U.S. AIR FORCE

AIR EDUCATION & TRAINING COMMAND

EXECUTIVE SUMMARY

To understand architectural compatibility and how it affects the Air Force, an understanding of the term is necessary. Compatible is generally defined as “the ability to exist and perform in harmonious combination”. Architectural compatibility results from designing and building facilities in harmony with their natural and man-made surroundings and environment. Therefore, architectural compatibility is concerned not only with the physical appearance of buildings, but with site planning, landscape development, security and sustainability.

Military installations should provide efficient and pleasant physical environments conducive to attracting and retaining skilled and motivated personnel. The design, location and maintenance of individual elements such as buildings, roads, parking lots, signs and landscaping establish the quality of the environment. Each of the elements should be functional, attractive and harmonious with each other. This helps to create an environment that enhances the capability of the installations to support their mission and fosters pride in and a commitment to military service.

Adoption of these guidelines by base leadership will ensure compliance and result in a homogeneous community fabric that improves overall installation appearance and mission effectiveness.

Specific study objectives include:

- Promote the sense of a unified community by strengthening the prevailing character of the base
- Define goals and objectives leading to more consistency for leadership decision-making
- Provide a view of the base in terms of Visual Districts
- Discuss recommended architectural themes for each Visual District

1 Introduction

1.1 PURPOSE

The purpose of the Architectural Compatibility Guide (ACG) is to establish and document installation-specific standards and provide a tool to assure these standards are consistently applied. The ACG strives to recognize the cultural, environmental, climatic and existing facility conditions particular to the Gunter Annex and define the appropriate styles, finishes, and materials to be used to achieve the best facility life-cycle costs and still retain the appropriate environment for people to achieve their highest productivity and efficiency.

- Provide a record of established goals, objectives, and decisions leading to more consistent decisions when a change in installation leadership occurs.
- Improve the environment through the installation's construction projects.
- Provide a mechanism for environmental design continuity.
- Develop a baseline for review and, if necessary, for changes that may occur as a result of redirection in goals and objectives.
- Establish consistency in installation development which takes into account all elements of the environment.
- Influence design expression. These principles should not be so specific that design freedom is restricted. A designer should have sufficient latitude for creativity.
- Provide clear and consistent communication between the Air Force and designers, whether they are in-house or contracted professionals.
- Improve programming and budgeting by limiting the range of options and promoting consistency.
- Impart a sense of pride, organization, vitality, and good management. The installation should convey the feeling that it is a good place to work and live. It should reflect a leadership that cares about its people.

The challenge of the Gunter Annex is to be a model installation in terms of the quality of facilities, grounds and services provided to our airmen, their families and our civilian work force. As current and future Air Force leaders pass through Gunter, they should see design excellence being practiced here and when problems emerge at other bases, the Gunter Annex should be a ready source of information on the current best management practices.

The goal of the Gunter Annex is to provide an efficient and pleasant environment in support of the mission and as a way of life, attracting and retaining skilled and motivated personnel and presenting pleasant surroundings for visitors. This facility guide offers direction to achieve the following objectives:

- Enhance the prevailing character if historically or architecturally unique.
- Develop a coherent architectural character that promotes visual attractiveness by its continuity and consistency.
- Improve the visual organization of the installation including building forms and the spaces between buildings.
- Reduce the impact of visual liabilities.
- Blend the natural environment with the built environment.

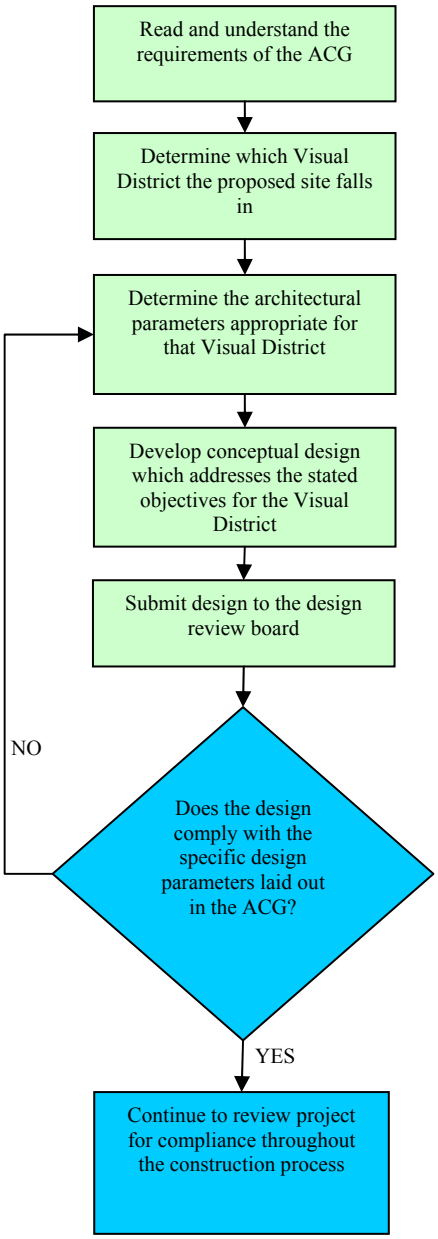
This document supplements the Base Comprehensive Plan (BCP), which is less specific. As a broad but extensive planning study of Maxwell AFB and Gunter Annex, the BCP includes the following components:

To achieve the purpose of this design guide, entrances and planning districts have been identified at Maxwell, and Gunter. For each entrance and district, an architectural directive has been identified to capitalize on visual assets. These assets include architectural:

- Themes
- Forms, massing, interrelationships
- Materials, colors, and textures
- Fenestrations and details
- Facades and foreground treatment

This document is intended to serve as a Guide to Installation Excellence that lays out some of the facility standards that are to be the foundation for managed growth. This guide supplements and builds on the AETC Guide to Installation Excellence by laying out specific standards and policies in effect at Maxwell-Gunter. The guide is a living document that will be updated periodically.

1.2 USE & IMPLEMENTATION



The ACG is a tool to chart a course towards installation excellence and provides a means to assess the installation's progress in achieving that end. The ACG is intended to be used at all stages of the facility delivery process from programming through construction, and even operations and maintenance. It is essential that the ACG be provided to the design agent and AE consultants early in the design process to assure that the entire design team understands the applicable design standards and objectives for the project.

The ACG is by no means a stand-alone document. It should always be used in conjunction with the planning and design resources found in chapter 4 of this document to ensure compliance with Base standards and goals.

Implementing a strict design review process is important to ensure the Architectural Compatibility Plan is followed as projects are conceived, designed, and constructed. The flowchart to the left outlines the typical process for ensuring compliance with this guide.

2 Base Information

2.1 INSTALLATION PROFILE

2.1.1 LOCATION

The Gunter Annex is located in Montgomery, Alabama's second largest city. The city of Montgomery is Alabama's state capital. The Greater Montgomery Metropolitan area consists of Montgomery, Autauga and Elmore counties with a current population of approximately 320,000.

2.1.2 MISSION SUMMARY

The activities at the Gunter Annex are related primarily to education and administration. A major component of the Air Force's computer systems is operated from the installation.

The Gunter Annex is home to senior NCO professional military education. Virtually all Air Force leaders come through Maxwell AFB and the Gunter Annex for professional development at least once and often several times throughout the course of their careers.

2.1.3 HISTORY OF BASE

Gunter Air Force Base began life as Montgomery Municipal Airport, constructed on the northeast side of the city. Mayor William Gunter was an aviation advocate who championed the airport and there were several efforts to have the airport officially named in his honor while he was still living. Although he successfully resisted these efforts, the airport was still commonly referred to by residents as Gunter Field.

In 1940, the Plan for the Expansion of the Air Corps Training Program was published and indicated a need for a preliminary flying school in the Montgomery area. The Commandant of the Air Corps Tactical School at Maxwell Field, Colonel Walter Weaver, picked the Montgomery Municipal Airport and the surrounding area as the location for the flying school. This included a newly-built, but as yet unoccupied state hospital for tuberculosis patients. In June of 1940 the War Department approved the recommendation to lease the land.

In 1940 the first military personnel arrived and construction began. The hospital was used as a

headquarters building and Colonel Aubrey Hornsby was the project officer and later the first commanding officer. Runways were constructed and quarters were built and in November the first class of two hundred arrived.

In late 1940, Mayor Gunter died and, on the recommendation of Colonel Aubrey, the flying field was officially named Gunter Field. By July of 1941, construction of the field was largely complete.

During World War II, the field served as a flying school for not just Army pilots, but for British, French and Canadians as well. By 1944, there were nearly four hundred aircraft assigned to Gunter Field, primarily trainers of the North American BT-14 and AT-6, Vultee BT-13 types. At this time Gunter Army Airfield had a 3,500 foot runway, as well as seven satellite airfields in the area.

After World War II, flight training was transferred to Spence Army Air Field (Georgia) and, other than some contingents of French and Chinese flight students, training ended there. By early 1946 Gunter's remaining aircraft had been transferred to Maxwell Army Air Base and the field went to stand by status.

In 1948 Gunter Field was re-designated Gunter Air Force Base and in 1950 the Air University located the Extension Course Institute there. Shortly thereafter a branch of the School of Aviation Medicine was established.

In 1957 the Air Force created the 'Montgomery Air Defense Sector' at Gunter and constructed a four-story, reinforced concrete blockhouse housing the computers and personnel who manned this portion of the Semi-Automated Ground Environment (SAGE) system, which was intended to provide early warning and response for a Soviet nuclear attack. This was manned continually until 1969 when technology advances allowed the Air Force to shut down many SAGE blockhouses.

In 1971, nearly 800 acres of Gunter were returned to the city of Montgomery. In that year the Air Force Data Systems Design Center moved there and in 1972 the Senior Noncommissioned Officer Academy came to Gunter. In 1973, Gunter was re-designated an Air Force Station.

Major construction was undertaken in the 1980s and 1990s and in 1988 Gunter was re-designated an Air Force Base. The primary tenants continued to be the Extension Course Institute, the Senior Noncommissioned Officer Academy and the Air Force Data Systems Design Center.

In 1992, Gunter was again re-designated, this time as Maxwell Air Force Base, Gunter Annex, and now falls under the command of Maxwell Air Force Base.

2.2 LOCAL CHARACTERISTICS

2.2.1 CLIMATE & WEATHER

The Montgomery, Alabama area experiences a typical Southern subtropical climate with four distinct seasons. The Gulf of Mexico, which is 160 miles away, heavily influences the climate by supplying the region with warm, moist air. During fall, winter and spring, the interaction of this warm, moist air with cooler, drier air from the north along fronts create precipitation. These fronts usually move from east to west as they track along the jet stream. Notable exceptions occur during hurricane season where storms may move from due south to due north or even from east to west during land falling hurricanes. The interaction between low- and high-pressure air masses is most pronounced during the severe weather seasons in the spring and fall. During the summer, the jet stream flows to the north from the South, and most precipitation is convectional, caused by the warm surface heating the air above.

Winter lasts from mid-December to late-February; temperatures range from the mid-30s to the high-50s. On average, the low temperature reaches the freeze mark or below about 38 days a year. While rain is abundant (approximately 53.4 inches per year) measurable snowfall is rare with the average annual snowfall averaging about 0.4 inches. Spring usually lasts from late-February to mid-May when temperatures range from the mid-50s to the low-80s and rainfall amounts average about 5.05 inches per month. Summers last from mid-May to mid-September with temperatures ranging from the upper-60s to the mid-90s. Temperatures above 100°F are not uncommon, and average rainfall dips slightly to 4.16 inches per month. Autumn, which spans from mid-September to early-December, tends to be similar to spring in terms of temperature and precipitation.

2.2.2 PREVAILING ARCHITECTURAL STYLE

The Gunter Annex is currently comprised of a number of architectural styles, including mission and a derivative post-modern mission. There are a number of large contemporary structures, some of which are quite distinctive.

At this point, however, the diversity of architecture and varying scales do not promote the character of the

base as a community of organized functions with distinct focal points.

2.2.3 TOPOGRAPHY

The coastal plains of Alabama, where Montgomery and the Gunter Annex are located, consist primarily of lowlands and low ridges. Included within the coastal plain is the Black Belt—historically, the center of cotton production and plantation culture in Alabama—an area of rich, chalky soil that stretches across the entire width of central Alabama.
Gunter is best characterized as having a gently rolling topography with no local topographic features that influence the weather or climate.

3 Architectural Design Guidelines

3.1 LANDSCAPE/SITE DESIGN

3.1.1 INTRODUCTION

The Gunter Annex has a high number of visitors and the appearance of the base is very important. Landscape and site planning reflects the high standards of AETC and incorporates a southern regional flavor. Technology in landscape management is constantly changing and base management practices must take this into account.

As the mission expands, visual compatibility and unity of the landscaping concepts become both more important and challenging. All landscaping projects are coordinated and approved by CE before construction begins to ensure the projects meet base standards and objectives.

3.1.2 INSTALLATION BOUNDARIES

The appearance of installation boundaries can be enhanced by providing simple and low maintenance plantings in front of the installation's perimeter fencing or walls. In some cases, these plantings can serve to limit sight lines into the installation and thus supplement existing security measures.

3.1.3 CIRCULATION

STREETS

While we consider the quality of a base's facilities of utmost importance, the street system serves as a framework that can either complement or detract from that quality.

Beyond providing a basic mode of circulation for vehicles, streets are an indirect basis of our perception of quality. Installation aesthetics are impacted by many of the elements that make up the vehicular circulation system. These indirect impacts may include pavement surfaces, traffic-related street equipment, street furniture, the actual roadway shapes and the focuses or views that street systems create.

Street Patterns

Where an expanded roadway system is under consideration, the street pattern should attempt to respond to site conditions and create focal interest. Street alignments that draw one's eye to significant elements of the base help provide orientation and

contextual hints as to one's location within the base. Where medians are used, these should be landscaped appropriately.

Streets should be designed to accommodate traffic flow, not to be parking lots. With the possible exception of family housing areas, parking should be eliminated from installation streets whenever possible. Never allow diagonal or 90-degree parking where vehicles will back into streets.

