(PRE-FINAL)
MINOT AIR FORCE BASE
INSTALLATION FACILITIES STANDARDS (IFS)

Approved for public release; distribution unlimited

Installation Elements  Site Development  Facilities Exteriors  Facilities Interiors
Minot Air Force Base 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. Requests to deviate from any installation facilities standards, that are Unified Facilities Criteria (UFC) requirements, will follow the process outlined in the AFCFS for UFC waivers and exemptions.

3. 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.

4. 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.

5. 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.

6. 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.

7. References and Supplementary Documents listed in Appendix G are included in these Installation Facilities Standards by reference and are fully part of this document. Please refer to Appendix G for a listing of documents, which are available via hyperlink for viewing and downloading.

8. Installations outside the United States: Per UFC 1-200-01 DOD BUILDING CODE, 8 Oct 2019, "All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (HNFA), and in some instances, Bilateral Infrastructure Agreements (BIA). Therefore, the acquisition team must ensure compliance with the most stringent of the UFC, the SOFA, the HNFA, and the BIA, as applicable." Refer to Appendix G for applicable agreements. "Use UFC 1-202-01 for design of host nation facilities that support military operations.
A01. FACILITY HIERARCHY
Comply with AF Corporate Standards for Facility Hierarchy (and subsections):
http://afcfs.wbdg.org/facility-hierarchy/index.html

A02. FACILITY QUALITY
Comply with AF Corporate Standards for Facility Quality (and subsections):
http://afcfs.wbdg.org/facility-quality/index.html

A03. 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

B01. 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  Select number of graphics / images (large: 800 px x 440 px) to insert  1

Applicable  N/A  Small graphics do not apply

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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 32-1015 Integrated Installation Planning.

2. Refer to the IDP for information on climate and weather and for demographics and related data.

B01.1.1. IFS Component Plan of IDP

Applicable  N/A  Large graphics do not apply

Applicable  N/A  Small graphics do not apply

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

The initial groundbreaking ceremony at Minot Air Force Base was held over 60 years ago, on July 12, 1955. The decision to create a new Air Force Base north of Minot had been made the previous year. Minot citizens and area businessmen made nearly $50,000 in donations to buy the first parcels of land for the Air Base (adjusted for inflation, $50,000 in 1954 is equivalent to $444,000 in today's dollars).

The actual construction of the Air Base didn't get underway until May of 1956 and it was officially opened in January of 1957 as an Air Defense Command base. In 1958 the first Strategic Air Command unit was assigned to Minot Air Force Base and in 1959 the first refueling tanker aircraft arrived. About the same time, a Lockheed U-2 reconnaissance aircraft, capable of flying at altitudes of over 70,000 feet, was also stationed at MAFB.
In January 1960, the first Convair F-106 Delta Dart interceptor aircraft was brought to Minot. This aircraft was designed to intercept and destroy Soviet bombers coming in from the north. This F-106 could be rolling down the runway in less than three minutes after initial alert. It could travel at Mach 2.31 (1,656 miles per hour) at an altitude of eight miles above the surface of the earth and carried nuclear rockets and guided missiles. Theoretically, the F-106 could be flown from takeoff, directed to the target, have its armaments deployed, return and land, all by remote control from the SAGE ground control center.

The Semi-Automatic Ground Environment (SAGE) building was constructed at Minot Air Force Base in 1958. It was an enormous, heavily reinforced concrete bunker. For redundancy, two 275-ton IBM computers were to be installed in the basement. The AN/FSQ-7 computers were the largest computers ever built. Development of the SAGE system exceeded the cost of the Manhattan Project and was the predecessor to the FAA’s air traffic control systems. The SAGE would collect and process data from numerous radar sites. Real time tracking data on incoming targets could be sent directly to the airborne F-106 Delta Darts with a programmed vector for intercepting the target. The SAGE program at MAFB was deactivated in 1963 and the building was converted to military offices. It is now known as the Professional Results In Daily Endeavors Building (PRIDE).

In 1961, the Minot Air Force Base region was chosen as the site for a new intercontinental ballistic missile complex. Under the direction of the US Army Corps of Engineers, construction began in January of 1962. The construction contractor, Peter Kiewit & Sons, brought in 6,000 men, 1,100 vehicles and 115 cranes to complete construction on schedule. The last of 150 Minuteman I missiles was placed in its silo three years after construction began, in February of 1965.

Changes and upgrades in military systems and hardware have regularly occurred at Minot Air Force Base. About the same time as the decision was made to build the missile complex, in 1961 the first B-52 Stratofortress nuclear bomber aircraft arrived at MAFB. In the 1970s, the 150 ICBMs were upgraded to Minuteman III nuclear missiles. During the mid-1980s, the F-106 Delta Darts were replaced with the F-15 Eagles, but only for a few years. In 1988 that Fighter Interceptor Squadron was deactivated. In 1989 the Air Launched Cruise Missile was added to MAFB’s armaments and in 1993 the Advanced Cruise Missiles were added to the B-52’s arsenal.

On September 3, 2009, the 69th Bomb Squadron (69 BS) was reactivated at MAFB, becoming the fourth operational B-52H Stratofortress squadron in the USAF and joining the 23rd Bomb Squadron (23 BS) as the second squadron at MAFB. The new squadron was established to provide the wing with two active-duty, combat-coded squadrons, which gave the USAF bench depth to rotate the squadrons across the mission sets as recommended in the Defense Science Board Report. MAFB is one of two remaining bases hosting the B-52H Stratofortress bombers. The 5 BW operates 27 bombers and claims extensive combat honors and a long history as “Guardians of the Upper Realm.”

MAFB occupies 5,342 acres (approximately 8 square miles) of federally owned land. The installation is located along U.S. Highway 83, which parallels the eastern boundary of the Base. MAFB has the largest approach control-designated airspace in the continental United States consisting of 4,800 square miles from the ground surface to an altitude of 23,000 feet. The availability of open airspace presents unique opportunities to conduct aerial training that are not available at many other installations.

The installation is composed of administrative offices, maintenance facilities, hangars and other flightline facilities, an active airfield with more than one million square yards of pavement, as well as specialized structures built to support the functions and operations of the 5 BW and 91 MW. In total, there are 339 buildings on the installation, 1,192 dormitory rooms and 1,720 privatized housing units. Including the MAFs and LFs, MAFB operates and maintains 8,134,055 square feet of building space with a total replacement cost of $3.15 billion. Many of these facilities were constructed during the Cold War era and are subject to increased operations and maintenance (O&M) costs due to their aging mechanical, electrical, and plumbing systems.
B01.1.3. Future Development


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:
B02.1. Hierarchy of Streets

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. Consider snow removal operations and snow storage areas in all designs.

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 or its applicable component plans.

12. Define appropriate force protection features, site furnishings, signs, lighting, utilities, and paving in the IFS.

13. Remote service roads may be paved with a rock/clay mix that is suitable for the service vehicles. Appropriately size roads to accommodate service vehicle traffic.
B02.1.1. Arterial Streets

Applicable  N/A  Select number of graphics / images (large: 800 px x 440 px) to insert  1
Applicable  N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

Arterial Street - Dimensions Follow Below

1. Minimum arterial street dimensions shall be as follows:
   a. Travel Lane (a). 13'
   b. Median (if used) (b). 12'
   c. Curb and Gutter (c). 2'
   d. Landscape (d). 6'
   e. Sidewalk (e). 6'
   f. Parking (g). 12' setback or per ATFP
   g. Buildings (g). 35' setback or per ATFP
   h. Obstructions (g). 6' setback or per ATFP
2. Stops and turns should be minimized and on-street parking shall not be allowed at any point along arterial streets.

3. Provide sidewalks on at least one side of arterial streets and both sides of arterial streets in developed areas. Provide a 6 foot buffer between the road and sidewalk where space allows.

4. Limit curb cuts on arterial streets to entries into major facilities, building groups and major parking areas.

5. Signs, plantings and street lighting should be added to reinforce the importance of arterial streets.

**B02.1.2. Collector Streets**

Applicable  N/A  Select number of graphics / images (large: 800 px x 440 px) to insert  1

Applicable  N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

Collector Street - Dimensions Follow Below

Landscape Screening Residential Area
Collector to Collector Intersection
Collector to Arterial Intersection
1. Minimum collector street dimensions shall be as follows:
   a. Travel Lane (a). 15'
   b. Curb and Gutter (c). 2'
   c. Landscape (d). 6' (where space allows)
   d. Sidewalk (e). 6'
   e. Parking (f). 12' setback or per ATFP
   f. Buildings (f). 35' setback or per ATFP
   g. Obstructions (f). 3’ setback or per ATFP

2. Frequent traffic stops and low speeds are permitted on collector streets.

3. Provide sidewalks on at least one side of collector streets. Buffers are preferred but not required on collector streets.

4. On street parking may be allowed on one side where secondary roads are over 28 feet wide but not less than 34 feet wide. Parking shall not interfere with intersections or traffic flow.

**B02.1.3. Local Streets**

- Applicable ☑ N/A Select number of graphics / images (large: 800 px x 440 px) to insert 1
- Applicable ☑ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 3

Local Street - Dimensions Follow Below
1. Minimum local street dimensions shall be as follows:
   a. Travel Lane (a). 12'
   b. Curb and Gutter (c). 1.5'
   c. Sidewalk (e). 6'
   d. Landscape (d). 15' setback or per ATFP
   e. Buildings (d). 35' setback or per ATFP
   f. Obstructions (d). 3' setback or per ATFP

2. Frequent traffic stops and low speeds are permitted on local streets.

3. Provide sidewalks on at least one side of local streets. Buffers are preferred but not required on local streets.

4. On street parking may be allowed on one side where secondary roads are over 28 feet wide but not less than 34 feet wide. Parking shall not interfere with intersections or traffic flow.

5. Signs, plantings and street lighting should be added to reinforce the importance of arterial streets.

6. Cul-de-sacs are to only be used in the Family Housing areas. The minimum radius for cul-de-sacs shall be 50'.

**B02.1.4. Special Routes**

- **Applicable**  **N/A**  **Large graphics do not apply**

- **Applicable**  **N/A**  **Select number of graphics / images (small: 250 px x 188 px) to insert**  **1**

1. Develop all special routes consistently with those adjacent to Group 1 facilities.
B02.2. Hierarchy of Intersections

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. 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.

4. When required, ensure that any active system utilizes most robust sensor system available to reduce maintenance costs. When possible, utilize renewable energy generation, such as solar panels, to power active systems.
B02.2.1. Arterials

- Applicable  ☑ N/A  Large graphics do not apply
- Applicable  ☑ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

1. At arterial intersections adjacent to Group 1, landscaping of native grasses and shrubs may be provided; trees may be included when maintenance and non-potable irrigation is available. Monuments and static displays may be integrated into arterial intersection designs.

B02.2.2. Arterial/Collector

- Applicable  ☑ N/A  Large graphics do not apply
- Applicable  ☑ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

1. At arterial/collector intersections adjacent to Group 1, landscaping of native grasses and shrubs may be provided; trees may be included when maintenance and non-potable irrigation is available.
B02.2.3. Collectors

1. At collector intersections adjacent to Group 1, landscaping of native grasses and shrubs may be provided; trees may be included when maintenance and non-potable irrigation is available. Intersections adjacent to Group 2 may be developed similarly, but with less detailing.

B02.2.4. Special Intersections

1. Develop all special intersections consistently with those adjacent to Group 1 facilities.
B02.2.5. Street Frontage Requirements

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 do not apply

☐ Applicable  ☑ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  4

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.
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.

2. Employ systems, materials and techniques to maximize streetscape sustainability. Consider pervious paving and high reflectivity of surfaces, which are appropriate for the local climate.

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. Paint concrete curbing to delineate fire lanes or zones for fire trucks and emergency responders only.

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).

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. Crosswalk markings shall follow the MUTCD for Streets and Highways, current edition. Provide white markings that define the edges of the crosswalk or a tone of lines defining the area of the crosswalk consistent with common practices found in the adjacent municipality.

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

8. 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.
**B02.3.1. Paving**

- Applicable [ ] N/A Large graphics do not apply
- Applicable [ ] N/A Select number of graphics / images (small: 250 px x 188 px) to insert 3

1. Pavement design shall comply with UFC 3-250-01. Ensure appropriate analysis and design of subgrade conditions to promote low maintenance, high performance pavements. Apply all applicable best practices from Appendix B of the UFC.

2. Materials shall be specified in accordance with UFC 3-250-01 and must conform to requirements set forth in the Unified Facility Guide Specifications (UFGS) for concrete and bituminous pavement.

3. Avoid trenching in paved areas. Utilize directional boring or other approved trenchless methods for utilities crossing paved areas.

**B02.3.2. Curb and Gutter**

- Applicable [ ] N/A Large graphics do not apply
- Applicable [ ] N/A Select number of graphics / images (small: 250 px x 188 px) to insert 3

1. Curb all streets except remote/isolated roads and rock-paved service roads.

2. All streets should have integral concrete curbs and gutters. Painted curbs are allowed to delineate fire lanes or zones for firetrucks and emergency responders only.
3. Use concrete for sidewalks and curbs. Do not use asphalt curbs.

