Joint Base Langley Eustis
JBLE Langley IFS
31 Jan 2019

JOINT BASE LANGLEY-EUSTIS INSTALLATION FACILITIES STANDARDS (IFS) VOL. 1: JBLE LANGLEY


Installation Elements


Site Development


Facilities Exteriors


Facilities Interiors

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AIR FORCE INSTALLATION FACILITIES STANDARDS

2018

JBLE Langley IFS

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A. OVERVIEW

Comply with Air Force Corporate Standards for Overview:
http://afcfs.wbdg.org/index.html

This Installation Facilities Standards (IFS) document is part of the Air Force Corporate Facilities Standards (AFCFS) program to assist bases in implementing and maintaining facilities standards as appropriate for efficient operations within the respective climate region. IFS fully replaces, consolidates and simplifies existing facilities standards documents, such as the Architectural Compatibility Plan (ACP) or ACGs, FEPs, etc., and organizes information using the same structure, or Table of Contents, as the AFCFS website.

IFS reflects the AFCFS' concepts of "Facility Hierarchy" (categorizing facilities into group numbers) and "Facility Quality" (assigning an appropriate level of quality to each group number) and applies these principles at the base level. Applicable DoD and Air Force criteria such as UFCs, AFIs, Memoranda, and UFGSs (Guide Specs) are referenced and linked within IFS to ensure the document is always current.

Navigating within this IFS is efficient and straightforward. Please use the interactive Table of Contents to locate subject matter, and click on the title of a section to access it. From any page, click on the "Back to Table of Contents" footer to return. Content is organized into 4 major sections: Installation Elements, Site Development, Facilities Exteriors and Facilities Interiors.

This IFS document begins as a fill-in PDF form, which is fully editable, and becomes a "living document" that can be regularly updated by base-level personnel following a format that is consistent across the Air Force. While the format is standardized, IFS content is customized for base operations and the local climate to ensure mission success while emphasizing reduced maintenance and reduced initial costs, life-cycle costs, energy use, and water use.

1. Conformance to Air Force Corporate Facilities Standards (AFCFS) and Installation Facilities Standards (IFS) are required by Air Force Instruction (AFI) 32-1023 and Air Force Memorandum. Please refer to the AFCFS website for links to documentation on current policy.

2. The IFS is a component plan of the Installation Development Plan (IDP) per Air Force Instruction (AFI) 32-7062 (replacing the Architectural Compatibility Plan). All military construction projects and Non-Appropriated Funds (NAF) facilities are required to comply with the IDP and its IFS component plan by AFI 32-1023. The Base Civil Engineer (BCE) maintains and implements the IDP and its component plans, to include the IFS.

3. Please refer to the AFCFS website as a portal to reference materials and requirements documents for design and construction projects (via links). Specific references to current DoD memoranda and Air Force criteria are updated periodically to provide the most current guidance and requirements. Programming, design and contract documents should list "current edition" for all reference and requirements documents. The documents in force at the date of execution of the design and/or construction contract shall be the governing version.

4. *Advanced Modeling Requirements:*
   For all Air Force projects requiring advanced modeling, to include 3D visualization, Building Information Modeling (BIM), facility data, quantity take-off, geospatial, etc., follow the Army standards. Refer to USACE Minimum Model Matrix (M3) and Project Execution Plan (PxP) which outline required model uses. Refer to CAD BIM Technology Center (Contract Requirements) for more information on M3 and PxP.

5. Joint Bases shall implement IFS under their Joint-Base designation with volume numbers for individual installations following the IFS Development Tool template. For example, for Joint Base Langley-Eustis, provide: Vol. 1 Langley AFB and Vol. 2 Fort Eustis.

A.01. FACILITY HIERARCHY

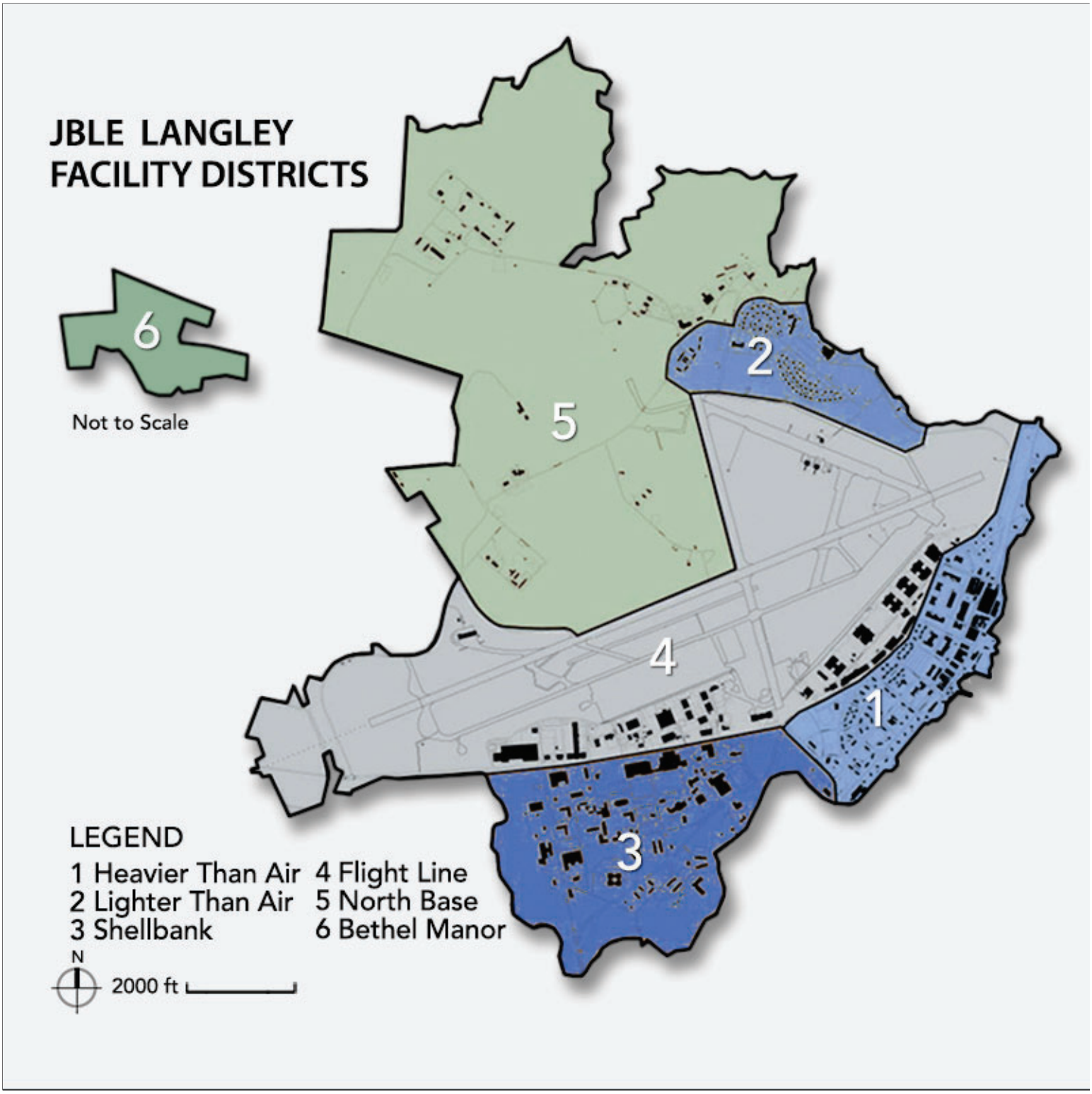
Comply with AF Corporate Standards for Facility Hierarchy (and subsections):
http://afcfs.wbdg.org/facility-hierarchy/index.html

A.02. FACILITY QUALITY

Comply with AF Corporate Standards for Facility Quality (and subsections):
http://afcfs.wbdg.org/facility-quality/index.html

A.03. FACILITY DISTRICTS

Comply with AF Corporate Standards for Facility Districts (and subsections):
http://afcfs.wbdg.org/facility-districts/index.html



Note: *Apply the base-wide standards in this IFS for Installation Elements, Site Development, Facilities Exteriors and Facilities Interiors (products, materials, color, etc.). Following application of the base-wide standards, refer to the Appendix and apply any additional requirements specifically related to the Facility District.*

B. INSTALLATION ELEMENTS

Comply with Air Force Corporate Standards for Installation Elements:
http://afcfs.wbdg.org/installation-elements/index.html

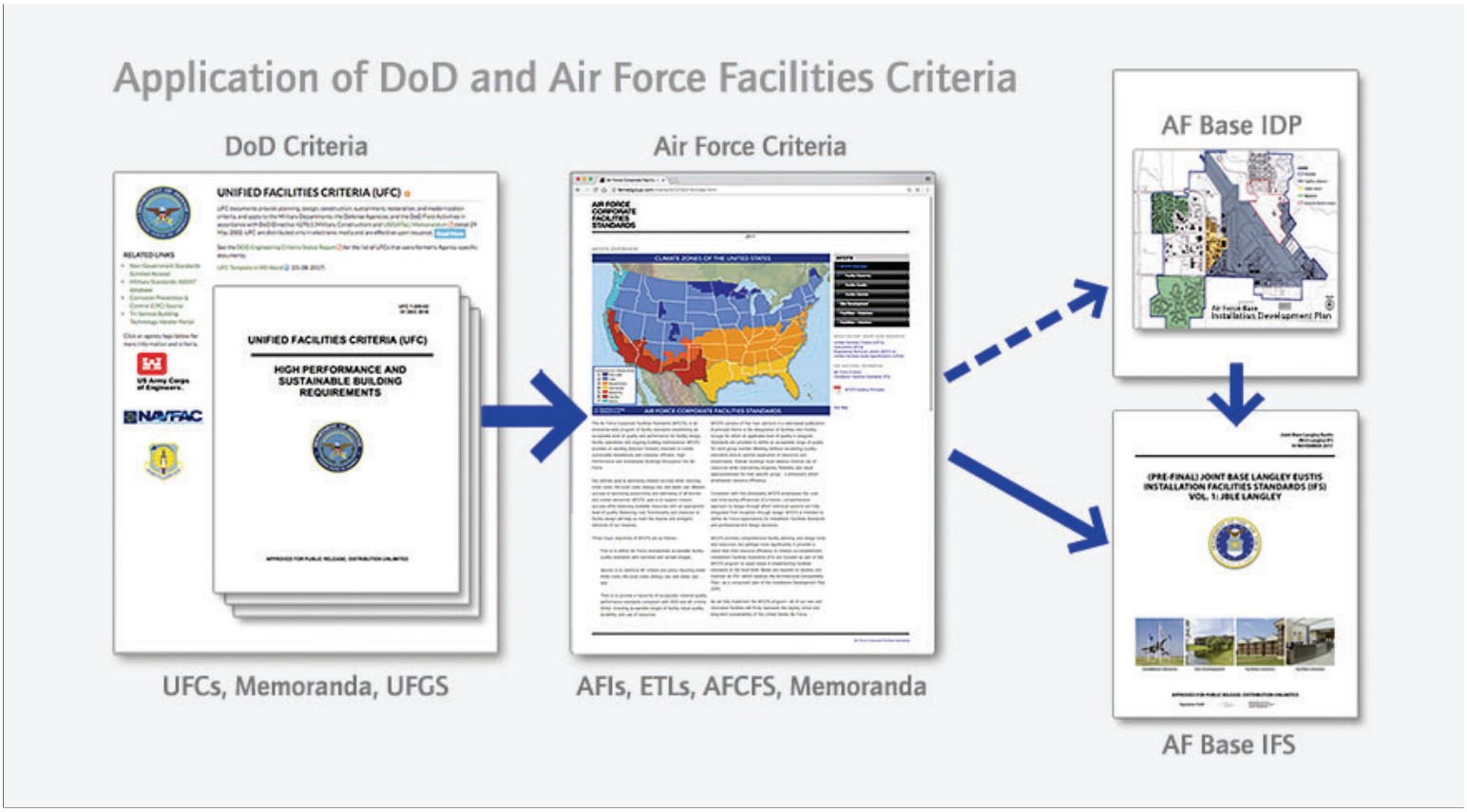
B.01. COMPREHENSIVE PLANNING

Comply with Air Force Corporate Standards for Comprehensive Planning:
http://afcfs.wbdg.org/installation-elements/comprehensive-planning/index.html

B01.1. Installation Development Plan (IDP)

◉ Applicable ○ N/A Large graphics

○ Applicable ◉ N/A Small graphics



Department of Defense, Department of the Air Force and Air Force Base Criteria

1. The Base Civil Engineer is responsible for developing, maintaining and implementing the installation's Comprehensive Planning documents and to ensure that the Installation Development Plan (IDP) is prepared, maintained, and implemented following AFI 32-7062.

B01.1.1. IFS Component Plan of IDP

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Maintain this Installation Facilities Standards (IFS) as a Component Plan of the base's Installation Development Plan (IDP).

B01.1.2. Brief History of Base

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Langley Field in 1930

Langley Field in 1939

Langley AFB in 2005

JBLE Langley (formerly Langley AFB) is the oldest continuously active air installation in the United States Air Force. Established as an experimental air station in 1916, Langley's rich history parallels the history of manned flight in this country. In 1915, the National Advisory Committee for Aeronautics (NACA) was established for the purpose of continuing aeronautical research and experimentation. The decision was made in early 1916 to develop a joint research facility for NACA, the Aviation Section of the Army Signal Corps and the Navy. Most of the land that was to become Langley AFB was purchased by the government in 1916 for an Aeronautical Experimental Station and Proving Grounds. Consisting of six plantations, the land purchased for the experimental station was named Langley Field, in honor of Samuel Pierpont Langley, a pioneer in American aviation. Construction began in 1917. Operations began that same year.

The United States' entry into World War I resulted in changing Langley Field's original mission from a large experimental station to a fully operational flying field, with NACA as a tenant.

Early activities at Langley included the testing of foreign aircraft, bombardment and tactical training, and aerial photography training. Langley's association with lighter-than-air aviation began in 1918 with the arrival of a balloon detachment, and was followed by construction of an airship station in 1919. Several small non-rigid airships were acquired, as well as larger rigid and semi-rigid airships. Langley's association with lighter-than-air vehicles ended in 1935 with the departure of the only remaining airship.

Greater recognition of the Air Corps' basic mission led to reorganization in the 1930s. This resulted in the establishment of the General Headquarters Air Force, with headquarters at Langley Field. While this was not the separate Air Force sought by airmen, it was the first step toward the creation of an autonomous air arm within the Army. Langley rapidly became the U.S. Army's center of tactical aviation.

Entry into World War II led to the rapid expansion of personnel and aircraft stationed at Langley Field. The Shellbank Plantation, consisting of 770 acres, was purchased in 1941 to alleviate crowded conditions at Langley. Langley became headquarters of the 1st Bomber Command. The Tactical Air Command of the Army Air Force established headquarters at Langley in 1946. In 1948, Langley Field was redesignated Langley AFB, after creation of the Department of the Air Force in 1947.

In 1958 NACA became the National Aeronautics and Space Administration (NASA) and the first seven astronauts trained in part at Langley. Langley continues its role in research and development to the present.

Langley AFB continued to be a leader in U.S. air power as the home of the 1st Fighter Wing and its designation as the Headquarters Air Combat Command in June, 1992. This was the result of the merger of the Strategic Air Command and the Tactical Air Command.

The 2005 Base Realignment, Allocation and Closure (BRAC) Act resulted in the realignment of Langley Air Force Base and Fort Eustis, consolidating the adjoining bases of different services. Referred to as joint basing, Langley Air Force Base and Fort Eustis were consolidated under the responsibility of the Air Force 633rd Air Base Wing as Joint Base Langely-Eustis in 2010.

B01.1.3. Future Development

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Langley's Hurricane-prone Shoreline

Flooding during Hurricane Isabel

1. Follow AFI 32-7062 for Air Force Comprehensive Planning, the Comprehensive Planning Process, Comprehensive Planning Requirements, and Geospatial Mapping.

2. Address all future development under the Installation Development Plan (IDP).

B02. STREET ENVELOPE STANDARDS

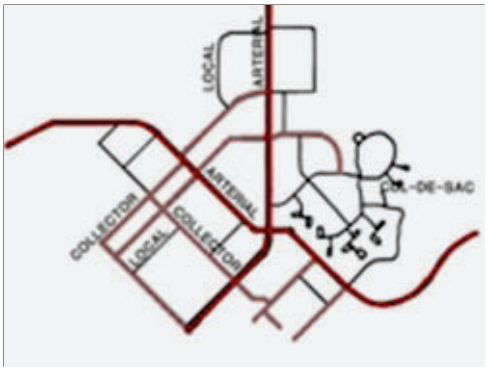
Comply with Air Force Corporate Standards for Installation Elements:
http://afcfs.wbdg.org/installation-elements/index.html

Comply with AF Corporate Standards for Street Envelope Standards:
http://afcfs.wbdg.org/installation-elements/street-envelope-standards/index.html

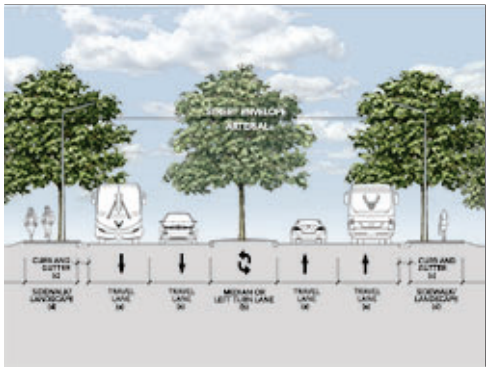
B02.1. Hierarchy of Streets

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics



Hierarchy of Streets



Street Envelope Section

Arterial Street

1. Develop and evolve a hierarchical transportation network of arterial, collector and local streets following UFC 3-201-01 and its industry references.

2. Provide consistent functionality throughout the installation and a level of visual quality relating to the adjacent Facility Group number.

3. Routes along facilities in Group 1 may have materials, finishes and features with a higher visual quality than Groups 2, 3 and 4. Reduce maintenance requirements by installing highly durable materials and finishes in routes along Group 3 industrial facilities.

4. Special routes may have a visual quality comparable to those along facilities in Group 1.

5. Create and maintain arterials with two lanes of traffic in each direction with landscaped or paved medians as applicable to the local climate and adjacent facility group designation / land use.

6. Minimize stops and turns along arterials. Eliminate on-street parking along arterials and collector streets.

7. Connect arterials to local streets with appropriately scaled collector streets.

8. Provide appropriate landscape setbacks and pedestrian buffers along all streets.

9. Minimize and consolidate curb cuts along streets.

10. Ensure access for emergency and service vehicles.

11. Define bicycle traffic routes in the Installation Development Plan and/or its applicable component plans.

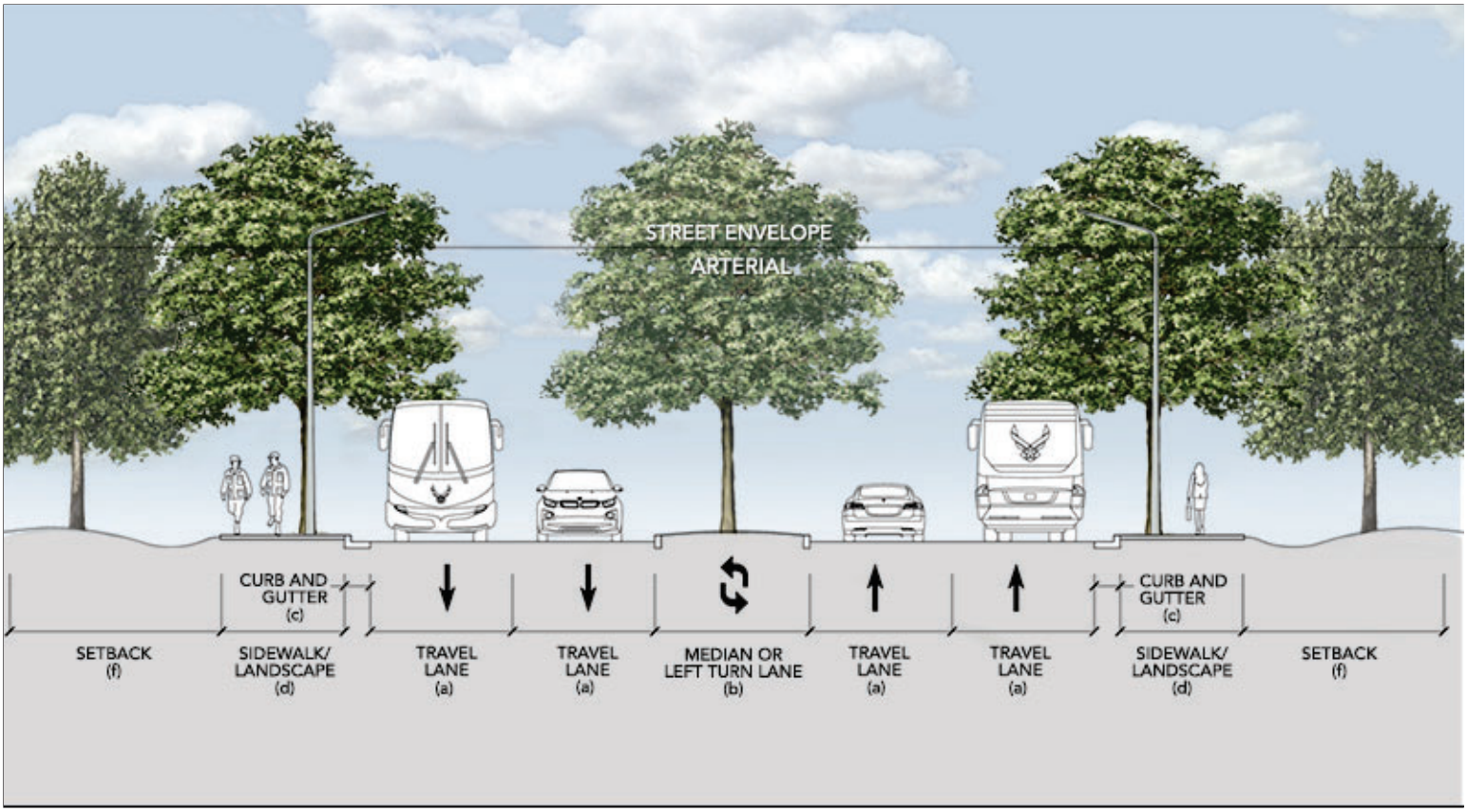
12. Provide illustrations in the Installation Facilities Standards (IFS) to include street cross-sections and plans for every type of street specified on the installation. At a minimum provide dimensions for vehicular traffic-lanes, curb radii, medians, bike lanes, pedestrian buffers, sidewalks, crosswalks, tree planting areas, and on-street parking configurations.

13. Define appropriate force protection features, site furnishings, signs, lighting, utilities, and paving in the IFS in accordance with UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings 12 Dec 2018.

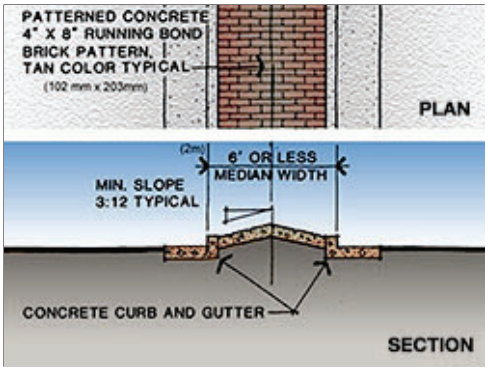
B02.1.1. Arterial Streets

◉ Applicable ○ N/A Large graphics

◉ Applicable ○ N/A Small graphics



Travel Lane (a): 12′ Median (b): 12′ Curb and Gutter (c): 2′ Sidewalk / Landscape (d): 12′) Setback (f): Min. 35' or per ATFP



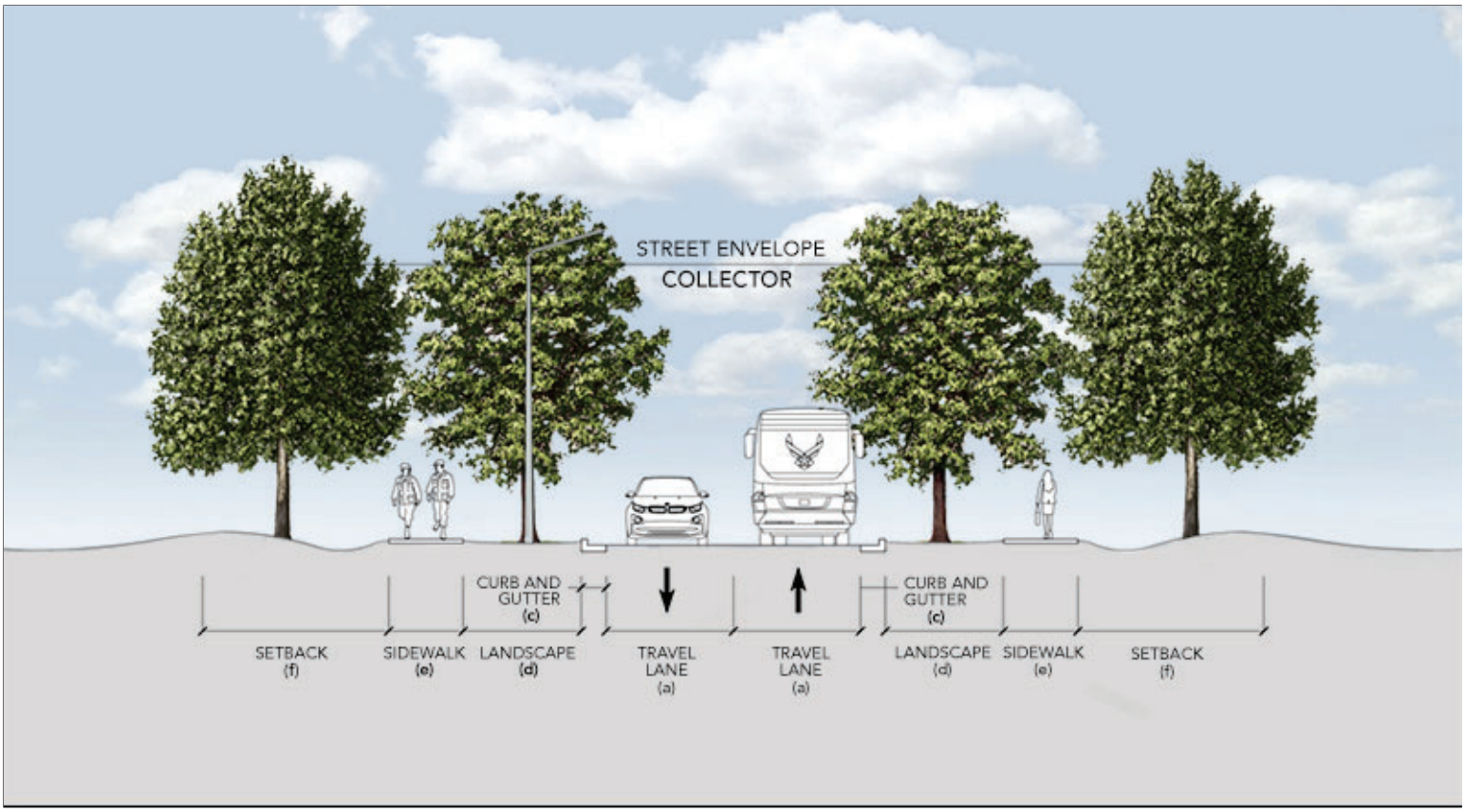
Paved Median

1. Bike Lanes will be installed where feasible with reconstruction projects but are standard with new road construction. Bike lanes shall be a minimum of 4' in width excluding gutter pan.

B02.1.2. Collector Streets

◉ Applicable ○ N/A Large graphics

○ Applicable ◉ N/A Small graphics



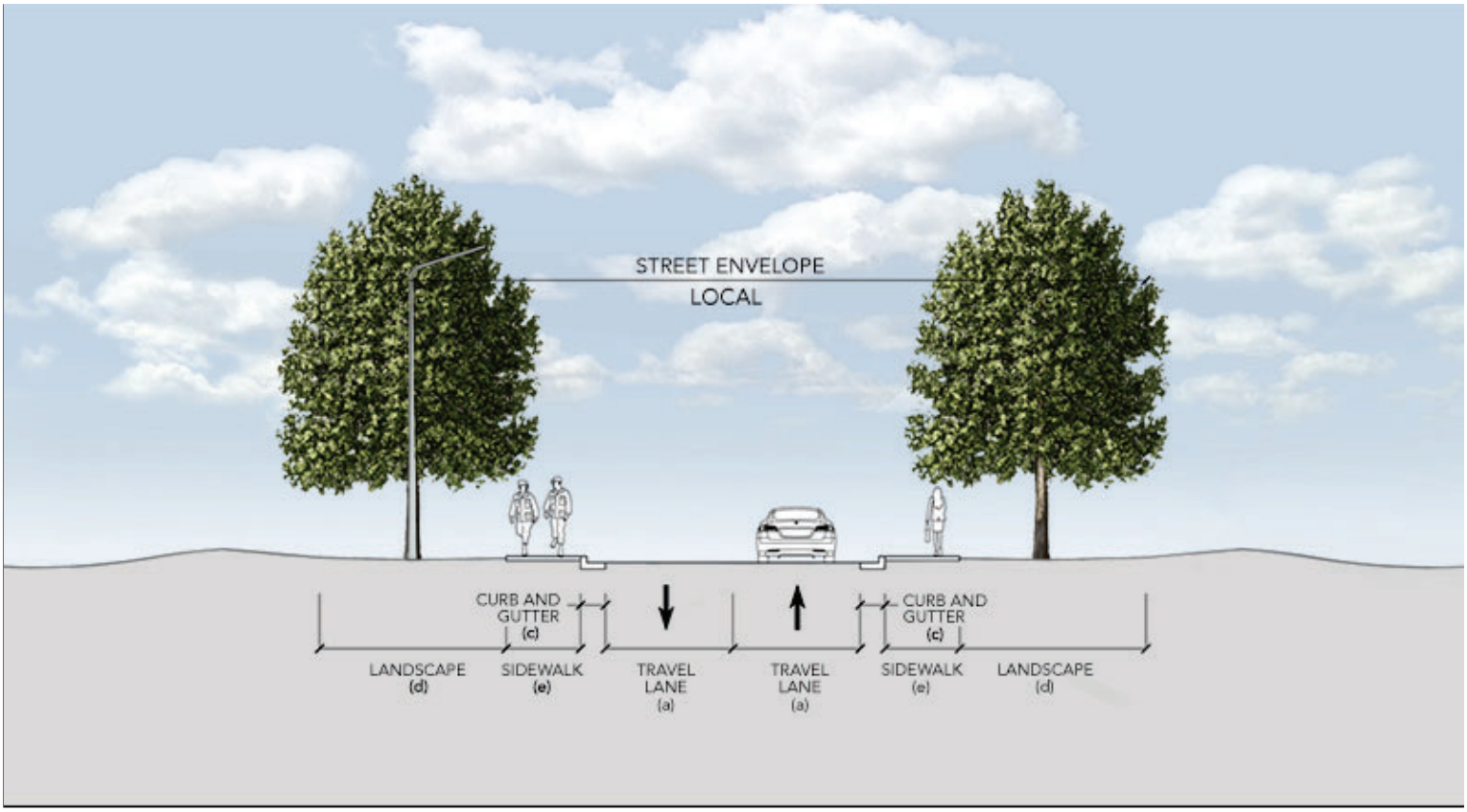
Travel Lane (a): 12′ Median (b): N/A Curb and Gutter (c): 2′ Landscape (d): 10′ Sidewalk (e): 6′ Setback (f): Min. 35' or per ATFP

1. Bike Lanes will be installed where feasible with reconstruction projects but are standard with new road construction. Bike lanes shall be a minimum of 4' in width excluding gutter pan.

