



***HISTORIC CONTEXT FOR  
ARMY VIETNAM WAR ERA HISTORIC  
HOUSING, ASSOCIATED BUILDINGS  
AND STRUCTURES, AND  
LANDSCAPE FEATURES (1963-1975)***

***VOLUME 1***

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## Executive Summary

The *Historic Context on Army Vietnam War Era Historic Housing, Associated Buildings and Structures, and Landscape Features (1963-1975)* was prepared by R. Christopher Goodwin & Associates, Inc. (RCG&A) for Cherokee Nation Management & Consulting on behalf of the U.S. Department of the Army (Army) to support Federal stewardship for this class of properties under the National Historic Preservation Act (NHPA) of 1966, as amended. The current study develops the historic context appropriate to the significance of this class of resources in accordance with the Criteria for Evaluation for the National Register of Historic Places (NRHP) (36 CFR 60 [a-d]) applying guidance found in the *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (National Park Service 1990, revised 1991,1995,1997:7-9). The *Historic Context* further supports the proposed *Program Comment Plan for Army Vietnam War Era Historic Housing, Associated Buildings and Structures, and Landscape Features (1963-1975)* to execute the alternative method of meeting Federal obligations under NHPA 54 USC 306108 (Section 106) as set forth in Section 800.14(e) of the Advisory Council on Historic Preservation's (ACHP) regulations, Protection of Historic Properties (36 CFR 800). Investigations at 10 Army installations were undertaken as part of this current effort.

As the largest military service in the U.S. Department of Defense (DoD), the Army manages the largest portfolio of real property. This portfolio includes over 100,000 housing units; over 30,000 of these housing units are historic properties. The Army historic housing units includes over 7,500 units of family housing built during the Vietnam War Era (1963-1975). The Army seeks to manage this class of resources in accordance with the NHPA and in balance with concerns for the quality of life, health, and safety of resident military families. Program Comments were established as an alternative approach to Section 106 of NHPA for Federal agencies undertaking repetitive management actions for a

large inventory of similar historic properties, such as the Army Vietnam Era family housing. The Army is pursuing the development of a Program Comment to holistically address repetitive management actions for Army Vietnam War Era historic housing, associated buildings and structures, and landscape features (1963-1975).

The Army housing program faced a variety of challenges during the mid-1960s and 1970s. Early in the Vietnam War Era, minimal funding was directed towards new family housing, as Federal military appropriations focused on the military challenges of the conflict in Southeast Asia. The Army maintained and upgraded older family housing units in the existing state-side housing inventory, particularly those constructed under the Wherry and Capehart programs. At the same time, the military faced increased housing demand from a growing number of enlisted service members and junior officers accompanied by their families. The military responded to this demand with new on-post family housing eligibility requirements. These factors combined to influence the Army's Vietnam War Era family housing program.

Unlike the preceding Wherry and Capehart era housing programs, the DoD, including the Army, navigated a complex network of requirements and programs to meet the family housing need in the Vietnam Era. First and foremost, military planners assessed the ability of the civilian sector to serve as the primary source for family housing. Only after the survey of housing units available in the local private sector, combined with the analysis of then-current and projected force levels and then-current on-post housing levels, would the Army authorize the construction of new on-post housing based on a determination of insufficient housing availability. Working with the Federal Housing Administration, the military sought to incentivize private-sector builders to construct housing affordable to enlisted personnel and lower ranking officers. A number of programs were developed to encourage private-sector construction of housing. These efforts were met with varying degrees of success.

The Army's family housing program operated at a perennial deficit during the era for several reasons. The civilian sector was unable to provide housing units in sufficient numbers and the Army was unable to secure the funding necessary to support new construction. Frequently, the Army could not bridge the gap between housing demand and the numbers of units authorized, funded, and constructed. Each year Army officials submitted Federal funding requests, which Congress approved, modified, or

rejected. In addition, the U.S. Congress imposed strict size and funding limits for family housing that influenced the design of the housing units constructed throughout the period.

Army family housing during the Vietnam War Era was constructed during a period of national demographic and social changes that affected housing expectations and the types of housing offered in the civilian market. Although detached single-family houses continued to dominate the civilian housing market during the era, other housing options increasingly became available. Housing demand was driven by a larger percentage of single person, young married couples, and retiree households. These groups often sought alternatives to traditional single-family houses. In addition, the increasing cost of land and development were reflected in new approaches, which emphasized higher density construction. The civilian market responded through greater construction of apartments, condominiums, and townhouses, and through the construction of planned unit, or cluster unit, neighborhoods. At the same time, the single-family housing market changed; housing demand grew for larger dwellings containing more rooms, and occupying smaller lots.

Civil rights also affected the military housing program. The Army was mandated, as were all other Federal agencies, to comply with President Kennedy's Executive Order governing equal access to housing. Because the Army often relied on the private sector to meet the majority of its housing need, housing discrimination in the civilian sector became a real concern, and the Army acted accordingly. On-post family housing offices were created, which directed service members to properties whose owners complied with anti-discrimination measures.

Army family housing built between 1963 and 1975 can be seen as generally evolving over three progressive but overlapping temporal stages:

- 1963 – 1964. Housing constructed in these initial years of the era generally continued the construction precedent established under the Capehart Act program (R. Christopher Goodwin & Associates, Inc. 2003).
- 1964 – 1972. In 1964, the DoD sought to develop new standardized housing designs responsive to differing climates and site conditions that could be constructed within the cost constraints imposed by Congress. The results of that effort, Design Folio for Family Housing (Design Folio) and its subsequent revision, incorporated planned unit development principles and presented options for townhouses, duplexes, and single-family units. The four architectural firms commissioned to develop the *Folio* were A. Quincy

Jones and Frederick Emmons, George Matsumoto, Robert A. Little and George F. Dalton, and Keyes, Lethridge & Condon. The *Folio* drawings provided the basis for family housing constructed between 1964 and 1972. The majority of this housing was built after 1966, when Federal funding for military family housing resumed.

- 1973 – 1975. This final period reflects military family housing constructed in accordance with the DoD *Construction Criteria Manual* issued in 1972 and related construction instructions.

The current investigation presents the historic context for understanding the significance of Army family housing built during Vietnam War Era. Army policies and funding priorities affecting the housing program are explored and national demographic and social changes in the civilian housing market influencing domestic spatial expectations are presented. Property types in the Army real property inventory that represent the historic context are developed.

Site investigations were undertaken at 10 Army installations to inventory property types associated with this class of resources. Criteria for sites selected for inventory included geographic distribution; ability to represent variety in house type (i.e., single-family, duplex and townhouse); unit size; and type of ancillary buildings (i.e. garages, carports, and storage buildings) based on data included in the “Vietnam Era Housing Database 10/20/2021” (U.S. Department of the Army 2021b).

Site visits included the systematic review of cultural resource and planning reports in addition to on-post architectural inventory of housing constructed during the period. Personnel at the cultural resources offices, real property offices, post historians offices, and the housing partners were interviewed. Reconnaissance-level, windshield inventory of all Vietnam War Era residential neighborhoods were completed and select building exteriors and interiors were inspected to document each housing type represented. Sufficient inventory was completed to characterize the neighborhoods and select dwellings and to assess their integrity and NRHP eligibility. Installations included:

- Fort Benning, Georgia;
- Fort Bragg, North Carolina;
- Fort Carson, Colorado;
- Fort Detrick, Maryland;

- Fort Gordon; Georgia;
- Fort Hood, Texas;
- Fort Jackson, South Carolina;
- Fort Polk, Louisiana;
- Fort Shafter, Hawaii; and
- Schofield Barracks, Hawaii

### **Changes over Time and Resource Integrity**

Many Vietnam War Era housing units have undergone exterior and interior modification and alteration. Alterations included the installation of replacement materials to address material failure, material abatement to ensure health and safety, and replacement to address wear or damage. Exterior modifications also were completed to reflect popular stylistic trends in domestic architecture at select installations. These changes were completed holistically for an installation's inventory of Vietnam War Era housing or completed as funding permitted.

Interior modifications generally focused on replacement finishes, fixtures, and appliances. In select cases, housing units were combined, resulting in the modification of original floor plans. In addition, some Vietnam War Era neighborhoods have undergone demolition and new construction. Despite these changes Vietnam War Era buildings, associated outbuildings, and neighborhoods retain integrity of association, feeling, location, and setting to convey their association with the conflict in Vietnam and NRHP eligibility under Criterion A. While recognizable as a class of resource, the Vietnam War Era property type does not retain sufficient integrity of design, materials, or workmanship to embody a type, method or period of construction and are not considered to be eligible for the NRHP under Criterion C.

### **Properties of Particular Importance**

The Program Comment Plan for Vietnam War Era Housing issued in December 2021 defines a Property of Particular Importance as one that is an

Army Vietnam War Era housing or neighborhoods that are, in the context of the nation-wide inventory of civilian sector housing and neighborhoods from this period, substantially distinctive and unique in their design, method of construction, and building materials used. Additionally, properties of particular importance must exhibit a high degree of integrity with enough significant design characteristics and original historic building materials present and intact to be considered truly distinctive within the nation-wide inventory (U.S. Department of the Army 2021a:34).

The civilian housing sector influenced popular expectations for housing design, building types, interior spatial requirements, and amenities. Stylistically, many houses constructed during the period were executed in the Modern idiom; historical stylistic references were absent on houses constructed during the period. Award-winning, civilian-sector residential designs of the period included those that firmly rejected historical precedent in exterior design and interior plan. While the military sought to adopt design principles advanced by the civilian architectural sector for Vietnam War Era housing constructed by the Army, size limitations and cost criteria established by Congress for military family housing influenced the resulting housing stock in terms of architectural expression and interior design.

Architectural inventory conducted at the 10 Army installations confirmed that the military followed civilian-sector housing trends and did not construct substantially distinctive or unique housing. Due to continuous modification and alteration, many no longer retain a high degree of integrity of design and materials. Those units that retain integrity of design and materials are not substantially distinctive or distinguishable within the inventory of civilian-sector housing and neighborhoods. No Properties of Particular Importance were identified within the inventory of 10 installations.

Table E.S. presents a list of buildings inventoried and previous investigations. Inventory data were incorporated in the historic context; site reports summarizing data collected and data obtained are included in Appendix 6. These site reports also provide summary descriptions of select buildings and neighborhoods. Inventory forms are included in Volume 2 of this report.

**Table E.S. Inventoried Buildings at Ten Army Installations**

Address	Neighborhood	Construction Date	Building Subtype	Number of Bedrooms	Interior Access?	Previous Investigations	Suggested Property of Particular Importance
<b>Fort Benning</b>							
216 Lavoie	Indianhead	1969	Eightplex Townhouse	4	Yes	No	No
209 Garrett	Indianhead	1969	Sixplex Townhouse	3	Yes	No	No
143 Derrickson	Indianhead	1963	Duplex	4	Yes	No	No
508 Perkins	Perkins	1963	Duplex	3	Yes	No	No
500 Bjornsted	Perkins	1963	Duplex	4	Yes	No	No
104 Dial	Perkins	1963	Duplex	4	No	No	No
36A Doane Loop	Bouton	1963	Duplex	2	Yes	No	No
49B Doane Loop	Bouton	1963	Duplex	4	Yes	No	No
282 Lavoie	Indianhead	1969	Fourplex Townhouse	4	Yes	No	No
3A Yano	Bouton	1971-1975	Sixplex Townhouse	4	Yes	No	No
2B Yano	Bouton	1971-1975	Fourplex Townhouse	3	No	No	No
3D Kedenburg	Bouton	1971-1975	Fourplex Townhouse	4	Yes	No	No
1C Fournette	Bouton	1971-1975	Sixplex Townhouse	3	Yes	No	No
4 McKibben	Bouton	1971-1975	Fourplex Townhouse	4	No	No	No
563A Hartstock	Davis	1971-1975	Duplex	5	Yes	No	No
320A Port	Davis	1971-1975	Duplex	4	Yes	No	No
2D Kedenburg	Bouton	1971-1975	Fourplex Townhouse	3	No	No	No
<b>Fort Bragg</b>							
30 Lorraine	Ardennes	1974	Duplex	2	Yes	No	No
10 Holland	Ardennes	1974	Duplex	4	Yes	No	No
19 Omaha	Ardennes	1974	Duplex	4	Yes	No	No
120 Ashley	Bataan	1975	Fourplex Townhouse	4	Yes	No	No
128 Ashley	Bataan	1975	Threeplex Townhouse	3	Yes	No	No
24, 26 Skytrain	Cardinal Heights	1964	Duplex	4	No	Yes	No
1, 3 Provider	Cardinal Heights	1964	Duplex	4	No	Yes	No
21 Commando	Cardinal Heights	1964	Single	3	No	Yes	No

Table E.S., continued

Address	Neighborhood	Construction Date	Building Subtype	Number of Bedrooms	Interior Access?	Previous Investigations	Suggested Property of Particular Importance
<b>Fort Carson</b>							
5520 Aachen Drive	Cherokee	1965	Sixplex Townhouse	N/A	No	Yes	No
5511 Aachen Drive	Cherokee	1965	Fourplex Townhouse	N/A	No	Yes	No
4416 Johnson Court	Shoshoni	1974	Duplex	4	Yes	Yes	No
4410A Johnson Court	Shoshoni	1974	Fourplex Townhouse	2	Yes	Yes	No
4612 Helwig Court	Sioux	1972	Sixplex Townhouse	N/A	No	Yes	No
4616C Helwig Court	Sioux	1972	Fourplex Townhouse	N/A	No	Yes	No
4810B Molnar Drive	Apache	1971	Duplex	3	Yes	Yes	No
4685B Allworth Court	Sioux	1972	Fourplex Townhouse	N/A	No	Yes	No
4679B Allworth Court	Sioux	1972	Duplex	N/A	No	Yes	No
4675a Allworth Court	Sioux	1972	Sixplex Townhouse	N/A	No	Yes	No
7260B Guadalcanal Circle	Cheyenne	1965	Duplex	3	Yes	Yes	No
<b>Fort Detrick</b>							
1727C Nickel Place	Nickel Place	1965	Fourplex Townhouse	4	Yes	No	No
1874A Glick Place	Glick Place	1965	Duplex	3	Yes	No	No
1866 Bullene Drive	Glick Place	1965	Single Family, split-level	4	Yes	No	No
1875 Glick Place	Glick Place	1965	Duplex	4	No	No	No
<b>Fort Gordon</b>							
1927 Goodman Drive	Gordon Terrace	1970	Fourplex Townhouse	5	Yes	Yes	No
1603 Boxwood Court	Gordon Terrace	1966	Sixplex Townhouse	4	Yes	Yes	No
1912 Goodman Drive	Gordon Terrace	1970	Fourplex Townhouse	4	Yes	Yes	No
1847 Brainard Avenue	Gordon Terrace	1970	Duplex	3	Yes	Yes	No
1803 Garcia Drive	Gordon Terrace	1970	Duplex	4	Yes	Yes	No
771 Pecan Court	McNair Terrace	1966	Eightplex Townhouse	3	Yes	Yes	No
1724 Azalea Court	Gordon Terrace	1966	Fourplex Townhouse	3	Yes	Yes	No
751 Carter Circle	McNair Terrace	1966	Single family	3	Yes	Yes	No
752 Carter Circle	McNair Terrace	1966	Duplex	4	Yes	Yes	No