- All new or reconstructed streets are to include curb and gutter, with the only exception being perimeter roads.
- Accomplish all pavements trenching for utility work by boring or jacking under streets, sidewalks and curbs or gutters wherever possible.

A properly laid out street system should support uncomplicated movement throughout the base. It can suggest the location of important buildings, entry gates, structures, monuments, etc. Landscape materials used along streets can also aid in advising drivers when making logical progressions from one use area to another.

Two primary streets provide access to the two principal activity areas – the technology area and the NCO Academy. The entry on Turner Boulevard has good landscaping and the buildings are set back from the roadway. The intersection of Turner with Moore Drive to the east is visually strong, with Moore Drive partly landscaped with plans for continuing this pattern. West of Turner, by contrast, Moore Drive is visually weak and the approach to the NCO Academy is not particularly distinguished. It is recommended that consideration be given to a more forceful extension of Moore Drive, equally well landscaped, west of Turner to provide a more appropriate approach to the Academy.

The main entrance to an installation should represent one of the most carefully crafted components of the base. Accommodating all anticipated traffic including delivery vehicles and pedestrians should be considered in terms of flow and staging. Thematic materials and architectural style can be established by the guardhouse, entry monument, fencing, and other entrance amenities. Overall, the roadway system, beginning with the gate entry, should establish a positive visual image of the installation. At Gunter,

the approach to the main gate from Dickerson Highway, bespeaks a high level of quality.

Pavers/Other Materials
Non-traditional paving materials, such as pavers, may be used at key intersections or adjacent to significant base facilities. These can help notify drivers or pedestrians of an area or location of significance. Use of such materials should be limited to locations of high importance like major pedestrian crossings. Material selection should be consistent and limited to one material type and no more than two colors. The selected material must be installed in such a manner that it is able to withstand virtual neglect and constant vehicular abuse.

WALKS

Walkways define the pedestrian experience on a base. They are an indicator of quality in the installation infrastructure and of the commitment to ease of circulation. While they are similar to streets in that way, placement and scale are very different and must be addressed in a manner that recognizes the pedestrian perspective.

Sidewalks
Consideration should be given to the pattern of pedestrian traffic between buildings when planning sidewalk routes. Sidewalks should be sufficiently wide to comfortably allow two pedestrians to cross paths. Generally, a 6 to 8 foot wide sidewalk is preferred, but it should never be less than 4 feet wide along secondary streets. Primary sidewalks should be lighted for nighttime safety. Lighting in other areas is recommended.

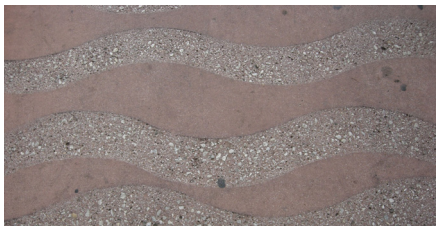
Sidewalk construction should promote pedestrian safety, prevent erosion and enhance the installation's appearance. Placement of sidewalks immediately adjacent to street curbs is discouraged. When designing sidewalks, care should be taken to avoid the creation of narrow planting strips between the sidewalk and street curb as these are problematic from a maintenance standpoint. Where on-street parking is not used, landscaping improvements in this area are encouraged. This "green zone" (area between the street curb and the sidewalk) should have a width of no less than 6 feet.

Sidewalks should generally be parallel to adjacent streets, except when crossing large open areas

curvilinear sidewalks can be used to create visual interest and provide landscape pocket planting opportunities that enhance the pedestrian experience. The walkway system at the NCO Academy is particularly well developed, with ramps, landscaping, special paving and curvilinear layouts.

Sidewalks should be located on both sides of a street, especially along main thoroughfares, to afford pedestrians the maximum circulation options and to minimize the need to cross a street to access a sidewalk. The number of curb cuts that occur where sidewalks are located should be kept to a minimum. Sidewalk materials at major vehicular crossings should signal to drivers that a pedestrian zone is being crossed, and brick or concrete pavers, as previously suggested, are a good option.

Sidewalks should be a part of all new construction projects. Sidewalk configurations should preserve any significant existing landscape. Sidewalks leading to a building should increase in width as they approach a main entrance. Borders of brick or concrete pavers are appropriate at major building entrances. Sidewalk construction shall be in accordance with AFM 88-4. Encroachments on sidewalks from items such as utility poles, street furniture or directional or building signage is prohibited.



Consideration should be given to economical alternatives to gray concrete walks. Among the options are concrete with a small amount of red or brown pigment added, washing the cement matrix away to expose some aggregate and light sandblasting in simple patterns, using a sheet metal template.

Troop Walks

The design of these walks should consider all aspects of the possible exercise formation patterns envisioned. Required widths are typically 10’ to 12’. These need not be located adjacent to roadways—it is recommended that they be located in segregated open areas away from vehicular traffic for both safety and for enhanced visual interest. Where feasible, troop walks should be located in relative close proximity to supporting building facilities where these exercises originate. Troop walks that cross streets are strongly discouraged.

Aside from a typical standard sidewalk concrete finish, accenting borders by using a vernacular material along a troop walk is desirable. It is important to ensure that where used, this border accent complements adjacent facilities. Special attention to detailing at locations where troop walks intersect sidewalks is recommended. Using the Gunter vernacular brick materials in unique patterns at these locations is encouraged. This holds true for other intersection opportunities as well such as other troop walks or other general pedestrian or gathering areas.

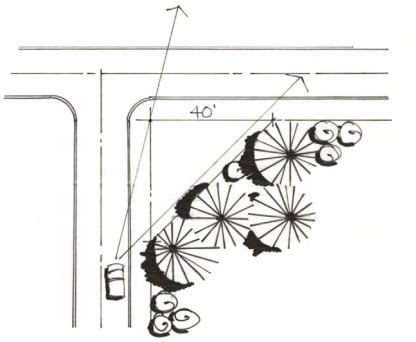
Pedestrian Cross Walks
Where special paving materials as suggested above (*Special Paving/Other Materials*) are not used at cross walks, white traffic-tape bar stripes are required. These shall be 24" wide by 8'-0" long and evenly spaced with 18" to 24" intervals between the stripes. Stripes are to run parallel to vehicular traffic flow. Crosswalk markings of continuous stripes across the street that are perpendicular to vehicular traffic flow are strictly prohibited. Provisions for handicap access through curbs at cross walks are required. Curbs shall not be painted.

Bicycle paths
Bicycle transportation is an efficient alternative to traditional vehicular travel and should be given consideration as an integral part of the base circulation system. Bicycle paths can serve as a convenient and safe alternative mode of travel between base facilities that also promote exercise.

Curvilinear layouts are preferred over linear configurations. Pathways should be sufficiently wide to allow for two-way bicycle traffic to be easily accommodated. Where sidewalks double as bicycle paths, they should be made sufficiently wide to allow comfortable use of this facility for both activities and have a designated side for each. When expanding existing facilities, planners should consider building sections of what can become a complete loop of the entire campus.

PARKING

Access to Parking
Curb cuts leading into parking areas should use concrete approach aprons to minimize the maintenance associated with vehicular turns on asphalt. Landscape clusters flanking these entrances are encouraged and



should be installed at the appropriate setbacks to allow for adequate sightlines for driver. The height of mature plant materials should be considered.

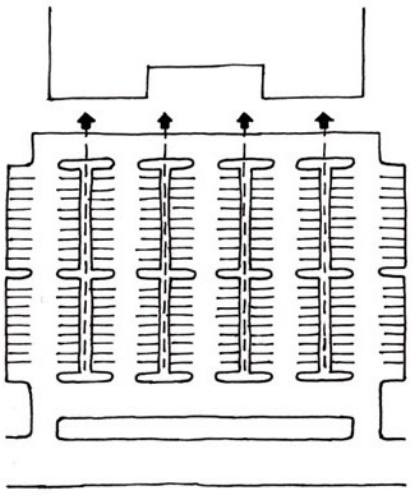
Landscape clusters help to signal the entrance of parking areas and "soften" the increased pavement area associated with curb cuts. A triangular setback of a minimum of 40 feet from the curb must be kept clear of obstacles that can prohibit obstructing a driver's line of site in either direction of an intersection.

Accessing parking areas from main thoroughfares, especially off of the entry roadway, is discouraged. To the extent possible, parking areas should be accessed from secondary roadways in order to minimize the impact on vehicular flow on main thoroughfares where speeds are higher.

Parking Locations

Parking is one of the most space consuming land activities at Gunter, Typically, it dominates the landscape setting of facilities and creates one of the most visually disruptive elements within the base. Efforts to enhance parking areas include the principles below:

- To economize on space and provide easy circulation, parking should be laid out with 90-degree stalls and 25foot aisle for two-way traffic.
- Perpendicular parking not physically separated from the roadway is not permitted
- Handicapped parking will be in accordance with the "Uniform Federal Accessibility Standards" and "Americans with Disabilities Act".



The preferred locations for vehicular parking are across the street from a main building entrance or at the side or rear of the building. Buildings should never be viewed from the street across a parking lot.

Where parking in front of a building is required it should be limited to visitor spaces, located so as to not block the view of the building entrance. Vehicular drives within these parking areas should be oriented so that they are perpendicular to the building façade. Buildings 856 and 892 are good examples of sensitive parking area locations.

Designated handicap parking stalls should be located as close to the accessible entry as possible.

Force Protection
Refer to the section on force protection for information regarding parking and building adjacencies.

Screening/Planting
Where dedicated parking across a street from a facility is possible, special care should be taken to set back the parking lot sufficiently to allow for landscape planting opportunities between the lot and the street. The intent of this standoff distance zone is for security, to screen or mask the parking lot from the street and to improve the pedestrian and vehicular views from the street or sidewalks.

This zone can be used to place sidewalks. A minimum of 20' from the edge of the street curb to the edge of the parking lot curb should be set aside for this zone. Low berms with low level plantings and trees will completely screen the view of parked cars. Screening with berms and planting is very successful at Building 856.

Parking lot medians should be planted with trees, located so that they do not come into contact with overhanging truck bumpers. A goal of shading 20 percent of the parking area with trees at the lot perimeter or medians is recommended.

Pedestrian Considerations
Pedestrian walks that lead toward a building entrance should be located within the medians in large parking areas. Texture or material changes should be considered for delineating paths where pedestrians must cross traffic lanes as they traverse the parking lot. Appropriate ramps at curb approaches to accommodate ADA requirements are to be provided.

3.1.4 OPEN SPACES

CEREMONIAL SPACES
Key vistas, axial and spatial relationships and circulation should all be considered in the design of these. Through art and the landscape, these places seek to convey a sense of history and distinguished military accomplishments.

The entry plaza at the NCO Academy is, by any standard, an extremely well-designed ceremonial space.

Smaller monuments and artworks should be sited and scaled so that they are highly visible yet subordinate to the overall plan and concept of the ceremonial spaces. To the extent possible these should be dispersed, not clustered.

Where seating is to be integrated into the plaza design, it should take advantage of the principal view and be oriented for thermal comfort in both winter and summer.

Berms can be used to define open spaces and emphasize desired views. They can protect the central ceremonial area in the winter while directing prevailing winds into the space in the summer. Berms can also help mitigate traffic noise that could be disruptive during ceremonial events.

RECREATION SPACES

Outdoor recreation offerings enhance quality of life by promoting healthful activities. Open recreational areas must be well conceived and maintained to be successful. Spaces such as parks, playgrounds, baseball fields or other sports fields, gardens, etc. all can serve as recreation sources. These are best located where they are convenient to all base residents and this suggests a somewhat central location. Space in this area should be set aside for future growth of recreational facilities.

PLAZAS/COURTYARDS/PATIOS

Courtyards and patios should be an integral component of the overall base planning effort. When grouping buildings, the spaces between buildings should be as carefully designed as the buildings. Plazas and courtyards should be designed to encourage group gatherings. The central Alabama climate allows participants to enjoy the use of exterior spaces most months of the year if shade is provided. At least 50 percent of the ground plane should be devoted to planting, concentrating on trees for shade.

The design of plazas or courtyards should be relatively simple and flexible enough to accommodate a variety of events. Ideally, they can be terminus points for pedestrian walks or other approaches.

Landscape materials used in these spaces should be carefully selected. Trees of sufficient height and width at maturity should be used to ensure that shading of seating areas will be afforded during warmer weather.

Deciduous trees are recommended over evergreens since they allow sunlight and warmth to penetrate the area in the winter months.

Paving material selections should complement the surrounding facilities and take into consideration all drainage requirements implied. Paving patterns or borders in these areas are appropriate, but should be kept relatively simple in design. Divider strips of either brick or concrete pavers are encouraged, as they add interest at relatively little additional cost.

The courtyard at the dormitory complex at the NCO Academy and the outdoor area at the east side of Building 1065 are both well designed and furnished open spaces that invite informal gatherings and interchange.

PLAY AREAS

Play areas are an important element of family housing areas, schools, child development and recreational facilities and too often these are placed where space is available, without proper planning. The Consumer Products Safety Commission (CPSC) **Handbook for Playground Safety**, 1978 and later, provides valuable guidance in the planning of play areas, the design of play equipment and the selection of ground surfacing. ADA guidelines address design to accommodate children with disabilities.

For active play, a good rule of thumb is 75 square feet per child. Space limitations will dictate how many children can safely use a play area at any one time and research has shown that accidents increase with overcrowding. The ages of children using the play equipment is particularly important when the range extends from toddlers through pre-teens. Where toddlers are anticipated, the best practice is to develop a separate area to address their needs in order to minimize injuries to these younger children.

The CPSC defines a use zone around each piece of play equipment, consisting of a fall zone and no-encroachment zone. The fall zone is the area around a piece of equipment where a child falling or jumping from the equipment could be expected to land and where impact-absorbing ground surfacing is required. The no-encroachment zone provides an additional area where children using the equipment can be expected to move about.

