

UNACCOMPANIED PERSONNEL HOUSING FOR JUNIOR ENLISTED MEMBERS

REPORT HCS80T1

Bryan K. Neuhaus
Kristie L. Bissell
Brian H. Greenhalgh
James L. Hathaway
Amita Singh



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Executive Summary

Unaccompanied personnel housing (UPH)—known by a host of terms, including barracks, dormitories, billeting, and quarters—is where most junior enlisted personnel without dependents are housed during their initial training and first few years as members of the armed forces. The military services have built and managed UPH facilities over the decades using a wide range of policies, facility configurations, and management practices.

The Department of Defense (DoD) Office of Housing and Competitive Sourcing (H&CS) wanted a comprehensive review of the services' permanent party UPH programs to collect and summarize program information, including current policies, standards, inventories, condition, plans, and related information; review Office of the Secretary of Defense (OSD) directives and policies on UPH; and recommend improvements in policy and practices to provide and sustain adequate housing for junior unaccompanied service members.

OSD and the services should have a coherent vision of providing housing for unaccompanied service members that

- ◆ eliminates inadequate UPH and properly sustains the rest,
- ◆ implements evolving standards that equal or exceed those of the community, and
- ◆ minimizes the disparity of housing standards between accompanied and unaccompanied service members.

Adopting the following recommendations will help OSD and the services achieve this vision:

- ◆ Treat all housing assets as a single capability that supports the warfighter by consolidating permanent party UPH and family housing under one program that provides comparable quality-of-life facilities and services, regardless of dependency status. This program will manage all housing, including plans, programs, and budgets, from a single funding source to meet all service member housing needs.

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- ◆ Use first-term enlisted members as the target requirement for unaccompanied housing (unless alternative housing sources for higher grades are unavailable). Give unaccompanied second-term and later enlisted members parity with their accompanied peers in housing choices, and make them ineligible for UPH (except for selected noncommissioned officer positions residing in UPH for management and oversight purposes).
 - ◆ Update assignment standards from the current minimum 90 square feet per person to no less than the 1+1 space and privacy standard. This approach will better align assignment practices with intent and current design standards and better meet the privacy expectations of today's junior enlisted member.
 - ◆ For new and replacement UPH, incorporate the standard business practice of analyzing life-cycle costs to support each investment decision, whether in community housing (paying basic allowance for housing), military construction, or privatization (when authorized). Ensure that decisions include realistic sustainability assumptions and flexible features adaptable to evolving configurations and standards for current and future customer needs.
 - ◆ Dedicate adequate sustainment, restoration, and modernization (SRM) funding to sustain existing UPH facilities through their designed life cycle, and require a consistent accountability trail of UPH SRM funds, from appropriation to execution across the services. This will increase housing parity for accompanied and unaccompanied members by making all SRM funding equally accountable.
 - ◆ Establish a standardized, annual UPH customer satisfaction survey program across all services. Obtaining resident feedback with a consistent format and frequency is a common industry "best practice" for quality improvement. Use the results to make UPH a better home for the unaccompanied member and a resource for commanders and managers. Use or modify established programs—such as the Defense Manpower Data Center survey or an existing service survey—to do so.
 - ◆ Establish more consistency among the service UPH master plans. Set a cross-service update schedule. Specify common data reporting requirements in the plans—such as inventory, condition, and deficits or surplus—to provide standard and timely data for analyzing and supporting cross-services UPH policy and other decisions. Synchronize the updates with established OSD strategic (such as the *Defense Installations Strategic Plan*) or budget processes (such as the DoD budget request) that support UPH. Ensure that the updates capture the effects of annual appropriations levels, force structure changes, changes in strategies and policies, and other significant events.

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Preface

To keep the printed report to a manageable size, some lengthy appendixes are located on an enclosed CD. The table below shows the printed appendixes and those available on the CD.

Appendix	Printed	On CD
A. Defense Readiness Reporting System	✓	
B. UPH Facility Inventories and Q-Ratings	✓	
C. Sustainment, Restoration, and Modernization	✓	
D. UPH Room Diagrams	✓	
E. UPH Evolution	✓	
F. Army Reports on Barracks Construction Standards		✓
G. UPH Facility Life Cycle	✓	
H. Draft DoD Directive on Housing Management		✓
I. Facility Rating Programs		✓
J. BAH-MILCON Life Cycle Cost Analysis		✓
K. Strategic Objectives and Budget Request Relationship for UPH	✓	
L. UPH Customer Satisfaction		✓
M. UPH Privatization Site Visits		✓
N. University Housing	✓	
O. Basic Allowance for Housing	✓	
P. The UPH Story Brief		✓
Q. Abbreviations	✓	

Chapter 1

Introduction

Unaccompanied personnel housing (UPH)—known by a host of terms, including barracks, dormitories, billeting, and quarters—is where most junior enlisted personnel without dependents are housed during their initial training and first few years as members of the armed forces. The military services have built and managed UPH facilities over the decades using a wide range of policies, facility configurations, and management practices.

The Department of Defense (DoD) Office of Housing and Competitive Sourcing (H&CS) asked LMI to comprehensively review the services' permanent party UPH programs to

- ◆ collect and summarize program information, including current policies, standards, inventories, condition, plans, and related information;
- ◆ review Office of the Secretary of Defense (OSD) directives and policies on UPH; and
- ◆ recommend improvements in policy and practices to provide and sustain adequate housing for junior unaccompanied service members.

The services, DoD, Congress, and other interested parties all have a stake in military UPH, but it is most important to its occupants, the unaccompanied service members, because it is where they live. They work in the administrative, industrial, operational, and other types of facilities and outdoor environments of their profession, but the UPH is their home.

Some believe today's enlistees come from disproportionately disadvantaged backgrounds, but the demographics of the incoming junior enlisted force refute this opinion. Approximately 99 percent of them have high school degrees (compared with 80 percent of all U.S. males 18–24 years old), and 70 percent come from middle and higher income families (20 percent at \$42,000–\$51,000, 25 percent at \$51,000–\$65,000, and 25 percent at \$65,000–\$246,000).¹ These are the men and women who live in UPH. The condition and management services of UPH affect their morale and well-being, as well as their performance and readiness, and influence recruitment and retention—important issues in today's all-volunteer force environment.

¹ The Heritage Foundation, Center for Data Analysis, *Who Serves in the U.S. Military? The Demographics of Enlisted Troops and Officers*, CDA08-05, August 21, 2008.

Variation in UPH programs across the services—including terminology and nomenclature—is long established. UPH is known by many names and serves several different groups of unaccompanied service members. Different terms have developed over the years, but they are not consistent throughout the services, contributing to confusion and misunderstanding, especially for entities external to OSD. Table 1-1 shows a sample of terms used for UPH from various official documents and testimony. We use the term UPH in this report to refer to facilities that house permanent party unaccompanied junior enlisted personnel, focusing on those in the United States.

Table 1-1. Service-Specific Terms for UPH

Type of UPH	Air Force	Army	Marine Corps	Navy
Permanent party	Dormitory	Permanent party barracks	Barracks	Barracks
		UPH	UPH	UPH
		Unaccompanied enlisted personnel housing	BEQ Bachelor housing	BEQ Bachelor housing
Recruit training	Dormitory	Barracks	Barracks	Dormitory
Trainee (other than recruit)	Dormitory	Training barracks	Transient billeting	Dormitory
		Student billeting	Bachelor billeting	
Temporary duty (TDY)	Lodging	Transient UPH	Transient quarters	Transient bachelor housing
	Visiting quarters	Transient lodging		
		Billeting Army lodging		
Guard and reserve	Lodging	Reserve barracks	Billeting	BEQ
	Billeting	Mobilization barracks		Billeting
		Reserve component annual training		
		Billeting barracks		

Note: BEQ = bachelor enlisted quarters.

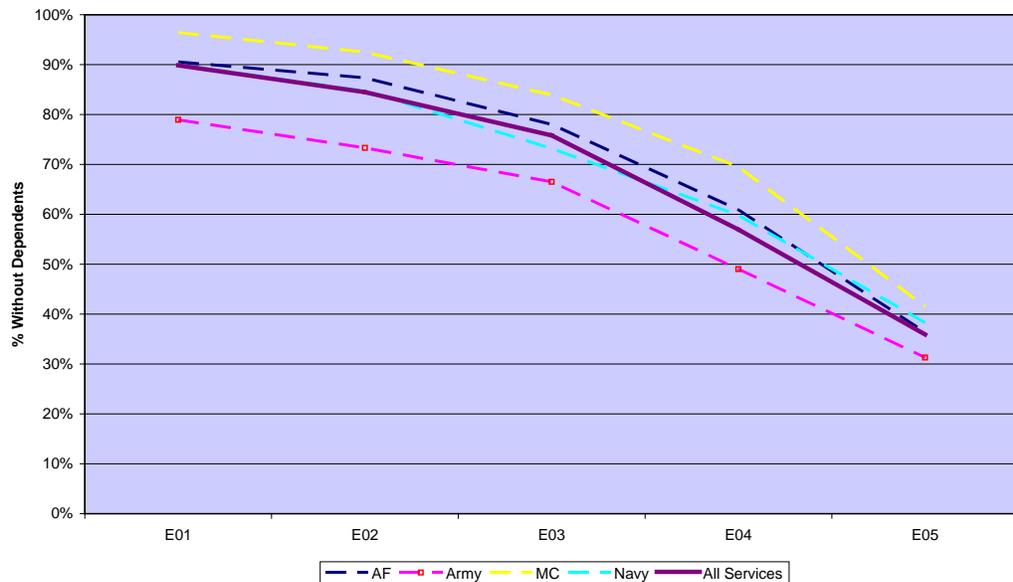
BACKGROUND

Understanding the evolution of UPH—as well as its current standards, requirements, management, inventory, and other factors—gives us a more comprehensive perspective of today’s UPH inventory and requirements, and how and why it is managed and used as it is.

Virtually all service members in the United States who have dependents are entitled to a basic allowance for housing (BAH) and have great latitude to choose where they live, whether in government quarters, privatized housing, or local community housing. Unaccompanied service members—those without dependents—above designated paygrades are also entitled to BAH (at a lower,

without-dependents rate) and may also choose where they wish to live. The junior enlisted members without dependents are generally required to live in UPH, and they are the target population for which the government provides UPH, thereby defining the requirement for UPH facilities.² Figure 1-1 shows that this population makes up about 90 percent of all enlisted members at the E-1 grade and decreases to around 35 percent at E-5.³

Figure 1-1. Unaccompanied Members by Grade



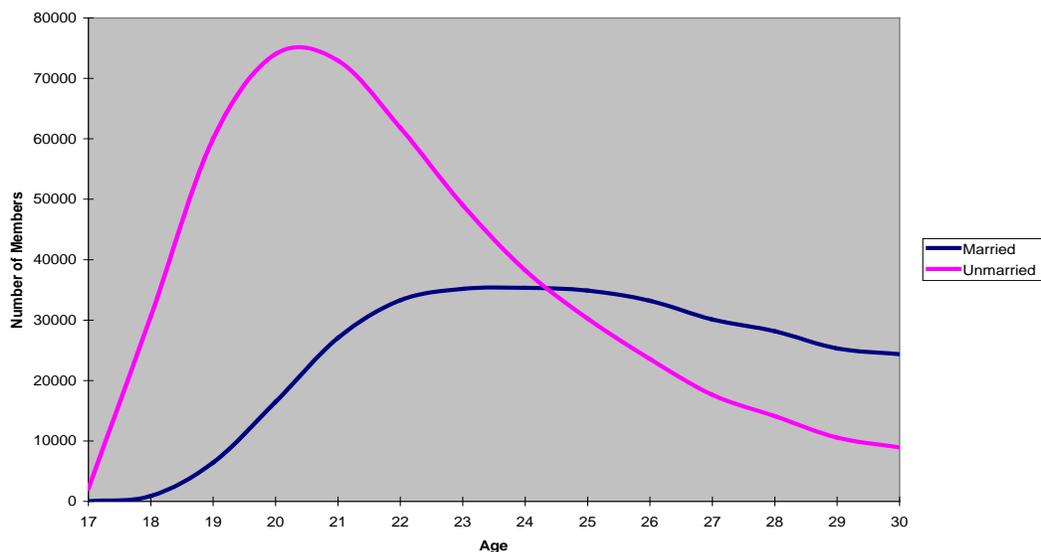
Source: Defense Finance and Accounting Service (DFAS) database, September 2008.

Figure 1-2 illustrates the proportion of married to unmarried (accompanied to unaccompanied) members by age. It shows that the number of unaccompanied members is high in the first few years, but rapidly decreases and then drops below the number of accompanied members between the ages of 24 and 25.

² In the United States, members who are geographic bachelors voluntarily are not included as part of the UPH requirement. Geographic bachelors are accompanied members who are not living with their dependents.

³ The grades of the target population vary by service: UPH eligibility (for calculating requirement purposes) terminates as early as E-3 and as late as E-5.

Figure 1-2. Unaccompanied and Accompanied Member Population by Age



Source: 2007 Demographics Report, Department of Defense.

The requirement for single junior enlisted members to live in government quarters originates from years of experience, culture, and the military mission. Commanders are reluctant to let them reside off base, especially as their indoctrination into the military culture and life style (termed “greening” or “bluing”) generally requires a few years. This indoctrination requirement is analogous to the standard practice at many colleges and universities of requiring freshmen to live in the dormitories. The general belief is that providing a structured housing environment eases the transition into a new environment for young people leaving home for the first time. This controlled environment applies more scrutiny, more oversight, and more rules, from which their counterparts with dependents living in military (or privatized) family housing are generally shielded.⁴ Regardless of their more restricted housing environment, single service members are called upon and expected to perform the same job as their accompanied counterparts.

Across and within the military services, similarity in UPH programs is notably lacking. OSD provides broad guidance, but service policies vary regarding who should reside in UPH, thereby defining the requirement for UPH facilities. Service standards for space, configuration, number of persons per room and bath, and amenities such as storage and cooking facilities also reveal significant variation. Construction standards and support facilities such as dining halls and office space also vary by service. Not the least of the variables is each service’s culture, which may be one of the greatest factors affecting UPH differences.

⁴ The terms “accompanied,” “family,” and “married” are often used interchangeably; in general, they all denote housing for service members with dependents. In a strict sense, however, marital status is not a criterion; a service member who has children but is unmarried—for example, divorced or widowed—would also live in family housing. Nonetheless, where sources use the term “married” to identify housing or to categorize data, this report echoes that usage.

One striking difference between the family and unaccompanied housing programs is in sources of funding. Family housing is managed using its exclusive housing appropriation funds—a subaccount under the military construction (MILCON) appropriation—or in recent years using the service member’s BAH as the source income for privatized housing.

In contrast, UPH programs have no separate funding identity. Capital funding for UPH construction projects normally competes with other mission MILCON requirements and projects such as runways, motor pools, and warehouses. Even less visible are the sustainment funds supporting UPH. Budgets developed using the OSD facility sustainment model justify annual sustainment, operations and maintenance (O&M) requirements to support UPH, but those funds can easily migrate to other local operational needs of the moment in the course of annual execution cycles. Because such funds are not normally “fenced” by the services or specifically dedicated by Congress, their actual use can be difficult to track. Some UPH facilities are also incorporated into installation support contracts, often receiving the same treatment, in terms of response times and priority levels, as the nonresidential administrative and industrial/operational facilities at the installation. Because of the high visibility of UPH as homes for junior enlisted personnel, a few facility condition issues or problems can attract disproportionate media and stakeholder attention.

REPORT ORGANIZATION

The remainder of this report is organized as follows:

- ◆ Chapter 2 summarizes UPH program goals and objectives and the design and construction standards each service uses for guiding and programming new construction and revitalizing existing UPH.
- ◆ Chapter 3 describes the UPH background, leading to its current posture in the context of facility life cycles, adequacy criteria, assignment policies and practices, management practices, sustainment, and DoD real property management and its impact on UPH.
- ◆ Chapter 4 reviews UPH planning, first in a strategic context, then by discussion of the inventory profile, requirements, acquisition strategy, and service UPH master plans.
- ◆ Chapter 5 discusses alternative approaches to acquisition management of UPH, looking at privatization factors, funding for privatization (including comparing BAH and MILCON), selected case studies, and current Navy and Army privatization efforts.
- ◆ Chapter 6 summarizes UPH evolution by looking at current UPH resident satisfaction, the evolving market-style UPH configuration, and parallels between UPH and university student housing.

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- ◆ Chapter 7 presents our observations and conclusions on UHP, along with a vision and supporting recommendations for policy and other changes that should enhance the provision and sustainment of UPH for junior enlisted members.
 - ◆ The appendixes contain detailed supporting information.

Chapter 2

UPH Policies

This chapter summarizes current policies guiding the UPH program and describes the design and construction standards each service uses. Results of current activity by the administration and Congress concerning the “don’t ask, don’t tell” policy may impact future policy on UPH, and we discuss them briefly (Appendix E) for awareness purposes, but their impact on UPH has yet to be determined, so we do not address them further in this report.

OSD POLICIES

Several directives and memorandums have established OSD’s vision and expectations for improving UPH, describing the goals for new construction and revitalization. Two documents, the *2007 Defense Installations Strategic Plan (DISP)* and the *Strategic Goals Implementation Plan V3.0, 2009 (SGIP)*,¹ help implement these visions and expectations, establishing primary goals and objectives for delivering quality UPH in adequate quantities. These documents help guide the services in advancing UPH toward OSD’s visions and expectations.

2007 Defense Installations Strategic Plan

The 2007 DISP expands on the initial 2004 DISP and applies to all DoD activities.² The plan’s purpose is to “provide installation assets and services necessary to support our military forces in a cost effective, safe, sustainable, and environmentally sound manner.” Several of its objectives address UPH:

- ◆ DISP Objective 1.5 is to “eliminate excess and obsolete facility inventories to reduce costs,” supporting the best use of sustainment funding. This goal is to ensure that only essential sustainment, restoration, and modernization (SRM) and operating costs are incurred by saving the resources that would otherwise be used to care for excess and obsolete facilities. Measures to achieve this include annual updates of excess facilities lists and encouraging long-term facility O&M practices that make it more cost-effective to sustain, repair, and modernize existing inventories than to construct new facilities. UPH competes for and uses available O&M funding

¹ Office of the Deputy Under Secretary of Defense (Installations and Environment), DUSD(I&E), *2007 Defense Installations Strategic Plan, Combat Power Begins at Home: Reposition, Reshape, Sustain*, 2007, and the *Under Secretary of Defense for Acquisition, Technology and Logistics [USD(AT&L)] Strategic Goals Implementation Plan V3.0, 2009*. See www.acq.osd.mil/ie/download/DISP2007_final.pdf and handle.dtic.mil/100.2/ADA489961, respectively.

² Formerly called the *Defense Facilities Strategic Plan* (first published in 2001).

along with most other installation facilities. Diverting excess UPH facilities to other needed requirements or demolishing them is essential for achieving this DISP objective.

- ◆ DISP Objective 2.1 is to “provide capabilities assessment of DoD installations to perform their missions in support of warfighting readiness.” The emerging Defense Readiness Reporting System (DRRS) is a tool used to achieve this objective.³ A part of this system is the facility quality rating, or Q-rating, which measures facility condition. The Q-ratings range from Q1, the highest quality rating, to Q4, the lowest. DoD’s current objective is to achieve at least Q2 for all facilities, including UPH.⁴ Detailed engineering assessments are used to determine the most effective method for improving the quality, resulting in individual repair and improvement projects.
- ◆ DISP Objective 2.3 is to “provide adequate family housing and unaccompanied personnel housing, to improve the quality of life for Service members and their families.” It states that DoD is “committed to improving housing for our unaccompanied Service members. DoD continues to modernize Unaccompanied Personnel Housing (UPH) to improve privacy and provide greater amenities.” The plan calls for the services to use master plans to identify inadequate housing “and the resources required to achieve and sustain the Department’s objectives.” Specific measures of progress in the plan are
 - revising OSD policy to allow services to build MILCON-funded UPH for junior enlisted personnel similar to private-sector housing,
 - developing specific plans for the next program objective memorandum (POM) to eliminate inadequate unaccompanied personnel housing, and
 - awarding the Navy’s third UPH privatization pilot project for junior enlisted personnel.⁵
- ◆ DISP Objective 4.1 addresses resources for adequate UPH, stating the need to “balance resources and risks to provide high quality installation capabilities, and to optimize life-cycle investment to support readiness.” This objective is further defined in terms of facility funding: “Fully fund to maintain, restore, modernize, operate, and dispose of existing and forecasted facilities.” The critical measure for this objective is to annually “fund to the current facilities sustainment requirement generated by the Facilities Sustainment Model [FSM],”⁶ including sustainment for UPH.

³ See Appendix A for a description of DRRS.

⁴ See Appendix B for details on the Q-ratings.

⁵ See Chapter 5 for details on UPH privatization.

⁶ See Appendix C for details on FSM.

USD(AT&L) *Strategic Goals Implementation Plan*

The SGIP establishes seven organizational goals to support the USD(AT&L) vision. A prelude for the plan addresses the need for the capability to defeat any adversary on any battlefield. The plan's seventh goal—capable, efficient, and cost-effective installations—addresses UPH. Specifically, goal 7.2 has an objective of developing specific plans to eliminate inadequate unaccompanied housing and to award UPH privatization projects.

SERVICE GOALS AND OBJECTIVES

The service master plans capture implementation of OSD's goals and objectives at the service level. The following subsections outline the main service goals; Chapter 4 discusses master plans in more detail.

Air Force

The 2004 *Air Force Dormitory Master Plan* (DMP) is used as a planning tool and focuses on developing the following as specific goals:

- ◆ A master plan for all Air Force dormitories
- ◆ A database to document, assess, and prioritize work for every Air Force dormitory
- ◆ An investment planning tool for MILCON projects based on “worst-first” prioritization.

In May 2008, members of Air Force Housing at Headquarters, Air Force, said that the Air Force had already achieved private rooms for all CONUS permanent party dormitories. The Air Force's plan included the following future objectives:

- ◆ Eliminate any deficit requirements.
- ◆ Eliminate all permanent party dormitories with gang latrines.
- ◆ Repair or replace dormitories that received a total facility condition rating of 1 or below in the master plan.⁷

⁷ The Air Force uses a unique 0-to-5 scale to rate UPH facility condition (see Chapter 3).

Army

The 2007 *Army Barracks Strategic Plan (ABSP)* specifies the following goals and objectives:

- ◆ “Buy out” (primarily through the MILCON program) permanent party barracks modernization by 2013 and have barracks ready for occupancy by 2015.
- ◆ Buy out training barracks modernization by 2015 and have barracks ready for occupancy by 2017.
- ◆ Construct operational readiness training complexes.
- ◆ Execute limited UPH privatization projects for E-6 and above.
- ◆ Implement the First Sergeant Barracks Initiative (FSBI)/Central Barracks Management (CBM) service-wide.

Marine Corps

The Marine Corps *Bachelor Enlisted Quarters (BEQ) 2006 Campaign Plan* specifies the following objectives:

- ◆ Build additional barracks, primarily through the MILCON program, to eliminate space deficiency by 2012.
- ◆ Achieve the Marine Corps assignment/construction 2+0 standard by 2012.
- ◆ Eliminate barracks that are inadequate (by facility condition) by 2012.

Navy

The Navy’s *Bachelor Housing Master Plan* is currently under development and review. Major goals for Navy UPH include the following:

- ◆ Achieve a 1+1 standard—a module with two private bedrooms (one person per room) and a shared bath, living, and kitchen area—for permanent party personnel by 2016.
- ◆ Achieve the goals of the Homeport Ashore program by 2016.

NEW UPH STANDARDS

To meet OSD quality objectives, all new UPH across the services uses the same DoD guidance and foundation for design and construction. However, DoD 4165.63-M, *DoD Housing Management*,⁸ gives each service latitude and flexibility to establish construction and design standards within DoD guidance and requirements. The services have adapted and modified the DoD UPH standard to meet their individual philosophies, strategies, needs, and capabilities to best support their unique missions.

As a result, newly constructed barracks do not look the same among the services, but they do share common DoD requirements. In addition, some services allow installations flexibility in design and construction to accommodate local needs, but others allow little flexibility regardless of location. If all required UPH across all services were constructed new today, one would expect to find variations in design and construction, but not in overall quality, space, and privacy. (One exception is a waiver that allows the Marine Corps to assign two persons per room as its standard.) Understanding each service's current standards for new design and construction is necessary to grasp the scope and cost of the different services' UPH master plans.

OSD UPH Design Standards for New Construction

DoD guidance offers the latitude to use private-sector material and construction standards and other innovative design and construction methods to minimize life-cycle costs. Floor areas should be comparable to local private-sector rental housing to provide quality UPH and meet member expectations that can impact recruiting, retention, well-being, and readiness.

For junior enlisted members living in UPH (typically E-1 through E-4 and for some services, E-5), DoD guidance provides for a two-to-four-bedroom module. Within the module, each member has a private bedroom (also called a "space"), a bathroom shared by no more than two, a living/dining area, and a kitchen. In-module clothes washers and dryers, patios, and balconies are optional. The service secretary determines the minimum size in gross square feet (gsf). UPH can be constructed up to private-sector standards, but the maximum gsf is as follows:

- ◆ Two-bedroom modules: 1,290 gsf
- ◆ Three-bedroom modules: 1,530 gsf
- ◆ Four-bedroom modules: 1,760 gsf.

⁸ USD(AT&L), DoD 4165.63-M, *DoD Housing Management*, draft, January 2008 (see Appendix H).

Market-style UPH is being introduced into the inventory on a limited waiver basis. In 2005, the Deputy Secretary of Defense gave the Navy a waiver to use market-style design and construction standards in lieu of the 1+1 standard for one MILCON UPH project at Hampton Roads, on the condition the “average cost to house each service member” will not increase.⁹ In 2006, the Deputy Secretary of Defense granted a second waiver for the Navy to use market-style design and construction standards for six additional MILCON UPH projects.¹⁰ Market standards are described as “room patterns and floor areas similar to private sector housing in the local community, e.g., two-bedrooms, two baths, living room, laundry, and kitchen.” Further, the waiver was granted on the condition the Navy use “innovative design and acquisition procedures ... to minimize the cost impact” from enlarging the modules. The Navy’s prototype privatized UPH also provides market-style UPH configurations and construction standards. These waivers help MILCON UPH projects achieve parity with the private sector.

Service Application of OSD Criteria for New Construction

The following subsections describe service-specific applications of the OSD criteria. Table 2-1 summarizes the OSD criteria and how the services apply them. Appendix F contains UPH module and room diagrams for each service.

AIR FORCE

The Dorms-4-Airmen module was developed to satisfy the dual objectives of providing privacy and promoting social interaction. The *Air Force Unaccompanied Housing Design Guide*, January 2005, prescribes the design and construction standards for the Dorms-4-Airmen module. The guide is based on OSD’s 2001 1+1 standard, which specifies gross building area but offers flexibility on module and room size and space layout.¹¹

The Dorms-4-Airmen design is a four-bedroom module that includes a private living space/bedroom, bathroom, and closet for each of the four airmen residing in the module. They share a kitchen, social space, and laundry facilities (in the module when possible). The Air Force recommends a gross module area of 1,140 to 1,228 square feet, with net living area of 129 to 193 square feet (150 square feet is recommended). The space cannot exceed the maximum gross building area specified by OSD (Table 2-1). Also, the Dorms-4-Airmen design includes common support areas for all modules in a facility. These areas include a multipurpose area (such as game room, television room, and fitness area), vending area, mailroom, bulk storage (in-room, in-unit, or centralized location), and public restrooms.

⁹ Deputy Secretary of Defense memorandum, “Waiver to Unaccompanied Enlisted Personnel Housing (UEPH) Design and Construction Standards,” March 3, 2005.

¹⁰ Deputy Secretary of Defense memorandum, “Waiver to Unaccompanied Enlisted Personnel Housing (UEPH) Design and Construction Standards,” August 16, 2006.

¹¹ Deputy Secretary of Defense memorandum, “Design and Construction of Unaccompanied Enlisted Personnel Housing,” June 25, 2001.

Table 2-1. Summary of Current UPH Construction Standards

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(Placeholder for 11 x 17 foldout)

ARMY

The objectives of the Army's current design and construction criteria are to enhance quality of life, keep pace with the changing expectations of junior members, minimize the well-being gap between married and single soldiers, and improve soldier readiness.¹² Building on OSD's criteria, a 2002 memorandum modified the Army construction standard, giving commanders more flexibility and providing quarters that better resemble similar private-sector housing (at no additional cost).¹³ A 2003 memorandum further modified this guidance, establishing "1+1 Enhanced" (1+1E) as the Army's UPH construction standard.¹⁴

The Army's Single Room Initiative (SRI) seeks to provide every active-duty soldier with no less than the 1+1 construction standard by FY13.¹⁵ It provides for generic units with two private spaces (bedrooms) of 140 square feet each, two closets of 32 square feet each, a shared bath of 30 square feet, a shared kitchen of 60 square feet, and 63 square feet of shared circulation space. The Army provides a representational layout of this generic arrangement within a two-bedroom module; however, installations have flexibility as to the configuration, so long as it meets any square footage requirements and other restrictions.

MARINE CORPS

The Marine Corps was granted a waiver from the OSD 1+1 standard in 1996, permitting it to house junior enlisted members (E-1 through E-3) in rooms configured in the 2+0 configuration—two persons (or spaces) per room with a shared bath. This configuration is an important element of the Marine's philosophy and goal of fostering team building, companionship, camaraderie, and unit cohesion.

The *Unified Facilities Criteria* (UFC) contain the basic design guidance for the Marine Corps 2+0 standard.¹⁶ The criteria call for 180 square feet of living and sleeping area shared by two E-1 through E-3 members (or occupied by a single E-4 or E-5 member), one personal closet for each resident, a head (bathroom) shared by two residents (a private bath for E-4 and E-5), and a service (kitchen) area that can accommodate a microwave, small refrigerator, and single-bowl sink. Each UPH building has a central laundry room on the ground floor with at least one washer and two dryers for every 16 residents. The 2+0 room design can have interior corridor or exterior breezeway access. All Marine Corps construction is

¹² Army Regulation 210-50, *Installations Housing Management*, October 3, 2005, contains UPH standards.

¹³ Assistant Chief of Staff for Installation Management (ACSIM) memorandum, "New Barracks Construction Criteria," July 11, 2002.

¹⁴ ACSIM memorandum, "Revised Barracks Construction Criteria," May 1, 2003.

¹⁵ Directorate of Public Works, Fort Hood, *How to Do First Sergeant's Barracks Initiative*, Version 2.0, January 15, 2008, www.dpw.hood.army.mil/Housing/Files/How%20to%20Do%20FSBI.pdf.

¹⁶ DoD, *Unified Facilities Criteria—Navy and Marine Corps Housing*, UFC 4-721-10, July 31, 2002.

concrete, brick, and mortar and will not vary from the design specified in the UFC.

NAVY

The Navy goal is to provide a private bedroom for all E-1 through E-3 unaccompanied sailors. All new construction will follow the design guidance specified in the UFC for the 1+1E apartment. The 1+1E design provides two private bedrooms of 155 square feet, each containing closets. The unit includes a head (bathroom) shared by two residents, an in-room laundry, and a small kitchen. A square design places the two bedrooms side by side, and an offset design offsets the bedrooms by approximately 3 feet. The UFC allows minor modifications to the 1+1E plans, but they must be approved by the Commander, Navy Installations Command, Ashore Readiness Division (OPNAV N46). Also, room patterns and floor areas are not allowed to exceed those in the local private sector.¹⁷

¹⁷ Office of the Assistant Secretary of the Navy for Installations and Environment memorandum, "Design and Construction of Unaccompanied Enlisted Personnel Housing," October 26, 2004 (intended to ensure new UPH comparable to privatized housing or BAH standards).

Chapter 3

UPH Posture Today

In this chapter, we describe the services' current UPH portfolios and status. We begin by explaining the evolution of UPH inventories and how a facility's life cycle affects inventory.¹ We then discuss adequacy in terms of facility condition and UPH assignment practices and describe UPH management practices. We conclude the chapter with a summary of SRM and its impact on UPH, as well as how the DoD real property management system affects UPH. To the services, UPH has traditionally been, and still is, considered important in acculturating junior members, developing the service/military ethos, and team building.²

HISTORICAL EVOLUTION

Early in this country's history, large, permanent UPH facilities were uncommon because large, permanent defense complexes requiring full-time manning were few. Some of the early UPH facilities, dating back to the 19th century, remain in the inventory today. When permanent defense structures became more common, the need for on-post housing for unaccompanied members also grew. World War II (WWII) and afterward saw a significant increase in permanent UPH facilities as the United States established, and continues to sustain, a large standing military force to support its national security strategy.

Between WWII and the introduction of the all-volunteer force in the 1970s, typical UPH standards provided each service member a bunk, a foot locker, and 60–72 square feet of floor space in a facility housing numerous personnel, commonly with open bays and central or communal showers and bathrooms. Implementing the all-volunteer force in the 1970s changed military service to a choice rather than a requirement. In response, new UPH construction standards providing more space and privacy were established to help recruitment and retention. Since the all-volunteer force was established, the quality of UPH has continued to be highlighted in various venues as important for morale, recruitment, and retention.³

¹ See Appendix E for additional information on the evolution of UPH.

² Office of the Under Secretary of Defense for Acquisition and Technology, *Report of the Defense Science Board Task Force on Quality of Life* (the Marsh Report), 1995.

³ James Martin and Pamela Twiss, *Quality of Life and Shelter: An Overview of the History of Military Housing Policy and Initiatives Since the Adoption of the All-Volunteer Force Concept (1973–1996)*, Military Family Institute, September 1997.

In the 1980s, the House Subcommittee on Military Construction Appropriations said that quality of life was important to sustaining a quality all-volunteer force. Open-bay barracks with gang latrines did not offer this quality of life, and the need for more privacy and quality became evident. DoD introduced the 2+2 UPH standard of two persons per room, with two rooms (four persons) sharing a bathroom.

In the 1990s, DoD conducted a broad, triservice study to assess the quality of single enlisted housing. It found, among other things, that most UPH residents were dissatisfied with their overall comfort (including privacy) and that investing in UPH and supporting facilities “might be a good investment in mission readiness.”⁴ Other concerns about UPH quality surfaced, including the 1995 *Report of the Defense Science Board Task Force on Quality of Life* (the Marsh Report). This report concluded that bachelor housing policies were deficient, “giving the impression that single members are less important,” and that the inadequacies of space, privacy, and basic amenities were major sore points. It recommended fencing off bachelor housing O&M funds and “aggressively revitaliz[ing] existing bachelor housing to meet or exceed the current standard.”

For the Navy, surface ships have living quarters aboard to accommodate long periods of duty at sea. Historically, junior enlisted sailors live aboard ships when in homeport. Shipboard berthing compartments on modern ships house up to 200 persons with gang heads (latrines) in an industrial-like environment. Navy leadership recognized the importance of providing UPH accommodations on shore for its junior enlisted sailors while in homeport to improve quality of life, morale, and retention. In 2000, the Navy established a goal of providing off-ship UPH for all unaccompanied junior enlisted sailors assigned to sea duty while in homeport, which developed into the Homeport Ashore program now being implemented at major Navy fleet concentration areas.

Secretary and Deputy Secretary memorandums established the 1+1 UPH standard and provided greater flexibility in UPH layout and design.⁵ Today’s inventories generally reflect adaptation from their original constructed designs toward the 1+1 standard and more flexible layouts. However, competition for resources, various physical limitations of existing UPH facilities, and other factors have resulted in various configurations (Table 3-1). Not all revitalizations or renovations meet the 1+1 criteria. Existing UPH in otherwise good condition, but built under earlier standards, is not necessarily considered inadequate solely because it does not meet the 1+1 standard.

⁴ DoD, *Identifying User Perceptions and Quality-of-Life Relationships in Military Single Enlisted Housing Environments*, 1992.

⁵ The Secretary of Defense memorandum, “Design and Construction of Unaccompanied Enlisted Personnel Housing,” November 6, 1995, and Deputy Secretary of Defense memorandum (see Note 11, Chapter 2) established permissive amended criteria for the 1+1 standard, eliminating the module area limitation and increasing the net area per “living/sleeping room” from 11 to 17 square meters.

Table 3-1. Generations of UPH Facilities (Number of Bed Spaces)

UPH configuration	Air Force	Army	USMC	Navy	Total
New market style (including PPV)	900	0	0	2,500	3,400
New 1+1	10,000	31,100	2,800	10,700	54,600
Renovated 1+1	5,000	0	0	9,300	14,300
New 2+0	0	6,500	30,900	1,300	38,700
Renovated 2+0	0	53,600	12,900	3,600	70,100
2+2, 3-2-1	51,900	43,600	35,000	10,100	140,600
Central latrine	0	52,300	2,700	20	55,020
Historic	0	17,800	0	2,200	20,000
Relocatables	0	1,600	0	0	1,600
Total	67,800	206,500	84,300	39,720	398,320

Source: H&CS (2009).

Notes: USMC = United States Marine Corps; PPV=public-private venture (privatized) housing.

The type of construction also affects UPH. For example, a 2003 Government Accountability Office (GAO) report recommended using residential construction practices for UPH to reduce construction costs.⁶ The Army researched residential construction for UPH in 2004 using a life-cycle cost analysis to compare traditional steel-and-block construction and residential (stick) construction.⁷ The limited study showed that residential construction standards are more cost-effective per square foot.⁸ The Army also performed a limited progressive collapse analysis of UPH in 2003 with residential construction to address antiterrorism/force protection (ATFP) issues and found a low potential for progressive collapse, given the model's parameters.⁹ The services differ in their willingness to use residential construction standards for UPH, primarily because of durability, engineering, and ATFP concerns. As with policy and other changes over the years, using residential construction standards in UPH will add another generation and variation of facilities to the UPH evolution and inventory.

FACILITIES LIFE CYCLE

UPH facilities eventually deteriorate with age. Proper maintenance, building system replacement, and facility use allow them to serve their intended design life. As building standards and services' needs change over time, incremental projects and steps are often used to modernize facilities, offset obsolescence, and extend

⁶ GAO, *Opportunities That Should Be Explored to Improve Housing and Reduce Costs for Unmarried Junior Service Members*, GAO-03-602, June 2003.

⁷ U.S. Army, *Comparison of Life Cycle Costs of UEPH at Fort George G. Meade and Fort Detrick*, 2004 (see Appendix F).

⁸ The analysis used a 40-year life cycle.

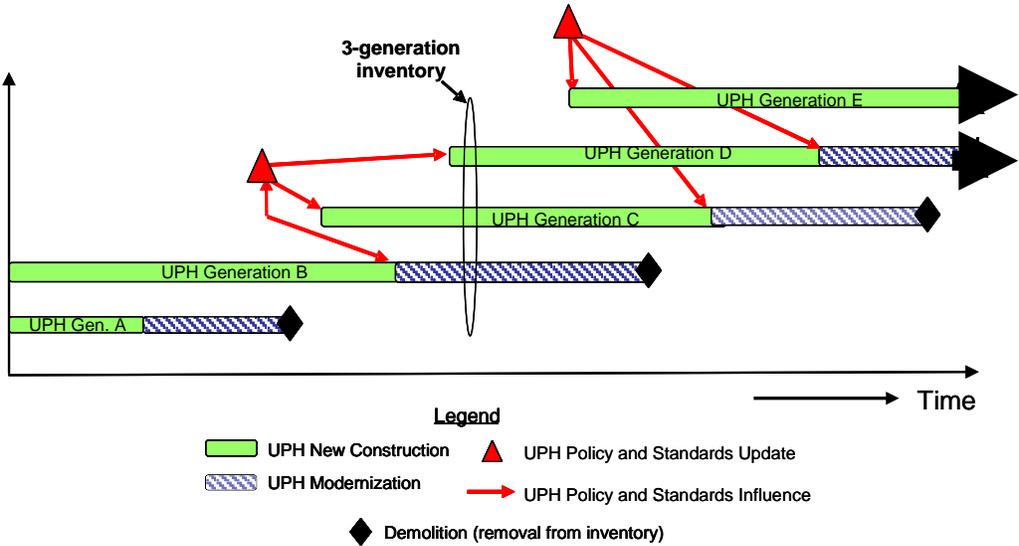
⁹ U.S. Army, *Progressive Collapse Analysis of the Replacement Barracks, Ft. Meade, MD*, 2003 (see Appendix F).

the useful life beyond the original design life. Each facility is therefore subjected to a continuing evolution of its unique life cycle, depending on its design, continuing care or “sustainment,” use, and the need to offset obsolescence.

Underfunded sustainment can lead to premature system failures, causing degraded facility condition. Leaking roofs, inoperable windows, overloaded electrical systems, and worn-out mechanical systems lead to uncomfortable or unsafe housing. Tools like the Facility Degradation Model currently used by the Marine Corps can quantify the future increased cost and impact on facility condition when sustainment is underfunded or not performed. The results reinforce the concept that inadequate sustainment adversely affects the life cycle of a UPH facility by increasing costs or diminishing condition, and hence reducing its support to the mission. In addition to physical condition, as standards change to improve privacy, increase space, or offer amenities (such as cooking, storage, and Internet access), obsolescence becomes a key deficiency.

Because replacing all older UPH facilities is not practical, the services sometimes use restoration and modernization to complement new construction programs. As a result, we typically find installations with more than one generation of UPH facilities. This makes for unique inventories, in which not all facilities on the installation have the same space, privacy, or amenities. Figure 3-1 depicts this overlap of UPH generations.¹⁰

Figure 3-1. Evolution of UPH and Resulting Facility Generations

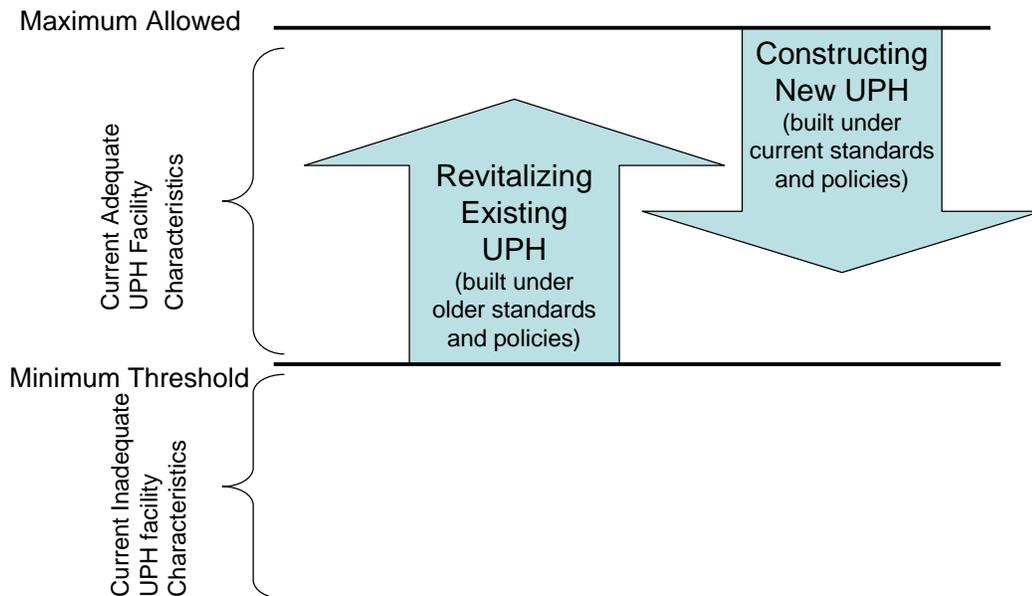


¹⁰ See Appendix G for additional information on the facility life cycle.

ADEQUACY CRITERIA FOR EXISTING UPH

Each military service determines specific standards for UPH adequacy, within OSD parameters. As Figure 3-2 shows, design standards for new facilities tend to start with maximum allowances in square footage, amenities, and other UPH factors first and scale back as resources or situations require (top-down). In contrast, adequacy criteria for existing UPH address minimal acceptable standards as a starting point and work upward (bottom-up) as resources and other constraints allow. OSD recognizes the need for a range of facility adequacy between existing and new generation UPH facilities. Physical limitations of older UPH, and the prohibitive cost of replacing it when revised standards are introduced, generate mixed UPH inventories. Historical trends show that policies and standards can change several times—about every 10 to 15 years—during the life of the UPH facility, which can range from 50 to 75 years.