Table E.S., continued

Address	Neighborhood	Construction Date	Building Subtype	Number of Bedrooms	Interior Access?	Previous Investigations	Suggested Property of Particular Importance
800 Apple Court	McNair Terrace	1975	Duplex	3	Yes	Yes	No
814 Birch Court	McNair Terrace	1975	Duplex	3	Yes	Yes	No
2010 Tulip Court	Olive Terrace	1975	Duplex	3	Yes	Yes	No
2084 Quince Court	Olive Terrace	1975	Duplex	3	Yes	Yes	No
1628 Hill Drive	Gordon Terrace	1970	Fourplex Townhouse	2	Yes	Yes	No
1952 Story Drive	Gordon Terrace	1970	Threeplex Townhouse	5	Yes	Yes	No
1831 Garcia Drive	Gordon Terrace	1970	Duplex	4	Yes	Yes	No
761 Walnut Court	McNair Terrace	1967	Sixplex Townhouse	4	Yes	Yes	No
1950 Story Drive	Gordon Terrace	1970	Fourplex Townhouse	4	Yes	Yes	No
830 Ginger Court	McNair Terrace	1975	Duplex	4	Yes	Yes	No
<b>Fort Hood</b>							
52339-2 Biloxi Circle	Comanche III	1973	Duplex	4	Yes	No	No
52426-1 Miami Court	Comanche III	1973	Duplex	N/A	No	No	No
52335-1 Biloxi Circle	Comanche III	1973	Duplex	5	Yes	No	No
52312-1 Biloxi Circle	Comanche III	1973	Duplex	3	Yes	No	No
52402-2 Miami Court	Comanche III	19673	Duplex	4	Yes	No	No
51218-1 Maricopa Court	Comanche I	1969	Duplex	4	Yes	No	No
51215-1 Maricopa Court	Comanche I	1969	Duplex	N/A	No	No	No
51214-1 Maricopa Court	Comanche I	1969	Duplex	2	Yes	No	No
51516-3 Coushatta Street	Comanche II	1973-1975	Sixplex Townhouse	3	Yes	No	No
51452-2 Coushatta Street	Comanche II	1973-1975	Fourplex Townhouse	4	Yes	No	No
51447-1 Coushatta Street	Comanche II	1973-1975	Duplex	4	Yes	No	No
51763-1 Comanche Circle	Comanche II	1973-1975	Duplex	5	Yes	No	No
52501-1 Acoma Loop	Comanche III	1973	Duplex	3	Yes	No	No
52502-2 Acoma Loop	Comanche III	1973	Duplex	4	Yes	No	No
<b>Fort Jackson</b>							
3073 Custer	Custer	1969	Single	4	Yes	No	No
3752 Knight	Jack's Inn	1968	Eightplex Apartment	2	No	Yes	No
3770 Gilmer	Jack's Inn	1968	Fourplex Apartment	2	No	Yes	No
5822 Burt	Pierce Terrace	1970	Duplex	3	Yes	No	No
5831 Burt	Pierce Terrace	1970	Sixplex Townhouse	2-3	No	No	No
5843 Imboden	Pierce Terrace	1970	Duplex	5	No	No	No

Table E.S., continued

Address	Neighborhood	Construction Date	Building Subtype	Number of Bedrooms	Interior Access?	Previous Investigations	Suggested Property of Particular Importance
5837 Burt	Pierce Terrace	1970	Duplex	2	Yes	No	No
5845 Imboden	Pierce Terrace	1968	Fourplex Townhouse	3	No	No	No
5847 Imboden	Pierce Terrace	1970	Duplex	4	No	No	No
5858 Imboden	Pierce Terrace	1970	Sixplex Townhouse	3	No	No	No
5902 Chestnut	Pierce Terrace	1970	Fourplex Townhouse	2-3	Yes	No	No
5972 Terrell	Pierce Terrace	1970	Fourplex Townhouse	2	No	No	No
<b>Fort Polk</b>							
5407 Anderon	Dogwood	1974	Duplex	3	Yes	No	No
5402 Fournet	Dogwood	1974	Duplex	3	Yes	No	No
5404 Fournet	Dogwood	1974	Duplex	3	No	No	No
5012 Ma Lee	Palmetto	1974	Apartment	2	Yes	No	No
5025 Johnson	Palmetto	1974	Duplex	4	No	No	No
<b>USAG Hawaii</b>							
<b>Fort Shafter</b>							
1357 Parks Road	Parks	1973	Single Family	N/A	Yes	Yes	No
1365 Parks Road	Parks	1973	Single Family	N/A	Yes	Yes	No
<b>Schofield Barracks</b>							
173 Dickman Road	Ralston	1972	Single Family	N/A	Yes	Yes	No
440 Hendrickson Loop	Aloala	1973	Fourplex Apartment	N/A	No	No	No
181 Aloala Way	Aloala	1973	Fourplex	N/A	No	No	No
141 Kupukupu Circle	Akolea	1974	Threeplex Townhouse	N/A	No	No	No
169 Hoio Circle	Akolea	1974	Fiveplex Apartment	N/A	No	No	No
159 Hoio Circle	Akolea	1974	Duplex	N/A	No	No	No
184 Pai Circle	Akolea	1974	Duplex	N/A	No	No	No
961 Hendrickson Loop	Aloala	1973	Fourplex Townhouse	N/A	No	No	No
291 Molihana Loop	Akolea	1973	Duplex	N/A	No	No	No
159 Palapalai Circle	Akolea	1974	Fourplex Apartment	N/A	No	No	No

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## List of Frequently Used Acronyms

ACHP:	Advisory Council on Historic Preservation
BAQ	Basic Allowance for Quarters
CDBG:	Community Development Block Grants
DoD:	Department of Defense
FHA:	Federal Housing Administration
FHMA:	Family Housing Management Account
FY:	Fiscal Year
HABS:	Historic American Building Survey
HHFA:	Housing and Home Finance Agency
HOLC:	Homeowners' Loan Corporation
HUD:	U.S. Department of Housing and Urban Development
MCA:	Military Construction, Army or Military Construction Appropriation
MOA:	Memorandum of Agreement
NAACP:	National Association for the Advancement of Colored People
NATO:	North Atlantic Treaty Organization
NCO:	Non-Commissioned Officers
NHPA:	National Historic Preservation Act of 1966, as amended
NRHP:	National register of Historic Places
RCGA:	R. Christopher Goodwin & Associates, Inc.
SHPO:	State Historic Preservation Office
U.S.	United States
USACE:	U.S. Army Corps of Engineers
USAG:	U.S. Army Garrison
U.S.S.R.:	Union of Soviet Socialist Republics

## Chapter 1: Introduction and Methodology

### Purpose

The *Historic Context on Army Vietnam War Era Historic Housing, Associated Buildings and Structures, and Landscape Features (1963-1975)* was prepared on behalf of the U.S. Department of the Army (Army) to support Federal stewardship for this class of properties under the National Historic Preservation Act (NHPA) of 1966, as amended. The current study develops the historic context appropriate to the significance for this class of resources in accordance with the Criteria of Evaluation of the National Register of Historic Places (NRHP) (36 CFR 60[a-d]) applying guidance contained in *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (National Park Service 1990, revised 1991,1995,1997:7-9). As the largest military service in the U.S. Department of Defense (DoD), the Army manages the largest portfolio of real property. This portfolio includes over 100,000 housing units; approximately 31,000 of these housing units are historic properties. The Army historic housing units includes over 7,500 units of family housing built during the Vietnam War Era (1963-1975). The Army seeks to manage this class of resources in accordance with the NHPA and in balance with concerns for the quality of life, health, and safety of resident military families.

Program Comments were established as an alternative approach to Section 106 of NHPA for Federal agencies undertaking repetitive management actions for a large inventory of similar historic properties, such as the Army Vietnam War Era family housing. Applying the criteria for evaluation of the NRHP (36 CFR 60 [a-d]), the Army has identified Vietnam War Era family housing as historically significant under NRHP Criterion A for its association with military history. The current historic context presents information necessary for understanding the importance of this class of history property.

## Historic Context Research Objectives

Five objectives were established for the development of the *Historic Context on Army Vietnam War Era Historic Housing, Associated Buildings and Structures, and Landscape Features (1963-1975)*.

- To summarize previous cultural resources investigations of Vietnam War Era housing;
- To discuss housing trends in the civilian sector during the period, with particular focus on demographic and social changes; transportation policy; housing starts; planning trends; segregation; housing industry trends; house builders; Federal guidance for the construction of residential units; and civilian-sector house types;
- To explore Army missions and policies during the Vietnam War Era, including the increased military engagement in Southeast Asia and the All-Volunteer Army; Army family housing policy, historically, as well as during the Vietnam War Era; and DoD response to housing segregation and civil rights legislation;
- To detail Congressional legislation governing family housing and to describe the architectural styles present in the Army's inventory of Vietnam War Era housing; and,
- To describe the Army's family housing program and the design and construction of Vietnam War Era housing, including design manuals, procedures, and instructions, and associated property types.

## Vietnam War Era Housing

The current historic context addresses Army family housing constructed by the Army on currently owned military land. The military developed a multi-faceted approach to family housing during this period. This approach included reliance on private-sector housing available in the community combined with housing constructed, owned, and managed by the Army through funding appropriated by the U.S. Congress. While the Army supported private-sector initiatives and programs that facilitated the construction of off-post housing for use by military families, that housing was not owned, managed, or operated by the Army. As such, private-sector housing that fulfilled Army family housing need during the period is not the primary focus of the current study.

The design and construction of Army Vietnam War Era housing can be divided into three broad categories: Capehart housing that was programmed, but not constructed, before the Capehart legislation expired in 1962; housing completed between 1964 and 1972 applying the standardized de-

signs contained in the DoD *Design Folio for Military Housing (Design Folio)*; and housing completed between 1973 and 1975 following the issuance of new construction instructions and revisions to the *Design Folio*.

In 1963, the DoD commissioned four private-sector architectural firms, Robert A. Little and George F. Dalton, Associates; A. Quincy Jones and Frederick E. Emmons, Associates; Keys, Lethbridge & Condon; and George Matsumoto, to prepare standardized plans for use by all branches of the military in the construction of new family housing. The *Design Folio for Military Housing (Design Folio)*, which was completed in 1964, presented design parameters and architectural programming for a variety of housing types based on the rank of intended occupants and specific site conditions (i.e., level or hillside terrain). This graphic guidance, in addition statutory restrictions on cost and size imposed by the U.S. Congress, informed construction during the period. The housing reflected modest interpretations of contemporary trends in domestic architecture found in the civilian sector and incorporated prevailing approaches to design, construction technique, and community planning principles. Housing types constructed during the period include single-family, duplex, apartments, and townhouse designs.

Army Vietnam War Era housing is located throughout the United States. The current total number of Army housing units by location is presented in Table 1.1 and Figure 1.1.

## Historic Context Approach

### Definition of the Historic Context

A historic context is a theoretical framework that is used to organize information on related properties based on a theme, geographic area, and chronological period. This current investigation provides a framework for assessing the relative significance of Army housing constructed between 1963 and 1975. National Register Bulletin 24 *Guidelines for Local Surveys: A Basis for Preservation Planning* (National Park Service 1985) and *How to Apply the National Register Criteria for Evaluation* (National Park Service 1995) provided primary technical guidance in the development of the historic context.

**Table 1.1** *Locations of Army Vietnam War Era Housing*

<b>Installation</b>	<b>Number of Units</b>
Fort Hood, Texas	1832
Fort Benning, Georgia	1292
Fort Carson, Colorado	839
Fort Gordon, Georgia	740
Fort Meade, Maryland	675
Fort Bragg, North Carolina	615
U.S. Army Garrison (USAG) Hawaii	256
Fort Campbell, Kentucky	230
Fort Riley, Kansas	211
Fort Sill, Oklahoma	199
Fort Polk, Louisiana	182
Fort Irwin, California	120
Fort Jackson, South Carolina	119
Fort Detrick, Maryland	40
Fort Leavenworth, Kansas	44
Dugway Proving Ground, Utah	39
Fort Stewart, Georgia	38
Redstone Arsenal, Alabama	18
Joint Base Lewis McChord (JBLM), Washington	10
Rock Island Arsenal, Illinois	10
McAlester Army Ammunition Plant, Oklahoma	6
Aberdeen Proving Ground, Maryland	4
<b>Total</b>	<b>7519</b>

Source: United States Department of the Army 2021b.



The three elements of a historic context are theme, geographic area, and time period. This study explores the historic context defined as:

Theme: U.S. Military History: Army Family Housing

Geographic Area: United States

Time Period: Vietnam War Era 1963-1975

The theme explored in this historic context is the Army’s Vietnam War Era housing construction program. The geographic area covered by this study is the U.S. and include active Army installations containing family housing from the period. The time period defined for the project comprises the years 1963-1975, the period covering the military involvement in the conflict in Vietnam.

### **Property Type**

The historic property type under consideration is Army Vietnam War Era (1963-1975) housing, and the buildings, structures, neighborhoods, and landscape features associated with the housing. A property type is a grouping of individual properties defined and characterized by common physical and / or associative attributes. Physical attributes include style, structural type, design, and materials and method of construction. Associative attributes include the property’s relationship to important events based on dates and function, and can include geographic relationships of the property type to topographic and natural features. A property type may include a variety of buildings and structures. Variations will occur within a property type based on a variety of influences. (See National Register Bulletins 15, 16A, and 16B).

Property type is the real property that represents the significance of the historic context and provides the tangible link with important patterns and events in history and culture. The Army Vietnam War Era housing property type includes single family, duplex, townhouse<sup>1</sup>, and apartment type of housing,

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<sup>1</sup>The Army refers to multi-unit attached buildings by the number of units, i.e., three-plex, four-plex, five-plex, etc., in its “Vietnam Era Housing Database 10/20/2021” (U.S. Department of the Army 2021b). These multiplex buildings meet the definition of “townhouse” as defined by the U.S. Department of Housing and Urban Development, and is the term that is used throughout the report. The term “plex” also was used to refer to two-story buildings having more than one unit on each floor, and which take the form of an apartment building.

and the various buildings, structures and landscape features that are associated with the housing. The family housing units reflect the Army's efforts to provide quality family housing during a 13-year period characterized by surging numbers of military personnel, greater eligibility for family housing than in previous years, and stringent Congressional cost and size ceilings. Many military personnel eligible for housing were accompanied by families often including multiple children, necessitating the addition of an increased number of multi-bedroom units to the family housing inventory. The Army recognized the influence of the civilian sector housing industry in developing innovative and cost-effective products responsive to popular standards for adequate housing. The Army also drew upon planning principles and design philosophies from the late 1960s through the mid-1970s in an effort to develop military housing comparable to civilian housing of the period.

## **Methodology**

The methodology adopted in the development of the historic context for Vietnam War Era Army housing applied a progressive program of (1) Army coordination; (2) literature search and archival research; (3) site investigation to characterize and to document examples in the current real property inventory; and (4) data synthesis and (5) report preparation. All work was undertaken applying best professional practices by architectural historians and historians experienced in military history and construction whose professional qualifications exceed those established by the Secretary of the Interior in their respective fields (36 CFR 61). All work was completed in observance of Federal, state, and local restrictions and guidelines related to the current COVID-19 pandemic.

### **Archival Research and Literature Search**

R. Christopher Goodwin & Associates, Inc. (RCG&A) architectural historians and historians conducted online archival research at local, state, and national repositories. In-person archival research at national and selected local and state repositories was minimized due to the on-going worldwide COVID-19 pandemic. Access to national repositories, including the National Archives and Records Administration and the Library of Congress, was not possible or severely restricted due to the pandemic during the course of research.

Army housing databases were analyzed and cultural resources management documents for installations containing collections of Vietnam War Era family housing were reviewed for relevancy. These latter documents included architectural surveys, Integrated Cultural Resources Management Plans (ICRMPs), Section 106 actions, and agreement documents, such as Memorandums of Agreement (MOA) and Programmatic Agreements. Secondary sources included survey reports and State Historic Preservation Office (SHPO) inventory forms for select Vietnam War Era housing. These sources are discussed in greater detail in Chapter 2. Also consulted were appropriate SHPO state-wide contexts and relevant DoD nationwide studies, including *Vietnam and the Home Front: How DoD Installations Adapted, 1962-1975* (Hartman, Enscoe, and Smith 2014); articles, manuscripts, and online resources covering the various research areas; newspapers; architectural and housing trade journals; and academic journals.

Targeted and directed research focused on general housing trends; demographic, social, and economic changes during the Vietnam War period; government policies towards housing and home ownership; land planning trends; Federal funding for military family housing; the Army's mission; and the Army's response to housing its service members. Primary source materials consulted included architectural drawings and plans of Army family housing; published federal and state regulations and guidelines; Congressional hearings and Federal legislation; census data; and contemporary civilian market house plans.

Two special collections were consulted. The A. Quincy Jones Papers archived at the University of California (Online Archive of California) provided background information on the administration and design development of the DoD *Design Folio* used in military housing construction between 1964 and 1972. The papers of George Matsumoto were reviewed in the Special Collections Research Center at North Carolina State University. This collection contains the only complete copy of the 1964 *Design Folio* identified.

Reviews were completed of current Army construction instructions, engineering manuals, and related documents for references to earlier and discontinued instructions and manuals from the Vietnam War Era. Searches of the Pentagon Digital Library, the Army Publishing Directorate, and U.S. Army Corps of Engineers (USACE) Digital Library catalogs as part of this effort.

The following additional repositories with holdings related to the Army and its construction program were contacted and/or their online databases were reviewed:

- Air Force Historical Research Agency, Maxwell Air Force Base
- Ancestry.com's Fold 3
- Army Publishing Directorate
- Avery Architectural Library
- Center for Military History, Fort McNair
- Fort Leonard Wood, U.S. Army Engineer Research and Development Center
- Government Printing Office
- Library of Congress
- National Archives and Records Center, Cartographic and Architectural Records Branch, College Park
- Naval History and Heritage Command
- Pentagon Library
- U.S. Army Corps of Engineers Digital Library
- U.S. Army War College, Carlisle Barracks
- U.S. Housing and Urban Development.

### **Site Visits to Installations**

Site visits were completed to 10 Army installations with Vietnam War Era housing. Criteria for site selection were developed in consultation with the Army. Installations were selected for geographic distribution; to represent variety in house type (i.e., single-family, duplex and townhouse); unit size; and type of ancillary buildings (i.e. garages, carports, and storage buildings) based on data included in the "Vietnam Era Housing Database 10/20/2021" (U.S. Department of the Army 2021b).