**B02.3.3. Utility Service Elements**

- **Applicable**  ☑ N/A  Large graphics do not apply

- **Applicable**  ☑ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

![Electrical Cabinet](image1)
![Coordinated Utility Cabinets](image2)
![Fire Hydrant](image3)

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. Install underground service utilities in all areas within 500 feet of Facility Groups 2, 3 and 4. Replace overhead service lines with underground equivalent during major renovations or upgrades to the electrical system.

**B02.3.4. Traffic Signs**

- **Applicable**  ☑ N/A  Large graphics do not apply

- **Applicable**  ☑ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

![Typical Hazard Signs](image4)
![Typical Traffic Signs](image5)
![Street Sign](image6)

1. Refer to Exterior Signs, Colors and Types for Traffic Control Devices, which includes signs.
B02.3.5. Street Lighting

- Applicable  N/A  Large graphics do not apply
- Applicable  N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

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

B02.3.6. Other

- Applicable  N/A  Large graphics do not apply
- Applicable  N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

1. Refer to sections C07.1 and C07.2.6 for information on bus shelters.
2. Refer to sections C07.1 and C07.2.5 for information on bollards.
3. Refer to section B02.3 bullet number 6 information on crosswalk striping.

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:
B03.1. Plazas, Monuments and Static Displays

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 all Plazas, Monuments, and Displays so that they are compliant with this IFS.

B03.1.1. Paved Plazas

1. Mitigate heat island effect by providing high-albedo, shaded plazas. Pervious pavers shall be used on all 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.
2. Pavers shall match the color of pavers used on adjacent sidewalks using base standard range of dark beige and tan colors. Bricks used on plazas shall typically be 4” x 8” size. Avoid the use of pavers that effloresce or corrode when exposed to snow-melt chemicals.

B03.1.2. Sculptures, Markers and Statuary

☐ Applicable  ☑ N/A  Large graphics do not apply

☐ Applicable  ☑ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert 3

Image Tool 250 x 188

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 do not apply

☐ Applicable  ☐ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3  

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.

Entrance Signage and Static Display  Minuteman II Static Display at Base Entrance  Historic Aircraft Static Display
B03.2. Grounds and Perimeters

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

11. 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

12. Consolidate and enclose service utility lines in underground utility corridors when feasible. Create routes along the inside edge of parking lot islands.
B03.2.1. Parade Grounds

Applicable  N/A  Select number of graphics / images (large: 800 px x 440 px) to insert  1

Applicable  N/A  Small graphics do not apply

Parade Grounds Adjacent to 5 BW Headquarters

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

2. Provide maintenance with mowing and seeding as necessary to control bird and fire hazard, and prevent erosion of local topsoil.
B03.2.2. Parks

- **Applicable**  ☑️ N/A  Select number of graphics / images (large: 800 px x 440 px) to insert  1
- **Applicable**  ☑️ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

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 do not apply

**Applicable** ☑️ N/A
- Select number of graphics / images (small: 250 px x 188 px) to insert 3

![Preserved Open Space for Storm Drainage](image1)
![Preserved Open Space for Residential Buffer](image2)
![Preserved Open Space at Utilities](image3)

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

2. Provide maintenance with mowing and seeding as necessary to control bird and fire hazard, and prevent erosion of local topsoil.

3. Areas with mature vegetation should be preserved.

4. Development should not be located in natural drainage ways or where adverse environmental impacts will result from development.

**B03.2.4. Perimeter Fence**

- **Applicable** ☑️ N/A
- Large graphics do not apply

- **Applicable** ☑️ N/A
- Select number of graphics / images (small: 250 px x 188 px) to insert 5

![Typical Perimeter Fence](image4)
![Group 1 Fencing at Magic City Entry](image5)
![Perimeter Fence with Privacy Fence Beyond](image6)
1. Design, install and maintain the base's perimeter fence following UFC 4-022-03.

2. Stringently comply with ATFP 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  Select number of graphics / images (large: 800 px x 440 px) to insert  1

☐ Applicable  ☐ N/A  Small graphics do not apply

New Building Reinforcing Relation to Existing Building and Street Network

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

2. Ensure site design compliance with the Installation Development Plan (IDP) and its component plans 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, paved surfaces, and snow storage areas.

4. Integrate snow storage areas with adjacent streets and parking areas; coordinate snow storage with the base stormwater plan.
5. 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.

6. 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).

7. 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.

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

9. Conform to existing topography to the greatest extent possible and use slopes to increase site and building efficiencies. Design sites to eliminate irrigation requirements and minimize damage from storm water runoff.

10. Carefully study new project sites to identify the character of adjacent buildings, streets, landscaping, and site design elements. Reinforce the existing character in new site design.

11. 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.

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

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

14. 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.

15. Applicably coordinate roof designs and roof drainage when implementing an integrated approach to stormwater management.

16. Ensure locations of Designated Tobacco Areas are of sufficient distance from entrances to meet North Dakota law, and placed and oriented for appropriate sheltering for effective use.

17. Consider prevailing wind direction to ensure the design layout avoids "wind tunnel" effects.
C01.2. Building Orientation

- Applicable  ○ N/A  Select number of graphics / images (large: 800 px x 440 px) to insert 1

- Applicable  ○ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert 6

Conceptual Site Analysis and Site Design Diagram

Local Solar Data

Local Climate Data

Site Data
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. Main Entrance should be on the south or east side.

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 do not apply

☐ Applicable ☐ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 6

Group 1 - Concrete Pad Mounted Transformer
Group 1 Utility Screening
Group 2 Utility Cabinet and Vehicle Bollards
1. Provide all on-site utility service lines below grade for 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 Installation Facilities Standards (IFS).

2. All ground mounted utility components such as electrical cabinets, electrical panels, telephone cabinets, telephone boxes, cable boxes, vehicle block heaters and similar site utility devices shall be painted medium bronze. Include vertical markers to locate components when buried in deep snow.

3. Fire hydrants shall be painted beige to match Federal Standard 595B 33578. Do not paint tag that indicates water pressure. Include vertical markers to locate hydrants when buried in deep snow.

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

5. 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 or 2. Minimize exposed conduits, cables, and wires on Facility Groups 3 and 4.

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

7. 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.

8. Direct roof drainage to underground collection when feasible or provide splash blocks / paved channels to intercept roof drainage at grade. Ensure roof drainage directs away from foot traffic areas.

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 Select number of graphics / images (large: 800 px x 440 px) to insert 1

Applicable N/A Select number of graphics / images (small: 250 px x 188 px) to insert 3

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

2. Generally envision on-site parking as a series of small connected singular areas selectively placed around the facility served, rather than a single large area; buffer parking areas from the facility main entrance with a transition space and provide drop-offs to decrease close-in parking. Comply with IFS while meeting ATFP requirements.

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

Group 1 - McAdoo Fitness Center Parking
4. Define pedestrian access with approved hardscape and provide shading along the primary path from the parking area to the building’s main entrance.

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

6. Accessible parking spaces shall be provided and marked in accordance with 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. Designate preferred parking spaces for electric vehicles and carpools near the main entrance.

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

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

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

12. Access and service drives should accommodate the largest vehicle serving the facility.

13. Consider snow removal/clearing in parking lot design

**C03.1.1. Paving and Striping**

- Large graphics do not apply

- Select number of graphics / images (small: 250 px x 188 px) to insert 3

![Standard Crosswalk Markings and Coloring](image1)

![Base Standard Accessible Parking](image2)

![Standard 4-Inch Striping](image3)
**Facility Group 1** paving materials shall be as follows.

- **Primary:** Asphaltic concrete
- **Secondary:** Concrete
- **Accent:** Brick pavers

**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 bituminous pavement following UFC 3-250-01.
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 do not apply
- Applicable ☑ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 2

![Image Tool 250 x 188](image)

<p>| | |</p>
<table>
<thead>
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<tbody>
<tr>
<td>&quot;Barrier&quot; Curb</td>
<td>&quot;Mountable&quot; Curb</td>
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</table>
### 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 with barrier type curbing. Provide curb cuts as required to promote drainage. Provide mountable curbs at snow storage areas for snow removal.

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

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

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### C03.1.3. Internal Islands and Medians

- **Applicable:** ☑
- **N/A:** ☑

Large graphics do not apply

Select number of graphics / images (small: 250 px x 188 px) to insert 3

1. Install landscape islands and medians as visual breaks to reduce heat island effects and to accommodate bioswales and rain gardens. 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 do not apply

☐ Applicable  ☑ N/A  Small graphics do not apply

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 on the ground floor and parking on upper levels; ensure ATFP guidelines are fully addressed.
4. Structures may be constructed below grade with roofs serving as vegetated areas or plazas.

C03.3. Connectivity

☐ Applicable  ☑ N/A  Large graphics do not apply

☐ Applicable  ☑ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

Connection to Adjacent Facilities
Direct Link to Main Entrance
Connection to Accessible Parking

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

C04.1. Stormwater Requirements

- 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.

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

- Provide rainwater harvesting and storage that is attached to the building’s roof drain systems to support gray water irrigation; consider winter temperatures in the design.

- 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.

- Cost-effectively integrate stormwater systems with ATFP 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 do not apply
- Applicable  □  N/A  Select number of graphics / images (small: 250 px x 188 px) to insert

Select images:
- Group 1 Paved Plaza with Flagpole
- Connection to Main entrance at Group 2
- Paved Plaza at Group 2
- Standard Flared Curb Cut for Walkway
- Connection between Entrances
- Group 2 - Paved Plaza
- Attached Sidewalk
- Group 1 Contrasting Paving
Facility Group 1  sidewalks, plazas, and courtyards paving materials shall be as follows.

Primary: Concrete

Secondary: Stamped Concrete with Integral color

Accent: N/A

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

Primary: Concrete

Secondary: N/A

Accent: N/A

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

Primary: Concrete

Secondary: N/A

Accent: N/A

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

Primary: 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 ATFP. 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. Include markers in unplowed areas that exceed the height of snowpack.

4. Mitigate heat island by providing high-albedo, shaded sidewalks. Sidewalks for Groups 1, 2, 3 and 4 shall be concrete. The designer shall incorporate appropriate expansion and construction joints.

5. Consider an integrated approach that could include stormwater management (permeable surfaces) and complement the design of the storm drainage system when appropriate.

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

7. 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.

8. 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.

9. All sidewalks shall have positive drainage to prevent ponding of water or 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%.

10. Pavers shall conform to the following range of color: medium to dark beiges and tans. Pavers used on walks shall typically be 4”x8” nominal in size.

11. 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.

12. Refer to the Installation Development Plan for future trails, bicycle paths, and sidewalks.
13. Sidewalks shall be 5'-0" wide unless otherwise noted. Sidewalks shall be 6" minimum thickness.

C05.1.1. Ramps and Stairs

☐ Applicable  ☑ N/A  Large graphics do not apply

☐ Applicable  ☑ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert 6

Image Tool 250 x 188

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.
C05.1.2. Lighting

☐ Applicable  ☐ N/A  Large graphics do not apply

☒ Applicable  ☐ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

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 do not apply

☒ Applicable  ☐ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

1. Use only native, naturally occurring, drought tolerant indigenous plant species (including grasses) appropriate for the locale to promote energy efficiency and water conservation, preserve drainage patterns, inhibit erosion, improve air quality, lower maintenance, and add beauty.

**C06.1.1. Landscape Design Concept**

- **Applicable**  
- **N/A**  
- Large graphics do not apply

- **Applicable**  
- **N/A**  
- Select number of graphics / images (small: 250 px x 188 px) to insert 5

![Native Grasses at Drainage](image1)
![Xeriscape Drainage Swale](image2)
![Native Wetland Plant at Drainage](image3)

![Trees Framing Building Entrance](image4)
![Trees as Golf Course Screening/Windbreak](image5)

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. Refer to the Streetscape Envelope Standards in this IFS.

4. 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.

5. 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.

6. 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.

7. 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.
8. Return suitable areas to a natural state to minimize and, whenever possible, eliminate ground maintenance requirements; expand prairie areas where appropriate with native plants to eliminate mowing and maintenance requirements.

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

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

11. Consider landscape windbreaks when suitable for the local climate.

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

13. Berms may be used as an integral part of the overall landscape strategy for screening, security and/or visual interest.

**C06.1.2. Xeriscape Design Principles**

- **Applicable**  
  - N/A  
  - Large graphics do not apply

- **Applicable**  
  - N/A  
  - Select number of graphics / images (small: 250 px x 188 px) to insert

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 do not apply

☐ Applicable  ☑ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  2

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 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 do not apply

☐ Applicable  ☑ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  2

1. Use only native, naturally occurring plant materials 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. New facilities are encouraged to use native plant species as indicated on the plant lists available 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. Ground covers are only recommended when minimal maintenance is required.
5. 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.

