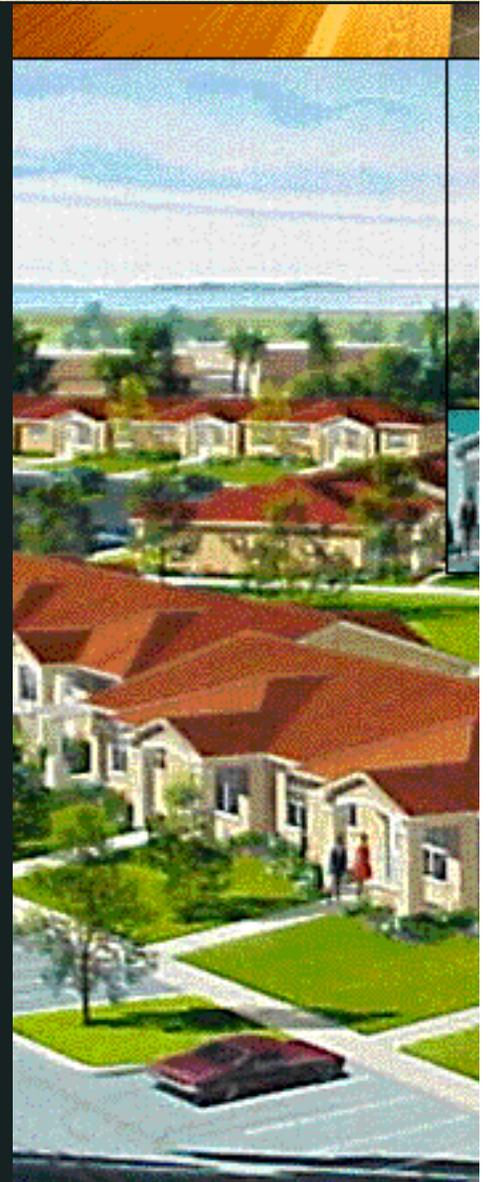


UNITED STATES AIR FORCE



U.S. AIR FORCE

TEMPORARY LODGING FACILITIES DESIGN GUIDE





TEMPORARY LODGING FACILITIES DESIGN GUIDE

VISION



The guidance provided in this publication implements construction policies and processes approved for Temporary Lodging Facilities (TLFs). The standards contained herein represent the Air Force's commitment to providing guests with standardized, easily maintained, affordable TLF facilities. Your success in developing and implementing plans to achieve TLF excellence will help sustain a strong and viable Air Force. Simply put, quality TLF services foster, provide and encourage productivity among people and affect the career decisions of Air Force men and women. While our force and base structure will be smaller in the future, and fiscal constraints may limit resources, we are committed to the concept of private, comfortable housing and all it contributes to improved quality of life.

ARTHUR J. MYERS
Director of Services
DCS/Installations & Logistics

EARNEST O. ROBBINS, II, MajGen, USAF
The Civil Engineer
DCS/Installations & Logistics

PUBLICATION DATE: December 2001

Office of Primary Responsibility (OPR): **HQ Air Force Center for Environmental Excellence**
POC: AFCEE/DCD (Mr. Rick Sinkfield) 8107 13th Street, Brooks AFB Texas 78235-5218
Telephone 210-536-4188; DSN 240-4188; email: rick.sinkfield@brooks.af.mil

Office of Collateral Responsibility (OCR) & Functional Proponent: **HQ Air Force Services Agency**
POC: HQ AFSVA/SVOHL (Lt Col Kathleen Bowman) or (Mr Mike Wilson)
10100 Reunion Place, Suite 501, San Antonio Texas 78216-4138
Telephone 210-652-8875, DSN 487-8875; email: mike.wilson@afsv.agency.af.mil

Writer: **3D/International** San Antonio Texas
Telephone 210-227-2500

Contributors:

Ann Ambrose	HQ ACC
Patricia Christopher	HQ ACC
Karen Hammond	HQ ACC
Kathleen Daniel	HQ AETC
Karen Kivela	HQ AFCEE
Sandy Warner	HQ AFCEE
Fred Walker	HQ AFCESA
Major Jonathan Grammer	HQ AF/ILV
Mariann P. Schofield	HQ AFSPC
Thomas Cochran	HQ AFSVA
David Williams	HQ AFSVA
Catherine Kozik	HQ AMC
Steve Robinson	HQ USAFE



TEMPORARY LODGING FACILITIES DESIGN GUIDE TABLE OF CONTENTS

CONTENTS

C

CHAPTER 1 INTRODUCTION

- A. Purpose 8
- B. Temporary Lodging Facility Description 8
 - 1. Mission 8
 - a) Design Standards 8
 - b) Best Value 8
 - c) Durability and Maintainability 8
 - d) Architectural Compatibility 8
 - e) Sustainability and Environmental Compatibility 9
 - f) Quality of Life 9
 - 2. Requirements 9
- C. Design Guide Scope and Use 9
 - 1. Scope 9
 - 2. Design Guide Use 10

CHAPTER 2 PROGRAMMING

- A. Overall Considerations 11
 - 1. General 11
 - 2. Project Team 11
- B. Planning and Programming Considerations 12
 - 1. Project Initiation 12
 - 2. Project Definition 12
 - 3. Codes and Standards 12
 - a) Accessibility 12
 - b) Force Protection 13
 - c) Sustainability 13
 - 4. Project Siting 13
 - 5. Resources 14
- C. Scope of Project 14
 - 1. General 14
 - 2. Area Requirements 15
 - a) Net Living Area 15
 - b) Gross Building Area 15
 - 3. Floor Plans 15

D. Budget Considerations	16
1. General	16
2. Special Factors	16
a) Site Design	16
(1) Site Analysis	16
(2) Grading	16
(3) Site Amenities	16
(4) Companion Projects	17
b) Building Design	17
(1) Design Features	17
(2) Signage	17
c) Building Systems	17
(1) Mechanical Systems	17
(2) Security Systems	17
d) Interior Design	17
3. Funding Sources	18

CHAPTER 3 DESIGN

A. General Considerations	19
B. Site Design	19
1. General Considerations	19
a) Planning and Design	19
b) Emergency Access	20
2. Pavements and Circulation	20
a) Pavements	20
b) Roads	21
c) Parking	20
d) Vehicular Access	21
e) Walks	21
3. Infrastructure	21
a) Utility Easements	21
b) Lighting	22
c) Equipment	22
4. Site Amenities	22
a) Furnishings	22
b) Playgrounds	22
5. Active/Passive Outdoor Areas	23
a) Site Signage	23
b) Fencing	23
c) Bicycle Racks	23
6. Landscape Design	23
a) Grading	23
b) Retention Basins	23
c) Landforms	24
d) Landscape	24
e) Landscape Maintenance	24
f) Irrigation Development	24

C. Architecture	25
1. Exterior Building Design	25
a) General Considerations	25
b) Mass and Scale	25
c) Architectural Compatibility	25
2. Exterior Materials and Finishes	25
a) Exterior Finish Materials	26
b) Roofing	26
c) Exterior Doors	26
d) Windows	26
e) Elevators	27
f) Attic/Basements	27
g) Exterior Building Signage	27
D. Interior Design	27
1. General Considerations	27
a) Standard Floor Plans	27
b) Relationships	27
(1) Residential	28
(2) Recreation	28
(3) Service	28
2. Functional Area Requirements	28
a) General Requirements	28
b) Living Room	30
c) Bedroom	31
d) Bathroom	32
e) Closet	34
f) Kitchen/Dining Area	34
g) Building Entrances	36
h) Corridors	37
i) Support Areas/Building	38
3. Structural Interior Design/Comprehensive Interior Design	41
a) General Requirements	41
b) Interior Design Considerations	41
(1) Floors	41
(2) Walls	41
(3) Ceilings	42
(4) Doors	42
(5) Cabinets and Millwork	42
(6) Window Treatment	42
(7) Furniture Considerations	43
(8) Artwork and Accessories	43
(9) Interior Building Signage	43

E. Building Systems	43
1. Structural	43
2. Mechanical	43
a) Life Cycle Costs	43
b) Energy Consumption	44
c) Acoustics	44
d) Heating, Ventilation and HVAC	44
(1) System Selection	44
(2) Maintenance	44
(3) Bathroom Exhaust	44
(4) Unit HVAC Systems	45
(5) Control Systems	45
(6) Piping System	45
(7) Perimeter Fin Tube Heating	45
3. Plumbing	45
a) General	45
b) Plumbing Requirements	45
c) Plumbing Design	45
d) Hot Water Systems	46
4. Electrical/Communications	46
a) General	46
b) Electrical Design	46
c) Lighting	47
d) Power Supply	47
e) Corrosion Protection	47
f) Telecommunication	47
5. Fire Protection/Life Safety	48
a) General	48
b) Sprinkler Systems	48
c) Detectors	48
d) Fire Alarms	48
e) Fire Resistance Requirements	48
f) Accessible Areas	48

CHAPTER 4 ILLUSTRATIVE DESIGN INFORMATION

A. General Concepts	49
B. Floor Plans	49
Interior Entrance One Bedroom Unit Detailed Floor Plan	50
Interior Entrance Two Bedroom Unit Detailed Floor Plan	51
Interior Entrance Two Bedroom Accessible Unit Detailed Floor Plan ..	52
Exterior Entrance One Bedroom Unit Floor Plan	53
Exterior Entrance Two Bedroom Unit Floor Plan	54
Exterior Entrance Two Bedroom Accessible Unit Floor Plan	55
Typical Support Building Floor Plan	56

C. Comprehensive Interior Design (CID) 49
D. TLF Equipment Schedule 57

CHAPTER 5 RESOURCES AND LINKS

Resources and Links 61



TEMPORARY LODGING FACILITIES DESIGN GUIDE

CHAPTER ONE

INTRODUCTION

1

A. PURPOSE

This guide provides standards and considerations for planning, programming and designing new Temporary Lodging Facilities (TLFs), major renovations of existing TLF buildings, and permanent conversion of existing facilities as new TLFs on Air Force installations. Developed for the use of Commanders, Air Force Services, Base Civil Engineering and design architects, engineers, programmers and planners, the goal is to achieve a consistent level of high quality service throughout the Air Force. This guide covers basic facility requirements and design considerations necessary for successful project development and shall be used in conjunction with Air Force standards and governing codes.

B. TEMPORARY LODGING FACILITY DESCRIPTION

1. Mission

Air Force TLF design must reflect consistent understated excellence and an enhanced quality of life for our military families. This philosophy ensures that TLFs will be architecturally compatible, universally accessible, functionally and operationally efficient, economically maintainable and environmentally safe.

a) Design Standards

TLF design shall reflect standardization, from the design of the unit floor plan to the selection of finishes and materials, providing the resident a consistent level of high quality interior and exterior living space.

b) Best Value

Well specified building systems and finishes enhance productivity, and conserve cost, energy, and time during and after construction. Design criteria and building materials and methods, within budget limitations, shall reflect the best value for the Air Force. Life cycle costs, as well as the aesthetics of the TLF complex, shall be emphasized.

c) Durability and Maintainability

Material and finish selections must emphasize durability, extended life and visual appearance based on the facility use and increased level of wear. Consider ease and cost of maintenance requirements while ensuring the best value for the Air Force.

d) Architectural Compatibility

Elements including expression of structure, establishment of unity and harmony while avoiding monotony, development of contrast and variety through considerations of mass and scale, and material selection are the foundation of good design. Air Force TLFs shall reflect classic architecture, functional design, and quality. Master planning and project design shall consider the possibility of future renovations or additions to minimize extensive changes. Reference The USAF Architectural Compatibility Design Guide (<http://www.afcee.brooks.af.mil/dc/dcd/arch/ACguide/liveACG/index.htm>) for further guidance.

e) Sustainability and Environmental Compatibility

Air Force TLFs must incorporate sustainable development principles and reflect regional environmental uniqueness. The goals of sustainability are to conserve energy, water, and raw materials; prevent environmental degradation caused by construction, operations, and disposal of facilities; and create built environments, which are livable, healthy, and productive. By carefully analyzing these factors, a TLF can achieve a cohesive sense of scale, tradition and compatibility while sustaining the mission and the environment. For further information and guidance, reference the USAF Environmentally Responsible Facilities Design Guide to be located on the HQ AFCEE Design and Construction Products web site and the Whole Building Design Guide.

f) Quality of Life

Air Force TLF designs must satisfy the needs of the military families while providing a sense of security and place. The excellence of the residential living environment becomes a combined effort of the project team, enhancing the quality of life for the residents while providing classic and durable design for the Air Force.

2. Requirements

Interior entrance and exterior entrance floor plans have been developed for the design of new TLF units including one bedroom, two bedroom and two bedroom accessible unit plans. These floor plans are discussed in detail later in this guide as well as a recommended support building floor plan. An appropriate mix of these plans must be used for all new TLF construction.

C. DESIGN GUIDE SCOPE AND USE

1. Scope

This guide provides criteria to be used to determine program requirements for TLF projects and applies to all TLF projects in the continental United States and overseas. Use this guide in conjunction with other Air Force, Department of Defense (DoD) and national standards documents that give related guidance. The unique design requirements of a specific project are to be addressed individually at the local level. This guide is not a substitute for research by programmers and designers, and it recognizes that there may be special design requirements for some TLF projects.

This guide applies to both new construction and major renovation projects. All work to existing facilities that is beyond cosmetic treatment (replacing carpeting, painting, wallpaper installation, etc.) is considered major renovation and classified as repair. The term “renovation” is not a programming class of work, but describes the nature of the project being done. A project is classified as new construction if the functional use changes or if load-bearing walls are moved or constructed.

2. Design Guide Use

This document has been divided into chapters organized to facilitate the design process construct or renovate TLFs. Below is an overview of the content of each chapter in this design guide:

[Chapter 2 Programming](#)

This chapter provides the basic guidelines for planning and programming new TLFs or renovating existing TLFs on Air Force installations.

[Chapter 3 Design](#)

This chapter provides information relevant to all phases of design and contains guidelines for planning and designing the site, building footprint, infrastructure, building systems, layout, character and circulation. This chapter additionally provides detailed design requirements for each functional space.

[Chapter 4 Illustrative Design Information](#)

This chapter contains examples of floor plans that show how the guide's design principals can be applied to a particular project. This chapter also references specific CID finish and furniture options for implementation in TLF projects, and a TLF equipment schedule.

[Chapter 5 Resources and Links](#)

This chapter provides a list of references, including other Air Force, Department of Defense and national standards documents that give related guidance, to be used in conjunction this design guide.



PROGRAMMING

A. OVERALL CONSIDERATIONS

2

1. General

This chapter provides the basic guidelines for planning and programming new TLFs and renovating existing TLFs on Air Force installations. The size and number of units at each site will vary depending on the mission, but the unit floor plans and requirements will remain static. Renovations shall follow this guidance as closely as possible, understanding that variances will be made on a case-by-case basis.

