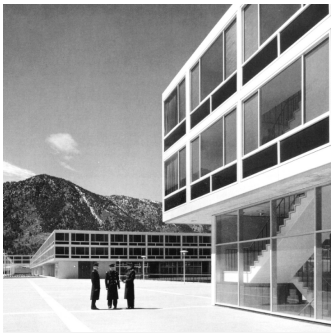
UNITED STATES AIR FORCE ACADEMY INSTALLATION FACILITIES STANDARDS (IFS)


Installation Elements


Site Development


Facilities Exteriors


Facilities Interiors

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AIR FORCE INSTALLATION FACILITIES STANDARDS

2019

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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.

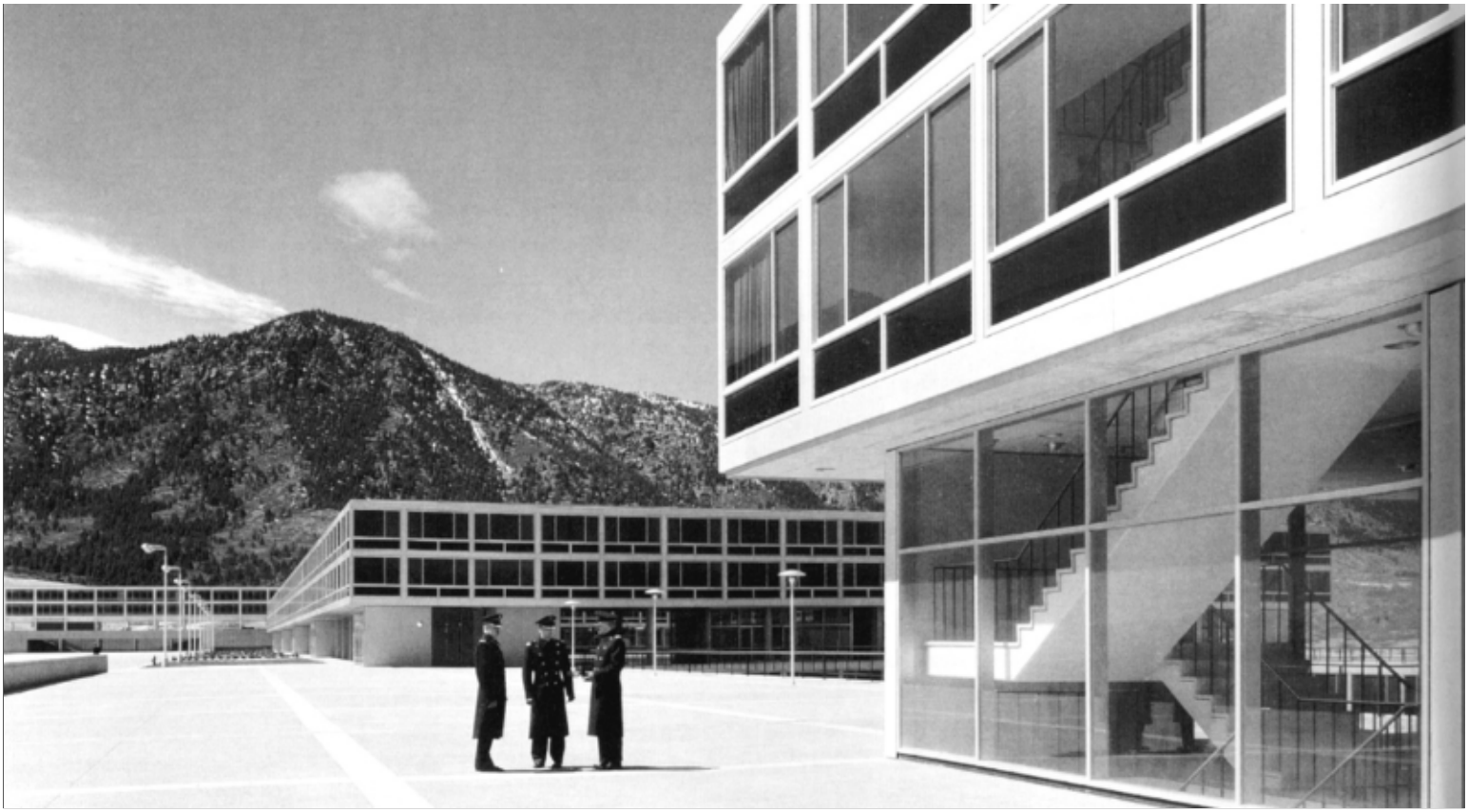
5. *Advanced Modeling Requirements:*
   For all Air Force projects requiring advanced modeling, to include 3D visualization, Building Information Modeling (BIM), facility data, quantity take-off, geospatial, etc., follow the Army standards. Refer to USACE Minimum Model Matrix (M3) and Project Execution 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.

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

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



The Terrazzo

Falcon Stadium

Air Garden Fountain

Cadet Chapel

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

Overview Map:

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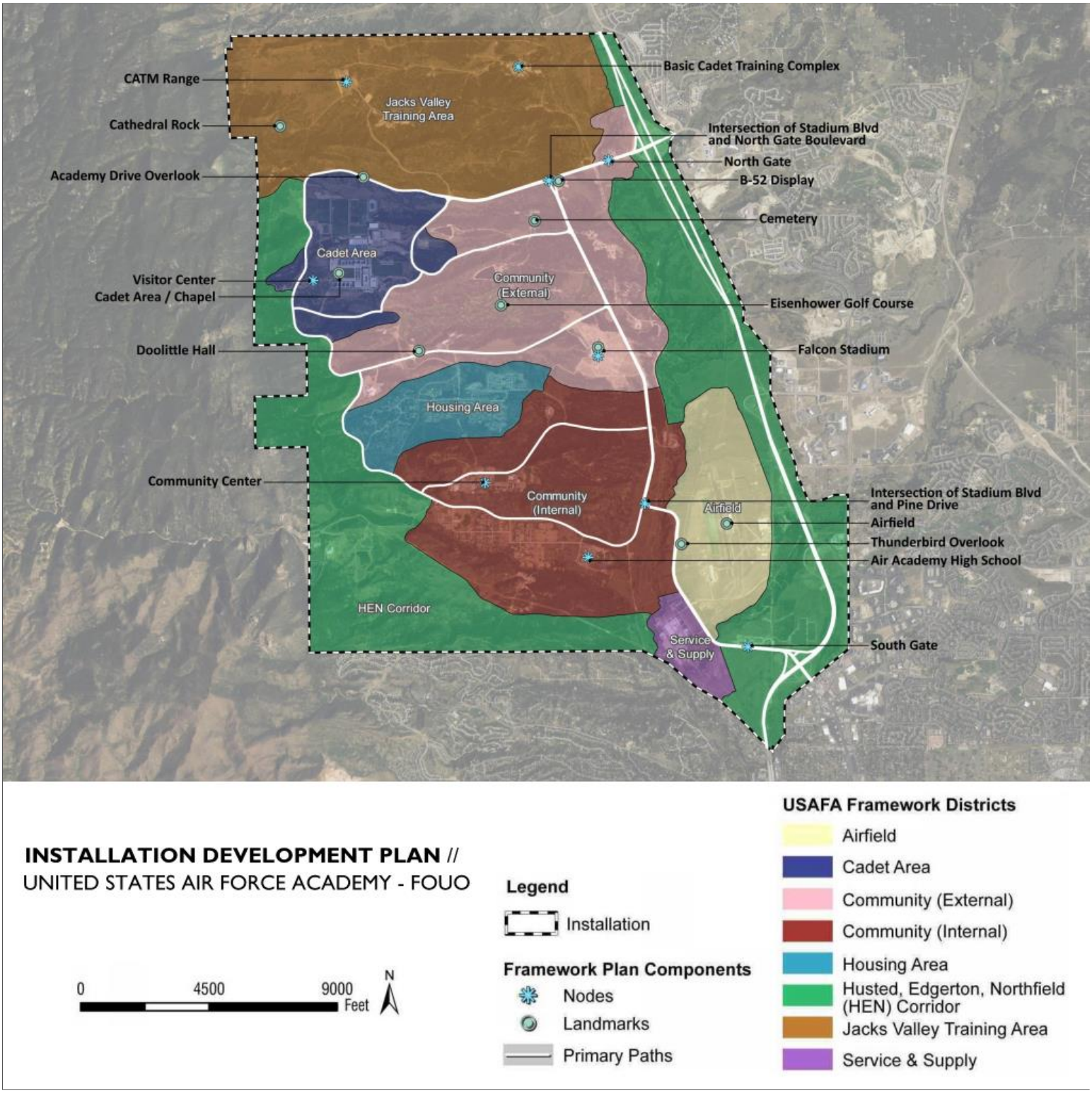


Note: *Apply the base-wide standards in this IFS for Installation Elements, Site Development, Facilities Exteriors and Facilities Interiors (products, materials, color, etc.). Following application of the base-wide standards, refer to the Appendix and apply any additional requirements specifically related 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 Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

1. The base is required to provide and maintain Installation Facilities Standards (IFS) as a Component Plan of the base's Installation Development Plan (IDP).

B01.1.1. IFS Component Plan of IDP

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

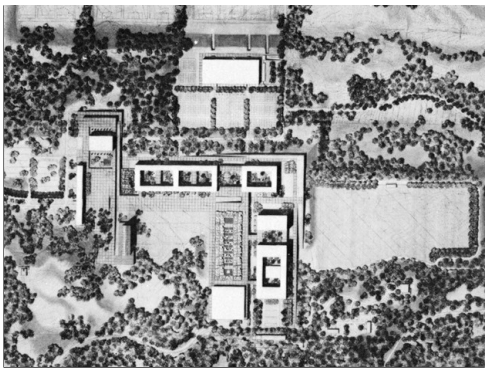
N/A

B01.1.2. Brief History of Base

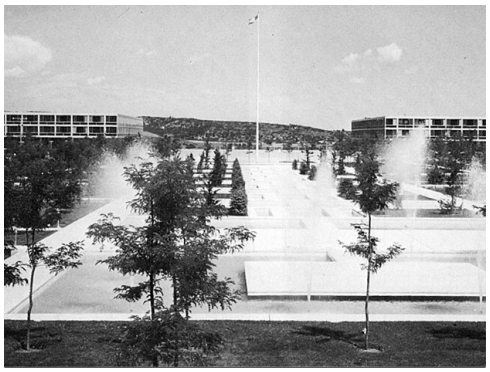
◉ Applicable ○ N/A Select number of graphics / images (large: 800 px x 440 px) to insert 1 Image Tool 800 x 440

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

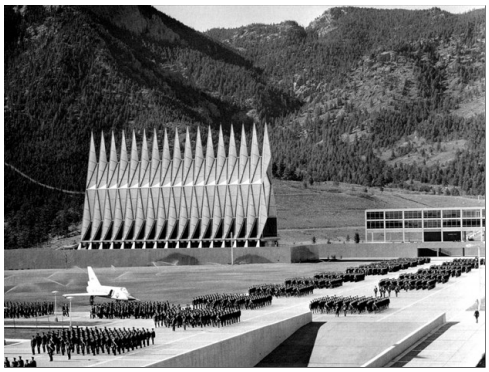
Man and Nature in Balance



Original Cadet Area Master Plan



Air Garden Fountains and Reflecting Pools



Cadet Parade on Terrazzo

Excerpts from: "Modernism at Mid-Century: The Architecture of the United States Air Force Academy" edited by Robert Bruegmann.

> "Recently established as a separate branch of the American military after WWII, the Air Force required an Academy dedicated to training pilots, officers and future leaders to the level comparable to the United States Military Academy at West Point and the Naval Academy at Annapolis.
>
> It was considered one of the "largest, most important postwar architectural projects", and was intended to be a national monument, as the Academy carried symbolic weight as a representation of American military power during the Cold War.

The master plan for the Air Force Academy was developed in the 1950's during a pivotal time in history from both a sociological and political perspective. Design decisions at the Academy reflect this zeitgeist and in some instances served as "…a lightning rod for conflicting values in a post war society."

The Air Force considered their branch of the military to be the "ascendant military force of the Post-War era" and envisioned itself as "overseeing a peaceful and orderly world through technological superiority."

At the same time, the Academy master plan was designed during a period of architectural debate regarding the "Modern Movement" and its validity as a style appropriate to civil buildings and Monumental works, which had traditionally been Classical.

The United States Air Force awarded the architectural firm of Skidmore, Owings and Merrill (SOM) the design of the master plan of the United States Air Force Academy (USAFA) in the 1950's.

A global architectural firm, SOM had already successfully executed projects for corporate clients expressing the "International Style" which had become the American interpretation of the Modern Movement, and this project was seen as an opportunity to demonstrate a "technologically advanced image" in monumental architecture.

Located at the base of the Rampart Range foothills in the Rocky Mountains, three man-made terraces overlook the eastern plains just north of Colorado Springs, Colorado.

What is known as the Cadet Area was the main focus of the original design expression. Its L shaped site plan both capitalized on the expansive vistas of the landscape and contrasted its wildness with the clean and disciplined order of the architecture.

The landscaping design plans reinforced this ecological awareness by utilizing native species and planting in formal geometrical order near the buildings and fading into naturalized patterns at a distance.

Overall, the site is a "carefully composed arrangement between the curvilinear natural environment and precise rectilinear forms".

The form of the Cadet Area was derived from its function and resulted from "flow diagrams" of daily activities. The north/south axis of the campus links the dorms with classrooms, athletic fields and the dining hall, while the east/west axis provides access to social services. Buildings and grounds conform to a 7 foot module and its multiples and is visually expressed in building structures, curtain walls and paving. Rectilinear horizontal masses of the Cadet Area contrast sharply with the verticality of the Chapel.

New materials such as curtain walls and anodized aluminum were used as well as innovative technologies in building construction. For example, the roof of Mitchell Hall was the first long span steel structure to be lifted into place.

Although the designers were striving for a "timeless" design, hindsight shows that these facilities are clearly from the 1950's. The Academy is now regarded as "one of the most important works of modern American architecture built during the 1950's." The Air Force has preserved this history with meticulous maintenance and restoration."

B01.1.3. Future Development

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

1. Architectural design and associated sustainable elements should reflect the flagship nature of the U.S. Air Force Academy. The entire installation, specific districts, and the Cadet Area in particular support the core mission of training the Air Force leaders of the future. The original architecture of the Academy was conceived to inspire and support the people and mission of the Academy. Those entrusted to design new buildings, additions, and remodeling must respect and enhance those traditions and the forward-looking mission.
2. Architectural Planning Principles:
    a. A very rational, modernist hierarchy of organizational principles governs the design of the Academy. All AE's should familiarize themselves with the USAFA IFS and the eight Area Development Plans (ADP) to ensure their designs comply with the design intent at the Academy.

b. The Academy is divided into eight major districts, and each of these will have an Area Development Plan (ADP) that governs its development. The campus wide Master Plan goals apply to each of the districts as well. Building planning principles require that all buildings and additions align with the orthogonal geometry and 7-foot by 7-foot grid established in each sub-area. All building structural elements must be on the governing grid. Building organization, forms, proportions, and materials are dependent on building function and sub-area. Consult the USAFA Design Standards for planning, landscape architecture, architecture, and engineering guidance before beginning any design project.

B02. STREET ENVELOPE STANDARDS

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

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

B02.1. Hierarchy of Streets

○ Applicable ◉ N/A Large graphics 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


Arterial Roadway


Collector Roadway


Local Roadway

1. Provide consistent functionality throughout the installation and a level of visual quality relating to the adjacent Facility Group number.
2. 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.
3. Special routes may have a visual quality comparable to those along facilities in Group 1.
4. 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.
5. Minimize stops and turns along arterials. Eliminate on-street parking along arterials and collector streets.
6. Connect arterials to local streets with appropriately scaled collector streets.
7. Provide appropriate landscape setbacks and pedestrian buffers along all streets.
8. Minimize and consolidate curb cuts along streets.
9. Ensure access for emergency and service vehicles.
10. Circulation (Groups 1-4)

a. The procession to the Academy begins at the interstate highway, to the interchange, to the access road and then to the Academy gates.

   i) Each vantage point on the paths contributes to the collective perception and image of the Academy before entering the campus.

   ii) Each vantage point, and points along the path must be maintained to present the best image of the Academy.

b. The only interchanges provided to the Academy are along the eastern edge of the Academy

c. Only the North Gate and South Gate Boulevards are to be provided for entry.

d. Roads are categorized by three levels of operation: arterial, collector and local.

   i) Arterial internal roadways connect the entry points of the Academy's districts; these roadways are generally undivided, two-lane, two-way roadways.(NOTE: The North Gate Boulevard is an exception,)

   ii) Collector internal roadways provide local access throughout the base.

   iii) Local internal access ways are unpaved access roads or residential streets within the housing areas (Group 4).

e. All roads through developed areas must have at least one walkway on one side of the road.

f. Use separate service drives whenever possible.

   i) Provide service drives through parking areas,

   ii) Keep access points as far away from the main entrance of the facility as possible.

11. Group 1 Circulation

    a. Perimeter roads provide a route around the Cadet Area and access to Cadet Area facilities.

    b. Roadways surround the buildings, one level below the Terrazzo, providing service access and additional close-in parking.

    c. Arterial Roadways support Visitor traffic within the Cadet Area and is restricted to the entrance boulevard, the Visitor Center parking lot and the roadways and parking areas serving athletic events.

    d. Arterial Roadways should direct Chapel visitor traffic to Visitor's Center parking.

    e. Collector Roadways for Chapel access are limited to vehicles essential to its operation, including those for the Chapel, General Officers, handicapped, wedding parties and funerals.

    f. Every building in the Cadet Area must have an independent service access area. (NOTE: Chapel is excluded from this requirement)

12. Group 2 Circulation

    a. The Arterial Community Center Drive is the arterial east-west connecting road, bringing traffic into the Community Center Area from the rest of the campus.

    b. Five Collector access roads feed traffic from Community Center Drive to the parking lots. Through traffic is not allowed from east to west within the area to separate the service-related activities on the western portion of the site from the residential and recreational area on the eastern portion of the site and to encourage pedestrian use of the site.

    c. Local Service traffic must be directed to receiving areas visually screened and located away from public areas.

13. Group 3 Circulation

    a. Service and Supply Area Circulation

       i) Local roadways are a non-hierarchical road network linked to vehicular parking areas defined by type of use.

       ii) Local network includes a main loop, from which all portions of the site are accessible (including the industrial area on the western half of the site) and an inner loop running north-south, which affords arterial access to the administration zone.

iii) Local Service circulation does not require a separate roadway system.

iv) Allocate sufficient circulation space for large trucks and buses for access to loading docks and service bays.

b. Airfield Circulation

i) The Arterial roadway serving this area is Airfield Drive, which ends at the complex of command buildings on the eastern side of the site.

ii) Collector Talon Drive links the western side of the airfield to this main road.

iii) Collector Airfield Access Road links the control area to the arterial vehicular route.

14. Group 4 Circulation

a. The Family Housing Areas have been privatized. All proposed changes must be coordinated with the 10 CES Project Manager and 10 CES Housing Manager.

B02.1.1. Arterial Streets

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

1. Minimum arterial street dimensions shall be as follows:
   a. Travel Lane. 12'
   b. Median (if used). 12'
   c. Curb and Gutter. 2'
   d. Sidewalk. 6'
   e. Parking. 12' setback or per ATFP
   f. Buildings. 35' setback or per ATFP
   g. Obstructions. 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.

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

B02.1.2. Collector Streets

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

1. Minimum collector street dimensions shall be as follows:
   a. Travel Lane. 12'
   b. Median (if used). 12'
   c. Curb and Gutter. 2'
   d. Sidewalk. 6'
   e. Parking. 12' setback or per ATFP
   f. Buildings. 15' setback or per ATFP
   g. Obstructions. 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.

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

B02.1.3. Local Streets

◯ Applicable ◉ N/A Large graphics do not apply

◯ Applicable ◉ N/A Small graphics do not apply

1. Minimum local street dimensions shall be as follows:
    a. Travel Lane. 11'
    b. Curb and Gutter. 1.5'
    c. Sidewalk. 6'
    d. Landscape. 15' setback or per ATFP
    e. Buildings. 35' setback or per ATFP
    f. Obstructions. 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

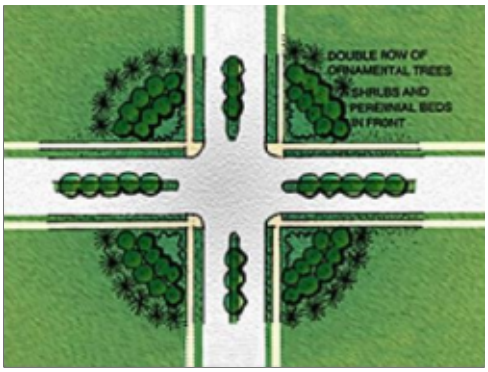
◯ Applicable ◉ N/A Small graphics do not apply

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

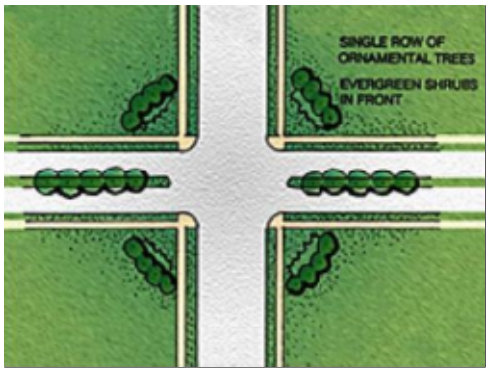
B02.2. Hierarchy of Intersections

○ Applicable ◉ N/A Large graphics do not apply

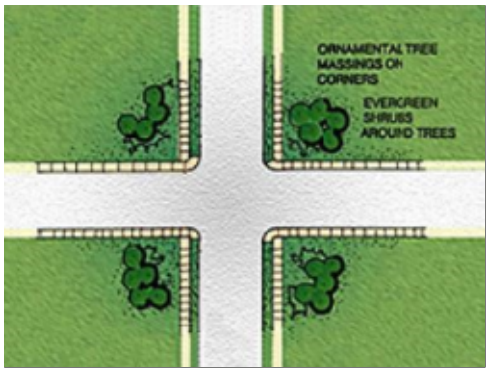
◉ Applicable ○ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 3 Image Tool 250 x 188



Arterial Intersection



Arterial-Collector Intersection



Collection Intersection

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.

B02.2.1. Arterials

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

1. At 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 Small graphics do not apply

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

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

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

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

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

B02.2.5. Street Frontage Requirements

○ Applicable ◉ N/A Large graphics do not apply

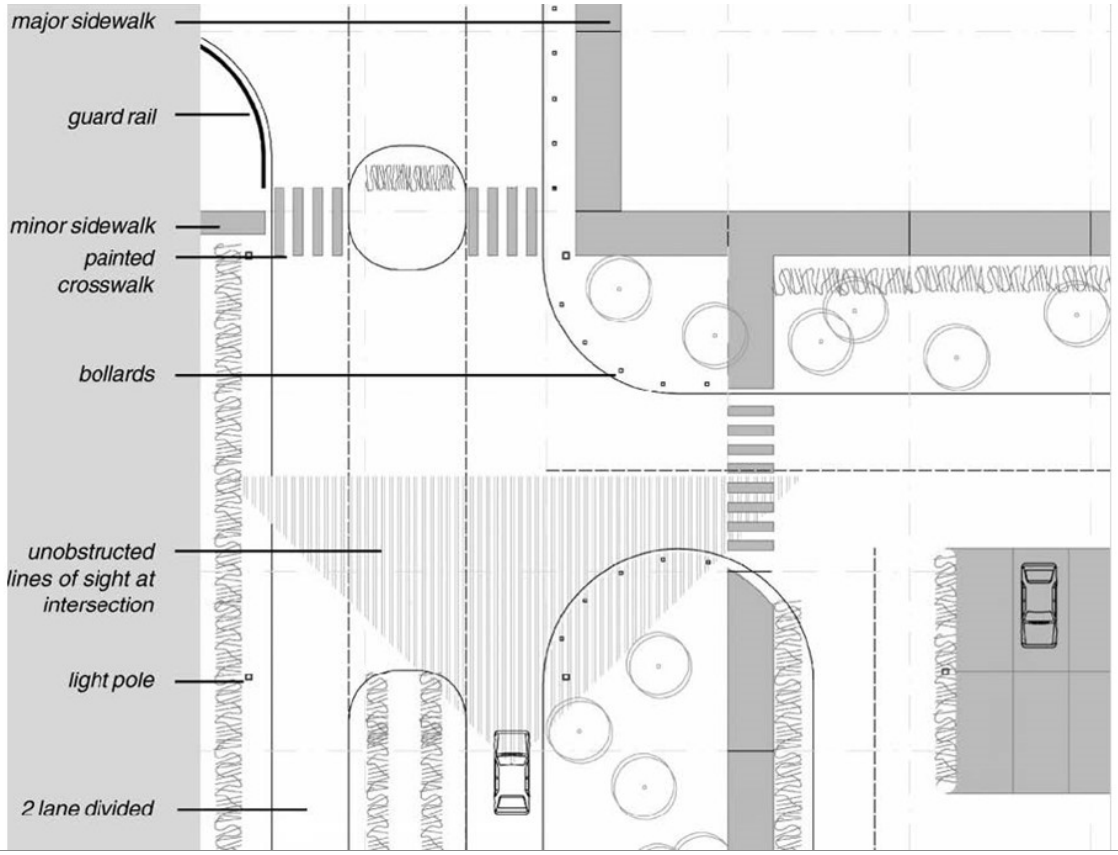
○ Applicable ◉ N/A Small graphics do not apply

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

○ Applicable ◉ N/A Small graphics do not apply



Sight Line Diagram

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. Uninterrupted sight lines are required at Academy Entry Points.
2. Create and maintain unobstructed lines of sight at intersections beginning 45 feet from each intersection corner. This area forms a triangle which must be clear from 2 to 6 feet in height.

B02.3. Street Elements

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

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 reflectivity of surfaces 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. Do not paint concrete curbing.

4. Provide all on-site utility service lines and equipment below grade when adjacent to Facility Group 1. In routes along Group 2, 3 and 4, when mounting elements such as utility cabinets, communications equipment and water valves above grade is unavoidable, paint these consistently and provide visual screening following Installation Facilities Standards (IFS).
5. Provide traffic control devices including access control point/entry control facility signs, speed limit signs and street name signs following the current edition of the Manual on Uniform Traffic Control Devices (MUTCD) per UFC 3-120-01.
6. Follow UFC 3-120-01 for directional and wayfinding signs and address both vehicular and pedestrian traffic.
7. Reduce energy consumption and reduce maintenance requirements by providing street lighting only when functionally required to ensure safety and to address antiterrorism following UFC 4-010-01. Ensure the quality and quantities of lighting and fixtures are appropriate for the adjacent Facility Group number.

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 1 Image Tool 250 x 188

Concrete Apron

1. All roadway and parking pavements shall be designed and constructed in accordance to the standards set forth in UFC 3-201-01. Where the UFC does not provide guidance, the A-E shall default to Colorado Department of Transportation (CDOT) Standards for Road and Bridge Construction.
2. All airfield pavements shall be designed and constructed in accordance to the standards set forth in and referenced by AFI 13-213. The design aircraft for the pavements on the airfield is the DeHavilland UV-18B "Twin Otter".
3. Use only high quality road base and paving materials for paved roads to minimize maintenance and convey an image of permanence. Use gravel road base where unpaved roads are subject to erosion and to lessen maintenance requirements.
4. Develop aprons at intersections of paved and unpaved roads as a transition. Aprons must be 50 feet long.
5. Material Table:

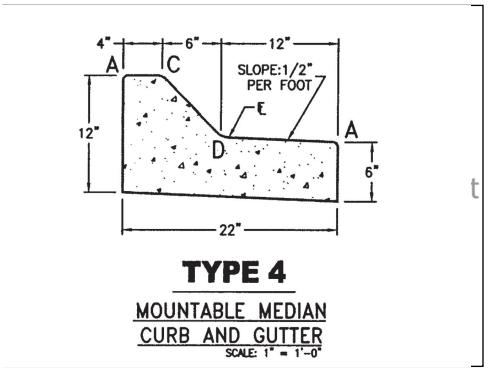
Elements	Material/Plant	Finish/Form	Color	Dimensions
Base Paving	Asphalt	High Quality	Dark Gray	
Base Surfacing	Indigenous Granite	Decomposed	Red / Orange	Functional Diameter
Aprons	Concrete	To Match Finish Of Road	Gray	L 50'-0"
Paving, all other areas	Concrete	High quality	Light gray	Multiple 7'-0"x7'-0"

B02.3.2. Curb and Gutter

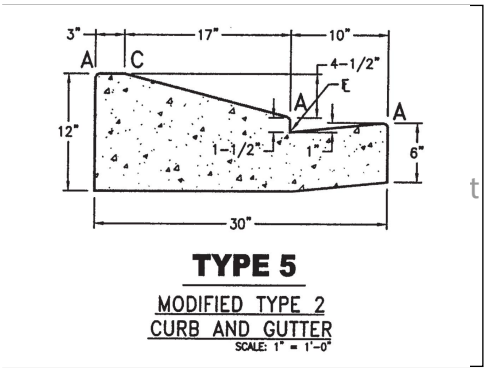
○ Applicable ◉ N/A Large graphics do not apply

◉ Applicable ○ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 4 Image Tool 250 x 188

USAFA Rolled Curb



Colorado Springs Standard - Type 4



Colorado Springs Standard - Type 5


Header Curb

1. All roads at the Academy must have curbs.
2. Roads must have a minimum 8-foot wide paved shoulder with a header curb.
3. Header curbs are to be used to define road edges, protect the paving and preserve existing drainage patterns.
4. Curbing will be replaced in sections, as defined by expansion or control joints, which in turn coordinate with the governing grid.
5. Rural, gravel roads must not have curbing.
6. Do not paint curbs.
7. Material Table:

Elements	Material	Finish	Color	Dimensions
Header Curbs	PC Concrete	Unpainted	Light Gray	Joints in 7' Grid
Roll Curbs	PC Concrete	Unpainted	Light Gray	Joints in 7' Grid

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 1 Image Tool 250 x 188

Visual Screen

1. Provide all utility service lines below grade when streets are adjacent to Facility Group 1; when mounting elements (such as utility cabinets, communications equipment and water valves) above grade is unavoidable, paint these consistently and provide visual screening following Site Development, Landscaping.
2. Overhead service lines along streets adjacent to Facility Groups 2, 3 and 4 are discouraged.

B02.3.4. Traffic Signs

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

1. Refer to Section C08 for 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 Small graphics do not apply

1. Refer to Section C09 for appropriate lighting applications along streets.

B02.3.6. Other

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

1. Guard rails must conform to those used by the State of Colorado.
2. Guard rails to include reflective elements for nighttime safety.

3. Guard rails are only to be used on primary roads.

B03. OPEN SPACE / PUBLIC SPACE

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

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

B03.1. Plazas, Monuments and Static Displays

○ Applicable ◉ N/A Large graphics 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


Cadet Area Monument


Aircraft Display in the Airfield


Cemetery Monument

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 USAFA to ensure judicious use of resources and to reduce ongoing maintenance requirements.
2. Design highly durable plazas, monuments and static displays with a level of quality comparable to Facility Group 1.
3. Link plazas, monuments and static displays to the pedestrian circulation system. Install landscaping, site furnishings and lighting appropriate for the application and local climate following Installation Facilities Standards (IFS).
4. Select systems, products and materials for paving, walls, and structures following IFS.

B03.1.1. Paved Plazas

◯ Applicable ◉ N/A Large graphics 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

Paved Plaza in Cadet Area

Architectural Rigid Paving and Marble Striping

7 Foot Governing Grid in Paving

1. Material Table - Cadet Area paved plazas:

Elements	Material	Finish	Color	Dimensions
Architectural Rigid Pavement	Concrete	Exposed aggregate	To match existing	28'-0" x 28'-0"'
Striping	Marble	3/16" miter edge	White to match original	1'-9" square

B03.1.2. Sculptures, Markers and Statuary

◉ Applicable ○ N/A Select number of graphics / images (large: 800 px x 440 px) to insert 5 Image Tool 800 x 440

◉ Applicable ○ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 12 Image Tool 250 x 188

Court of Honor - Plaques, Ground Mounted

Court of Honor - Inscription Plates

Court of Honor - Statuary

Court of Honor - Aircraft Sculptures

Chapel Precinct - Plaques

Terrazzo Memorial Wall - Plaques

Existing Inscription

Terrazzo Precinct - Cadet Area Lawn

Terrazzo Precinct - Air Garden, Plaques

Terrazzo Precinct - Air Garden, Fountains

Fairchild Hall - Statuary Courtyard

Arnold Hall - Statuary Courtyard

Visitor Area - Plaque on Marble Plate on Stone

Aircraft Display Area

B-52 - Exempt from Standards

Cemetery - Wall Mounted Plaque

Cemetery - Bronze Cast Grave Marker

Plaques, inscriptions, statuary and sculpture must conform to the Group 1 standards and are allowed in:

The Community Center Area

The Visitor Overlook Areas. Their installation.

Group 1 standards for Plaques, inscriptions, statuary and sculpture are:

1. Court of Honor Precinct allowable installations:
   a. Plaques:
      i. Be ground-mounted
      ii. Match the existing
      iii. Be installed in accordance with the governing grid.
   b. Inscription plates:
      i. Made of a granite base.
      ii. Follow the governing grid
      iii. Be No larger than 3 feet, 6 inches square
      iv. Be centered in the terrazzo field.
      v. Inscriptions are upper case Helvetica Medium Regular font.
   c. Statuary:
      i. Install statuary at the periphery or within the grouping of trees in the Court of Honor.
      ii. Center statuary within the terrazzo fields defined by the governing grid.
      iii. Aircraft sculptures in the Court of Honor within the boundaries of the landscaped portion of the court.
      iv. The wingspan of aircraft sculpture must be no longer than 8 feet.
      v. Install on granite base no taller than 3 feet, 6 inches high.
      vi. No larger than 3 feet square
      vii. Tapered towards the top.
   d. Material Table:

Elements	Material	Finish	Color	Dimensions
Plaques, ground-mounted	Aluminum	Cast	Dark plaque, light inscription	Max. 24″ x 34″
Inscription plate	Granite	Polished	Black	Max. 3'-6″ square
Inscriptions		Raw		Helvetica capital
Statuary & aircraft	Bronze	Cast	Bronze	1/4 to scale, max. 8'
Base	Granite	Tapered towards top	White-gray	Max. H 3'-6″, max. 3'-0″ square
Memorial benches				
Top	Granite	Polished	Black	1'-9″ x 7'-0″
Pedestals	Granite cylinders	Polished	Black	Diameter 1'-0″, H to match existing

2. Chapel Precinct
   a. Only plaques are allowed in the Chapel precinct.
      i. All plaques must be installed, designed and centered on axis consistent with existing plaques
      ii. Academy class plaques are allowed on the class wall located on the easterly retaining wall of the Chapel.
      iii. Plaques on the inclined walls and the retaining wall on the lower level of the Chapel are reserved to honor cadets who have died in the line of duty.

b. Upkeep of the plaques maintained through Donations and contributions specified used for the maintenance of the Chapel building with Chapel Donor recognition attributions located within the chapel.

c. Material Table:

Elements	Material	Finish	Color	Dimensions
Plaques, class wall	Aluminum	Cast	Blue plaque, light inscription, to match existing	2'-4" x 2'-8"
Plaques, inclined wall	Bronze	Cast	Dark plaque, light inscription	Variable
Plaques, retaining wall	Aluminum	Cast	Dark plaque, light inscription	To match existing
Inscriptions	In stone or concrete	Raw	Helvetica, capital	

3. Memorial Retaining Walls, Terrazzo Precinct

a. Only plaques and inscriptions are allowed on the other retaining walls of the Cadet Area.

b. All inscriptions must be applied white metal lettering in upper-case Helvetica Medium Regular font.

c. The existing inscriptions must be maintained:

i. "We Will Not Lie, Steal, or Cheat, Nor Tolerate Among Us Anyone Who Does" on the Terrazzo level west

ii. "Integrity First, Service Before Self, Excellence in All We Do" on the portal to the Parade Ground.

d. Material Table:

Elements	Material	Finish	Color	Dimensions
Plaques	Aluminum	Cast	Dark plaque, light inscription	To match existing
Inscriptions, applied Letters	Aluminum	Cut, 0.75" thick, brushed	Clear anodized	10" cap

4. Cadet Area Lawn, Terrazzo Precinct

a. Maintained as an uninterrupted green open space.

b. Maximum of four total aircraft, spacecraft, or other fight-related objects on the Lawn.

i. Objects are setup in a wheels-down at-rest position

ii. On the extreme corner of the lawn,

iii. Limit one object per corner.

c. Description signs must be installed on a black metal frame, 2'-0" or less from the terrazzo.

d. Material Table:

Elements	Material	Finish	Color	Dimensions
Aircraft, spacecraft				
Description sign	Aluminum	Cast	Light plaque, dark inscription	To match existing
Frame	Steel square stock bar	Painted (thermal)	Black	3" x 3"

5. Air Garden, Terrazzo Precinct

a. Only Plaques may be installed in the Air Garden.

i. Made of white metal on a black metal plate

ii. Installed flush with grade in the lawn area.

b. Existing Eagle and Fledglings Sculpture and the War Memorial and flagpole are exempted from these standards and are to be maintained based on their original state.

c. Restore and maintain the fountains of the Air Garden in a manner consistent with the original design intent of the Air Garden (see Open Space 3.1, 3.2, 3.3).

d. Donations and contributions to the Air Garden are to be used for the restoration and maintenance of the landscape, fountains and reflecting pools of the original Air Garden design.

e. Material Table:

Elements	Material	Finish	Color	Dimensions
Plaques, ground-mounted	Aluminum	Cast	Light plaque, dark inscription	To match existing
Base	Aluminum	Cast	Black anodized	To match existing
Fountains	Concrete	Painted	Blue to match existing	

6. Courtyards Fairchild Hall, Arnold Hall

a. The Fairchild Hall and Arnold Hall courtyards are designated as the statuary courtyards of the Academy.

b. Busts in the Arnold Hall courtyard must be located in a row along the northern edge of the courtyard in a garden setting.

c. Busts must not be taller than 6 feet, 10 inches from the ground level to the top of the bust. Install busts on a white-gray granite base no higher than 3 feet, 6 inches and no larger than 26 inches square. The base must be tapered towards the top.

d. Description signs must be installed on a black metal post.

e. Material Table:

Elements	Material	Finish	Color	Dimensions
Busts	Bronze	Cast	Bronze	Max. H 6'-10"
Base	Granite	Polished	White-gray	Max. H 3'-6", max. 26" square
Description sign	Aluminum	Cast	Light plaque, dark inscription	To match existing
Post	Steel square stock bar	Painted (thermal)	Black 3" x 3"	

7. Association of Graduates Precinct

a. The Association of Graduates (AOG) Precinct is funded and controlled by the AOG. All projects/changes must be coordinated through the AOG.

b. The Association of Graduates (AOG) Precinct is designated for statuary important to the AOG.

c. All additions/changes must be coordinated with the AOG.

