPEDIC SURGERY	6	.	.	.	12	.	.	.	8	2	4	2	C	++	25	5	R	R	Y	14	17	.	C	A		
														D				R	R					.			
ORPC1	OPERATING ROOM PLASTER CART	.	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	24	20	.	14	.	.	.	A		
	STORAGE													.				75	68					.			
ORPH2	OPERATING ROOM PREP/HOLD	1	.	.	.	1	.	.	.	1	.	.	.	B	0	6	2	24	24	.	14	.	.	.	A		
	WORKSTATIO													.				75	75					.			
ORPP1	OPERATING ROOM PATIENT PREP/INDUCT	1	.	.	.	1	.	.	.	1	.	.	.	B	0	6	2	24	24	.	14	.	.	.	A		

													.				75	75					.				
ORSA 1	OPERATING ROOM SCRUB AREA, 2 SINK	.	.	.	.	.	.	.	.	.	.	.	.	+	6	2	24	24	.	14	.	.	.	A			
													.				75	75					.				
ORSR 1	OPERATING ROOM SUBSTERILE ROOM	.	.	.	.	.	.	.	.	.	.	.	.	+	6	2	24	24	.	14	.	.	.	A			
													.				75	75					.				
ORSS 1	OPERATING ROOM STERILE STORAGE	.	.	.	.	.	.	.	.	.	.	.	.	+	6	2	24	24	.	14	.	.	.	A			
													.				75	75					.				
OTDL 1	OCC. THERAPY, DAILY LIVING SKILLS	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A			
	TRAINING ROOM												.				*	68					.				
OTEV 1	OCC. THERAPY, EVALUATION AREA	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A			
													.				*	68					.				
OTGC 1	OCC. THERAPY, GENERAL CLINIC AREA	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A			
													.				*	68					.				
OTWT 1	OCC. THERAPY, ERGONOMICS LABORATORY	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	.	.	.	.	A			
													.				*	68					.				
PAIA1	PATIENT ADMIN INTERVIEW AREA	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A			
													.				*	68					.				
PEDS 1*	PHYSICAL EXAM, DENTAL SCREEN	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A			
													.				*	68					.				
PEHS 1	PHYSICAL EVAL HEARING SCREEN 1	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A			
	PERSON												.				*	68					.				
PEHS 2	PHYSICAL EVAL HEARING SCREEN 4	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A			
	PERSON												.				*	68					.				
PEHS 3	PHYSICAL EVAL HEARING SCREEN 6	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A			

	PERSON												.				*	68					.			
PEHS 4	PHYSICAL EVAL HEARING SUITE(2 ROOM)	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A		
													.				*	68					.			
PEH W1	PHYSICAL EVAL HEIGHT AND WEIGHT	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A		
													.				*	68					.			
PEVH 2	PHYSICAL EVAL VISION/HEARING PEDS	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A		
													.				*	68					.			
PEVS 1	PHYSICAL EVAL VISION SCREENING	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A		
													.				*	68					.			
PHBS 1*	PHARMACY BULK STORAGE LOW VOLUME	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A		
													.				*	68					.			
PHBS 2*	PHARMACY BULK STORAGE MEDIUM	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A		
	VOLUME												.				*	68					.			
PHBS 3*	PHARMACY BULK STORAGE HIGH VOLUME	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A		
													.				*	68					.			
PHDS 1 *	PHARMACY OFF SITE SATELLITE FOR	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A		
	MEDIUM VOLUME												.				*	68					.			
PHDS 2*	PHARMACY OFF SITE SATELLITE FOR HIGH	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A		
	VOLUME												.				*	68					.			
PHIV1	PHARMACY IV ADMIXTURE, LOW VOLUME	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A		
													.				*	68					.			
PHIV2	PHARMACY IV ADMIXTURE, MED VOLUME	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A		
													.				*	68					.			
PHIV3	PHARMACY IV ADMIXTURE, HIGH VOLUME	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	R	A		

													.				*	68					.				
PHMP 1	PHARMACY MANUFACTURING & PREPACK,	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A	
	LOW VOLUME												.				*	68				.	.		
PHMP 2*	PHARMACY MANUFACTURING & PREPACK	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A	
	MED VOL												.				*	68					.		
PHMP 3*	PHARMACY MANUFACTURING & PREPACK	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A	
	HIGH VOL												.				*	68					.		
PHOD 1	PHARMACY STORAGE/DISPENSING LOW	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A	
	VOLUME												.				*	68					.		
PHOD 2	PHARMACY STORAGE/DISPENSING MED	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A	
	VOLUME												.				*	68					.		
PHOD 3*	PHARMACY STORAGE/DISPENSING HIGH	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A	
	VOLUME												.				*	68					.		
PHUD 1	PHARMACY UNIT DOSE CENTER	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A	
													.				*	68					.		
PLAY 1	PLAYROOM, PEDIATRICS	.	.	.	.	.	.	.	.	.	.	.	.	0	6	1.5	*	20	.	.	.	.	.	A	
													.				*	68					.		
PMCC 1*	PLANT MAINTENANCE CONTROL CENTER	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.		
PMC W1	PLANT MAINTENANCE, COMMON WORK	.	.	.	1	.	.	.	.	.	.	.	.	0	6	1	*	21	.	.	.	Y	M	A	
	AREA												.				*	70					.		
PMW S1	PLANT MAINTENANCE, WORKSTATION	.	.	.	1	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.		
PTAT	PHYS THERAPY AMPUTEE	.	.	.	.	1	.	.	.	1	.	.	.	B	0	6	2	2	2	.	.	.	.	.	A	

1	TRAINING AREA																4	1								
													.				75	70					.			
PTBT 1	PHYS THERAPY BACK THERAPY PROGRAM	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	21	.	.	.	.	.	A		
													.				*	70					.			
PTCW 1	PHYS THERAPY CUBICLE WORKSTATION	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	21	.	.	.	.	.	A		
													.				*	70					.			
PTEA 1	PHYS THERAPY EXERCISE AREA - GYM	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	21	.	.	.	Y		A		
													.				*	70								
PTEM 1	PHYS THERAPY ELECTROMYOGRAPHY	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	21	.	.	.	.	.	A		
	(EMG)												.				*	70					.			
PTES 1	PHYS THERAPY EXERCISE STATION	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	21	.	.	.	.	.	A		
													.				*	70					.			
PTEW 1	PHYS THERAPY EXTREM WHIRLP ARM/LEG	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	21	.	.	.	Y	.	A		
													.				*	70					.			
PTGL 1	PHYS THERAPY GAIT OBS. LANE	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	21	.	.	.	.	.	A		
													.				*	70					.			
PTIS1	PHYS THERAPY ISOKINETIC STA - DIAG	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	21	.	.	.	Y	.	A		
													.				*	70					.			
PTPR 1	PHYS THERAPY PEDIATRIC REHAB	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	21	.	.	.	.	.	A		
													.				*	70					.			
PTTC 1	PHYS THERAPY TREATMENT CUBICLE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	21	.	.	.	.	.	A		
													.				*	70					.			
PTWT 1	PHYS THERAPY WHIRLPOOL TREATMENT	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	21	.	.	.	.	.	A		
													.				*	70					.			
PTW	PHYS THERAPY WHIRLPOOL	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	2	.	.	.	.	.	A		