The Wing or Major Command (MAJCOM) has programming and design latitude and decision making authority in the following areas: site selection, arrangement of TLF units on the site, choice of interior corridors or exterior entrances for single story facilities (multi-story facilities shall have interior corridors), exterior architectural treatment, and selection of a stand-alone or integrated support building for housekeeping activities.

2. Project Team

Cooperation between all organizations is critical to the success of each TLF project. Early in the programming process, the programmer works with the project team to ensure mission requirements are accomplished during the programming, planning, design and construction of new or renovated TLFs. This team shall establish design criteria, specific goals and strategies such as sustainable development principles, to ensure that all functional requirements are met and resolved.

The team chaired by the MAJCOM Design/Construction Manager consists of

- Base Services Commander and staff (including the Combat Support Flight Commander and the Lodging General Manager)
- Base Civil Engineer Squadron (including programming, planning, design and construction, maintenance, environmental, and fire services)
- Base Communications Squadron
- Base Safety Officer
- Base Security Forces Squadron (security and force protection)
- MAJCOM Staff (Services and Civil Engineering)
- Headquarters Staff (HQ AFSVA/SVOHL/SVXF and HQ AF/ILV)
- Architectural and Engineering Consultants (including civil, structural, architectural, mechanical, electrical, interior design and landscape)

A design “charrette” session with participation from the project team serves as a kick off to the design phase and shall unify the separate elements. Goals include the exchange of ideas, attitudes, and experiences, clarifying functional requirements, providing validation and feedback, and establishing user involvement and responsibilities. The use of a charrette shall lead to “buy-in” from all team members.

B. PLANNING AND PROGRAMMING CONSIDERATIONS

1. Project Initiation

A DD Form 1391, Military Construction Project Data, is required for each TLF project prior to a Needs Assessment Study (NAS), performed through HQ AFSVA. Reference AFI 34-246, USAF Lodging Program (<http://afpubs.hq.af.mil/pubfiles/af/34/afi34-246/afi34-246.pdf>) for specific lodging criteria. Copies of all programming documents shall be provided to HQ AFSVA/SVOHL/SVXE

2. Project Definition

The Requirements Document/Project Management Plan (RD/PMP) provides the design agent and the designer with information used in negotiating the design contract and completing the project definition phase. The information in this guide provides the basis for developing both. See the USAF Project Managers' Guide for Design and Construction (<http://www.afcee.brooks.af.mil/dc/products/pmguides/pmguides.asp>) for useful information on the Project Definition phase.

Project definition designs must conform to the overall project design considerations in this guide. Commands must provide copies of all concept designs for TLF projects to HQ AFSVA/SVOHL/SVXF to include site plans, building floor plans, exterior elevations and typical TLF unit plans including furniture layouts. Concept designs shall also include the critical dimensions and calculations that reflect compliance with design criteria.

Unique local requirements concerning building, program, sustainable development, and design criteria shall be included in the RD/PMP. TLF projects in overseas (OCONUS) locations need to comply with applicable Host Nation agreements, local building codes and other pertinent policies.

3. Codes and Standards

All Air Force TLF design and construction, regardless of location, must comply with applicable DoD, Air Force and MAJCOM construction and design standards and shall be in conformance with local and governing commercial codes. In the event of conflict between the Air Force standards and local building codes, the more stringent requirement shall apply. The latest version of all codes shall be used. Reference AFI 32-1023, Design and Construction Standards and Execution of Facility Construction Projects (<http://afpubs.hq.af.mil/pubfiles/af/32/afi32-1023/afi32-1023.pdf>) for current guidance on applicable Air Force requirements.

a) Accessibility

All Air Force TLFs shall be designed to be accessible to and usable by persons with disabilities. New construction, as well as renovations to existing facilities, must be designed and constructed to meet the requirements of the Americans with Disabilities Act Architectural Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS), with the most stringent standards applied in the event of conflicts. Further guidance on accessibility may be found in the following publications.

- HQ AFCEE Accessibility Page (<http://www.afcee.brooks.af.mil/dc/dcd/afada/afada.htm>)
- ADAAG Americans with Disabilities Act Accessibility Guidelines (<http://www.access-board.gov/adaag/html/adaag.htm>)
- UFAS Uniform Federal Accessibility Standards (<http://www.access-board.gov>)

b) Force Protection

All Air Force TLFs shall be designed in conformance with Air Force and DoD force protection guidance. Reference USAF Force Protection Design Guide (<http://www.afcee.brooks.af.mil/dc/dcd/arch/force.pdf>), AFI 31-210, USAF Antiterrorism/Force Protection (AT/FP) Program Standards (<http://afpubs.hq.af.mil/pubfiles/af/31/afi31-210/afi31-210.pdf>) and the DoD Antiterrorism/Force Protection Construction Standards, 20 Aug 2001 (reference [Chapter 5](#) of this guide for an acrobat version of standards).

c) Sustainability

All Air Force TLF designs shall conform with Air Force sustainability guidance. A sustainable facility achieves optimum resource efficiency and minimizes damage to the human and natural environments through all the phases of its life cycle. Sustainable development requires an integrated approach to programming, planning and design. The six fundamental sustainability principles, are:

- Optimize site potential
- Minimize energy consumption
- Protect and conserve water
- Use environmentally preferable products
- Enhance indoor environmental quality
- Design to minimize the impact of facility O&M practices

For further information and guidance, see the USAF Environmental Responsible Facilities Guide and policy memo and the Whole Building Design Guide. Consult the Application Guide for Lodging Using the LEED Leadership in Energy and Environmental Design based on Executive Orders 12873 and 12902 directing federal agencies to consider sustainable factors when designing new facilities.

4. Project Siting

Each individual installation is responsible for determining the initial and most appropriate site location for a new TLF complex. This selection will be later validated in the programming process, but must be a “clean” site and may require companion Real Property Maintenance Construction projects (RPMC) using appropriated funds (APF) to accomplish this prior to the start of the TLF project. The Base Comprehensive Plan shall be used to evaluate potential sites for the proposed development. Each site has varying inherent values caused by its relationship to other sites and will differ at each installation. The site selection process shall identify the required site attributes and development potential of possible TLF sites for consideration. Site design factors shall include building footprints, roads and drives, parking, playgrounds, landscape and fire department access. Similar to family housing, child safety, vehicle speed limits, playground location and other potential safety hazards shall be considered. Additional determination issues shall include availability and location of utilities and close proximity to schools and community facilities. Reference AFI 32-7062, USAF Comprehensive Planning (<http://afpubs.hq.af.mil/pubfiles/af/32/afi32-1067/afi32-1067.pdf>) for additional helpful guidance on the evaluation criteria for site selection.

5. Resources

Additional information and guidance regarding work classifications, funds sources and approval levels may be found in the following publications.

AFI 34-246, USAF Lodging Program

(<http://afpubs.hq.af.mil/pubfiles/af/34/afi34-246/afi34-246.pdf>)

AFI 32-1022, Planning and Programming Nonappropriated Fund Facility Construction Projects

(<http://afpubs.hq.af.mil/pubfiles/af/32/afi32-1022/afi32-1022.pdf>)

AFI 32-1032, Planning and Programming Appropriated Funded Maintenance, Repair, and Construction Projects

(<http://afpubs.hq.af.mil/pubfiles/af/32/afi32-1032/afi32-1032.pdf>)

AFI 65-106, Appropriated Fund Support of Morale, Welfare, and Recreation and Nonappropriated Fund Instrumentalities,

(<http://afpubs.hq.af.mil/pubfiles/af/65/afi65-106/afi65-106.pdf>) for further guidance regarding work classification, fund sources, and approval levels.

C. SCOPE OF PROJECT

1. General

The initial scope of a TLF project shall be programmed using the standards and criteria contained in AFH 32-1084, Facility Requirements (<http://afpubs.hq.af.mil/pubfiles/af/32/afh32-1084/afh32-1084.pdf>). The number of units and two bedroom/one bedroom mix shall be provided by HQ AFSVA/SVOHL based on the standard [floor plans](#) included with this guide. Allowances for corridors, non-net floor space areas, adequate storage and housekeeping space either as part of the TLF facility or as a separate support building, and other requirements (parking, elevators, etc.) shall be considered. Five percent of all units (i.e., 1 in 20) shall comply with [accessibility](#) requirements as referenced in this guide.

The actual determination of the project scope shall be based on the results of a Needs Assessment Study (NAS) performed through HQ AFSVA after the DD Form 1391 has been completed. This NAS validates the site selection, determines the overall number of units including mix, and identifies any companion APF projects necessary to provide a complete and usable facility. A good faith effort shall be made to uncover any potential site and utility issues.

TLF MILCON projects shall comply with the design and construction guidance that establish the absolute size for the net living area. Commands desiring a waiver from these absolute planning factors must submit a fully justified request, formatted as a normal congressional reprogramming action, and an economic analysis to HQ AFSVA/SVXF. HQ AFSVA/SVXF will in turn forward the request to HQ AF/ILVP.

2. Area Requirements

Building size and scope compliance shall be based on net square footage to allow for varying factors resulting from different construction methods and materials that may be required, especially OCONUS.

a) Net Living Area

Net living area is generally defined as the floor area of the living room, bedroom, bathroom, and kitchen/dining area, measured from the inside face of the room walls.

For new construction,

One Bedroom TLF Unit	55.9 m2 (602 SF) net living area
Two Bedroom TLF Unit	73.3 m2 (790 SF) net living area
Two Bedroom Accessible TLF Unit	80.5 m2 (867 SF) net living area

For renovation of existing TLFs, the width of living room and bedroom areas shall be a minimum of 3.66 meters (12 feet). Best efforts shall be made to satisfy the net living area and minimum width requirements.

b) Gross Building Area

Gross building area includes support spaces such as employee offices, linen supply, housekeeping equipment, personal item storage area, circulation space, mechanical spaces, and general-purpose storage, measured to the outside face of the exterior enclosure walls.

Open stairs, elevator shafts and exterior covered areas (such as covered entries) count as half scope per floor they serve, while enclosed stairs and corridors count full scope. Measurements are from the face of the enclosure wall to the edge of the covered area. Normal roof overhangs should not be included in gross building area and are defined as those generally less than 900mm (3 feet) wide and unsupported by columns.

One Bedroom TLF Unit	88.1 m2 (948 SF) gross building area
Two Bedroom TLF Unit	114.1 m2 (1228 SF) gross building area
Two Bedroom Accessible TLF Unit	120.8 m2 (1300 SF) gross building area

The individual gross building area provided includes all support requirements for each TLF unit. For planning purposes only, these numbers may be used to establish preliminary scope. Reference AFH 32-1084, Facility Requirements (<http://afpubs.hq.af.mil/pubfiles/af/32/afh32-1084/afh32-1084.pdf>) for additional guidance on scope calculation.

3. Floor Plans

Standardized TLF [floor plans](#) have been developed for interior entrance and exterior entrance one bedroom, two bedroom, and two bedroom accessible units. These plans shall be used in all new construction TLF projects. Each TLF unit includes a full kitchen with dining area, washer/dryer area, full bath, living room, storage closets, and either one or two bedrooms. Choice of interior corridors or exterior entrances for single story facilities is a Wing or MAJCOM decision. All multi-story facilities will have interior corridors.

A typical support building [floor plan](#) has additionally been developed for a separate building based on the scope of the project and the requirement for support service facilities. Choice of a stand-alone facility or part of a TLF building is a Wing or MAJCOM decision.

D. BUDGET CONSIDERATIONS

1. General

All special factors and funding sources must be considered when establishing initial project cost estimates to assure a complete and usable facility. Reference AFI 65-106, Appropriated Fund Support of Morale, Welfare, and Recreation and Nonappropriated Fund Instrumentalities, (<http://afpubs.hq.af.mil/pubfiles/af/65/afi65-106/afi65-106.pdf>) for guidance regarding work classification, fund sources, and approval levels of Nonappropriated Fund (NAF) projects. Air Force standards such as [accessibility](#), [force protection](#) and [sustainability](#) must be incorporated. Project programmers have the opportunity and are responsible to ensure that sustainable development goals are supported in the project budget. The Air Force goal is to maximize sustainable design within normal facility budgets; however, sustainable methods, materials or systems will sometimes have higher first costs. Design options shall not be excluded because of increased cost without further analysis. Additional investments for one building system can often reduce the first costs in other systems through an integrated design approach. For example, downsizing the HVAC system can offset the increased cost of energy efficient lighting systems, which produce less heat. For further information and guidance, reference the USAF Environmental Responsible Facilities Guide and policy memo (to be located on the HQ AFCEE Design and Construction Products web site (<http://www.afcee.brooks.af.mil/dc/products/dcproducts.asp>) and the Whole Building Design Guide (<http://www.wbdg.org>).

2. Special Factors

a. Site Design

(1) Site Analysis

A preliminary soil analysis is essential to determine whether extensive site work and foundation costs are required. Local environmental and climatic conditions can also impact costs. TLF projects located in areas prone to seismic activity generally cost more, and programming shall take this into consideration. Climatic influences such as heavy snow loads, wind loads, and extreme temperatures result in additional costs due to structural, and to a lesser extent, insulation requirements. Also, an organic soil analysis for the landscape plant materials on the exterior of the facility must be performed.

(2) Grading

HQ AFSVA will fund site development costs within the project to include cut/fill and other work to make the site usable. Potential grading shall be a consideration during the site selection process to keep these costs minimal.

(3) Site Amenities

The site plan for all TLF projects should consider outdoor passive and/or active use areas, pavilions and/or site amenities. Although not funded with the project, these features must complement the architecture of the TLF complex, and shall include base or MAJCOM funded amenities such as playground equipment, barbecue grills, tables, benches and fencing.

(4) Companion Projects

The selected site for a new TLF complex must be a “clean” site and may require companion O&M APF projects to be accomplished prior to the start of the TLF project. This is a base or MAJCOM responsibility.

Communications and infrastructure requirements for TLFs often approach those of military family housing (MFH) units of similar size because of the high energy demands and occupancy. Companion O&M APF projects may be required to support necessary upgrades and alterations and shall be studied to determine if separate funding must be obtained through the base or MAJCOM. Lodging funds cannot be used to construct base infrastructure.

b) Building Design

(1) Design Features

Expenses associated with special, non-standard design features in a TLF unit can be significant because the features are repeated in every module. These features shall be minimized yet shall not compromise the quality or design of the project.