8. Visitor Area Precincts

a. Only plaques may be installed in the Visitor area Precinct along Academy Drive and the Visitor Overlook Areas

i. Mounted on marble plates on a stone base not higher than 4 feet.

b. Plaques, inscriptions, statuary and sculpture are allowed within the precinct of the Visitor Center.

c. Install plaques at 4 nodes (i.e. freedom, constitution, etc.) located along the visitor trail no more than 10 feet from the edge of the trail, in an unobtrusive fashion on a stone base.

d. Material Table:

Elements	Material	Finish	Color	Dimensions
Plaques, VOA	Aluminum	Cast	Dark plaque, light inscription	
Plate	Marble	Unpolished	White	
Base	Granite	Tapered towards top	White-gray	Max. H 3'-6", max. 3'-0" square
Plaques, visitor trail	Bronze	Cast	Dark plaque, light inscription	

Base	Granite	Tapered towards top	White-gray	Max. H 3'-6”, max. 3'-0" square

9. Aircraft Display Precinct
    a. The Aircraft Display Area is the only location on the Academy grounds for the installation of Aircraft, other than the Cadet Area Lawn.
    b. The existing B-52 located at the northern entrance is to be exempt from these standards.
    c. Locate all static display aircraft in a wheels-down at-rest position within the designated hardstand areas such as a visitor access display area.
10. Cemetery Precinct
    a. Monuments and memorials in the Cemetery are limited to wall-mounted plaques, ground-mounted plaque grave markers and the American Legion Sculpture.
    b. Monuments and memorials installed with care to dignify those buried there.
    c. Wall-mounted plaques
        i. Bronze or white metal
        ii. Installed on white / gray granite walls.
    d. Grave markers are bronze-cast. Installed horizontal, with long sides at the top and bottom from the vantage point.
    e. Plaques and inscriptions Installed horizontal, with long sides at the top and bottom from the vantage point.
    f. Columbaria and internment facilities are the only buildings allowed in the precinct.
    g. Material Table:

Elements	Material	Finish	Color	Dimensions
Plaques, wall-mounted	Bronze	Cast	Dark plaque, light inscription	To match existing
Base	Granite	Polished	Gray	
Plaques, ground-mounted	Bronze	Cast	Dark plaque, light inscription	To match existing

B03.1.3. Static Display of Aircraft

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

○ Applicable ◉ N/A Small graphics do not apply

Thunderbird Static Display at USAFA

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.

B03.2. Grounds and Perimeters

○ 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 Image Tool 250 x 188

Retaining Wall - Granite

Granite Retaining Wall - Cap and Rail

Retaining Wall - Recessed Lighting

Retaining Wall - Other

1. Retaining Walls - At major level's edges are vertically proportioned panels:
    a. Monolithic in appearance
        i. Inclined at a ratio of 1 foot horizontal to 50 feet vertical
    b. Offset from the grid
    c. Openings to be kept to a minimum
        i. Must follow the planning module
        ii. Developed with stone returns on all sides
        iii. Openings at Window walls are full-height with flush detailing
    d. Lighting is required for these walls
        i. Recessed lights
        ii. Centered on the governing grid
2. Retaining Walls - Group 1 Requirements
    a. Finished in granite on all exposed sides,
    b. Aligned to the governing grid

c. Joints are minimized as much as possible (Maintain proportions acceptable to cladding to limit stresses on the material for mounting on the proportioning system grid)

d. Joints between panels/caps align with the planning module.

e. Meet paved surfaces with a simple joint

f. Structural components of the walls extend below grade.

g. The walls extend above grade at the top to handrail height and are capped with a flush stone panel

3. Retaining Walls - Outside of Group 1 Requirements

a. No granite finishes

b. Aligned to the governing grid

c. Joints on faces/caps are minimized as much as possible

d. Align all joints with the planning module.

e. Meet paved surfaces with a simple joint

f. Structural components of the walls extend below grade.

g. The walls extend above grade at the top to handrail height and are capped with a flush stone panel.

4. Retaining Walls - Material Table:

Elements	Material/Plant	Finish/Form	Color	Dimensions
Group 1	Cold Springs Granite	Thermal finish	"Red"	To match original
Cap	Cold Springs Granite Maple Grove, MN.	Mellatone finish, 3/16" miter lower edge	"Red"	
Grout	Silicon	Concave	Gray to match granite	1/2"
Other Groups	Concrete	Light broom	Light gray	
Railing	Steel square bar	Painted	Black	To match existing
Top cap	Aluminum	Extruded	Clear anodized	To match existing

B03.2.1. Parade Grounds

○ 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

Parade Grounds

Parade Grounds - Bleachers

1. Follow UFC 3-201-02, Appendix B for the planning and design process and criteria for parade grounds.
2. Establish and maintain parade grounds only where there is a confirmed need and provide landscape materials appropriate for the locale following IFS.
3. Bleachers may be installed only when there is a documented requirement at parade grounds. Nonferrous metals that do not require painting or on-going maintenance are preferred. The Base Civil Engineer shall determine quantities, sizes, and products on a case basis.

B03.2.2. Parks

○ Applicable ◉ N/A Large graphics 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

Parks - Bleachers

Parks - Picnic Pavilion

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.

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 Image Tool 250 x 188


Campus Overlook to the West


Surrounding Forest


Roadway through Natural Landscape

1. Preserve areas adjacent to runways, taxiways, aprons, golf course roughs, storage areas, antenna facilities, and ammunition storage areas, as open space.
2. Provide minimal maintenance with mowing as needed for controlling bird behavior for airfield safety, or eliminating fire hazards.
3. Preserve and protect the physical and visual presence of the natural setting and the original architectural character.
4. Respect the natural topography of the site and locate buildings to preserve the natural setting. Create a level building pad for all new construction. Buildings are not to step up or down in the landscape.
5. Accommodate all expected growth and change to the campus and its facilities within present Academy land holdings and within the defined sub-areas.
6. Ensure visual and functional harmony between new and existing development and the natural surroundings.

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 2 Image Tool 250 x 188

Perimeter Fence


Main Gate - Fencing, Gates

1. install and maintain the base's perimeter fence. Design to match the existing perimeter fence.
2. Stringently comply with AT / FP requirements following UFC 04-010-01 for all spaces adjacent to the base's perimeter fence and all gates.
3. Fencing, gates and other elements that are associated with the main gates shall be a level of quality equivalent to Facility Group 1.
4. Maintain a positive visual quality along the traffic corridor on both sides of the main gates. Specifically address pedestrian access, circulation and common areas.

C. SITE DEVELOPMENT

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

C01. SITE DESIGN

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

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

C01.1. Site Design Considerations

○ Applicable ◉ N/A Large graphics do not apply

◉ Applicable ○ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 5 Image Tool 250 x 188


Existing Topography


28 foot Governing Grid


Open Space, Natural Habitat


Integrated Service Access - Screening not Req.


Designated Tobacco Areas

1. Use the governing grid, a 28-foot orthogonal grid or 21-foot orthogonal grid in 7-foot increments superimposed over associated facility districts, for all consideration of dimensions and location of buildings.
2. Collect documentation to validate approvals and completion of the NEPA process.
3. Ensure site design compliance with the Installation Development Plan (IDP) and its component plans and Installation Facilities Standards (IFS).
4. Promote integrated design with on-site solutions such as engineered small-scale hydrologic controls verses base-wide infrastructure; consider open space, natural features, bioswales, building roofs, streets, and paved surfaces.

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 minimize irrigation and impacts to stormwater 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 heat island mitigation in paving and roof designs when implementing an integrated approach to stormwater management.
16. Consider the location of "Designated Tobacco Areas."
17. Blasting is not permitted within the jurisdiction of the USAFA. If it is determined that blasting is required, special permitting, protocol, and coordination with the 10th Civil Engineer Squadron (CES) is required. The contractor shall submit a blasting plan and obtain written approval prior to performing any blasting. The plan shall contain provisions for storing, handling, and transporting explosives as well as for the blasting operations. The contractor shall be responsible for any collateral damage caused by the blasting operations.
18. Prior to any digging operations or placement of survey monuments that extend beyond 6" of depth, a contractor must acquire a completed form AF 103 dig permit from the 10th Civil Engineer Squadron. The contractor should allow approximately two weeks to have the form processed. The dig permit will provide surface utility locates within the specified area. It will also allow potholing of area utilities provided this was noted on the dig permit application.
19. Items to consider during site design: 100-year flood plain boundaries, Prebles Meadows Jumping Mouse (PMJM) habitat, Historic Sites, Environmental Sites, Waters of the U.S., Asbestos/Lead Based Paint, and Cultural/Tribal.

C01.2. Building Orientation

◉ Applicable ○ N/A Select number of graphics / images (large: 800 px x 440 px) to insert 5 Image Tool 800 x 440

◉ Applicable ○ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 7 Image Tool 250 x 188

Building Planning Principles - Organization

Building Planning Principles - Views

Building Planning Principles - Governing Grid

Building Planning Principles - Building Form

Building Planning Principles - Heights

Group 1 - Cadet Area Most Visually Dominent

Group 1 - Arcades at Primary Entries

Group 2 - Community Ctr, "The Common" Link

Group 2 - Community Ctr, Max Height

Group 2 - Service Supply, Outdoor Storage

Group 2 - Service Supply, Green Perimeter

Group 2 - Airfield, Organization

1. Ensure the site will accommodate optimum requirements for building orientation, which is with the long axis parallel to the east/west direction for rectilinear CONUS buildings.
2. Meet UFC 1-200-02 High Performance and Sustainability Building 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.
6. General - Building Planning Principles
    a. Organization

i. Preserve and protect the physical and visual presence of the natural landscape and the original architectural character of the campus.

ii. Respect the natural topography of the site and locate buildings to preserve the natural setting:

1. Create a level building pad for all new construction.

2. Buildings are not to step up or down in the landscape.

iii. Plan, anticipate and accommodate growth and change to the campus and its facilities within the Academy land holdings through rules respective to each areas or precincts.

iv. New developments must maintain visual and functional harmony with existing developments and the natural surroundings.

v. Group similar functions together within sub-areas.

vi. Numerous permanent small buildings are prohibited.

vii. Orient building entrances to the major pedestrian circulation system.

b. Views

i. The districts of the Academy are separated physically and visually by the valleys and mesas extending out from the Rampart Range.

ii. Site structures should benefit from available views to the landscape and surrounding areas as much as possible.

iii. Maintain views among districts and access points. Consider the procession from each point to the next and how each point frames that view.

iv. The Cadet Area must be the most visually prominent portion of the Academy:

1. New buildings or structures must conform to this principle in terms of their size, height, color and location.

2. New structures or buildings outside of districts **must <u>not</u>** be visible from the interstate highway.

c. Governing Grid

i. All buildings must align orthogonally, on the grid in their sub-area.

ii. Orient all buildings to cardinal directions on the north-south or east-west axis.

iii. Additions to or modifications within each building module must conform to the grid; coordinate the location of the building module with the governing grid.

iv. Structural elements must be located on the grid. Non-structural walls are not required to maintain the governing grid.

d. Building Form

i. Use the setting and the sub-area's character to reinforce the building design. Each sub-area's use should be should be readily identifiable by its architectural vocabulary.

e. Heights

i. Ground level arcade heights dimensions should conform to adjacent or attached buildings major circulation levels floor-to-floor heights.

ii. No buildings or building parts may exceed the established rooftop elevations in its respective sub-area.

iii. Floor elevations must align with adjacent buildings in the sub-area.

7. Group 1 - Building Planning Principles

a. Organization

i. Preserve integration of cadet education, training and living functions within the Cadet Area. Keep public functions separate from cadet functions.

ii. Organize Cadet Area buildings and their functions according to the hierarchy of the major terraced levels:

1. The uppermost level, the Court of Honor, is open to the public;

2. The Terrazzo is limited to buildings with cadet functions;

3. The Service Level, located 30 feet below the Terrazzo, is intended for the majority of service and vehicular circulation.

b. Views

i. The Cadet Area is the highest and most visually dominant mesa at the Academy.

ii. Views to the Cadet Area from approaches, access points and overlooks must be maintained and unaltered by new construction or alterations.

iii. New buildings outside of the Cadet Area must not be visible from the north approach roads.

iv. All Cadet Area buildings must be located on the terraced levels.

v. The Cadet Chapel must remain the architectural focus of the Cadet Area.

vi. New buildings must respect the building hierarchy.

vii. Maintain extended open visual corridors along the primary east-west axis and each of the two major north-south axes emphasizing the Cadet Chapel and extending along the length of the Air Garden.

viii. Maintain views from the Terrazzo, through the buildings, to the surrounding natural landscape.

c. Building Form

i. Buildings are to be simple geometric shapes lifted off the ground by columns and arcades.

ii. All building components must reinforce this expression and avoid visual competition with the Chapel.

iii. Arcades must be provided at all primary entry levels.

d. Heights

i. Buildings above the Cadet Area's two formal open spaces, the Court of Honor and the Terrazzo, are prohibited.

ii. No extent of any building or subcomponent may exceed an elevation of 7,224 feet above sea level (top of Fairchild and Harmon Halls).

iii. The following floor-to-floor dimensions establish the necessary compatibility of horizontal alignment for the majority of anticipated building conditions:

1. Academic Classroom 14 feet
2. Academic Laboratory 19 feet
3. Cadet Quarters 9 feet, 4 inches
4. Administrative Office 14 feet
5. Gymnasium 45 feet
6. Social/Recreational Use 14-18 feet
7. Parking 10-12 feet

8. Group 2 - Building Planning Principles

a. Community Center - Organization

i. The Community Center is the mixed-use facility for shopping, service, recreation and day-to-day living needs of all Academy-wide personnel plus off-Academy military and retired personnel. The area also houses the Airman Dormitories which are composed of clustered three-story dormitory / apartment buildings located in the Community Center sub-area of the campus. They are situated away from the public areas of the Community Center and take advantage of views to the south of the ridge.

ii. Organize Community Center buildings to a tightly unified and pedestrian-based plan.

iii. Provide covered areas at all primary entries.

iv. Link the eastern and western portions of the site with "the Common", the symbolic center of the area.

b. Community Center - Heights

i. The height of Community Center buildings must not exceed the height of the adjacent vegetation.

c. Service and Supply Area - Organization

i. The Service and Supply Area is a semi-public sub-area that provides warehousing, utilities, equipment and administrative support for the entire campus.

ii. Locate office administrative facilities, individual office buildings and office space mixed with warehousing space on the public approach sides of the area.

iii. Screen industrial functions, including outdoor storage of vehicles and equipment, behind office buildings.

iv. Provide sufficient space for outdoor storage to encourage proper yard maintenance and reduce clutter.

v. Provide a green planted perimeter at the public side of the site.

d. Airfield - Organization

i. The Airfield is organized around the north-south runways. To the east of the runways are the training and support facilities and the Aero Club, and to the west are the glider, motor, and parachute training facilities.

ii. New facilities or additional access roads to the auxiliary airfield at the north end of the campus are prohibited.

iii. Airfield facilities are to be screened from the eastern view.

iv. Prohibit the construction of any structure at the Airfield that would be in conflict with AFI's defined obstructions to airspace. No structures may be built that would require airspace waivers from the requirements of these instructions. Conduct Air Installation

e. Airfield - Compatibility

i. Use Air Installation Compatible Zone (AICUZ) studies to determine the compatibility of development within a 10,200-foot radius of the main airfield and within a 4,200-foot radius of the auxiliary airfield.

9. Group 4 - Building Planning Principles

a. The Family Housing Areas have been privatized. All proposed changes must be coordinated through 10 CES Project Manager and 10 CES Housing Manager.

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 4 Image Tool 250 x 188


Landscape Utility Screen


Paint Above Grade Utilities


Standpipe Cabinet

Utility Markers - Natural Materials

1. As projects impact privatized utilities, coordinate with the utility owner and design to the owners' specifications. Verify that sufficient capacity exists in the utility.
2. All utility projects on USAFA to be designed to Colorado Springs Utilities (CSU) standards and specifications. These standards and specifications can be found at: http://www.csu.org/business/services/development/specifications/item1515.html
3. All medium voltage oil-filled transformers shall be dead front and have loop feeds. Transformers 350 kilovolt amps (KVA) and above shall contain bayonet fusing with internal disconnect switches, pressure gauge, and temperature gauge.
4. Manholes are to be a minimum size of 8' x 10' x 6' and buried 3 feet below grade to top of manhole. They shall contain a minimum 42" dual ring, vehicular rated, cast iron cover. Install a minimum of two-10 foot ground rods with an internal ground ring. Include a sump pit with a 15-inch French drain.
5. Hand holes are required to be rated for vehicular traffic and be back filled with a minimum of 1'-2" of gravel to prevent movement with the ground.
6. All underground conduit is to be direct buried (DB) PVC, ¾ inch minimum size. Provide a ground wire in each conduit.
7. Ground rings are required within all manholes, around new installations, and in major facility renovations.
8. Kirk key interlock is required to prevent closing of both feeder selector switches at the same time.
9. Provide all on-site utility service lines below grade; 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).
10. Provide installation of utility infrastructure to support near term and future electric vehicle charging stations.
11. 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. Exposed conduit in Groups 2, 3 and 4 to be approved on a case by case basis by the 10CES.
12. Include consideration of appropriate placement of meters in support of Advanced Meter Reading System (AMRS).
13. 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.
14. Direct roof drainage to underground collection when feasible or provide splash blocks / paved channels to intercept roof drainage at grade.
15. Screen all above ground utility elements with dense landscaping.
16. Avoid above-grade utilities elements in the courtyards and plazas of Group 1.
17. Paint all above-grade utility elements to blend with the surfaces / terrain on which they are installed. Weimar gray or equivalent is required.
18. Do not paint pavement to mark underground utilities.

19. Standpipe connections in high profile areas must be installed in cabinets; those in industrial facilities do not require cabinets.
20. Use natural, unobtrusive materials for utility markers.
21. Use low stone or concrete pylons with chiseled or stamped alphanumeric labeling in lieu of painted metal signs on steel poles. Signage must be edged with small granite cobble borders to preclude additional grass trimming.
22. Material Table:

Elements	Material	Finish	Color
Utility systems	Stainless steel	Semi-gloss paint	Weimar gray or equal (PPG)
Utility markers	Unobtrusive	To match surroundings	
Signs / pylons	Low stone, concrete		
- Labeling	Alphanumeric	Chiseled or stamped	

C03. PARKING AREAS

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

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

C03.1. Configurations and Design

○ Applicable ◉ N/A Large graphics do not apply

◉ Applicable ○ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 4 Image Tool 250 x 188


Small Connected Parking and Drop-Offs


Pedestrian Access


Integrated Landscape and Walls

Landscape Buffer between Parking / Bldg.

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 standards while meeting AT/FP requirements.
3. Integrate at-grade and raised-profile curbing, permeable 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.
4. Define pedestrian access with approved hardscape and provide shading along the primary path from the parking area to the main entrance of the building.
5. Coordinate suitable landscape or barriers integrated with walls and fences to ensure adequate force protection.
6. Accessible parking spaces shall be marked according to UFC 3-120-01 and its references in ABAAS and the MUTCD.
7. Consider locations and requirements of near term and future electric vehicle charging stations.
8. 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. Create parking areas that will serve two or more facilities whenever possible.
14. Site parking areas to minimize disruption of soil, vegetation and drainage and maximize use of the natural environment.
15. Streets must not be double-loaded with parking lots.
16. On-street parallel parking spaces are discouraged.
17. Designate adequate space for motorcycle and bicycle parking near building entrances within the vehicle parking lots.
18. Develop specially assigned areas for oversized vehicles.
19. Comply with all force protection stand-off distances from building per ATFP.
20. A buffer of green or a separation, like a sidewalk or median, must be provided between buildings and parking lots. The landscaping of existing lots must be upgraded as necessary to meet these guidelines.
21. Parking lots must be as unobtrusive as possible while providing safe and convenient parking for their users.
22. Parking Stall Orientation:

a. 90 degree parking is generally preferred due to its efficiency

b. 60 degree parking is preferred for maneuverability

23. Group 1 - Parking

a. As many parking spaces as possible must be provided in the Cadet Area by enclosed parking under any new construction in that area.

b. Locate adequate parking for faculty and staff adjacent to buildings.

c. Lots for cadet parking are to be considered long-term and are the most remote as restrictions have been placed on cadet automobile use.

24. Group 2 - Parking

a. Service and Supply Area

i. Provide short-term automobile (including private vans and small trucks) parking for administrative, recreational and retail uses.

ii. Provide secure parking areas for transport vehicles such as buses, service vehicles, and equipment within the central portion of the site (within the main loop road). Allocate space within these parking areas for circulation of delivery and service vehicles and access to loading docks, delivery and maintenance bays fronting onto these lots.

b. Airfield - Adequate vehicular parking is designated near the appropriate facilities on both sides of the airfield. Parking is not differentiated by type of use or condition.

25. Group 4 - Parking

a. The Family Housing Areas have been privatized. All proposed changes must be coordinated with the 10 CES Project Manager and 10 CES Housing Manager.

C03.1.1. Paving and Striping

○ 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 Image Tool 250 x 188

Parking Lot Striping

Fire Lane Striping

Bicycle Lanes

Crosswalk Striping

Facility Group 1 paving materials shall be as follows.

Primary:	Concrete - Near Buildings, High Quality, Lt Grey
Secondary:	Asphalt - General, High Quality, Dark Grey
Accent:	N/A

Facility Group 2 paving materials shall be as follows.

Primary:	Concrete - Near Buildings, High Quality, Lt Grey
Secondary:	Asphalt - General, High Quality, Dark Grey
Accent:	N/A

Facility Group 3 paving materials shall be as follows.

Primary:	Concrete - Near Buildings, High Quality, Lt Grey
Secondary:	Asphalt - General, High Quality, Dark Grey
Accent:	N/A

Facility Group 4 paving materials shall be as follows.

Primary:	Coordinated with the 10 CES
Secondary:	N/A
Accent:	N/A

1. All new parking lots near buildings to be concrete paving. General parking to be asphaltic concrete paving.
2. Porous paving may be considered on a case basis.
3. Cost-effectively provide light-colored concrete to reduce heat island effect; otherwise install asphaltic concrete paving. Dirt, gravel, and grass lots are not allowed.
4. Use consistent striping, angles and stall sizes in all parking areas.
5. All parking shall be marked with white stripes of paint or applied vinyl coatings. Red or yellow markings shall only be used for safety purposes and must be kept to a minimum. All lines shall be four inches (4") wide.
6. All road markings must be painted striping.
7. Fire lanes must be designated with diagonal striping on the pavement.
8. Distinguish bicycle lanes incorporated into roads or paved pathways with painted striping or signing.
9. The standard for defining crosswalks is repetitive white striping approximately 10 feet by 1.5 feet placed parallel to the curb. In areas close to buildings, the crosswalks should follow the governing grid at 7-feet wide striping. Crosswalks are to be painted with non-reflective material.
10. Delineate parking stalls with white painted striping or with pavers in permeable/pourous paving (paver color to be white or a contrasting color)
11. Provide concrete pads for motorcycles.

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

Concrete Curb on 7' Grid

USAFA Rolled Curb

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

Primary: PC Concrete - Lt Gray, Joints on 7' Grid

Secondary: N/A

Accent: N/A

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

Primary: PC Concrete - Lt Gray, Joints on 7' Grid

Secondary: N/A

Accent: N/A

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

Primary: PC Concrete - Lt Gray, Joints on 7' Grid

Secondary: N/A

Accent: N/A

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

Primary: Coordinated with the 10 CES

Secondary: N/A

Accent: N/A

1. Define all parking lots with either raised profile or at-grade curbing to promote drainage and protect paving edges. All raised curbs shall be the rolled (mountable) type. Reference Section B02.3.2 for curb types.
2. Integrate curbing to direct stormwater to bioswales and rain gardens as source water for regionally appropriate native vegetation.
3. Generally all parking lots at the Academy must have curbs. Roll curbing is preferred for drainage problem areas and is to be used in every parking lot.
4. The use of wheel stops is prohibited in parking lot interior. Plastic wheel stops are prohibited entirely.
5. Do not paint curbs, except for curb signs. See section C08.1 for additional information.
6. Curbing will be replaced in sections, as defined by expansion or control joints, which in turn coordinate with the governing grid.
7. In Group 1, joints in curbing are spaced to match the Architectural Rigid Paving joint pattern.

C03.1.3. Internal Islands and Medians

◯ 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

Landscape Island with Force Protection


Lighting in Medians/Landscaped Islands

1. Install landscape islands and medians as visual breaks, to reduce heat island effects and to accommodate bioswales and rain gardens with consideration for snow removal.
2. Coordinate suitable landscape or barriers integrated with walls and fences to ensure adequate force protection.
3. 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. Consider near term and future electric vehicle charging stations and renewable energy generation development during the analysis and design.
2. Structures may be constructed below grade with roofs serving as vegetated areas or plazas.
3. Provide below-grade parking structures or off-street parking where possible.
4. Enclosed, freestanding multi-story [above grade] parking garages are prohibited.

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 1 Image Tool 250 x 188

Public Transportation - Shelter

1. Refer to the Installation Development Plan (IDP) for locations of transit stops and pedestrian and cycling networks; provide appropriately sized sidewalks and bike paths to connect facilities and users to these networks.
2. Provide amenities such as rain and shade shelters, trees, and benches to encourage and facilitate use of public transportation.
3. Evaluate the IDP for the current and planned network of roads and optimally develop vehicular access to and from the site.

C04. STORMWATER MANAGEMENT

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

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

C04.1. Stormwater Requirements

◯ Applicable ◉ N/A Large graphics do not apply

◉ Applicable ◯ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 5 Image Tool 250 x 188

Drainage Swale

Bio-Swale

Drain Integrated in Marble Banding

Natural Drainage Patterns

Water Quality Facility

1. Design all stormwater systems including detention areas, channels, etc. as on-site amenities that are consistent with natural systems and drainage patterns, that help sustain the base landscape with beneficial functionality and that provide aesthetic appeal; coordinate with the base Stormwater Management Plan.
2. Incorporate bioswales into the design of all roadway, parking and facility roof systems to enhance water quality and support the overall stormwater system.
3. Permeable paving may be used on a case by case basis as approved by the 10CES.
4. Provide rainwater harvesting and storage that is attached to the building's roof drain systems to support grey water irrigation; consider freeze protection for winter months.
5. When underground drainage systems are approved by the 10CES 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.
6. Cost-effectively integrate stormwater systems with AT/FP measures.
7. Areas or buildings at USAFA that may experience flooding resulting in damage as a result of a larger storm event shall have storm drainage systems evaluated and designed to accommodate runoff for the 100-year storm event.
8. The El Paso County/City of Colorado Springs Drainage Criteria Manual (DCM) shall be used to determine the local rainfall density at USAFA for storm drainage calculations.
9. Detention facilities shall be designed to detain flow rates to the pre-development flow rates for the 5, 10, 25, 50, and 100-year storm events.
10. Stormwater retention is not permitted.
11. Any project that requires tying additional stormwater drainage flow into an existing stormwater drainage system shall require an analysis to verify the capacity of the existing system with the additional flow requirement per the El Paso County/City of Colorado Springs Drainage Criteria Manual (DCM).
12. Incorporate an Erosion Control Plan into each design drawing set which uses approved best management practices (BMP's) from Volume 2 of the El Paso County/City of Colorado Springs Drainage Criteria Manual (DCM).
13. Connect all curbs and gutters to the storm drainage system.
14. Storm water detention is to employ natural swales except when located in formal landscaping.
15. Prevent erosion downstream.
16. Elements for erosion control, such as catch basins and concrete swales, must be similar in material and form to those existing in Group 1. Do not allow water to drain across asphalt paving.
17. Provide positive drainage away from all buildings.
18. 2% minimum pitch on all unpaved areas and swales.
19. Planting areas must slope 6" in first 10 feet from structure.

20. Existing, natural drainage patterns shall be preserved to the greatest extent possible.
21. Tie new drainage structures into existing drain systems whenever possible.
22. New drainage, detention and water quality facilities shall use planting, native rock, undulating horizontal alignment and variable slope of the channel flow line to simulate natural drainage.
23. Provide water quality facilities to intercept storm runoff prior to entering native areas.
24. Direct drainage to provide added moisture to native plants, when possible.
25. Drains located as follows:
    a. For paving field, center the drain in the field
    b. For arcades, drains are integrated into the marble strips at least 1 foot, 9 inches from building columns
26. Material Table:

Elements	Material	Finish	Color
Drainage Swales in Formal Landscaping	PC Concrete	To Match Finish Of Curbs	Light Gray

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 6 Image Tool 250 x 188


Sidewalk along Roadway


Asphalt Trail


Indigenous Granite

Walk in Parking Area - Direct Path

Bicycle Lane

Community Center - Covered Pathway

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

Primary:	Architectural Rigid Paving to Match Existing
Secondary:	Asphalt & Indigenous Granite
Accent:	Marble Bands - 1'-9" Wide, Centered On 7' Grid

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

Primary:	Asphalt - High Quality, Dark Gray
Secondary:	Indigenous Granite – Decomposed, Red/Orange
Accent:	N/A

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

Primary:	Asphalt - High Quality, Dark Gray
Secondary:	Indigenous Granite – Decomposed, Red/Orange
Accent:	N/A

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

Primary:	Coordinated with the 10 CES
Secondary:	N/A
Accent:	N/A

1. Maintain efficient geometry and accessibility to connect building entrances to adjacent parking areas and activity areas and to the base transportation system following AT/FP. Efficiently use materials to optimize life-cycle costs and to minimize maintenance.
2. Generally conform horizontal layouts of sidewalks to the geometric configuration of adjacent buildings, streets, parking lots, and other adjacent related site amenities. Occasional meanders and/or jogs may be included to capture views, to coordinate with landscaping or accommodate site constraints.
3. Walks in parking areas shall provide a direct path using "safe islands" and "peninsulas" to encourage safety. Walks parallel to streets shall follow streetscape guidelines. Clearly mark pedestrian crossings at vehicular routes.
4. Mitigate heat island by providing high-albedo, shaded sidewalks.
5. Only experienced contractors will install pervious pavements. See section C04.1 for additional information.
6. Consider an integrated approach that could include stormwater management (permeable surfaces) and complement the design of the storm drainage system when appropriate.
7. Pedestrian paths should be at least 5' in width to allow for comfortable side-by-side walking.
8. Sidewalks leading to a building main entrance and at the interior of parking lots shall be a minimum width of 6'. Walks greater than 10' wide may be used at high-density pedestrian areas where volumes of traffic justify added material.
9. Where cars park adjacent and head-in to the sidewalk and wheel stops are not used, such perimeter walks shall be increased to a minimum width of 8' to accommodate overhangs of the parked vehicles.

10. All sidewalks shall have positive drainage to prevent ponding of water or ice accumulation with slopes ranging from 2% to 4%. Walks with a slope greater than 4% shall be designed as ramps following accessibility guidelines. All walks shall have a minimum cross slope of 2%.
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. Provide a hierarchical network of pathways with each path designed for the volume of traffic, destination and nature of experience.
14. Minimize grades, site pathways and trails parallel to contours whenever possible.
15. Use ramps to provide access for the disabled.
16. Walks must be set back 5 feet from the curb and set back from the road.
17. Walks along major roads must be 7 feet wide on at least one side of the road.
18. Walks along minor roads must be at least 3 feet, 6 inches.
19. Sidewalks along parking lots are to be at least 7-feet wide to allow for bumper overhang.
20. Bicycle lanes restricted to one-way traffic flow.
21. Off-road bicycle lanes must be 6 feet wide with an additional two foot buffer next to the road.
22. The outside edge of the bicycle lane must either be curbed or contain an extended shoulder area.
23. Use pavement markings and associated signing to create bike paths along existing roadways.
24. Remotely located paths and fitness trails must be asphalted.
25. Walks and plazas:
    a. Minimum slope 1%.
    b. Maximum slope 4%.
26. 1% minimum pitch on paved areas.
27. Group 1 - Circulation
    a. Cadet pathways are formed by the functional organization of the Cadet Area.
    b. Pedestrian circulation on the Terrazzo occurs around the perimeter of the central lawn.
        i. Must accommodate squadron formations and movement,
        ii. Must accommodate the normal movement of cadets during class changes and other times.
    c. Link the major exterior spaces to individual buildings of the Cadet Area with protected arcade and courtyard networks.
    d. Locate all new buildings within a reasonable walking distance of each other to reduce horizontal and vertical circulation. Major new buildings must be integrated with the pedestrian circulation systems established in the three terrace levels of the Cadet Area.
28. Group 2 - Circulation
    a. Community Center Area - The east and west halves of the site are linked by a pedestrian circulation system
        i. This is separate and distinct from the vehicular circulation system.
        ii. 14-foot wide covered pathway links the commons with groups of buildings of similar function.
        iii. This path coincides with the major interior circulation of the retail and Community Center buildings.
        iv. All main entries of buildings are oriented to this pathway.
        v. Secondary pathways accommodate pedestrian circulation within each functional area.
    b. Service and Supply Area - A pedestrian system is defined by a pathway away from the street edge and links the buildings within the administrative, recreational and retail zones.

c. Airfield - There is no pedestrian circulation system in the airfield sub-area because of limited pedestrian movement between buildings.

29. Group 4 - Circulation

    a. The Family Housing Areas have been privatized. All proposed changes must be coordinated with the 10 CES Project Manager and 10 CES Housing Manager.

C05.1.1. Ramps and Stairs

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

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 Small graphics do not apply

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 Small graphics do not apply

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

C06.1.1. Landscape Design Concept

○ Applicable ◉ N/A Large graphics do not apply

◉ Applicable ○ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 9 Image Tool 250 x 188


Type 1 - Formal Landscape


Type II - Informal Landscape


Type III - Native Landscape


Type IV - Special LS - Open Space


Type IV - Special LS - Cadet Area Overlook


Type IV - Special LS - Ackerman Overlook


Type IV - Special LS - Static Display Aircraft


Type IV - Special LS - Athletic Field


Type IV - Special LS - Courtyards and Plazas

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 formally 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.
14. New landscaping must maintain and reinforce existing concepts with compatible landscape treatments.
15. All landscaping must help to articulate outdoor spaces, reinforce circulation and pedestrian flow, and provide a direction or focus to major entrances.
16. Any landscaping must help to articulate outdoor spaces, reinforce circulation and pedestrian flow and provide a direction or focus to major entrances.
17. A complete landscape plan is required before any installation
18. Soil drainage has proved to be a severely limiting factor for plant growth in certain areas. This is largely a result of the underlying hardpan close to the surface in areas that were excavated during site construction. Carefully install plants to their proper depth. Include water absorbing polymers into the backfill mix for all trees and shrubs, and till polymers into areas to be seeded or sodded.
19. Existing slopes shall be preserved whenever possible.
20. Provide gentle transition from new grade to existing.
21. Maximum slope in unpaved areas shall be 3 to 1.
22. Other than formal areas, angled or long straight slopes are discouraged. Shape slopes to blend with natural terrain.
23. The four types of open space are differentiated according to their plantings, design and application throughout the Academy, as defined in general design principles.

    Type I: Formal Landscape

    Type II: Informal Transition Landscape

    Type III: Natural Landscape

    Type IV: Special Landscape

<u>Type I: Formal Landscape</u>

1. Formal Landscapes incorporate a variety of landscape elements and plantings in a structured way that establishes a strong relationship to adjacent buildings, roads, walkways, and ceremonial spaces. As such, they tend to reinforce the "man-made" side of the balance between the man-made and natural environment that is the underlying design principle for landscape design at the Academy.