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

7. 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 do not apply
- ☰ Applicable  ☐ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

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


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 Select number of graphics / images (large: 800 px x 440 px) to insert 1

- **Applicable** □ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 3

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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. Integrate base signs and street and pedestrian lighting whenever feasible.
C06.1.7. Streetscape Landscaping

☐ Applicable  ☑ N/A  Large graphics do not apply

☐ Applicable  ☑ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

![Group 4 Native Trees for Color](image1)
![Native Evergreens for Screening](image2)
![Trees on Peacekeeper Place](image3)

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. 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 do not apply

☐ Applicable  ☑ N/A  Select number of graphics / images (small: 250 px x 188 px) to insert  3

![Retaining Wall and Landscaping Define Edge](image4)
![Native Grasses and Trees at Walking Path](image5)
![Hardy Shrubs Defining Pedestrian Walk](image6)

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.
C06.1.9. Parking Lot Landscaping

☐ Applicable ☑ N/A Large graphics do not apply

☒ Applicable ☑ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 3

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. Avoid trees that drop sap, fruit, or seeds, and use long-lived species; keep trees trimmed, removing dead and dying trees or branches.

3. Provide planting in islands within parking lots for shade and appeal following IFS and the base stormwater management plan.

4. 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 do not apply

☒ Applicable ☑ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 3

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.

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

**C06.1.11. Other**

☐ Applicable  ☐ N/A Large graphics do not apply

☐ Applicable  ☐ N/A Small graphics do not apply

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**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 do not apply

☐ Applicable  ☐ N/A Select number of graphics / images (small: 250 px x 188 px) to insert  3

![Bus Shelter](image1.png)

![Coordinated Site Furnishings](image2.png)

![Picnic Pavilion](image3.png)

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, reduced visual clutter, and compatibility with the adjacent architecture.

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

3. Group 1 and 2 site furnishings shall be oxidation resistant metals such as aluminum or stainless steel. Group 3 and 4 site furnishings may be powder coated to match adjacent structures’ color scheme. Generally match the site furniture of adjacent facilities and the facility district.
4. Install needed outdoor seating (benches and low walls) in public gathering spaces near main and secondary building entrances. Low walls shall match facility architecture.

5. Benches in Groups 1, 2 and 3 shall be made up of oxidation resistant materials and plastic composite lumber. Group 4 and parks may have thermoplastic coated steel benches.

6. Integrate functional bicycle racks with the design of the building's main entrance grounds in Facility Groups 1 and 2 while meeting ATFP requirements.

7. Limit the use of bollards, but when necessary for force protection use weather resistant FS 595 #X0040 colored, concrete filled, steel tube for Groups 1, 2, 3, and 4. Illuminated bollards may be used as approved on a case basis.

8. Locate architecturally coordinated containers for recycling, litter, ash, vending, etc., to minimize visual clutter and not be visible from the building's main entrance. Minimize the use of freestanding planters.

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

10. The Installation Flagpole location shall comply with the guidance for the display of flags in AFI 34-1201. Each Air Force installation is authorized to fly one United States Flag, normally in front of the installation headquarters. Waivers for non-authorized locations must be submitted in accordance with AFI 33-360 and approved waivers (AF Form 679) must be maintained by the installation protocol office.

11. 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 slab on grade base and foundations, non-ferrous metal structure and standing seam metal hipped roof.

12. 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.

13. When visual screening is necessary, consider landscaping as the first option; screen walls are permitted only in Group 1 finished to match the adjacent facility.

14. 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. Define all levels of security and visual quality.

15. 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.

16. 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.

17. Provide trash dumpster enclosures for Group 1, 2, and 3 with exterior to match adjacent facilities; all gates shall be metal factory finished FS 595 X0040 color.

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

19. Group 1, 2 and 3 picnic tables and seating shall be non-ferrous metals and plastic, composite lumber which is matching with surrounding facilities. Group 4 and recreational areas shall have thermoplastic coated steel benches picnic tables and seating. Generally limit picnic tables, barbeque grills and drinking fountains to lodging, dormitories, housing areas, parks and recreation areas.

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

21. Provide kiosks only where there is a documented need for visual communication of posted messages. When used, match adjacent facilities in materials and detailing and consolidate kiosks with other site furnishings within 30 feet of major pedestrian paths. Limit kiosks to facility Groups 1 and 2 and parks.

22. Pavilion Construction will have no logos, emblems or other markings. No Utilities will be constructed in conjunction with Pavilions. Pavilions will be placed on asphalt or concrete surface not to exceed 700 sq. FT. For deviation from approved
Dark Bronze standing seam metal hip roof and beams, requests will be reviewed and approved on a case by case basis by BCE.

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

24. Manufacturers listed below are only provided to establish a baseline of equivalence 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**: 1

**Type:** Charcoal

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

- **Mfr:** The Park

- **Color:** Black

- **Finish:** Nontoxic Black enamel

- **Model #:** 136-1025

- **Other:** Concrete foundation, coordinate with Base Architect

- **UFGS:** N/A
C07.2.2. Benches

Appliances: Group 1, Group 2, Group 3

Mfr: Materials, Inc.

Color: Weatherstone Gray

Finish: Standard Finish (Smooth)

Model #: Mesa, Rectangular design

Other: N/A

UFGS: N/A

Type: Recycled Plastic Hoop Bench

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

Mfr: Bright Idea Shops

Color: Varies to match surrounding Facilities

Finish: Recycled Plastic/Powdercoat

Model #: BIFP2201 or similar

Other:

UFGS:
**C07.2.3. Bike Racks**

- **Type:** Style 1
- **Applies to:** Group 1, Group 2, Group 3
- **Mfr.:** Brandir International Inc.
- **Color:** Galvanized or Medium Bronze
- **Finish:** Factory
- **Model #:** The Ribbon Bike Rack, RB-07
- **Other:** N/A

**UFGS:** N/A

**C07.2.4. Bike Lockers**

- **Applicable:** Yes

**C07.2.5. Bollards**

- **Type:** Lighted Round Dome Top
- **Applies to:** Group 1, Group 2, Group 3
- **Mfr.:** Lithonia Lighting Products
- **Color:** Dark bronze
- **Finish:** Anodized aluminum
- **Model #:** KBA
- **Other:** Flared cone, 3000K LED Lamp

**UFGS:** N/A
Type: **Force Protection, Building Protection**

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

Mfr: Custom

Color: Dark Bronze

Finish: Powder coat

Model #: 6” steel, flat top

Other: For Group 3, use only in high visibility areas

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
Type: Force Protection, Installation

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

Mfr: ULINE

Color: Yellow

Finish: Smooth

Model #: H-3007

Other: Dark bronze sleeves may be used when facilities are in a high-visibility location

UFGS:

---

**C07.2.6. Bus Shelters**

[Image Tool 250 x 188]

| Type: 1 |

| Applies to: Group 1 □ Group 2 □ Group 3 □ Group 4 □ Other |

| Mfr: Handi-Hut |

| Color: Dark Bronze Aluminum Framing, Black Kynar Roofing |

| Finish: Anodized frames |

| Model #: S6-2R |

| Other: Provide concrete slab on grade. Manufacturer's standard 7'-0" aluminum bench |

UFGS: N/A

---

**C07.2.7. Drinking Fountains**

[Image Tool 250 x 188]

| Type: N/A |

| Applies to: N/A |

| Mfr: N/A |

| Color: N/A |

| Finish: N/A |

| Model #: N/A |

| Other: N/A |

UFGS: N/A
C07.2.8. Dumpster Enclosures / Gates

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

- **UFGS:** Section 04 20 00 Unit Masonry

C07.2.9. Fencing

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

- **Applies to:**
  - Group 1
  - Group 2
  - Group 3
  - Group 4
  - Other

- **Mfr:** Custom

- **Color:** Dark bronze

- **Finish:** Powder coated

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

- **Other:** Split Face, beige CMU, beige brick or red blend brick piers may be used

- **UFGS:** Section 05 50 13 Miscellaneous Metal Fabrications
### Style B Barrier: High security, medium visibility

- **Applies to:**
  - Group 1
  - Group 2
  - Group 3
  - Group 4
  - Other

- **Mfr:** Custom

- **Color:** Dark bronze

- **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

### Style C Barrier: High security, low visibility

- **Applies to:**
  - Group 1
  - Group 2
  - Group 3
  - Group 4
  - Other

- **Mfr:** General WireCompany

- **Color:** Dark bronze

- **Finish:** Powder coated galvanized steel

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

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

- **UFGS:** Section 32 31 13 Chain Link Fences and Gates
**Type:**  **Style D Barrier: Low security, High visibility**

**Applies to:**  
- [ ] Group 1  
- [ ] Group 2  
- [ ] Group 3  
- [ ] Group 4  
- [ ] Other

**Mfr:**  Custom

**Color:**  Brick or CMU blend, dark bronze 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:**  Brick or CMU blend, dark bronze 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)
**Type:** Style H Barrier: Low security, low visibility

**Applies to:**
- [ ] Group 1
- [ ] Group 2
- [ ] Group 3
- [x] Group 4
- [ ] Other

**Mfr:** General Wire Company

**Color:** Galvanized

**Finish:** Galvanized

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

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

**UFGS:** Section 32 31 13 Chain Link Fences and Gates

---

### C07.2.10. Flagpoles

- [ ] Applicable  
- [ ] N/A  
  Number of base standards 1  
  [Image Tool 250 x 188]

**Type:** 1

**Applies to:**
- [x] 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

<table>
<thead>
<tr>
<th>Type: Style 1: Precast concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to: Group 1 Group 2 Group 3 Group 4 Other</td>
</tr>
<tr>
<td>Mfr: Belson Outdoors</td>
</tr>
<tr>
<td>Color: Exposed Aggregate</td>
</tr>
<tr>
<td>Finish: Sand</td>
</tr>
<tr>
<td>Model #: TR1005/TR1006</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

| UFGS: N/A |

<table>
<thead>
<tr>
<th>Type: Style 2: Metal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to: Group 1 Group 2 Group 3 Group 4 Other</td>
</tr>
<tr>
<td>Mfr: Wabash Valley</td>
</tr>
<tr>
<td>Color: Black or as approved</td>
</tr>
<tr>
<td>Finish: Perforated Pattern</td>
</tr>
<tr>
<td>Model #: Urbanscape “E” with liner, 32 Gallon</td>
</tr>
<tr>
<td>Other: With dome top, without side door</td>
</tr>
</tbody>
</table>

| UFGS: N/A |
Type: **Style 3: Plastic Cigarette Receptacle**

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

Mfr: Smokers Outpost

Color: Black or as authorized

Finish: Matte

Model #: DC-711301

Other: Will need sand ballast

UFGS: N/A

---

C07.2.13. Picnic Tables

[Image of Picnic Table]

Type: **Aluminum/Recycled Plastic**

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

Mfr: Uline

Color: Manufacturer's Standard Brown

Finish: Manufacturer's Standard Finish (Smooth)

Model #: H-5870

Other:

UFGS: N/A
<table>
<thead>
<tr>
<th>Type:</th>
<th>Metal, vinyl coated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to:</td>
<td>□ Group 1  □ Group 2  □ Group 3  □ Group 4  □ Other</td>
</tr>
<tr>
<td>Mfr:</td>
<td>Wabash Valley</td>
</tr>
<tr>
<td>Color:</td>
<td>Brown or as authorized</td>
</tr>
<tr>
<td>Finish:</td>
<td>Factory vinyl coated</td>
</tr>
<tr>
<td>Model #:</td>
<td>Signature Series, 46” Square Pedestal Tables with 4 Seats</td>
</tr>
<tr>
<td>Other:</td>
<td>Perforated Pattern, In-ground mount</td>
</tr>
<tr>
<td>UFGS:</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type:</th>
<th>Recycled Plastic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to:</td>
<td>□ Group 1  □ Group 2  □ Group 3  □ Group 4  □ Other</td>
</tr>
<tr>
<td>Mfr:</td>
<td>Belson Outdoors</td>
</tr>
<tr>
<td>Color:</td>
<td>Brown Top/Seat and Brown Frame or as authorized</td>
</tr>
<tr>
<td>Finish:</td>
<td>Smooth as Manufactured</td>
</tr>
<tr>
<td>Model #:</td>
<td>RPD6</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
<tr>
<td>UFGS:</td>
<td></td>
</tr>
</tbody>
</table>
C07.2.14. Planters

- **Applicable**: Yes
- **N/A**: No
- **Number of base standards**: 1

**Type**: Precast concrete

- **Applies to**: Group 1, Group 2, Group 3, Group 4, Other
- **Mfr.**: Local Precast Company TBD
- **Color**: Gray
- **Finish**: Smooth Casting
- **Model #**: Round
- **Other**: N/A

**UFGS**: N/A

---

C07.2.15. Play Equipment

- **Applicable**: Yes
- **N/A**: No
- **Number of base standards**: 1

**Type**: Steel

- **Applies to**: Group 1, Group 2, Group 3, Group 4, Other
- **Mfr.**: Little Tikes Commercial or Equivalent
- **Color**: Varies
- **Finish**: Powdercoated Steel
- **Model #**: N-R-G Freestyle
- **Other**: Coordinate with Base Architect

**UFGS**: N/A
C07.2.16. Screen Walls

Applicable: Yes  N/A

Number of base standards: 1

Type: Brick / Steel

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

Mfr: Custom

Color: Tan brick or CMU 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: No  N/A

C07.2.18. Other

Applicable: Yes  N/A

Number of base standards: 2

Type: Pavilion

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

Mfr: Classic Recreation Systems

Color: Dark Bronze (Roof and structural components)

Finish: Manufacturer's Standard

Model #: "Mesa"

Other:
- Dark bronze metal beams, columns and joists. dark bronze standing seam metal roof. 3/12 minimum roof pitch. 72 MPH roof wind warranty. 700 SF maximum (roof area).