B02.1.3. Local Streets

◉ Applicable ○ N/A Large graphics

○ Applicable ◉ N/A Small graphics



Travel Lane (a): 11′ Median (b): N/A Curb and Gutter (c): 1.5′ Landscape (d): 15′ Sidewalk (e): 6′

1. Bike Lanes will be installed where feasible with reconstruction projects but are standard with new road construction. Bike lanes shall be a minimum of 4' in width excluding gutter pan.

B02.1.4. Special Routes

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Develop all special routes consistently with those adjacent to Group 1 facilities.

B02.2. Hierarchy of Intersections

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Provide a hierarchy of intersections to include arterial, arterial-collector, collector, collector-local and local following UFC 3-201-01 and its industry references.

2. Passive systems such as traffic circles are preferred to active systems such as signalized intersections. Aggressively pursue passive systems to lower maintenance requirements and reduce energy use.

3. Streets should intersect at right angles and offset intersections should be avoided.

4. Use a level of visual quality for an intersection equal to the quality found in the related streetscape, which corresponds to the adjacent Facility Group number.

B02.2.1. Arterials

◯ Applicable ◉ N/A Large graphics

◯ Applicable ◉ N/A Small graphics

1. Not applicable.

B02.2.2. Arterial/Collector

◯ Applicable ◉ N/A Large graphics

◯ Applicable ◉ N/A Small graphics

1. Not applicable.

B02.2.3. Collectors

◯ Applicable ◉ N/A Large graphics

◯ Applicable ◉ N/A Small graphics

1. Not applicable.

B02.2.4. Special Intersections

◯ Applicable ◉ N/A Large graphics

◯ Applicable ◉ N/A Small graphics

1. Develop all special intersections consistently with those adjacent to Group 1 facilities.

B02.2.5. Street Frontage Requirements

◯ Applicable ◉ N/A Large graphics

◯ Applicable ◉ N/A Small graphics

1. Consistently maintain open space buffers following B03.2.3. Preserves.

2. Refer to C06.1.7. Streetscape Landscaping for planting and screen wall requirements along street frontage.

B02.2.6. Sight Lines

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Provide adequate sight lines for an effective and safe traffic operation per American Association of State Highway and Transportation Officials (AASHTO) standards and local municipality guidelines.

B02.3. Street Elements

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Emulate the streetscape area's pre-development hydrology using passive and active design features to help sustain the adjacent regionally appropriate landscape. Coordinate with the base Stormwater Management Plan/Stormwater reduction requirements.

2. Employ systems, materials and techniques to maximize streetscape sustainability and reflectivity of surfaces appropriate for the local climate. Thermoplastic tape shall be used for roadway markings in accordance with AASHTO guidelines to lower maintenance requirements and maintain high visibility.

3. Install at-grade curbing and/or raised-profile curb and gutter as applicable to direct stormwater to bioswales and rain gardens as source water for vegetation. Do not paint concrete curbing.

4. Provide all on-site utility service lines and equipment below grade when adjacent to Facility Group 1. In routes along Group 2, 3 and 4, when mounting elements such as utility cabinets, communications equipment and water valves above grade is unavoidable, paint these consistently and provide visual screening following Installation Facilities Standards (IFS). Utility handhole/manhole routes shall be constructed with capability of expansion.

5. Provide traffic control devices including access control point/entry control facility signs, speed limit signs and street name signs following the current edition of the Manual on Uniform Traffic Control Devices (MUTCD) per UFC 3-120-01.

6. Follow UFC 3-120-01 for directional and wayfinding signs and address both vehicular and pedestrian traffic.

7. Reduce energy consumption and reduce maintenance requirements by providing street lighting only when functionally required to ensure safety and to address antiterrorism following UFC 4-010-01. Ensure the quality and quantities of lighting and fixtures are appropriate for the adjacent Facility Group number. Lighting shall employ LED fixtures with downfacing pans to limit light pollution.

B02.3.1. Paving

○ Applicable ◉ N/A Large graphics

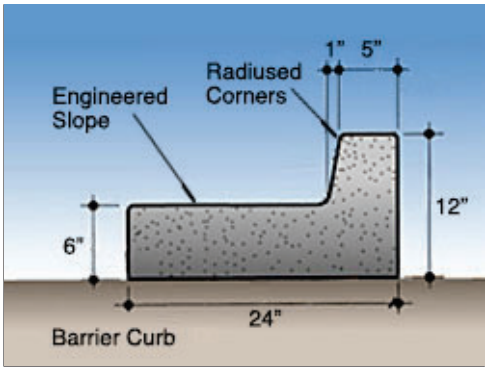
○ Applicable ◉ N/A Small graphics

1. Avoid utility or other cuts in pavement. Whenever possible use tunneling technologies to go under pavement with conduits or piping.

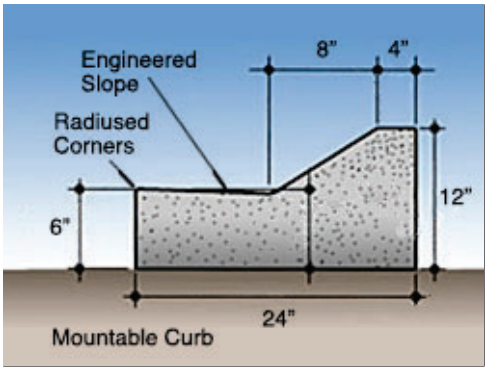
B02.3.2. Curb and Gutter

◯ Applicable ◉ N/A Large graphics

◉ Applicable ◯ N/A Small graphics



Preferred integral Curb



Alternative Curb Profile

1. Curb all parking, access roads and streets (except remote/isolated).

2. All streets should have integral concrete curbs and gutters. Painted curbs are prohibited because they are very difficult to maintain.

3. Use concrete for sidewalks and curbs. Do no use asphalt for curbs or sidewalks.

B02.3.3. Utility Service Elements

◯ Applicable ◉ N/A Large graphics

◯ Applicable ◉ N/A Small graphics

1. Provide all utility service lines below grade when streets are adjacent to Facility Group 1; when mounting elements (such as utility cabinets, communications equipment and water valves) above grade is unavoidable, paint these consistently and provide visual screening following Site Development, Landscaping.

2. Overhead service lines shall not be installed due local weather and wind climates.

B02.3.4. Traffic Signs

◯ Applicable ◉ N/A Large graphics

◯ Applicable ◉ N/A Small graphics

1. Refer to Exterior Signs, Colors and Types for Traffic Control Devices, which includes signs. All signage shall conform to MUTCD and UFC standards and are subject to review by the installation traffic engineer for applicability and placement.

B02.3.5. Street Lighting

◯ Applicable ◉ N/A Large graphics

◯ Applicable ◉ N/A Small graphics

1. Refer to the Lighting section for appropriate applications along streets.

B02.3.6. Other

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Not applicable.

B03. OPEN SPACE / PUBLIC SPACE

Comply with Air Force Corporate Standards for Installation Elements:
http://afcfs.wbdg.org/installation-elements/index.html

Comply with AF Corporate Standards for Open Space / Public Space:
http://afcfs.wbdg.org/installation-elements/open-space-public-space/index.html

B03.1. Plazas, Monuments and Static Displays

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Group 1 Static Display and Plaza

Group 1 Memorial

1. Natural features and culturally or historically significant features or events may be recognized and acknowledged with physical elements such as plazas, monuments and static displays. However, limit these elements on the base to ensure judicious use of resources and to reduce ongoing maintenance requirements.

2. Design highly durable plazas, monuments and static displays with a level of quality comparable to Facility Group 1.

3. Link plazas, monuments and static displays to the pedestrian circulation system. Install landscaping, site furnishings and lighting appropriate for the application and local climate following Installation Facilities Standards (IFS).

4. Select systems, products and materials for paving, walls, and structures following IFS.

B03.1.1. Paved Plazas

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Brick and Concrete Paving

Exposed Aggregate Paving

1. Mitigate heat island by providing high-albedo, shaded plazas. The designer shall incorporate appropriate expansion and construction joints.

2. Hierarchy of material use shall be concrete followed by pressed concrete followed by brick pavers to allow for easier maintenance.

3. Pavers shall match the color of pavers used on adjacent sidewalks using base standard range of red blend or tan blend. Bricks used on plazas shall typically be 4" x 8" size.

B03.1.2. Sculptures, Markers and Statuary

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Commemorative Plaque

Memorial Plaza and Markers

1. Relate new sculpture, markers and statuary to the base's architectural design theme. Generally limit these elements to frequently used locations adjacent to Facility Group 1 and highly traveled community pedestrian spaces.

2. Consider entry gates as possible sites for new displays.

3. All proposed memorials shall follow AFI 36-3108 and be limited to highly deserving individuals or groups as deemed appropriate by the installation leadership. Living memorials (tree plantings / etc.) are discouraged due to added maintenance requirements.

4. When sculpture requires a base, match the materials and / or color palette of adjacent buildings.

5. Use direct or indirect lighting to accentuate features or enhance an intended effect.

6. Ensure that all sculpture, markers and statuary are honorable and inspiring, provide a sense of place, positively contribute to the base's visual quality, and encourage pride for the community and the US Air Force.

B03.1.3. Static Display of Aircraft

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Multiple Aircraft Display

Dynamic Mounting

Street Display

1. Follow IFS base-wide standards for all elements of the display area with specific attention to traffic sight lines, pedestrian circulation, site furnishings, signs, and lighting. Address requirements for the Facility District as well.

2. Generally locate concrete base/foundation structures for static displays below grade.

3. At static displays where pedestrian paths are provided, a minimum of one trash receptacle and one bench shall be provided. Receptacle and bench design must conform to IFS requirements.

B03.2. Grounds and Perimeters

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Provide formal spaces for parade and review functions, recreational areas and parks following the base's Installation Development Plan (IDP) and Installation Facilities Standards (IFS). Refer to the Site Furnishings topic for additional information.

2. Maintain preservation areas following the IDP and IFS.

3. Comply with UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings and UFC 4-022-03 Security Fences and Gates for all elements associated with the base's gates and perimeter fence.

4. Identify and describe base-wide utility corridors in the IDP.

5. Base-wide utility infrastructure shall be inconspicuous. Bury utility service lines below grade when adjacent to Facility Group 1 and when economically feasible for Facility Groups 2, 3 and 4. When service lines are located above grade, create an ordered, coordinated appearance.

6. Follow the requirements of this IFS regarding all utility structures and service lines located above grade that visually impact the installation.

7. Where screening of utility equipment and structures is provided, allow adequate and proper clearance for safety and maintenance.

8. Reduce visual clutter and visual impact of the following items through a combination of careful placement, screen walls, landscaping and painting:
• Electrical switch-stations.
• Sewage lift stations.
• Water well pumps, storage tanks and/or related structures.
• Gas piping, meters and similar incidental items.
• Above ground fuel storage tanks.
• Any ground-mounted freestanding utility item exposed to view.

9. Larger structures such as electrical switch-stations, sewage lift stations, fuel storage tanks and mechanical/electrical equipment shall be screened from view, using materials, forms, and colors in the screen walls which match those respective design elements present at adjacent buildings.

10. Paint above-ground equipment and associated components such as electrical piping or exposed plumbing lines Langley Brown.

11. Maintain currently buried utility service lines as a visual asset.

12. Bury the following exposed above-grade items in future projects when economically feasible:
• Electrical power grid and service lines.
• Telephone lines.
• Cable TV lines.
• Communications lines.
• Exterior lighting service lines.
• Any similar system of above-ground lines serving the base.

13. Consolidate and enclose service utility lines in underground utility corridors when feasible. Create routes along the inside edge of parking lot islands.

14. Unit Gazebos are considered non-real property and construction and maintenance is required to be accomplished via unit funding. All gazebos will undergo a siting review and process in coordination with 633 CES Planning and final site approval by 633 MSG/CC. Prior to approved placement, an MOU shall be created and signed by unit commander acknowledging unit responsibilities and placed in record with real property files of the adjacent facility.

B03.2.1. Parade Grounds

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Follow UFC 3-201-02, Appendix B for the planning and design process and criteria for parade grounds.

2. Establish and maintain parade grounds only where there is a confirmed need and provide landscape materials appropriate for the locale following IFS.

3. Bleachers may be installed only when there is a documented requirement at parade grounds. Nonferrous metals that do not require painting or going maintenance are preferred. The Base Civil Engineer shall determine quantities, sizes, and products on a case basis.

B03.2.2. Parks

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Bleachers may be installed only when there is a documented requirement at parks and fields for recreational events. Follow guidance under Parade Grounds.

2. Picnic pavilions may be provided in parks where there is a documented need.

3. Prohibited picnic pavilion materials include wood, concrete masonry units (CMU) or metal pre-manufactured storage sheds. Use only materials and detailing that is low maintenance and endures with minimal weathering.

4. When picnic pavilions are permitted near facilities, generally match the architecture of the adjacent facility and provide a level of quality of the adjacent facility group number.

B03.2.3. Preserves

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Preserve areas adjacent to runways, taxiways, aprons, golf course roughs, storage areas, antenna facilities, and ammunition storage areas, as open space.

2. Provide minimal maintenance with mowing as needed for controlling bird behavior for airfield safety, or eliminating fire hazards.

B03.2.4. Perimeter Fence

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Design, install and maintain the base's perimeter fence following UFC 4-022-03.

2. Stringently comply with AT / FP requirements following UFC 04-010-01 for all spaces adjacent to the base's perimeter fence and all gates.

3. Fencing, gates and other elements that are associated with the main gates shall be a level of quality equivalent to Facility Group 1.

4. Maintain a positive visual quality along the traffic corridor on both sides of the main gates. Specifically address pedestrian access, circulation and common areas.

C. SITE DEVELOPMENT

Comply with Air Force Corporate Standards for Site Development:
http://afcfs.wbdg.org/site-development/index.html

C01. SITE DESIGN

Comply with Air Force Corporate Standards for Site Development:
http://afcfs.wbdg.org/site-development/index.html

Comply with AF Corporate Standards for Site Design / NEPA:
http://afcfs.wbdg.org/site-development/site-design-nepa/index.html

C01.1. Site Design Considerations

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics


On-site Hydrologic Control


Separated Pedestrian and Vehicle Access


Appropriate Setback from Parking


Coordinated Adjacencies


Integrated Service Area


Uniform Building Setback

1. Collect documentation to validate approvals and completion of the NEPA process.

2. Ensure site design compliance with the Installation Development Plan (IDP), Area Development Plans (ADP) and Installation Facilities Standards (IFS).

3. Promote integrated design with on-site solutions such as engineered small-scale hydrologic controls verses base-wide infrastructure; consider open space, natural features, bioswales, building roofs, streets, and paved surfaces.

4. Limit the impact of development on land and water resources. All site elements and infrastructure shall reinforce an image of sustainability, with reduced energy demand, renewable-energy usage, and water conservation.

5. Consider energy conservation during site design for the following categories: building and site lighting, auxiliary systems and equipment (refrigerators, elevators, etc.), building envelope, electric power and distribution, HVAC systems and equipment, service hot water, energy management (metering, EMCS).

6. Coordinate on-site renewable-energy systems and components to minimize area requirements and maximize efficiencies. Appropriately buffer and screen these and other mechanical systems and equipment.

7. New building projects should preserve open space and protect natural habitat.

8. Conform to existing topography to the greatest extent possible and use slopes to increase site and building efficiencies. Design sites to minimize irrigation and impacts to stormwater runoff.

9. Carefully study new project sites to identify the character of adjacent buildings, streets, landscaping, and site design elements. Provide a landscaped space uncluttered by vehicles in front, at the entrance, and between the main viewing street and the building. Reinforce the existing character in new site design.

10. Consider relationships to adjacent facilities and district / centralized heating and cooling infrastructure and cost effectively connect building systems to harvest heat, grey water or other beneficial byproducts.

11. Minimize existing and planned obstructions from landscaping, structures, topography, and adjacent developments to preserve solar access and natural ventilation.

12. Purposefully integrate service access, receiving and storage areas to eliminate the need for visual screening.

13. Appropriately connect to the base network of streets, sidewalks and trails using drive aisles, parking areas, walkways, paths, and bicycle routes addressing both vehicles and pedestrians.

14. Use landscape to define entries, control pedestrian circulation, control vehicular traffic, and to screen undesirable views. Screen parking areas from view of major streets through the use of natural topography. Use adapted trees and shrubs locally recommended for urban or street use that can survive without irrigation after the first season or warranty maintenance period.

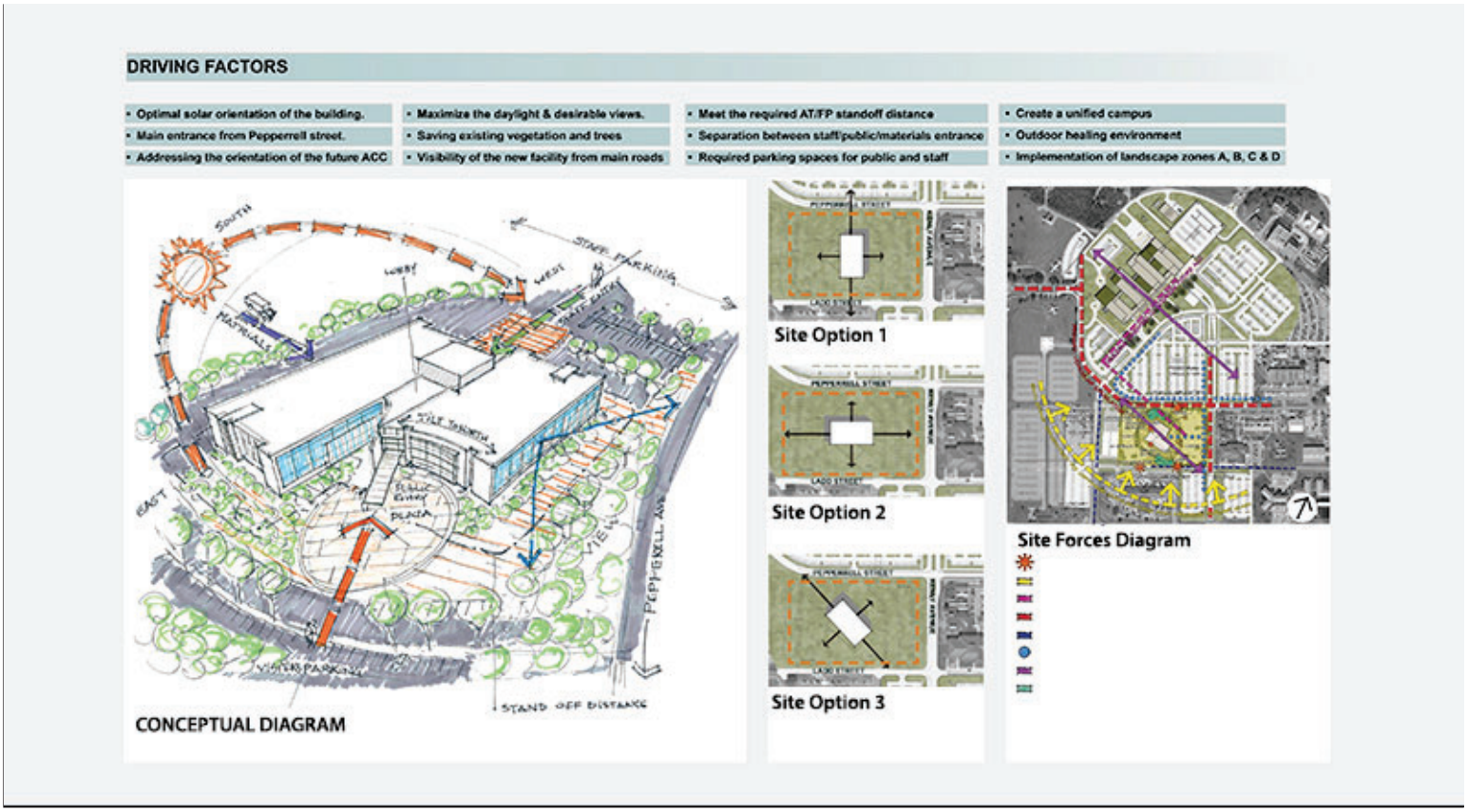
15. Applicably coordinate heat island mitigation in paving and roof designs when implementing an integrated approach to stormwater management.

16. Limit the location of "Designated Tobacco Areas" (DTA) in accordance with AFI 40-102 Tobacco Free Living.

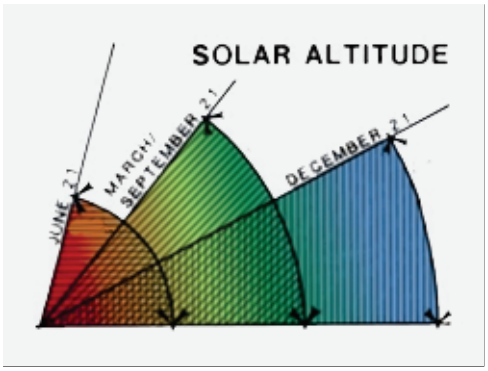
C01.2. Building Orientation

◉ Applicable ○ N/A Large graphics

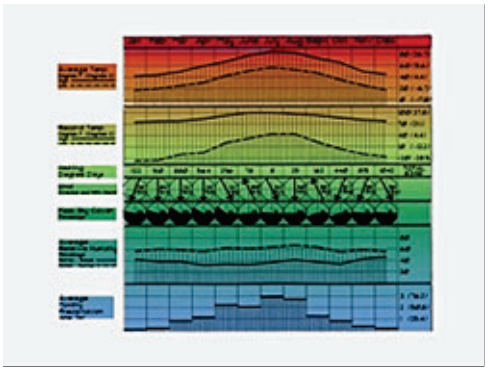
◉ Applicable ○ N/A Small graphics



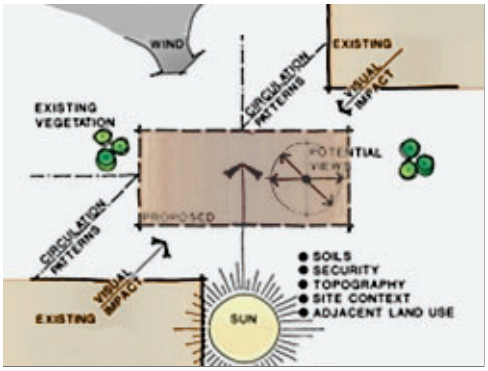
Conceptual Site Analysis and Site Design Diagram



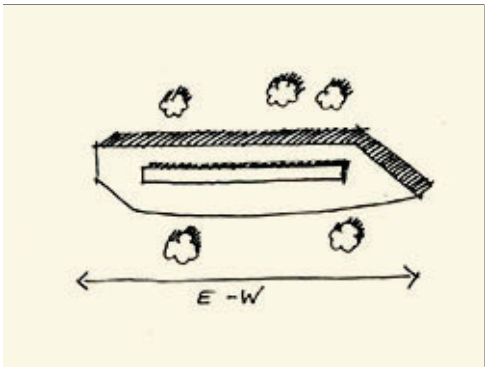
Local Solar Data



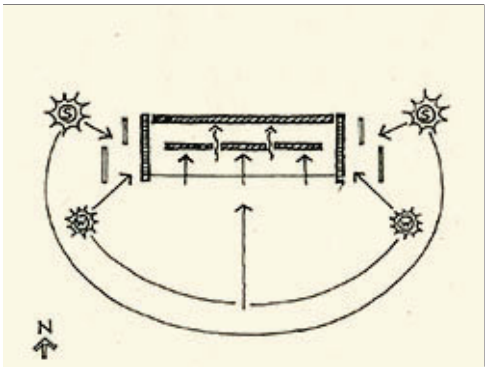
Local Climate Data



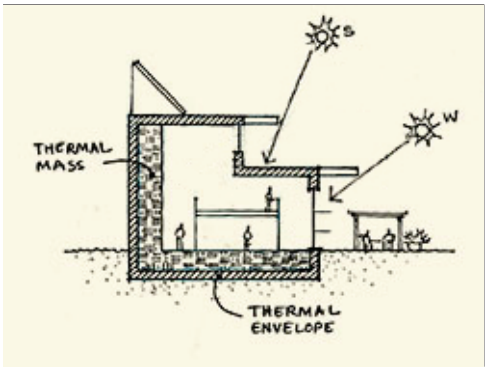
Site Data



East-West Axis



Optimum Solar Control



Maximized Shading

1. Ensure the site will accommodate optimum requirements for building orientation, which is with the long axis parallel to the east/west direction for rectilinear CONUS buildings.

2. Meet Installation Facilities Standards (IFS) requirements for the locations of the building's passive and renewable-energy systems—including geothermal and solar systems—and exterior shading systems.

3. Locate the building(s) and permitted ancillary structures to promote solar gain, solar shading, natural ventilation, rainwater harvesting, wind buffering and other beneficial passive systems. Consider natural ventilation during the design of HVAC systems.

4. Consider relationships to adjacent sites and their facilities and infrastructure, and cost effectively integrate building systems to harvest heat, grey water or other beneficial byproducts.

5. Consider the "public side" of the building, its views and the location of the main entrance.

C02. UTILITIES

Comply with AF Corporate Standards for Site Development:
http://afcfs.wbdg.org/site-development/index.html

Comply with AF Corporate Standards for Utilities:
http://afcfs.wbdg.org/site-development/utilities/index.html

C02.1. Utility Components

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Utility Equipment Screeening

Services Entrance

Residential Utilities Screeening

1. Provide all on-site utility service lines below grade for Facility Group 1; Locate new electrical power lines and utilities in Groups 2, 3 and 4 underground whenever possible.

2. When mounting elements (such as utility cabinets, communications equipment and water valves) above grade is unavoidable, paint these consistently and provide visual screening following Installation Facilities Standards (IFS).

3. Provide installation of utility infrastructure to support near term and future electric vehicle charging stations.

4. Define all service entry points into the building and route distribution below grade into an interior space within the facility; exposed conduits, cables and wires on exterior walls are not permitted for Facility Group 1.

5. Include consideration of appropriate placement of meters in support of Automated Revenue Management Services (ARMS).

6. Limit exterior mechanical distribution systems such as exterior steam, chilled water, and hot water distribution to Group 3 facilities; when required for Group 1 and 2 facilities integrate with the architecture and provide visual screens following IFS.

7. Direct roof drainage to underground collection when feasible or provide splash blocks / paved channels to intercept roof drainage at grade.

C03. PARKING AREAS

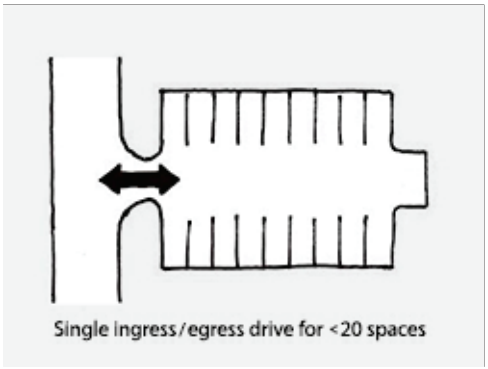
Comply with AF Corporate Standards for Site Development:
http://afcfs.wbdg.org/site-development/index.html

Comply with AF Corporate Standards for Parking Areas:
http://afcfs.wbdg.org/site-development/parking-areas/index.html

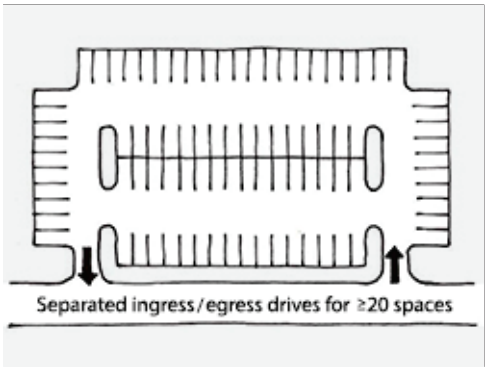
C03.1. Configurations and Design

○ Applicable ◉ N/A Large graphics

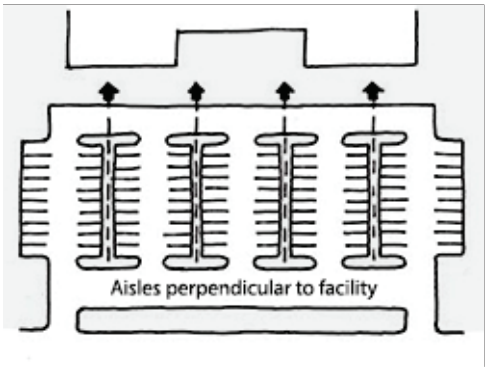
◉ Applicable ○ N/A Small graphics



Small Lot Configuration



Large Lot Configuration



Facility Group 1 Configuration

1. Evaluate adjacent sites and cost-effectively consolidate parking areas to maximize efficient use; ensure that all areas meet accessibility guidelines.

2. Do not locate parking between a building and the main viewing street. Comply with IFS standards while meeting AT/FP requirements.

3. Integrate at-grade and raised-profile curbing and parking islands with the stormwater system and direct stormwater to bioswales and rain gardens as source water for regionally appropriate native vegetation.

4. Define pedestrian access with approved hardscape and provide shading along the primary path from the parking area to the main entrance of the building. Do not let parking occupy pedestrian spaces between buildings in a group.

5. Coordinate suitable landscape or barriers integrated with walls and fences to ensure adequate force protection.

6. Accessible parking spaces shall be marked according to UFC 3-120-01 and its references in ABAAS and the MUTCD.

7. Consider locations and requirements of near term and future electric vehicle charging stations.

8. Subdivide large parking areas into lots of 50 cars or less.

9. Designate preferred parking spaces for electric vehicles and carpools near the main entrance.

10. Consider cost-effectively integrating solar photovoltaic arrays into covered parking structures.

11. Reserved parking is discouraged except for Facility Group 1.

12. On-street parking is discouraged except in multi-use areas. When used, provide approved on-street parking configurations following UFC 3-201-01.

13. Access and service drives should accommodate the largest vehicle serving the facility. Provide handicap accessible parking spaces and accessible routes to the building in conformance with ADA and UFAS.

14. Integrate stormwater treatments within the islands of the parking area complete with local zone vegetation and capacity to treat stormwater for multiple days.