2. Formal Landscapes:
    a. Establish and communicate a sense of place.
    b. Represent visual and functional extensions of building facades and spaces through repetition and rhythm.
    c. Extend building grid modules into the landscape.
3. Examples of Formal Landscapes include:
    a. Cadet Area.
    b. Community Center.
    c. Entry Gates.
    d. Service & Supply.
4. Use small trees in plazas and courtyards to provide enclosure or screening
5. Trees must be dense enough to provide a sense of spatial enclosure and tree canopies must be high enough to avoid disturbing the views
6. For formal plantings, use species that are appropriate for rows, not pine trees.

Type II: Informal Landscape

1. At the Academy, Informal Transition Landscapes consist of loosely structured landscape elements characterized by groupings of trees, shrubs and/ or native grasses. They serve as a counterpoint to Formal Landscapes and help to weave the character and identity of the man-made element into the natural element.
2. This type of Landscape includes transitions between:
    a. Buildings and roads or parking.
    b. Roads and natural areas.
    c. Between buildings.
    d. Between buildings and constructed open space or natural areas.
3. Informal Transition Landscapes also visually soften and screen parking, mechanical and industrial areas.
4. Examples of Informal Transition Landscapes include:
    a. Area north of Vandenberg Hall at the Cadet Area.
    b. Area southwest of Harmon Hall at the Cadet Area.
    c. Landscaping in the Medical Center Area.
5. In random patterns(not rows), plant medium sized trees near buildings, parade grounds and pathways to provide shade, minimize glare and deflect undesirable winds. Plant tree groupings that extend and develop the spatial rhythms of the buildings.
6. Scale landscaping to reflect the scale of the adjacent buildings.
7. Use Deciduous trees to provide shade in summer and solar gain in winter with consideration to solar exposure.
8. Evergreens must be used to control winds.
9. Use large trees near streets, parking lots and open spaces.
10. On primary roads, high canopy trees must be set back a minimum of 15 feet from the edge. On secondary roads, trees and shrubs must be placed back a minimum of 10 feet from the edge.
11. Berms must be at least 20 feet from toe-to-toe to provide adequate area for root growth from trees or large shrubs.
12. Use plant materials with dense surface coverage to control erosion from wind and water.
13. On planting islands in parking lots, include trees at the rate of at least 1 per 15 vehicles.
14. Maintain greenery along paving edges.
15. Along the Cadet Drive main Entry Boulevard provide grass with trees spaced to reinforce the primary east-west axis for shaded parking along the drive.

Type III: Native Landscape

1. The Native Landscape refers to the undeveloped or minimally developed areas of the Academy. It is this area that holds the "nature" side of the underlying design philosophy of balance between man and nature that is the key design principle at the Academy.
2. The Native Landscape describes the organic arrangement of native trees, plants and grasses present prior to human intrusion and construction of the Academy. It is the framework in which all new or modified landscape occur.
3. Native Landscapes existing within undeveloped areas should be disturbed as little as possible; and new landscapes should strive to recreate similar untouched Native Landscape conditions.
4. Development should be limited, to the greatest extent possible, to areas that are already developed. When it is necessary to build within the Native Landscape, care should be taken to minimize impact.
5. Examples of the Native Landscape include the undisturbed areas of the Academy, such as:
    a. Evergreen covered forested areas.
    b. Tree stands between Arnold Hall and the Athletic fields at the Cadet Area.
    c. High plains of the eastern portion of the Academy.
6. Use trees, landscape and planting to frame dramatic views.
7. Use native varieties & native wild-flowers to reflect natural patterns in landscaping.
8. Except where conflicting with approach and departure zones, trees must be planted along the slope from the highway to the eastern portion of the Airfield to mitigate views of the Airfield from Interstate 25.
9. Trees and shrubs must be replanted as needed for reforestation.
10. Except for a perimeter of planted trees, the large open spaces including areas fronting South Gate Boulevard in the Service and Supply Area, the areas along Edgerton Drive, Industrial Drive, Security Drive and Park Drive must remain in a natural state rather than cultivated as a green lawn.
11. Preserve this fragile area.
12. Minimize development within the Native Landscape.
13. Combine improvements within one space to the greatest extent possible: place utilities under roads; one trench shall serve several utilities.
14. Plant native shrubs and trees as needed.
15. Native grasses shall be seeded and irrigated until well established. Only native species are permitted.
16. Limit tree pruning to hazardous limb removal only.
17. Dead trees shall be left to enhance wildlife habitat, unless posing safety, forest health, or aesthetic concerns.
18. Irrigation, other than temporary irrigation to allow plants to become established, is not permitted.

Type IV: Special Landscapes

1. Open Spaces - are those areas that have undergone limited development, such as grading and forest clearing, in order to support their intended use. Special Landscape is used whenever uninterrupted space is needed for large gatherings of people or vehicles, or if an uninterrupted visual buffer is required for a particular building or element. They are similar in use to Informal Transition Landscapes but are characterized by large open areas with irrigated turf areas or native grasses.
    a. Examples of the Constructed Open Space include:
        i. Parking areas surrounding Falcon Stadium
        ii. Golf Course
2. Cadet Area Overlooks - The Cadet Area overlooks are located north of the Cadet Area, and serve as stopping points for visitors to view the Academy. The overlooks should serve to highlight the views to the Cadet Area and not become significant locations in their own right. Their impact on the Natural Landscape should be minimized to the greatest extent possible, while still providing clear indications that the area is meant as a stopping point.
    a. Provide plantings that strongly relate to the natural, undisturbed areas.

b. Provide shade and wind buffers, with plants, at seating and display areas.

c. Organize seating areas and memorial displays to ft. within the informal plantings.

d. Transition back to the Native Landscape as quickly as possible.

e. Soften the edges of the parking area within 3' tall shrub masses.

f. Indicate entry and exit points.

3. Ackerman Overlook - Located east of the Airfeld and accessed from Interstate 25. The overlook should serve to highlight the views to Falcon Stadium and the Airfeld, not become a significant location in its own right. Its impact on the Natural Landscape should be minimized to the greatest extent possible, while still providing clear indications the area is meant as a stopping point. As it is located within the interstate access easement, the Academy can only make recommendations as to the configuration and design of the overlook. Recommendations for the overlook should coordinate with the design intent of the rest of the Academy.

   a. Transition back to the Native Landscape at the edges of the overlook.

   b. Soften the edges of the parking area.

   c. Indicate entry and exit points.

4. Static Display Aircraft - Static Displays, such as the Thunderbird Overlook and the B-52 Monument are scattered throughout the Academy. The following Landscape Types are permitted at Static Displays:

   a. Formal Landscape - Design Principles

      i. Highlight and support viewing of the decommissioned aircraft and other displays.

   b. Informal Landscape - Design Principles

      i. Transition back to the 'Native landscape' at the edges of the site.

      ii. Soften the edges of parking areas.

      iii. Indicate entry and exit points.

5. Athletic Fields - Athletic Fields are specialized landscapes used for practice and competition that are similar in appearance to Constructed Open Space, but their design and maintenance are governed by strict athletic and durability standards. In order to adhere to the required standards, turf, soil and irrigation design require special attention.

   a. Groomed turf and landscape obstructions are not permitted.

   b. The unpaved area for cadet and long-term parking serving the Athletic Fields is to remain in native grasses.

6. Courtyards and Plazas - Landscaped areas enclosed on two or more sides by adjoining buildings or walls used primarily to admit light to the interior of buildings. Courtyards provide views from within the buildings to the seasonally changing outdoor rooms. Within the Cadet Area, courtyards also provide a physical and visual connection between the dormitories and the Terrazzo.

   a. Provide quiet places to read, meditate; sun bath; active spaces for volleyball, Frisbee, etc. and smaller group discussion areas.

   b. Formal courtyards outside the Cadet Area are paved in concrete, following the 7-foot module of the governing grid at the control joints.

Group 1

1. The Cadet Area - The heart of the Academy, which supports ceremonial and academic functions, as well as housing the Corps of Cadets. The historic design concept for the Cadet Area was to create a place that supports the cadets in the performance of their daily routine with the highest possible efficiency. Spaces are arranged to support the wide range of academic, ceremonial and informal activities of the cadets. The Terrazzo in particular is designed around size and movement requirements of cadets in formation. Uniting this arrangement of spaces is a 7 foot grid that overlays both the interior and exterior spaces of the Cadet Area. As in all areas of the Academy, nature coexists in balance with man. The natural terrain and trees were allowed to penetrate the aligning grid of the Cadet Area, gradually becoming more organized until they transformed into the regular grid of trees at the Court of Honor.

   a. Landscaping at the Cadet Area should respect the particular function of its surroundings, as well as conform to the underlying seven foot grid.

b. Care should be taken to respect views both into and out of the entire Academy to reinforce the presence of nature in balance with man.

c. The Academy is listed on the National Register of Historic Places, thus the original design concepts for specific locations within the Cadet Area, such as the Court of Honor and the Air Garden must be preserved and restored.

d. The following Landscape Types are permitted at the Cadet Area:

i. Formal Landscape - Design Principles.

1. Emphasize Formal Landscape within the Cadet Area.
2. New designs in the Air Garden shall be according to the original Dan Kiley plan.
3. New designs at the Court of Honor shall be according to the original Dan Kiley plan.
4. New designs at the Terrazzo shall be according to the original Master Plan.
5. Ornamental trees in the Court of Honor shall be in raised planters
6. All formal planting, sod areas, and other landscape elements must relate to the established 7' grid system.
7. Turf shall be sod.
8. Choose species of trees for north and south slopes based on their relative tolerance to shade to help assure a uniform tree size throughout the area.
9. Highlight and frame views of the Chapel with trees from specific areas at the Court of Honor.
10. Force Protection - Landscape elements shall be used to maintain a minimum vehicle offset distance of 50 meters around the outer perimeter of the entire cadet area

ii. Informal Landscape - Design Principles

1. Transition back to Natural Landscape at outer edges of Cadet Area
2. Soften and screen views of parking areas
3. Provide buffer between Parade grounds and remainder of Cadet Area.
4. Screen parking areas, exposed utilities and other undesirable views.
5. Provide transitions from rigid grid of trees to Natural Landscape
6. Force Protection - Landscape elements shall be used to maintain a minimum vehicle offset distance of 50 meters.

iii. Natural Landscape - Design Principles

1. Preserve and enhance the existing Natural Landscape which surrounds the entire Cadet Area.

iv. Special Landscape - Design Principles

1. The Parade Grounds constitute Special Landscape in the Cadet Area. This area should be left open to provide maximum flexibility for military formations.

2. Athletic Fields

a. Design Principles - In accordance with NCAA standards.

i. All work related to the football field must be coordinated with the USAF Academy staff including Athletic Director, Football Coach, and Grounds Maintenance personnel.

ii. Provide turf design appropriate to game. Include factors such as:

iii. Time of year when fields are used.

iv. High use areas within field of play.

v. Field Orientation shall be per NCAA standards.

b. Preserve views to:

i. The surrounding Native Landscape.

ii. The remainder of the Cadet Area.

c. Slope - In accordance with NCAA standards.

i. Practice areas: minimum 2%, maximum 4%; crowned or sloped.

d. Drainage - Develop soil mix that allows percolation to 12 inches.

e. Irrigation - Provide modern systems as appropriate for athletic field.

3. Courtyards and Plazas

a. Design Principles - Take advantage of these sheltered spaces:

i. Expand plant palette.

ii. Provide for seasonal change.

iii. Balance open space with smaller, more intimate spaces according to courtyard function.

iv. Allow for smaller places to sit during cold weather when sun is available.

v. Allow for a mix of uses among several courtyards including small gathering for quiet discussions; individual quiet spaces; active spaces; paved and planted spaces.

vi. Allow for maintenance vehicular access.

vii. Be aware that most courtyards are viewed from above

b. Emphasize views into the courtyard.

c. Do not block light penetration into buildings

d. Mounding within the courtyard is permitted.

e. Incorporate drainage into design features where possible

4. Cemetery - Landscaping at the cemetery should reinforce the area's purpose as a memorial space and a place to reflect quietly in the surroundings of nature. The cemetery should display a mix of smaller formal and informal landscape.

a. The following Landscape Types are permitted at the Cemetery:

i. Formal Landscape - Design Principles

1. Formal Landscaping should be used to reflect a sense of organization and ceremony at the cemetery specific areas include the main entry to the cemetery, at memorial displays and at the cemetery directory.

2. Reinforce the manicured lawn, since it provides the strongest landscape element in identifying the Cemetery as its own place.

3. Define the entry to the cemetery.

4. Highlight memorial displays.

5. Highlight cemetery directory.

ii. Informal Landscape - Design Principles

1. Provide informal, smaller spaces, within the larger cemetery, to relate to individual grave sites and memorials.

2. Transition back to the Natural Landscape at the edges of the Cemetery

3. Soften parking areas.

iii. Natural Landscape - Design Principles

1. Reinforce the overall concept of man and nature in equal coexistence.

iv. Special Landscape - Design Principles

1. The entire Cemetery is a constructed open space containing formal and informal landscape.

2. Turf shall be sod.

3. Maintain views around cemetery perimeter.

Group 2

1. Service and Supply Area - The Service and Supply Area is a semi-public area providing administrative and technical support as well as warehousing for the entire Academy. The original intent for the area was to maintain as simple a treatment as possible emphasizing the administrative, business and technical nature of the activities. Also key in the planning was the need to screen the outdoor storage areas by locating office buildings, warehouses, and landscaping in an appropriate configuration.
    a. The following landscape types are permitted in the Service and Supply area:
        i. Formal Landscape - Design Principles
            1. Use to identify building entrances, road and parking perimeters.
            2. Provide lawn areas as a formal presentation of buildings.
            3. Provide with shrub beds at building foundation that meet AT/FP requirements.
            4. Provide formal rows of deciduous trees along entry roads, parking areas and walkways.
            5. Lawn areas are important, but should be of minimum size and in scale with surroundings.
        ii. Informal Landscape - Design Principles
            1. Use between buildings to screen industrial areas, and to visually connect buildings.
            2. Transition back to the Natural Landscape at the edges of the Service and Supply Area.
            3. Preserve and enhance native grass area between the buildings and South Gate Boulevard.
            4. Provide shaded areas for informal staff lunches, gatherings.
            5. Maintain partial screening of the overall complex from South Gate Boulevard.
            6. Maintain full screening of outdoor storage areas from public view.
        iii. Special Landscape - Design Principles
            1. Refers to lawn areas in building foreground. See Formal Lands
2. Community Center Area - Landscape design at the Community Center should support the underlying historic concept of the area acting as a Town Center for the Academy Community. Landscape elements should announce the arrival of residents to the town center and differentiate it from the surrounding Natural Landscape by reinforcing the more urban character of the Community Center. Landscape design should re-establish communal outdoor spaces within the Community Center, as well as emphasize pedestrian links between major buildings along a central east/west spine and at the southern edge of the site. A transition back to the Natural Landscape should remain at the southern edge of the site.
    a. The following Landscape Types are permitted in the Community Center:
        i. Formal Landscape - Design Principles
            1. Define both sides of Community Center Drive from the gym to the commissary.
            2. Highlight entry points into the Community Center.
            3. Designate and define outdoor gathering spaces.
            4. Highlight views to the chapel bell tower.
            5. Reinforce vehicular arrival sequence at parking lot entrances.
            6. Visually break up large areas of parking by adding grids of trees within the lots.
            7. Reinforce pedestrian arrival sequences from parking to building entrances.
            8. Reinforce all linear pedestrian circulation
            9. Provide wind screening elements along linear pedestrian connections.
            10. Preserve view down the length of the pedestrian connections
            11. Provide a deciduous tree canopy for shade along pedestrian connections.
        ii. Informal Landscape - Design Principles
            1. Transition from Formal Landscapes and buildings back to Natural Landscape.

2. Provide appropriate transition from developed community center to the natural mesa edge on the south.
3. Soften parking areas.
4. Limit size of lawn areas.
5. Screen views to parking areas, utilities, storage facilities, etc.
6. Highlight views to south, from ridge top.

iii. Natural Landscape - Design Principles

1. Reinforce the underlying design philosophy of the coexistence between man and nature in the environment.

iv. Special Landscape - Design Principles

1. The Parade Ground provides fat grass and paved areas for large public gatherings.
2. Seek opportunities to reintroduce a Town Common into the design of the Community Center.

3. Athletic Fields

a. Design Principles - Locate Athletic Fields adjacent to the dormitories and Prep School as appropriate.

4. Courtyards and Plazas

a. Design Principles

i. Highlight the pedestrian spine through the courtyard.

ii. Provide an overall space that is organized and perceived as one.

iii. Provide upper and lower level spaces with physical and visual ties between.

iv. Provide:

1. Warm weather shade
2. Ornamental trees for flower and fall color
3. Perennial beds for color.
4. Moveable tables and chairs.

5. Medical Center - Landscaping at the Medical Center and along Academy Drive should seek to support the overall design concept of man and nature in balance. Opportunities to reintroduce Natural Landscapes to balance the presence of developed areas should be pursued. Other than the Fire Station and the Communications building, facilities are set back from Academy Drive. This set back allows for an entry experience from Academy Drive. Both the treatment of the entry drive and the setback area must be considered

a. The following Landscape Types are permitted at the Medical Center and along Academy Drive:

i. Formal Landscape - Design Principle

1. Indicate entry and arrival points for vehicles and pedestrians where appropriate.
2. Reinforce pedestrian connections between buildings and/or parking areas.

ii. Informal Landscape - Design Principles

1. Transition from formal landscaping and buildings back to the Natural Landscape.
2. Screen and/or visually soften parking areas and utilities.
3. Provide summer shade along walks, steps, drop-off, and parking areas with deciduous trees.
4. Limit size of lawn areas, to conserve water.
5. Provide ornamental trees for height variation, character and seasonal color wherever appropriate.
6. Terrace parking areas on sloping sites where parking is required to better relate to existing grade.
7. Pedestrian circulation may require steps in some areas. (ADA access is required at all facilities) walkways and steps must blend with the natural grade where possible. Provide shade along walks and steps.

iii. Natural Landscape

1. Reinforce the underlying design philosophy of balance between man and nature in the environment.

6. Golf Course - Landscaping at the Golf Course will be primarily governed by the requirements of the game. As a whole, however, the Golf Course must be treated similarly to other developed areas at the Academy, with emphasis on preserving the Natural Landscape

    a. The following Landscape Types are permitted at the Golf Course:

        i. Formal Landscape - Design Principles:

            1. Limit to elements at the entry to the Golf Course and to indicate the entrance to the Clubhouse.

        ii. Informal Landscape - Design Principles

            1. Enhance natural character of the site by bringing Informal Transition Landscape into Golf Course boundaries.
            2. Transition back to the Natural Landscape at the edges of the fairways and course perimeter.
            3. Soften parking areas with planting.
            4. Any revisions to the course layout/grading, soil make-up and/or irrigation must be approved by a professional golf course architect.
            5. Maintain existing golf corridor.
            6. Transition from fairway grasses to native, from open fairways to forest.
            7. New trees must complement existing.
            8. Transition new native grasses into existing forest vegetation.
            9. Provide small clusters of ornamental trees outside the play boundaries.
            10. Solar orientation is critical for first and last two holes of each 9 hole segment.
            11. Screen distant views of new development outside the Academy Campus.
            12. Each golf hole should work with the natural slope.
            13. Slope areas to restrict movement of fertilizer chemicals into native vegetation.
            14. Any substantial grading must be constructed under the guidance of a professional golf course designer.
            15. Drainage must be coordinated and work with existing natural drainage patterns.
            16. Restrict irrigation runoff from fairways into Natural Landscape.

        iii. Natural Landscape - Design Principles

            1. Enhance character of the site by protecting Natural Landscape within the Golf Course boundaries

<u>Group 3</u>

1. Airfield - The original intent for the area was to maintain the short grass concept which allows for air field functions and visibility. This is appropriate for the technical nature of the Airfield. Landscape along the east side of the airfield, must be a mix of evergreen and deciduous trees, all acting as a buffer from I-25.

    a. Landscape Types permitted at the Airfield include:

        i. Formal Landscape - Design Principles

            1. Use within building clusters to highlight building entrances.

        ii. Informal Landscape - Design Principles

            1. Provide buffers between I-25 and the Airfield.
            2. Maintain high plains character with short native grasses.
            3. Tree heights near Airfield buildings should not exceed height of buildings.
            4. Comply with USAFA Plan 91-212 Bird Aircraft Strike Hazard plan to minimize bird strikes on Aircraft.

        iii. Natural Landscape - Design Principles

            1. Maintain high plains character with short native grasses.

2. Trees are only allowed on extreme edges of Airfeld site.
3. Highlight and frame views from Interstate 25 and Ackerman overlook.
4. Protect existing distant views.
5. Maintain existing fat slopes.
6. Comply with USAFA Plan 91-212 Bird Aircraft Strike Hazard plan to minimize bird strikes on Aircraft.

iv. Special Landscape - Design Principles

1. Use where safety standards forbid the type of plantings used in Informal Transition Landscapes.
2. Comply with USAFA Plan 91-212 Bird Aircraft Strike Hazard plan to minimize bird strikes on Aircraft.

Group 4

1. Housing Areas - The Housing Area is now privatized. All discussions regarding this area must be coordinated with the 10 CES Project Manager and 10 CES Housing Manager.

C06.1.2. Xeriscape Design Principles

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

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.
3. Xeriscape defines the principles of water-conserving landscaping and challenges the designers to create landscapes using regional plants to minimize supplemental irrigation. Native vegetation capitalizes on its natural compatibility with the existing conditions of the region. Adjustments to regional data should be made in deference to the microclimate in the shadow of the mountain; for greatest effectiveness, adjust plant selections to align with highly localized weather data (See the Academy weather records).
4. Plant trees, shrubs, and ground covers that:
   a. Perform well in clay/sand soil.
   b. Require minimal supplemental irrigation.
   c. Can cope with extreme fluctuations in temperature and strong dry winds.
5. Apply xeriscape concept except where impractical due to formal landscape requirements.

C06.1.3. Minimizing Water Requirements

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

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

C06.1.4. Plant Material Selection

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

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 following plant lists:
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.
8. Preserve existing trees, where possible.
9. Supplement existing trees in Informal Transition Landscapes.
10. Non-native trees, shrubs, forbs and grasses that can invade the Native Landscape are prohibited.
11. All trees must be planted with a tree spade or must be balled and wrapped in burlap or other approved wrapping. Burlap, tree basket, or other wrapping material must be removed from at least the upper 2/3 of the root ball upon planting.
12. Deciduous tree trunks shall be wrapped for the first three winters.
13. Tree pits shall be a minimum of three times the diameter of root ball and excavated to the bottom of the root ball.
14. All shrubs shall be container grown, unless specified otherwise.
15. Bare roots are permitted only with approval of Contracting Officer.
16. Shrubs shall be planted in beds only with the entire bed loosened and supplemented with planting mix.
17. Tree grates are discouraged due to compacted soil beyond the limits of the grate.
18. Evergreens are discouraged in Formal Landscape areas except as noted in the Area Specific Standards.
19. Trees planted within lawn areas shall be species that are compatible with lawn watering requirements.
20. Provide ornamental trees for height variation, character, and spring/fall color.
21. Select plants and ground cover as appropriate for solar exposure.
22. No damage to tree trunk or main branches is acceptable on planting stock.
23. No co-dominant stems are acceptable.
24. Deciduous Trees in Formal Landscape Areas:
    a. Minimum 2" caliper.
25. Groups of trees shall have matching tree form including: caliper, height, width, and density of branching.
26. Trees must be full form with equal branching on all sides.
27. Provide an immediate 8' high canopy.
28. Deciduous Trees in Non-Formal Landscape areas:
    a. Plant in clusters to simulate natural growth. Rows are not permitted.

b. Minimum 1 ½" caliper.

c. Trees must be full form with equal branching on all sides.

29. Evergreen Trees:
    a. Provide a mix of heights.
        i. 35% 12' minimum height.
        ii. 35% 10' minimum height.
        iii. 30% 8' minimum height.
    b. Full branching, with branching to ground.
    c. Single stem unless specified otherwise.
30. Ornamental Trees:
    a. Minimum 2" caliper.
    b. Minimum 5' canopy height.
    c. Both single and multi-stem are permitted.
    d. Trees must be full form.
31. Shrubs
    a. Minimum 5 gallon size.
    b. Minimum 2 feet on center, maximum 5 feet on center depending on type. Typical is 30 to 36 inches on center.
    c. Shrubs must be full form.
    d. Clustered shrubs must match in size, branching density.
    e. Minimum of three stems or leaders from each container.
32. Turf shall be native seed unless noted otherwise in the Area Specific Standards.
33. Turf sod and seed mixes shall comply with USAF Academy Overarching Environmental
34. Specifications and the Site Restoration, Re-vegetation, and Tree Care Specifications.
35. Turf shall be low water, durable species sod.
36. Top layer bedding material:
    a. Shall be white quartz in Cadet Area and other locations as directed by Academy staff.
    b. Shredded wood mulch shall be used in all other areas.
    c. Shall comprise no more than 40% of any planting area.
37. Planting List:
    a. Plants at the Academy shall be native species as designated by two sources. The list of native species below is from the Colorado Native Plant Society. Additional approved native species can be found in Vegetation of the United States Air Force Academy and the Adjacent Regions of the Pike National Forest, El Paso County, Colorado (1994) by J. Douglas Ripley. All landscape projects at the Academy shall include a list of plant species that shall be reviewed by Civil Engineering. Any nonnative species in the design shall be identified as such on this list. Nonnative species shall only be used with the specific written approval of Civil Engineering.

Trees & Large Shrubs

Common Name	Latin Name	Variety
Mahogany	Cercocarpus montanus	Mountain mahogany
Juniper	Juniperus scopulorum Sabina	Rocky Mountain juniper
Maple	Acer glabrum	Rocky Mountain maple

Serviceberry	Amelanchier alnifolia	
Silver buffaloberry	Shepherdia argentea	
Sumac	Rhus glabra	Smooth sumac
Alder	Alnus incana ssp. Tenuifolia	Thin leaf alder
Wild plum	Prunus americana	
Cottonwood	Populus x. acuminate	Lance leaf cottonwood
Cottonwood	Populus angustifolia	Narrow leaf cottonwood
Cottonwood	Populus deltoides ssp. Monilifera	Plains cottonwood
Pine	Pinus ponderosa ssp. Scopulorum	Ponderosa pine
Boxelder	Acer negundo aceroides	
Chokecherry	Prunus padus virginiana melanocarpa	
Hackberry	Celtis reticulata	
Hawthorn	Crataegus erythropoda	
Mountain-ash	Sorbus scopulina	

Shrubs

Common Name	Latin Name	Variety
Antelope bitterbush	Purshia tridentata	
Raspberry	Rubus oreobatus deliciosus	Boulder raspberry
Buckbrush	Ceanothus fendleri	
Juniper	Juniperus communis alpina	Common juniper
False indigo	Amorpha fruticosa	
Four-winged saltbush	Atriplex canescens	
Currant	Ribes aureum	Golden currant
Kinnikinnick	Arctostaphylos uva-ursi	
Mountain ninebark	Physocarpus monogynus	
Yucca	Yucca glauca	Narrow-leaf / Plains yucca
Oregon grape, Holly grape	Mahonia repens	
Rabbitbrush	Chrysothamnus nauseosus	
Rabbitbrush	Chrysothamnus nauseosus nauseosus	Dwarf blue rabbit brush
Rabbitbrush	Chrysothamnus nauseosus Graveolens	Tall green rabbit brush
Elder	Sambucus microbotrys racemosa	Red-berried elder
Dogwood	Cornus stolonifera Swida sericea	Red osier dogwood
Sand cherry	Prunus cerasus pumila besseyi	
Potentilla	Potentilla fruticosa foribunda	Shrubby potentilla
Snowberry	Symphoricarpos albus	
Three-leaved sumac	Rubacer parviforus	
Skunkbrush	Rhus aromatica trilobata	
Honeysuckle	Lonicera distegia involucrate	Twinberry honeysuckle

Waxfower	Jamesia americana
Wild Rose	Rosa woodsii
Winterfat	Ceratoides krascheninnikovai lanata

Forbes (Flowering Plants) / Ground Cover

Common Name	Latin Name	Variety
Daisy	Erigeron speciosus	Aspen daisy / Showy daisy
Black-eyed Susan	Rudbeckia hirta	
Blanket flower	Gaillardia aristata	
Flax	Linum lewisii Adenolinum	Blue fax
Verbena	Verbena hastata	Blue verbena
Verbena	Verbena Glandularia bipinnatifda	Wild verbena
Broom snakeweed	Gutierrezia sarothrae	
Sunflower	Helianthus pumilus	Bush sunflower
Columbine	Aquilegia caerulea	Colorado columbine
Sage	Artemisia frigida	Fringed sage
Golden banner	Thermopsis divaricarpa	
Goldenrod	Solidago spp.	
Penstemon	Penstemon virens	Green Leaf / Blue Mist
Penstemon	Penstemon secundiforus	One-sided
Penstemon	Penstemon strictus	Rocky Mountain
Penstemon	Penstemon virgatus	Tall beard-tongue
Penstemon	Penstemon whippleanus	Whipple's
Harebell	Campanula rotundifolia	Bluebells
Lupine	Lupinus argenteus	Silvery lupine
Larkspur	Delphinium nelsonii	Nelson's larkspur
Clover	Dalea purpurea	Prairie clover
Coneflower	Ratibida columnifera	Prairie coneflower
Sage	Artemisia ludoviciana	Prairie sage / Sagewort
Prickly pear cactus	Opuntia macrorhiza compressa	
Prickly pear cactus	Opuntia polyacantha	
Pussytoes	Antennaria parvifolia	
Rocky Mountain beeplant	Cleome serrulata	
Wild iris	Iris missouriensis	Rocky Mountain wild iris
Globe mallow	Sphaeralcea coccinea	Scarlet globe mallow
Showy milkweed	Asclepias speciosa	
Spiderwort	Tradescantia occidentalis	
Spiny goldenweed	Machaeranthera pinnatifda	
Gayfeather	Liatris punctata	Spotted / Dotted gayfeather

Sulphur flower	Eriogonum umbellatum	
Milkweed	Asclepias incarnata	Swamp milkweed
Western wallflower	Erysimum asperum	
Primrose	Oenothera caespitosa	White evening primrose
Yarrow	Achillea lanulosa	White / Woolly yarrow
Horsemint or Beebalm	Monarda fstulosa	
Wild geranium	Geranium caespitosum	Pineywoods geranium
Evening primrose	Oenothera howardii brachycarpa	Yellow stemless

Grasses

Common Name	Latin Name	Variety
Alkali	sacaton Sporobolus airoides	
Fescue	Festuca arizonica	Arizona fescue
Bluestem	Andropogon gerardii	Big bluestem
Bluestem	Schizachyrium scoparium	Little bluestem
Grama	Chondrosum gracile Bouteloua gracilis	Blue grama
Grama	Bouteloua curtipendula	Side-oats grama
Rye	Elymus glaucus	Blue wild rye
Wheatgrass	Pseudoroegneria Agropyron spicatum	Bluebunch wheatgrass
Buffalograss	Buchloe dactyloides	
Indian grass	Sorghastrum avenaceum nutan	
Ricegrass	Achnatherum Orzyopsi hymenoides	Indian ricegrass
Junegrass	Koeleria macrantha	
Mountain muhly	Muhlenbergia montana	
Needle-and-thread	Hesperostipa Stipa comata	
Feathergrass	Hesperostipa Stipa neomexicana	New Mexico feathergrass
Cordgrass	Spartina pectinata	Prairie cordgrass
Dropseed	Sporobolus heterolepis	Prairie dropseed
Sandreed	Calamovilfa longifolia	Prairie sandreed
Dropseed	Sporobolus cryptandrus	Sand dropseed
Switchgrass	Panicum virgatum	
Tufted hairgrass	Deschampsia cespitosa	
Wheatgrass	Pascopyrum Agropyron smithii	Western wheatgrass

C06.1.5. Water Budgeting (Hydrozones)

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

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

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

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

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

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

6. The landscape areas shall be divided into irrigation hydrozones. The hydrozones shall take into account like water demand plants, slopes, microclimates, soil types, amount of sunlight/shade, other environmental factors, and water pressure. Turf and shrub zones shall always be zoned separately.

C06.1.6. Base Entrance 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 Image Tool 250 x 188


Integrated Base Sign, Street and Lighting


Formal Landscaping


Transition from Formal to Natural Landscape

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.

4. Historically, the Entry Gates are meant to signify arrival at the Academy. Landscape design should reinforce a sense of arrival appropriate to a National Historic Landmark while still preserving the underlying design philosophy of the balance between man and nature. When landscaping the Entry Gates, designers should also give primary importance to Anti-Terrorism and Force Protection requirements.

    a. The following Landscape Types are permitted at the Entry Gates:

        i. Formal Landscape - Design Principles.

            1. Use landscape elements to reinforce sense of arrival.

            2. Identify and highlight Guard House locations, providing visual cues to slow vehicular traffic.

            3. Define road edge with crisp shoulders, curbs, etc.

4. Application of Force Protection principles at the Gates is critical. Security personnel shall approve all landscape design.
5. Turf shall be sod.
6. Maintain security view corridors.

ii. Informal Landscape - Design Principles

1. Define road edge with crisp shoulder, mow strip, etc. to define limit of landscape planting.
2. Transition formal Landscape back to Natural Landscape.
3. Application of Force Protection principles at the Gates is critical. Security personnel shall approve all landscape design.

iii. Special Landscape - Design Principles

1. Special Open Space is used within the medians and on the edges of the roads where sight line requirements prohibit other types of landscape.
2. Application of Force Protection principles at the Gates is critical. Security personnel shall approve all landscape design.

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 5 Image Tool 250 x 188


Roadway Through Native Landscape


Connect Existing Tree Stands Across Medians


Transition to Natural Landscape at Road Edge


Formal Landscape - Falcon Stadium


Protect Views from I-25

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.

3. The Road System at the Academy forms a broad loop from the North Gate to the South Gate. Stadium Boulevard provides a north-south connection on the lower elevation, and it handles traffic surges that occur during graduation, football games and other ceremonies.
4. Interstate 25 is within an access easement along the east side of the Academy. It is not specifically under the control of the Academy, however Interstate 25 should be considered as part of the road system as a whole. For a good portion of the interstate that is on Academy grounds, lanes are separated by several hundred feet creating an arrangement similar to a parkway.
5. New landscaping along the Road System should follow the original historic intent of the Academy to the greatest extent possible. New roads should minimize cut and fill slopes and closely follow the existing terrain.
    a. Limit Formal Landscaping to:
        i. Where the road abuts other Formal Landscape areas.
        ii. Pedestrian crossings.
        iii. Highlight special areas along the road, particularly Falcon Stadium and the Community Center.
    b. Supplement existing vegetation.
    c. Use at road edges to transition back to Native Landscapes.
    d. Protect key views from Interstate 25 to:
        i. The Cadet Area
        ii. Falcon Stadium
        iii. Protect and provide views to the eastern plains and western mountains
    e. Extend existing tree groupings to the edges of the road.
    f. Connect existing tree stands across road with tree plantings in the median.
    g. Consider de-icing materials and wildlife crossing hazards
6. Tree setbacks:
    a. Roads: 8' from edge of shoulder to tree trunk.
    b. Walks: 4' from edge.
7. Minimize evergreen tree planting on south side of road areas to prevent winter shadows from causing ice buildup.
8. Planting layouts shall allow proper view corridors for traffic and pedestrian safety.
9. Road side slopes shall echo natural terrain to the greatest extent possible.
10. Crown all medians.
11. Establish shoulders, swales and/or curbs along roads to intercept snow melt chemical runoff prior to reaching planted areas.

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 1 Image Tool 250 x 188

Defined Walkway with Landscaping

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 1 Image Tool 250 x 188

Parking Lot Landscaping

1. Integrate appropriate landscaping elements into parking areas to visually soften the appearance.
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 5 Image Tool 250 x 188


Complimentary Landscape at Monuments

Landscaping at Freestanding Signs


Utility Landscape Screen


Landscape Berm as Screen


Parking Lot Screen

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. Provide screening, highlighting and directing of views both looking out from and into the site.
6. Screen views of parking areas and utilities.
7. Preserve and create views to natural areas and prominent architectural elements.
8. Plant trees to screen wind effects if needed.
9. Select plant materials that are appropriate for strong winds and temperature fluctuations.

C06.1.11. Other

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

1. Fire Protection:

   a. Fire protection at the Academy is largely a function of adequate maintenance of the surrounding landscape and overall planning of fire breaks. The nature of the landscape design philosophy emphasizes placement of buildings adjacent to natural settings. This concept presents a challenge for fire protection; however the landscape design should minimize elements that will make this situation worse. Designers shall:

   b. Provide adequate access and clearances for fire suppression vehicles and equipment.

   c. Establish zoned landscape concepts with well minimum fuel volume in the first 30 feet from structures. This initial zone shall be well irrigated.

   d. Minimize fuel volume in planting close to buildings.

   e. Minimize plant species and groupings that can serve as ladder fuels to spread fires from grass to trees.

   f. Position design elements such as driveways as fuel breaks between structures and flammable landscape elements wherever possible.