W1	WORKSTATION																	1								
													.				*	70					.		
RAA01	CHAPEL ALTAR	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A	
													.				*	68					.		
RABS1	RELIGIOUS ACTIVITY, CHANCEL	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A	
													.				*	68					.		
RAMR1	RELIGIOUS ACTIVITY MEDITATION ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A	
													.				*	68					.		
RAS01	CHAPEL SEATING AREA, FIXED SEATS	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A	
													.				*	68					.		
RASR1	CHAPEL, SACRISTY/STORAGE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A	
													.				*	68					.		
RCA01	RESUSCITATION CART ALCOVE	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.	.	A	
													.				.	.					.		
RDC01	RENAL DIALYSIS CHAIR STATION	2	.	.	.	1	.	.	.	1			.	. B	+	6	2	*	21	.	14	.	.	.	A	
													.				*	70					.		
RDC02	RENAL DIALYSIS CHAIR STATION NEG PR	2	.	.	.	1	.	.	.	1	.	.	.	B	-	6	2	*	21	.	14	.	Y	.	A	
													.				*	70					.		
RDP01	RENAL DIALYSIS, STORAGE, PORTABLE	.	.	.	.	.	.	.	.	.	.	.	.	+	6	2	*	21	.	14	.	.	.	A	
													.				*	70					.		
RDPD1	RENAL DIALYSIS PERITONEAL STATION	2	.	.	.	1	.	.	.	1	.	.	.	B	+	6	2	*	21	.	14	.	.	.	A	
													.				*	70					.		
RDWT1*	RENAL DIALYSIS WATER TREATMENT RM	.	.	.	.	.	.	.	.	.	.	.	.	-	.	.	.	10	.	.	.	Y	.	A	
													.				.	50					.		
RECP1	RECEPTION	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	21	.	14	.	.	.	A	

													.				*	70					.				
RECP2	RECEPTION/WORKSTATION (COF)	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	21	.	14	.	.	.	A	
													.				*	70					.				
RECP3	RECEPTION/INFORMATION DESK	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	21	.	14	.	.	.	A	
													.				*	70					.				
RER01*	REFRIGERATION EQUIPMENT ROOM	E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	SP	SP	.	.	.	.	.	A	
													.				.	.					.				
RPR01	REPRODUCTION ROOM, STANDARD	.	.	.	.	.	.	.	.	.	.	.	.	0	10	2	*	21	.	.	.	.	.	A	
													.				*	70					.				
RPR02	REPRODUCTION ROOM, HIGH VOLUME	.	.	.	.	.	.	.	.	.	.	.	.	0	10	2	*	21	.	.	.	.	.	A	
													.				*	70					.				
RRIR1	RECOVERY ROOM, ISOLATION	1	.	.	.	3	.	.	.	3	.	.	.	B	--	12	2	24	21	Y	14	.	Y	O	A	
													.				75	70					.				
RROP1	RECOVERY CUBICLE, PHASE II	1	.	.	.	3	.	.	.	3	.	.	.	B	+	6	2	*	21	.	14	.	.	.	A	
													.				*	70					.				
RRSS1	RECOVERY ROOM, PHASE I	1	.	.	.	3	.	.	.	3	.	.	.	B	+	6	2	24	21	Y	14	14	.	O	A	
													.				75	70					.				
RRSS3	RECOVERY ROOM OUTPATIENT SEATED	1	.	.	.	3	.	.	.	3	.	.	.	B	+	6	2	*	21	.	14	.	.	.	A	
													.				*	70					.				
SEC01	SECRETARY, GENERAL USE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.				
SEC02	SECRETARY, COMMAND	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	60					.				
SHWR1*	SHOWER ROOM	.	.	.	.	.	.	.	.	.	.	.	.	-	6	1.5	*	24	.	.	.	Y	.	A	

													.				*	75					.		
SHWR2*	SHOWER, INPATIENT UNIT	.	.	.	.	.	.	.	.	.	.	.	.	-	6	1.5	*	24	.	.	.	Y	.	A	
													.				*	75					.		
SINK1*	SINK STAFF HANDWASHING	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.		
SL001	STAFF LOUNGE	.	.	.	.	.	.	.	.	.	.	.	.	0	5	1	*	20	.	.	.	.	.	A	
													.				*	68					.		
SL002*	TEAM INTERACTION STATION CLINIC OF	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
	THE FUTURE (COF)												.				*	68							
SRCH1	STORAGE RM, CHARGING, BATTERY/EQUIP	.	.	.	.	.	.	.	.	.	.	.	E	-	10	.	29	18	.	.	.	Y	M	B	Note E for nitrogen does not apply here.
													.				85	65					.		
SRCS1	STORAGE RM, CRUTCH AND SPLINT	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.		
SRE01	STORAGE RM, EQUIPMENT	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.		
SRF01	STORAGE RM, FREEZER WALK-IN	.	.	.	.	.	.	.	.	.	.	.	.	0	0	.	SP	SP	.	.	.	.	.	A	
													.				SP	SP					.		
SRF02	STORAGE RM, FREEZERS - FREESTANDNG	.	.	.	.	.	.	.	.	.	.	.	.	0	10	2	*	20	.	.	.	Y	.	A	
													.				*	68					.		
SRGC1	STORAGE RM, GAS CYLINDERS, EXTERIOR	.	.	.	.	.	.	.	.	.	.	.	.	-	6	.	.	.	.	.	.	Y	G	A	
													.				.	.					.		
SRGC2	STORAGE RM, GAS CYLINDERS, INTERIOR	.	.	.	.	.	.	.	.	.	.	.	.	-	6	.	*	20	.	.	.	Y	G	A	
													.				*	68					.		
SRHM1	STORAGE RM, HAZARDOUS MATERIALS	.	.	.	.	.	.	.	.	.	.	.	.	-	6	.	.	.	.	.	.	Y	G	A	

													.				.	.					.			
SRL01	STORAGE RM, LAB MICROSCOPE SLIDES	.	.	.	.	.	.	.	.	.	.	.	.	+	4	1	*	21	.	13	.	.	.	A	
													.				*	68					.			
SRL02	STORAGE RM, LAB PARAFFIN BLOCKS	.	.	.	.	.	.	.	.	.	.	.	.	+	4	1	*	21	.	13	.	.	.	A	
													.				*	68					.			
SRLW1	STORAGE RM/AREA, LITTER-WHEELCHAIR	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	21	.	.	.	.	.	A	
													.				*	68					.			
SRPB1	STORAGE RM, PATIENT BAGGAGE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.			
SRPS1	STORAGE RM, PARTS STORAGE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.			
SRR01	STOR. RM REFRIGERATOR, WALK-IN	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.	.	A	
																	.	.					.			
SRR02	STORAGE RM, REFRIGERATORS FREESTND	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.	.	A	
																	.	.					.			
SRS01	STORAGE RM, SHELVING	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.			
SRSE1	STORAGE RM, EQUIPMENT/SHELVING	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.			
SSC01	SECURE STORAGE, CAGE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.			
SSS01	SECURE STORAGE, SAFE	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.	.	A	
													.				.	.					.			
SSV01	SECURE STORAGE, VAULT	.	.	.	.	.	.	.	.	.	.	.	.	0	6	1	*	20	.	.	.	.	.	A	
													.				*	68					.			

TCGS 1	TREATMENT CUBICLE GENERAL SURGICAL	1	.	.	.	1	.	.	.	1	.	.	.	.	+	12	3	20	23	.	14.	.	.	.	A	
														.				68	73					.		
TLTF0	TOILET/SHOWER, HANDICAP ACCESSIBLE	.	.	.	.	.	.	.	.	.	.	.	.	.	EX	10	.	.	.	.	.	.	Y	.	A	
														.				.	.					.		
TLTF1	TOILET, FEMALE, SINGLE	.	.	.	.	.	.	.	.	.	.	.	.	.	EX	10	.	*	20	.	.	.	Y	.	A	
														.				*	68					.		
TLTF2	TOILET FEMALE, MULTIPLE	.	.	.	.	.	.	.	.	.	.	.	.	.	EX	10	.	*	20	.	.	.	Y	.	A	
														.				*	68					.		
TLTM 1	TOILET, MALE, SINGLE	.	.	.	.	.	.	.	.	.	.	.	.	.	EX	10	.	*	20	.	.	.	Y	.	A	
														.				*	68					.		
TLTM 2	TOILET, MALE, MULTIPLE	.	.	.	.	.	.	.	.	.	.	.	.	.	EX	10	.		0	.	.	.	Y	.	A	
														.					1					.		
TLTP 1	TOILET PSYCHIATRIC	.	.	.	.	.	.	.	.	.	.	.	.	.	EX	10	.		0	.	.	.	Y	.	A	
														.					1					.		
TLTP 3	TOILET/SHOWER PSYCHIATRIC	.	.	.	.	.	.	.	.	.	.	.	.	.	EX	10	.		0	.	.	.	Y	.	A	
														.					1					.		
TLTS 1	TOILET, SHOWER, SINGLE	.	.	.	.	.	.	.	.	.	.	.	.	.	EX	10	.		0	.	.	.	Y	.	A	
														.					1					.		
TLTS 2*	TOILET/SINK/SHOWER INPATIENT	.	.	.	.	.	.	.	.	.	.	.	.	.	EX	10	.		0	.	.	.	Y	.	A	
														.					1					.		
TLTU 1*	TOILET, UNISEX	.	.	.	.	.	.	.	.	.	.	.	.	.	EX	10	.		0	.	.	.	Y	.	A	
														.					1					.		
TREE 1	TX ROOM ENDOSCOPIC EXAM (UGI)	1	.	.	.	2	.	.	.	1	.	.	.	.	-	6	2	*	23	.	14	.	Y	.	A	
														.				*	73					.		
TREN 1	TX ENT	.	.	.	.	1	.	.	.	1	.	.	.	.	0	6	2	*	23	.	14	.	.	.	A	
														.				*	73					.		