Only play equipment that meets the safety requirements established by CPSC should be considered. Safety considerations include entrapment, crush and pinch points, protrusions and edges, multiple exits, guardrails and barriers. The most durable equipment is of steel with a high-performance coating. Plastics have a shorter life expectancy; wood splinters and is subject to decay.

Selecting play equipment that looks like a rocket ship or castle has adult appeal, but non-thematic structures better support and stimulate dramatic play activities and are more adaptable for informal activity. While bright colors are appropriate there is no evidence that children respond best to primary colors.

The most important component of a play area in terms of reducing injuries is the selection of the ground surfacing material. CPSC establishes impact-absorbing criteria. Positive drainage of the ground surface is essential and play equipment footings must be recessed so that the surface material extends over them. Sand and gravel are undesirable because they do not absorb impact readily. Wood bark decays and, when dry, becomes an airborne irritant. Three types of surfacing material have proven successful.

- *Fiber Mulch:* This engineered wood product is installed with a depth of 12 inches over a geotextile fabric. The installation requires a network of porous drain lines below the fabric to carry away subsurface water. The mulch is easily worn away in areas of frequent impact and requires on-going maintenance to maintain a uniform depth.
- *Poured-in-Place Rubber Matting*: The rubber is poured over a thick bed of loose rubber fill placed over a concrete slab. A substantial edger is required to keep the loose material from migrating.
- *Interlocking Rubber Tiles*: The tiles, 3 or 4 inches thick, are installed over a concrete slab. The tiles have short legs that raise them above the slab so that water drains through and is carried away.

3.1.5 PLANTING/LANDSCAPE

GENERAL

Landscape can be used to direct circulation, provide shade, screen or mask undesirable views, mitigate

noise and wind, control erosion, contribute to energy conservation through shading and cooling, establish hierarchical order, emphasize or deemphasize building architecture, define space, improve air and water quality and serve as part of ATFP design.

The importance assigned to landscape has evolved over the years, as is evident at MAFB-GA. In the 1960s and 1970s, landscape development was typically treated by architects as an expendable amenity. The last 15 years has seen a resurgence of interest in comprehensive landscape development and this is viewed now as a critical part of every construction project. While recent projects are well landscaped, earlier buildings are not and landscape is a good way to visually mitigate the somewhat harsh appearance of some earlier buildings.

The tall pine trees, planted in rows or sometimes informally, helps to visually unify the base. The trees are used both to screen views and to define space.

The landscaping at the Gunter Annex, like MAFB, has an almost manicured appearance, possible because of the available labor force that must be the envy of every other Air Force installation. Some of the newer projects use plant materials that have obviously been selected for their growth habits and mature size that reduce the need for frequent pruning. These appear more natural than the geometric shapes of pruned shrubs and this type of more natural shrub and tree care is encouraged.

Limiting landscape specimen installations to those listed on an approved plant list for the Montgomery area is important as it increases the chances for long-term survival of installed materials. The need for supplemental watering and maintenance is greatly reduced. At the design stage, an expectation for a plant specimen's anticipated timeframe for achieving maturity needs to be realistic so that natural growth patterns are compatible with desired goals.

Screening

Landscape materials are an effective method of screening undesirable views of things like storage yards, utility lines or sub-stations, mechanical equipment, electrical transformers, dumpsters, docks and others, when an architectural screening device is unwarranted. When selecting a plant to perform as a

screening, be careful to select species that will remain dense close to the ground.

Planting beds of shrubs and flowering plants should be minimized, used only at the main gate and adjacent to principal building entrances. Elsewhere, the emphasis should be on trees, not shrubs. To reduce weed intrusion, planting beds should be underlaid with a mesh fabric and heavily mulched, both at planting and as part of on-going maintenance.

Masking
Landscape used to mask views is different from full screening in that the intent is to soften rather than to completely block a view. Applications for masking could be to break up long expanses of fencing or along force protection cable barriers. The intent is to soften the hard lines and to improve visual appeal.

Noise Control
Strategic planting of landscape materials can be a good approach for controlling noise and are especially effective when paired with masonry fences or berms. This application can be particularly useful where buildings or other public spaces are located adjacent to a busy roadway. The most effective installations for noise control will include plant materials with very dense foliage, planted to create a continuous screen and be of sufficient height to moderate noise. It is important to note that plant materials of all heights have the ability to absorb reflected sound. Evergreen plants are preferred when installed for this purpose since their foliage is beneficial for mitigating noise throughout the year.

Shade
Providing shade is one of the many benefits of landscape plantings. During the summer, they help to reduce the ambient temperature by a substantial amount to provide comfort and encourage use of outdoor spaces. In the winter, deciduous trees allow light and warmth to penetrate their canopy. The use of deciduous trees around buildings helps to shield them from the full effect of the summer sun while allowing its warmth to penetrate in the winter.

Approximately 75 percent of all heat gain in a building is through windows. The proper use of deciduous shade trees can dramatically reduce the cost of cooling in the summer and heating in the winter by strategically placing them to shield windows. Tree

planting also reduces the amount of turf area which requires significantly more water to maintain.

Shade from trees also improves the ambience of patios and courtyards by extending their usability into summer. They also help to lessen the heat island effect of roadways or parking lots when placed in medians. When planting shade trees on circulation corridors, adequate clearance between the tree and other structures as well as beneath the tree where traffic occurs is critical. The specific growth patterns of a selected species needs to be thoroughly understood in order to avoid future problems.

Definition of Functional Areas
The massing of landscape beds and the logical sequencing of landscape patterns can frame views, buffer pedestrians from vehicular traffic and provide separation of distinct activities.

If the intent is to create an atmosphere of order, regular spacing of trees and shrubs is most appropriate. Formal repetition and contrast to reinforce edges and borders represents the most appropriate application for a sense of coherency. When a formal setting is desired, trees with upright trunk patterns are most appropriate. Their vertical canopy clearance should be a minimum of seven feet to allow views underneath.

Irregular spacing of landscape materials must be carefully implemented so that there is a sense of overall composition and balance in the final configuration. Informal settings are most appropriate in areas where a diversity of unplanned activities may occur.

Glare
Trees, shrubs and other vegetation can effectively reduce glare and reflection when placed between the light source and the observer. This is especially true where reflections from paved areas are being bounced into windows or where sunlight is directly penetrating a window.

Pollution Control
The most significant way for landscape to control water pollution is to control erosion. Landscaping can play a very important part in this goal by holding soil in place and thus reducing the amount of "runoff" during rain events that would otherwise find its way to fresh water sources. Whether runoff events are rapid

and dramatic or slow and imperceptible, the materials that storm water comes into contact with are potential sources of pollution.

Most of Gunter is relatively flat or gently sloping. In areas that are more steeply sloped, erosion threats are the greatest. In these areas, planting vigorous ground cover will stabilize the area and mitigate runoff. Planting grass in these areas is discouraged as it proves difficult and even dangerous to maintain. The use of mulch materials also helps stabilize soil and the pine needles are ideal. This application is highly beneficial to the soil and also helps control weeds that tend to infiltrate planting beds.

In areas that are mowed, leaving the clippings on the lawn is encouraged. These add nutrients to the soil that in turn reduce the need for fertilization. Clippings also add organic matter to the soil which reduces the amount of runoff.

Where installing plant materials to control erosion is difficult if not impossible, the use of rip-rap should be considered.

Landscape & Architecture
Landscape materials can be used to emphasize a building's entry or to mask or screen building walls that lack detail or otherwise detract from the entry. Formal planting patterns add to the drama created when approaching an important installation facility or important base landmark. This is particularly effective when the landscape helps to frame the entrance of prominent facilities. The use of shade trees along walks and drives, paired with low level ground covers, help to lower the thermal load on adjacent facilities.

In addition to emphasizing the entry, installing plant materials along the foundation of a facility adds to the visual interest of the building by softening hard edges and adding depth to the building façade.

WALLS

Retaining Walls
Retaining walls are used to stabilize soil where elevation changes are severe, where controlling erosion is necessary and to make flat terraces possible in sloping terrain. They are of most benefit where extensive grading of soil is not possible due to limited area requirements or where excessive grading would

be detrimental to the surrounding landscape or roadway system. Where these conditions exist, retaining walls are recommended over extensive grading.

A maximum vertical height of 3 feet for individual retaining walls is preferred over taller solutions if the specific condition allows. Terracing of battered retaining walls not only creates visual interest and potential seating areas, it also enhances soil stability and keeps individual retaining walls at a manageable scale to facilitate landscape maintenance. They can also be used effectively as a component of force protection.

Brick retaining walls have been used very successfully at the entrance plaza at the NCO Academy and concrete retaining walls are equally successful at the dormitory complex courtyard. In both instances the material used is compatible with nearby buildings.

Landscape materials can soften the appearance walls and ensure a fit with the surroundings. Modified drainage patterns created when using retaining walls should be considered during the planning stage.

Landscape Walls
Landscape walls are freestanding walls used to screen or mask undesirable views or to define space. Landscape walls can help signify an entry or enclose a patio area. They can be combined with landscaping and lighting to improve the visual quality of an outdoor space and make it more comfortable for people to use.

At the Gunter Annex most buildings have stucco or brick bases. Landscape walls should be clad in materials that match or are compatible with adjacent buildings. Walls should not be clad with EIFS or other materials that are prone to damage by landscape maintenance equipment. Brick is not recommended for wall cap materials, as brick caps tend to foster efflorescence in the wall below unless it is extremely well flashed and sealed. Natural or cast stone caps and metal caps are preferred.

Equipment Screens
Dumpsters and major pieces of mechanical equipment should be completely screened from view. The base preference for brick or brick piers with vertically slatted wood enclosures with gates of tubular steel

represents a major commitment to the elimination of visual clutter. The wood is generally painted with a dark red-brown paint color. Wall caps should not be of brick and sheet steel should be considered as a backing to the steel gate frames to provide total visual screening.

Size dumpster enclosures to accommodate the largest dumpster in use or contemplated for use. All freestanding dumpsters shall be screened using the base standard dumpster pad and enclosure constructed of concrete, masonry and wood. The design standard details can be obtained from CE.

Mechanical equipment screens are best designed as somewhat taller than the tallest piece of equipment to be screened. Mechanical equipment has a finite lifespan and there is some likelihood that replacement pieces will be taller than the original.

Equipment like electrical transformers, is typically ground-mounted. Simple volumetric forms like these are best left unscreened, painted the standard dark brown color so that they recede into the background.

Storage Sheds
Metal storage sheds are prohibited. All proposed storage sheds must be presented to CE for consideration and must receive prior approval before construction begins.

Fences
Chain link fences for new construction are strongly discouraged. Wood slatted fencing is preferred. Where they are essential for security, brown vinyl clad chain link material and posts should be used. Residential chain link fences shall meet the above requirements and shall not exceed 5’-0” in height. Wherever possible, chain link fencing should be supplemented with landscape for screening purposes.

The preferred design for security fencing is steel or aluminum picket fencing in a dark color, six feet or taller as required for security, with brick piers at 12 to 16 feet on center. The brick piers should be a minimum of 16 inches square and have cast stone caps. An alternative to brick piers is circular concrete piers, with a rubbed finish and a cast stone or precast concrete cap.

PLANT MATERIALS

Landscape Plant List
It is not the policy of Maxwell-Gunter AFB to provide a list of acceptable plants to use on our installation, but rather, to provide a list of plants known to be unacceptable. All planting lists and plants are inspected and approved by CE. Plants that are not to be used are the following:

- Elaeagnus species
- Ligustrum species
- Photinia x fraseri
- Gardenia species
- Nerium oleander
- Ilex cornuta `Rotunda'
- Malus species (Flowering Crabapple)
- Ulmus (some) species
- Pyrus calleryana species
- Quercus virginiana
- Quercus palustris

Grass
Two types of grass are used on base to provide turf, Bermuda grass and St. Augustine. Bermuda grass is a hardy grass that thrives in this region's summer climates of heat, humidity, and moderate rainfall. St. Augustine is used in shaded areas.

All renovation and construction projects need to include provisions for landscaping and turf repair at the end of construction. All turf installation and repair will be done using sod as opposed to seeding.

Monitoring Wells
Where required for environmental purposes, monitoring wells shall be flush mounted. They shall be protected from mowing operations and traffic through the use of shrubbery or other approved forms of landscaping.

3.1.6 XERISCAPING

GENERAL

The word “xeriscape” is derived from the Greek word “xeros”, meaning dry. Xeriscape philosophy embodies landscape principles that apply to any region or climate and challenges landscape designers and those responsible for maintenance to create landscapes

that achieve a sense of region in the selection and placement of plant materials while minimizing the use of water.

For Air Force installations, adherence to the principles of xeriscaping reduces water consumption and lowers maintenance costs. Water use for a traditional landscape can be as much as 40 percent of total water use and, though irrigation cannot be eliminated, it can be greatly reduced with the appropriate design techniques and maintenance practices. An attractive appearance need not be sacrificed, as a properly-designed xeriscape can incorporate abundant planting and take on, if desired, even a lush appearance.

Water Budgeting
In landscape design, water use zones can be created by concentrating plants with similar water-use requirements. This simplifies both irrigation design and maintenance. There are three typical zones.

Inner Zone
This zone is the smallest, concentrated in highly visible areas like principal building entrances, heritage parks, main gates and functional outdoor spaces like courtyards and patios. The densest planting is reserved for this zone and, even in a climate like Montgomery's with relatively plentiful rainfall, supplemental irrigation will likely be required.

Intermediate Zone
This transitional zone includes other areas immediately adjacent to buildings, park areas, medians in divided streets and parking lots and strips bordering major streets. In Montgomery a broad variety of plant materials are available for use in this zone that will require no supplemental water, though some may be desired in limited areas. This can be minimized at streets and parking areas by diverting some runoff from paved areas and around buildings by distributing runoff from roof drains.

Outer Zone
The outer zone is everything else. Gunter is exemplary in the manner in which it has treated these areas, with swaths of pine and other native trees allowed to form a dense backdrop, together with natural understory growth requiring no supplemental water and almost no maintenance.