2. Irrigation:

   a. Irrigation systems shall conform to current plumbing codes, these irrigation standards and all other provisions requirements of the USAF Academy and the USAF Landscape Guidelines.

   b. Irrigate trees, shrub, and native grass areas for three years or until established.

   c. Verify irrigation source, quantity, pressure.

   d. All controllers, valves, piping, heads, etc. must be per Academy technical standards, unless otherwise directed.

   e. All rotor and spray heads must be low trajectory in high wind areas.

   f. Drip/bubbler system must be used for all areas with trees and shrubs, except those in lawn areas.

   g. Over spraying onto paved areas is not permitted.

   h. Irrigation zones shall be laid out parallel to the contours of sloped ground.

   i. Provide separate irrigation zoning on north, south, east, and west exposures.

   j. The system shall be designed by a qualified irrigation system designer.

   k. The irrigation system design flow shall not exceed the flow available from the service line.

   l. The water flow velocity shall be between 5 and 7.5 FPS, and shall not exceed 7.5 FPS.

   m. Locate irrigation heads to provide head-to-head coverage. Verify through pressure loss calculations the remaining pressure of the system at the point farthest from the point of connection. Assure the last head has the required flow to be activated.

   n. The irrigation plan shall graphically and through notes depict a water efficient design consistent with the landscape and grading plans.

   o. All pipes shall be sized in accordance with the amount of water flow.

   p. All irrigation zones shall be controlled by an automatic controller.

   q. Rain gauge sensors shall be used on the irrigation system.

   r. Only PVC pipe, Class 200 or stronger, shall be used.

   s. Record drawings are required when the installation of the irrigation system is completed. The record drawings shall show any and all changes to the irrigation system.

t. Designers shall specify hand watering criteria in areas without an automatic irrigation system.

3. Wildlife

a. All Landscaping activities shall comply with the restrictions of the USAF Academy Conservation Plan and Agreement for the conservation of the federally listed Preble's Meadow Jumping Mouse. All activities in the mouse habitat or actions that could indirectly affect the mouse habitat, must be coordinated through, and approved by, the Natural Resources office.

b. Preserve existing wildlife habitats, movement corridors and feeding areas to the greatest extent possible.

c. Fruit bearing plants that provide a food source and thus attract wildlife shall not be used near buildings or roads.

4. Soils

a. Soil tests shall be performed on existing soils to determine characteristics and soil amendment requirements. The designer shall provide soil amendment specifications based on these requirements. Tests and soil amendment specifications shall address:

i. pH level

ii. clay, sand and mineral content

iii. organic content

iv. phosphorous

v. potassium

b. Project specifications shall require the contractor to perform tests demonstrating soil compliance with amendment specifications.

c. Remove soils that cannot be amended to meet specified requirements.

d. pH Levels:

i. Lawn: 6.0 to 7.0

ii. Native seed: 6.5 to 8.0

iii. Trees & shrubs: 6.0 to 8.0 unless otherwise required by species selection.

e. Soil Amendments

i. Use organic material from the Academy Compost Yard, if available, prior to importing new material.

ii. Add organic matter at a rate of 5%-10% maximum organic matter for trees and shrub beds.

iii. Add organic matter to turf and ground cover at a rate of 4 cubic yards per 1,000 square feet.

iv. Organic matter, such as manure, shall be a minimum of 2 years old.

v. Fertilizer shall include alfalfa meal, cottonseed meal, kelp meal, soft rock phosphate, trace minerals and premium grade sand.

vi. Peat Moss is not permitted.

f. Compaction in turf, ground cover, and shrub beds shall be maximum 85% compaction based on standard proctor density.

g. Scarify and loosen soils as follows:

i. Shrub beds: 24 inch depth

ii. Turf and ground cover: 6 inch depth

iii. Native seed areas: 6 inch depth

h. Backfill shall have mix characteristics similar to or better than existing soils, plus required amendments.

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 Small graphics do not apply

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. Install needed outdoor seating (benches and low walls) in public gathering spaces near main and secondary building entrances. Low walls shall match facility architecture.
4. Integrate functional bicycle racks with the design of the building's main entrance grounds in Facility Groups 1 and 2 while meeting AT/FP requirements.
5. Limit the use of bollards. Illuminated bollards may be used as approved on a case basis.
6. Locate architecturally coordinated containers for recycling, litter, ash, vending, etc., to minimize visual clutter and not visible from the building's main entrance. Minimize the use of freestanding planters.
7. Generally limit picnic tables, barbeque grills and drinking fountains to lodging, dormitories, housing areas, parks and recreation areas following IFS.
8. 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.
9. Refer to the Overview Section “Facility Hierarchy” topic of this AFCFS for guidelines regarding ancillary structures such as pavilions and shade shelters.
10. Bus shelters shall be provided only where there is a documented need and when approved on a case basis.
11. 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.
12. When visual screening is necessary, consider landscaping as the first option; screen walls are permitted only in Group 1.
13. 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.
14. Chain-link fencing is prohibited at Group 1, 2 or 4 facilities; Use at Group 2 facilities to be approved on a case by case basis by the 10CES. Limit the use of barbed-wire outriggers on chain-link fencing at industrial sites, unless required for additional security or protection of assets.
15. 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.
16. Provide trash dumpster enclosures with materials and type to match adjacent facilities. All gates shall be metal factory finished.

17. Specify screen wall materials and finishes that do not require painting or maintenance beyond periodic cleaning.
18. Limit picnic tables, barbeque grills and drinking fountains to lodging, dormitories, housing areas, parks and recreation areas.
19. Limit the use of freestanding planters to areas with ongoing maintenance.
20. 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.
21. All exterior amenities must be developed as an integral part of exterior space, rather than as randomly placed objects. All furnishings must conform to the standards.
22. The standards are general and apply to the entire campus unless noted otherwise in districts.

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

C07.2.2. Benches

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

Type: **Granite Bench - Group 1**

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

Mfr: N/A

Color: Grey

Finish: Polished

Model #: 1'-9" x 7'-0" Granite Slab on 12" Dia. Granite Cylinders at each end

Other: Located In cardinal directions (east-west, north-south orientation), at the mid-point of the marble stripes on the terrazzo.

UFGS: N/A

Type: **Concrete Bench - Group 2**

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

Mfr: N/A

Color: Light Grey

Finish: High Quality, Smooth

Model #: 1'-9" x 7'-0" Concrete Slab on 12" Dia. Concrete Cylinders at each end

Other: Place seating along primary pathways, at passenger drop-off points, bus stops and near main entrances of buildings.

UFGS: N/A

C07.2.3. Bike Racks

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

Type: **Bike Rack System - Group 1**

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

Mfr: Park a Bike

Color: Grey

Finish: Galvanized

Model #: N/A

Other: Locate in parking lots, main entrances of buildings, basements, and recreational areas. Install on concrete pad along governing grid. Protect with bollards. Do not install on grass.

UFGS: N/A

Type: **Bike Rack System - Group 2**

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

Mfr: N/A

Color: Grey

Finish: Painted

Model #: Round Tube Steel Wave Bike Rack, Surface Mounted

Other: Locate in parking lots, main entrances of buildings, basements, and recreational areas. Install on concrete pad along governing grid. Protect with bollards. Do not install on grass.

UFGS: N/A

C07.2.4. Bike Lockers

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

Type: **Prep School / Community Center - Group 2**

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

Mfr: The Park Catalog

Color: Tan

Finish: Prefinished

Model #: Molded fiberglass reinforced plastic

Other: Locate in parking lots. Install on concrete pad. Protect with bollards. Do not install on grass.

UFGS: N/A

C07.2.5. Bollards

◉ Applicable ○ N/A Number of base standards 4 Image Tool 250 x 188

Type: **Bollards at Buildings**

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

Mfr: N/A

Color: Light Grey

Finish: Painted Concrete or Stainless Steel

Model #: Precast Concrete or Steel Pipe filled with Concrete, Size to Match Exist.

Other: Protect buildings and pathways with standard cylinder stainless steel bollards or precast concrete.

UFGS: N/A

Type: **Bollards in Other Areas**

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

Mfr: N/A

Color: Natural

Finish: Pressure Treated, Unpainted

Model #: Timber Post, Square, Size to Match Existing

Other: Locate along roads and other areas where necessary to protect landscape and pedestrian areas from vehicular traffic.

UFGS: N/A

Type: **Bollards used for ATFP**

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

Mfr: N/A

Color: Light Grey or Black

Finish: Painted

Model #: Steel Pipe filled with Concrete, Size to Match Existing

Other: Locate to provide ATFP as required.

UFGS: N/A

Type: **Bollard - Safety**

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

Mfr: N/A

Color: Yellow

Finish: Painted

Model #: Steel Pipe filled with Concrete

Other: Provide reflective tape.

UFGS: N/A

C07.2.6. Bus Shelters

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

Type: **Bus Shelter**

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

Mfr: N/A

Color: Steel to be White, Glass to be Tinted Grey, Concrete to be Light Grey

Finish: Steel to be Painted, Glass to be Non-Reflective, Conc. to be High Quality

Model #: Steel Columns and Beams to be Tubes, Glass Panels, Concrete Walls

Other: Bus stop shelters must be steel-frame structures and follow the design standards of the pavilions. Each housing area must have one properly maintained pavilion.

UFGS: N/A

C07.2.7. Drinking Fountains

○ Applicable ◉ N/A

C07.2.8. Dumpster Enclosures / Gates

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

Type: **Dumpster Enclosure - Group 2**

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

Mfr: N/A

Color: Wall to Match Building Color, Gates to be Light Grey or Black

Finish: Wall Exposed Masonry, Gates to be Painted

Model #: Masonry Screen Wall to Match Building, Double Access Gate to be Steel

Other: Locate dumpsters 15 feet from buildings with 20 foot overhead clearance. In Cadet Areas Integrate in basements where possible. In other areas concentrate dumpsters in one, non-visible location.

UFGS: N/A

Type: **Airfield - Group 3**

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

Mfr: N/A

Color: White and Concrete

Finish: Painted and Clear Coat

Model #: Concrete Screen Walls with Reveal, Double Access Gate to be Steel

Other: Door panels to be louvered. Provide concrete inside and outside of the enclosure. Dividing steel post between doors.

UFGS: N/A

C07.2.9. Fencing

◉ Applicable ○ N/A Number of base standards 4 Image Tool 250 x 188

Type: **Panelized Fence System - Group 2**

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

Mfr: N/A

Color: Beige

Finish: Painted

Model #: Panelized Steel Fence System to Match Existing

Other: N/A

UFGS: N/A

Type: **Wood Fence - Group 4**

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

Mfr: N/A

Color: Natural

Finish: Panel to be Pressure Treated, Unpainted, Posts to be Galvanized

Model #: Wood Fence with Steel Posts to Match Existing

Other: N/A

UFGS: N/A

Type: **Chain Link Fence**

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

Mfr: N/A

Color: Natural

Finish: Galvanized

Model #: Chain Link Fence to Match Existing

Other: Galvanized chain link fences are permitted only on athletic fields and in industrial areas

UFGS: N/A

Type: **Fencing - Group 1**

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

Mfr: N/A

Color: Black

Finish: Painted

Model #: 2 Rail Steel Fence

Other: Perimeter of Cadet Area

UFGS: N/A

C07.2.10. Flagpoles

◯ Applicable ◉ N/A

C07.2.11. Lighting – Landscape / Accent

Please refer to the Lighting section.

C07.2.12. Litter and Ash Receptacles

◉ Applicable ◯ N/A Number of base standards 4 Image Tool 250 x 188

Type: **Trash Receptacle - Group 2**

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

Mfr: N/A

Color: Grey

Finish: Plastic

Model #: Landmark Series or Equivalent

Other: In public areas throughout the Academy. Provide one trash receptacle per building entrance. Provide in each designated smoking area.

UFGS: N/A

Type: **Trash Receptacle - Concrete**

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

Mfr: N/A

Color: N/A

Finish: Exposed Concrete Aggregate

Model #: Round Receptacle with Vertical Reveals, Top Fed

Other: N/A

UFGS: N/A

Type: **Bear Proof Trash Receptacle - Parks and Housing**

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

Mfr: Alamy

Color: Pre-Finished

Finish: Brown

Model #: Containers to be Steel, Lids to be Plastic

Other: Surface mounted on concrete pad.

UFGS: N/A

Type: **Cigarette Ash Receptacle**

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

Mfr: AARCO

Color: Pre-Finished

Finish: Satin

Model #: Aluminum Floor Standing Model

Other: N/A

UFGS: N/A

C07.2.13. Picnic Tables

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

Type: **Picnic Table**

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

Mfr: N/A

Color: Powder Coated Paint

Finish: Blue or Brown Tops / Black Frame

Model #: Tube Steel Frame and Steel Mesh Top and Seats

Other: Locate at parks, pavilions and other outdoor gathering locations.

UFGS: N/A

Type: **Picnic Tables - Square**

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

Mfr: N/A

Color: Powder Coated Paint

Finish: Blue or Brown Tops / Black Frame

Model #: Tube Steel Frame and Steel Mesh Top and Seats

Other: Locate at parks, pavilions and other outdoor gathering locations.

UFGS: N/A

C07.2.14. Planters

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

Type: **Raised Planters - Group 1**

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

Mfr: N/A

Color: Granite to Match Existing

Finish: Planter Wall to have Thermal Finish, Cap to have Mellatone Finish

Model #: Raised Granite Planter with Granite Cap with 3/16" mitered edge

Other: No freestanding planters are allowed. Limit plantings to formal and special landscape areas

UFGS: N/A

C07.2.15. Play Equipment

○ Applicable ◉ N/A

C07.2.16. Screen Walls

◉ Applicable ○ N/A Number of base standards 4 Image Tool 250 x 188

Type: **Screening Walls - Group 2**

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

Mfr: N/A

Color: Masonry to Match Building

Finish: Masonry Smooth Face

Model #: Unit Masonry Walls

Other: Screen service docks and service areas. Screen to match walls, fencing, or plants of building. Define height by function the screen is to enclose.

UFGS: N/A

Type: **Metal Screen - Group 1**

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

Mfr: N/A

Color: Paint

Finish: Black

Model #: Metal Mesh Screen, Surface Mounted

Other: Bike Screen at Vandenberg Hall in the Cadet Area

UFGS: N/A

Type: **Mechanical Screen Wall - Group 3**

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

Mfr: N/A

Color: Pre-Finished

Finish: Grey

Model #: Metal Mesh Screen Wall

Other: Located at the Airfield.

UFGS: N/A

Type: **Mechanical Screening Walls - Group 3**

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

Mfr: N/A

Color: Pre-Finished

Finish: Grey

Model #: Vertical Metal Louver Screen Wall

Other: Location at the Service and Supply area

UFGS: N/A

C07.2.17. Tree Grates

○ Applicable ◉ N/A

C07.2.18. Other

○ Applicable ◉ N/A

N/A

C08. EXTERIOR SIGNS

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

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

C08.1. Colors and Types

○ Applicable ◉ N/A Large graphics do not apply

◉ Applicable ○ N/A Select number of graphics / images (small: 250 px x 188 px) to insert 9 Image Tool 250 x 188


Entry Gate Identification Sign

Building ID Sign in Cadet Area

Building ID Sign at Prep School Dorm

Commercial Identification Sign

Marquee Sign

Vertical Marquee Sign

Street Sign

Wayfinding Sign

Motivational Sign

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. Building signs, raised "standout" letters may be used for Group 1 Facilities as approved on a case by case basis by the 10CES.

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

10. Reserved parking signs to be determined on case by case basis using either signage on paving, curbs or on low profile signs.

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

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

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

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

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

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

C08.1.1. Materials and Color Specifications

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

1. Fence mounted sign panels may be attached with exposed fasteners.
2. 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. All signs required to comply with UFC 3-120-01.
    a. Standard Blue
    b. Standard Dark Bronze (also Federal Standard Color 30040)
    c. Standard Red
    d. Standard Black (non-reflective)

e. Standard White

f. Standard Brown

Materials and Color Specifications

○ Applicable ◉ N/A

C08.1.2. Installation and Gate Identification Signs

○ Applicable ◉ N/A

C08.1.3. Building Identification Signs

○ Applicable ◉ N/A

C08.1.4. Traffic Control Devices (Street Signs)

○ Applicable ◉ N/A

1. Direction Signs: Road signs are D-1 and D-2 direction signs, measuring 6-ft tall by 9-ft wide and 4-ft tall by 6-ft wide, respectively. Each road sign shall have 4 destination panels with arrows. All direction sign panels shall be interchangeable into each of the slots in the direction sign. Direction sign frames shall be aluminum with flat black factory finish. Frames shall provide 5 to 7 feet of clearance between the bottom of the sign and the ground. Direction sign panels shall consist of aluminum panels covered with high intensity prismatic reflective blue vinyl sheeting with high intensity prismatic reflective white letters. Backs of signs shall be flat black factory finish. Font for the letters shall be Helvetica Medium. Size of the letters for the D-1 signs shall be 6-inch capital letters and 4.5-inch lower case letters. Size of the letters for the D-2 signs shall be 4-inch capital letters and 3-inch lower case letters. Each sign frame post for the D-1 and D-2 signs shall be 6" deep by 4" wide. Each sign frame post for the D-1 signs shall be set 42" into the ground and held in place with concrete. Each sign frame post for the D-2 signs shall be set 36" into the ground and held in place with concrete. Concrete will be gently sloped away from pole base at the intersection with existing ground. All signs shall have frangible posts. All signs must be strong enough to withstand 100 mph winds. Lateral clearance will be a minimum of 12' from the edge of the white fog line or 6' from the edge of the paved shoulder or curb.
2. Street Signs: Signs shall be mounted on existing telspar posts or street lamp poles. The bottom edge of the lowest street sign shall be at a height of 7' above the pavement of the road. For street signs where no telspar post or light pole exists contractor shall communicate with the construction inspector to determine the ideal mounting location. Street signs are 1-ft by 4-ft in size. Street signs shall consist of aluminum panels covered with high intensity prismatic reflective blue vinyl sheeting with high intensity prismatic reflective white letters. To the left of the street name the round USAFA logo shall appear in a six inch diameter circle. Backs of street signs shall be flat black factory finish in color. Font for the letters shall be Helvetica Medium. Size of the letters shall be6-inch capital letters with 4.5-inch lower case letters. All signs shall have frangible posts. All signs must be strong enough to withstand 100 mph winds. Color Specifications: Blue - 3M Reflective Blue High Intensity Prismatic #3935, White - 3M Reflective White High Intensity Prismatic #3930
3. Marquee Signs: Extruded aluminum/metal frame to be painted (Matthews Paint MP25546 - High Intensity Blue or equal), size is to match existing. Background field is to be metal with cut or painted letters (Matthews Paint MP25546 - High Intensity Blue or equal), recessed by one inch to frame. Letters are to be metal or plastic cut (0.70"), white color, 6 inch high upper case letters in Helvetica Medium font, left justified. Base/pedestal to be concrete (high quality), light gray color, size to match existing. Signs will be mounted on existing concrete bases unless concrete base is damaged.
4. Airfield Gate Signs: All airfield gate signs will have a standardized frame. Each frame will have 5 panels which will be removable/replaceable. Frames will be designed to match existing airfield gate signs and a design drawing will be submitted prior to fabrication for approval by the CE Representative. All panels will consist of high intensity prismatic reflective materials. Warning Panels:

a. WARNING will appear in high intensity prismatic reflective red letters on high intensity prismatic reflective white sheeting. The heading, text and citation will appear in high intensity prismatic reflective black letters on high intensity prismatic reflective white sheeting.

b. WARNING type will be upper case Helvetica medium, match existing capital letter height, centered. Heading type will be upper and lower case Helvetica medium, match existing capital letter height, flush left. Text type will be upper and lower case Helvetica medium, match existing capital letter height, flush left. Citation will be upper and lower case Helvetica medium, match existing capital letter height, flush left.

5. 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.

C08.1.5. Directional and Wayfinding Signs

○ Applicable ◉ N/A

C08.1.6. Informational Signs

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A 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 blue (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.
5. Informational Signs: All informational signs scheduled to be replaced will appear on high intensity prismatic reflective blue vinyl sheeting with high intensity prismatic reflective white letters. All sign backs will have a flat black factory finish. Sign lettering and size will match existing and will be field verified prior to fabrication. Information signs shall be mounted to telspar posts with a telspar post mounted in a telspar sleeve set in the ground. Any signs identified as “Flip” signs will be constructed such that a blank face will appear when the sign is in the flipped position. Corners will be rounded and border will have a white edge stripe.
6. Low Profile Slider Signs: All slider signs scheduled to be replaced will appear on high intensity prismatic reflective blue vinyl sheeting with high intensity prismatic reflective white letters. All sign backs will have a flat black factory finish. Sign lettering, shape and size will match existing and will be field verified prior to fabrication. Existing aluminum frames do not need to be replaced unless damaged.

C08.1.7. Motivational Signage

○ Applicable ◉ N/A Large graphics do not apply

○ Applicable ◉ N/A Small graphics do not apply

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

C08.1.8. Parking Lot Signs

◯ Applicable ◉ N/A

N/A

C08.1.9. Regulatory Signs

◯ Applicable ◉ N/A

1. Regulatory signage, which restricts, warns and advises, shall be limited to those mandated under Highway/Traffic, Government Warning, and/or Parking Regulation. Follow UFC 3-120-01 and its industry references for color and layout.
2. Provide a comprehensive, systematic approach to regulatory signage to avoid clutter and confusion from "over signage."
3. Maintain base warning signs for safety and security at the base perimeter and at specific secure areas. Use these to notify visitors of restrictions governing conduct on the base, as well as other security procedures.

C08.1.10. Other

◯ Applicable ◉ N/A

N/A

C09. LIGHTING

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

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

C09.1. Fixtures and Lamping

◯ Applicable ◉ N/A Large graphics do not apply

◯ Applicable ◉ N/A Small graphics do not apply

1. Provide, coordinate and efficiently install street, parking lot, sidewalk and facility lighting with appropriate luminaires, lamping, and placement and spacing following 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. High efficiency lamping such as LED is preferred for most applications.
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. Verify available voltages prior to design of new exterior lighting systems. Evaluate the use of solar power, light emitting diodes (LED's), and induction lamps in the design of street lighting systems.
18. Light Pollution - Exterior lighting should be designed to LZ3 requirements for medium light level zone of commercial/ industrial, high-density residential. Lighting maximum initial luminance should be no greater than 0.20 horizontal and vertical foot-candles at the site boundary and no greater than 0.01 horizontal foot-candles 15 feet beyond the site boundary. No more than 5% of initial fixture lumens can be emitted at an angle greater than 90 degrees from nadir (straight down).
19. Automated Calculations for Exterior Areas - For critical or large exterior areas, perform point-by-point calculations using a computer program that permits multiple luminaires and takes buildings and other obstacles into account. Provide computer generated site isolux plots and analytical statistics related to illumination and uniformity.
20. Point Calculations for Flood and Spot Lighting - Use point calculations for general exterior illumination by single luminaire. This calculation procedure may be performed by hand or in simple spreadsheet formulas. Determine the horizontal and/or the vertical plane illumination at a point.
21. The visual impact of lighting and utilities should be minimized to favor the natural landscape.
22. Lighting for pedestrian and parking purposes is to be adequate; additional exterior functional lighting is not necessary for areas not used after dark.
23. Cadet Chapel lighting visual quality must be maintained; all lighting in this area must be approved by the Command Architect.
24. Location and spacing of fixtures must conform to the governing grid.
25. The use of Orange lights or sodium vapor is not allowed.

C09.2. Light Fixture Types

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

C09.2.1. Street Lighting

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

Type: **Style 1**

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

Mfr: GE Lighting Systems

Color: Natural

Finish: Clear anodized aluminum

Model #: Type FF Poles

Other: Round tapered shaft, aluminum construction, shaft lengths 20' to 50', 1 or 2 arms, include truss type arms for high winds.

UFGS: N/A

C09.2.2. Parking Lot Lighting

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

Type: **Style 1**

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

Mfr: GE Lighting Systems

Color: Natural

Finish: Clear anodized aluminum

Model #: Type FF Poles

Other: Round tapered shaft, aluminum construction, shaft lengths 20' to 50', 1 or 2 arms, include truss type arms for high winds.

UFGS: N/A

C09.2.3. Lighted Bollards

◉ Applicable ○ N/A Number of base standards 3 Image Tool 250 x 188

Type: **Style 1**

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

Mfr:

Color:

Finish:

Model #:

Other:

UFGS: N/A

Type: **Style 2**

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

Mfr:

Color:

Finish:

Model #:

Other:

UFGS: N/A

Type: **Style 2**

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

Mfr:

Color:

Finish:

Model #:

Other:

UFGS: N/A

C09.2.4. Sidewalk Lighting

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

Type: **Style 1, Pedestrian Lighting**

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

Mfr:

Color:

Finish:

Model #:

Other:

UFGS: N/A

C09.2.5. Walls / Stairs Lighting

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

Type: **Style 1, Granite Wall Recessed Lighting**

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

Mfr:

Color:

Finish:

Model #:

Other:

UFGS: N/A

Type: **Style 1, Recessed Stair Lighting**

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

Mfr:

Color:

Finish:

Model #:

Other:

UFGS: N/A

C09.2.6. Other

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

Type: **Accent Lighting - Static Display**

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

Mfr:

Color:

Finish:

Model #:

Other:

UFGS: N/A

Type: **Solar Photovoltaic Power Source**

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

Mfr:

Color:

Finish:

Model #:

Other:

UFGS: 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 Large graphics do not apply

◯ Applicable ◉ N/A Small graphics do not apply

D01. SUPPORTING THE MISSION

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

D02. SUSTAINABILITY

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

D03. ARCHITECTURAL FEATURES

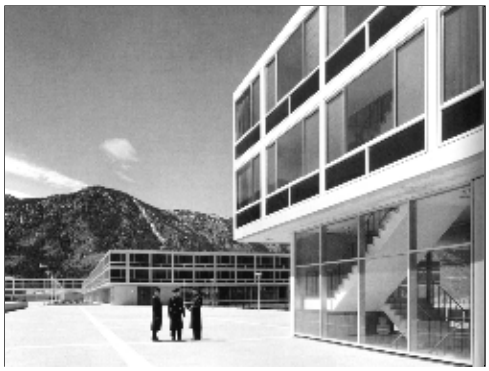
Comply with AF Corporate Standards for Facilities Exteriors:
http://afcfs.wbdg.org/facilities-exteriors/index.html

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

Insert 3 photos for each facility group.

Image Tool 250 x 188

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.
2. Provide orthogonal geometry for principle building form;
3. Create consistent form and scale in adjacent buildings with compatible profiles or silhouettes.
4. Building heights shall not be limited; however, building heights over 2 stories shall be considered on a case basis.
5. Combine functions where practical to avoid a proliferation of small, independent structures.
6. All facilities shall express sustainability through their orientation, massing, shape, form, materials, and detailing.
7. Provide louvers, fins and other shading devices to control heat gain and glare and to and improve energy efficiency.
8. Composition
    a. The building enclosures are distinct according to the functions they house within. Design order is achieved by standardized, repeated components. Regularly recurring lines, shapes, and colors create an overall composition and rhythm of classic restraint. Visual variety occurs within the composition through the presence of carefully arranged and articulated functionally generated elements.
    b. All proportions are to follow the proportions depicted in the USAFA Design Standard figures in Appendix G.

D03.2. Architectural Character

1. Reinforce the campus environment and educational theme with a related architectural theme expressive of innovation and technology that represents the current Air Force Training and Education Command mission.
2. Building enclosure elements at the Academy are designed to clarify the structural and non-structural role of each part.
3. The fundamental structural nature of every column, beam, spandrel, window, in-fill panel and mullion is distinguished.
4. Building design is to be dependent on the intrinsic elegance of materials, technical perfection, simple proportions, precision detailing and refined composition.
5. Develop architectural features, materials and detailing appropriate for the Facility Hierarchy Group designation. Each sub-area has its own construction guidelines. The construction guidelines are organized by design elements. The design elements include Structure, Walls, Accent Walls, Window Walls, Soffits / Ceiling, and Roofs. Each design element is specified by material, finish, color and dimensions where applicable.
6. Materials are to be limited to a constant recurring few, and assembly should be detailed to recognize the nature, the strength, character, and fabrication of the materials, technical perfection, simple proportions, precision detailing and refined composition. Match new materials to the existing perfectly.
7. For new facilities design generally maintain consistency and visual unity in the character of the adjacent buildings through compatible architectural features: repeated use of similar forms such as roofs, and through recurring elements such as doors, windows, materials and colors.
8. Strive for economical construction without compromising a high-quality, professional appearance.

D03.3. Details and Color

1. Relate the level of architectural detailing to the Facility Hierarchy Group number.
2. Use only integrally colored materials as the predominant exterior building material; do not use materials that require field painting and ongoing maintenance.
3. Provide consistent and compatible colors for every exterior building feature, including walls, roofs, doors, windows, gutters, downspouts, utility and mechanical elements, and other visible elements.
4. Noncorrosive metals with factory applied color finishes are required.
5. Combine details and color with orientation, massing, scale and architectural character to maintain base compatibility.
6. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.

7. Color can be defined using its three attributes of hue (red, yellow, blue), value (light, dark), and chrome (bright, neutral).
8. The primary colors blue, yellow, and red are used throughout the campus to designate building entries and building functions. Generally, blue applies to academic and training functions, yellow applies to housing functions, and red applies to administrative functions.
9. The overriding color principles at the Academy are chromatic contrast and value contrast. The predominant materials are chromatically neutral but vary in contrast from white to black. Variety and visual interest are achieved through this value contrast, but it is the overall chromatic control that creates a unifying harmony of materials.
10. Use compatible materials with better energy, maintenance, performance, and durability characteristics.
11. The building enclosure must be thermally efficient and energy conservative, and meet UFC 1-200-02 High Performance and Sustainable Building Requirements and local / state energy guidelines.
12. The building enclosure must allow the appropriate levels of natural light transmission.
13. Sound transmission criteria must be set to meet the functional demands of the spaces served.
14. The building enclosure must be resistant to the natural elements of wind, rain, snow, and sunlight. Exterior wall systems must be tested in accordance with American Society for Testing and Materials, and Architectural Aluminum Manufacturer's Association criteria for air and water infiltration and structural performance. Roofing and waterproofing systems must be subject to controlled inspection and testing by an independent testing agency.
15. Modules - The elements of building enclosure respond to both the natural dimensional properties of the materials and the established building module, which is a division of the governing grid. The following dimensions are repeated in the majority of existing building conditions.

Windows	Width 7 / 14 feet	Height 2.5 feet, 7 feet
Drop Soffit, Sill		Height 2.5 feet
Column Cladding, General	Width 21 inches	
Beam Cladding, General		Height 24 inches
Doors	Width 3.5 feet	Height 8 feet
Stone Panels	Width 3.5 feet	
Railings		Height 3.5 feet
Gravel Stop		Height 6 inches
Major Reveals	Width 1.5 inches	

16. Soffits are to be flat and recessed from the edge of the structural frame.
17. Group 1 Soffits
    a. Dormitory buildings must have exposed structural ceilings on the Terrazzo and basement levels. The formwork and construction joints align with the structural grid and building module. Light fixtures are recessed into the ceiling.
    b. Mitchell Hall must be preserved and all repair work must conform to the original design.
    c. Material Table:

Elements	Material	Finish	Color	Dimension	Figure*	Profile*
Soffit, Susp. Ceiling	Cement Plaster	Sand Finish, Painted	PPG#2541"Abbey"	3/4"	2.27	1.03, 1.06, 1.08 1.09, 1.10, 1.20 1.21, 1.25, 1.26 1.49, 1.52, 1.55 1.58
Joint	Aluminum	Painted (Thermal)	White, Match Soffit	1/8"		
Drip	Aluminum	Painted (Thermal)	White, Match Soffit	3/4"	2.32	1.20
Exposed Structure	Concrete	Cast-in-Place	Light Gray		2.29	
Formwork	Plywood	To Match Original		7' Module	2.31	

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

18. Group 2 Soffits

a. The soffit/ceiling in an arcade to be articulated as an exposed steel roof deck, the beams of which are to remain unclad and have soffit-mounted centered can lights.

b. Administrative Facilities soffits are to be clad with fat and lightly textured drywall. Joints are to be articulated with a minimal reveal and set on the governing grid. Recessed downlights, to be centered on the 21-foot grid.

c. Fire Stations have no exterior soffits/ceilings.

d. Material Table:

Elements	Material	Finish	Color	Figure*	Profile*
Exposed Beams	Steel	Painted	PPG#2541"Abbey"	2.37	1.67, 1.68, 1.70, 1.83, 1.84
Roof Deck	Metal	Painted	PPG#2541"Abbey"	2.38	1.67, 1.68, 1.70, 1.83, 1.84

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

19. Group 3 Soffits

a. There are no exterior soffits / ceiling for buildings in this group.

b. Material Table:

Elements	Material	Finish	Color	Figure*	Profile*
Exposed Beams	Steel	Painted	Black	2.39, 2.46	1.83
Filling	Drywall, Plastered	Sand Finish, Painted	White		1.83, 1.84

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

20. Group 4 Soffits

a. The Family Housing Areas have been privatized. All proposed changes must be coordinated through 10 CES Project Manager and 10 CES Housing Manager.

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

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

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

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

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

Other: N/A

Other: N/A

Facility: Consult the USAFA Material and Finish Reference Guide for most current specific guidance on color, manufacturer and products recommended by the Academy.

Wall: N/A

Doors: N/A

Windows: N/A

Roof: N/A

Structure: N/A

MEP: N/A

Other: N/A

Other: N/A

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

D03.3.2. Natural Ventilation System

○ Applicable ◉ N/A

D03.3.3. Thermal Mass

○ Applicable ◉ N/A

D03.3.4. Thermal Shading

○ Applicable ◉ N/A

D03.3.5. Renewable Heating/Cooling

○ Applicable ◉ N/A

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-exteriors/index.html

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

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 projecting or recessed covering for weather protection following Installation Facilities Standards (IFS) for Facility Group designations.

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

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

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

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

6. Protect entrances in cold climates from falling ice and snow.

7. ADA door operator, pedestals to be square, black anodized aluminum finish.

D04.2. Secondary Entrances

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

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

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

D04.3. Service, Egress and Loading

1. 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.

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

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

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

5. 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:
http://afcfs.wbdg.org/facilities-exteriors/wall-systems/index.html

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

Insert 3 photos for each facility group.

Image Tool 250 x 188

Group 1



Group 2



Group 3


Group 4



D05.1. Hierarchy of Materials

1. Group 1 facilities may have more refined detailing than Group 2 and Group 2 may have more definition than Group 3.
2. Design walls using a hierarchy of primary and secondary wall materials with detailing appropriate for the climate region and use group.
3. Limit the number of primary wall materials on the base with each material a consistent color following Installation Facilities Standards (IFS).
4. Use materials and detailing not subject to excessive weathering. Provide wall accents consistently throughout the base.
5. Use materials in neutral colors, integrally colored materials and factory-finished metals.

D05.2. Layout, Organization and Durability

1. The wind loading at the Air Force Academy subjects building envelopes to extreme pressures. The design team shall confirm the criteria used with their professional team members and incorporate into each design. Current criteria utilize a wind speed of 110 mph, 3 second gusts with an importance factor of 1.15 and exposure category C, in the Cadet Area. These criteria may apply to other areas depending on location.
2. Organize wall components including doors, windows, accents, shading devices, control joints, etc., to provide an ordered, professional appearance.
3. Integrate shading devices into the overall composition of the wall.
4. Integrate fixed shading devices as at all exterior glazing exposed to summer UV heat gain as a passive design measure to reduce energy use. Ensure adequate shading at west entrances. Deciduous trees may be used for shading.
5. Shading systems may be included as part of a manufacturer's window system or may be custom systems integrated into the wall.
6. Provide appropriate transitions between dissimilar materials to mitigate effects of thermal expansion and galvanic action.
7. All joint sealants shall be slightly darker than adjacent surfaces.
8. Materials requiring regular maintenance are not permitted; do not use exposed structural steel or other materials that require painting.
9. Walls
    a. Walls are to be non-structural and generally formed by panel sections in a frame.
    b. The walls are to be flush and extend to in-fill the frame completely.
    c. The walls are to be bordered on all sides by the structural frame and have no openings.
    d. The panels are to be sized in dimension and located in relation to the building plan module. Panel joints, where necessary, are to form an orthogonal pattern.
    e. Joints between panels and the structural frame are to be articulated with a reveal.
10. Accent Walls
    a. Color must be used to distinguish different building types on exterior core walls at entry vestibules, stairs, elevators, mechanical spaces and other functions at the ground floor or entry level.
    b. These accent walls are to extend from floor to ceiling without openings. Openings are to be full height and between wall panels. Intermediate joints should be avoided. If they are necessary, joints must be articulated with a minimal reveal.
    c. Accent walls must read as planes with a continuous 3/8-inch reveal at the head and a 3/4-inch reverse angle reveal at the sides, terminating in a simple joint at the paving surface.