(2) Signage

HQ AFSVA will provide funding for the electrical service to the main exterior sign locations in new or renovated TLF projects, and all interior and exterior building signage, to include room and informational signage. The MAJCOM or base will be responsible for funding the main TLF sign and all required site signage, to include parking and street signage. All signage shall be in accordance with the installation signage program and AFPAM 32-1097, Sign Standards Pamphlet (<http://afpubs.hq.af.mil/pubfiles/af/32/afpam32-1097/afpam32-1097.pdf>).

c) Building Systems

(1) Mechanical Systems

Each TLF unit shall have individual climate controls. The type of mechanical system selected for a TLF project has a major impact on both the construction cost of the project and the operating costs. Life cycle cost analysis is especially important for mechanical systems due to TLF requirements. Mechanical systems shall be independent of any seasonably controlled utilities and shall be capable of providing heating and cooling 365 days per year.

(2) Security Systems

The addition of security systems to a TLF project shall be the responsibility of the base or the MAJCOM.

d) Interior Design

[Structural Interior Design \(SID\)](#) package, equipment and appliances shall be funded with project funds and will be Contractor Furnished/Contractor Installed (CF/CI). Interior finishes, built-in counters and cabinets, toilet accessories, kitchen blinds, chair rails, corner guards, and interior signage are included and shall be provided and installed by the contractor. The contractor must follow HQ AFSVA/SVOHL requirements for interior design criteria for SID items.

[The Comprehensive Interior Design \(CID\)](#) package shall be funded with separate lodging funds (identified as Fixtures, Furnishings and Equipment (FF&E) in project funding) and will be Government Furnished/Government Installed (GF/GI) after completion of the construction or renovation project.

3. Funding Sources

TLF Funding Sources

Description	Funding
Project Design/A-E Services	Project Funds (HQ AFSVA)
Site Design	Project Funds (HQ AFSVA)
Signage	Project Funds/Base/MAJCOM Funds
Site Amenities	Base/MAJCOM Funds
Fencing	Base/MAJCOM Funds
Companion Projects	Base/MAJCOM Funds
Architecture	Project Funds (HQ AFSVA)
Building Systems	Project Funds (HQ AFSVA)
Security	Base/MAJCOM Funds
Interior Design (SID package)	Project Funds (HQ AFSVA)
Equipment/Appliances (CF/CI) (Equipment Schedule)	Project Funds (HQ AFSVA)
Furnishings/Draperies (GF/GI) (CID package)	Project Funds (HQ AFSVA)



DESIGN

3

A. GENERAL CONSIDERATIONS

This chapter provides general considerations and technical guidance relevant to all phases of design for new or renovated TLFs on an Air Force installation. Guidelines are provided for planning and designing the site, building footprint, infrastructure, building systems, unit layouts, support functions, character and circulation, including detailed design requirements for each functional space. Specific information that expands on these overall principles must be developed for each individual TLF project, however site visits to similar successfully designed and constructed TLF projects are possible or necessary.

B. SITE DESIGN

1. General Considerations

Site planning is a critical element of any design and can greatly impact the success of the overall project. Commitment and involvement from the project team is a significant factor in site and building design. Design considerations for new or renovated TLFs shall include pavements, hardscape, circulation, [force protection](#), [accessibility](#), [sustainability](#), fire protection, security, privacy and noise, infrastructure, proximity to community facilities, landscape, lighting, climate, topography, existing vegetation, and site amenities. Consult AFPAM 32-1010, Land Use Planning, for additional useful information and guidance on this subject (<http://afpubs.hq.af.mil/pubfiles/af/32/afpam32-1010/afpam32-1010.pdf>).

a) Planning and Design

The TLF complex shall present a professional Air Force image and encourage “pride of ownership.” Consider the first impression the facility will reflect to both visitors and guests. Special attention must be given to building orientation, mass and scale in developing the site plan. Develop a sense of order, arrival, orientation, and community in planning the site. Achieve spatial balance and scale through thoughtful placement and arrangement of landscaping, structures, and landforms.

The expansion potential for TLFs usually involves the addition of more living units. It is generally impractical to build an addition onto an existing TLF. If the potential for adding additional living units is identified during the initial programming stage, allow space in the site development plan for additional structures and size the site utilities accordingly.

Take advantage of the positive features of a site, such as prevailing wind direction and solar patterns. Building placement and design shall also take advantage of views that are scenic, pleasant, or interesting. Develop a site plan that utilizes most of the site’s existing natural resources. Where possible, conserve existing natural areas, preserve as much of the existing landscape as possible, and restore damaged areas to provide habitat and promote biodiversity.

b) Emergency Access

Design access streets and parking areas to accommodate emergency service vehicles and fire protection equipment. If the site plan calls for interior court areas to be placed between adjoining facilities, consider designing the main pedestrian walkways to accommodate medium weight service and fire protection vehicles. Such walkways must be a minimum of 2.4m (8 feet) wide. Special consideration shall be given to

(<http://afpubs.hq.af.mil/pubfiles/af/31/afi31-210/afi31-210.pdf>) and the DoD Antiterrorism/Force Protection Construction Standards, 20 Aug 2001 (reference [Chapter 5](#) of this guide for an Acrobat version of standards).

2. Pavements and Circulation

a) Pavements

Design paving to blend with a facility's environment. Tree planting in islands and between rows of parking intercepts reflected radiation, visually breaks up the mass of paved surface and provides shade for vehicles. Properly located, the traffic islands can also provide safe pedestrian circulation. Consider use of permeable pavements for parking and walkways, as a technique for recharging groundwater and reducing the contaminated storm water runoff from the site. Where topography allows, design parking areas in multiple levels with transition zones. This may reduce grading requirements and allow the designer to balance the volume of cut and fill. Design these transitions as landscape buffers to soften the visual impact of parking areas.

b) Roads

Minimize construction of new driveways associated with a TLF project. New approaches, when needed, shall be designed for the convenience of guests and employees. Plan with consideration for signage, site furnishings, safety, appearance, maintenance, and emergency vehicles. Plan the vehicular layout to eliminate, or at least minimize, the adverse impact of noise and headlights shining into windows. Additions to existing drives shall improve and enhance the existing roads as well as serve the new facility. New drives shall orient newcomers, provide an attractive approach to the facility, and relate to natural contours to minimize grading and disruption. Use screening, setbacks and other techniques to integrate the roads with the facilities they support.

c) Parking

Design parking to accommodate TLF guests. Allocate 1.0 parking space per bedroom for continental US locations, per AFH 32-1084, Standard Facility Requirements (<http://afpubs.hq.af.mil/pubfiles/af/32/afh32-1084/afh32-1084.pdf>). At overseas locations, the Base Civil Engineer shall specify the private vehicle capacity for parking lots, typically influenced by the availability of land for this use. Vehicle parking areas consume more site space and have a greater impact on the physical environment than any other site feature. This parking guideline results in a significant area of paving which, if not planned properly, will have a negative impact. This parking ratio applies to most TLF buildings but may be modified based on the parking needs of unique TLF situations. In extreme northern climates, provide automobile block heaters.

Provide parking spaces in accordance with the more stringent [accessibility](#) requirement of the Uniform Federal Accessibility Standards and the Americans with Disabilities Act Architectural Guidelines (both referenced on the HQ AFCEE Accessibility Page <http://www.afcee.brooks.af.mil/dc/dcd/afada/afada.htm>). These parking spaces shall be conveniently located as close to the TLF entrance as possible.

Parking for oversized vehicles (boats, trailers, moving vans, etc) will not be funded by HQ AFSVA. The installation shall provide an alternate location away from the TLF site with primary emphasis on safety due to the large maneuvering require-

ments and the presence of children.

d) Vehicular Access

Provide primary access from main streets to facilitate guest and visitors locating the TLFs. Provide service vehicle access via secondary (collector) streets to reduce congestion from main arterial streets. Where possible, divide main entrances with landscaped traffic medians between entry and exit lanes. If the installation provides bus service, designers shall consider including appropriate site features (walks, etc) so that TLF guests will have access to this service.

Where possible, provide separate and screened service entrances associated with mechanical rooms and delivery vehicles. Trash dumpsters and recycling bins must be conveniently accessible by both the TLF staff and service trucks, but must be located in areas away from main TLF unit entrances. Screen these locations with a combination of hard wall materials, earth forms and landscaping, compatible with the TLF complex and surrounding architecture, and in compliance with base standards.

e) Walks

Pedestrian-oriented site planning and design contributes to the convenience, comfort, and enjoyment of daily activities and can encourage walking and less dependence on automobiles. Walks must be convenient, safe, and attractive with adequate landscape lighting. Provide curb cuts for [accessibility](#), for movement of housekeeper carts, and for the convenience of guests using luggage carts. Ramps shall not be steeper than 1" in 12". Walkways to building entrances must be 2.4m (8 feet) wide. All other sidewalks must be 1.83m (6 feet) wide. Design and grade sidewalks following ADAAG and UFAS guidance to provide access to the first floor of all TLFs and to all outdoor areas intended for use by TLF guests. Provide corridor connections to other areas of the installation by pedestrian circulation systems and well lit jogging/biking trails.

3. Infrastructure

a) Utility Easements

The site planner shall develop underground utility easements in coordination with the base civil engineers, sized to accommodate future expansion. Locate utility easements where possible no closer than one and one-half times the crown width of mature trees or 10.7m (35 feet), (whichever is greater) and to allow future street tree plantings. Consider using pipe tunnels and trenches.

b) Lighting

Site lighting is an integral part of a TLF complex and includes pedestrian scale lighting, bollards, vehicular and security lighting. Site lighting selection should include the landscape architect, the electrical engineer, and the architect. Provide lighting to ensure guests can move safely between outdoor spaces. Comply with base design standards in the selection of luminaires and poles. Energy efficient, high-pressure sodium lamps with color correction ensure optimum visual acuity and are recommended for energy-conscious site lighting. Provide adequate site lighting at any point where there is a change in grade requiring steps, near accessible parking areas, and near main entrances to buildings. Use solar powered exterior luminaires when they meet lighting requirements and are cost effective. Follow the recommendations of the Illuminating Engineering Society's (IES) Illuminance Selection procedures (<http://www.iesna.org>) to establish illumination levels.

c) Equipment

Screen equipment such as chillers, evaporating condensers, switchgear, backflow prevention devices, utility connections and electrical transformers. Architectural screening materials shall be compatible with the TLF complex and surrounding architecture. Use landforms to screen objects in landscapes that do not require enclosures.

4. Site Amenities

Well planned site amenities and landscape development enhance the visual experience of a TLF complex as well as greatly increase the quality of life of the guests. Although HQ AFSVA does not provide funding for outdoor passive areas or site amenities with TLF projects, the importance of master planning and programming for this part of the project is still critical. Base or MAJCOM funding may provide funding.

a) Furnishings

Outdoor furniture compatible with the TLF architecture complement the building and help to create usable outdoor passive and/or active areas. Selections shall be coordinated with the landscape architect, the architect and the interior designer to ensure a smooth transition between interior and exterior. Effective transitions are achieved when building materials, colors, and design details from the building are incorporated into the paving materials, signage, and site furnishings. Base standards shall be followed in the programming and design process.

b) Playgrounds

The programming document (DD Form 1391) and design of the TLF project may include playground areas. TLF project funding from HQ AFSVA may include an allowance for playground construction, but funding of playground equipment is the responsibility of the MAJCOM or the installation. Playground equipment and playground surfaces are on EPA's list of guideline items for affirmative procurement of recycled content products. When choosing play equipment made of plastics, plastic composites, steel or aluminum, ensure these products meet EPA recycled content requirements whenever possible. The same action is required for playground surfaces made of rubber or plastic. The EPA requirements are listed on their website (<http://www.epa.gov/cpg/products>).

5. Active/Passive Outdoor Areas

TLF complex site planning shall include outdoor active and/or passive use areas and pavilions as an integral part of the TLF design. These features must be compatible with the TLF complex and surrounding architecture and can include base-funded amenities such as barbecue grills, tables, benches, lighting, and landscape plant materials.

a) Site Signage

Exterior signage shall be compatible with the architecture of the complex and provide clear directional and informational assistance. A well placed exterior sign, lit and clearly identifying the TLFs, shall be provided at the main approach to the facility. HQ AFSVA shall provide funding for electrical service to this main exterior sign location, although the MAJCOM or installation will be responsible for funding all exterior directional or informational signage. Required site signage, including parking and street signs, shall be funded as part of the project. All signage shall be in accordance with the installation signage program, [accessibility](http://afpubs.hq.af.mil/pubfiles/af/32/afpam32-1097/afpam32-1097.pdf) requirements, and AFPAM 32-1097, Sign Standards Pamphlet (<http://afpubs.hq.af.mil/pubfiles/af/32/afpam32-1097/afpam32-1097.pdf>).

b) Fencing

Fencing may be necessary on the TLF site based upon location and surrounding facilities. Any fencing, similar to screening material, shall be compatible with the TLF complex and surrounding architecture and in compliance with base standards. The installation or MAJCOM shall be responsible for funding any fencing required with the exception of temporary construction fencing.

c) Bicycle Racks

Provide an area with a limited number of bicycle racks as determined by HQ AFSVA and the installation. Racks shall comply with base architectural guidelines.

6. Landscape Design

a) Grading

Grade the site as appropriate to achieve an orderly transition from the site entrance to the first floor elevation. Design the site grading plan with consideration for the impact on the parking and vehicular circulation, the building footprint, bus stop shelters, sidewalks, outdoor passive use areas, mechanical equipment access and trash dumpster enclosures. Maintain natural runoff patterns to the extent possible. Limit disruption of natural water flows by minimizing storm runoff, increasing on-site infiltration and reducing contaminants. Where appropriate, use grading to shield or screen less visually attractive features such as dumpsters and mechanical equipment.

b) Retention Basins

Local building codes or base environmental may require storm water retention. Where on-site retention is required, the location of retention areas must be carefully planned in terms of function, visual impact, and safety. If possible, keep storm water on-site in lieu of draining to collection facilities. Consider controlling storm water at the source by the use of micro-scale features distributed throughout the site. Integrate the landscape design into the stormwater management strategy, creating planted areas that benefit from stormwater while removing pollutants through natural processes.

c) Landforms

Landforms are able to soften the impact of expanses of pavement on the landscape and can be used to add interest and diversity to the project. Use landforms such as mounds and swales in conjunction with landscape plant materials to soften or obscure parking areas, provide spatial articulation or enhance drainage structures and surface water retention areas. Landforms enhance outdoor areas by screening undesirable views.

d) Landscape

Landscape is an integral part of the project design and requires a professional landscape architect working in conjunction with other disciplines to achieve the total design intent for the project. Design landscape and the site plan to retain as many existing trees, shrubs or foliage as possible. Allow for natural storm water management. An intimate knowledge of native plant materials for the region is critical, noting local tree preservation directives and unusual climates. The use of native plants will also minimize the need for chemical pesticides and herbicides used in landscape maintenance. Designs must not include the installation of any poisonous plant materials. Refer to the USAF Landscape Design Guide for further guidance (<http://www.afcee.brooks.af.mil/dc/dcd/land/ldg/index.html>).

e) Landscape Maintenance

Landscape installation requires a professional landscape architect working in conjunction with a professional landscaper. A one year landscape establishment period must be included within the contract documents for the installation and maintenance of plant materials. The establishment requirements must include irrigation, mowing and edging, replacing mulch, inspection and control of pests and weeds, pruning, fertilization maintenance of watering saucers, and tightening, staking and guying materials. Additional pertinent information and information is available in the USAF Master Landscape Construction Specifications (<http://www.afcee.brooks.af.mil/dc/dcd/land/mstrland/mlcs.htm>).

f) Irrigation Development

Where required, provide irrigation systems within 75 feet of facility exteriors for TLF projects developed in arid and semiarid climatic regions. Follow base standards for irrigation systems and consider water supply sources, including non-potable or well water if permitted by state standards. Use bubbler or drip irrigation systems adjacent to building facades to minimize the impact of overspraying. Provide all irrigation systems with solid-state automatic multi-station controllers, state-of-the-art control valves and backflow preventers in accordance with building codes. Include flexible risers, swing-joint arm assemblies, and 15-degree low trajectory heads in moderate wind areas. In cold climates, locate backflow preventers in the mechanical room. Where freezing is not a problem, locate backflow preventers within screened mechanical enclosures. As part of the installation contract, include the maintenance requirement for adjustments to turf spray coverage and duration of watering cycles, as well as repairing leaks and general system maintenance. Water conservation is a high priority in developing an irrigation design. See additional information and guidance contained in the USAF Landscape Design Guide (<http://www.afcee.brooks.af.mil/dc/dcd/land/ldg/index.html>).