Figure 3-2. Application of UPH Facility Adequacy Characteristics



In the subsections that follow, we discuss how each service determines adequacy. By definition, all open-bay gang latrine and Quonset hut UPH is inadequate. Table 3-2 summarizes the facility adequacy criteria.¹¹ The green cells in the table identify the factors and quality-of-life standards that are included in each service’s facility rating tool—Q-ratings, Army installation status report (ISR), Air Force 1-5 rating, Marine Corps Commanding Officer’s Readiness Reporting System (CORRS), and OSD Defense Readiness Reporting System (DRRS).

¹¹ In general, joint basing follows the adequacy standards of the lead service.

Table 3-2. Service Criteria for UPH Facility Adequacy

Org.	Facility rating method ^a	Factors		Quality-of-life standards					Mission	Notes
		A	B	C	D	E	F	G	H	
		Backlog (condition)	Inventory deficit	SF	Gang latrines/quonsets	Functionality	Campus	<1+1 Equivalent	Supports mission capability	
OSD	Q-rating	Q1–Q4	Y	90	Y	N	N	N	N	Cost driven
OSD	DRRS	Q1–Q4	Y	90	Y	N	N	N	Y	Mission capability focus
Air Force	1-5 scale (adequacy threshold can vary)	Part of rating method (80% of 90%)	Y	90	Y	Part of rating method (20% of 90%)	Part of rating method (10%)	N	N	Very detailed; 1+1 assumed good; installation master plans influence project priority
Army	ISR	Q1–Q4	Y	90	Y	N	Barracks complex	Y	Y	ISR measures columns A, B, and H
USMC	70% rule	70% of PRV	Y	90	Y	N	N	N	N	CORRS used to capture and report C-rating condition
Navy	Q-rating (developing, may change)	Condition assessment program (CAP)	Y	55/90	Y	Y	N	N	N	Master plan under development (factors/standards/mission)

Note: PRV= plant replacement value.

^a The UPH facility rating method is the tool with which the organization assesses UPH adequacy. The green cells are factors and quality-of-life standards included in each service’s facility rating tool (Q-ratings, Army ISR, Air Force 1–5 rating, Marine Corps CORRS, and OSD DRRS).

Air Force

For all new dormitory construction, as well as dormitory renovations or replacements, the Air Force uses the Dorms-4-Airmen (4+1) standard, which calls for four private bedrooms (129–193 square feet of net living space per person), private bathrooms, and private walk-in closets with a shared kitchen, a social space, and a laundry area for E-1–E-4 modules. For existing dormitories not meeting the Dorms-4-Airman standards, the Air Force evaluates the adequacy of each facility on the basis of its overall condition and functionality, which is reflected in a total facility condition score. In 2004, the *Dorm Master Plan (DMP)* used the total facility condition score for prioritizing renovation and replacement projects on a “worst-first” basis.

The Air Force's total facility scoring system consists of three components:

- ◆ The *facility condition* component is the cost of correcting deficiencies plus the cost to maintain the building for the next 10 years, divided by the cost to replace the dormitory at current standards.
- ◆ The *functional component score* evaluates the dormitory's conformity to current size and module standards, ATPF standards, and consolidated support facilities.
- ◆ The *campus score* evaluates the area surrounding each dormitory, as well as the supporting infrastructure.

The scoring system is based on a weighted scheme.¹² Under this formula, each dormitory generates a total facility condition score ranging from 0 (worst) to 5 (best). Since 2004, the Air Force has been concentrating on improving or replacing existing dormitories that have a score of 1 or lower.

In addition to using the scoring system, the Air Force's recent budget requests include the cost for building dorms to meet deficit requirements of 96 spaces or more (the amount necessary to justify a new Dorms-4-Airmen facility), as well as to replace or renovate all gang latrine-style dormitories at current standards.

Army

The Army established 1+1E as the current UPH construction standard.¹³ Further, it recommends that renovation of existing UPH should incorporate 1+1E construction criteria to "the maximum extent feasible," but those standards are not to be used to determine adequacy of existing UPH for assignment purposes.¹⁴ For existing UPH, the Army applies minimal acceptable standards as a starting point to best utilize existing inventory.¹⁵

The Army uses three adequacy criteria—configuration, condition, and quantity—to compare existing UPH with 1+1 or "1+1E" spaces:¹⁶

- ◆ *Configuration* adequacy measures the minimum standards for occupancy or assignment purposes. Minimum space criteria vary for certain UPH building designs due to physical limits of the building and other factors.

¹² The total score is 80 percent of the facility condition score plus 20 percent of the functional score. This result is multiplied by 90 percent, and then increased by 10 percent of the campus score.

¹³ See Note 11, Chapter 2.

¹⁴ See Note 13, Chapter 2.

¹⁵ AR 420-1, *Army Facilities Management*, paragraph 3-21.c, February 12, 2008.

¹⁶ The 1+1E standard is described in Chapter 2. Condition and quantity are used in generating project requirements. Configuration is used for applying occupancy or assignment criteria, but not for determining facility adequacy.

(Current minimum occupancy standards are discussed elsewhere in this chapter.)

- ◆ *Condition* adequacy considers structural quality and life/safety/health factors of a facility. The ISR scores rate condition adequacy partly in terms of backlog of work as a percentage of plant replacement value (PRV), resulting in a facility Q-rating.¹⁷ Q-ratings range from Q1 (cost to fix is less than 10 percent of PRV) to Q4 (cost to fix is greater than 40 percent of PRV).¹⁸ The Army's current objective is to bring all UPH up to Q2 for living, latrine, lounge, and lobby areas.¹⁹
- ◆ *Quantity* adequacy is the difference between the number of existing spaces and the number of spaces required (focusing on the deficit spaces needed to meet the requirement).

Marine Corps

The Marine Corps uses both the maintenance backlog and the building configuration for assignment purposes to determine adequacy:

- ◆ Maintenance backlog can cause a building to be designated inadequate if the backlog cost is greater than 70 percent of the PRV. Therefore, a UPH facility with a backlog costing less than 70 percent of PRV is regarded as adequate in terms of facility maintenance.
- ◆ According to the Marine Corps campaign plan, the minimum assignment standard for existing inventory at locations with a deficit in spaces is "90 net square feet (nsf) per person, no more than three (3) per room, and a bath shared with not more than two others (3-2-1 room configuration)." Therefore, if barracks meet this minimum configuration, they are adequate.
- ◆ If a building has central latrines, it is considered inadequate.

The Marine Corps uses the CORRS to measure the condition and quantity of its facilities, including UPH, at the command level.²⁰ The information can be aggregated at the facility analysis category (FAC) or higher. CORRS provides one of four C-ratings as an output:

- ◆ C1 considers the facilities ready for all missions with only minor deficiencies.

¹⁷ The ISR is the Army's primary facility assessment tool (see Appendix I).

¹⁸ Facility Q-ratings are dollar driven. A second rating, the ISR infrastructure mission support rating, rates facility condition to mission impact. Both are used to provide the ISR rating.

¹⁹ Executive Order 08-12, *IMCOM Facilities Battle Handover for Barracks Standards*, April 30, 2008.

²⁰ See Appendix I for a more detailed description of CORRS.

- ◆ C2 considers the facilities ready for the bulk of missions with some deficiencies with limited impact.
- ◆ C3 considers the facilities ready for some portions of missions, but with significant deficiencies that prevent some facility missions.
- ◆ C4 considers the facilities not ready for missions with major deficiencies that preclude mission accomplishment.

Navy

The adequacy of a Navy bachelor housing facility depends on configuration rather than condition. Overall facility capability is determined by a combination of condition and configuration, and condition is the primary driver. The Navy is initiating a condition assessment program (CAP) that will result in a programmatic functional assessment of all Navy unaccompanied housing buildings. It is currently defining how the results of the assessment may be used to verify the adequacy of UPH facilities.

UPH ASSIGNMENT POLICY AND PRACTICES

Adequacy for assignment purposes may differ from the standard for construction. Moreover, policies and practices for assigning personnel to UPH differ among the services. What constitutes a space for assignment may differ among services, and even within a service, depending on facility age, configuration, and other factors.

OSD

OSD requires no specific assignment policy for UPH, so long as all assigned spaces meet OSD standards and requirements. OSD's ultimate goal is to provide a private room for each qualifying active-duty unaccompanied service member, but it allows the services latitude regarding whom they require to live in UPH and how they make UPH assignments.²¹

Air Force

Since 2004, all newly constructed or renovated UPH uses the Dorms-4-Airmen design standard specified in the *Unaccompanied Housing Design Guide*. The standard is based on the OSD 1+1 standard issued in 1995, modified in 2001 to allow greater flexibility in module design. Under the new Dorms-4-Airmen standard, each E-1 through E-4 airman (with less than 3 years of service) is assigned 129 nsf of private living area, a private bathroom, and a private walk-in closet and shares a kitchen, laundry area, and social space with three other airmen. Air Force Instruction (AFI) 32-6005, *Unaccompanied Housing Management*

²¹ See Note 8, Chapter 2.

(updated October 2008), differentiates adequate space assignments by grade and by date (age) when the UPH facility was originally programmed and funded (see Table 3-2).

Currently, most CONUS permanent party airmen are living in private rooms, and a few share a bathroom, depending on facility design. The goal is to have all airmen who are not authorized to draw BAH or who are otherwise required to live in UPH reside in Dorms-4-Airmen modules. The Air Force will not fully achieve this goal until older design UPH is renovated or replaced (when either the cost to repair them exceeds 50 percent of their replacement cost or the total facility condition score reaches the priority threshold).

Army

Army UPH includes the Volunteer Army (VOLAR) standards, the 2+2, the 2+0, and the 1+1E configurations. Variations have different designed capacities, which affect the space available per person.²² Army policy establishes that all unaccompanied E-1s through E-5s live in UPH with the following minimum parameters:

- ◆ E-1s through E-4s: one space per person, net living area of 90 square feet (8.3 square meters), not more than four per room.
- ◆ E-5s: two spaces per person, net living area of 135 square feet (12.6 square meters), private room, bath shared by no more than one other.²³

When the existing UPH inventory does not accommodate the above, the Army permits lesser shared room assignment criteria (with at least the minimal required area per person). This can result in shared rooms instead of private rooms.²⁴ This practice is consistent with both the Secretary and Deputy Secretary of Defense memorandums addressing the 1+1 standard, which state that existing unaccompanied housing will not be considered inadequate for assignment purposes because of the standards for new UPH.²⁵ This policy helps to explain why privacy characteristics and square footage can differ between new and existing or revitalized UPH (even on the same installation). It also explains why UPH requirements for the number of spaces do not always match the number of personnel required to live in barracks.

Because the various Army UPH facilities were built in different decades under different adequacy definitions, the Army considers some older UPH to be in an adequate “near 1+1” configuration. The near 1+1 spaces are considered adequate for assignment until the facilities are replaced, usually at the end of their useful lives.

²² See Note 11, Chapter 2.

²³ Army ranks of E-6 and above, as well as geographic bachelors, are not authorized to occupy UPH.

²⁴ See Note 11, Chapter 2.

²⁵ See Note 5, this chapter.

Marine Corps

Marine Corps policy is that all unaccompanied E-1s through E-5s live in UPH. Its goal is to assign all Marines according to the following 2+0 assignment standard:

- ◆ One space of 90 square feet for all E-1s–E-3s, with no more than two sharing a room
- ◆ A two-space private room (180 square feet) for all E-4s and E-5s.

The design criteria for the 2+0 room drive the requirement calculation for new or replacement construction. The Marine Corps plans to achieve the 2+0 standard for all qualifying personnel by 2012.

Marine Corps policy is that only after it has exhausted all efforts to achieve the 2+0 standard will it use the following minimal assignment standard:

- ◆ One space of 90 square feet will be allocated to E-1s through E-3s, with no more than three sharing a room.
- ◆ 1.5 spaces (135 square feet) will be allocated to E-4s, with no more than two sharing a room, and a two-space private room (180 square feet) will be allocated to E-5s.²⁶

Navy

The Navy's goal is to provide a private room for all unaccompanied E-1 through E-3 service members both ashore and afloat (when in homeport). The Navy's current construction standard is 1+1E, providing two 155 nsf bedrooms, a single bath, and a service area.

The Navy continues with its Homeport Ashore program to pursue housing all afloat E-1s through E-3s in UPH while their ships are in homeport. At locations with a deficit of spaces, the Navy is assigning those sailors to shared rooms. The Navy currently houses shipboard E-4s with less than 4 years of service ($E-4 < 4$). However, the Navy does not currently program assets for shipboard $E-4 < 4$, anticipating future BAH programming.

Table 3-3 summarizes the services' assignment policies and practices. Shaded cells highlight policies or practices that differ notably from the other services.

²⁶ U.S. Marine Corps, *Bachelor Enlisted Quarters (BEQ) Campaign Plan*, November 9, 2006.

Table 3-3. UPH Assignment Policies and Practices

Criteria	Air Force	Army	Marine Corps	Navy
Ranks required to live in UPH	E-1–E-3 and E-4 with less than 3 years of service; higher grades as deemed necessary by local Air Force leadership	E-1–E-5	E-1–E-5	E-1–E-3 shore-based sailors and E-1–E-4 <4 YOS shipboard sailors
Allow geographic bachelors	Space available basis	No	Space available basis	Space available basis
Number of spaces per rank	One person per space (private room) regardless of rank	One (E-1–E-4); two (E-5)	One (E-1–E-3); one and a half (E-4); two (E-5)	One (E-1–E-3); one (afloat E-4 <4 YOS)
Minimum sf of space	UPH funded before FY96: ◆ E-1–E-4 <3 YOS: 90 sf ◆ E-4 >3 YOS–E-6: 135 sf UPH funded FY96–FY02: E-1–E-6: 118 sf UPH funded after FY02: E-1–E-6: 129 sf	E-1–E-4: 90 sf; E-5: 135 sf	E-1–E-3: 90 sf; E-4: 135 sf; E-5: 180 sf	E-1–E-4 goal of 90 sf
Private room policy	Private rooms for everyone	Private rooms for E-5	E-1–E-3: up to three per room; E-4: up to two per room; E-5: private room	Private rooms on space available basis
Shared bathroom policy	Private bathroom for newly constructed and renovated modules	E-1–E-4 shared by up to four; E-5 has private bath	E-1–E-4 share with other room residents, E-5 has private bath	Up to four residents share a bathroom
Other policies	Other pay grades on a space-available basis (lower rank has priority)	If UPH deficit, lowest ranks have priority	Up to three per room for E-1–E-3; up to two per room for E-4	E-1-E-3 shipboard sailors not legally entitled to BAH; during homeport ashore transition: 55 sf per person in shared rooms

Note: YOS = years of service.

MANAGEMENT OF UPH

OSD has decentralized UPH management to the services. Each service has defined various roles, responsibilities, and operational requirements that determine how it manages UPH to best support mission requirements and capabilities. For example, some installations with operating forces deploy more frequently than others, and some services emphasize unit integrity while in garrison more than others. As with any sound management approach, UPH management has evolved and continues to adapt to changing and prevailing circumstances.

Air Force

Established Air Force instructions govern its UPH management.²⁷ Responsibility rests primarily with the installation commander, who determines local policy and provides appropriate funds to operate, maintain, and furnish UPH. The installation commander can delegate this responsibility to the base civil engineer, who owns the “housing flight.” Unit integrity, which is important to the Air Force, is maintained in UPH utilization, so long as it does not impede an overall occupancy goal of 90 percent.

The Air Force uses two primary concepts—consolidated UPH management and unit management—which commanders can use separately or in combination. Unit management decentralizes UPH management to the individual unit level, where the UPH managers work for unit commanders. Under consolidated management, UPH management is centralized at the installation level, and UPH managers report to a central office (consolidated dormitory management, or CDM), usually under the housing flight. UPH manager positions are specific, dedicated assignments with durations of 2 to 3 years and fulfill many roles, including that of facility manager. The Automated Civil Engineer System-Housing Management (ACES-HM) is the Air Force civil engineer standard management software for managing family and unaccompanied housing. It is used, among other things, for validating, planning, advocating, programming, designing, and executing unaccompanied housing requirements.

The UPH managers work together with their respective unit commanders or the CDM and housing flight to manage UPH, with the duties and responsibilities divided among them. For instance, the unit commander representative or the CDM (depending on which management policy is implemented) handles room assignments and terminations, whereas the dormitory managers typically deal with facility and furniture issues.

The quarters improvement committee (QIC) is the installation’s primary tool for addressing UPH facility and furnishing issues. Membership comprises UPH stakeholders, including representatives from the residents, the base civil engineer, facility services, the comptroller, senior noncommissioned officers, the contracting office, and others. The product of QIC efforts is the quarters improvement plan (QIP), which addresses local facility standards and projects (large and small), security, furnishings, management practices, and other issues affecting residential life.

²⁷ Primarily AFI 32-6005, *Unaccompanied Housing Management*, October 2008.

Army

The First Sergeants Barracks Initiative (FSBI), sometimes referred to as Central Barracks Management (CBM), is an Installation Management Command (IMCOM) effort to improve permanent party UPH quality and management to enhance the readiness of soldiers. Historically, individual units were responsible for most UPH management. FSBI transfers most of the administrative responsibility from individual units to the garrison, centralizing UPH management and allowing the units to focus more on direct mission and training requirements. Tasks that remain unit responsibilities include the following:

- ◆ Individual room assignments
- ◆ Barracks cleanliness, health, and discipline
- ◆ Participation in move-in and move-out inspections
- ◆ Building common area custodial tasks and general policing of buildings and grounds for trash and litter.

The single soldier housing (SSH) office, part of the Directorate of Public Works (DPW) housing management office,²⁸ has specific responsibility for executing FSBI. Although SSH executes these responsibilities, unit cooperation is needed to maximize the effectiveness of FSBI. SSH is the focal point for the following four major UPH management areas:

- ◆ Management and assignment, including certificates of nonavailability and utilization rate (95 percent utilization goal for Army)
- ◆ Facility sustainment, including between-occupancy maintenance (BOM) to ensure that vacated rooms are in adequate condition before being occupied
- ◆ Furnishings management, including periodic inventories and inspections
- ◆ Common area custodial and grounds maintenance, including laundry service equipment contracts.

²⁸ Army Department of Public Works provides maintenance, construction, engineering, protection, and housing services for the installation.

FSBI has been field tested with positive results and began implementation Army-wide in 2008. With approval of the 2010 budget submittal, the Army anticipates that FSBI will manage about half of all barracks inventory.²⁹ The Housing Operations Management Enterprise System 4 (HOMES4) has proven effective and will be the primary UPH management software. FSBI and HOMES4 are being implemented as simultaneous but separate efforts.

The preferred execution tool for FSBI is a single turnkey contract, although A-76 contracts and other existing circumstances may require variations in execution. FSBI tasks are funded initially by Headquarters (IMCOM) for start-up costs, and follow-on years are funded through installation-level annual SRM and base operating support (BOS) accounts. At the FSBI test site (Fort Hood), recommended FSBI staffing is about one person for every 250 spaces at a cost of roughly \$270 per space per year (not including facility sustainment/maintenance costs). Individual installation circumstances affect the actual staffing requirement.

Marine Corps

The day-to-day management of and responsibility for unaccompanied housing in the Marine Corps is decentralized to the unit commanders and carried out by members of the units living in UPH. The BEQ campaign plan states the following:

Unit Commanders are the cornerstone of any Quality of Life program and ensure the living quarters and areas are safe, clean, well maintained and attractive. Above all, commanders and enlisted leaders of all ranks ensure the best Quality of Life is provided by enforcing Marine standards in the area of good order and discipline throughout their UPH. It is the Unit Leadership's responsibility to ensure that UPH fosters an atmosphere conducive to the professional and personal development of our Marine Corps, and reflects our core values.³⁰

²⁹ Statement by Army leadership before the House Committee on Appropriations, Subcommittee on Military Construction, Veterans Affairs, and Related Agencies, on quality of life in the United States Army, May 6, 2009.

³⁰ See Note 26, this chapter.

Navy

From May 2001 through October 2003, the Navy conducted two assessments: the Navy Family Housing Functionality Assessment (FA) and the Navy Housing Organizational Assessment (OA). These two assessments recommended integrating family housing and UPH programs to gain efficiencies.³¹ As a result, in January 2005, all Navy installations and regions were directed to merge their separate UPH and family housing operations into one organization. Since then, most installations have designated a single housing manager, responsible for both bachelor and family housing.

The day-to-day operation of UPH employs a combination of civilians and military members on permanent assignment to UPH, often supplemented with contract services. Most Navy installations rely on military manpower to operate permanent party UPH. A combination of civilian or contractor employees, officers, and senior enlisted members serve as managers and supervisors. Mid-grade petty officers commonly serve as building and complex managers. Junior enlisted members have various duties, including building entry access control, check-in and check-out front desk services, room assignment, occupancy and utilization tracking, and inspections of common areas and private spaces. Enlisted members or contractors provide light maintenance, custodial, and groundskeeping services, placing and tracking trouble calls with public works, furniture and appliance management, and administrative functions. Senior enlisted personnel are often called upon to handle military and discipline matters with UPH residents.

The concept of replacing military members with civilians in jobs that do not require military expertise became a formal program in the early 1960s under a program called CIVSUB, begun by Secretary of Defense Robert McNamara. Since then, civilians now staff many jobs formerly filled by military personnel. Today, the Navy continues this approach with an initiative to replace all military personnel working in shore installation management with civilians. As military members reach their planned rotation date, many of the billets they vacate will not be funded in future years. This drawdown of military personnel in some cases has reduced the unaccompanied housing workforce. The Navy is currently working to address its bachelor housing resource requirement through the POM process.

Table 3-4 summarizes UPH management philosophies and practices for each service.

³¹ Commander Naval Installations (CNI), *Executive Summary, Family Housing/Bachelor Housing Assessment Extract*, November 15, 2004.

Table 3-4. UPH Management Philosophies and Practices

Service	UPH management plan	Unit role
Air Force	Decentralized to installation or unit; Air Force instruction provides the framework; centralized or decentralized at the installation level	Guided by the Air Force instruction; varies depending on management policy used
Army	Centralized at the installation through new FSBI-CBM (was decentralized) Army-wide by 2010 (pending funding) HOMES4 computerized web-based data and management system; Army-wide by 2009	Units responsible for barracks cleanliness, health, and discipline Coordinates barracks inspection and work with garrison for pre- and post-deployment facility preparation
Marine Corps	Decentralized	Unit commander is responsible for all day-to-day operations, including assignment, cleanliness, health, and discipline
Navy	Centralized—civilian manager oversees all aspects of operations	Shipboard commanders grant approval to live ashore in UPH

SUSTAINMENT, RESTORATION, AND MODERNIZATION

Once they are constructed and ready for use, UPH facilities need continuous care. Not providing this care leads to premature facility failure. Familiarity with the terminology and background of this care provides a better understanding of SRM requirements and the issues that arise when they are not met.³² See Appendix C for detailed SRM information.

“Sustainment” is the recurring and scheduled actions over the life of a facility required to keep it operating and functioning for its designed purpose. “Restoration” and “modernization” (R&M), on the other hand, are efforts usually done much less frequently on the basis of a facility’s degraded, damaged, or obsolete condition or need (for example, replacing a roof or upgrading a facility’s electrical or mechanical system). Deferring sustainment can cause degradation and damage to a facility, leading to

- ◆ unexpected restoration requirements that usually cost more over the life of the facility than is saved by deferring sustainment,
- ◆ unexpected work interruptions to occupants that can lower morale and hamper productivity, and
- ◆ shorter useful life of a facility, thereby foregoing the government’s full return on its capital investment.

³² A fourth type of facility care (besides SRM) is demolition, which occurs when a facility has reached the end of its useful life, has become obsolete and is uneconomical to recapitalize, or is excess to its current purpose and cannot fulfill another facility need.

The total or cumulative sustainment costs over the life of a facility can be significant and must be accounted for to prevent premature failure. The magnitude of sustainment costs for facilities similar to UPH can range from the PRV to more than twice the PRV (Table 3-5).

Table 3-5. Sample Comparison of Sustainment Costs to PRV (50-year period)

Facility type	Gross square feet	PRV (\$ million)	Total sustainment cost (\$ million)	Ratio of sustainment to PRV
1–3 story apartment facility	22,500	4.5	9.7	2.2:1
College dormitory	25,000	6.3	6.4	1.0:1
Motel (40 units)	18,000	3.5	5.1	1.5:1

Source: *The Whitestone Building Maintenance and Repair Cost Reference*, 2008–2009.

Note: Whitestone costs are calibrated for Washington, DC, and vary by as much as 25 percent depending on location. See chapter 4 of Whitestone for an explanation of cost indexes used. Costs are shown in net present value based on Whitestone's calculated interest rates.

The DoD FSM generates the average cost per square foot for calculating facility sustainment requirements. For FY08, the unit cost for FAC 7210, enlisted unaccompanied personnel housing, was \$3.50 per square foot. Several factors—such as location, size, and quantity of facilities—influence sustainment costs, making exact comparisons between specific UPH facilities or groups of facilities challenging. Regardless, maximizing the original capital investment requires consistent and continuous funding to execute all sustainment requirements.

As explained in Chapter 2, an OSD gross measure of the facility condition or quality is the Q-rating. It measures the ratio of unaccomplished or deferred facility work (the backlog) to the PRV (the cost to replace the facility), identifying the facilities in the worst condition, considering mission impact, to guide the use of resources. OSD's upcoming DRRS uses facilities condition as one of several factors to measure readiness. The Army's ISR and the Air Force's Facility Investment Metric (FIM)³³ combine facility condition with mission impact to help apply limited resources to best support the mission.

SRM Budget and Funding

Unlike family housing, which has its separate appropriation for O&M,³⁴ the service O&M appropriation supports most of the installation's operations and other facility sustainment and restoration requirements, including UPH. So, unlike family housing, UPH facilities must compete with all other installation facility O&M needs, including those supporting direct mission operations. Historically, it has been difficult to track actual O&M execution for specific facilities or even by

³³ See Appendix I for more information on ISR and FIM.

³⁴ Both family housing O&M and new construction projects are funded as separate and discrete items within the MILCON appropriation.

facility category. For example, facility service contracts and individual work orders are not necessarily facility-specific but instead may cover units of service across the installation. The National Resource Council's publication, *Investments in Federal Facilities*, found difficulty tracking SRM funds widespread across federal facilities, noting that "expenditures for facilities maintenance, repair, renewal, demolition, and security upgrades probably amount to billions of dollars per year but are not readily identifiable under the current budget structure."³⁵

Ensuring that sustainment funds are used only for sustainment and not other requirements—sometimes referred to as fencing—is an ongoing issue and has both merits and drawbacks. O&M funding is the primary category of funds used to keep military installations running and the facilities in good working order. The O&M appropriation is an annual lump sum appropriation containing three major components: SRM, mission support, and BOS (BOS is subdivided into installation services and facility operations).³⁶

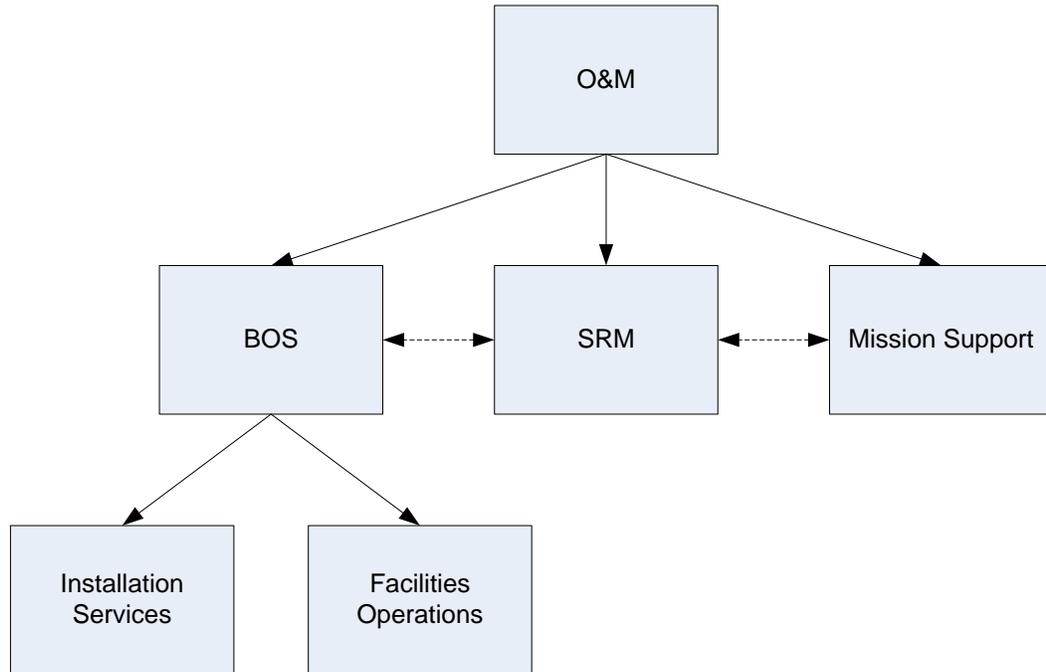
Because it is a "lump sum" appropriation, O&M funding is not fenced for each component of the O&M appropriation, and current rules allow migration of funds between the three (Figure 3-3, dashed lines), regardless of what is actually programmed for each during the budget cycle. These funds are usually managed in detail at the installation level where they are actually expended. Migrating funds between the three components gives installation leadership the flexibility to apply resources where they are needed most to meet mission needs. The drawback is the loss of resources from one O&M funding component to another to meet the needs of the moment, with no assurance they will be reimbursed. An example of this is the 2004 appropriation, which provided \$97.8 billion for O&M, where BOS, SRM, and mission support were originally budgeted \$14 billion, \$5.5 billion, and \$78.3 billion, respectively. However, by the end of the fiscal year, \$1.6 billion had migrated from SRM and mission support to BOS.³⁷

³⁵ National Research Council of the National Academies, *Investments in Federal Facilities, Asset Management Strategies for the 21st Century*, 2004.

³⁶ BOS has not been standardized across the services, further complicating tracking of resources and one-on-one comparisons. For example, the Army has 95 different categories of BOS, the Navy has 124, and the Air Force has 63. The services are currently working toward common BOS definitions (GAO, *Defense Infrastructure: Changes in Funding Priorities and Strategic Planning Needed to Improve the Condition of Military Facilities*, GAO-03-274, February 2003).

³⁷ GAO, *Issues Need to be Addressed in Managing and Funding Base Operations and Facilities Support*, GAO-05-556, June 2005.

Figure 3-3. O&M Appropriation Structure



Sustainment Management and Execution

Each service has latitude to expend its UPH sustainment resources in ways that best meet its needs. Service headquarters program and distribute sustainment resources on the basis of inputs from the field and various models. However, headquarters appears to have had limited visibility of detailed sustainment execution; it is typically monitored at lower echelons. Table 3-6 summarizes how the different services manage SRM for UPH.

Table 3-6. Service SRM Management

Service	Strategy/process
Air Force	Decentralizes execution and monitoring below Headquarters, Air Force
Army	Implements a “focused funding” approach to manage and add visibility at headquarters of UPH sustainment resources “to ensure future Army funding for [UPH]” ^a
Marine Corps	Provides sustainment funding for UPH to sustain barracks in similar condition to other base buildings, ^b assuming barracks (UPH) have no more or less importance or significance than other facilities and that sustainment funds are invested equitably across all facilities on the installation
Navy	Provides sustainment for UPH on a competitive basis with other O&M type facilities; SRM (including UPH) budgeted, programmed, and managed by Commander, Navy Installations Command (CNIC), facilities in coordination with Navy regions

^a Army Barracks Strategic Plan, 2007.

^b Marine Corps BEQ Campaign Plan, 2006.

Not funding a requirement generates a risk. The current OSD standard of funding sustainment to 90 percent of the requirement contributes to this risk in the long run. Risks associated with not funding facilities needs are often not immediately apparent and may not manifest themselves for years. However, when the risk is realized, the cost to recover is almost always more than the deferred sustainment costs. Evidence of this is found in the Navy's Statement before the House Armed Services Committee (May 20, 2009):

Years of underfunding shore readiness in favor of fleet readiness and force structure has also contributed to a steady decline in the condition of shore facilities [including UPH], increasing the maintenance requirements and the total cost of ownership. Our future shore readiness, particularly the recapitalization of our facilities infrastructure, is at risk. ... The result has been increased risk in the shore infrastructure, through increased maintenance requirements and lifecycle costs.³⁸

DoD Real Property Management

In 2001, OSD assessed the services real property information systems to provide programming and budgeting information. The results showed incompatibility among their real property reporting systems. Also, in 2003, GAO added federal real property to its high-risk series due to long-standing problems with excess and underutilized real property, deteriorating facilities, unreliable real property data, and costly space challenges. DoD owns more than 60 percent of the federal real property, including the UPH inventory. Clearly, the management of DoD real property needed attention.

Since the 2001 OSD assessment and the 2003 GAO high-risk series list, OSD has developed several strategic tools to improve real property data management and decisions. Among these is a centralized real property database (which includes condition ratings) providing better information for strategic facility decisions, policy, and budgeting. In 2005, OSD began developing strategic requirements models—the FSM, the Facilities Modernization Model (FMM), and Facilities Operations Model (FOM)—to provide more accurate information for “big picture” SRM and operation requirements. An improved facility recapitalization rate method is being transitioned into the services and OSD facilities databases to help improve strategic facilities decisions.

Like all facilities, UPH is benefitting from these strategic tools in defining requirements. Much effort has been invested in these advancements for managing DoD facilities to reach a long-term solution to the issues identified in the 2001 OSD assessment and the GAO high-risk series. They are improving the identification of requirements and resources needed to take care of DoD facilities throughout their life cycles. As use of these tools matures, more accurate, reliable, and

³⁸ Statement of Admiral Patrick M. Walsh, Vice Chief of Naval Operations, before the House Armed Services Committee, Subcommittee on Readiness, on Navy readiness and the FY10 O&M budget, May 20, 2009.

useful data should lead to better requirements determinations and policy decisions supporting facilities.

There is no “quick fix” to SRM requirements and challenges facing UPH. These requirements are ongoing throughout the 50- to 75-year life cycles of typical UPH facilities and require solutions that will serve UPH facilities through the aging process. OSD’s strategic requirements models should provide the data needed for better informed decisions that address ongoing UPH facility issues. Expending the defined required funds for their intended purposes will need to be tracked or controlled closely to accomplish the expected results of adequate facilities, including UPH.

Chapter 4

UPH Planning

STRATEGIC CONTEXT

DoD has approximately 539,000 facilities worldwide, with a total PRV of approximately \$720 billion. To put housing in perspective, the facility classes of “troop housing and mess facilities” and “family housing” together represent 45 percent of all DoD building assets and 25 percent of all DoD building PRV (Table 4-1).¹

Table 4-1. DoD Facility Asset Comparison

	Buildings ^a	Structures ^b	Linear structures ^c	Total
All DoD facilities (including family housing and troop and mess facilities)				
Quantity (000)	307	184	48	539
PRV (\$ billion)	484	157	79	720
Family housing and troop housing and mess facilities				
Quantity (000)	138	1.5	0	140
PRV (\$ billion)	118	<1	0	118

Source: DUSD(I&E), *Department of Defense Base Structure Report, Fiscal Year 2009 Baseline*.

^a Roofed and floored facilities of one or more levels enclosed by exterior walls.

^b Facilities other than buildings or linear structures, such as towers, wharfs, and storage tanks.

^c Facilities whose function requires traversing land, such as roads, pipelines, and distribution lines.

The primary strategic purpose of the family and troop housing inventory is to deliver effective and efficient support to the warfighter through adequate housing. Top-down strategic guidance addressing housing capability begins with the President’s National Security Strategy.² On the basis of the National Security Strategy, the Secretary of Defense provides interim to long-term guidance (looking out 20 years) to the services through the Quadrennial Defense Review (QDR). The 2010 President’s budget captured the 2006 QDR strategy in an objective that incorporates housing capability: “maintain capable, efficient, and cost-effective installations to support the DoD workforce.”³ The USD(AT&L) SGIP and the

¹ DUSD(I&E), *Department of Defense Base Structure Report, Fiscal Year 2009 Baseline*. There are 10 separate classes of facilities.

² The 1986 Goldwater-Nichols Defense Reorganization Act requires the President to submit an annual report on the National Security Strategy to Congress.

³ See Appendix K for a diagram of the President’s budget strategic goals and objectives.

DUSD(I&E) DISP further define the QDR's housing capability strategic objective as providing

- ◆ capable, efficient, and cost-effective installations;
- ◆ effective, safe, and environmentally sound living and working spaces;
- ◆ plans to eliminate inadequate unaccompanied personnel housing; and
- ◆ adequate family housing and unaccompanied personnel housing to improve the quality of life for service members and their families.⁴

The annual DoD fiscal year budget request is where these strategic objectives, supported by UPH master plans, take tangible form in terms of UPH facility projects (primarily MILCON-type projects). Narrative in the 2010 budget request highlighted UPH as a “special topic”:

Improving barracks and the associated impact on single service members' quality-of life is a critical initiative for the Department to keep recruiting and retaining quality personnel in an all-volunteer force. It is also the right thing to do in view of the substantial improvements made to Family Housing from privatization, and because in this era of high OPTEMPO, housing quality should be commensurate with the sacrifices brave men and women in uniform make every day in defense of our Nation's freedom.

In the budget request as a whole, UPH is embedded in one of the four broad functional categories: “operations, readiness, and support.”⁵ In contrast, family housing at the same level as operations, readiness, and support as one of the four broad categories. This is also true for appropriations, where family housing is classified as one of seven major appropriations, but UPH is again embedded, primarily in two of the appropriations (O&M and MILCON).⁶ UPH is also subordinated in the budget request's performance targets, which have four specific performance measures for family housing but none for UPH. Family housing and UPH provide a similar capability: housing for military members. However, their differing visibility in strategic planning and budgeting processes and documents result in different levels of emphasis, visibility, and perception.

⁴ See Chapter 2 for discussion of the DISP and SGIP. See also Note 1, Chapter 2.

⁵ The four categories are (1) military pay and healthcare; (2) operations, readiness, and support; (3) modernization; and (4) family housing and facilities.

⁶ The seven appropriations are (1) military personnel; (2) O&M; (3) procurement; (4) research, development, test, and evaluation (RDT&E); (5) MILCON; (6) family housing; and (7) revolving funds.

UPH INVENTORY

The *Base Structure Report* shows a broad profile of DoD's facilities. The 2009 report groups "troop housing" and "mess facilities" together as 1 of 10 facility classes. It includes about 12 percent of the total DoD facility square footage (Table 4-2).

Table 4-2. DoD Facility Space Inventory by Facility Class

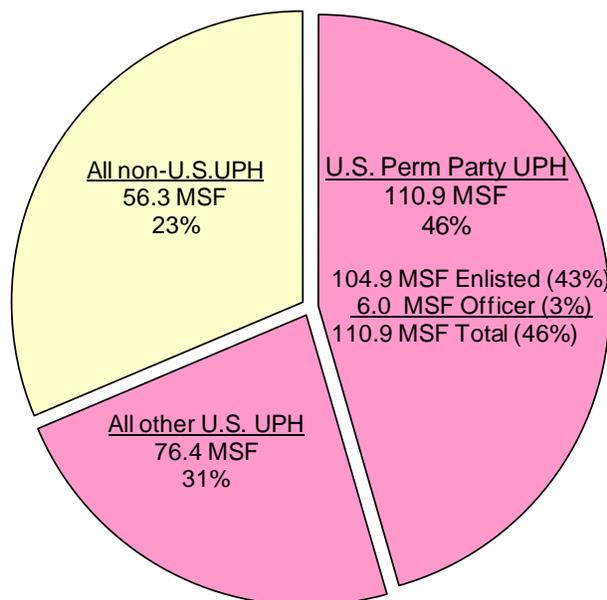
Facility class	Million square feet	Percentage of total square feet
Operation and training	225.3	10.3
Maintenance and production	303.8	13.9
RDT&E	67.7	3.1
Supply	337.7	15.5
Hospital and medical	58.7	2.7
Administrative	227.9	10.4
Family housing	442.8	20.3
Troop housing and mess facilities	261.2	12.0
Community facilities	234.7	10.7
Utility and ground improvements	22.9	1.0
Total	2,182.7	100.0

Source: 2009 *Base Structure Report*. (The data are from services' native real property inventory data systems as of September 30, 2008. Various in-process real property activities, such as privatized housing activities, may not yet be reflected.)

Figure 4-1 shows the relative size of the enlisted permanent party UPH inventory (in million square feet) in the United States compared with the total UPH facility inventory. The permanent party enlisted UPH constitutes 43 percent of the total 243 million square feet of all types of UPH at all locations.⁷

⁷ The OSD real property database contains four major types of UPH (permanent party, mobilization, transient, and student), and the locations are divided into three major geographic categories (U.S., foreign, and territories).

Figure 4-1. All UPH Worldwide by Square Feet (243.7 msf)



Source: 2009 OSD Real Property Database.

Note: Does not include relocatable facilities that are sometimes used to meet interim UPH requirements.

The UPH inventory covers several generations of construction standards, ranging from historic and WWII facilities to the 2+2 configured facility to the 1+1E, Dorms-4-Airmen, Homeport Ashore, and Marine Corps 2+0 configurations used today. Several variables are used to describe a UPH facility. Adequacy for use and assignment is not necessarily synonymous with physical condition.⁸ Although UPH projects are programmed by facility, the number of spaces per facility varies depending on the size of the facility, its style, site parameters, OSD and individual service policies and design standards at the time it was built, and other factors.

The physical condition is one of the most visible, tangible, and commonly used measures to describe a UPH facility. OSD gives each service the latitude to develop methods to determine facility condition adequacy, and each has done so. Services feed facility data into the OSD Real Property Database, and OSD draws from those data to derive a quality rating, or Q-rating.⁹ The Q-rating calculation is a comparison of the estimated cost to restore or modernize a facility with its replacement cost, or PRV.¹⁰ Q-ratings range from Q1 (good), Q2 (fair), Q3 (poor), to Q4 (failing).

Figures 4-2 and 4-3 show two snapshots of UPH for unaccompanied permanent party members located in the United States. Figure 4-2 shows that three quarters (76 percent) of all permanent party UPH in the United States has Q1 or Q2 quality

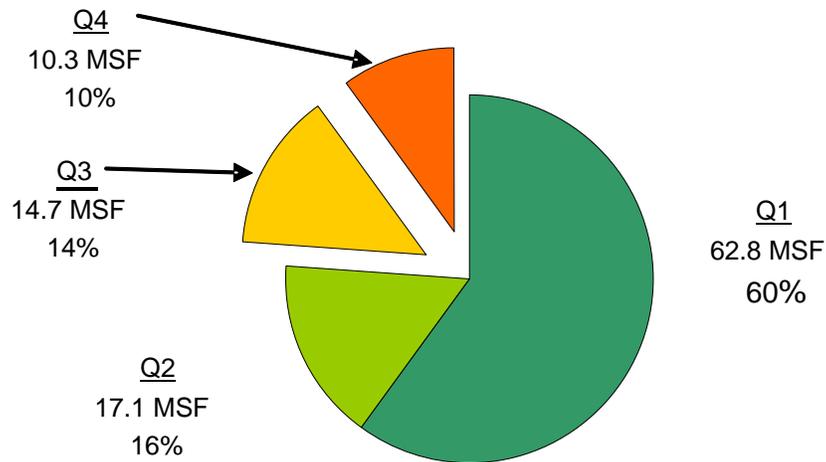
⁸ Chapter 3 details UPH assignment and facility adequacy.

⁹ As implemented through DoDI 4165.14, *Real Property Inventory and Forecasting*.

¹⁰ Q-ratings do not address sustainment requirements. See Appendix B for Q-rating details.