TREN 2*	AUDIOLOGY TESTING ROOM	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	23	.	14	.	.	.	A	
													.				*	73					.		
TRET 1	TX EMERGENCY TRAUMA ROOM 2 BED	.	.	.	.	3	.	.	.	2	.	.	.	B	+	12	5	24	23	.	14	.	.	.	A	
													.				75	73					.		
TRET 3*	TX EMERGENCY TRAUMA ROOM, 1 BED	.	.	.	.	2	.	.	.	2	.	.	.	B	+	12	5	24	23	.	14	.	.	.	A	
													.				75	73					.		
TRET 4*	TX ROOM, EMERGENCY CARE, 1 BED	.	.	.	.	2	.	.	.	2	.	.	.	B	+	12	5	24	23	.	14	.	.	.	A	
													.				75	73					.		
TRET 5*	TX ROOM, EMERGENCY CARE, 2 BED	.	.	.	.	2	.	.	.	2	.	.	.	B	+	12	5	24	23	.	14	.	.	.	A	
													.				75	73					.		
TREY 1	TX EYE - OPHTHALMOLOGY	.	.	.	.	1	.	.	.	1	.	.	.	.	0	6	2	*	23	.	14	.	.	.	A	
													.				*	73					.		
TREY 2*	TX EYE - LASER	.	.	.	.	1	.	.	.	1	.	.	.	.	-	6	2	SP	SP	.	14	.	.	.	A	
													.				.	.					.		
TREY 3*	TX ROOM PRK/LASIK	.	.	.	.	1	.	.	.	1	.	.	.	.	-	6	2	SP	SP	.	14	.	.	.	A	
													.				.	.					.		
TRGM 1	TRT ROOM, GENERAL, 1 BED	.	.	.	.	1	.	.	.	1	.	.	.	.	0	6	2	*	23	.	14	.	.	.	A	
													.				*	73					.		
TRGM 2*	TX ROOM, GENERAL, 2 BED	.	.	.	.	1	.	.	.	1	.	.	.	B	0	6	2	*	23	.	14	.	.	.	A	
													.				*	73					.		
TRGS 1	TX ROOM GENERAL SURGICAL	.	.	.	.	1	.	.	.	1	.	.	.	.	0	6	2	*	23	.	14	.	.	.	A	
													.				*	73					.		
TRGS 2*	TX RM SURGICAL NEG PRESSURE	.	.	.	.	1	.	.	.	1	.	.	.	.	--	12	2	*	23	.	14	.	Y	.	A	
													.				*	73					.		
TRGS	TX RM GENERAL SURGICAL	.	.	.	.	1	.	.	.	1	.	.	.	.	0	4	2	*	2	.	1	.	.	.	A	

3*	LASER																	0		4								
													.				*	68					.				
TROB1	TX OB/GYN	.	.	.	.	1	.	.	.	1	.	.	.	.	0	6	2	*	23	.	14	.	.	.	A			
													.				*	73					.				
TROR1	TX ORTHOPEDIC	.	.	.	.	1	.	.	.	1	.	.	.	.	0	6	2	*	23	.	14	.	.	.	A			
													.				*	73					.				
TRPE1	TX ROOM PROCTOSCOPIC EXAM (LGI)	1	.	.	.	2	.	.	.	1	.	.	.	.	-	10	2	*	23	.	14	.	Y	.	A			
													.				*	73					.				
TRPE2	TX PULMONARY BRONCHOSCOPY	1	.	.	.	2	.	.	.	1	.	.	.	.	-	12	2	*	23	.	14	.	Y	.	A			
													.				*	73					.				
UCCL1	UTILITY CLEAN	.	.	.	.	.	.	.	.	.	.	.	.	.	+	4	1	*	20	.	14	.	.	.	A			
													.				*	68					.				
USCL1	UTILITY SOILED	.	.	.	.	.	.	.	.	.	.	.	.	.	-	6	1	*	20	.	.	.	Y	.	A			
													.				*	68					.				
USCL2*	UTILITY, SCOPE WASH	1	.	.	.	1	.	.	.	.	.	.	.	.	-	10	2.5	*	20	.	14	.	Y	M	A			
													.				*	68					.				
UTC01	UTILITY TRASH COLLECTION	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	1	*	20	.	.	.	Y	.	A			
													.				*	68					.				
UTC02	UTILITY TRASH CAN DECON	.	.	.	1	.	.	.	.	.	.	.	.	.	-	10	1	.	.	.	.	.	Y	.	A			
													.				.	.					.				
UTLC1	UTILITY TRASH AND LINEN COLLECTION	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	1	*	20	.	.	.	Y	.	A			
													.				*	68					.				
VCWA1	VETERINARY CAGE WASH AREA	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	1	*	20	.	.	.	Y	.	A			
													.				*	68					.				

VEX01	VETERINARY EXAMINATION/TX ROOM	1	.	.	.	1	.	.	.	.	.	1	.	.	0	4	2	*	20	.	.	.	Y	.	A	
														.				*	68					.		
VFIL1	VETERINARY FOOD INSPECTION LAB	.	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	20	.	14	.	Y	M	A	
														.				*	68					.		
VFP01	VETERINARY FOOD PREP ROOM	.	.	.	.	.	.	.	.	.	.	.	.	.	+	6	2	*	20	.	14	.	Y	.	A	
														.				*	68					.		
VHAU1	VETERINARY HOLDING AREA UTILITY/STR	.	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	20	.	.	.	Y	.	A	
														.				*	68					.		
VKEN1	VETERINARY KENNEL AREA IN/OUTSIDE	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	5	*	20	.	.	.	Y	L	A	
														.				*	68					.		
VKEN2	VETERINARY KENNEL CONFINE CANINE	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	5	*	20	.	.	.	Y	L	A	
														.				*	68					.		
VKEN3*	VETERINARY KENNEL CONFINE FELINE	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	5	*	26	.	.	.	.	L	A	
														.				*	79					.		
VLAH1	VETERINARY LARGE ANIMAL HOLDING AR	.	.	.	.	.	.	.	.	.	.	.	.	.	-	10	5	*	26	.	.	.	Y	L	A	
														.				*	79					.		
VLB01	VETERINARY LABORATORY	.	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	20	.	13	.	.	M	A	
														.				*	68					.		
VPH01	VETERINARY PHARMACY	.	.	.	.	.	.	.	.	.	.	.	.	.	+	4	2	*	20	.	.	.	.	.	A	
														.				*	68					.		
VRHA1	VETERINARY RODENT HOLDING AREA	.	.	.	.	.	.	.	.	.	.	.	.	.	-	15	15	*	26	.	13	.	Y	.	A	
														.				*	79					.		
VRRP1	VETERINARY RECOVERY ROOM/PREP AREA	1	.	.	.	1	.	.	.	1	.	.	.	.	+	6	3	18	26		13	.	Y	.	A	
														.				64	79					.		