C03.1.1. Paving and Striping

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Accessible Parking

Group 3 Parking Area

Facility Group 1 paving materials shall be as follows.

Primary:	Asphaltic concrete
Secondary:	Concrete
Accent:	N/A

Facility Group 2 paving materials shall be as follows.

Primary:	Asphaltic Concrete
Secondary:	N/A
Accent:	N/A

Facility Group 3 paving materials shall be as follows.

Primary:	Concrete where operationally required
Secondary:	Asphaltic Concrete
Accent:	N/A

Facility Group 4 paving materials shall be as follows.

Primary:	Asphaltic Concrete
Secondary:	N/A
Accent:	N/A

1. All new parking lots in Groups 1 and 2 shall be constructed of asphalt paving.

2. Porous paving may be considered on a case basis.

3. Cost-effectively provide light-colored concrete to reduce heat island effect; otherwise install asphaltic concrete paving. Dirt, gravel, and grass lots are not allowed.

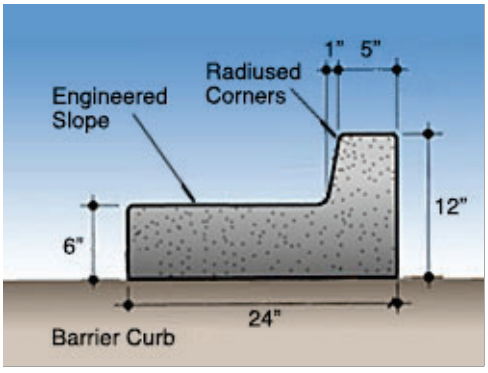
4. Use consistent striping, angles and stall sizes in all parking areas.

5. All parking shall be marked with white stripes of paint or applied vinyl coatings. Red or yellow markings shall only be used for safety purposes and must be kept to a minimum. All lines shall be four inches (4") wide.

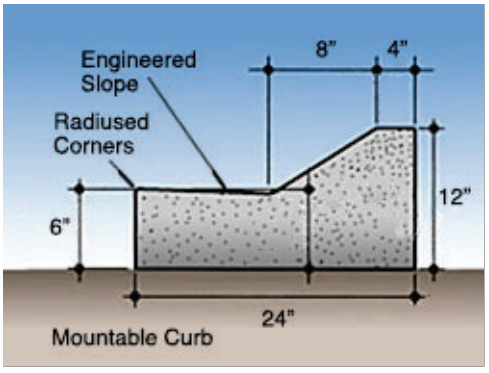
C03.1.2. Curbing

○ Applicable ◉ N/A Large graphics

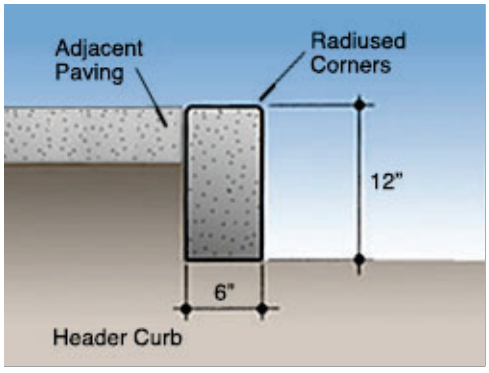
◉ Applicable ○ N/A Small graphics



"Barrier" Curb



"Mountable" Curb



Header Curb

Facility Group 1 curbing / edging materials shall be as follows.

Primary:	Concrete
Secondary:	N/A
Accent:	N/A

Facility Group 2 curbing / edging materials shall be as follows.

Primary:	Concrete
Secondary:	N/A
Accent:	N/A

Facility Group 3 curbing / edging materials shall be as follows.

Primary:	Concrete
Secondary:	N/A
Accent:	N/A

Facility Group 4 curbing / edging materials shall be as follows.

Primary:	Concrete
Secondary:	N/A
Accent:	N/A

1. Define all parking lots, access roads and streets with either raised profile or at-grade curbing to promote drainage and protect paving edges. All raised curbs shall be the rolled (mountable) type with a 6-inch high street-side face and a 6-inch top face.

2. Where present, I.E. within the HTA and LTA Districts, historical curb and gutter with distinctive steel beams at crown shall be preserved when possible. When condition of curb and gutter degrades to a point of no longer being serviceable, it shall be removed and replaced with current standard treatments. Removed historical curb and gutter will be documented via survey and photographs within project log.

3. Integrate curbing and gutters to direct stormwater to bioswales and rain gardens as source water for regionally appropriate native vegetation.

4. Wheel stops are not discouraged except at locations where car bumpers could contact adjacent items such as poles, signs or pedestrians.

C03.1.3. Internal Islands and Medians

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Rock Mulch and Landscape

Paved Median

1. Install landscape islands and medians as visual breaks, to reduce heat island effects and to accommodate bioswales and rain gardens with consideration for snow removal. Coordinate suitable landscape or barriers integrated with walls and fences to ensure adequate force protection.

2. When lighting is necessary, contain fixture bases within medians or internal landscape islands.

C03.2. Parking Structures

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Parking structures are encouraged in land-constrained locations when economically feasible.

2. Consider near term and future electric vehicle charging stations and renewable energy generation development during the analysis and design.

3. Consider opportunities for integrating parking structures into multi-use developments with pedestrian-oriented uses located on the ground floor and parking on upper levels; ensure ATFP guidelines are fully addressed.

C03.3. Connectivity

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Refer to the Installation Development Plan (IDP) for locations of transit stops and pedestrian and cycling networks; provide appropriately sized sidewalks and bike paths to connect facilities and users to these networks.

2. Provide amenities such as rain and shade shelters, trees, and benches to encourage and facilitate use of public transportation.

3. Evaluate the IDP for the current and planned network of roads and optimally develop vehicular access to and from the site.

C04. STORMWATER MANAGEMENT

Comply with AF Corporate Standards for Site Development:
http://afcfs.wbdg.org/site-development/index.html

Comply with AF Corporate Standards for Stormwater Management:
http://afcfs.wbdg.org/site-development/stormwater-management/index.html

C04.1. Stormwater Requirements

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Drainage Area with Grasses

Reinforced Culvert

Retention Area as an Amenity

Stabilized Drainage Surface

Bridge as an Amenity

Storm Inlet and Culvert

1. Design all stormwater systems including retention ponds, detention areas, channels, etc. as on-site amenities that are consistent with natural systems and drainage patterns, that help sustain the base landscape with beneficial functionality and that provide aesthetic appeal; coordinate with the base Stormwater Management Plan.

2. Rain diverters or gutters and downspouts must be provided over building entrances.

3. Incorporate bioswales into the design of all roadway, parking and facility roof systems to enhance water quality and support the overall stormwater system.

4. Where low-slope roofs are permitted, the roof must be drained to the exterior walls. Rain leaders should be used in lieu of exterior downspout conductors.

5. Group 1 facilities shall use closed-face gutters and downspouts on the outside of the building line. Coordinate the material and color of gutters and downspouts with roof and wall materials for Group 1, 2, 3 and 4 facilities.

6. Permeable paving is not to be used due to high maintenance requirements and poor performance.

7. Provide rainwater harvesting and storage that is attached to the building's roof drain systems to support grey water irrigation.

8. When underground drainage systems are required establish a maintenance program to include removal of sediments and debris; inspect joints seasonally for alignment to prevent leakage and the development of voids and surface failures.

9. Cost-effectively integrate stormwater systems with AT/FP measures.

C05. SIDEWALKS, BIKEWAYS AND TRAILS

Comply with AF Corporate Standards for Site Development:
http://afcfs.wbdg.org/site-development/index.html

Comply with AF Corporate Standards for Sidewalks, Bikeways and Trails:
http://afcfs.wbdg.org/site-development/sidewalks-bikeways-trails/index.html

C05.1. Circulation and Paving

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Group 1 Plaza with Brick Pavers

Group 2 Interlocking Paver Treatment

Colored Paving

Paving Coordinated with Landscape

Concrete Sidewalk

Attached Sidewalk at Group 4

Facility Group 1 sidewalks, plazas, and courtyards paving materials shall be as follows.

Primary:	Designed Pavers
Secondary:	Concrete Edging
Accent:	N/A

Facility Group 2 sidewalks, plazas, and courtyards paving materials shall be as follows.

Primary:	Designed Pavers
Secondary:	Concrete Edging
Accent:	N/A

Facility Group 3 sidewalks, plazas, and courtyards paving materials shall be as follows.

Primary:	Textured concrete
Secondary:	N/A
Accent:	N/A

Facility Group 4 sidewalks, plazas, and courtyards paving materials shall be as follows.

Primary:	Textured concrete
Secondary:	N/A
Accent:	N/A

1. Maintain efficient geometry and accessibility to connect building entrances to adjacent parking areas and activity areas and to the base transportation system following AT/FP. Efficiently use materials to optimize life-cycle costs and to minimize maintenance.

2. Generally conform horizontal layouts of sidewalks to the geometric configuration of adjacent buildings, streets, parking lots, and other adjacent related site amenities. Occasional meanders and/or jogs may be included to capture views, to coordinate with landscaping or accommodate site constraints.

3. Walks in parking areas shall provide a direct path using "safe islands" and "peninsulas" to encourage safety. Walks parallel to streets shall follow streetscape guidelines. Clearly mark pedestrian crossings at vehicular routes.

4. Mitigate heat island by providing high-albedo, shaded sidewalks. "Miami Buff" pavement shall be used on all sidewalks, plazas and courtyards in Facility Groups 1 and 2; use concrete in Groups 3 and 4. The designer shall incorporate appropriate expansion and construction joints.

5. Only experienced contractors will install pavements.

6. Consider an integrated approach that could include stormwater management and complement the design of the storm drainage system when appropriate.

7. Pedestrian paths should be at least 5′ in width to allow for comfortable side-by-side walking.

8. Sidewalks leading to a building main entrance and at the interior of parking lots shall be a minimum width of 6′. Walks greater than 10′ wide may be used at high-density pedestrian areas where volumes of traffic justify added material.

9. Where cars park adjacent and head-in to the sidewalk and wheel stops are not used, such perimeter walks shall be increased to a minimum width of 8′ to accommodate overhangs of the parked vehicles.

10. All sidewalks shall have positive drainage to prevent ponding of water or, in rare occurrences, ice accumulation with slopes ranging from 2.1% to 4.2%. Walks with a slope greater than 4.2% shall be designed as ramps following accessibility guidelines. All walks shall have a minimum cross slope of 2.1%.

11. Concrete pavers shall primarily conform to the following color: Miami Buff. Sidewalks surrounding Group 1 facilities shall use brick or concrete with “brick red” color. Pavers used on walks shall typically be 4"x8"” in size.

12. Units that are 4”x8” nominal are recommended. Units shall be installed with the tight joint (swept sand) method and a compacted cementitious sand subbase. A metal or concrete retaining edge is recommended. The pattern should typically be a running bond or a stack bond. Where appropriate, special patterns or shapes may be used in Facility Group 1.

13. Connect to the bicycle circulation system and provide bicycle parking with a suitable means for securing bicycles following IFS. Consider changing/shower facilities for use by cyclists.

14. Refer to the Installation Development Plan for future trails, bicycle paths, and sidewalks.

C05.1.1. Ramps and Stairs

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Use ramps instead of stairs for sidewalks, bikeways and trails and at all buildings where possible. Where steps are unavoidable, follow UFC 1-200-01 and its references to the international Building Code.

2. Exposed aggregate to be used for ADA accessible curb ramps.

C05.1.2. Lighting

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Provide lighting for all stairs and landings where traffic warrants.

2. Refer to the Lighting section for path lighting along sidewalks, bikeways and trails.

C06. LANDSCAPE

Comply with AF Corporate Standards for Site Development:
http://afcfs.wbdg.org/site-development/index.html

Comply with AF Corporate Standards for Landscape:
http://afcfs.wbdg.org/site-development/landscape/index.html

C06.1. Climate-based Materials

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics


Trees and Grasses


Trees and Grasses


Trees for Shading and Scale

1. Use only native, drought tolerant plant species (including grasses) where appropriate for the locale to promote energy efficiency and water conservation, preserve drainage patterns, inhibit erosion, improve air quality, lower maintenance, and add beauty. Drought or flood tolerant horticultural species not listed by the USDA as invasive within the continental U.S., may also be selected to accomplish these goals.

2. Follow details and specifications of the American Standard for Nursery Stock, current edition.

C06.1.1. Landscape Design Concept

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Ornamental Trees at Entrance


Trees and Grasses


Trees for Shading and Scale

1. Develop, maintain and implement a climate-based plant list with landscape features using a regionally appropriate palette of materials to promote energy efficiency, preserve drainage patterns, inhibit erosion, improve air quality, lower maintenance and add beauty. Follow UFC 3-201-02 Landscape Architecture.

2. Landscaping is required for all newly developed sites and facilities; preserve existing native landscape where possible and avoid overplanting.

3. Concentrate landscaping in Facility Group 1 and along major thoroughfares and integrate these landscaped areas into the base's stormwater management plan. Provide a landscaped space uncluttered by vehicles in front, at the entrance, and between the main viewing street and the building. Refer to the Streetscape Envelope Standards in this IFS.

4. For buildings located on the installation, a visual clear zone of 20 feet is required around the perimeter. Landscaping is permissible within the facility clear zone provided that visibility of a device larger than six cubic inches is retained either from inside the building, when approaching the building or when passing by. For trees or shrubs ensure that no foliage extends lower than 3 ft. (1 m) above the grounds to improve observation of objects underneath them. Vegetation smaller than 8 in" in height or width is permitted within building clear zones.

5. All Facility Group 1 and 4 sites shall be landscaped at their entire perimeter; limit formal planting arrangements to formal spaces typically associated with Group 1. Landscape public spaces near the main entrances of Group 1 facilities.

6. Facility Group 2 and 3 sites may have a native undisturbed landscape except at the main entrances of Group 2, which should be newly landscaped.

7. Facility plantings shall follow the Installation Facilities Standards (IFS) plant list, which is based on the specific microclimates created by the adjacent building: shadow areas, protected areas, zones adjacent to thermal mass, and availability of rainwater and/or grey water.

8. Provide open spaces as transitions between developed and native areas that promote quality of life and provide visual relief and allow walkable connections to the transportation system.

9. Return suitable areas to a natural state to minimize and, whenever possible, eliminate ground maintenance requirements; expand native grass areas where appropriate to reduce maintenance requirements. Consideration of the installation Bird Aircraft Strike Hazard plan vegetation standards must be made when converting vegetated areas from landscaped to unmaintained as successional areas can attract hazardous wildlife.

10. In tree clusters replace grass with naturalized shrub beds and leaf litter mulch to eliminate mowing requirements.

11. Use plantings in open spaces to reinforce the space as a visual asset.

12. Consider landscape windbreaks when needed given the site and building orientation.

13. Integrate security requirements into the landscape design. Coordinate the heights of trees and shrubs and note restrictions for plantings following UFC 4-010-01.

14. Use landscape to, define entries, control pedestrian circulation, control vehicular traffic, and to screen undesirable views.

15. Utilizing landscaping to screen facility delivery areas, service zones andgarbage collection areas are encouraged to have visual screening utilizing plant materials or physical barriers, provided it does not conflict with requirements set forth in UFC 3-201-01.

16. When high curbs are required to control vehicular access or movement, create planting islands which are capable of being utilized for stormwater management.

17. Grading on landscaped areas must have a minimum grade of 2% to facilitate stormwater drainage. Exceptions can be made for vegetated stormwater management features accepted by the Virginia department of Environmental Quality for stormwater management.

C06.1.2. Xeriscape Design Principles

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Foundation Planting

Planting at Secondary Entrance

1. Apply xeriscape principles following UFC 3-201-02, Appendix B, and Air Force Corporate Facilities Standards.

2. Facility plantings are encouraged to use native plant species and to consider specific microclimates created by the adjacent building: shadow areas, protected areas, zones adjacent to thermal mass, and availability of rainwater and/or grey water.

C06.1.3. Minimizing Water Requirements

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Trees in Planting Beds

Trees along Drainage Area

1. Reasonably reduce demand on potable water while seeking opportunities to increase alternative water sources for irrigation. Reduce or eliminate the use of potable/domestic water for purposes of landscape architecture maintenance, consistent with existing legal or contractual obligations, and prohibit potable-water irrigation in new construction beyond establishment following current DoD and Air Force policy.

C06.1.4. Plant Material Selection

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. In order of preference use native, fully naturalized or non-invasive horticultural plant material, including grasses or turf, suited for the local climatic conditions in the landscape design: potable-water irrigation systems are discouraged beyond the establishment period.

2. Use adapted trees and shrubs locally recommended for urban or street use that can survive without irrigation after the first season or warranty maintenance period. Obtain the current Plant List from the Base Civil Engineer.

3. Trees should be the focus of landscape plantings and, where possible, should be a mix of deciduous and evergreen species for variety; provide tree grates when appropriate and use tree guards on smaller trees.

4. Use deciduous trees on the south, east, and west sides to shade buildings during the summer but allow sun in the winter months

5. Use groundcover in lieu of turf in all other areas to the extent possible. Ensure groundcover allows for visibility of a device larger than six cubic inches within building clear zones either from inside the building, when approaching the building or when passing by.

6. Turf areas should be limited to those that can be sustained by natural rainfall or grey water (non-potable) irrigation systems; turf may be defined by at-grade concrete mow strips to lessen maintenance. Limit turf to significant open areas and places that are used for active or passive recreation.

7. Analyze soils and provide organic amendments as needed to improve plant growth and conserve water.

8. Use mulching fabric covered by thick mulch to control weeds and stabilize soil moisture. Do not use gravel for mulch.

9. All plant material shall have one-year warranty and is subject to approval by the Base Landscape Architect.

C06.1.5. Water Budgeting (Hydrozones)

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Comply with DoD and Air Force policy on potable-water irrigation systems.

2. Provide irrigation systems in new construction to establish plant materials following “Water for Landscaping” in UFC 1-200-02. Note the climate zone and annual rainfall for the locale.

3. New buildings shall cost-effectively integrate a grey-water reclamation system following UFC 1-200-02, which provides source water for an automatic drip irrigation system; connect adaptive plantings adjacent to facilities to a grey-water irrigation system when available and discontinue the use of potable water for irrigation after the establishment period.

4. Provide irrigation design following UFC 3-201-02. Install drip irrigation products and components following UFGS Section 32 84 24 Irrigation Sprinkler Systems. Match the color of valve box lids to the adjacent ground treatment (i.e. green at turf & native seed areas, brown at wood mulch & rock areas).

5. Life cycle cost-effectively equip irrigation systems to sense soil moisture, rainfall and wind to minimize unnecessary watering; incorporate drip irrigation systems as the primary source.

C06.1.6. Base Entrance Landscaping

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. At the main gate, reinforce a sense of arrival through a well-designed concentration of landscape elements consistent in visual quality with Facility Group 1.

2. Ensure landscaping has seasonal features with spring and fall color and a combination of evergreen and deciduous trees and shrubs for winter interest.

3. Tree grates should be used in lieu of planters.

4. Integrate base signs and street and pedestrian lighting whenever feasible.

C06.1.7. Streetscape Landscaping

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Street Trees and Median at Arterial

Grasses along Local Street

1. Provide landscape designs with plant materials appropriately representing the level of quality of the adjacent Facility Group number. Refer to the Installation Elements section.

2. Continue the practice of planting street trees to delineate roadways, reduce pavement temperature and provide shade on sidewalks.

3. Coordinate tree species selection with utility lines, signage, visual clearance requirements and other man-made constraints.

4. Formal street tree planting design should use trees of the same species spaced at regular intervals. The trunk should be no closer than 2.5 feet to the sidewalk.

5. Select a variety of regionally appropriate streetscape plantings and grading to create a visual interest.

C06.1.8. Pedestrian Circulation Landscaping

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Trees along Troop Walk

1. Define walkways with landscaping where appropriate.

2. Provide rest areas along the pedestrian circulation network with human-scaled deciduous shade trees. Supplement tree plantings with finely textured shrubs when appropriate for the climate.

3. Provide wind breaks where required.

4. Tree grates should be used in lieu of planters.

5. Where large planting boxes are used at courtyards, incorporate seating into the design.

C06.1.9. Parking Lot Landscaping

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Trees Defining Parking Area

1. Integrate appropriate landscaping elements into parking areas to visually soften the appearance at a minimum rate of ten percent of the total area.

2. Parking areas should be set back from streets. Setbacks a minimum of 16 feet wide will allow adequate space to incorporate planting for effective screening.

3. Avoid trees that drop sap, fruit, or seeds, and use long-lived species; only approved species from the installation planting list shall be utilized.

4. Provide landscaped islands in parking areas to add shade, articulate vehicular circulation, and visually break up large expanses of paving. Follow IFS and the base stormwater management plan.

5. Rain garden islands shall be landscaped to receive rainwater runoff from adjacent impervious parking areas to be absorbed into the ground/planting bed. Native plants and groundcovers are recommended within the rain garden areas, which can survive without supplemental irrigation once established.

C06.1.10. Screen/Accent Landscaping

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Screening at Dumpster Enclosure

Screening at Utilities

Accent Landscaping

1. Provide complimentary accent landscaping at monuments and static displays.

2. At Facility Group 1, provide landscaping adjacent to all freestanding signs without distracting from the written communication.

3. Provide landscape screening of utility elements adjacent to Facility Group 1.

4. Providing landscaping as visual screening is preferred to the construction of walls and fences; berming and mounding may supplement landscape screening. Do not use earth berms against building walls.

5. Limit the slope to a maximum of one foot in 5 feet for a turf berm to be mowed. Limit the slope to a maximum of one foot in 2 feet for a turf berm that will not be mowed.

6. Retain existing natural habitat as a buffer between housing and commercial or industrial uses.

7. Due to high maintenance requirements, sheared hedges and annual/perennial flowerbeds should be used sparingly and limited to Facility Group 1.

C06.1.11. Other

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Not applicable.

C07. SITE FURNISHINGS

Comply with AF Corporate Standards for Site Development:
http://afcfs.wbdg.org/site-development/index.html

Comply with AF Corporate Standards for Site Furnishings:
http://afcfs.wbdg.org/site-development/site-furnishings/index.html

C07.1. Furnishings and Elements

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics

Coordinated Site Furnishings

Screen Wall and Gate

Group 4 Fencing

1. Provide a coordinated consistent inventory of site furnishings to positively contribute to the visual environment, image, and identity of the base; ensure durability, low maintenance, vandal resistance, reduced visual clutter, and compatibility with the adjacent architecture.

2. Site furnishings shall meet accessibility requirements of ADA/UFAS.

3. Remove poorly located or redundant litter / ash receptacles, newspaper and bicycle racks, vending machines, walls and fences to reduce visual clutter and to lessen the requirements for maintenance.

4. Group 1 and 2 site furnishings shall be concrete and / or factory finished black or brown metal. Group 3 and 4 site furnishings shall be factory finished black or brown metal. Generally match the site furniture of adjacent facilities and the facility district.

5. Install needed outdoor seating (benches and low walls) in public gathering spaces near main and secondary building entrances. Low walls shall match facility architecture. Locate tables and benches where they will receive shade in summer months.

6. Benches in Groups 1, 2 and 3 shall be concrete, or Langley brown-painted metal. Provide bmetal benches in Group 4 and parks. Wood in a species that is long lasting with desirable weathering character may be used with BCE approval. Park benches should be anchored on a concrete pad.

7. Integrate functional bicycle racks with the design of the building's main entrance grounds in Facility Groups 1 and 2 while meeting AT/FP requirements. Bicycle racks by Group 1 building entries must be concealed by a screen. Bike racks shall be anchored to a concrete pad large enough to accommodate both the bicycle and the rack.

8. Limit the use of bollards, but when necessary for force protection use precast concrete bollards in Groups 1 and 2. Concrete filled pipe bollards may be used in low-visibility areas for Groups 1 and 2 and in Group 3, parks and trails. Illuminated bollards may be used as approved on a case basis.

9. Locate architecturally coordinated containers for recycling, litter, ash, vending, etc., to minimize visual clutter and not visible from the building's main entrance. Minimize the use of freestanding planters. Attempt to always place receptacles on a concrete pad, anchoring receptacles in areas where receptacles may be overturned by wind or vandalism.

10. Generally limit picnic tables, barbeque grills and drinking fountains to lodging, dormitories, housing areas, parks and recreation areas following IFS.

11. Flagpoles using approved materials may be installed at locations designated by IFS, and in accordance with AFI 34-1201.

12. Refer to the Overview Section "Facility Hierarchy" topic of this AFCFS for guidelines regarding ancillary structures such as pavilions and shade shelters.

13. Bus shelters shall be provided only where there is a documented need and when approved on a case basis. Generally emulate the designs of adjacent shelters using concrete and red brick.

14. Monuments and static displays shall be limited. New elements are generally discouraged unless these are fully vetted through the base's approval process and designed following IFS.

15. When visual screening is necessary, consider landscaping as the first option; screen walls are permitted only in Group 1 with red brick matching adjacent buildings.

16. For fencing, apply the standards for "Products, Materials and Color" in the following section. Limit those with the highest visual quality to Facility Group 1 where there is sustained maintenance. Apply an appropriate level of security and visual quality.

17. Do not use chain-link fencing at Group 1, 2 or 4 facilities; limit the use of barbed-wire outriggers on chain-link fencing at industrial sites, unless required for additional security or protection of assets.

18. Wood fencing may be used in Facility Group 4 and in recreation areas following IFS for material and finish when there is sustained periodic maintenance.

19. Provide trash dumpster enclosures for Group 1, 2 and 3 with red brick to match adjacent facilities; all gates shall be metal, factory finished dark brown.

20. Specify screen wall materials and finishes that do not require painting or maintenance beyond periodic cleaning.

21. Group 1, 2, 3 and 4 picnic tables and seating shall be black or brown-painted metal. Generally limit picnic tables, barbeque grills and drinking fountains to lodging, dormitories, housing areas, parks and recreation areas.

22. Limit the use of freestanding planters to areas with ongoing maintenance.

23. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.

C07.2. Site Furnishings Products, Materials and Color

Note: *Apply the below base-wide standards for Site Furnishings (products, materials and color). Then refer to the Appendix and apply any additional requirements specifically related to the Facility District in which the project is located.*

C07.2.1. Barbeque Grills

◉ Applicable ○ N/A Number of base standards 2

Type: **Charcoal**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☑ Other

Mfr: Most Dependable Fountains, Inc.

Color: Natural stainless steel

Finish: Mill

Model #: SS BBQ Grill

Other: Concrete foundation, coordinate with Base Architect

UFGS: N/A

Type: **Natural Gas**

Applies to: ☐ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☑ Other

Mfr: BBQ Coach

Color: Natural stainless steel

Finish: Mill

Model #: 32" 4-Burner

Other: Built-in Concrete or masonry, coordinate with Base Architect

UFGS: N/A

C07.2.2. Benches

◉ Applicable ○ N/A Number of base standards 1

Type:

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Materials, Inc.

Color: Weatherstone Gray

Finish: Standard Finish (Smooth)

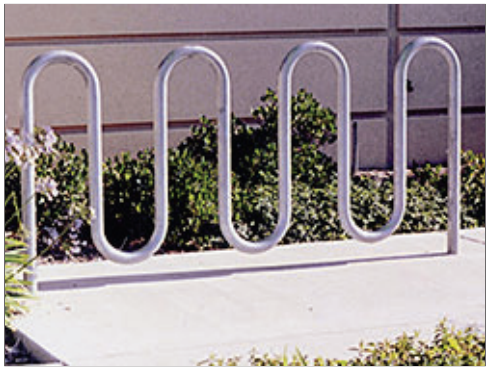
Model #: Mesa, Rectangular design

Other: N/A

UFGS: N/A

C07.2.3. Bike Racks

◉ Applicable ○ N/A Number of base standards 1



Type: **Style 1**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☑ Other

Mfr: Brandir International Inc.

Color: Galvanized

Finish: Factory

Model #: The Ribbon Bike Rack, RB-07

Other: N/A

UFGS: N/A

C07.2.4. Bike Lockers

○ Applicable ◉ N/A

C07.2.5. Bollards

◉ Applicable ○ N/A Number of base standards 3

Type: **Lighted Square Sloped Top**

Applies to: ☑ Group 1 ☐ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Kim Lighting

Color: Platinum Silver

Finish: Anodized aluminum

Model #: VSB1 Square

Other: 3000K LED Lamp, 360° downlighting

UFGS: N/A

Type: **Lighted Round Dome Top**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☑ Other

Mfr: Lithonia Lighting Products

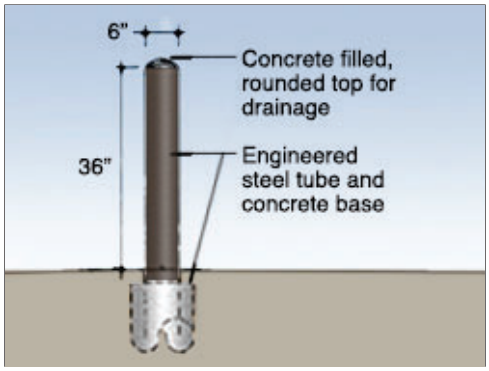
Color: Dark Bronze

Finish: Anodized aluminum

Model #: KBA

Other: Flared cone, 3000K LED Lamp

UFGS: N/A



Type: **Building Protection, steel**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: (Bollard Cover) Reliance Foundry

Color: Brown cover may be field painted dark bronze

Finish: Factory

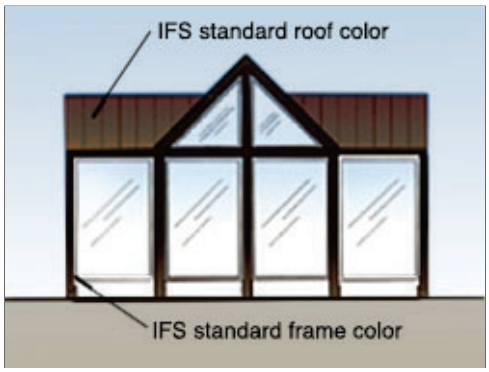
Model #: 6" Steel pipe, concrete filled, Cover: R-7173

Other: A 1" (25.4 mm) rigid conduit and box with shroud may be provided at top of bollard with a receiver/key switch application

UFGS: N/A

C07.2.6. Bus Shelters

◉ Applicable ○ N/A Number of base standards 1



Type: **1**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☑ Group 4 ☑ Other

Mfr: Custom

Color: Dark Bronze

Finish: Powder coated

Model #: Gabled roof

Other: Provide concrete slab and 2 pre-manufactured aluminum benches

UFGS: N/A

C07.2.7. Drinking Fountains

◉ Applicable ○ N/A Number of base standards 1

Type: **Pedestal**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☑ Group 4 ☐ Other

Mfr: Most Dependable Fountains, Inc.