Site visits included the systematic review of cultural resource and planning reports in addition to on-post architectural inventory of selected examples of housing constructed during the period. Personal at the cultural resources offices, real property offices, post historians offices, and the housing partners were interviewed. Reconnaissance-level, windshield survey of residential neighborhoods were completed and select building exteriors and interiors were inspected to document each housing type represented. Sufficient inventory was completed to characterize the neighborhoods and select dwellings. Installations included:

- Fort Benning, Georgia;
- Fort Bragg, North Carolina;
- Fort Carson, Colorado;
- Fort Detrick, Maryland;
- Fort Gordon; Georgia;
- Fort Hood, Texas;
- Fort Jackson, South Carolina;
- Fort Polk, Louisiana;
- Fort Shafter, Hawaii; and
- Schofield Barracks, Hawaii

Inventory data were incorporated in the historic context; site reports are included in Appendix 6. Inventory forms are included in Volume 2 of this report.

### **Data Synthesis and Analysis**

Technical guidance documents developed by the National Park Service (NPS) were consulted in the preparation of this historic context. In addition, SHPO guidance and reports on housing from the recent past were reviewed. An analysis of archival research provided the framework for this historic context; it informed the identification of relevant themes, subthemes, and property types presented in the following chapters. This investigation explored evolving social, legislative, and architectural

events in both the civilian market and the Army. A comparison of Army housing policies and standards to those found in the civilian sector also was undertaken.

## Report Organization

The report is organized into the following topics:

- The purposes and findings of the investigation is presented in the Executive Summary.
- The introduction and methodology for the study are presented in Chapter 1.
- Previous investigations related to military family housing of the period are discussed in Chapter 2.
- Chapter 3 presents an overview of military history during the Vietnam War Era, summaries DoD and Army family housing policies and challenges; and legislative action regarding family housing.
- Data on civilian-sector demographic and social change are presented in Chapter 4.
- Civilian sector housing constructed during the period is explored in Chapter 5.
- Chapter 6 introduces the manuals, procedures and instructions used by the Army in the design and construction of Vietnam War Era housing. Property types associated with the historic context are presented with examples from active installations.
- A conclusion to the study is presented in Chapter 7.

Six appendices support the narrative report.

- Current Army Housing Inventory of Vietnam War Era housing
- Table of Family Housing Units by Installation and Date of authorization from legislative record
- Biographies of *Folio of Design* Architects
- List of Architects Who Designed Vietnam War Era housing
- Chapter 16 – *Construction Criteria Manual, 1972*
- Site Reports for Housing at 10 Installations

Volume 2 of this report includes the inventory forms prepared for the 10 installations.

## Chapter 2: Previous Investigations

### Introduction

The Army manages the largest inventory of real property and the largest inventory of historic properties within the DoD. Army historic properties encompass sites, buildings, districts, landscapes, and objects that possess significance and integrity applying the criteria for evaluation of the NRHP (36 CFR 60 [a-d]). Properties are evaluated within their appropriate military historic context; resources fifty-years of age or older generally are subjects for NRHP consideration due to the historical perspective required to assess their importance.

The Army particularly has been proactive in the development of the historic military contexts specific to its real property to enable the NRHP evaluation of its active real property inventory. The military has a unique history of national wide construction programs funded through Congressional appropriations that emphasized standardized design under centralized contracting and oversight. Army family housing is among the topics explored in previous investigations and historic contexts that have been developed specific to this class of resources include: *National Historic Context for Department of Defense Installations, 1790-1940* (Cannan et. al. 1995); *Housing an Army: The Wherry and Capehart Era Solutions to the Postwar Family Housing Shortage (1949-1962)* (R. Christopher Goodwin & Associates, Inc. 2003); and *Army Inter-War Era Housing Historic Context (1919-1940)* (R. Christopher Goodwin & Associates, Inc. 2021).

Twentieth century housing and suburbanization in the U.S. is an established area of scholarly research, analysis, and extensive publication. This body of scholarly work related to domestic devel-

opment in the mid-twentieth century frequently provides the overall historic perspective necessary to assess the significance and integrity of individual resources from this period applying the NRHP criteria for evaluation (36 CFR 60 [a-d]). In addition, local, regional, statewide and national historic contexts have been developed to support the evaluation of domestic architecture in the civilian sector constructed after World War II. While the majority of this work has focused on the immediate postwar period through the early 1960s; more recent work has explored housing and stylistic trends through the mid-1970s.

In addition, five previous nationwide historic contexts particularly are relevant to domestic architecture constructed after 1945. Two reports on the postwar period provide context for the evaluation of military properties: *U.S. Army Cold War Era Military-Industrial Historic Properties. Thematic Study and Guidelines: Identification and Evaluation of U.S. Army Cold War Era Military-Industrial Historic Properties* (United States Army Environmental Center 1998) and *Vietnam and the Home Front: How DoD Installations Adapted, 1962-1975* (Hartman, Enscore, and Smith 2014). Two nationwide reports relevant for an understanding of domestic architectural trends include *The Suburban Ranch House in Post-World War II America: A Site of Contrast in an Era of Unease, Uncertainty, and Instability* (Richfield 2007) and *A Model for Identifying and Evaluating the Historic Significance of Post-World War II Housing. NCHRP Report 723* (Pettis et. al. 2012). The NPS also has prepared guidance for the identification and evaluation of suburban development applicable to Vietnam War Era housing. That guidance is presented in *Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places* (National Park Service n.d.). State and nationwide historic contexts on postwar suburbanization and domestic architecture are presented in Table 2.1.

## **Synthesis of Previous Investigations**

Vietnam War Era housing has been subject to several previous cultural resource investigations undertaken in compliance with Section 106 of the NHPA. Section 106 requires Federal agencies to consider the effects of their undertakings upon historic properties and to afford the Advisory Council on Historic Preservation (ACHP) with the opportunity to comment. Examples of Vietnam War Era housing have been reviewed previously by SHPOs as part of Section 106 investigations. Many of the examples of Vietnam Era Family Housing were less than fifty-years old at the time of the reviewed undertak-

**Table 2.1 State and Nationwide Historic Contexts**

<b>Title</b>	<b>Date</b>	<b>Author</b>	<b>Scope</b>
<i>Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places</i>	n.d.	National Park Service	Nationwide
<i>National Historic Context for Department of Defense Installations, 1790-1940</i>	1995	Cannan, Deborah K., Leo Hirrel, Katherine Grandine, Kathryn Kuranda, Bethany Usher, Hugh McAloon, and Martha Williams	Nationwide
<i>U.S. Army Cold War Era Military-Industrial Historic Properties. Thematic Study and Guidelines: Identification and Evaluation of U.S. Army Cold War Era Military-Industrial Historic Properties</i>	1998	U.S. Army Environmental Center	Nationwide
<i>Housing an Army: The Wherry and Capehart Era Solutions to the Postwar Family Housing Shortage (1949-1962)</i>	2003	R. Christopher Goodwin & Associates, Inc.	Nationwide
<i>Army Inter-War Era Housing Historic Context (1919-1940)</i>	2021	R. Christopher Goodwin & Associates, Inc.	Nationwide
<i>Louisiana Architecture: 1945-1965. The Contemporary House</i>	n.d.	n.a.	Louisiana
<i>Louisiana Architecture: 1945-1965. Post-War Subdivision and the Ranch House</i>	n.d.	n.a.	Louisiana
<i>Atlanta Housing 1944 to 1965</i>	2001	Burns, Leigh, Staci Catron-Sullivan, Jennifer Holcombe, Amie Spinks, Schott Thompson, Amy Waite, Matt Watts-Edwards, and Diana Welliing	Georgia
<i>The Suburban Ranch House in Post-World War II America: A Site of Contrast in an Era of Unease, Uncertainty, and Instability</i>	2007	Richfield, Clare J.	Nationwide
<i>Historic Context and Survey of Post-War World II Residential Architecture. Boulder, Colorado. Final</i>	2010	Bryant, Jennifer and Carrie Schomig	Colorado
<i>Single-Family Residential Development. DeKalb County, Georgia 1945-1970</i>	2010	Barton, Kimberly, Susan Conger, Rebecca Crawford, Elisa Graf, Paul Graham, Debye Harvey, Nathan Jordan, Courtney Lankford, Molly Leatherman, Elizabeth Morris, Chris Mroccka, Maysly Naolu, Zack Ray, Luis Rodriguez, Anthony Sourther, David Westbrook, Caitlin Zymont	Georgia
<i>Tract Housing in California, 1945-1973: A Context for national Register Evaluation</i>	2011	California Department of Transportation	California

Table 2.1, continued

Title	Date	Author	Scope
<i>A Model for Identifying and Evaluating the Historic Significance of Post-World War II Housing. NCHRP Report 723</i>	2012	Pettis, Emily, Amy Squitieri, Christina Slattery, Christine Long,, Patti Kuhn, Debra McClane, and Sarah Groesbeck	Nationwide
<i>The Historic Context for Modern Architecture in Oklahoma: Housing from 1946-1976</i>	2014	Ozan, Lynda S.	Oklahoma
<i>Vietnam and the Home Front: How DoD Installations Adapted, 1962-1975</i>	2014	Hartman Ellen R., Susan I. Enscoe, and Adam D. Smith	Nationwide
<i>Suburbanization Historic Context Addendum (1961-1980), Montgomery and Prince George's Counties, Maryland</i>	2019	Maryland Department of Transportation, State Highway Administration; Dovetail Cultural Resource Group, and RK&K	Maryland

ings. (SHPOs are the state agencies that administer NHPA programs on the state level and are active participants in NHPA compliance, including Section 106).

The lack of consensus among the SHPOs regarding the eligibility Vietnam War Era family housing identified the need for this current study to provide a more detailed historic context specific to family housing. The following SHPO recommendations have been made regarding the NRHP status of Army Vietnam War Era housing pursuant to past Section 106 undertakings:

- Capehart Wherry housing completed after 1962 was subject to the Program Comment for Capehart Wherry housing;
- Capehart Wherry housing completed after 1962 was subject to the Program Comment for Cold War Era Unaccompanied Personnel Housing;
- Capehart Wherry housing completed after 1962 was NRHP eligible and qualified as an historic property;
- Housing completed after 1962 was not eligible for inclusion in the NRHP due to a lack of integrity;
- Housing constructed after 1962 and recommended not eligible due to recent age and did not meet Criteria Consideration G for exceptional significance; and
- The Raltson neighborhood constructed in 1972 at Schofield Barracks, Hawaii, was recommended not eligible

No properties were determined individually eligible for inclusion in the NRHP and no National Historic Landmark Districts were identified previously. The following NRHP determinations were made regarding Vietnam War Era neighborhoods:

- Stryker Village, Capehart units, Fort Campbell, Kentucky – considered eligible for the purposes of emergency repairs
- Conelly Housing Complex, Hawthorne Army Depot, Nevada – considered eligible under Criterion A
- Parks (Hauoli Heights) neighborhood, Fort Shafter, Hawaii, recommended eligible

Table 2.2 presents a summary list of previous investigations.

**Table 2.2 Previous Investigations**

Installation	Report Title and Date	SHPO Concurrence	Neighborhood	Comments
Fort Hood	<i>Historic Resources Inventory. Exterior Survey and National Register Evaluation of 166 Buildings and Structures, Fort Hood, Bell County, Texas 2018</i>	2018	Venable	Not eligible due to a lack of integrity
Fort Benning	N/A	N/A	N/A	N/A
Fort Carson	<i>Final: Architectural Inventory and Evaluation of 1970s-Era Family Housing at U.S. Army Garrison Fort Carson (2019); Form 1403b: Post-World War II Residential Suburban Subdivision Form (1945-1975) Cherokee Village (2011) Form 1403b: Post-World War II Residential Suburban Subdivision Form (1945-1975) Cheyenne Village (2012)</i>	2013, 2019	Apache, Sioux, Cherokee, Cheyenne, and Shoshoni Villages	All not eligible due to a lack of integrity and significance
Fort Gordon	El Paso County, Colorado	2005	Gordon Terrace, McNair Terrace, and Olive Terrace	Houses recommended not eligible under Criteria Consideration G at the time of the evaluations and houses “would not become eligible for NRHP when they reach 50 years of age due to a severe lack of integrity”.

Table 2.2, continued

Installation	Report Title and Date	SHPO Concurrence	Neighborhood	Comments
Fort Meade	N/A	N/A	N/A	N/A
Fort Bragg	N/A	N/A	Ardennes and Bataan. Cardinal Heights, originally a ca. 1964 Air Force neighborhood, was absorbed into Fort Bragg in 2011.	Cardinal Heights: Capehart units constructed in 1964 and treated under Cold War Program Comment for Unaccompanied Personnel Housing and recommended not eligible. Bataan and Ardennes, both constructed 1974-1975, have not been evaluated.
Hawaii	<i>National Register Eligibility Assessments for Three Neighborhoods at Fort Shafter &amp; Schofield Barracks, 2018</i>	N/A	Ralston/Haouli Heights	Ralston Vietnam Not Eligible, Haouli Heights eligible
Fort Campbell	Stryker Village Emergency Ceiling Repairs, 2020	2020	Stryker Village	Capehart units constructed in 1963; treated as NRHP eligible
Fort Riley	N/A	N/A	N/A	According to the installation, Capehart duplexes (some were partially demolished) completed in 1963 are present. No other units from time period present
Fort Sill	Oklahoma Landmarks Inventory records for medicine Bluff Heights Housing including Buildings 1200-1231 (completed in 2008); Historic Preservation Resource Identification Forms for Buildings 5431-5434 (completed in 2011); 5733-5736, 5741-5756, 5763-5787 (completed in 2012)	2008, 2011, 2012	Bluff Heights Housing including Buildings 1200-1231; Buildings 5431-5434; Buildings 5733-5736, 5741-5756, 5763-5787	Recommended not eligible
Fort Polk	<i>Cold War Era Historic Context, Survey, and Building Inventory, Fort Polk, Louisiana (Contract No. W912EE-04-D0003, Delivery Order No. 0007) 2010</i>	2010	Dogwood Terrace and Palmetto Terrace	Dogwood Terrace and Palmetto Terrace, constructed 1973-74, have not been evaluated.
Fort Irwin	N/A	N/A	N/A	No resources from time period

Table 2.2, continued

Installation	Report Title and Date	SHPO Concurrence	Neighborhood	Comments
Fort Jackson	<i>Environmental Assessment 2007</i>	2007	Custer Court, Jack's Inn, and Pierce Terrace.	Custer Court and Pierce Terrace have not been evaluated. Custer Court is slated for demolition. Jack's Inn is undergoing evaluation with the Army Corps of Engineers and is awaiting concurrence as not eligible
Fort Detrick	No evaluation of housing constructed in 1965	N/A	N/A	No formal evaluation for housing constructed in 1965 has occurred
Fort Leavenworth	<i>U.S. Army Fort Leavenworth Historic Architectural Survey Update 2019</i>	N/A	Facilities 702-751, 1514-1522; 1600-1699; 1800-1810	Resources surveyed were constructed under the Capehart program. Report identified the resources as unevaluated, but NRHP status was "eligible - treatment plan in place"
Dugway Proving Ground	N/A	N/A	St. Johns and East Wherry	14 out 33 units demolished according to Army database; all units were constructed under the Capehart Wherry program
Fort Stewart	<i>Historic Building Survey Codicil, 2014; Fort Stewart/Hunter Army Airfield 2012 Historic Building Survey Codicil, 2015</i>	2014, 2015	Anderson Street district (Facilities 5423-37 and 5439); Wynn Place district (Facilities 5545-60); Buildings 5441-5444, 15001	Recommended not eligible
Redstone Arsenal	<i>Rocket Science: A Historic Context and Assessment of US Army Cold War Properties 1946-1989, Redstone Arsenal, Alabama 2001(?)</i>	2001	N/A	Either demolished or significantly altered according to material submitted by the installation; Army database indicates all housing was recommended not eligible; the 2001 report was not available
Joint Base Lewis McChord	N/A	N/A	N/A	N/A

Table 2.2, continued

Installation	Report Title and Date	SHPO Concurrence	Neighborhood	Comments
Rock Island Arsenal	N/A	N/A	N/A	Six units demolished according to Army database
Hawthorne Army Depot	<i>Architectural Survey: Conelly Duplex Units, Hawthorne Army Depot, Hawthorne, Mineral County, Nevada 2014</i>	N/A	Conelly Housing Complex	Recommended eligible under A; MOA signed 2015; demolition approved in 2016
McAlester Army Ammunition Plant	McAlester Army Ammunition Plant Proposed Disposal of Five Family Housing Properties, including Facilities #601, #602, #603, #606, and #611	2020	Buildings 601, 602, 603, 606, and 611	Recommended not eligible
Aberdeen Proving Ground	N/A	N/A	N/A	N/A
Letterkenny Army Depot	N/A	N/A	N/A	N/A
Fort Campbell	<i>Fort Campbell Architectural Survey Late Cold War 1965-1989 2012</i>	N/A		No family housing was surveyed and evaluated

## Agreement Documents

Vietnam War Era housing at one Army installations has been subject to installation-level agreement documents related to evaluation and treatment.