C. ARCHITECTURE

1. Exterior Building Design

a) General Considerations

Base architectural design guidelines, surrounding architecture, environment and climate provide the basis for the visual appearance and exterior design of new or renovated TLFs. Consider scale and proportion to provide a residential character. Research and identify historical backgrounds, current mission of the installation, the base general plan and area development planning, other similar or adjacent construction projects, and future missions of the installation. Construction materials and methods shall meet local and governing codes as well as Air Force and DoD requirements.

Construction of three stories or less in height maximizes the efficient use of available land while avoiding the additional fire protection, inconvenience to guests, and structural and life safety costs associated with buildings four or more stories in height. Minimizing exterior wall area where possible reduces construction and life-cycle energy costs.

b) Mass and Scale

Building orientation and overall mass and scale of the surrounding architecture must be considered in developing the exterior architecture of a new or renovated TLF complex. Develop a sense of order, arrival, orientation, and community through repetitive colonnades, recessed alcoves and varied rooflines. Achieve spatial balance and scale through thoughtful placement and arrangement of entrances, corridors, breezeways and exterior building features. Consider expansion possibilities within the architecture as appropriate. Take advantage of the positive features of a site, such as prevailing wind direction and solar patterns. Building placement and design shall also take advantage of views that are scenic, pleasant, or interesting.

c) Architectural Compatibility

The architectural character of the TLF complex must relate not only to the immediate site and adjacent buildings, but also to the surrounding base architecture. The base architectural guidelines provide a basis for compatibility and order within the built environment. The intent of these guidelines is to promote a sense of harmony and respect for local and regional design and architectural characteristics. Additional information on this subject is available in The Air Force Architectural Compatibility Guide (<http://afcee.brooks.af.mil/dc/dcd/arch/ACguide/liveACG/index.htm>).

2. Exterior Materials and Methods

Exterior materials and methods are determined by the base or MAJCOM and must be consistent with the base architectural compatibility standards and guidelines, Air Force and DoD [force protection](#) guidance, [sustainability](#) guidance, climate and environment, and the local method of acceptable construction. Select reliable, conventional building systems, using building materials and finishes that are functional, durable and easy to maintain.

Consider the recycled content requirements for affirmative procurement of products included in EPA's list of guideline items such as insulation, cement and concrete, latex paint, patio blocks, and structural fiberboard. This list will change as EPA adds new items every other year. Federal agencies must purchase products made with recycled materials unless these products do not meet technical requirements, are more expensive than comparable virgin material products, are not available competitively from two or more sources or are not available in a timely manner. The complete list of guideline items and their recycled content requirements is found on the EPA website (<http://www.epa.gov/cpg/products>).

a) Exterior Finish Materials

Brick veneer, split faced or ribbed CMU, exterior insulation finish systems (EIFS) and stucco have been used successfully as a primary exterior wall finish.

b) Roofing

Coordinate with installation architectural compatibility guidance to determine acceptable roofing types and materials. TLF roofs, unless by exception, shall be designed to slope, using a standing seam metal roof as the standard material selection. The use of this material and sloped design will ensure positive roof drainage, provide a more residential image than a flat roof system and provide excellent performance characteristics. A concrete tile roof is another recommended alternative. Avoid using tapered roof insulation to achieve slope. Coordinate exterior location of plumbing exhaust vents to minimize roof penetrations and lessen the visual impact on exterior TLF elevations.

c) Exterior Doors

Exterior entrance doors to TLF units shall be self-closing, metal, 6-panel or flat and equipped with one 180-degree one-way viewers (two viewers shall be provided in accessible units), permanently-locked doorknobs, deadbolts and electronic swipe card (match base system) lock sets. If an electronic locking system does not exist at the base, provide a complete system, including the system at the Lodging reception desk. Assure that the statement of work for the locking system software is compatible with the Lodging Touch computer system.

All entrance doors shall meet [accessibility](#) requirements and all exterior doors to common areas shall be a minimum of 910mm (3 feet) in width. Main entrance doors into the building shall be sensor operated. Designated exit doors must be equipped with operable panic hardware. Alarms shall be installed at all remote exit doors.

d) Windows

Windows shall be double paned, operable, with removable screens. Window type, construction, glazing, color and tint shall match the base standard dependent on the regional area of construction and climate, but shall not be constructed of less than heavy duty residential grade materials. Coordinate with the base or MAJCOM regarding Air Force and DoD force protection guidance for individual TLF projects. Reference USAF Force Protection Design Guide <http://www.afcee.brooks.af.mil/dc/dcd/arch/force.pdf>, AFI 31-210, USAF Antiterrorism/Force Protection (AT/FP) Program Standards (<http://afpubs.hq.af.mil/pubfiles/af/31/afi31-210/afi31-210.pdf>) and the Draft DoD Antiterrorism/Force Protection Construction Standards, 20 Aug 2001 (reference [Chapter 5](#) of this guide for an acrobat version of standards). Consider specifying Energy Star labeled windows for energy conservation.

Qualifying

products are listed on the Energy Star website (<http://www.energystar.gov/products/windows>). In specific TLF projects, bedroom windows may be used as a secondary means of egress and shall be sized accordingly. Consider the potential safety hazard of children when placing bedroom windows on the upper stories.

The construction contractor is responsible for providing the window construction, including the window, window surround, solid surface sill, and blocking as required (CF/CI). Blocking shall be provided by the construction contractor to hang drapery rods above all windows, width of the window and extending 12" minimum (16" if possible) on each side of the window opening to hang drapery rods, allowing drapes to stack for full window exposure. Blocking shall also be provided by the construction contractor at the kitchen windows for installation of mini-blinds.

e) Elevators

Elevators are required for all multistory buildings. Specify the elevator based on projected capacity and base standard. Size the elevator to accommodate accessibility requirements, furniture moves and emergency stretchers.

f) Attics/Basements

Attic access is required and shall be fire protected if determined by applicable code. Storage in attic areas and basement construction shall not be provided.

g) Exterior Building Signage

All signage shall be in accordance with the installation signage program, [accessibility requirements](#), and AFPAM 32-1097, Sign Standards Pamphlet (<http://afpubs.hq.af.mil/pubfiles/af/32/afpam32-1097/afpam32-1097.pdf>).

Exterior signage shall be compatible with the architecture of the TLF complex and the installation architectural guidelines. Building signage shall be funded as part of the TLF project and shall provide clear directional and informational assistance.

Provide clearly visible exterior directional signage and TLF living unit signage. Mechanical, electrical and/or utility room doors shall have identifying signage to match.

D. INTERIOR DESIGN

1. General Considerations

a) Standard Floor Plans

Standardized TLF floor plans exist for use in all new TLF construction, including interior entrance and exterior entrance one bedroom, two bedroom, and two bedroom accessible unit plans. Each living unit includes a full kitchen with dining area, washer/dryer area, full bath, living room, storage closets, and either one or two bedrooms.

Typical support building [floor plans](#) are also provided in the guide. Based on the scope of each individual project, the requirement for support services may be included as part of a TLF building or may be a stand-alone facility. This requirement is discussed further later in this chapter.

b) Relationships

Three basic functions that must be addressed when designing TLF projects: residential, recreation, and service. Designers must fully understand the relationships between these interactive functions and take a holistic approach to creating a fully integrated facility.

(1) Residential

TLF units are residential facilities. Activities include sleeping, resting and relaxation, personal hygiene and grooming, personal cooking (full kitchen), and personal study.

(2) Recreation

Recreational activities are essential and include television viewing, outdoor relaxation areas, playground access and on-base recreation resources. TLFs are within close proximity to community facilities (Base Exchange, commissary and clubs), the Child Development Center (CDC), the Youth Center and if possible, with ready access to schools.

(3) Service

Service activities allow the facilities to operate efficiently and include housekeeping, administration, linen storage/exchange, parking, delivery and dumpster access. Requirements for support building/areas are included later in this chapter.

2. Functional Area Requirements

Primary design considerations are presented for each required functional area, indicating the anticipated use, performance, organization, character, and relationships of specific areas. Criteria for size and critical dimensions, storage requirements, furnishings and equipment, and technical requirements are included.

The standards provided are typical for CONUS locations. OCONUS requirements may vary based on local practices.

The design and configuration of TLFs shall employ the concepts of a limited service private sector hotel—i.e., a hotel that does not have food and beverage capability.

Reference Building Systems, [Chapter 3](#), for system requirements and standards.

a) General Requirements

General Features

- Net square footage measurements shall be used to allow for varying exterior wall thickness
- Provide accessible site and support functions, accessible entrances at all TLF units, and 1 fully compliant living unit for each 20 units (5% of all units)
- Provide finishes and materials for the [Structural Interior Design \(SID\)](#) of the TLF unit to follow the standards established by HQ AFSVA/SVOHL and to blend with the [Comprehensive Interior Design \(CID\)](#) packages referenced in [Chapter 4](#) of this guide
- Ceiling height shall be a minimum 2.4m (8'0") and shall be painted gypsum wallboard. Lay-in acoustical tile ceiling systems with exposed suspended grids shall be specified for use in utility and service/storage areas only.
- Provide furring strips with a gypsum wallboard finish if CMU construction is used for exterior walls or interior partitions. All walls shall be painted gypsum wallboard
- Provide blocking for all wall or ceiling mounted cabinets, equipment, and furnishings

- Provide sound attenuation (55 STC) between units and corridors.
- Entrance vestibules and corridors are the only allowed interior common space
- Provide vinyl corner guards on all exposed wall corners of the living room/kitchen/dining areas, 48 inches high from the top of the base.
- Exceptions to some of these requirements are only permitted in the case of varying local code requirements, and when purchasing locally obtained appliances (CONUS vs. OCONUS). Verify with HQ AFSVA/SVOHL/SVXFB.

Electrical/Mechanical Requirements

- Provide exterior lighting of parking areas, building entrances, and walkways
- Provide one exterior light fixture outside of each living unit entrance door, clearly illuminating the room number and entrance area
- Locate ceiling fans with integral light kits in the center of room ceilings. Coordinate the location of sprinkler heads and down lights, per applicable code, such that neither is located within an appropriate distance of the sweep of the fan blades
- Locate outlets and switching as indicated on floor plans provided and per applicable code.
- Locate the electrical panel in a discreet, safe location. Electrical panels shall have a factory finish to match adjacent finish color.
- Conceal all wiring; exposed wire mold or conduit shall not be used
- Back-to-back duplex electrical outlets between TLF units shall not be used to avoid sound transmissions and as per applicable codes.
- Locate electrical switches along user pathway; provide backlit 3-way switches as appropriate
- All electrical outlets in standard TLF units shall be mounted 305mm (12 inches) above floor level to centerline. All exterior outlets shall be waterproofed and ground fault interruption (GFI) protected. Mount all light switches at 1220 mm (48 inches) above finish floor to the center of the switch. Mount accessible electrical outlet, cable and phone outlets, and light switches per applicable code
- Place electrical outlets to allow convenient connection of the individual fixtures/lamps specified in the CID package referenced in this guide
- Locate telephone jacks or provide additional jacks for maximum flexibility. Locate adjacent to electrical receptacles
- Provide access panels to all interior utility connections discreetly to minimize maintenance workers having to cut or otherwise deface finish surfaces
- Provide smoke detectors in each sleeping room and living room; hard-wired, not alarmed to fire department
- Provide accessible units with appropriate notification devices.
- Provide manual fire alarm pull stations on exterior of building adjacent to each unit or at building entrance doors as required by local fire code
- Provide all units with wet pipe sprinkler systems (concealed heads)

- Allow for easy, future upgrades to data and communications cables and allow for fiber optic cable for communications
- Provide individual controlled heat and air conditioning systems within each TLF unit.
- Provide POV block heaters with projects in northern climates
- A monitoring connection to a EMCS for utilities consumption may be funded by the base or MAJCOM, but shall not provide management or control of the systems
- Provide 1 water meter and 1 electric meter for the TLF complex

Equipment/Furnishings

- Reference the TLF [Equipment List](#) included in [Chapter 4](#) of this guide for equipment specifications and design basis products to be included in TLF projects
- The [Comprehensive Interior Design \(CID\)](#) Interior Finish and Furnishing Options referenced in [Chapter 4](#) of this guide provides furniture sizes, quantities and specifications for coordination during design and construction of TLF projects
- Exceptions to some of these requirements are only permitted in the case of varying local code requirements, and when purchasing locally obtained appliances (CONUS vs. OCONUS)

b) Living Room

General Features

- Provide finishes and materials for the [Structural Interior Design \(SID\)](#) of the TLF unit to follow the standards established by HQ AFSVA/SVOHL and to blend with the [Comprehensive Interior Design \(CID\)](#) packages referenced in [Chapter 4](#) of this guide
- Note that the living room area counts as part of the net living area while also serving as a sleeping room, and identify any code conflicts
- Provide carpet with carpet base as specified in the CID package developed by HQ AFSVA/SVOHL for TLF projects
- Walls and ceilings shall be painted gypsum wallboard
- Provide blocking in walls and ceilings for all wall/ceiling supported items specified in the CID and SID packages, including the installation of sheer and blackout draperies and rods, extending a minimum of 12" past each window jamb, 16" if possible
- Provide vinyl corner guards on all exposed wall corners of the living room/kitchen/dining areas, 48" high from the top of base