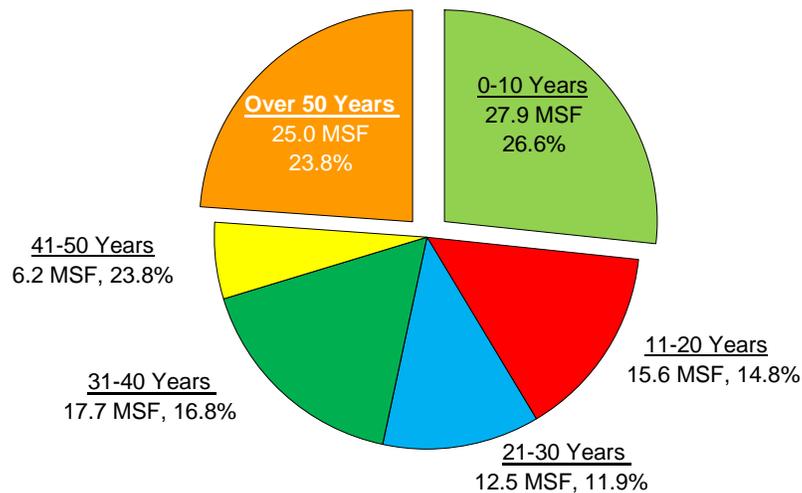
ratings, and the remaining quarter (24 percent) have Q3 or Q4 quality ratings. Figure 4-3 shows about one-fourth of the inventory is 10 years old or newer, about one-fourth is more than 50 years of age, and the remaining half of the inventory is in the 11–50 year age bracket.¹¹ These figures offer insight into the continuing need for maintaining, repairing, and replacing UPH to sustain an adequate UPH inventory.

Figure 4-2. Q-Ratings for Enlisted Permanent Party UPH in United States



Source: 2009 OSD real property database (existing Inventory, not including deficit).

Figure 4-3. Age in Years of Enlisted Permanent Party UPH in United States



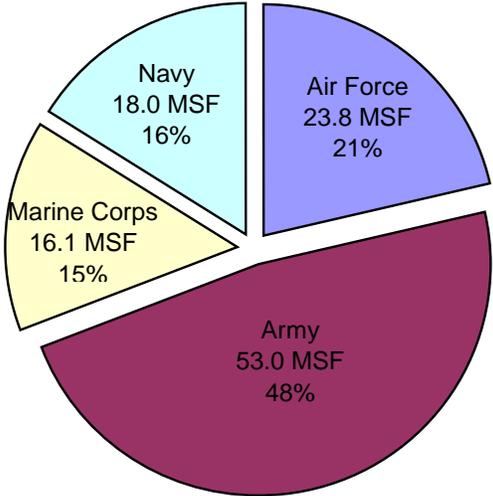
Source: 2009 OSD real property database.

The services have different junior enlisted population sizes, so the distribution of the UPH inventory among them varies. To illustrate this distribution, Figure 4-4

¹¹ See Appendix B for additional analysis of the UPH inventory.

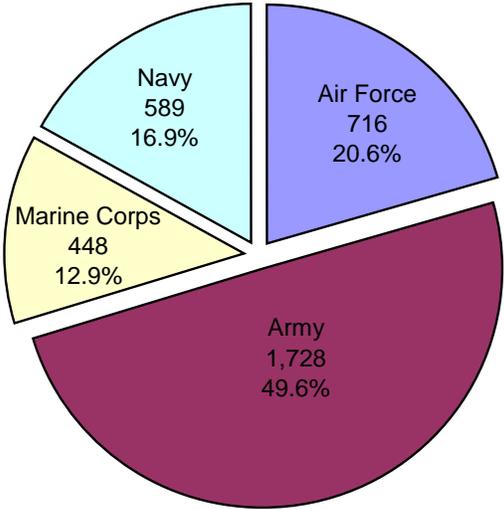
shows each service's portion of the UPH inventory in million square feet (msf) for active-duty personnel in the United States, and Figure 4-5 shows the same service comparison by number of facilities. The Army manages approximately half of all permanent party UPH assets stateside.

Figure 4-4. U.S. Permanent Party UPH by Million Square Feet



Source: 2009 OSD real property database.

Figure 4-5. U.S. Permanent Party UPH by Number of Facilities



Source: 2009 OSD real property database.

Total investment worth in UPH can be measured in terms of replacement value. Given the UPH square footage, Table 4-3 shows a gross average replacement value per square foot (specific replacement value varies per facility depending on geographic location, facility size, and other factors).

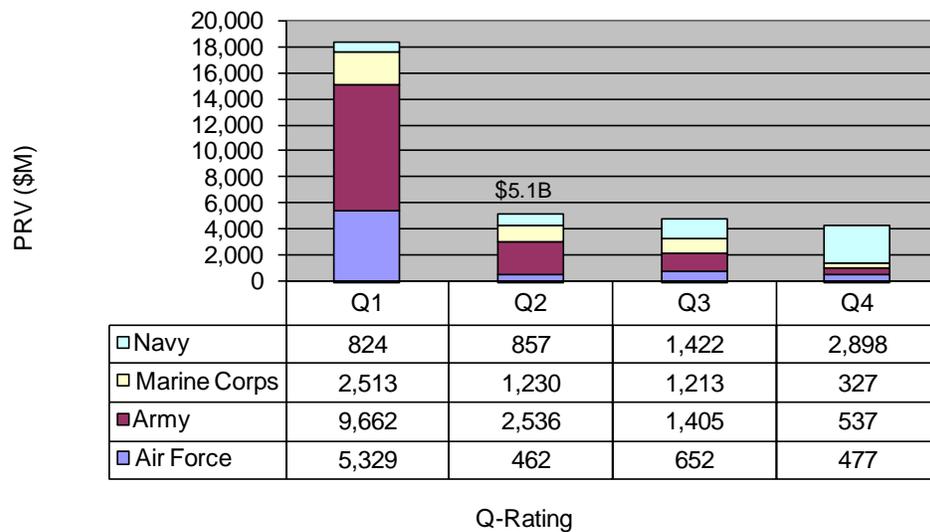
Table 4-3. Average UPH Replacement Value

Category	Floor area (million sf)	PRV (\$ million)	Cost/sf (\$)
All types UPH	243.7	67,591	277
Active-duty UPH	159.2	47,557	298
Active-duty UPH (U.S.)	110.9	32,352	292

Source: 2009 OSD real property database.

Combining quality and PRV data, Figure 4-6 shows the distribution of permanent party UPH condition and PRV per service located in the United States. Close to three quarters (73 percent) of this portion of the UPH inventory has adequate ratings (Q1 or Q2) valued at \$23.4 billion, and the greatest proportion (57 percent) has the highest (Q1) condition rating. About a quarter (27 percent) has inadequate ratings (Q3 or Q4) valued at \$8.9 billion, and about 13 percent has the worst (Q4) condition rating.

Figure 4-6. U.S. Permanent Party UPH PRV and Q-Ratings by Service



Source: 2009 OSD real property database (existing inventory, not including deficit UPH).

UPH REQUIREMENTS

The primary objective of the service UPH master plans is to provide strategies to deliver, manage, and sustain the required number of adequate spaces at the right locations and times to house the projected number of personnel requiring UPH.

This can be a challenging task, given all the variables previously discussed. In the larger picture, the inadequate and deficit spaces merge into a single number that defines the housing requirement to be constructed new, revitalized, or replaced. UPH master plans generally address the major project requirements in terms of number of required spaces and the associated capital cost. In general, UPH major construction requirements are established using three factors:

- ◆ The rank/grade and projected number of members required to live in UPH (generating the total spaces needed—the overall requirement)¹²
- ◆ The condition (adequacy) of existing UPH facilities to house members required to live in UPH (generating the needed replacement or revitalization projects)
- ◆ The number of spaces needed to satisfy the requirement if the inventory or location of existing UPH is insufficient (generating new construction projects).

Replacement, revitalization, or new construction projects are needed when the overall requirement exceeds the number of adequate UPH spaces available. This difference (if any) is site specific, where some locations may have surplus UPH, while others may have deficits. Not taking site-specific requirements into account can distort the UPH requirement: because the overall number of UPH spaces might equal or exceed the requirement, but those spaces might not physically exist where they are needed.

Measuring UPH by the number of facilities or square footage is common in illustrating the magnitude of the UPH inventory and the relative effort required to maintain and manage it. This can be seen in the *Base Structure Report* and other documents and data. Because not all UPH facilities are of the same size or configuration, for purposes of specific project programming, units of “space” are a more appropriate and universal denominator, measured in square feet or square meters and with one space attributed to one person. It may or may not be a private room, depending on service assignment policy (which often differs between legacy and new construction UPH). Future requirements are determined using current design and construction standards and are supplemented by any service-specific requirements, waivers, exceptions, or deviations.¹³

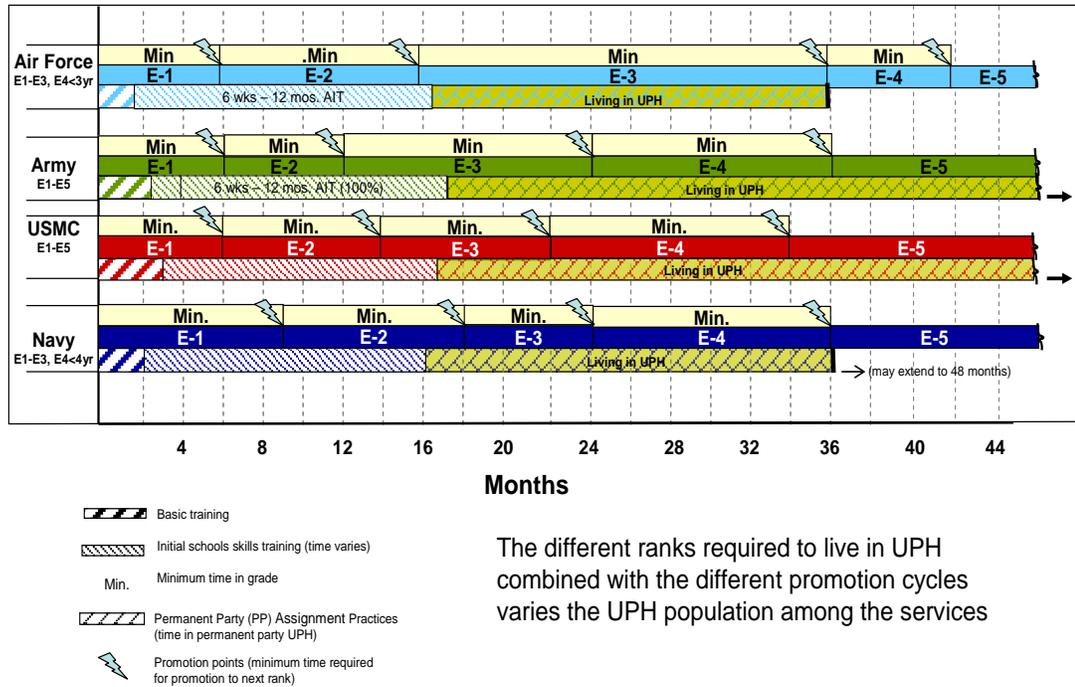
DoD Manual 4165.63-M allows each service to determine who is required to live in its UPH, with rank or grade as the primary criterion or driver. Actual UPH grade criteria vary among the services. In addition, the services have different promotion cycles between grades (Figure 4-7). Combining these variables contri-

¹² The exact number of spaces required varies from year to year due to changing circumstances such as mission, manning fluctuations, and assignment and policy changes. To help control overbuilding, OSD policy limits programming of UPH space requirements to 95 percent of the requirement.

¹³ See Chapter 2 for details on current construction standards.

butes to the dynamics and differences among the services with respect to determining requirements.

Figure 4-7. Minimum Promotion Points per Service (representative) and Required Permanent Party UPH Resident Windows



The current service-determined grades required to live in UPH are as follows:

- ◆ Air Force: E-1 through E-3 and E-4 with less than 3 years of service
- ◆ Army: E-1 through E-5
- ◆ Marine Corps: E-1 through E-5
- ◆ Navy: E-1 through E-3 (shore duty) and E-1 through E-4 with less than 4 years of service (ship duty).

The movement or relocation of personnel and units from installation to installation, troop surges, changing end strength authorizations, and other events can create UPH deficits faster than facilities can be renovated or built and can force older, excess, and perhaps inadequate UPH facilities to be used temporarily to meet the need. Such actions can also create unexpected surplus UPH facilities that must be minimally maintained for safety reasons until occupied, converted, or disposed of. These variables can change the deficit or surplus UPH requirement at any point in time. Table 4-4 shows the current UPH requirement on the basis of 2011 defense budget data.

Table 4-4. Service End Strengths and Projected UPH Requirements

	Air Force	Army	Marine Corps	Navy	Total
End strength, AD component ^a	332,300	547,400	202,100	324,300	1,406,100
Enlisted UPH requirement (permanent party) ^b	51,000	170,000	93,400	42,800	383,612

Note: AD = active duty.

^a DoD FY11 budget request, February 2010.

^b Service congressional request data, February 2010.

SERVICE MASTER PLANS

Since 1995, defense leadership has strongly supported improving UPH.¹⁴ This support culminated in OSD’s establishing UPH standards and guidance and the subsequent development of individual service master plans.¹⁵ The service UPH master plans are the vehicle for implementing higher headquarters UPH requirements and guidance by laying out comprehensive approaches to support changes in force structure and size, provide current facility standards to the greatest extent practicable (such as private rooms), and address issues created in part by inadequate sustainment funding in previous years.

The individual service UPH master plans, like UPH policies and standards, are evolutionary. They are not end products, but rather plans that provide direction to achieve defined strategic objectives and requirements at a point in time. UPH facilities, like other facilities, age and have a finite—but lengthy—life expectancy and continually generate new capital requirements when they near the end of their useful lives or become obsolete or uneconomical. Annual budget cycles do not always fully support master plan requirements, and periodic changes in policies, standards, and requirements impact master plan strategies. All these factors contribute to the strategic and evolutionary nature of UPH master plans and must be kept in mind when using them. For these and other reasons, UPH master plans need consistent updating to remain useful.

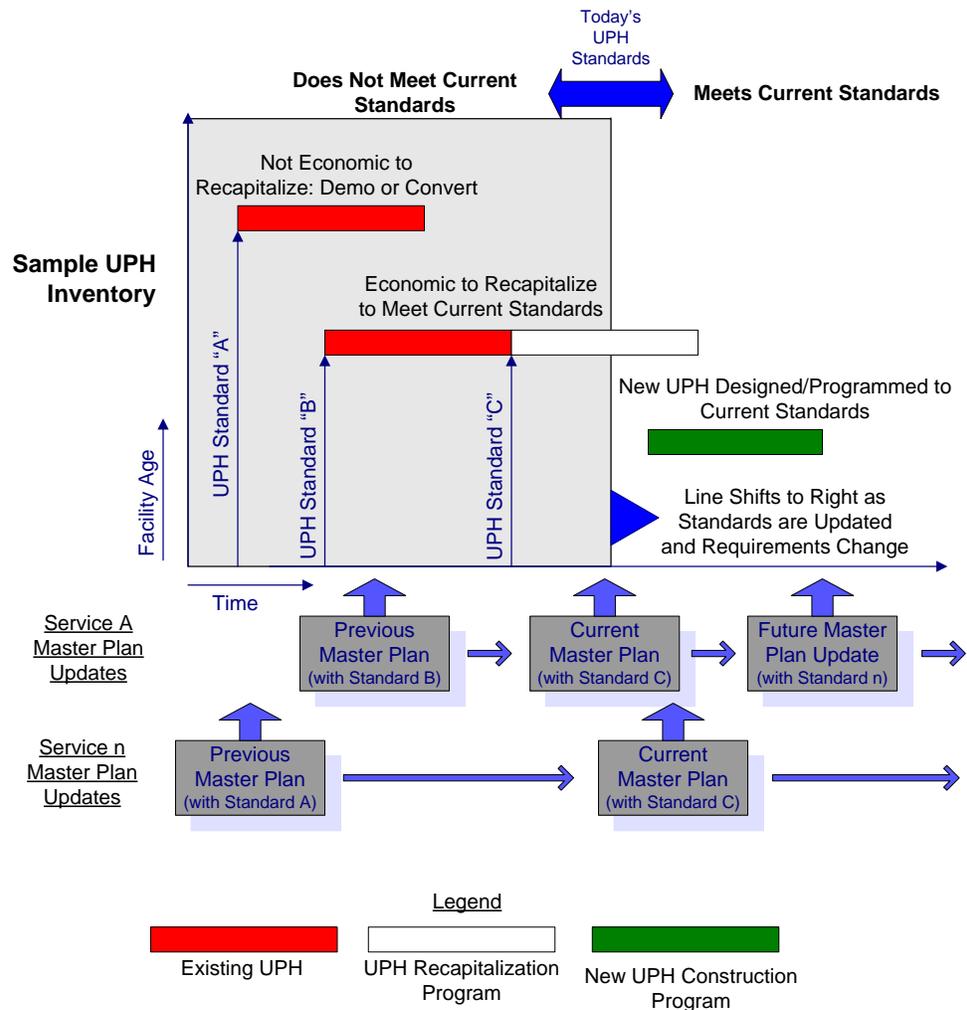
The individual services update their master plans “as needed,” but the frequency varies and interservice coordination is not evident. The update frequency does not appear to correlate with any higher-level strategic planning documents (the DISP, for example). These disconnects diminish the value of the UPH master plans as a planning tool above the service level in providing a current, coordinated picture of all UPH across all services (Figure 4-8). Table 4-5 compares the major

¹⁴ Secretary of Defense memorandum, “Design and Construction of Unaccompanied Enlisted Personnel Housing,” November 6, 1995.

¹⁵ Overall direction for developing UPH master plans comes in part from DoD 4165.63-M, paragraph C.3.2.1.2 (see Appendix H).

components of the latest available service master plans.¹⁶ The components addressed in the master plans vary from service to service, as do vocabulary and definitions of certain components within the plans.

Figure 4-8. UPH Master Plan Update Cycle



¹⁶ The master plans may not include all Grow the Force (GTF) and Global Defense Posture Realignment (GDPR) requirements. See www.acsim.army.mil/installationservices/housing.htm for the Army BSP. See www.marines.mil/unit/logistics/Pages/DivisionLFF3HousingManagement.aspx for the USMC master plan. Contact HQ AF/A7CAH for the current Air Force DMP. Contact Fleet & Family Readiness, Housing Program, or UPH Branch Manager, Commander Navy Installations Command, for the current status of the Navy UPH master plan.

Table 4-5. Features of Service Master Plans

Feature	Air Force	Army	Marine Corps	Navy
Name of plan	2004 DMP (update under review/ coordination)	2007 ABSF	2006 Campaign Plan	Under development (ECD: 2010)
Planned end date to meet adequacy and deficit requirements ^a	2015	2013 (PP) for funding, 2015 for occupancy	2012	2016
Requirements determination	E-1–E-4 <3 YOS population	E-1–E-5 population	E-1–E-5 population	E-1–E-3 shore, E-1–E-4 ship
Capital projects program—PP	Yes	Yes	Yes (attached to plan)	Yes
Capital projects program—training	Yes	Yes	No	Yes
UPH management	No (separate AFI)	Yes	Yes	Yes
Privatization	No	Yes	No	Yes
SRM	Replace ‘worst first’ to make best use of SRM funds	‘Focused Funding’ program to give visibility to SRM funds	Defines processes and responsibilities for SRM	To be considered

Note: PP = permanent party; ECD = estimated completion date.

^a End dates for Army and Marine Corps do not include full effects of Grow the Force and other initiatives.

The required number of adequate spaces (the main driver behind the service UPH master plans) has been estimated by the services through 2015. Table 4-6 shows these estimated permanent party UPH space requirements by service, with a cumulative projected requirement of approximately 390,000 UPH spaces by 2015.

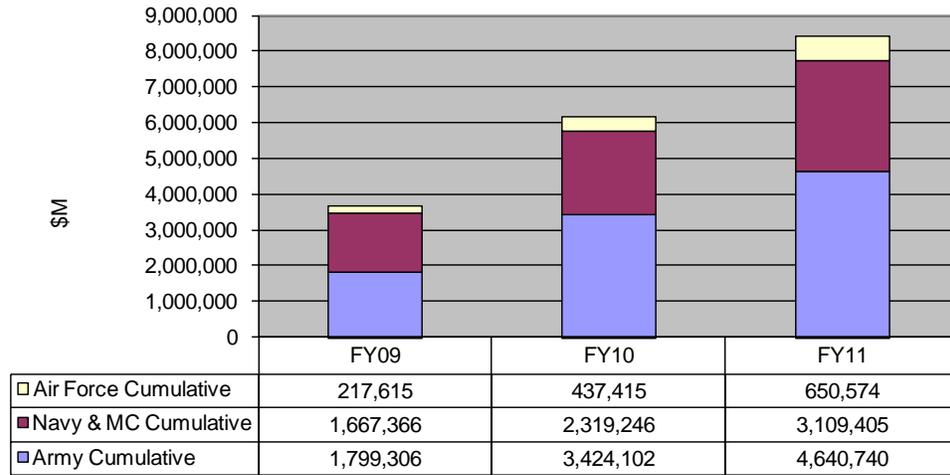
Table 4-6. UPH Permanent Party Space Requirements

Service	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Air Force	51,062	51,062	51,062	50,941	50,941	50,941	50,941
Army	163,257	163,022	164,741	165,976	166,242	166,372	165,771
Marine Corps	93,882	93,882	93,882	93,882	93,882	93,882	93,882
Navy	75,885	73,115	73,927	75,907	78,135	79,141	79,301
All services	384,086	381,081	383,612	386,706	389,200	390,336	389,895

Source: Service response to congressional data request (January 2010).

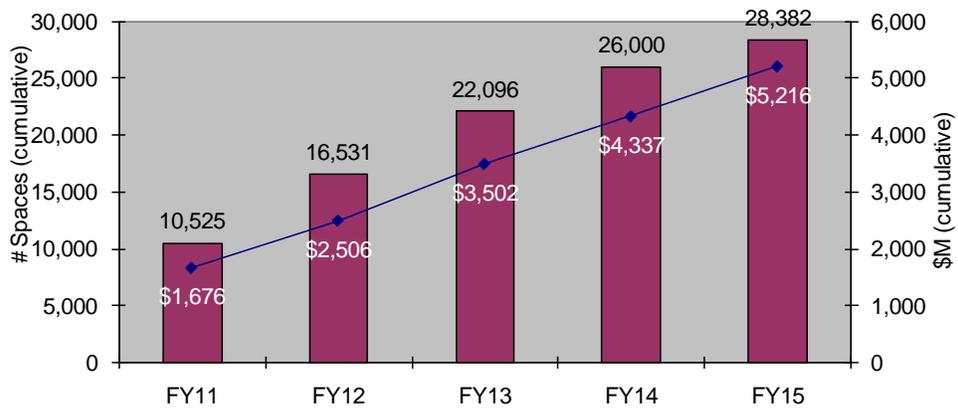
The accumulated, appropriated, or requested funding for FY09–11 for Troop Housing Facilities (including permanent party UPH) totals \$8.4 billion (Figure 4-9). Cumulative, planned, and programmed funding for permanent party UPH for FY11–15 amounts to about \$5.2 billion, which will acquire about 28,300 UPH spaces (Figure 4-10).

Figure 4-9. Troop Housing Facility Funding, FY09–11 (Cumulative)



Source: Service response to congressional data request (January 2010).

Figure 4-10. Permanent Party UPH Requirements, FY11–15 (Cumulative)



Source: Service response to congressional data request (January 2010).

Air Force Dormitory Master Plan

Air Force philosophy considers unaccompanied housing a key tool for recruiting and retaining today’s airmen, who are the future of tomorrow’s Air Force. Dormitories are viewed not simply as a facility or residence, but as a vital part of development and training.

AFI 32-6005, *Unaccompanied Housing Management* (draft), Chapter 1 states the following:

Leadership at all levels is accountable for the success of the Air Force Unaccompanied Housing Program. Emphasis on UH as a Quality of Life (QoL) issue and the impact on readiness and retention have driven new DoD standards and priorities. Air Force dormitories and how we manage them are critical to the development process of unaccompanied Airmen. The Secretary of the Air Force (SECAF) and Chief of Staff of the Air Force (CSAF) are dedicated to providing a quality unaccompanied living environment that balances needs of Airmen with the needs of the Air Force. Our Air and Space Expeditionary Force requires trained warriors and leaders, and the first 3 years of an Airman's career are key years in shaping a future noncommissioned officer (NCO) corps.

Development and training extends into the private lives and living quarters of each Airman. The dormitory is an Airman's personal residence and should be modern, functional, well maintained and comfortable, as well as promote pride, professionalism and personal dignity.

This philosophy is reinforced in the Air Force DMP, initiated in 1999 and updated in 2002 and 2004.¹⁷ The 2004 DMP, more comprehensive than the 2002 version, incorporates the 2003 Corona decision, making E-4s with 3 or more years of service ineligible for BAH,¹⁸ effectively reducing the UPH requirement. It also includes dormitory projects that had already been approved for FY04–09, which reduced the permanent party deficit requirement and eliminated permanent party dormitories with gang latrines.¹⁹

The Air Force uses an integrated total facility condition score (TFCS) to prioritize its UPH projects in the DMP, using a “worst-first” approach. The TFCS uses a scoring scale (0 to 5) to rank its UPH projects. Ranked projects are then grouped into three tiers, each of which indicates the overall condition and general sustaining investment strategy (Table 4-7). The threshold for generating requirements can vary. For instance, the 2004 DMP rates any UPH facility with a TFCS score of 1 or less as a “worst case” requirement. As the number of UPH facilities with ratings of 1 or less diminishes, the score threshold can be increased to improve overall UPH quality. The Air Force's tier rating system is a more comprehensive UPH facility condition indicator than the Q-rating system and is independent of the Q-ratings calculated by OSD. The tier ratings are developed with on-site assessments, deficiency costs, and life-cycle sustainment costs, and the Q-rating system is based on a simpler “requirements programmed/PRV” calculation.

¹⁷ An updated DMP is pending release.

¹⁸ Corona conferences are periodic meetings of senior Air Force leaders for open discussion of issues affecting the Air Force's future.

¹⁹ The standard Air Force Dorms-4-Airmen facility consists of 96 bedrooms or 24 4+1 modules. If the deficit is below this 96 or is not a multiple of 96, the Air Force may not find it economical to build an entire dormitory and therefore may seek alternate strategies for accommodating the requirement (such as having higher grades or more E-4s draw BAH).

Table 4-7. Air Force UPH Assessment Matrix

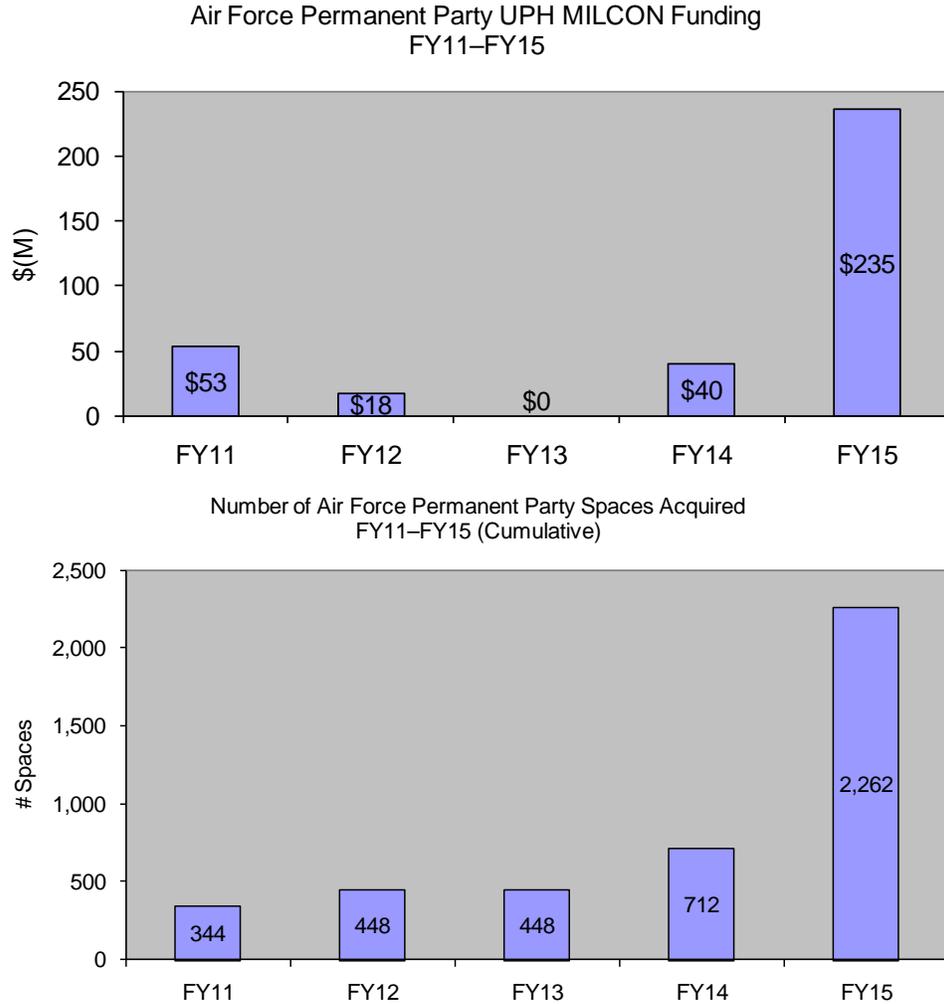
Total TFCS	Tier	Description
0.00–0.99	1	Inadequate: facility exceeded useful life. Replace facility; limit O&M SRM investments.
1.00–2.49	2	Degraded but serviceable: facility at point where major systems need repair to retain serviceable life. Provide MILCON or O&M R&M investments.
2.50–5.00	3	Adequate: all systems adequate (10-year projection). Invest in sustainment.

Starting in FY01, the Air Force centralized its UPH MILCON investment program to build deficit dorms, address critical replacement needs, eliminate central latrine (gang latrine) dorms, and eliminate shared rooms for permanent party members. To help reach these objectives, the Dorms-4-Airmen module was established as the Air Force's UPH standard for permanent party members. Starting in the FY08 POM, the Air Force decentralized its UPH MILCON program to the major command level, although there is still thought about recentralizing the UPH MILCON requirements management.

Through prior year efforts, the Air Force has eliminated all permanent party gang latrine/central latrine UPH, and no permanent party members share UPH rooms (all have private rooms). The current Air Force UPH objectives include eliminating permanent party Tier 1 UPH facilities by 2015, and extending the life of Tier 2 UPH facilities, using a combination of R&M and MILCON resources.

The Air Force currently has a non-surplus inventory of 792 UPH facilities (all types). Of this inventory, 73 percent (577 facilities) is for enlisted members. Of these, about 9 percent (53 facilities) is classified as Tier 1, 36 percent (211 facilities) as Tier 2, and 55 percent (313 facilities) as Tier 3. As of September 2009, the Air Force plans to acquire 2,262 permanent party UPH spaces in FY11–15 at an estimated cost of \$346 million (Figure 4-11) toward meeting its master plan objectives.

Figure 4-11. Force Projected Permanent Party UPH Acquisition, FY11–15



Source: AF/A7CAH briefing to OSD Comptroller, September 30, 2009.

Army Barracks Strategic Plan

The 2007 ABSP replaces and expands on the 2004 *Barracks Master Plan*.²⁰ It explains the Army’s holistic plan for addressing and managing UPH issues and requirements and how it supports the overall Army vision and mission by improving soldier housing to help attract and sustain a highly competent all-volunteer force and improve readiness. The Army had not fully defined Grow the Force (GTF), Army Modular Force (AMF), Global Defense Posture Realignment (GDPR), and Base Realignment and Closure (BRAC) 2005 developing requirements when it published the 2007 ABSP.

The holistic approach of the ABSP addresses all ACSIM UPH barracks initiatives (permanent party, training, and operational readiness and training complexes),

²⁰ The next ABSP update is scheduled for 2010.

sustainment, management (FSBI), privatization initiatives (E-6 and above), furnishings, condition and assignment criteria, and design standards. It also incorporates the Army's barracks complex, which includes company operations facilities, battalion headquarters, brigade headquarters, and dining facilities. Army philosophy considers these facilities integral to the mission and functioning of the unit and how it is housed. Barracks complex requirements are integrated with UPH space requirements in the ABSP project lists.

The 2007 plan shows approximately 80 percent of the requirement being met with current adequate UPH. The ABSP "buys out" all inadequate and deficit permanent party barracks requirements by 2013, with construction completed and ready for occupancy by 2015 (not all space requirements for GTF, AMF, and GDPR were known and included).²¹ Members in grades E-6 and above and voluntary geographic bachelors are excluded from the Army's CONUS UPH requirement. The Army's ambitious UPH program expects to have about 70 percent of all its UPH meeting the 1+1 or equivalent assignment standard by the end of FY10.²²

In 2007, the Army had approximately 100,000 adequate permanent party UPH spaces and a total requirement of approximately 122,200. The 2007 ABSP provided for approximately 27,000 spaces to be funded through the MILCON process in 2008–13 at an estimated cost of \$6.4 billion. This higher number of spaces anticipated the additional number of spaces that would be needed to meet GTF, AMF, and GDPR requirements that were still under development. In addition to UPH spaces, the costs included other facilities that are part of the Army's "barracks complex" concept.²³

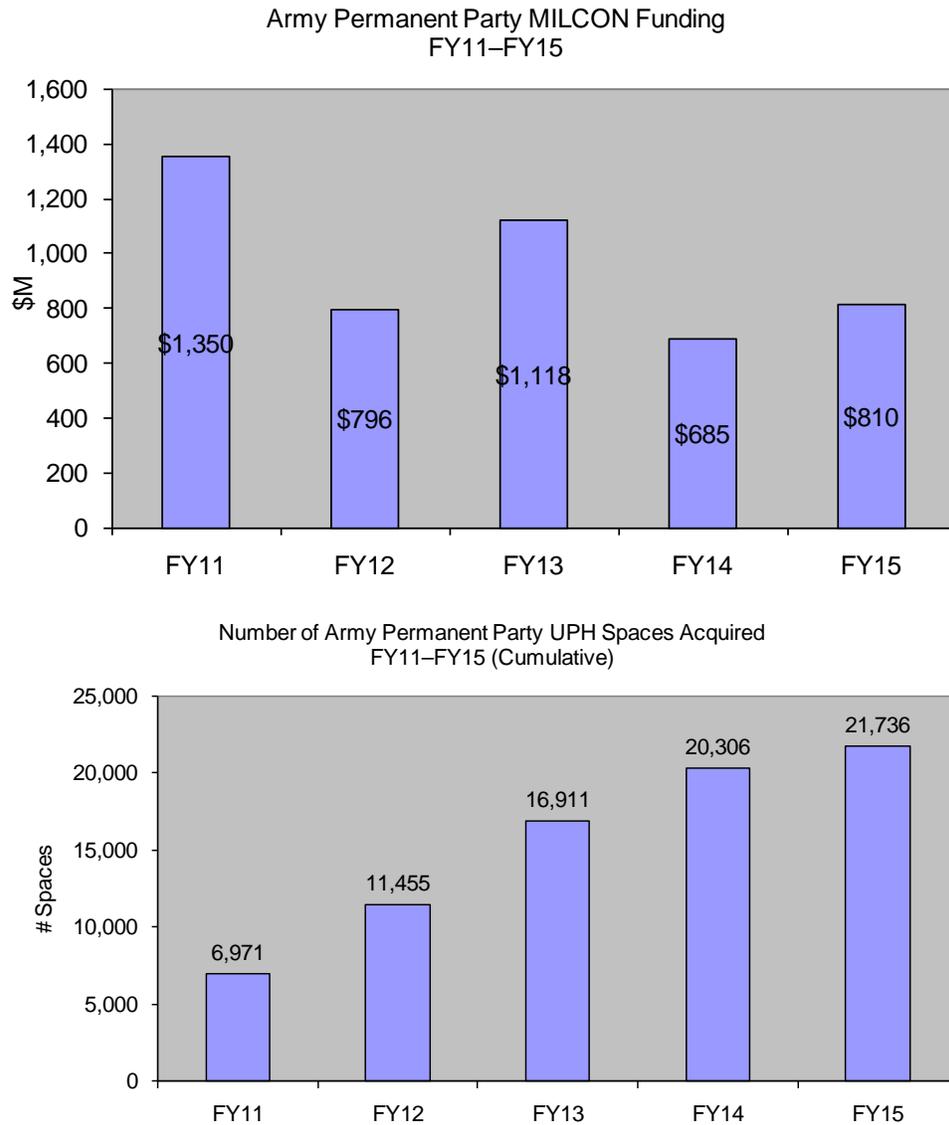
On the basis of more accurate GTF, AMF, and GDPR data, as of September 2009, the Army's adjusted program will acquire 21,736 permanent party UPH spaces in FY11–15 at an estimated cost of \$4.76 billion (Figure 4-12) toward meeting its master plan objectives.

²¹ For training barracks requirement (106,000 spaces), the ABSP buys out all inadequate and deficit training barracks requirements by 2015 and completes construction and has them ready for occupancy by 2017.

²² See Note 29, Chapter 3.

²³ In the barracks complex concept, barracks have bed spaces, but other inclusive facilities normally do not.

Figure 4-12. Army Projected Permanent Party UPH Acquisition, FY11–15



Source: ACSIM ABSP briefing to OSD Comptroller, September 29, 2009.

Marine Corps Bachelor Enlisted Quarters Campaign Plan

The 2006 Marine Corps BEQ campaign plan updated the 1999 plan to address concerns and implement recommendations from current UPH residents, senior enlisted personnel, and Corps-wide UPH management. It states the following:

It is the Commandant's vision to ensure that we are committed to improving our enlisted Marines Quality of Life (QOL) through effective leadership, the reduction of inequities, and providing the appropriate standard of living these young men and women so rightfully deserve.

It goes on to say that these three goals relate to improving the quality of life for bachelor enlisted Marines by

- ◆ building additional barracks necessary to eliminate the space deficiency by 2012,
- ◆ achieving a 2+0 assignment and construction standard (the Marine Corps standard) by 2012, and
- ◆ eliminating inadequate barracks (determined by facility condition or Q-rating) by 2012.

Marine Corps leadership fully supports quality UPH, as stated, for example, in testimony before the House Appropriations Military Construction Subcommittee in March 2008:

Bachelor housing is my top Military Construction priority. Beginning in Fiscal Year 2008, we began the Bachelor Enlisted Quarters Initiative. For the longest time, we placed some of our operational priorities above these projects. We have put ourselves in extremis with regards to new barracks as we have degraded their priority for decades in lieu of operational requirements. In concert with this written statement, I have enclosed photographs of some of our most pressing requirements for barracks renovation and replacement. We are now committed to providing adequate billeting for all of our existing unmarried junior enlisted Marines and non-commissioned officers by 2012—and for our increased end strength by 2014.

The campaign plan focuses on policy, roles, and responsibilities for operating and maintaining UPH. General policy areas addressed include unit cohesion, assignment standards, utilization, room changes, pregnant marines, and geographic bachelors. UPH policy includes guidelines relating to alcohol, cable television, damages, electrical safety, flammable storage containers, furnishings, guests, maintenance, prohibited items, noise, parking, security, storage, theft, trash, and washers/dryers. Guidelines for all levels of command, from the unit to headquarters, are also part of the plan. Specifically, the plan provides guidelines for installation commanders and UPH managers for determining requirements, construction, maintenance (including SRM), redesignation/diversion, information system support, UPH organization, and staffing. The actual UPH acquisition plan is developed separately, but is based on and made part of the campaign plan.

In 2008, supporting data for the 2006 campaign plan projected that the 2012 UPH requirement would be 97,600 spaces, not including GTF requirements, which were under development. Approximately 69,450 spaces were adequate or substandard (but not inadequate) and usable. The plan provided for constructing approximately 27,600 spaces in its 2008–11 MILCON program toward meeting its 2012 goal at a cumulative cost of approximately \$2.3 billion.

In addition to new construction, the Marine Corps plans to accomplish the following in 2008–11:

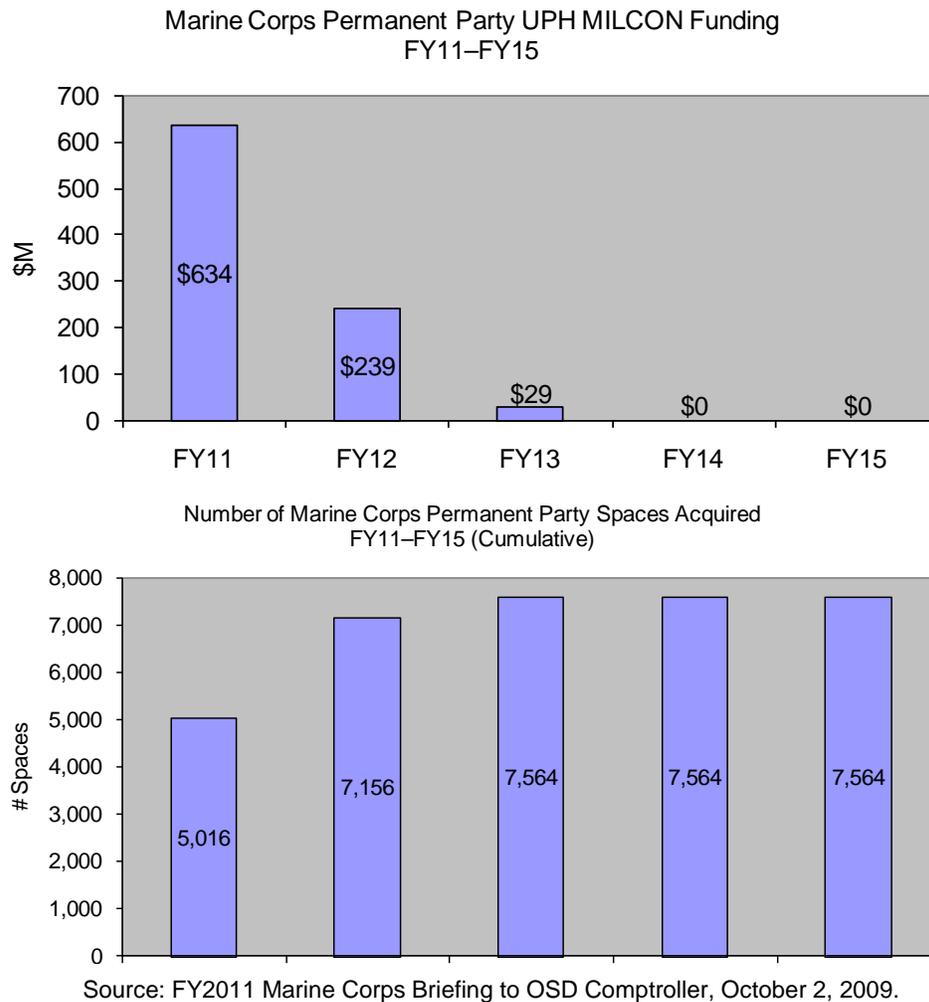
- ◆ Replace approximately 1,880 existing spaces with MILCON funding, at a cost of \$194 million.
- ◆ Restore approximately 10,250 spaces with O&M funding, at a cost of \$226 million.
- ◆ Demolish approximately 3,580 spaces with O&M funding, at a cost of \$8.7 million.

The campaign plan has been well supported in the recent past. For example, the May 2009 Marine Corps statement before the House Appropriations Committee shows that Congress provided \$500 million for 6,700 spaces in FY07–08, followed by \$1.2 billion in FY09 for constructing 12,000 spaces, each designed in the established Marine Corps standard configuration of two-persons per room.²⁴

Defining and integrating the GTF requirement at 202,000 end strength, along with other adjustments, has modified the target date to “fix barracks” from 2012 to 2014. The Marine Corps efforts to modernize its UPH inventory remain aggressive. As of September 2009, it plans to acquire 7,564 permanent party UPH spaces in FY11–13 at an estimated cost of \$902 million toward meeting its 2014 objectives (Figure 4-13).

²⁴ Statement of General James T. Conway, Commandant of the Marine Corps, before the Committee on Appropriations, Subcommittee on Military Construction, Veterans Affairs, and Related Agencies, May 6, 2009.