11. Group 1

    a. Academic & Training / Athletic Facilities
        i. Walls on the Terrazzo level are to be articulated as accent walls.

ii. Walls on basement level are to be precast exposed aggregate panels.

iii. Walls on all other levels are to be formed by panel sections of aluminum and marble. Provide an elastic joint of 1/4 inch between marble panels. Articulate joint to structural frame with a continuous 1-inch reveal.

iv. Accent Walls - Entry walls are mosaic walls and must designate the academic / training use of buildings with the primary color blue, and the administrative function of buildings with the primary color red.

b. Cadet Quarters

i. Walls follow #11 Group 1 a. i, ii, iii above.

ii. Accent Walls - Entry walls are mosaic walls and must designate the residential use of dormitory buildings with the primary color yellow.

c. Dining Hall

i. Original state of Mitchell Hall must be preserved and all repair work must conform to the original.

ii. Walls are clad with white aggregate concrete wall panels. At a future date, all panels, including the panels in the lobby vestibule, should be simultaneously replaced with white marble panels, approved by the Command Architect.

iii. There are no accent walls on this structure.

d. Material Table - Walls:

Elements	Material	Finish	Color	Dimensions	Figure*	Profile*
Panel Walls	Marble	Honed 1/4" Mitre Edge	White, Match Original	1-1/4"	2.23	1.05, 1.06, 1.07, 1.08 1.09, 1.10, 1.11, 1.14
Reveal	Aluminum	Anodized	Black	1-1/2"		1.05, 1.06, 1.07, 1.08 1.09, 1.10, 1.11, 1.14
Walls, Level 1	Precast conc.	Exposed Aggregate Rustic	Dk Gray, Match Original		2.21	1.21, 1.22, 1.23, 1.24
Joint				1/2"		1.24
Corner Reveal				1"		1.21

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

e. Material Table - Accent Walls:

Elements	Material	Finish	Color	Dimensions	Figure*	Profile*
Mosaic tile wall	Venetian fractured glass mosaic tile	Standing Format to Match Original	Yellow, Red, or, Blue to Match Original	1/4" x 1/2"		
Grout	Match Original	Match Original	Blend with Tile Color	Match Original	2.24	
Reveal at Ceiling	Aluminum	Anodized	Black	1"		1.30, 1.52, 1.53, 1.54, 1.55, 1.56, 1.57
Corner Reveal	Aluminum	Anodized	Black	3/4"		1.30, 1.52, 1.53, 1.54, 1.55, 1.56, 1.57
Reveal at Base	Aluminum	Anodized	Black	1"		1.53, 1.56
Joint to Paving	Silicon Sealant	Concave	Gray to Match		2.25	

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

12. Group 2

a. Non Cadet Facilities

i. Walls in the Community Center Area are to be yellow masonry panels in a black steel wall panel frame. Brick trim must align with brick and match existing.

ii. Accent walls for the designation of entries can be applied for new buildings.

b. Administration Facilities

i. There are no solid exterior walls for these facilities, only window walls.

ii. There are no accent walls for these facilities.

c. Fire Stations

i. Walls are to be formed by bull red masonry panels embraced by a black steel frame.

ii. There are no accent walls on this structure.

d. Material Table - Walls:

Elements	Material	Finish	Color	Figure*	Profile*
Wall Panel	Unit Masonry		Yellow to Match Existing	2.36	1.64, 1.65, 1.66, 1.68, 1.69, 1.81, 1.82, 1.83
Frame	Steel	Painted	Black	2.36	1.64, 1.65, 1.66, 1.68, 1.69, 1.81, 1.82, 1.83
Grout	Mortar		Light to Match Existing		

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

13. Group 3

a. Walls to be precast concrete panels or metal panels.

b. There are no accent walls on this structure.

14. Group 4

a. The Family Housing Areas have been privatized. All proposed changes must be coordinated through 10 CES Project Manager and 10 CES Housing Manager.

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:	Marble, Aluminum Panels
Secondary:	Precast Concrete Panels
Accent:	Mosaic Tile

Facility Group 2 wall materials shall be as follows.

Primary:	Unit Masonry - Brick, Window Walls
Secondary:	Exposed Steel Frame
Accent:	Allowed at Entries

Facility Group 3 wall materials shall be as follows.

Primary:	Precast Concrete Panels, Metal Panels
Secondary:	Window Walls
Accent:	None

Facility Group 4 wall materials shall be as follows.

Primary:	Siding, Unit Masonry - Brick
Secondary:	Stucco
Accent:	None

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

D05.4.1. Flat Metal Panels

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

Type: **Aluminum Wall Panels**

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

Mfr: N/A

Model #: N/A

Color: Clear Anodized Aluminum or Accent (Blue, Red or Yellow)

Finish: Aluminum

Other: Flat Panels with Reveals, Design/Layout per the USAFA Design Standards

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

D05.4.2. Brick Veneer

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

Type: **Brick Veneer**

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

Mfr: TBD

Model #: Modular Face Brick

Color: Tan (exception at Fire Station #2 with Red color)

Finish: Smooth Faced

Other: Community Center

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

D05.4.3. Architectural Precast

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

Type: **Precast Concrete Panel**

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

Mfr: Local Precast Company

Model #: N/A

Color: Exposed Aggregate

Finish: Medium Texture (or media blasted)

Other: N/A

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

D05.4.4. Stucco Over Sheathing

○ Applicable ◉ N/A

D05.4.5. Curtain Wall

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

Type: **Curtain Wall**

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

Mfr: N/A

Model #: N/A

Color: Anodized Aluminum

Finish: Aluminum

Other: Size and layout per the USAFA Design Standards

UFGS: Section 08 44 00 Curtain Wall and Glazed Assemblies:
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 44 00.pdf

D05.4.6. Cast-In-Place Concrete

○ Applicable ◉ N/A

D05.4.7. Tilt-Up Concrete

○ Applicable ◉ N/A

D05.4.8. Ribbed Metal Sheeting

○ Applicable ◉ N/A

D05.4.9. EIFS

○ Applicable ◉ N/A

D05.4.10. GFRC

○ Applicable ◉ N/A

D05.4.11. Concrete Block

○ Applicable ◉ N/A

D05.4.12. Fiber Cement Siding

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

Type: **Housing**

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

Mfr: James Hardie Building Products

Model #: Horizontal Lap Siding, Shingle Siding

Color: Earth Tones

Finish: Painted

Other: Coordinate with 10 CES PM and 10 CES Housing Manager.

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

D05.4.13. Other

○ Applicable ◉ N/A

D06. DOORS AND WINDOWS

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

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

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

Insert 3 photos for each facility group.

Image Tool 250 x 188

Group 1



Group 2



Group 3



Group 4



D06.1. Types

1. Doors, windows and frames with thermal breaks are preferred for Facility Groups 1-3 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 the existing ones.
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 and to any application in Group 3 facilities.
6. Utility and emergency egress doors shall match the wall color.
7. Passive thermal comfort methods of ventilation are encouraged where life cycle cost justified.
8. Windows must meet force protection requirements.
9. Adjacent joint sealants should be slightly darker than the frame color.

D06.2. Layout and Geometry

1. Visually and functionally compose openings in walls for the climate-specific exposure.
2. Consistently use opening type, size, placement, mullion pattern, and color to reinforce the overall architectural design.
3. Openings shall augment interior lighting and space conditioning needs.
4. Protect against vandalism, intrusion and coordinate sound ratings.
5. Follow original window wall color patterns for all components
6. Window walls are to be formed by in-fill panel sections and set into the building's structural frame.
7. A primary mullion system surrounds and separates the panels and forms an orthogonal pattern within the structural frame. They are also to express structural beams and floor levels.
8. Primary mullions are to be flush with the structural frame and in miter.
9. Joints between the primary mullions and the structural frame must be articulated with a reveal.
10. Openings in this wall system for ventilation and emergency access are to be framed by a secondary mullion system that allows the panels to slide or hinge open.
11. Secondary mullions are to be flush with primary mullions.
12. Insect screens are to be installed on the interior side of the panels.
13. The dimensions and location of window wall panels are related to the building plan module.
14. The panels are located with vertical dimensions respecting the interior ceiling and floor positions.
15. The panel sections are to be composed of a combination of infills.
16. Tinted glass is used for transparent areas of window walls.
17. Full-height clear glass panels are to be used at entries.
18. Spandrel glass and colored metal panels are to be used to conceal ceiling cavities and convection units and are to be 2.5 feet high.
19. Louver openings are to be full spandrel size.

20. Clear glass is to be used for entry doors.
21. Locate entry doors in window walls shielded by arcades and overhangs.
22. Double door entries are to be designed in the 7-foot grid module.
23. Entry doors are to be set back from supporting frame by 1 inch.
24. Group 1
    a. Academic & Training / Athletics & Cadet Quarters
        i. Secondary mullions must not contrast with the glazing.
    b. Cadet Dining Hall
        i. The original state of Mitchell Hall must be preserved and all repair work must conform to the original.
    c. Material Table:

Elements	Material	Finish	Color	Dimensions	Profile*
Reveal to Struct. Frame	Aluminum	Anodized	Black	1-1/2″ w,	1.01, 1.02, 1.03, 1.11, 1.14-1.19, 1.25, 1.27, 1.30, 1.34-1.38, 1.40-1.47, 1.51-1.53
TYPE I				1-1/4" d Cap	
TYPE I: Terrazzo, Level 1				1" w, 1" d Cap	
TYPE II				3/4″ w, 3/4" d	
Reveal to Terrazzo Floor	Aluminum	Anodized	Black	4"	
Primary Mullions**	Aluminum	Anodized	Clear		1.01, 1.02, 1.03, 1.12-1.19, 1.45, 1.49-1.53
TYPE I				2-1/2″ w, 1" d Cap	
TYPE II				2-1/2" w, 1-1/4" d Cap	
TYPE II, Terrazzo Level				2-1/2″ w, 1" d Cap	
Secondary Mullions**					
TYPE II	Aluminum	Anodized	Clear	1-1/2″ w	1.41, 1.42, 1.44
Insect Screen Frame	Aluminum	Anodized	Clear	1-1/2" w	1.38, 1.39
Sash, Operable Vent					
TYPE I	Aluminum	Anodized	Clear	1-1/2" w	1.02
Panels					
Transparent Glass	Insulating Glass†	Non-Reflective	Tinted Gray		
Transparent Glass, Entry	Insulating Glass†	Non-Reflective	Clear		
Opaque Glass	Spandrel Glass	Back-painted	Black, Yellow, Red, or Blue to Match Original		1.02, 1.03, 1.09, 1.10-1.15, 1.35, 1.39, 1.40
Metal	Aluminum	Painted, thermal	Black		
Entry Doors					
Support Frame	Metal	Painted	Black	3″	
Double Doors	Aluminum	Anodized	Clear	3″ top, sides; 6" base	
Insulating Glass†	Non-Reflective	Clear			
Hardware	Stainless Steel	Brushed	Clear		

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

** Mullion width (2-1/2") and cap depth (TYPE I: 1"; TYPE II: 1-1/4" and 1") are standard. Overall mullion depth to be determined by the thickness of the insulating glass as mandated in the Force Protection Standards, by the insulation requirements prescribed in the Mechanical Standards, and by structural requirements. Any variation from optimum mullion depth (TYPE I: 7'; TYPE II: 4-1'2" and 8-1/2" (Terrazzo and level one)) shall be standard throughout the building.

† Insulating glass to meet Force Protection Standards. See Mechanical Standards for insulation requirements.

25. Group 2

a. Non Cadet Services Buildings

i. Window walls are to be the height of the building extending from the gravel stop to the concrete base. There is no hierarchy of mullions; all elements are black. Entry doors must be flush and be integrated in the window wall.

ii. Window walls in courtyards are to be recessed to form an arcade.

b. Administrative Facilities

i. Window walls of administrative buildings are to be articulated with red colored metal panels and tinted glass panels.

ii. Primary mullions are to be white to contrast with the black structural frame.

iii. Secondary mullions are to be dark gray to blend with the glass.

iv. Window walls are to meet the ground floor level on a recessed light aluminum-clad base.

c. Fire Stations

i. In addition to the following specific design principles, refer to the general design framework and the design element standards of the previous pages, which apply to all building types.

ii. Clerestory windows, 2.5 feet high, are to extend from the ceiling to provide natural light, where required. The windows must conform to the general design standards of window walls.

iii. Rolling doors are to respect the governing grid and be recessed from the wall.

d. Material Table:

Elements	Material	Finish	Color	Dimensions	Figure*	Profile*
Reveal to Str Frame	Aluminum	Anodized	Black		2.35	
Primary Mullions	Aluminum	Anodized	Black	2-1/2" w, 1-1/2 d Cap		1.70-1.75, 1.85-1.88
Secondary Mullions	Aluminum	Anodized	Black	2-1/2" w, 3/4" d Cap		
Insect Screen Frame	Aluminum	Anodized	Black	2-1/2"		
Panels						
Transparent Glass	Insulated glass†	Non-Reflective	Tinted Gray			
Transparent Glass, Entry	Insulated glass†	Non-Reflective	Clear			
Opaque Glass	Spandrel Glass	Back-Painted	Black			
Metal	Metal	Painted (thermal)	Dark Gray to Match Existing			1.70
Entry Doors						
Support Frame	Metal	Painted	Black	3"		
Double Doors	Aluminum	Anodized	Black	3" Top, Sides; 6" Base		
	Insulated Glass†	Non-Reflective	Clear			
Hardware	Stainless Steel	Brushed	Clear			

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

† Insulated glass to meet Force Protection Standards. See Mechanical Standards for insulation requirements

26. Group 3

    a. Window walls of industrial buildings are to be articulated with gray precast exposed aggregate panels and tinted glass panels.

    b. Primary mullions are to be white to contrast with the black structural frame.

    c. Secondary mullions are to be dark gray to blend with the glass.

    d. Window walls are to meet the ground floor level on an exposed concrete base.

    e. Hangar (Airfield)

        i. Window walls of hangars are to be articulated with blue and silver metal panels and tinted glass panels.

        ii. Clerestory windows, 2.5 feet high, are to extend from the ceiling to provide natural light where required. These windows must conform to the general design standards of window walls.

        iii. Rolling doors are to respect the governing grid and be recessed from the wall.

    f. Material Table:

Elements	Material	Finish	Color	Dimensions	Figure*	Profile*
Reveal to St Frame	Aluminum	Non-Directional,	Clear Anodized	1-1/2″	2.42, 2.45	1.94
Primary Mullions**	Aluminum	Non-Directional,	Clear Anodized	2-1/2″ w, 1-1/2" d Cap		1.90, 1.91, 1.92, 1.94, 1.95
Secondary Mullions**	Aluminum	Non-Directional,	Dark Gray Anodized	2-1/2″ w, 3/4" d Cap		1.90, 1.91, 1.92, 1.96, 1.97
Insect Screen	Aluminum	Non-Directional,	Dark Gray Anodized	2-1/2″ w		
Panels						
Transparent Glass	Insulated glass†	Non-Reflective	Tinted			
Transparent Glass, Entry	Insulated glass†	Non-Reflective	Clear		2.46	
Opaque Glass	Spandrel Glass	Back-Painted	Black		2.46	
Metal	Metal	Painted (thermal)	Red (TYPE V), Dark gray (TYPE VI), Blue (TYPE VII)		2.46	1.90, 1.91
Entry Doors	Aluminum	Non-Directional	Clear Anodized			
Support Frame	Metal	Painted	Black	3″		
Double Doors	Aluminum Frame	Anodized	Clear	3″ Top, Sides; 6" Base		1.92, 1.93
	Insulated Glass†	Non-Reflective	Clear			
Hardware	Stainless Steel	Brushed	Clear			

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

** Mullion width (2-1/2") and cap depth (Primary: 1-1/2"; Secondary: 3/4") are standard. Overall mullion depth to be determined by the thickness of the insulating glass as mandated in the Force Protection Standards, by the insulation requirements prescribed in the Mechanical Standards, and by structural requirements. Any variation from optimum mullion depth (Primary: 8-1/4"; Secondary: 7-1/2") shall be standard throughout the building.

† Insulating glass to meet Force Protection Standards. See Mechanical Standards for insulation requirements.

27. Group 4

a. The Family Housing Areas have been privatized. All proposed changes must be coordinated through 10 CES Project Manager and 10 CES Housing Manager.

D06.3. Glazing and Shading

1. 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.
3. Do not use mirrored glazing.
4. Fully integrate applicable shading designs for overhangs, louvers, light shelves and grilles.
5. Where appropriate, 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. Select finishes that will not degrade by intensity of operation or exposure to the elements.
4. Use consistent finishes and color on window and door systems throughout a facility. For renovation projects the color of new hardware may match the existing hardware.
5. Design building systems to eliminate the need for security screens whenever possible.

D06.5. Doors and Windows Materials

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

D06.5.1. Anodized Aluminum

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

Type: **Aluminum Framed Glass Doors**

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

Mfr: N/A

Color: Clear Anodized Aluminum

Finish: Aluminum

Model #: N/A

Other: Frame size and layout per the USAFA Design Standards

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

Type: **Aluminum Framed Window Walls**

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

Mfr: N/A

Color: Clear Anodized Aluminum

Finish: Aluminum

Model #: N/A

Other: Curtainwall or Storefront Frame size and layout per the USAFA Design Standards

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

D06.5.2. Hollow Metal

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

Type: **Hollow Metal Exterior Door**

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

Mfr: N/A

Color: Gray

Finish: Painted

Model #: N/A

Other: Hollow Metal Frame

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

D06.5.3. Aluminum-clad Wood

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

Type: **Housing Doors**

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

Mfr: N/A

Color: White

Finish: Smooth faced aluminum

Model #: N/A

Other: Wood Frame and Trim

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

D06.5.4. Other

○ Applicable ◉ N/A

D07. ROOF SYSTEMS

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

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

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

Insert 3 photos for each facility group.

Image Tool 250 x 188

Group 1



Group 2



Group 3


Group 4



D07.1. Roof Type and Form

1. Design roof system based on the unique requirements of each facility. Incorporate best current roof design practices and current energy goals.
2. 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.
3. Generally match the roof type and form of existing adjacent facilities in new construction.
4. Group 4 facilities shall have gabled or hipped composite shingle roofs.
5. Roof eaves shall extend beyond the exterior wall for roof drainage and shading.
6. 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.
7. South-facing eaves shall coordinate with adjacent wall-mounted shading devices.
8. The color, shape and slope of the eave and soffit shall be compatible with adjacent facilities.
9. Keep roofs uncluttered and minimize penetrations. Mechanical equipment penthouses, elevator overruns and machine rooms, stair enclosures and other major and minor elements must not project above the roof surface.
10. Increase the insulation value of existing roofing systems during renovations if supported by life cycle cost and structural analysis.
11. Roofs shall be maintained for the life of the system and replaced in accordance with UFC 3-110-04 and AFI 32-1051. A warranty is required on all new roofs.
12. Material Table - Group 1

Elements	Material	Finish	Color	Dimensions	Figure*	Profile*
Membrane Waterproofing						
Roof	Bitumen	Modified, Granules	White			
Roof, Visible	Thermal Plastic	Sinned, Hot Air	Light gray			
(TPO or Hypalon)	Polyolefn	Welded				
Gravel Stop	Aluminum Sheet Metal	Anodized	Clear, White	TYPE I: 6" TYPE II: 4-1/2"	2.30	1.01, 1.05, 1.07 1.34
Reveal, TYPE II only	Aluminum	Anodized	Clear	1”		1.34

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

13. Material Table - Group 2

Elements	Material	Finish	Color	Dimensions	Figure*	Profile*
Gravel Stop	Aluminum Sheet Metal	Anodized	Black	4-1/4"	2.34	1.64, 1.67, 1.83, 1.84
Reveal	Metal, Sheet Metal	Anodized	Black	3/4"		1.64, 1.77, 1.78, 1.83, 1.84

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

14. Material Table - Group 3

Elements	Material	Finish	Color	Dimensions	Figure*	Profile*
Gravel Stop	Aluminum Sheet Metal	Anodized	Clear or White	7"	2.39	1.89
Reveal	Aluminum Sheet Metal	Anodized	Clear or White	2"		1.89

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

15. Group 4 - The Family Housing Areas have been privatized. All proposed changes must be coordinated through 10 CES Project Manager and 10 CES Housing Manager.

D07.2. Roof Slope

1. Groups 1, 2, 3 - All roofs are to be low slope , min. 1/4":12."
2. Group 4 facilities shall use 4:12 to 6:12 roof slopes.
3. Ensure adequate drainage, and connect to the subsurface rain collection system where available.
4. Provide roof slopes to accommodate solar photovoltaic, solar thermal, passive systems and daylighting when applicable following UFC 1-200-02.
5. Provide underlayments as required for the roofing type as directed by the UFC.
6. Provide roof slopes to accommodate solar photovoltaic, solar thermal, passive systems and daylighting when applicable following UFC 1-200-02.
7. Provide membrane underlayments on sloped roofs when required to address ice damming.
8. Install snow guards on sloped roofs over building access points where snow and ice may accumulate.

D07.3. Parapets and Copings

1. Ensure gravel stops are properly flashed and detailed to avoid roof leaks.
2. Gravel stops must equal 1/3 of the height of the roof edge or structural beam.
3. Mount gravel stop sheet metal continuously in regular intervals.
4. Recess gravel stop from structural framing by 2 inches.
5. Roofs not utilized as a primary walking surface are not to have railings extending above the roof at the edge
6. Group 1
    a. Align gravel stops to arcades to be flush with structural framing and separated with a reveal.
    b. Maintain Cadet Dining Hall as original
7. Group 2
    a. Non-Cadet Services Buildings - Gravel stops are to be black in color to contrast with the white structural frame.
    b. Administrative - Gravel stops are to be white in color to contrast with the black structural frame
    c. Fire Stations - Gravel stops are to be black in color.
8. Group 3
    a. Gravel stops are to be white in color to contrast with the structural frame.
9. Group 4
    a. The Family Housing Areas have been privatized. All proposed changes must be coordinated through 10 CES Project Manager and 10 CES Housing Manager.

D07.4. Color and Reflectivity

1. If roofs are visible from buildings, use a light gray membrane waterproofing with hot air welded seams.
2. All minimal-slope membrane roofs shall use only use high-albedo, high reflectivity color to help decrease the temperature around the buildings and minimize damage to human and wildlife habitat.
3. Sloped roofs in Group 4 shall be earth 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. Groups 1, 2 and 3
    a. Roofs are internally drained.
    b. Externally visible drainage elements such as gutters, down-spouts, and scuppers, are prohibited.

c. To maintain a low gravel stop profile, increase the number of drains.

d. Internal roof drainage systems are required for Groups 1, 2, 3.

2. Group 4 shall use gutters and downspouts.

a. Gutters are required for all eaves receiving water and are required for all eaves above the first story unless the area drained is minimal.

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

c. Integrate downspouts with the architectural details of the wall system and arrange in an orderly, non-prominent appearance.

d. Generally blend downspouts with the color of the wall (not contrasting it).

e. Fabricate downspouts from non-corrosive materials such as aluminum, zinc-coated steel, or stainless steel. .

f. Open-faced downspouts are required on north-facing exposures.

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

h. Place downspouts away from building entries. Water discharged should not run across sidewalks.

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

D07.6. Roof Vents and Elements

1. Groups 1, 2 and 3 - Mechanical equipment penthouses, elevator overruns and machine rooms, stair enclosures and other major and minor elements must not project above the roof surface.

a. Minimize and consolidate roof penetrations into a single, inconspicuous point whenever possible.

2. Group 4 - On sloped roofs clad pipe penetrations to match the roofing material.

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

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

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

d. Avoid roof-mounted antenna systems.

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

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

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

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

D07.7. Clerestories and Skylights

1. Clerestories and skylights are permitted only when serving passive systems and are justifiable by life-cycle analysis.

2. Clerestories are preferred to skylights to avoid roof penetrations. Skylights, when permitted, must be simple in shape and integrated with the roof system to eliminate leakage.

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

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

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

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

◯ Applicable ◉ N/A

D07.9.2. Membrane Single-ply

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

Type: **EPDM Membrane Roof**

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

Mfr: N/A

Color: White or Light Gray

Finish: Smooth Finish

Model #: Fully Adhered

Other: N/A

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

D07.9.3. Built-up Multi-ply

◯ Applicable ◉ N/A

D07.9.4. Concrete Tile

◯ Applicable ◉ N/A

D07.9.5. Clay Tile

◯ Applicable ◉ N/A

D07.9.6. Slate Shingles

○ Applicable ◉ N/A

D07.9.7. Vegetated System

○ Applicable ◉ N/A

D07.9.8. Ribbed Metal Sheeting

○ Applicable ◉ N/A

D07.9.9. Composite Shingles

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

Type: **Asphalt Shingles**

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

Mfr: N/A

Color: Natural Tan or Gray

Finish: Granulated

Model #: 3 Tab Shingle

Other: N/A

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

D07.9.10. Other

○ Applicable ◉ N/A

D08. STRUCTURAL SYSTEMS

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

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

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

Insert 3 photos for each facility group.

Image Tool 250 x 188

Group 1



Group 2



Group 3



Group 4



D08.1. Systems and Layouts

1. Building structural frames are to be expressed in building enclosures regardless of wall type. The structural expression is to occur at each floor level, at each beam, and at each column at regular intervals on the governing grid.
2. Structural elements, such as wall frames and columns, are to meet the ground floor level on an exposed concrete base. The base is to be flush with the structural element and be articulated with a reveal.
3. USAFA Structural Design Parameters (To be used in conjunction with UFC 3-310-01Structural Load Data to ensure that importance factors are being applied as applicable):
    a. Design Wind Speeds:
        i. Above 7,000 feet above mean sea level = 110 MPH (V3S)
        ii. Jacks Valley = 100 MPH (V3S)
        iii. All Other Areas of Base = 90 MPH (V3S)
    b. Snow Live Load:
        i. Above 7,000 feet above mean seal level = 40 lbs/SF
        ii. All Other Areas of Base = 30 lbs/SF
    c. Frost Depth:
        i. Above 7,000 feet above mean sea level = 42-in. below grade
        ii. Jacks Valley = 36-in. below grade
        iii. All Other Areas of Base = 30-in. below grade
4. Pre-engineered structural steel framing may be used for Groups 1, 2 and 3 facilities; Installation-appropriate thermal envelopes, materials and detailing are required.
5. Select economical structural systems that integrate roof and wall systems.
6. Fully coordinate structural grids with exterior window systems to align columns with window frames or wall systems.
7. When structure is exposed 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 a visual feature.
9. Wood framing or light-gauge steel framing shall be used for Group 4.
10. Group 1
    a. Academic & Athletics
        i. Freestanding columns must be flush with the facade to define the exterior space of the building.
        ii. The columns and beams are to be clad, respecting the 28-foot governing grid. Columns must not have articulated base conditions or capitals, but terminate in simple joints at the paving surface and the roof line or soffit. The column cladding is to be continuous to the height of the facade extending from the gravel stop to the base. The beam cladding is to span from column to column.
        iii. Columns and beams are to be clad in fat aluminum panels. The panel width must equal the column or beam width and must not be divided. Crisp corners are required.
        iv. Panel joints in the frame cladding are to be minimized and are to respect floor and module lines.
        v. Panel joints of columns are to occur at the upper edge of the beam cladding. Joints between beam and column cladding are not to exceed 3/8 inches.
        vi. Joints between the frame and other in-fill materials are to be articulated with a reveal to accentuate the frame expression.
    b. Cadet Dorms

i. The beams and wall-ends are to be clad, respecting the 28-foot governing grid. The beam cladding must extend the length of the facade, while the wall-end cladding must run from beam to beam. The panel width of the cladding must equal the beam or wall width and cannot be divided.

ii. Panel joints in the cladding frame are to be minimized and respect grid axis and module lines. Joints between the frame and other in-fill materials are to be articulated with a reveal to create a crisp corner.

iii. The columns on the basement and Terrazzo level are to be recessed from the facade and clad in aggregate concrete with rounded corners to match original.

c. Cadet Dining Hall

i. The structure of Mitchell Hall is a large, long-span roof frame that is supported on a minimum number of columns. Maintain as original.

d. Material Table:

Elements	Material	Finish	Color	Dimensions	Figure*	Profile*
Column Cladding	Aluminum Panel	Anodized	Clear	3/16" thick	2.22, 2.27, 2.28, 2.29, 2.31, 2.32	1.04, 1.18, 1.40
Reveal	Aluminum	Anodized	Clear	1/2"		1.03, 1.06, 1.07, 1.08, 1.11
Beam Cladding	Aluminum Panel	Anodized	Clear	3/16" thick	2.26	1.07, 1.08, 1.09, 1.10, 1.40, 1.41
Joint	Silicone Sealant	Concave	Gray to Match	3/8"	2.23	
Reveal	Aluminum	Anodized	Clear	1/2"		1.11
Column Cladding, Type II only	Precast Concrete	Exposed Aggregate, Rustic	Beige to Match Original	1-3/4", 2"		1.61, 1.62, 1.63
Joint	Silicone Sealant	Concave	Tan to Match Architectural Rigid Pavement	1/4"		1.62

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

11. Group 2

a. Non-Cadet Services Buildings

i. The structure is to be a steel-clad frame system of columns and beams. All structural elements are to be painted white to distinguish from non-structural elements, such as the wall frames, which are to be painted black.

ii. The columns are to meet the ground floor level on an exposed concrete base.

b. Administrative Facilities

i. The structure of administrative buildings is to be an exposed steel system of wide flange columns and beams. All structural elements are to be painted black to contrast with the recessed non-structural window walls embraced by white steel frames.

ii. The columns are to meet the ground floor level on an exposed concrete base.

c. Fire Stations

i. The building structure of Fire Stations is to be a steel-clad frame system of columns and beams painted black.

ii. The columns must meet the ground floor level on an exposed concrete base.

d. Material Table:

Elements	Material	Finish	Color	Figure*	Profile*
Structural Frame Cladding	Steel	Painted	White to Match Existing	2.33, 2.34	1.64, 1.66, 1.67, 1.82, 1.83, 1.84
Columns, Beams	Steel	Painted	White to Match Existing	2.37, 2.38	1.67, 1.68, 1.70, 1.82,

					1.83, 1.84
Base	Concrete	Trowel	Light Gray to Match Existing	2.33	1.65

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

12. Group 3
    a. The structural system is to be an exposed steel system of wide flange columns and beams. All structural elements are to be painted black to contrast with the non-structural window walls.
    b. The columns are to meet the ground floor level on an exposed concrete base.
    c. Hangar (Airfield)
        i. The structure of hangars must be similar to the architecture of the original campus (International Style), expressed as an exposed pre-cast concrete system of columns and beams.
    d. Material Table:

Elements	Material	Finish	Color	Figure*	Profile*
Steel System					
Columns, Beams	Steel, H Profiles	Painted	Black	2.39	1.89
Base	Concrete	Trowel	Light Gray, Match Existing	2.40	1.90, 1.93
Concrete System, Hangar					
Exposed Columns,	Pre-Cast Concrete	Trowel	Light Gray or Brown, Match Existing		
Beams					
Base	Concrete	Trowel	Light Gray or Brown, Match Existing		
Walls	Pre-Cast Concrete	Exposed Aggregate, Rustic	Light Gray or Brown, Match Original		

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

13. Group 4
    a. The Family Housing Areas have been privatized. All proposed changes must be coordinated through 10 CES Project Manager and 10 CES Housing Manager.

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 Image Tool 250 x 188

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 thermal heating technologies

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

D08.2.2. Insulated Concrete Forming (ICF)

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

Type: **Modular ICF Block System**

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

Mfr: Greenblock

Color: Factory

Finish: Factory

Model #: Fixed-Web and / or GBLOX Panel System

Other: Provide engineered 6", 8", 10" and 12" core widths

UFGS: Section 03 30 53 Miscellaneous Cast-In-Place Concrete
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 03 30 53.pdf
Section 03 11 19 Insulating Concrete Forming
(Not Available on UFGS)

D08.2.3. Steel

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

Type: **Rigid Framing**

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

Mfr: US Steel

Color: Shop primed

Finish: Matte

Model #: Structural steel shapes

Other: N/A

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

D08.2.4. Pre-Engineered Steel

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

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
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 13 34 19.pdf

D08.2.5. Masonry

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

Type: **Load Bearing Wall Systems**

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

Mfr: Custom

Color: Light to medium beige

Finish: Per Exterior Wall Systems; Interiors use ground face

Model #: 8x8x16 nominal, face and corner units

Other: Coordinate interior walls with thermal heating systems

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

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

Type: **Steel Framing**

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

Mfr: Steelrite

Color: Factory

Finish: Galvanized

Model #: Structural framing shapes

Other: N/A

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

D08.2.8. Lumber Framing

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

Type: **Style 1**

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

Mfr: Boise Cascade Wood Products

Color: N/A

Finish: S4S

Model #: Structural dimensional lumber

Other: N/A

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

D08.2.9. Other

○ Applicable ◉ N/A

D09. MECHANICAL, ELECTRICAL AND PLUMBING

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

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

Insert 3 photos for each facility group.

Image Tool 250 x 188

Group 1



Group 2



Group 3



Group 4



D09.1. Passive and Active Systems

1. Fully integrate passive heating and cooling systems into facility designs whenever practical for the local climate, which is dominated by mechanical heating loads, prior to the design of active mechanical systems.
2. Provide optimized passive and active systems; design active mechanical systems to supplement thermal mass walls and floors.
3. Develop renewable energy systems 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 required when life cycle cost effective.
6. Integrate shading into building exteriors to reduce solar heat gain during the summer.

D09.2. Functionality and Efficiency

1. BUILDING EXTERIOR
   a. Ensure the integration of utilities minimize their visual impact on the architecture and landscape.
   b. Fully coordinate mechanical, electrical, plumbing (MEP) and fire protection systems with each other and with the building structure, enclosure, thermal envelope and interior design.
   c. Ensure direct exterior access is provided (for CE) to main mechanical and electrical rooms.
   d. Screen exterior equipment from primary views (landscape, building masses, screen walls) and comply with AT/FP requirements.
   e. Keep equipment away from main building entrances; locate service area/yard on least visible side of a building.
   f. Coordinate the location of all exterior meters, equipment and devices to provide convenient access and an overall coordinated and orderly appearance.
   g. Design emergency generator systems integrally with all other building systems and avoid incompatible building additions; locate generators near service areas and not visible from primary entrances.
2. Mechanical
   a. In exterior soffits, use perforated air conditioner covers for return air and directional diffusers for supply air.
   b. Do not paint mechanical grills.
   c. Install devices in paint colors and finishes to match the surface to which the device is being installed.
   d. Mechanical devices must be spaced between the lighting fixtures.
   e. Material Table:

Elements	Material	Finish	Color
Air conditioning			
Trim of slot diffuser	Stainless steel	Brushed, unpainted	Silver

3. Electrical
   a. Access panels, if needed, are to be wall panels integrated into building walls and aligned with the governing grid.
   b. Never locate exterior outlets and switches on an accent wall or in the center of a wall. Group and install them 1 foot off the ground at more than 6 inches apart, with centers aligned.
   c. The standard for outlet and switch covers is to be brushed stainless steel and the outlet and switch themselves are to be ivory.
   d. Exterior lighting schemes to be a comparable type for the appropriate design principles.
   e. Lighting should promote visibility and safety, particularly around building access areas.
   f. All lighting, mechanical and life safety devices are to be installed in a uniform, logical and consistent location, following a single line.

g. All lighting fixtures should be installed on grid where possible.

h. In asymmetrical spaces such as arcades, which are open on one side, lighting fixtures are to be installed off-centered towards the opening.

i. Recessed wall washers are to light the accent walls.

j. In symmetrical spaces, lighting fixtures and mechanical devices are centered and aligned on the governing grid.

k. No fixtures are to be mounted on mosaic walls.

l. Exposed conduits are prohibited.

m. Material Table:

Elements	Material	Finish	Color	Dimension	Figure*
Access panels	Aluminum	Extruded	Clear anodized		2.43
Speakers, recessed	Stainless steel	Brushed	Silver	Diameter max 1'-0"	2.53
Outlets / switches					
Cover	Stainless steel	Brushed	Silver		
Outlet, switch	Plastic		Black		
Fire alarms			White / light gray		

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

4. BUILDING INTERIOR

a. Ensure the integration of utilities minimize their visual impact on the interior architecture.

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

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

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

e. 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.

f. Separate mechanical and electrical and communications rooms.

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

h. All lighting, mechanical and life safety devices are to be installed in a uniform, logical and consistent location, following a single line.

i. No fixtures are to be mounted on mosaic walls.

j. Exposed conduits are prohibited.