Electrical/Mechanical Requirements

- Provide recessed can lighting with dimmer switches as primary lighting source. Do not rely solely on table lamps for room lighting.
- Provide control to one light within the living room by a individual wall switch located adjacent to the TLF unit entrance door.
- Provide control to the table lamps in the living room by an individual wall switch located adjacent to the TLF unit entrance door.
- Provide ceiling fans with integral light kits. Adjustments to operate the

light and fan separately shall be controlled with wall switches/knobs that are easily identifiable and conveniently located

- Provide a cable TV outlet on the opposite side of wall from the dining room table adjacent to a duplex outlet
- Provide a minimum of 2 duplex outlets on sofa wall, 1 duplex outlet at the window, 2 duplex outlets at the TV cable location, and 1 quadraplex outlet at the desk mounted above standard desk height of 29"
- Provide RJ-11 telephone jacks with CAT 5 cable—1 on the sofa wall, and two RJ-11 jacks in a single outlet (one labeled “phone” and the other “data port”) at the desk adjacent to the quadraplex electrical receptacle, both located in the wall above the top of the desk for convenient access with computers

Equipment/Furnishings

- Reference the TLF [Equipment List](#) included in [Chapter 4](#) of this guide for equipment specifications and design basis products to be included in TLF projects
- The [Comprehensive Interior Design \(CID\)](#) Interior Finish and Furnishing Options referenced in [Chapter 4](#) of this guide provides furniture sizes, quantities and specifications for coordination during design and construction of TLF projects

c) Bedroom

General Features

- Provide finishes and materials for the Structural Interior Design (SID) of the TLF unit to follow the standards established by HQ AFSVA/SVOHL and to blend with the Comprehensive Interior Design (CID) packages referenced in Chapter 4 of this guide
- Provide privacy lock for bedroom 1 (master bedroom) in the two bedroom units and for the bedroom in the one bedroom units
- Provide carpet with carpet base as specified in the CID package.
- Walls and ceilings shall be painted gypsum wallboard
- Provide blocking in walls and ceilings for all wall/ceiling supported items to support the furniture specified in the CID and SID packages, including the installation of sheer and blackout draperies and rods, extending a minimum of 12" past each window jamb, 16" if possible
- Provide blocking in the wall or ceiling of the accessible unit for television/bracket mounting

Electrical/Mechanical Requirements

- Provide a ceiling fan with integral light kit; fan and light to switch separately
- Provide 2 duplex outlets on the head wall of the master bedroom, 1 duplex outlet in the center of the head wall of bedroom 2 (in the 2 bedroom units), 2 duplex outlets on the dresser wall, and 2 duplex outlets on the window wall, mounted 305 mm (12 inches) above the floor
- Provide 1 RJ-11 telephone jacks with CAT 5 cable beside the bed in the master bedroom adjacent to a duplex outlet
- Provide a cable TV outlet on the wall opposite the bed location adjacent to a duplex outlet in all bedrooms. In accessible living units, allow for the

installation and mounting of a television either from a wall or ceiling bracket. Outlets shall be located at the appropriate height as determined by the television size and location.

Equipment/Furnishings

- Reference the TLF [Equipment List](#) included in [Chapter 4](#) of this guide for specifications and design basis products to be included in TLF projects
- The [Comprehensive Interior Design \(CID\)](#) Interior Finish and Furnishing Options referenced in [Chapter 4](#) of this guide provides furniture sizes, quantities and specifications for coordination during design and construction of TLF projects

d) Bathroom

General Features

- Provide finishes and materials for the [Structural Interior Design \(SID\)](#) of the TLF unit to follow the standards established by HQ AFSVA/SVOHL and to blend with the [Comprehensive Interior Design \(CID\)](#) packages referenced in [Chapter 4](#) of this guide
- Provide 12" x 12" porcelain tile flooring with cove tile base and epoxy grout as specified in the CID package
- Walls and ceiling shall be painted water resistant gypsum board
- Provide a solid surface vanity counter with integral sink, 4" back splash and eased edges for the standard living unit
- Provide a cabinet base beneath the vanity counter in the standard living units, to be all plywood or solid wood construction with hidden hinges, integral routed pulls, raised panel solid wood doors and drawer fronts, and fixed shelving, stained to match case goods as specified in the CID package.
- Provide a full-width, full-height mirror above the vanity counter in the standard living unit and above the wall-hung lavatory in the accessible living unit
- Provide a high quality metal medicine cabinet, with a wood face and mirror, mounted on the side wall near the vanity counter. Wood face shall match the cabinet base and case goods as specified in the SID package.
- Provide commercial standard solid surface tub surround material, seamless, with recessed soap dishes and two recessed 12" l x 12" w x 4" d shelves on the rear of the long wall, sloped for drainage. Locate one low shelf to align with the soap dish and one high shelf at 60" above the finished floor.
- Provide a screw-in shower rod above the tub. Sliding doors shall not be provided
- Provide blocking in the tub walls of all units for installation of grab bars. Additionally, provide blocking in the tub walls the accessible units for installation of a shower seat and blocking in the walls adjacent to the toilet for installation of grab bars per applicable code.

- Provide grab bars on the side wall and rear wall of tub at 36" above finished floor in all TLF living units.
- Provide grab bars adjacent to toilet and a shower seat in the tub of all accessible living units as per applicable code.
- Provide privacy access hardware on door to tub/toilet area in standard living units and on bath door in accessible living units.
- Provide toilet accessories to include one robe hook, 24" towel bars for 5 (one bedroom unit) or 7 (two bedroom unit) service towel sets and one single roll toilet paper holder. Provide blocking in walls as required.
- Provide a retractable clothesline at tub area.

Electrical/Mechanical Requirements

- Provide a lavatory in the accessible unit in lieu of a counter and cabinet base. Insulate the pipes and maximize knee space as per applicable code.
- Provide a cast iron bathtub, white, with a non-slip surface in all units
- Locate faucet, shower head and controls on interior wall to allow for placement of plumbing access panel
- Shower head shall have adjustable spray; hand-held with adjustable pole mount, brass components
- Provide a white, floor mount, tank type, elongated toilet bowl with full seat and lid.
- Provide recessed can lighting in a gypsum board soffit over the vanity area in all units
- Provide a surface mounted wet location light fixture centered above the tub area in all units
- Provide an independently switched ceiling mounted exhaust fan to the exterior and radiant heat/light fixture with timer in the toilet/tub room of the standard living units and in the main bath area of the accessible living units
- Provide duplex convenience outlets (GFI) both sides of vanity, as per applicable code, and to satisfy guest requirements with a minimum of 4 locations
- OCONUS locations may not allow outlets in the bathrooms and should be confirmed during the design process
- Coordinate ductwork locations to use soffit areas in bathrooms (coordinate with recessed light locations)

Equipment/Furnishings

- Reference the TLF [Equipment List](#) included in [Chapter 4](#) of this guide for specifications and design basis products to be included in TLF projects
- The [Comprehensive Interior Design \(CID\)](#) Interior Finish and Furnishing Options referenced in [Chapter 4](#) of this guide provides furniture sizes, quantities and specifications for coordination during design and construction of TLF projects

e) Closets

General Features

- Provide finishes and materials for the [Structural Interior Design \(SID\)](#) of the TLF unit to follow the standards established by HQ AFSVA/SVOHL and to blend with the [Comprehensive Interior Design \(CID\)](#) packages referenced in [Chapter 4](#) of this guide
- Provide carpet with carpet base as specified in the CID package developed by HQ AFSVA/SVOHL for TLF projects
- Walls and ceilings shall be painted gypsum wallboard
- Each bedroom area must have closet space
- Provide a regular, full height, full-size closet rod (1-1/4" diameter galvanized pipe) with a coated wire shelf above on one side of shelving tower in all bedroom closets, two rows of half-height on the other. The total length of hanging space must not be less than 2.4m (8 feet). Closet depth shall be no less than 24"
- Provide a regular, full height, full-size closet rod (1-1/4" diameter galvanized pipe) with a coated wire shelf above on one side of shelving tower in all accessible unit bedroom closets, and a full-size closet rod with a coated wire shelf above installed at 4'-6" above the floor on the other
- Provide coated wire shelving and a coated wire 'central tower' at the center of the 12-foot closet span
- Provide adequate blocking for all wall-mounted accessories including an iron and ironing board in the living room closet, and all coated wire shelving and central tower in bedroom closets

Electrical/Mechanical Requirements

- Provide 48" fluorescent light fixture(s) on the closet ceiling with a rocker switch location outside of the closet
- Coordinate ductwork locations to use soffit areas in closets if required

Equipment/Furnishings

- Reference the TLF [Equipment List](#) included in [Chapter 4](#) of this guide for specifications and design basis products to be included in TLF projects
- The [Comprehensive Interior Design \(CID\)](#) Interior Finish and Furnishing Options referenced in [Chapter 4](#) of this guide provides furniture sizes, quantities and specifications for coordination during design and construction of TLF projects
- Provide a permanent garment bag hook located either in the closet itself or on the outside wall of the closet

f) Kitchen/Dining Area

General Features

- Full kitchens are an integral part of all TLF units, and include a dining area for 5 persons in one bedroom units and dining area for 7 persons in two bedroom units
- Provide finishes and materials for the [Structural Interior Design \(SID\)](#) of the TLF unit to follow the standards established by HQ AFSVA/SVOHL and to blend with the [Comprehensive Interior Design \(CID\)](#) packages referenced in [Chapter 4](#) of this guide

- Provide 12" x 12" porcelain tile flooring with cove tile base and sealed tile grout as specified in the CID package
- Walls and ceiling shall be painted gypsum board
- Provide solid surface counters with eased edges, an integral full height backsplash and integral 4" side splashes
- Provide all plywood or solid wood construction cabinets and counters with hidden hinges, integral routed pulls, raised panel solid wood doors and drawer fronts, and fixed shelving, stained to match case goods, underside of wall cabinets to be completely finished
- Accessible units shall have pull out shelving and work areas, 34" high countertops (coordinate with dishwasher), and other requirements as necessary to comply with the applicable accessible codes
- Provide wood cabinets over washer/dryer with shelf spacing for laundry products in all accessible living units to match kitchen cabinets
- In renovation projects, configurations that force the user to face the wall are not permitted
- Provide a separate lock and key for the HVAC closet door for service access only
- Provide mini-blinds at the kitchen windows with a wand tilt, cord drawn operation

Electrical/Mechanical Requirements

- Provide a 2-compartment kitchen sink, standard depth, 18 gage brushed stainless steel, satin finish, with a gooseneck single-lever faucet and integral spray hose for standard living units
- Provide a 2-compartment rear-drain kitchen sink, 18 gage brushed stainless steel, satin finish, depth to meet applicable codes, with a gooseneck single-lever faucet and integral spray hose for accessible living units
- Provide fluorescent task lighting of at least 75 foot candles under wall-mounted cabinets with no exposed wiring on surfaces or fixtures protruding into cabinets; include trim piece to hide under cabinet light fixtures and completely finish the underside of wall cabinets
- Provide a soffit with recessed can lighting over the sink
- Provide four recessed can light fixtures in kitchen as path lighting
- Provide backlit 3-way switches at the living unit entrance door and adjacent to the master bedroom entrance so that the kitchen/dining area lighting is controlled at either location
- Limit the types of lamps necessary to simplify inventory
- Locate convenience duplex outlets above counter/table height, GFI where appropriate, as per applicable code, and as a minimum one over the dishwasher, one between the range and sink and one between the range and refrigerator

- Locate electrical outlets as required to service appliances including the exhaust hood, range, dishwasher, disposal, washer, dryer, and refrigerator.
- Provide RJ-11 telephone jacks with CAT 5 cable—two RJ-11 jacks in a single outlet (one labeled “phone” and the other “data port”) at the dining room table adjacent to a quadraplex electrical receptacle, both located in the wall above the top of the table for convenient access with computers
- Provide two pendant light fixtures in the ceiling centered above the dining table
- Coordinate location of dryer, kitchen , and bath exhaust vents on exterior of units and away from windows
- Coordinate ductwork locations to use soffit areas above kitchen cabinets (coordinate with recessed light locations)
- Provide a filtered water line to the refrigerator icemaker adjacent to a duplex receptacle.

Equipment/Furnishings

- Reference the TLF [Equipment List](#) included in [Chapter 4](#) of this guide for specifications and design basis products to be included in TLF projects
- The [Comprehensive Interior Design \(CID\)](#), Interior Finish and Furnishing Options referenced in [Chapter 4](#) of this guide provides furniture sizes, quantities and specifications for coordination during design and construction of TLF projects
- Purchase appliances meeting Energy Star program standards and specifications as included in this guide. Qualifying products are listed on the Energy Star website (<http://www.energystar.gov/products>).
- All appliances shall be electric, white as specified

g) Building Entrances

General Features

- Provide extremely durable finishes and materials for the [Structural Interior Design \(SID\)](#) of the TLF unit to follow the standards established by HQ AFSVA/SVOHL and to blend with the [Comprehensive Interior Design \(CID\)](#) packages referenced in [Chapter 4](#) of this guide
- Building entrances provide a first impression and shall be clutter-free, welcoming and pleasant
- Designs should provide a transition from the exterior to the interior through the use of materials and lighting.
- Provide neutral colored nonskid natural stone as specified in the CID package for the floor surface and wall base material for building entrance areas. Porcelain paver tiles and base are a second alternative
- Ceilings shall be painted gypsum wallboard
- Walls shall have a vinyl wallcovering to match corridors with vinyl chair rails and vinyl corner guards on all exposed wall corners
- Provide easily read, appropriately scaled signage to assist with direction. All signage should meet ADAAG/UFAS requirements
- Provide well placed artwork to create interest in the lobby and entrance areas
- Provide a niche for the luggage cart at entrance

Electrical/Mechanical Requirements

- Coordinate lighting selection with the CID packages referenced in this guide
- Use of natural light in combination with incandescent or fluorescent lamps is encouraged to provide a comfortable lighting level
- Provide recessed lighting in locations that will highlight elevator doors, directories, artwork, and other items of interest

Equipment/Furnishings

- Reference the TLF [Equipment List](#) included in [Chapter 4](#) of this guide for specifications and design basis products to be included in TLF projects
- The [Comprehensive Interior Design \(CID\)](#) Interior Finish and Furnishing Options referenced in [Chapter 4](#) of this guide provides furniture sizes, quantities and specifications for coordination during design and construction of TLF projects
- Discreetly locate the fire alarm system annunciator panel while allowing easy access in emergencies
- For emergency purposes in both interior and exterior entry designs, install one house phone adjacent to entrance areas in each building that connects to the lodging office only. Provide a recessed and less visually prominent location

(h) Corridors

General Features

- Provide extremely durable finishes and materials for the [Structural Interior Design \(SID\)](#) of the TLF unit to follow the standards established by HQ AFSVA/SVOHL and to blend with the [Comprehensive Interior Design \(CID\)](#) packages referenced in [Chapter 4](#) of this guide
- Corridors must convey a strong visual statement of residential comfort and warmth and shall enhance the residential character of the TLF building
- Develop carpet “islands” with center pattern designs surrounded by carpet borders running perpendicular to the walls to shorten long corridors
- Lighting, recessed alcoves, and small dropped soffit areas shall be designed to follow these carpet borders enhance the vertical features and provide balance. Ceilings shall be painted gypsum wallboard.
- Provide vinyl wall covering in corridors with a vinyl chair rail, high baseboards to keep service carts off walls and carpet, and vinyl corner guards on all exposed wall corners
- Provide windows at the ends of interior corridors or at corners and intersections if possible, but do not use glass to the floor.