UFGS:
**Type:** Storage Shed

**Applies to:**
- [ ] Group 1
- [ ] Group 2
- [x] Group 3
- [ ] Group 4
- [ ] Other

**Mfr:** Conexwest

**Color:** Beige (match Federal Standard 595B 33578)

**Finish:** Manufacturer's standard

**Model #:** Storage

**Other:** Siting must be approved by Facilities Board.

---

**Pavilions:**
Shall be placed on an asphalt or concrete surface.
No utilities will be connected. No logos, emblems or other markings are allowed.

**Storage Sheds:**
Existing sheds are grandfathered as acceptable. Storage sheds will be allowed only south of Tanker Trail and in Industrial Areas.
No logos, emblems or other markings are allowed. No utilities will be connected. Placed on concrete/asphalt surface. Not to exceed 8' x 40'. Units shall not have more than 500 SF of storage shed space.

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**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 do not apply

- [x] Applicable  
- [ ] N/A  
Select number of graphics / images (small: 250 px x 188 px) to insert 3

---

Traffic Signs IAW MUTCD

UFC Standard Signs

Building Identification Sign

---

Minot Air Force Base IFS  
Page 74 of 159  
Back to Table of Contents
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.

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. Raised “standout” letters and numbers may be used for Group 1 with approval on a case basis.

7. 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.

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. When approved, provide post-mounted sign faces in base standard materials and colors. Consider “bracketing” a designated area with a single sign at each end.

12. Parking lot identification signs may be used to identify areas or rows within large lots.

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

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

15. Symbols or pictographs (graphic expressions of actual objects) may be used to indicate service, mandatory / prohibitory, sports, and recreation when rapid communication is necessary.

16. Force Protection signage may be applied to glass doors using white vinyl lettering.

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

C08.1.1. Materials and Color Specifications

☐ Applicable  ☐ N/A  Large graphics do not apply

☐ Applicable  ☐ N/A  Small graphics do not apply

1. Fabricate sign panels from 6061 Aluminum. Sign posts shall be boxed steel with capped ends in a concrete base.

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

3. 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 (Federal Standard Color 595B  20040)
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

**Typical Sign Face**

- **Type**: Typical Sign Face
- **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.

**Typical Sign Post**

- **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**

Type: **Primary, Secondary and Tertiary (Uses per UFC)**
Applies to: Group 1 Group 2 Group 3 Group 4 Other
Mfr: Custom
Color: Standard blue, brushed aluminum, accents per UFC
Finish: Powder coat or vinyl sign face
Model #: Metal frame and panels, Hebron Brick base (2/3 Red, 1/3 Maroon)
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**: ☑  
Number of base standards: 5

<table>
<thead>
<tr>
<th>Type: Freestanding Primary Sign (Sizes and Uses per UFC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to:</td>
</tr>
<tr>
<td>- ☑ Group 1</td>
</tr>
<tr>
<td>- □ Group 2</td>
</tr>
<tr>
<td>- □ Group 3</td>
</tr>
<tr>
<td>- □ Group 4</td>
</tr>
<tr>
<td>- □ Other</td>
</tr>
<tr>
<td>Mfr: Custom</td>
</tr>
<tr>
<td>Color: Medium brown face, dark bronze posts, white vinyl lettering</td>
</tr>
<tr>
<td>Finish: Powder coat or vinyl sign face</td>
</tr>
<tr>
<td>Model #: Aluminum sheet face, extruded aluminum posts</td>
</tr>
<tr>
<td>Other: Provide layout and sizes per UFC.</td>
</tr>
</tbody>
</table>

UFGS: Section 05 50 13 Miscellaneous Metal Fabrications

---

<table>
<thead>
<tr>
<th>Type: Freestanding Secondary Sign (Sizes and Uses per UFC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to:</td>
</tr>
<tr>
<td>- □ Group 1</td>
</tr>
<tr>
<td>- ☑ Group 2</td>
</tr>
<tr>
<td>- □ Group 3</td>
</tr>
<tr>
<td>- □ Group 4</td>
</tr>
<tr>
<td>- □ Other</td>
</tr>
<tr>
<td>Mfr: Custom</td>
</tr>
<tr>
<td>Color: Medium brown face, dark bronze posts, white vinyl lettering</td>
</tr>
<tr>
<td>Finish: Powder coat or vinyl sign face</td>
</tr>
<tr>
<td>Model #: Aluminum sheet face, extruded aluminum posts</td>
</tr>
<tr>
<td>Other: Provide layout and sizes per UFC.</td>
</tr>
</tbody>
</table>

UFGS: Section 05 50 13 Miscellaneous Metal Fabrications
**Freestanding Tertiary Sign (Sizes and Uses per UFC)**

- **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

---

**Wall Mounted**

- **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
C08.1.4. Traffic Control Devices (Street Signs)

**Type:** Street Signs

**Applies to:**
- [x] Group 1
- [x] Group 2
- [x] Group 3
- [x] 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. Square galvanized steel pole painted Dark Bronze (FS 595B 20040)

**UFGS:** Section 05 50 13 Miscellaneous Metal Fabrications
C08.1.5. Directional and Wayfinding Signs

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

**C08.1.6. Informational Signs**

- **Applicable**
  - [ ] Large graphics do not apply

- **Applicable**
  - [ ] Small graphics do not apply

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 bronze color.

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 do not apply

- Applicable  N/A  Select number of graphics / images (small: 250 px x 188 px) to insert 2

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

- **Type:** Regulatory Signs
- **Applies to:** Group 1, Group 2, Group 3, Group 4, Other
- **Mfr.:** Custom
- **Color:** UFC 3-120-01
- **Finish:** Face: as mfd, back face - painted
- **Model #:** N/A
- **Other:** Paint sign back face: FS20040 'Dark Bronze'. Paint post: FS 595B 20040 'Dark Bronze'.

**UFGS:** Paints and Coatings 09 90 00

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**

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 do not apply
- Applicable  N/A  Select number of graphics / images (small: 250 px x 188 px) to insert

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.
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. Utilize LED lights in all scenarios not explicitly prohibited by UFC 3-530-01, or where it is not economically viable.

11. Provide round tapered, square non-tapered, or round non-tapered aluminum poles and aluminum fixtures with square, rectangular or circular housings in colors and shapes to match adjacent facilities and the facility district.

12. 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.

13. 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.

14. 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.

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

16. 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.

17. Ensure replacement lights approximate lumen, color, and style of surrounding lights, as manufacturing permits.

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

- **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

---

- **Type:** **Style 2**
  
  - **Applies to:** [ ] Group 1  [ ] Group 2  [ ] Group 3  [ ] Group 4  [ ] Other
  
  - **Mfr.:** Hubbell, Kim Lighting
  
  - **Color:** Clear Anodized as approved by BCE
  
  - **Finish:** Factory
  
  - **Model #:** Round 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**

- **Type:** Parking Lot Style 1

<table>
<thead>
<tr>
<th>Applies to</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mfr</td>
<td>Hubbell, Kim Lighting</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Color</td>
<td>Dark Bronze Anodized (or Clear Anodized as approved by BCE)</td>
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<tr>
<td>Finish</td>
<td>Factory</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model #:</td>
<td>Rectilinear or Round Cutoff, Single Arm or Dual Arm Mount</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Other:</td>
<td>Lamp: LED. Follow manufacturer’s recommendations for fixture base.</td>
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</tbody>
</table>

**UFGS:** N/A

---

**Type:** Parking Lot Fixture Base

<table>
<thead>
<tr>
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<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>Other</th>
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</thead>
<tbody>
<tr>
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<td></td>
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</tr>
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<td>Color</td>
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</tr>
<tr>
<td>Finish</td>
<td>Trowel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model #:</td>
<td>Form-cast, round</td>
<td></td>
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<td></td>
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<tr>
<td>Other:</td>
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</tbody>
</table>

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

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![Image of Parking Lot Lighting](Example of Parking Lot Lighting) Size image to: 250 pixels width x 188 pixels height

![Image of Parking Lot Fixture Base](Example of Parking Lot Lighting) Size image to: 250 pixels width x 188 pixels height
C09.2.3. Lighted Bollards

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

---

C09.2.4. Sidewalk Lighting

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

Type: **Style 1**

Applies to: 
- [ ] Group 1
- [x] 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

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C09.2.6. Other

- [ ] Applicable
- [x] N/A
D. FACILITIES EXTERIORS

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

- **Applicable** ☑ N/A Select number of graphics / images (large: 800 px x 440 px) to insert 1
- **Applicable** ☑ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 3

**Standard Materials Palette for Group 3 Facilities**

**Group 2 Operations Material Palette**

**Group 2 Dormitory Material Palette**

**Group 2 and Group 3 Combined Palette**

D01. SUPPORTING THE MISSION

Comply with AF Corporate Standards for Supporting the Mission:

D02. SUSTAINABILITY

Comply with Air Force Corporate Standards for Sustainability:
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

Insert 3 photos for each facility group.

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 preferred with fixed shading for appropriate levels of heat gain in the spring, summer and autumn months resulting in less overall energy usage.

2. Generally orient the main entrance, the majority of windows and parking areas to the south, maximizing solar heat gain.

3. Provide orthogonal geometry for principal building form; angular and curvilinear geometry may be used sparingly for Group 1 and used only for emphasis at specific areas such as building entrances or stairwells.

4. Maintain a human scale and reduce the visual scale of large buildings with sub-massing related to interior functional operations; create consistent form and scale in adjacent buildings with compatible profiles or silhouettes.

5. Building heights shall not be limited; however, building heights over 2 stories shall be considered on a case basis. Refer to Installation Development Plan for form-based planning guidelines by district.

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

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

D03.2. Architectural Character


2. Respond to the local climate with environmentally functional architectural features. Understated references to the historical architecture may be made but avoid directly reproducing features and ornamental detailing.

3. For new facilities design generally maintain consistency and visual unity with 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. Reinforce the campus atmosphere while maintaining the projection of a corporate image. Generally speaking, mitigate the negative impact of the automobile by separating parking from building entrances and linking buildings with shaded pedestrian paths while incorporating building materials and fenestration patterns that provide human scale on all buildings. Successfully implemented, campus buildings should have clearly defined entrances and can include courtyards and gathering places for recreation and socialization.

5. All facilities shall express sustainability through their orientation, massing, shape, form, materials, and detailing. Provide louvers, overhangs and other strategies to optimize heat gain and reduce glare and to improve energy efficiency. Use only low-maintenance and highly durable materials.

6. Minimize exterior surface area to maximize energy conservation. Earth sheltering concepts may be used when approved by the BCE.

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

D03.3. Details and Color

1. Provide a compatible palette of earth-tone colors related to existing facilities in concrete, masonry and powder-coated nonferrous metals. Refer to wall systems and roof systems for detailed material listings.

2. Relate the level of architectural detailing to the Facility Group number. Group 1 is reserved for the highest quality detailing.

3. Use only integrally colored or factory finished 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, 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 equivalence 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
- Climate with high humidity
- Climate with moderate humidity
- Climate with low humidity
- Climate with high humidity
- Climate with moderate humidity
- Climate with medium 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:** Proximity to medium-high wind power class

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**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: Provide Solar Photovoltaic arrays following LCCA.

Other: Optimize shading devices to allow appropriate levels of solar heat gain year round

**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

- **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

- **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

**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 (or clear anodized as approved by BCE)

**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

**Type:** **Style 1 Geothermal (Ground Source)**

**Applies to:**
- Group 1
- Group 2
- Group 3
- Group 4
- Other

**Mfr:** Custom

**Color:** N/A

**Finish:** N/A

**Model #:** N/A

**Other:** Vertical ground loop well field

**UFGS:** Section 23 81 47 Water-Loop and Ground-Loop Heat Pump Systems

### D03.3.6. Solar Photovoltaic System

**Applicable**  
**N/A**
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-exteories/index.html

Comply with AF Corporate Standards for Building Entrances:

Insert 3 photos for each facility group.

Image Tool 250 x 188

Group 1

Group 2

Group 3

Group 4
D04.1. Primary Entrances

1. Emphasize the primary entrance in the overall building design with a projected covering for weather protection in a color to contrast with the overall facade. Generally provide canopy supported by exposed non-ferrous metal and/or concrete structure that will endure without degradation due to weathering and with zero to very low maintenance requirements. Ensure an appropriate level of quality consistent with the Facility Group designation.

2. Provide a gabled roof over all entrances to shed snow and ice away from pedestrians. Covered arcade elements may be used for Facility Group 1.

3. Provide vestibules at entries in Groups 1, 2 and 3 unless used infrequently or serving unconditioned space following ASHRAE 90.1. Design vestibules (air locks) to minimize heat loss during the action of opening and closing doors.

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

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

6. Snow-melt systems may be provided on roofing or in paving as required to ensure efficient mission-critical operations.