Turf Areas
Turf has the highest water and maintenance requirements of all plantings. The size and location of turf areas should be carefully considered in the inner and intermediate zones. At the inner zone, there will reasonably be some turf areas that suggest a green appearance throughout the growing season, regardless of rainfall, requiring irrigation. These should be minimized. Turf areas in the other zones at the Gunter Annex is typically, and appropriately, Bermuda grass or native grasses that brown out in dry periods. In the intermediate zone, efforts should be considered to divert some runoff to turf areas to keep them green.

Because the summers at Gunter bring average high temperatures in the 90s with only scattered showers, there is not always sufficient rainfall to maintain an attractive green turf. Supplemental watering between the months of June and September is sometimes necessary.

At facilities without an irrigation system, watering is the responsibility of the building manager. The best indication of the need for watering is when grass blades begin to wilt. Care should be taken in watering as too much water can be just as detrimental as insufficient water.

Soil Improvement
Most native and adapted plants in any region do well without soil improvements, but the addition of organic matter to any soil is beneficial. Plants grow better and use water more effectively if organic matter is added. Further, rainfall will be more readily absorbed by the soil, reducing runoff, erosion and the frequency of supplemental irrigation. Organic matter should be added to the soil in all new plantings in the inner zone and, as feasible, in the intermediate zone as well.

Irrigation
Different soils absorb water at different rates. Slow irrigation allows proper soil moisture to be maintained in the root zone, providing the best growing conditions, while deep watering promotes deeper roots, reducing irrigation requirements. In all but the very hottest weather, one deep soaking a week should suffice. Drip irrigation should be considered for planting beds as there is no loss to evaporation.

Rainwater Harvesting
For new construction projects, rainwater collection tanks should be considered. While the initial cost is significant, the long-term benefits are very substantial. The benefits of brief and intense rain can be extended by designing the grading around buildings to direct some runoff from roofs and paved areas onto landscaped areas, encouraging limited ponding in planting beds and turf areas for subsequent absorption.

Plant Selection
The Montgomery area has a large number of native trees, shrubs and groundcovers that have demonstrated their hardiness and ability to thrive without supplemental water. These have been used to good advantage by the base and their continued use should be encouraged. The native plant list should be supplemented with plant materials that have proven themselves adaptable to the Montgomery climate.

Mulches
Organic mulches reduce both water needs and weed growth. Gunter has at hand excellent mulch material in pine needles and is very fortunate to also have a composting operation in place. Pine needles are appropriately placed directly on the soil around all plant materials, to a depth of three to four inches. The use of mulch for a foot or two around trees makes mowing turf easier and eliminates the need for trimming with a weed eater that can damage the tree.

Inorganic mulches like gravel or river rock are discouraged as inappropriate to this area.

Maintenance
Established xeriscape planting requires less fertilizer and insecticides than a landscape with non-native or adapted materials. The use of systemic contact herbicides on Bermuda grass around planting beds, along with regular applications of pre-emergent herbicides will greatly reduce maintenance labor requirements in the long run.

Mowers should be set higher, particularly in very hot and dry periods. Irrigation sprinkler heads should be regularly inspected and mulch around trees and in planting beds should be replenished on a regular schedule.

3.1.7 EXTERIOR SIGNS

Effective and visually-appealing signs are an important aspect of installation excellence, identifying location and function and providing directions to important facilities. The number of signs at any installation should be held to the minimum required to get people where they need or want to go.

GENERAL STANDARDS

Exterior signs are to have a standard installation format, color and size as specified in the United Facilities Criteria (UFC) 3-120-01, Air Force Sign Standard (www.hnd.usace.army.mil/techinfo/UFC/UFC3-120-01.pdf), supplemented by the AETC Policy Memorandum on Signs, dated 11 January 2005. Air Force guidance requires that, except for traffic control and airfield signage, all signs are to be in a shade of brown consistent with each installation's architectural guidelines. The typical signage at MAFB, with a dark brown sign face and wood posts in the same color, with white graphics and text, are consistent with this guidance.

Vehicular signage should be scaled appropriate to vehicle speed and the distance from which it is to be viewed. The UFC provides detailed guidance. There are a number of vehicular signs at Gunter mounted quite close to the ground where whereas drivers typically look slightly above eye level for directional signs. There are also signs with text too small for readability by a driver at typical approach distances and signs with inconsistent font size in the text messages.

The amount of information provided on signs to be viewed from vehicles should be limited to that which can readily be comprehended as the vehicle approaches the sign. As a general rule there should be no more than six lines of text on any vehicular sign.

Use of Logos

Guidance for the use of the Air Force symbol is provided in Section 2.13 of the Air Force Sign Standard. Guidance for the use of shields and emblems is provided in Section 2.14. Overuse of emblems on sins and buildings is discouraged.

Gate Entry Signs
The main gate entry sign is out of compliance with AETC guidance as it uses materials and colors that are inconsistent with the established Air Force standards. Section 4.8 of the Air Force Sign Standard provides detailed guidance.

Marquee Signs
Electronic marquee signs, with dynamic messaging, are to be located only at the principal base entrance.

Building and Area Identification
Building numbers are typically prominently displayed in an appropriate size at the Gunter Annex. Air Force guidance requires street addresses as well and these are typically not provided.

Pylon-type signs are typically not used at Gunter. These are encouraged for appropriate areas, as they add visual emphasis to the information provided. When used, they should be in standard colors and construction and appropriately sized.

Where buildings are identified by function, raised individual metal letters in a dark or silvery color are typically used and this pattern of use should be continued where it is appropriate to identify user or function. Font size should be appropriate for readability, not to impart a monumental appearance.

Directional Signs
Install directional signs only at locations where decisions as to how to proceed must be made, e.g. street intersections and driveway entrances. Directional signs should not be mounted on the same pole or sign base as traffic control or other regulatory signs.

Traffic Control Signs
Use typical warning colors (red and yellow) as the accent, not as the sign ground color. Install traffic control signs on their own mountings, coordinated in placement with directional signs so that neither type obscures the other.

Street signs
Street signs at Gunter, with brown ground and displaying the street name in white together with the AETC logo, are appropriate and the established pattern of use should be continued.

Monument Signs
This type sign is limited to use at marquees and at important buildings like the Wing Command headquarters. This use of this type of sign at the Gunter Annex is generally consistent with Air Force guidance.

FPCON Signs
The size, format and display of FPCON signs is set forth in the AETC Policy Memorandum on Signs, dated 11 January 2005, and these should be standardized at all MAFB-GA buildings.

3.1.8 SITE FURNITURE

GENERAL
In a relatively benevolent climate like Montgomery outdoor areas are inviting a large portion of the year and a number of buildings have been designed with well-developed outdoor spaces. Site furniture encourages greater use of any outdoor space.

Seating and Tables
Well-designed loose tables and chairs are in place at the outdoor terrace at Building 860 and are likely in use at less visible locations as well. It is recommended that a standard design or designs be selected for use base-wide on future projects. The photograph show one example of a well-designed fixed bench that is both durable and comfortable.

Benches should be placed to encourage interchange and not in formal arrangements. Shady locations will ensure greater use and placement under a deciduous tree will make them more appealing in the winter.

Trash Receptacles
A variety of trash receptacles are present on the base and an effort to standardize them for future projects is encouraged. Open steel mesh receptacles are well designed and, in addition, are self-ventilated and can be easily washed down with a hose. These appear more permanent and fit in better than lightweight plastic receptacles. Trash receptacles should be anchored into place.

Loose Planters
Large, heavy planters can serve a minor function as force protection. Otherwise, their use is best limited to

accenting major building entrances or as landscape elements in somewhat enclosed outdoor spaces. Plastic and pre-cast concrete are both durable materials for these and the color range should be limited to buff and terra cotta.

Butt Cans
The standard vase-shaped butt cans blend into their surroundings somewhat better if they are painted the dark brown used on service elements elsewhere on base.

Lighting
Pedestrian-scale lighting is an important element of site furnishings. This is addressed elsewhere in this Guide.

3.1.9 LIGHTING

EXTERIOR LIGHT LEVELS

Light levels for roadways and public areas are governed by Air Force standards and those of the Illuminating Engineering Society. Overlapping of light scallops is recommended to avoid dark areas. Higher than standard lighting levels around the main gate and other high activity areas may be required.

LIGHT QUALITY

Standardization of lamp light color is recommended. Metal halide lamps that provide cool white light are preferred over high pressure sodium. Metal halide lamps provide better and more accurate color rendition on lighted surfaces. Further, people perceive areas lighted with metal halide to be lighter than those with sodium, even though the foot-candle level is the same. Adoption of a base-wide standard will simplify lamp inventory and facilitate maintenance.

PARKING LOT LIGHTING

Parking lot light fixtures should be located to avoid contact with any portion of a moving or parked vehicle. Light poles should be located within landscape medians and on a concrete pedestals if there is any possibility of damage from truck bumpers.

Parking lot light fixtures should be standardized base-wide. Poles should be dark bronze-anodized and set at a uniform height above the parking lot surface. Fixtures can be rectilinear “shoebox”, cylindrical “hockey puck” or other simple and well-designed

shape, bronze anodized or painted dark brown, with a high cutoff angle to minimize light spillage. Existing base lighting conditions should be evaluated to determine what standard would be the most economical to implement on new and replacement projects.

Where "cobra head" lighting fixtures are present, a plan should be developed for their phase-out base-wide.

ROADWAY LIGHTING

Roadway light fixtures should match the look of fixtures in parking areas. Pole heights will be dictated by the type of roadway and existing conditions. Consistency is key; whatever pole height is determined to be appropriate should be adopted base-wide for corresponding conditions.

PEDESTRIAN LIGHTING

Pedestrian lighting addresses lighting needs on a different level. The proximity of the fixture to pedestrians, spacing and the areas to be lit suggest fixtures somewhat different than for other areas. Whereas a high cut-off angle is desirable for relatively tall lights at parking areas and roads, pedestrian-scale fixtures in some areas may disperse light over a wider area and can even spill light on building facades.

Fixture types should vary from area to area. A variety of pedestrian fixtures are in place at Gunter. In some instances the areas to be lit consist of open spaces and sidewalks between buildings and, in these areas, fixtures can be scaled-down versions of roadway fixtures or some other simple and well-designed shape. In other areas, like family housing, more decorative fixtures are appropriate. However, these fixtures should also be relatively simple and not overly stylistic. Unshielded globes should not be used. Consistency of fixture type within each visual district is highly desirable. Designers should consider the use of fixtures lamped with light emitting diodes which are becoming prevalent for step lights and other specialty uses.

Because these fixtures are meant to assist pedestrians, mounting height should be between 10 and 12 feet above the surface it illuminates. For ease of landscape maintenance, it is suggested that the pole be installed on the sidewalk, if it is wide enough, or on a small extension of the sidewalk, to minimize any damage

from mowers, etc. Fixture and pole colors should be in the dark brown to bronze range.

Bollard lighting as general pedestrian lighting is discouraged due to its inefficient lighting patterns and relative high cost for the lighting achieved. When used in landscapes, they complicate landscape maintenance especially when placed in turf areas.

Bollard lights can, however, be used quite effectively to supplement lighting where pedestrian sight hazards exist. In these conditions they help accentuate steps, ramps and elevation changes. Bollard lighting is also an effective way to visually draw attention to major building entrances and to define important outdoor areas like major building entrances. When placing bollard lights, erring on the side of too few is preferable to too many.

Bollard lights should be selected for durability, secure anchorage devices and simple, uncluttered appearance. They should be no more than 42 inches high and should direct light down somewhat toward the ground plane so they don't blind pedestrians. They should not be mounted in planting areas but on a deepened edge of the adjoining paved surface so that mowers can pass by. The light source should be metal halide with a maximum wattage of 70.

LANDSCAPE LIGHTING

Landscape lighting can be very effective in extending the visual impact of plant materials past sunset. It can also provide a sense of security. Landscape lighting is generally discouraged for reasons of economy, but should be used in facilities where nighttime functions are common.

Landscape lighting fixtures should be inconspicuous, discreetly located and lamped according to their intent. "Hot spots" should not be visible. Care should be exercised in properly aiming these fixtures to create the desired effect without over-lighting the plant materials, making them appear washed out. Mercury vapor is the light source generally considered most desirable for landscape lighting.

3.1.10 VISUAL CLUTTER

Visual clutter does not happen all at once; it usually creeps in over time. It is often the result of no more

than the uncoordinated placement of necessary and appropriate site elements – light poles, signs, trash receptacles, dumpsters and mechanical-electrical equipment such as transformers and switchgear. It is also the result of the poor selection of elements like trash receptacles, improper screening of dumpster enclosures and inconsistent color of light poles, signs and transformer boxes.

The elimination of visual clutter does not mean removal of any of the elements cited above. Rather, it means that there should be a plan for their placement. Start with the elements that can't be moved, like signal light and street light poles. Then locate those elements whose placement is discretionary in an orderly pattern, spaced out where possible.

The Gunter Annex has done a somewhat uneven job of uniform painting of light poles and simple service elements like transformers. Dumpsters are, for the most part screened. Sign mountings and graphic and text messages are standardized but there are some shortcomings with mounting height and legibility. Improvements in these areas should be supplemented by the selection of simple, well-designed elements that appear repeatedly, like trash receptacles and benches.

3.2 FORCE PROTECTION

3.2.1 GENERAL

Force protection for Air Force facilities is based on the philosophy that comprehensive protection against the range of possible threats may be cost prohibitive but that an appropriate level of protection can be provided at a reasonable cost. The full implementation of force protection measures impacts base planning, facility site planning and building design.

This implementation has the potential for enormous, and negative, visual impact on Air Force installations. Any negative impact can be eliminated if design guidelines for force protection become part of the architectural programming documentation so that the appropriate measures are integrated into the basic design – including building siting, site planning and the interior and exterior design of the building itself. Air Force buildings need not become fortress-like, nor need they retreat behind visually-obtrusive barriers.