Electrical/Mechanical Requirements

- Integrate 305 x 1219 mm (12" x 48") lighting fixtures, installed perpendicular to the corridor walls, to visually shorten a long corridor
- Consider wall washers for light fixtures if corridors are narrow, visually pushing the wall outward
- Highlight artwork, recessed alcoves or walls for interest with recessed lighting

Equipment/Furnishings

- Reference the TLF [Equipment List](#) included in [Chapter 4](#) of this guide for specifications and design basis products to be included in TLF projects
- The [Comprehensive Interior Design \(CID\)](#) Interior Finish and Furnishing Options referenced in [Chapter 4](#) of this guide provides furniture sizes, quantities and specifications for coordination during design and construction of TLF projects
- Vending/ice machines shall not be provided

i) Support Areas/Buildings

If adequate storage and housekeeping space is not already available for TLF supplies and equipment spares, a separate support building or area shall be provided in the TLF project. This building or area will support housekeeping, clean and soiled linen storage, maintenance and delivery operations, employee office space, storage areas, and break rooms. A typical floor plan is provided with this guide. General features, finishes, and equipment shall match those features defined for the TLF living units as possible.

General Features

Scope

- Under 10 TLF units, a separate facility shall not be provided.
- A small support building shall be incorporated into the project if 10 – 40 TLF units are to be constructed or renovated. A typical small storage building floor plan is provided with this guide.
- A large support building shall be incorporated into the project if 40 or greater TLF units are to be constructed or renovated. Provide 50% greater storage space in each storage room above that defined for a small storage building. Additional bathrooms and locker areas may be required as well as an enlarged break room, but shall be determined during programming based on individual installation requirements.
- The exterior architecture of a separate support building shall be compatible with the TLF architecture and shall be sited as part of the TLF master plan
- Locate electrical, telephone, LAN and cable outlets throughout the support building/area in a manner that maximizes the flexibility of the furniture and equipment placement.

Site Issues

- Provide a central point for deliveries for the TLF complex
- Provide truck access at same elevation as supply building (Loading docks are not required)
- Provide parking for staff: minimum of 2 spaces, but not to exceed 10 percent of the number of TLF units
- Provide dumpster access
- Provide bollards at warehouse entry/delivery doors
- Provide overhead coil or swinging doors as appropriate for climate
- Provide a maintenance shop if one does not exist in the base Lodging activity
- Provide exterior maintenance equipment storage for grounds

Functional Areas

Bathroom

- Provide one unisex, accessible bathroom for a small support building. Large support buildings may have separate bathroom facilities.
- Provide 12" x 12" porcelain tile and base with epoxy grout
- All walls and ceilings to be painted gypsum wallboard
- Provide toilet accessories to include a toilet paper holder, soap dispenser, framed mirror, waste receptacle, paper towel dispenser, and grab bars as required by applicable code. All materials shall be high quality, non-institutional design, providing a residential appearance.
- Provide a white, floor mount, tank type, elongated toilet bowl with full lid and seat.
- Provide a lavatory, wall hung, with insulated pipes. Maximize knee space per applicable code.
- Provide lighting, venting and electrical outlets as defined for TLF living units.

Housekeeping

- Provide employee lockers in laundry cart room, double tiered, 12"x18"x36" molded plastic fronts. Staffing levels are based on one housekeeper per 10 TLF units.
- Provide area for laundry cart storage and for housekeeping cart storage (could be combined when TLF is single story, exterior entrance)
- Provide sealed concrete floors
- Walls to be painted gypsum wallboard
- Ceilings to be painted gypsum wallboard or 2' x 2' lay-in acoustical tegular tile with exposed ¹⁵/₁₆" suspended grid

Linen Storage

- Provide area for sorting soiled linen
- Provide shelving as required for clean linen storage
- Provide sealed concrete floors
- Walls to be painted gypsum wallboard
- Ceilings to be painted gypsum wallboard or 2' x 2' lay-in acoustical tegular tile with exposed ¹⁵/₁₆" suspended grid

Break Room

- Provide separate break room for local nationals, apart from non-local nationals, as special OCONUS break room requirements
- Provide a solid surface counter top with integral full height splash and 4" integral side splashes
- Provide a filtered water line for the refrigerator ice maker and adjacent duplex receptacle
- Provide a TV cable outlet for a wall mounted 25" television adjacent to a duplex outlet location. Outlets to be located at a height determined appropriate.
- Provide a ceiling fan with integral light kit
- Locate electrical outlets above counter height, GFI where appropriate, as per applicable code, and as required to service appliances, including the disposal, refrigerator, microwave and a 12-cup coffee pot.
- Provide a 2-compartment kitchen sink, 18 gage brushed stainless steel, satin finish, depth to meet applicable codes, with a gooseneck single-lever faucet and integral spray hose

- Provide all plywood or solid wood construction cabinets and counters with hidden hinges, integral routed pulls, raised panel solid oak doors and drawer fronts, and fixed shelving, stained to match case goods.
- Provide blocking in the wall to support a wall-mounted 25" television
- Provide carpet and carpet base in the main lounge area
- Provide 12" x 12" porcelain tile, base and sealed grout in the food preparation area
- All walls and ceilings to be painted gypsum wallboard

Employee Office

- Provide outlets for official business phones and access to the installation LAN for both network computers and printers in accordance with AFI 33-111 and AFI 33-115, Vol. I, Network Management (<http://afpubs.hq.af.mil/pubfiles/af/33/afi33-115v1/afi33-115v1.pdf>). Locate outlets adjacent to electrical outlets in a manner that maximizes the flexibility of furniture placement. Provide a data outlet adjacent to the time clock/time management system.
- Provide a vision panel in door of the employee office space and if possible, allow visual monitoring of bulk storage area and delivery entrance
- Provide carpet and carpet base in the employee office and lounge areas
- All walls to be painted gypsum wallboard
- Provide a 2' x 2' suspended acoustical tegular tile and ¹⁵/₁₆" grid with 2' x 4' fluorescent light fixtures

Corridor

- Provide 12" x 12" porcelain tile, base and sealed grout in the corridor and entrance areas
- All walls and ceilings to be painted gypsum wallboard
- Provide vinyl corner guards on all exposed wall corners

Bulk Storage

- Provide bulk storage room with shelving, eye wash station, and floor drain
- Provide shelving for bulk storage items as required
- Provide sealed concrete floors
- Walls to be painted gypsum wallboard
- Ceilings to be painted gypsum wallboard or 2' x 2' lay-in acoustical tegular tile with exposed ¹⁵/₁₆" suspended grid

Janitor/Supply Closet

- Provide a janitor/supply closet based on 1 area per 12 TLF units/floor. A janitor/supply closet shall not be provided for single story, exterior entry TLF units
- Provide a janitor mop sink
- Provide a mop/broom holder
- Provide shelving for supplies as required
- Provide sealed concrete floors with a floor drain
- Provide an appropriate ventilation to the exterior
- Provide a 30-gallon water heater
- Walls to be painted gypsum wallboard
- Ceilings to be painted gypsum wallboard or 2' x 2' lay-in acoustical tegular tile with exposed ¹⁵/₁₆" suspended grid

Equipment/Furnishings

- Reference the TLF [Equipment List](#) included in [Chapter 4](#) of this guide for specifications and design basis products to be included in TLF projects
- The [Comprehensive Interior Design \(CID\)](#) Interior Finish and Furnishing Options referenced in [Chapter 4](#) of this guide provides furniture sizes, quantities and specifications for coordination during design and construction of TLF projects

3. Structural Interior Design/Comprehensive Interior Design

a) General Requirements

The interior and architectural design of the facility must be integral and related. All TLF design projects must include a [Structural Interior Design \(SID\)](#) and will be provided a [Comprehensive Interior Design \(CID\)](#) package for coordination and implementation. Reference the USAF Interior Design Guides, Chapter 12, SID/CID Presentation Format (<http://www.afcee.brooks.af.mil/dc/dcd/interior/intdespu.htm>).

HQ AFSVA has developed and established 5 themes for TLF interior finishes and furnishings. Each of these themes has 3 color palettes, for a total of 15 options. The base (with HQ AFSVA or MAJCOM assistance) shall select one of the color themes appropriate for its project. The [Comprehensive Interior Design \(CID\)](#) Finish and Furnishing Options are referenced in [Chapter 4](#) of this guide.

The A-E, in coordination with the base, shall specify finish materials and colors for the SID to follow the Design Guide standards established by HQ AFSVA/SVOHL and to blend with the CID packages. The A-E shall coordinate with an interior designer in the selection process and in the development of the SID and the implementation of the CID. The goal is to reflect the sensitivity of management to the needs of the typical TLF guest.

When selecting interior finishes, consider the recycled content requirements for affirmative procurement of products included in EPA's list of guideline items. Federal agencies buying these items must buy products made with recycled materials unless these products do not meet technical requirements, are more expensive than comparable virgin material products, are not available competitively from two or more sources, or are not available in a timely manner. The items in this list related to interior design include carpet and cushion, latex paint, floor tiles, and shower and restroom dividers. This list changes as EPA add new items every other year. The complete list of guideline items and their recycled content requirements is found on the EPA website (<http://www.epa.gov/cpg/products>).

b) Interior Design Considerations

(1) Floors

In carpeted areas, provide matching carpet base with bound trim edge. In high traffic areas such as lobbies, corridors, kitchens and bathrooms, provide 12" x 12" porcelain paver tile with matching tile base and sealed grout. Provide epoxy grout in the bathrooms.

(2) Walls

All interior living unit walls shall be gypsum wallboard painted with a medium sand wall texture. All walls, with the exception of the kitchen and bathroom walls, shall use eggshell enamel. Kitchen walls, bathroom walls, and all trim work shall use semi-gloss.

All interior corridors and entrance areas shall receive vinyl wallcovering as specified in the CID package with integral chair rail and vinyl corner guards to match the interior design package. Corner guards shall be a high quality vinyl, either translucent or color to match wall, to coordinate with the CID package.

(3) Ceilings

All ceilings shall be gypsum wallboard painted flat with a medium sand texture. Lay-in acoustical tile ceiling systems with exposed suspended grid systems shall be specified for use in utility and service/support areas only, as they tend to convey a nonresidential quality and are easily damaged.

(4) Doors

Interior living unit entrance doors shall be solid core wood, ½ hour rated in fully sprinklered facilities, shall meet [accessibility](#) requirements, have peep holes and shall be a minimum of 910mm (3 feet) in width. All interior doors within each living unit shall be solid core wood.

All interior door hardware shall be antique brass, lever style. Doorstops shall be provided for all doors and wall-mounted bumpers provided where possible.

Sliding mirror closet doors shall be provided in bedrooms and shall be full height for easier access to shelving above rod.

Mechanical closet doors within each living unit shall be lockset keyed for maintenance access only.

Interior corridor separation doors shall be solid core wood, ½ hour rated in fully sprinklered facilities, minimum pair of 3' doors, minimum 6' opening, with magnetic holding devices and glass vision panels, size and construction as permitted by applicable code.

(5) Cabinets and Millwork

Built-in cabinets must be well constructed with sturdy hardware and shall meet the requirements of the Kitchen Cabinet Manufacturer's Association (KCMA) standards (<http://www.kcma.org>). Finishes must be able to withstand frequent cleaning and coordinate with the other finish materials. Cabinet colors shall match the case goods specified in the CID packages. Cabinet faces shall be solid wood and use a raised panel surface. Routed tips shall be provided on cabinets in lieu of pulls in the standard living units. Appropriate pulls shall be provided on cabinets in the accessible living units.

(6) Window Treatment

Draperies shall be installed in all TLF unit windows with the exception of mini-blinds in the kitchen windows only. Mini-blinds shall be wand-tilt, cord drawn operation. No other vertical or horizontal blinds are allowed. The drapery lining shall hang independently from the finished drapery treatment and shall have a blackout liner. For ease of cleaning, stack-pleated, roll-pleated or accordion-type pleated drapes shall be used in lieu of pinch-pleated drapery treatment. Traverse rods shall be commercial quality. Draperies, drapery rods and mini-blinds are specified in the CID packages referenced in this guide, and shall be furnished and installed by the government (GF/GI). Blocking shall be provided by the construction contractor to hang drapery rods above all windows, width of the window and extending 12" minimum (16" if possible) on each side of the window opening to hang drapery rods, allowing drapes to stack for full window exposure.

Blocking shall also be provided by the construction contractor at the kitchen windows for installation of mini-blinds.

(7) Furniture Considerations

All furniture is specified and separately funded by HQ AFSVA. Refer to the furniture layouts and CID package references included in this guide and coordinate electrical and required mounting and blocking locations.

(8) Artwork and Accessories

HQ AFSVA shall provide an artwork and accessory allowance for each TLF project to include common areas and individual TLF living units. Coordinate with the installation, MAJCOM, and HQ AFSVA, with final approval by HQ AFSVA. Graphics presentation and content must be well designed, coordinated with the architecture and SID/CID packages, and be compatible with the local geographical culture. Silk plants are authorized for common areas.

(9) Interior Building Signage

Interior signage shall be in accordance with the installation signage program, [accessibility](#) requirements, and AFPAM 32-1097, Sign Standards Pamphlet (<http://afpubs.hq.af.mil/pubfiles/af/32/afpam32-1097/afpam32-1097.pdf>).

All interior signage shall be funded as part of the TLF project.

Signage presentation and content must be well designed, coordinated with the architecture and SID/CID packages.

Provide clearly visible unit numbers for the main TLF entrance doors and individual TLF living unit doors.

E. BUILDING SYSTEMS

Reference [Functional Area Requirements](#) in [Chapter 3](#), Interior Design, for specific design criteria.

Life cycle cost (LCC) and value engineering shall be considered and analyzed for all designs. All practical architectural and building system component alternatives and potential maintenance and operational costs shall be studied. Base the LCC analysis on methodology described in the latest revision of the National Bureau of Standards Handbook (NBS) 135, Life Cycle Cost Manual of the Federal Agency Energy Management Program (contact HQ AFCESA <http://www.afcesa.af.mil/Directorate/CES/default.html> for specific design criteria).