Hawthorne Army Depot: MOA negotiated between the Hawthorne Army Depot, Hawthorne, Nevada and the Nevada State Historic Preservation Officer executed in 2015 regarding the demolition of the Conelly Housing Complex. The MOA stipulated recordation of the neighborhood in architectural resource assessment forms for inclusion in the Nevada Cultural Resource Information System Database; recordation of remaining landscape features; maintaining historic landscaping that existed prior to the construction of the neighborhood; and conducting oral histories of residents of the neighborhood (Gibbons and Palmer 2015:2,3).

## The Program Comment as a Management Tool

The Army has a well-developed track record for using the Program Comment to effectively manage its historic properties and compliance with Section 106 of NHPA. The Program Comment Plan allows for the efficient management of undertakings, including maintenance, repair, rehabilitation, renovation, hazardous materials abatement, and mothballing, among others, for this class of resource (United States Department of the Army 2021a:13). The Program Comment will eliminate the need for case-by-case consultation for housing, associated buildings, and landscapes constructed during the Vietnam War Era. The following Program Comments have been developed to manage classes of Army resources:

- Program Comment for Capehart and Wherry Era Army Family Housing and Associated Structures and Landscape Features (1949-1962)
- Program Comment for Inter-War Era Housing (1919-1940)
- Program Comment for Cold War Era Unaccompanied Personnel Housing (1946-1974)

The Program Comment Plan for Vietnam War Era housing continues this management strategy.

## Chapter 3: Army Housing in the Vietnam War Era and the Legislative Record

### Introduction

During the 1960s, the Department of Defense (DoD) sought to address its increasing need for military family housing by first expanding its reliance on local civilian rental markets. This chapter explores those efforts and major aspects of the DoD's military family housing program. The chapter begins with an overview of the military history and the Army's missions during the Vietnam War Era from 1963 to 1975. The military history overview describes the major changes that occurred at the DoD level and in the command structure of the Army during the Kennedy-Johnson and Nixon administrations and the transition to an All-Volunteer Force/All-Volunteer Army. The conflict in Vietnam was the major military mission from the early 1960s through the early 1970s. The beginning date of 1963 established for the historic context is based on National Security Action Memorandum (NSAM) 273 approved by President Lyndon B. Johnson in November 1963 following the assassination of President John F. Kennedy, and the coup d'état and assassination of South Vietnam President Ngo Dinh Diem. NSAM 273 was classified at the time it was issued and authorized the U.S. military to move beyond military training and support for South Vietnam and unilaterally engage in combat, and directed military attention to North Vietnam. The end date of 1975 established for the historic context is marked by Army participation in *Operation Frequent Wind*, the final phase of the evacuation of Americans and at-risk Vietnamese from the U.S. Embassy in Saigon, the Capital of South Vietnam. *Operation Frequent Wind* was carried out during the final days of the Vietnam War, just prior to the capture of Saigon by the North Vietnamese Army and the Viet Cong.

The legislative history for the congressional authorization for Army family housing is explored. Past programs were influential in formulating DoD housing policy under Secretary of Defense Robert S. McNamara. The factors that led to this policy are discussed, including the demographic characteristics of the Army and the increased number of married Army personnel with families that were eligible for family housing. Changing demographics and expanded housing eligibility created housing challenges within DoD, which resulted in a housing deficit during the era. The DoD housing policy prompted reorganization of DoD's family housing program. Organizational changes included new budgeting procedures, new planning requirements for programming family housing, and adherence to the Executive Order ending housing segregation for African American Army families. The chapter concludes with an overall summary of the challenges for implementing the military family housing program.

## **Overview of U.S. Military History from 1963 to 1975**

When John F. Kennedy was sworn in as the 35<sup>th</sup> President of the U.S. in January 1961, his Presidency marked a major generational shift in U.S. leadership. While President Kennedy had served in the military with distinction during World War II, he was not among the leaders who led the country to victory during the world conflict. President Kennedy inherited an ongoing Cold War begun in 1946 in response to the Union of Soviet Socialist Republics' (U.S.S.R./Soviet Union) efforts to retain territory liberated from Nazi Germany and territory captured in Southeast Asia during World War II. The Cold War was marked by tense, hostile relationships between the Soviet Union and its Eastern European satellite countries, who were organized under the Warsaw Pact; and U.S. and Western European countries allied under the North Atlantic Treaty Organization (NATO).

Past presidents established policies that shaped the Cold War. Harry S. Truman, U.S. President from 1945 to 1953, followed a policy of containment to check the spread of communism in Western Europe (Stewart 2010:211). After the Communists prevailed in China in late 1949, Truman supported the containment of communism throughout Southeast Asia. Under the auspices of the United Nations, the U.S. intervened on the side of South Korea against North Korea in a war that lasted from 1950 to 1953 (Stewart 2010:221, 224).

Dwight D. Eisenhower, President from 1953 to 1961, adopted a defense strategy that emphasized “air power and America’s nuclear superiority” (Stewart 2010:255). President Eisenhower sought to decrease military spending while maintaining U.S. commitments worldwide. As Secretary of State John Foster Dulles explained the administration’s policy, “The basic decision was to depend primarily upon a great capacity to retaliate, instantly, by means and at places of our own choosing” (Stewart 2010:255). Under Eisenhower’s “New Look” policy, the Air Force increased its numbers of strategic bombers and developed long-range missiles. The Army developed tactical nuclear weapons to support soldiers in battle. The Navy developed Polaris, a submarine-launched nuclear missile (Stewart 2010:256). A nuclear arms race between the U.S. and the U.S.S.R. occurred during the 1950s as the U.S.S.R. reached parity with the U.S. nuclear arsenal. Similar nuclear capabilities presented the potential for “mutual suicide”, and the U.S. and the U.S.S.R. reached an understanding the “neither [side] would use nuclear weapons unless its own survival was at stake” (Stewart 2010:257). The U.S.S.R. continued to wage proxy wars against “capitalist imperialism” through other countries while avoiding direct full-scale war with the U.S. (Stewart 2010:257). The U.S. monitored the Communists’ struggles with the non-Communist governments in Southeast Asia, especially in Laos and South Vietnam (Stewart 2010:260).

President Eisenhower initiated a reorganization of the U.S. military in 1958. As approved by Congress, the DoD’s authority over the military services was strengthened and the autonomy of individual services declined. In 1955, the Army already had reorganized its U.S. forces into the Continental Army Command. This command comprised six geographical areas in the U.S. and the Military District of Washington, DC. The Continental Army Command was in charge of “training the Active Army and Reserves, preparing the future Army and its equipment, and planning and conducting the ground defenses of the United States” (Stewart 2010:262). Other contingents were assigned to the Alaska Command Area and the Pacific Command Area that included Hawaii, in addition to overseas commands. Seven separate organizations supported the Army structure: Ordnance Corps, Chemical Corps, Quartermaster Corps, Signal Corps, Corps of Engineers, Medical Service/Corps, and Transportation Corps (United States Congress 1962a:3993-3994). With the focus of the military on massive retaliation, the conventional forces of the Army decreased in size. Army budgets were lower than those of the Navy and the Air Force and accounted for approximately 22 percent of the total U.S. military budget in 1959. Army personnel totaled 871,348 in 1960, their lowest level of the 1960s (Stewart 2010:262;

Defense Manpower Data Center 1960-1969).

The potential for a general all-out nuclear war between the U.S. and the U.S.S.R. had ebbed by the start of the Kennedy Administration; however, the U.S.S.R. provided increasing support for “wars of national liberation” that generally pitted Communists against existing non-Communist governments. President Kennedy made the U.S. position clear in a special message to Congress regarding the Defense budget on 28 March 1961, “Any potential aggressor contemplating an attack on any part of the free world with any kind of weapons, conventional or nuclear, must know that our response will be suitable, selective, swift, and effective” (Stewart 2010:167; Kennedy 1961).

The Kennedy administration established three defensive goals: “to strengthen strategic forces (i.e., nuclear capabilities), to build up conventional forces (i.e., the Army) so they could respond flexibly to lesser challenges, and to improve the overall effectiveness and efficiency of the nation’s defenses” (Stewart 2010:277). President Kennedy selected Robert S. McNamara as Secretary of Defense to organize the military forces into a flexible force. McNamara served between January 1961 and February 1968 under Presidents Kennedy and Johnson (United States Department of Defense Historical Office n.d.). Kennedy’s instructions to McNamara were “to develop the force structure necessary to meet American military requirements without regard to arbitrary or predetermined budget ceilings” (Stewart 2010:277). The strategy of “Flexible Response” officially was adopted in 1967 (Stewart 2010:272).

McNamara used the authority granted to the Office of the Secretary of Defense under the U.S. military reorganization of 1958 to reshape the DoD. He applied the principles of business administration to the organizational structure of all the services, including the Army, and overhauled their organizational structures, policies, and procedures. He replaced the Joint Chiefs of Staff with a single chief of staff and established the three services as functional commands (United States Department of Defense Historical Office n.d.). In the Army, McNamara abolished the Ordnance Corps, the Chemical Corps, and the Quartermaster Corps. The Quartermaster Corps functions were assigned to the Defense Supply Agency, while the Ordnance Corps and the Chemical Corps were incorporated into the U.S. Army Materiel Command. The Army Materiel Command assumed all the materiel functions of the Ordnance and Chemical corps as well as the testing functions of the Army Continental Command. The reorganization officially occurred in February 1962 (United States Army Materiel Command n.d.).

This new command consolidated logistical functions to ensure integrated materiel management, including new product development, management of materiel stockpiles, testing, and technical and maintenance support (United States Army Environmental Center 1998).

McNamara established centralized planning in the Office of the Secretary of Defense for all the services and reviewed all budget packages from the services prior to their consolidated submission to Congress in a combined DoD budget. As part of this new procedure, McNamara raised planning and budgeting for family housing from the individual services to the DoD level. Annual requests for family housing construction from all services were reviewed and combined into a single budget request. Secretary McNamara also implemented a policy for five-year, long-range planning.

In addition, Secretary McNamara reviewed the utilization of DoD installations and initiated a program to divest the services of unneeded facilities and land. In 1961, the DoD began a program to “reduce defense expenditures by closing unnecessary military installations, and obtaining the maximum utilization of our most modern and efficient bases” (United States Congress 1965a Part 1:11). Between 1961 and 1965, 669 separate actions resulted in the closure or reduction of DoD assets and reduced the DoD annual operating expenditures by \$1,038 million. These actions included release of over 1.4 million acres of land and reductions of nearly 150,000 jobs (U.S Congress 1965a Part 1:12; United States Department of Defense Historical Office n.d.).

## **Vietnam War**

As Secretary McNamara reorganized the DoD, U.S. involvement in South Vietnam gradually escalated. The U.S. involvement in South Vietnam expanded to become the major military event of the 1960s. The conflict had widespread impacts on both the U.S. military and the home front. The U.S. involvement in South Vietnam began with minor support to France as that country sought to re-establish control over French colonies in Indo-China. The French defeat in 1953 led France and the Communist-dominated Viet Minh, who sought independence for Vietnam, to negotiate peace in 1954. Vietnam subsequently was divided into North and South Vietnam. U.S. military began to send trainers and advisors to support the South Vietnamese Army. By 1956, the overall U.S. presence in South Vietnam numbered 692 (Hartman, Enscoe, and Smith 2014:19-20). During 1961-1962, U.S. as-

sistance expanded to provide direct military support to the South Vietnamese Air Force. After Lyndon B. Johnson assumed the presidency in November 1963, he continued the policy to contain the spread of Communism from North Vietnam by supporting the South Vietnam forces (Hartman, Enscoe, and Smith 2014:26). Military support expanded to include military weapons and technology to South Vietnam and active participation of U.S. forces.

The catalyst for escalation of U.S. military involvement in the conflict in Vietnam occurred on 2 August 1964, with the Gulf of Tonkin incident, when the *USS Maddox* (DD-731) was attacked by three North Vietnamese patrol torpedo boat while sailing in international waters (Peterson 2008). The Johnson administration used the incident to convince Congress to pass the Gulf of Tonkin Resolution that authorized President Johnson to take “all necessary measures” to defend the U.S. and allied forces to “prevent further aggression” (Hartman, Enscoe, and Smith 2014:28). President Johnson directly increased U.S. military forces to support South Vietnam against North Vietnam (Hartman, Enscoe, and Smith 2014:28).

The escalation of U.S. military ground operations appeared successful until January 1968. During the Tet holiday, North Vietnamese troops with the Viet Cong launched surprise attacks in more than 100 cities in South Vietnam. Although the Communists did not hold the cities long, the offensive was a “decisive public relations disaster” for the U.S. The U.S. public began to question whether the conflict in Vietnam was winnable, while military leaders projected that the war might be protracted (Hartman, Enscoe, and Smith 2014:39, 28, 43).

U.S. Army personnel numbers deployed to Vietnam are tabulated in Table 3.1. The table illustrates that Army deployments reached 116,000 in 1965 and increased to over 300,000 from 1967 through 1969

**Table 3.1** *Numbers of Army Personnel Deployed to South Vietnam by Year*

Year	31-Dec
1960	800
1961	2,100
1962	7,900
1963	10,100
1964	14,700
1965	116,800
1966	239,400
1967	319,500
1968	359,800
1969	331,100
1970	249,600
1971	119,700
1972	13,800
1973	250*

\* All services had less than 250

Source: United States Department of Defense 1978:Table P28.01S.

(United States Department of Defense 1978:Table P28.01S). Overall, the size of the Army surged to approximately 1.5 million in 1968 (Defense Manpower Data Center 1965-1969).

The military required approximately 900,000 new inductees per year from 1966 on to support the conflict. In 1966, volunteer enlistments numbered 66,000. The Army raised the number of draftees for military service under existing draft laws. The Army was the only service that needed to rely on the draft; the Navy and Air Force continued to recruit sufficient numbers of new inductees without the draft (Hartman, Enscoe, and Smith 2014:39). No Reserve components were mobilized (Stewart 2010:379).

New Army draftees and volunteers completed basic and advanced individual training. A selection of U.S. basic training and advanced training installations are contained in Table 3.2 (Hartman, Enscoe,

**Table 3.2 Army Training Bases Active in Vietnam War Era**

Installation	U.S. Army Continental Command	State	Basic Training	Advanced Individual Training	Family Housing Unit Deficits in 1968 for Long-Range Planning for Master Planning Purposes
Fort Ord	Sixth Army	CA	Yes	Yes-Infantry School	
Fort Gordon	Third Army	GA	Yes	Yes-Radio School, Jump School	2,010
Fort Benning	Third Army	GA	Yes	Yes-Jump School	2,580
Fort Knox	Second Army	KY	Yes	No	550
Fort Campbell	Second Army	KY	Yes	No	Not on list
Fort Polk	Fourth Army	LA	Yes	Yes-Infantry School	Not on list
Fort Leonard Wood	Fifth Army	MO	Yes	Yes-Engineer School	Not on list
Fort Dix	First Army	NJ	Yes	Yes-Army Training Center, Infantry	1,250
Fort Monmouth	First Army	NJ	Yes	Yes-Radio School	Not on list
Fort Bragg	Third Army	NC	Yes	No	880
Fort Jackson	Third Army	SC	Yes	No	330
Fort Hood	Fourth Army	TX	Yes	No	1,590
Fort Lewis	Sixth Army	WA	Yes	No	Not on list
Fort Rucker	Third Army	AL	No	Yes-Secondary Helicopter School	Not on list
Fort Sill	Fourth Army	OK	Yes	Yes-Artillery School	990

*Table 3.2, continued*

Installation	U.S. Army Continental Command	State	Basic Training	Advanced Individual Training	Family Housing Unit Deficits in 1968 for Long-Range Planning for Master Planning Purposes
Fort Sam Houston	Fourth Army	TX	No	Yes Medical Training School	Not on list
Fort Wolters	Fourth Army	TX	No	Yes-Primary Helicopter School	Not on list
Fort Bliss	Fourth Army	TX	No	Yes-Missile School	Not on list
Fort Belvoir	Second Army	VA	No	Yes-Mechanic School	460
Fort McClellan	Third Army	AL	Yes		
Fort Eustis	Second Army	VA	No	Yes-Helicopter School	Not on list

Sources: Hartman, Ellen R., Susan I. Enscore, and Adam D. Smith 2014:58-59 U.S. Army Installations. *Master Planning for Permanent Army Installations*. 1968. Appendix A.

and Smith 2014:39). The training bases received an increasing number of draftees for training. The draftees were housed in barracks, while family housing was provided to officers and higher-ranking non-commissioned officers (NCO). Shortages of family housing on installations, referred to as housing deficits, on the table were prepared in 1968 for long-range planning purposes, but many training installations were allocated family housing construction projects during the time period of this study (Appendix 2). A large percentage of the family housing deficits on the list were planned for NCOs and junior officers, who were responsible for troop training.