5. Mechanical

a. Use continuous linear slot diffusers in drywall ceilings.

b. In asymmetrical spaces such as primary corridors with a window wall on one side, mechanical devices are to be off-centered towards the window wall.

c. Mechanical devices are to be off-centered.

d. Plumbing pipe - Schedule 40, minimum.

e. Glycol - Dow Frost HD (Milspec).

f. Glycol filters - Griswald.

g. High Temperature Hot Water valves and accessories - Class 600, welded.

h. HVAC insulation - To be on outside of ductwork, not on inside.

i. HVAC controls - Siemens (sole sourced at USAFA).

j. Material Table:

Elements	Material	Finish	Color
Air conditioning			
Trim of slot diffuser	Stainless steel	Brushed, unpainted	Silver
Thermostats		Painted	Match adjacent walls
Thermostats, Veneer walls	Painted	Black	

6. Electrical

a. Speaker covers are to be no larger than 1 foot in diameter, centered in the ceiling tile and installed flush to the ceiling.

b. Group outlets, switches and thermostats together near door entries; never locate them in the center of walls or on an accent wall. Install them 6 inches apart, with centers aligned where possible. The mounting height is to match existing.

c. The standard for outlet and switch covers is to be brushed stainless steel and the outlet and switch themselves are to be black.

d. Relate receptacles and telephone jacks to the elevation in which they are installed, separated from each other by less than 6 inches. They will typically be mounted at 18 inches AFF.

e. Access panels are not to be located in 1-foot by 1-foot ceiling tiles.

f. Avoid miscellaneous ceiling plates and panels on walls.

g. If needed, add plates and panels to walls in alignment with surroundings and the governing grid.

h. On panel walls, install plates and covers the full width of the panel at the top edge of the panel. If plates are smaller than the width of the panel, they should be centered on the panel.

i. Provide adequate levels of lighting for interior spaces.

j. When designing lighting schemes for an area, select a comparable type for the appropriate design principles.

k. Lighting fixtures and safety devices are to be centered in the ceiling; recessed wall washers are to light the interior wall, and are to be off-centered.

l. In symmetrical spaces such as enclosed secondary circulation corridors, all lighting fixtures are to be centered.

m. Material Table:

Elements	Material	Finish	Color	Dimension
Speakers	Metal	Painted	To match ceiling	Diameter max 1'-0"
Outlets / switches	Stainless steel			
Cover	Stainless steel	Brushed	Silver	
Outlet, switch	Plastic		Black	
Receptacles	Stainless steel	Brushed	Silver	
Telephone jacks	Stainless steel	Brushed	Silver	

7. Security/ Safety

a. Sprinkler heads are to be recessed with the trim matching the color of the ceiling. Installation to comply with UFC 3-600-01.

b. All sprinkler heads are to be centered in the ceiling tile and align with the lighting grid.

c. Exit signage must be located in corridors and must be suspended from the ceiling.

d. Exit signage must be edge-lit glass with minimal green colored graphics as allowed by code. The frame plate must be flush with the ceiling plate.

e. Fire extinguishers and standpipe cabinets must be located in a niche or recessed in a wall.

f. They must be identified by wall-mounted international symbols, mounted at right angles.

g. Material Table:

Elements	Material	Finish	Color	Figure*
Sprinkler heads				
Trim		Painted	To match ceiling	
Exit signage	Glass		Clear, green	4.84
Frame plate	Metal	Painted	White	
Emergency lighting		White		
Fire extinguisher				
Frame	Stainless steel	Brushed	Silver	
Window	Glass		Clear	
Signage			Red	
Standpipe cabinet	Stainless steel	Brushed	Silver	

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

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.

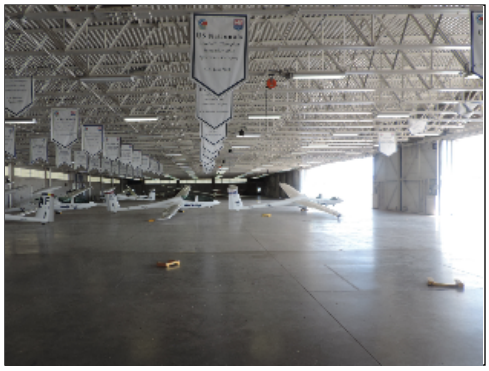
Image Tool 250 x 188

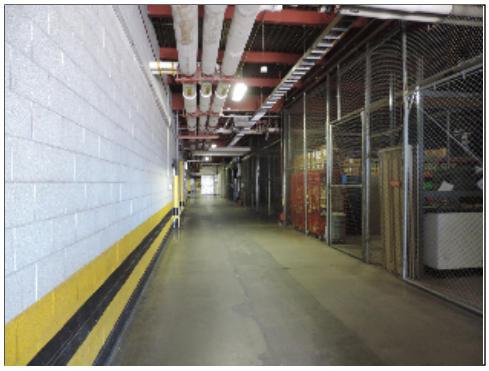
Group 1



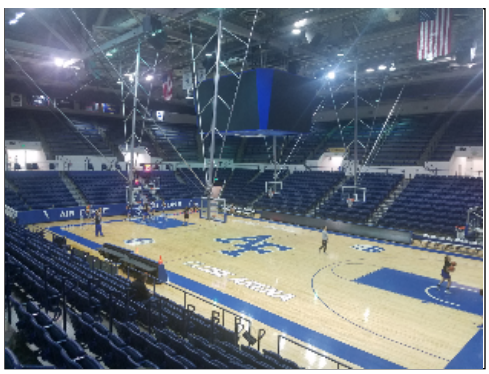
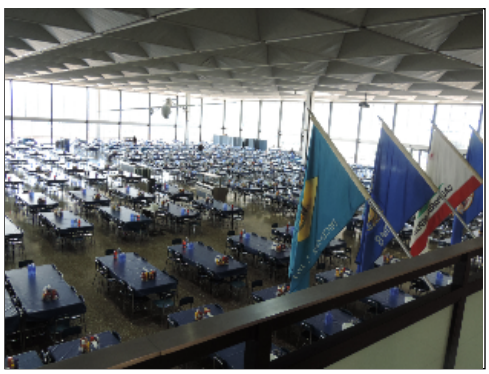
Group 2


Group 3





Group 4


E01. Building Configurations

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

1. Provide open-plan configurations for office, administrative, operational and related activities and spaces for maximum flexibility. Use a "core and shell" approach in which all building systems, infrastructure and permanent interior partitions anticipate two or more uses (operations) during a facility's lifespan.
2. Create flexible interior configurations using Furniture, Fixtures & Equipment (FF&E) and limit private offices and private rooms. Refer to AFMAN 32-1084 for space requirements. To the greatest extent, limit permanent partitions to core areas such as toilet rooms, stairs, mechanical and utility rooms.
3. Use more durable long-lasting finishes in core areas for walls, ceilings, floor coverings and built-in casework. Coordinate interior FF&E layouts with structural grids during space planning.
4. Provide high-performance building configurations following UFC 1-200-02. Ensure passive design strategies are cost effectively incorporated before active mechanical systems are designed.
5. Comply with UFC 1-200-01, general building requirements. UFC 1-200-01 provides applicability of model building codes and government unique criteria for typical design disciplines and building systems, as well as for accessibility, antiterrorism, security, high performance and sustainability requirements, and safety.
6. Meet security and force protection requirements in UFC 4-010-01: DoD Minimum Antiterrorism Standards for Buildings.
7. Comply with AFCFS for supporting mission requirements, addressing human comfort and well-being, and creating highly flexible interiors while satisfying metrics for high performance and sustainable buildings.
8. Provide a level of quality for interior features, materials and finishes that is appropriate for the Facility Group number. Group 1 may receive higher quality than Groups 2 thru 4. Refer to Facility Hierarchy.
9. Through open-plan configurations, preserve all passive and natural design strategies and fully integrate facility interiors with overall building systems.
10. Professional interior designers, or architects with significant interior design experience, must accomplish the design and review of applicable new construction, renovations and maintenance projects.
11. Consult with the State Historic Preservation Officer (SHPO) and base-level Historic Preservation offices regarding proposed changes to properties listed on or eligible for listing on the National Register of Historic Places. Follow requirements of The National Historic Preservation Act and Secretary of the Interior Standards for the Treatment of Historic Properties.
12. Maintain architectural compatibility following AFCFS and this Installation Facilities Standards (IFS) document to create continuity while avoiding monotony.
13. Preserve the basic concept and detailing of the original USAFA design.
    a. Building interiors must maintain a strong relationship to the building architecture in plan, section and design philosophy.
    b. Emphasis is to be placed on form being generated by its function and structure.
    c. The design of interior spaces is to be dependent on the intrinsic elegance of materials, technical perfection, simple proportions, precision detailing and refined composition.
    d. Each type of interior spaces is to be standardized in its design elements, including Walls, Accent Walls, Window Walls, Ceiling, Flooring and Appliances.
    e. The interiors must continue the level of deliberate placement and precise detail achieved in the Academy architecture.
    f. Determine which elements of the interior architecture must be preserved and restored to their original state, and which elements must be up-to-date and modern and are not to be used to recreate 1950's interiors.
    g. Distinguish between the different types of interior spaces according to their functions and specific interior Design.
14. Composition
    a. Create major and minor spaces, which will help establish focus, attention and orientation.
    b. Group similar functions together. Separate dissimilar functions either by building or floor.

c. Develop formal approaches to important spaces. Use less important spaces to define axes or corridors.

d. In public areas, use planar elements, separated in the horizontal or vertical directions through the use of a reveal or recess, to create a hierarchy within the space. Planar elements must generally appear uniform, continuous and solid in color.

e. Dissimilar materials within the same plane must be flush with and aligned to each other, separated by a reveal. They must be the same color in order to achieve a planar appearance. Wainscots and applied wood trim are not appropriate in defining planes and must not be used. Reveals need not occur between two perpendicular vertical surfaces of the same material.

E01.1. Layout and Common Areas

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

1. Create open-plan interior environments to accommodate 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).
11. Primary circulation corridors are the major public circulation paths through buildings that link entry lobbies and stairways to secondary circulation corridors or directly to the rooms.
12. Secondary circulation corridors are the minor circulation paths through buildings that serve administrative or service areas. They occur between rooms, not at window walls.
13. Modules
    a. All dimensions of built interior space including floor, wall systems, ceiling systems and freestanding furniture must be a division of the governing grid module and relate to the column structure.
    b. Compose interior environments with standardized, repetitive components related to the governing grid. Regularly recurring lines, shapes, and colors must create an overall composition and rhythm of classic restraint.
    c. Maintain continuity of shape throughout interior areas, creating simple, regular and rectangular spaces.
    d. Special functional spaces that do not themselves correspond to simple, geometric spaces must be enclosed within rectilinear forms, which adhere to the governing grid.
    e. Openings between primary and secondary circulation are to extend full height from floor to ceiling.
    f. Transitions must occur between the building lobby and adjacent functions to provide a logical termination for the lobby finishes.
    g. The Governing Grid Module:

        Basic Structural Bay - 28 feet at Cadet Area and 21 feet at Other Areas

        Residential Room Width - 14 feet

        Private Office Width - 10.5 feet

        Workstation Dimension - 3.5 feet or 7 feet

Primary Circulation - 7 Feet or 10.5 feet or 14 Feet

Secondary Circulation - 3.5 feet or 7 feet

Floor Units - Continuous or 1 foot

Ceiling Units - Continuous or 1 foot or 2 feet

Wall Units - Continuous or 1 foot or 1.75 feet or 3.5 feet

14. Lobbies and Stairways
    a. Main entry lobbies and stairways generally conform to the design standards of primary circulation corridors.
    b. Office lobbies and service stairs follow the standards of secondary circulation corridors.
15. Stairs/Handrails
    a. Stairways are to be open, rectilinear in shape
    b. Stairways are to be visually reflected from outside of buildings in a continuous form.
    c. Circular, ornamental stairs are used for more formal and grand entrances in common service areas, within a double-height space.
    d. Open stairways are to be freestanding concrete structures.
    e. Separate stairways from the wall by 2 inches.
    f. Stairways to have solid stringers of smooth finish extending the tread up to 1 inch.
    g. Treads and risers in polished white terrazzo are to be separated from solid stringers by a reveal of 1 inch. Risers are to be angled.
    h. A flush continuous skid strip must extend along the length of the tread and align at either end with the handrail.
    i. Ornamental stairs are to conform to materials and detailing of open stairways.
    j. Stairs in double-height spaces in dormitory buildings connecting two floors are to be freestanding steel structures with solid treads in polished white terrazzo suspended between stringers. Stairs and landings are to be rectilinear in shape.
    k. Service stairs are to be freestanding structures in an enclosed stair hall. The stairs and landings are to be rectilinear. Treads and risers are to have rubber flooring.
    l. Handrails are to be composed of vertical steel, square bar stock supports, painted black, extending from the toecap to the treads. One vertical support per tread should be embedded in the middle of the tread, set back 3 inches from the stringer, in a uninterrupted manner. The top cap must be a fat aluminum bar with rounded sides continuous along the length of the stair.
    m. For the stairs in double-height spaces in dormitory buildings, use steel round bar stock for the vertical supports of handrails and rounded walnut bar as top cap.
    n. Material Table:

Elements	Material	Finish	Color	Dimensions	Figure*	Profile*
Open Stairways						
Stringers	Concrete	Plastered, Painted	PPG#2541 "Abbey"	To Match Original	4.67	
Trim / Reveal	Metal	Painted	Black	1″ X 1″		
Treads, Risers	Terrazzo	Polished To Match Original	White To Match Original	2″ Wide		
Skid Strips (At Stair Nosing)	To Match Original	To Match Original	Black To Match Original			
Verticals	Steel Square Bar Stock	Painted	Black	1/2″ X 1/2″		3.25, 3.26, 3.27, 3.28, 3.29
Guardrail	Stainless Steel	Anodized	Clear	3/8" X 2-1/2"		3.25, 3.26

	Steel Plate	Painted	Black	3/8" X 1-1/2"	
Handrail	Stainless Steel Pipe	Brushed	Clear	1-1/2" Diameter	3.26, 3.27, 3.31, 3.32
Handrail, Wall Mounted	Stainless Steel Pipe	Brushed Painted	Clear Black	1-1/2" Diameter	3.30
Stairs, Double-Height Spaces, Dorms					
Stringers	Steel	Painted	Black	To Match Original	4.67
Treads, Risers	Terrazzo, Solid	Polished To Match Original	White To Match Original	1-1/2" Thick	4.68
Skid Strips			Black To Match Original	2" Wide	
Verticals	Steel Square Bar Stock	Painted	Black	1/2" X 1/2"	
Wood Handrail	Walnut		Natural	2" Diameter	4.67
Steel Handrail	Steel Pipe	Painted	Black To Match Verticals	2" Diameter	
Service Stairs					
Treads, Risers	Rubber Flooring	Dot Raised Pattern	Dark Gray		
Handrail Verticals	Steel Square Bar Stock	Painted	Black	1/2" X 1/2"	4.68
Handrail Top Cap	Aluminum	Anodized	Clear	1/2" X 1 1/2", Rounded Sides	
Tube	Steel Square Bar Stock	Painted	Black To Match Verticals	1-1/4" X 1-1/4"	

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

16. Elevator Lobbies
    a. Elevator lobbies are to be standardized throughout the campus. They are to be square or rectangular in plan.

E01.1.1. Interior Design Process

1. Comply with UFC 3-120-10 for the Comprehensive Interior Design (CID) which includes both Structural Interior Design (SID) and Furniture, Fixtures & Equipment (FF&E) design services.
2. Use a collaborative, integrated planning and design team, composed of user, government support staff, and appropriate professionals. Integrate architectural features using simple detailing to create a professional appearance; avoid extravagant or excessive detailing.
3. Ensure interior designs satisfy the functional requirements within the context of flexibility, sustainability and the building's energy performance.
4. Base space planning on square foot allocations from AFM 32-1084. Identify special requirements if any, such as privacy separation, VIP areas, gathering spaces and storage. Note: The occupant's rank and position will influence the square footage and selection of materials.
5. Provide clear circulation and pathway finding for both horizontal and vertical directions that accommodate the number of personnel in the facility.
6. Maximize efficiencies in the space plan for functional relationships and adjacencies for all facility users. Efficiently create and situate rooms and support rooms such as conference / meeting rooms and break rooms.

7. Provide interior design building-related illustrations, drawings, schedules, materials selections, specifications and cost estimates as listed in UFC 3-120-10. Refer to Furnishings in this IFS also.
8. SID Format shall follow UFC 3-120-10.
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.
10. Color
    a. Color can be defined using its three attributes of hue (red, yellow, blue), value (light, dark), and chrome (bright, neutral).
    b. The primary colors blue, yellow, and red are used throughout the campus to designate building entries and building functions. Generally, blue applies to academic and training functions, yellow applies to housing functions, and red applies to administrative functions.
    c. The overriding color principles at the Academy are chromatic contrast and value contrast.
    d. The predominant materials are chromatically neutral but vary in contrast from white to black. Variety and visual interest are achieved through this value contrast, but it is the overall chromatic control that creates a unifying harmony of materials.
11. Comparable Use - follow interior guidelines in all Facility Groups:
    a. Instructional Spaces - Treat classroom spaces and lecture halls as utilitarian, deriving the aesthetics from the function. Lecture halls have upgraded standards, including acoustic wall and ceiling treatment.
    b. Administrative Spaces - Open office areas are to be supported by enclosed conferencing areas for meetings requiring confidentiality. Conferencing areas are to have upgraded standards, including special wall treatment. If the hierarchy of the office requires a differentiation of office spaces, upgraded standards may be applied for private offices.
    c. Toilet, Locker and Shower Rooms - Upgraded standards, including vanities, exist for highly public areas.
    d. Dormitory Rooms and Support Spaces - Rooms must accommodate cadets' needs for sleep, privacy and study, yet maintain a compatibility with the austerity of the Group 1 (Cadet Area) architecture. Low maintenance and high durability are requirements. White tones must be incorporated to generally enliven and brighten the space.
    e. Dining Hall - The Dining Hall currently exists as a modern and timeless architectural statement. Maintain this building in its original state. New materials must exactly match the existing in both color and quality. Upgraded standards apply in the dining hall for high ranking officials, visitors and cadets dining in that area. White tones must be used to enliven and brighten the space.
    f. Athletic Facilities - When possible, the governing grid must be used for both plan and elevations.
    g. Retail / Recreational / Service Functions - Relate special function areas in design intent to their surroundings, creating diversity while maintaining the integrity of the Academy architecture. Wood trim is prohibited. Paint truss work a shade darker than the wall of the space.
    h. Cafés / Restaurants / Bookstores / Clubs - Create a diversity and interest among these special function spaces that separates them from typical functions, while maintaining a high level of design intent and quality. Enclose spaces within forms that adhere to the governing grid. Design to evoke the spirit of modernism and do not deviate to other styles.

E01.1.2. Codes and Regulations

1. Refer to UFC 1-200-01 for modifications to the International Building Code (IBC) to determine applicable sections of the IBC. Both the IBC Chapter 3 and UFC 3-600-01 govern “Use and Occupancy Classification” for example.
2. Fire code requirements shall be as defined in the International Building Code (IBC) and must be used where dictated by UFC 1-200-01 DoD Building Code (General Building Requirements) except where noted in UFC 3-600-01 (Fire Protection Engineering for Facilities).

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

E01.2. Quality and Comfort

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

1. Include durability in the life cycle cost analysis for best-value material selections with long life expectancies that do not show excessive wearing.
2. Select long-lasting 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.
9. Promote air movement and daylighting for human health and wellbeing.
10. Acoustical Requirements:
    a. Acoustical criteria can be expressed in both a sound transmission classification (STC) criteria and a noise criteria level (NC). The parameters for noise control applicable to the different functions are as follows:

    Sound Transmission Classification

Classroom to classroom	STC 47
Office to office	STC 47
Dorm room to dorm room	STC 47
Private room to circulation space	STC 47
Toilet rooms to occupied space	STC 47
Occupied space to equipment rooms	STC 55
Circulation space to classroom	STC 47
Circulation space to office	STC 47
Circulation space to dorm room	STC 47
Circulation space to private	STC 47

    Noise Criteria Level

Occupied spaces	NC 35
Toilets, lobbies, circulation paths	NC 40
Kitchen	NC 50
Circulation paths	NC 40

    b. Auditorium
        i. Background Noise Criteria - Wall, floor and ceiling constructions and the impact of the mechanical systems must not be less than the ambient sound level in the NC 25-30 range.
        ii. Sound Isolation Requirements - Moderate to high sound isolation is a requirement. Floor, ceiling and stud walls with multiple layers of gypsum board and glass fiber batt insulation with a STC 50-55 and gasketed acoustically rated doors must be used for proper sound insulation.

iii. Room Finish Materials - The acoustical environment is based on a reverberation time of 0.5 to 1.0 second. Surface finishes should include suspended sound-absorbing elements at the ceiling and acoustically absorptive panels (NRC 7 or greater) on approximately 50% of the side wall area and 100% of the rear wall area.

c. Divisional Conference Room

i. Background Noise Criteria - Wall, floor and ceiling constructions and the impact of the mechanical systems must be less than the ambient sound level in the NC 30-35 range.

ii. Sound Isolation Requirements - High sound isolation is a requirement. Floor, ceiling and stud walls with multiple layers of gypsum board and glass fiber batt insulation with a STC 50-55 and acoustically rated doors must be used for proper sound insulation.

iii. Room Finish Materials - The acoustical environment is based on controlling unwanted reverberation and sound refection. Surface finishes, where practical, must include carpeting.

d. The functions requiring a minimum of full height partitions are the following: instructional classrooms and laboratories, conference rooms, private offices for high level personnel, gymnasiums and airmen dormitory rooms.

e. Acoustical criteria can be expressed in both a sound transmission classification (STC) criteria and a noise criteria level (NC). The parameters for noise control applicable to the different functions are as follows:

f. Sound Isolation Requirements - Moderate to high sound isolation is a requirement. Entry vestibules are recommended to separate the auditorium from any adjacent display area. Floor, ceiling, and stud walls with multiple layers of gypsum board and glass fiber batt insulation with a STC 50-55 and gasketed acoustically rated doors must be used for proper sound insulation.

E02. Floors

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

E02.1. Floor Materials

Facility Group 1 floor materials shall be as follows.

Primary:	Prepared Slabs (Ground)
Secondary:	Terrazzo
Tertiary:	Carpet, Resilient, Ceramic Tile

Facility Group 2 floor materials shall be as follows.

Primary:	Prepared Slabs (Ground)
Secondary:	Resilient
Tertiary:	Carpet, Ceramic Tile

Facility Group 3 floor materials shall be as follows.

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

Facility Group 4 floor materials shall be as follows.

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

1. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.
2. Instructional Spaces
   a. Use VCT flooring in classrooms, labs or lecture halls.
   b. Labs may also utilize a synthetic poured floor.
   c. No borders or patterns may be used.

d. Use a solid color, hard material on the seating area floors of lecture halls. Carpet the circulation paths as well as raised platforms or stages

3. Administrative Spaces

   a. Use Academy-standardized carpet

   b. Toilet, Locker and Shower Rooms

   c. Flooring in non-wet and wet areas must be surfaced with 2-inch by 2-inch ceramic tile.

4. Dormitory Rooms and Support Spaces

   a. In Dormitory Rooms use Academy-standardized carpet.

   b. In the support spaces, incorporate borders in the carpet.

5. Dining Hall

   a. Terrazzo flooring, matching the original, is to be used throughout the main Dining Hall (brown-gray) and Staff Tower (white).

6. Primary Circulation Corridors

   a. Flooring in primary circulation corridors must be of a hard material and in a pattern compatible with the overall governing grid of the building.

   b. Borders and accent banding of the same material must be used, emphasizing the grid lines and door placement. The dimension of the banding must be proportional to the dimensions of the space. The pattern must also emphasize the grid lines.

   c. Use white polished terrazzo tile flooring with black polished terrazzo borders in Facility Group 1 Cadet Areas, and white VCT tile flooring with black VCT borders in all other areas.

   d. For cadet dormitory rooms, use VCT tile flooring, and emphasize the grid lines and the door placement in vestibules using alternating colors of red, blue, and yellow with the pattern.

   e. For athletic facilities, use sealed concrete flooring for all circulation spaces including entry lobbies and corridors. Joints in the flooring must respect the 7-foot grid. Floorings towards masonry walls must be extended to a base of 4 inches with a rounded cove.

7. Secondary Circulation Corridors

   a. Flooring in secondary circulation corridors must be of a uniform material with no pattern or borders. Use white VCT tile flooring. For flooring in office areas, Academy standardized carpet, must be used

8. Lobbies and Stairways

   a. Flooring in main entry lobbies must be of a hard material and in a pattern compatible with the overall governing grid of the building.

   b. In the Facility Group 1 Cadet Area, main entry lobbies must have brown-gray terrazzo flooring in a 3.5-foot pattern with no borders. For large entries directly off the terrazzo level, white marble strips reiterating the overall governing grid are to continue inside. Use VCT flooring in other areas with no decorative banding.

   c. All entries must have recessed walk-off mats.

   d. Entry lobbies to office areas are to have carpet flooring with no decorative banding.

9. Elevator Lobbies

   a. Flooring in elevator lobbies is to be a polished black material in solid plane with no grid. Use black polished terrazzo in Facility Group 1 Cadet Areas and black VCT in other areas.

   b. Elevator lobbies have no decorative banding.

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

E02.1.1. Prepared Slabs

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

Type: **Sealed Concrete**

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

Mfr: N/A

Color: Light gray to match original

Finish: Smooth

Model #: N/A

Other: Location in all Athletic Facility circulation spaces and entry lobbies. Joints on 14 feet x 14 feet layout to match the governing grid.

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

E02.1.2. Natural Stone and Terrazzo

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

Type: **Portland Cement Terrazzo Flooring**

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

Mfr: N/A

Color: Brown-Gray or White

Finish: To Match Original

Model #: Size - 3'-6" x 3'-6" to match governing grid

Other: Poured-in-place cementitious terrazzo with the minimum required thickness. Portland cement to be ASTM C150 Type 1, with crushed marble chips, uniformly graded. Provide zinc strips to match original

UFGS: Section 09 63 40 Stone Flooring
(Not Available on UFGS)
Section 09 66 13 Portland Cement Terrazzo Flooring
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 66 13.pdf

Type: **Portland Cement Terrazzo Floor Tile**

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

Mfr: N/A

Color: Black or White

Finish: Polished, To Match Original

Model #: Size - 1'-0" x 1'-0" tiles

Other: Cementitious terrazzo tile with the minimum required thickness. Portland cement to be ASTM C150 Type 1.

UFGS: Section 09 63 40 Stone Flooring
(Not Available on UFGS)
Section 09 66 13 Portland Cement Terrazzo Flooring
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 66 13.pdf

E02.1.3. Quarry Tile

○ Applicable ◉ N/A

E02.1.4. Ceramic Tile

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

Type: **Unglazed Ceramic Mosaic**

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

Mfr: Based on the current manufacturing location, these tiles typically contain Pre-Consumer Recycled Material, 8.3%.

Color: Medium Gray (tile and grout)

Finish: Matte

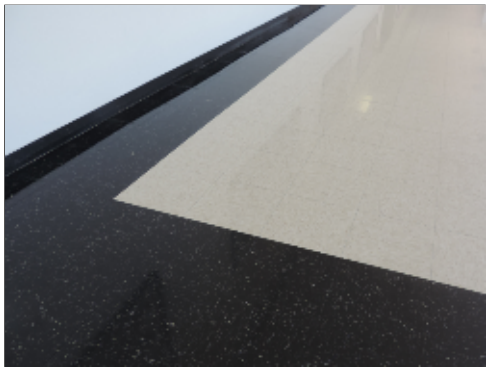
Model #: Size - 2" x 2" tiles

Other: Consisting of a mixture of predominately clays and other naturally occurring minerals that have been mixed with water and fired in a high temperature kiln.

UFGS: Section 09 30 10 Ceramic, Quarry, and Glass Tiling
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 30 10.pdf

E02.1.5. Resilient Floor

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



Type: **Vinyl Composition Tile**

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

Mfr: N/A

Color: Gray

Finish: To Match Original

Model #: Size - 1'-0" x 1'-0" tiles

Other: N/A

UFGS: Section 09 65 00 Resilient Flooring
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 65 00.pdf

E02.1.6. Carpet

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

Type: **Carpet**

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

Mfr: N/A

Color: Academy Standard

Finish: Graphic Textured Loop

Model #: Broadloom or Carpet Tile

Other: N/A

UFGS: UFGS 09 68 00 Carpeting
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 68 00.pdf

E02.1.7. Rapidly-Renewable Products

○ Applicable ◉ N/A

E02.1.8. Other

○ Applicable ◉ N/A

E03. Walls

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

E03.1. Wall Materials

Facility Group 1 wall materials shall be as follows.

Primary:	Concrete or brick
Secondary:	Gypsum board (painted)
Tertiary:	Ceramic tile (restrooms)

Facility Group 2 wall materials shall be as follows.

Primary:	Brick
Secondary:	Gypsum board (painted)
Tertiary:	Ceramic tile (restrooms)

Facility Group 3 wall materials shall be as follows.

Primary:	Ground face block
Secondary:	N/A
Tertiary:	Ceramic tile (restrooms)

Facility Group 4 wall materials shall be as follows.

Primary:	Gypsum board (painted)
Secondary:	N/A
Tertiary:	Ceramic tile (restrooms)

1. Follow UFC 3-450-01 (Vibration and Noise Control) for acoustic design issues including speech privacy, sound isolation or sound masking.
2. Select and apply paint with sheens (gloss levels) appropriate for the application following UFGS Section 09 90 00 Paints and Coatings.
3. Provide ceramic tile on wet walls of kitchens, toilet rooms, locker rooms, etc., in all facility groups.
4. Neutral split-face or ground-face integrally colored block with a clear sealer may be used in Group 3. Do not paint block.
5. 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.
6. 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.
7. Group 4 may use painted composite wood base.
8. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.
9. Instructional Spaces
    a. Use a painted hard surface for walls in instructional spaces with a rubber base, curved.
    b. If acoustic treatment is required in lecture halls, install panels of a durable fabric from the top of the base to the ceiling, aligned with the ceiling grid. The panels must extend the entire length of the wall from a recessed base to a 3/8-inch reveal at the ceiling and a 3/4- inch reveal at the sides and be of a color complementary to the color used on that floor.
    c. As appropriate, replace chalkboards with white marker boards.

d. Install white marker boards with aluminum trim and aluminum eraser / marker holders. Match mounting heights and sizes to existing.

e. Create a storage closet on the fourth wall behind a full height, sliding chalkboard to match the original chalkboards.

f. At the podiums, white marker boards must extend the entire length of the instructor's wall.

g. Mount maps and screens directly onto the top track of the chalkboard.

h. Projection booths must have flush metal frames separated from the wall by a reveal. Paint frames to match the wall. Use clear glass.

i. There are no accent walls for instructional spaces.

10. Administrative Spaces

a. Use a painted hard surface for walls in administrative spaces with an applied rubber base, curved.

b. In upgraded areas, use fabric panels or wood veneer panels. The panels must extend the entire length of the wall and from a recessed base to a 3/8-inch reveal at the ceiling and a 3/4-inch reveal to the sides. The panels must align with the ceiling grid and the mullions in the perimeter window wall.

c. Fabric panels must be of a color complementary to the color used on the floor.

d. Wood veneer panels must be a species and color compatible with the existing veneer finish and must be separated vertically by a 3/8-inch reveal.

e. Offices which have access to natural light should have clerestory windows to bring natural light into corridors.

f. Use modular system office furniture as partitions in open office areas. Align with grid.

g. Use full height movable partitions in conference rooms in a finish compatible with the office environment. The modular wall system must incorporate transoms, doors and hardware integral within the panel modularity; accommodate full power and communications distribution; and meet a 44 STC acoustical rating. Store moveable partitions in a hidden pocket or closet behind the wall. The door to this closet must be flush with the wall and look as if it is part of the panelized wall system.

11. Toilet, Locker and Shower Rooms

a. Walls in non-wet areas such as vestibules must be painted drywall.

b. Walls in wet areas must be surfaced with ceramic tile.

c. Walls must be of a solid color without border, accent strips, or tile wainscoting.

d. Extend tile from floor to the ceiling.

e. One wall in the entry to toilet rooms must be articulated as an accent wall with blue ceramic tile.

12. Dormitory Rooms and Support Spaces

a. Walls are to be of a monolithic material and one color.

b. The entry door wall must be wood veneer with a wood veneer door to match. Paint the other three walls white.

c. Paint perimeter heating to match the walls.

d. The base of wood veneer walls must be in wood. The base of painted walls must be an applied straight rubber base.

e. One wall in the support spaces must be articulated as an accent wall in a primary color.

13. Dining Hall

a. White aggregate panel walls are to be used on the main level.

b. The panelized opaque service wall will be maintained on the main level.

c. Incorporate all doors on the service wall so that they appear part of the panelized wall system.

d. The penalization must conform to the governing grid and coordinate with the staff tower in order to achieve a unity between both wall planes.

e. Reception area walls on the staff tower level are to have a recessed base with fabric panels extending from the top of the base to the ceiling and exposed aluminum trim. The panels must extend the entire length of the wall with a recessed base.

f. The penalization for both walls must match or complement each other and conform to the dimensions of the governing grid.

g. The columns are to be clad with aluminum panels.

h. There are no accent walls for the Dining Hall.

14. Primary Circulation Corridors

a. Walls must read as planes and be of continuous monolithic material. They must be differentiated from the horizontal floor and ceiling planes by reveals in the ceiling and recessed borders in the walls.

b. Walls are to be high quality painted drywall partitions. Maintain drywall partitions with tape joints finished clean and smooth finish reveals to match the wall.

c. In all circulation areas, corners must have corner guards.

d. Walls must have a 4-inch recessed base as transition to the flooring.

e. For instructional spaces such as classrooms, group two or more doors together and create a vestibule.

f. Provide coat hanger walls and closets with retractable doors in major circulation corridors.

g. For Facility Group 1 Cadet Dormitory rooms, use wood veneer walls in vestibules with integrated doors to match the original design on the wall with entry door. The base of wood veneer walls must be in wood.

h. For the athletic facilities, use a tile wall surface in all circulation spaces. The walls are to have no reveal to the ceiling and are to meet the floor with a cove tile. Unit masonry walls must be used for railings at ramps, and must meet with the extended concrete flooring base.

i. Circulation corridors do not have accent walls.

15. Secondary Circulation Corridors

a. Walls are to be high quality painted drywall partitions.

b. Walls in secondary circulation corridors such as within an office area must have an applied base towards carpet flooring.

c. Walls of offices with natural light to corridors must have clerestory windows extending from the 8-foot door height to the ceiling.

d. For walls in basements, service areas, and service stairways use a tile wall surface. Tile walls have no reveal to the ceiling and typically meet the floor with a cove tile.

e. Circulation corridors do not have accent walls.

16. Lobbies and Stairways

a. Walls

i. Walls of lobbies and stairways are to conform to the standards of the circulation corridors they relate to (primary or secondary circulation corridors).

ii. When the entry lobby is contained to a lobby vestibule, all walls except for the accent wall are to be panelized opaque walls. The panel walls are to have a continuous 3/4-inch reveal at the head and a recessed 4-inch base.

b. Accent Walls

i. Entry lobbies must be pronounced with an accent wall in a primary color designating the building type.

ii. Accent walls in the Facility Group 1 Cadet Area are to be mosaic walls.

iii. Office lobbies must have one accent wall in a primary color.

iv. Accent walls must read as planes with a continuous reveal at the head and a reverse angle reveal at the sides, terminating in a simple joint at the flooring surface.

v. No doors are permitted in accent walls.

17. Elevator Lobbies

a. Walls

i. Walls of elevator lobbies are to be panelized opaque walls. The panel walls are to have a continuous reveal at the head, a reveal at the sides, and a recessed 4-inch base.

b. Accent Walls

i. One wall in an elevator lobby can be pronounced with an accent wall in a primary color. Accent walls in the Facility Group 1 Cadet Area are to be mosaic walls.

ii. Accent walls must read as planes with a continuous reveal at the head and a reverse angle reveal at the sides, terminating in a simple joint at the flooring surface.

iii. No doors are permitted in accent walls.

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

E03.1.1. Concrete

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

Type: **Concrete Masonry Units**

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

Mfr: Pittsburgh Paints

Color: Off-White

Finish: Smooth faced

Model #: PPG# 2541 "Abbey"

Other: Associated base to be 4" rubber base with gray color (at carpet) or black (at hard floor surfaces). CMU Size to be 8 x 16.

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

E03.1.2. Masonry

○ Applicable ◉ N/A

E03.1.3. Ceramic Tile

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

Type: **Ceramic Tile**

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

Mfr: N/A

Color: Light Gray and Blue (accent wall)

Finish: Matte

Model #: Size - 2" x 2"

Other: Associated base to be 2" coved ceramic tile, color to be dark gray. Grout to have medium gray color (light gray tile) and dark gray color (blue tile). Corner guards to be brushed stainless steel, size - 2" x 2" x 4'-0"

UFGS: Section 09 30 10 Ceramic, Quarry, and Glass Tiling
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 30 10.pdf

Type: **Ceramic Tile - Corridors**

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

Mfr: N/A

Color: Light Gray to Match Original

Finish: Glazed

Model #: Size - 5" x 12"

Other: Associated base to be 4" rounded coved ceramic tile, color and finish to match wall tile.
Associated grout to have gray color and concave joint.

UFGS: Section 09 30 10 Ceramic, Quarry, and Glass Tiling
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 30 10.pdf

E03.1.4. Gypsum Board

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

Type: **Gypsum Board Walls**

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

Mfr: Pittsburgh Paints

Color: Off-White

Finish: Painted

Model #: PPG# 2541 "Abbey"

Other: Associated base to be applied 4" rubber base, color to be gray (at carpet) or black (at hard floor surfaces).

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

Type: **Gypsum Board Walls - Corridors**

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

Mfr: Pittsburgh Paints

Color: Off-White (Accent Walls to be Blue, Red or Yellow)

Finish: Painted

Model #: PPG# 2541 "Abbey"

Other: Primary Corridors to have recessed 4" metal base, color to be black. Secondary Corridors to have 4" rubber base (black and gray at office). Corner guards to be brushed stainless steel, size to be 3" x 3" x 4'-0".