1. Structural

Select an economical structural system based on facility size, projected load requirements, subsoil conditions, local availability of materials and labor, feasibility of prefabrication, local construction practices, and resistance to fire, wind, snow, seismic, geologic, and permafrost conditions. Consult AFI 32-1023, Design and Construction Standards and Execution of Facility Construction Project (<http://afpubs.hq.af.mil/pubfiles/af/32/afi32-1023/afi32-1023.pdf>) and AJMAN 32-1058, Masonry Structural Design for Buildings (<http://afpubs.hq.af.mil/pubfiles/af/32/afji32-1058/afji32-1058.pdf>).

2. Mechanical

a) Life Cycle Costs

Ensure an adequate level of building environmental conditioning at the least life cycle cost (LCC). Base the LCC analysis on methodology described in the latest revision of the National Bureau of Standards Handbook (NBS) 135, Life Cycle

Cost Manual of the Federal Agency Energy Management Program (contact HQ AFCESA <http://www.afcesa.af.mil/Directorate/CES/default.html> for specific design criteria).

b) Energy Consumption

Select, design, and install air conditioning, evaporative cooling, dehumidification, mechanical ventilation, and refrigeration in accordance with energy conservation requirements. Renewable energy technologies shall be used in TLF projects whenever feasible and cost effective. Consider ground-source heat pumps, high-temperature solar, wind, or other energy sources.

c) Acoustics

Careful attention to acoustic design is required for TLF projects to ensure a high degree of privacy for residents within their living units. Provide sound attenuation (55 STC) between units and between units and corridors. Designers must address isolation of noise from a variety of sources, including adjacent living units, units on a floor level above or below, hallways, mechanical rooms and systems, service areas, employee areas, supply delivery/pick-up points, and externally-generated sound such as aircraft and automobile noise.

(d) Heating, Ventilation, and Air Conditioning (HVAC)

HVAC shall be provided in all TLF projects. The design of the HVAC system must comply with the criteria set forth in MIL-HDBK-1190, Facility Planning and Design Guide (Sep 87), Chapter 10, Air Conditioning, Dehumidification, Evaporative Cooling, Heating, Mechanical Ventilation, and Refrigeration (contact HQ AFCESA <http://www.afcesa.af.mil/Directorate/CES/default.html> for specific design criteria). The American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Fundamentals Handbook (<http://www.ashrae.org>) is also a valuable reference.

(1) System Selection

Base selection of HVAC systems on the lowest total life cycle costs, including initial costs, operating costs, energy costs, system maintenance, repair, and component replacement. The HVAC system design must ensure building energy consumption does not exceed DoD energy budget figures. Specify heating and cooling systems meeting Energy Star program standards. Qualifying products are listed on the Energy Star website (<http://www.energystar.gov/products>).

(2) Maintenance

System maintenance is critical to the continued quality of life for guests. While accessing these systems, minimize disruption to guests and maximize servicing efficiency. The mechanical systems must comply with ETL 88-4, Reliability and Maintainability (R&M) Design Checklist (contact HQ AFCESA www.afcesa.af.mil/Directorate/CES/default.html for specific design criteria). Locate HVAC units within the mechanical closet/space to ensure that filters, controls, drain pans, condensate piping, control valves and coils are easily accessible for servicing and cleaning. Equip condensate piping with traps and threaded clean-outs at the unit. Design drawings must detail these features including minimum clearances for maintenance.

(3) Bathroom Exhaust

Equip bathrooms with an individual, directly vented, switched exhaust fan. Base the fan system selection on a life cycle cost analysis.

(4) Unit HVAC Systems

When living units are equipped with individual HVAC units, place ducted vertical fan units within designated mechanical closets or mechanical rooms equipped with lockable doors. Ensure the continuous air vents are sound controlled so sounds in the room do not transfer from one TLF unit to another. Through-the-wall units and units located in the ceiling space are not authorized.

(5) Control Systems

Equip each TLF unit with individually controlled thermostats to allow guests to select the most comfortable level of heating, air conditioning and ventilation (fan only). Each mode of operation will provide minimum outside air requirements.

(6) Piping System

Where air conditioning is authorized using centralized hot and chilled water utilized, individual HVAC units shall be connected to a centralized mechanical system by a 4-pipe hot water and chilled water distribution system to provide positive space control.

(7) Perimeter Fin Tube Heating

In areas where perimeter fin tube heating is utilized, provide temperature control for each zone.

3. Plumbing

a) General

Provide domestic hot and cold water, sanitary and storm drainage, propane or natural gas, steam or hot water, and chilled water as required. Follow the most recent edition of the Uniform Plumbing Code (UPC). Consider solar hot water systems for energy efficiency. Maximize water efficiency by specifying water conserving fixtures, equipment and appliances. Reference Military Handbook 1165 (contact HQ AFCESA <http://www.afcesa.af.mil/Directorate/CES/default.html> for specific guidance). Ensure the following requirements are included in the design:

b) Plumbing Requirements

Provide hot and cold water to bathrooms, kitchen, sinks, janitor closets break rooms, and laundry rooms. Provide copper water supply lines and shut-off valves at all fixtures. Clearly identify hot/cold water on faucets. Tank-type, low water volume toilets are required in all bathrooms. Provide elongated bowl toilets with a closed front seat and a lid.

All bathroom plumbing fixtures exposed (pipes, faucets, etc.) must be first-line chrome-plated brass, manufactured by nationally known manufacturers. Install single-lever mixing valves for lavatory and bath/showers. All tubs and lavatories must have pop-up type waste stoppers. Rubber stoppers are not permitted. Tub/shower valves must be pressure balanced anti-scald type. Use top-quality chrome plated brass.

c) Plumbing Design

Plan plumbing systems for TLFs to take advantage of stacking bathrooms and common wet walls. Mechanical engineers, architects and structural engineers must work together to carefully plan the size and location of plumbing chases with minimal impact on usable living space. Consider collocating plumbing chases with exhaust risers serving each TLF unit. The procedures described in the most current edition of the UPC shall be used in determining water supply and waste line sizes.

Coordinate location of the backflow prevention devices with the master plan and project team. Provide tamper-resistant hose bibs on all exterior walls of each building at 50-foot intervals, freeze proof as dictated by climatic conditions. Provide floor drains in janitor closets.

d) Hot Water Systems

Central hot water domestic systems (gas if possible) shall be specified for all projects to reduce costs and provide better service for guests. The UPC shall be referenced. Size to allow simultaneous showering and dishwashing in individual units, with ten-minute recovery, as per applicable codes. Individual water heaters in each unit shall be considered only for very small projects where the number of units does not warrant a central mechanical room.

The domestic hot water system must have a circulating pump or other approved system installed in-line to provide instant hot water at tap. Provide protection from hot water surges. In the design of central hot water systems, verify that the draw-off requirements for the domestic hot water service shall be determined in accordance with the method recommended in the UPC. The minimum requirements are to allow for simultaneous use of 100% of the showers discharging (maintaining a pressure of 15psi at the showerhead). Hot water shall be stored and circulated at a temperature greater than 140 degrees F but less than 149 degrees F. Minimum hot water storage shall be sized to maintain flow under 100% shower discharge for a five-minute period (total capacity will vary based on number of TLF units). The heat exchangers within the calorifiers shall be capable of raising the contents from 50 degrees F to 149 degrees F in one hour. The temperature of the hot water as it leaves the hot water storage calorifier shall be 140 degrees F.

4. Electrical/Communications

a) General

The electrical design of a TLF project shall be based on maximum TLF unit occupancy. The design shall include electrical distribution equipment, data fax ports, cable television, fire detection and enunciation, emergency egress lighting, interior and exterior lighting, receptacles and grounding, and electric, telephone, and local area network wiring. The following references are recommended for this subject: Life Safety Code, NFPA 101, National Electrical Code, NFPA 70, Electrical Safety Requirements For Employee Work Places, NFPA 70E, Lightning Protection Code, NFPA 78 (<http://www.nfpa.org>), AFMAN 32-1083, Electrical Interior Facilities (<http://www.usace.army.mil/inet/usace-docs/armymtm/tm5-683/fc.pdf>).

The following standards apply to the planning, design, and construction phase of new TLF construction and renovation to existing facilities and systems. These standards will also serve as a checklist for reviewing drawings and specifications for electrical design of TLF projects. Consideration to daily operation and maintenance shall be emphasized. This list shall not be considered complete or all-inclusive, but rather a starting place. Improved concepts and additions shall be added as well as "lessons learned." Cross-exchange of new, improved, more efficient data is encouraged to increase the electrical group knowledge and processes as well as to further minimize life-cycle costs for TLF facilities. (Ensure that 110v, 60hz duplex outlets are provided in TLF units in OCONUS locations, in addition to any differing local standard (i.e., such as the 220/230v, 50hz European standard).)

b) Electrical Design

Floor plans must show the location of all electrical equipment, items, devices, controls, and loads. Construction drawings must include one lines for all electrical equipment (transformers, switching gear, panels, loads, etc) including schedules for all panels, circuits, and loads.

c) Lighting

Provide the highest quality illumination within budget and life cycle cost limitations. Use a combination of ambient and task lighting in living units. Limit surface mounted ceiling lights and fluorescent lighting to utility areas such as mechanical rooms and closets. Ceiling fans with integral lights shall be provided in living room and bedroom areas. Backlit light switches shall be used in bedrooms, sleeping areas and bathrooms to serve as night lights. This requirement is made for safety reasons to aid people who are likely unfamiliar with the room layout.

Specify interior lighting that meets Energy Star program standards. Qualifying products are listed on the Energy Star website (<http://www.energystar.gov/products>). Consider solar-powered exterior luminaires when they meet lighting requirements and are cost effective.

Use the National Electrical Code (<http://www.mikeholt.com/nec/nec.htm>), the IES Lighting Handbook (<http://www.iesna.org>), and NFPA 101 Life Safety Code (<http://www.nfpa.org>) for lighting calculations. Use compact fluorescent lamps (CFL) in all fixtures where the use is appropriate—specify lighting fixtures that will accommodate CFLs. The minimum requirements for each respective area shall be as follows.

- Provide a minimum of 50-foot candles between twin beds, suitable for reading purposes
- Provide one fixture (50-foot candles each) on each side of queen-size beds
- Provide overall ambient lighting in addition to task lighting.
- Provide a minimum of 50-foot candles at the surface of the desk
- Provide a minimum of 30-foot candles at the dresser area
- Electrical cords must not exceed 1.83 m (6 feet)
- Minimum lighting in the bathroom area shall be 20 foot-candles measured at the floor line of the tub/toilet and 50 foot-candles measured at the surface of the vanity

d) Power Supply

Design the power supply to provide 99 percent load availability. Consider dual power supply for each facility, from separate substations, if possible, to increase availability/reliability for these loads. At CONUS and other appropriate locations, provide standard 60 hertz frequency for all possible loads. At OCONUS locations, comply with local code requirements and provide 220v/230v duplex power outlets, in addition to 110v.

e) Corrosion Protection

Include corrosion protection for electrical components in humid/salt air environments. Consider nitrogen purge or refrigeration type dehumidification protection systems depending on size and complexity.

f) Telecommunications

Design and install telecommunications distribution and cabling systems in accordance with the latest Engineering Technical Letter (ETL) on Prewiring, following the requirements of AFI 33-133, Joint Technical Architecture—USAF (JTA-AF) (<http://afpubs.hq.af.mil/pubfiles/af/33/afi33-133/afi33-133.pdf>), and recommendations contained in the JTA-AF Fixed Base Technical Architecture, Vol. 6, Building 1040 Wiring Architecture (contact HQ AFCESA, <http://www.afcesa.af.mil/Directorate/CES/default.html>/Directorate/CES/default.html, for specific design criteria.) Systems shall be designed and installed only by qualified telecommunications personnel.

Provide RJ-11 telephone jacks wired in accordance with TIA/EIA 570 Residential Communications Standard with CAT 5 cable and as authorized in AFI 33-111, Telephone Systems Management (<http://afpubs.hq.af.mil/pubfiles/af/33/afi33-111/afi33-111.pdf>).

Provide cable outlets at TV locations in accordance with AFI 64-101, Cable Television Systems on USAF Bases (<http://afpubs.hq.af.mil/pubfiles/af/64/afi64-101/afi64-101.pdf>).

5. Fire Protection/Life Safety

a) General

Fire protection systems shall comply with Title 15 USC, Chapter 49, Section 2227 and DoD Military Handbook 1008. Based on the Uniform Building Code (UBC), lodging facilities, including TLFs, are classified as efficiency apartments with an R-1 occupancy. Based on the Life Safety Code, NFPA 101 (<http://www.nfpa.org>), this occupancy is classified as an apartment building.

b) Sprinkler Systems

Protect all new construction TLF projects and major renovation projects throughout by an approved supervised automatic sprinkler system installed in accordance with the requirements specified in NFPA 13, Installation of Sprinkler Systems, or NFPA 13R, Sprinkler Systems in Residential Occupancies up to and including Four Stories in Height (<http://www.nfpa.org>) as appropriate and other fire codes referenced therein. Sprinkler water supplies for systems designed IAW NFPA 13 shall comply with the Military Handbook 1008. Ensure adequate space is included in the mechanical room for the sprinkler riser, or if no mechanical room is in the project, a sprinkler riser closet with adequate space to service the riser. Coordinate location of the backflow prevention devices and fire department connections with the master plan and project team.

c) Detectors

Provide living rooms/bedrooms with an approved single station smoke detector powered from the building electrical system. Where ceiling fans are installed, the maximum area of coverage for a smoke detector shall be reduced by 50%.

d) Fire Alarms

Ensure that notification devices (“private mode” type) are easily heard within each TLF units (75dB). This may require additional louder or individual (in each room) notification devices because of the sound attenuating construction found in TLF facilities. Notification devices shall be installed per applicable codes in accessible areas.

e) Fire Resistance Requirements

Requirements for the fire resistance of walls, ceiling and floor assemblies shall be in accordance with the UBC. In addition, minimum fire separation between egress paths, hazard areas, and exits shall comply with the Life Safety Code, NFPA 101 (<http://www.nfpa.org>). Construction of such assemblies must be closely coordinated with the sound attenuating techniques used. Exits such as stair enclosures shall be separated by not less than 1-hour fire resistive construction. Hazard areas including boiler and fuel fired heater rooms, bulk laundries, self service laundries greater than 9.3m² (100SF), maintenance shops and trash collection rooms shall be separated by not less than 1-hour fire resistive construction. Note there is no minimum fire separation between modules or within modules in a fully sprinklered facility.

f) Accessible Areas

Ensure all accessible TLF units or common areas include the installation of a visual alarm system and notification devices following accessibility guidance.