As in other installations, temporary AT/FP measures were, of necessity, implemented hastily at the Gunter Annex. The use of jersey barriers is particularly objectionable. Planning for their orderly removal and replacement with better-designed architectural and site design elements is required.

AT/FP design requirements are set forth in UFC 4-010-01, "DoD Minimum Antiterrorism Standards for Buildings".

Site Planning
Activities with large visitor populations represent opportunities for potential aggressors. The separation between new buildings with such potential populations and other existing buildings should be as large as possible.

Entrances
New buildings should be sited so that main entrances do not face installation perimeters, where those entering or leaving the building could be subject to attack from vantage points beyond the perimeter. Entrances at existing buildings facing the perimeter should be screened or the entrance moved to a safer location.

High-Speed Approaches
The site plan should preclude unobstructed vehicle approaches that are perpendicular to a new building within the required standoff distance.

Vantage Points
Natural or man-made positions from which potential aggressors can observe people in and around a building should be minimized by carefully positioning building entrances or by screening them with walls, vegetation or another form of screening.

Drive-Up/Drop-Off
Drive-up or drop-off areas should be positioned away from large areas of glazing to minimize the danger of explosion-propelled broken glass. The overall geometry of the building should be configured so that these areas are located where they do not allow concentrated blast forces. There are some covered drop-off areas at MAFB that are in close proximity to large glazed areas.

Vehicular Standoff
In addition to the design of individual buildings, vehicular standoff distances have an impact on base-wide planning. If standoff distances are not "reserved" or accounted for during planning, there is a danger that they will be encroached upon and therefore not be available in the event of a higher threat environment.

UFC 4-010-01 establishes minimum standoff distances for parking and roadway. The typical minimum is 25 meters; though in some instances distances of as little as 10 meters are acceptable.

UFC 4-010-01 also establishes minimum standoff distances between buildings of various types and between buildings and ancillary elements such as uninhabited buildings and trash dumpsters.

Incursions into required standoff distances can be prevented with a variety of architectural elements. These include the following, any one of which can be well-designed to complement the base environment.

- Permanent Bollards: Bollards have been used architecturally for hundreds of years for purposes not unlike force protection. Typical materials are steel or concrete. Steel bollards are best used in service areas and other non-public areas. A wide

variety of architectural treatments are possible with concrete bollards.

- Pop-Up Bollards: Though cumbersome, these are ideal for use where passage is typically required and eliminated or restricted only during certain hours or in certain situations.
- Landscape Walls, Knee Walls or Screen Walls: Walls of concrete, brick or CMU are effective and provide material continuity from building facades into site development. Walls similar to those in the school buildings in the Chennault Circle area could be designed as barriers.
- Retaining Walls or Landscape Terraces: On sloped sites, these provide a natural alternative to sloped ground planes and can provide an appealing foreground for buildings.
- Berms: If correctly designed, berms can provide a partial barrier and are a very versatile landscape element.
- Fences/Gates: Steel fences and gates of tube or bar stock have traditionally been used as barriers to entry and, if properly designed, work for force protection as well. The fence around the MAFB flight line is a great example of how this can be accomplished attractively.
- Cable Barriers: Cable barriers can be well designed to fit into the landscape. Barriers of brick piers with cast stone caps, with cables strung between, are appropriate. Landscape planting between the piers makes the cables virtually disappear.

At existing buildings, where relocating parking areas or roadways or where hardening of the building is impractical, access control can be implemented in the parking areas at the required minimum standoff distance.

At all areas, care in design should be exercised to ensure that standoff distances cannot be easily breached. Fences, bollards and walls are all effective barriers, but are of no value if a vehicle can jump the curb some distance away to circumvent them.

Building Design

UFC 4-010-01 provides guidance for the design of major building components. The following are examples of recommendations that can affect the character and appearance of a building.

- Unobstructed Space: Within 10 meters on all sides of a building there should be a relatively clear zone so that building occupants will be able to observe potentially dangerous objects six inches in height. This does not preclude landscape development or the placement of site furniture in this zone, but will affect the design and selection of these.
- Equipment Locations: From a security perspective, major pieces of mechanical or electrical equipment are best located on the roof. This, however, creates visual as well as maintenance and roof penetration problems. If equipment is placed on the ground within the 10 meter unobstructed space, it should be configured to preclude concealment of explosive devices.
- Equipment Enclosures: Within the 10 meter unobstructed space, screening construction for mechanical and electrical equipment must enclose the equipment on all four sides and the top, with no opening or gap in the screening larger than six inches and with secured gates.
- Glazing: Wherever possible, glazed openings should be limited in size to 3 square meters (32 square feet). Generally, punched openings are preferable to large areas of glazed curtain wall. Laminated glass is required to minimize the hazard from flying glass fragments and glazing and frame must be designed to work as a system for their hazard mitigation to be effective.
- Exterior Doors: All exterior doors into inhabited areas must open outward to preclude them from being propelled into the building by the force of an explosive blast.
- Building Overhangs: Do not design multi-story buildings that have overhangs with inhabited space above them, where access to the space underneath can be gained, without incorporating mitigating design measures.
- Overhead Architectural Features: Overhead features weighing 14 kg or more are to be designed and mounted in such a way that the possibility that they will fall as the result of an explosion is minimized.

3.3 SUSTAINABLE DESIGN

GENERAL

Sustainability refers to the responsible stewardship of our natural, human and financial resources through a practical and balanced approach. Sustainability dictates an approach to facility design that ensures the "best fit" of the built environment to the natural environment. Through conservation, improved maintainability, recycling, reduced material use, reuse and other actions and innovations, we can meet today's needs without compromising the ability of future generations to meet their own.

Once a fringe phenomenon, sustainable design is now the mainstream. There's nothing esoteric about it and in many ways, sustainable practices are only common sense. In other ways it revives practices from decades ago, before our society came to believe that any design could be justified by throwing more resources at it—more and bigger machines, more energy and more technology.

The Air Force has adopted the US Green Building Council's Leadership in Energy and Environmental Design (LEED) as an achievement metric for sustainable design and construction. The goal is to have all MILCON projects designed to comply with LEED requirements by FY 09. LEED certification of these is at the discretion of Maxwell-Gunter.

Design guidance, in the form of a phase-by-phase project checklist, is provided in the "US Air Force Environmentally Responsible Facilities Guide", http://www.afcee.brooks.af.mil/dc/dchome.asp. This Architectural Compatibility Guide concentrates on those elements of sustainability that affect the design and function of a project, but construction, commissioning, operations and maintenance are equally important elements of sustainable design, as is the reuse of material from demolished buildings.

Planning

Sustainable practices don't begin with design, but should be considered in the initial phases of project analysis and budgeting.

- Look for opportunities to restore neglected sites for new facility use and limit the negative impact on undeveloped sites.

- Where it is determined to be cost-effective to retrofit, consider the possibility of reuse of an existing facility instead of building new, as this represents the ultimate in recycling. Gunter, like Maxwell, has an impressive track record of adapting older buildings to new uses that should be a good model for other bases.
- Identify environmental goals and requirements to be implemented in the design phase. The LEED Building Rating System provides a good outline for a project's environmental targets.
- In establishing the project budget, allow for energy-efficient equipment systems and consider establishing a budget to fund passive and/or active solar strategies.

A/E Selection

All architectural and engineering firms are not yet equally attuned to environmental practices. Your goals will best be realized by a design team committed to the philosophy of sustainability. In advertising for design services, the Statement of Work can be modified to require sustainable design experience. Request specific experience in the SOW and ask questions about the firm's history on issues such as energy efficiency, resource conservation and indoor air quality.

During design team interviews, ask questions about specific sustainable design projects that firms have underway or have completed and the strategies employed on each.

Pre-Design

It is at this requirement analysis phase, working with the design team, that program requirements can be finalized. Consensus is developed, issues prioritized and specific environmental goals for the project identified.

- Don't program or build more than you really need. Provide joint use of common spaces wherever possible.
- Many buildings will serve more than one function over their useful lives. A requirement for clustering fixed elements like restrooms, mechanical rooms and stairs results in more flexible open space that allows for easier adaptability to a new use in the future.

- Develop an overall budget for the facility's total energy usage as well as individual energy budgets for lighting, heating, cooling, plug loads and pumps and motors.
- Establish criteria for HVAC systems design, soliciting input from CE maintenance shops.
- Evaluate the potential for passive solar load reduction based on whole facility energy performance and passive solar and climate-responsive strategies (refer to USAF Passive Solar Handbook, Volume 1).
- Determine lighting levels for all programmed areas based on Illuminating Engineering Society recommendations.
- Document IAQ-related site characteristics, taking into account typical facility-related air pollutant emissions sources.
- Determine fresh air rates based on ASHRAE Standard 62-1989, taking care to not underestimate occupant densities by taking visitors into account as well as possible future requirements.

Site Planning and Development

- Orient the building to maximize the positive effects of solar and wind conditions. The preferred solar orientation will have the building's longer sides, and most glazing, facing north and south.
- Minimize disturbances to existing trees and natural drainage patterns.
- Design landscape and select plant materials using Xeriscape strategies as set forth elsewhere in this Guide.
- Provide tree cover in parking lots to minimize the heat island effect.
- Design the project to retain as much storm water run-off on-site as possible to replenish ground water and minimize flooding and erosion.
- Use trees, existing or planted, to screen west-facing building elevations. Deciduous trees have the added advantage of providing passive solar heating during the winter months.
- Specify the reuse of on-site materials to the greatest extent possible. Shred wood for use as mulch and crush rock for gravel if quantities required justify the cost. Stockpile existing topsoil for reuse.

Building Material Selection

- Choose environmentally preferable product types where supporting information is available; the AIA Resource Guide is a good source. Selection criteria can include raw materials that are non-toxic, recycled or salvaged material content, production process that minimize the use of energy and water and products that come with minimal disposable packaging.
- Carefully evaluate the use of wet-applied materials, which typically release chemical contaminants as they cure, and fleecy materials that also contribute emissions and absorb, and re-emit, other contaminants over time.
- Give preference to locally-manufactured materials as they reduce shipping costs and energy used in transport.
- Avoid the use of finish materials where they are not necessary for performance or aesthetics.
- Use materials with integral finish that do not require finishing after installation.
- Take full advantage of recycling programs offered by product manufacturers. The carpet industry is currently in the lead, but others will follow.
- Design for disassembly, especially for facilities that may have a short service life. Consider snap release connections, friction or other joints that do not require sealants.
- Design for future recycling. Select materials that are recyclable. Avoid composite materials, like reinforced plastics, that are generally more difficult to recycle than homogenous materials.

Design for Energy Conservation

- Incorporate shading and sun control of windows through the use of horizontal and/or vertical projections, sunscreens, shutters or trellises. Exterior sun control is far more energy-conserving than interior devices to control light and heat gain.
- Use operable windows at all housing facilities and consider these at office buildings as well. Also evaluate the use of ventilated window frames for office buildings. Use insulated low-e glass at all windows in all buildings.
- Install ceiling fans at all housing facilities and encourage their use in offices as well.
- In determining the most cost-effective quantity of insulation for roof and walls, evaluate benefits of heat retention vs. heat rejection based on results of energy modeling.

- Thermal comfort can be enhanced through careful design of the facility envelope to limit radiant heating and cooling, drafts and temperature gradients.
- Thermal mass in exterior wall construction saves energy in hot climates by reducing energy use during peak periods. Thermal mass can also act as a heat sink for direct or indirect passive solar heating strategies.
- Lighter roof colors reflect light and heat, reducing cooling requirements and diminishing the facility's contribution to heat islands. Low-slope roofs should be white or off-white in color. Industrial buildings along the flight line area typically have light colored roofs and this should not be changed.
- Detail walls and roofs to avoid "cold spots", which cause discomfort and can lead to condensation, and subsequent mold growth, on the cold surfaces.
- Provide air barrier and vapor retarder to control air and moisture flow through exterior wall construction. The correct placement of vapor barriers and the design of tight exterior walls are major contributing factors in the prevention of mold.
- Implement delighting strategies. The design of the building envelope, the quantity and type of glazing, inclusion of sun-shading and/or light shelves, and the layout of interior partitions will influence how far light will penetrate into the facility interior. It can be as much as 13 meters.
- Use high-efficiency electric lighting with high-efficiency lamps and ballasts to supplement daylight.
- Evaluate options for lighting control, such as daylight dimming, occupancy sensors or time clocks. Implement the best option.
- Evaluate HVAC equipment with airside economizer, waterside economizer and heat recovery for cooling and heating cycles.
- Eliminate or reduce the amount of reheating or mixing of conditioned air streams for comfort control. All fans and air distribution systems should utilize temperature reset controls.
- Use variable frequency drives for pumps and fans and variable volume boxes for air distribution, unless a design analysis demonstrates that other equipment is more cost-effective considering the life cycle.

- Implement solar hot water systems and heat recovery – these are proven and mature technologies.
- Fully insulate hot water systems. Re-circulating systems should have pumps with automatic control to cycle pumps off during hours of non-use.

Design for Water Conservation

- Consider storm water retention tanks, in addition to on-grade retention swales, where buildings require landscape irrigation systems.
- Where possible, allow for cuts or scuppers in the curb and gutter in parking areas to reduce drainage velocity and to allow water to reach landscape areas.
- Where parking areas are not intensively used, the use of permeable materials such as porous asphalt or open-celled concrete pavers is encouraged.
- Consider the use of infrared lavatory faucets or those with delayed action shut-off or automatic mechanical shut-off valves and shower heads with flow rates less than the Energy Policy & Conservation Act (EPACT) requires.

3.4 BUILDING DESIGN STANDARDS

3.4.1 INTRODUCTION

Form, massing, materials, texture, color, rhythm and other characteristics all contribute to an observer's assessment of the quality and appeal of a building. These are the tools that architects employ to create not just good buildings but installation environments that reinforce the mission and are pleasant places in which to live and work.

The intent of these guidelines is to set forth design objectives that support the installation's values while achieving excellence in design through the built environment. The recommended design approaches are meant to be used as a reference tool for design professionals, staff and decision-makers when evaluating proposed development on the installation. The desired results of consistent application of these guidelines are well conceived design solutions that enhance the quality of life at the Gunter Annex.

