

FACILITY PLANNING CONSIDERATIONS

*NOTE: The paragraph numbers in this document correspond to references included in various Facility Requirements Standards.

1.6. Facility Planning Considerations. The following is a partial list of considerations for facility planning as they impact space requirements, and ultimately cost. For more information on facility planning, refer to the Air Force Planner's Handbook.

1.6.1. **Design Quality.** The Air Force is committed to excellence in the design and development of its sites and buildings. For the Air Force, this means an integrated approach that achieves the highest quality of aesthetics in meeting the requirements of the building's users and accomplishing the mission, while at the same time delivering a building that is cost effective to maintain throughout its useful life.

1.6.2. **Flexibility, Adaptability, and Expansion.** Air Force buildings undergo many changes during their lifetime. As missions change and priorities change, Air Force departments are created, expanded, and abolished. As a consequence, requirements for space and services change frequently and space is reconfigured often. The flexibility to accommodate continual change needs to be built in to the building design from the outset and respected in subsequent alterations.

1.6.3. **Sustainability and Energy Performance.** Refer to **paragraph 1.8** of this chapter for environmental policies and practices, **paragraph 1.9** for site planning considerations, and **paragraph 1.10** for installation planning considerations.

1.6.4. **Operations and Maintenance.** Systems and materials should be selected on the basis of long-term operations and maintenance costs, as those costs tend to be significantly higher over time than first costs. The design of the facility operating systems should ensure ease and efficiency of operation and allow for cost effective maintenance and repair during the facility's useful life.

1.6.5. **Life-Cycle Costing (LCC).** LCC is an important economic analysis used in the selection of alternatives that impact both pending and future costs. It compares initial investment options and identifies the least costly alternatives over a twenty year period. LCC is mandated by law and is defined in 10 CFR, Part 437, *Federal Energy Management and Planning Programs*. The Air Force OPR for LCC is the Air Force Civil Engineer Support Agency (AFCESA).

1.6.6. **Historic Buildings.** To the extent feasible, the Air Force seeks to achieve the rehabilitation of historic structures through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values. The Air Force OPR for Historical Buildings is the Air Force Civil Engineer Center (AFCEC), Environmental Directorate, Technical Support Division (AFCEC/CZT).

1.6.7. **Accessibility.** Persons with disabilities are entitled to use many facilities on military installations. It is DoD and Air Force policy to make buildings accessible to persons with disabilities unless the building is to be used only by able-bodied military personnel. Accessibility guidance has been clarified in an OSD policy letter dated October 31, 2008

adopting the Architectural Barriers Act of 1968, with amendments, as it applies to DoD facilities. The Air Force OPR for accessibility is AFCEC/CFT. A copy of the policy letter can be obtained through the AFCEC/CFT office or on their website at www.AFCEC.af.mil.

1.6.8. Telecommunications Infrastructure. A total integration of all building systems provides for current operations as well as for future changes. A technology infrastructure should be planned in each building to accommodate power systems including normal; emergency and uninterrupted power; mechanical systems and controls; fire detection and suppression systems; security systems; video and television systems; communications systems, including voice and data; lighting controls; plumbing services; and special utility services, such as gas or exhaust systems. The intent is not to provide infinite amounts of space for these systems, but to recognize their dimensional characteristics and the ability to service system components. Ensure the infrastructure provides adequate spare capacity and integrates the utility entrance facilities, equipment rooms, backbone pathways, horizontal distribution pathways, and workstation outlets for each system. In part, floor-to-floor heights are determined by the depth of space required for the technology infrastructure, including structural, mechanical, electrical, and communications systems. Size telecommunications closets per Telecommunications Industry Association/Electronics Industries Alliance (TIA/EIA) 569-A-5, *Commercial Building Standards for Telecommunications Pathways and Spaces*, Table 7.2-1. Also see UFC 3-580-01, *Telecommunications Building Cabling Systems Planning and Design*.

1.6.9. Security/Facility Hardening/Antiterrorism/Force Protection. Designing and constructing safe and secure cost effective buildings has always been one of the Air Force's primary goals. Each building system and element should support risk mitigation and reduce casualties, property damage, and the loss of critical functions. Designs should include the ability to increase security in response to a heightened threat, as well as reduce security if changes in risk warrant it. Space for facilities requiring additional hardening and antiterrorism measures are captured in the Net-to-Gross multiplier. Consult UFC 3-340-01, *Design and Analysis of Hardened Structures to Conventional Weapons Effects* for facility hardening space requirements, and UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings* and UFC 4-010-02, *DoD Minimum Standoff Distances for Buildings* for antiterrorism space requirements.

1.6.10. Fire Protection Space. Space for fire protection is captured in the Net-to-Gross multiplier. Ensure complete automatic sprinkler protection is provided in all new and renovated DOD facilities. Additionally, ensure all new and renovated facilities comply with the requirements of the National Fire Protection Association (NFPA) 101, *Life Safety Code*. See UFC 3-600-01, *Fire Protection Engineering for Facilities*.

1.7. National Codes and Standards. The Air Force requires that each building constructed or altered by the Air Force shall, to the maximum extent feasible, be in compliance with nationally recognized model building codes and with other state and local codes. The technical requirements of these nationally recognized codes supplement other Air Force requirements mandated by federal laws and executive orders, as well as other criteria noted within this document that has been established to meet mission needs and their unique requirements. Refer to UFC 1-200-01, *General Building Requirements*.