Figure 4-13. Marine Corps Projected Permanent Party UPH Acquisition, FY11–15



Navy Bachelor Housing Master Plan

The Navy's *Ashore Vision 2035* (NAV2035), a long-term effort to redesign and transform Navy installations to support future maritime strategies, includes bachelor housing as part of the larger Navy shore establishment. It states the following:

As an essential enabling element, the Navy's shore component will adapt and be a versatile agent of support. It will deliver the right capabilities, in the right places at the right time. Ever mindful of the responsibilities of good stewardship, we are driven to sustain this support at the right price. CNO's vision for Navy shores establishment is ... to provide "world class" facilities for our Sailors and families through a prudent, sustained resource investment strategy.

The vision improves shore infrastructure through a systems-based approach that addresses global requirements through a comprehensive assessment of mission contribution, looking at condition, capacity, configuration, and capability. Shore investment objectives will, among other things, arrest and reverse the decline of Navy facilities; improve the quality of service for sailors, civilians, and families; and create an environment of military community through an optimal mix of Navy and private investment to enhance quality of life.

The Navy *Bachelor Housing Master Plan*, currently under development, will chart the Navy's way ahead for UPH. To help define its long-term UPH strategy, the Navy contracted for an assessment of its bachelor housing, including a comparison of the cost of government-run UPH with a public-private venture model. This study is anticipated to be completed in 2010.

The plan is expected to address the key Navy bachelor housing elements of capacity, condition, configuration, and capability and desired end state.²⁵ Supporting this is an inventory management effort to validate UPH real property records, a UPH construction standards review, a review of management standards, and recommendations for sustainable funding.²⁶ The Navy calculates bachelor housing requirements annually.²⁷ On the basis of outyear Navy populations (also known as baseloading), current inventory, housing requirements market analysis, and funded MILCON and UHP privatization assets under construction, 5-year requirements are projected using the current Navy minimum standard of one person per room (minimum 90 square feet per person).

Current Navy efforts with the Homeport Ashore goal will provide all permanent party members assigned to ships a UPH space to improve the quality of unaccompanied junior enlisted housing, using interim assignment policy standards until the full space requirement can be accomplished.²⁸ The Homeport Ashore effort has generated a significant increase for bachelor housing requirements, similar to the Marine Corps and Army "grow the force" requirements. Since 2000, the number of members living aboard ship while in homeport has decreased from approximately 25,000 to 9,000 by 2008, with the objective of eliminating all the Homeport Ashore deficit by 2016.^{29,30}

²⁵ Release of the Navy UPH master plan is pending at the time of this report.

²⁶ Navy Bachelor Housing briefing at Professional Housing Management Association, February 1, 2010.

²⁷ Annual requirements are recorded on the R-19 report.

²⁸ Interim assignment standard: two sailors per bedroom, no less than 55 square feet per person, no gang latrines, and no open bays.

²⁹ Using the Navy's interim assignment policy standard of 55 sf per person (from the statement of Admiral Walsh before the House Armed Services Committee, Subcommittee on Readiness, May 20, 2009).

³⁰ See Note 26, this chapter.

In conjunction with the Homeport Ashore initiative, the Navy is also providing its members UPH through privatization using limited, congressionally approved and directed pilot projects. The privatized UPH provides members with market-style configurations and accommodations (two bedrooms, two baths, kitchen and living room, designed and constructed to local market standards).

In parallel, the Navy is focusing on repairing or modernizing its worst UPH (those with Q4 ratings)³¹ to adequate standards (minimum Q2 rating) by investing \$75 million per year over 10 years, starting in 2011.³² The Navy's 2009 statement before the House Armed Services Committee shows planned use of funding from the American Recovery and Reinvestment Act to help address recapitalization of the Navy's worst-condition UPH.³³ The Navy's current overall objective is to eliminate substandard facilities by 2020 with a focus on Q4, open bay/gang latrine, and non-historic facilities over 50 years old.³⁴

As of September 2009, the Navy plans to invest \$787 million of MILCON effort in FY11–15 in its permanent party UPH program toward meeting its master plan objectives (Figure 4-14). This estimate may change as the Navy UPH master plan is finalized and released.

Figure 4-14. Navy Projected Permanent Party UPH MILCON Funding, FY11–15



Source: Navy Shore Investment PR11 Barracks Overview to OSD Comptroller, October 2, 2009.

³¹ Q-ratings based on a 2008 OSD-directed room-by-room inspection survey. Q-ratings generated by this inspection differ from those in the OSD real property database. Q-ratings used in base structure reports and other official documents are accomplished on a facility basis.

³² FRAGORD 01 to CNIC N4 POM-12 WARNORD, March 18, 2009: Shore Program Objective Memorandum, Fiscal Years 2012–2017 (POM-12).

³³ Statement of Admiral Patrick M. Walsh, Vice Chief of Naval Operations, before the House Armed Services Committee, Subcommittee on Readiness, on Navy Readiness and the FY10 O&M Budget, May 20, 2009.

³⁴ See Note 26, this chapter.

Chapter 5

Alternative UPH Approaches

The military services have transformed their government-constructed and -operated family housing assets into an inventory that is financed, renovated, constructed, and operated by private-sector business partners. The resulting elimination of inadequate homes, upgrade to higher quality standards, and better housing services has, by most measures, been hugely successful. For these reasons, the military services are considering whether to pursue this type of solution for the junior unaccompanied housing inventory to address similar issues.

In contrast to family housing, however, privatizing UPH is considerably more complex and poses greater risks than it might first appear. Critical differences in service culture and mission preclude any single solution that will neatly resolve all the services' privatization concerns. For example, the Navy's push to achieve Homeport Ashore goals may more than offset some of the factors concerning UPH privatization. The Air Force, on the other hand, has a UPH inventory that generally meets current needs and may be less likely to find high value in the privatization option. The Army has, for the present, decided to limit its UPH privatization to the senior grades, where developers consider the market risk sustainable. This chapter focuses on the current privatization efforts of the Army and Navy. The Air Force and Marine Corps have not undertaken any privatization efforts to date.

In this chapter, we review a range of factors that must be considered to understand the challenges in privatizing UPH. Factors associated with market and demand, funding sources and financing, the military "acculturation" of its single junior enlisted members, and command and control each have critical value judgment and pragmatic dimensions that the services must recognize and resolve if privatized UPH is to progress beyond a pilot program. We also summarize parallels with university student housing because universities face many of the issues in housing students in an age group similar to that of the junior enlisted service members. The chapter concludes with a summary analysis comparing the payment of full BAH with the MILCON and O&M practices currently in use across the services.

UPH PRIVATIZATION FACTORS

Previous chapters have underscored the differences between the military services—especially their respective cultures. Those differences are magnified when examining the pros and cons of UPH privatization. In this section, we summarize those factors, and when appropriate, reference the Navy's pilot experience for comparison. We are mindful that Navy project parameters—and culture—are unique.

Command and Control

The historic UPH environment is conducive to exercising leadership that results in the junior single service member's continuing immersion in the service culture, values, and expectations—whether on assignment, in training, or during after-hours. Privatized UPH could interrupt this dimension of junior member acculturation because the service members must sign leases.¹ This simple requirement, a routine event in the civilian world, is a seismic jolt in the military environment. It establishes formal and legally enforceable obligations of the junior unaccompanied military members to the landlord—an independent civilian entity that runs, maintains, and controls the housing. This new approach may appear to dilute the authority of commanders and impede leadership access to the resident facilities. Such access would be at the discretion of the privatization managers or by consent of the residents. Commanders could be curtailed in exercising military leadership with traditional mechanisms such as unannounced inspections, requirements for after-hours work details, or ad hoc training activities.

We have not found command and control issues associated with married junior enlisted members, but after-hours access to married member homes is clearly not authorized or expected. Married junior enlisted are presumed to fulfill unit integrity and member cohesion expectations during their primary duty hours and are therefore not distracted from their family responsibilities unless deployed.

Service Culture and Unit Integrity

Privatized UPH presents special challenges for maintaining unit integrity. Property managers will put a high priority on keeping UPH units occupied and producing a revenue stream. Considerations in assigning UPH residents of the same platoon or squadron to the same building or floor become secondary. The Navy focuses its development of unit integrity and member cohesion on board ship and underway at sea.

This issue is not insurmountable, but to succeed, privatized UPH requires a special effort in building viable local partnerships that accommodate both business objectives and service culture to ensure that unaccompanied junior enlisted personnel maintain a high state of readiness. An August 2008 report suggests that cooperative arrangements between the government and its business partners could greatly reduce concerns that commanders may have regarding UPH access restrictions.²

¹ As noted previously, the Air Force uses the term “bluing,” and the Army term is “greening.”

² Report of the Forum on Privatization and Partnerships, *The Promise of Public-Private Partnerships*, jointly sponsored by the Urban Land Institute and Woodrow Wilson International Center for Scholars and supported by Jones Lang LaSalle, August 2008.

Focus on UPH utilization is not confined to privatized UPH. The services have been criticized in past years for issuing too many certificates of non-availability while rooms sit vacant, although the practice was sometimes warranted based on poor facility condition. The Army's First Sergeant Barracks Initiative took a major step in improving utilization management. Army unit integrity is currently focused primarily at the brigade level.

Quality Standards

As found in privatized family housing, UPH new construction has resulted in attractive contemporary apartment facilities with features and amenities comparable to private-sector standards. Private baths, ample living space, in-unit laundry facilities, and full kitchens are standard. Internet cable service (sometimes offered without fee), storage for personal goods during deployment, and adequate parking are provided in privatized UPH. Perhaps of equal importance to the service members is the standard of service, including responsive maintenance, caring management teams, and a host of after-hours activities.³

Privatized UPH has a significant advantage in the sustainment built into each deal. A portion of the rent revenue stream is set aside for continuing maintenance, repair, and reserves to fund future system replacements, so these facilities are considerably less likely to suffer the neglect often experienced in government UPH. Funding for this continuing requirement, unlike government O&M funding practice, is not discretionary.

Funding Privatization

BAH

The source funding for privatized housing is the rent stream from service member tenants. That rent stream is largely funded by BAH.⁴ Junior enlisted members are not authorized BAH, unless no UPH accommodations are available. The services, therefore, have only limited BAH funding built into their personnel programs and budgets to support this requirement. As previously stated, funding for government UPH is derived from MILCON for construction and from O&M for sustainment operations. If privatized UPH projects were to increase in number, the services would need to offset the BAH increase with a budget base transfer of MILCON, O&M, or other DoD funding. The Army estimates its annual "BAH bill" would exceed \$3 billion/year. In most cases, the MILCON/O&M transfer would be insufficient to provide a full offset. Moreover, the services would see their spending flexibility significantly curtailed, since BAH is an entitlement.

³ The 10th Quadrennial Defense Review of Military Compensation (February 2010) report shows in-kind benefits on the installation, such as fitness centers, recreation centers, commissaries, pools, and other activities (similar to those observed during visits to privatized UPH) are consistently undervalued by military members compared with similar civilian-sector benefits.

⁴ See Appendix O for BAH definitions and demographics.

Under special authority granted for the Navy privatized UPH pilot projects, a concept of “partial BAH” was used to ensure adequate revenue to construct and sustain the projects. Amounts ranging from 65 percent to 75 percent of the full BAH (without dependents) rate proved necessary for these projects to go forward. Each service member referred to privatized UPH must sign a lease in order to start rent payments flowing to the project. As with its family housing privatized projects, the Navy added MILCON funds and contributed existing UPH facilities to help ensure project success. Existing facilities were renovated to upgrade the living standard and eliminate deficiencies.

Business case analyses have demonstrated the cost-effectiveness of privatization. These analyses assume that the government would fund SRM at levels expected to meet life-cycle needs. However, such assumptions are probably not realistic given historic budget and execution practices. Calculations that use the actual government expenditures on SRM reduce the expected financial advantages of privatization, because they don’t include the inevitable out-year funding spikes caused by underfunding SRM. For example, the Army had to reprogram/reallocate significant O&M dollars to UPH following the Ft. Bragg U-Tube video⁵.

DEMAND

A key reason for constructing UPH facilities to a market-style configuration is to preserve the option to rent to civilians, in the event service member demand declines. At large permanent fleet concentrations such as Hampton Roads and San Diego, such demand is not likely to diminish—especially where privatized UPH offers higher quality standards, but serves only a portion of the service member population. That demand picture is more tenuous at smaller installations, especially those where major deployment evolutions can vacate significant portions of the UPH inventory on short notice. When forces deploy for extended periods from installations with assigned operating forces, UPH is either left vacant or made available to military units returning from deployments. Depending on the tempo of operations, unit rotations can be unpredictable. However, deployment risk could be mitigated by grouping installations into larger projects and establishing a “deployment reserve fund”.

Short-term leases could be administered by the privatization business partner, but the high rate of turnover increases wear and tear on the facilities and increase administrative and management requirements. Such vacancies and resident turnover can place significant stress on the revenue stream, unless authorization is in place to extend leases and the rent stream during deployments. Alternatively, project funding must be adequate to allow for high turnover and vacancy levels that can exceed those in the private-sector rental market.

⁵ U-Tube Video dated April 22, 2008 reporting on poor barracks condition for Charlie Company 2/508 82nd Airborne.

San Diego and Hampton Roads are located in urban areas with significant apartment rental demand, but a majority of defense installations are in more rural locations where rental demand is more limited. At those locations, expecting the private-sector market to readily offset a loss in service member demand is unreasonable. Privatized UPH for junior service members at those locations therefore presents a higher project risk.

For privatized UPH to offer the option for market rental, the property would most likely need to be located adjacent to the fence line or off base. Most existing UPH facilities are more commonly located close to the service member's work site and away from fence lines to improve security and minimize transportation needs. Building or renovating UPH to a market configuration standard instead of the current OSD standard 1+1 configuration is necessary to make it attractive to the rental community, but this increases space allowances and the per-space cost of construction.⁶

Notwithstanding the foregoing rationale, the Army has demonstrated that privatized UPH for senior grades (staff sergeant through O-3) is feasible—especially at installations where quality affordable rental properties are in short supply. Business partners providing privatized family housing at five Army bases have stepped up to build senior apartments of a quality similar to those being constructed under the Navy's pilot UPH for the junior grades. The full BAH rates for the senior grades have proven sufficient to support these Army initiatives, based on the provisions that no Army equity contribution is required, rental rates for the one bedroom apartment is generally pegged to an E-6 BAH, and rent for sharing a two-bedroom apartment is less than E-6 BAH rate⁷.

BUDGET SCORING

In the Budget Enforcement Act (BEA) of 1990, Congress established financial “scoring” rules to measure the government's cost and risk when obligating future expenditures. Under the BEA, the anticipated cost of the proposed legislation is “scored” in the annual budget (legislative scoring), and the cost of each project is accounted for as separate outlays (transactional scoring). In the case of privatized housing, projects are scored in the current budget year based on the government's cash contribution and the risk of borrower non-payment. A score that is too high can doom a proposed project, because it would require the government to budget large future costs up front.

As of September 30, 2010, if not postponed, the scoring rules will end and privatization projects could be scored as if they were long-term leases or acquisitions of government assets (i.e., total development cost). Also, obtaining special legislation similar to the Navy's special authority for the Norfolk and San Diego pilot projects could also incur a large legislative scoring estimate.

⁶ See Appendix D for floor plans of market-style modules.

⁷ At Fts. Bragg and Drum, the two-bedroom rate is even less than an E-4 BAH when two persons share.

Configuring privatized UPH to market style helps to reduce scoring, in that an alternative revenue stream from civilian residents could help offset vacancy losses, thus reducing risk. But whether future privatized unaccompanied projects could survive budget scoring requirements is a real question.

Navy UPH Privatization

The Navy was granted special authority by Congress in 2002, under the Bob Stump Act,⁸ to undertake three barracks privatization pilot projects. It has executed two of them, one each in San Diego, CA, and Hampton Roads, VA. We offer more detail on these projects below.

In our review of the Navy projects, we heard little of the command and control concern; however, leadership representatives explained that most residents are handpicked, usually based on job performance and financial responsibility, for referral to this housing category. Most Navy single junior enlisted members reside in government UPH or remain on board ship. For the Hampton Roads project, management hires community advisors (CAs), who fill a role similar to resident advisors in university housing or those in the Navy's government managed barracks. CAs are handpicked and trained, and must meet critical performance standards to retain their positions. A number of the CAs are active duty senior enlisted personnel who work for the business partner part time. In addition to maintaining discipline in the barracks, the CAs also function as counselors for the junior enlisted residents.

The Navy's Homeport Ashore initiative is compelling, considering the extremely tight living conditions aboard ship. Privatization enables the Navy to obtain a significant and rapid increase in UPH capacity to meet Homeport Ashore objectives. Unit integrity is less of an issue than with the other services because during work hours and when underway, unit integrity is a part of shipboard life. Navy leaders, although with some reluctance, appear willing to accept the tradeoff of privatization and its restrictions on after-hours access for the benefits of improved quality of life for the sailor (see Appendix M).

The contrast in the Navy's management of its government UPH and the privatized UPH assets at both San Diego and Hampton Roads is stark. Most notable are the differences in funding, management philosophy and expertise, and the resulting impact on the residents. Privatized housing at both sites offers a significantly enhanced quality of life for the sailor. Residents repeatedly cite the advantage of having a place away from the work site they consider more like a home, where they can enjoy a measure of privacy. Facilities support and the quality of management services are also cited as much better at the privatized UPH.

⁸ *Bob Stump National Defense Authorization Act for Fiscal Year 2003* (P.L. 107-314).

Arguments heard for having either all privatized or all government UPH at an installation, but not a combination of the two, appear without merit, based on Navy's pilot experience. To lift up a segment of the UPH inventory to a higher standard when the opportunity arises, seems like a sound management strategy. This is especially the case where government UPH continues to struggle for sufficient SRM funding.

The Navy has executed two projects that include junior enlisted members and has a third under consideration. Its Hampton Roads project is targeted to junior enlisted members, using partial BAH for revenue. The San Diego project has two separate elements, one of which sets aside an existing facility configured to the 1+1 standard for junior enlisted. The new construction portion was developed for E-4s (with over 4 YOS) and above using an apartment configuration. Field visits to the two Navy privatized sites, summarized below, furnished vital insight for assessing how the Navy is meeting UPH privatization challenges.⁹

HAMPTON ROADS

In the Hampton Roads visit, we interviewed three focus groups: residents, senior enlisted leadership, and UPH maintenance/management personnel. The privatized UPH has resident rules similar to community apartment complexes, which are more relaxed than those in government UPH. The privatized UPH also budgets for and provides free Internet and cable service and other amenities, and routinely hosts free resident recreational activities to establish a sense of community, in significant contrast to the government UPH visited. Overall, residents saw privatized UPH as providing a much better quality of life, with any negatives greatly outweighed by the positives.

Senior enlisted leaders agreed that most of the positive attributes were high quality-of-life priorities. They expressed some reservation about the inability to conduct room inspections, liberal visitor policy, and observed behaviors that would not be tolerated in government UPH, including a sense of disrespect for senior noncommissioned officers (NCOs). Another concern was the lack of consistency communicating the availability of privatized UPH to all units. Unit integrity is more difficult to maintain in privatized UPH, but some senior NCOs saw this as positive, exposing members to diverse missions in the Navy. An overall concern is that the differences between privatized and government UPH can create the perception of a have-have not disparity.

The enlisted barracks management teams provided valuable insight into contrasts between privatized and government UPH. Maintenance capability was an overriding quality issue with this group. Government UPH had significantly less personnel and resources for maintenance than privatized UPH. Privatized UPH provides a full range of budgeted maintenance support services, making them more responsive to routine and nonroutine maintenance and repairs, but at any given time,

⁹ See Appendix M for detailed trip reports on these visits.

20 to 25 percent of government UPH units are awaiting repairs. Most barracks management teams provide their own tools and transportation to do their job because they are simply not available in a timely manner through the Navy. These conditions directly affect the ability of the enlisted barracks management team to provide service and a positive atmosphere comparable to the privatized UPH.

A new MILCON barracks facility, scheduled to be occupied in 2010, has nearly identical construction and room layouts to the privatized UPH (two-bedroom apartment suites, full kitchens, private baths, washer/dryer units, and separate walk-in closets with each bedroom). The Navy plans to double-load these units (two sailors per bedroom, rather than one in the privatized) to help achieve Homeport Ashore goals. The vastly different management and maintenance of the two types of UPH offer a unique opportunity to monitor the condition, utilization, maintenance, and management practices to contrast outcomes over time to help improve UPH (both government and privatized).

SAN DIEGO

In San Diego, the Navy is doubling occupancy in UPH to meet Homeport Ashore goals. Senior enlisted leaders support the Homeport Ashore program, typically seeing improvement in work performance after the service members are allowed to live ashore. Neither government nor privatized UPH are managed for unit integrity, but senior enlisted leadership did not appear concerned. The UPH (both government and privatized) is generally fully occupied, and privatized UPH is filled before government UPH.

The government-managed Snyder Hall and Palmer Hall, the adjacent building providing privatized UPH, starkly differ in overall appearance and impression. Enlisted members manning the reception desk are often on temporary or additional duty and untrained for this duty. The desk is surrounded by open storage of vacuum cleaners, linens, and security monitors in plain view. The ambiance is institutional, featuring dim lights, dull paint, and a low ceiling. The rooms are slightly larger than the privatized units, and each unit has a mini-refrigerator and microwave (compared with the privatized units, where two units share a slightly larger mini-refrigerator and a microwave). Bathroom fixtures in the rooms are dated. Furniture throughout, which is budgeted for replacement every 10 years, is often more worn than in the privatized UPH.

In contrast, privatized UPH has higher ceilings, is well lit, has a professional reception area (complete with free cookies and coffee for the residents), and is manned by a professional property management staff. Living in privatized quarters is seen by both the junior and senior enlisted members as a privilege. The units are 1+1 standard unit at double occupancy with two rooms sharing a bathroom, sink, short refrigerator, and a microwave. The rental rate per unit is 66 percent of the BAH rate (33 percent for double-occupancy rooms). Room inspections are not authorized in the privatized housing, but senior leadership wants the ability to inspect sailors' privatized rooms and have more open communication with

the privatized property manager for discipline purposes. Senior enlisted leaders believe members take better care of privatized UPH because they take pride in their units, which are in great condition and professionally managed by a staff that knows the sailors by name.

Privatized UPH residents cited the following positive attributes: more responsive maintenance, more professional staff, better maintained facility, fewer restrictions, arranged recreational activities, and treatment like adults. Negative attributes include a cumbersome lease termination process, inadequate parking, wireless Internet not included in rent, and a perception of limited action the property manager can take against unruly roommates and residents.

Additional units were being constructed by the privatized business partner on station to house bachelors ranked E-4 +4 and above. This impressive 4-tower high-rise complex, Pacific Beacon, has 941 two-bedroom apartments built to market standards. Subsequent completion of those units has revealed that demand for them has fallen below projections, and the Navy is permitting E-4s and below to reside in them. These units are located such that the installation fence could be moved to permit civilian access, should that requirement emerge.

Army UPH Privatization

By modifying existing agreements, the Army is using Military Housing Privatization Initiative (MHPI) legislation to privatize UPH for some of its senior enlisted members. The five Army UPH privatization projects target pay grades eligible to draw BAH (E-5 and above). The projects compete for residents with the private market. These Army privatization projects are in specific locations where community housing is limited or inadequate. Results to date have been positive overall with high resident satisfaction.

In response to a 2009 congressional inquiry, the Army prepared a report focused on the privatization of single-soldier housing for junior enlisted members. A final determination of whether to proceed with privatization for junior enlisted members was not made, pending further collaboration. In regard to privatized UPH, the study did conclude that

- ◆ there is no legal impediment to barracks privatization,
- ◆ effects on command and control, unit cohesion, and the warfighter ethos remain a concern, and
- ◆ locations with low recapitalization requirements and adequate financial viability could facilitate quality UPH.

The primary benefit of privatized UPH is meeting projected repair and recapitalization needs through the reserve accounts, which more or less guarantee quality facilities. One of the significant challenges is, historically, that junior enlisted

members do not typically receive BAH. Using member tenant rents as a funding stream to provide privatized UPH over its assumed 50-year life would commit the Army to an annual unprogrammed must-pay obligation as high as \$3 billion per year. The report also recognizes that life-cycle cost analyses (LCCA) show privatized UPH to be less costly than current UPH programs in providing quality housing. However, the life-cycle comparison assumes full O&M and recapitalization funding, and historically government UPH O&M and recapitalization is funded somewhat below 100 percent. Because of this less than 100 percent funding, privatized UPH may result in a net cost increase to the Army over current practices.

The report emphasizes that the most important issue with privatized UPH is how to continue the Army’s long-standing tradition and culture of command and control over junior single soldiers, coupled with building unit cohesion and protecting the Army’s warfighting ethos, and how the restrictions imposed by privatized UPH on these factors could impede mission accomplishment.

Another issue concerns the use of facilities. Currently, the Army has the flexibility to use UPH and other installation facilities to meet fluid and temporary needs such as providing troop housing during mobilization; temporary space for reserves, cadets, ROTC, and other training and support activities; and space during transitions, mission changes, and other installation scenarios. Privatized UPH would severely limit or deny this flexibility in facility use and may increase costs to provide facilities to meet the needs of mobilization, training, and other activities.

Privatization Summary

Table 5-1 summarizes the current Navy and Army privatized UPH projects.

Table 5-1. Current UPH Privatization Projects

Project site	Existing units conveyed	New construction units	Target residents
Navy			
Naval Station San Diego, CA	258 units, 1+1E configuration, high-rise (Palmer Hall)	941 two-bedroom apartments, four high-rise towers (Pacific Beacon)	E-1–E-4 <4 YOS (existing); ^a E-4 >4 YOS (new)
Naval Station Hampton Roads, VA	1,315 single bedrooms, mostly 1+1E configuration (seven buildings)	2,367 single bedrooms, two- and three-bedroom off-base apartment-style (87 manor homes, plus one 6-story mid-rise)	E-1–E-4 <4 YOS ^a

Table 5-1. Current UPH Privatization Projects

Project site	Existing units conveyed	New construction units	Target residents
Army			
Fort Irwin, CA	Opened September 2008, ^b all apartments available July 2011	200 (200 one-bedroom apartments)	E-5 and above
Fort Drum, NY	Opened February 2009, ^b all apartments built by May 2009	192 (64 one-bedroom and 128 two-bedroom apartments)	E-6 and above
Fort Bragg, NC	Opened January 2009, ^b all apartments available February 2010	312 (120 one-bedroom and 192 two-bedroom apartments)	E-6 and above
Fort Bliss, TX	Project may not execute due to financial markets ^b	358 (306 one-bedroom and 52 two-bedroom apartments)	E-6 and above
Fort Stewart, GA	Opened November 2008, ^b all apartments built by October 2009	334 (298 one-bedroom and 36 two-bedroom apartments)	E-6 and above

^a The DoD Financial Management Regulation (FMR), Volume 7A, Chapter 26, provides for partial BAH for San Diego and Hampton Roads UPH privatization.

^b None of the Army projects required any Army equity investment.

Although the other services plan to evaluate the Navy pilot projects, they will do so using their own unique service standards. The Marine Corps, for example, places a high value on team building and assigns two junior enlisted members to a room. The Army strives for unit cohesion and assigns brigades and subordinate units to specific barracks buildings to achieve unit integrity. Sergeants are also assigned in the barracks facilities to function as leaders and counselors in the barracks environment. The Air Force emphasizes the “bluing process,” whereby training and other acculturation practices ensure that junior airmen are prepared for life in the Air Force. Clearly, the privatization process can present a challenge to these service practices and cultures.

Balancing service culture, tradition, and readiness with improved facilities and an enhanced quality of life is a paramount issue for those in the services who will debate the merits of privatized UPH. The other challenges of partial BAH and SRM funds, market-style construction, and site location may be less important—and much less controversial—than the impact on the standards for unaccompanied junior enlisted members that some service leaders believe should be upheld in UPH housing.

One final observation: no evidence has shown that the readiness of junior enlisted service members with families (who are free to choose where they live without oversight) fell below the standards expected of the unaccompanied junior enlisted. This may call into question the services’ perception of the merits of traditional oversight and control of unaccompanied junior enlisted residents using the rationale of unit integrity, but the number of accompanied service members in those pay grades is comparatively small.

BAH VERSUS MILCON AND O&M

Because BAH is the alternative source of revenue to support privatized UPH, in this section we compare BAH rates with traditional MILCON and O&M funded UPH using a life-cycle cost model. Although this model does not consider market conditions and alternative financing or interest rates, it does serve as a baseline for examining the BAH-versus-MILCON dynamics at sample locations to help illustrate and understand the two funding alternatives.

Method

To conduct this analysis, we assessed the costs of government ownership at a sampling of installations: Fort Bragg, NC, Fort Drum, NY, Coronado Amphibious Base, CA, Camp Lejeune, NC, and Davis Monthan Air Force Base, AZ. We used information from the DD Form 1391 for MILCON projects to identify the design costs, construction costs, number of spaces, and gross square feet associated with the barracks project, including the primary and support facilities. Next, we identified the sustainment and modernization costs for the primary facility using the OSD(I&E) Facility Program Requirements System website Version 10.5 and for supporting facilities using FSM-FMM-FOM Version 10 Common Reference Tables (DoD Pricing Guide) of March 28, 2008. We then identified operating costs for the UPH primary facility using the Facilities Operation Model of the OSD(I&E) Facility Program Requirements System, Version 10.5, or the FSM-FMM-FOM Version 10 Common Reference Tables (DoD Pricing Guide) for the following cost categories:

- ◆ Water and wastewater
- ◆ Real property management
- ◆ Grounds maintenance and landscaping
- ◆ Energy
- ◆ Custodial services
- ◆ Refuse collection
- ◆ Pest control.

We also calculated the costs of barracks management, furnishings (initial issue and replacement), clothes washers and dryers (lease or replacement), and fire and police services on the basis of information from H&CS. We included the partial allowance for housing for the pay grades of the service members anticipated to be living in the UPH. A 100 percent funding level for sustainment and operations is also assumed.

We developed a cash flow statement that included all of the cost factors mentioned above using escalation factors specified in the current edition of the DoD Facilities Pricing Guide to bring costs to the current year (2010). To determine the NPV of the costs of constructing and operating the facility over the 55-year life of the asset (per the pricing guide), we discounted the annual costs using the real discount rates specified in Office of Management and Budget Circular A-94.

We compared the NPV of the cost of government ownership with the NPV of the amount of BAH the government would pay to the same pay grades of service members anticipated to live in UPH over the same time horizon—55 years—assuming 95 percent occupancy of the government facility discounted by the real discount rates specified in OMB Circular A-94. Appendix J contains the detailed LCCA.

Findings

For all five analyses, the pay grades used for the intended occupancy are based on DD Form 1391 data. We use the DD Form 1391 total construction cost per room and per bed (including supporting facilities and markups), and adjusted to a 2010 price level.

For demonstration purposes, we augmented some of the analyses with additional pay grade scenarios to show possible effects of changes in the assigned pay grade mix to the UPH. Although the services have different assignment policies, the sample of five analyses does provide a preliminary indicator of the differences between the BAH and MILCON alternatives. We also note that comparison between installations reflect significant differences in BAH rates, local housing markets, assignment policies, e.g., two per bedroom, and costs for construction, operations, and maintenance.

FORT BRAGG

For Fort Bragg, we evaluated the life-cycle costs for a UPH facility programmed for 148,500 square feet intended to house 204 junior enlisted (E-1 through E-4) and 42 sergeants (E-5), with an assumed 95 percent occupancy rate (Table 5-2). For each occupancy alternative, we analyzed the NPV resulting in the comparative percentage of paying full BAH versus the MILCON approach.

Table 5-2. Life-Cycle Cost Analysis for Fort Bragg (2010 Dollars)

Occupancy alternative	NPV of government UPH (\$000)	Percentage of BAH ^a
E-1–E-5 (intended use)	63,729	96
E-1–E-4	63,822	84
E-5	62,338	144

^a To make NPV of BAH at 95% occupancy equal to the NPV of the government alternative.

In the case of Fort Bragg, the inclusion of E-5s, who are entitled to private suites, increases the BAH by 12 percent over the same scenario without E-5s.

NAVAL BASE CORONADO

For Naval Base Coronado, we evaluated the life-cycle costs for a UPH facility programmed for 198,900 square feet intended to house 1,056 E-1s through E-3s (double occupancy in 1+1E modules), with an assumed 95 percent occupancy rate (Table 5-3). We also evaluated the same facility assuming single occupancy.

Table 5-3. Life-Cycle Cost Analysis for Coronado (2010 Dollars)

Occupancy alternative	NPV of government UPH (\$000)	Percentage of BAH ^a
E-1–E-3 (double occupancy: intended use)	194,835	41
E-1–E-3 (single occupancy)	193,617	82

^a To make NPV of BAH at 95% occupancy equal to the NPV of the government alternative.

Clearly, the effect of double occupancy reduces by half the percentage comparison of BAH to MILCON.

FORT DRUM

For Fort Drum, we evaluated the life-cycle costs for a UPH facility programmed for 170,500 square feet intended to house 322 junior enlisted (E-1 through E-4) and 72 sergeants (E-5), assuming a 95 percent occupancy rate (Table 5-4). We also evaluated the life cycle on the basis of an E-1 to E-4 occupancy and an all-E-5 occupancy.

Table 5-4. Results from the Lifecycle Cost Analysis for Fort Drum (2010 Dollars)

Occupancy alternative	NPV of government UPH (\$000)	Percentage of BAH ^a
E-1–E-5 (intended use)	122,365	104
E-1–E-4	122,509	91
E-5	122,044	159

^a To make NPV of BAH at 95% occupancy equal to the NPV of the government alternative.

The Fort Drum analysis yielded results similar to the Fort Bragg sample, with a differential of 15 percent when E-5s are excluded from the comparison.

DAVIS-MONTHAN AIR FORCE BASE

For Davis-Monthan Air Force Base, we evaluated the life-cycle costs for a UPH facility programmed for 51,100 square feet intended to house 144 E-1 to E-4 members, assuming a 95 percent occupancy rate (Table 5-5).

Table 5-5. Life-Cycle Cost Analysis for Davis Monthan (2010 Dollars)

Occupancy alternative	NPV of government UPH (\$000)	Percentage of BAH ^a
E-1–E-4 (intended use)	39,630	105

^a To make NPV of BAH at 95% occupancy equal to the NPV of the government alternative.

CAMP LEJEUNE

For Camp Lejeune, we evaluated the life-cycle costs for a UPH facility programmed for 101,600 square feet intended to house 210 E-1s through E-3s, and 95 E-4s through E-5s, assuming a 95 percent occupancy rate (Table 5-6).

Table 5-6. Life-Cycle Cost Analysis for Camp Lejeune (2010 Dollars)

Occupancy alternative	NPV of government UPH (\$000)	Percentage of BAH ^a
E-1–E-5 (intended use)	85,836	103
E-1–E-3	86,022	80
E4	85,611	159
E5	85,650	142

^a To make NPV of BAH at 95% occupancy equal to the NPV of the government alternative.

Observation

The life-cycle cost analysis generally shows that the MILCON alternative will cost less than paying the full BAH rate to the junior enlisted, except in the cases of the Army and Marine Corps. When the E-5 pay grades are included for those services, the MILCON alternative is slightly more costly. If the entire buildings were each occupied only by service members of the higher grades (whom are authorized increased space), the MILCON alternative would cost about 50 percent more than the BAH alternative. This analysis shows why authorizing payments of less than full BAH, and setting rents at that amount, may be necessary to render UPH privatization the least costly alternative.

Chapter 6

UPH Continuing Evolution

The nature and characteristics of UPH have evolved and will continue to do so in the foreseeable future. Adapting UPH to customers' expectations, which can be gauged through customer and resident satisfaction surveys, is a significant factor in the future of this evolution. Another evolutionary dimension is the use of innovative acquisition techniques, such as privatization. UPH standards are evolving in convergence with those of the private sector, as reflected by the emergence of the market-style UPH. Finally, standards and trends emerging in university student housing offer a comparator for insight into the evolution of UPH. We discuss each of these trends in this chapter.

RESIDENT SATISFACTION

The services use various methods to assess UPH resident satisfaction and preferences, ranging from one-time, special-purpose assessments to ongoing annual surveys. In some cases, resident satisfaction is measured locally; in others, standard service-wide surveys are used. In 2007, the Defense Manpower Data Center (DMDC) added housing preference questions to its status of forces survey, including questions pertaining to unaccompanied members. In the private sector, the customer's perspective is one of four areas commonly measured in the balanced scorecard concept to gauge the overall health of an organization or function.¹ The following subsections briefly discuss current methods for measuring resident satisfaction. Because satisfaction measuring techniques differ among services, no common measure is available for cross-service comparison.

Air Force

AFI 32-6005 establishes dormitory councils at all installations to provide a means for dormitory residents to be "responsible, accountable, and involved in their living conditions" and provide a communication conduit between dormitory residents and the local commander regarding all facets of UPH living.² This decentralized, direct resident involvement informs the installation commander on resident satisfaction and concerns, directly reflecting resident interest and participation in their living environment.

¹ Peter Ferdinand Drucker et al., *Harvard Business Review on Measuring Corporate Performance* (Boston: Harvard Business School Press, 1998).

² AFI 32-6005, *Unaccompanied Housing Management*, October 9, 2008.

The dormitory council offers a decentralized scenario for understanding and addressing resident needs and concerns at the lowest level and provides a forum for the following:

- ◆ Maximizing resident involvement
- ◆ Developing a spirit of camaraderie and esprit de corps
- ◆ Improving quality of life for residents
- ◆ Instilling a sense of home ownership in residents
- ◆ Enhancing the responsibilities of residents
- ◆ Encouraging teamwork to accomplish goals
- ◆ Resolving resident issues at the lowest level
- ◆ Keeping leadership informed of dormitory issues and raising significant issues requiring higher-level action to the appropriate command level.

Army

In 2005, the Army conducted a service-wide, in-depth survey to determine whether its UPH facilities were meeting Army needs or whether it should consider changes in policies and barracks standards. Survey questions covered topics ranging from assignment and eligibility policies to suitability of rooms, storage space, parking, and other features associated with convenience, comfort, and privacy.

Soldier preferences reflected contemporary values in areas such as dining and kitchen availability, privacy, size of space, laundry convenience, and ample storage and a lower priority associated with unit cohesion. The concept of a central barracks management approach was viewed positively, as it would free up service members and units from barracks management tasks and give them more time to concentrate on their primary mission of readiness. This survey also led to, among other things, the Army's decision to provide all E-6s and above with BAH, thus freeing up more barracks space for the junior ranks and reducing the overall UPH requirement.³

Marine Corps

No previous or current formal UPH resident satisfaction tools, measures, or survey results were found for the Marine Corps.

³ See Appendix L for details on the Army survey results.

Navy

The Navy uses a commercial survey company to measure its resident satisfaction. This practice is based on its 7-year experience in surveying Navy family housing, which also has become the standard for its privatized housing.⁴ After piloting the process in 2005, the Navy adapted this tool to its UPH portfolio in 2006. Since then, the survey has provided Navy with individual barracks, installation, region, and service-wide resident satisfaction results for its UPH inventory. Table 6-1 summarizes the Navy's service-wide 2008 survey results for UPH residents.

Table 6-1. Consolidated Navy UPH Satisfaction Survey

Focus areas	Outstanding (100–85)	Very Good (84–80)	Good (79–75)	Average (74–70)	Below Average (69–65)
Readiness to resolve problems			✓		
Property appearance and condition			✓		
Quality of management services			✓		
Quality of maintenance services				✓	
Responsiveness to follow through				✓	

Note: 0 to 100 rating scale.

Defense Manpower Data Center Survey

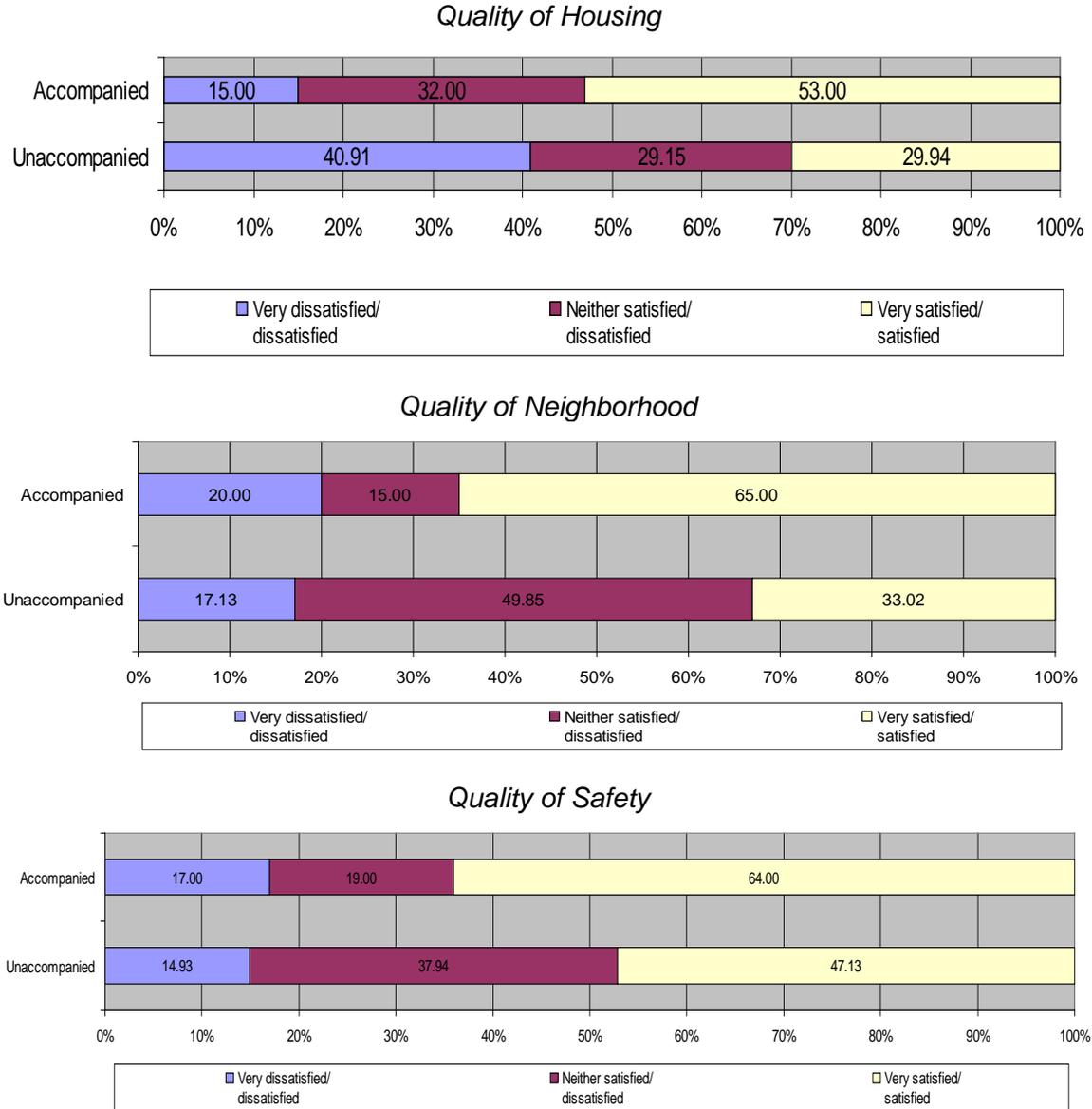
LMI assisted OSD in supplementing the 2007 DMDC survey with questions regarding housing for all services. The results included data for E-1 through E-4 unaccompanied members living in UPH, as well as their accompanied counterparts. The sample provided levels of satisfaction for (1) quality/condition of UPH, (2) neighborhood quality, (3) security and safety, and (4) resident parking. The results show that approximately 70 percent of all unaccompanied junior enlisted members live in UPH. OSD continues to expand its use of DMDC for measuring trends as input into potential future UPH policies, and recently added three additional UPH-oriented questions to the next DMDC survey to gather additional insight.