VRUN 1	VETERINARY ANIMAL RUN	.	.	.	.	.	.	.	.	.	.	.	.	.	0	6	3	*	20	.	.	.	Y	L	A	
													.				*	68					.		
VS00 1	VETERINARY SURGERY ROOM	1	.	.	.	2	.	.	.	1				+	15	7.5	18	26		11	14	Y	C	A	
													.				64	79					.		
VXER 1	VETERINARY XRAY EXPOSURE ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	26	.	13	.	Y	.	A	
													.				*	68					.		
WRC0 1	WAITING ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	6	1	*	20	.	14	.	.	S	A	
													.				*	68					.		
WRC0 2	WAITING ROOM, ISOLATION	.	.	.	.	.	.	.	.	.	.	.	.	--	12	2	*	20	.	14	.	.	.	A	
													.				*	68					.		
WRC H1	WORKROOM, CHARTING AREA	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	21	.	.	.	.	.	A	
													.				*	70					.		
WRF0 1	WAITING ROOM, FAMILY	.	.	.	.	.	.	.	.	.	.	.	.	0	6	1	*	20	.	14	.	.	.	A	
													.				*	68					.		
WRL0 1	WAITING ROOM, LITTER	.	.	.	.	.	.	.	.	.	.	.	.	0	4	1	*	21	.	14	.	.	.	A	
													.				*	70					.		
XABP 1	XRAY ANGIOGRAPHIC PROCEDURE	1	.	.	.	2	.	.	.	.	.	.	.	0	6	2	*	23		14	.	.	.	A	
			.										.				*	73					.		
XACR 1	XRAY ANGIOGRAPHIC CONTROL ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	21	.	.	.	.	.	A	
													.				*	70					.		
XACV 1	XRAY ANGIOGRAPHIC SYSTEM	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	21	.	.	.	.	N	A	
	COMPONENT ROOM												.				*	70							
XAIR1	XRAY ANGIO INSTRUMENT ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	21	.	.	.	.	.	A	
													.				*	7					.		

																		0										
XCCA 1	XRAY CARDIAC SYSTEM COMPONENT ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	20	24	.	14	.	.	N	A	
													.				68	75					.		
XCCC 1	XRAY CARDIAC CATH CONTROL ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	20	24	.	14	.	.	N	A	
													.				68	75					.		
XCCE 1	XRAY CARDIAC CATH EXPOSURE ROOM	1	.	.	.	2	.	.	.	3	1	.	1	D	+	15	3	24	23	.	14	.	.	C	A	
													.				75	73					.		
XCCI1	XRAY CARDIAC CATH INST. ROOM	.	.	.	.	.	.	.	.	.	.	.	.	+	6	2	20	24	.	14	.	.	.	A	
													.				68	75					.		
XCTC 1	XRAY COMPUTED TOMOGRAPHY CONTROL	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	21	.	.	.	.	.	A	
	AREA												.				*	70					.		
XCTI1	XRAY COMPUTED TOMOGRAPHY INDEP	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	21	.	.	.	.	N	A	
	VIEW CONSO												.				*	70							
XCTS 1	XRAY COMPUTED TOMOGRAPHY SCANNER	.	.	.	.	1	.	.	.	1	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.		
XDBD 1*	XRAY DIAGNOSTIC BONE DENSITOMETER	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	23	.	14	.	.	.	A	
													.				*	73					.		
XDCS 1	XRAY DIAGNOSTIC CHEST	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	23	.	14	.	.	.	A	
													.				*	73					.		
XDCY 1	XRAY DIAG CYSTO RAD ONLY 800 MA	1	.	.	.	3	.	.	.	1	1	.	1	D	0	6	2	*	23	.	14	.	.	.	A	
			.										.				*	73					.		
XDM0 1	XRAY DIAG MAMMO	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.		
XDM0 2	XRAY DIAG MAMMO STEREOTATIC	.	.	.	.	1	.	.	.	1	.	.	.	0	6	2	*	23		14	.	.	.	A	
			.										.				*	7					.		

																			3								
XDMP 1	XRAY DIAG MAMMO PROCESS	.	.	.	.	.	.	.	.	.	.	.	.	-	1 0	2 . 5	*	2 3	.	1 4	.	Y	M	A				
													.				*	7 3					.				
XDR0 1	XRAY, RADIOGRAPHIC, GENERAL	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	2 3	.	1 4	.	.	.	A				
													.				*	7 3					.				
XDRF 1	XRAY DIAG RAD/FLUORO	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	2 3	.	1 4	.	.	.	A				
													.				*	7 3					.				
XDUS 1	ULTRASOUND	.	.	.	.	1	.	.	.	1	.	.	.	0	6	2	*	2 3	.	1 4	.	.	.	A				
													.				*	7 3					.				
XFDS 1*	XRAY FILE, DIGITAL STORAGE	.	.	.	.	.	.	.	.	.	.	.	.	+	6	1	*	2 0	.	.	.	.	N	A				
													.				*	6 8					.				
XFFA 1	XRAY FILM FILES AREA - FIXED SHELVES	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	2 0	.	.	.	.	.	A				
													.				*	6 8					.				
XFFA 2	XRAY FILM FILES AREA - MOBILE SHELVES	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	2 0	.	.	.	.	.	A				
													.				*	6 8					.				
XFP0 1	XRAY FILM PROCESSING DARKROOM - 1	.	.	.	.	.	.	.	.	.	.	.	.	-	1 0	2 . 5	*	2 0	.	1 4	.	Y	M	A				
	PROCESSOR												.				*	6 8									
XFP0 2	XRAY FILM PROCESSING DARKROOM - 2	.	.	.	.	.	.	.	.	.	.	.	.	-	1 0	2 . 5	*	2 0	.	1 4	.	Y	M	A				
	PROCESSORS												.				*	6 8									
XFP0 3*	XRAY FILM PROCESSING DAYLIGHT	.	.	.	.	.	.	.	.	.	.	.	.	-	1 0	2 . 5	*	2 0	.	1 4	.	Y	M	A				
													.				*	6 8					.				
XFSA 1	XRAY FILM SORTING AREA	.	.	.	.	.	.	.	.	.	.	.	.	-	1 0	2 . 5	2 4	2 0	.	.	.	Y	M	A				

													.				75	68					.				
XMRC 1	XRAY MAGNETIC RESONANCE CONTROL	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A	
	ROOM												.				*	68					.				
XMRC 2	XRAY MAGNETIC RESONANCE SYSTEM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	N	A	
	COMPONENT ROOM												.				*	68									
XMRE 1	XRAY MAGNETIC RESONANCE EQUIP ROOM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A	
													.				*	68					.				
XMRS 1	XRAY MAGNETIC RESONANCE SCANNER	1	.	.	.	1	.	.	.	1	.	.	.	0	4	2	*	23	.	14	.	.	.	A	
													.				*	73					.				
XMRV 1	XRAY MAGNETIC RESONANCE VIEWING RM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A	
													.				*	68					.				
XRM0 1	XRAY MOBILE RAD UNIT ALCOVE	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.	.	A	
													.				.	.					.				
XRM0 2	XRAY MOBILE C-ARM STORAGE	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	.	.	.	.	A	
													.				*	68					.				
XTBT 1*	BRACHYTHERAPY ROOM	1	.	.	.	1	.	.	.	1	.	.	.	+	6	2	*	23	.	14	.	Y	.	A	
													.				*	73					.				
XTEM 1	XRAY THERAPY ENTRY MAZE - ALL UNITS	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	.	.	.	.	A	
													.				*	68					.				
XTLA 1	XRAY THERAPY LINEAR ACCELERATOR	.	.	.	.	1	.	.	.	1	.	.	.	0	6	2	*	23	.	14	.	Y	.	A	
													.				*	73					.				
XTLA 2	XRAY THERAPY LINEAR ACCEL HIGH VOLT	.	.	.	.	1	.	.	.	1	.	.	.	0	6	2	*	23	.	14	.	Y	.	A	
													.				*	73					.				
XTLA 3	XRAY THERAPY LINEAR ACCEL DUAL VOLT	.	.	.	.	1	.	.	.	1	.	.	.	0	6	2	*	23	.	14	.	Y	.	A	