3.4.2 CONTEXT

Geographic location, climate, topography, vegetation and the existing built environment – buildings and site development – when taken together, provide the "context" for any new development. Context is a powerful force in shaping our perception of where we are, whether this is a neighborhood, town, city or Air Force base. Each place is unique because the combination of elements that define the context is never the same. We value this uniqueness and devalue places that try to appear like somewhere else or something that they are not.

The design of new buildings can respect or ignore those elements of context that pertain to the natural environment, but buildings that respect those elements are almost always more successful, particularly when viewed over time. Respect for the elements of context relating to the built environment is appropriate where the quality of that environment is desirable. Where an improved level of quality is desired, context can, over time, be changed by a well conceived, and consistently executed, design departure from what was built previously.

3.4.3 BUILDING SITING

The way a building or groups of buildings are placed on the site – taking into account topography, vegetation and view -- is as important as the design of the buildings themselves. The building function must be compatible with the site and adjoining buildings and the building function and the site must jointly reinforce the goals of the base general plan.

There are a number of other considerations to be taken into account in establishing the site composition. Among them are the following:

- Access requirements for user and service vehicles
- Pattern of surrounding streets
- Footprint and height of surrounding buildings
- Utility infrastructure
- Standoff distance and other setback requirements
- Topography
- Preserving existing mature trees and other significant existing vegetation such as masses of shrubs
- Existing vegetation
- Solar orientation
- Summer breeze and winter wind
- On-site parking requirement
- Views to and from the site
- Building height and its impact on its neighbors in terms of shading
- Potential for creating developed outdoor spaces

Balancing these and other like considerations will ensure building footprints that best fit the site. Basic site design should be the result of an iterative process involving base planners, designers, users, authorities having jurisdiction and neighbors.

3.4.4 BUILDING FORM & MASS

Form, massing and scale are inter-related design elements that establish the overall volume, real or perceived, of a building. They do much to define the general character of a building and these elements can be manipulated to change this character and to make a building more, or less, compatible with its neighbors and the general architectural context.

A building can be as simple in form as a box or as complex as an ornate Victorian courthouse. Simple forms are economical to build and lend themselves very well to industrial and service buildings. Buildings with simple forms can also be arranged in groups so that the visual impression is of the overall complex and not of the simple form of each building. Many facilities at Gunter are relatively simple buildings that are simply grouped. Together, however, they often achieve some architectural distinction.

Generally, buildings where people gather or interact are found to be more appealing if the form – or overall volume – has some degree of complexity. This can take many forms – a central element with projecting wings, forms that begin to define outdoor spaces like an "L" or "U", or by adding a few slightly projecting elements.

The terms form and mass are often used interchangeably. The mass of a building can also refer to the form defining its volume. A building that is described as having complex massing has, as described above, something more complex than a simple rectangular form. Symmetrical massing suggests formality whereas anything that is non-symmetrical connotes some degree of informality. Form and mass are unrelated to size – the terms pertain equally to something very large, like a hangar, or as small as a picnic pavilion.

However, a building can be described as massive in which case it pertains to its size, or perceived size. To be so described often suggests some incompatibility with the size of neighboring buildings.

3.4.5 SCALE

Scale in architecture relates to the size of a building or building element and its appropriateness as seen in context. Buildings which are of approximately the same size and with similar massing are perceived as being "in scale" with one another. A six-story building in a grouping of two-story buildings, or a building with a 300-foot long façade in a grouping of 100 foot-long buildings would not be perceived as being in scale.

Form and massing can be employed to mask disparities in scale. If the six-story building has a two-

story base, with the upper floors stepped back, the perception of disparity in scale is lessened, possibly even eliminated. Likewise, the modeling of the 300 foot façade with a series of elements that project or recede alters the perception of its scale.

We subconsciously look for elements in a building that indicate scale. We are accustomed to entrance doors ranging in height from seven to ten feet. We subconsciously see a building entrance as an indicator of the overall scale of a building. Windows, wainscot height, cornice treatments, roof overhangs and other various trim elements can also be scale indicators, giving us visual clues as to the size of the building from a distance. Any of these elements can be manipulated in size to alter our perception of a building's size.

Scale can be mitigated by manipulating form and Building 856 is a very good example. This is a very large building, but from any one view, only the length of a two façades can be viewed and each of the four facades have protruding and receding elements that visually break down, or mitigate, the building's length. Its apparent height, likewise, is mitigated by setting back some elements. Though extremely large, the perception is that this building "feels" smaller than it is. This is also true for some of the larger dormitory facilities around the clock tower courtyard. The saw-toothed edge tends to break down the perceived mass of the facilities.

3.4.6 FACADES

GENERAL

Building facades and roofs together establish architectural character. Facades, in a setting like an Air Force base, can visually tell us a lot about a building's relative importance, its quality and, to some extent, its function. Our initial impression of a building is formed by the facades – we find it appealing or not, friendly or intimidating, imposing or engaging – all from a look at the façade.

Materials play a big role in façade design, but there are other inter-related composition devices that can be used to create architectural character and manipulate scale to advantage. The rules of façade composition apply to hangars, industrial and support buildings and dormitories alike. Visual order and interest can be

achieved in any building façade and a largely windowless façade need not be uninteresting or dull.

Pattern
Pattern can be created by expressing the structural framing elements of a building on the façade, through the pattern or grouping of window openings, entrances, combinations of materials, horizontal or vertical banding using one or more of the façade materials, the expression of mechanical elements like vents on the façade, the expression of joints in materials like metal panels and any number of other devices. Generally, a uniform pattern of façade elements is most pleasing, but that does not mean that these must be uniformly repetitive. Variations in pattern, while maintaining a uniform coherent order, create interest and enliven a composition.

Rhythm
Uniformly expressed building elements such as pilasters or windows establish a rhythm on a façade. These same elements can be varied in placement to create other rhythm patterns. Pilasters can be varied in width or depth or spaced irregularly; windows can be paired or arranged in non-uniform but still orderly groupings. Facades with uniform rhythm tend to take on a formal quality, whereas varied patterns of rhythm have more visual interest, particularly on large buildings.

Articulation
Whereas pattern and rhythm deal with façade elements in two dimensions, articulation brings in the third dimension. A façade composition in two dimensions, no matter how well-conceived, will always appear flat. There are some situations where this may be desirable, but in the vast majority of projects making the building façade a three-dimensional composition will produce a far more desirable result.

Articulation can be achieved subtly or boldly. It can be as minor as a slightly recessed or projected brick course delineating a floor or sill line, or it can be as bold as projecting sections of the façade by a number of feet. Building overhangs articulate a façade as do projecting cornice or coping elements. Recessed windows or entrances, pilasters, projecting sills or lintels, wainscot caps, projecting or recessed horizontal or vertical banding are all effective devices to give three-dimensional life and vitality to a building façade.

Shade and Shadow
A two-dimensional façade appears flat because there is no shadow on it. Shadow is the result of the articulation of a building façade. The greater the third dimensional relief is, the bolder the shadow will be. Historically, much shadow was present on a façade because the exterior wall was thick and windows were typically set to the inner face of the wall. With today's relatively thin exterior walls, more creativity is needed to attain the bold patterns of shadow needed to achieve liveliness on a façade. Building 804 is a good example of a façade treatment used to create visual depth that result in an interesting shadow effect.

One of the many advantages of building overhangs is the shadows they produce and these shadow patterns are reinforced if there is some complexity to the building wall below.

In order to achieve shadow, the elements that give shade must be created. The sun does the rest. The same material used on a façade, parallel to a façade, perpendicular to a façade and as a horizontal soffit will appear as a different color tone in each situation. This reinforces the impact of even relatively minor articulation of façade elements and this effect can be heightened by subtle color changes in elements perpendicular to the facade.

It is important to remember that while sunlight reinforces apparent depth where relief exists, it can also reinforce flatness where it does not.

PORTALS

The ability to identify a building's principal entrance from a distance is important. Making an architectural feature of the entrances of symbolically-important buildings by creating portal-like structures is very appropriate. Building 834 and 1143 have portal elements that are well scaled and detailed.

AWNINGS

It is likely that fabric awnings may have been used at Gunter at some time. The awnings that are more prevalent today are of a metal material. Where used, these tend to detract from the overall architecture of the facility they serve and are inconsistent with the historic vocabulary. Use of metal awnings is discouraged.

Shade devices over windows or doors made of materials that are incompatible with the overall building architecture are discouraged. Additionally, shade devices that take on forms that are incompatible with the building architecture, and in particular bubble shape awnings, should not be allowed. Where shade devices are used, they should be an integral part of the building design so as not to appear to be an "add on".

3.4.7 ROOFS AND RELATED ELEMENTS

GENERAL

Sloped roofs work well for buildings with all but very large footprints, where the sloped surfaces become so large that they dominate the architectural composition. In those cases, well-designed single-ply or built-up roofs are preferable. Maxwell-Gunter has had generally good results with slope and low-slope roofing systems.

Built-up-roof construction has proven to be problematic at Gunter over the years, though 3-ply, cold process modified bitumen systems are acceptable. Sloped clay tile and metal roofs are the preferred roof types. Elastomeric ice and water shield systems should be used as an underlayment for clay tile roofs.

Metal roofs are typical at Maxwell-Gunter for most buildings other than residential and these have typically utilized field-fabricated standing seam roofing. Standing seam roofs perform well in high winds and the seams present a better pattern for average-scale buildings than larger batten seams.

Composition roofing is present on family housing units and on some older buildings scattered across the base. Budget may preclude any other roofing material for replacement housing. The use of composition roofing on any new buildings other than family housing is discouraged.

In Montgomery there is relatively plentiful rainfall and that can be very heavy at times. Adequate overhangs protect the building walls below from moisture penetration and from weathering. They also save energy by shading at least some of the windows below. Overhangs measured in inches, though, provide neither benefit. Overhangs in the range of two feet are appropriate for one-story buildings. Proportionally larger overhangs are beneficial for two-

story buildings. For buildings higher than two stories, the same width of overhang appropriate for a two-story building generally works. Most buildings at Maxwell-Gunter have no overhangs, though these are present on some of the older buildings and on family housing units. Nevertheless, overhangs are encouraged for new construction wherever possible.

Fascias

Traditionally, building fascias, the vertical surface at the outer edge of the overhang, have been relatively thin – less than 12 inches. They have also been of a color that contrasts with that of the roof. At some installations, though not at the Gunter Annex, there has been a tendency toward thicker fascias and to constructing them of the roofing material. The effect, particularly on low buildings, is a visually top-heavy building. These types of fascias should not be introduced here.

Soffit

The soffit – the horizontal surface of a roof overhang – is traditionally horizontal or follows the slope of the roof. Soffits are typically smooth, except where roof framing members are extended as part of the overhang structure. They are typically relatively light in color – lighter than the wall surface below – because they are always in shadow and so will always appear darker than they really are.

3.4.8 MATERIALS

Facades at early buildings at MAFB-GA were likely of concrete masonry, stucco or wood, providing a sense material continuity. More recent buildings have been of brick, ranging in color from buff, at the NCO Academy, to a yellow-tan at some of the buildings on Turner Avenue. Either could be the standard for future buildings, though the lighter tone is recommended.

Some major buildings in the technology area are of architectural concrete in tones ranging from off-white to gray. This is an appropriate material for buildings of this size and nature and its continued use is recommended, but only in this area.

Cast stone, or EIFS or stucco used to imitate cast stone, has been used for plinths, portals and other elements of façade trim, including banding. Colors in

use range from buff to light gray and these provide a distinct and beneficial color contrast. Cast stone is a versatile material that can enliven facades.

EIFS, as a substitute for cement plaster, is a perfectly good material when installed correctly and is apparently a cost-effective alternative in the Montgomery area. Designers at Maxwell-Gunter are encouraged to take advantage of the ease with which EIFS can be modeled, as reflected in the banding, expression of lintels and sills and the relief expressed in some soffits at the newer buildings at MAFB. EIFS should never be used less than four feet above the ground as it is subject to severe damage from landscape maintenance equipment.

3.4.9 TEXTURE

Texture, as well as color, has been discussed in the previous section on materials, as it is difficult to address one without the other. Texture is also related to shade and shadow, as sun on textured surfaces highlights the effect of surface roughness and reinforces surface smoothness.

The variety of textures used on MAFB-GA buildings is generally pleasing. Stucco, EIFS and cast stone have a very fine texture. Brick has a texture that is slightly coarser and desirable when used in combination with a smooth texture material.

Standing seam metal roofs have a fine linear texture. An alternative could have been batten seam roofs which, by contrast, would have bolder shadow lines and read as a coarser texture.

3.4.10 COLOR

The Gunter Annex is, like some other AETC installations, tan and brown. The drive down Turner Boulevard shows these colors to advantage against a backdrop of dark green foliage —a very favorable first impression. The generally light color buildings are appropriate for a relatively warm climate with abundant sunshine.

Brick
Of the two color ranges of brick in use at Maxwell-Gunter, that used at the NCO Academy is the more

pleasing and its use is recommended for new construction in all areas except those close to two or more of the buildings with the more yellow-tan brick.

EIFS
EIFS varies in tone from buff to light gray. Buff is more compatible with the lighter brick tone. The gray will be compatible with either brick range.

Roofs
Dark brown is the MAFB-GA roof color – standing seam metal or composition shingles. This should remain the standard.

Trim
Trim on newer buildings, including fascia and soffit, is typically a pale tan or buff. Cast stone used as a trim material is also very much the same color as the EIFS.

Window frames are typically dark bronze anodized aluminum on new buildings. Replacement windows on older buildings are generally the same color. This dark color is in good contrast to the stucco, brick and EIFS façade materials. However, it tends to disappear in the window openings resulting in the appearance of dark holes along the facades. It is recommended that a somewhat lighter shade be considered in order to make the window framing and mullions more distinct and thus provide beneficial visible detail.