1.8. Environmental and Sustainability Policies and Practices. The Air Force is committed to incorporating sustainable principles into all of its construction activity. Sustainable design and development seeks to plan, site, program, design, construct, operate, maintain, deconstruct, and remove facilities in ways that minimize the resources they consume (including energy and water); minimize the waste they generate; and maximize the benefit they provide. It is an integrated, synergistic approach, in which all phases of the facility lifecycle are considered. The result is an optimal balance of cost, environmental, societal, and human benefits while meeting the mission and function of the intended facility or infrastructure.

1.8.1. Sustainability Requirements. Sustainable Design and Development shall be incorporated into all Air Force design and construction projects. Projects shall adhere to the most current UFCs and policy; specifically, UFC 1-200-02, High Performance and Sustainable Building Requirements; UFC 3-210-10, Low Impact Development; and the most current DoD policy and AF Sustainable Design and Development (SDD) implementing guidance. AF SDD implementing guidance, including mandatory third party certification and mandatory Federal compliance tracking and reporting is maintained by AFCEC at http://www.wbdg.org/ccb/browse_cat.php?c=265.

1.8.5. Compliance with the National Environmental Compliance with the National Environmental Protection Agency (NEPA). NEPA is a prime driver in the Air Force planning process and is formalized in the Environmental Impact Analysis Process (EIAP). NEPA requires federal agencies to address environmental values in their decision-making processes by considering the environmental impacts of their proposed actions and weighing reasonable alternatives to those actions. To comply with this requirement, the Air Force must prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS) for projects that may have significant effects on the environment. Responsibilities are outlined in AFI 32-1024, para. 2.4.

1.8.6. Exceptions. The application of some United States (US) or Continental United States (CONUS) environmental policies is not applicable in all situations. In such instances, consult the Overseas Environmental Baseline Guidance Document and Final Governing Standards (OEBGD/FGS) for guidance in overseas locations not covered by US or CONUS environmental policies.

1.9. Site Planning Considerations.

1.9.5. Site Analysis. Accomplish a complete site survey for all new construction projects and for alterations that involve work outside the existing building lines.

1.9.5.1. All construction projects on air bases refer to UFC 3-260-01, *Airfield and Heliport Planning and Design*, and Title 14 CFR Part 77, *Objects affecting the Navigable Airspace*, to determine design requirements, height limitations, and permit/approval requirements. Use UFC 3-260-1 for describing and projecting potential violations of imaginary surfaces.

1.9.5.2. To address aircraft safety (BASH, visual obscurants and noise issues related to land development around airfields), the Air Force developed the AICUZ program. The purpose of the AICUZ program is to promote land use and development patterns, both on and off base, that are compatible with airfield operations. Refer to AFI 32-7063, *Air Installation Compatible Use Zone Program*; AFH 32-7084, *AICUZ Program Manager's Guide*; Title 14 CFR Part 77, *Objects Affecting the Navigable Airspace*; and AFPAM 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Techniques*.

1.9.6. Existing site Features and Vegetation. Existing natural features on the site should generally be preserved and used as a starting point for the overall site design. Efforts should

be made to preserve existing vegetation, particularly healthy trees and plant specimens. The Air Force promotes the protection and integration of existing vegetation and natural terrain into site design. See UFC 3-201-02, *Landscape Architecture*.

1.9.7. **Optimize Energy Use.** Current executive orders as well as the *Energy Policy Act of 2005* (EPA Act 2005) and the *Energy Independence and Security Act of 2007* (EISA2007) require agencies to install cost-effective energy conservation measures in their facilities. The key strategies are conserving energy, encouraging the use of non-grid source energy, and protecting the atmosphere.

1.9.8. **Energy Conservation.** The use of site design to aid energy conservation and sustainability is encouraged. Solar orientation of the building and well-placed plant material can be used to increase heat gain in the winter and reduce heat gain during the summer.

1.9.9. **Sustainable Site Planning.** The Air Force promotes practices that are environmentally beneficial and conserve resources. Design and construction strategies should reduce stormwater runoff and polluted site water runoff. To the maximum extent feasible, ensure all Air Force MILCON projects incorporate the features of Low Impact Development (LID). Refer to UFC 3-210-10, *Low Impact Development*.

1.9.10. **Utilities.** Consideration should be given to the size and placement of major utilities that may be inside, attached to, or near (on-site) any Air Force MILCON projects.

1.9.11. **Site Security.** Air Force facilities should be safe and secure, yet still be accessible, welcoming, and effective workplaces. Customize security countermeasures in each case, based on established principles, criteria, risk analysis, and site conditions. Refer to UFC 4-010-01.

1.9.12. **Site Circulation.** Site circulation design for Air Force projects varies greatly depending on the context, which can range from tight urban sites to suburban campuses or isolated rural settings. However, the basic criteria remain the same in all situations: Site design should consider pedestrian access, vehicular access (including parking), fire apparatus access, and service vehicle access. See also UFC 3-210-02, *POV Site Circulation and Parking*.

1.10. Installation Planning Considerations. Integration of the facility into the base general plan should be accomplished and may have an impact on supporting utilities or other cost factors of the facility. Refer to AFI 32-7062, *Air Force Comprehensive Planning*, AFPAM 32-1010, *Land Use Planning*, Area Development Planning Bulletin, and the Planners Handbook for additional guidance.