													.				*	73					.				
XTLB1	XRAY THERAPY PHYSICS LABORATORY	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	21	.	.	.	.	.	A	
													.				*	70					.				
XTLC1	XRAY THERAPY LINEAR ACCEL CONTROL	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	.	.	.	.	A	
													.				*	68					.				
XTLE1*	LINEAR ACCELORATOR SYSTEM	.	.	.	.	.	.	.	.	.	.	.	.	0	4	2	*	20	.	14	.	.	N	A	
	COMPONENT RM																*	68									
XTMF1	XRAY THERAPY MOLD FABRICATION SHOP	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	20	.	.	.	Y	.	A	
													.				*	68					M				
XTRT1	XRAY THERAPY RADIUM TX STORAGE/PREP	.	.	.	.	.	.	.	.	.	.	.	.	-	6	2	*	20	.	13	.	Y	.	A	
													.				*	68					M				
XTSC1	XRAY THERAPY, SIMULATOR CONTROL	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	20	.	.	.	.	.	A	
	ROOM												.				*	68									
XTSG1	XRAY THERAPY SIMULATOR GANTRY ROOM	.	.	.	.	1	.	.	.	1	.	.	.	0	6	2	*	21	.	.	.	.	.	A	
													.				*	70					.				
XTTP1	XRAY THERAPY TREATMENT PLANNING RM	.	.	.	.	.	.	.	.	.	.	.	.	0	6	2	*	21	.	.	.	.	.	A	
													.				*	70					.				
XVC01	XRAY VIEWING/CONSULTATION AREA	.	.	.	.	.	.	.	.	.	.			.	0	4	1	*	20	.	.	.	.	.	A	
													.				*	68					.				

Appendix C: Universal X-Ray Room

Name of Reviewer: Cherie Claussen Company: HGA
Telephone Number: 414-278-3301
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UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
C-1 **DEFINITION OF UNIVERSAL X-RAY ROOM**. "The universal X-ray room shall be capable of accepting all routine radiographic, fluoroscopic, and tomographic equipment, up to 1200 ma, 150 kvp, regardless of manufacture, during initial installation and subsequent replacement actions with little, if any, facility modification. The procedures shall be performed unencumbered and without any restriction of system components, patient size, or any known procedure that any installed X-ray equipment can perform now or in the future." There may be additional requirements for specialty rooms such as digital radiography, special procedure rooms, C-arms, or angiography rooms.	A	Acceptable
C-2 **CRITERIA**.		
C-2.1 **Planning and Programming**. The universal room shall be a maximum of 30 net m^2 (320 net square feet) including space for equipment, control booth, and circulation. Critical room dimensions and layouts are given in Figure C-1. However, all dimensions should be verified with actual equipment to be purchased. Utilities distribution methods may be modified for use in projects utilizing IBS concepts when implemented (see Appendix E).	C	Universal X-Ray Room may be as small as 28 square meters (280 NSF) if correctly designed.
C-2.2 **Electrical Raceway System**. An extensive raceway system is provided so the universal room will accept any manufacturer's equipment without additional raceways, facility modifications, or use of exposed wiring. The raceway system consists of trench floor ducts, lay-in wall ducts, and ceiling cable trays as shown on Figure C-1 and C-2.	A	Acceptable
C-2.2.1 **Floor ducts** are bottom-type trench duct, with nominal 90 mm (3.5 in.) by 300 mm (12 in.) 250 mm (10-inch) tub with a 300 mm (12-inch) wide, 8 mm (1/4-inch) thick steel cover plate. Cover plate must be installed flush with and have the same tile insert as the floor. Provide a gasket on the cover plate to maintain water tightness.	A	Acceptable
C-2.2.2 **Wall ducts** are nominal 10 mm (3.5 in.) by 250 mm (10 in.) with 300 mm (12-inch) wide flush mounted cover plates finished to match the walls. Wall duct must be UL listed for enclosure of wiring to x-ray machines (reference C-a).	A	Acceptable
C-2.2.3 **Ceiling cable trays** are nominal 10 mm (3.6 in.) by 300 mm (12 in.) 80 mm (3-inch) load depth NEMA Class 12A ladder type installed above the finished ceiling. Wall duct, nominal 10 mm (3.5 in.) by 250 mm (10 inch), may be used in lieu of cable trays.	A	Acceptable
C-2.2.4 **Partitions** must be provided in all ducts and cable trays to separate high and low voltage cables.	A	Acceptable

C-2.3 **Electrical Service Requirements**. Each universal room must have adequate power service to insure that all X-ray equipment can be installed without additional facility related electrical work. All feeder conductors will be copper.	A	
C-2.3.1 **Power Quality**. The facility power system must provide the specified nominal voltage (480 V or 240 V) plus or minus 5 percent to each universal room. Special power conditioning equipment, if required, should be identified and provided with the X-ray installation.	A	Special Power Conditioning should be recommended by the X-Ray vendor.
C-2.3.2 **Three-Phase Rooms**. If the room will receive three-phase X-ray equipment, provide 150 amp, 480 volt, three-phase (3-wire and ground) service to the room. Provide an adjustable trip, 150 amp, 3-pole, shunt trip circuit breaker in a NEMA 1, flush mounted enclosure. Provide electrical service to the room in according to X-ray manufacturing recommendation with an adjustable shunt trip circuit breaker of 3-pole in NEMA 1, flush mounted enclosure.	C	An 100 amp may be substitute for the 150 amp if recommended by equipment vendor.
C-2.3.3 **Single-Phase Rooms**. If the room will receive single-phase X-ray equipment, provide 150 amp, 240 volt, single-phase (3-wire and ground) service to the room. Provide an adjustable trip, 100 amp, 2-pole, shunt trip circuit breaker in a NEMA 1, flush mounted enclosure. Provide electrical service to the room in according to X-ray manufacturing recommendation with an adjustable shunt trip circuit breaker of 2-pole in NEMA 1, flush mounted enclosure.	C	An 100 amp may be substitute for the 150 amp if recommended by equipment vendor.
C-2.3.4 **Emergency Shutdown**. Provide a large, clearly identified push-button to actuate the shunt trip circuit breakers, and disconnect all power to the X-ray machine and accessories.	A	Acceptable
C-2.3.5 **120/208 Volt Auxiliary Panelboard**. If required by using Military Department, provide a 120/208 volt, single-phase, 100 amp panelboard with a 50 amp shunt trip main breaker to support the single-phase loads in each room. Provide a 20-pole-space panelboard with at least two 20 amp 2-pole circuit breakers, and five 20 amp 1-pole circuit breakers. This panelboard may be served from the nearest general purpose 120/208V transformer; a dedicated stepdown transformer may be provided and fed from the 480V service in 3-phase rooms. (Calculations should be based on 180 amp maximum demand for 3-phase rooms, and 300 amp maximum demand for single-phase rooms.)	A	Acceptable
C-2.3.6 **Voltage Drop and Regulation**. Total voltage drop in a branch circuit and feeder conductors must not exceed 2 percent from the facility distribution transformer to the X-ray rooms. Total voltage regulation of the distribution transformer, feeder, and branch circuit conductors must not exceed 5%. For circuits which serve only one room, calculations should be based on the maximum demand current of the single X-ray generator. For circuits which serve more than one room, calculation should be based on the maximum demand current of the two largest rooms. (Calculations should be based on 180 amp maximum demand for 3-phase rooms and 300 amp maximum demand for single-phase rooms.) Maximum total voltage drop on feeder and branch circuits to the farthest outlet must not exceed 5% or in accordance to the latest NFPA 70 Edition.	A	Acceptable
C-2.3.7 **Distribution Transformers**. Distribution transformers should not be dedicated solely to X-ray equipment. The voltage regulation is better if X-ray machines are connected to transformers which are partially loaded with other equipment. X-ray machines should always be connected line-to-line, never line-to-neutral.	A	Acceptable
C-2.3.8 **Essential Power**. Essential power for X-ray equipment, illumination, and duplex receptacles shall be in accordance with the using Military Department guidance documents.	A	Acceptable