Infrastructure Elements
Infrastructure elements like light poles and signs are typically painted the same color as the painted screening elements.

Paving
Paving is mostly simple broom-finished concrete. At the NCO Academy good use has been made in some areas of unit concrete pavers. These are typically red and provide a welcome contrast to the predominantly gray paving, and are consistent with the architectural color palette.

Incompatible Colors
Colored architectural or landscape elements that stand out boldly from their surroundings are discouraged unless there is genuine, and justifiable, design intent to call attention to that particular element. The bright blue fabric used at some shade structures is an example of a color that should not be used.

3.4.11 SPECIFIC EXTERIOR MATERIAL & COLOR REQUIREMENTS

Gunter Business Areas

Paint	Federal Standard #33717 "Light Beige"	For use on exterior stucco walls to include large rollup doors
Paint Trim	Federal Standard #20040"Bronzetone"	General trim
	Federal Standard #27875 "White"	Soffits and cornices
Face Brick	Delta-Macon #1405 "Pilgrim Ivory"	
	Accent brick will not be used	
EIFS ("Dryvit")	Dryvit "Manor White"	
Pre-cast Concrete	Smooth finish light grey limestone	
Metal Roofs	Pasco Standard "Dark Brown"	
Shingle Roofs	Owens Corning Oakridge II "Brownwood"	
Tile roofs	Tile Roofs will not be used at Gunter Annex	

Gunter Row Quarters

Paint	Federal Standard #33717 "Light Beige"	Field for garages and houses window sills
Paint Trim	Federal Standard #27875 "White"	Soffits, porch ceilings, doors, door trim, stoop support brackets, gables and aluminum siding
	Federal Standard #20040"Bronzetone"	Fascia, roof vent stacks, metal columns and railings, metal louvers and roof dormers eave drips are left unpainted. Unpainted concrete elements will remain unpainted
Shingle Roofs	Owens Coming Oakridge II "Brownwood"	
Windows	White pre-finished aluminum	

Gunter California Houses

Paint	Federal Standard #33717 "Light Beige"	Field for houses
Paint Trim	Federal Standard #27875 "White"	Soffits, doors and trim, & window trim
	Federal Standard #20040"Bronzetone"	Fascia, roof vents and metal gables Eave drips and foundations are left unpainted
Shingle Roofs	Owens Coming Oakridge II "Brownwood"	

Miscellaneous Design Elements

Doors	Clear sealed, vertical oak grain wood with clear glass	Used as the main entrance for primary mission style buildings; encouraged in other style areas except for industrial and commercial buildings
	Clear glass storefront with bronze Framing	Used as the main entrance in the post-modern style or industrial & commercial bldgs.
	Hollow metal doors with glazing as required to meet functional requirements	Used for secondary entrances in the post modern style for industrial & commercial buildings
Windows	Vertical punched, tinted glass windows with bronze framing	Generally used on all structures except accompanied housing and highly detailed base facilities
Awnings	Sunbrella #4605 Hemlock Tweed & #4606 Dubonnet Tweed	Functions as a means to announce entrances, provide shade and introduce color
Dumpsters	Federal Standard #20040 "Bronzetone" semi-gloss	
Chain Link Fences	Federal Standard #20040 "Bronzetone" semi-gloss	
Pre-cast Concrete Fences	Fence Crete "Beige"	Discouraged for all future uses
Fire Hydrants	#33717 "Light Beige" with caps – FIRE Dept REG's	

3.4.12 EXTERIOR MATERIALS MANUFACTURERS

Note: Colors selected from manufacturers products are for reference only and are not intended to limit the selection of the same color from other manufacturers. Information on each of the primary materials and colors mentioned above can be obtained from the following sources:

"ASC Pacific" Standing Seam Metal Roof	Garland Company, Inc. 186 Williams Street Mobile, Alabama 36606 251-479-7222
"Atlas" Fiberglass Shingle	Atlas Roofing Corporation 44 Heritage Hill Tuscaloosa, Alabama 35406 800-647-6244
"Delta-Macon" Brick	Jenkins Brick Company Post Office Box 91 Montgomery, Alabama 36101 205-328-0525
"Dryvit"	Architectural Panels 1403 Morris Avenue Birmingham, Alabama 35203 205-328-0525
Federal Standard 595b Paint Colors	General Services Administration Specifications Section, Rm. 6654 7th and "D" Streets, N.W. Washington, D.C. 20407
"Sunbrella" Fabric	Glen Raven Mills, Inc. Custom Fabrics Division Glen Raven, North Carolina 27215 919-227-6211
Roof Tile	Vande Hey-Raleigh 1665 Bohm Drive Little Chute, WI 54140-2598 414-766-1181

3.4.13 INTERIOR DESIGN

Interior design contributes to the Air Force quality of life. Well-designed working, living, and recreational facilities attract and retain good people, sustaining the Force. Attractive and comfortable work environments enhance productivity. Good design contributes to the health and sense of well being of building users.

The configuration and finishing of interior spaces comprises Structural Interior Design (SID) and Comprehensive Interior Design (CID) consists of moveable and loose furniture and equipment. SID includes building related design elements and components generally part of the building itself such as walls, ceiling, floor covering and built-in casework. CID is the selection, layout, specification and documentation of workstations, seating, storage, filing, visual display items, accessories, window treatments, and artwork.

Designers must consider interior design compatibility with the local environment, functional requirements, ergonomics, and economy of construction, accessibility, safety, energy conservation, interior details, sustainable design and life cycle costs. Additionally, facilities must be designed in harmony with the architectural character of existing facilities that are to remain, especially those that are considered historically or architecturally significant. Design excellence must not add to project costs but balance the functionality, aesthetics, quality, sustainability and maintainability of facilities.

Designs must comply with these guidelines and all military requirements. The Unified Facilities Criteria, UFC 3-120-10, has information on the interior design process and specific requirements for some room finishes. It can be found at: http://www.afcee.brooks.af.mil/DC/DCD/Interior/indespubs/requirements.pdf.

The Air Force Interior Design Guides provide comprehensive guidelines. They are located at: http://www.afcee.brooks.af.mil/dc/dcd/interior/intdespu.asp.

3.4.14 INTERIOR MATERIALS & COLORS

All materials should be selected with an eye towards low life cycle costs and ease of maintenance.

Ceiling Systems
Ceiling systems should be selected to perform the function of light reflectance, acoustical sound attenuation, access to overhead building systems, and appearance. Generally provide a continuous 2x2 fissured tile suspended acoustical ceiling, white in color with matching grid.

Lighting
Light levels must provide the appropriate foot-candles for the required task, in accordance with Air Force standards. General lighting should normally be accomplished with recessed troffer fixtures with electronic ballasts and T8 32 watt lamps. Maintain consistent color temperature by use of warm white standard lamps. For ease of maintenance, limit the number of lamp types required to achieve design objectives. Limited use of decorative and point source wall and ceiling lighting may be used in special areas, such as lobbies, conference rooms, and command areas.

Wall Finishes
Due to its flexibility, durability, and inexpensive nature, paint should be used as the primary wall finish. Neutral colored eggshell or satin latex enamel paint should be used for all walls, ceilings, and hollow metal elements. Trim paint color should be consistent throughout individual buildings. Vinyl coated wall covering may be sparingly utilized in areas of extreme wear and as a decorative element in special areas. Heavy traffic areas should utilize Type II wall covering. Fabric wall coverings and wood paneling are not approved wall finishes.

Carpet Floor Finishes
Carpet should be commercial broadloom or modular type, selected in accordance with AETC standards. Contrasting color borders and insets may be used to visually break up long expanses.

Tile
Resilient and hard tile flooring shall be used in entry areas, stairwells, bathrooms, cleaning supply closets, & high traffic corridors. Ceramic or vitreous china tiles shall be used in public restrooms, with tile

wainscots required behind all water closets and urinals. Sheet vinyl products may be used as an alternative to resilient tile where appropriate.

Window Treatments
Horizontal 1" metal "mini" blinds and 3" vertical blinds are approved for office usage. Blinds shall include valances and shall utilized the inside mounting method where appropriate. Draperies shall be used sparingly. Draperies shall be lined, with valance or cornice treatments. No open weave fabrics should be specified. All window treatments are to have uniform neutral colors on the exterior side.

Systems Furniture
Every effort should be made to coordinate systems furniture to assure interchangeability and standardization within buildings. Electrical and plumbing connections must be coordinated with building systems. Coordinate with HVAC entities when using full height panels. All furniture, systems and otherwise, that require electrical and plumbing connections shall have prior approval of the Base Interior Designer. Power poles should be avoided.

Hardware
All hardware shall have removable cores compatible with the base standard Best lock system.

Murals
Large scale painted or printed murals require prior approval of the Base CES.

3.4.15 ENERGY MANAGEMENT & CONTROL (EMCS)

Maxwell-Gunter AFB has two operating EMCS systems that must be used to their maximum to accomplish reduced energy goals. One system (HSQ technology) is about eight years old and, as new buildings and remodeling projects are designed, a Direct Digital Control System is taking its place.

To accomplish energy goals, administration building temperature set points will be 76 degrees cooling and 70 degrees heating. Living areas, such as BOQ's, VOQ's, dormitories, etc will be 78 degrees cooling and 70 degrees heating.

At present there are approximately 200 buildings on Maxwell and Gunter that are controlled by EMCS. Projections are that all buildings with ten tons or more of cooling will eventually be controlled by EMCS.

3.4.16 FIRE ALARM SYSTEMS

Every building at Maxwell AFB/Gunter Annex shall have a fire alarm system that is interconnected to the central system located in the Fire Department. The interconnection shall be accomplished by use of a Monaco D-500 transceiver, which shall be installed adjacent to the fire alarm panel. The transceiver antenna shall be located so as to be as close to being in the line of sight with the Fire Department and as high on the building as possible.

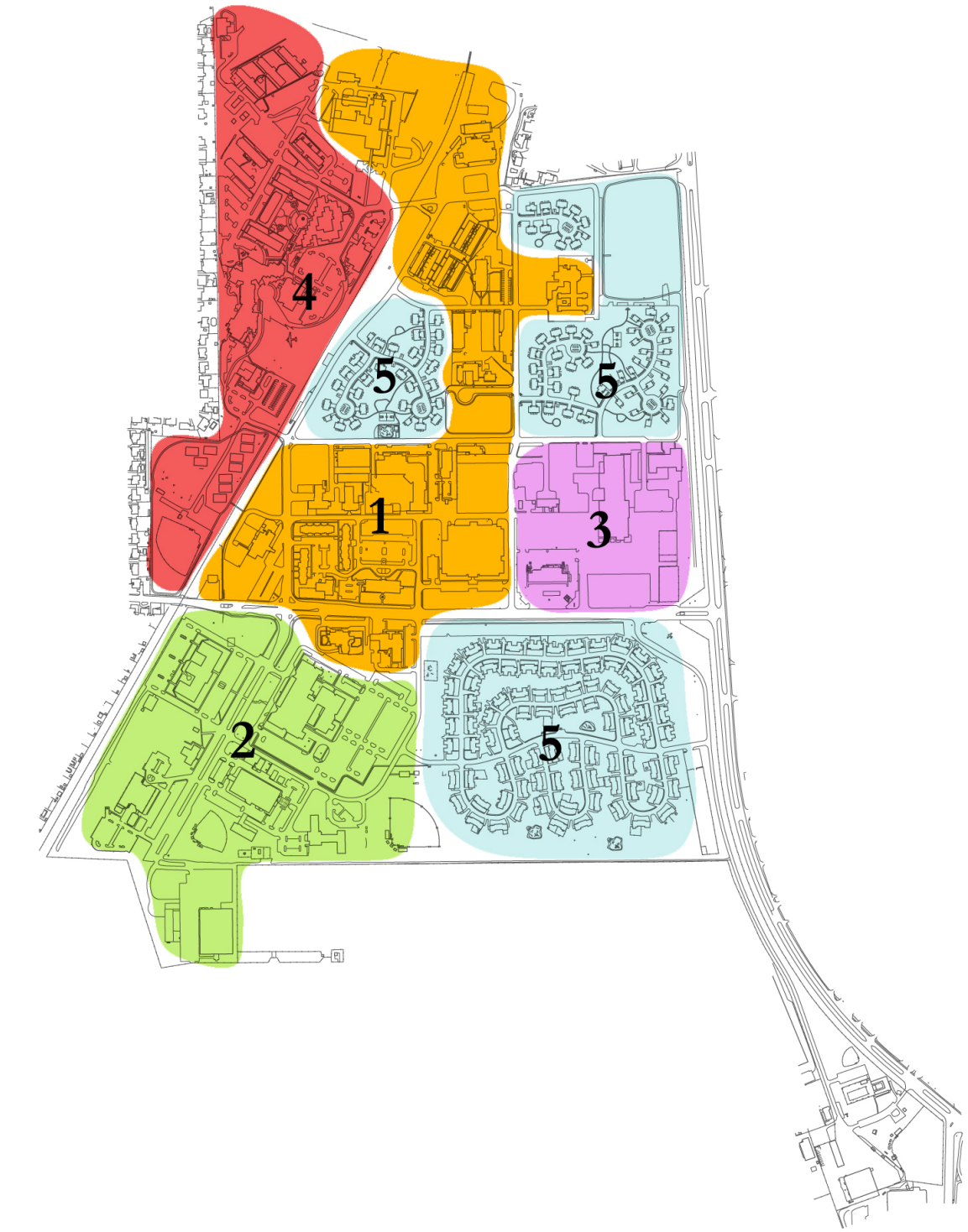
3.5 VISUAL DISTRICTS

3.5.1 INTRODUCTION

The term "Visual District" is used to define an area where there is some similarity of building function, building scale or general architectural character – or a combination of two or all of these. Streets have usually been used to define the edges of districts to the extent possible. The edges of the defined districts are somewhat imprecise – a building on one side of the street may be in one district and have more in common with those in the next district across the street. Overall, though, there are some elements of continuity within each defined visual district and each has an architectural and landscape character that is to some degree unique.