The results also indicate that, on average, members with dependents are almost twice as satisfied as their unaccompanied counterparts in these four surveyed topics. The most significant difference observed is with quality of housing, where unaccompanied members are more than twice as dissatisfied as their accompanied counterparts. Both groups are relatively satisfied with the quality of neighborhood

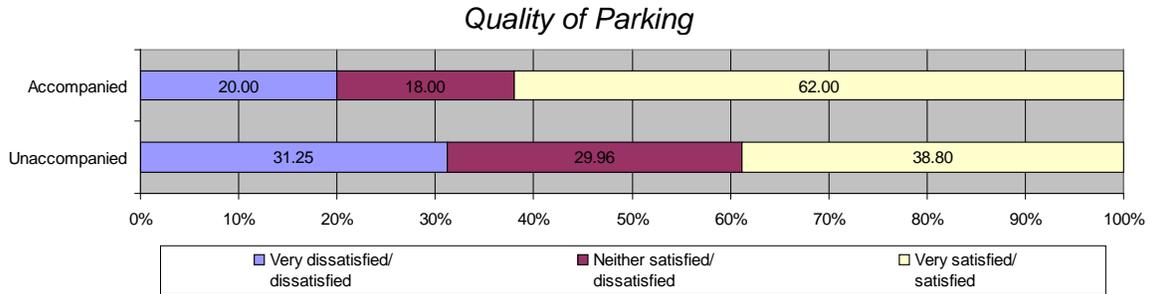
⁴ See Appendix L for Navy UPH resident satisfaction survey detailed results (December 2008).

and safety. Unaccompanied members are more dissatisfied with parking than their counterparts by about a third. Figure 6-1 compares these results graphically.⁵

Figure 6-1. DMDC Satisfaction Survey (All Services, E-1 through E-4)



⁵ See Appendix L for more detailed DMDC survey results.



MARKET-STYLE MILCON UPH

The Navy’s pilot UPH privatization projects introduced the market-style living unit into the housing options available for the unaccompanied member. In 2006, the Deputy Secretary of Defense authorized a waiver to construct market-style apartments as part of its MILCON UPH program. The waiver was granted on the condition that “the Navy adopt innovative design and acquisition procedures for these projects, including private sector construction standards, to minimize the cost impact from enlarging UPH modules.” Six projects in four states valued at \$230 million were included in the waiver.

These projects provide an apartment configuration very similar to units constructed under privatization. Each resident has a furnished bedroom, private bathroom (shower, toilet, and sink), and walk-in closet. The two bedrooms share a common area that includes a living room (furnished with a sofa, coffee table, and end tables); a full-size kitchen (full-size refrigerator, microwave, stove, and dishwasher); and stacked washer and dryer. As is the practice in other UPH facilities, the Navy is temporarily doubling occupancy of these new units (two per bedroom) to achieve its near-term Homeport Ashore objectives.

Differences in management practices were also noted. The Navy’s market-style UPH continues to depend on the annual O&M appropriations for its sustainment operations. Its management approach features a centralized installation UPH team, supplemented with various contractor and military personnel. In contrast, privatized UPH operating funds are provided directly from the revenue stream and its management staff members are professionals dedicated exclusively to property management. As noted previously, the vastly different approaches to management and funding offer an opportunity to monitor the condition, utilization, and management practices to contrast outcomes over time to compare the two practices.

Privatized UPH and market-style MILCON UPH are current indicators of the evolving nature of UPH observed over the past 70 years. In his statement before the MILCON subcommittee, the DUSD(I&E) said the following:

The pilot projects have (also) demonstrated through privatization, single members can enjoy a quality of living environment more equitable with housing for their married counterparts and commensurate with the sacrifices they are asked to make.⁶

PARALLELS WITH UNIVERSITY STUDENT HOUSING

Housing for college students provides a useful comparison to permanent party UPH for junior enlisted members. Housing serves primarily young single adults of about the same age away from home for the first time.⁷ One modest difference is the relationship of housing to the work environment. College students use their housing for both living and studying. Service members use UPH primarily for living quarters, but also to prepare their individual equipment for unit operations and for after-hours study in pursuing career and education goals.

Today's young adults have been raised with higher living standards than earlier generations. Private bedrooms, cable channels, and Internet access are taken for granted. At the same time, administrators find that freshmen thrive better in more collegial arrangements sharing bedrooms and baths. However, students in their 3rd and 4th years often want to reside either off campus or in campus environments providing more privacy and the choice with whom to live.

Meeting contemporary expectations increases housing costs. Student housing costs have risen six fold between 1976 and 2006, but a sampling of rates indicates that BAH for junior enlisted members (without dependents) is comparable to or slightly higher than student housing rental rates.⁸

A far-reaching study, termed the *21st Century Project*, is advancing concepts, guidance, and insights for future student housing.⁹ Similar to UPH, student housing has progressed from double-loaded corridors with community bathrooms to more contemporary standards, including more privacy. Unlike the services, which have each developed a standard for all UPH, university housing has and continues

⁶ Statement of Mr. Wayne Arny, Deputy Under Secretary of Defense (Installations and Environment), before the Subcommittee on Military Construction, Veterans Affairs, and Related Agencies of the House Appropriations Committee, May 19, 2009.

⁷ Ninety-nine percent of military recruits have a high school diploma and come from households with median incomes of \$48,600 (see Note 1, Chapter 1). The median family income of college freshmen is \$74,000, compared with the national average of \$46,300 (University of California, "College Freshmen Have Family Income 60% Above U.S. Average," *UC Newsroom*, www.universityofcalifornia.edu/news/article/9066).

⁸ See Appendix N for survey details. See Appendix O for brief description of BAH.

⁹ The *21st Century Project* is an evolving multiphased initiative of the Association for College and University Housing Officers-International and the Society for College and University Planning focusing on future student housing.

to evolve to intentionally include more of a mix of student housing configurations. A common challenge is determining the appropriate mix of student housing types to meet continually changing and evolving student population profiles, including housing for upperclassmen. The mix varies from one university to another, making a one-size-fits-all solution difficult. One concept set forth in the study is modularity, which provides flexibility in configuration to meet changing space needs by enabling walls and doors to be reconfigured (for example, from single or double rooms to multi-bedroom apartments and vice versa, or from bed space to study or social space).

Other than the curriculum, a top factor in choosing one university over another is the quality, type, and style of student housing. Universities compete among themselves and with private developers off campus to provide housing that attracts, recruits, and retains students.¹⁰

In summary, university housing and UPH face many similar issues, such as

- ◆ room configuration, size, and amenities;
- ◆ different expectations for freshmen and upperclassmen;
- ◆ whether to build, own, and operate their own facilities or to engage private-sector partners;
- ◆ flexibility in dormitory design that considers changing needs;
- ◆ adequate budgets for sustainment and recapitalization; and
- ◆ housing of students with other than straight male/female sexual orientations.

¹⁰ See Appendix N for an expanded discussion of student housing.

Chapter 7

Conclusions and Recommendations

The services, DoD, Congress, and other interested parties all have a stake in military UPH, but it is most important to its occupants, the unaccompanied service members, because it is where they live, what they call “home.” The condition, type, and management of UPH affect their morale and well-being, as well as their performance and readiness, and influence recruitment and retention—important issues in today’s all-volunteer force environment. The UPH inventory also represents a significant and ongoing investment of billions of dollars.

From our study findings, we made observations and conclusions, which form the basis for an overarching vision of UPH and supporting recommendations. Adopting these recommendations now will help OSD and the services shape a sustainable, better future for UPH.

OBSERVATIONS AND CONCLUSIONS

Today’s Junior Enlisted Force

Our service members are volunteers, who have chosen to serve their nation during a period of tension, frequent deployments, and war. As noted, they have demographics similar to college and university students. Like other aspects of our military installations, the standards and appearance of housing should reflect the “community outside the gate.”

First-term enlisted service members, generally 18 to 22 years of age and often away from home for the first time, are in many ways like college-bound freshmen. University dormitory policy often tries to ensure that these new students become full members of the campus community. Likewise, the services want to fully indoctrinate new service members into the military community, using housing to support the bonding process.

Disparity

Heavily influenced by service culture, UPH adequacy criteria and assignment policies vary among the services. A more significant disparity service-wide is that between accompanied and unaccompanied members. Accompanied service members receive a higher BAH, have greater choice in selecting housing (community, privatized, or government), and are not subjected to continuing monitoring and inspection. Although no evidence shows that accompanied service members contribute less to unit readiness due to their housing environment than

their unaccompanied counterparts, this observation is eclipsed by the fact that relatively few first-termers (E-1 through E-4)¹ are accompanied.

Policy and standards that reduce the disparity among the services and between UPH and family housing could improve housing quality for unaccompanied members.

Adequate UPH

Unaccompanied housing quality is recognized as a readiness issue, affecting both recruiting and retention. Although the services have done much to improve its quality and condition, about 24 percent of the inventory is rated as inadequate (Q3 or Q4). Unlike family housing, UPH competes with other support and mission facilities for its share of O&M sustainment funding. Historically, tracking UPH SRM expenditures has been difficult, and funding has fallen short of requirements, leading to UPH facility degradation and shortened life cycles.

The roughly 100 msf of adequate UPH (Q1 or Q2) represent a sizable inventory based on billions of dollars invested over the years. Proper annual funding and facility management practices will keep this expensive investment from deteriorating and result in continued quality housing at the lowest life-cycle costs.

Inconsistencies in Service UPH Master Plans

The services UPH master plans are dissimilar in content, form, and updating cycles. Very little guidance in content, format, or timing is available for the services to follow in developing their UPH master plans. Comparisons between the plans are cumbersome and limited due to varying formats and topics covered. Varying master plan update cycles require additional data analysis to compare the chronological progress of the plans and the effects of policies, force changes, budgets, and other factors. The timing of the service updates and OSD-level strategic, budgetary, or other plans is disconnected, making it difficult to draw timely, comprehensive conclusions from the master plans for OSD strategic planning and policy purposes.

Evolving Standards

As noted, the UPH inventory features a wide variety of facilities and an equally varied configuration of rooms, styles, and amenities. This diversity, a legacy of differing standards and practices, reflects individual service culture and a changing military force, higher member expectations, varying promotion schedules, and an evolving sense of the acceptable and permissible. Just as they have changed in past decades, the standards and expectations will continue to evolve.

¹ As shown in Figure 1-1, only 10 percent of entry-level E-1s have dependents; that percentage does not approach 50 percent until service members reach the E-5 grade.

The appearance of market-style MILCON is another step in the UPH evolution. The 1+1 construction standard, introduced a decade ago, is showing signs of obsolescence with the introduction of market-style units in both pilot privatized and new MILCON UPH. Preparing to incorporate the market-style configuration into the inventory sooner, rather than later, could provide modern UPH units at reduced long-term cost by minimizing obsolescence, renovations, reconfigurations, and requirements updating.

As discussed in Chapter 5, at Norfolk, Virginia, two nearly identical new UPH facilities, one privatized and one government owned and run, with market-style units, are under construction and scheduled for occupation in 2010. This unique situation offers an unparalleled opportunity to observe the similarities and differences between privatized and government UPH. Such a comparison may provide useful insight into the strengths and weaknesses of each in developing and implementing future UPH policies.

Business Case Analysis

The services own and maintain a large inventory of UPH. Acquisition costs represent a capital investment of billions of dollars, and ongoing O&M to preserve that investment is billions more. The typical life cycle of UPH facilities is at least 55 years, and these investments require prudent economic decisions. In deciding on future capital investments, the services need to perform appropriate business case analyses, which consider the full life-cycle facility costs of the various UPH options to avoid decisions that are economical only in the short term.

Over the last 10 years, privatized family housing has demonstrated the ability to rapidly deliver housing capability. It also provides the full and extended costs of ongoing O&M needs, whereas traditional O&M funding for UPH has historically fallen short. In providing for UPH requirements, the services should take advantage of the most appropriate and cost-effective UPH acquisition vehicle—whether MILCON, privatized, or BAH—on the basis of a realistic life-cycle cost analysis, to best support service needs.

VISION AND RECOMMENDATIONS

From our observations and conclusions, we recommend the following vision and supporting recommendations for OSD and the services regarding future UPH.

Vision for UPH

OSD and the services should have a coherent vision of providing housing for unaccompanied service members that

- ◆ eliminates inadequate UPH and properly sustains the rest,

-
- ◆ implements evolving standards that equal or exceed those of the community, and
 - ◆ minimizes the disparity of housing standards between accompanied and unaccompanied services members.

Supporting Recommendations

Adopting the following recommendations will help OSD and the services achieve this vision:

- ◆ Treat all housing assets as a single capability that supports the warfighter by consolidating permanent party UPH and family housing under one program that provides comparable quality-of-life facilities and services, regardless of dependency status. This program will manage all housing, including plans, programs, and budgets, from a single funding source to meet all service member housing needs.
- ◆ Use first-term enlisted members as the target requirement for unaccompanied housing (unless alternative housing sources for higher grades are unavailable). Give unaccompanied second-term and later enlisted members parity with their accompanied peers in housing choices, and make them ineligible for UPH (except for selected noncommissioned officer positions residing in UPH for management and oversight purposes).
- ◆ Update assignment standards from the current minimum 90 square feet per person to no less than the 1+1 space and privacy standard. This approach will better align assignment practices with intent and current design standards and better meet the privacy expectations of today's junior enlisted member.
- ◆ For new and replacement UPH, incorporate the standard business practice of analyzing life-cycle costs to support each investment decision, whether in community housing (paying basic allowance for housing), military construction, or privatization (when authorized). Ensure that decisions include realistic sustainability assumptions and flexible features adaptable to evolving configurations and standards for current and future customer needs.
- ◆ Dedicate adequate sustainment, restoration and modernization (SRM) funding to sustain existing UPH facilities through their design life cycle, and require a consistent accountability trail of UPH SRM funds, from appropriation to execution across the services. This will increase housing parity for accompanied and unaccompanied members by making all SRM funding equally accountable.

- ◆ Establish a standardized, annual UPH customer satisfaction survey program across all services. Obtaining resident feedback with a consistent format and frequency is a common industry “best practice” for quality improvement. Use the results to make UPH a better home for the unaccompanied member by using the results as a resource for commanders and managers, and as trend data for OSD in shaping overall UPH policy. Use or modify established programs—such as the DMDC survey or a service survey—to do so.

- ◆ Establish more consistency among the service UPH master plans. Set a cross-service update schedule. Specify common data reporting requirements in the plans—such as inventory, condition, and deficits or surplus—to provide standard and timely data for analyzing and supporting cross-service UPH policy and other decisions. Synchronize the updates with established OSD strategic (such as the *Defense Installation Strategic Plan*) or budget processes (such as the DoD budget request) that support UPH. Ensure that the updates capture the effects of annual appropriations levels, force structure changes, changes in strategies and policies, and other significant events.

Appendix A

Defense Readiness Reporting System

USING FACILITIES TO HELP DETERMINE READINESS

The mission of DRRS is to establish a mission-focused, capabilities-based, common framework that provides the combatant commanders, military services, Joint Chiefs of Staff (JCS), and other key DoD users a tool with which to evaluate, in near-real-time, the readiness and capability of U.S. armed forces to carry out assigned and potential tasks. To do this, DRRS looks at the status of numerous factors, such as personnel, equipment, sustainment, training, ordnance, and facilities, including UPH, against various mission areas to help determine the readiness of an entity to accomplish a mission. Services provide input data for facility status ratings for the DRRS. DRRS uses a colored rating scheme (green, yellow, or red) as status indicators.

AUTHORITY FOR DRRS

The initial authorization to develop the DRRS comes from DoD Directive (DoDD) 7730.65. This directive, dated June 3, 2002, describes DRRS as the means “to manage and report the readiness of the Department of Defense and its subordinate Components to execute the National Military Strategy as assigned by the Secretary of Defense in the Defense Planning Guidance, Contingency Planning Guidance, Theater Security Cooperation Guidance, and the Unified Command Plan.”



BACKGROUND

The DRRS directive required establishment of an automated, comprehensive readiness assessment network to calculate the capabilities and preparedness of military units to conduct wartime missions and other contingencies.

The Secretary of Defense directed that DRRS reflect a “transformational” response to significant changes in the strategic environment. The department is increasingly focusing on capabilities-based operations and rapid tailoring of forces and resources to respond to rapid changes and challenges to our national security. The Secretary of Defense specifically directed that the Under Secretary of Defense for Personnel and Readiness, USD (P&R), develop DRRS to support Global Force Management (GFM) commitment, availability, readiness, deployment, and redeployment data requirements as identified by the Chairman of the Joint Chiefs

of Staff, the combatant commanders, the secretaries of the military departments, and the chief of the National Guard Bureau.

Current global operations reinforced the urgent need to transform the current readiness system to provide accurate, relevant, and timely information to support operational planning as well as risk assessments of multiple simultaneous contingencies in the context of the National Defense Strategy. DoD's overarching transformation provides a unique and timely opportunity to transform how the department measures, assesses, and reports its readiness, and how it uses readiness information in the processes of planning and contingency response.

TOP-LEVEL DIRECTION

The FY2003–2007 Defense Planning Guidance (DPG) directed DoD components to develop guidelines and procedures for a comprehensive readiness reporting system that evaluates readiness on the basis of the actual missions and capabilities assigned to the forces. DoDD 7730.65 directed the implementation of a capabilities-based, adaptive, near-real-time readiness reporting system for DoD. This system is required to measure and report the readiness of military forces and supporting infrastructure to meet missions and goals assigned by the Secretary of Defense.

DoDD 7703.65 charged USD (P&R) with the following responsibilities:

- ◆ Oversee the DRRS to ensure accuracy, completeness, and timeliness of its information and data, its responsiveness, as well as its effective and efficient use of modern practices and technologies.
- ◆ In collaboration with the JCS, services, defense agencies, and combatant commanders, issue implementing instructions for the DRRS.
- ◆ Ensure that the DoD meets all the requirements for reporting readiness to Congress.
- ◆ Develop, field, maintain, and fund Enhanced Status of Resources and Training System (ESORTS) and scenario assessment tools in accordance with this directive.
- ◆ Ensure that ESORTS information, where appropriate, is compatible and integrated into deliberate and crisis action planning systems and processes.

DRRS AND THE JOINT TRAINING SYSTEM

By agreement between OSD and the Director for Operational Plans and Joint Force Development (J-7), DRRS will become the authoritative source for the unit Mission Essential Task List (METL) in DoD. Efforts are underway to integrate the METL module of the Joint Training Information Management System (JTIMS) and ESORTS software.

EXPECTATIONS

The DRRS is significantly different from previous readiness reporting mechanisms. It expands the number of reporting entities in the new ESORTS from the number in the former Global Status of Resources and Training Systems (GSORTS). Most importantly, it stipulates that the basis of readiness assessment and reporting be centered on the ability to accomplish assigned missions, as described through the construct of METLs.

ESORTS focuses on output-oriented information on force capabilities, as well as encompassing appropriate outcome and process measures. It records each commander's assessment of his or her organization's ability to conduct assigned missions and the essential tasks associated with those missions in accordance with established standards and conditions. When making assessments, however, commanders will continue to consider the available resource information that may influence the conduct of these missions and tasks, as well as their own experience. ESORTS is but one tool in the DRRS suite.

DRRS is a network of interdependent programs, processes, applications, and systems that enable and support readiness-related decision making. DRRS establishes the "framework" of architectures, databases, tools, networks, and information technologies that provide the backbone for the DoD's readiness measurement, assessment, and reporting- and readiness-related decision support.

Overall, DRRS will provide the advanced technical and information framework for operators, planners, supporters, and policymakers alike. The real key to success will be department-wide collaboration and cooperation by all stakeholders, who must be aware of the capabilities, interdependencies, and possibilities made available by the enhanced DRRS environment. DRRS is intended to change how DoD looks at readiness, how it measures readiness, and how it uses readiness information.

Appendix B

UPH Facility Inventories and Q-Ratings

This appendix furnishes additional information on the UPH facility inventory, primarily using data from the September 30, 2009, OSD real property database,¹ which shows 12,582 UPH facilities worldwide.² Table B-1 summarizes the areas (locations) and types of inventory, as well as the percentage distribution.

Table B-1. DoD UPH Facilities Inventory

Area	UPH type (facility analysis category)	Total
United States	Annual training/mobilization	3,046 (24%)
	Permanent party	3,481 (27%)
	Trainee/student	783 (6%)
	Transient	1,532 (12%)
	United States total	8,842 (70%)
Territories	Annual training/mobilization	82 (>1%)
	Permanent party	271 (2%)
	Trainee/student	1 (>1%)
	Transient	46 (>1%)
	Territories total	400 (3%)
Foreign	Annual training/mobilization	301 (2%)
	Permanent party	2,783 (22%)
	Trainee/student	31 (>1%)
	Transient	225 (2%)
	Foreign total	3,340 (27%)
Total		12,582 (100%)

DoD Instruction (DoDI) 4165.14 defines a facility analysis category (FAC) as a classification of real property types in a “basic category,” represented by a four digit code, aggregating military department categories into common groupings, based on commonality of functions, unit of measure, and unit costs. The FACs encompassing UPH are 7214 (mobilization/annual training), 7210/7240 (permanent party enlisted/officer), 7212/7241 (enlisted/officer transient), and 7213/7218 (trainee/student). Facilities are also categorized by three major areas or locations: foreign, territory, and United States. This report focuses on the permanent party

¹ GAO Report 08-502, *Continued Management Attention Is Needed to Support Installation Facilities and Operations* (Apr 2008), and other sources note inaccuracies in service real property databases.

² UPH facilities vary in the number of personnel they can accommodate and in square footage per person due to size, construction configurations, service policies, and other factors.

enlisted UPH facilities (FAC 7210) in the United States,³ which total about 156,287,000 square feet.

Completed in 2005, the initial collection of facility quality ratings was designed to provide a meaningful rating system that complies with Federal Real Property Council guidance.⁴ The current objective is to improve all facilities to at least a Q2 rating.⁵ Q-ratings, also known as facility physical quality codes, are determined by comparing the cost to restore or modernize a facility with its replacement cost, or PRV, and are updated annually.⁶

More practically, Q-ratings indicate the ability of existing facilities to perform their function by providing a capability to support the mission. The quality rating represents a facility's restoration and modernization requirement but does not represent its sustainment or new footprint requirement (although the rating may contain restoration costs caused by deferred sustainment).⁷ Q-ratings are as follows:⁸

- ◆ Q1: Restoration/modernization cost is 10 percent or less of the facility replacement value.
- ◆ Q2: Restoration/modernization cost is greater than 11 percent but does not exceed 20 percent of the facility replacement value.
- ◆ Q3: Restoration/modernization cost is greater than 20 percent but does not exceed 40 percent of the facility replacement value.
- ◆ Q4: Restoration/modernization cost is greater than 40 percent of the facility replacement value.

Figures B-1 through B-4 show various distributions of Q-ratings across the UPH inventory for comparison. Figures B-1 and B-2 look at the worldwide inventory of UPH, and Figures B-3 and B-4 look at the UPH inventory in the United States.⁹

Figure B-1 displays Q-ratings in terms of number of UPH facilities by type of UPH, encompassing all types (permanent party, mobilization/annual training,

³ Enlisted UPH facilities make up approximately 95 percent of all permanent party UPH. The actual number of UPH facilities may vary at any given time due to construction, demolition, and other factors.

⁴ Office of the Under Secretary of Defense memo, "Facility Quality Rating Guidance," September 5, 2007.

⁵ Expectmore.gov, Detailed Information on the Military Construction Programs Assessment.

⁶ 2007 DISP, Objective 2.1.

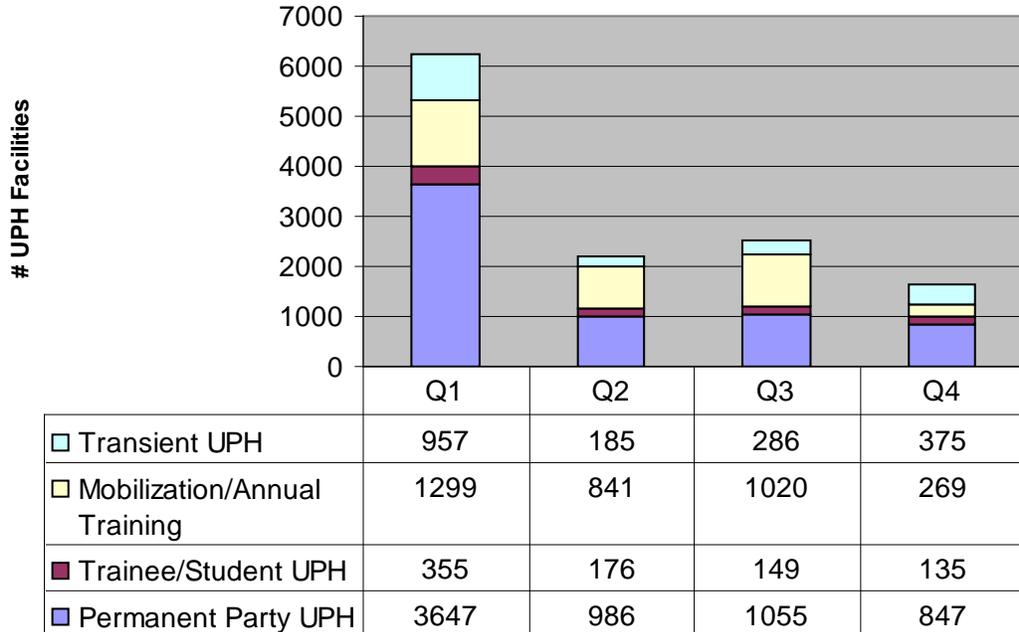
⁷ DoDI 4165.14, *Real Property Inventory and Forecasting*, March 2006 (Enclosure 4).

⁸ There are plans to change Q-ratings from four discrete levels to a continuous 0–100 scale (see Note 4, this appendix).

⁹ The Q-ratings in the real property database (measured by building) and those resulting from the 2008 OSD-directed UPH inspection (measured by room) differ.

training, trainee/student, and transient) in all areas (United States, foreign, territory).¹⁰ Table B-2 shows the data in percentages.

Figure B-1. Q-Rating Distribution for UPH Facilities, All Types, All Areas



Source: OSD real property database (existing inventory, not including deficit UPH), September 30, 2009.

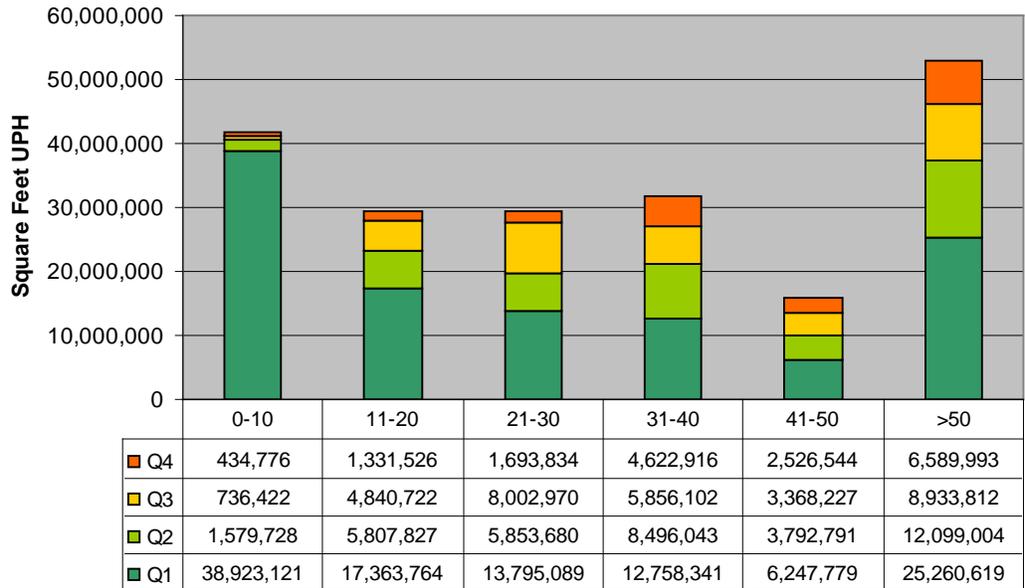
Table B-2. Q-Rating Distribution by Percentage for UPH Facilities, All Types, All Areas

	Q1	Q2	Q3	Q4	Total
Trans	7.6	1.5	2.3	3.0	14.3
Mob/AT	10.3	6.7	8.1	2.1	27.3
T/S	2.8	1.4	1.2	1.1	6.5
PP	29.0	7.8	8.4	6.7	51.9
Total	49.7	17.4	20.0	12.9	100.0

Figure B-2 displays Q-ratings by facility square footage by age for all types of enlisted UPH only, in all areas. Enlisted UPH space totals 200,915,000 square feet in all areas. Table B-3 shows the data in percentages.

¹⁰ All mobilization/annual training UPH is Army.

Figure B-2. Q-Ratings for Enlisted UPH, All Areas



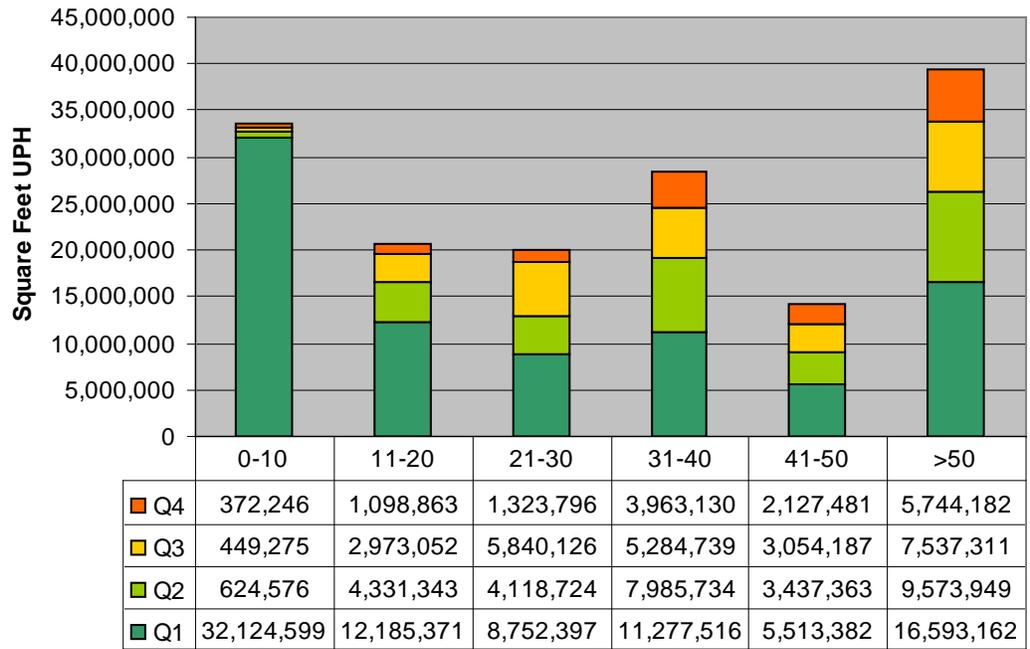
Source: 2008 OSD real property database.

Table B-3. Q-Rating Distribution by Percentage for Enlisted UPH, All Areas

Age (years)	Q1	Q2	Q3	Q4	Total
0-10	19.4	0.8	0.4	0.2	20.7
11-20	8.6	2.9	2.4	0.7	14.6
21-30	6.9	2.9	4.0	0.8	14.6
31-40	6.4	4.2	2.9	2.3	15.8
41-50	3.1	1.9	1.7	1.3	7.9
>50	12.6	6.0	4.4	3.3	26.3
Total	57.0	18.7	15.8	8.6	100.0

Figure B-3 displays Q-ratings by facility square footage by age for all types of enlisted UPH only, in the United States. Enlisted UPH space totals 156,286,000 square feet in the United States. Table B-4 shows the data in percentages.

Figure B-3. Q-Ratings for Enlisted UPH, U.S. Only



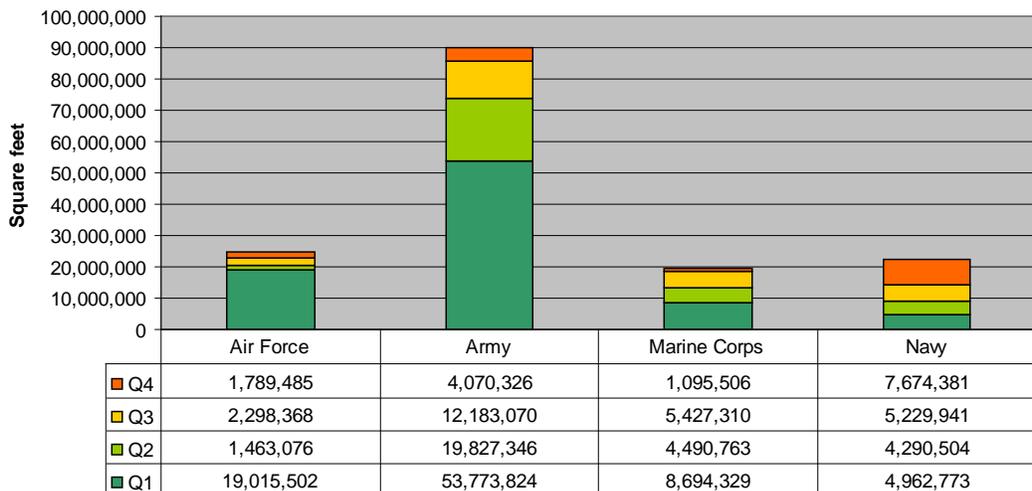
Source: 2008 OSD real property database.

Table B-4. Q-Rating Distribution by Percentage for Enlisted UPH, U.S.

Age (years)	Q1	Q2	Q3	Q4	Total
0-10	20.6	0.4	0.3	0.2	21.5
11-20	7.8	2.8	1.9	0.7	13.2
21-30	5.6	2.6	3.7	0.8	12.8
31-40	7.2	5.1	3.4	2.5	18.2
41-50	3.5	2.2	2.0	1.4	9.0
>50	10.6	6.1	4.8	3.7	25.2
Total	55.3	19.2	16.1	9.4	100.0

Figure B-4 displays Q-ratings by square footage by service for all enlisted UPH in the United States. Table B-5 shows the data in percentages.

Figure B-4. Q-Ratings for Enlisted Permanent Party UPH in United States, by Service



Source: September 30, 2009, OSD real property database (existing inventory, not including deficit UPH).

Table B-5. Q-Rating Distribution by Percentage by Service for Enlisted UPH, U.S.

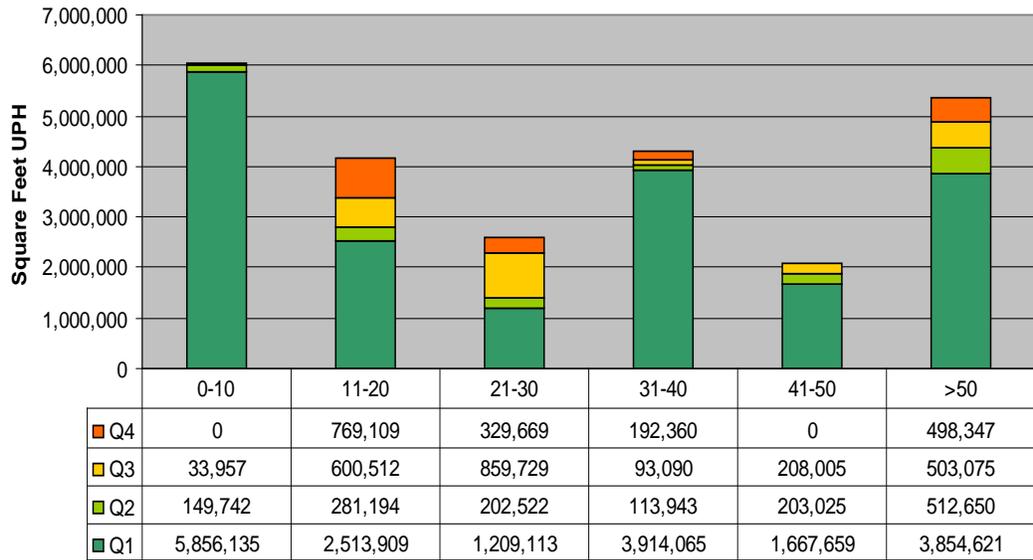
	Air Force	Army	Marine Corps	Navy	Total
Q1	12.2	34.4	5.6	3.2	55.3
Q2	0.9	12.7	2.9	2.7	19.2
Q3	1.5	7.8	3.5	3.3	16.1
Q4	1.1	2.6	0.7	4.9	9.4
Total	15.7	57.5	12.6	14.2	100.0

AIR FORCE

The Air Force has about 16 percent (24,566,400 square feet) of the UPH facilities in the United States. From about FY00 until FY08, the Air Force centralized funding for building and renovating UPH facilities, making them a service priority in its annual budgeting program. Starting in FY08, the Air Force decentralized UPH facilities planning and programming to the major command level, where UPH must now compete for funding with other O&M type installation facility requirements.¹¹ Figure B-5 shows the Q-ratings of Air Force UPH in the United States in terms of square feet and age of UPH facilities.

¹¹ The Air Force's internal facility rating system (not shown) uses a three-tier rating, which does not have a one-to-one correlation with Q-ratings.

Figure B-5. Air Force UPH Q-Ratings and Facility Age (Enlisted, U.S.)

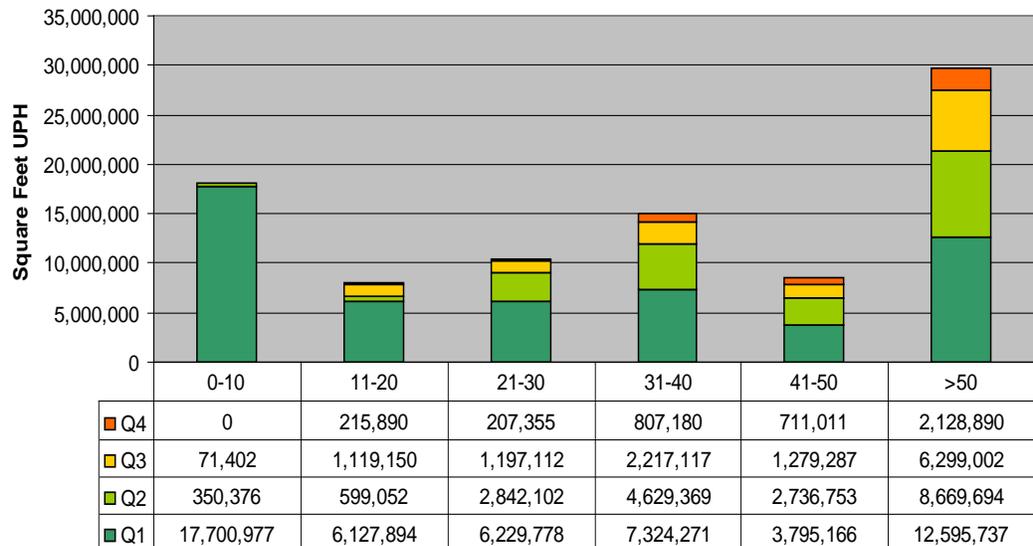


Source: 2008 OSD real property database.

ARMY

The Army has the largest share (approximately 58 percent, or 89,854,500 square feet) of all UPH facilities. It has more than half of all UPH, and more than 40 percent of its inventory is over 40 years old. The Army correlates the Q-rating with its internal facility rating system, the ISR.¹² Figure B-6 shows the Q-rating of Army UPH in the United States in terms of square feet and age of UPH facilities.

Figure B-6. Army UPH Q-Ratings and Facility Age (Enlisted, U.S.)



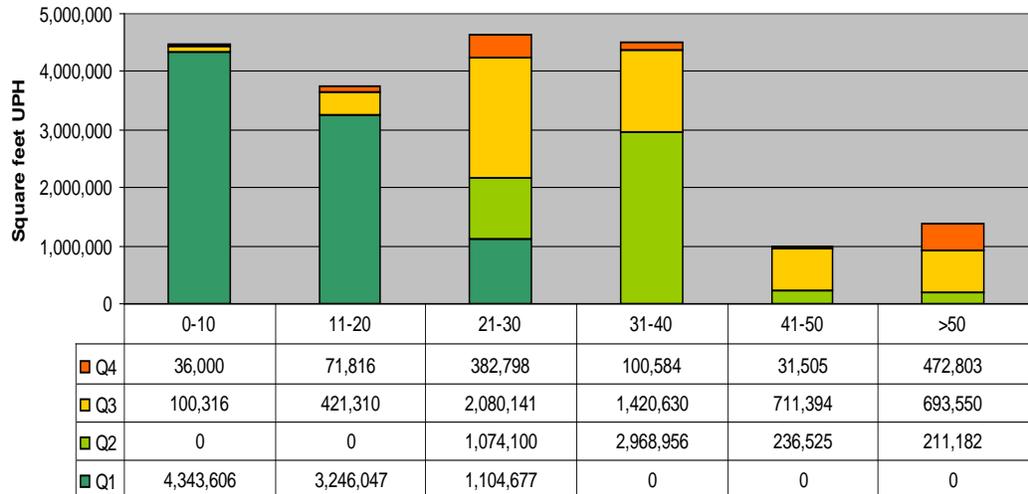
Source: 2008 OSD real property database.

¹² Appendix K details the ISR.

MARINE CORPS

The Marine Corps has the smallest percentage of enlisted UPH in the United States among the services (approximately 13 percent or 19,700,000 square feet). Figure B-7 shows the Q-rating of Marine Corps UPH in the United States in terms of square feet and age of UPH facilities.

Figure B-7. Marine Corps UPH Q-Ratings and Facility Age (Enlisted, U.S)

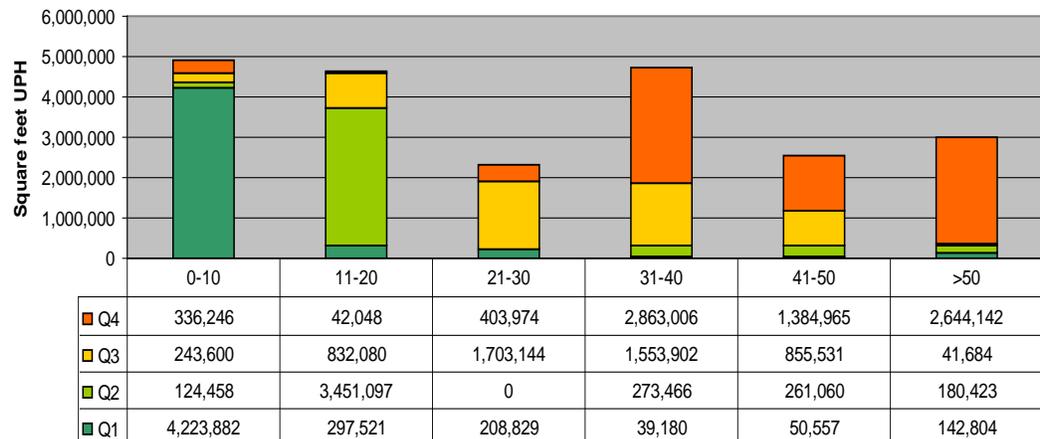


Source: 2008 OSD real property database.

NAVY

Navy UPH, comprises about 14 percent (22,157,600 square feet) of all the services enlisted UPH in the US. Figure B-8 shows the Q-rating of Navy UPH in the United States in terms of square feet and age of UPH facilities.

Figure B-8. Navy UPH Q-Ratings and Facility Age (Enlisted, U.S.)



Source: 2008 real property database.

Appendix C

Sustainment, Restoration, and Modernization

This appendix provides additional background on facility sustainment. Providing the appropriate level of sustainment for facilities has been and continues to be an ongoing effort within OSD and throughout the federal government. OSD has made much progress in formalizing sustainment needs. This appendix discusses some of this progress and ongoing issues.

Since sustainment is funded as part of the lump-sum O&M appropriation and supports many different types of facilities, this discussion is relative to all facilities dependent on O&M sustainment funding, including UPH. We discuss the specific application of sustainment to UPH when appropriate.