Richard M. Nixon campaigned on a platform to end the war and was elected president in 1969. President Nixon initiated a policy of Vietnamization, which meant the withdrawal of U.S. troops and the transfer of responsibility for the war effort to the government of South Vietnam. The plan called for increasing the capability of the South Vietnamese military, while withdrawing U.S. troops. The number of U.S. troops in Vietnam decreased by the end of 1969 and the drawdown accelerated by the early 1970s (see Table 3.1).

The Vietnam peace accords were signed on 27 January 1973 (Holland 1996:14). All combat troops were withdrawn from South Vietnam by June 1973 (Hartman, Enscore, and Smith 2014:44).

## **President Nixon's Administration**

Military strategy under the President Nixon's administration placed greater emphasis on nuclear capabilities and encouraged allies to plan to "accept a larger share of their own defense burden, and not to depend on the U.S. to commit ground forces in limited wars in Asia, unless vital to the U.S. interests" (Stewart 2010:349). As was the case following other military actions, military budgets shrank after the Vietnam conflict. As a result, the military decreased in personnel numbers and reorganized. President Nixon instituted austere budgets. Army personnel numbers were lowered to 781,316, lower than the level in 1960. A major Army reorganization occurred on 1 July 1973, when the majority of Army training schools were transferred to the new U.S. Army Training and Doctrine Command headquartered at Fort Monroe, Virginia, the former headquarters of the Continental Army Command. A new Army Forces Command assumed training responsibility for all active Army and Reserve Army forces, which were organized into three armies in the continental U.S. (Stewart 2010:379). This reorganization anticipated that active-duty Army forces would rely more heavily on Reserve Army forces in future actions. This policy became known as "Total Force" (Stewart 2010:379). As a corollary to the reorganization of the Army, another round of base closures and mission realignments also occurred (United States Congress 1973a:42).

## **All-Volunteer Force/All-Volunteer Army**

One of President Richard Nixon's campaign promises was to end the draft and establish an All-Volunteer Force (Holland 1996:6). Traditionally, the U.S. utilized the military draft during wartimes, as was the case in World War I and World War II. After World War II, the draft law was allowed to expire in 1947, but was reauthorized in 1948. Legislation was reauthorized continually throughout 1950s, the 1960s, and early 1970s. The draft officially was abolished in 1 July 1973. The All-Volunteer Force returned to the U.S. to the historical precedent of a volunteer military (Griffith 1980:61).

During the 1950s, the draft generally was accepted by the American public because of the "realities of facing up to fascism and communism" (Griffith 1980:62). The average yearly number of inductees between 1954 and 1964 was 100,000. As the U.S. engagement in Vietnam increased during the 1960s, the number of men drafted to serve increased dramatically. In 1966, 400,000 men were called

into service. A high percentage of Army draftees served in Vietnam as illustrated by the analysis that found “draftees, who constituted only 16 percent of the armed forces, but 88 percent of the infantry soldiers in Vietnam, accounted for over 50 percent of combat deaths in 1969, a peak year for casualties” (Griffith 1980:62). Civilian protests against the draft grew during the 1960s along with support to end the Vietnam War.

After Nixon was inaugurated in January 1969, he directed the newly appointed Secretary of Defense Melvin R. Laird to plan for the implementation of the All-Volunteer Force “after the expenditures of Vietnam are substantially reduced” (Holland 1996:7). The Army particularly was affected by this decision as the service most dependent on the draft for new recruits. Both the DoD and the Army undertook studies to plan the transition to the All-Volunteer Army. Commonalities among the incentives recommended in the studies included increased pay, especially for new recruits; increased recruitment activities; and “improvements to the overall quality of life on military installations” (Holland 1996:13).

Under General Westmoreland, then Army Chief of Staff, Army leadership conducted studies that revealed prevalent dissatisfaction with Army life, particularly by many junior officers and enlisted personnel. Common complaints included “low pay, which often placed military incomes (especially for young soldiers with families) below the Federal poverty level; inadequate post facilities, such as housing and recreation areas...; family separation and frequent moves, which were exacerbated... by the policy of twelve month rotations to Vietnam; mismanagement of skills, which placed soldiers in duty positions other than the one they were trained for;” and, poor leadership by senior officers (Holland 1996:20).

Recommendations to raise satisfaction with Army life, to encourage reenlistments, and to improve morale included expanded options for selecting specialties and reducing the military work week to five days. Stabilization of personnel assignments were offered “so that soldiers moved less often and remained in duties for which they were trained and suited”. Other options included improving family medical and dental care and outsourcing military kitchens, maintenance, and cleanup to civilian contractors (Holland 1996:21, 35).

During FY 1971 and FY 1972, the Army conducted a field test to experiment with measures “to reduce unnecessary irritants and improve the soldier’s daily life” at three installations: Fort Benning, Georgia, the home of the U.S. Army Infantry School; Fort Ord, California, the site of a major Army training center; and Fort Carson, Colorado, the home of a mechanized infantry division (Holland 1996:32-33). Strategies identified from this field test included ending morning reveille formations, ending nightly bed checks in barracks, allowing 3.2 percent beer in barracks and in mess halls, serving “short order” menus in mess halls, extending mess hall hours on weekends, setting the military work week at 5 days, abandoning Saturday morning inspections, and expanding on-post recreational facilities. Strategies for raising the satisfaction of military families included expanded services, such as longer hours at post exchanges and commissaries, and improving access to medical and dental care (Holland 1996:33, 34, 35).

Changes to facilitate an All-Volunteer Army also led to physical changes at installations. The Army began an extensive renovation program to replace traditional open barracks with “college dorm”-like facilities. The Army also initiated the Army Adequate Housing Program to address bachelor officer and family housing deficits. The program first focused on “the junior enlisted ranks where the Army most needed to improve its image and its quality of life” (Holland 1996:36).

The experimental program was expanded to 13 additional Army installations during 1971 and 1972. The successful programs were adopted Army-wide on 30 June 1972 (Holland 1996:36). On 27 January 1973, on his last day in office, Secretary of Defense Laird announced that “the Armed Forces henceforth will depend exclusively on volunteer soldiers, sailors, airmen and marines. The use of the draft has ended” (Holland 1996:14).

## **Overview of Army Programs for On-Post and Off-Post Family Housing**

Several programs initiated after World War II contributed directly to the Army’s family housing inventory or provided tools to access off-post family housing. These earlier programs influenced strategies applied in the Vietnam War Era.

Before World War II, construction of military family housing typically was accomplished through targeted annual congressional appropriations or, during the late 1930s, through emergency relief funds

overseen by the Public Works Administration and the Works Progress Administration. The Lanham Act of 1940 (Public Law 849) and the Wherry (Public Law 81-211) and Capehart (Public Law 345) programs of the 1950s added significant numbers of family housing units to the Army's family housing inventory. During the 1950s, the Army began to supplement on-post family house with off-post civilian units through several programs. These programs included the Federal Housing Administration's (FHA) 809 and 810 programs, as well as the lease of private sector housing. Drawing upon local private sector housing for military use was seen as engendering community support.

The Lanham Act was enacted in 1940 in direct response to World War II. The need to house defense workers and military personnel engaged in national defense activities in regions of the country with severe housing shortages provided the impetus for the legislation. Per unit cost limits were established under the legislation. The land on which Lanham Act housing was constructed was owned by the Federal government. The program concluded at the end of the national emergency, but Lanham Act housing remained in the Army's family housing inventory into the 1960s (R. Christopher Goodwin & Associates, Inc. 2003:4-2).

Following the end of World War II, the United States quickly demobilized; however, the peacetime Army was appreciably larger than the 1930s. In 1955, the Army was 2.1 times as large as it was in 1940 and the Army was 3.2 times larger in 1960 than in 1940. Several factors contributed to this increased size, including the role of the Army in supporting new U.S. missions worldwide as the Cold War unfolded. One justification for the larger peacetime Army was the retention of a highly-trained, deployable force to support the containment of Communism (Beard 2003:9). Another contributing factor was the increased number of married career personnel in the Army. Family housing was viewed as a major factor in Army personnel retention. In order to maintain its highly-trained workforce, the Army began to offer family housing to a larger segment of its married officer and enlisted workforce (R. Christopher Goodwin & Associates, Inc. 2003:3-5).

Enacted in 1948, Public Law 626 attempted to solve the family housing shortage that had arisen immediately following World War II. This legislation differed from earlier laws in three major ways. Per unit cost limits were repealed in favor of cost limits based on unit size. Secondly, the legislation allowed for the construction of family housing units for enlisted personnel. Prior to enactment of the

legislation, enlisted personnel were prohibited from bringing their families with them. Finally, the law eliminated the requirement for the Secretary of War's prior approval for the construction of any unit over \$5,000. The legislation strongly encouraged the construction of multi-family units (R. Christopher Goodwin & Associates, Inc. 2003:3-20).

A nationwide housing shortage in the civilian market and a larger number of soldiers eligible for family housing compelled the Army to engage in a nationwide, high-volume campaign to construct new housing during the 1950s. The Wherry and Capehart housing programs were the culmination of the Army's efforts to provide family housing. The Wherry (1949-1956) and Capehart (1955-1962) programs relied on the private sector to construct family housing units that would be later be turned over to the military.

Under the Wherry act (Public Law 81-211) sponsors, or private-sector developers, constructed housing on private or leased land. Sponsors were required to contribute equity into their projects. In addition, the FHA guaranteed the mortgages on Wherry housing up to 90 per cent of the replacement costs, up to a value of \$8,100. The provisions of the Wherry program originally required that the builders own, maintain, and manage the units. Sponsors' efforts to maximize their profits ultimately contributed to the demise of the program (R. Christopher Goodwin & Associates, Inc. 2003:4-14). In 1962, the total number of Wherry housing units housing military personnel was calculated at 83,722. As a result of legislation, the DoD was required to purchase Wherry housing prior to constructing either Capehart or receiving congressional appropriated family housing units. By February 1962, the DoD acquired 71,798 units as of February 1962 and planned to acquire an additional 7,642 units by 30 June 1963 (United States Congress 1962a:4608).

Problems with the Wherry act led Congress to enact Capehart legislation (Public Law 345) that addressed the issues raised under the Wherry program (R. Christopher Goodwin & Associates, Inc. 2003:4-14). Like the Wherry program, housing constructed under the Capehart program was built by private-sector developers. However, in contrast to the Wherry program, Capehart projects were constructed entirely on government land, and the units were turned over to the Federal government upon completion (R. Christopher Goodwin & Associates, Inc. 2003:4-16). Another major difference between the Wherry and Capehart programs involved financing. Under the terms of the Capehart

legislation, the FHA provided 25-year mortgages that covered 100 per cent of construction costs. Housing was constructed under the Capehart program at an average cost limit of \$16,500 per unit and were larger than their Wherry counterparts (R. Christopher Goodwin & Associates, Inc. 2003:4-19-4-21). In January 1962, 88,477 family housing units had been completed; 23,655 were under construction, and 2,733 were in design. By its expiration on 1 October 1962, Capehart legislation added 114,865 new units of military family housing at a total cost of \$1.88 billion and an average per unit cost of \$16,776 (United States Congress 1962a:4607).

A limited number of housing units were built through direct appropriations during the 1950s and early 1960s. Funding under Military Construction, Army supplemented the number of units built under the Wherry and Capehart programs. In general, housing funded through direct congressional appropriations had greater average per-unit construction ceilings, larger footprints, and were of better quality than the units constructed under Capehart. After the Capehart program expired, construction of family housing through the end of the twentieth century was funded through the annual Federal appropriations process (R. Christopher Goodwin & Associates, Inc. 2003:4-23).

To increase the number of family housing units, the DoD maintained an active program to upgrade inadequate quarters in their housing inventory. The Inadequate Public Quarters Program<sup>1</sup> was authorized by Congress in 1957. Units designated as inadequate “were required to be improved to standards of adequacy, demolished or sold, or converted to other than family housing use” (United States Congress 1962a:4608). By 1962, the military departments had reviewed 105,359 family housing units and found 53,847 units adequate, while the remaining units were designated inadequate. The deadline for improving or disposing of inadequate housing units was established as 1 July 1960. Through subsequent legislation, the program was extended to 1 July 1965 (United States Congress 1962a:4608). Units constructed under the Lanham Act in 1940 often were classified as inadequate by 1960.

The DoD also experimented with a program called “Tactical Leasing” to secure up to 7,500 houses in the civilian market for use as public quarters. This program was authorized through the general provisions of the annual military construction authorization. The leasing program was used to provide housing to Army personnel staffing Nike missile sites located in metropolitan areas where private

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<sup>1</sup> Public quarters is another term to describe family housing units owned and controlled by the military.

rentals were available, but unaffordable to junior officers and NCOs. The Army was the primary beneficiary of this program. By the end of 1961, the Army leased 4,488 units (United States Congress 1962a:4607). In 1962, the word “tactical” was removed from the authorizing language, which essentially opened the leasing program to any military installation (United States Commission on Civil Rights 1963:28). Congress controlled the number of leases available to the Army each year. In 1967, Congress restricted the ability of Army commanders to lease private houses in the community to supplement on-post housing. As a congressional staffer explained, “we found they [the Army] were leasing houses in areas where we had refused to build [family housing] because they didn’t need them” (Ludvigsen 1970:29).

The DoD also utilized two FHA programs: Section 809 and Section 810. Section 809 was created under Public Law 84-574 in June 1956. Section 809 allowed FHA to “insure mortgages for homes purchased by essential civilian employees...upon appropriate certification [of need] by the Department of Defense, without the necessity for the normal determination of economic soundness” (United States Congress 1962a:4607). The type of housing was used to support the construction of off-post housing for long-term civilian employees assigned in locations such as Redstone Arsenal, Alabama, and Fort Huachuca, Arizona. By the end of December 1962, the DoD certified 7,055 units for development and guaranteed the majority of the mortgages issued for housing under the Section 809 program (United States Congress 1962a:4607).

Housing provided under Section 810 as amended and included in the Housing Act of 1961 (Public Law 87-70) was another component of the DoD’s overall family housing strategy. This legislation did not require housing to be built by the military on military land. Section 810 made “provision for financing, under FHA-insured mortgages, off-post private rental housing for military and essential civilian personnel” (United States Congress 1962a:4608). Compliance with the provisions outlined in Section 810 made FHA mortgage guarantees possible for housing in areas adjacent to military installations. Without such compliance, FHA was unable to “make a determination of economic soundness” (United States Congress 1962a:4608). Amendments to Section 810 enacted in June 1961 eliminated the requirement of the DoD certification of need; the FHA commissioner no longer required the Secretary of Defense to guarantee the FHA Mortgage Insurance Fund against loss. Those changes meant the

“line item authorization of 810 housing is no longer required” (United States Congress 1962a:4608). As a result, builders and realtors applied for insured mortgages for housing projects located near military installations. The DoD’s role was to apprise FHA on its family housing requirements (United States Congress 1962a:4608).

## **Vietnam War Era Family Housing Policy**

Despite the successful housing programs of the 1950s, the Army and the DoD still reported a shortage, or deficit, of housing for eligible military families. A deficit of family housing units was reported continuously throughout the time period of this study. In 1962, the number of DoD-owned or controlled family housing units was estimated at 375,693, which represented an acquisition cost of \$5 billion (United States Congress 1962a:4021; United States Commission on Civil Rights 1963:3). Under Secretary of Defense Robert McNamara, military family housing was thoroughly examined, analyzed, and reorganized. The DoD adopted a general policy to rely “to the maximum extent possible on the civilian community to provide housing for our service families” (United States Congress 1963:178). The policy recognized that the numbers of adequate private-sector housing had increased greatly in the years since World War II, and that many military installations were located within easy access of expanded civilian housing markets (United States Congress 1963:178). The civilian housing market was recognized as an opportunity to reduce the need for the DoD to construct family housing on-post at its installations. Under DoD housing policy, the construction of new housing on military installations was not the first option considered in addressing military family housing shortages (United States Congress 1965b Part 4:309; 1962a:4597). The policy provided a framework for a “flexible response” to the challenge of providing sufficient numbers of adequate family housing units for military personnel.

## **Demographics of the Army During 1963 to 1975**

Three major factors directly influenced the demand for Army family housing during the Vietnam War Era: the overall size of the standing Army, the number of married Army personnel with accompanying families, and the greater numbers of grade/rank levels authorized to receive family housing. Each of these topics is discussed below.