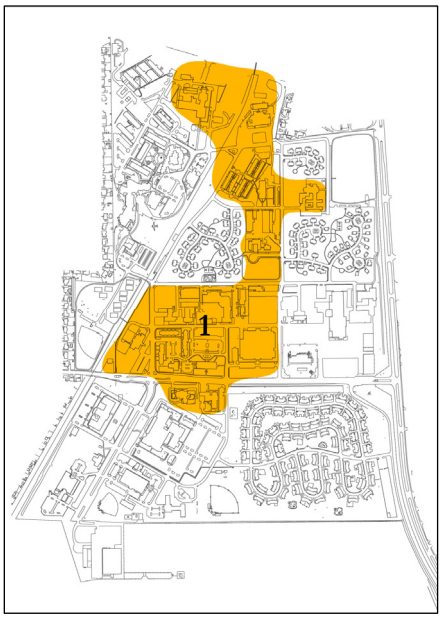
The Gunter Annex has been divided into five visual districts.

- District 1 is the General Use district.
- District 2 is the Technology district.
- District 3 is the Community Center district.
- District 4 is the Training district
- District 5 is the Family Housing district.



Visual Districts

Gunter Annex
Maxwell Air Force Base



3.5.2 DISTRICT 1 – GENERAL USE

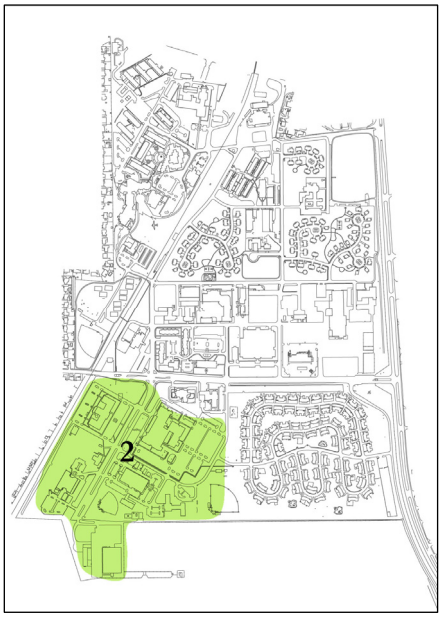
LOCATION
This district is bounded on the north by Spaatz Street, extending north to include Building 205. On the west the district includes Buildings 302 and 1504. On the south it generally follows the rail line but excludes the family housing area west of Butler Avenue, extending south to take in the playing fields. On the east it is bounded by South Turner Boulevard, extending further east to take in Buildings 834 and 854.

CHARACTER
Some of the buildings in this district are as old as Gunter, a number appear to be renovated MOB buildings of the pre-WW II era and others are fairly new. Buildings are of varying footprint sizes and the typical building height is one story, with very few two-story buildings. Slope roofs predominate but some buildings have flat roofs. Density patterns vary substantially, with some areas relatively tightly built up and others with a great deal of open space. There is no specific architectural character that can be said to be consistent through the district.

DESIGN AND PLANNING ASSETS
- The main entrance roadway, Turner Boulevard, is very well developed. The broad, consistent building setbacks are well landscaped. The buildings fronting on this street typically do not have a lot of parking in front. This is, overall, a very handsome streetscape, particularly between Spaatz and Moore Drive.
- The tight grouping of Buildings 826, 863 and 872 through 874 is welcome on an installation with a lot of wide open space.
- Building 832 is of distinguished design and the front is well landscaped.
- The fire station is well done, with interesting massing and a clear distinction between the apparatus area and office-dormitory area.
- The chapel complex is low-key and pleasant.
- The Club, Building 302, has retained much of its architectural integrity.
- Building 1504 fits right into the landscape and is well designed, except for the blue railings.

RECOMMENDED IMPROVEMENTS

- The pattern of development is patchy throughout this district. There's a lot of formless open space between buildings or groups of buildings. It is recommended that future development be used to fill in as many gaps as possible in this district.
- Landscape development is inconsistent; some areas are well treated, others minimally so.
- Though building maintenance appears to be good, some of the buildings look just plain worn out.
- Sidewalks are inconsistent throughout this area; some areas have none.
- Roadway and parking area lighting is inconsistent in terms of fixtures and should be standardized base-wide.



3.5.3 DISTRICT 2 – TECHNOLOGY

LOCATION
This district encompasses everything east of Turner Boulevard and south of Computer Loop.

CHARACTER
The buildings range from relatively small (868) to extremely large (856) in footprint. Overall they take on the general appearance of a high tech industrial park. The buildings are of varying ages. The inclusion of the Child Development Center in this general area is somewhat odd.

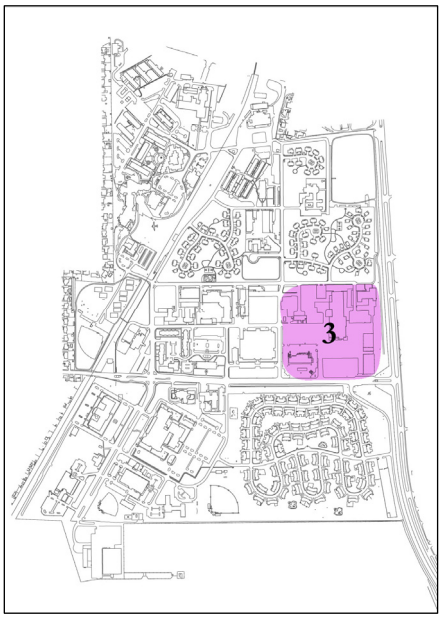
Moore Drive serves as a powerful organizing element in this district and the major buildings front on this street. There is no consistent architectural character to the buildings, but this street, even as presently landscaped, is successful in visually bringing them together.

DESIGN AND PLANNING ASSETS
- Moore Drive is the principal planning asset to this district. The landscape is already well developed over a portion of its length. The proposed area development plan envisions extending the existing pattern the full length and this would be of great benefit to the district.
- The elevations and general views of Building 856 belie its size. The massing is skillfully handled to mitigate the building's size and the facades are elegant and very well detailed, successfully breaking down the large volume. It has a well-landscaped median in front coupled with minimal, well-screened parking. The huge parking areas are located to the sides and behind the building, with the largest behind.
- Building 892 is also architecturally very successful. The entrance approach is distinctive and the bulk of the parking is off to the sides. The concrete and glass facades are crisp and well articulated and detailed.

RECOMMENDED IMPROVEMENTS
- The older buildings suffer by comparison to newer buildings like 856 and 892.
- Removal of a lot of the parking in front of Building 888 and its replacement with a planted median would soften the front elevation, as would

more abundant medium to large-scale plantings closer to the building.

- Building 884 and the parking area around it are bleak. There is no attempt to screen the proliferation of mechanical units.
- Consistent roadway and parking lighting fixtures, here as elsewhere, are recommended.



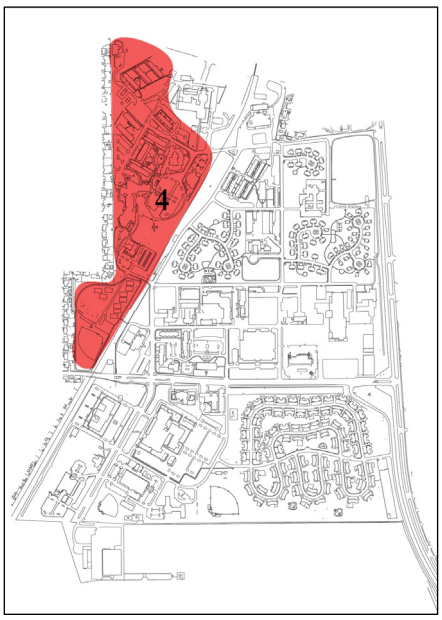
3.5.4 DISTRICT 3 – COMMUNITY CENTER

LOCATION
This district is bounded by US Highway 231, Spaatz Street, Turner Boulevard and Butler Avenue.

CHARACTER
There are relatively few buildings in this area. The character-defining elements are open space and parking areas.

DESIGN AND PLANNING ASSETS
- The Shopette façade is well designed, consistent in color and material with the Gunter palette.

RECOMMENDED IMPROVEMENTS
- The Commissary siting is consistent with old fashioned retail planning – a sea of parking in front. It's set so far back it has almost no presence when viewed from the street.
- Landscape development along this stretch of Turner Boulevard would be a substantial improvement.
- As in District 1, future planning should try to fill some of the open areas in this prime location, close to the main gate. Maintaining the building setbacks established further south on Turner Avenue, which the Shopette basically does, would visually reinforce this important streetscape.



3.5.5 DISTRICT 4 – TRAINING

LOCATION
This district encompasses the area south of Libby Street and west of Turner Boulevard.

CHARACTER
The character of this district is the character of the NCO Academy and, since its buildings were all built at the same time, there is a consistent architectural expression. Older dormitory buildings in the southwest corner of the district are compatible in scale and material with the Academy buildings.

The Academy looks and feels like a tightly knit college campus, which it is.

DESIGN AND PLANNING ASSETS

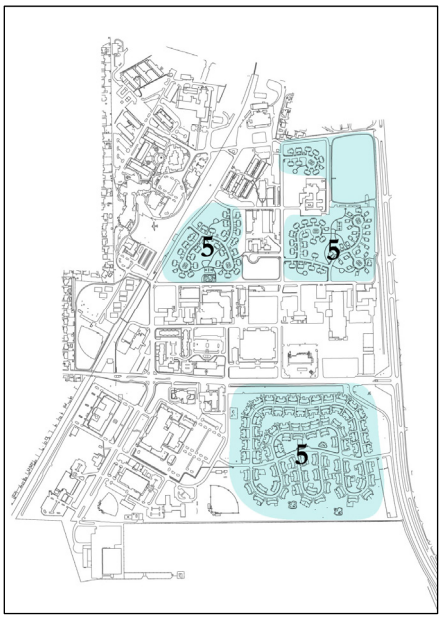
- The planning of the Academy is exemplary. The tightly grouped buildings, well developed open spaces and placement of parking areas represent the very best of campus planning. Though there is some slope to the site, the placement and configuration of academic buildings gives the feeling that the entire campus is on a relatively steep hill.
- Buildings 1110 and 1143 are handsome and compatible but, perhaps more importantly, have been skillfully used to define the formal entry plaza. The irregular massing of Building 1143 reinforces the feeling of terracing and the broken colonnade and portico are skillfully juxtaposed.
- The entry plaza is appropriately imposing without being overly formal. The paving materials are interesting and the brick landscape walls provide good hard edges. The landscaping is well done as is the overlook to the open field with the static displays.
- Building 1065 is very handsome, relates well to the street and has a well-executed entry court and a comfortable-feeling outdoor terrace.
- Dormitory Building 1017 picks up on the irregular plan configuration of Building 1143. Though the footprint is very large, the serrated edges of the façade break down the scale so that the building retains a residential feeling.
- The open space which the dormitory buildings face is well defined by the buildings, well planned, has some variety in paving materials, uses

concrete landscape and retaining walls well and is very well landscaped. This is one of those open spaces that genuinely invites use.

- The other new dormitories and the renovated dormitory buildings are well done and reinforce the overall composition.
- Parking areas are broken up so that, though there is a great deal of parking, no single area is of overwhelming size. These areas are well landscaped.

RECOMMENDED IMPROVEMENTS

- The Heritage Plaza at Building 1210 was obviously developed with thought and care, but the tight clustering of the monuments and memorials on a paved island doesn't come off well. Since there is ample land available, it is recommended that consideration be given to spacing these out on a winding walk in a shaded park setting, interspersed with benches that invite lingering and contemplation of the services and deeds commemorated.



3.5.6 DISTRICT 5 – FAMILY HOUSING

LOCATION
There are three family housing clusters at the Gunter Annex, one east of Turner Boulevard and two west of Butler Avenue.

CHARACTER
The winding streets, loops and cul-de-sacs in all three housing areas make for very pleasant neighborhoods. The general character is of small, well-maintained subdivisions of relatively low density.

DESIGN AND PLANNING ASSETS

- The generous common use areas, particularly in the two areas west of Butler, are very commendable, as are the winding walks through these open areas.
- The residential buildings are consistent in color and material use.
- The area east of Turner, being older, has a more mature landscape which the other areas can achieve over time.

RECOMMENDED IMPROVEMENTS

- The area east of Turner is well-separated from this major street and has a somewhat more private feel. The other areas are very exposed and it is recommended that consideration be given to clusters of trees and high-growing shrubs at the perimeter of these areas to provide screening of the private open spaces of the residences.

4 Planning Design Resources

Refer to the following resources for additional information:

USAF

- AETC Installation Excellence Guide
- AFM 88-43 Installation Design (Mar 81)
- AFP 86-10 Landscape Planning and Design (Apr 86) p. (Publications found at: http://afpubs.hq.af.mil)
- AF123-1024 Standard Facility Requirements (May 94) r. AFH 32-1084 Facility Requirements (Sep 96)
- AFI 32-7062 Air Force Comprehensive Planning (Oct 97)
- Air Force Environmental Responsibility Facilities Guide
- http://www.afcee.brooks.af.mil/dc/dchome.asp

Design Guides

- http://www.afcee.brooks.af.mil/dc/products/dcproducts.asp

Unified Facilities Criteria (UFC) Documents

- http://65.204.17.188//report/doc_ufc.html
- UFC 3-120-01 Air Force Sign Standard (Feb 02)

Anti-terrorism/Force Protection

- UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings
- Air Force Protection Design Guide
- http://www.hnd.usace.army.mil/techinfo
- http://criteria.navfac.navy.mil/
- http://www.ccb.org/

General

- The Whole Building Design Guide (http://www.wbdg.org/index.php)
- ADAAG- Americans with Disabilities ACT Accessibility Guidelines
- UFAS- Uniform Federal Accessibility Standards
- MTMC- Military Traffic Management Commander

Maxwell-Gunter AFB design documents

- Maxwell-Gunter AFB General Plan
- Maxwell-Gunter AFB approved plant list