7. Install appropriate lighting and site furniture following ATFP and IFS.

8. Protect entrances from falling ice and snow. Develop roof form and slopes to avoid the need for gutters and to prevent water from discharging onto sidewalks.

9. Provide porte cocheres or covered drop-offs when justified for lodging and medical facilities; do not use for prestige or architectural accents.

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 general character of the primary entrance but to a lesser extent with a smaller scale and to blend with the adjacent wall using a matching color.

3. Include a recess or projection for weather protection.

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 where there is a documented need; provide weatherstripping and appropriate insulation for all doors including those 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.
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:

Comply with AFCFS Recommended Materials:

Insert 3 photos for each facility group.
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 2 facilities shall be a combination of brick masonry or, alternatively, integrally colored split face or ground face concrete masonry units (CMU). Buildings should be limited to one primary type of masonry, with an option to include an accent feature of a complementary type and/or color.

3. Multi-story Group 1 facilities may include a transition in material, color or detailing to create a visual base.

4. Brick masonry walls may be accented with precast concrete bases, string courses and/or cornices. In addition, patterning of the brick is encouraged to provide a sense of scale to the buildings.

5. Patterning of CMU walls, such as the insertion of half-height course, is encouraged for achieving a human scale. Provide patterning in CMU to articulate building entrances.

6. All CMU and mortar should be manufactured and installed with additives to discourage efflorescence.

7. Group 2 facilities shall be predominantly light beige monolithic concrete panels, insulated metal panel systems, or beige CMU. Brown CMU may be used as a visual base and for accent walls. Dark brown factory finished metal sheeting may be used as accents. EFIS may be used at upper levels and otherwise where protected from impacts, with the approval of the Base Civil Engineer.

8. Large-scale Group 3 facilities shall be predominantly light beige insulated metal panel systems with brown integrally colored split faced or ground faced CMU wainscots. Contrasting dark brown factory finished metal sheeting may be used as accents. Beige EFIS may be used at upper levels and otherwise where protected from impacts, with approval of the Base Civil Engineer.

9. Metal wall panels shall be factory finished galvanized steel. Ribbed metal sheeting is acceptable for Group 3 facilities and inconspicuous areas of Group 2 facilities. Refer to appendix F for special requirements of Facility Districts.

10. Group 4 shall be predominantly prefinished horizontal steel lap siding in medium Earth tones and neutral colors; white prefinished metal clad trim boards and muted warm-colored shingles. Prefinished steel shakes and scallops may be used as accents.

11. Multi-story Group 1, 2 and 3 facilities may include a transition in material, color or detailing to create a visual base. Generally limit Group 1 and 2 facilities to three field colors and Group 3 and 4 facilities to two field colors.

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

13. Use detailing that is not subject to excessive weathering. Generally provide wall accents consistently throughout the base for each facility group.

14. Use integrally colored concrete and masonry with clear sealers when recommended by the manufacturer.

15. Translucent wall panels may be used in Facility Groups 1, 2 and 3 with appropriate insulation.

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 to reduce glare and promote daylighting in interiors. Generally promote solar gain into interiors as a passive design measure to reduce energy use.

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. All joint sealants shall be slightly darker than adjacent surfaces.

7. Materials requiring regular maintenance are not permitted; do not use exposed glued laminated construction or other materials that require field painting. Painted galvanized steel may be used in limited applications.

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

9. Refer to D07. Roofs for parapets.

**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:** Integrally Colored CMU or Architectural precast
- **Accent:** Alternate coursing and relief, cast stone accents

**Facility Group 2** wall materials shall be as follows.

- **Primary:** Brick or Decorative Concrete Masonry Units
- **Secondary:** Integrally Colored Architectural precast, EIFS
- **Accent:** Alternate coursing and relief

**Facility Group 3** wall materials shall be as follows.

- **Primary:** Insulated Ribbed Metal Panels, or decorative CMU
- **Secondary:** Optional: brick (in high visibility areas), EIFS
- **Accent:** Decorative CMU Wainscot

**Facility Group 4** wall materials shall be as follows.

- **Primary:** Pre-finished Steel Lap Siding
- **Secondary:** Brick
- **Accent:** Brick or Decorative CMU veneer

**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: ☑  Number of base standards 3  Image Tool 250 x 188

Type: Insulated Metal Panel System - Kynar Finish, Light

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

Mfr: Metl-Span

Model #: CF Santa Fe Insulated Metal Wall System

Color: Match Beige (FS 595B - 33578)

Finish: Heavy stucco-embossed

Other: N/A

UFGS: Section 07 42 13 Metal Wall Panels:
Section 07 42 63 Fabricated Wall Panel Assemblies:
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 07 42 63.pdf

Type: Insulated Metal Panel System - Kynar Finish, Dark

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

Mfr: Metl-Span

Model #: CF Santa Fe Insulated Metal Wall System

Color: Match Dark Bronze (FS 595B - 20040)

Finish: Heavy stucco-embossed

Other: N/A

UFGS: Section 07 42 13 Metal Wall Panels:
Section 07 42 63 Fabricated Wall Panel Assemblies:
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 07 42 63.pdf
### Composite Metal Panel

**Type:** Composite Metal Panel  
**Applies to:** Group 1, Group 2, Group 3  
**Mfr:** Peterson Pac-Clad  
**Model #:** PAC-3000 RS Composite Wall Panel  
**Color:** Dark Bronze, Beige, clear anod. alum. or as approved by the BCE  
**Finish:** Manufacturer's standard.  
**Other:** PAC-3000 CS Composite Wall Panel is acceptable as an alternate.  

**UFGS:**  
Section 07 42 63 Fabricated Wall Panel Assemblies: [http://www.wbdg.org/FFC/DOD/UFGS/UFGS 07 42 63.pdf](http://www.wbdg.org/FFC/DOD/UFGS/UFGS 07 42 63.pdf)

### D05.4.2. Brick Veneer

**Type:** Modular Face Brick  
**Applies to:** Group 1, Group 2, Group 3, Group 4  
**Mfr:** Hebron Brick  
**Model #:** Brick veneer  
**Color:** 2/3 Red and 1/3 Maroon  
**Finish:** Velour  
**Other:** Nominal size: 4x8x2.6 (Modular) ASTM 216 SW FBX  

**UFGS:**  
Section 04 20 00 Unit Masonry: [http://www.wbdg.org/FFC/DOD/UFGS/UFGS 04 20 00.pdf](http://www.wbdg.org/FFC/DOD/UFGS/UFGS 04 20 00.pdf)
Type: **Modular Face Brick**

Applies to: [ ] Group 1 [ ] Group 2 [ ] Group 3 [ ] Group 4 [ ] Other

Mfr: Hebron Brick

Model #: Brick Veneer

Color: Sea Gray #6

Finish: Velour

Other: Nominal size: 4x8x2.6 (Modular) ASTM 216 SW FBX

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

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Type: **Cast Stone**

Applies to: [ ] Group 1 [ ] Group 2 [ ] Group 3 [ ] Group 4 [ ] Other

Mfr: TBD

Model #: As detailed

Color: Complementary to building color, as approved by the BCE

Finish: Smooth as cast

Other: Suitable for climate that experiences freeze/thaw cycles

UFGS: Section 04 20 00 Unit Masonry:
[http://www.wbdg.org/FFC/DOD/UFGS/UFGS 04 20 00.pdf](http://www.wbdg.org/FFC/DOD/UFGS/UFGS 04 20 00.pdf)
D05.4.3. Architectural Precast

<table>
<thead>
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<th>Type:</th>
<th>Precast Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to:</td>
<td>Group 1  ✔  Group 2  ✔  Group 3  ✔  Group 4  ✔  Other  ✔</td>
</tr>
<tr>
<td>Mfr:</td>
<td>Wells Concrete</td>
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<tr>
<td>Model #:</td>
<td>Smooth Casting</td>
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<tr>
<td>Color:</td>
<td>#258 SB-L mix-(see &quot;Other&quot; below for mix) or as approved by the BCE</td>
</tr>
<tr>
<td>Finish:</td>
<td>Very Light texture</td>
</tr>
<tr>
<td>Other:</td>
<td>Crushed grey limestone 60%, Agazziz sand 40% &amp; dark buff conc. dye</td>
</tr>
<tr>
<td>UFGS:</td>
<td>Section 03 45 00 Precast Architectural Concrete: [<a href="http://www.wbdg.org/FFC/DOD/UFGS/UFGS">http://www.wbdg.org/FFC/DOD/UFGS/UFGS</a> 03 45 00.pdf](<a href="http://www.wbdg.org/FFC/DOD/UFGS/UFGS">http://www.wbdg.org/FFC/DOD/UFGS/UFGS</a> 03 45 00.pdf)</td>
</tr>
</tbody>
</table>

D05.4.4. Stucco Over Sheathing

<table>
<thead>
<tr>
<th>Type:</th>
<th>3-Coat Cementitious Stucco</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to:</td>
<td>Group 1  ✔  Group 2  ✔  Group 3  ✔  Group 4  ✔  Other  ✔</td>
</tr>
<tr>
<td>Mfr:</td>
<td>La Habra</td>
</tr>
<tr>
<td>Model #:</td>
<td>Traditional 3-coat system</td>
</tr>
<tr>
<td>Color:</td>
<td>Beige (FS 595B - 33578)</td>
</tr>
<tr>
<td>Finish:</td>
<td>Sand</td>
</tr>
<tr>
<td>Other:</td>
<td>Accent color may be used</td>
</tr>
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</table>

D05.4.5. Curtain Wall

<table>
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<tr>
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<tbody>
<tr>
<td>Applies to:</td>
<td>✔  ✔  ✔  ✔  ✔</td>
</tr>
<tr>
<td>Mfr:</td>
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<tr>
<td>Model #:</td>
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<tr>
<td>Color:</td>
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<tr>
<td>Finish:</td>
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<td>Other:</td>
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</tr>
<tr>
<td>UFGS:</td>
<td>N/A</td>
</tr>
</tbody>
</table>
D05.4.6. Cast-In-Place Concrete

Type: Board-Formed or Sheet-Formed Bearing Walls

Applies to:
- [ ] Group 1
- [ ] Group 2
- [ ] Group 3
- [ ] Group 4
- [ ] Other

Mfr: Custom

Model #: Rough-sawn dimensional lumber or liner forming

Color: Custom colored to match Beige (FS 595B - 33578)

Finish: Board-formed or liner-formed texture exposed

Other: No exposed form ties. Color add: "or as 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

D05.4.7. Tilt-Up Concrete

D05.4.8. Ribbed Metal Sheeting

Type: Lap Seam

Applies to:
- [ ] Group 1
- [ ] Group 2
- [ ] Group 3
- [ ] Group 4
- [ ] Other

Mfr: TBD

Model #: Lap Seam Panel

Color: Match Beige (FS 595B - 33578)

Finish: Embossed Texture, factory finished, Kynar 500

Other: 24 Gauge Steel

D05.4.9. EIFS

Applicable ☑ N/A  Number of base standards 1  Image Tool 250 x 188

Type: **Exterior Finish and Insulation System**

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

Mfr: Sto Corporation

Model #: StoTherm ci XPS Lotusan

Color: Match Beige (FS 595B - 33578) or as approved by the BCE

Finish: Medium Texture Finish

Other:

UFGS: Section 07 24 00 Exterior Insulation and Finish Systems:
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 07 24 00.pdf

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D05.4.10. GFRC

Applicable ☑ N/A

---

D05.4.11. Concrete Block

Applicable ☑ N/A  Number of base standards 2  Image Tool 250 x 188

Type: **Concrete Masonry Unit (CMU) Split Face**

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

Mfr: Local TBD

Model #: 8x8x16 Nominal, face and corner units

Color: Medium brown or dark tan

Finish: Heavy Texture (rock faced)

Other: Contrasting CMU (in size, texture or coursing) accents may be used

UFGS: Section 04 20 00 Unit Masonry:
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 04 20 00.pdf
**Concrete Masonry Unit (CMU) Ground Face**

- **Type:** Concrete Masonry Unit (CMU) Ground Face
- **Applies to:** Group 1, Group 2, Group 3, Group 4, Other
- **Mfr:** Local TBD
- **Model #:** 8x8x16 nominal, face and corner units
- **Color:** Light or medium beige
- **Finish:** Ground Face (Burnished Block)
- **Other:** Contrasting CMU (in size, texture or coursing) accents may be used

[Recommendation Image: Detail of concrete block]

**UFGS:** Section 04 20 00 Unit Masonry: [http://www.wbdg.org/FFC/DOD/UFGS/UFGS 04 20 00.pdf](http://www.wbdg.org/FFC/DOD/UFGS/UFGS 04 20 00.pdf)

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**D05.4.12. Fiber Cement Siding**

- **Applicable:** Yes
- **N/A:** Yes

**D05.4.13. Other**

- **Applicable:** Yes
- **N/A:** Yes
- **Number of base standards:** 1

**Type:** Steel Lap Siding

- **Applies to:** Group 1, Group 2, Group 3, Group 4, Other
- **Mfr:** Revere Building Products
- **Model #:** PermaFinish Steel
- **Color:** Colors shall be approved by the Base Civil Engineer.
- **Finish:** Kynar PVDF
- **Other:** Prefinished steel Shakes and Scallops may be used as accents.