UFGS: Section 09 29 00 Gypsum Board
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 29 00.pdf
Section 09 90 00 Paints and Coatings
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 90 00.pdf

E03.1.5. Metal Panels

○ Applicable ◉ N/A

E03.1.6. Wood Paneling

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

Type: **Wood Panel**

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

Mfr: N/A

Color: Walnut (Reveals/Base to be black or match panel color)

Finish: Natural (Reveals/Bae to be pre-finished metal or wood to match panel)

Model #: N/A

Other: Wood veneer to be book matched. Size to be 3'-6" to align with the governing grid. Associated wood reveals to be 1/2". Associate base to be recessed 4".

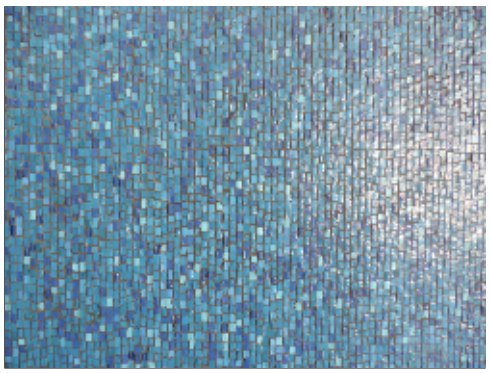
UFGS: Section 06 26 00 Board Paneling
(Not Available on UFGS)

E03.1.7. Rapidly-Renewable Products

○ Applicable ◉ N/A

E03.1.8. Other

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



Type: **Mosaic Venetian Glass Tile**

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

Mfr: Mosaici Dona Murano - Italy

Color: Yellow, Red or Blue to Match Original

Finish: To Match Original

Model #: Size - 1/4"x 1/2", Standing Format to Match Original

Other: Associated grout to blend with tile color. Associated reveals to be anodized aluminum, color to be black. Reveal sizes to be 1" (at ceiling), 1-1/8" (at floor) and 3/4" (at angle).

UFGS: N/A

N/A

E04. Ceilings

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

E04.1. Ceiling Materials

Facility Group 1 ceiling materials shall be as follows.

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

Facility Group 2 ceiling materials shall be as follows.

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

Facility Group 3 ceiling materials shall be as follows.

Primary:	Exposed Framing (Roof / Floor Structure Above)
Secondary:	Exposed Framing (Roof / Floor Structure Above)
Tertiary:	Gypsum board (painted) (restrooms)

Facility Group 4 ceiling materials shall be as follows.

Primary:	Gypsum board (painted)
Secondary:	N/A
Tertiary:	N/A

1. Accent ceiling materials such as metal, wood, and rapidly renewable may be used in Group 1 as approved on a case basis.
2. Follow UFC 3-450-01 (Vibration and Noise Control) for acoustic design issues including speech privacy, sound isolation or sound masking.
3. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.
4. In asymmetrical spaces like primary corridors with a window wall on one side - Mechanical devices, vents and louvers, etc. must be off-centered towards the window wall.
5. In symmetrical spaces such as enclosed secondary circulation corridors - Mechanical devices are to be off-centered.
6. Instructional Spaces
    a. Ceilings must be a 2-foot by 2-foot suspended grid system with gypsum board borders expressed at all sides, creating a cove.
    b. 2-foot by 2-foot light fixtures are to be located within the suspended ceiling in a uniform and functional pattern.
    c. Use acoustic fabric panels for lecture hall ceilings in a dark color of a material and finish suitable for the acoustics of the room.
    d. In lecture halls locate light fixtures that can be dimmed in a uniform and functional pattern related to the governing grid.
    e. Mount larger screens and projection boxes from the ceilings.
7. Administrative Spaces
    a. Ceilings must be a 2-foot by 2-foot suspended grid system with gypsum board borders expressed at all sides, creating a cove.
    b. 2-foot by 2-foot light fixtures are to be located within the suspended ceiling in a uniform and functional pattern.
    c. Align suspended grid ceilings with horizontal mullions on the window wall.

8. Toilet, Locker and Shower Rooms
    a. Ceilings are to be painted gypsum wallboard.
    b. A gypsum board soffit must occur at and align with the toilet partitions and lavatory tops.
    c. Recessed downlights are to be used for general illumination with an architectural light cove over the toilets and vanities at the wall plane.
9. Dormitory Rooms and Support Spaces
    a. Ceilings are to be painted gypsum wall board or the painted structure.
    b. Illuminate rooms with 1 foot by 4 feet light fixtures with white trim, mounted in the center of the room.
10. Primary Circulation Corridors
    a. Ceilings are to form a plane of a single uniform material and must be of consistent height.
    b. Dropped soffits are to be avoided.
    c. Ceilings in primary circulation spaces must be a 1-foot by 1-foot concealed spline suspended grid system with borders painted white expressed at either side with recessed downlights.
11. Secondary Circulation Corridors
    a. Ceilings in secondary circulation spaces must be a 2-foot by 2-foot suspended grid system with gypsum board borders expressed on all sides.
    b. 2-foot by 2-foot light fixtures are to be located within the suspended ceiling in a uniform and functional pattern in relation to the grid.
12. Lobbies and Stairways
    a. The ceiling of lobbies and stairways conform to the standards of the circulation corridors they relate to (primary or secondary circulation corridors).
13. Elevator Lobbies
    a. Ceilings in elevator lobbies are to be regular gypsum board ceilings with a smooth finish and mounted can lights.
    b. Wall washers for lighting the accent wall are to be integrated.
    c. Where suspended ceilings are required provide a 1-foot by 1-foot concealed spline suspended grid system with gypsum board borders with a reveal at walls.
    d. Recessed downlights are to be integrated into the ceiling tile.

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

E04.1.1. Exposed Framing (Roof / Floor Structure Above)

◯ Applicable ◉ N/A

E04.1.2. Exposed Concrete

◯ Applicable ◉ N/A

E04.1.3. Grid and Acoustical Tile

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

Type: **Suspended Grid Ceiling**

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

Mfr: Armstrong

Color: White

Finish: Fine fissure

Model #: Armstrong "Cirrus" 2'-0" x 2'-0" tile

Other: Associated suspended metal grid system, with 9/16" track, color to be white.

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

Type: **Spline Mineral Fissure Board Ceiling**

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

Mfr: N/A

Color: White

Finish: Monolithic

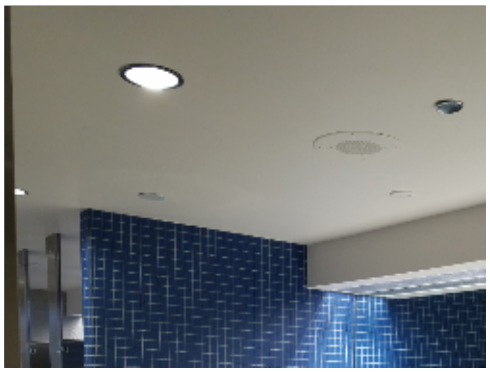
Model #: Size - 1'-0" x 1'-0" tiles

Other: Associated suspended support grid system to be concealed.

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

E04.1.4. Gypsum Board

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



Type: **Gypsum Board**

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

Mfr: Pittsburgh Paints (paint)

Color: White

Finish: Painted

Model #: PPG# 2541 "Abbey"

Other: Associated reveal at wall, to be painted white

UFGS: Section 09 29 00 Gypsum Board
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 29 00.pdf
Section 09 90 00 Paints and Coatings
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 09 90 00.pdf

E04.1.5. Metal Panels

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

Type: **Metal Coffer Ceiling**

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

Mfr: N/A

Color: To Match Original

Finish: To Match Original

Model #: N/A

Other: Match dimensions of existing coffer ceiling in the Facility Group 1 Dining Hall

UFGS: Section 09 54 00 Specialty Metal Ceilings
(Not Available on UFGS)

E04.1.6. Wood

○ Applicable ◉ N/A

E04.1.7. Rapidly-Renewable Products

◯ Applicable ◉ N/A

E04.1.8. Other

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

Type: **Ceramic Tile (Shower)**

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

Mfr: N/A

Color: To Match Wall Tile

Finish: Matte

Model #: Size - 2" x 2"

Other: Associated grout color to match the wall tile grout.

UFGS: N/A

N/A

E05. Doors and Windows

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

E05.1. Doors and Windows and Frames Materials

Facility Group 1
door (frame) and window frame materials shall be as follows.

Primary:	Hollow metal (Painted)
Secondary:	Hollow metal (Painted)
Tertiary:	Aluminum

Facility Group 1
door (leaf) materials shall be as follows.

Primary:	Hardwood veneer
Secondary:	Hollow metal (painted and stainless steel)
Tertiary:	Aluminum/Glass

Facility Group 2
door (frame) and window frame materials shall be as follows.

Primary:	Hollow metal (Painted)
Secondary:	Hollow metal (painted)
Tertiary:	Aluminum

Facility Group 2
door (leaf) materials shall be as follows.

Primary:	Hardwood veneer
Secondary:	Hollow metal (painted and stainless steel)
Tertiary:	Aluminum/Glass

Facility Group 3
door (frame) and window frame materials shall be as follows.

Primary:	Hollow metal (Painted)
Secondary:	Hollow metal (Painted)
Tertiary:	Aluminum

Facility Group 3
door (leaf) materials shall be as follows.

Primary:	Hardwood veneer
Secondary:	Hollow metal (painted and stainless steel)
Tertiary:	Aluminum/Glass

Facility Group 4
door (frame) and window frame materials shall be as follows.

Primary:	Wood
Secondary:	N/A
Tertiary:	N/A

Facility Group 4
door (leaf) materials shall be as follows.

Primary:	Wood solid core
Secondary:	Composite solid core
Tertiary:	N/A

1. Hardwood casings may be provided over metal frames in Group 1 as approved on a case basis.
2. Paneled textured doors are preferred in Group 4.
3. Do not use hollow-core wood doors.
4. Generally match original hardware in renovations.
5. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.
6. Window Walls
    a. Instructional Spaces
        i. There are no window walls for instructional spaces.
    b. Administrative Spaces
        i. Windows are equipped with interior shading system - Mechoshade® 2100 or equivalent shade cloth. Material to be vinyl/polyester in a basket weave pattern with an openness of 8 - 12% . Color to be Mechoshade Pewter #3014 or equivalent.
    c. Toilet, Locker and Shower Rooms

i. There are no window walls for toilet, locker and shower rooms.

d. Dormitory Rooms and Support Spaces

i. The windows are to be equipped with textile curtains at the interior side extending from the ceiling to the window sill across the width of the room, color to be Academy Blue.

ii. The curtain rod is to be recessed in the ceiling.

iii. Protection guide to be aluminum sheet metal with a clear anodized finish.

e. Dining Hall

i. Provide shades (Mecho or equivalent) on window walls to emphasize the view of the natural landscape.

ii. The shading system must be capable of reducing energy expenditures for lighting and air conditioning.

iii. The shading system must be mountable inside the window mullion to provide convective air flow at bottom of shade.

iv. The fascia must be flush or have a recessed head pocket.

v. The system must have manual and electric control options and black-out shade capability.

vi. The shades must have preset stop locations in the system mechanism for uniform alignment capability, creating consistency for both interior and exterior views.

f. Primary Circulation Corridors

i. Window walls in primary circulation spaces must have no shading system in order to maintain views of the natural landscape.

7. Doors / Frames

a. Primary Circulation Corridors

i. Doors must extend full height from floor to ceiling with a transom panel.

ii. Doors in primary circulation areas must be painted in a primary color except for service doors, which are to be painted gray. Door frames must be painted black. Frames must be flush with the wall.

iii. Glass lites in doors are prohibited, except in stairwells.

iv. Louvers and vents are prohibited for doors in primary circulation corridors except for service doors. Locate louvers and vents at the lower portion of the door no more than 2 feet above the floor.

v. Push plates and kick plates may be used where required.

vi. All hardware must conform with the standard of brushed stainless steel.

vii. For Facility Group 1 Cadet Dormitory rooms, use wood veneer wall doors to match the original design.

viii. Doors in the athletic facilities are to be Academy blue with the exception of service doors, which are painted gray.

ix. Glass doors may be used for prominent entries such as to a department. Should a glass door extend across a corridor, the entire plane must be glass and recessed from the corridor by 3 feet, 6 inches, creating a vestibule. Ceiling and flooring of such a vestibule conform to the standards of secondary circulation spaces.

b. Secondary Circulation Corridors

i. Doors must extend full height from floor to ceiling with a transom panel.

ii. Doors in secondary circulation areas such as within service areas must be painted in gray with black frames. Doors within an office area must be in wood with light gray frames.

iii. Louvers and vents in service doors, when required, must be centered on and flush with the door. Locate louvers and vents at the lower portion of the door no more than 2 feet above the floor.

iv. Push plates and kick plates may be used where required.

v. All hardware must conform with the standard of brushed stainless steel.

vi. Glass lites in doors are prohibited. Glass sidelights for office doors in secondary circulation corridors may be used.

c. Lobbies and Stairways

i. Doors must extend full height from floor to ceiling with a transom panel.

ii. In lobbies, doors must be grouped and recessed to create an entry vestibule. Doors of lobbies conform to the standards of the circulation corridors they relate to (primary or secondary circulation corridors).

iii. Glass lites in doors are prohibited. Louvers and vents are prohibited for doors in lobbies. Push plates and kick plates may be used where required.

iv. All hardware must conform with the standard of brushed stainless steel.

d. Elevator Lobbies

i. In elevator lobbies, doors other than elevator doors must be grouped and recessed to create an entry vestibule.

ii. All doors must be integrated in panelized opaque walls.

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

E05.1.1. Aluminum

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

Type: **Aluminum Windows**

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

Mfr: N/A

Color: Clear Anodized Aluminum

Finish: Anodized

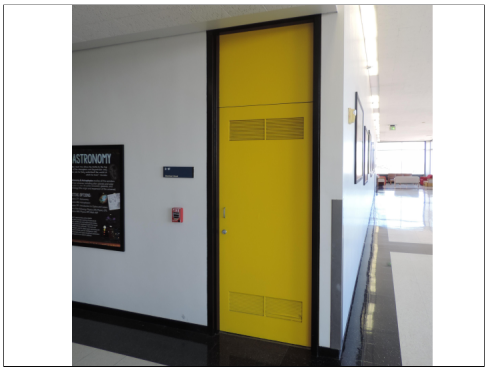
Model #: Size - primary mullion 2-1/2" w, sash and vent mullion 1-1/2" w

Other: Reveal at structural frame to be 1-1/2" w x 3/4" d, color and finish to match window frame. Associated interior clad panels to be matte black plastic laminate with 1" clear anodized aluminum trim.

UFGS: Section 08 41 13 Aluminum-Framed Entrances and Storefronts
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 41 13.pdf
Section 08 71 00 Door Hardware
https://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 71 00.pdf

E05.1.2. Hollow Metal

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



Type: **Metal Door and Frame**

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

Mfr: N/A

Color: Academy Blue, Red or Yellow

Finish: Painted

Model #: N/A

Other: Associated hollow metal frame, max. 2-1/2" width., color to be black. Associated glass lites with 1/4" clear tempered glass.

UFGS: Section 08 11 13 Steel Doors and Frames
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 11 13.pdf
Section 08 71 00 Door Hardware
https://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 71 00.pdf

E05.1.3. Wood

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

Type: **Wood Veneer Doors - Group 1**

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

Mfr: N/A

Color: Natural birch wood veneer

Finish: Clear, veneer panels to be book matched

Model #: Size - 8'-0" high with transom

Other: Associated hollow metal frame, max. 2-1/2" width., color to be light gray. Provide transom panel above door to match door material and finish, extend door frame around transom to match existing.

UFGS: Section 08 14 00 Wood Doors
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 14 00.pdf
Section 08 71 00 Door Hardware
https://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 71 00.pdf

Type: **Wood Veneer Doors - Group 2**

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

Mfr: N/A

Color: Natural walnut wood veneer

Finish: Clear, veneer panels to be book matched

Model #: Size - 7'-0" high

Other: Associated hollow metal frame, max. 2-1/2" width., color to be light gray.

UFGS: Section 08 14 00 Wood Doors
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 14 00.pdf
Section 08 71 00 Door Hardware
https://www.wbdg.org/FFC/DOD/UFGS/UFGS 08 71 00.pdf

E05.1.4. Other

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

Type: **Plastic Laminate Doors - Opaque Wall**

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

Mfr: N/A

Color: White, to match opaque wall

Finish: To match opaque wall

Model #: N/A

Other: Integrate into panelized opaque walls. Dimensions to follow the governing grid.

UFGS: N/A

N/A

E06. Casework Systems

Comply with Air Force Corporate Standards for Casework Systems:
http://afcfs.wbdg.org/facilities-interiors/casework-systems/index.html

E06.1. Casework Materials

1. Select casework systems and materials considering durability, maintenance requirements and LCCA.
2. Natural stone and cast stone countertops may only be used in Group 1 with approval on a case basis.
3. Metal cabinets and countertops shall be provided in heavy-use operations and in Group 3.
4. Refer to AFCFS for approved materials.
5. Reduce the use and depletion of finite raw materials and long-cycle renewable materials by replacing them with rapidly renewable materials. Encourage environmentally responsible forest management.
6. Toilet, Locker and Showers
    a. Upgraded standards, including vanities, exist for highly public areas.
7. Wood Veneer for Walls
    a. The wood used for this application must come from well managed forests, independently certified in accordance with the rules of the Forest Stewardship Council (FSC). The panels should be separated vertically by a ¾" reveal. The panels are to be book matched and must extend the entire length of the wall from a recessed base to a 3/8" reveal at the ceiling. The panels must also align with the ceiling grid.
8. Manufacturers listed below are only provided to establish a baseline of equivalency among all applicable manufacturers.

E06.1.1. Plastic Laminate

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

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

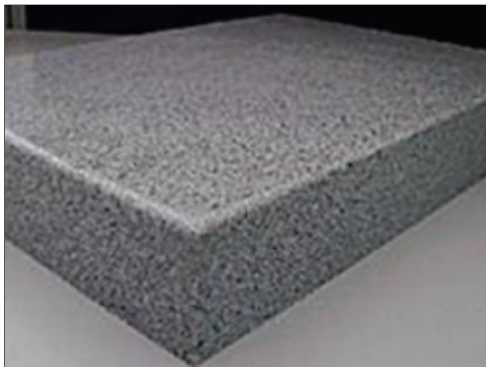
Model #: High pressure laminate

Other: Combine with matching solid-surface banding on casework edges.

UFGS: Section 06 41 16.00 10 Plastic-Laminate-Clad Architectural Cabinets
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 06 41 16.00 10.pdf

E06.1.2. Solid Polymer Surface

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



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: Light textured

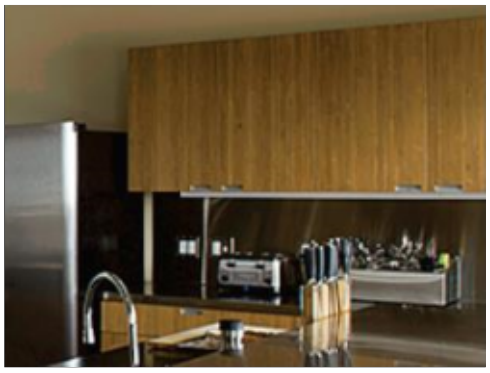
Model #: Solid Surface

Other: Faces and edge banding

UFGS: Section 12 36 00 Countertops
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 12 36 00.pdf

E06.1.3. Rapidly-Renewable Products

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



Type: **Style 1, Moderate Use Areas**

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

Mfr: Plyboo

Color: Natural or amber

Finish: Satin

Model #: Flat grain bamboo plywood

Other: FSC® Certified 100%.

UFGS: Section 12 32 00 Manufactured Wood Casework
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 12 32 00.pdf

E06.1.4. Metal

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

Type: **Style 1**

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

Mfr: Steel Sentry

Color: Natural stainless steel or neutral 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

○ Applicable ◉ N/A

N/A

E06.2. Countertop Materials

E06.2.1. Plastic Laminate

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

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

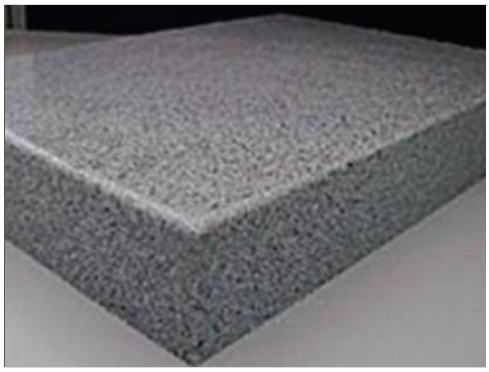
Model #: High pressure laminate

Other: Only use rounded half or full bullnose and integral backsplash. Do not use plastic laminate edge banding on front edges.

UFGS: Section 06 41 16.00 10 Plastic-Laminate-Clad Architectural Cabinets
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 06 41 16.00 10.pdf

E06.2.2. Solid Polymer Surface

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



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: Light textured

Model #: Solid Surface

Other: Faces and edges

UFGS: Section 12 36 00 Countertops
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 12 36 00.pdf

E06.2.3. Natural Stone

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

Type: **Style 1, Group 1 High Visibility, Heavy Use**

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

Mfr: Local (TBD)

Color: Neutral tones

Finish: High polish, sealer

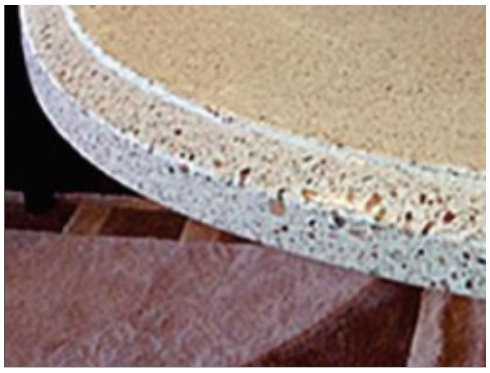
Model #: Custom cut slabs

Other: N/A

UFGS: Section 12 36 00 Countertops
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 12 36 00.pdf

E06.2.4. Cast Stone

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



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

Finish: High polish, sealer

Model #: Custom cast or cut slabs

Other: N/A

UFGS: Section 12 36 00 Countertops
http://www.wbdg.org/FFC/DOD/UFGS/UFGS 12 36 00.pdf

E06.2.5. Metal

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

Type: **Style 1**

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

Mfr: Local (TBD)

Color: Neutral 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

E06.2.6. Other

○ Applicable ◉ N/A

N/A

E07. Furnishings

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

E07.1. Durability and Serviceability

Comply with AF Corporate Standards for Durability and Serviceability:
http://afcfs.wbdg.org/facilities-interiors/furnishings/durability-and-serviceability/index.html

E07.2. Accessories

Comply with AF Corporate Standards for Accessories:
http://afcfs.wbdg.org/facilities-interiors/furnishings/accessories/index.html

N/A

E08. Interior Signs

Comply with Air Force Corporate Standards for Interior Signs:
http://afcfs.wbdg.org/facilities-interiors/interior-signs/index.html

E08.1 Types and Color

Comply with Air Force Corporate Standards for Types and Color:
http://afcfs.wbdg.org/facilities-interiors/interior-signs/types-and-color/index.html

E08.2. Interior Signs Materials

1. Natural stone, masonry and cast stone signs may only be used in Group 1 with approval on a case basis.
2. Do not obstruct window walls. No commercial signs are to be mounted to window walls.
3. Interior signage is standardized by function in five types: Informational, Identification, Directional, Regulation and Bulletin Boards.
4. All signs use two different standard letterings:
5. Upper case Helvetica Medium Regular for the header or larger text.
6. Upper and lower case Century Gothic Regular for the smaller text.
7. Signage layout must have all lettering left justified.
8. Arrows pointing left, up or down must have flush-left messages and arrows pointing to the right must have flush-right messages.
9. The arrow is centered in the space between the message and the edge of the sign.
10. Informational Signs (A)
    a. Type A1 - Building Directory (to be used for all buildings)
        i. Located in every entrance lobby, it must be clearly visible to visitors as they enter the building.
        ii. This directory is to have room numbers to give a continuity of directional information from initial entrance, through arrival on the floor and then to the room.
        iii. The building directory consists of a permanent header panel with the name of the building or the major organization in the building, plus a directory section that lists each tenant.
        iv. A diagrammatic floor plan may be added in the expanded version of the type A1.
        v. The directory section is a changeable board with inserts for the text.
    b. Type A2 - Floor Directory (in elevator lobbies of each floor)
        i. To be clearly visible to traffic entering into the lobby from the elevators or corridors.
        ii. If the floor is not serviced by elevators, the floor directory must be located in the major stairway landings.
        iii. The floor directory is to consist of a permanent header panel that lists each tenant on the floor, and insert panels listing the names of tenants.
    c. Material Table:

A1 - Building Directory

Elements	Material	Finish	Color	Dimensions
Frame	Metal/plastic	Coated/colored	Black	3'-0"x4'-0" or x6'-0"
Permanent header panel	Metal/plastic	Coated/colored	Blue	9" x 3'-10.5"
Header message			White	2 lines, 2" cap
Insert panel	Metal/plastic	Coated/colored	Blue	2'-2.5" x 3'-10.5"
Insert messages			White	15 lines, 1/2" cap

A2 - Floor Directory

Elements	Material	Finish	Color	Dimensions
Frame	Metal/plastic	Coated/colored	Black	1'-6" x 1'-0"

Permanent header panel	Metal/plastic	Coated/colored	Blue	6″ x 1'-0″
Header message			White	1 line, 3″ number
Insert panel	Metal/plastic	Coated/colored	Blue	1'-0″ x 1'-0″
Insert messages			White	15 lines, 3/8″ cap

11. Identification Signs (B)
    a. Type B1 - Office Area Sign
        i. To be used to identify a major office or area in a building, such as a wing or annex.
        ii. The sign is to consist of a permanent header panel with the room number, wing or annex designation, plus an insert panel which identifies the tenant.
    b. Type B2 - Office sign
        i. To be used for all designated offices.
        ii. The sign is to consist of a permanent header panel with the room number, wing or annex designation, plus an insert panel which identifies the tenant.
    c. Type B3 - Room Number Sign
        i. To be used to identify a secondary office entrance or a room with no designated function.
        ii. This sign is to consist of a header panel only, without the insert panel.
    d. Type B4 - Office Partition Sign
        i. To be used to identify offices in open planned areas.
        ii. The sign is to consist of a permanent header panel with the office partition number, plus an insert panel which identifies the tenant and is to be mounted on the corner of the partition closest to traffic circulation.
    e. Type B5 - Desk Plaque
        i. To be used for individual identification.
        ii. The plaque, without its base, may also be mounted on the office partition in place of B4 sign.
        iii. The desk plaque is to consist of a permanent header panel with the office partition number, plus an insert panel which identifies the tenant, if applicable.
    f. Type B6 - Service Identification Sign
        i. To be used to identify restrooms, telephones and other services.
        ii. The service identification sign is to consist of a header panel with the service symbol.
        iii. It should be located on the corner of the partition closest to traffic circulation.
    g. Type B7 - Departmental Sign
        i. A sign to be applied to glass doors used for prominent entries such as to a department.
        ii. Use opaque applied capital lettering centered on the right wing.
    h. Material Table:

        B1 - Office Area Sign

Elements	Material	Finish	Color	Dimensions
Frame	Metal/plastic	Coated/colored	Black	1'-3″ x 1'-3″
Permanent header panel	Metal/plastic	Coated/colored	Blue	6″ x 1'-3″
Header message			White	2 lines, 1.5″ cap
Insert panel	Metal/plastic	Coated/colored	Blue	9″ x 1'-3″
Insert messages			White	5 lines, 3/4″ cap

B2 - Office Area Sign

Elements	Material	Finish	Color	Dimensions
Frame	Metal/plastic	Coated/colored	Black	6″ x 6″
Permanent header panel	Metal/plastic	Coated/colored	Blue	3″ x 6″
Header message			White	1 line, 1.5″ cap

B3 - Room Number Sign

Elements	Material	Finish	Color	Dimensions
Frame	Metal/plastic	Coated/colored	Black	3″ x 9″
Permanent header panel	Metal/plastic	Coated/colored	Blue	3″ x 9″
Header message			White	1 line, 1.5″ cap

B4 - Office Partition Sign

Elements	Material	Finish	Color	Dimensions
Frame	Metal/plastic	Coated/colored	Black	6″ x 6″
Permanent header panel	Metal/plastic	Coated/colored	Blue	3″ x 6″
Header message			White	1 line, 1″ cap
Insert panel	Metal/plastic	Coated/colored	Blue	3″ x 6″
Insert messages			White	2 lines, 1/2″ cap

B5 - Desk Plaque

Elements	Material	Finish	Color	Dimensions
Frame	Metal/plastic	Coated/colored	Black	1.75″ x 9″ or 2″ x 9″
Permanent header panel	Metal/plastic	Coated/colored	Blue	1.75″ x 9″ or 2″ x 9″
Header message			White	1 line, 1/2″ cap
Header message second line			White	1 line, 3/8″ cap

B6 - Service Identification Sign

Elements	Material	Finish	Color	Dimensions
Frame	Metal/plastic	Coated/colored	Black	6″ x 9″, or 6″ x 6″
Permanent header panel	Metal/plastic	Coated/colored	Blue	6″ x 9″, or 6″ x 6″
Header message			White	1 line, 1/2″, 3/8″ cap
Insert symbol	Metal/plastic	Coated/colored	White, to match symbol	5″ x 5″

B7 - Department Sign

Elements	Material	Finish	Color	Dimensions
Lettering applied	Film	Adhesive	Opaque	2″

12. Directional Signs (C)

a. Type C1 / C2

i. To be used for directions and must be located at each decision point- opposite the elevators, opposite the stairways and at each corridor intersection.

ii. The directional sign must point to room numbers (C1).

iii. Only high priority destinations, those most often sought by people entering the building for the first time (such as Finance, Pass and ID, or Vehicle Registration) must be listed by name (C2).

iv. The signs are to consist of single or double permanent header panels listing the room numbers or names.

13. Regulation Signs (D)

a. The many regulation signs required for use in Air Force buildings, as specified in Air Force Instructions and by OSHA Regulations, must be located at key points in a building where specific warning or prohibitory information is required.

b. Type D1

i. A larger regulation sign and must be located in open areas such as hangars or workshops.

ii. The sign is to consist of a header panel with the regulation symbol.

c. Type D2

i. A smaller regulation sign and must be located in interiors in general.

ii. The regulation identification sign is to consist of a header panel service symbol.

14. Bulletin Boards

a. Bulletin boards are to be used for several purposes:

b. Some are to contain notices, regulations and memoranda.

c. Others are to contain posters and announcements used to promote worthwhile causes and to advertise community oriented events.

d. The appearance of the bulletin board depends on the visual quality of the materials mounted on it

e. The person who maintains the bulletin board must insist on keeping the bulletin board materials neatly arranged and current.

f. Information papers are not to be posted in areas without bulletin boards.

g. All permanent notices, photographs, etc., must be framed.

h. The bulletin board is to consist of a permanent header panel with a general title, such as “Notices” or “Information” and a cork panel for bulletins and announcements.

E09. Lighting, Power and Communication

http://afcfs.wbdg.org/facilities-interiors/lighting-power-and-communication/index.html

E09.1. Functionality and Efficiency

Comply with Air Force Corporate Standards for Functionality and Efficiency:
http://afcfs.wbdg.org/facilities-interiors/lighting-power-and-communication/functionality-and-efficiency/index.html

E09.2. Types and Color

1. Relate finish selections and lighting directly to the atmosphere intended for the function.
2. Utilities should be integrated to minimize their visual impact on landscaping and/or architecture.
3. Lighting should promote visibility and safety, particularly around building access areas.

4. Fixtures conform to the standard identification:
    a. (D) Recessed Downlights
    b. (E) Soffit-mounted Can lights
    c. (F) Wall-mounted Downlights
    d. (G) Wall Washers
    e. (H) for 'warm' halogen lighting

OUTDOOR LIGHTING

1. For outdoor lighting, prevent glare and light from spilling into surrounding areas
2. Accent or architectural up-lighting is acceptable for use in highlighting architecture, landscaping, or site furnishings. Avoid direct lighting
3. Provide flush soffit-mounted wall washers at exterior accent walls.
4. Use energy efficient
5. Color rendering index (CRI) must be 80 or greater;
6. Initial lumens output of exterior fixtures must be 2,900 lumens or more
7. Neither Sodium nor mercury Vapor lighting are allowed
8. Facility Group 1 - Academic & Training / Athletics
    a. Use Recessed (E) lights over the outdoor arcade space.
    b. Use Recessed downlights (D) in the arcade
    c. Free-alarms are mounted off-centered in the arcade and do not project below the surface of the soffit.
    d. Use wall washers (G) to uniformly light Mosaic.
9. Facility Group 1 - Cadet Quarters
    a. The dormitory buildings ceilings are exposed structural at the terrazzo and basement levels.
    b. Use recessed downlights (D) flush mounted and cut into the concrete ceiling
    c. Align and center Lights with the structural grid and building module.
10. Facility Group 1 - Cadet Dining Hall
    a. Use recessed downlights (D) in the Dining Hall's coffered ceiling to emphasize the roof's 'floating' appearance.
    b. Follow the original lighting mounting and aesthetics.
11. Facility Group 2 - Community Center Area
    a. The Community Center buildings have exposed steel pan ceilings at perimeter walls.
    b. Surface-mounted can lights (E) must be used in lieu of recessed lights.
    c. Use wall-mounted lights (F) as needed for additional lighting.
    d. Use wall-mounted lights (F) for fire stations.
12. Facility Group 2 & 3 - Service and Supply Area & Airfield
    a. Use wall-mounted lights (F). for all administrative, industrial buildings and hangars
    b. Administrative building arcades must use recessed downlights (D) in the exterior soffits over the outdoor arcade space centered and aligned with the governing grid and building module.
13. Facility Group 4 - Housing Areas
    a. Housing areas are privatized.
14. Exterior Fixtures table:

(E) Soffit-Mounted Downlights:

Elements	Material	Finish	Color	Dimensions	Figure*
Can light	Metal or stainless steel	Painted (thermal) or brushed	White to match ceiling or silver	To match existing	2.52

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

(F) Wall-Mounted Downlights:

Elements	Material	Finish	Color	Dimensions	Figure*
Downlight, wall-mounted	Metal	Painted (thermal)	Black	To match existing	2.55

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

(G) Wall Washers:

Elements	Material	Finish	Color	Dimensions
Wall washer, mosaic wall	Metal	Painted (thermal)	White to match soffit	To match existing

INTERIOR LIGHTING

1. In asymmetrical spaces like primary corridors with a window wall on one side:
   a. Lighting fixtures and safety devices are to be centered in the ceiling;
   b. Recessed wall washers are to light the interior wall, and are to be off-centered.
2. In symmetrical spaces such as enclosed secondary circulation corridors
   a. All lighting fixtures are to be centered.
   b. No fixtures are to be mounted on mosaic walls.
3. Exposed conduits are not allowed.
4. Organize and coordinate ceiling and lighting patterns with interior spaces design principles
5. Install occupancy sensors wherever possible.
6. All downlights and wall washers must be designed to a minimal aperture with a minimal frame.
7. All downlights and wall washers must be recessed.
8. Emergency lighting must be a standard fixture in the ceiling equipped with additional battery packs.
   a. No ceiling or wall-mounted devices are permitted.
   b. Emergency lighting must be integral in the fixtures.
9. Track lights are to be white and placed in a functional pattern relating to the governing grid.
10. Neon lighting may be used for signage in dining areas, excluding Mitchell Hall as approved by the Command Architect. Neon lighting is not to reflect to the exterior.
11. Use energy efficient LED equivalent or better systems.
    a. Color rendering index (CRI) must be 80 or greater;
    b. Initial lumens output of exterior fixtures must be 2,900 lumens or more
    c. Sodium Vapor lights are not allowed
12. Lighting must be switchable and flexible enough to manage anticipated use and circumstances.
13. Flush mounted fixtures exposed surfaces, like flanges, must match the ceiling color
    a. Parabolic louvers must be aluminum.
    b. Only white metal (aluminum, stainless steel) is allowed;

c. Yellow metal (brass, bronze) is prohibited.

14. Instructional Spaces
    a. Use recessed parabolic louvers (D) located in a functional and uniform pattern relating to the governing grid where possible.
    b. Work sessions / standard lighting - all lights up 100%
    c. AV Presentations - all competing lights with AV dramatically dimmed (10-15%) or turned off
    d. 'Focus' mode - All class work lights dimmed, except for presentation wall(s) Behind AV turndown screens are fully lit.
    e. Lecture rooms are to have Dimmable light fixtures located in a uniform and functional pattern related to the governing grid.
15. Administrative Spaces
    a. Use recessed parabolic louvers (D) located in a functional and uniform pattern relating to the governing grid where possible.
16. Toilet, Locker and Shower Rooms
    a. Use recessed wall washers fixtures (G) with an architectural light cove over the toilets and vanities at the wall plane.
    b. Architectural cove lighting must provide a uniform, uninterrupted lighting appearance.
    c. All lighting baffles and flanges not integral to the light's performance must match the color of dominant host surface.
17. Dormitory Rooms and Support Spaces
    a. Use 1-foot by 4-foot (1x4) futures (D) flush mounted in the ceiling where possible.
    b. Fixtures must match the dominant color of the ceiling host.
18. Dining Hall
    a. Use recessed downlights (F) in the middle of each part of the coffer ceiling in a 7-foot by 7-foot grid.
    b. Use combined Ventilators and downlights for integration in these modules.
    c. Warm lighting is provided by halogen fixtures (H).
19. Athletic Facilities
    a. Use recessed strips (D) in a linear layout.
20. Retail / Recreational / Service Functions
    a. Use recessed parabolic louvers (D) located in a functional and uniform pattern relating to the governing grid where possible.
    b. Or use surface mounted parabolic louvers (D) where necessary.
    c. Neon lighting should be limited and requires approval by the Command Architect. .
21. Cafés / Restaurants / Bookstores / Clubs
    a. Use recessed downlights (D, F) in accordance with the governing grid.
    b. Use halogen fixtures (H) in areas requiring Warm lighting.
22. Primary Circulation Corridors
    a. In 1-foot by 1-foot suspended grid systems:
        i. Use recessed downlights (F) in circulation spaces integrated in the ceiling tiles
        ii. Use cove recessed wall washers (G) along the wall.
    b. In dormitory corridors
        i. Use recessed fixtures (D) integrated in the lowered ceiling of the vestibules towards the corridor.
23. Secondary Circulation Corridors

a. Use recessed parabolic louvers (D) located in a functional and uniform pattern relating to the governing grid where possible.