DEFINING TERMS

The following definitions for sustainment, restoration, and modernization (SRM) are from the DoD Financial Management Regulation.¹ Similar definitions exist in other DoD and military service documents and sources. Other DoD or service publications may contain slightly different definitions.

Sustainment

Sustainment encompasses the maintenance and repair activities necessary to keep an inventory of facilities in good working order. It includes regularly scheduled adjustments and inspections, preventive maintenance tasks, and emergency response service calls for minor repairs. It also includes major repairs or replacement of facility components (usually accomplished by contract) that are expected to occur periodically throughout the life cycle of facilities.

This work includes regular roof replacement, refinishing of wall surfaces, repairing and replacing heating and cooling systems, replacing tile and carpeting, and similar types of work. It does not include environmental compliance, facility leases, or other task costs associated with facility operations (such as custodial services, grounds services, waste disposal, and the provision of central utilities).

Restoration

Restoration means the return of real property to such a condition that it may be used for its designated purpose. It includes repair or replacement work to restore

¹ DoD Financial Management Regulation, Vol. 2B, Chapter 8, June 2007.

facilities damaged by inadequate sustainment, excessive age, natural disaster, fire, accident, or other causes.

Modernization

Modernization means the alteration or replacement of facilities solely to implement new or higher standards, to accommodate new functions, or to replace building components that typically last more than 50 years (such as framework or foundations).

HISTORICAL SYNOPSIS

DoD-wide standardization of facility management started about 10 years ago. Up through the 1990s, DoD services and agencies for the most part developed and used their own metrics, terminology, and accounting methods to manage their facility programs. In 2001, OSD assessed the services real property information systems to provide programming and budgeting information. The results showed incompatibility between services real property reporting systems. Real property maintenance was “an indecipherable mixture of sustainment, recapitalization, demolition, and new footprint.”² Little standardization existed.

The following major changes by DoD greatly helped standardize facility management, of which sustainment is a part:³

- ◆ 1997: A facilities assessment database was created to integrate all the service facility databases.
- ◆ 1999: Cost factor handbooks were established to help standardize sustainment and other facility costs.
- ◆ 1999: The Installation Readiness Report (IRR) was first published as DoD’s medium for reporting facility condition requirements to Congress.
- ◆ 2001: The facilities recapitalization metric was established and funding model developed to help determine rates of restoration and modernization.
- ◆ 2002: Improved budgeting methods classified real property maintenance into defined entities (including sustainment, restoration, and modernization).
- ◆ 2002: Plant replacement value (PRV) was standardized across DoD.
- ◆ 2003: Facilities sustainment model (FSM) was fielded as the standardized model to estimate sustainment needs on a macro (DoD-wide) scale.

² Facilities Recapitalization Front-End Assessment, Department of Defense, August 2002.

³ GAO Report 03-274, *Defense Infrastructure: Changes in Funding Priorities Needed to Improve the Condition of Military Facilities*, February 2003.

Additional improvements continue to be made in facility management tools to better account for how resources are utilized toward facilities, including UPH.⁴ UPH, being part of the OSD real property inventory, is benefitting from these strategic tools. Much effort has been invested in these advancements in managing DoD facilities to provide a long-term solution. They are improving the identification of requirements and resources needed to take care of DoD facilities throughout their life cycles. As use of these tools matures, better requirements determinations and policy decisions should result from more accurate, reliable and useful data, providing better facilities.

There is no “quick fix” to the SRM requirements and challenges facing UPH. These requirements are ongoing throughout the 50 or 75 year life cycle of a typical UPH facility and require solutions that will serve UPH facilities over time as they age through their life cycles. The strategic tools described above that OSD and DoD have developed and are implementing can provide the data needed for good, informed decisions addressing ongoing UPH facility issues.

The quality of the results utilizing these and upcoming tools depends on the quality of the data and information used. In one recent study, significant inaccuracies were found in real property records and with cost factors used in the FSM. These inaccuracies skew the resulting O&M sustainment and other requirements that depend on real property records and FSM calculations in their requirements determination.

ESTIMATING REQUIREMENTS

The Facility Program Requirements Suite (FPRS),⁵ under the DUSD (I&E), provides tools to support requirements development for facility care. These tools include the following:

- ◆ Facilities Sustainment Model (FSM)⁶
 - Projects annual facility sustainment costs through the budget and fiscal year defense plan(FYDP) years for all DoD facilities
 - Assumes a 50-year facility service life.⁷

⁴ Some measures, like the calculating of facility C-ratings, are still service-specific.

⁵ Details on FPRS are at http://www.acq.osd.mil/ie/irm/ProgramAnalysis_Budget/ToolAndMetrics/FPRS/fprs.shtml. Access to data and parts of the FPRS site is restricted.

⁶ The FSM was developed by OSD using industry benchmark data for different facility classes and is widely used by the military services in developing annual sustainment budget estimates. The companion model, Facilities Recapitalization Metric (FRM), provides a method for the services to estimate investment requirements for restoration and modernization.

⁷ OSD’s current facility recapitalization goal (macro scale) is 67 years.

-
- ◆ Facilities Modernization Model (FMM)
 - Under development (expected completion FY10)
 - Will predict the average annual dollar amount required for DoD to modernize its inventory of facilities on a continual, ongoing basis
 - Counters facility obsolescence by updating and renewing facilities to current standards without changing the facility size.
 - ◆ Facilities Operations Model (FOM)
 - Costs for facility operations functions (FOM includes, among other things: fire and emergency services, utilities, refuse, grounds maintenance, custodial, and real property management services).

Sustainment and restoration are typically accomplished by O&M funds. Modernization can be accomplished by O&M or MILCON funds, depending on the type and scope of work done. For FY08, the FSM calculated the sustainment cost for UPH for enlisted personnel at \$3.50/square foot/year.

The FSM calculation is based on the average annual sustainment cost over the life of different types of facilities. Actual sustainment costs for a facility are not constant from year to year, but instead vary based on the age of the components of the facility. For example, replacing the roof at year 20 requires much higher sustainment costs in that year than in years when the roof or another major component is not replaced. Given the large number and various ages of the facilities on a typical installation, these higher sustainment costs for replacing major components can average out. However, as with any averaging technique, there can be some years when sustainment costs will be higher and some years when sustainment costs will be lower than the average for the installation. As with most models based on the average of large numbers, the usefulness of the model degenerates as the number of facilities decreases. The one year appropriation life of O&M funds makes it impossible to “bank” unused funds in lower workload years for use in higher workload years.

Inadequate sustainment can cause collateral damage to equipment and furnishings inside a facility, as well as affect the productivity and/or morale of people working or living there. The difference between the sustainment requirement generated by FSM and the expensed sustainment funds is the deferred sustainment, or backlog. This can be a simple accumulation of the deferred sustainment costs, or it could cost much more, depending on the impact on the facility of the unperformed sustainment (for example, interior water damage to a facility and its furnishings and equipment caused by a leaking roof needing replacement that has been deferred).

The amount of backlog reported can vary, depending on the source. A 2001 report to Congress⁸ noted that previous budget submissions to Congress on the backlog of facility maintenance and repair requirements lacked usefulness, because of variations among the services (and in the federal government as a whole) in calculating and reporting the backlog.

To help improve credibility and validity in this area, DoD developed the FSM and has used the results of this model since 2003 as the primary method for projecting annual facility sustainment costs through the budgeting process.⁹ The FSM uses the annual average industry standard cost per unit (such as dollars per square foot) for each type of facility, location cost factors, quantities (from OSD's Facility Assessment Database), and inflation factors to develop predictable average sustainment requirements throughout DoD. The DoD also created new accounting codes (program elements) to help capture sustainment expenditures.

One industry rule of thumb estimates facility sustainment generally requires about 2.5 percent per year of PRV for routine sustainment needs, and an additional 2 percent of PRV (cumulative) should be saved for reinvestment needs, such as replacing major components and other major facility sustainment investments as components reach the end of their useful lives. However, current financial rules for DoD facilities prevents anyone from holding sustainment funds when requirements are lower than average, for use in years when sustainment requirements are higher than average.

The reported amount expensed on sustainment can vary. For example, Expect-More.Gov reported that overall DoD sustainment funding levels for 2003 through 2007 were 84 percent, 75 percent, 90 percent, 90 percent, and 90 percent, respectively (DoD 2007 SRM funding was \$7.68 billion).¹⁰ It was reported at the 2007 Sustaining Military Readiness Conference¹¹ that Defense corporate facilities sustainment rates were 93 percent, 94 percent, 95 percent, 92 percent, and 90 percent for the same years. Yet another source, the GAO, found that DoD sustainment funding for FY05, FY06, and FY07 was 79 percent, 90 percent, and 91 percent, respectively, with the services budgeting between 83 percent and 92 percent of their sustainment requirements for 2008.¹²

With annual sustainment requirements being calculated in the billions of dollars, accurate tracking of expensed sustainment funds is important to the credibility of

⁸ Deputy Under Secretary of Defense, *Identification of the Requirements to Reduce the Backlog of Maintenance and Repair of Defense Facilities*, Report to Congress, April 2001.

⁹ DoD Financial Management Regulation, Vol. 2B, Chapter 8, June 2007.

¹⁰ ExpectMore.Gov, *Detailed Information on the Department of Defense Facilities Sustainment, Restoration, Modernization, and Demolition Assessment*.

¹¹ Moy, G. W., Director, Installations Requirements and Management, Office of the Secretary of Defense (Installations & Environment), *A Policy Level Perspective on Military Facilities and Installations*, August 2007.

¹² Government Accountability Office, *Continued Management Attention is Needed to Support Installation Facilities and Operations*, GAO-08-502, April 2008.

programmed SRM requirements and subsequent support for those requirements. Using the FSM to develop sustainment requirements and using specific programming elements for SRM funding has improved credibility for sustainment resources. As these and other tools mature, the ability to accurately track funding will continue to improve. Specific reporting requirements for UPH sustainment may help to support funding for UPH, leading to better maintained quality housing for unaccompanied personnel living in government housing.

FY09 PRESIDENT'S BUDGET, UPH SUSTAINMENT

The FY09 President's Budget requested 90 percent of the required sustainment funding for all DoD facilities. This translates into \$10,737.3 million for all sustainment funding for all DoD facilities, including \$8,293.1 million of O&M sustainment funding (Table C-1). The O&M sustainment funds request for all UPH was \$886.5 million (10.7 percent of all DoD O&M sustainment funds requested). Of this, the O&M sustainment funds request for permanent party enlisted UPH (FAC 7210) was \$611.8 million (69.0 percent of all UPH requested O&M sustainment funding, or 7.4 percent of all DoD requested O&M sustainment funding). The 90 percent funding request represents an FY09 shortfall in O&M sustainment funds for permanent party UPH of approximately \$67 million. Over time, this underfunding can significantly impact the quality of the affected UPH facilities. For example, in 8 years a 90 percent funding level for O&M sustainment will result in over half a billion dollars (FY09 dollars) of unperformed or deferred sustainment given current UPH inventories. With significant numbers of new UPH facilities submitted with the FY09 MILCON to help meet deficit requirements, the total number of UPH facilities will continue to increase as will the sustainment requirement. If inadequate UPH facilities are to be eliminated in the future and DoD is to receive the full useful life of UPH facilities, full sustainment funding is needed. If full sustainment funding cannot be accomplished over the long term, alternative unaccompanied enlisted housing options (such as BAH or privatization) should be considered to help fill the gap by reducing the government owned inventory of UPH to a sustainable level. Unaccomplished sustainment continues to grow DoD-wide. According to the Department of Defense Financial Reports of 2008 and 2009, deferred maintenance for all property type categories increased from \$76,903 million in 2008 to \$85,156 million in 2009. It's reasonable to assume that the UPH deferred maintenance is also growing because: (1) SRM is being funded at less than full requirement, and (2) UPH competes for real property maintenance funds against other O&M type facilities.

Table C-1. 2009 Presidential Budget Submittal Extract

FY09 President's Budget, Sustainment for all UPH by FAC									
FAC	FAC_DESC	FH	NAF	OM	OTHER	PROC	RDTE	WCF	Grand Total
7210	Enlisted UPH	1,854,654	198,731	611,854,646	2,698,041	281,569	442,339	579,486	617,909,466
7213	Student Barracks			63,922,739	269,584			19,808	64,212,131
7214	Annual Training/Mobilization Barracks			55,774,713	1,379,820			458,219	57,612,752
7218	Recruit/Trainee Barracks			77,017,907					77,017,907
7240	Officer Unaccompanied Personnel Housing	1,351,076		77,952,227	978,965	141,929	4,930,041	45,795	85,400,033
Grand Total		3,205,730	198,731	886,522,232	5,326,410	423,497	5,372,380	1,103,307	902,152,289

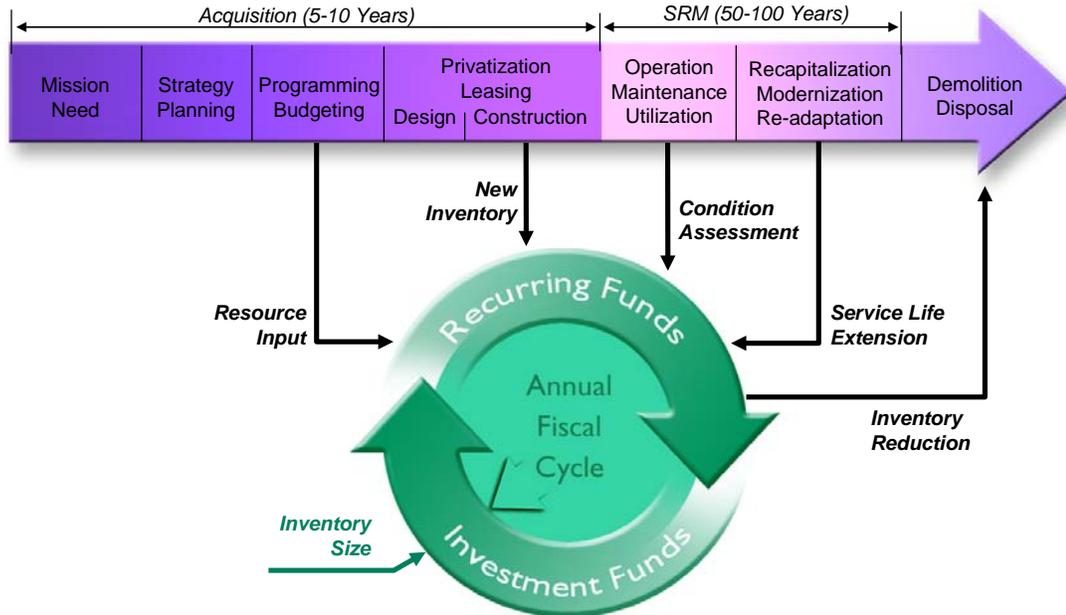
FY09 President's Budget, Sustainment for all FACS									
All FACS	Organization	FH	NAF	OM	OTHER	PROC	RDTE	WCF	Grand Total
Grand Total		649,988,763	95,427,848	8,293,045,761	73,098,178	238,845,875	87,324,112	1,299,605,804	10,737,336,341

FACs 7210, 7213, 7214, 7218, 7240									
Organization	FH	NAF	OM	OTHER	PROC	RDTE	WCF	Grand Total	
ALL UPH			10.7%						8.4%
PERM PARTY UPH (7210)			7.4%						5.8%

SUSTAINMENT LIFE CYCLE

Rarely are UPH facilities unaffected by the life cycle evolution and the demand for SRM. Requirements based on periodic policy reviews, updated standards, changes in force structure, and budget limitations continuously shape the serviceability and value of UPH inventories. Figure C-1 depicts the concept of cyclical changes in policies and standards and their impact on new and existing inventory. As facilities built in one era reach either their intended design life, they are recapitalized or newer facilities are built that meet current standards. If recapitalization is no longer economically justified or the requirement has diminished (for example, due to base realignment and closure (BRAC) or force structure changes), a portion of the inventory is considered surplus to the UPH requirement and either reassigned for other uses or demolished. At any given point in time, UPH inventories will likely include groups of facilities built during different eras and in different stages of their respective life cycles, and will likely have unavoidable deficit or surplus space. Existing tools, like BAH and demolition programs, are used to help mediate variance between the ideal zero surplus/deficit scenario and reality.

Figure C-1. Facility Sustainment Life Cycle



Throughout the history of UPH facilities, the services have attempted to accommodate current and forecasted needs, considering standards and each facility's life cycle. The design life of most government facilities is affected by the original design criteria, how well the facility is routinely cared for and the degree to which investments are made to replace building systems that wear out over time. Neglected sustainment and restoration requirements accelerate facility degradation and lead to reduced life expectancy. Most reports of inadequate facility condition are the result of inattention to and insufficient investment in sustainment and restoration. Design life also assumes a reasonable level of utilization—meaning that facilities are not overcrowded or used for purposes other than the intent of their design.

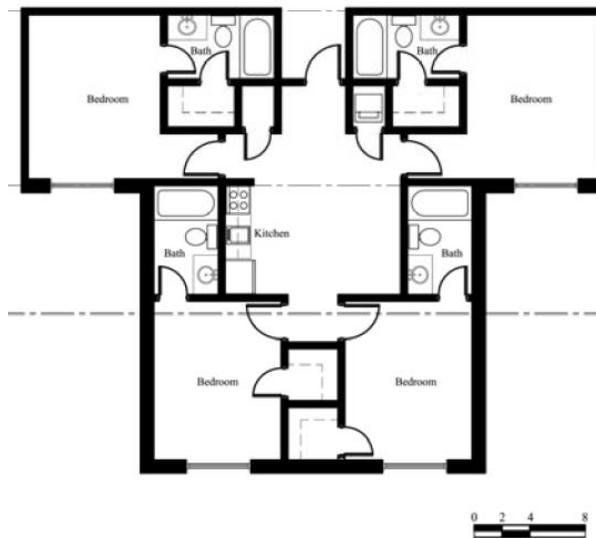
Using assessments of facility conditions in combination with mission impact helps make the most effective use of limited resources. In today's environment, UPH condition is considered to have a high impact on mission accomplishment through its effect on morale, readiness, recruiting, and retention.

Appendix D

UPH Room Diagrams

Figures D-1-D-6 show diagrams of the services' new construction standards, based on current OSD requirements, policies, and guidance. Figures D-7-D-16 show market or apartment style floor plans for privatized and MILCON UPH modules currently being constructed or active in the UPH inventory.

Figure D-1. Air Force Dorms-4-Airmen Module (Corridor Access)



Source: U.S. Air Force, *Unaccompanied Housing Design Guide*, January 2006, p. 35.

Air Force 1+1+1+1, FY 2003

4 Bedroom - 4 Bath Apartment

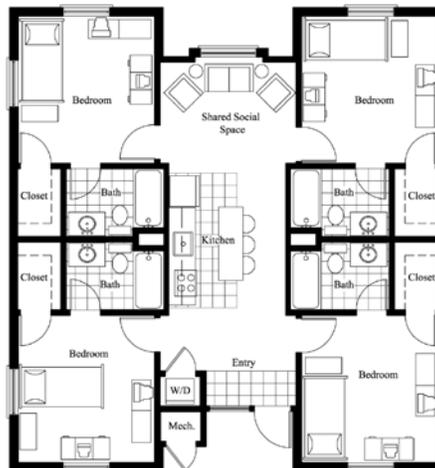
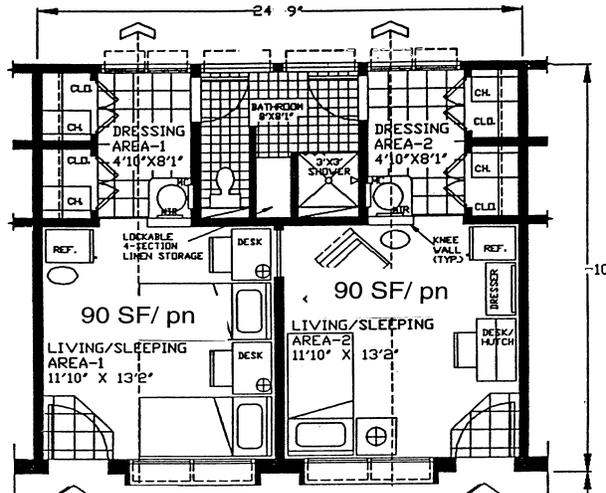
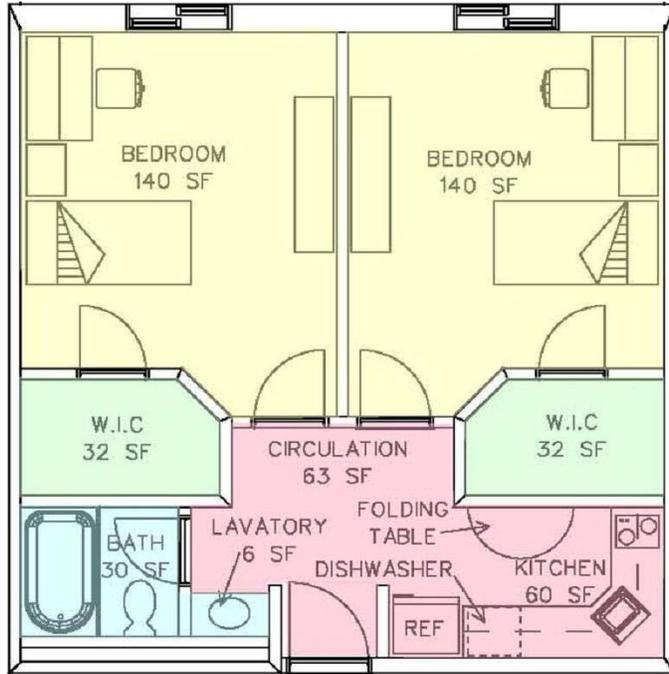
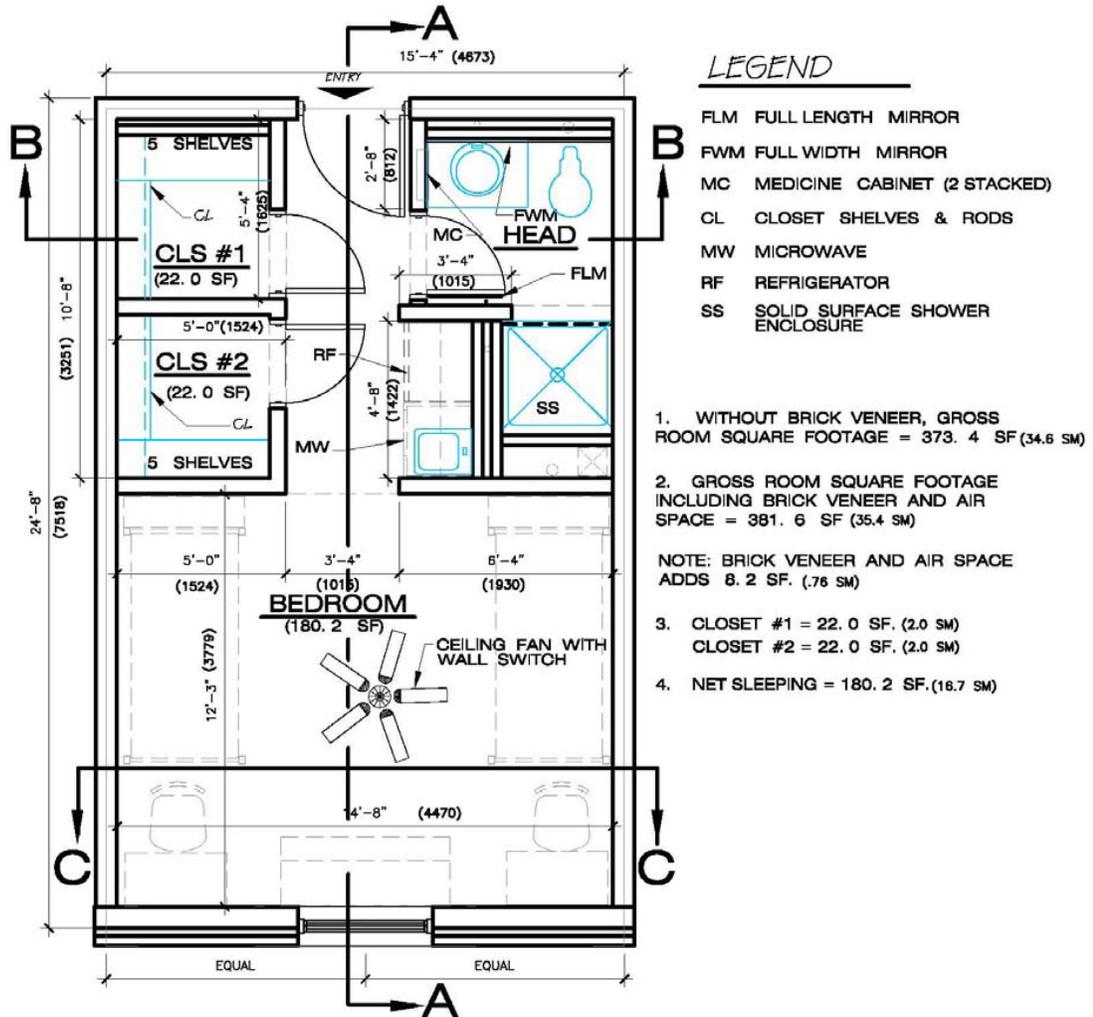


Figure D-2. Army Generic Module (1+1E)



- Differences with Army 1+1 Module
- Two E1-E4's share a 180 SF (17 SM) room.
 - 4-person module 566 SF (52.6 SM).
 - Toilet and shower shared by 4 persons. Two lavatories outside bathroom.
 - No service area.
 - Closets 8 SF.

Figure D-3. Marine Corps 2+0 Room (Interior Corridor Access)



REQUIRED 2+ 0 ROOM PLAN

SCALE: 1/4" = 1' - 0"

(INTERIOR CORRIDOR ACCESS)

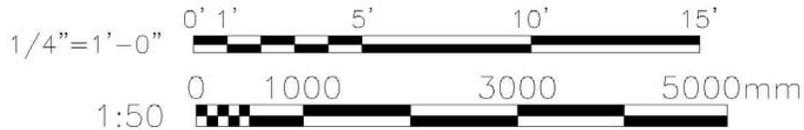
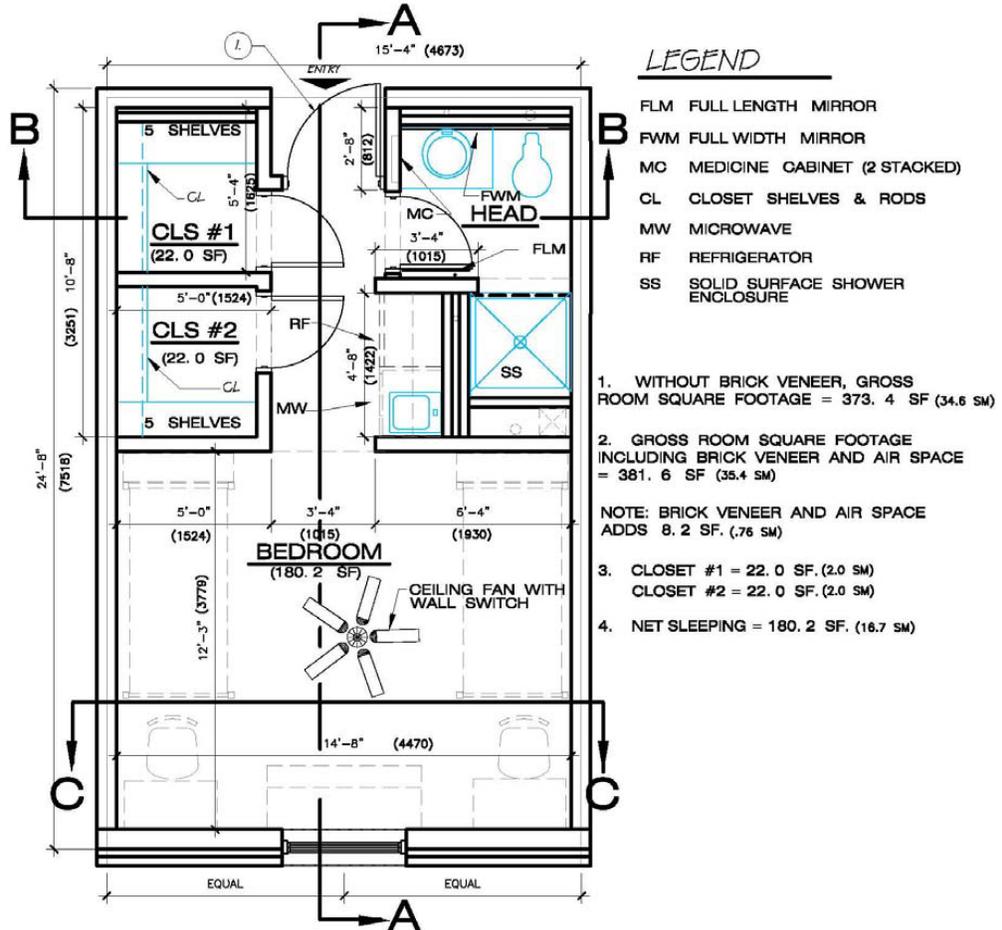


Figure D-4. Marine Corps 2+0 Room (Exterior Breezeway Access)



REQUIRED 2+ 0 ROOM PLAN
 SCALE: 1/4" = 1' - 0" (EXTERIOR BREEZEWAY ACCESS)

NOTES

(I) DOOR SWING PER ATFP

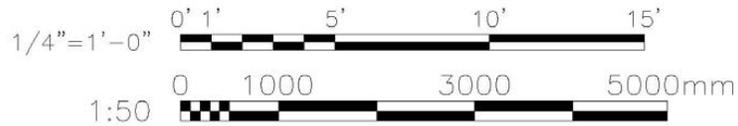
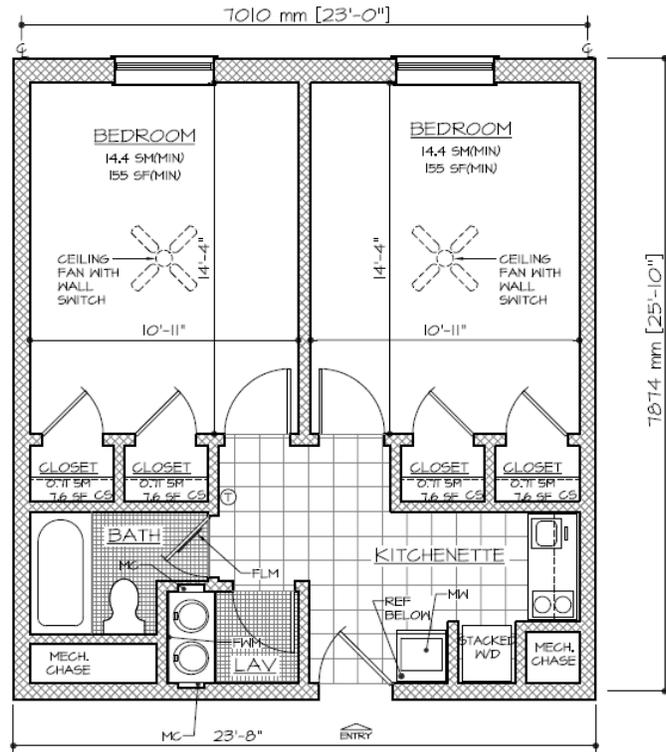


Figure D-5. Navy 1+1E Square Apartment



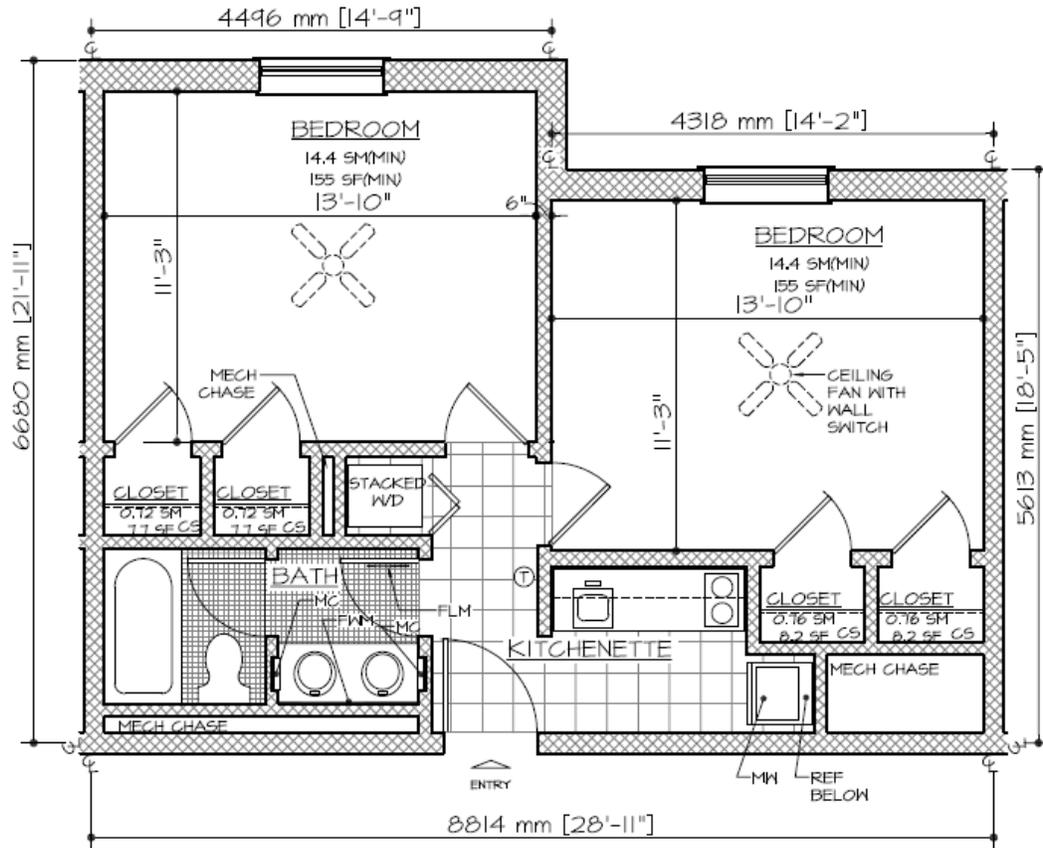
REQUIREMENT
 BUILDING GROSS AREA PER APARTMENT
 GROSS MODULE AREA
 NET SLEEPING AREA
 LEGEND:
 Ⓢ HVAC CONTROL
 FLM FULL LENGTH MIRROR
 FWM FULL WIDTH MIRROR
 MC MEDICINE CABINET

CRITERIA
 66 SM MAXIMUM (710 SF)
 56 SM (600 SF) MAX.
 14.4 SM (155 SF)

CS CLOSET SYSTEM
 MW MICROWAVE
 REF REFRIGERATOR

1/4" = 1'-0"
 0 1000 2000 mm
 1:50

Figure D-6. Navy 1+1E Offset Apartment



REQUIREMENT
 BUILDING GROSS AREA PER APARTMENT
 GROSS MODULE AREA
 NET SLEEPING AREA

CRITERIA
 66 SM MAXIMUM (710 SF)
 56 SM (600 SF) MAX.
 14.4 SM (155 SF)

LEGEND:

⊕ HVAC CONTROL	R&S ROD AND SHELF
FWM FULL WIDTH MIRROR	MW MICROWAVE
FLM FULL LENGTH MIRROR	REF REFRIGERATOR
MC MEDICINE CABINET	CS CLOSET SYSTEM

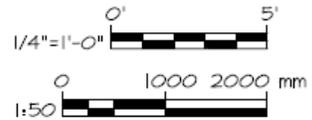
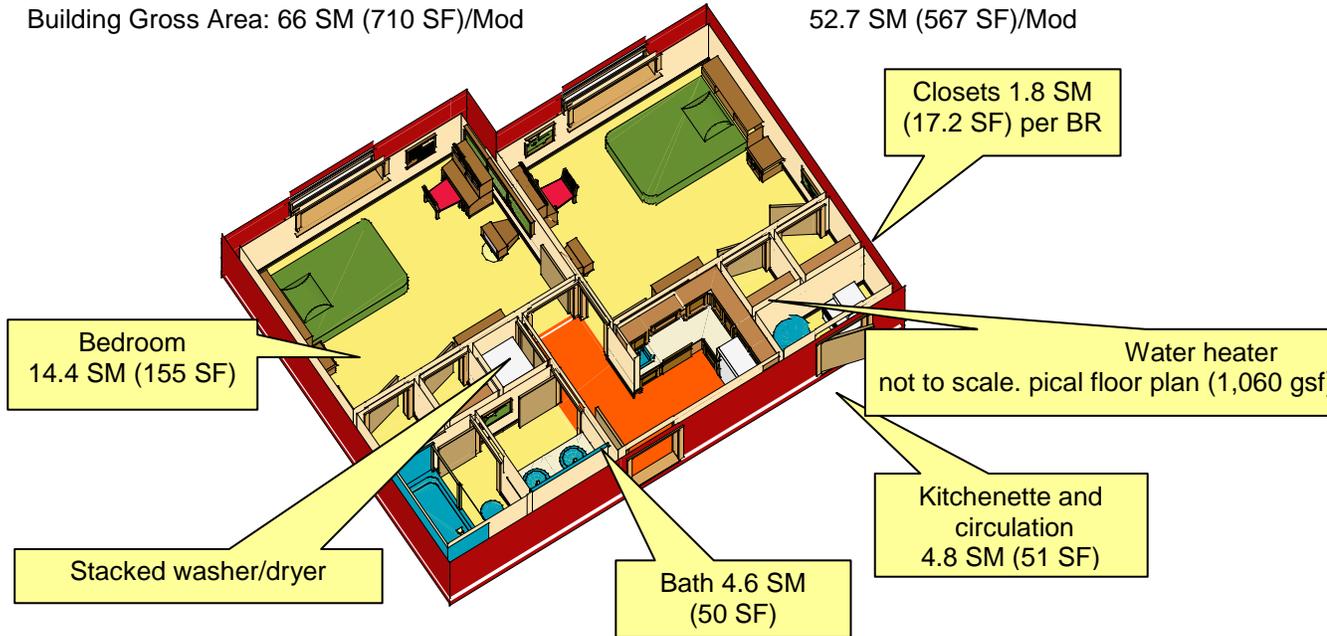


Figure D-7. 1+1E Navy BEQ Floor Plan



Note: Areas noted are net areas. Not to scale.

Figure D-8. Generic UPH Market Style Floor Plan

- Size, style, density and amenities similar to that found in the private-sector
- One bath per bedroom, one washer/dryer per unit
- Common Living/Dining/Kitchen
- Furnished



Representative Unit Floor Plan

Figure D-9. Hampton Roads Privatized UPH Floor Plan (Market Style)



Note: "Manor Residences" for E3's and below. Typical floor plan (1,060 gsf).

Figure D-10. Camp Allen Mid-Rise Floor Plans



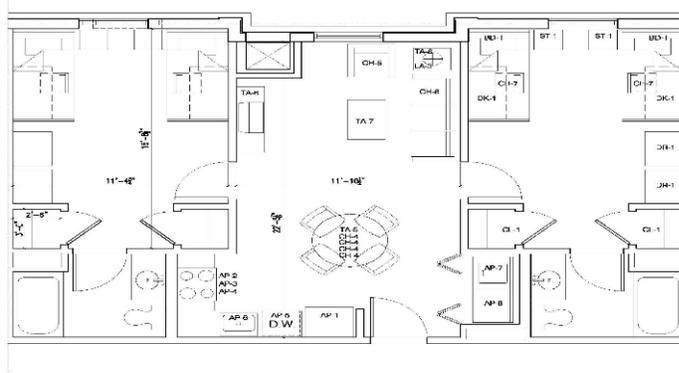
Figure D-11. Newport News Manor Floor Plan



Figure D-12. Pacific Beacon Typical Floor Plan (E-4-E-6)

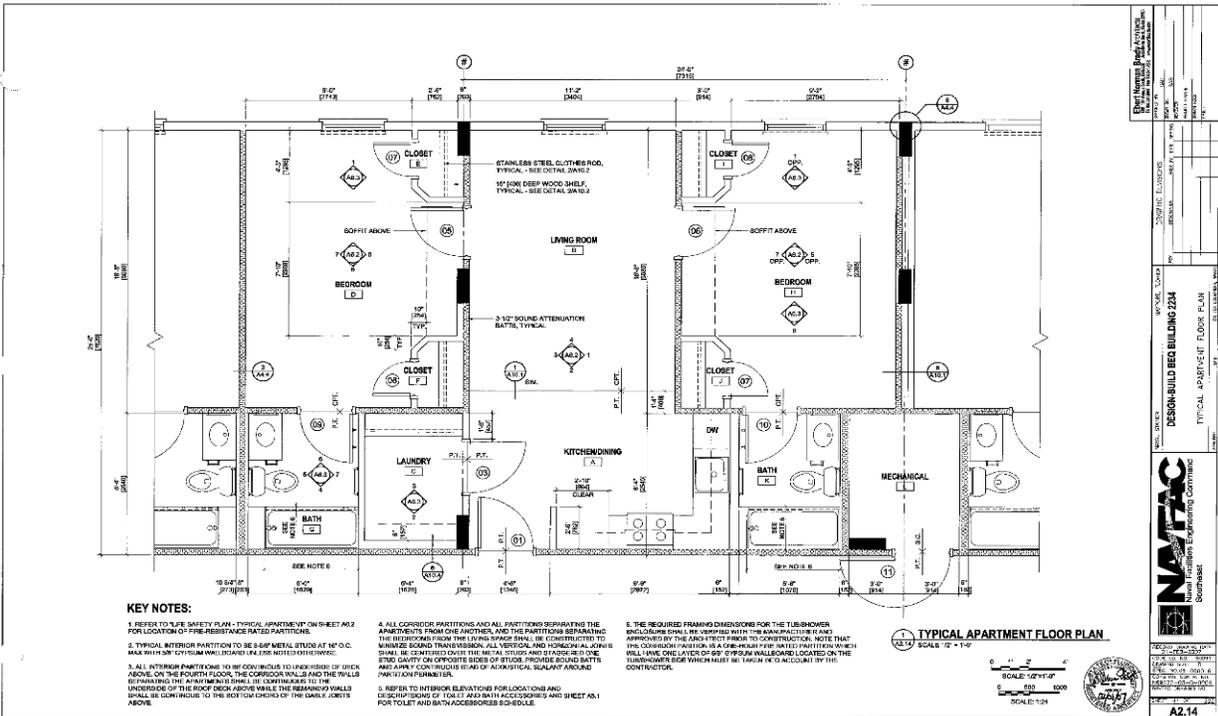


Figure D-13. Hampton Roads MILCON Market Style Floor Plan



BD-1: twin adjustable, loftable bed
 DK-1: desk
 ST-1: mobile storage pedestal, lockable
 MT-1: xl twin mattress
 DR-1: 6 drawer dresser
 CH-7: desk chair

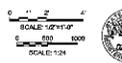
Figure D-14. Mayport MILCON Floor Plan



KEY NOTES:

1. REFER TO THE SAFETY PLAN, TYPICAL APARTMENT ON SHEET A02 FOR LOCATION OF FIRE-RESISTANCE RATED PARTITIONS.
2. TYPICAL INTERIOR PARTITION TO BE 5/8" METAL STUDS AT 16" O.C. WALL PARTITION SYSTEM WALLS (SEE NOTE 1) FOR NOTES ON FINISHES.
3. ALL INTERIOR PARTITIONS TO BE CONCRETE TO UNDERLIES OF SLICK ABOVE. ON THE FOURTH FLOOR, THE CORRIDOR WALLS AND THE WALLS SEPARATING THE APARTMENTS SHALL BE CONCRETE TO THE UNDERSIDE OF THE FLOOR DECK ABOVE WHILE THE SEPARATING WALLS SHALL BE CONCRETE TO THE BOTTOM CHORD OF THE GABLE JOISTS ABOVE.
4. ALL CORRIDOR PARTITIONS AND ALL PARTITIONS SEPARATING THE APARTMENTS FROM ONE ANOTHER, AND THE PARTITIONS SEPARATING THE BEDROOM FROM THE LIVING AREA SHALL BE CONSTRUCTED TO MINIMIZE SOUND TRANSMISSION. ALL VERTICAL AND HORIZONTAL JOINTS SHALL BE GATED OUTSIDE THE METAL STUDS AND STAGGER THE STUD GAVITY ON OPPOSITE SIDES OF STUD. PROVIDE SOUND BATTS AND ACRYLIC CONTROLS BEHIND OF ACoustICAL SEALANT ABOVE PARTITION FURNITURE.
5. REFER TO INTERIOR ELEVATIONS FOR LOCATIONS AND DESCRIPTIONS OF TOILET AND BATH ACCESSORIES AND SHEET A01 FOR TOILET AND BATH ACCESSORIES SCHEDULE.
6. THE REQUIRED FRAMING DIMENSIONS FOR THE TUB/SHOWER ENCLOSURES SHALL BE VERIFIED WITH THE MANUFACTURER AND APPROVED BY THE ARCHITECT PRIOR TO CONSTRUCTION. NOTE THAT THE CORRIDOR PARTITION IS A ONE-HOUR FIRE RATED PARTITION WHICH WILL HAVE ONE LAYER OF Gypsum WALLBOARD LOCATED ON THE TUB/SHOWER SIDE WHICH MUST BE TAKEN INTO ACCOUNT BY THE CONTRACTOR.