C-2.4 **Warning Lights, Interlocks, and Illumination**. Warning lights, interlocks, and illumination are to be provided in accordance with the Design Agent's guidance documents. Illumination should be in accordance with Appendix A vice Design Agent's guidance documents.	A	Acceptable
C-2.5 **Structural Requirements**.		
C-2.5.1 **Walls**. Provide studs on either side of the vertical electrical raceways. Design walls to support 100 kg (220 pounds) vertical-to-horizontal pull. Double walls must be provided between adjacent x-ray rooms. Wall backing/support is required in various locations for wall bucky units and control panels.	A	Acceptable
C-2.5.2 **Ceiling Support System**. Provide an overhead tube-mount support system in accordance with Figure C-3 with a load bearing capacity of 408 kg (900 pounds) vertical point load and 23 kg (50 pounds) per square foot uniformly distributed load. Spanning members should be mounted perpendicular to the centerline of the X-ray table and positioned at 650 mm (25-5/8) inches on center to provide 600 mm (2 feet) clear between members. The acoustical ceiling tiles are to be suspended from the structural grid. Bottom of members should be flush with the finished ceiling.	A	Acceptable
C-2.6 **Case Work**.		
C-2.6.1 Case work shall be as specified by the using Military Department.	A	Casework does not have to be recessed.
C-2.6.2 A hand sink with hot and cold water and drain will be provided	A	
C-2.7 **Radiology Shielding**.		
C-2.7.1 As a minimum: a) Comply with the design requirements of NCRP Report No.49 (reference C-b), and certify as advised by NCRP Report No.102 (reference C-c.) and by the using Military Department Procedures. b) Lead shielding shall be 3 mm (1/16 inch) lead or lead equivalent up to 2100 mm (7 feet) above the finished floor. Penetrations through the shielding should be avoided. c) Where possible, lead shielding shall be applied to exterior side of wall partitions, i.e., laminated behind gypsum board for protection.	C	Lead-lining is only needed on interior of X-Ray wall.
C-2.7.2 Use of modular shielding for operator's booth is permitted.	A	Acceptable
C-2.7.3 All grilles, registers, and diffusers shall be located at ceiling height or in ceiling. Thermostat transmission lines shall be routed to avoid penetration of shielding. Recommend we require all ductwork, grilles, registers, and diffusers to be above and/or flush with the finished architectural ceiling providing a minimum height. The minimum height currently reflected in this paragraph is below the finished ceiling height found in Appendix A (10' vs 9'6") for any radiological room (X????).	A	Provide 9"-6" ceiling height at a minimum. 10'-0" is preferab;le is possible.
C-2.8 **Fire Protection**		
C-2.8.1 Reference Section 12 for all Fire Protection criteria.	A	Acceptable
C-2.8.2 Automatic sprinkler protection sprinkler heads in all Radiographic rooms shall have recessed heads.	A	Acceptable

Appendix D: ADA/ABAAG Interpretations and Waivers

Name of Reviewer: Cherie Claussen Company: HGA
Telephone Number: 414-278-3301
e-mail: cclaussen@hga.com

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
D-1 This appendix provides information on written interpretations which have been issued by the Architectural and Transportation Barriers Compliance Board (ATBCB). Waivers which have been issued by ASD(FM&P) are also provided. Figure D-7 is a waiver that was issued by ASD(FM&P).	A	
D-2 **INTERPRETATIONS**. The following information has been provided by the Architectural and Transportation Barriers Compliance Board and should be referenced in the following occupancies:	A	
Mercantile (try-on and fitting rooms) Health Care (x-ray or exam rooms) Recreational (in association with showers in swimming pools, gymnasiums, etc.) Educational (e.g. - if provided at athletic facilities or home-ec classrooms)		
D-2.1 **Dressing Rooms**. In new construction, where dressing rooms are provided for use by the general public, patients, customers, or employees, all shall be located on an accessible route. In existing construction, where structural impracticability can be demonstrated, one dressing room for each sex on each accessible floor/level shall be made accessible.	A	
D-2.1.1 **Clear Floor Space**. A clear floor space allowing a person using a wheelchair to make a 180-degree turn shall be provided in every dressing room entered through a swinging or sliding door. No door shall swing into any part of the turning space. Turning space shall not be required in a private dressing room entered through a curtained opening at least 32" wide if clear floor space complying with section "Space Allowance and Reach Ranges" renders the dressing room usable by a person using a wheelchair.	A	
D-2.1.2 **Doors**. All doors shall be in compliance with section "Doors".	A	
D-2.1.3 **Bench**. Every dressing room shall have a 24" (min) by 48" (min) bench fixed to the wall along the longer dimension of the bench and not necessarily the room. The bench shall be mounted 17" to 19" above the floor and may be hinged. Clear floor spaces shall be provided alongside the bench to allow a person using a wheelchair to make a parallel transfer onto the bench. The structural strength of the bench and attachments shall comply with section "Structural Strength". Where installed in conjunction with showers, swimming pools, or other wet locations, water shall not accumulate upon the surface of the bench and the bench shall have a slip-resistant surface.	A	
D-2.1.4 **Mirror**. A full-length mirror, measuring at least 18" wide by 54" high, shall be mounted in a position affording a view to a person on the bench as well as to a person in a	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
standing position.		
D-2.1.5 **Rationale**. Both ADA/ABAAG and MGRAD are silent regarding dressing rooms. We have many requests for information & assistance in applying existing standards but none seems to be entirely appropriate. Since usability is a requirement and since many persons using wheelchairs must dress/undress in a semi-recumbent position, the need for a bench is clearly demonstrated. Other requirements are derived from known space and reach dimensions.		