Color: Natural

Finish: Stainless Steel

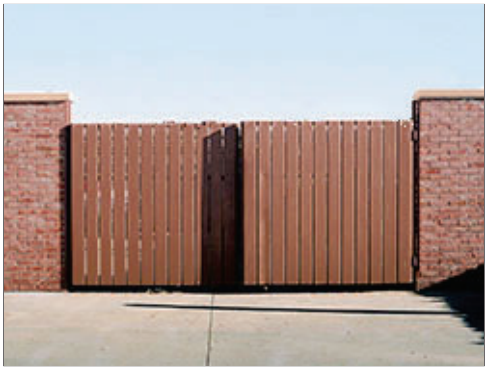
Model #: MDF 440 SMSS

Other: Accessible

UFGS: N/A

C07.2.8. Dumpster Enclosures / Gates

◉ Applicable ○ N/A Number of base standards 1



Type: **1: Brick and Steel**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Custom

Color: Red brick blend, dark brown doors

Finish: Face brick, powder coated doors

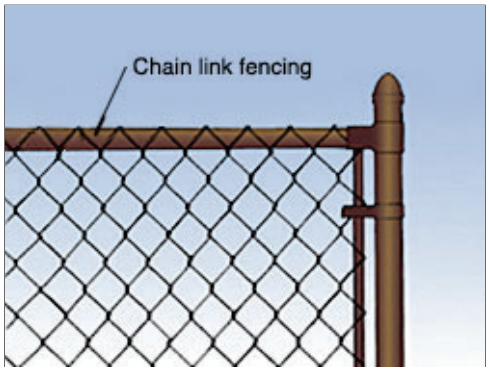
Model #: Match adjacent building

Other: Steel gates and hardware, dark brown, dumpsters shall be painted dark brown

UFGS: Section 04 20 00 Unit Masonry

C07.2.9. Fencing

◉ Applicable ○ N/A Number of base standards 7



Type: **Style A Barrier: High security, low visibility**

Applies to: ☐ Group 1 ☐ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: General Wire Co.

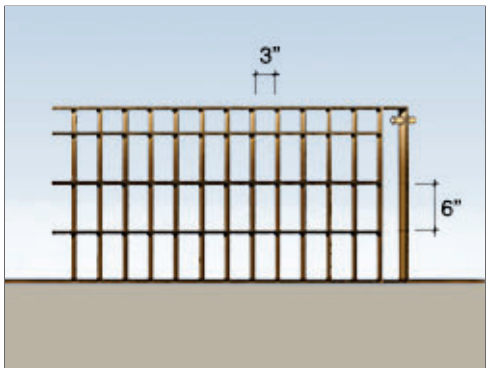
Color: Dark brown

Finish: PVC coating over galvanized steel

Model #: Chain link, steel posts and rails, gates and accessories

Other: N/A

UFGS: Section 32 31 13 Chain Link Fences and Gates



Type: **Style B Barrier: High security, medium visibility**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Custom

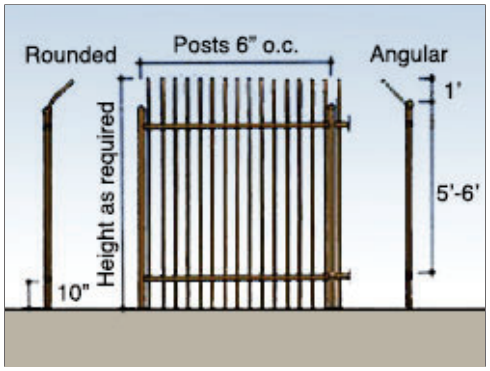
Color: Dark brown

Finish: Powder coat

Model #: Steel grid: flat bar stock verticals, round rod horizontals

Other: Steel posts, horizontal bars, braces, and accessories, in heights, lengths, and gauges as required; Close all ends of tubing

UFGS: Section 05 50 13 Miscellaneous Metal Fabrications



Type: **Style C Barrier: Medium security, medium visibility**

Applies to: ☐ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Custom

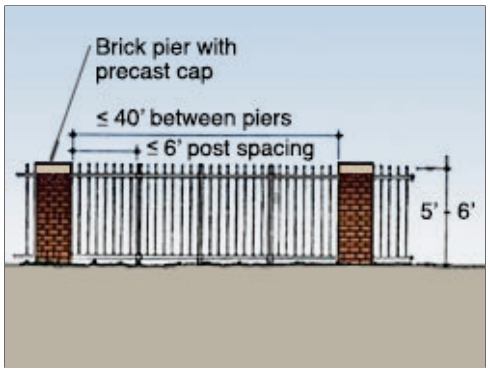
Color: Dark Brown

Finish: Powder coat

Model #: Steel posts, rails and pickets (vertical, bent outward at top)

Other: Posts, rails, and pickets in heights, lengths and gauges as required, (see Appendix for Facility Districts requirements)

UFGS: Section 05 50 13 Miscellaneous Metal Fabrications



Type: **Style D Barrier: Low security, High visibility**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Custom

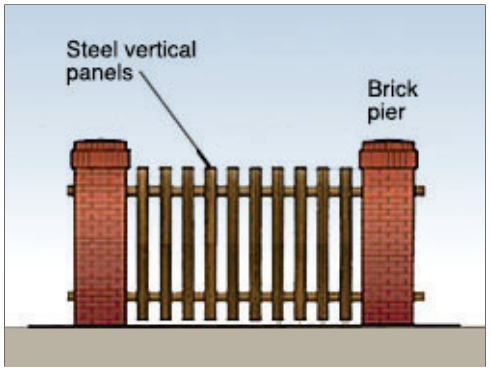
Color: Red brick blend, dark brown fencing

Finish: Face brick, powder coated metal

Model #: Brick Piers with steel posts, rails and pickets

Other: Brick: 2'x2' (Height as required, equally spaced 12' to 40'), Steel posts: 4"x4" (equally spaced), Rails: 2"x2", Pickets: 1"x1" (6"o.c.); close all ends of tubing

UFGS: Section 04 20 00 Unit Masonry, Section 05 50 13 Misc. Metal



Type: **Style E Barrier: Low security, High visibility**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Custom

Color: Red brick blend, dark brown fencing

Finish: Powder coated metal

Model #: Brick Piers with steel posts, rails and alternating panels

Other: Brick: 2'x2' (Height as required, equally spaced 8' to 40'), Steel posts: 4"x4" (equally spaced), Rails: 1-1/4"x1-1/2", vertical steel panels spaced alternately on each side of the rails; matching gates; close all ends

UFGS: Section 04 20 00 Unit Masonry, Section 05 50 13 Misc. Metal

Type: **Style F Barrier: Very low security, high visibility**

Applies to: ☐ Group 1 ☐ Group 2 ☐ Group 3 ☑ Group 4 ☑ Other

Mfr: Custom

Color: Integral mixed Davis Colors: dark warm gray

Finish: Factory

Model #: Post and rail

Other: Concrete 3-rail, wood-grain textured (4,000 psi at 28 days); Posts: 39" height, 8' spacing, set 30" deep below grade with footing, typical

UFGS: SECTION 03 33 00 Cast-In-Place Architectural Concrete

Type: **Style G Barrier (Alternate): Very low security, high visibility**

Applies to: ☐ Group 1 ☐ Group 2 ☐ Group 3 ☑ Group 4 ☐ Other

Mfr: James Hardie Building Products, Inc.

Color: Off white and Earth tones

Finish: Factory

Model #: Post and rail with vertical boards

Other: Posts: Height as required, 8' max. spacing; apply boards to outside face.

UFGS: Not Available (SECTION 074646 Fiber Cement Siding)

C07.2.10. Flagpoles

◉ Applicable ○ N/A Number of base standards 1

Type: **1**

Applies to: ☑ Group 1 ☐ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Eder Flag

Color: Natural aluminum

Finish: Satin Lustre

Model #: ECL30 IH, Internal Halyard

Other: 5" Butt Dia. 33' H (30' Exposed)

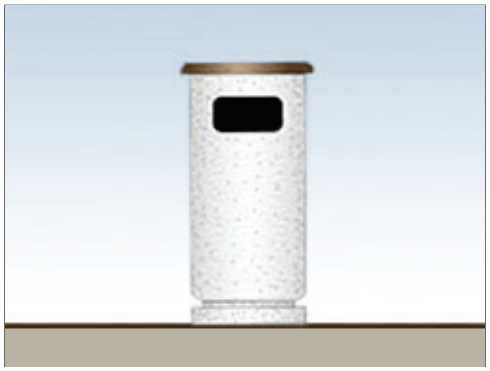
UFGS: N/A

C07.2.11. Lighting – Landscape / Accent

Please refer to the Lighting section.

C07.2.12. Litter and Ash Receptacles

◉ Applicable ○ N/A Number of base standards 2



Type: **Style 1: Precast concrete**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Materials, Inc.

Color: Weatherstone Gray

Finish: Smooth

Model #: TR-3225 Sante Fe (round or square)

Other: Rigid plastic internal liner, http://materialsinc.com/wp-content/uploads/2014/10/TR-3225_SANTA_FE.pdf

UFGS: N/A

Type: **Style 2: Metal**

Applies to: ☐ Group 1 ☐ Group 2 ☐ Group 3 ☐ Group 4 ☑ Other

Mfr: Wabash Valley

Color: Black or as approved

Finish: Perforated Pattern

Model #: Urbanscape “E” with liner, 32 Gallon

Other: With dome top, without side door

UFGS: N/A

C07.2.13. Picnic Tables

◉ Applicable ○ N/A Number of base standards 2

Type: **Precast concrete**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Materials, Inc.

Color: Weatherstone Gray

Finish: Standard Finish (Smooth)

Model #: TS-3490 New Mexican

Other: (303) 458-9595

UFGS: N/A

Type: **Metal, vinyl coated**

Applies to: ☐ Group 1 ☐ Group 2 ☑ Group 3 ☐ Group 4 ☑ Other

Mfr: Wabash Valley

Color: Brown or as approved

Finish: Factory vinyl coated

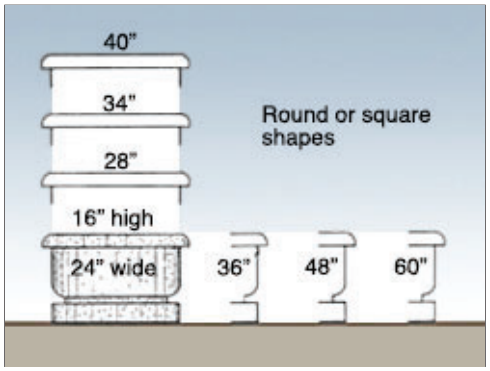
Model #: Signature Series, 46" Square Pedestal Tables with 4 Seats

Other: Perforated Pattern, In-ground mount

UFGS: N/A

C07.2.14. Planters

◉ Applicable ○ N/A Number of base standards 1



Type: **Precast concrete**

Applies to: ☑ Group 1 ☐ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Materials, Inc.

Color: Weatherstone Gray

Finish: Smooth

Model #: Santa Fe

Other: N/A

UFGS: N/A

C07.2.15. Play Equipment

◉ Applicable ○ N/A Number of base standards 1

Type: **Steel**

Applies to: ☐ Group 1 ☐ Group 2 ☐ Group 3 ☑ Group 4 ☑ Other

Mfr: Little Tikes Commercial

Color: Varies

Finish: Powdercoated Steel

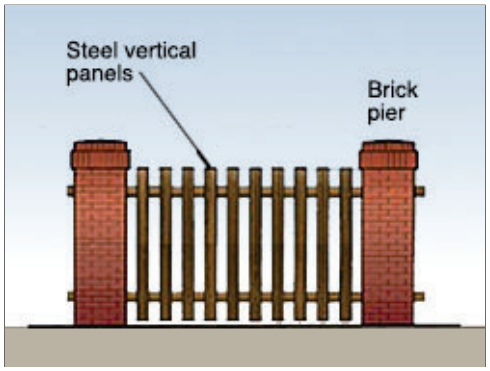
Model #: N-R-G Freestyle

Other: Coordinate with Base Architect

UFGS: N/A

C07.2.16. Screen Walls

◉ Applicable ○ N/A Number of base standards 1



Type: **Brick / Steel**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Custom

Color: Red brick blend, dark brown fencing

Finish: Powder coated metal

Model #: Brick Piers with steel posts, rails and alternating panels

Other: Brick: 2'x2' (Height as required, equally spaced 8' to 40'), Steel posts: 4"x4" (equally spaced), Rails: 1-1/4"x1-1/2", vertical steel panels spaced alternately on each side of the rails; matching gates; close all ends

UFGS: Section 04 20 00 Unit Masonry, Section 05 50 13 Misc. Metal

C07.2.17. Tree Grates

◉ Applicable ○ N/A Number of base standards 1

Type: **Cast Iron**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Neenah Enterprises, Inc.

Color: Natural cast iron

Finish: Cast

Model #: 2-Piece, round or square

Other: N/A

UFGS: N/A

C07.2.18. Other

○ Applicable ◉ N/A

C08. EXTERIOR SIGNS

Comply with AF Corporate Standards for Site Development:
http://afcfs.wbdg.org/site-development/index.html

Comply with AF Corporate Standards for Exterior Signs:
http://afcfs.wbdg.org/site-development/exterior-signs/index.html

C08.1. Colors and Types

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Provide concise functional signs as a visually unifying element with consistent colors and types for all Installation and Gate Identification Signs; Building Identification Signs; Traffic Control Devices; Directional and Wayfinding Signs; and Informational and Motivational Signs.

2. Provide signs with the lowest overall life cycle costs considering initial cost, ongoing maintenance and lifespan while meeting quality standards. Follow IFS for specifications appropriate for the local climate to withstand weathering.

3. Reduce the number of signs, reduce visual clutter and provide only essential signs required for identification, directions, instructions, and customer service following UFC 3-120-01. Remove non-conforming signs during renovation projects and/or as they appear.

4. Use clear concise terms for content consistent with UFC 3-120-01.

5. Display of emblems on building exterior walls or other permanent structures is prohibited by UFC.

6. Group 2 and 3 facilities shall have wall mounted facility signs with sizes and layouts following UFC 3-120-01. Signs are not permitted for Group 4 facilities.

7. Signage for Group 2 command housing of an organization should include the number of the squadron preceding the organization, for example, “1st Fighter Squadron.” Abbreviations on signage should be avoided.

8. Only one identification sign is permitted at each building entrance. Include a building address consistent with US Postal Service protocols following UFC 3-120-01.

9. Traffic Control Devices, which regulate vehicular traffic on the installation, shall conform to the standards in the Manual of Uniform Traffic Control Devices (MUTCD) published by the Federal Highway Administration. Coordinate street signs with this IFS.

10. Provide Directional and Wayfinding Signs and address both pedestrian and vehicular traffic following UFC 3-120-01 for size, layout and content.

11. Reserved parking signs should be kept to a minimum.

12. Follow the guidelines and requirements in ABAAS and the MUTCD for accessible parking signs.

13. Follow UFC 3-120-01 for Informational and Motivational Signs for size, layout and content.

14. Refer to UFC 3-120-01 for prohibited signs, which include those with animated, blinking, chasing, flashing, or moving effects.

15. Manufacturers listed below are only provided to establish a baseline of equivalence among all applicable manufacturers.

C08.1.1. Materials and Color Specifications

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Fabricate sign panels from aluminum, painted brown. Sign posts shall be 3" square aluminum with capped ends in a concrete base.

2. Fence mounted sign panels may be attached with exposed fasteners.

3. Freestanding signs shall have white letters on brown background. Finish shall be fluoropolymer (e.g. Kynar 500) coating or equal.

4. Directional signs shall be aluminum post and panel design with 3-inch square posts. Finish to match building identification signage.

5. All signage shall follow Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD) using standard colors. Refer to MUTCD color specifications, which provide cross-referenced Pantone Matching System (PMS) numbers.
a. Standard Blue
b. Standard Dark Bronze (also Federal Standard Color 30040)
c. Standard Red
d. Standard Black (non-reflective)
e. Standard White
f. Standard Brown

Materials and Color Specifications

◉ Applicable ○ N/A Number of base standards 3

Type: **Typical Sign Fce**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☑ Other

Mfr: Custom

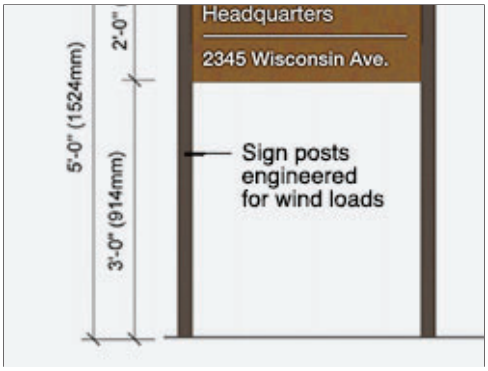
Color: Medium bronze

Finish: Matte vinyl

Model #: Aluminum flat sheet

Other: Mount to square posts. Provide sizes following UFC.

UFGS: Section 05 50 13 Miscellaneous Metal Fabrications



Type: **Typical Sign Post**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☑ Other

Mfr: Custom

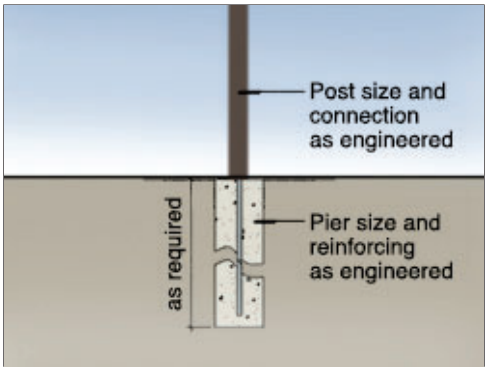
Color: Dark bronze, powder coat finish

Finish: Matte

Model #: Extruded aluminum with capped top ends

Other: Square posts and squared ends. Provide engineered sizes.

UFGS: Section 05 50 13 Miscellaneous Metal Fabrications



Type: **Typical Sign Base**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☑ Other

Mfr: Custom

Color: Natural Gray

Finish: Sonotube-formed

Model #: 24" height x 12" diameter, as engineered.

Other: At grade with 3/4" chamfer. Provide engineered sizes.

UFGS: UFGS 03 30 00 Cast-in-place Concrete

C08.1.2. Installation and Gate Identification Signs

◉ Applicable ○ N/A Number of base standards 1

Type: **Primary, Secondary and Tertiary (Uses per UFC)**

Applies to: ◉ Group 1 ☐ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Custom

Color: Dark bronze, brushed aluminum, accents per UFC

Finish: Powder coat or vinyl sign face

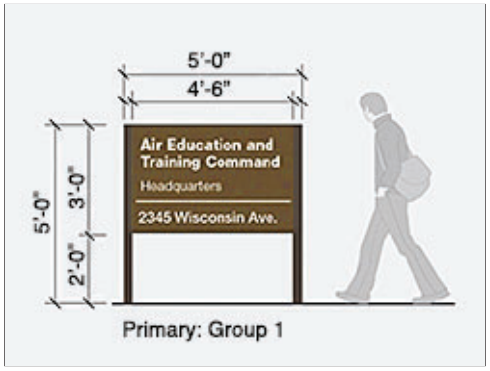
Model #: Metal frame and panels, buff stone base

Other: White vinyl lettering. Provide dimensions per UFC. Secondary signs shall match primary sign's materials, but shall be smaller in size per UFC. Tertiary signs shall follow the UFC.

UFGS: Section 05 50 13 Miscellaneous Metal Fabrications

C08.1.3. Building Identification Signs

◉ Applicable ○ N/A Number of base standards 5



Type: **Freestanding Primary Sign (Sizes and Uses per UFC)**

Applies to: ◉ Group 1 ☐ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Custom

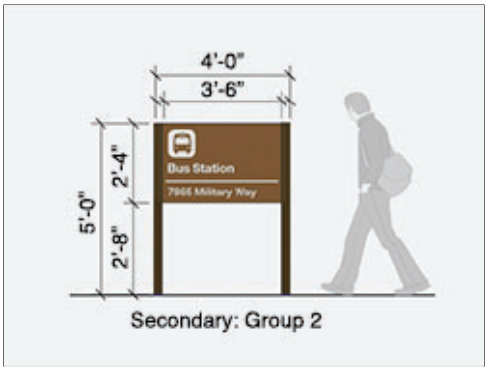
Color: Medium brown face, dark bronze posts, white vinyl lettering

Finish: Powder coat or vinyl sign face

Model #: Aluminum sheet face, extruded aluminum posts

Other: Provide layout and sizes per UFC.

UFGS: Section 05 50 13 Miscellaneous Metal Fabrications



Type: **Freestanding Secondary Sign (Sizes and Uses per UFC)**

Applies to: ☐ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Custom

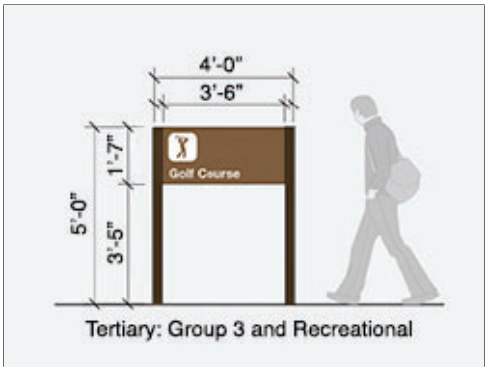
Color: Medium brown face, dark bronze posts, white vinyl lettering

Finish: Powder coat or vinyl sign face

Model #: Aluminum sheet face, extruded aluminum posts

Other: Provide layout and sizes per UFC.

UFGS: Section 05 50 13 Miscellaneous Metal Fabrications



Type: **Freestanding Tertiary Sign (Sizes and Uses per UFC)**

Applies to: ☐ Group 1 ☐ Group 2 ☑ Group 3 ☐ Group 4 ☑ Other

Mfr: Custom

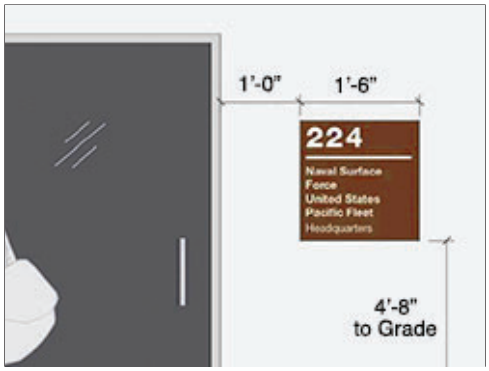
Color: Medium brown face, dark bronze posts, white vinyl lettering

Finish: Powder coat or vinyl sign face

Model #: Aluminum sheet face, extruded aluminum posts

Other: Provide layout and sizes per UFC.

UFGS: Section 05 50 13 Miscellaneous Metal Fabrications



Type: **Wall Mounted**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Custom

Color: Medium brown, white lettering

Finish: Satin vinyl applied to aluminum sheet

Model #: Aluminum sheet with vinyl face and vinyl lettering

Other: Provide layout and sizes following UFC.

UFGS: N/A

Type: **Glass Mounted**

Applies to: ☑ Group 1 ☐ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Custom

Color: White vinyl lettering

Finish: Matte vinyl

Model #: Machine-cut sheet vinyl

Other: Apply vinyl lettering to glass. Provide sizes following UFC.

UFGS: N/A

C08.1.4. Traffic Control Devices (Street Signs)

◉ Applicable ○ N/A Number of base standards 1

Type: **Street Signs**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☑ Group 4 ☐ Other

Mfr: Custom

Color: White reflective lettering on a Standard Brown background

Finish: Powder coat or vinyl sign face

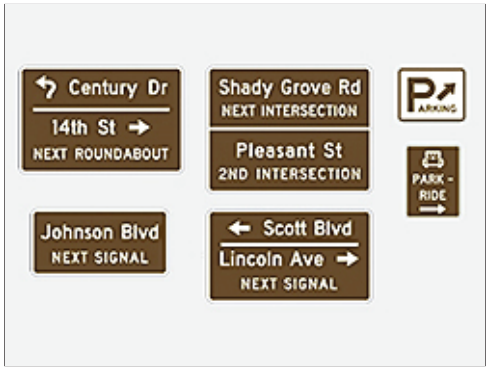
Model #: Aluminum sign face, control arm or pole mounted

Other: Mount 7' above grade minimum, pictographs and logos are prohibited on street name signs per UFC.

UFGS: Section 05 50 13 Miscellaneous Metal Fabrications

C08.1.5. Directional and Wayfinding Signs

◉ Applicable ○ N/A Number of base standards 2



Type: **Vehicular**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☑ Group 4 ☑ Other

Mfr: Custom

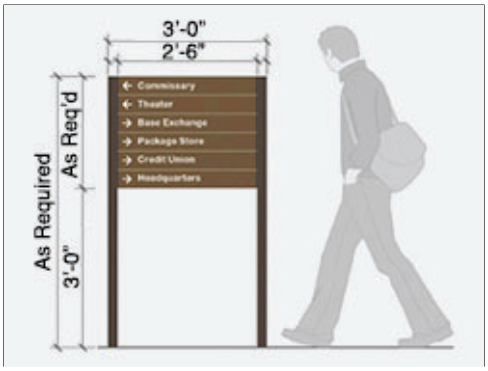
Color: Medium brown face, dark bronze posts, white reflective lettering

Finish: Powder coat or vinyl sign face

Model #: Aluminum sheet face, extruded aluminum posts

Other: Conform to the requirements of the MUTCD and its DoD Supplement. Provide types and sizes where required by UFC.

UFGS: Section 05 50 13 Miscellaneous Metal Fabrications



Type: **Pedestrian**

Applies to: ● Group 1 ● Group 2 ● Group 3 ● Group 4 ● Other

Mfr: Custom

Color: Medium brown face, dark bronze posts

Finish: Powder coat or vinyl sign face

Model #: Aluminum sheet face, extruded aluminum posts

Other: White vinyl lettering. Provide types and sizes where required by UFC.

UFGS: Section 05 50 13 Miscellaneous Metal Fabrications

C08.1.6. Informational Signs

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Minimize informational signs such as static display signs, hours of operation, and project signs to reduce visual clutter.

2. Static display signs shall have standard brown base coloring.

3. Hours of operation signs shall have a level of quality equivalent to the Facility Group number.

4. Temporary / Project Signage shall be judiciously placed to avoid visual clutter. Schedule and arrange for the removal of these signs prior to installation.

C08.1.7. Motivational Signage

○ Applicable ◉ N/A Large graphics

○ Applicable ◉ N/A Small graphics

1. Provide professionally produced motivational signs as important elements of campaigns to boost morale, improve safety, aid in recruiting, and accomplish other motivational objectives. Consolidate this signage to reduce visual clutter.

2. Motivational signs shall be limited to an electronic "marquee" type changeable sign near each gate. Temporary signs are not permitted. Motivational information may also be posted in a small, printed format on kiosks in specified, high pedestrian use areas. Refer to kiosks under Site Furnishings.

3. Follow UFC 3-120-01 for color and layout. Note that animated, blinking, chasing, flashing, or moving effects are prohibited by the UFC.

4. Mount marquee signs on reinforced concrete bases with a natural warm gray color.

C08.1.8. Parking Lot Signs

○ Applicable ◉ N/A

C08.1.9. Regulatory Signs

○ Applicable ◉ N/A

1. Regulatory signage, which restricts, warns and advises, shall be limited to those mandated under Highway/Traffic, Government Warning, and/or Parking Regulation. Follow UFC 3-120-01 and its industry references for color and layout.

2. Provide a comprehensive, systematic approach to regulatory signage to avoid clutter and confusion from "over signage."

3. Maintain base warning signs for safety and security at the base perimeter and at specific secure areas. Use these to notify visitors of restrictions governing conduct on the base, as well as other security procedures.

C08.1.10. Other

○ Applicable ◉ N/A

C09. LIGHTING

Comply with AF Corporate Standards for Site Development:
http://afcfs.wbdg.org/site-development/index.html

Comply with AF Corporate Standards for Lighting:
http://afcfs.wbdg.org/site-development/lighting/index.html

C09.1. Fixtures and Lamping

○ Applicable ◉ N/A Large graphics

◉ Applicable ○ N/A Small graphics


Shielded Fixture


Lighted Bollards


Group 4 Application

1. Provide, coordinate and efficiently install street, parking lot, sidewalk and facility lighting with appropriate luminaires, lamping, placement and spacing following UFC 3-530-01 and Installation Facilities Standards (IFS); ensure the level of quality is consistent with the adjacent facility group number. Pole-mounted, wall-mounted and bollard fixtures are permitted.

2. Integrate controls to automatically reduce lighting power during periods of non-activity; automatically turn off power when sufficient daylight is available.

3. Ensure continuity and consistency of lighting elements. In new construction generally match post types, fixture types, styles, heights, sizes, materials, colors, and lamp types of adjacent facilities and the facility district.

4. Economically provide renewable-energy power sources such as solar photovoltaic when feasible.

5. Use appropriately designed or shielded luminaires to direct light downward to minimize light pollution and intrusion onto adjacent sites and to facilitate night training.

6. Calculate illuminant levels for all lighting applications following UFC 3-530-01 and ensure compliance with pre-curfew maximum brightness level requirements.

7. Sufficiently address environmental factors to prevent corrosion and weathering of fixtures, plinths and other components.

8. Wall mounted fixtures should respond to the architectural character of the facility. Streets, paths, and parking lots shall be illuminated using period-correct replica fixtures similar to adjacent fixtures.

9. Efficient accent lighting of architectural and landscape features may be provided for Group 1, lodging and historical applications. Accent lights in ground-mounted locations may be provided for static displays and signs when these do not conflict or cause hazards with overhead aircraft.

10. Comply with UFC 3-530-01 for light source technology and lamp types. High efficiency lamping such as LED is preferred for most applications.

11. Streets and parking lots shall be illuminated by fixtures mounted on tapered metal poles, 25-40′ high. The fixture shall be rectangular cutoff (shoebox type) fixtures or alternate fixtures compatible with the surrounding architecture and existing fixtures. Color shall be dark bronze. Low level path lighting shall be provided by using bollard type fixtures in dark bronze metal finish.

12. Pedestrian circulation and area lighting shall use rectangular cutoff (shoebox type) fixtures or alternate fixtures compatible with the surrounding architecture and existing fixtures. Fixtures shall be mounted on 12′ to 15′ metal posts. Color shall be dark bronze.

13. Install lighted bollards only at Group 1 and high-traffic Group 2 facilities. Generally match materials, colors and shapes of adjacent facilities and the facility district.

14. Install natural warm gray color, smooth finished concrete bases for all poles in heights appropriate for the facility group and application. Generally Groups 1, 2 and 4 shall have at-grade bases. Group 3 shall have taller bases for added durability.

15. When parking lot lighting is necessary, provide an illuminated path to the building's main entrance. Pole bases should be contained within an internal landscape median or island.

16. Consistently install lighting for sidewalks, bikeways and trails to match adjacent facilities.

17. Landscape accent lighting may be used in public gathering spaces and in Group 1 facilities. Coordinate the design, luminaire selection, and placement with the location of trees, shrubs, and site furnishings.