### *Size and Diversity of the Standing Army*

Military personnel statistics reveal that during the 1960s the Army maintained the largest standing Army in American history outside of periods of declared war (Table 3.3). The Cold War demanded a highly trained armed force in constant readiness to deploy in response to military threats, and to defend U.S. interests and the interests of U.S. allies. In addition, the sophisticated technology of U.S. weaponry, including nuclear missiles, required highly-trained personnel ready for deployment. This constant military readiness paradigm replaced historic war-time mobilization patterns where training and deployment of a citizen Army was accomplished over a year or two.

The number of Army personnel in 1963 totaled 974,070 and comprised 108,302 officers and 865,768 enlisted personnel. This man-power was approximately 382,000 persons greater than the Army in 1950. The numbers of Army personnel surged to over 1 million during FY 1966 through FY 1971, the years that the U.S. was heavily involved in the conflict in Vietnam. During FY 1972, Army personnel numbered 807,985. The Army downsized from FY 1973 through FY 1975 with the withdrawal of American troops from Southeast Asia; personnel figures reached levels lower than FY 1960 by FY 1975 (Defense Manpower Data Center 1960-1975). Table 3.4 presents the personnel totals by officer and enlisted grade levels for selected years. The trend illustrated in Table 3.4 reveals that the numbers of Army personnel in most grade levels grew substantially during the years when the Army was heavily involved in Vietnam, but declined during the 1970s. By 1975, the numbers of Army personnel in most grade levels fell to a level below the numbers for FY 1963. The exceptions were Captains and Enlisted grades E-09, E-08, E-07, E-04, and E-02 (Defense Manpower Data Center 1963-1975).

During the period between 1963 and 1975, the composition of the Army became more diverse. More African Americans and women served in the Army. In FY 1962, 106,753 African Americans served in the Army. African American service personnel included 3,150 officers, representing 3.2 percent of the total number of Army officers, and 103,603 enlisted personnel, representing 12.2 percent of total numbers of Army enlisted personnel (President's Committee on Equal Opportunity in the Armed Forces [President's Committee] 1963:8-9). Among the higher commissioned officer ranks, African Americans included 6 colonels, 117 lieutenant colonels, and 424 majors. The largest number of African American officers served as captains (n=1,532), first lieutenants (n=650),

Table 3.3 Army Personnel Statistics for Overall Army Size, African Americans, and Women

Year	Army Officers*	Army Enlisted	Total	African American Army Officers Percentage	African American Army Officers	African American Army Enlisted Percentage	African American Army Enlisted	African American Total (1)	Percentage of Total African Americans in Army	Women Army Officers	Women Army Enlisted	Women Army Total	Total Women Percentages
1940	18,326	250,697	269,023										
1950	72,566	518,921	591,487										
1960	101,236	770,112	871,348							4,263	8,279	12,542	1.4%
1962 (P)	116,050	948,597	1,064,647	3.20%	3,150	12.20%	103,603	106,753	10.00%	4,353	8,721	13,074	1.2%
1963	108,302	865,768	974,070							3,852	8,292	12,144	1.2%
1964	110,870	860,514	971,384	3.30%	3,659	11.80%	114,623	118,282	10.90%	3,772	7,958	11,730	1.2%
1965	112,120	854,929	967,049							3,806	8,520	12,326	1.3%
1966	117,786	1,079,682	1,197,468							4,143	9,179	13,322	1.1%
1967	143,517	1,296,603	1,440,120							4,742	9,741	14,483	1.0%
1968	166,173	1,401,727	1,567,900	3.30%	5,484	12.60%	197,555	203,039	11.50%	5,096	10,711	15,807	1.0%
1969	172,590	1,337,047	1,509,637							5,157	10,721	15,878	1.1%
1970	166,721	1,153,013	1,319,734	3.40%	5,669	13.50%	178,164	183,833	12.10%	5,248	11,476	16,724	1.3%
1971	148,950	971,872	1,120,822	3.60%	5,362	14.30%	160,278	165,640	12.90%	5,040	11,825	16,865	1.5%
1972	121,290	686,695	807,985	3.90%	4,730	17.00%	137,357	142,088	15.00%	4,422	12,349	16,771	2.1%
1973	116,205	681,972	798,177	4.00%	4,648	18.40%	146,865	151,513	16.30%	4,279	16,457	20,736	2.6%
1974	105,998	674,466	780,464	4.50%	4,770	21.30%	166,239	171,009	19.00%	4,388	26,327	30,715	3.9%
1975	102,992	678,324	781,316	4.80%	4,944	22.20%	173,452	178,396	19.90%	4,594	37,701	42,295	5.4%
1976	98,647	677,725	776,372										
1980	98,717	673,944	772,661										

\* Officer totals exclusive of officer candidates

Sources: U.S. DoD 1990:78-79; 87-88; Defense Manpower Data Center 1954-1980; Holland 1996:72-73; President's Committee 1963:8-9; Moskos 1986:38.

1) All percentages for African American members serving in the Army are accurate. The numbers of African American officers, enlisted personnel, and total number of African Americans are estimates calculated by R. Christopher Goodwin &amp; Associates, Inc. based on the overall totals of Army officers and enlisted personnel multiplied by the percentages of African Americans.

**Table 3.4 Army Personnel Totals by Rank/Grade for Selected Years**

RANK	YEAR									
	6/30/1963	6/30/1965	6/30/1967	6/30/1969	6/30/1971	6/30/1973	6/30/1975			
<b>TOTAL</b>	<b>975,916</b>	<b>969,066</b>	<b>1,442,498</b>	<b>1,512,169</b>	<b>1,123,810</b>	<b>800,973</b>	<b>784,333</b>			
<b>OFFICERS - Total</b>	<b>108,302</b>	<b>112,120</b>	<b>143,517</b>	<b>172,590</b>	<b>148,950</b>	<b>116,205</b>	<b>102,992</b>			
General of Army	3	2	2	1	1	1	1			
General	13	14	14	18	15	11	11			
Lieutenant General	38	41	42	44	45	48	32			
Major General	200	198	202	199	197	194	185			
Brigadier General	252	250	257	257	255	245	229			
Colonel	5,127	5,205	5,743	6,537	6,008	5,485	4,836			
Lieutenant Colonel	12,371	12,434	14,841	16,806	14,607	12,285	11,056			
Major	17,111	17,193	20,470	25,205	22,302	18,949	17,119			
Captain	29,483	30,032	34,156	38,796	49,130	36,337	33,578			
1st Lieutenant	15,560	16,609	18,685	33,267	24,010	14,917	12,220			
2nd Lieutenant	18,464	19,834	32,981	27,706	13,691	12,722	10,489			
Chief Warrant Officer W-4	1,153	1,153	1,723	1,779	1,621	1,411	1,334			
Chief Warrant Officer W-3	2,672	2,702	3,014	3,304	3,219	3,541	3,327			
Chief Warrant Officer W-2	4,349	4,631	4,019	11,890	11,076	8,228	6,589			
Warrant Officer W-1	1,506	1,822	7,368	6,781	2,773	1,831	1,986			
<b>ENLISTED - Total</b>	<b>865,768</b>	<b>854,929</b>	<b>1,296,603</b>	<b>1,337,047</b>	<b>971,872</b>	<b>681,972</b>	<b>678,324</b>			
E-9	2,786	4,095	5,356	5,557	4,546	3,977	3,711			
E-8	11,189	11,867	17,357	18,252	15,687	13,149	12,682			
E-7	38,492	36,556	53,720	59,655	58,392	48,658	45,739			
E-6	81,362	81,602	102,162	108,696	94,725	76,298	72,215			

Table 3.4, continued

RANK	YEAR									
	6/30/1963	6/30/1965	6/30/1967	6/30/1969	6/30/1971	6/30/1973	6/30/1975			
E-5	141,984	141,372	177,169	214,151	181,068	105,013	108,286			
E-4	146,889	148,269	339,699	365,467	266,825	127,609	167,048			
E-3	290,805	260,055	299,982	190,686	129,900	102,585	104,925			
E-2	75,990	72,094	161,209	123,345	74,958	162,139	104,295			
E-1	76,271	99,019	139,949	251,238	145,771	42,544	59,423			
<b>OFFICER CANDIDATES - Total</b>	<b>1,846</b>	<b>2,017</b>	<b>2,378</b>	<b>2,532</b>	<b>2,988</b>	<b>2,796</b>	<b>3,017</b>			
Cadets United States Military Academy	1,846	2,017	2,378	2,532	2,988	2,796	3,017			
Midshipmen United States Naval Academy										
Cadets United States Air Force Academy										
Naval Aviation Cadets										
Naval Enlisted Officer Candidates										
Marine Aviation Cadets										
Aviation Cadets										

Compiled from data prepared by the Defense Manpower Data Center

Note: This table includes Officer Candidates, which are not included on manpower totals on Table 3.3.

and second lieutenants (n=421) (President's Committee 1963:8). Enlisted personnel serving in the higher ranks of NCOs, in descending order, included E-09 (n=76), E-08 (n=586), E-07 (n=3,143), E-06 (n=10,496), and E-05 (21,896). African Americans accounted for 21,113 of the lowest NCO rank of E-04. In the E-01 through E-03 enlisted levels, African Americans numbered 45,677 (President's Committee 1963:9). More African American served in the Army than in all other services combined (President's Committee 1963:9).

Percentages of African Americans serving in the Army were collected for the years 1964, 1968, and 1970 through 1975 (Holland 1996:73) (see Table 3.3). The percentages of African Americans serving in the Army gradually increased over the Vietnam War Era. By 1975, African Americans comprised 19.9 percent of the total number of servicemen in the Army. African American commissioned officers comprised 4.8 percent of the total Army officers, while African American enlisted personnel numbered 22.2 percent of all enlisted service personnel (Holland 1996:73).

Women serving the Army during the 1960s rose in numbers from 12,542 in fiscal year (FY) 1960 to 15,807 in FY 1969. Women accounted for approximately 1.2 percent of Army personnel (Holland 1996:72) (see Table 3.3). The numbers of women serving in the Army continued to rise throughout the early 1970s, reaching 20,736 (2.6 percent) by FY 1973. Between FY 1973 and FY 1974, the number of women in the Army reached 30,715 (3.9 percent). By FY 1975, 42,295 (4.5 percent) women served in the Army (Holland 1996:72).

### ***Marriage Rates and Army Family Size in the Army from 1963 to 1975***

Prior to World War II, officers and senior NCOs typically were the only married personnel serving in the Army; an estimated 70 to 75 percent of enlisted personnel and junior officers were unmarried (United States Congress 1963:176). By the 1960s, marriage rates in the military mirrored those found in the civilian sector. By December 1954, 37.2 percent of military personnel in the Armed Forces were married. By September 1961, the percentage was 49.5, reflecting an increase of 78,000 additional married personnel. By 1963, married personnel in the military accounted for 50.2 percent of those serving (United States Commission on Civil Rights 1963:2).

The total number of married men in all services worldwide was over 1,300,000 in September 1962 (United States Commission on Civil Rights 1963:2-3). In June 1962, the DoD estimated that 983,640 married military personnel and their families were eligible for military housing (United States Commission on Civil Rights 1963:15). The Army's number of married personnel with families numbered 301,500 in 1963 (United States Congress 1963:166). By 1965, the number of Army married personnel with families eligible for family housing rose to 351,197 (United States Army 1965; United States Congress 1965a Part 2:12; 1965b Part 4:123). "While not all...married men reside with their families at or near military bases or even desire to do so, this figure does indicate [in comparison to the number of government-controlled housing units] the magnitude of the total family housing needs of the services" (United States Commission on Civil Rights 1963:2). By the end of FY 1963, DoD-owned or controlled 365,260 military family housing units. A great disparity existed between the number of military families eligible for housing and the number of housing units in the DoD inventory (United States Congress 1964:1047).

A 1962 congressional hearing reported that the number of married DoD military personnel rose while the overall DoD personnel numbers decreased from 3.1 million to 2.5 million from 1954 to 1962 (United States Congress 1962a:4598-4599; 1963:176). Married military men were characterized as those who "occupy the key positions and who possess the professional, leadership, and technical skills essential to a modern Military Establishment" (United States Congress 1963:1976). The upward trend in the number of married military personnel with families within the Army population was not anticipated to decline; consequently, "while force levels remain relatively static, housing requirements continue to grow" (United States Congress 1962a:4598).

During the years 1965, 1968, and 1969, the percentage of married personnel in the military fluctuated between 48 and 46 percent. The perceived "drop" in the marriage rate for military personnel was attributed to a greater number of overall personnel, including unmarried inductees serving during the Vietnam conflict. By 1970, marriage rates among military personnel surpassed 51.5 percent and reached 56.9 percent by 1974 (Goldman 1976:123-124).

Marriage rates differed between officers and enlisted personnel. In 1961, 79.4 percent of Army officers were married; that percentage was down from a high of 88.1 percent in 1957. Throughout the 1960s, approximately 80 percent of Army officers were married. By 1974, the 83.5 percentage of Army officers were married. In contrast, 40.4 percentage of enlisted Army personnel were married in 1961. By 1971, marriage rates for all enlisted Army personnel rose to 50.9 percent and remained approximately at that level between 1972 and 1974 (Goldman 1976:126). While all officers were eligible for family housing, only certain grades of enlisted personnel qualified.

A survey conducted in 1974 among Army personnel revealed that 57 percent of Army personnel were married. Eighty-four percent of commissioned officers were married, and fifty-three percent of all enlisted personnel were married. More than 90 percent of officers in grades O-04 through O-06 and W-02 through W-04s were married. Between eighty and ninety percent of officers in grades W-01 and O-03 were married. For junior officers, 73 percent of grade O-02s were married and 58 percent of O-01s were married. For enlisted personnel, 93 percent of grade E-09s were married; between 85 to 89 percent of E-07s and E-06s were married; and 72 percent of E-05s were married. The percentage of married E-04s was 41 percent, while married E-01s through E-03s ranged between 20 and 30 percent for each grade (United States Congress 1975a Part 2: 912). Eligibility requirements for family housing are discussed below.

While the marriage rate in the military rose, marriage ages fell and families included more children (United States Congress 1962a:4598). The percentage of military families with three children more than doubled between 1958 and 1963 (United States Congress 1962a:4598-4599; 1963:176). Statistics for 1955 reveal that 12.60 percentage of families included three or more children. The percentage rose to 27.8 in 1961 (United States Commission on Civil Rights 1963:2). The increasing size of military families was reflected in greater demand for family housing units with more bedrooms.

As the era progressed, statistics suggested that the size of the military family decreased. By 1974, the military family averaged 2.74 dependents, a smaller number than for the time period 1960 to 1964, when the average was 2.99 dependents (Goldman 1976:125). These average numbers of persons per households were slightly lower than in the civilian population (see Table 4.1 in Chapter 4).

### *Army Grades Eligible for Family Housing*

The focus of the DoD family housing program was to provide family housing to married career personnel who met eligibility requirements (United States Congress 1965b Part 4:337). At the beginning of the 1960s, military family housing was afforded to married career flag and general officers classified as senior grade officers (Level O-06 and above), field grade officers (Levels O-05 and O-04), and company grade and warrant officers (Levels O-03, O-02, O-01, W-04, W-03, W-02, and W-01). Married enlisted personnel eligible for government family housing included the senior NCOs (Levels E-09, E-08, E-07, E-06, and E-05) and enlisted personnel in Level E-04 with seven years military service (United States Congress 1962a:4600, 4606; Defense Supply Agency 1974 Attachment 2, Enclosure 1). The E-04 Level included corporals and enlisted technical specialists. Married enlisted personnel in grades E-01 through E-3 level and E-04 level with less than seven years of service were not eligible for family housing.<sup>2</sup>

The eligibility requirements for family housing for lower ranking enlisted personnel were discussed continually in congressional hearings. As early as 1962, expanding family housing to include E-04s with less than seven years of service was proposed (United States Congress 1962a:4600). These discussions extended family housing to include enlisted personnel at the E-04 Level with four years of service by FY 1964 (United States Commission on Civil Rights 1963:15; United States Congress 1965a Part 2:13; Part 1:34). In 1972, married enlisted personnel in the E-04 level with between 2 and 4 years of military service with a total commitment of six years of military service were included the group eligible for family housing (United States Congress 1971 Part 1:115; Defense Supply Agency 1974 Attachment 2, Enclosure 1). In FY 1973, the DoD broadened their program planning for military family housing to include all married E-04s, although legislation to make this official had yet to be introduced in Congress. Including all E-04s added approximately 53,000 eligible families to the DoD calculations for military family housing requirements (United States Congress 1972a:45-46). In FY 1974, the military personnel appropriations included a funding request to cover entitlements to all E-04s with two years of service (United States Congress 1973a:130).

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<sup>2</sup>The personnel level designations of O for officer, W for warrant officer, and E for enlisted were in use by 1954 and remained in effect throughout the Vietnam War Era. The levels represented rank, grade and pay levels for military personnel (Defense Manpower Data Center 1954-1975).