**UFGS:** Section 07 42 13
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:

Comply with AFCFS Recommended Materials:

Insert 3 photos for each facility group.
D06.1. Types

1. Dark Bronze or clear anodized aluminum doors, windows and frames with insulation and thermal breaks are preferred for Facility Groups 1-3. Clear finish is preferred in heavy-use administrative areas because they show less wear and weathering than dark anodized finishes; match the color of the door and frame. 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.

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, but these may be used in any application in Group 3 facilities.

6. Utility and emergency egress doors shall match the wall color and for an inconspicuous appearance.

7. Passive thermal comfort methods of ventilation are encouraged where life cycle cost justified.

8. Windows must meet force protection requirements.

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

10. 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; generally minimize glazing on north-facing facades.

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.

D06.3. Glazing and Shading

1. Solar Bronze tinted, energy-efficient, low-e, double-pane glazing is encouraged; provide triple-pane glazing in extreme environments.

2. Translucent wall panels may be integrated into wall systems and door systems.

3. Do not use reflective/mirrored glazing.

4. Fully integrate applicable shading designs for overhangs, louvers, light shelves and grilles.

5. Where appropriate for the facility use, install window screens to take advantage of natural ventilation.

D06.4. Hardware

1. 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.

2. Ensure hardware will perform throughout the facility’s lifespan without showing extreme wear.

3. Keying shall be compatible with the existing Minot AFB interchangeable core master keying system.

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

6. 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**

- **Type:** Anodized Aluminum Doors, Windows and Frames
- **Applies to:**
  - Group 1
  - Group 2
  - Group 3
  - Group 4
  - Other
- **Mfr:** Kawneer (or equivalent)
- **Color:** Dark Bronze Anodized or Clear Anodized
- **Finish:** Matte
- **Model #:** 451T - 2x4 1/2 (size as required by spans), thermally broken framing
- **Other:** Group 1 may use larger openings with larger framing sections

D06.5.2. Hollow Metal

Type: Hollow Metal Doors, Windows and Frames

Applies to: 
- [ ] Group 1
- [ ] Group 2
- [ ] Group 3
- [ ] Group 4
- [ ] Other

Mfr: Steelcraft (or equivalent)

Color: DARK BRONZE (FS 595B - 20040)

Finish: Acrylic Enamel, Gloss Finish

Model #: 2" face x depth as required, hollow metal framing

Other: Group 1 use only for secondary entrances or emergency egress


D06.5.3. Aluminum-clad Wood

Type: Aluminum-Clad Residential

Applies to: 
- [ ] Group 1
- [ ] Group 2
- [ ] Group 3
- [ ] Group 4
- [ ] Other

Mfr: Marvin

Color: White or Light Earth Tones

Finish: PVFD fluoropolymer paint exterior

Model #: Signature Clad Ultimate Series

Other: Double hung windows, aluminum exterior with wood interior, screen

UFGS: Section 08 14 00 Wood Doors http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 14 00.pdf
**Steel Clad Residential Door**

- **Applies to:**
  - Group 1 [ ]
  - Group 2 [ ]
  - Group 3 [ ]
  - Group 4 [ ]
  - Other [ ]

- **Mfr:** Pella Corporation

- **Color:** White or Light Earth Tones

- **Finish:** Powder coated, satin

- **Model #:** Encompass

- **Other:** Door style, sidelights to be determined. Insulated core. Energy Star rated. Frame: aluminum exterior with wood interior.

- **UFGS:** Section 08 14 00 Wood Doors
  
  [http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 14 00.pdf](http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 14 00.pdf)

**Translucent Panel**

- **Applies to:**
  - Group 1 [ ]
  - Group 2 [ ]
  - Group 3 [ ]
  - Group 4 [ ]
  - Other [ ]

- **Mfr:** KalWall

- **Color:** Bronze #85 frame, Crystal Ext. FRP White Int. FRP

- **Finish:** Mfr's standard

- **Model #:** 4” Wall System

- **Other:** Thermally broken grid, aerogel insulation.

- **UFGS:** 08 60 45
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:

Comply with AFCFS Recommended Materials:

Insert 3 photos for each facility group.

Image Tool 250 x 188
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. Provide a 20 year warranty for Groups 1, 2 and 3 roofs with a FM 1-90 wind warranty using a 72 MPH wind warranty at Main Base and Missile Field, use a 120 MPH wind warranty on Flight Line facilities.

3. Generally match the roof type and form of existing adjacent facilities in new construction.

4. Refer to Section D07.2 Roof Slope for specifications on slope. Minimally sloped “flat” roofs for Groups 1, 2 and 3 new facilities shall use EPDM single ply membrane roofing. Built-up roofing (BUR) is only permitted in repair and maintenance and repair projects. For renovations, replace BUR with EPDM membrane roofing.

5. Standing seam metal roofing is preferred for narrow buildings in Groups 1, 2 and 3. Composite shingle roofs may be used in the Missile Field as approved by the BCE.

6. EPDM on low-slope and sloped roof applications: provide fully adhered black EPDM SPM. Installation shall follow UFC 3-110-03. Note that mechanically fastened EPDM systems are prohibited by UFC.

7. Refer to Section D07.7. Clerestories and Skylights regarding prohibitions on roof top skylights or translucent panels.

8. Group 2 and 3 facilities under 5,000 sf and narrow in plan geometry, shall use EPDM roofing or Standing Seam Metal roofs. Larger facilities may use steep-sloped roof features in conjunction with predominantly low-sloped membrane roofs.

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

10. Group 4 facility composite shingle roofs shall have a 25 year warranty with a 110 MPH wind warranty.

11. Roof eaves shall extend beyond the exterior wall for roof drainage and shading. Eave extensions shall be IAW UFC 3-110-03 (minimum of 8” with a drip edge). Provide overhangs for shading in response to local climatic conditions, sized and proportioned to the height of the facility and to the window openings being shaded.

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

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


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

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

17. 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 (see items 2 and 10 above) is required on all new roofs.

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

D07.2. Roof Slope

1. Group 1, 2 and 3 buildings with steep-sloped roofs shall use a minimum of 3” per 1'-0” minimum slope.

2. Group 1, 2 and 3 buildings with low-sloped roofs shall use a minimum of 1/4” per 1'-0” minimum slope.
3. Group 4 facilities shall use 4" per 1'-0" or greater roof slopes.

4. All water drainage control for groups 1, 2 and 3 with low-sloped roofs shall be handled on the roof. Slope roofs to parapet walls at facility perimeter, provide tapered crickets (to divert water to suppers) and provide scuppers through the parapet walls. Use downspouts only where necessary.

5. It is preferred to drain all water to roof perimeters and drain off of roof from there. Interior roof drains may be used if perimeter drainage becomes impracticable. See D07.5.

6. Internal roof drainage systems are allowed only for low-slope roof applications.

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

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

**D07.3. Parapets and Copings**

1. At parapet walls run waterproof flashings vertically on the inside face of the parapet walls, over the top and down the front face and mechanically fasten the edge. Install the metal coping IAW ANSI/SPRI ES-1 as per UFC 3-110-03. Ensure copings are properly flashed and detailed to avoid roof leaks.

2. Roof edges: carry roof flashing material over the top of the edge blocking, down the front face of the blocking and mechanically fasten the edge of the flashing. Install the metal coping IAW ANSI/SPRI ES-1 as per UFC 3-110-03. Ensure copings are properly flashed and detailed to avoid roof leaks.

3. At sidewalls: roof flashing shall extend a minimum of 16” up the sidewall, the top edge shall be mechanically fastened and be flashed watertight.

**D07.4. Color and Reflectivity**

1. Steep-sloped roofs in Groups 1, 2 and 3 shall be dark bronze, generally match the color of any immediately adjacent facilities.

2. All minimal-slope membrane roofs may use low-albedo as heat island effect is not applicable.

3. Sloped roofs in Group 4 shall be natural medium to dark wood tones.

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

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

**D07.5. Gutters, Downspouts, Scuppers, Drains**

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

2. Groups 1, 2 and 3 buildings with low-sloped roofs use scuppers in parapet walls (number and size per IBC and SMACNA). Arrange scuppers in an orderly manner consistent with other elements of the wall system.

3. It is preferred to drain all water to roof perimeters and drain off of roof from there. Interior roof drains may be used only for low sloped roofs if perimeter drainage becomes impracticable.

4. Locate downspouts away from building entries. Discharged water shall not surface drain across sidewalks.

5. Provide gutters and downspouts for all Group 4 roofs.

6. Provide splash blocks at all downspout outlets.

**D07.6. Roof Vents and Elements**

1. Minimize and consolidate roof penetrations into a single, inconspicuous point whenever possible.
2. On sloped roofs clad pipe penetrations to match the roofing material.

3. Rooftop mechanical equipment is not allowed for new construction. All abandoned roof top equipment shall be removed and the opening(s) capped.

4. It is preferable that any roof that is greater than 16'-0" above grade have an interior access hatch with an approved ladder. If an interior access hatch is not possible provide an exterior ladder complying with OSHA requirements. Provide roof manufactures walkway pads at the top of the exterior ladder or at all sides of the access hatch.

5. Where changes in roof levels of over 2'-0" occur provide a ladder to access the other roof levels. Provide roof manufactures walkway pads at the top and bottom of the ladder(s).

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

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

8. Avoid roof-mounted antenna systems.

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

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

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

12. Permanent fall protection shall be provided in accordance with UFC 3-110-03. Fall protection shall be included with any addition to an existing roof or a new roof with a slope above 3" per 1'-0", where maintenance work is required per UFC 3-110-03.

**D07.7. Clerestories and Skylights**

1. Clerestories are permitted in Group 1, 2 and 3 facilities only when serving passive systems and are justifiable by life-cycle analysis.

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

3. Translucent panel systems are preferred in clerestory applications due to lack of window cleaning.

4. Clerestories must comply with UFC 4-010-01.

5. No roof top skylights or translucent panels shall be allowed on any new roofs unless approved by the BCE, except as noted: solar tube type skylights are allowed at Facility Group 1.

**D07.8. Vegetated Roof**

1. Not applicable.

**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

Type: **Style 1 - Dark**

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


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D07.9.2. Membrane Single-ply

Type: **Style 1**

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

Mfr: Carlisle Systems

Color: Black

Finish: Smooth

Model #: EPDM single-ply, “flat” low-sloped

Other: fully adhered

UFGS: Section 07 53 23 Ethylene-Propylene-Diene-Monomer Roofing


Section 07 54 50 TPO Thermoplastic Single-Ply Roofing
(Not Available on UFGS)
D07.9.3. Built-up Multi-ply

Type: Johns Manville

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

Mfr: Johns Manville

Color: N/A

Finish: Gravel

Model #: 4GIS-HA-G

Other: Use 4GNS-HA-G for nailable decks.

UFGS: Section 07 51 13 Built-Up Asphalt Roofing

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

- **Type:** Style 1
- **Applies to:**
  - Group 1
  - Group 2
  - Group 3
  - Group 4
  - Other
- **Mfr.:** Berridge
- **Color:** Beige or Dark Bronze
- **Finish:** Factory - Kynar 500/fluoropolymer coating
- **Model #:** High Seam Tee-Panel
- **Other:** Mechanically seamed system, 24 ga. steel, width 16", batten height 1 3/4"

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

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### D07.9.9. Composite Shingles

- **Type:** Style 1
- **Applies to:**
  - Group 1
  - Group 2
  - Group 3
  - Group 4
  - Other
- **Mfr.:** GAF
- **Color:** Brown blend on non-family housing facilities
- **Finish:** Factory
- **Model #:** Timberline HD
- **Other:** Shingle colors on family housing facilities shall be selected from manufacturer’s standard colors and approved by Base Civil Engineer representative. Install for 130 MPH warranty.

- **UFGS:** Section 07 31 13 Glass-fiber-reinforced Asphalt Shingles
D07.9.10. Other

Applicable  □ N/A  
Number of base standards 1

Image Tool 250 x 188

Type: **Ribbed Metal Roofing**

Applies to:  
- [ ] Group 1  
- [ ] Group 2  
- [x] Group 3  
- [ ] Group 4  
- [ ] Other

Mfr: Berridge

Color: Beige or Dark Bronze

Finish: Factory - Kynar 500/fluoropolymer coating

Model #: S-deck Panel

Other: 22 ga. galv. steel, exposed fasteners.

UFGS: Section 07 41 13 Metal Roof Panels
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:

Comply with AFCFS Recommended Materials:

Insert 3 photos for each facility group.
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. Rigid frame steel systems and concrete systems may be used following a LCCA.

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

4. Narrow buildings 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.

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

6. If structure is exposed on building exteriors, it may be made of concrete, non-ferrous metals such as aluminum or stainless steel or steel. Ferrous metal structures are permitted with weatherproof non-ferrous metal cladding, pre-cast concrete cladding or galvanized and painted. Metal cladding must be factory finished and shall not be field painted. Heavy timber or log construction is only permitted in additions when matching existing conditions.