Appendix E: Integration of Building Systems

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UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
E-1 **GENERAL**. This section provides guidance for the use of Integration of Building Systems (IBS) concepts for the design of all medical and medical research facilities. IBS design involves the coordinated design of all elements of a building, integrating the functional, architectural, electrical, energy, fire protection, mechanical, structural, and other features into a unified whole. All design elements are recognized as essential to a successful facility, and are therefore to be treated simultaneously and with equal weight. The objective of IBS design is to achieve a building of optimum functionality, appearance, maintainability and adaptability. Attention must be given to structure, utility systems and equipment with the involvement of all design disciplines from the beginning of design in order to minimize interference with the facility mission and at the same time assure high quality utility services. Inherent in IBS design for medical and medical research facilities is the minimization of maintenance traffic and operations within functional areas through careful consideration of equipment room locations and the routing of utility services. Equally important is the assurance of proper installation, and maintainability, of primary and distribution equipment through careful consideration and coordination of envelope space requirements. Utility system space planning must occur simultaneously with overall site and facility planning. Aesthetic prominence or idealized functional planning without full coordination with structure and all utility systems is not acceptable.	A	
E-2 **POLICY**. The basic IBS design concepts apply to all medical and medical research facilities regardless of size. The more sophisticated IBS Systems Module design concepts, including utility pods and interstitial walk-on decks dedicated to utility distribution, are to be considered only for larger or more complex facilities. Use of the IBS Systems Module design concepts must be approved by TMA-PPMD.	A	
E-3 **BASIC IBS DESIGN CONCEPTS**.		
E-3.1 **Equipment Room Locations**. In planning the locations of mechanical, electrical and communications equipment rooms, designers shall consider such factors as exterior access, the routing path and length of service feeders to the areas served, and the proximity of ventilation air intakes to potential contamination sources. Well distributed equipment rooms minimize problems in design, construction and maintenance. Coordinate all equipment room locations to minimize utility distribution "choke points," particularly in above-ceiling spaces, where multiple systems may cross or converge. Such crossings lead to inadequate space for equipment installation, maintenance and ventilation. Major equipment rooms shall have exterior access with paved surfaces for wheeled	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
transport of equipment. Consider also requirements for horizontal and vertical access to interior, below-grade or upper level equipment rooms including transport of the largest items of equipment that may require replacement.		
E-3.2 **Equipment Room Space Requirements**. The designers shall assure that equipment space requirements are properly coordinated among the different design disciplines thus permitting proper installation while preserving required maintenance clearances. As equipment is normally competitively bid, the designers must assure that space envelope requirements are provided based on worst-case analyses of equipment from a minimum of three manufacturers. Plan and elevation views showing coordinated equipment and space envelopes shall be included in the required design submissions.	A	
E-3.3 **Utility Distribution Considerations**. The length and complexity of utility distribution runs should be reasonably minimized to avoid unnecessarily high flow resistance with resulting additional energy consumption, larger duct and feeder sizes, and loss of future flexibility. When practicable, avoid routing utility feeders through areas they do not serve in order to minimize the impact and complexity of future facility modifications. Service isolation and balancing devices, and terminal equipment, that may require periodic inspection or maintenance should be located above corridors.	A	
E-3.4 **Distribution and Terminal Equipment Space Requirements**. The designers shall assure that distribution and terminal equipment can be installed in the spaces indicated, including above-ceiling spaces, distribution spaces, chases, etc. This requires thorough coordination of all equipment with the architectural and structural features of the building. To assure that installation is possible, the designers shall plan distribution space requirements on the basis of sizing calculations and the worst-case joining, reinforcement and support conditions permitted by the design. The designers are particularly cautioned to carefully consider the vertical space requirements of sloped gravity piping services. The designers must also be aware of, and provide for, code-mandated dedicated space requirements above, and adjacent to, electrical panels and equipment.	A	
E-4 **IBS SYSTEMS MODULE DESIGN CONCEPTS.** IBS Systems Module design concepts, as discussed below, are normally only economically practicable for larger or more complex facilities. Systems Module design locates the majority of utility distribution and terminal equipment on interstitial walk-on decks, thus permitting convenient installation and maintenance. A candidate project for Systems Module design shall be evaluated during initial design by an economic comparison with conventional design. All costs associated with acquisition, operation, maintenance and alteration for a period of 25 years, or the designated life of the proposed building, shall be included in the comparison.	A	
E-4.1 **Systems Module**. The Systems Module, a designated unit of space one story in height, is the basic building block of a Systems Module building, i.e., the building is composed of separately identifiable Systems Modules each consisting of a utility pod, a distribution zone, a connection zone and an occupied zone. Each Systems Module is served by its own utility distribution systems. The relationship of the various zones is illustrated in Figures E-1 and E-2. Systems Modules should range in area from 930 to 2090 m^2 (10,000 to 22,500 ft^2). Although there is a spatial discipline associated	A	

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with the Systems Module, the overall organization and massing of a building can be varied according to specific project requirements. Repetitive Systems Modules will allow both expanded forms to accommodate the need for a day-lighting/solar approach or compact forms to allow a closed approach that attempts to negate the effect of climate. These forms are illustrated in Figure E-3. In multistory buildings the utility pods shall be stacked from floor to floor so that plumbing and electrical risers can be efficiently and economically accommodated.		
E-4.1.1 **Utility Pod**. The utility pod contains air handling unit(s) and associated risers, fans, pumps, etc.; electrical and communications equipment and associated risers; and other main equipment and risers serving the Systems Module. Fresh air and exhaust openings are generally part of the utility pod enclosure. Access to the utility pod is from adjacent stairs. The utility pod is defined by the floor and the underside of the floor or roof structure above.	A	
E-4.1.2 **Distribution Zone**. The distribution zone accommodates the main horizontal utility distribution systems of a Systems Module and provides convenient access to these systems by means of a suspended walk-on deck. Utility distribution systems enter and leave the utility pod through the distribution zone. The distribution zone consists of horizontal layers of space, or sub-zones, individually dedicated to specific utility distribution equipment (pipes, ducts, raceways, conduit, cable trays, etc.). This equipment is run in distribution channels within the sub-zones. Structural suspension members for the walk-on deck should be placed to define the distribution channels. Except for gravity piping services, most systems in the distribution zone down feed to the connection zone below. Access aisles are provided on the walk-on deck for maintenance access to equipment and at the perimeter of the walk-on deck. These shall provide sufficient clearance, exclusive of major structural members, for a worker to stand. Access aisles should have clearly marked dust-free walking surfaces. Any fireproofing of structural members crossing the access aisles should be covered or otherwise protected. Access to the distribution zone shall be from adjacent stairs and also, in multistory buildings, from key-operated service elevators designed to stop at the walk-on deck levels. No access to the distribution zone shall be permitted through access panels from the connection zone. The distribution zone is defined by the walk-on deck and the underside of the floor or roof structure above.	A	
E-4.1.3 **Connection Zone**. The connection zone is the layer of space between the underside of the walk-on deck of the distribution zone and the architectural ceiling of the occupied zone below. The connection zone accommodates the horizontal distribution of utilities to individual rooms. It shall be deep enough to accommodate recessed lighting fixtures and air diffusers and their supports. Access to the connection zone shall be from the occupied zone usually through the architectural ceiling.	A	
E-4.1.4 **Occupied Zone**. The occupied zone is the zone of functional activity in a Systems Module. The occupied zone is defined by the floor and the architectural ceiling above.	A	
E-4.2 **Systems Module General Considerations**.		
E-4.2.1 **Design Exceptions**. Certain spaces within a building may not lend themselves practicably or economically to the use of walk-on decks. Examples are sloped floor areas; high ceiling rooms such as operating rooms, auditoriums, warehouses and atriums; and MRI suites where equipment weight or unusual structural requirements may be applicable. These exceptions should be established early in the design process so that the IBS Systems Module design concepts can be modified for such spaces.	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
E-4.2.2 **Building Expansion**. The Government shall inform the designers at the beginning of the design process of any vertical or horizontal building expansion requirements, and to what extent planning, structure and utility systems must provide for these requirements. Placement of utility pods should not encumber building expansion.	A	
E-4.2.3 **Existing Buildings**. When a Systems Module building is to be connected to an existing conventional building, design concerns may arise. Existing floor-to-floor heights are typically less than the heights required for Systems Module construction. Therefore, it will be necessary to determine which new floors should align with existing floors. Continuity with existing buildings should not be hastily assumed to preclude application of the IBS Systems Module design concepts.	A	
E-4.2.4 **System and Equipment Capacity Increases**. The designers should recommend which utility systems should be oversized to accommodate future change. Air handling units in utility pods and ducts in distribution zones may be designed to have their capacities increased for future demand growth. Other distribution systems may also be designed to accommodate a degree of capacity increase. During initial design, the Government and the designers shall jointly determine the extent of system and equipment capacity increases required.	A	
E-4.2.5 **Distribution Zone Accessibility**. The available vertical space clearances within the distribution zone shall be sufficient to permit the organization of the utility distribution systems for easy accessibility. It may not be practicable to arrange the distribution zone for complete accessibility to every component. However, it is important to examine the various accessibility requirements in order to best locate access aisles for primary accessibility to all main systems, feeders, connections and maintainable equipment.	A	
E-4.3 **Systems Module Mechanical and Plumbing Considerations.**		
E-4.3.1 **Riser Locations**. Risers and vertical circulation elements, not located in the utility pods, shall be located at the boundaries of the Systems Modules adjacent to permanent structural elements, stairs or elevators.	A	
E-4.3.2 **Valves**. Control valves, except those required to be in the occupied zone such as medical gas control valves, should be located in the utility pod to permit centralized control. Shutoff valves located in the distribution zone should be tagged and identified on a valve list that shows their distribution zone locations and the areas or equipment served in the occupied zone.	A	
E-4.3.3 **Systems Expandability**. Prime moving equipment, i.e., pumps, fans, etc., shall be selected with conservative judgment and the distribution systems sized for expansion capability. In general, air handling units and pumps should be selected for operation at the midpoint of their operating characteristic curves. Ducts and piping should be sized to permit future flow increases. Stubs, valves and caps shall be provided in plumbing risers and in horizontal branch terminations for future service extensions.	A	
E-4.3.4 **Air Handling System Selection**. System selection shall be based on functional needs, life cycle cost analyses, energy efficiency and ease of maintenance and repair. To enhance maintainability, it is normally desirable to “standardize” the size of air handling units when practicable from a performance standpoint. For example, several air handling units of the same unit size and	A	