TYPICAL APARTMENT FLOOR PLAN



DESIGN-BUILD BEO BUILDING 224
 TYPICAL APARTMENT FLOOR PLAN
 A2.14

NAVAC
 Naval Facilities Engineering Command
 Southwest
 44101 Highway 1
 Miramar, CA 92033
 (619) 434-2300
 www.navac.navy.mil

Figure D-15. Bremerton Market Style

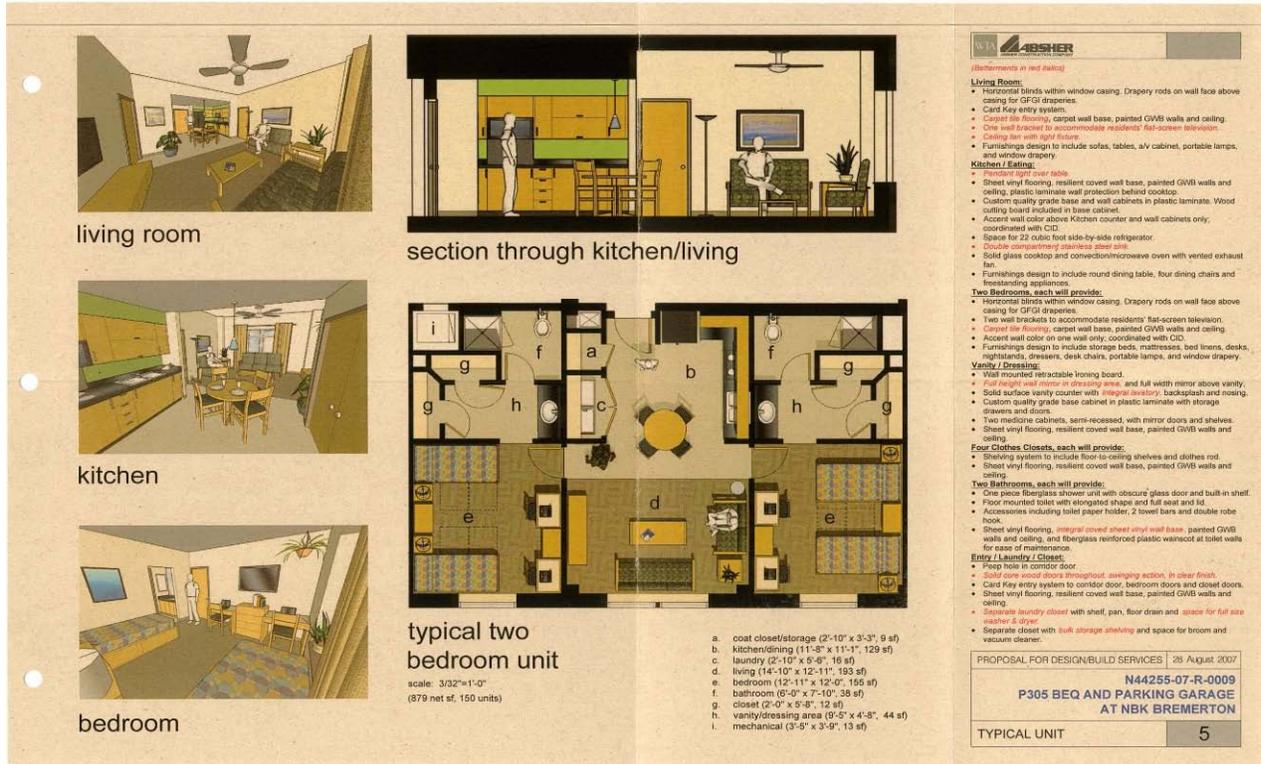
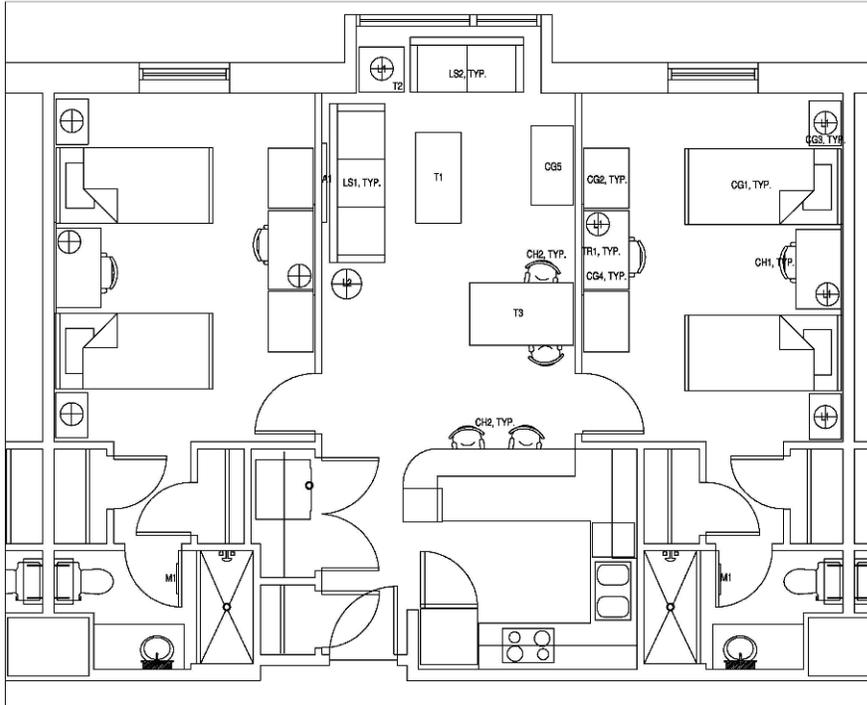


Figure D-16. Everett Market Style

P-155 Everett BEC
Everett Naval Station, Washington

Furniture, Fixtures and Equipment
Final Design Package

N44255-07-C-0001
09/16/08



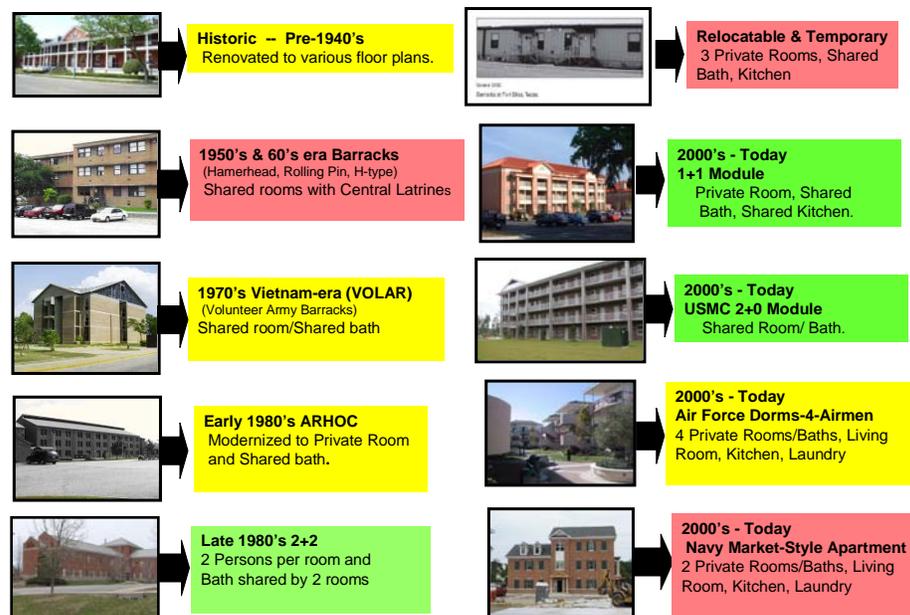
TYPICAL UNIT		
CODE	NAME	QUANTITY
CG1	CAPTAINS BED	4
CG2	4-DRAWER DRESSER	4
CG3	NIGHTSTAND	4
CG4	DESK	4
CH1	TASK CHAIR	4
LS1	SOFA	1
LS2	SETTEE	1
T1	COFFEE TABLE	1
T2	END TABLE	1
CG5	TV STAND	1
T3	DINING TABLE	1
CH2	COUNTERSTOOL	4
L1	TABLE LAMP	9
L2	FLOOR LAMP	1
M1	MIRROR	2
A1	ARTWORK	1
TR1	48" TACK RAIL	4

Appendix E

UPH Evolution

In this appendix, we describe the evolution of UPH for junior enlisted personnel starting with the Army, which has about half of all the services' UPH. We include the UPH evolution in the other services when it differs notably from the Army's. Figure E-1 shows the UPH evolution over the decades.

Figure E-1. Unaccompanied Personnel Housing (FAC 7210)



1

ARMY

Currently, the Army has 10 different types of permanent party UPH facilities, ranging in age from pre-WWII to ongoing construction. Army barracks have undergone various changes, upgrades, and improvements over the years to accommodate changes in force structure, political climates, and other influences, resulting in various room amenities and configurations. Figure 5-1 from the *2007 Army Barracks Strategic Plan* (Appendix M) graphically summarizes the different types of Army barracks constructed over the decades.

The Army's pre-WWII barracks are typically durable buildings, constructed to last a long time. Rooms are typically large (built for multiple people), and each building has a gang latrine.

WWII-era barracks are typically wood and constructed for short life spans (5 to 10 years), but some are still in the inventory. Reserve forces typically use these facilities while waiting for funding and construction of operational readiness training complexes. These facilities, as well as other older UPH facilities, are also sometimes used for temporary barracks for active-duty personnel as mission needs dictate.

The Hammerhead (early 1950s), “H”-type (mid-1950s), and Rolling Pin (late 1950s–early 1960s) barracks are typically of concrete and concrete masonry unit (CMU) construction with gang latrines. These barracks are still in use, primarily for permanent party members.

With the start of the volunteer Army, the VOLAR barracks were constructed in the 1970s and early 1980s. These were of typical concrete and CMU construction, usually provided 90 square feet per person, and were designed for three persons per room with shared bathrooms.

The 2+2 barracks were built in the 1980s and early 1990s. These consisted of two rooms, with two persons in each room, and a shared bath between the two rooms. They have also undergone various upgrades and modifications over the years.

During the same period as the 2+2 barracks, the Army Housing Committee II barracks were constructed. These typically provided for 100 square feet per person, four persons to a room, and a shared bath per room. Like the 2+2 and VOLAR barracks, they have received various upgrades and modifications over the years. Future plans include making or keeping these barracks at or near a 1+1 equivalent (equivalent because of the limitations of each facility’s physical layout) until they reach the end of their useful lives.

In the mid-1990s, the Interim Standard barracks were constructed. These provide 110 square feet per person, two persons to a room, and a shared bathroom.

From 2005 to the present, the 1+1E (enhanced) barracks construction provides two private rooms (140 square feet each), large private closets, and a shared bathroom and kitchenette between the two private rooms for new (deficit) or replacement construction. Older barracks of various configurations do not meet the 1+1E standard for new construction, but they are considered adequate from an assignment and facility use perspective, as long as minimum space and condition requirements are met.

MARINE CORPS

Early Marine Corps unaccompanied housing, like that of the other services, was designed with open bays and central latrines. The famous Quonset huts provided some of the housing requirements, and some are still used today for temporary housing when necessary.

After OSD mandated the 1+1 standard, the Marine Corps received a permanent waiver in 1996 to use an alternate 2+0 configuration for junior enlisted members, with two persons per room with a shared bath. This allows the Marine Corps to foster the team building, companionship, camaraderie, and unit cohesion central to the Marine Corps philosophy.

More recently, recognizing that operational priorities had sometimes been favored over unaccompanied housing needs, the Marine Corps began the Bachelor Enlisted Quarters Initiative. In a statement made before the House Appropriations Committee on March 11, 2008, Marine Corps Commandant General James Conway reported that “the Marine Corps is on track to obtain our goal to achieve the 2+0 standard to support (pre-grow-the-force end strength) by 2012 and support our 2014 goal to provide adequate housing for 202,000 Marines.”¹

NAVY

The Navy’s need for UPH differs from the other services. By necessity, naval ships have always been designed to perform two essential functions: accomplish the military mission and provide the facilities to house and sustain the crew while on deployment (usually several months at a time). Because naval ships have always had living quarters built in, throughout most of its history the Navy expected its junior enlisted surface-ship sailors to live aboard their ship when it is docked in homeport. While their married shipmates were provided with quarters ashore, unaccompanied members lived aboard. Not until 1996 were E-6 members allowed to reside on land (via BAH) while in port. More recently, E-5 and career E-4 personnel were also allowed to reside on land (via BAH) while in port.

By the late 1990s, senior Navy leadership recognized the importance of providing ashore accommodations for its junior enlisted sailors while in homeport. It was seen as an important quality-of-life issue that affected morale and retention. It has also been cited by leadership as an important factor in reducing the number of behavior and discipline incidents involving off-duty sailors while on liberty.² A 1999 congressional hearing statement said shipboard life and standards of living were major points of dissatisfaction for target retention groups.³

An October 2000 Chief of Naval Operations Executive Board set a goal of providing all sailors without disciplinary restrictions assigned to sea duty with off-ship quarters when their ship is in its home port. The program created to accomplish this goal was named Homeport Ashore, which had the original goal of full

¹ Statement of General James T. Conway, Commandant of the Marine Corps, before the House Appropriations Committee Military Construction Subcommittee on FY09 Military Construction, March 11, 2008, www.marines.mil/units/hqmc/cmc/Documents/CMCTestimonies20080311HouseAppCommStatement.pdf.

² Chris Amos, “A Room Ashore for Nearly Every Shipboard Sailor,” *Navy Times*, May 5, 2008.

³ Robert B. Pirie Jr., Assistant Secretary of the Navy (Installations and Environment), ASN(I&E), Senate Armed Services Committee, Readiness and Management Subcommittee, 1999.

implementation by FY05. Homeport Ashore accommodations have been provided at major Navy fleet concentration areas: Norfolk, VA, Mayport, FL, San Diego, CA, Bremerton and Everett, WA, and overseas at Sasebo and Yokosuka, Japan. In 2005, approximately 18,400 junior enlisted unaccompanied sailors worldwide still lived aboard ship even while in homeport.⁴ By 2008, this number is expected to drop to about 9,000.⁵ Rear Admiral James Kelly, who commands Naval Forces Japan, said it has been necessary to assign “three or four folks to a room” to achieve Homeport Ashore. However, even with that crowding, “it’s a lot better than the 240-man bunkroom in the air department on *Kitty Hawk*.” The end goal for the Navy is to provide private sleeping rooms for all sailors living in unaccompanied housing.

AIR FORCE

As of the mid-1990s, the Air Force policy of housing all E-1s through E-4s on-base so they can learn the Air Force/military way of life was firmly established, and it continues as a basic premise of the Air Force’s UPH philosophy today. The Air Force implemented its formal approach to UPH master planning in August 1997, with the publication of its first Dormitory Master Plan and the initiation of a 6-year plan to implement its new private room assignment policy. At that time, the total requirement was for 79,000 rooms and the existing inventory was 62,000 rooms, leaving a deficit of 17,000 rooms.

The evolution of Air Force UPH can be grouped into three time frames, each of which has associated adequacy standards:⁶

- ◆ *Built FY95 and earlier.* E-1 through E-3 and E-4 with less than 3 YOS: 90 square feet of net living area, a private combination sleeping/living room, and a bath shared with not more than one other person.
- ◆ *Built between FY96 and FY02.* E-1 through E-3 and E-4 with less than 3 YOS: 118 square feet of net living area, a private combination sleeping/living room, and a bath shared with no more than one other person.
- ◆ *Built in FY03 and later.* E-1 through E-3 and E-4 with less than 3 YOS: 129 square feet of net living area, a private combination sleeping/living area and private bath, and a shared common area that includes kitchen, social space, laundry, and utility space (the Dorms-4-Airmen standard).

⁴ Joint Statement of Admiral Vern Clark, Chief of Naval Operations, General Michael Hagee, Commandant of the Marine Corps, and Honorable B.J. Penn, ASN(I&E), before the Subcommittee on Military Quality of Life and Veterans Affairs of the House Appropriations Committee, March 9, 2005.

⁵ See Note 2, this appendix.

⁶ AFI 32-6005, *Unaccompanied Housing Management*, October 9, 2008.

DON'T ASK, DON'T TELL

The current administration is reconsidering the “don’t ask, don’t tell” (DADT) policies prohibiting individuals with known homosexual and other sexual orientations from serving in the military. At the President’s direction, Secretary Gates reviewed the current DADT policy. In March 2010, he modified the enforcement of DADT as a result of his initial review “to enforce the existing law in a fairer and more appropriate manner” effective immediately.⁷ On March 29, 2010, changes were made to DoDI 1332.14, *Enlisted Administrative Separation*, and DoDI 1332.30, *Separation of Regular and Reserve Commissioned Officers*, to formalize these modifications to policy. The changes include elevating member termination authority from the O-6 level to the flag officer level, requiring hearsay, third-party information to be given under oath, and prohibiting confidential information from lawyers, clergy, and professionals from use in supporting charges or as evidence in DADT cases. These modifications apply to all current and future DADT investigations and cases.⁸

A working group was also established to look at the longer-term effects of further modifying or repealing the DADT policy. The secretary directed the services to provide him by December 1, 2010, their proposals on how each service will integrate non-heterosexuals into their arm of the U.S. military, including addressing same-sex marriage, family and unaccompanied housing, dependent benefits, and other issues. The report will also include a perspective from the current military members on the potential change. A major driver behind this in-depth review is to be prepared to act should Congress modify or repeal the current law. A copy of the working group’s report will be provided to Congress.

The President has also called on Congress to reconsider DADT legislatively. Currently, two bills are in Congress, S.3065 and H.RES 1090, also referred to as the “Military Readiness Enhancement Act of 2010,” addressing this issue. S.3065 seeks to amend Title 10 *U.S. Code*, primarily Section 654, by “replacing the current policy concerning homosexuality in the Armed Forces, referred to as “Don’t Ask, Don’t Tell,” with a policy of nondiscrimination on the basis of sexual orientation.” The House, under H.R. 4902 is also addressing the issue by proposing to establish “additional research, study, and reporting requirements for the Department of Defense working group reviewing the possible repeal of current United States policy concerning homosexuality in the Armed Forces, referred to as Don’t Ask, Don’t Tell and codified as Section 654 of title 10, *U.S. Code*.”

This recent change in perspective by the administration concerning DADT may significantly affect each service’s future UPH facilities, management, and policies.

⁷ “Pentagon Changes ‘Don’t Ask, Don’t Tell’ Enforcement,” American Forces Press Service, March 25, 2010.

⁸ Office of the Assistant Secretary of Defense (Public Affairs), Press Statement, “Don’t Ask Don’t Tell,” March 25, 2010.

Privacy and adequate space can assume to remain a priority in UPH characteristics. Current assignment policies could change if non-heterosexuals are allowed to openly serve. For example, General Conway of the Marine Corps said in a recent interview that most Marines would oppose sharing rooms with someone of a different sexual orientation, which might lead to the Marine Corps to change its current two-person per room assignment policy to all private rooms.⁹ Such shifts in assignment policy would alter currently defined UPH requirements for the Marine Corps and significantly change their UPH master plan. Similarly, policy change could lead other services that are working toward providing a private room for each member to enforce a private room assignment policy earlier than current UPH master plans provide. This could cause an interim increase in BAH requirements if current double-occupancy rooms are made into single private rooms sooner than planned, resulting in a larger gap between UPH room demand and supply. The short- and long-term impacts on UPH cannot be accurately determined until the working group completes its study and the administration and Congress make other changes to DADT.

We offer two comparison points for consideration with respect to changes in DADT. The British military replaced their ban on gay members with a sexual orientation-free code of conduct a decade ago with little apparent impact on their focus of operational effectiveness. Primarily on the basis of a major decision by the European Court of Human Rights concerning the discharge of four British service personnel on grounds of their homosexuality, Parliament lifted its ban on gays serving in the military on January 12, 2000, because it saw the “existing policy was legally sustainable.”¹⁰ It continues to assess equality and diversity policies annually with public- and private-sector organizations to best address the needs of the individual while meeting the need of the military, emphasizing the paramount need to maintain the operational effectiveness of the Armed Forces.

Universities also deal with the sometimes controversial issue of housing of non-heterosexual students. An emerging trend, now at about 50 universities around the country,¹¹ is the student dormitory housing option known as gender-neutral housing, where students choose with whom they room and universities put aside the traditional binary male/female housing determination factor to accommodate the housing needs of all gender orientations. Some see this as a natural evolution of housing policy, progressing over the decades from separate male/female dorm facilities to separate floors within the same facility to having female rooms and male rooms in the same hall. Acceptance of the gender neutral trend is not universal, though, and many universities are reluctant to pursue this housing option for various reasons, including the potential to antagonize parents and promote an image contrary to traditional morals and standards. The Association of College and

⁹ Bryant Jordan, “Conway Concerned with Gays in Barracks,” *Today in the Military*, Military.com, www.military.com/news/article/conway-concerned-with-gays-in-barracks.html.

¹⁰ Ministerial Statement by Rt Hon Geoff Hoon, MP, to the House of Commons, January 12, 2000, proud2serve.net/military/mimisterialstatement.htm.

¹¹ Schools implementing gender-neutral student housing policies include UCC Riverside, UC-Berkeley, Stanford, Cornell, Dartmouth, Haverford, University of Michigan, and Yale.

University Housing Officers note the trend for gender-neutral housing is expanding, but don't expect widespread adoption of it throughout the country. However, congressional bill (S.3065), which proposes repeal of DADT and calls for nondiscrimination in the armed forces based on sexual orientation, calls on the Secretary of Defense to describe actions "to effect the denial of funds" to universities that continue to "prohibit, or in effect prevent the Secretary or a military department from maintaining, establishing, or operating a unit" of the Reserve Officer Training Corps (ROTC) at that institution.

Appendix F

Army Reports on Barracks Construction Standards

The CD placed in the back inside cover contains the following two Army reports on barracks construction standards:

- ◆ NAHB Research Center, Inc., *Comparison of Life Cycle Costs of UEPH at Fort George G. Meade and Fort Detrick*, prepared for the Assistant Chief of Staff for Installation Management, August 12, 2004.
- ◆ Applied Research Associates Inc., *Progressive Collapse Analysis of the Replacement Barracks, Ft. Meade, Maryland—Final Report*, prepared for the U.S. Army Corps of Engineers Protective Design Center, August 2003.

Appendix G

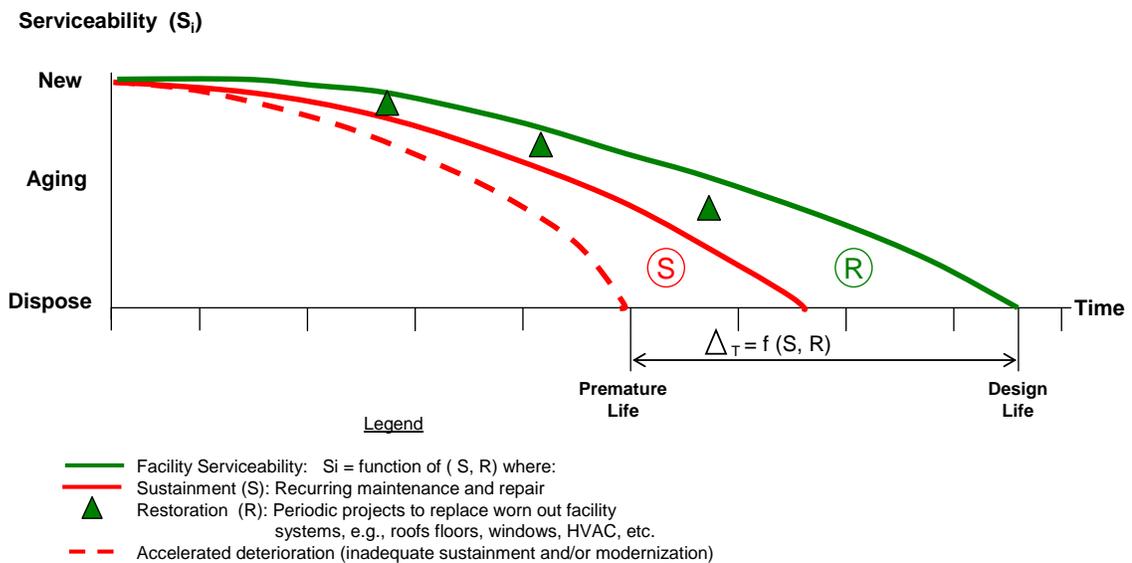
UPH Facility Life Cycle

LIFE CYCLE

An installation facility is designed for a specific purpose or function using the criteria, technology, and materials appropriate at the time it is built. Each facility has a projected life span (design life) that assumes the facility will be used for the purpose intended, and that required sustainment and restoration activities will be accomplished when needed. A facility designed for 50 years requires recurring and preventive maintenance, repairs, and inspections to last its full expected 50 years of functionality.

Facility systems such as roofing, heating, air conditioning, and electrical systems will not last for 50 years. Those systems must be restored through repair or even replacement within 15–30 years, or even earlier if maintenance is neglected. System restoration is eventually required for all facilities to ensure that original levels of serviceability are available and design life is achieved. Facilities that do not receive sustainment or restoration investment experience a premature (shortened) life span. This concept is illustrated in Figure G-1.

Figure G-1. Facility Serviceability over its Projected Design Life Affected by Sustainment and Restoration Investment

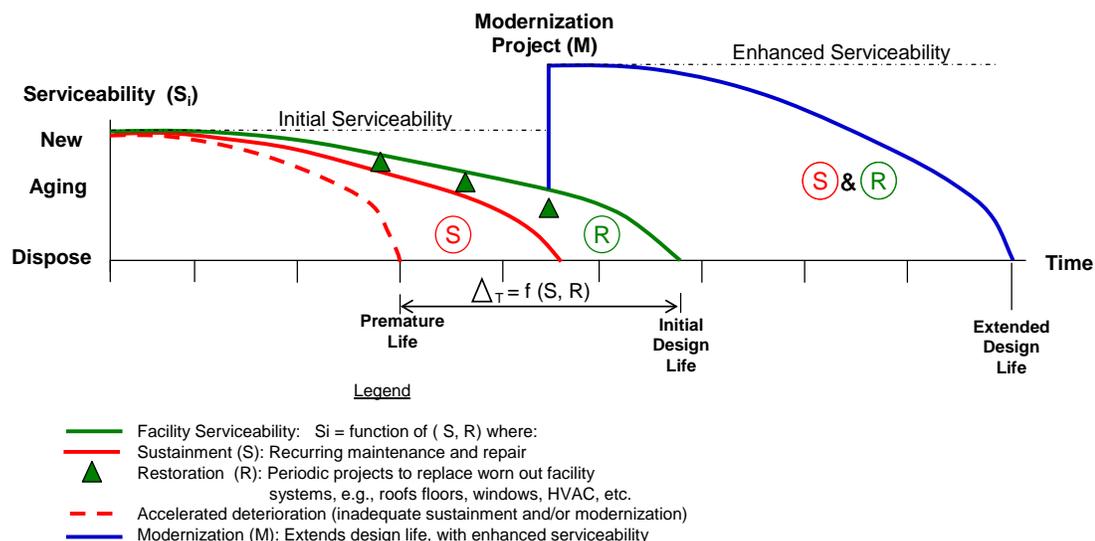


MODERNIZATION

Government agencies generally extend a facility's original design life through a series of modernization and/or adaptive reuse decisions. If a facility has sound structural conditions, the facility can be reconfigured and features added or modified to meet changing needs. When sustainment is neglected, capital investment decisions are sometimes accelerated to both restore a facility to good condition and extend facility life to meet new standards.

Decisions to modernize usually incorporate restoration requirements within the same project. For example, doors and windows might be replaced at the same time rooms are reconfigured to meet new standards. Figure G-2 illustrates the effect of modernization on a facility's life cycle.

Figure G-2. Modernization Extends Facility Life Cycle



Once modernized, the resulting level of serviceability is usually enhanced compared with the initial level of serviceability. But sustainment and restoration requirements still continue for the modernized facility. If those are neglected, then the facility will face a foreshortened life span as discussed above, depriving the owners of the full use of their initial facility investment.

The DoD's current recapitalization rate goal, established in 2001, is 67 years. This means that on the average, DoD facilities should be recapitalized through replacement or revitalization every 67 years. This is a macro-level objective measured across all of DoD's facility inventory and is not appropriate to use below a service level, or for a specific type or group of facilities. The Facilities Modernization Model (FMM), scheduled to be fielded in 2010, is designed to

estimate recapitalization funding requirements based on the service life of individual facility categories and not the gross 67 year recapitalization rate.¹

In addition, the DoD recapitalization rate assumes full (100 percent) sustainment funding.² That is to say that the 67 year recapitalization rate requires 100 percent sustainment funding over the life of a facility. Historically, sustainment funding overall has been less than 100 percent, theoretically making the 67 year recapitalization rate unattainable. There is a plethora of data documenting DoD sustainment has been consistently funded at less than 100 percent. DoD is committed to funding sustainment; however, financial constraints and management decisions often lead to less than 100 percent sustainment funding. For example, recent DUSD statements before Congress document DoD sustainment in 2008 was 88 percent of the DoD sustainment requirement, and that the 2009 budget request is for 90 percent of the sustainment requirement.³

¹ GAO Report 08-502, *Defense Infrastructure: Continued Management Attention is Needed to Support Installation Facilities and Operations*, April 2008.

² Facilities Recapitalization Front-End Assessment, DoD, August 2002.

³ Statement of Mr. Wayne Army, Deputy Under Secretary of Defense (Installations and Environment) before the Subcommittee on Military Construction, Veterans Affairs, and Related Agencies of the Senate Appropriations Committee, April 24, 2008.

Appendix H

Draft DoD Directive on Housing Management

The CD placed in the back inside cover contains the following DoD guidance: DoDD 4165.63-M (draft), “DoD Housing Management,” Under Secretary of Defense for Acquisition, Technology, and Logistics.

Appendix I

Facility Rating Programs

The CD placed in the back inside cover contains descriptions of the following facility rating programs:

- ◆ U.S. Air Force, Facility Investment Metric (FIM)
- ◆ U.S. Army, Installation Status Report (ISR)
- ◆ USMC CORRS Description.

Appendix J

BAH-MILCON Life Cycle Cost Analysis

In this appendix, we present the sources used for developing the inputs for the life cycle cost analysis (LCCA). The CD placed in the back inside cover contains the LCCA spreadsheet models for the five sample installation sites. Following the LCCA section, we include a summary of capital costs for the five selected sites.

ASSUMPTIONS AND INPUTS FOR THE GOVERNMENT OWNED SCENARIO

In developing the LCCA for the government owned alternative, we identified the costs of designing, constructing, maintaining, and operating the UPH facility for the life of the asset.¹ Below we describe the source used for our assumptions and calculations.

Design and construction costs—We identified the government cost of designing and constructing UPH projects provided in the DD Form 1391. This form also provided the gross square footage of the facility, the total number of bedrooms, and the number of service members that would be housed in the facility.

Sustainment and modernization of the Primary Facility—Using the OSD(I&E) Facility Program Requirements System website version 10.5, we obtained the FY10 cost per square foot for facility sustainment and modernizations for barracks facilities. Specifically, we calculated the sustainment and modernization by calculating an average sustainment and an average modernization cost based on information provided for 117 enlisted UPH facilities (FAC 7210) at Fort Bragg.

Sustainment and modernization of Supporting Facilities—Using information from the “reviewers print” version of the DD Form 1391, we estimated the quantities of various supporting facilities and used the FSM-FMM-FOM Version 10 Common Reference Tables (DoD Pricing Guide), dated March 28, 2008 to calculate estimated costs associated with the sustainment and operation of supporting facilities.

Operating costs—We calculated the cost of operations for water and wastewater, real property management, grounds maintenance and landscaping, and energy using the Facilities Operation Model of the OSD(I&E) Facility Program Requirements System, Version 10.5. Neither the Facilities Operation Model nor the

¹ According to UFC 3-701-09, September 15, 2009, DoD Facility Pricing Guide, the expected service life of an Enlisted UPH facility (FAC 7210) is 55 years.

FSM-FMM-FOM version 10 Common Reference Tables dated March 28, 2008 had cost estimates for custodial services, refuse collection, or pest control for Enlisted UPH facilities (FAC 7210). To account for these costs, we used the FSM-FMM-FOM Version 10 Common Reference Tables (DoD Pricing Guide) costs factors for similar buildings escalating to FY10 dollars and applying the area cost factor adjustment. For custodial services, we used the cost factor for Miscellaneous UPH Support Buildings (FAC 7231). For refuse collection, we used the cost factor for Enlisted UPH Transient facilities (FAC 7212). For pest control services, we used the cost factor for Student Barracks (FAC 7213).

Barracks management costs—OSD Housing and Competitive Sourcing asked each Service to provide a cost estimate for activities relating to the day-to-day management of the UPH facility including check-in/check-out, room assignments, key control, and reporting and tracking of maintenance issues. We have included this as an annual cost in our LCCA.

Furnishings—OSD Housing and Competitive Sourcing asked each service to provide a cost estimate for the initial furnishings of the UPH facility as well as a the cost and schedule associated with the replacement of furnishings to occur over the lifetime of the UPH facility, which we have included.

Clothes washers and dryers—OSD Housing and Competitive Sourcing provided costs for clothes washers and dryers supplied by Service representatives for inclusion in the LCCA. If the Service leases this equipment, then we've included the cost as an annual cost. Otherwise, they are period expenditures based on the estimate and replacement schedule provided by the Service.

Fire and Police—OSD Housing and Competitive Sourcing provided costs for fire and police (emergency services) provided by Service representatives for inclusion in the LCCA. In some cases, these costs are based on the cost per space charged to the privatized housing partner at the same installation.

Partial Housing Allowance—Service members without dependents who live in government quarters are entitled to a partial basic allowance for housing. The partial BAH is based on the pay grade of the service member and does not vary by geographic location. We have included the partial housing allowance based on the pay grade mix of the service members who will be residing in the UPH facility.

ASSUMPTIONS AND INPUTS FOR PRIVATE SECTOR SCENARIO

In developing the LCCA for the private sector alternative, we identified the costs the government would pay to service members for BAH in lieu of providing government-owned facilities. This could be either housing available in the local community or housing that is part of a housing privatization project. For each location, we identified the BAH for pay grades that would reside in the government

barracks using the DoD BAH rates published on the defense travel website (<http://www.defensetravel.dod.mil/perdiem/bah.html>).

INFLATION AND DISCOUNT RATES

For the LCCA, we assumed that all costs would inflate with the general inflation rate. As such, costs were escalated to the current year (FY10) based on the rates specified by the DoD Comptroller to determine the FY10 cost estimate which was held constant in the LCCA. To determine the NPV of the costs for the government owned and private sector scenarios, we discounted the annual costs using the real discount rates specified by OMB Circular A-94.

CAPITAL COST COMPARISON

In Table J-1 we offer a summary of the normalized construction costs of the five LCCA projects to compare per bedroom construction costs. It is noted the bedrooms and overall spaces are of different size and configuration, owing in part to different services standards and assignment policies.

Table J-1. Construction Unit Costs of Various UPH Projects Based on Congressional DD Form 1391's

Installation	FY	Area cost factor	Total cost \$000	Escalated cost from FY09 to FY10 ^a \$000	Total cost at FY10 and ACF 1.0 \$000	Gross sf	Number of bedrooms	\$ per bedroom
Lejeune	2010	1.06	43,480	43,480	41,019	101,612	200	205,094
Davis-Monthan	2010	1.03	20,200	20,200	19,612	51,150	144	136,192
Drum	2010	1.13	57,144	57,144	50,570	170,556	466	108,519
Coronado	2009	1.11	86,275	87,483	78,813	198,917	528	149,268
Bragg	2009	0.93	29,879	30,297	32,578	111,744	288	113,117

^a Escalation during FY09 was 1.4% per page 39 of UFC 3-701-09, *DoD Facilities Pricing Guide*, September 15, 2009.

Appendix K

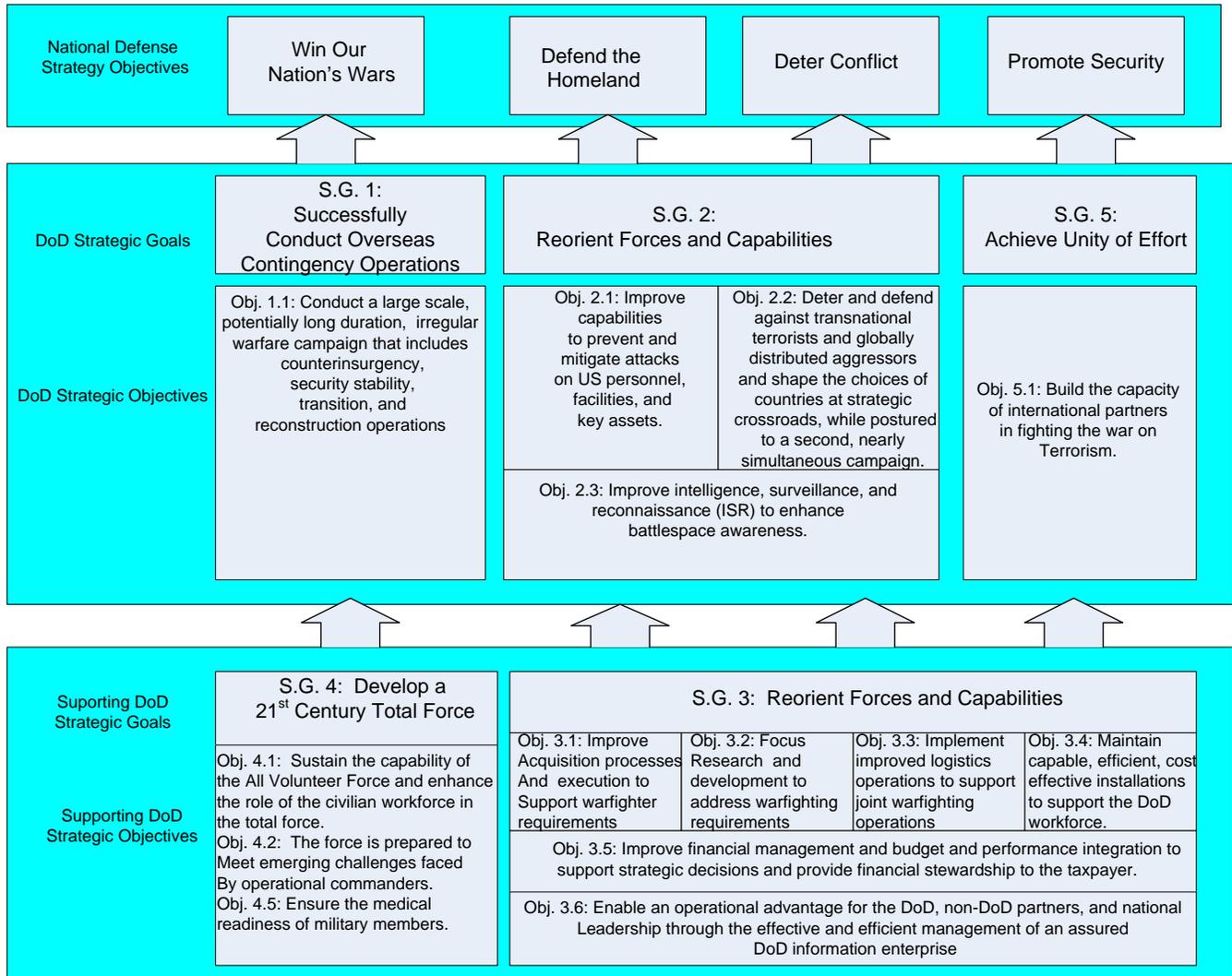
Strategic Objectives and Budget Request Relationship for UPH

DoD FY 2010 Budget Request Summary Justification (May 2009) developed five overarching strategic goals and 14 strategic objectives in support of the 2006 QDR. The DoD budget is developed to support these goals and objectives. They are listed below, with their relationships diagrammed in Figure K-1. UPH is included in the strategic objective 3.4, Maintain capable, efficient, and cost-effective installations to support the DoD workforce, located in the lower right of Figure K-1:

- ◆ Strategic Goal 1: Successfully Conduct Overseas Contingency Operations
 - Objective 1.1: Conduct a large-scale, potentially long-duration, irregular warfare campaign that includes counterinsurgency, security, stability, transition, and reconstruction operations.
- ◆ Strategic Goal 2: Reorient Forces and Capabilities
 - Objective 2.1: Improve capabilities to prevent and mitigate attacks on U.S. personnel, facilities, and key assets.
 - Objective 2.2: Deter and defend against transnational terrorists and globally distributed aggressors and shape the choices of countries at strategic crossroads, while postured to a second, nearly simultaneous campaign.
 - Objective 2.3: Improve intelligence, surveillance, and reconnaissance (ISR) to enhance battlespace awareness.
- ◆ Strategic Goal 3: Reshape the Defense Enterprise/Reorient Forces and Capabilities
 - Objective 3.1: Improve acquisition processes and execution to support warfighter requirements.
 - Objective 3.2: Focus research and development to address warfighting requirements.
 - Objective 3.3: Implement improved logistics operations to support joint warfighting operations.

-
- Objective 3.4: Maintain capable, efficient, and cost-effective installations to support the DoD workforce.
 - Objective 3.5: Improve financial management and budget and performance integration to support strategic decisions and improve financial stewardship to the taxpayer.
 - Objective 3.6: Enable an operational advantage for the DoD, non-DoD partners, and national leadership through the effective and efficient management of an assured DoD information enterprise.
 - ◆ Strategic Goal 4: Develop a 21st Century Total Force
 - Objective 4.1: Sustain the capability of the “All-Volunteer” force and enhance the role of the civilian workforce in the total force (incorporates former goals 4.2 and 4.3).
 - Objective 4.2: The force is prepared to meeting emerging challenges faced by operational commanders.
 - Objective 4.5: Ensure the medical readiness of military members.
 - ◆ Strategic Goal 5: Achieve Unity of Effort
 - Objective 5.1: Building the capacity of international partners in fighting the war on terrorism.

Figure K-1. Integrated Chart of QDR Strategic Goals and Objectives



Appendix L

UPH Customer Satisfaction

The CD placed in the back inside cover contains the following UPH customer satisfaction information and data:

- ◆ Air Force Instruction 32-6005, Managing UPH, extract
- ◆ Army UPH survey memo (January 21, 2005)
- ◆ Army UPH Survey Summary
- ◆ Navy UPH Survey
- ◆ DMDC Unaccompanied Member Survey results (summarized).

Appendix M

UPH Privatization Site Visits

The CD placed in the back inside cover contains reports on study team visits to unaccompanied personnel housing in San Diego, CA, and Norfolk, VA.

Appendix N

University Housing

Housing for college students and military junior enlisted members is similar in that it serves primarily young single adults away from home for the first time and housed for about the same period. Both students and junior enlisted members typically have different backgrounds than earlier generations, more commonly coming from smaller families with higher incomes and having their own bedrooms. What were once considered luxuries are now often considered standards. These evolving factors, and more, impact what young adults expect from housing.