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

8. Limit the use of specialty systems (such as space frames, vaults or domes) and of structure as visual features.

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

10. Manufacturers listed below are only provided to establish a baseline of equivalence 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  Number of base standards 1

Type: **Cast-In-Place**

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

- **Mfr.:** Custom

- **Color:** Natural gray

- **Finish:** Light texture

- **Model #:** Post and beam and/or waffle slab

- **Other:** Coordinate with mechanical for chilled beam technologies

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D08.2.2. Insulated Concrete Forming (ICF)

Applicable  ☐ N/A

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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

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**UFGS:**
- Section 03 30 53 Miscellaneous Cast-In-Place Concrete
- Section 03 33 00 Cast-In-Place Architectural Concrete
  - [http://www.wbdg.org/FFC/DOD/UFGS/UFGS_03_33_00.pdf](http://www.wbdg.org/FFC/DOD/UFGS/UFGS_03_33_00.pdf)
- Section 03 47 13 Tilt-Up Concrete

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**UFGS:**
- Section 05 12 00 Structural Steel
  - [http://www.wbdg.org/FFC/DOD/UFGS/UFGS_05_12_00.pdf](http://www.wbdg.org/FFC/DOD/UFGS/UFGS_05_12_00.pdf)
D08.2.4. Pre-Engineered Steel

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 finish system; Behlen standing seam roof system may be used for Group 3

UFGS: Section 13 12 00 Steel Building Systems
(Not Available on UFGS)
Section 13 34 19 Metal Building Systems

D08.2.5. Masonry

Type: Load-Bearing Masonry

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

Mfr: Custom, TBD

Color: Integral color concrete, beige masonry or brown masonry

Finish: As cast concrete, Ground face or split face CMU

Model #: Board-formed or sheet formed concrete, coursed unit masonry

Other: Precast or cast-in-place concrete is preferred for Group 1. Concrete block may only be used in Group 1 when approved by the BCE.

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

D08.2.6. Heavy Timber

☐ Applicable ☐ N/A
D08.2.7. Light-gauge Steel

Type: **Steel Framing**

Applies to: [ ] Group 1 [ ] Group 2 [ ] Group 3 [ ] Group 4 [ ] Other

Mfr: ClarkDietrich Building Systems

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

Type: **Lumber Framing**

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:

Insert 3 photos for each facility group.

Group 1

Group 2

Group 3

Group 4
D09.1. Passive and Active Systems

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

2. Provide optimized passive and active systems and include heat recovery measures to improve efficiency; design active mechanical systems to supplement thermal mass walls and floors where applicable.

3. Develop renewable energy systems including geo-exchange (ground source heat pumps) 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 permitted following a LCCA.

6. Integrate shading into building exteriors to reduce solar heat gain as applicable for the exposure.

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. Separate mechanical and electrical and communications rooms.

3. 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.

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

5. Screen exterior equipment from primary views (landscape, building masses, screen walls) and comply with ATFP requirements.

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

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

8. 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.

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

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

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

12. Integrate recessed and wall-mounted fixtures such as fire standpipe cabinets and drinking fountains within permanent walls.
E. FACILITIES INTERIORS
Comply with Air Force Corporate Standards for Facilities Interiors:
http://afcfs.wbdg.org/facilities-interiors/index.html

Insert 3 photos for each facility group.

Image Tool 250 x 188

Group 1

Group 2

Group 3

Group 4
E01. Building Configurations

Comply with Air Force Corporate Standards for Building Configurations:

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. Coordinate passive systems to optimize active heat-recovery systems.

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, anti-terrorism, security, high performance and sustainability requirements, and safety.


7. Comply with 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. Identify all heat-recovery systems and ensure their efficient operation.

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:

1. Create open-plan interior environments to accommodate 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 HQ AFCEC 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:
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 materials and finishes for permanent core areas such as lobbies, restrooms and stairs.

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.


**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:** Carpet/Porcelain Tile (at entry, core area)
- **Secondary:** Porcelain Tile
- **Tertiary:** Concrete Sealed/Rubber Stair Treads

**Facility Group 2** floor materials shall be as follows.

- **Primary:** Carpet/Porcelain Tile (at entry, core area)
- **Secondary:** Porcelain tile
- **Tertiary:** Concrete Sealed, Rubber Stair Treads

**Facility Group 3** floor materials shall be as follows.

- **Primary:** Concrete Sealed
- **Secondary:** Resinous flooring
- **Tertiary:** Ceramic tile

**Facility Group 4** floor materials shall be as follows.

- **Primary:** Carpet/LVT
- **Secondary:** Sheet Vinyl
- **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 equivalence among all applicable manufacturers.

**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

<table>
<thead>
<tr>
<th>Type:</th>
<th>Style 1, Ground and Polished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to:</td>
<td>Group 1</td>
</tr>
<tr>
<td>Mfr:</td>
<td>Local (TBD)</td>
</tr>
<tr>
<td>Color:</td>
<td>Natural gray cement, light to dark beige aggregates</td>
</tr>
<tr>
<td>Finish:</td>
<td>Fine polished texture</td>
</tr>
<tr>
<td>Model #:</td>
<td>Medium to small aggregate</td>
</tr>
<tr>
<td>Other:</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Type:</th>
<th>Style 2, Medium Polished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to:</td>
<td>Group 1</td>
</tr>
<tr>
<td>Mfr:</td>
<td>Local (TBD)</td>
</tr>
<tr>
<td>Color:</td>
<td>Natural gray cement, light to dark beige aggregates</td>
</tr>
<tr>
<td>Finish:</td>
<td>Medium polished texture, slip resistant</td>
</tr>
<tr>
<td>Model #:</td>
<td>Medium to small aggregate</td>
</tr>
<tr>
<td>Other:</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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

### E02.1.2. Natural Stone and Terrazzo

<table>
<thead>
<tr>
<th>Type:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to:</td>
<td></td>
</tr>
<tr>
<td>Mfr:</td>
<td></td>
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<td>Color:</td>
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<td>Finish:</td>
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</tr>
<tr>
<td>Model #:</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

**UFGS:** Section 03 35 45 Polished Concrete Finishing  
(Not Available on UFGS)
**E02.1.3. Quarry Tile**

- **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

---

**E02.1.4. Ceramic Tile**

- **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
**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

---

**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](http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 65 00.pdf)
<table>
<thead>
<tr>
<th>Type: Style 2 Luxury Vinyl Tile</th>
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</thead>
<tbody>
<tr>
<td>Applies to:</td>
</tr>
<tr>
<td>Mfr: Armstrong</td>
</tr>
<tr>
<td>Color: Manufacturer’s Standard</td>
</tr>
<tr>
<td>Finish: Factory</td>
</tr>
<tr>
<td>Model #: Vivero Best U2010</td>
</tr>
<tr>
<td>Other:</td>
</tr>
<tr>
<td>UFGS: Section 09 65 00 Resilient Flooring</td>
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<table>
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<tr>
<th>Type: Sheet Vinyl</th>
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<tbody>
<tr>
<td>Applies to:</td>
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<tr>
<td>Mfr: Armstrong Flooring</td>
</tr>
<tr>
<td>Color: Neutrals</td>
</tr>
<tr>
<td>Finish: Low Gloss</td>
</tr>
<tr>
<td>Model #: Duality Premium</td>
</tr>
<tr>
<td>Other:</td>
</tr>
<tr>
<td>UFGS: Section 09 65 00 Resilient Flooring</td>
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</tbody>
</table>
### E02.1.6. Carpet

<table>
<thead>
<tr>
<th>Type</th>
<th>Style 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to</td>
<td>Group 1, Group 2, Group 3, Group 4, Other</td>
</tr>
<tr>
<td>Mfr</td>
<td>Mohawk Group</td>
</tr>
<tr>
<td>Color</td>
<td>Neutral multi-colored tones/patterned/solid</td>
</tr>
<tr>
<td>Finish</td>
<td>Nylon. Level loop, textured loop, level cut pile, or level cut/uncut pile</td>
</tr>
<tr>
<td>Model #</td>
<td>Carpet tiles</td>
</tr>
<tr>
<td>Other</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**UFGS:** UFGS 09 68 00 Carpeting  
[http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 68 00.pdf](http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 68 00.pdf)

<table>
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<th>Type</th>
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<tbody>
<tr>
<td>Applies to</td>
<td>Group 1, Group 2, Group 3, Group 4, Other</td>
</tr>
<tr>
<td>Mfr</td>
<td>Mohawk Group</td>
</tr>
<tr>
<td>Color</td>
<td>Earth tones</td>
</tr>
<tr>
<td>Finish</td>
<td>Factory</td>
</tr>
<tr>
<td>Model #</td>
<td>Broadloom, residential loop, “Smartstrand”</td>
</tr>
<tr>
<td>Other</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**UFGS:** UFGS 09 68 00 Carpeting  
[http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 68 00.pdf](http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 68 00.pdf)

### E02.1.7. Rapidly-Renewable Products

| Applicable    | N/A |

**Minot Air Force Base IFS**  
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[Back to Table of Contents](#)
E02.1.8. Other

Applicable

Number of base standards 2

Type: **Style 1, Epoxy Flooring**

- **Applies to:**
  - [ ] Group 1
  - [ ] Group 2
  - [ ] Group 3
  - [ ] Group 4
  - [x] Other

- **Mfr:** Sika USA
- **Color:** Light Gray
- **Finish:** Slip Resistant
- **Model #:** SIKAFLOOR MORRITEX SELF LEVELING BROADCAST SYSTEM
- **Other:**

- **UFGS:** UFGS 09 67 23.16 5-Coat System

---

Type: **Style 2, Resinous Flooring**

- **Applies to:**
  - [x] Group 1
  - [x] Group 2
  - [ ] Group 3
  - [ ] Group 4
  - [ ] Other

- **Mfr:** Sika USA
- **Color:** Manufacturer’s Standard
- **Finish:** Manufacturer’s Standard
- **Model #:** SIKAFLOOR QUARTZITE BROADCAST SYSTEM
- **Other:**

- **UFGS:** UFGS 09 67 23.13 Standard Resinous Flooring

---

**E03. Walls**

Comply with Air Force Corporate Standards for Walls:

**E03.1. Wall Materials**
Facility Group 1 wall materials shall be as follows.

Primary: Gypsum board (painted)
Secondary: Brick (or other masonry as approved by the BCE)
Tertiary: Porcelain tile (restrooms)

Facility Group 2 wall materials shall be as follows.

Primary: Gypsum board (painted)
Secondary: Brick (or other masonry as approved by the BCE)
Tertiary: Porcelain tile (restrooms)

Facility Group 3 wall materials shall be as follows.

Primary: Ground or Rock face block, sealed (do not paint)
Secondary: Gypsum board (painted)
Tertiary: Porcelain 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 porcelain tile on wet walls of kitchens, toilet rooms, locker rooms, etc., in facility groups 1, 2 and 3.

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, 2 and 3.

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 or wood base with clear finish.

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

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

- **Type:** Formed Concrete
- **Applies to:** Group 1, Group 2, Group 3, Group 4, Other
- **Mfr:** Custom, TBD
- **Color:** Integral color concrete, color as approved by the BCE
- **Finish:** As cast
- **Model #:** Board-formed or sheet-formed concrete
- **Other:** Vertical or horizontal forming is permitted, no visible ties
- **UFGS:** Section 03 33 00 Cast-In-Place Architectural Concrete
  - [http://www.wbdg.org/FFC/DOD/UFGS/UFGS_03_33_00.pdf](http://www.wbdg.org/FFC/DOD/UFGS/UFGS_03_33_00.pdf)

E03.1.2. Masonry

- **Type:** Modular Face Brick
- **Applies to:** Group 1, Group 2, Group 3, Group 4, Other
- **Mfr:** Hebron Brick
- **Color:** 2/3 red with 1/3 maroon or Sea Gray #6
- **Finish:** Velour finish
- **Model #:** Modular brick
- **Other:** Brick is preferred. Concrete block may only be used in Group 3 when approved by the BCE. UFGS below is incorrect use:
  - Section 04 20 00 Unit Masonry
  - [http://www.wbdg.org/FFC/DOD/UFGS/UFGS_04_20_00.pdf](http://www.wbdg.org/FFC/DOD/UFGS/UFGS_04_20_00.pdf)
**E03.1.3. Ceramic Tile**

- **Type:** Style 1
- **Applies to:**
  - [ ] Group 1
  - [ ] Group 2
  - [ ] Group 3
  - [x] Group 4
  - [ ] Other
- **Mfr:** Daltile
- **Color:** Earth tones
- **Finish:** Gloss, Semi-gloss
- **Model #:** Ceramic wall tile
- **Other:** Located on wet walls in restrooms, provide shapes (bullnose, coves and etc.) as required for application

**UFGS:** Section 09 30 10 Ceramic, Quarry, and Glass Tiling

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**Decorative CMU - Burnished**

- **Type:** Decorative CMU - Burnished
- **Applies to:**
  - [x] Group 1
  - [ ] Group 2
  - [x] Group 3
  - [x] Group 4
  - [ ] Other
- **Mfr:** Anchor Block
- **Color:** Cream to Dark Brown, color as approved by the BCE
- **Finish:** Burnished
- **Model #:** 16" x 8" x depth as required
- **Other:** Corners, ends and special shapes required by design.