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motor horsepower, i.e., a modular design, will allow economy in the stocking of spare parts. "Off-the-shelf" packaged air handling units should be selected in lieu of custom manufactured units to assure parts availability and ease of future modification.		
E-4.3.5 **Ventilation of Distribution Zone**. Under normal conditions, the distribution zone will not require fresh air ventilation. However, if so determined by the designers, ventilation may be required for moisture or temperature control in distribution zones exposed to roofs. A means of purging the distribution zone of smoke and other products of combustion shall be provided.	A	
E-4.3.6 **Gravity Systems**. The vertical depth requirement of sloped gravity piping services should be checked to determine if such piping will drop into the next lower distribution sub-zone or if an intermediate riser should be provided.	A	
E-4.4 **Systems Module Electrical and Communications Considerations**.		
E-4.4.1 **Distribution Systems**. Distribution system routing (horizontal and vertical), and the quantity and location of unit substations, shall be based on the size of the facility, life cycle cost analyses, overall flexibility, and long-term system reliability. The benefits of underground utility service distribution to the utility pods should be compared with service distribution through the distribution zones considering flexibility, reliability and safety.	A	
E-4.4.2 **Electrical and Communications Room Locations**. Electrical and communications rooms shall be located in the utility pods and should be stacked vertically from floor to floor. Provisions should be made for easily running vertical cabling from floor to floor, i.e., conduit risers with pull boxes at each distribution zone. Cabling and wiring shall be sized for allowable voltage drop at full design load. For very long Systems Modules, the need for additional electrical and communications rooms, located at opposite ends of the Systems Modules from the utility pods, should be evaluated for maintenance of acceptable voltage drops, reasonable lengths of secondary cable runs, and numbers of devices per circuit. These additional rooms shall be located in the occupied zones adjacent to permanent structural elements, stairs or elevators and should also be stacked vertically from floor to floor.	A	
E-4.4.3 **Capacities for Flexibility**. Capacities of major electrical components such as main distribution panels and transformers shall be based on the areas served, rather than specific use, to allow for flexibility. Communications systems shall be designed in a similar manner.	A	
E-4.4.4 **Electrical Secondary Distribution**. Branch circuiting should be routed through the distribution zone to allow for modification with minimal disruption of the occupied zone. Cable trays shall be used to distribute electrical systems wiring. Ground continuity shall be provided throughout the cable tray system. Cable trays shall be designed using conservative judgment and space shall be dedicated in the distribution channels assigned to electrical services for future cable trays. See Section 12: Fire Protection for plenum rated cable requirements.	A	
E-4.4.5 **Communications Systems Distribution**. Cable trays shall be used to distribute communications systems wiring. Ground continuity shall be provided throughout the cable tray system. Cable trays shall be designed using conservative judgment and space shall be dedicated in the distribution channels assigned to communications services for future cable trays. See Section 12: Fire Protection for plenum rated cable requirements.	A	
E-4.4.6 **Identification**. Coded identification of electrical conduit runs by voltage and function shall be provided. Circuit identification for electrical wiring and system identification for communications wiring shall also be provided.	A	

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E-4.4.7 **Lighting**. Fifty lux (five foot-candles) of lighting shall be provided throughout the distribution zone. One hundred fifty lux (fifteen foot-candles) shall be provided over access aisles, using damage-resistant lighting fixtures. Egress lighting and exit signs shall also be provided over access aisles and at distribution zone exits. Switches shall be provided at each distribution zone entry and exit. Providing all switches with timers to turn off distribution zone lighting after a certain time interval should be considered.	A	
E-4.4.8 **Power**. A pattern of electrical outlets shall be provided in the distribution zone for portable tools and extension cords.	A	
E-4.4.9 **Telephones**. A pattern of telephone outlets shall be provided in the distribution zone for portable telephones. Telephone outlets located adjacent to maintainable equipment should be considered.	A	
E-4.5 **SYSTEMS MODULE FIRE PROTECTION REQUIREMENTS**. Refer to Section 12: Fire Protection for fire protection requirements.	A	
E-4.6 **SYSTEMS MODULE CONSTRUCTION TIME AND COST CONSIDERATIONS**.		
E-4.6.1 **Construction Time**. Construction time for a Systems Module building can be less than for a conventional building. With a walk-on deck, trades can work concurrently in the occupied zone and the distribution zone rather than in sequence as in a conventional building. The majority of the work in the distribution zone can be performed in a comfortable standing position on the walk-on deck instead of from a ladder as in a conventional building. Repetition by modular design and standardization of equipment can also reduce construction time.	A	
E-4.6.2 **Construction Cost**. The initial construction cost for a Systems Module building can be greater than for a conventional building due to the interstitial walk-on decks and increased building height.	A	
E-4.6.3 **Maintenance Cost**. The maintenance cost for a Systems Module building can be lower than for a conventional building when accessibility to utility systems in the distribution zone is assured by observance of the IBS Systems Module design concepts presented in this section. Equipment is more easily accessed and workers are provided with convenient power, communications and lighting to facilitate maintenance tasks. However, there will be some added maintenance cost for the distribution zone, i.e., lighting, walk-on deck and access aisle repair, fireproofing repair or replacement, etc.	A	
E-4.6.4 **Flexibility for Modification and Alteration**. Most medical and medical research facilities undergo frequent and significant modification and alteration during their lifetimes. In a conventional building, such changes normally result in extensive utility disruption for other areas due to the need to upgrade or modify systems. Typically, a Systems Module building modification requires only changes to distribution zone utility systems and equipment serving the portion of the occupied zone undergoing change, resulting in a simplified work effort and less disruption to the ongoing building function. Systems Module buildings inherently provide capacity for future expansion, load growth and modification, often without requiring costly primary and distribution equipment upgrades.	A	
E-4.7 **Systems Module Documentation and Construction Considerations**.		
E-4.7.1 **Construction Documentation**. Drawings for Systems Module buildings shall include plans and sections delineating utility distribution channels in each distribution zone sub-zone. Drawings shall be coordinated with all disciplines. Interdisciplinary cross-sections at critical locations,	A	

UFC Section/Paragraph Number	Comment	Comment Rationale (details on code variations & redundancies, best practices, cost impacts etc.)
i.e., above operating rooms, equipment rooms, corridors, etc., shall be provided. Requirements for coordination of all disciplines prior to construction shall be included in all pertinent specification sections.		
E-4.7.2 **Pre-Bid Conferences**. To ensure that construction contractors take the IBS Systems Module design concepts into account when preparing bids, presentations of these concepts are recommended for pre-bid conferences conducted by the Government.	A	
E-4.7.3 **Pre-Construction Consideration**. For a Systems Module construction project, a sample distribution zone, at least 93 m^2 (1000 ft^2) in area, should be constructed at the project site. The sample should include a complete walk-on deck assembly with suspension members. The sample should also include elements of the utility systems within the distribution zone. Construction of the sample should be sufficiently in advance of building construction to allow time for necessary testing and approval. Various construction details can also be addressed and finalized with this sample, i.e., temporary protection of the walk-on deck during construction, proper support and sealing of ducts and fire dampers at walk-on deck penetrations, and permanent fire sealing of the walk-on deck to abutting walls and other permanent structural elements.	A	

Attachment A: Private Sector Healthcare System Design Guidance.

(See the following partial example of a private sector healthcare system's design guidance)

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End of UFC Review Report