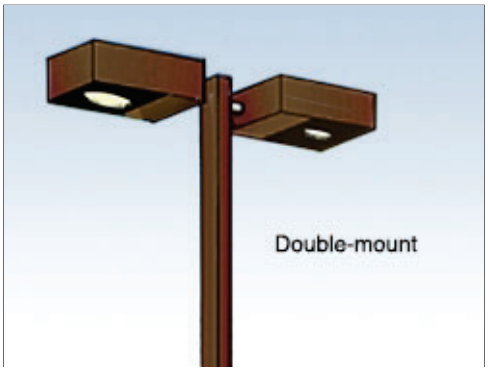
18. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.

C09.2. Light Fixture Types

Note: *Apply the below base-wide standards for Light Fixtures (products, materials and color). Then refer to the Appendix and apply any additional requirements specifically related to the Facility District in which the project is located.*

C09.2.1. Street Lighting

◉ Applicable ○ N/A Number of base standards 1



Type: **Style 1**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☑ Group 4 ☑ Other

Mfr: Hubbell, Kim Lighting

Color: Dark Bronze Anodized (or Clear Anodized as approved by BCE)

Finish: Factory

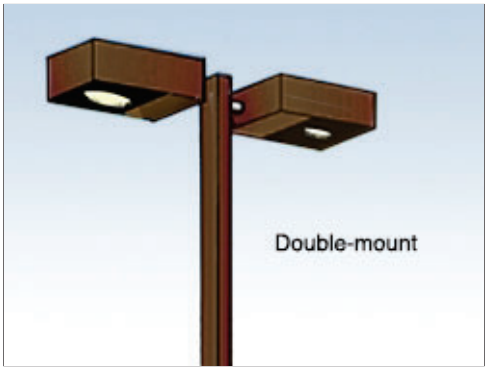
Model #: Rectilinear Cutoff, Single Arm or Dual Arm Mount

Other: Lamp: LED. Follow manufacturer's recommendations for fixture base.

UFGS: N/A

C09.2.2. Parking Lot Lighting

◉ Applicable ○ N/A Number of base standards 2



Type: **Parking Lot Style 1**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☑ Other

Mfr: Hubbell, Kim Lighting

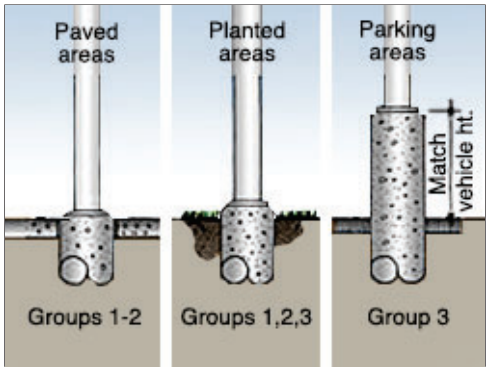
Color: Dark Bronze Anodized (or Clear Anodized as approved by BCE)

Finish: Factory

Model #: Rectilinear or Round Cutoff, Single Arm or Dual Arm Mount

Other: Lamp: LED. Follow manufacturer's recommendations for fixture base.

UFGS: N/A



Type: **Parking Lot Fixture Base**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☑ Other

Mfr: Custom

Color: Natural gray

Finish: Trowel

Model #: Form-cast, round

Other: N/A

UFGS: Section 03 33 00 Cast-In-Place Architectural Concrete

C09.2.3. Lighted Bollards

◉ Applicable ○ N/A Number of base standards 2

Type: **Lighted Round Dome Top**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☑ Other

Mfr: Lithonia Lighting Products

Color: Dark Bronze

Finish: Anodized aluminum

Model #: KBA

Other: Flared cone, 3000K LED Lamp. Follow manufacturer's recommendations for fixture base.

UFGS: N/A

Type: **Lighted Square Sloped Top**

Applies to: ◉ Group 1 ☐ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Kim Lighting

Color: Platinum Silver

Finish: Anodized aluminum

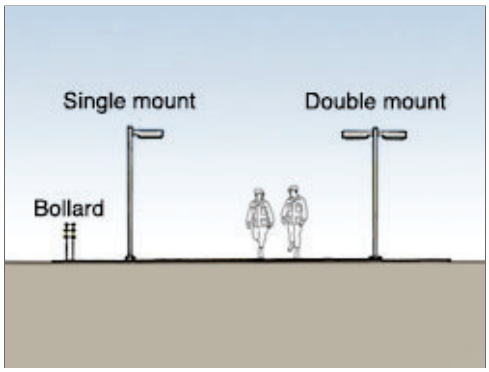
Model #: VSB1 Square

Other: 3000K LED Lamp, 360° downlighting

UFGS: N/A

C09.2.4. Sidewalk Lighting

◉ Applicable ○ N/A Number of base standards 1



Type: **Rectilinear Cutoff**

Applies to: ◉ Group 1 ◉ Group 2 ☐ Group 3 ☐ Group 4 ◉ Other

Mfr: Hubbell, Kim Lighting

Color: Dark Bronze Anodized (or Clear Anodized as approved by BCE)

Finish: Anodized aluminum

Model #: Rectilinear Cutoff, Single Arm or Dual Arm Mount

Other: Lamp: LED. Follow manufacturer's recommendations for fixture base.

UFGS: N/A

C09.2.5. Walls / Stairs Lighting

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Vista Lighting

Color: Dark bronze anodized

Finish: Smooth

Model #: Aluminum Step and Brick Lights, 5230 round louvered

Other: Lamp: LED

UFGS: N/A

C09.2.6. Other

○ Applicable ◉ N/A

D. FACILITIES EXTERIORS

Comply with Air Force Corporate Standards for Facilities Exteriors:
http://afcfs.wbdg.org/facilities-exteriors/index.html

D01. SUPPORTING THE MISSION

Comply with AF Corporate Standards for Supporting the Mission:
http://afcfs.wbdg.org/facilities-exteriors/supporting-the-mission/index.html

D02. SUSTAINABILITY

Comply with Air Force Corporate Standards for Sustainability:
http://afcfs.wbdg.org/facilities-exteriors/supporting-the-mission/index.html

D03. ARCHITECTURAL FEATURES

Comply with AF Corporate Standards for Facilities Exteriors:
http://afcfs.wbdg.org/facilities-exteriors/index.html

Comply with AF Corporate Standards for Architectural Features:
http://afcfs.wbdg.org/facilities-exteriors/architectural-features/index.html

Group 1


Group 2



Group 3



Group 4



D03.1. Orientation, Massing and Scale

1. Orient new buildings to maximize energy efficiency, passive solar and daylighting potential of the building; narrow buildings oriented along an east-west axis are desired to minimize heat gain in the summer months and maximize heat gain in the winter months resulting in less overall energy usage along with mirroring existing architectural styles on the installation.

2. Provide orthogonal geometry for principal building form; angular geometry may be used sparingly for Group 1 and used only for emphasis at specific areas such as building entrances and stairwells. Use of simple massing and sloped roof forms is preferred.

3. Create consistent form and scale in adjacent buildings with compatible profiles or silhouettes.

4. Combine functions where practical to avoid a proliferation of small, independent structures.

5. Use and coordinate shading devices with orientation and for function.

D03.2. Architectural Character

1. Develop architectural features, materials and detailing appropriate for the Facility Group designation. Refer to Building Entrances, Wall Systems and Roof Systems.

2. Respond to the local climate and regional influences with environmentally functional architectural features. Use porticos, arcades and colonnades to provide shade and transition buildings to site features.

3. For new facilities design generally maintain consistency and visual unity in the character of the adjacent buildings through compatible architectural features: repeated use of similar forms such as roofs, and through recurring elements such as doors, windows, materials and colors.

4. Develop facades with proportions and a tripartite (base-middle-top) organization for compatibility with the historic architecture without direct stylistic imitation. Newly designed porticos, arcades or colonnades, for example, should avoid directly repeating features found on historic buildings.

5. Reinforce the campus atmosphere with human scaled architectural features and elements. Ensure a professional appearance with an image of quality and permanence.

6. All facilities shall express sustainability through their orientation, massing, shape, form, materials, and detailing. Provide louvers, fins and other shading devices to control heat gain and glare and to and improve energy efficiency.

7. Strive for economical construction without compromising a high-quality, professional appearance.

D03.3. Details and Color

1. Provide a palette of color related to the historical brick, stone and precast. Refer to wall systems for detailed material listings.

2. Relate the level of architectural detailing to the Facility Group number.

3. Use only integrally colored materials as the predominant exterior building material; do not use materials that require field painting and ongoing maintenance.

4. Provide consistent and compatible colors for every exterior building feature, including walls, roofs, doors, windows, gutters, downspouts, utility and mechanical elements, and other visible elements.

5. Noncorrosive metals with factory applied color finishes are required.

6. Combine details and color with orientation, massing, scale and architectural character to maintain base compatibility.

7. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.

D03.3.1. Climate-based Data and Life-Cycle Cost-Effective Passive and Natural Design Strategies:

- ○ Climate dominated by mechanical cooling
- ○ Climate dominated by mechanical heating
- ◉ Climate with similar mechanical cooling / heating needs
- ○ Climate with minimal mechanical cooling / heating needs

- ◉ Climate with high humidity
- ○ Climate with moderate humidity
- ○ Climate with low humidity

- ○ High Solar Insolation
- ○ Moderate Solar Insolation
- ◉ Low Solar Insolation

- ○ Soils with High Thermal Conductivity
- ◉ Soils with Average Thermal Conductivity
- ○ Soils with Low Thermal Conductivity

Other: Consider the potential for flooding and corrosion.

Other:

Facility: Narrow buildings along E-W axis are preferred

Wall: Integral shading features and devices / interior masonry thermal mass walls (for cooling)

Doors: Recessed are preferred

Windows: Provide insulating glazing on north-facing windows / maximize shading for windows on south façades

Roof: High to medium albedo, moderate slope for all buildings except hangars / large industrial facilities

Structure: Do not expose ferrous metals. Provide factory finished non-ferrous metals or concrete

MEP: Ground-source following LCCA

Other: Internal thermal mass walls may be used for cooling following LCCA.

Other:

Note: *Apply the below base-wide standards for Architectural Features (products, materials and color). Then refer to the Appendix and apply any additional requirements specifically related to the Facility District in which the project is located.*

D03.3.2. Natural Ventilation System

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1 Aluminum Windows**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Kawneer (or equivalent)

Color: Dark Bronze (or clear anodized as approved by BCE

Finish: Anodized

Model #: 2x4, slider or awning type

Other: Provide thermally broken frames.

UFGS: Section 08 41 13 Aluminum-Framed Entrances and Storefronts

D03.3.3. Thermal Mass

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1 Interior Wall Material**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Custom, TBD

Color: Red brick blend

Finish: Light texture

Model #: Coursed unit masonry

Other: Brick is preferred. Concrete block may only be used in Group 3 when approved by the BCE.

UFGS: Section 04 20 00 Unit Masonry

D03.3.4. Thermal Shading

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1 Wall Devices**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Kawneer (or equivalent) or custom

Color: Dark bronze

Finish: Factory, to match frames

Model #: Louver

Other: Shading devices may be attached to frames or structure

UFGS: Section 08 41 13 Aluminum-Framed Entrances and Storefronts

D03.3.5. Renewable Heating/Cooling

○ Applicable ◉ N/A

D03.3.6. Solar Photovoltaic System

◉ Applicable ○ N/A Number of base standards 1

Click here to insert image

Type: **Style 1 Solar Power Systems**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: EnergySage

Color: n/a

Finish: Factory, matte finish

Model #: Current to match Installation need

Other:

UFGS:

D03.3.7. Solar Thermal System

◯ Applicable ◉ N/A

D04. BUILDING ENTRANCES

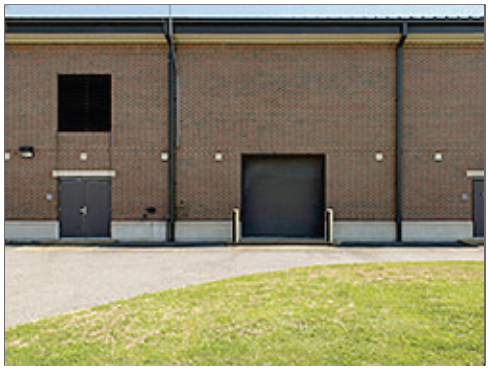
Comply with AF Corporate Standards for Facilities Exteriors:
http://afcfs.wbdg.org/facilities-exteriors/index.html

Comply with AF Corporate Standards for Building Entrances:
http://afcfs.wbdg.org/facilities-exteriors/building-entrances/index.html

Group 1



Group 2

Group 3


Group 4



D04.1. Primary Entrances

1. Emphasize the primary entrance in the overall building design with a projecting or recessed covering for weather protection following Installation Facilities Standards (IFS) for Facility Group designations. Ensure the main entrance is clearly visible from the main viewing street and the parking area.

2. All exterior entrance doors must have at least 3'-0" of protective cover. Roof overhangs, recesses, colonnades or other integrated elements may be used. Separate elements applied to the exterior walls (example: cantilevered or bracketed canopies or glass roofed vestibules) are discouraged. Fabric canopies on new buildings are not allowed.

3. Address the entire entry sequence beginning with vehicular/pedestrian circulation routes and terminating in the building lobby. Where both a front (street) and a back (parking) entrance are required, both building entrances should connect to the main lobby.

4. Provide vestibules at entries in Groups 1, 2 and 3 unless used infrequently or serving unconditioned space following ASHRAE 90.1.

5. Fully integrate all elements including the design of handicap ramps in the overall design of the primary entrance in an organized uncluttered appearance.

6. Install paved transitional spaces sized for the building function and occupancy.

7. Install appropriate lighting and site furniture following AT/FP and IFS.

8. Provide porte cocheres or covered drop-offs are justified for lodging and medical facilities only; do not use for prestige or architectural accents or on other facility types.

9. New facilities should be constructed at a first floor elevation (FFE) at current installation standard, however, when renovating existing facilities door dam barriers to prevent interior facility flooding should be incorporated within design in consultation with 633 CES/CEO.

D04.2. Secondary Entrances

1. Provide vestibules at entries in Groups 1, 2 and 3 unless used infrequently or serving unconditioned space following ASHRAE 90.1; use of stair towers as vestibules for multi-story buildings is encouraged when building and / or energy codes are satisfied.

2. Reflect the character of the primary entrance to a lesser extent with a smaller scale.

3. Include a recess or projection for weather protection and shading.

4. Integrate service and egress doors and loading areas with the building design by matching the materials and detailing and reflect the overall quality of the facility.

5. Incorporate egress structures such as stair towers into the facility design.

6. Canopies may be used for service and loading areas; weather protection beyond weatherstripping is not required at doors used only for life safety egress.

7. Develop building massing and orientation to minimize the appearance of service and loading areas; physically and visually separate these from primary entrances.

8. Loading areas must be organized, orderly and have an uncluttered appearance.

9. New facilities should be constructed at a first floor elevation (FFE) at current installation standard, however, when renovating existing facilities door dam barriers to prevent interior facility flooding should be incorporated within design in consultation with 633 CES/CEO.

D05. WALL SYSTEMS

Comply with AF Corporate Standards for Facilities Exteriors:
http://afcfs.wbdg.org/facilities-exteriors/index.html

Comply with AF Corporate Standards for Doors and Windows:
http://afcfs.wbdg.org/facilities-exteriors/wall-systems/index.html

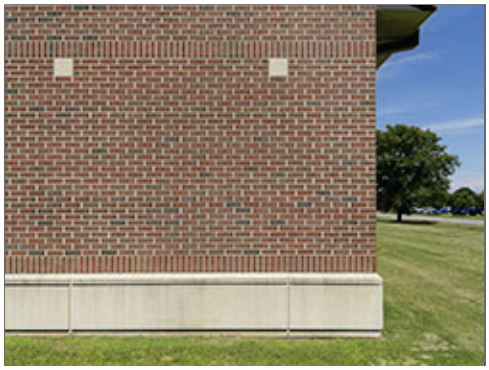
Comply with AFCFS Recommended Materials:
http://afcfs.wbdg.org/facilities-exteriors/wall-systems/materials/index.html

Group 1



Group 2





Group 3



Group 4



D05.1. Hierarchy of Materials

1. Group 1 facilities may have more refined detailing than Group 2 and Group 2 may have more definition than Group 3.

2. Group 1 and Group 2 facilities shall be predominantly brick; secondary accent materials will be architectural precast concrete. Generally match the size, color and texture of brick and precast of adjacent facilities in new construction.

3. Group 1 facilities may use moderately decorative brick detailing and bond patterns at building entrances and entrance facades. Acccents of architectural precast concrete may simulate traditional limestone elements such as water tables, plinth blocks, band coursing, lentils, keystones, cornice, coping, sills, etc.

4. Develop simple, modest detailing and bond patterns in brick elements for Group 2 facilities. Provide a brick base as a visual foundation, which may emulate a water table.

5. Ribbed metal sheeting is the predominant material for Group 3 facilities and inconspicuous areas of Group 2 facilities. Brick accents may be provided in Group 3 as wainscots where added durability is required or where facilities are adjacent to a Group 1 arterial street. Generally match the size, color and texture of metal panels and brick of adjacent facilities in new construction. Refer to the Appendix for special requirements of Facility Districts.

6. New Group 4 shall be a combination of brick and horizontal siding. For existing facilities, maintain design standards established in the privatized housing contract.

7. Coordinate mortar color selection with the base design office. In most new construction facilities shall be constructed with Lawrenceville #1-111A brick with mortar color Lehigh 00024 (24A Hazelnut) or Riverton's Flamingo C-73. Mortar joints shall be tooled concave or tooled vee.

8. Provide Pecora Redwood Tan for joint sealant in expansion joints and control joints for brick veneer.

9. In renovations and repair projects of historic structures follow the guidelines of the State Historic Preservation office. Generally, provide replacement brick matching the color, shape, size, texture, appearance, and thermal expansion properties of the existing historic brick. Match existing mortar color and joint profile shall match existing when brick veneer repairs or additions to existing structures are accomplished.

10. Limit the use of stucco to repairs of existing conditions. Stucco is not permitted in new construction.

11. Multi-story Group 1 facilities may include precast band coursing to create a human scale in large brick walls. Generally limit brick and precast to a single color on Group 2, 3 and 4 facilities.

12. Use high-performance building envelopes following UFC 1-200-02.

13. Use detailing not subject to excessive weathering. Provide wall accents consistently throughout the base.

14. Use integrally colored materials and factory-finished metals. Do not paint masonry.

15. Translucent wall panels may be used in Facility Group 1 and recreational uses in Group 2 when protected from direct solar gain. Provide insulating panels and shading appropriate for the orientation and exposure.

16. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.

D05.2. Layout, Organization and Durability

1. Organize wall components including doors, windows, accents, shading devices, control joints, etc., to provide an ordered, professional appearance.

2. Integrate shading devices into the overall composition of the wall.

3. Integrate fixed shading devices as at all exterior glazing exposed to summer UV heat gain as a passive design measure to reduce energy use. Ensure adequate shading at west entrances. Deciduous trees may be used for shading.

4. Shading systems may be included as part of a manufacturer's window system or may be custom systems integrated into the wall.

5. Provide appropriate transitions between dissimilar materials to mitigate effects of thermal expansion and galvanic action.

6. Materials requiring regular maintenance are not permitted; do not use exposed structural steel or other materials that require painting.

7. Refer to C07.2.16. Screen Walls for materials and colors of freestanding walls.

8. Refer to D07. Roofs for downspouts.

D05.3. Equipment, Vents and Devices

1. Arrange all mechanical, electrical, fire alarm, lightning protection and other system components to create an orderly appearance that integrates with the wall system.

2. Do not expose conduits, cables, piping, lightning protection components, etc. on exterior walls; if unavoidable in renovations, finish these elements to match the adjacent wall surface.

3. Avoid visual clutter and where surface-mounted elements are required they shall match the wall color.

D05.4 Wall Systems Materials

Facility Group 1 wall materials shall be as follows.

Primary:	Brick
Secondary:	Architectural precast
Accent:	Alternate coursing and relief

Facility Group 2 wall materials shall be as follows.

Primary:	Brick
Secondary:	Architectural precast
Accent:	N/A

Facility Group 3 wall materials shall be as follows.

Primary:	Ribbed metal sheeting
Secondary:	Optional: brick (in high visibility areas)
Accent:	N/A

Facility Group 4 wall materials shall be as follows.

Primary:	Fiber Cement Siding
Secondary:	Fiber Cement Siding, Trim Boards
Accent:	Concrete or Brick Foundation Cladding

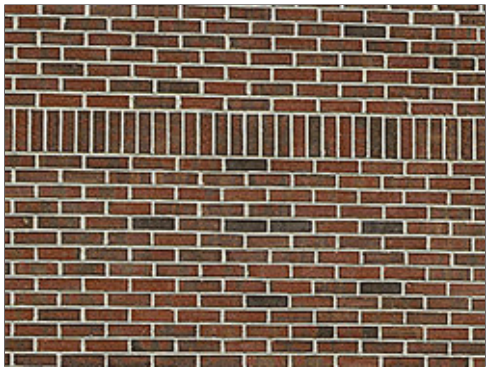
Note: *Apply the below base-wide standards for Wall Systems (products, materials and color). Then refer to the Appendix and apply any additional requirements specifically related to the Facility District in which the project is located.*

D05.4.1. Flat Metal Panels

○ Applicable ◉ N/A

D05.4.2. Brick Veneer

◉ Applicable ○ N/A Number of base standards 1



Type: **Modular Face Brick**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☑ Group 4 ☐ Other

Mfr: Local, TBD

Model #: Face Brick

Color: Red blend

Finish: Straight Edges, smooth texture

Other: Nominal size: 4x8x2.6

UFGS: Section 04 20 00 Unit Masonry:
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 04 20 00.pdf

D05.4.3. Architectural Precast

◉ Applicable ○ N/A Number of base standards 1

Type: **Coursed precast**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Local, TBD

Model #: Smooth Casting

Color: Light Beige

Finish: Very Light texture

Other: N/A

UFGS: Section 03 45 00 Precast Architectural Concrete:
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 03 45 00.pdf

D05.4.4. Stucco Over Sheathing

○ Applicable ◉ N/A

D05.4.5. Curtain Wall

○ Applicable ◉ N/A

D05.4.6. Cast-In-Place Concrete

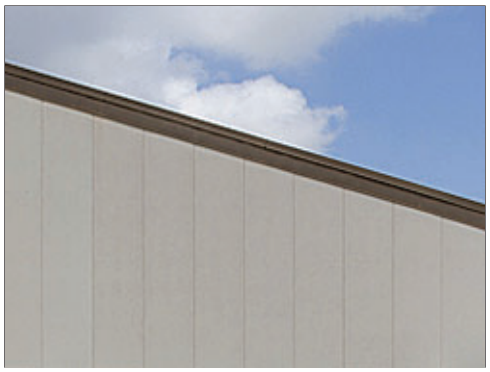
○ Applicable ◉ N/A

D05.4.7. Tilt-Up Concrete

○ Applicable ◉ N/A

D05.4.8. Ribbed Metal Sheeting

◉ Applicable ○ N/A Number of base standards 1



Type: **Flush Seam**

Applies to: ☐ Group 1 ☐ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Berridge

Model #: Flush Seam Panel

Color: Beige

Finish: Embossed Texture, factory finished

Other: 24 Gauge Steel

UFGS: Section 07 42 13 Metal Wall Panels:
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 07 42 13.pdf

D05.4.9. EFIS

○ Applicable ◉ N/A

D05.4.10. GRFC

○ Applicable ◉ N/A

D05.4.11. Concrete Block

○ Applicable ◉ N/A

D05.4.12. Fiber Cement Siding

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1**

Applies to: ☐ Group 1 ☐ Group 2 ☐ Group 3 ◉ Group 4 ☐ Other

Mfr: James Hardie Building Products, Inc.

Model #: Horizontal Lap Siding, Shingle Siding

Color: Earth Tones

Finish: Wood Texture

Other: Hardie Plank, Hardie Shingle

UFGS: SECTION 074646 Fiber Cement Siding:
(Not Available on UFGS)

D05.4.13. Other

○ Applicable ◉ N/A

D06. DOORS AND WINDOWS

Comply with AF Corporate Standards for Facilities Exteriors:
http://afcfs.wbdg.org/facilities-exteriors/index.html

Comply with AF Corporate Standards for Doors and Windows:
http://afcfs.wbdg.org/facilities-exteriors/doors-and-windows/index.html

Comply with AFCFS Recommended Materials:
http://afcfs.wbdg.org/facilities-exteriors/doors-and-windows/materials/index.html

Group 1



Group 2



Group 3



Group 4



D06.1. Types

1. Brown anodized aluminum doors, windows and frames with thermal breaks are preferred for Facility Groups 1 and 2; match the color of the door and frame. Anodized finishes shall have a 5-year warranty. For renovation projects the color of new windows, doors and frames may match existing.

2. Aluminum clad wood windows are preferred for Facility Group 4. Glass in housing should have minimal tint.

3. Standard-sized hinged doors are preferred. Use sliding, folding, overhead, sectional and other door configurations only to support mission operations.

4. Automatic doors are allowed only where functionally necessary.

5. Limit hollow metal doors and frames to security doors, utility rooms and mechanical rooms in Groups 1 and 2 and to any application in Group 3 facilities. should be galvanized and field painted (verify color with 633 CES POC).

6. Utility and emergency egress doors shall match the wall color.

7. Passive thermal comfort methods of ventilation are encouraged where life cycle cost justified. Provide operable windows in residential, educational, and administrative spaces when possible. Specify insect screens and accessible hardware on operable windows.

8. Windows must meet force protection requirements.

9. Adjacent joint sealants should be slightly darker than the frame color.

10. For historic buildings the style and profile of new and/or replacement windows shall match the original window (consult the base Cultural Resource Management Plan (CRMP). The use of painted wood is discouraged, it is preferred that frames, molding and trim are wood clad in pre-finished aluminum. When retrofit storm windows are selected, provide units that compliment the existing window.

11. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.

D06.2. Layout and Geometry

1. Visually and functionally compose openings in walls for the climate-specific exposure. Orient windows to take advantage of cross ventilation.

2. Consistently use opening type, size, placement, mullion pattern, and color to reinforce the overall architectural design.

3. Openings shall augment interior lighting and space conditioning needs.

4. Protect against vandalism, intrusion and coordinate sound ratings.

5. Use north facing clerestory windows and other natural lighting methods to reduce lighting demand and associated cooling load.

D06.3. Glazing and Shading

1. Solar bronze tinted, insulated, energy-efficient, low-e, double-pane glazing with minimum reflectance is preferred. Due to high cooling loads, consider high-performance glazing where feasible.

2. Glazing color shall follow Installation Facilities Standards (IFS).

3. Translucent wall panels may be integrated into wall systems.

4. Do not use mirrored glazing.

5. Design building fenestration for user comfort and energy efficiency. Reduce cooling loads during Langley's hot summer months with functional shading. Fully integrate applicable shading designs for overhangs, louvers, light shelves and grilles.

6. Incorporate overhangs, porches, colonnades, insulated high performance glazing and other strategies to block direct summer solar gain.

7. Where appropriate, install window screens to take advantage of natural ventilation.

D06.4. Hardware

1. All locks at JBLE-Langley shall be compatible with Best Grand Master locking system. Hardware shall meet the requirements of the Americans with Disabilities Act Accessibility Guidelines in all community buildings and public buildings.

2. Keying shall be compatible with the existing JBLE-Langley master keying system. Locks should have interchangeable cores. Designers must consult with Base Civil Engineer prior to writing the specifications.

3. Provide hardware appropriate for the Facility Group while considering activity and frequency of use and local climate; hardware may be of higher visual quality for Facility Group 1.

4. Ensure hardware will perform throughout the facility's lifespan without showing extreme wear.

5. Select finishes that will not degrade by intensity of operation or exposure to the elements.

6. Use consistent finishes and colors on window and door systems throughout a facility. For renovation projects the color of new hardware may match the existing hardware.

7. Design building systems to eliminate the need for security screens whenever possible.

D06.5. Doors and Windows Materials

Note: *Apply the below base-wide standards for Doors and Windows (products, materials and color). Then refer to the Appendix and apply any additional requirements specifically related to the Facility District in which the project is located.*

D06.5.1. Anodized Aluminum

◉ Applicable ○ N/A Number of base standards 1

Type: **Anodized Aluminum Doors, Windows and Frames**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Kawneer (or equivalent)

Color: Dark Brown Anodized

Finish: Matte

Model #: 2x4

Other: Provide thermally broken frames

UFGS: Section 08 41 13 Aluminum-Framed Entrances and Storefronts:
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 41 13.pdf

D06.5.2. Hollow Metal

◉ Applicable ○ N/A Number of base standards 1

Type:

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Hollow Metal Doors, Windows and Frames

Color: Dark Brown

Finish: Powder Coated, Satin

Model #: 2x4 frame

Other: Provide thermally broken frames

UFGS: Section 08 11 13 Steel Doors and Frames:
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 11 13.pdf

D06.5.3. Aluminum-clad Wood

◉ Applicable ○ N/A Number of base standards 1

Type: **Aluminum-clad Residential**

Applies to: ☐ Group 1 ☐ Group 2 ☐ Group 3 ☑ Group 4 ☐ Other

Mfr: Marvin

Color: White or Earth tones

Finish: Powder coated, satin

Model #: Aluminum-clad wood windows

Other: Double hung

UFGS: Section 08 14 00 Wood Doors
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 14 00.pdf

D06.5.4. Other

○ Applicable ◉ N/A

D07. ROOF SYSTEMS

Comply with AF Corporate Standards for Facilities Exteriors:
http://afcfs.wbdg.org/facilities-exteriors/index.html

Comply with AF Corporate Standards for Roof Systems:
http://afcfs.wbdg.org/facilities-exteriors/roof-systems/index.html

Comply with AFCFS Recommended Materials:
http://afcfs.wbdg.org/facilities-exteriors/roof-systems/materials/index.html

Group 1



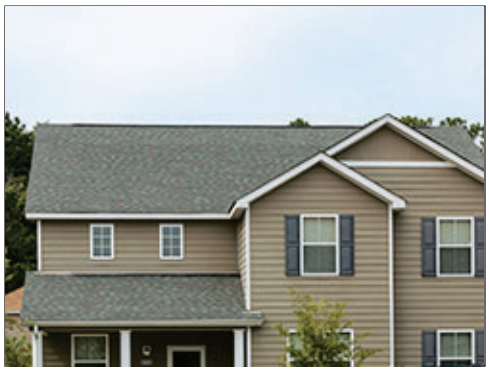
Group 2


Group 3



Group 4





D07.1. Roof Type and Form

1. Use proven, cost-effective roof systems with high durability, weather resistance, and low maintenance that are compatible with Installation Facilities Standards (IFS) and requirements for the designated Facility Group.

2. Generally match the roof type and form of existing adjacent facilities in new construction. Gable or hip roofs are preferred. Design one primary roof form throughout a building. Secondary roof forms may be used if needed to provide a human scale.