During the early 1970s, the eligibility requirements for on-post housing again were discussed during congressional hearings as the military transitioned to an All-Volunteer Force. One goal of the DoD's family housing program under Defense Secretary Laird was to assure adequate housing for *every* (emphasis added) married military service person and their families (United States Congress 1971 Part 1:108). As of 30 December 1971, the DoD reported 1,101,505 military families were eligible for family housing and 236,976 families were ineligible (United States Congress 1971 Part 1:106). The DoD owned or controlled approximately 365,000 family housing units (Ludvigsen 1970:26). Estimated numbers of eligible military families were projected to decrease by 1976 to 820,709 eligible families and to 195,975 ineligible families based on estimates of lower troop strength (United States Congress 1971 Part 1:106). Despite the projected decreases, greater eligibility of formerly ineligible families increased the overall family housing deficit.

In a hearing before Congress for the FY 1972 budget, Mr. Filiakas, Director for Housing Programs, Office of the Deputy Assistant Secretary of Defense (Installations and Housing), testified that the DoD was considering the eligibility of all married military personnel with a career commitment in its future planning requirements for on-post family housing. The discussions were preliminary since, at that point in time, the decision to expand housing eligibility also impacted eligibility for other benefits. Expanding eligibility for family housing for programming purposes was an administrative decision, but including previously ineligible families for other benefits required congressional legislation (United States Congress 1971 Part 1:115). Mr. Filiakas concluded: "So we are working together to attempt to broaden this base of eligibility. We feel if we are going to move toward a zero draft concept, and an All-Volunteer Force, that this line of demarcation between eligibility and ineligibility should be erased" (United States Congress 1971 Part 1:115).

Discussions on whether to include married E-02s and E-03s with families eligible for family housing occurred during the appropriations hearings for the FY 1973 Army family housing program (United States Congress 1972a:129). The addition of these two groups would increase the number of family housing units needed. At the end of 1975, E-02s and E-03s with families remained ineligible for military family housing (United States Congress 1975a:912).

## **Secretary of Defense McNamara Reorganizes Military Family Housing Program**

In October 1961, Secretary of Defense McNamara convened the Advisory Panel on Military Family Housing Policies and Practices to address concerns from Congress and to simplify previous family housing efforts. Panel members included the Deputy Secretary of Defense Gilpatric, prominent housing experts in the public and private spheres, and the FHA Commissioner (United States Congress 1962a:4598). The Advisory Panel was tasked with assessing the following issues associated with the housing problem:

- Pay and basic allowance for quarters (BAQ),
- Organization and management,
- Requirements,
- Financing/Budgeting, and
- Standards (United States Congress 1962a:4598).

The Advisory Panel “recommended improvements in the requirements planning procedure, and also made a finding that there currently [i.e., in 1962] exists a large unfilled deficit for adequate Government-owned housing approximating 70,000 units. This requirement stems primarily, as previously noted, from the steadily increasing marriage percentage, as well as the increasing size of service families” (United States Congress 1962a:4598).

As a result of the work of the Advisory Council, Secretary of Defense McNamara’s team at the DoD conducted a review of the entire family housing program. The team adopted a new method to calculate military housing requirements, rigorously reviewed all requests for new military housing, and developed a plan to provide housing to qualified military personnel for a five-year period (United States Congress 1963:178). McNamara’s team sought to apply principles of “sound and economic management to the business of military family housing” (United States Congress 1962a:4606).

### *Pay Raises and Basic Allowance for Quarters*

One recommendation made by the Advisory Council was the need to increase military pay and to increase the BAQ for persons in off-post housing. The BAQ rates initially were established in 1949 and were set “at 75 percent of housing costs of civilians with comparable incomes” (United States Congress 1984:1). The BAQ was forfeit to military personnel living in government-owned, on-post housing. Military pay and BAQ both affected the need for on-post housing. One criterion used to identify installation need was housing affordability in the local community. Service member income levels frequently made it difficult to find affordable housing in the community. Increasing pay and the BAQ so that military members could procure off-post, private-sector housing would decrease the need for on-post military family housing.

Table 3.5 shows the officer and enlisted pay scale and the BAQ for the years 1963, 1965, 1970, and 1973 (Historical Military Pay Charts 1949 to 2022). The table shows the monthly base pay per grade and the BAQ then in effect. Annual yearly salary rates were calculated by adding the base pay and BAQ and multiplying by 12 months. In 1962, Congress increased the BAQ effective 1 January 1963; the increased BAQ rates was the first adjustment since 1952 (United States Congress 1963:176, 178; United States Congress 1962a:4599; 1962b). The new BAQ rates for 1963 are shown on Table 3.5 (Historical Military Pay Charts 1949 to 2022). The increase in the BAQ was a “more realistic quarters allowance” that allowed “more people to live in the community without economic hardship, and thus reduce the future requirements for additional Government family housing” (United States Congress 1962a:4599).

The BAQ stayed at approximately the same amount until 1971. In that year, the BAQ rates were raised by legislation to “85 percent of median housing expenses of comparable income groups” in the U.S. The 1971 BAQ rates remained the same for the next few years and were the same rates shown for 1973 in Table 3.5. Before 1971, BAQ rates for enlisted personnel were adjusted for the number of dependents (up to three) for each pay grade. After 1971, the enlisted personnel BAQ was reduced to two categories of “with dependent” or “without dependent”, consistent with the categories used to calculate the officer BAQ (Historical Military Pay Charts 1949 to 2022). The BAQ rates also were tied to military pay increases (United States Congress 1984:1).

**Table 3.5 Army Officer and Enlisted Pay Scale and Basic Allowance for Quarters (BAQ) for Selected Years**

Rand	Effective 10/1/1963			Effective 9/1/1965			Effective 1/1/1970			Effective 1/1/1973 retro to 10/1/1972		
	Basic Pay/ Monthly	BAQ/ Monthly	Annual Income	Basic Pay/ Monthly	BAQ/ Monthly	Annual Income	Basic Pay/ Monthly	BAQ/ Monthly	Annual Income	Basic Pay/ Monthly	BAQ/ Monthly	Annual Income
O-09	\$1,063.30	\$201.00	\$15,171.60	\$1,223.10	\$201.00	\$17,089.20	\$1,734.30	\$201.00	\$23,223.60	\$2,140.50	\$288.00	\$29,142.00
O-08	\$963.30	\$201.00	\$13,971.60	\$1,107.90	\$201.00	\$15,706.80	\$1,570.80	\$201.00	\$21,261.60	\$1,938.60	\$288.00	\$26,719.20
O-07	\$800.28	\$201.00	\$12,015.36	\$920.40	\$201.00	\$13,456.80	\$1,305.00	\$201.00	\$18,072.00	\$1,610.70	\$288.00	\$22,784.40
O-06	\$592.80	\$170.10	\$9,154.80	\$681.90	\$170.10	\$10,224.00	\$967.20	\$170.10	\$13,647.60	\$1,194.70	\$258.30	\$17,436.00
O-05	\$474.24	\$157.50	\$7,580.88	\$545.40	\$157.50	\$8,434.80	\$773.40	\$157.50	\$11,170.80	\$954.90	\$238.80	\$14,324.40
O-04	\$400.14	\$145.05	\$6,542.28	\$460.20	\$145.05	\$7,263.00	\$652.50	\$145.05	\$9,570.60	\$805.20	\$215.40	\$12,247.20
O-03	\$326.04	\$130.05	\$5,473.08	\$427.80	\$130.05	\$6,694.20	\$606.30	\$130.05	\$8,836.20	\$748.20	\$195.60	\$11,325.60
O-02	\$259.36	\$120.00	\$4,552.32	\$342.60	\$120.00	\$5,551.20	\$486.00	\$120.00	\$7,272.00	\$652.20	\$175.80	\$9,936.00
O-01	\$222.30	\$110.10	\$3,988.80	\$294.60	\$110.10	\$4,856.40	\$417.60	\$110.10	\$6,332.40	\$566.10	\$141.60	\$8,492.40
E-09**	\$435.00	\$120.00	\$6,660.00	\$494.70	\$120.00	\$7,376.40	\$701.40	\$120.00	\$9,856.80	\$865.80	\$184.20	\$12,600.00
E-08*	\$365.00	\$120.00	\$5,820.00	\$415.20	\$120.00	\$6,422.40	\$588.60	\$120.00	\$8,503.20	\$726.60	\$172.20	\$10,785.60
E-07	\$206.39	\$114.90	\$3,855.48	\$261.00	\$114.90	\$4,510.80	\$369.90	\$114.90	\$5,817.60	\$507.30	\$161.40	\$8,024.40
E-06	\$175.81	\$110.10	\$3,430.92	\$225.00	\$110.10	\$4,021.20	\$318.90	\$110.10	\$5,148.00	\$438.00	\$150.00	\$7,056.00
E-05	\$145.24	\$105.00	\$3,002.88	\$194.10	\$105.00	\$3,589.20	\$275.40	\$105.00	\$4,564.80	\$384.60	\$138.06	\$6,271.92
E-04 (1)	\$122.30	\$105.00	\$2,727.60	\$165.50	\$105.00	\$3,246.00	\$231.60	\$105.00	\$4,039.20	\$369.90	\$121.50	\$5,896.80
E-03	\$99.37	\$55.20	\$1,854.84	\$117.90	\$83.10	\$2,412.00	\$167.70	\$60.00	\$2,732.40	\$355.80	\$105.00	\$5,529.60
E-02	\$85.80	\$55.20	\$1,692.00	\$97.50	\$55.20	\$1,832.40	\$138.30	\$60.00	\$2,379.60	\$342.30	\$105.00	\$5,367.60
E-01	\$83.20	\$55.20	\$1,660.80	\$93.90	\$55.20	\$1,789.20	\$133.20	\$60.00	\$2,318.40	\$307.20	\$105.00	\$4,946.40

Calculations are based on Monthly Basic Pay for Ranks under 2 years, plus Basic Allowance for Quarters with one dependent, then multiplied by 12 months for annual income

Calculations do not include Basic Allowance for Subsistence

(1) Applies to E-04 with more than four years

\*E-08 Monthly pay is based on 8 years experience

\*\*E-09 Monthly pay is based on 10 years experience

Please Note: The Basic Allowance for Quarters (BAQ) was only given to persons not living in government on-post housing.

Source: Historical Military Pay Charts 1949 to 2022.

Secretary Robert McNamara discussed plans to raise military pay in a hearing in 1962. At that time, the DoD was beginning a study of military pay raises (United States Congress 1962b:21). The legislation was submitted to Congress, and Congress voted to increase military compensation in 1963 (United States Congress 1963:176). The new pay rates as enacted in 1963 are reflected on Table 3.5.

The topic of military pay raises continually was discussed in congressional hearings. Congress members often referenced the low pay for junior officers and NCOs. As an example, an E-04 corporal with more than four years' service was entitled to quarters and rations allowances. His base pay was \$210 per month (\$1,751 in 2020 dollars). That corporal was entitled to \$105 in BAQ; his rations allowance was \$1.03 per day. The maximum pay with three dependents (base salary plus rations and quarters allowances) totaled \$325 per month, or \$4,200 (\$35,018 in 2020 dollars) annually (Friedman n.d., United States Congress 1965a Part 2:22). In the words of Rep. Elford Cederberg of Michigan, a \$4,200 annual salary was a little above the poverty standard (United States Congress 1965a Part 2:22). By comparison, the per capita income in the civilian sector ranged from \$2,646 (\$16,536 in 2019 dollars) to \$4,818 (\$20,874 in 2019 dollars). For more information on civilian pay rates, see Chapter 4.

Military pay gradually increased throughout the decade of the 1960s (Historical Military Pay Charts 1949 to 2022). During the early 1970s, military pay increased due to planning for the All-Volunteer Army. The Military Pay Act of 1971 "increased military pay by an average of 40 percent and more than doubled the base pay of first term enlisted personnel (from \$149 to \$321 per month) between November 1971 and January 1972" (Holland 1996:32). The objective of higher military pay was comparability with civilian earnings (Holland 1996:32). Another substantial pay increase occurred during FY 1973 (United States Congress 1972b:85). The 1973 Army pay raise is reflected in the figures on Table 3.5. Pay raises were extended to all pay grade levels, but the most dramatic increases pay occurred at the E-01 through E-04 levels.

### ***Organizational Changes***

Family housing was restructured as an office in the DoD to centralize responsibility for all housing functions in all services. The centralized structure concentrated efforts to "improve the management of these assets" (United States Congress 1962a:4599). The family housing program was placed under

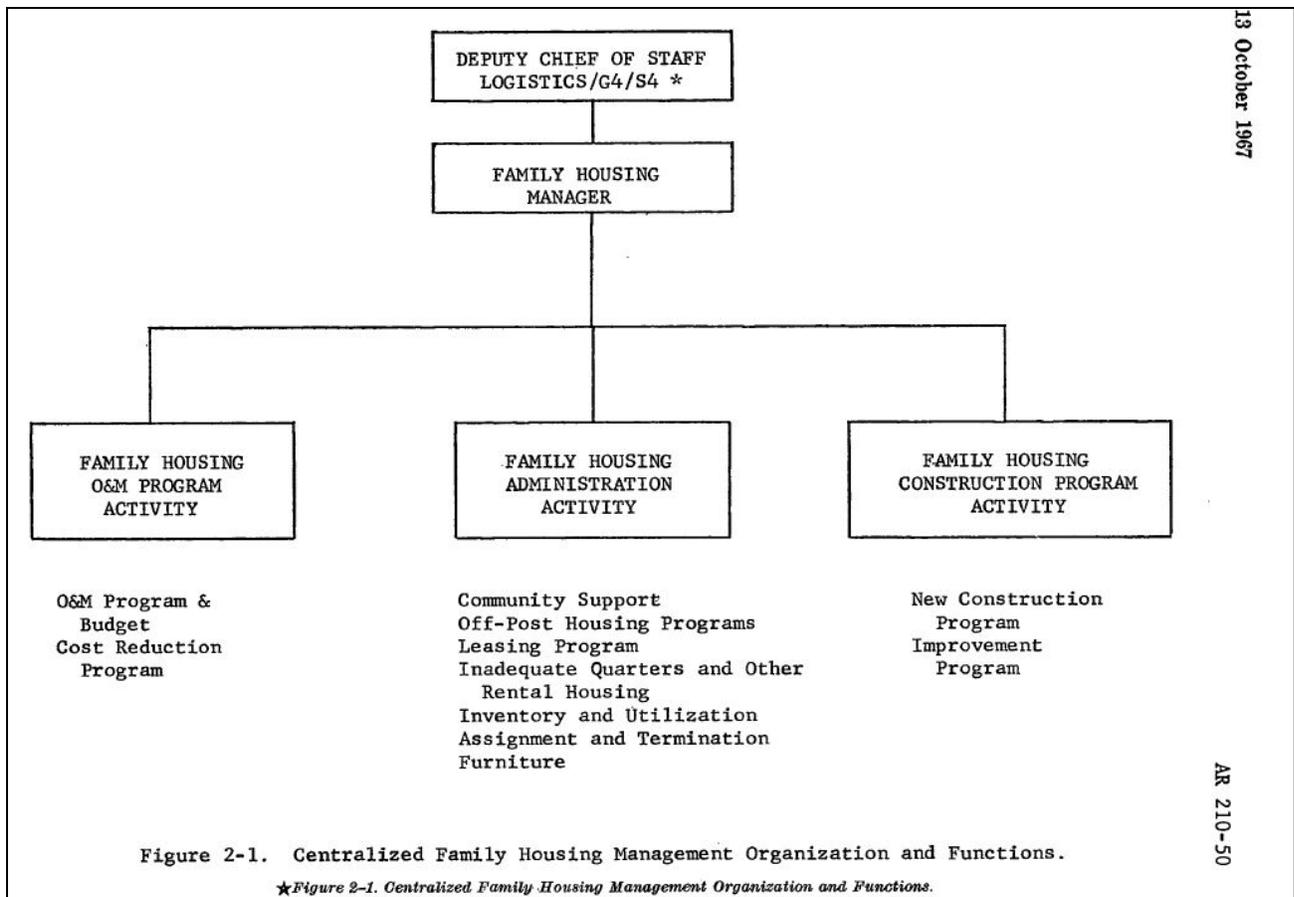
the newly appointed Deputy Assistant Secretary of Defense, Family Housing (United States Congress 1962a:4597; 1964:22, 36).

In 1962, the DoD reported that each service had “realigned its organization so that the [family housing] program is managed from a single source from departmental to installation level” (United States Congress 1962a:4599). The revised organizational structure allowed review and control of new construction, improvements, and operation and maintenance. One objective of this control was to establish “standards and criteria for the economic management of [family housing] assets” (United States Congress 1962:4599). As a corollary, new accounting and reporting procedures were implemented to provide uniform accounting for costs for the DoD family housing program (United States Congress 1962a:4599).