TEMPORARY LODGING FACILITIES DESIGN GUIDE

CHAPTER FOUR

ILLUSTRATIVE DESIGN INFORMATION

4

A. GENERAL CONCEPTS

This chapter contains standardized TLF floor plans, finish and furnishing options, and equipment/appliance schedules that conform to the requirements of this design guide. Use these resources and this design guide in all new TLF construction or renovation projects.

B. FLOOR PLANS

Standardized floor plans developed by HQ AFSVA are included in this design guide or can be accessed through HQ AFCEE Design and Construction (<http://www.afcee.brooks.af.mil/dc/products/dcproducts.asp>). Choice of interior or exterior entrance floor plans, mix of one and two bedroom units, and determination of a stand alone support building or support area within a TLF facility are explained in this guide.

- [Interior Entrance One Bedroom Unit Detailed Floor Plan](#)
- [Interior Entrance Two Bedroom Unit Detailed Floor Plan](#)
- [Interior Entrance Two Bedroom Accessible Unit Detailed Floor Plan](#)
- [Exterior Entrance One Bedroom Unit Floor Plan](#)
- [Exterior Entrance Two Bedroom Unit Floor Plan](#)
- [Exterior Entrance Two Bedroom Accessible Unit Floor Plan](#)
- [Typical Support Building Floor Plan](#)

C. COMPREHENSIVE INTERIOR DESIGN (CID)

The CID finish and furnishings options and specifications are available through HQ AFSVA/SVOHL/SVXF or can be accessed through HQ AFCEE Design and Construction Site (<http://www.afcee.brooks.af.mil/dc/products/dcproducts.asp>)

D. TLF EQUIPMENT SCHEDULE

Contractor Furnished/Contractor Installed (CF/CI) Appliances Standard Living Unit

Equipment	Features/Options/Requirements	Model Basis	Dimensions (note 7)
Washers/Dryers (CF/CI)	stacking, vent kit, white	Whirlpool LTE6234DQ	27 ^{-3/8"} x 32 ^{-1/4"} x 72 ^{-3/4"} 695 x 819 x 1848
Dishwashers (CF/CI)	white front, energy efficient, 5 cycles, high temp wash cycle, quiet, high/low racks, silverware basket, air gap kit, 6' cord	Whirlpool DU900PWKQ	23 ^{7/8"} x 24" x 33 ^{-7/8"} to 34 ^{1/2"} 606 x 610 x 860 to 876
Ranges (cookers with ovens below) (CF/CI)	electric, easy-clean ceramic, top white-on-white, full height backsplash	Whirlpool RF386PXGQ	29 ^{-7/8"} x 25" x 36" (47" top of back) 759 x 635 x 914 (1194 top of back)
Vent Hoods (CF/CI)	white, light kit, 3-speed, 350 CFM, vent to exterior, vent kit/wall cap	General Electric JV635CWW	29 ^{-7/8"} x 20" x 7 ^{-1/4"} 759 x 508 x 184
Refrigerators (CF/CI)	14.4 CF capacity, freezer above refrigerator, reversible doors, icemaker, water filter	General Electric TBX14SYBRWW	28" x 28" x 62 ^{-7/8"} 711 x 711 x 1597
Disposers (CF/CI)	continuous feed operation, 1/2 HP motor, stainless steel swivel impellers, stainless steel sink flange, overload protector with manual reset, plug/cord accessory	Whirlpool GC2000PE	6 ^{-5/16"} dia x 11 ^{-3/8"} 160 dia x 289

Contractor Furnished/Contractor Installed (CF/CI) Appliances
Accessible Unit

Equipment	Features/Options/Requirements	Model Basis	Dimensions (note 7)
Washers (CF/CI)	white, extra-large capacity (2.7 CF), front load, front controls	General Electric WSXH208AWW	26-3/4" x 25-3/4" x 36" 679 x 654 x 914
Dryers (CF/CI)	white, extra-large capacity (5.7 CF), front load, front controls, vent kit	General Electric DSX43EAWW	26-7/8" x 25-3/4" x 36" 683 x 654 x 914
Dishwashers (CF/CI)	white front, 6' cord	Asko D1716	24" x 22-7/16" x 32-1/4" to 34-1/4" 610 x 570 x 820 to 870
Ovens (CF/CI)	electric, reversible side swing door, white-on-white	Frigidaire FEB786CE	26-7/8" x 25-3/8" x 31-1/8" 683 x 645 x 791
Cooktops (CF/CI)	electric, side (or up-front) controls, easy-clean ceramic top, white-on-white, full height backsplash	General Electric JP938WCWW	29-3/4" x 20-7/8" x 3-1/4" 756 x 530 x 83
Vent Hoods (CF/CI)	white, light kit, 3-speed, vent to exterior, vent kit/wall 350 CFM, cap, reach modified controls to lower cabinet	General Electric JV635CWW	29-7/8" x 20" x 7-1/4" 759 x 508 x 184
Refrigerators (CF/CI)	19.7 CF, side-by-side refrigerator/freezer, icemaker, water filter	General Electric TFX20JRBWW	31-1/2" x 32-1/2" x 67-5/8" 800 x 826 x 1718
Disposers (CF/CI)	continuous feed operation, 1/2 HP motor, stainless steel swivel impellers, stainless steel sink flange, overload protector with manual reset, plug/cord accessory; provide rear drain sink to allow knee space	Whirlpool GC2000PE	6-5/16" dia x 11-3/8" 160 dia x 289

Contractor Furnished/Contractor Installed (CF/CI) Appliances
Support Building/Area Break Room

Equipment	Features/Options/Requirements	Model Basis	Dimensions (note 7)
Refrigerators (CF/CI)	19.7 CF, side-by-side refrigerator/freezer, icemaker, water filter	General Electric TFX20JRBWW	31-1/2" x 32-1/2" x 67-5/8" 800 x 826 x 1718
Disposer (CF/CI)	continuous feed operation, 1/2 HP motor, stainless steel swivel impellers, stainless steel sink flange, overload protector with manual reset, plug/cord accessory	Whirlpool GC2000PE	6-5/16" dia x 11-3/8" 160 dia x 289

Government Furnished/Government installed (GF/GI) Items
 Miscellaneous Minor Appliances and Other Items

Equipment	Features/Options/Requirements	Model Basis	Dimensions (note 7)
Microwave ovens (GF/GI)	countertop freestanding unit, 0.7 CF capacity, 700 watts, glass turntable, child lockout, braille overlays, white	Whirlpool MT1071SGQ	19" x 12- ⁷ / ₈ " x 11" 483 x 327 x 279
Vacuum cleaner (GF/GI)			
Iron (GF/GI)			
Toaster (GF/GI)			
Can opener (GF/GI)			
Coffee maker (GF/GI)			
Clock-radio (GF/GI)			
TV/VCP (GF/GI)	25" with built-in VCP		
Furnishings (GF/GI)			
Draperies/ curtains & rods (GF/GI)	width of window + 36" x 8" high x 1- ¹ / ₂ " thick wood blocking installed in wall above all window heads		

General Notes

- The construction contractor or design-build contractor is responsible for buying/ordering, receiving, handling, storage, and installation of all CF/CI items as required. Provide separate costs for all CF/CI items.
- The construction contractor or design-build contractor is responsible for coordination with the government on project completion.
- Government will purchase and install all GF/GI items after project completion.
- All appliances shall be white.
- The construction contractor or design/build contractor shall submit cut/data sheets of proposed equivalents/substitutions appliances for review/approval.
- Provide knee space under accessible unit cooktop.
- Provide knee space under kitchen sink in the accessible living units. (note the sink drains must be at the rear to allow proper accessible knee space clearance).
- Dimensions are W x D x H.
- The construction contractor or design-build contractor shall provide wood blocking in walls (drapery rods, wall hung furnishings, closet rods, kitchen/bath cabinetry, etc, as required for installation of GF/GI listed items).
- Purchase appliances meeting Energy Star program standards and specifications as included in this guide. Qualifying products are listed on the Energy Star website (<http://www.energystar.gov/products>).



TEMPORARY LODGING FACILITIES DESIGN GUIDE

CHAPTER FIVE

RESOURCES AND LINKS

5

This chapter provides a list of references, including other Air Force, Department of Defense and national standards documents that give related guidance, to be used in conjunction with this design guide.

AFPD 32-10 Installations and Facilities

(<http://afpubs.hq.af.mil/pubfiles/af/32/afpd32-10/afpd32-10.pdf>)

AFI 32-1022 Planning and Programming of Nonappropriated Fund Facility Construction Projects (<http://afpubs.hq.af.mil/pubfiles/af/32/afi32-1022/afi32-1022.pdf>)

AFI 32-1023 Design and Construction Standards and Execution of Facility Construction Projects (<http://afpubs.hq.af.mil/pubfiles/af/32/afi32-1023/afi32-1023.pdf>)

AFI 34-246, USAF Lodging Program

(<http://afpubs.hq.af.mil/pubfiles/af/34/afi34-246/afi34-246.pdf>)

AFI 32-1024 Standard Facility Requirements (not available in electronic format)

MIL-HDBK-1190, Facility Planning and Design Guide (contact HQ AFCESA,

<http://www.afcesa.af.mil/Directorate/CES/default.html>)

AFI 32-1032 Planning and Programming Real Property Maintenance Projects Using Appropriated Funds (<http://afpubs.hq.af.mil/pubfiles/af/32/afi32-1032/afi32-1032.pdf>)

AFH 32-1084 Standard Facility Requirements

(<http://afpubs.hq.af.mil/pubfiles/af/32/afh32-1084/afh32-1084.pdf>)

AFI 65-106 Appropriated Fund Support of Morale, Welfare and Recreation and Nonappropriated Fund Instrumentalities

(<http://afpubs.hq.af.mil/pubfiles/af/65/afi65-106/afi65-106.pdf>)

AFI 34-105 Programming for Nonappropriated Fund Facility Requirements

(<http://afpubs.hq.af.mil/pubfiles/af/34/afi34-105/afi34-105.pdf>)

USAF Project Managers' Guide for Design and Construction

(<http://www.afcee.brooks.af.mil/dc/products/pmguide/pmguide.asp>)

AFI 32-7062 USAF Comprehensive Planning

(<http://afpubs.hq.af.mil/pubfiles/af/32/afi32-7062/afi32-7062.pdf>)

AFPAM 32-1010 Land Use Planning

(<http://afpubs.hq.af.mil/pubfiles/af/32/afpam32-1010/afpam32-1010.pdf>)

USAF Landscape Design Guide

(<http://www.afcee.brooks.af.mil/dc/dcd/land/ldg/index.html>)

USAF Master Landscape Construction Specifications

(<http://www.afcee.brooks.af.mil/dc/dcd/land/mstrland/mlcs.htm>)

HQ AFCEE Accessibility Page

(<http://www.afcee.brooks.af.mil/dc/dcd/afada/afada.htm>)

Uniform Federal Accessibility Standards (UFAS)

<http://www.access-board.gov>

Americans with Disabilities Act Accessibility Guidelines (ADAAG)

<http://www.access-board.gov/adaag/html/adaag.htm>

USAF Environmentally Responsible Facilities Guide

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

EPA website

<http://www.epa.gov/cpg/products>

Energy Star website

<http://www.energystar.gov/products>

AFI 31-210, USAF Antiterrorism/Force Protection (AT/FP) Program Standards

<http://afpubs.hq.af.mil/pubfiles/af/31/afi31-210/afi31-210.pdf>

USAF Force Protection Design Guide

<http://www.afcee.brooks.af.mil/dc/dcd/arch/force.pdf>

[DoD Antiterrorism/Force Protection Construction Standards, 20 Aug 2001](#)

The Air Force Architectural Compatibility Design Guide

<http://afcee.brooks.af.mil/dc/dcd/arch/ACguide/liveACG/index.htm>

AFPAM 32-1097 Sign Standards Pamphlet

<http://afpubs.hq.af.mil/pubfiles/af/32/afpam32-1097/afpam32-1097.pdf>

USAF Interior Design Guides

<http://afcee.brooks.af.mil/dc/dcd/interior/intdespu.htm>

Kitchen Cabinet Manufacturer's Association (KCMA) standards

<http://www.kcma.org>

USAF Cost Guides/Handbooks

<http://www.afcesa.af.mil/Directorate/CES/default.html>

AJMAN 32-1058, Masonry Structural Design for Buildings

<http://afpubs.hq.af.mil/pubfiles/af/32/afji32-1058/afji32-1058.pdf>

[Uniform Building Code \(UBC\)](#)

National Fire Protection Association (NFPA)

<http://www.nfpa.org>

[Title 15 USC, Chapter 49, Section 2227 Fire Protection](#)

DoD Military Handbook 1008 – Fire Protection for Facilities

Engineering design and Construction

(contact HQ AFCEA <http://www.afcesa.af.mil/Directorate/CES/default.html>)

National Electrical Code (NEC)

<http://www.mikeholt.com/nec/nec.htm>

Illuminating Engineering Society's Illuminance Selection Procedure (IES)

<http://www.iesna.org>

AFMAN 32-1083, Electrical Interior Facilities

(<http://www.usace.army.mil/inet/usace-docs/armytm/tm5-683/fc.pdf>)

AFI 33-133, Joint Technical Architecture – USAF (JTA-AF)

(<http://afpubs.hq.af.mil/pubfiles/af/33/afi33-133/afi33-133.pdf>)

JTA-AF Fixed Base Technical Architecture, Vol. 6, Building 1040 Wiring Architecture

(contact HQ AFCESA, <http://www.afcesa.af.mil/Directorate/CES/default.html>)

TIA/EIA 570 Residential Communications Standard with CAT 5 cable

(contact HQ AFCESA, <http://www.afcesa.af.mil/Directorate/CES/default.html>)

AFI 33-111, Telephone Systems Management

(<http://afpubs.hq.af.mil/pubfiles/af/33/afi33-111/afi33-111.pdf>)

AFI 64-101, Cable Television Systems on USAF Bases

(<http://afpubs.hq.af.mil/pubfiles/af/64/afi64-101/afi64-101.pdf>)

[Uniform Plumbing Code \(UPC\)](#)

Military Handbook 1165

(contact HQ AFCESA, <http://www.afcesa.af.mil/Directorate/CES/default.html>)

American Society of Heating, Refrigerating and Air Conditioning

Engineers Fundamentals Handbook (ASHRAE)

(<http://www.ashrae.org>)

ETL 88-4, Reliability and Maintainability (R&M) Design Checklist

(contact HQ AFCESA, <http://www.afcesa.af.mil/Directorate/CES/default.html>)

National Bureau of Standards (NBS) Handbook 135, Life Cycle Cost Manual
of the Federal Agency Energy Management Program

(contact HQ AFCESA, <http://www.afcesa.af.mil/Directorate/CES/default.html>)

AFI 32-1066 Plumbing Systems

(<http://afpubs.hq.af.mil/pubfiles/af/32/afi32-1066/afi32-1066.pdf>)