3. Group 1 and 2 buildings shall use sloped standing seam metal roofs sloped per the manufacturer's recommendations.

4. Large-scale Group 3 facilities may use low-sloped metal roofing.

5. Group 4 facilities shall have gabled or hipped composite shingle roofs.

6. Maintain a consistent roof slope throughout a building. This includes canopies, porches and other roofed elements. Provide screens for roof-mounted appendages and equipment of the same materials, which are used predominantly in the building's roof systems.

7. Roof eaves shall extend beyond the exterior wall for roof drainage and shading 18 to 24 inches in distance. The fascia should be no less than six inches in height.

8. South-facing eaves shall coordinate with adjacent wall-mounted shading devices.

9. The color, shape and slope of the eave and soffit shall be compatible with adjacent facilities.

10. Keep roofs uncluttered and minimize penetrations.

11. Diminish massive roofs into coordinated smaller components consistent with adjacent facilities; avoid random, arbitrary changes.

12. Increase the insulation value of existing roofing systems during renovations if supported by life cycle cost and structural analysis.

13. Roofs shall be maintained for the life of the system and replaced in accordance with UFC 3-110-04 and AFI 32-1051. A warranty is required on all new roofs.

14. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.

15. On renovations and repair projects generally match the original roofing material, color, shape, size, texture, appearance, and thermal expansion properties.

16. "Green" Roofs, those that introduce vegetation and other similar types of systems are not allowed under any circumstance to allow consistency with Bird Aircraft Strike Hazards (BASH) and higher maintenance requirements.

17. Provide roof warranties for new and repair projects as follows:
- Metal roof: Fluoropolymer (e.g. Kynar 500) factory finish, 20 years. Warranty includes water tightness and finish.
- Asphalt Shingles: 30 years.
- Slate, Clay, and Concrete Tile: 50 years.
- EPDM, Modified bitumen, Built-up roof: 20 years.

D07.2. Roof Slope

1. Group 1 and 2 buildings shall use sloped roofs, min. 3:12.

2. Low-sloped roofs are allowed for large-scale Group 3 structures or to match existing conditions on renovation projects. Hangars may have slopes as low as 1:12 with the approval of the Base Civil Engineer.

3. Group 4 facilities shall use 4:12 to 6:12 roof slopes.

4. Ensure adequate drainage, and connect to the subsurface rain collection system where available.

5. Provide roof slopes to accommodate solar photovoltaic, solar thermal, passive systems and daylighting when applicable following UFC 1-200-02.

6. Provide underlayments as required for the roofing type as directed by the UFC.

D07.3. Parapets and Copings

1. Minimal sloped "flat" roofs with parapet conditions are not permitted for structures under 5,000 square feet in roof area.

D07.4. Color and Reflectivity

1. Roofs in Groups 1 and 2 and smaller facilities in Group 3 shall be Dark bronze to match adjacent facilities and follow requirements of IFS.

2. Large-scale Group 3 facilities along the flight line may use light gray metal roof when the slope is less than 2:12 and not visible from normal ground-based sight lines; verify color with 633 CES. Group 3 facilities under 5,000 sf with narrow plan geometry, which are adjacent to large-scale buildings, may use light gray sloped roofs.

3. All minimal-slope membrane roofs shall use only use high-albedo, high reflectivity color to help decrease the temperature around the buildings and minimize damage to human and wildlife habitat.

4. Sloped roofs in Group 4 shall be warm gray Eart tones.

5. Comply with UFC 3-110-03 and ASHRAE 90.1 for Solar Reflectance Index (SRI) and thermal requirements.

6. All roof flashing shall match the color of the predominant background material.

D07.5. Gutters, Downspouts, Scuppers, Drains

1. All sloped roofs shall use gutters and downspouts. Gutters shall be outside the fascia. Concealed gutters may be used when located outside the exterior wall finish system. Ensure rain diverters or gutters and downspouts are be provided over building entrances.

2. Internal roof drainage systems are not permitted in new construction. Where low-slope roofs are permitted, direct drainage to the exterior walls. Use rain leaders in lieu of exterior downspout conductors.

3. In heavily wooded areas, ensure regular maintenance to remove leaf matter.

4. All gutters and fascias shall match the roof color.

5. Size the roof drainage system per IBC and SMACNA for the region.

6. Integrate downspouts with the architectural details of the wall system and arrange in an orderly, non-prominent appearance. Generally blend downspouts with the color of the wall (not contrasting it).

7. Fabricate downspouts from non-corrosive materials such as aluminum or zinc-coated steel. Provide powder-coated finishes in medium bronze.

8. All downspouts shall be solid.

9. Provide angled transitional pieces for downspouts to fit closely against the wall for their entire length.

10. Coordinate locations of downspouts to conceal control joints in masonry walls when possible.

11. Place downspouts away from building entries. Provide splashblocks at all downspouts, which discharge to grade. Water discharged should not run across sidewalks.

D07.6. Roof Vents and Elements

1. Minimize and consolidate roof penetrations into a single, inconspicuous point whenever possible. Roof penetrations should be made on the least visible sides of the roof (back or side elevations).

2. Penetrations should be kept to a minimum.

3. On sloped roofs clad pipe penetrations to match the roofing material.

4. Avoid the use of rooftop mechanical equipment, however for renovations and unavoidable configurations ensure units are screened. Use of rooftop equipment requires Base Civil Engineer (BCE) approval. Even with BCE approval of rooftop equipment, the owner will be required to fund equipment maintenance and roof maintenance for the life of the facility.

5. Provide access points and service routes to equipment that protect the roof.

6. Screen all large vents.

7. Ensure attic spaces are properly vented at ridges and soffits.

8. Match roof color for all exposed equipment and vents.

9. Avoid roof-mounted antenna systems.

10. Arrange Lightning Protection Systems (LPS) components in an ordered, uncluttered, inconspicuous appearance and integrated into the organization of the roof and wall systems.

11. Ensure that LPS roof mounting systems are approved by the roofing manufacturer.

12. Additions to a roof shall not interfere with LPS or other rooftop systems that may be required.

13. Permanent fall protection shall be included with any addition to a roof with a slope above 3:12 per UFC 3-110-03 to a roof with a slope above 3:12 per UFC 3-110-03.

14. When required, airfield obstruction lighting on buildings shall seek to avoid penetration as much as possible while still being installed on every roof highpoint. Coordination with 633 CES/CEO and 633 CES/CENP is recommended.

D07.7. Clerestories and Skylights

1. Clerestories are permitted in Group 1 facilities. These are allowed in Group 3 facilities only when serving passive systems and are justifiable by life-cycle analysis.

2. Clerestories are preferred to skylights to avoid roof penetrations. Skylights as roof penetrations are not permitted to eliminate leakage.

3. Design clerestories using the same principles for seasonal shading that are required for walls and roof overhangs.

4. Translucent panel systems may be used in clerestory applications due to lack of window cleaning.

5. Clerestories must comply with UFC 4-10-01.

D07.8. Vegetated Roof

1. Not applicable. "Green" Roofs, those that introduce vegetation and other similar types of systems are not allowed under any circumstance to allow consistency with Bird Aircraft Strike Hazards (BASH) and higher maintenance requirements.

D07.9. Roof Systems Materials

Note: *Apply the below base-wide standards for Roof Systems (products, materials and color). Then refer to the Appendix and apply any additional requirements specifically related to the Facility District in which the project is located.*

D07.9.1. Standing Seam Metal

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Berridge

Color: Dark bronze

Finish: Matte

Model #: Tee-Panel

Other: Shed, gabled or hipped standing seam metal

UFGS: Section 07 61 14 Steel Standing Seam Roofing
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 07 61 14.00 20.pdf

D07.9.2. Membrane Single-ply

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Carlisle Systems

Color: Off-white

Finish: Smooth

Model #: TPO single-ply, “flat” minimal slope

Other: N/A

UFGS: Section 07 53 23 Ethylene-Propylene-Diene-Monomer Roofing
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 07 53 23.pdf
Section 07 54 50 TPO Thermoplastic Single-Ply Roofing
(Not Available on UFGS)

D07.9.3. Built-up Multi-ply

○ Applicable ◉ N/A

D07.9.4. Concrete Tile

○ Applicable ◉ N/A

D07.9.5. Clay Tile

○ Applicable ◉ N/A

D07.9.6. Slate Shingles

○ Applicable ◉ N/A

D07.9.7. Vegetated System

○ Applicable ◉ N/A

D07.9.8. Ribbed Metal Sheeting

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1**

Applies to: ☐ Group 1 ☐ Group 2 ◉ Group 3 ☐ Group 4 ☐ Other

Mfr: Berridge

Color: Galvalume

Finish: Factory

Model #: High Seam Tee-Panel

Other: 24 gauge steel, Width: 16" Batten Height: 1.75 inch

UFGS: Section 07 41 13.19 Batten-Seam Metal Roof Panels
(Not Available on UFGS)

D07.9.9. Composite Shingles

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1**

Applies to: ☐ Group 1 ☐ Group 2 ☐ Group 3 ☑ Group 4 ☐ Other

Mfr: Tamko

Color: Earth Tones

Finish: Factory

Model #: Heritage

Other: Gabled or hipped with transverse gable or hipped features

UFGS: Section 07 31 13 Glass-fiber-reinforced Asphalt Shingles
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 07 31 13.pdf

D07.9.10. Other

○ Applicable ◉ N/A

D08. STRUCTURAL SYSTEMS

Comply with AF Corporate Standards for Facilities Exteriors:
http://afcfs.wbdg.org/facilities-exteriors/index.html

Comply with AF Corporate Standards for Structural Systems:
http://afcfs.wbdg.org/facilities-exteriors/structural-systems/index.html

Comply with AFCFS Recommended Materials:
http://afcfs.wbdg.org/facilities-exteriors/structural-systems/materials/index.html

Group 1



Group 2


Group 3



Group 4



D08.1. Systems and Layouts

1. Pre-engineered structural steel framing may be used for Groups 1, 2 and 3 facilities; Installation-appropriate thermal envelopes, materials and detailing are required.

2. Select economical structural systems that integrate roof and wall systems.

3. New construction shall promote structure wings which are 60' or less in width with column-free interiors are preferred for office, administrative and personnel spaces; when interior columns are required optimize the structural grid layout for open-plan arrangements.

4. Fully coordinate structural grids with exterior window systems to align columns with window frames or wall systems.

5. When structure is exposed provide an organized appearance and coordinate with mechanical, electrical, plumbing, fire protection, information technology, and communications systems.

6. Limit the use of specialty systems (such as space frames, vaults or domes) of structure as a visual feature.

7. Cost-effectively design interior bearing walls as thermal mass.

8. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.

D08.2. Structural Systems Materials

Note: *Apply the below base-wide standards for Structural Systems (products, materials and color). Then refer to the Appendix and apply any additional requirements specifically related to the Facility District in which the project is located.*

D08.2.1. Concrete

◯ Applicable ◉ N/A

D08.2.2. Insulated Concrete Forming (ICF)

◯ Applicable ◉ N/A

D08.2.3. Steel

◉ Applicable ○ N/A Number of base standards 1

Type: **Rigid Framing**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: US Steel

Color: Shop primed

Finish: Matte

Model #: Structural steel shapes

Other: N/A

UFGS: Section 05 12 00 Structural Steel
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 05 12 00.pdf

D08.2.4. Pre-Engineered Steel

◉ Applicable ○ N/A Number of base standards 1

Type: **Moment Frame**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Behlen Building Systems

Color: Factory primed

Finish: Matte

Model #: Moment Frame

Other: Draped insulation may be used behind wall system; Behlen standing seam roof system may be used for Group 3. Ensure deflection values are consistent with IBC requirements for masonry veneer.

UFGS: Section 13 12 00 Steel Building Systems
(Not Available on UFGS)
Section 13 34 19 Metal Building Systems
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 13 34 19.pdf

D08.2.5. Masonry

○ Applicable ◉ N/A

D08.2.6. Heavy Timber

○ Applicable ◉ N/A

D08.2.7. Light-gauge Steel

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1**

Applies to: ☐ Group 1 ☐ Group 2 ☐ Group 3 ◉ Group 4 ☐ Other

Mfr: Steelrite

Color: Factory

Finish: Galvanized

Model #: Structural framing shapes

Other: N/A

UFGS: Section 05 45 00 Light Gauge Steel Framing System
(Not Available on UFGS)

D08.2.8. Lumber Framing

◉ Applicable ○ N/A Number of base standards 1

Type:

Applies to: ☐ Group 1 ☐ Group 2 ☐ Group 3 ◉ Group 4 ☐ Other

Mfr: Boise Cascade Wood Products

Color: N/A

Finish: S4S

Model #: Structural dimensional lumber

Other: N/A

UFGS: Section 06 10 00 Rough Carpentry
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 06 10 00.pdf
Section 06 11 00 Wood Framing and Sheathing
(Not Available on UFGS)

D08.2.9. Other

◯ Applicable ◉ N/A

D09. MECHANICAL, ELECTRICAL AND PLUMBING

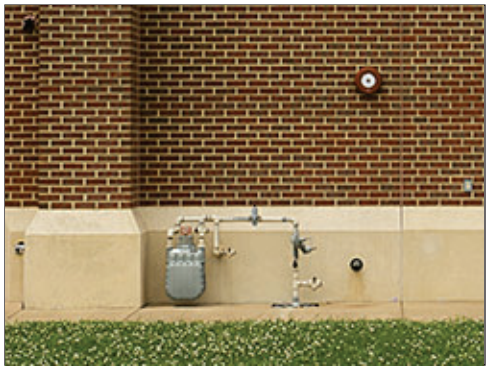
Comply with AF Corporate Standards for Facilities Exteriors:
http://afcfs.wbdg.org/facilities-exteriors/index.html

Comply with AF Corporate Standards for Mechanical, Electrical and Plumbing:
http://afcfs.wbdg.org/facilities-exteriors/machanical-electrical-and-plumbing/index.html

Group 1



Group 2


Group 3



Group 4



D09.1. Passive and Active Systems

1. Fully integrate passive heating and cooling systems into facility designs whenever practical considering the local climate prior to the design of active mechanical systems.

2. Provide optimized passive and active systems; design active mechanical systems to supplement thermal mass walls and floors.

3. Develop renewable energy systems when life cycle cost effective.

4. Performance display screens, which report energy performance and utility savings, are encouraged; when provided locate these in building lobbies or common areas.

5. Solar domestic hot water systems are required when life cycle cost effective for the climate.

6. Integrate shading into building exteriors to reduce solar heat gain during hot seasons.

D09.2. Functionality and Efficiency

1. Fully coordinate mechanical, electrical, plumbing (MEP) and fire protection systems with each other and with the building structure, enclosure, thermal envelope and interior design.

2. Ensure direct exterior access is provided (for CE) to main mechanical and electrical rooms.

3. Screen exterior equipment from primary views (landscape, building masses, screen walls) and comply with AT/FP requirements.

4. Keep equipment away from main building entrances; locate service area/yard on least visible side of a building.

5. Coordinate the location of all exterior meters, equipment and devices to provide convenient access and an overall coordinated and orderly appearance.

6. Design emergency generator systems integrally with all other building systems and avoid incompatible building additions; locate generators near service areas and ensure they are not visible from primary entrances.

7. When structure is exposed as a finished ceiling, fully integrate MEP and fire protection systems to provide an organized uncluttered appearance.

8. Conceal ducts, piping, conduits, devices, etc., when permanent walls, suspended ceilings or raised floors are provided; locate sprinkler heads in orderly configuration.

9. Limit interior wall-mounted equipment in occupied personnel spaces; avoid surface-mounted conduit and pipes.

10. Provide efficient utility rooms with layouts to facilitate system performance and maintenance; provide convenient access to controls, clearly label systems and include operating and maintenance instructions.

11. Separate mechanical and electrical and communications rooms.

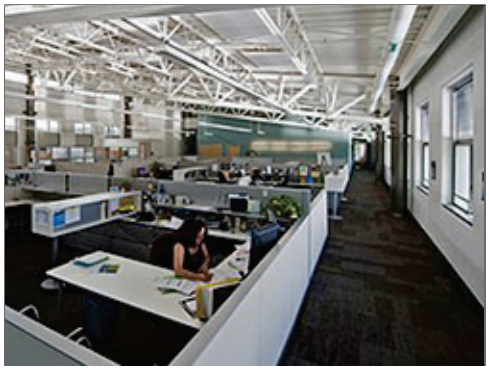
12. Integrate recessed and wall-mounted fixtures such as fire standpipe cabinets and drinking fountains within permanent walls.

13. All newly constructed utility and mechanical systems shall be constructed at a height of the minimum requirements for FFE of structures in general on the installation. Replaced systems during life cycle and other renovation projects shall be reinstalled to meet current installation FFE requirements.

E. FACILITIES INTERIORS

Comply with Air Force Corporate Standards for Facilities Interiors:
http://afcfs.wbdg.org/facilities-interiors/index.html

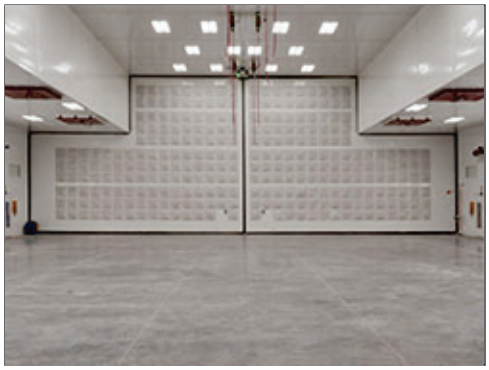
Group 1



Group 2



Group 3



Group 4



E01. Building Configurations

Comply with Air Force Corporate Standards for Building Configurations:
http://afcfs.wbdg.org/facilities-interiors/buildings-configurations/index.html

1. Provide open-plan configurations for office, administrative, operational and related activities and spaces for maximum flexibility. Use a "core and shell" approach in which all building systems, infrastructure and permanent interior partitions anticipate two or more uses (operations) during a facility's lifespan.

2. Create flexible interior configurations using Furniture, Fixtures & Equipment (FF&E) and limit private offices and private rooms. Refer to AFMAN 32-1084 for space requirements. To the greatest extent, limit permanent partitions to core areas such as toilet rooms, stairs, mechanical and utility rooms.

3. Use more durable long-lasting finishes in core areas for walls, ceilings, floor coverings and built-in casework. Coordinate interior FF&E layouts with structural grids during space planning.

4. Provide high-performance building configurations following UFC 1-200-02. Ensure passive design strategies are cost effectively incorporated before active mechanical systems are designed.

5. Comply with UFC 1-200-01, general building requirements. UFC 1-200-01 provides applicability of model building codes and government unique criteria for typical design disciplines and building systems, as well as for accessibility, antiterrorism, security, high performance and sustainability requirements, and safety.

6. Meet security and force protection requirements in UFC 4-010-01: DoD Minimum Antiterrorism Standards for Buildings.

7. Comply with Air Force Corporate Facilities Standards (AFCFS) for supporting mission requirements, addressing human comfort and well being, and creating highly flexible interiors while satisfying metrics for high performance and sustainable buildings.

8. Provide a level of quality for interior features, materials and finishes that is appropriate for the Facility Group number. Group 1 may receive higher quality than Groups 2 thru 4. Refer to Facility Hierarchy.

9. Through open-plan configurations, preserve all passive and natural design strategies and fully integrate facility interiors with overall building systems.

10. Professional interior designers, or architects with significant interior design experience, must accomplish the design and review of applicable new construction, renovations and maintenance projects.

11. Consult with the State Historic Preservation Officer (SHPO) and base-level Historic Preservation offices regarding proposed changes to properties listed on or eligible for listing on the National Register of Historic Places. Follow requirements of The National Historic Preservation Act and Secretary of the Interior Standards for the Treatment of Historic Properties.

12. Maintain architectural compatibility following AFCFS and this Installation Facilities Standards (IFS) document to create continuity while avoiding monotony.

E01.1. Layout and Common Areas

Comply with Air Force Corporate Standards for Layout and Common Areas:
http://afcfs.wbdg.org/facilities-interiors/buildings-configurations/layout-and-common-areas/index.html

1. Create open-plan interior environments to accommodate facility life cycle changes.

2. Limit interior partitions, private offices and rooms; use furniture or modular systems to provide privacy and acoustic control.

3. When partitions are functionally justified such as for conference rooms, use systems furniture and moveable (demountable) floor-to-ceiling wall systems for acoustical or visual privacy.

4. Proportion lobbies and common spaces based on type of function, activity and facility group.

5. Allow no direct sight lines into restrooms.

6. Situate utility and core areas to minimize impact on daylighting and to maximize use as thermal buffers.

7. Ensure electrical, lighting and communications system can be adaptable to configuration changes.

8. Avoid power poles to the maximum extent; when poles are necessary minimize the number and coordinate locations with furniture placement and other elements.

9. Avoid sloping floors to maintain flexibility and eliminate future structural changes.

10. Special consideration may apply to Sensitive Compartmented Information Facilities (SCIFs).

E01.1.1. Interior Design Process

1. Comply with UFC 3-120-10 for the Comprehensive Interior Design (CID,) which includes both Structural Interior Design (SID) and Furniture, Fixtures & Equipment (FF&E) design services.

2. Use a collaborative, integrated planning and design team, composed of user, government support staff, and appropriate professionals. Integrate architectural features using simple detailing to create a professional appearance; avoid extravagant or excessive detailing.

3. Ensure interior designs satisfy the functional requirements within the context of flexibility, sustainability and the building's energy performance.

4. Base space planning on square foot allocations from AFM 32-1084. Identify special requirements if any, such as privacy separation, VIP areas, gathering spaces and storage. Note: The occupant's rank and position will influence the square footage and selection of materials.

5. Provide clear circulation and pathway finding for both horizontal and vertical directions that accommodate the number of personnel in the facility.

6. Maximize efficiencies in the space plan for functional relationships and adjacencies for all facility users. Efficiently create and situate rooms and support rooms such as conference / meeting rooms and break rooms.

7. Provide interior design building-related illustrations, drawings, schedules, materials selections, specifications and cost estimates as listed in UFC 3-120-10. Refer to Furnishings in this IFS also.

8. SID Format shall follow UFC 3-120-10 standards.

9. Base the FF&E package on the furniture footprint developed in the SID. Identify all new or existing equipment needed and its users within each facility or each area of the facility. Provide specific information on: equipment sizes, electrical requirements, ventilation requirements, weight (if heavy), quantity, and security level if required. Presume all administrative spaces have computers and supporting equipment.

E01.1.2. Codes and Regulations

1. Refer to UFC 1-200-01 for modifications to the International Building Code (IBC) to determine applicable sections of the IBC. Both the IBC Chapter 3 and UFC 3-600-01 govern "Use and Occupancy Classification" for example.

2. Fire code requirements shall be as defined in the International Building Code (IBC) and must be used where dictated by UFC 1-200-01 DoD Building Code (General Building Requirements) except where noted in UFC 3-600-01 (Fire Protection Engineering For Facilities).

3. National Fire Protection Association (NFPA) 101 must be utilized to determine the occupancy classification as it relates to fire/smoke resistance rating of interior non-load bearing partitions (other than occupancy separation), means of egress, interior finish, features of fire protection (including vertical openings) and associated requirements.

E01.2. Quality and Comfort

Comply with Air Force Corporate Standards for Quality and Comfort:
http://afcfs.wbdg.org/facilities-interiors/buildings-configurations/quality-and-comfort/index.html

1. Include durability in the life cycle cost analysis for best-value material selections with long life expectancies that do not show excessive wearing.

2. Select long-lasting "industrial grade" materials and finishes for permanent core areas such as lobbies, restrooms, stairs, and other high-use locations.

3. Select low-maintenance materials and products that reduce ongoing servicing and repair and that are easy to clean.

4. Relate the visual quality of finishes to the Facility Group number.

5. Building and interior configurations should address both operations and climatic responses.

6. Convey a professional image; avoid trendy patterns and textures.

7. Use materials and finishes that provide a healthy indoor environment.

8. Orient interior spaces toward views while maintaining cost-effective building performance and efficiency.

9. Promote air movement and daylighting for human health and wellbeing.

E02. Floors

Comply with Air Force Corporate Standards for Floors:
http://afcfs.wbdg.org/facilities-interiors/floors/index.html

E02.1. Floor Materials

Facility Group 1 floor materials shall be as follows.

Primary:	Prepared Slabs (Ground, Polished)
Secondary:	Porcelain tile
Tertiary:	Carpet, Rubber Stair Treads

Facility Group 2 floor materials shall be as follows.

Primary:	Prepared Slabs (Ground, Polished)
Secondary:	Ceramic tile
Tertiary:	Carpet, Rubber Stair Treads

Facility Group 3 floor materials shall be as follows.

Primary:	Prepared Slabs (Ground)
Secondary:	Prepared Slabs (Sealer)
Tertiary:	N/A

Facility Group 4 floor materials shall be as follows.

Primary:	Carpet
Secondary:	Ceramic tile
Tertiary:	N/A

1. Natural stone and terrazzo flooring may be used in high traffic areas of Group 1 as approved on a case basis.

2. Resilient and rapidly renewable flooring may be used in low traffic areas in Group 1, 2 and 4.

3. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.

4. In historical facilities, comply with State Historical Preservation Office (SHPO) design requirements when updating or renovating facilities.

Note: *Apply the below base-wide standards for Floors (products, materials and color). Then refer to the Appendix and apply any additional requirements specifically related to the Facility District in which the project is located.*

E02.1.1. Prepared Slabs

◉ Applicable ○ N/A Number of base standards 2

Type: **Style 1, Ground and Polished**

Applies to: ☑ Group 1 ☐ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Local (TBD)

Color: Natural gray cement, light to dark beige aggregates

Finish: Fine polished texture

Model #: Medium to small aggregate

Other: N/A

UFGS: Section 03 35 45 Polished Concrete Finishing
(Not Available on UFGS)

Type:

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Local (TBD)

Color: Natural gray cement, light to dark beige aggregates

Finish: Medium polished texture, slip resistant

Model #: Medium to small aggregate

Other: N/A

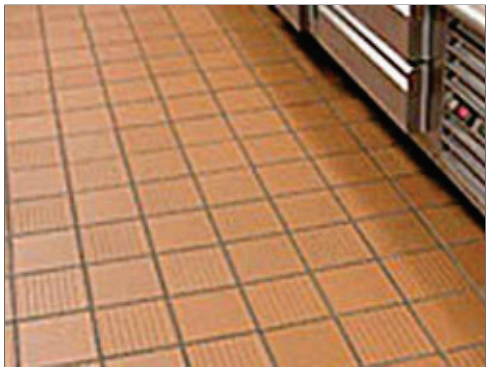
UFGS: Section 03 35 45 Polished Concrete Finishing
(Not Available on UFGS)

E02.1.2. Natural Stone and Terrazzo

○ Applicable ◉ N/A

E02.1.3. Quarry Tile

◉ Applicable ○ N/A Number of base standards 1



Type: **Style 1**

Applies to: ☐ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Daltile

Color: Earth tones

Finish: Matte, slip resistant

Model #: N/A

Other: Use in commercial kitchen flooring.

UFGS: Section 09 30 10 Ceramic, Quarry, and Glass Tiling
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 30 10.pdf

E02.1.4. Ceramic Tile

◉ Applicable ○ N/A Number of base standards 2

Type: **Style 1 Porcelain**

Applies to: ☑ Group 1 ☐ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Daltile

Color: Earth tones

Finish: Matte, slip resistant

Model #: Porcelain tile

Other: Use in high traffic areas. Epoxy grout is recommended.

UFGS: Section 09 30 10 Ceramic, Quarry, and Glass Tiling
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 30 10.pdf

Type: **Style 2 Ceramic**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☑ Group 4 ☐ Other

Mfr: Daltile

Color: Earth tones

Finish: Matte, slip resistant

Model #: Ceramic tile

Other: Use in low traffic area toilet rooms.

UFGS: Section 09 30 10 Ceramic, Quarry, and Glass Tiling
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 30 10.pdf

E02.1.5. Resilient Floor

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1 Stair Treads**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Roppe

Color: Neutral tones

Finish: Factory

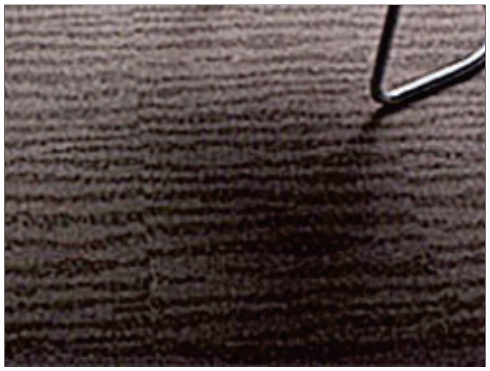
Model #: Raised design rubber tread

Other: Stair treads material

UFGS: Section 09 65 00 Resilient Flooring
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 65 00.pdf

E02.1.6. Carpet

◉ Applicable ○ N/A Number of base standards 2



Type: **Style 1**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Mohawk Group

Color: Neutral multi-colored tones/patterned/solid

Finish: Yarn: Nylon 6 or 6.6/cut pile or loop pile

Model #: Broadloom, 6' wide rolled, carpet tiles, entry walk-off carpet

Other: N/A

UFGS: UFGS 09 68 00 Carpeting
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 68 00.pdf

Type: **Style 2**

Applies to: ☐ Group 1 ☐ Group 2 ☐ Group 3 ☑ Group 4 ☐ Other

Mfr: Mohawk Group

Color: Earth tones

Finish: Factory

Model #: Broadloom, residential loop, "Smartstrand"

Other: N/A

UFGS: UFGS 09 68 00 Carpeting
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 68 00.pdf

E02.1.7. Rapidly-Renewable Products

○ Applicable ◉ N/A

E02.1.8. Other

○ Applicable ◉ N/A

E03. Walls

Comply with Air Force Corporate Standards for Walls:
http://afcfs.wbdg.org/facilities-interiors/walls/index.html

E03.1. Wall Materials

Facility Group 1 wall materials shall be as follows.

Primary:	Brick (or other as approved by the BCE)
Secondary:	Gypsum board (painted)
Tertiary:	Ceramic tile (restrooms)

Facility Group 2 wall materials shall be as follows.

Primary:	Brick
Secondary:	Gypsum board (painted)
Tertiary:	Ceramic tile (restrooms)

Facility Group 3 wall materials shall be as follows.

Primary:	Ground face block, sealed (do not paint)
Secondary:	N/A
Tertiary:	Ceramic tile (restrooms)

Facility Group 4 wall materials shall be as follows.

Primary:	Gypsum board (painted)
Secondary:	N/A
Tertiary:	Ceramic tile (restrooms)

1. Follow UFC 3-450-01 (Vibration and Noise Control) for acoustic design issues including speech privacy, sound isolation or sound masking.

2. Select and apply paint with sheens (gloss levels) appropriate for the application following UFGS Section 09 90 00 Paints and Coatings.

3. Provide ceramic tile on wet walls of kitchens, toilet rooms, locker rooms, etc., in all facility groups.

4. Neutral split-face or ground-face integrally colored block with a clear sealer may be used in Group 3. Do not paint block.