**UFGS:** Section 04 20 00 Unit Masonry
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 04 20 00.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:** Use water-resistant in wet areas, fire-resistant in rated assemblies, moisture resistant in humid areas and abuse resistant in high traffic areas.  

**UFGS:** Section 09 29 00 Gypsum Board  
[http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 29 00.pdf](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](http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 90 00.pdf)
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: Grid and Acoustical Tile
Secondary: Exposed Framing (Roof / Floor Structure Above)
Tertiary: Gypsum board (painted)

Facility Group 2 ceiling materials shall be as follows.

Primary: Grid and Acoustical Tile
Secondary: Exposed Framing (Roof / Floor Structure Above)
Tertiary: Gypsum board (painted)

Facility Group 3 ceiling materials shall be as follows.

Primary: Exposed Framing (Roof / Floor Structure Above)
Secondary: Grid and Acoustical Tile
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. Painted gypsum board ceilings must be approved by the Base Civil Engineer. Painted gypsum board ceilings should be avoided.
4. Manufacturers listed below are only provided to establish a baseline of equivalence 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**: Yes
- **N/A**: No
- **Number of base standards**: 1

**Type**: Style 1

**Applies to**: Group 1, Group 2, Group 3

**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

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**E04.1.2. Exposed Concrete**

- **Applicable**: Yes
- **N/A**: No

**E04.1.3. Grid and Acoustical Tile**

- **Applicable**: Yes
- **N/A**: No

**Type**: Style 1 All Purpose

**Applies to**: Group 1, Group 2, Group 3, Group 4

**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
**Type:** **Style 2 Kitchen**

**Applies to:**
- Group 1
- Group 2
- Group 3
- Group 4
- Other

**Mfr:** Armstrong

**Color:** White

**Finish:** Factory

**Model #:** Kitchen – 2’ x 2’ Ceramaguard

**Other:** Grid 15/16” Prelude (Ceiling and grid: Fire rated when applicable)

**UFGS:** Section 09 51 00 Acoustical Ceilings
http://www.wbdg.org/FFC/DOD/UFGS/UFGS_09_51_00.pdf

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**E04.1.4. Gypsum Board**

- **Type:** **Style 1**

- **Applies to:**
  - Group 1
  - Group 2
  - Group 3
  - Group 4
  - Other

- **Mfr:** US Gypsum

- **Color:** Solid neutral colors

- **Finish:** Smooth, Painted (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

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**E04.1.5. Metal Panels**

- **Applicable**
- **N/A**

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**E04.1.6. Wood**

- **Applicable**
- **N/A**
### E04.1.7. Rapidly-Renewable Products

- **Applicable**

### E04.1.8. Other

- **Applicable**

---

### E05. Doors and Windows


### E05.1. Doors and Windows and Frames Materials

#### Facility Group 1

- **door (frame) and window frame materials shall be as follows.**
  - **Primary**: Hollow Metal (painted)
  - **Secondary**: Hollow metal (painted)
  - **Tertiary**: N/A

- **door (leaf) materials shall be as follows.**
  - **Primary**: Hardwood veneer solid core
  - **Secondary**: Hollow metal (painted)
  - **Tertiary**: N/A

#### Facility Group 2

- **door (frame) and window frame materials shall be as follows.**
  - **Primary**: Hollow Metal, (painted)
  - **Secondary**: Hollow metal (painted)
  - **Tertiary**: N/A

- **door (leaf) materials shall be as follows.**
  - **Primary**: Hardwood veneer solid core
  - **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

- **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**: Alum clad ext., wood int. frame - at Entry Doors
  - **Secondary**: Wood frame - Interior doors
  - **Tertiary**: N/A

- **door (leaf) materials shall be as follows.**
  - **Primary**: Insulated metal door - Entry doors
  - **Secondary**: Wood veneer solid core - Interior doors
  - **Tertiary**: N/A
1. Hardwood casings may be provided over metal frames in Group 1 as approved on a case basis.

2. Do not use hollow-core wood doors.

3. Generally match original hardware in renovations.

4. Manufacturers listed below are only provided to establish a baseline of equivalence 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

**E05.1.2. Hollow Metal**

- Applicable
- N/A

Number of base standards 2

- Steel Doors

- Group 1
- Group 2
- Group 3
- Group 4
- Other

- Steelcraft

- Neutral colors

- Paint (Sheen per UFGS)

- Hollow metal, 1 3/4" thick, 16 gauge, L series, seamless edges

- Provide in Group 3 and in utility areas of Group 1 and 2. Provide A25 "galvannealed" coating. All other interior steel doors shall have a factory applied primer finish. Use T series where required by code.

- Section 08 11 13 Steel Doors and Frames

- Section 08 71 00 Door Hardware
  - [https://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 71 00.pdf](https://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 71 00.pdf)
### Steel Frames

**Type:** Steel Frames

**Applies to:**
- [ ] Group 1
- [x] Group 2
- [ ] Group 3
- [ ] Group 4
- [ ] Other

**Mfr:** Steelcraft

**Color:** Neutral colors

**Finish:** Paint (Sheen per UFGS)

**Model #:** Hollow metal, 2” face, 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 other interior steel frames shall have a factory applied primer finish.

**UFGS:** Section 08 11 13 Steel Doors and Frames  
Section 08 71 00 Door Hardware  
[https://www.wbdg.org/FFC/DOD/UFGS/UFGS_08_71_00.pdf](https://www.wbdg.org/FFC/DOD/UFGS/UFGS_08_71_00.pdf)

### Wood

**E05.1.3. Wood**

- [x] Applicable  
- [ ] N/A  
- Number of base standards 2

**Type:** Style 1, Administrative

**Applies to:**
- [ ] Group 1
- [x] Group 2
- [ ] Group 3
- [x] 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 veneer face, 5 ply construction.

**UFGS:**  
Section 08 14 00 Wood Doors  
Section 08 71 00 Door Hardware  
[https://www.wbdg.org/FFC/DOD/UFGS/UFGS_08_71_00.pdf](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:

UFGS: Section 08 14 00 Wood Doors  
[http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 14 00.pdf](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](https://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 71 00.pdf)

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**E05.1.4. Other**

- [ ] Applicable  
- [ ] N/A

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**E06. Casework Systems**

Comply with Air Force Corporate Standards for Casework Systems:  

**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 equivalence among all applicable manufacturers.
E06.1.1. Plastic Laminate

- **Type:** Style 1, Low Use Areas
- **Applies to:** Group 1, Group 2, Group 3, Group 4, Other
- **Mfr:** Formica
- **Color:** Medium Earth tones and neutral tones
- **Finish:** Light textured
- **Model #:** High pressure laminate
- **Other:** Combine with matching plastic laminate 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

- **Type:** Style 1, High Use Areas
- **Applies to:** Group 1, Group 2, Group 3, Group 4, Other
- **Mfr:** Corian
- **Color:** Medium Earth tones and neutral tones
- **Finish:** Smooth
- **Model #:** Solid Surface
- **Other:** Finish faces and edges in accordance with design details.

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: Yes  N/A: No  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

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E06.1.4. Metal

Applicable: Yes  N/A: No  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
E06.1.5. Other

Type: **Wood Casework - Custom**

- Applies to: Group 1, Group 2, Group 3, Group 4, Other
- Mfr: Custom
- Color: Natural hardwood with stain.
- Finish: Transparent Finish
- Model #: N/A
- Other: Stain: as selected by designer and approved by BCE; premium grade cabinets at Group 1.

UFGS: 06 20 00 Finish Carpentry

Type: **Wood Casework - Pre-manufactured**

- Applies to: Group 1, Group 2, Group 3, Group 4, Other
- Mfr: Merillat
- Color: Natural hardwood with stain.
- Finish: Transparent Finish
- Model #: As selected
- Other: Stain: as selected by designer and approved by BCE.

UFGS: 12 32 00 Manufactured Wood Casework
E06.2. Countertop Materials

E06.2.1. Plastic Laminate

- **Applicable**: Yes  
- **N/A**: No  
- **Number of base standards**: 1  

<table>
<thead>
<tr>
<th>Type:</th>
<th><strong>Style 1, Low Use Areas</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to:</td>
<td></td>
</tr>
</tbody>
</table>
  - Group 1  
  - Group 2  
  - Group 3  |
| Mfr: | Formica |
| Color: | Medium Earth tones and neutral tones |
| Finish: | Light textured |
| Model #: | High pressure laminate |
| Other: | Combine with matching plastic laminate banding on casework edges. Provide backsplash and end returns in accordance with design drawings. |
| UFGS: | Section 06 41 16.00 10 Plastic-Laminate-Clad Architectural Cabinets  

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E06.2.2. Solid Polymer Surface

- **Applicable**: Yes  
- **N/A**: No  
- **Number of base standards**: 1  

<table>
<thead>
<tr>
<th>Type:</th>
<th><strong>Style 1, High Use Areas</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to:</td>
<td></td>
</tr>
</tbody>
</table>
  - Group 1  
  - Group 2  
  - Group 3  |
| Mfr: | Corian |
| Color: | Medium Earth tones and neutral tones |
| Finish: | Smooth |
| Model #: | Solid Surface |
| Other: | Finish faces and edges in accordance with design details. Provide backsplash and end returns in accordance with design drawings. |
| UFGS: | Section 12 36 00 Countertops  
### E06.2.3. Natural Stone

**Applicable**  
**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  

---

### E06.2.4. Cast Stone

**Applicable**  
**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  
E06.2.5. Metal

Type: Stainless Steel Countertop

Applies to: Group 1, Group 2, Group 3, 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

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E06.2.6. Other

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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:

E07.2. Accessories

Comply with AF Corporate Standards for Accessories:

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
E08.2. Interior Signs Materials

1. Natural stone, masonry and cast stone signs may only be used in Group 1 with approval on a case basis.

E09. Lighting, Power and Communication

E09.1. Functionality and Efficiency

Comply with Air Force Corporate Standards for Functionality and Efficiency:

E09.2. Types and Color
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 1

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.
Photos for each facility group within the Facility District as applicable.

<table>
<thead>
<tr>
<th>Group</th>
<th>Applicable</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>✔️</td>
<td>N/A</td>
</tr>
<tr>
<td>Group 2</td>
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</tr>
<tr>
<td>Group 3</td>
<td>✔️</td>
<td>N/A</td>
</tr>
<tr>
<td>Group 4</td>
<td>✔️</td>
<td>N/A</td>
</tr>
<tr>
<td>Other</td>
<td>✔️</td>
<td>N/A</td>
</tr>
</tbody>
</table>
FACILITY DISTRICTS
Minot AFB is divided into districts that align with land use zones as defined in the Installation Development Plan. Each district has designated uses that support the base’s operations. Generally match adjacent facilities in new construction to promote Architectural compatibility throughout the installation. Please refer to Section D03.2. and contact the Base Civil Engineer for additional information. A brief description of each district follows.

1. Community Support District
Facilities in the Community Support District should continue to be pedestrian in scale. Thee North Plains Area 1A consists of detached single family residential units occupied by enlisted and officer families. This area is currently under a housing privatization contract, but shall follow standards for Facility Group 4 as defined in this IFS. Area 1B is the Commercial Center containing the Commissary and Base Exchange. Area 1B shall follow standards for Group 2. The Airman's Campus is Area 1C and should follow standards for Group 2. Area 1D is mixed use combining Airman Campus, Headquarter facilities, Learning Center, Fitness Center and Community support functions. Headquarter facilities should follow Group 1 standards while other uses should follow Group 2 standards.

2. Mission and Operations Support District
The Missions and Operations Support District includes facilities that are industrial in nature, while other facilities are administrative in nature. Industrial uses may include warehouses for various base activities including maintenance, storage, utility functions, industrial services, transportation storage, communications, civil engineering, supply and equipment, vehicle maintenance/motor pool complex, open storage, ordnance and weapons storage areas, and other industrial uses. Administrative facilities include Wing Headquarters, Squadron Headquarters and general office space. Facilities in this district should generally match adjacent buildings to ensure architectural compatibility and shall follow standards for Facility Groups 2 and 3 as defined in this IFS, except that Wing Headquarters shall follow Group 1 standards.

3. Weapons/Munitions Storage District
Facilities in this district are industrial in nature, should generally match adjacent buildings to ensure architectural compatibility and shall follow standards for Facility Group 3 as defined in this IFS.

4. Flight line District
The Flight line District includes facilities that are industrial in nature and may support flight line operations. Alternative uses may include warehouses for various base activities including maintenance, storage, utility functions, industrial services, supply and equipment, fuel storage, open storage, emergency/disaster response facilities, and other industrial uses. Facilities in this district are industrial in nature, should generally match adjacent buildings to ensure architectural compatibility and shall follow standards for Facility Group 3 as defined in this IFS.

G. APPENDIX - References
Comply with Air Force Corporate Standards:
http://afcfs.wbdg.org/index.html

Note: The below listed Supplementary Documents are provided as part of this IFS and shall become fully part of the IFS. If there are any discrepancies between the requirements of this IFS and the Supplementary Documents, the IFS shall govern.

1. There are no supplementary documents at this time.