STRATEGIES AND DRIVERS

Looking forward strategically, the 21st Century Project, an evolving multiphased initiative by the Association for College and University Housing Officers-International (ACUHO-I) and the Society for College and University Planning (SCUP), is developing concepts, guidance, and insight for future university student housing. Like UPH, student housing has progressed from double-loaded corridors with community bathrooms to configurations providing more privacy, and it continues to evolve. One of the main challenges is determining the appropriate mix of student housing types to meet changing and evolving student population profiles. This mix can vary from university to university, making a “one-size-fits-all” solution difficult, if not impossible. One key concept proposed to meet evolving student expectations is modularity. The modularity concept employs flexible room configurations to meet evolving or changing space needs by enabling walls and doors to be reconfigured (for example, from single/double rooms to multi-bedroom apartments and vice versa, or from bed space to study/social space).

A growing focus that is altering to some extent the purpose of student housing is the living/learning environment. Incorporating dining halls, academic space, libraries, technology centers, and even retail space into student housing facilities are among current and future approaches to improving the quality of student housing. Sustainability in the design, construction, and operation of student housing is becoming more the expectation than the exception, both for budget efficiency and for image in attracting and retaining students. Energy efficiency and low carbon footprint will continue to grow as key design elements. As of 2008, sustainability design or LEED requirements are included in more than 60 percent of all planned new construction student housing.

Focusing on nearer-term student housing strategies, knowing student tolerance for different module configurations, and then planning renovations accordingly can reduce the overall amount of facility investment, better meet the expectations of more students, and better compete in attracting and retaining students. A 2008

ACUHO-I survey revealed current drivers behind student housing construction and renovations. The top reason for constructing new student housing was to meet demand for additional beds, and the top reason for renovating student housing was to update the facility. For both new construction and renovation, the second reason was to meet the needs and interests of students. The survey revealed student housing *in-unit* amenities provided most often include technology or communication (Internet access, cable TV, and telephone) and environmental comfort (air conditioning and individual temperature controls).

A variety of construction methods are used for student housing, ranging from traditional brick and concrete, to stick construction, to hybrids and others. Universities have no common construction or configuration standards. Even within a single university, various student housing configurations commonly accommodate diverse groups of students. For instance, freshmen appear to accept double bedrooms and community bathrooms because of the collegiality it engenders during their first year, and renovations and new construction still provide these types of facilities. However, tolerance for this type of housing arrangement typically drops off after the freshman year. Universities also desire a core of upper classmen to live on campus to contribute to the overall social and academic health of the institution, so housing that attracts upper classmen is part of the mix. Housing for upper classmen often consists of apartments, multi-bedroom suites, or other configurations that offer more privacy than the double-loaded corridor arrangement. The requirement for freshmen to live on campus also varies between universities, and some are designed more as commuter colleges than resident universities, further contributing to the differences in configurations.

RISKS AND CHALLENGES

Outside of the curriculum, one of the biggest factors in choosing one university over another is the quality, type, and style of student housing. Universities compete among themselves and with private developers “outside the gate” to offer housing that attracts and retains students. Adjacent communities pressure universities to provide quality student housing to improve community image as campuses move toward the “campus edge” for student housing, reserving the main campus for academic and administrative buildings. Universities must make difficult decisions between adding amenities to attract students and keeping rooms affordable (33 percent of rehab projects included rental rate increases). They must weigh the risk of capital investment in student housing against the potential for decline in student enrollment (and declining housing revenue). More stringent building and safety codes (ADA, fire, etc) and reductions in federal and state funding for student housing are other factors. Another basic concern is the effect low-quality student housing may have on the university’s basic mission of providing a quality higher education.

From a sustainment perspective, student housing shares challenges similar to UPH. University housing revenue is sometimes diverted to other campus needs,

resulting in deferred student housing maintenance and lower-quality housing and turning student housing from a revenue-generating asset into a revenue-consuming liability. A 1996 APPA estimate put deferred maintenance for colleges and universities at \$26 billion, and public colleges typically have more deferred maintenance than their private counterparts. Emergency maintenance is common, with major renovations typically deferred. Other studies suggest the backlog of deferred work will continue to grow unless systemic approaches are implemented to provide the needed sustainment and maintenance resources. Although slightly more than half of the universities have regular schedules for upgrading facilities, only about 20 percent follow through with their plans. The remaining universities either don't follow the plan (usually for financial reasons) or make upgrades only on an as-needed or must-do basis.¹

PRIVATIZATION

The Reason Foundation reports about 15 percent of new university residence halls are owned and managed by private entities.² Apparently more common is student housing built and owned by private developers not associated with the university, which are filling a demand for student housing the universities are not meeting. Private student housing can provide more beds faster than traditional university-constructed and -owned dormitories. Some developers work with universities to integrate learning and other activities into student housing developments. Private developers commonly provide upscale, modern student housing, but lower-cost, traditional-style student housing is still in demand (about 10 percent) to meet the needs of a broader student population.

Although private developers are being engaged in the construction and development of student housing, the ACUHO-I survey showed almost all university student housing recently constructed is university owned and managed. The results of an informal limited follow-on telephone survey by LMI led us to three conclusions:

- ◆ The majority of universities strongly desire to own, manage, operate, and control their own student housing resources.
- ◆ University–private company partnerships to provide student housing are limited.
- ◆ The partnerships can vary significantly from full university involvement with projects on university land to very informal arrangements that use company-owned land and facilities, which may or may not work with student housing offices and focus on very limited groups of students (for example, graduate students).

¹ College Planning and Management, *2005 College Housing Special Report*.

² Reason Foundation, *Privatizing University Housing*, January 2007.

This sampling of partnerships suggests no one size fits all. This lack of consistency may be attributable to the relative autonomy, individuality, and uniqueness of each university, how each views and approaches student housing, different housing market situations in each community, and relations between the local community and the university. These characteristics are not a factor in UPH, which is owned by four services under a single entity (DoD) and has generally been planned and managed as a single entity within each service with a one-size-fits-all approach.

SIZE

The figures that follow—based on data from more than 30 privatized university student housing projects located across the United States—examine one-, two-, three-, and four-bedroom modules. They show the size and rental rates of a sample of student housing with a comparison of BAH to rental rates. University housing provides a rough comparison to UPH, given the age of the target population.

Figures N-1 through N-3 measure selected demographics according to type of module (one, two, three, or four bedrooms).

Figure N-1. Square Feet per Module Type

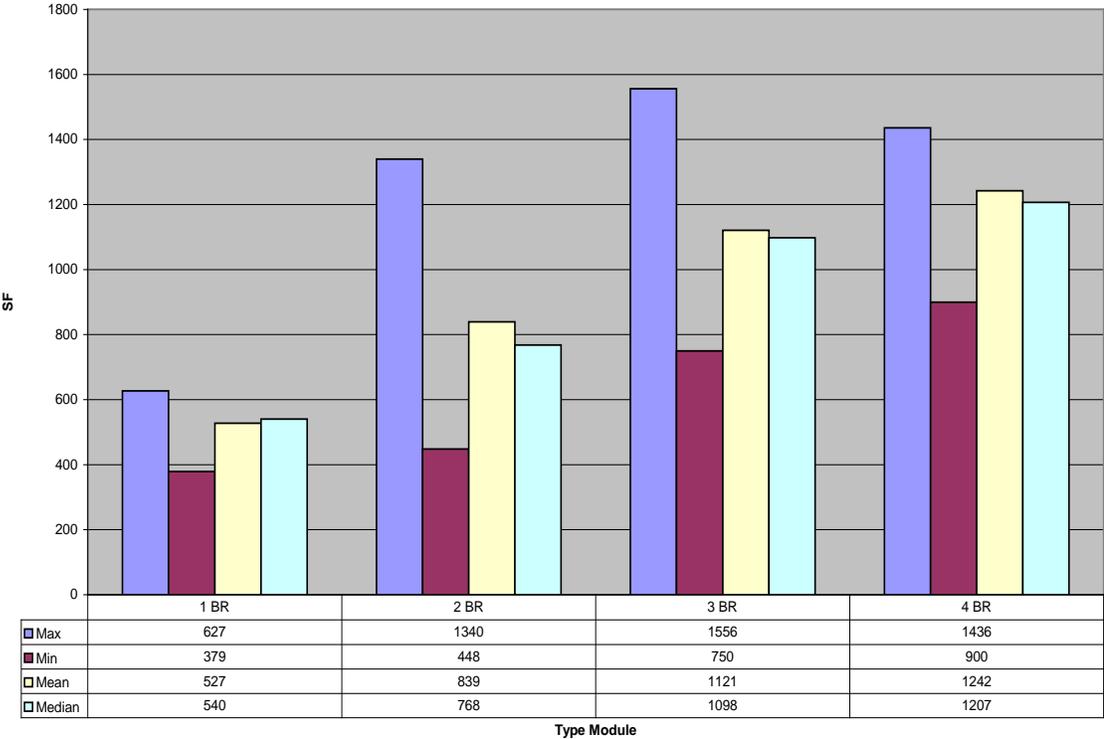


Figure N-2. Square Feet per Person by Module Type

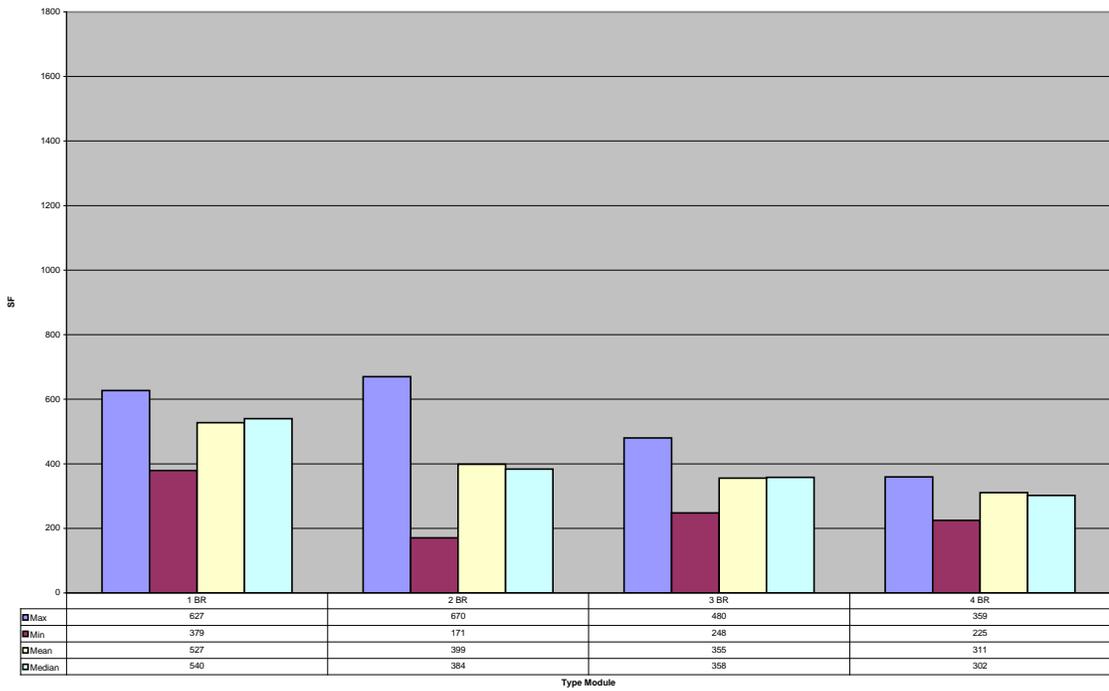
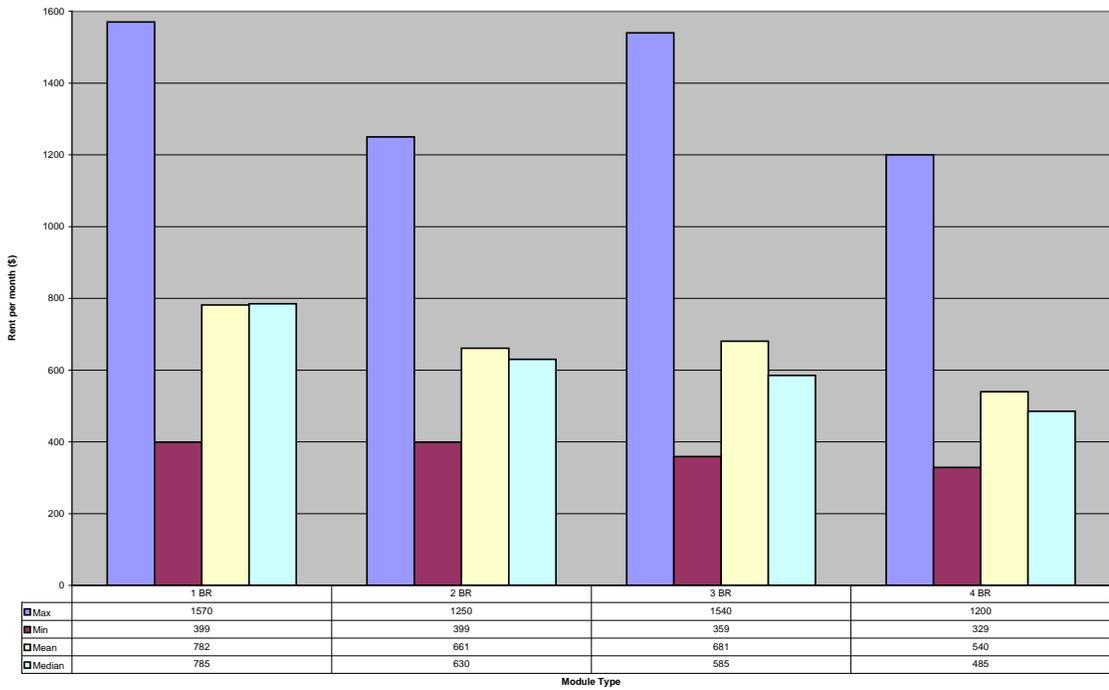


Figure N-3. Rent per Person per Module Type



RENT AND BAH

The costs of student housing rent or lease continue to rise, increasing over six fold between 1976 and 2006. Table N-1 shows this trend as found in a U.S. Department of Education survey.

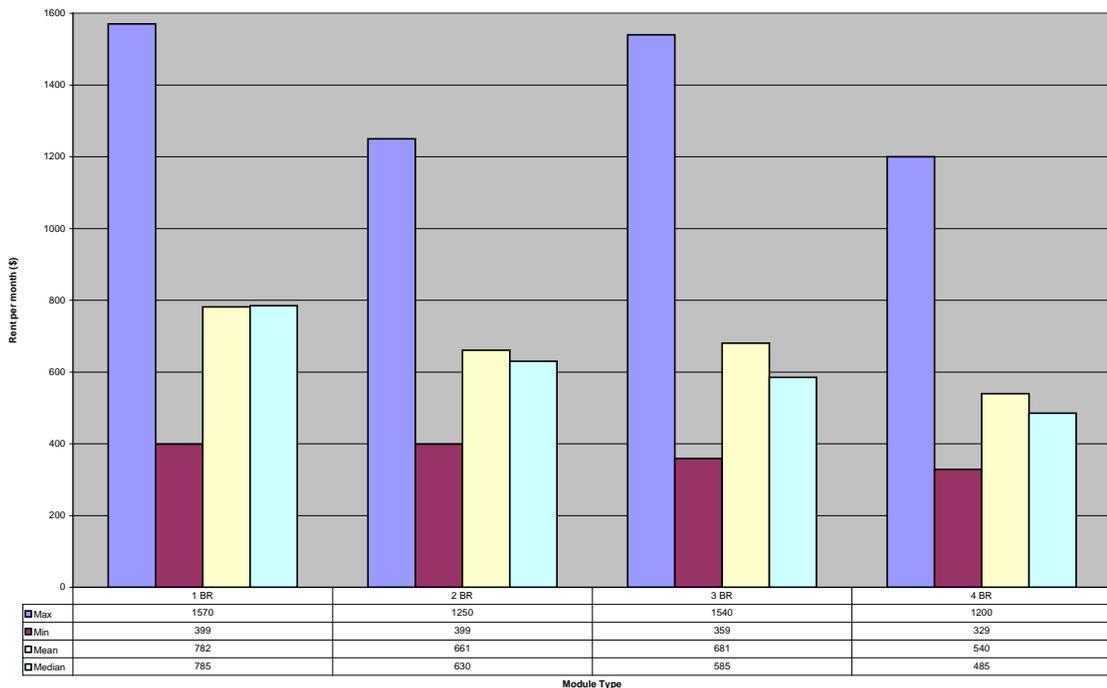
Table N-1. Rising Student Costs for University Housing (\$)

Year	Public universities	Private universities	Public and private universities
1976–1977	614	783	649
1986–1987	1,355	2,097	1,501
1996–1997	2,187	3,826	2,518
2006–2007	3,873	5,700	4,257

Source: *Digest of Education Statistics, 2007.*

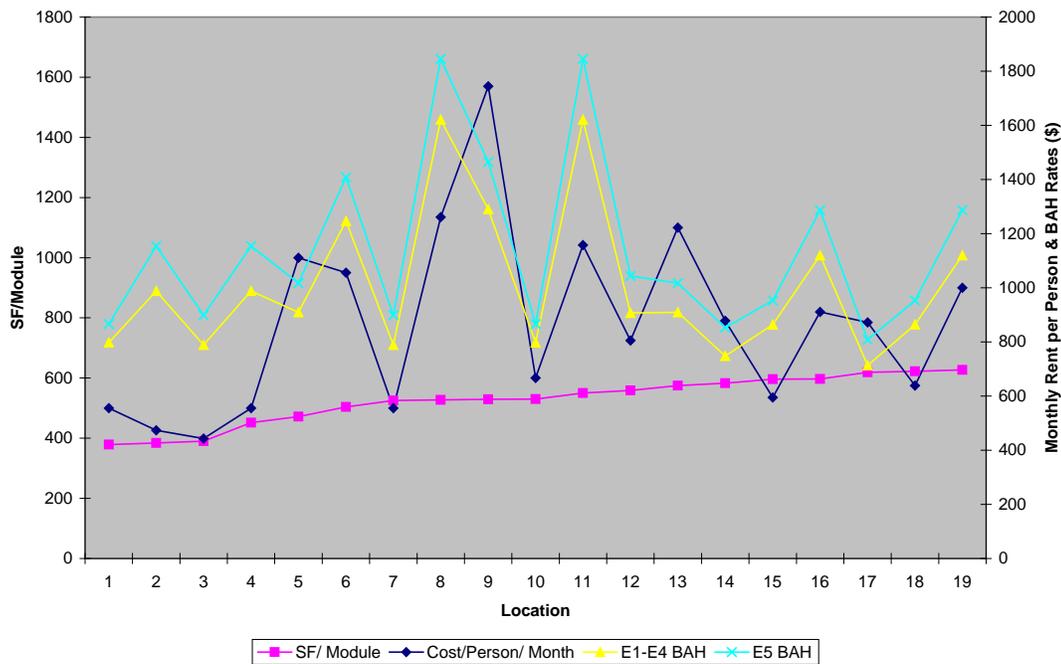
Figure N-4 shows the average rental rate for a range of student housing configurations or model types.

Figure N-4. Rent per Person per Module Type



Rent varies by housing configuration. A survey of more than 30 private university-associated private student housing projects across the country reveals a variety of student housing configurations and monthly rents per person that range from \$782 for a one-bedroom unit to \$540 for a four-bedroom unit. These rental rates compare favorably with BAH for junior enlisted members, and full unaccompanied BAH rates generally tend to be slightly higher than the rent rates.³ Figures N-5 through N-8 display the rent per person for one-, two-, three-, and four-bedroom modules, with the size of modules (sf) from smallest to largest. The variability in rent as the size of each module type increases suggests rent rates are influenced by factors other than size. Superimposed on these graphs for comparison are 2009 full unaccompanied BAH rates for E-1 through E-4 and E-5 members (correlated to privatized university student housing locations by ZIP code).

Figure N-5. Square Feet vs. Rent, by Module Type, with BAH Comparison (One-Bedroom Module)



³ When square footage data were unavailable, the mean square feet for that type of unit (one, two, three, or four bedroom) from the sample were used.

Figure N-6. Square Feet vs. Rent, by Module Type, with BAH Comparison (Two-Bedroom Module)

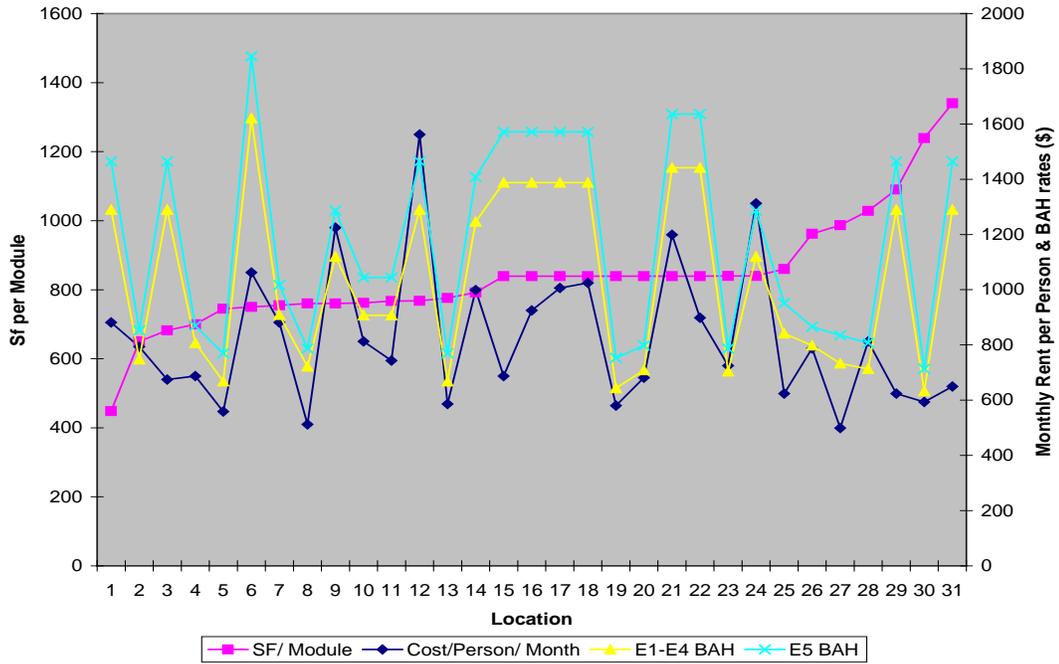


Figure N-7. Square Feet vs. Rent, by Module Type, with BAH Comparison (Three-Bedroom Module)

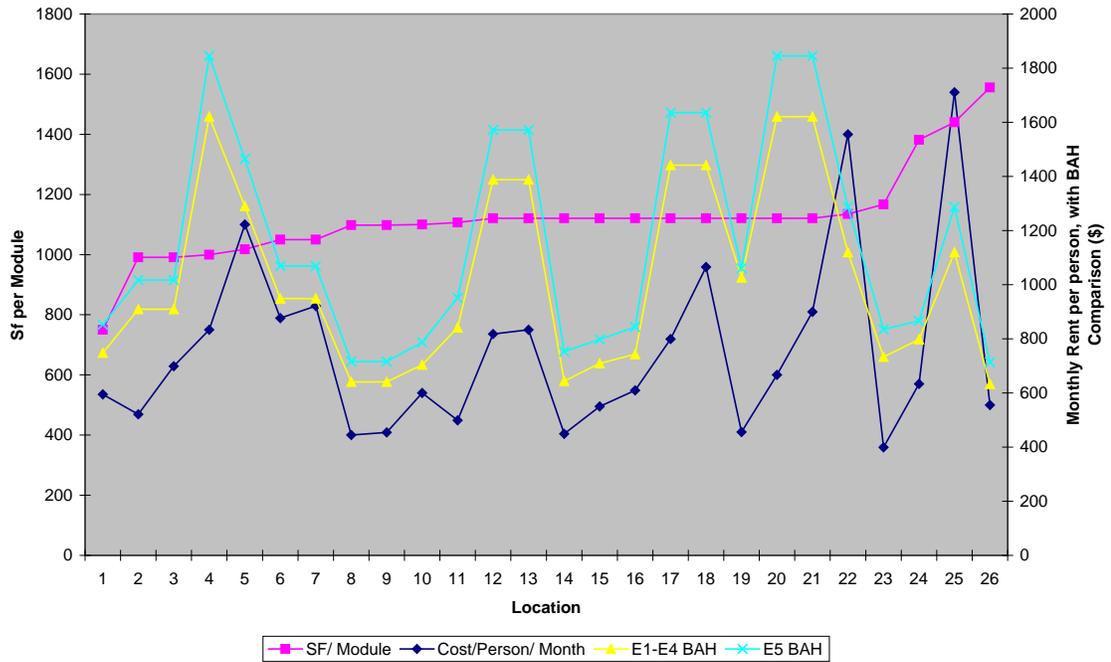
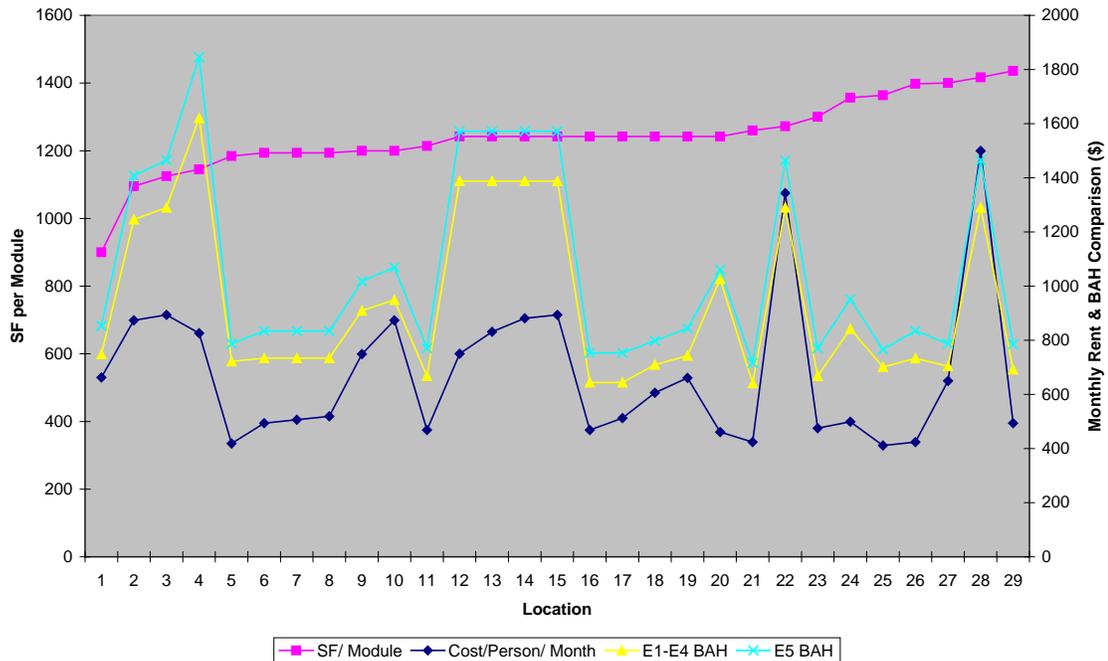


Figure N-8. Square Feet vs. Rent, by Module Type, with BAH Comparison (Four-Bedroom Module)



CONSTRUCTION CHARACTERISTICS

Table N-2 provides an indicator of the types and costs of university student housing built today.

Table N-2. Types of Dorm Room Configurations by Percentage of New Construction

Type of dorm room (description)	Percentage of new construction	Project cost per gsf	Construction cost per gsf
Traditional (designed as a double- or single-occupancy rooms and community bathrooms)	4.8	Not provided	Not provided
Modified traditional (designed as a double or single rooms that include a private bath facility in each room—not shared with the adjoining room)	15.7	Not provided	Not provided
Adjoining suites (designed as adjoining double or single rooms connected by a bathroom, with no separate living/study area)	18.1	\$211	\$182
Super suites (designed as a small group of double or single rooms with private or shared bathrooms contained within the suite; includes separate living/study area)	24.1	\$216	\$191
Individual contract apartment (designed as double or single rooms with private or shared bathrooms; includes separate living area/study and kitchen or kitchenette; rented by the bed space)	15.7	Not provided	Not provided

Table N-2. Types of Dorm Room Configurations by Percentage of New Construction

Type of dorm room (description)	Percentage of new construction	Project cost per gsf	Construction cost per gsf
Apartments (designed as efficiencies, one-bedroom, or multi-bedroom apartments; includes a full kitchen; rented by the apartment)	13.3	\$150	\$128
Other (all types not included in the above definitions)	8.4	Not provided	Not provided

Source: ACUHO-I survey. Project cost includes all expenses associated with constructing/renovating and opening a facility (such as design fees, financing costs, permits, land purchases, parking, furniture, and landscaping). Construction costs include only the cost to build or renovate the facility (living units and public/common areas, not including costs for classrooms, dining facilities, other non-resident space, or furniture).

Note: The American School and University 19th Annual Resident Hall Construction Report survey (2007) shows similar per-square-foot construction cost statistics.

According to a recent ACUHO-I survey of universities, the top reasons new student housing facilities were constructed are as follows:

- ◆ Meet demand for additional beds: 71 percent
- ◆ Meet needs/interests of students: 68 percent
- ◆ Increase variety of housing options: 49 percent
- ◆ Increase percent of undergrads housed: 47 percent
- ◆ Higher levels of privacy: 46 percent Keep pace with enrollment growth: 42 percent
- ◆ Replace outdated facilities: 41 percent.

From the same survey, the top reasons existing student housing facilities were renovated are as follows:⁴

- ◆ Update facility: 83 percent
- ◆ Meet needs and interests of students: 58 percent
- ◆ Provide higher level of privacy: 24 percent
- ◆ Other reasons: 20 percent
- ◆ Increase variety of housing options: 17 percent

⁴ Renovation = rehabilitation (total reconfiguration/revitalization) and modified rehabilitation (system upgrades and minor structural changes such as bedroom or bathroom reconfigurations).

- ◆ Accommodate academic/special programs: 17 percent
- ◆ Meet demands for additional beds: 11 percent.

The survey revealed student housing *facility* (not in-unit) amenities provided most often are as follows:

- ◆ Laundry: 83 percent
- ◆ Lobby: 81 percent
- ◆ Staff office: 80 percent
- ◆ Wireless Internet: 76 percent
- ◆ Staff apartments: 75 percent
- ◆ Electronic security systems: 71 percent
- ◆ Floor lounge: 69 percent
- ◆ Reception office/main desk: 68 percent.

Student housing *in-unit* amenities provided most often include the following:

- ◆ Furniture: 91 percent
- ◆ Internet access: 90 percent
- ◆ Cable TV: 88 percent
- ◆ Telephone outlet: 85 percent
- ◆ Air conditioning: 83 percent
- ◆ Individual temp controls: 81 percent
- ◆ Stove: 69 percent
- ◆ Carpeting: 59 percent.

The types of construction used for university student housing has expanded from past practices. The ACUHO-I 2008 construction survey identified seven major types of construction used for student housing today, with current construction tending to provide more privacy:⁵

1. Precast reinforced concrete
2. Cast-in-place steel reinforced concrete frames and floors
3. Steel I-beam frame with metal floor joists and concrete floors
4. Light-gauge, welded-steel-stud structural panels with metal floor pan and concrete floors (Infinity system)
5. Hybrid system with light-gauge, steel-stud structural panels on lower floors, transitioning to wood framing on upper floors
6. Wood frame
7. Other.

The 2008 ACUHO-I survey provides additional insights into university housing trends:⁶

- ◆ Almost 90 percent of university respondents plan to initiate new or renovation construction within the next 5 years (responses were from January 2008, before the downturn in the U.S. economy).
- ◆ Wood frame is common practice, even for mid-rise dormitories now that technology has made this possible.
- ◆ Mixed use space in dormitory buildings/settings is increasing and includes classrooms, cafeteria/dining, and convenience stores.
- ◆ Bed space is being sacrificed for more privacy and living/social space in renovations (for example, converting three bedrooms into two-bedroom units with a common living space).
- ◆ Half of all universities have student housing master plans, and 77 percent include student housing in campus master plans.

⁵ Some types of construction are combined or hybrid, for example, metal-type construction on lower floors and wood frames on the upper one or two floors.

⁶ The ACUHO-I survey received 244 responses (a 30 percent rate) from the 843 university housing officers contacted. The survey provided construction and renovation data for projects completed during winter 2006 to fall 2007. Surveys were conducted in 2004, 2006, and 2008.

Appendix O

Basic Allowance for Housing

This appendix provides summary data on the distribution of BAH between defined groups of recipients. A relatively small percent of BAH is provided to members without dependents, who would otherwise be UPH residents.

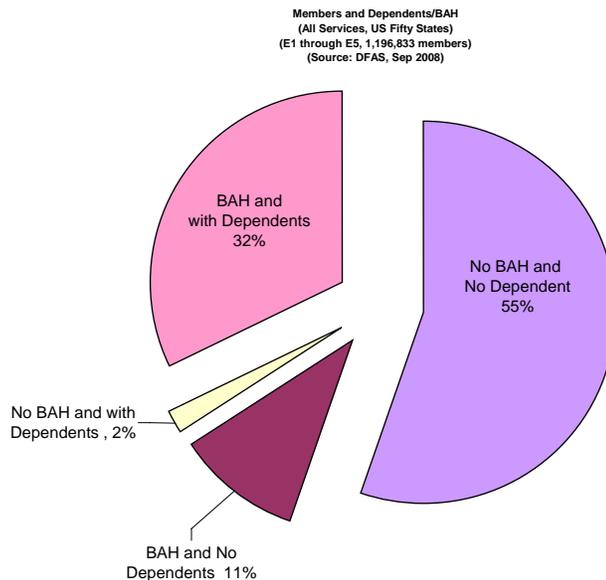
BASIC ALLOWANCE FOR HOUSING DEMOGRAPHICS

In general, BAH provides members funds for the purpose of acquiring adequate housing off the installation and in the local community when not assigned to live in government-owned housing. Location, dependent status, and rank are the three primary factors in determining BAH rates. There are various categories of BAH. The two most significant are BAH with dependents and BAH without dependents. Junior members living in UPH typically receive a third category of BAH, called partial BAH, however, the amount is only a small fraction of with and without BAH rates.

Considering all four services, the following figures provide a snapshot of active duty enlisted members, grades E-1 through E-5, residing within the U.S. with respect to BAH as of September 2009.

Figure O-1 shows proportionally the junior enlisted member population (E-1 through E-5) considering dependents and BAH. The “No BAH and No Dependent” category generally represents members residing in UPH and receive the partial BAH. The “BAH and No Dependents” category generally represents unaccompanied members not living in UPH (due to lack of space, limitations on who is eligible to live in UPH, and other factors), instead live in housing in the local community, and receive the BAH without dependent rate. The “BAH and with Dependents” category generally represents accompanied members living in private housing (including privatized family housing), and receive the BAH with dependent rate. The “No BAH and with Dependents” category generally represents accompanied members living in government owned family housing, and do not receive any BAH in compensation for living in military (government-owned) family housing.

Figure O-1. BAH Demographics



Focusing on those members that typically reside in UPH (no BAH and no dependents), Figure O-2 indicates the largest UPH population by far is made of members in grades E-1 through E-3, with similar decreasing trends in the UPH population across all services as a group for the higher grades of E-4 and E-5. This decreasing trend can be attributed to lower numbers in the higher grades, increasing trend over time of unaccompanied members marrying or having dependents, individual service policies restricting higher grades from living in UPH, and other factors.

Figure O-2. Unaccompanied Members Not Receiving BAH

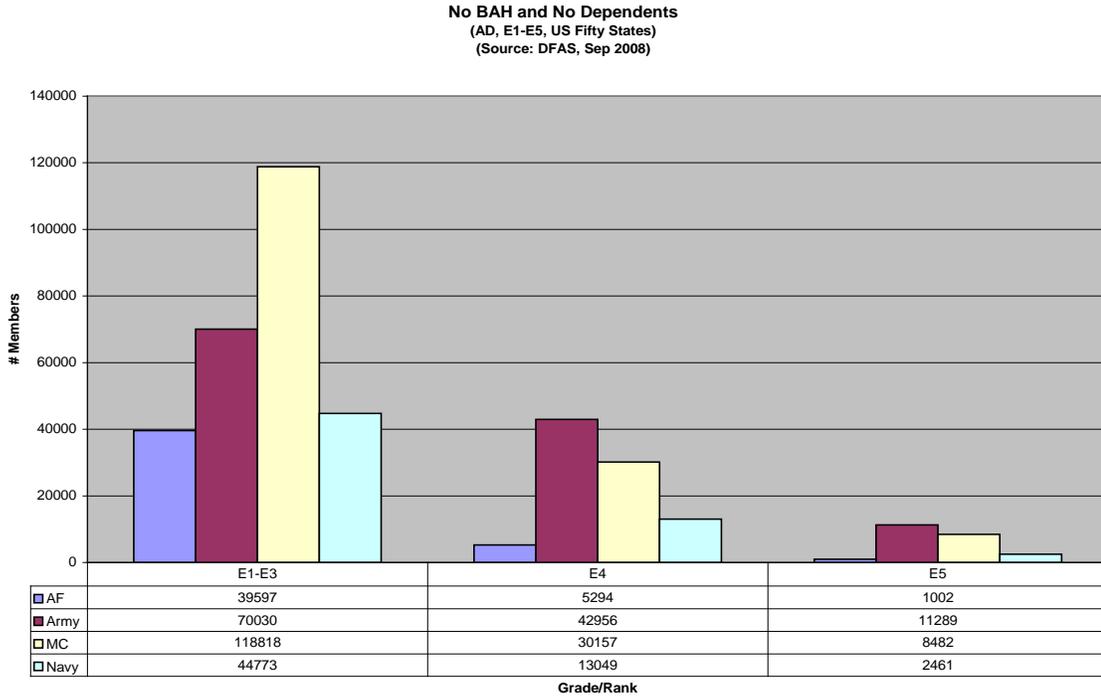
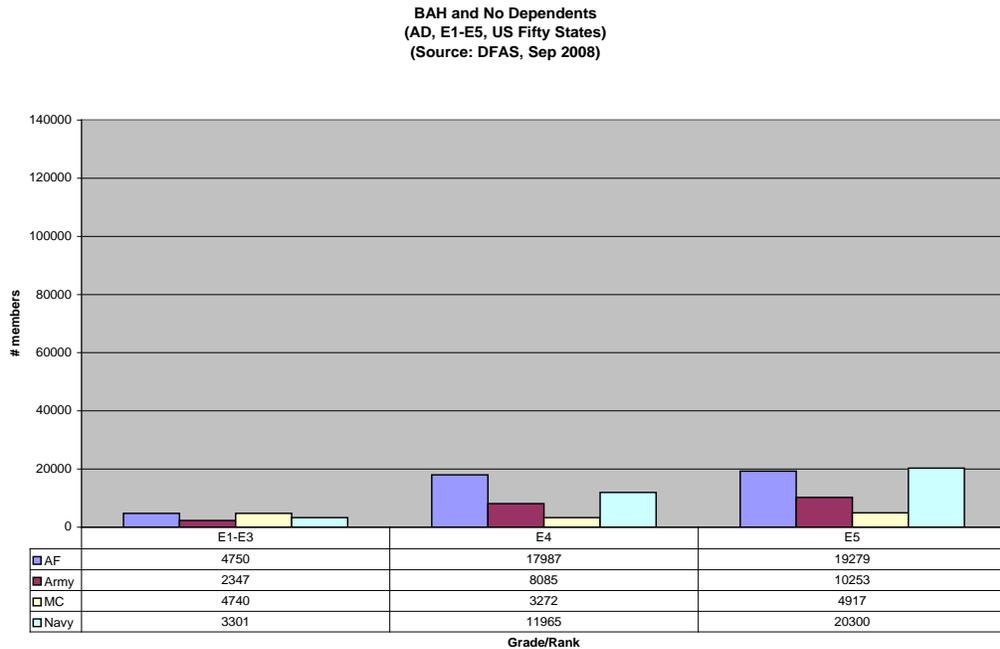


Figure O-3 focuses on those unaccompanied members receiving BAH, and shows more members in the higher grades (E4 and E5) receiving BAH than members in the lower grades (E-1-E-3). Noting Figure O-2 and O-3 use the same scale, the numbers of members receiving BAH (i.e., living on the economy) is significantly less than those members not receiving BAH (i.e., residing in UPH), highlighting the magnitude among junior reenlisted members between those receiving BAH and those not receiving BAH.

Figure O-3. Unaccompanied Members Receiving BAH



The 10th QDR of Military Compensation (February 2008) reviews and makes recommendations on improving or adjusting compensation for military members. The report makes the following recommendations concerning BAH:

- ◆ Without dependent BAH rates are between 23 percent and 33 percent lower than with dependent BAH rates. This affects primarily junior enlisted, who have around a 70 percent without dependent status. The report recommends increasing the without dependent BAH rate to 95 percent of with dependent rate over a 5-year period to effectively remove this disparity.
- ◆ Partial BAH rates are paid to members without dependent who live in government housing [UPH]. Partial BAH has not increased since 1977, whereas with and without dependent BAH rates have increased significantly under the Cohen initiative to effectively match current community housing costs. The report recommends partial BAH be expanded to include compensation based on the adequacy of the member's quarters [UPH]. Specifically it recommends additional partial BAH payments ranging from 5 percent to 25 percent of without-dependent BAH rates, depending on actual housing [UPH] conditions using the DoD UPH 1+1 standard.

Appendix P

The UPH Story Brief

The CD placed in the back inside cover contains a PowerPoint presentation overview of the report.

Appendix Q

Abbreviations

ABSP	Army Barracks Strategic Plan
ACSIM	Assistant Chief of Staff for Installation Management
AFI	Air Force Instruction
AMF	Army Modular Force
ATFP	anti-terrorism/force protection
BAH	basic allowance for housing
BEQ	bachelor enlisted quarters
BIP	Barracks Improvement Program
BOM	between-occupancy maintenance
BOS	base operating support
BRAC	Base Realignment and Closure
BSR	Base Status Report
BUP	Barracks Upgrade Program
CBM	Central Barracks Management
CDM	consolidated dormitory management
CNI	Commander Naval Installations
CNIC	Commander Navy Installations Command
CONUS	Continental United States
CSAF	Chief of Staff of the Air Force
DISP	Defense Installations Strategic Plan
DMDC	defense manpower data center
DMP	dormitory master plan

DPW	Department of Public Works
DRRS	Defense Readiness Reporting System
DUSD (I&E)	Deputy Under Secretary of Defense for Installations and Environment
ECD	estimated completion date
FIM	Facility Investment Metric
FSBI	First Sergeants Barracks Initiative
FSM	facilities sustainment model
FSRM	facility sustainment, restoration, and modernization
FYDP	Future Years Defense Plan
GAO	Government Accountability Office
GDPR	Global Defense Posture Realignment
GSF	gross square feet
GTF	Grow the Force
HOMES4	Housing Operations Management Enterprise System 4
IMCOM	Installation Management Command
ISR	Installation Status Report
MILCON	military construction
MP	master plan
NCO	noncommissioned officer
NSF	net square feet
O&M	operation & maintenance
OMB	Office of Management and Budget
OPNAV	Office of the Chief of Naval Operations
ORTC	operational readiness and training complex
OSD	Office of the Secretary of Defense

POM	program objective memorandum
PP	permanent party
PRV	plant replacement value
QIC	quarters Improvement Committee
QIP	Quarters Improvement Plan
QOL	quality of life
R&M	restoration and modernization
RCI	residential communities initiative
SECAF	Secretary of the Air Force
SF	square feet
SM	square meter
SRI	Single-Room Initiative
SRM	sustainment, restoration, and modernization
SSgt	Staff Sergeant
SSH	single soldier housing
TBIP	Training Barracks Improvement Program
TTL	total
UEPH	unaccompanied enlisted personnel housing
UFC	Unified Facilities Criteria
UH	unaccompanied housing
UPH	unaccompanied personnel housing
USD/ATL	Under Secretary of Defense for Acquisition, Technology, and Logistics