5. Provide rubber base on drywall partitions in Groups 1 and 2.

6. Hardwood base may only be used in Group 1 as approved on a case basis.

7. Hardwood chair rails / bumper rails may be used in high-use areas of Groups 1 and 2; aqueous clear finishes are preferred to reduce maintenance; plastic chair rails are permitted only in medical applications.

8. Decorative moldings may be used only in Group 1 when approved on a case basis.

9. Corner guards are permitted only in high traffic spaces with wheeled or cart use such as private service areas in Groups 1 and 2; stainless steel corners guards with a brushed finish may be judiciously used in Group 3.

10. Group 4 may use painted composite wood base.

11. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.

12. Interior paint is limited to the following only:
Brand: Pittsburg Paint
Color: CE White
Type: Interior Latex (Flat)
Number: 12-110 Line Speedhide Pro-EV I

Brand: Pittsburg Paint
Color: CE White 6-500
Type: Interior Latex (Semi-Gloss)
Number: 6-500 Line Speedhide Interior L

Note: *Apply the below base-wide standards for Walls (products, materials and color). Then refer to the Appendix and apply any additional requirements specifically related to the Facility District in which the project is located.*

E03.1.1. Concrete

◯ Applicable ◉ N/A

E03.1.2. Masonry

◉ Applicable ◯ N/A Number of base standards 1

Type: **Modular Face Brick**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Local (TBD)

Color: Red blend

Finish: Light texture

Model #: Coursed unit masonry

Other: Brick is preferred. Concrete block may only be used in Group 3 when approved by the BCE.

UFGS: Section 03 33 00 Cast-In-Place Architectural Concrete
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 03 33 00.pdf

E03.1.3. Ceramic Tile

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☑ Group 4 ☐ Other

Mfr: Daltile

Color: Earth tones

Finish: Gloss, Semi-gloss

Model #: Ceramic wall tile

Other: Located on wet walls in restrooms

UFGS: Section 09 30 10 Ceramic, Quarry, and Glass Tiling
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 30 10.pdf

E03.1.4. Gypsum Board

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☑ Group 4 ☐ Other

Mfr: US Gypsum

Color: Solid Earth tone colors

Finish: Paint (Sheen per UFGS)

Model #: Tapered edge

Other: N/A

UFGS: Section 09 29 00 Gypsum Board
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 29 00.pdf
Section 09 90 00 Paints and Coatings
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 90 00.pdf

E03.1.5. Metal Panels

○ Applicable ◉ N/A

E03.1.6. Wood Paneling

○ Applicable ◉ N/A

E03.1.7. Rapidly-Renewable Products

○ Applicable ◉ N/A

E03.1.8. Other

○ Applicable ◉ N/A

E04. Ceilings

Comply with Air Force Corporate Standards for Ceilings:
http://afcfs.wbdg.org/facilities-interiors/ceilings/index.html

E04.1. Ceiling Materials

Facility Group 1 ceiling materials shall be as follows.

Primary:	Exposed Framing (Roof / Floor Structure Above)
Secondary:	Grid and Acoustical Tile
Tertiary:	

Facility Group 2 ceiling materials shall be as follows.

Primary:	Exposed Framing (Roof / Floor Structure Above)
Secondary:	Grid and Acoustical Tile
Tertiary:	Gypsum board (painted)

Facility Group 3 ceiling materials shall be as follows.

Primary:	Exposed Framing (Roof / Floor Structure Above)
Secondary:	Exposed Framing (Roof / Floor Structure Above)
Tertiary:	Gypsum board (painted)

Facility Group 4 ceiling materials shall be as follows.

Primary:	Gypsum board (painted)
Secondary:	N/A
Tertiary:	N/A

1. Accent ceiling materials such as metal, wood, and rapidly renewable may be used in Group 1 as approved on a case basis.

2. Follow UFC 3-450-01 (Vibration and Noise Control) for acoustic design issues including speech privacy, sound isolation or sound masking.

3. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.

Note: *Apply the below base-wide standards for Ceilings (products, materials and color). Then refer to the Appendix and apply any additional requirements specifically related to the Facility District in which the project is located.*

E04.1.1. Exposed Framing (Roof / Floor Structure Above)

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Vulcraft

Color: Neutral colors reviewed on a case basis

Finish: Field painted (Sheen per UFGS)

Model #: Formlok floor and roof decking

Other: N/A

UFGS: Section 05 30 00 Steel Decks
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 05 30 00.pdf

E04.1.2. Exposed Concrete

○ Applicable ◉ N/A

E04.1.3. Grid and Acoustical Tile

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Armstrong

Color: White

Finish: Factory

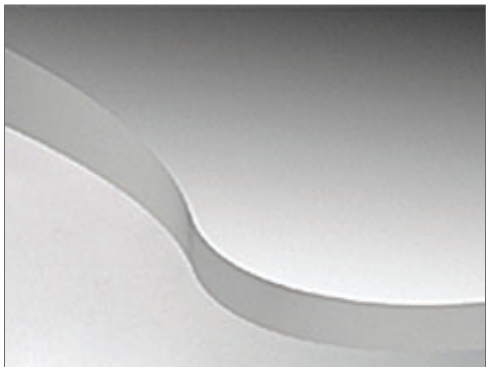
Model #: 2'x2' Tegular with reveal edge and fine texture, grid 15/16"

Other: Performance characteristics are Class A; NRC-0.70; CAC-40; LR-0.86; minimum recycled content 82%.

UFGS: Section 09 51 00 Acoustical Ceilings
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 51 00.pdf

E04.1.4. Gypsum Board

◉ Applicable ○ N/A Number of base standards 1



Type: **Style 1**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☑ Group 4 ☐ Other

Mfr: US Gypsum

Color: Solid neutral colors

Finish: Paint (sheen per UFGS)

Model #: Tapered edge

Other: N/A

UFGS: Section 09 29 00 Gypsum Board
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 29 00.pdf
Section 09 90 00 Paints and Coatings
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 90 00.pdf

E04.1.5. Metal Panels

○ Applicable ◉ N/A

E04.1.6. Wood

○ Applicable ◉ N/A

E04.1.7. Rapidly-Renewable Products

○ Applicable ◉ N/A

E04.1.8. Other

○ Applicable ◉ N/A

E05. Doors and Windows

Comply with Air Force Corporate Standards for Doors and Windows:
http://afcfs.wbdg.org/facilities-interiors/doors-and-windows/index.html

E05.1. Doors and Windows and Frames Materials

Facility Group 1
door (frame) and window frame materials shall be as follows.

Primary:	Aluminum, clear anodized
Secondary:	Hollow metal (painted)
Tertiary:	N/A

Facility Group 1
door (leaf) materials shall be as follows.

Primary:	Hardwood veneer
Secondary:	Hollow metal (painted)
Tertiary:	N/A

Facility Group 2
door (frame) and window frame materials shall be as follows.

Primary:	Aluminum, clear anodized
Secondary:	Hollow metal (painted)
Tertiary:	N/A

Facility Group 2
door (leaf) materials shall be as follows.

Primary:	Hardwood veneer
Secondary:	Hollow metal (painted)
Tertiary:	N/A

Facility Group 3
door (frame) and window frame materials shall be as follows.

Primary:	Hollow metal (galvanized, painted)
Secondary:	Hollow metal (galvanized, painted)
Tertiary:	N/A

Facility Group 3
door (leaf) materials shall be as follows.

Primary:	Hollow metal (galvanized, painted)
Secondary:	Hollow metal (galvanized, painted)
Tertiary:	N/A

Facility Group 4
door (frame) and window frame materials shall be as follows.

Primary:	Wood
Secondary:	N/A
Tertiary:	N/A

Facility Group 4
door (leaf) materials shall be as follows.

Primary:	Wood solid core
Secondary:	Composite solid core
Tertiary:	N/A

1. Hardwood casings may be provided over metal frames in Group 1 as approved on a case basis.
2. Paneled textured doors are preferred in Group 4.
3. Do not use hollow-core wood doors.
4. Generally match original hardware in renovations.
5. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.

Note: *Apply the below base-wide standards for Doors and Windows (products, materials and color). Then refer to the Appendix and apply any additional requirements specifically related to the Facility District in which the project is located.*

E05.1.1. Aluminum

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Kawneer

Color: Clear anodized

Finish: Factory

Model #: InFrame Interior Framing, (2x4 nominal framing)

Other: Satin stainless steel hardware

UFGS: Section 08 41 13 Aluminum-Framed Entrances and Storefronts
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 41 13.pdf
Section 08 71 00 Door Hardware
https://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 71 00.pdf

E05.1.2. Hollow Metal

◉ Applicable ○ N/A Number of base standards 2

Type: **Steel Doors**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Steelcraft

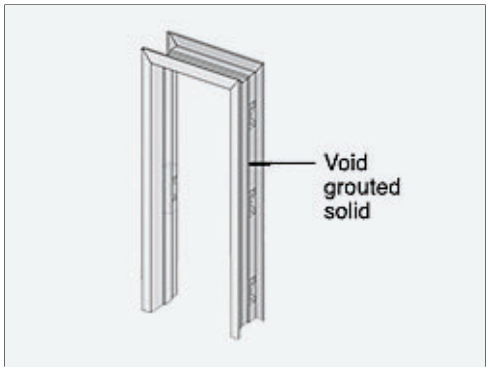
Color: Neutral colors

Finish: Paint (Sheen per UFGS)

Model #: Hollow metal, 2" w. frames, 16 gauge (welded corners) grouted solid

Other: Provide in Group 3 and in utility areas of Group 1 and 2. Provide A25 "galvannealed" coating. All interior steel doors shall have a factory applied primer finish. Provide satin stainless steel hardware.

UFGS: Section 08 11 13 Steel Doors and Frames
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 11 13.pdf
Section 08 71 00 Door Hardware
https://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 71 00.pdf



Type: **Steel Frames**

Applies to: ◉ Group 1 ◉ Group 2 ◉ Group 3 ☐ Group 4 ☐ Other

Mfr: Steelcraft

Color: Neutral colors

Finish: Paint (Sheen per UFGS)

Model #: Hollow metal, frame grouted solid

Other: Satin stainless steel hardware

UFGS: Section 08 11 13 Steel Doors and Frames
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 11 13.pdf
Section 08 71 00 Door Hardware
https://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 71 00.pdf

E05.1.3. Wood

◉ Applicable ○ N/A Number of base standards 2

Type: **Style 1, Administrative**

Applies to: ◉ Group 1 ◉ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Simpson

Color: Natural hardwood veneer

Finish: Clear Sealer, satin (aqueous)

Model #: 3'x7'x 1 ¾", solid core

Other: Satin stainless steel hardware, Glass lites may be used. Stained birch veneer face, 5 ply construction, rotary cut finish.

UFGS: Section 08 14 00 Wood Doors
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 14 00.pdf
Section 08 71 00 Door Hardware
https://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 71 00.pdf

Type: **Style 2, Residential**

Applies to: ☐ Group 1 ☐ Group 2 ☐ Group 3 ◉ Group 4 ☐ Other

Mfr: Simpson

Color: Natural hardwood veneer or paint grade

Finish: Clear Sealer or paint, satin (aqueous)

Model #: Full slab or panels

Other: Satin nickel hardware

UFGS: Section 08 14 00 Wood Doors
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 14 00.pdf
Section 08 71 00 Door Hardware
https://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 71 00.pdf

E05.1.4. Other

○ Applicable ◉ N/A

E06. Casework Systems

Comply with Air Force Corporate Standards for Casework Systems:
http://afcfs.wbdg.org/facilities-interiors/casework-systems/index.html

E06.1. Casework Materials

1. Select casework systems and materials considering durability, maintenance requirements and LCCA.

2. Natural stone and cast stone countertops may only be used in Group 1 with approval on a case basis.

3. Metal cabinets and countertops shall be provided in heavy-use operations and in Group 3.

4. Refer to AFCFS for approved materials.

5. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.

E06.1.1. Plastic Laminate

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1, Low Use Areas**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Formica

Color: Medium Earth tomes and neutral tones

Finish: Light textured

Model #: High pressure laminate

Other: Combine with matching solid-surface banding on casework edges.

UFGS: Section 06 41 16.00 10 Plastic-Laminate-Clad Architectural Cabinets
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 06 41 16.00 10.pdf

E06.1.2. Solid Polymer Surface

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1, High Use Areas**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Corian

Color: Medium Earth tomes and neutral tones

Finish: Light textured

Model #: Solid Surface

Other: Faces and edge banding

UFGS: Section 12 36 00 Countertops
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 12 36 00.pdf

E06.1.3. Rapidly-Renewable Products

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1 Moderate Use Areas**

Applies to: ☑ Group 1 ☑ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Plyboo

Color: Natural or amber

Finish: Satin

Model #: Flat grain bamboo plywood

Other: FSC® Certified 100%.

UFGS: Section 12 32 00 Manufactured Wood Casework
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 12 32 00.pdf

E06.1.4. Metal

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1**

Applies to: ☐ Group 1 ☐ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Steel Sentry

Color: Natural stainless steel or neural colors (steel)

Finish: Mill (stainless) or Powder coated (steel)

Model #: Lab, workbench, computer workstation

Other: Provide highly durable fabrications and finishes in Group 3 which are subjected to heavy use.

UFGS: Section 12 31 00 Manufactured Metal Casework
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 12 31 00.pdf

E06.2. Countertop Materials

E06.2.1. Plastic Laminate

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1, Low Use Areas**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Formica

Color: Medium Earth tomes and neutral tones

Finish: Light textured

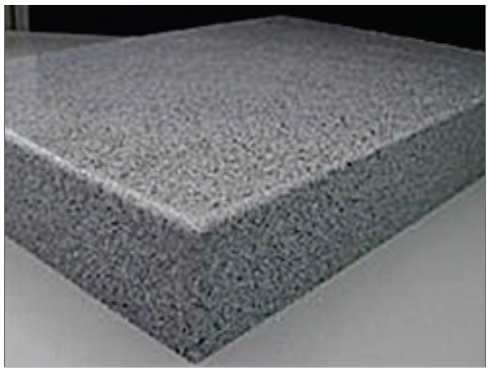
Model #: High pressure laminate

Other: Only use rounded half or full bullnose and integral backsplash. Do not use plastic laminate edge banding on front edges.

UFGS: Section 06 41 16.00 10 Plastic-Laminate-Clad Architectural Cabinets
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 06 41 16.00 10.pdf

E06.2.2. Solid Polymer Surface

◉ Applicable ○ N/A Number of base standards 1



Type: **Style 1, High Use Areas**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Corian

Color: Medium Earth tomes and neutral tones

Finish: Light textured

Model #: Solid Surface

Other: Faces and edges

UFGS: Section 12 36 00 Countertops
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 12 36 00.pdf

E06.2.3. Natural Stone

◉ Applicable ○ N/A Number of base standards 1

Type: **Style 1, Group 1 High Visibility, Heavy Use**

Applies to: ☑ Group 1 ☐ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Local (TBD)

Color: Neutral tones

Finish: High polish, sealer

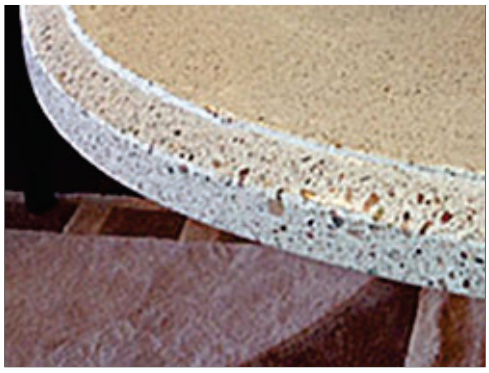
Model #: Custom cut slabs

Other: N/A

UFGS: Section 12 36 00 Countertops
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 12 36 00.pdf

E06.2.4. Cast Stone

◉ Applicable ○ N/A Number of base standards 1



Type: **Style 1, Group 1 High Visibility, Heavy Use**

Applies to: ☑ Group 1 ☐ Group 2 ☐ Group 3 ☐ Group 4 ☐ Other

Mfr: Local (TBD)

Color: Neutral tones

Finish: High polish, sealer

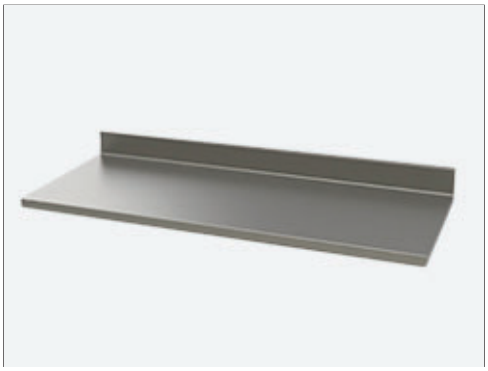
Model #: Custom cast or cut slabs

Other: N/A

UFGS: Section 12 36 00 Countertops
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 12 36 00.pdf

E06.2.5. Metal

◉ Applicable ○ N/A Number of base standards 1



Type: **Style 1**

Applies to: ☑ Group 1 ☑ Group 2 ☑ Group 3 ☐ Group 4 ☐ Other

Mfr: Local (TBD)

Color: Natural stainless steel

Finish: Mill

Model #: Custom fabricated countertops

Other: Provide integral fronts, sides and backsplash

UFGS: Section 12 31 00 Manufactured Metal Casework
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 12 31 00.pdf

E07. Furnishings

Comply with Air Force Corporate Standards for Furnishings:
http://afcfs.wbdg.org/facilities-interiors/furnishings/index.html

E07.1. Durability and Serviceability

Comply with AF Corporate Standards for Durability and Serviceability:
http://afcfs.wbdg.org/facilities-interiors/furnishings/durability-and-serviceability/index.html

E07.2. Accessories

Comply with AF Corporate Standards for Accessories:
http://afcfs.wbdg.org/facilities-interiors/furnishings/accessories/index.html

E08. Interior Signs

Comply with Air Force Corporate Standards for Interior Signs:
http://afcfs.wbdg.org/facilities-interiors/interior-signs/index.html

E08.1 Types and Color

Comply with Air Force Corporate Standards for Types and Color:
http://afcfs.wbdg.org/facilities-interiors/interior-signs/types-and-color/index.html

E08.2. Interior Signs Materials

1. N/A

E09. Lighting, Power and Communication

http://afcfs.wbdg.org/facilities-interiors/lighting-power-and-communication/index.html

E09.1. Functionality and Efficiency

Comply with Air Force Corporate Standards for Functionality and Efficiency:
http://afcfs.wbdg.org/facilities-interiors/lighting-power-and-communication/functionality-and-efficiency/index.html

E09.2. Types and Color

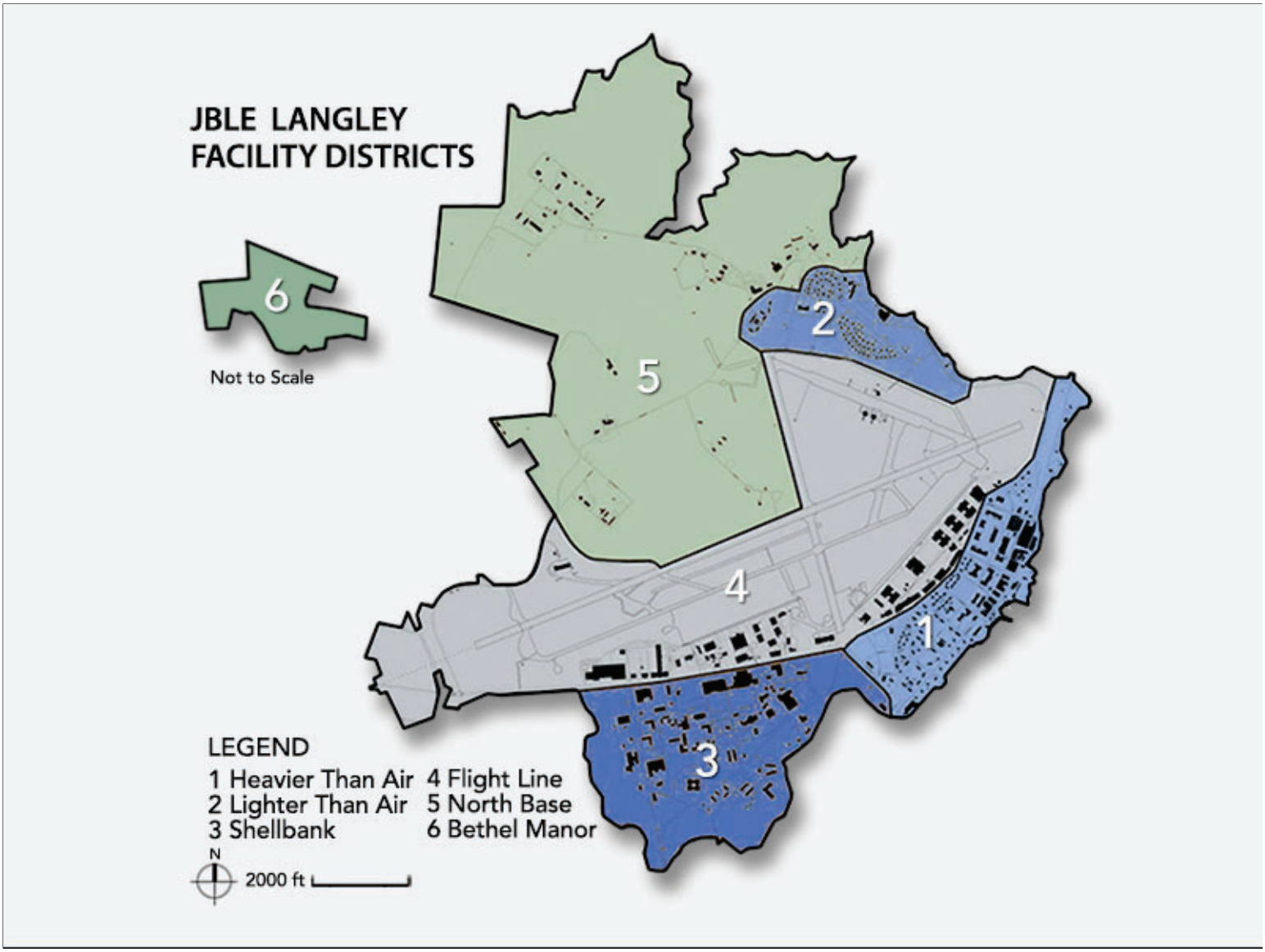
1. N/A

F. APPENDIX - Facility Districts

- (•) Applicable
- ( ) N/A

Comply with Air Force Corporate Standards for Facility Districts:
http://afcfs.wbdg.org/facility-districts/index.html

Facilities Districts Overview Map:



Note: *Apply the base-wide standards in this IFS for Installation Elements, Site Development, Facilities Exteriors and Facilities Interiors (products, materials, color, etc.). Following application of the base-wide standards, refer to the Appendix and apply any additional requirements specifically related to the Facility District.*

Enter No. of Facility Districts 6

The following Facility Districts list exceptions to the base standards that are unique to each district. Please refer to the Site Development, Facilities Exteriors, and Facilities Interiors sections of this IFS for base standards.

Name of District: F01. Heavier Than Air (HTA)

Map of District

Photos for each facility group within the Facility District as applicable.

Group 1	◯ Applicable	◉ N/A
Group 2	◯ Applicable	◉ N/A
Group 3	◯ Applicable	◉ N/A
Group 4	◯ Applicable	◉ N/A
Other	◯ Applicable	◉ N/A

A. OVERVIEW (Links only)

B. INSTALLATION ELEMENTS (Not applicable)

C. SITE DEVELOPMENT (Not applicable)

D. FACILITIES EXTERIORS (Only applicable sections are shown)

D03. Architectural Features

1. Maintain the English Tudor Revival style of the historical buildings located in this district.

2. Structures shall be composed primarily of red or brown flashed brick with patterns and masonry detailing giving a unique sense of character to the area.

3. All construction must follow SHPO guidelines.

D05. Wall Systems

1. Articulation of the walls shall utilize architectural pre-cast concrete to simulate limestone.

2. Brick may be used as water tables, arches, jack-arch lentils, and sills. Brick patterns that are strictly decorative as a border or in-fill panel may be used to embellish walls in Facility Group 1.

D07. Roof Systems

1. Suitable sloped roof materials may use heavy duty fiberglass reinforced shingles and standing seam metal roofing.

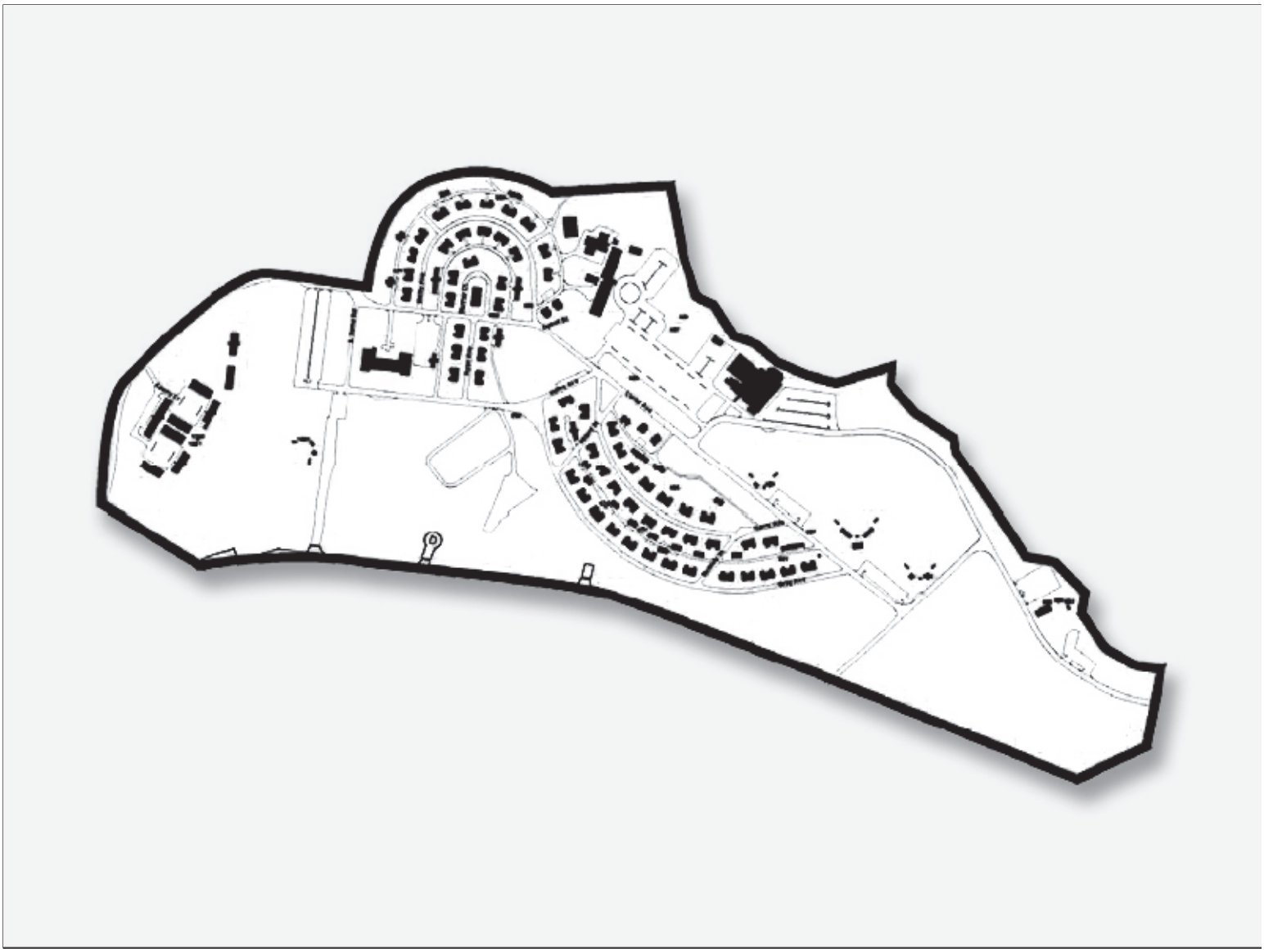
2. Color must be selected on a project-by-project basis with a palette of gray, clay tile red, or dark bronze (verify colors with 1CES POC). Selection must carefully examine the contextual environment.

3. Gutters, leader boxes, and downspouts will be copper on residential structures and aluminum (dark bronze) on industrial and administrative structures.

E. FACILITIES INTERIORS (Not applicable)

Name of District: F02. Lighter than Air (LTA)

Map of District



Photos for each facility group within the Facility District as applicable.

Group 1	◯ Applicable	◉ N/A
Group 2	◯ Applicable	◉ N/A
Group 3	◯ Applicable	◉ N/A
Group 4	◯ Applicable	◉ N/A
Other	◯ Applicable	◉ N/A

A. OVERVIEW (Links only)

B. INSTALLATION ELEMENTS (Not applicable)

C. SITE DEVELOPMENT (Not applicable)

D. FACILITIES EXTERIORS (Only applicable sections are shown)

D03. Architectural Features

1. Maintain the Colonial Revival style, with sloped roofs and brick masonry walls, of the historical buildings located in this district.

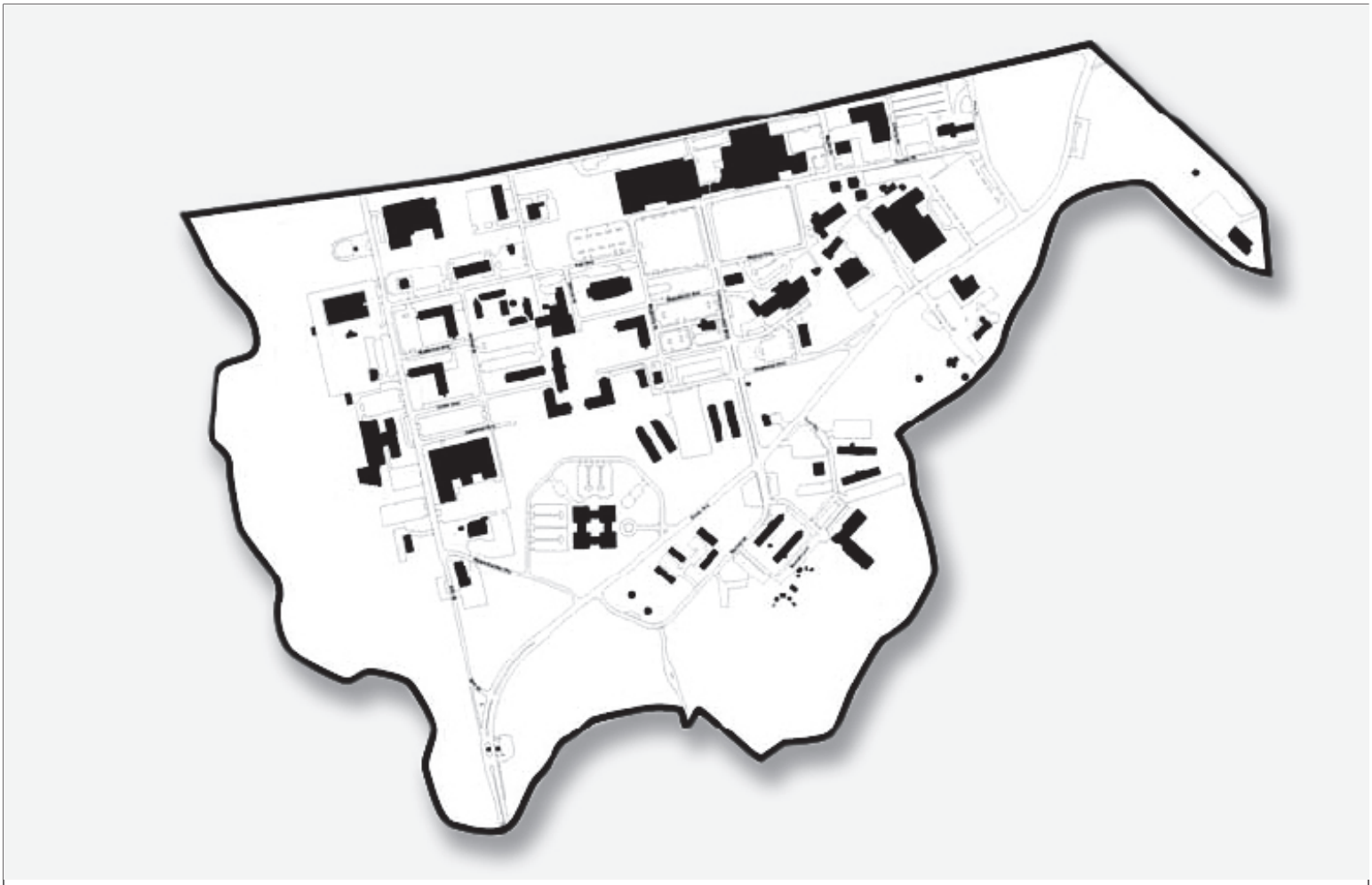
D07. Roof Systems

1. For non-residential structures, roofing material shall be standing seam metal (color: dark bronze to match roof color of other standing seam metal roofs in the vicinity) or architectural fiberglass shingles. Shingle color shall be coordinated with adjacent buildings using slate gray, slate green, or tile red.