24. Lobbies and Stairways

    a. For Main entry lobbies using 1-foot by 1-foot suspended grid systems:

        i. Use recessed downlights (F) in circulation spaces integrated in the ceiling tiles

        ii. Use cove recessed wall washers (G) along the wall.

    b. Office lobbies Use recessed parabolic louvers (D) located in a functional and uniform pattern relating to the governing grid where possible.

25. Elevator Lobbies

    a. Elevator lobbies using a 1-foot by 1-foot suspended grid systems:

        i. Use recessed downlights (F) in circulation spaces integrated in the ceiling tiles

        ii. Use cove recessed wall washers (G) along the wall.

26. Interior Fixtures table:

(D) Ceiling Recessed 2x4 troffers (located in 2x4 grid)

Elements	Material	Finish	Color	Dimensions	Figure*
Parabolic troffers 18 cell	Aluminum	Reflective	Clear, White	2'-0" x 4'-0"	4.85
Flanges	Metal		White		

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

(D) Ceiling Recessed 2x2 troffers (located in 2x2 grid)

Elements	Material	Finish	Color	Dimensions
Parabolic troffers 9 cell	Aluminum	Reflective	Clear, White where not part of light protection	2'-0" x 2'-0"
Flanges	Metal		White	

(D) Ceiling Mount 1x4 Strip (Surface or Recessed)

Elements	Material	Finish	Color	Dimensions	Figure*
Strip, Trim	Metal	Painted	White, to Match ceiling	1'-0" x 4'-0"	4.86
Diffuser	Acrylic	Structured	Clear		

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

(F) Downlights (Recessed or Wall Mounted)

Elements	Material	Finish	Color	Dimensions	Figure*
Downlight, susp. ceiling	Stainless Steel Aluminum		Silver Clear Anodized		4.87
Downlight, coffer ceiling	Metal		Black	To match existing	4.75

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

(G) Wall Washers (Wet Room and Accent Walls)

Elements	Material	Finish	Color	Dimensions
Trim	Metal	Painted	White, to ceiling	
Diffuser	Acrylic	Structured	Clear	

(H) Halogen Lights (Dining)

Elements	Material	Finish	Color	Dimensions	Figure*
Halogen fixture	Metal		Black, to match ceiling		4.88, 4.89

** Refer to Appendix G - USAFA Standards (IFS Section D & E Figures and Profiles)*

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:

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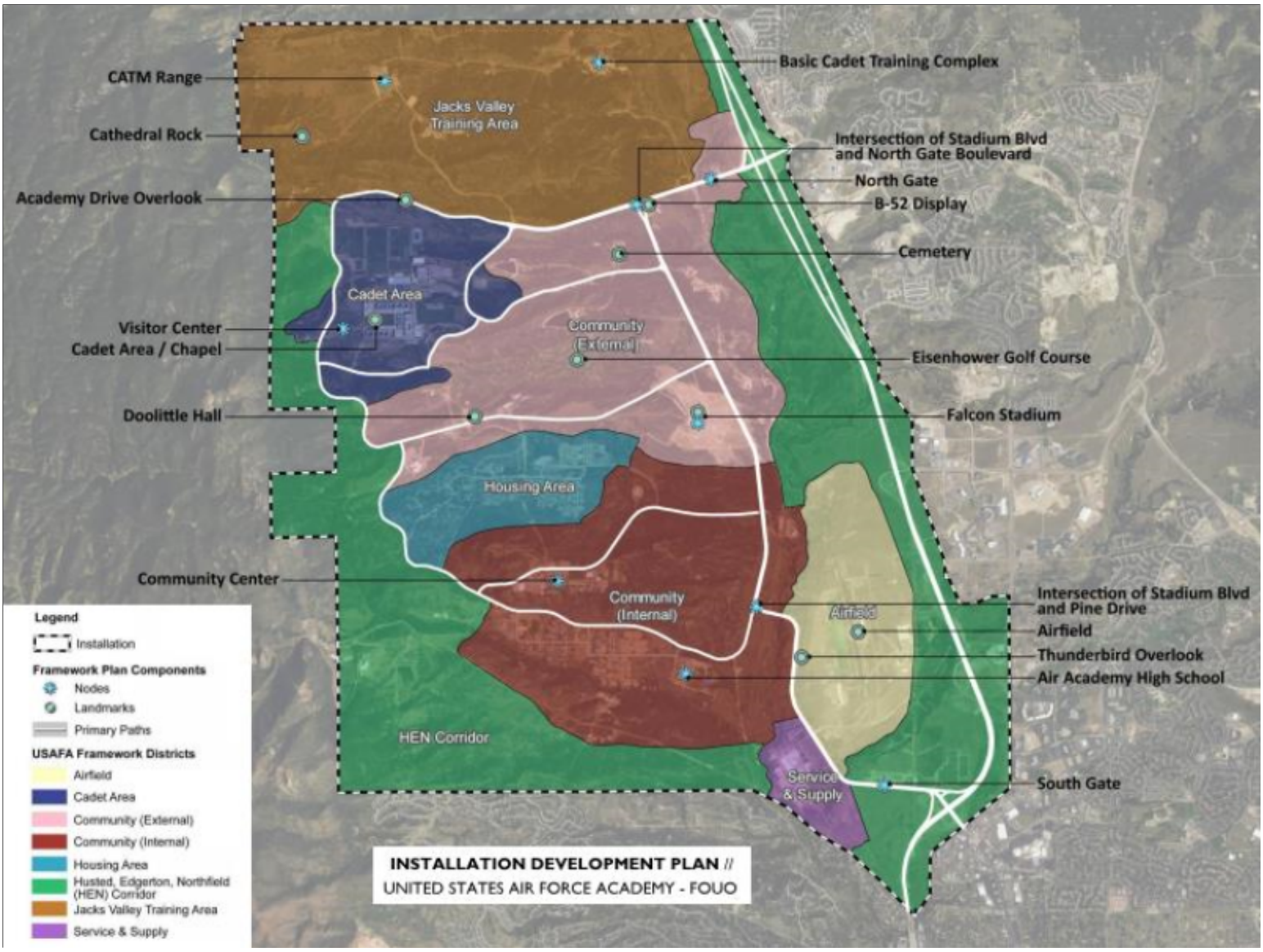


Note: *Apply the base-wide standards in this IFS for Installation Elements, Site Development, Facilities Exteriors and Facilities Interiors (products, materials, color, etc.). Following application of the base-wide standards, refer to the Appendix and apply any additional requirements specifically related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

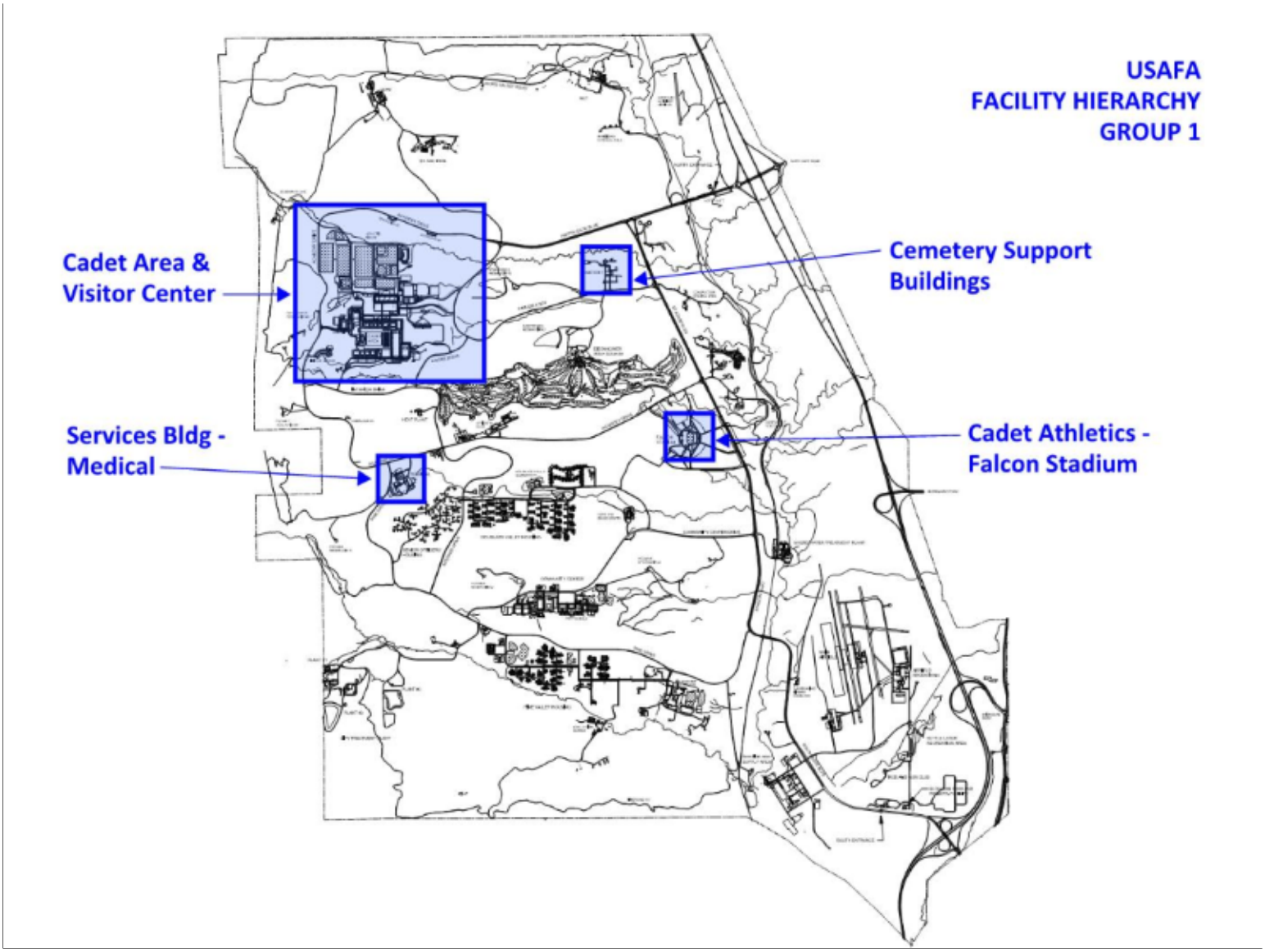
Enter No. of Facility Districts 6

The following Facility Districts list exceptions to the base standards that are unique to each district. Please refer to the Site Development, Facilities Exteriors, and Facilities Interiors sections of this IFS for base standards.

Name of District: USAFA - FACILITY HIERARCHY - GROUP 1

Image Tool 800 x 600

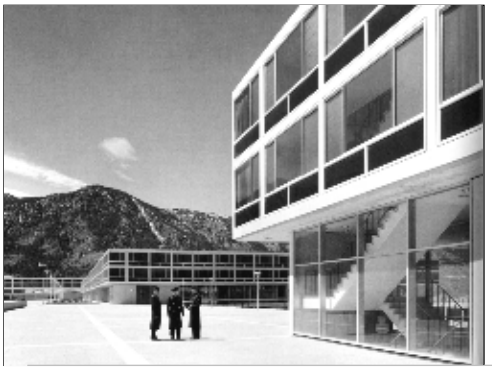
Map of District



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

Image Tool 250 x 188

Group 1 (•) Applicable ( ) N/A



Group 2	◯ Applicable	◉ N/A
Group 3	◯ Applicable	◉ N/A
Group 4	◯ Applicable	◉ N/A
Other	◯ Applicable	◉ N/A

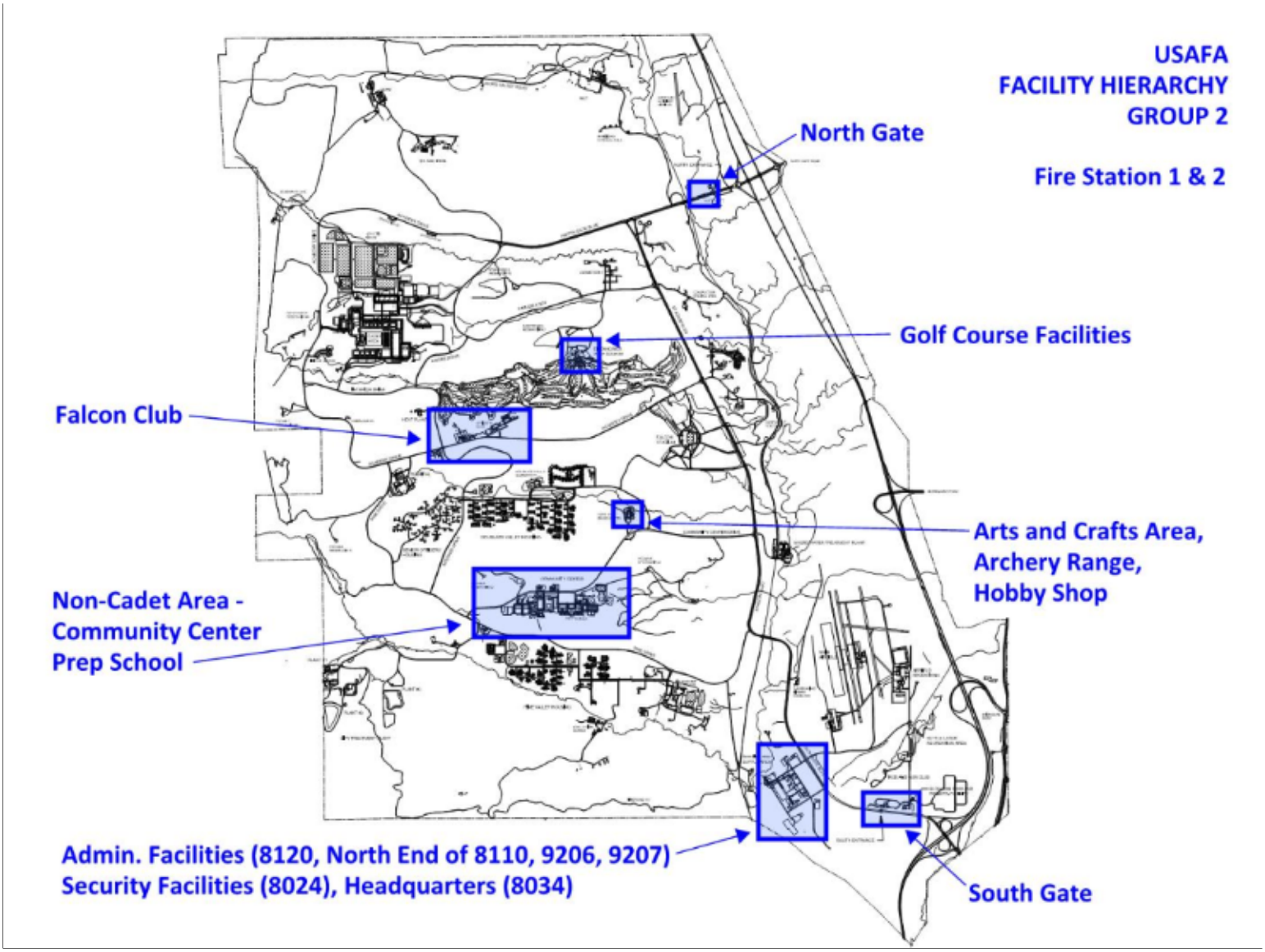
USAFA - FACILITY HIERARCHY - GROUP 1:

- Cadet Administration (Harmon Hall)
- Cadet Academic Facilities (CETF, Fairchild, Aerolab)
- Cadet Athletic Facilities (Fieldhouse, Gym, HAC)
- Cadet Dorms (Sijan Hall, Vandenberg Hall)
- Cadet Chapel
- Cadet Morale Facilities (Arnold Hall, CCLD)
- Cadet Services Buildings (Mitchell Hall, Medical, etc.)
- Visitors Center
- Cemetery Support Buildings
- Other Main Cadet Infrastructure and Facilities (terrazzo, landscaping, parking, signage, fences, bollards, pavilions, bus shelter, etc.)

Name of District: USAFA - FACILITY HIERARCHY - GROUP 2

Image Tool 800 x 600

Map of District



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

Image Tool 250 x 188

Group 1 ◯ Applicable ◉ N/A

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Group 2 ◉ Applicable ○ N/A



Group 3 ○ Applicable ◉ N/A

Group 4 ○ Applicable ◉ N/A

Other ○ Applicable ◉ N/A

USAFA - FACILITY HIERARCHY - GROUP 2:

- Cadet Support Facilities (restrooms, sheds, storage, maintenance, etc.)
- All Security Gates (North Gate, South Gate, ECP - Stadium, North Stadium, Pine Valley, VC)
- Administrative Facilities (8120, North End of 8110, 9206, 9207))
- Security Facilities (8024)
- Headquarters (8034)
- Non-Cadet Area Dorms (Prep School and Airman's)
- Non-Cadet Area Athletic Facilities (Community Center, Base Fitness Center, Milazzo)
- Non-Cadet Area Academic Buildings (Prep School)
- Non-Cadet Area Services Buildings (Dining Hall, CDC, Med Clinic, Bowling Alley, Burger King, Gas Station, etc.)
- Non-Cadet Area Chapel or Other Religious Facilities (Community Center)
- Non-Cadet Area Morale Facilities (Falcon Club, Golf Course Facilities, Arts and Crafts Area, Archery Range, Hobby Shop)
- VOQs
- Fire Station 1 and 2
- Other Facilities and Infrastructure Supporting Group 2 Buildings (sidewalks, landscaping, parking, signage, vehicle wash areas, fences, bollards, pavilions, bus shelter, etc.)

Name of District: USAFA - FACILITY HIERARCHY - GROUP 3

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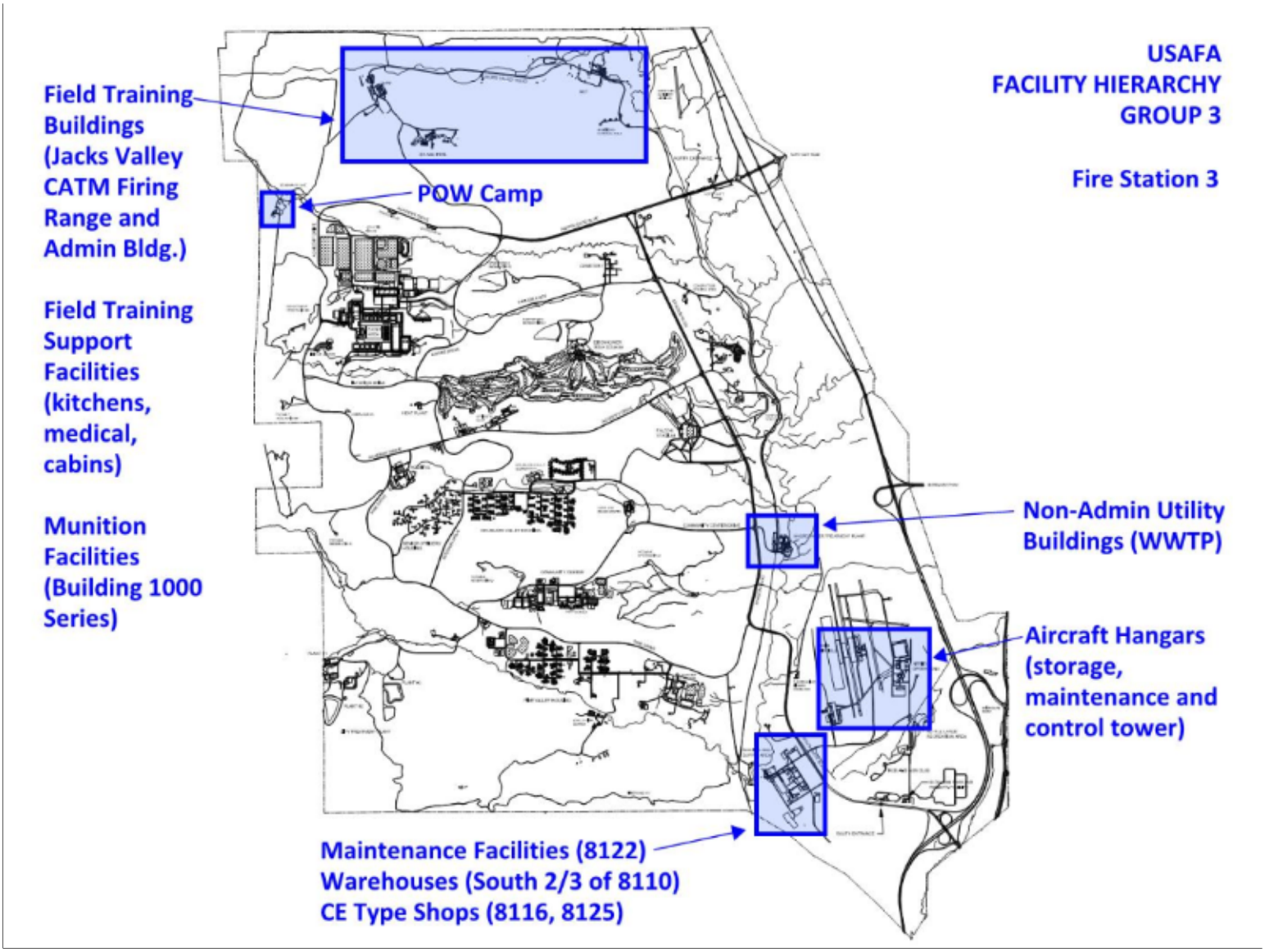
Map of District



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

Image Tool 250 x 188

Group 1	○ Applicable	◉ N/A
Group 2	○ Applicable	◉ N/A

Group 3 ◉ Applicable ○ N/A



Group 4 ○ Applicable ◉ N/A

Other ○ Applicable ◉ N/A

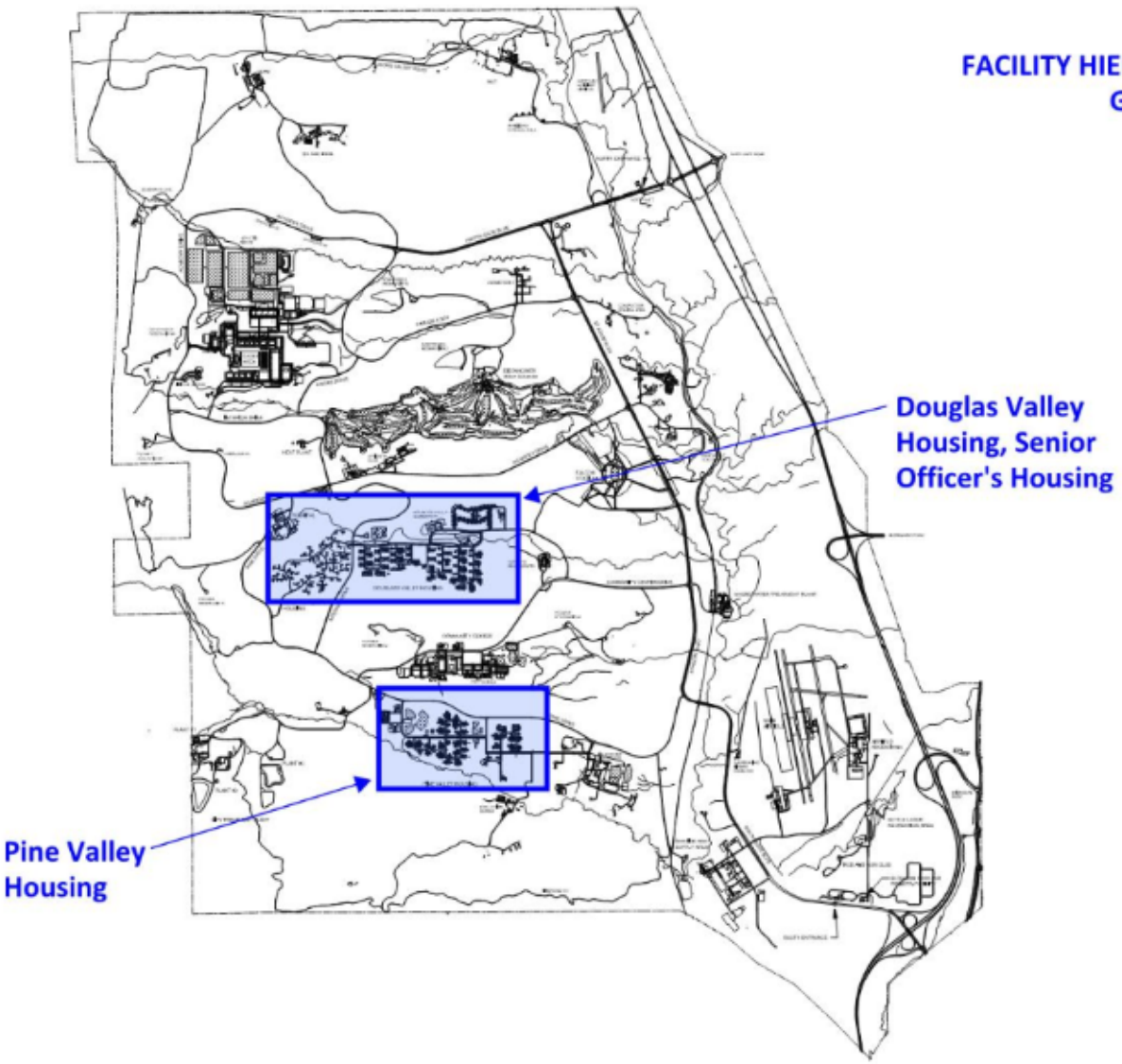
USAFA - FACILITY HIERARCHY - GROUP 3:

- Non-Cadet Area Support Facilities (restrooms, sheds, storage, etc.)
- Maintenance Facilities (8122)
- Warehouses (South 2/3 of 8110)
- CE Type Shops (8116, 8125)
- Non-Admin Utility Buildings (WWTP)
- Field Training Buildings (Jacks Valley including POW Camp, CATM Firing Range and Admin Bldg.)
- Field Training Support Facilities (kitchens, medical, cabins)
- Munition Facilities (Building 1000 Series)
- Aircraft Hangars (storage, maintenance and control tower)
- Other Facilities and Infrastructure Supporting Group 3 Buildings (sidewalks, landscaping, parking, signage, vehicle wash areas, fences, bollards, pavilions, bus shelter, etc.)
- Fire Station 3

Name of District: USAFA - FACILITY HIERARCHY - GROUP 4

Image Tool 800 x 600

Map of District



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

Image Tool 250 x 188

Group 1	◯ Applicable	◉ N/A
Group 2	◯ Applicable	◉ N/A
Group 3	◯ Applicable	◉ N/A

Group 4 ◉ Applicable ○ N/A



Other ○ Applicable ◉ N/A

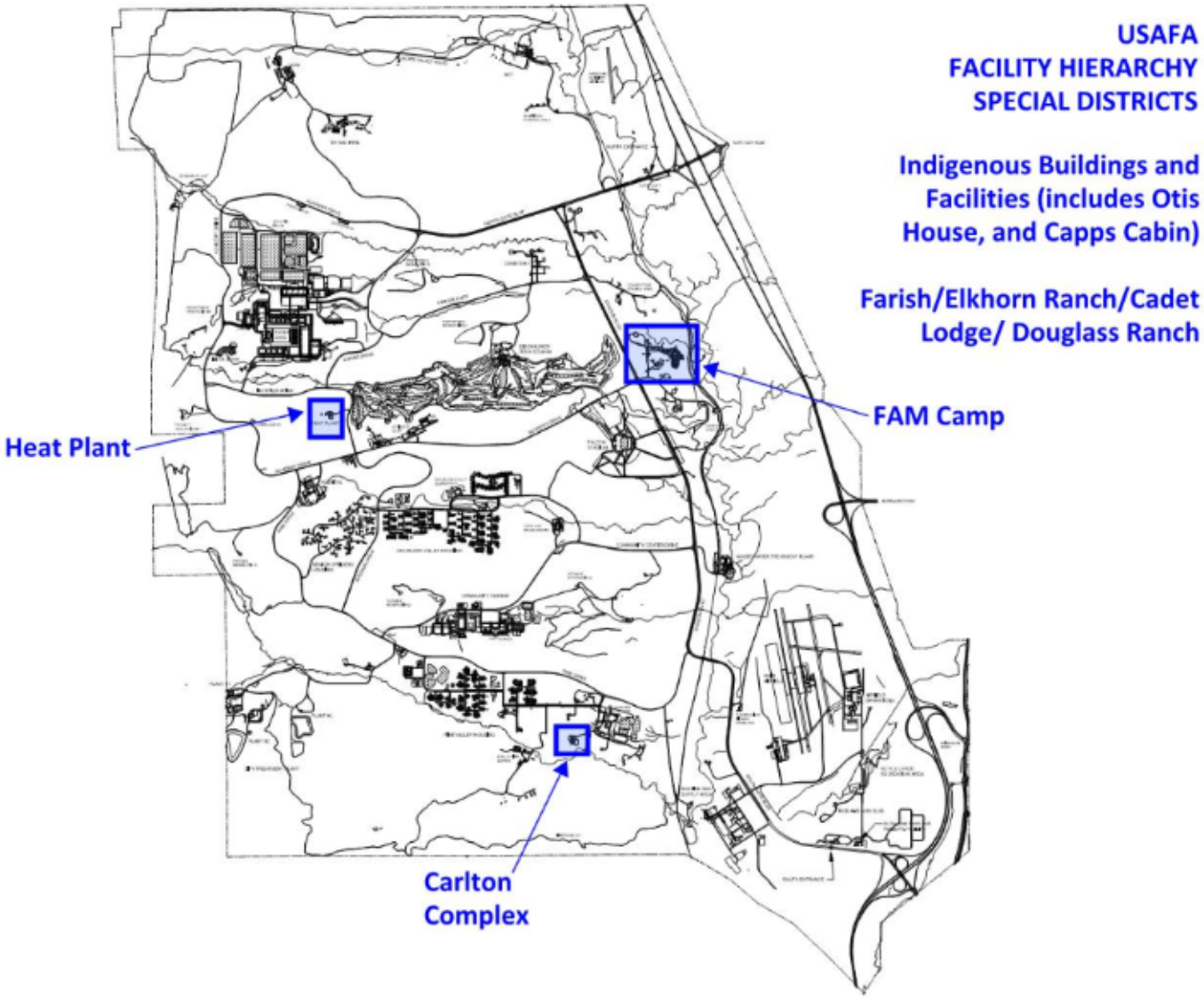
USAFA - FACILITY HIERARCHY - GROUP 4:

- Housing
- TLFs

Name of District: USAFA - FACILITY HIERARCHY - SPECIAL DISTRICTS (APPENDICIES)

Image Tool 800 x 600

Map of District



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

Image Tool 250 x 188

Group 1	○ Applicable	◉ N/A
Group 2	○ Applicable	◉ N/A
Group 3	○ Applicable	◉ N/A
Group 4	○ Applicable	◉ N/A

Other ◉ Applicable ○ N/A

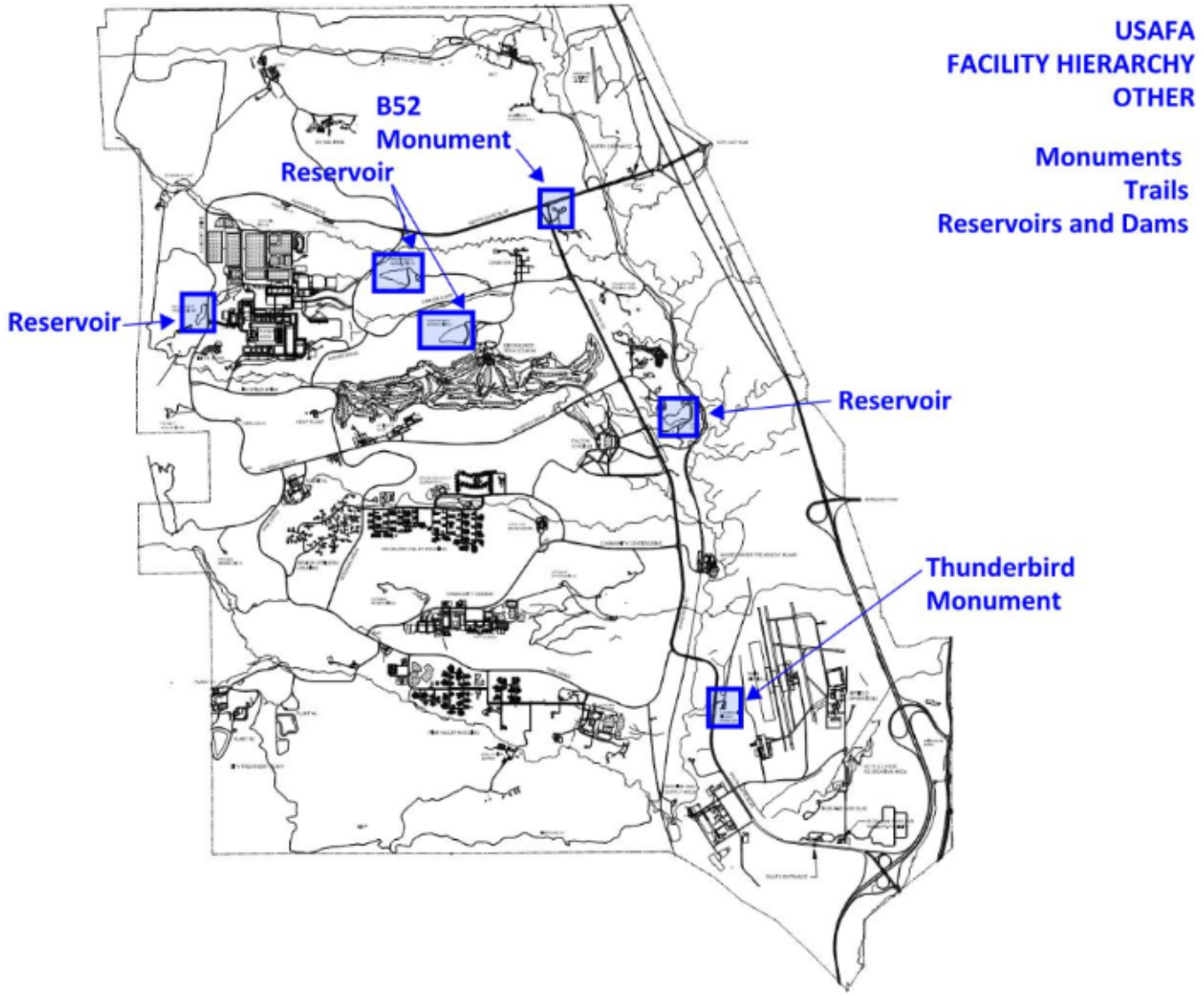
USAFA - FACILITY HIERARCHY - SPECIAL DISTRICTS (APPENDICES):

- Indigenous Buildings and Facilities (includes Carlton Complex, Otis House, and Capps Cabin)
- Fam Camp/Farish/Elkhorn Ranch/Cadet Lodge/ Douglass Ranch
- Heat Plant

Name of District: USAFA - FACILITY HIERARCHY - OTHER

Image Tool 800 x 600

Map of District



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

Image Tool 250 x 188

Group 1	◯ Applicable	◉ N/A
Group 2	◯ Applicable	◉ N/A
Group 3	◯ Applicable	◉ N/A
Group 4	◯ Applicable	◉ N/A

Other ◉ Applicable ○ N/A



USAFA - FACILITY HIERARCHY - OTHER:

- Monuments (all to the same standards)
- Trails (all to the same standards)
- Reservoirs and Dams (all to the same standards)

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.

10th CIVIL ENGINEER SQUADRON
USAFA IFS Standards Sections D-E 2019
http://www.wbdg.org/FFC/AF/AFIFS/USAFA_IFS_Standards_Sections_D-E_2019.pdf

USAFA AE Services Guide 2019
http://www.wbdg.org/FFC/AF/AFIFS/USAFA_AE_Services_Guide_2019.pdf

USAFA ACAD Standards and Templates
http://www.wbdg.org/FFC/AF/AFIFS/USAFA_ACAD_Standards_and_Templates.zip

USAFA Environmental Standards 2019
http://www.wbdg.org/FFC/AF/AFIFS/USAFA_Environmental_Standards_2019.pdf

USAFA Erosion Control Revegetation and Tree Care Standards October 2016
http://www.wbdg.org/FFC/AF/AFIFS/
USAFA_Erosion_Control_Revegetation_and_Tree_Care_Standards_October_2016.pdf