E. FACILITIES INTERIORS (Not applicable)

Name of District: F03. Shellbank

Map of District



Photos for each facility group within the Facility District as applicable.

Group 1	◯ Applicable	◉ N/A
Group 2	◯ Applicable	◉ N/A
Group 3	◯ Applicable	◉ N/A
Group 4	◯ Applicable	◉ N/A
Other	◯ Applicable	◉ N/A

A. OVERVIEW (Links only)

B. INSTALLATION ELEMENTS (Not applicable)

C. SITE DEVELOPMENT (Not applicable)

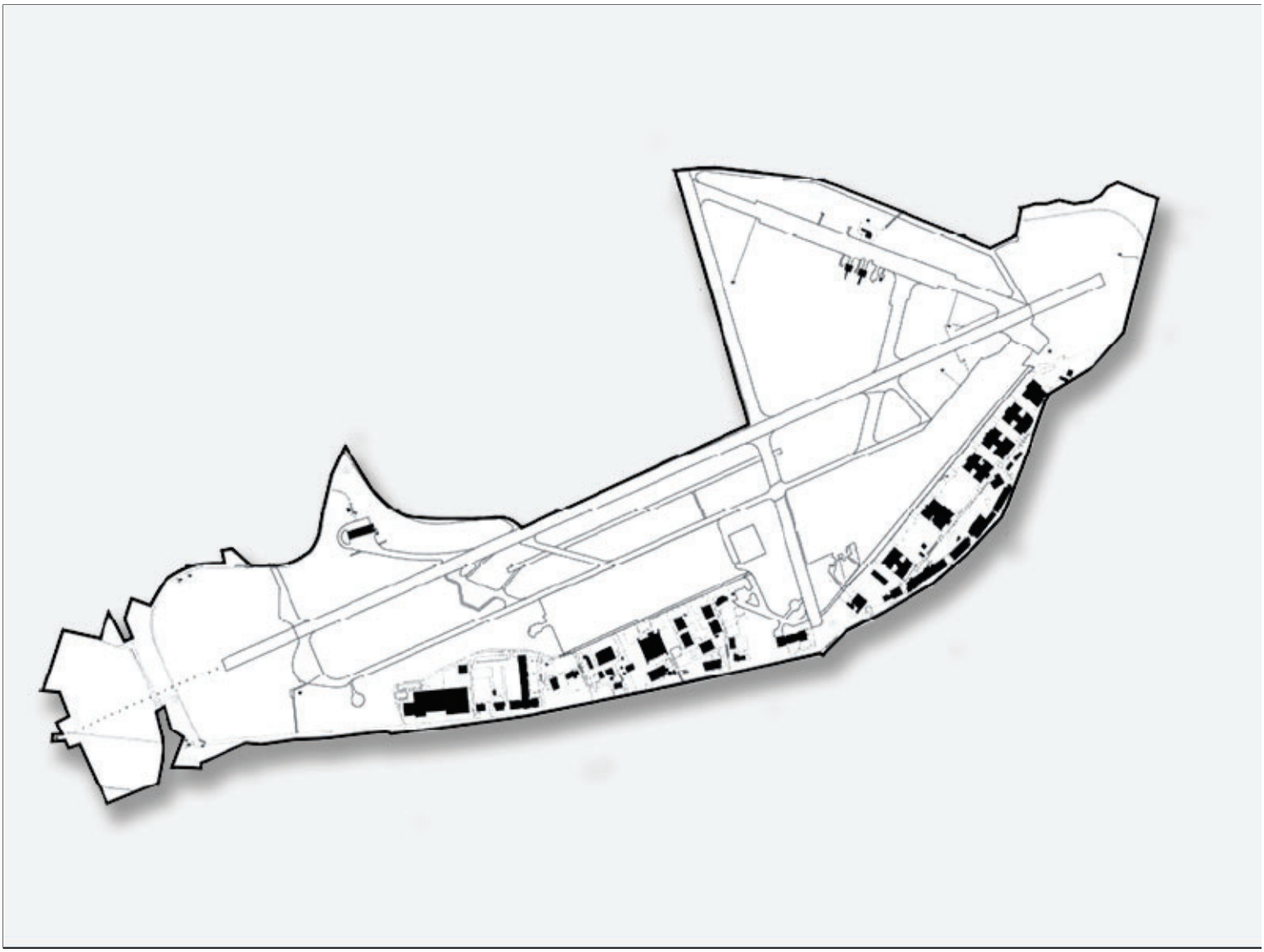
D. FACILITIES EXTERIORS (Only applicable sections are shown)
D05. Wall Systems
1. Articulation of the walls shall utilize architectural pre-cast concrete to simulate limestone.

D07. Roof Systems
1. In this district further application of standing seam metal roofing and heavy-duty architectural fiberglass shingles is recommended. The standard color for each is dark brown.

E. FACILITIES INTERIORS (Not applicable)

Name of District: F04. Flight Line

Map of District



Photos for each facility group within the Facility District as applicable.

Group 1	◯ Applicable	◉ N/A
Group 2	◯ Applicable	◉ N/A
Group 3	◯ Applicable	◉ N/A
Group 4	◯ Applicable	◉ N/A
Other	◯ Applicable	◉ N/A

A. OVERVIEW (Links only)

B. INSTALLATION ELEMENTS (Not applicable)

C. SITE DEVELOPMENT (Not applicable)

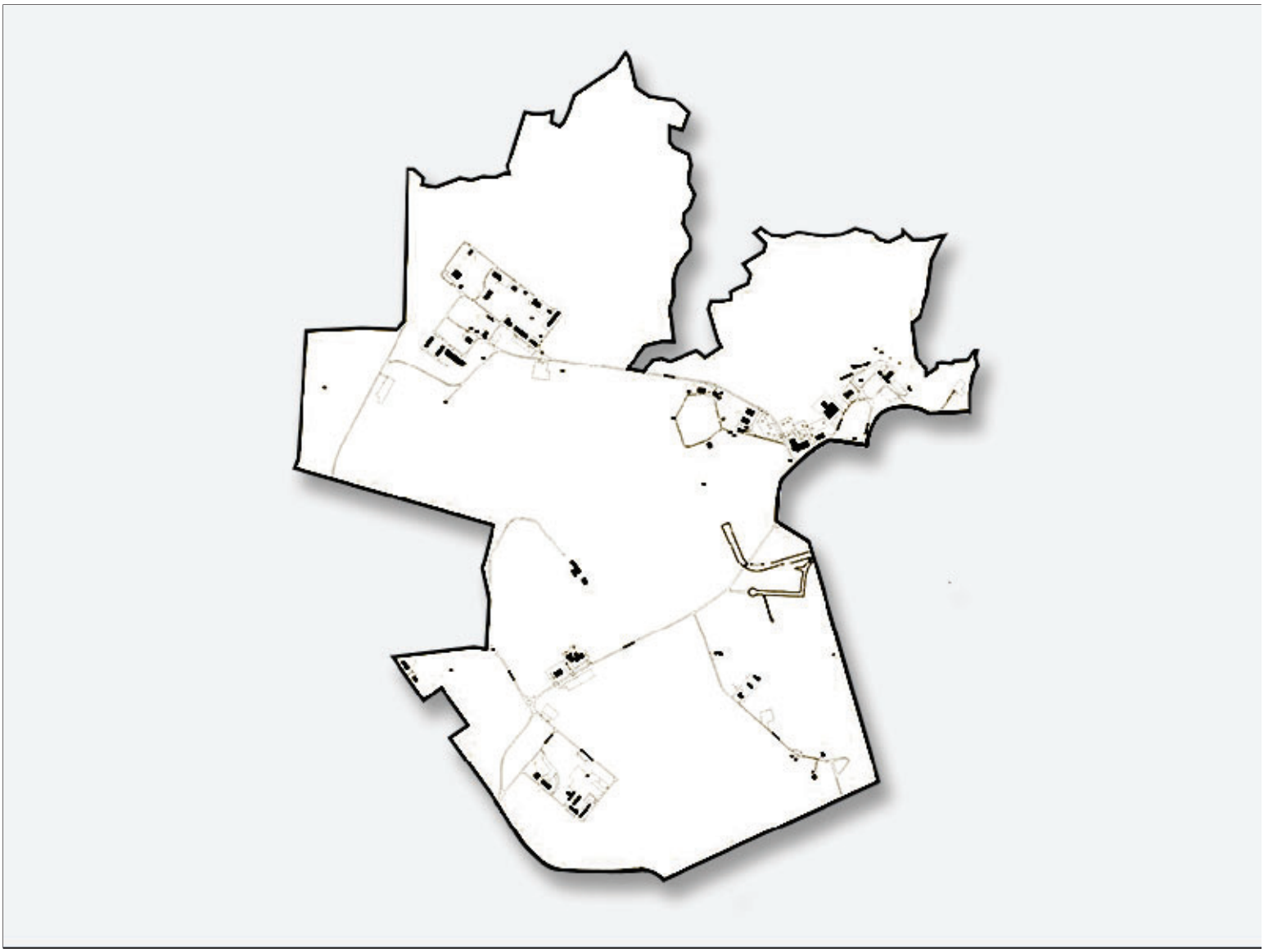
D. FACILITIES EXTERIORS (Only applicable sections are shown)
D05. Wall Systems
1. Metal panel buildings must have a minimum 8' high wainscot of brick.

2. The water table, lintels, sill and coping will be precast concrete.

E. FACILITIES INTERIORS (Not applicable)

Name of District: F05. North Base

Map of District



Photos for each facility group within the Facility District as applicable.

Group 1	◯ Applicable	◉ N/A
Group 2	◯ Applicable	◉ N/A
Group 3	◯ Applicable	◉ N/A
Group 4	◯ Applicable	◉ N/A
Other	◯ Applicable	◉ N/A

A. OVERVIEW (Links only)

B. INSTALLATION ELEMENTS (Not applicable)

C. SITE DEVELOPMENT (Not applicable)

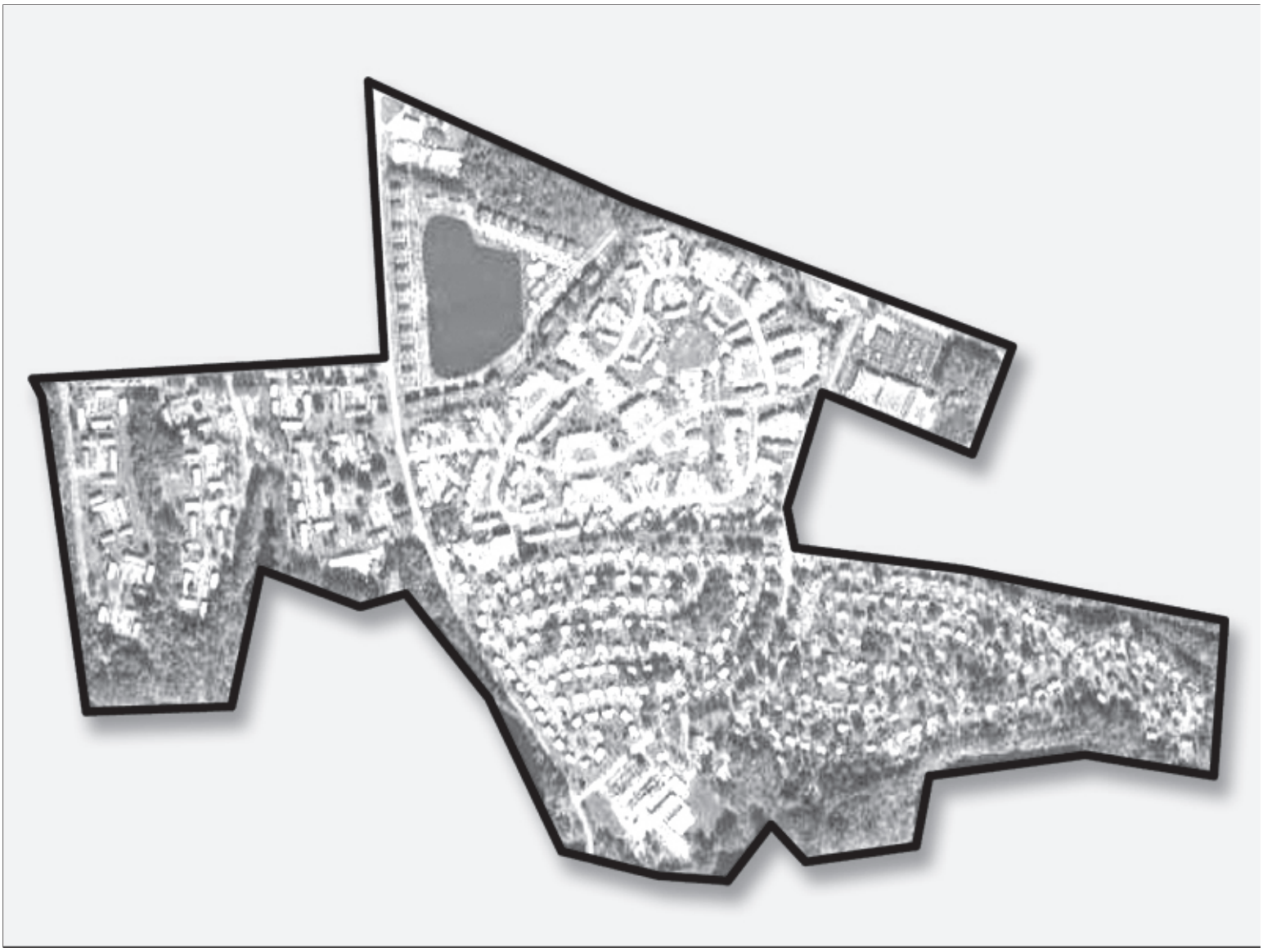
D. FACILITIES EXTERIORS (Only applicable sections are shown)
D05. Wall Systems
1. Brick shall be the exterior wall material and include brick patterns and precast concrete accents.

2. Provide detail and articulation that is referenced from the LTA and HTA Districts. The water table, lintels, sill and coping will be precast concrete.

E. FACILITIES INTERIORS (Not applicable)

Name of District: F06. Bethel Manor Housing

Map of District



Photos for each facility group within the Facility District as applicable.

Group 1	◯ Applicable	◉ N/A
Group 2	◯ Applicable	◉ N/A
Group 3	◯ Applicable	◉ N/A
Group 4	◯ Applicable	◉ N/A
Other	◯ Applicable	◉ N/A

A. OVERVIEW (Links only)

B. INSTALLATION ELEMENTS (Only applicable sections are shown)
B02. Street Envelope Standards
1. Maintain curvilinear suburban streetscape.

C. SITE DEVELOPMENT (Not applicable)

D. FACILITIES EXTERIORS (Only applicable sections are shown)
D03. Architectural Features
1. Maintain architectural style reminiscent of the late 50's, early 60's. Housing shall be composed of brick with composition roofs and unenclosed single-car carports. Structures shall primarily be duplex units.

E. FACILITIES INTERIORS (Not applicable)

G. APPENDIX - References

Comply with Air Force Corporate Standards:
http://afcfs.wbdg.org/index.html

G. 01 JBLE-Langley Applicable Planting List

This list is not wholly inclusive but provides a baseline for acceptable planting to include within landscape design. All plantings should be saltwater resistant and be of minimal maintenance requirements. All planting is subject to review and approval of the BCE or delegated representative.

(□ denotes plants that are especially salt tolerant)

(Δ denotes plants that are especially tolerant of occasional salt flooding)

(◊ denotes plants that tolerate wet conditions and/or occasional brackish flooding)

Trees

Celtis occidentalis - Common Hackberry Δ

- Native
- Very tolerant of poor soil, drought, occasional floods, wind, and urban conditions
- Beneficial to native wildlife
- 40-60' tall and wide, older with age, fast
- Not to be planted within ¼ miles of airfield

Ginkgo biloba - Ginkgo or Maidenhair Tree

- Living fossil
- Great fall color
- Do not plant female trees due to odorous/messy fruit
- 50-80' tall by 30-40' wide, variable
- Long lived, tolerant of wind, salt, occasional flooding, and nuclear warfare

Gleditsia triacanthos - Thornless Common Honeylocust □

- Native
- Grows quickly to 30-70' tall with equal width, open spreading crown, light enough to grow grass under
- Drought and very salt tolerant, beachfront and occasional tidal flooding

Juniperus virginiana - Eastern Redcedar ⊠Δ

- Native, evergreen blue-green foliage
- Strong wood
- fFemales have attractive blue fruit
- Slowly to 40-50' tall by 8-20' wide
- Long-lived, tolerant of drought, marsh, sand, salt, tidal flooding, and beachfront conditions

Magnolia grandiflora - Southern Magnolia

- Native, evergreen
- Beautiful fragrant white flowers in late spring to early summer
- 60-80' tall by 30-50' wide, slow to medium growth
- Tolerant of wind, occasional salt flooding, full sun to partial shade, long-lived
- Not to be planted within ¼ miles of airfield

Magnolia virginiana - Sweetbay Magnolia ◊

- Native, deciduous to evergreen depending on variety
- Creamy white fragrant flowers in late spring
- More maintenance friendly than Southern Magnolia
- Moderately fast growth, variable size 20-60' tall
- Will grow in sun to a fair amount of shade, tolerant of brackish flooding

Hardy Palms

- Rhapidophyllum hystrix - Needle Palm
- Sabal minor - Dwarf Palmetto
- Trachycarpus fortunei - Windmill Palm

Pinus taeda - Loblolly Pine

- Native, evergreen
- 60-90' tall, fast growth
- Tolerant of occasional tidal flooding and salt spray, poor and sandy soils

Pinus thungbergii - Japanese Black Pine □

- Dark green foliage on artistically arranged branches, no two grow alike
- 20-40' tall and wide, though variable and can get bigger
- Prefers coastal conditions, tolerant of sandy soil, salt spray, and beachfront conditions

Quercus phellos - Willow Oak

- Native
- Small willow-like leaves, variable fall color

- 40-60' tall by 30-40' wide, but larger with considerable age
- Tolerant of many conditions including salt, near-beachfront, and occasional flooding
- Limit use due to current overuse on installation

Quercus virginiana - Live Oak □Δ

- Native, evergreen but drops leaves in spring
- Distinctive horizontal branching
- Slow growth to 40-80' tall by 60-100' wide, rarely reaches full size in SE Virginia
- Tolerant of sandy soil, occasional tidal flooding, beachfront conditions, and salt spray
- Limit use due to current overuse on installation

Robinia pseudoacacia - Black Locust

- Native
- Very fragrant, wisteria-like, white flowers in mid-spring
- Grows quickly to 30-50' tall by 20-35' wide
- Tolerant of salt, sandy soil, and occasional flooding

Taxodium distichum - Bald Cypress ◊

- Native
- 50-70' tall by 20-30' wide
- Bright green needled growth goes russet in fall
- Extremely tolerant of flooding soils, brackish water, also normal soil, extremely wind tolerant
- Cypress knees

Vitex agnus-castus - Vitex, Chaste Tree

- Small tree or large shrub depending on how it is treated
- Blue flowers in early summer, deadhead for fall bloom
- Bees friendly
- Grows moderately fast to 15 tall and wide, or more
- Very drought tolerant, will grow in sand, tolerates beachfront conditions
- NEVER plant Vitex rotundifolia (Beach Vitex), very invasive

Shrubs

Clethra alnifolia - Clethra, Summersweet, Sweet Pepperbush ◊

- Native
- Fragrant white flowers in early summer, pink available too, attractive to native pollinators
- Nice yellow fall color
- 4-8' tall, can spread wider, makes colonies
- Prefers partial shade, in moist to occasionally wet soils, salt tolerant, can grow by marsh edge

Cupressus sempervirens - Italian Blue Cypress

- Blue green foliage, evergreen
- Grows 20-30 tall by 2-3' wide, should be staked when young
- Very drought tolerant, can take beachfront conditions

Eleagnus x ebbingei - Silverberry Eleagnus

- Evergreen
- Silver foliage
- Fragrant ivory flowers in late fall, olive to red fruit, birds like
- Grows quickly 8-10' tall and wide
- Very drought, salt and sand tolerant, does well in beachfront conditions
- Other species also do well in coastal conditions but there is potential invasiveness from this genus

Hydrangea macrophylla - Bigleaf Hydrangea

- Beautiful flowers in late spring to early summer, flower color pH dependent
- Grows moderately fast to 4-6' tall and wide depending on variety
- Prefers partial shade, thrives in coastal atmospheres, not drought tolerant

Ilex glabra - Inkberry Holly ◊

- Native, evergreen
- Dark green foliage, black berries
- Tolerant of wet soils, flooding, salt, full sun to fair shade

Juniperus species - Juniper

- Evergreen, different foliage colors
- Growth habit is size depends on species and cultivars
- Tolerant of dry soil, sand, salt spray

Morella cerifera - Wax Myrtle ☒Δ ◊

- Native, evergreen (except in severe winters)
- Females have gray fruit some birds like
- Grows moderately fast to 10-15' tall and wide, can be kept shorter with pruning or limbed up to make a small tree
- Full sun to part shade, tolerant of oceanfront conditions, standing water either fresh of brackish
- Do not plant within ¼ miles of airfield

Nerium oleander - Oleander ⍰

- Evergreen, but suffers badly in severe winters
- Beautiful flowers in summer, several colors

- In SE Virginia only reaches 6-8 tall
- Very drought tolerant, salt tolerant, heat tolerant, and does well in beachfront conditions
- Highly poisonous if ingested or during heavy contact when pruning for sensitive individuals - do not plant in housing areas or near veterinary clinic

Rosa rugosa

- Flowers in late spring through summer, usually hot pink but white and other colors available, attractive rose hips
- Very tolerant of salt, sand, heat, and beachfront conditions

Yucca species □

- Native evergreen
- Tall white flower stalks in early summer
- Very drought, salt, sand, and heat tolerant, beachfront

Vines

Campsis radicans - Trumpet Vine Δ ◊

- Native
- Trumpet shaped orange-red flowers in summer
- Vigorous and rampant, 30-40' tall or more
- Can take occasional flooding and beachfront conditions, late to leaf out, loves heat

Gelsemium sempervirens - Carolina Jessamine ◊

- Native
- Bright yellow, very fragrant in late March
- Evergreen twining vine to 10-20' tall, vigorous
- Full sun to pt. shade, can take occasional flooding, beachfront conditions, does not like to get too dry

Lonicera sempervirens - Coral or Trumpet Honeysuckle

- Native
- Orange red to red flowers have a yellow to orange throat, trumpet shaped and attracts humming birds
- Reddish purple new foliage, deciduous in cold winters, semi-evergreen in mild ones
- Grows quickly to 10-20' tall
- Full sun to shade, more flowers in sun, tolerant of heat and humidity, occasional flooding

Parthenocissus quinquefolia - Virginia Creeper

- Native
- New leaves are bronzy green, great fall color purple to red
- Extremely vigorous, tolerant of beachfront conditions, sand, salt flooding, tough!

Passiflora incarnata - Purple Passion Vine

- Very showy blue flowers in late spring through summer
- Vigoruous, grows quickly to 30' tall
- Full sun to part shade, tolerant of beachfront conditions, and occasional flooding

Grasses

Cortaderia selloana - Pampas Grass

- Large white plumes in late summer
- Light green foliage
- Can grow to 8' tall and wide, or more, dwarf forms available
- Tolerant of beachfront conditions, sand, and drought

Panicum virgatum - Switch Grass

- Native
- Attractive foliage in several colors, nice plumes
- 3-6' tall
- Tolerant of beachfront, sand, full sun, drought, and occasional flood

Spartina patens - Saltmeadow Cordgrass □Δ

- Native
- Bright green foliage in summer, goes golden in fall
- Not a strong competitor outside of tidal areas

Spartina. alterniflora - Saltmarsh Cordgrass, taller -

- Not a strong competitor outside of tidal areas

Perennials

Agapanthus africanus - Lily of the Nile

- Bold strap-like foliage
- Light to dark blue, white flowers in summer
- Very tolerant of drought, heat, salt and occasional flooding, not for reg. wet areas

Delosperma cooperii - Ice Plant

- Fleshy succulent foliage
- Bright purple flowers most of the spring summer and into fall
- Very drought tolerant

Dianthus gratianopolitanus - Cheddar Pink

- Low grower with attractive silvery blue foliage
- Magenta, pink, white, to red flowers in late spring, sporadic into summer

- Very heat, drought, salt and sand tolerant, needs good drainage

Echinacea purpurea - Purple Coneflowers

- Native
- Pink flowers in late spring through summer, unusual cones, good food source for birds
- Tolerant of occasional flooding

Eryngium aquaticum - Marsh Rattlesnake Master ◊

- Southeastern native
- Blue sea-holly-like flowers summer into fall, attractive foliage
- 3-4' tall by half as wide
- Likes wet feet, including brackish water

Gaillardia - Blanketflower □

- Native
- Colorful summer flowers, oranges red and yellow
- Very tolerant of drought, salt, sand and beachfront conditions, occasional flooding
- Not tolerant of poor drainage or too much water

Hemerocallis - Daylily □

- Multiple colors available, easy to grow
- Tolerant of beachfront conditions, but respond well to good moisture and care, tolerant of occasional flooding

Hibiscus moscheutos - Common Rose Mallow ◊

- Native
- Large pink, red to white blooms in late summer
- Tolerant of salt, occasional flooding, and moist to wet soils
- Late to emerge in spring

Kosteletzkya virginica - Seashore Mallow ☒Δ ◊

- Native
- Large pink to white flowers in summer
- Tolerant of standing brackish water, salt, and flooding

Lavendula stoechas - Spanish or French Lavender

- Evergreen foliage is a silvery blue-green, very fragrant
- Pale purple flowers in late spring
- Tolerant of heat, sand and beachfront conditions, not tolerant of poor drainage, heavy mulch, or very rich soil

Leucanthemum - Becky Daisy

- Easy to grow with show white flowers with yellow centers

- Tolerant of heat, sand, and beachfront conditions, not tolerant of poor drainage

Limonium carolinianum - Carolina Sea Lavender

- Native
- Wispy blue/purple flowers in summer
- Tolerant of beachfront conditions or marshy soil, very salt tolerant

Nepeta - Catmint

- Aromatic silver green foliage
- Flower color can be blue, lavender, white to rose
- Drought tolerant, attracts bees, butterflies, hummingbirds - deer resistant

Perovskia atriplicifolia - Russian Sage

- Handsome silver foliage and blue flowers
- Tolerant of sand, beachfront conditions, and drought

Rosmarinus officinalis - Rosemary

- Aromatic edible foliage, blue flowers in winter
- Tolerant of beachfront conditions, sand, heat, and drought, not tolerant of poor drainage, and overly rich soil

Rudbeckia fulgida - Blackeyed Susan

- Native
- Black and gold flowers in summer
- Tolerant of beachfront conditions, heat, sand, and drought

Santolina chamaecyparissus - Santolina, Lavender Cotton

- Very aromatic foliage can be green or silver, yellow flowers
- Very tolerant of heat, drought, sand, salt, and beachfront conditions

Sedum x `Autumn Joy'

- Fleshy, silvery green foliage, pink flowers in late summer, good winter interest
- Tolerant of beachfront conditions, drought, sand, and salt
- Many other sedums would fit the bill as well

Sempervivum - Hens and Chicks

- Unusual fleshy foliage, occasional flowers are bizarre
- Tolerant of beachfront conditions, sand, salt, heat and drought, do not overwater or put in really rich soil

Solidago sempervirens - Seaside Goldenrod

- Native
- Golden yellow flowers late in summer to early fall
- Tolerant of beachfront conditions, heat, drought, sand, and occasional flooding

- Southern canadensis is also very good

Stachys byzantina - Lamb's Ear

- Grown primarily for silvery foliage that is nice to touch
- Tolerant of beachfront conditions and sand, not tolerant of poor drainage, and overly rich soil

Symphyotrichum species - Aster

- Native
- Several species, colorful flowers, usually in late summer or early fall
- Tolerant of occasional flooding

Tradescantia pallida - Purple Heart

- Grown primarily for its fleshy purple foliage
- Small pink flowers
- Tolerant of drought, heat, and beachfront conditions

Tulbaghia violacea - Society Garlic

- Violet pink flowers in late summer
- Attractive foliage, unpleasant aroma
- Tolerant of heat, drought, and beachfront conditions

Annuals

Begonia x semperflorens-cultorum - Wax Begonias

- Fleshy bronze (sun) or green foliage (shade), white, pink or red flowers

Coreopsis - Coreopsis, Tickseed

- Self-seeding annuals, or short lived perennials
- Yellow flowers most of the summer

Cosmos bipinnatus - Cosmos

- Tall pink, white, purple flowers in summer to fall

Gazania - South African Daisy

- Multiple colors, oranges, yellows and whites
- Very heat, drought and sand tolerant

Portulaca - Purslane, Moss Rose

- Low groundcover in multiple colors, fleshy foliage
- Very heat, drought, sand and salt tolerant

Senecio cineraria - Dusty Miller

- Grown primarily for its silver foliage
- Heat, drought, sand and tolerant of beachfront conditions
- Sometimes perennial