The Army established its centralized family housing management organization in the Army Headquarters directly under the Deputy Chief of Staff Logistics/G4/S4 (United States Department of the Army AR 210-50 1964:141 in pdf file; United States Congress 1962a:4021). By 1963, Major General William R. Shuler of the U.S. Army Corps of Engineers (USACE) served in the Office of the Deputy Chief of Staff for Logistics, on Army Family Housing (United States Congress 1963:166).

Army Regulation 210-50, *Installations, Family Housing Management* was published first in 1964 to replace a series of letters and directives related to family housing activities issued in 1962 and 1963. Army Regulation 210-50 was applicable to all installations under the Department of the Army with a family housing inventory in its real property records. Army Regulation 210-50 defined the roles of the centralized management of family housing as determining requirements; programming; budgeting; application of available resources, including financial resources; execution and monitoring of programs; preparation of technical data reports; and review and analysis of all reports and performance related to family housing (United States Department of the Army AR 210-50 1964:141 in pdf file).

The office was led by a Family Housing Manager who oversaw three branches: the Family Housing Administration Activity, the Family Housing Operations and Management Activity, and the Family Housing Construction Program Activity (United States Department of the Army AR 210-50 1964:143 in pdf file). The basic organizational structure remained the same throughout the 1960s (Figure 3.1) (United States Department of the Army AR 210-50 1964:55 in pdf file).



**Figure 3.1 Organizational Chart (1967) of Centralized Family Housing Management Organizations and Functions**  
 Source: United States Department of the Army 1964, rev. 1968.

As described in 1964 and 1967, the duties of the Family Housing Administration Activity included “community support; off-post housing programs; leasing program; inadequate quarters and other rental housing; inventory and utilization; assignment and termination; and, furniture” (United States Department of the Army AR 210-50 1964:49 in pdf file). Under the task of community support, the Family Housing Administrative Activity represented the installation commander in “frequent liaison meetings and discussions with local community officials, real estate brokers, and civilian landlords in regard to policies and rental capabilities of the local real estate market for community support housing” (United States Department of the Army AR 210-50 1964:142, 50 in pdf file).

The Family Housing Administrative Activity also maintained a list of community support housing available for rental to military personnel assigned to the installation (United States Department of the Army AR 210-50 1964:142, 50 in pdf file). The issuance of the 8 March 1963 memorandum

on non-discrimination by the Secretary of Defense led to changes in the rental housing lists maintained by the Family Housing Administrative Activity offices. Prior to that memo, housing offices maintained separate lists for rentals that accommodated only White service personnel and rentals that accommodated African Americans. After the issuance of the equal housing memo, some landlords removed their properties from the approved lists maintained by installation housing offices and offered units to White servicemen only by word of mouth. Housing offices often found that they had over-estimated the amount of unsegregated housing available in the community (United States Commission on Civil Rights 1963:18-22). The topic of desegregation is discussed more fully later in this chapter.

The Family Housing Construction Program Activity was responsible for the Army's new construction and improvement programs. This Activity supported the District Engineer in the planning and programming for long-range new construction of family housing (United States Department of the Army 1964:53 in pdf file). In conjunction with the Family Housing Administration Activity, the Family Housing Construction Program Activity conducted surveys of costs, quality, and commuting distance of existing housing in local communities adjacent to the Army post (United States Department of the Army 1964:2-6). The Activity also was responsible for site plans that were developed in conjunction with the Post Engineer Activities of the respective installation (United States Department of the Army 1964:54 in pdf file).

Major Commands also established housing offices that coordinated directly with the housing offices at installations under their command. The organization established by the Army Materiel Command in 1965 essentially followed a similar pattern with a family housing manager overseeing construction, administration, and operations and maintenance activities (United States Army Material Command AMCR 210-11 1965:Appendix I, 1-1).

In 1967, the DoD established Housing Referral Offices at military installations with more than 500 military personnel to enforce fair housing opportunities for African American military families in the civilian community. The role of the referral offices was to assist military and civilian personnel in identifying housing opportunities that did not discriminate based on race (Comptroller General of the United States 1973a:1). Despite these efforts, a General Accounting Office investigation determined

that few military installations complied with the mandate, with some military personnel renting units at properties where landlords failed to provide assurance that they were providing equal access to housing (Comptroller General of the United States 1973a:1).

The DoD internally codified instructions for the creation of referral offices and for the development of referral programs in DoD Instruction 4165.51 *Housing Referral Offices and Services* (Comptroller General of the United States 1973a:3). In accordance with the instruction, the housing offices were tasked to maintain listings of housing opportunities and obtain written assurances from the property owners that the rental was accessible to all military personnel regardless of religion, race, national origin or color (Comptroller General of the United States 1973a:4). Military personnel were required to report to the housing office prior to entering into any type of off-post housing agreement, i.e., lease or sale (Comptroller General of the United States 1973a:8).

Under the Nixon administration, the DoD office for housing was moved from its own Deputy Assistant Secretary of Defense (Family Housing) status and placed under the Deputy Assistant Secretary of Defense (Installations and Housing), an organization established in the Office of the Secretary of Defense in January 1961 (Cole et al. 1978:239). The management change was undertaken to streamline administrative management of the program using fewer personnel. However, Congress was assured that this organizational change would not adversely affect the “operation of either military construction or family housing through this consolidation” (United States Congress 1969a:38).

### ***Defining Requirements for Programming Family Housing and Review Procedures***

The DoD instituted a process to calculate family housing needs based on the total number of military families eligible to receive housing and the total number of available housing assets on post and in the local communities. The assessment of the number of military families was guided by military eligibility requirements and the “lowest predictable, sustained strength level (i.e., manpower) for the installation” (United States Congress 1962a:4606). The programming criteria regarding the construction of on-post family housing remained in effect throughout the Vietnam War Era (United States Congress 1973b:573).

The calculation of total housing assets at a specific installation included all existing and authorized government quarters and “community support deemed adequate [ i.e.] privately owned in the communities,...as well as private and Government-owned Wherry, leases, Capehart, MCA” [Military Construction –Army]. Additionally, two programs used primarily overseas, surplus commodity and rental guarantee, were included in the calculations of total housing assets (United States Congress 1962a:4627). Housing assets also included units owned by military personnel and units occupied out of the area by families not desiring to move into the area (United States Congress 1962a:4606).

Other methods used to increase an installation’s count of viable family housing assets included units added by renovating inadequate family housing into adequate family housing, and unit leases authorized by Congress (United States Congress 1962a:4600). The construction of trailer parks for service personnel who owned their own trailers and the installation of relocatable houses also were options to increase the number of available housing units in certain circumstances (United States Congress 1962a:4709).

For FY 1964, the definition of a private rental as a family housing asset was changed to “rental housing in which military personnel are acceptable as tenants. Where a landlord refuses to rent a unit to a serviceman it is not counted as a housing asset” (United States Commission on Civil Rights 1963:18). This wording was added to counteract the widespread practice of landlords renting to White servicemen and excluding African American servicemen (United States Commission on Civil Rights 1963:18-22). The impact of housing segregation in the community was not one of the hardship criteria identified in programming requirements for planning on-post family housing for installations

While private residences already owned by military personnel counted as an asset, the number of houses listed as “for sale” in a community did not qualify. The DoD did not consider encouraging service members to purchase housing as a viable option to solve the family housing problem. The DoD believed it was unreasonable to request service members to assume mortgages when the service member might be reassigned every two to three years (United States Congress 1965b Part 4: 309). However, service members were not prohibited from purchasing houses. Consequently, only rental units were considered available housing assets when community surveys were undertaken to determine installation need (United States Congress 1965b Part 4: 309).

The construction of on-post housing could still be requested under certain conditions. The DoD developed three broad criteria to determine installation need for the construction of new on-post permanent family housing:

- The requirement that select military personnel must live on the installation due to their military responsibilities;
- Isolation of the military installation where little or no community support was available; and
- Circumstances in certain situations that provided a hardship for military personnel, such as the quality of the community support, the location of civilian-market housing, and cost (United States Congress 1965b Part 4:310; 1962a:4606).

As John J. Reed, Deputy Assistant Secretary of Defense (Family Housing), summarized before Congress, “It is these exceptions which cause us [the DoD] to have a sizeable annual housing new construction program” (United States Congress 1965b Part 4:310).

Hardship circumstances included commute times between adequate housing units and the installation by privately-owned vehicle that were over 45 minutes during rush hours (United States Congress 1962a:4606, 4603). In 1964, the commuting criterion was raised to one hour as measured by the normal one-way driving time between the service member’s house to the installation (United States Congress 1964:31). Inability to secure housing within housing allowances that was within 10 miles of the installation also was determined a financial hardship by DoD. By 1967, the DoD included calculations for travel costs above 10 miles for a serviceman in determinations of financial hardship. Both these situations supported the recommendation to construct on-post housing at the installation (United States Congress 1965b Part 4:320).

The cost of the rental housing was factored into the analysis of hardship. The rental costs including utilities (excluding telephone) had to be within the BAQ or within “20 percent of the sum of base pay plus basic allowance for quarters” (United States Congress 1962a:4606, 4603). By 1964, “the criterion for determination of excess cost has been substantially increased above the basic allowance for quarters. This recognizes that a serviceman will pay rental costs above his BAQ during some tours, as well as rents less than his BAQ during other tours” (United States Congress 1964:31). By 1967, the cost criterion was revised to a “maximum allowable housing cost” calculation (United States Congress 1965b Part 4:325).

The civilian market housing unit also had to be considered adequate. The unit had to meet the following standard:

The unit must be a complete dwelling unit with private entrance, with bath and kitchen for sole use of the occupants, and so arranged that both kitchen and bedrooms can be entered without passing through bedrooms. The unit must be well constructed and in good repair, with heating and kitchen equipment provided, and it must be located in a residential area which is not subject to obnoxious fumes, industrial noises, and other objectionable features. The unit must be adequate in size. In applying the criterion, one- and two-bedroom units will generally be considered suitable for personnel with two dependents, while three or more bedroom units will be considered suitable for personnel with three or more dependents (United States Congress 1962a:4606).

In programming for the housing units required at installations, the analysis of future housing needs also applied an additional criterion, which mandated that “all adequate assets [programmed at an installation] will not exceed 90 percent of requirements” (United States Congress 1962a:4606). No installation could be authorized to meet 100 percent of on-post housing requirements. The 90 percent rule accounted for fluctuations in military personnel numbers at the installations (United States Congress 1962a:4606).

This new process for calculating the Army’s housing need, Major General William R. Shuler, Director of Installations, Office, Deputy Chief of Staff for Logistics, explained the Army’s calculations of its portion of the family housing deficit for FY 1964 as follows:

In connection with this construction program, the committee is well aware of the Army’s keen interest in the need to provide decent family housing for our military personnel. Our worldwide family housing requirement is 301,500 units. Our total assets including leases and community support amount to 227,000 units, leaving a gross deficit of 74,500 units. However, we only program to 90 percent of our family housing requirements in [the] United States, Caribbean, and Okinawa, and to 80 percent of requirements in foreign countries. Computed on this basis, our net deficit for family housing is 34,700 units. The 1,847 units for which we are seeking funds [in FY 1964], is thus less than 6 percent of the 34,700 unit deficit (United States Congress 1963:166).

The family housing deficit was based on annual housing censuses of all available family housing assets conducted on the installation level. The data generated through the housing census were compiled and used to justify requests for new family housing. The installation submitted the collected data to

their command structure (United States Congress 1965b Part 4:325-326). The commands compiled the individual installation requests, reviewed the requests, and submitted their combined request to the Chief of Staff, Army.

After review of the family housing request at the Army staff level, the combined Army request was forwarded to the Office of the Secretary of Defense. The DoD conducted another round of reviews, and the requests from all services were “subjected to careful analysis and, wherever possible, the request was reduced or deferred in order to assure the maximum use is made of private housing in the community” (United States Congress 1962a:4022). In addition, all requests for new on-post family housing units were reviewed by the FHA for concurrence with the requirement or for recommended reductions or deletions based on their knowledge about “existing or potential availability of suitable private rental housing in the community” (United States Congress 1962a:4022).

In addition, the DoD routinely consulted with the Administrator of the Housing and Finance Agency (HHFA) and the FHA to conduct studies in key regions of the U.S. to determine the availability of suitable housing in the private sector. The FHA again advised the DoD on the need for all proposed housing projects prior to the start of new construction (United States Congress 1962a:4603; 1964:15). The DoD planned by this means to “assure a coordinated approach by the Government in the housing construction field so that military requirements can be verified independently at the local level to assure the existence and magnitude of the requirement” (United States Congress 1962a:4603; 1964:15). The appropriations bills passed by Congress routinely contained provisions for continuous coordination between the DoD and HHFA and later, the Secretary of the Department of Housing and Urban Development (HUD) to ensure that on-post family housing at a specific installation was indeed needed and could not be provided by the local community (United States Congress April 1965c:15; July 1968a:52).

The DoD then prepared a combined budget for family housing for presentation to Congress. The DoD request was discussed in the military appropriation committees in the United States House of Representatives and the Senate. The committees reviewed the budget and provided a line-item authorization for individual projects (United States Congress 1962a:4021-4022). Often the House and the Senate altered the budget requests, which then were reconciled prior to presenting the final

legislation for the approval by House and Senate appropriations committees. Once legislation was finalized, both the House and the Senate voted and changes to the legislation might occur during the voting process. Typically, the DoD's annual request to Congress for new family housing was less than the numbers requested by individual services, and Congress typically authorized and appropriated money for fewer family housing units than the DoD request.

The result of implementing the decision making process for new family housing divorced housing construction requests from mission requirements and from the number of married personnel with families assigned to an installation. Community support for housing military personnel was paramount in the housing equation. Family housing units often were constructed at installations in undeveloped locations with modest civilian housing markets while military families competed for housing in the civilian housing market in more developed areas.

### *Financing and Budgeting Changes*

Beginning in 1962, the DoD implemented an integrated DoD-wide management approach to financing and budgeting that resulted in changes to the management of the inventory of housing assets. New budgeting and accounting processes were introduced to track costs for new construction and operations and maintenance on 1 July 1962 (United States Congress 1964:31; 1962a:4599). Military family housing became an independent component of the DoD military construction appropriation budget separate from other military installation construction. The family housing appropriation was further divided into three broad categories: new construction, planning, and design; operations and maintenance, including utilities; and debt payments (United States Congress 1965a Part 2:11).

The DoD initially requested a separate military housing funding account in FY 1963. All the monies appropriated for the housing program were to be maintained in this account. A revolving fund was proposed in FY 1963; Congress did not approve the proposal (United States Congress 1962a:4607, 4627, 4733). The DoD subsequently proposed "that future construction should be financed by direct appropriations and that a central military family housing fund should be established under the administration of the Secretary of Defense, out of which the costs of acquiring and provid-

ing housing will be supported. Funds would be available from the fund for new construction only after line-item authorization of individual projects by the Congress” (United States Congress 1962a:4021).

Thus, in 1963, Congress authorized a single fund to include “all of the funds for housing in a single appropriation”, which allowed both the DoD and Congress to view the military housing program in its entirety. The single appropriation streamlined the budget appropriations process, as well as implementation of the improved family housing program (United States Congress 1964:30; 1965a Part 2:10). Congress retained the authority to approve or eliminate requested new family housing construction by location and by line item in each year’s budget (Ludvigsen 1970:27).

The DoD also introduced a new internal cost accounting system for operation and maintenance funds in July 1962. This new accounting system provided measurements of cost effective operation and maintenance across the services, by type of housing, and by individual installations. The data provided the basis to establish cost ranges to cover maintenance work. Cost reductions achieved in using the operations and maintenance funds were \$6 million in FY 1963 (United States Congress 1964:31).

### ***Standardized Design***

Beginning 1 July 1964, the DoD mandated the use of a newly adopted *Design Folio for Military Family Housing* containing standardized designs for all services for the construction of new family housing units (DoD 1964). The advantage of the portfolio was standardizing design practices across all services. Prior to this direction, the Army and the Navy developed their own standards for family housing. The Army’s Quartermaster Corps applied standardized plans for repetitive building types, such as family housing. All services acquired housing through the Wherry and Capehart housing programs in the 1950s that were standardized in accordance with requirements of the respective programs.

The standardized designs in the *Design Folio* allowed efficiencies in the design and construction of new family housing units. It was anticipated that the use of the *Design Folio* also would result in shortening the contracting process to 7 months after the passage of congressional appropriations for

family housing projects. It was hoped that the efficiencies would result in occupancy of the housing units at the earliest possible time (United States Congress 1964:31). The content of the *Design Folio* is discussed more fully in Chapter 6.

In describing the new design folio, John Reed reported

In the area of improved design and construction practices, we have implemented a design folio for use beginning with the fiscal year 1965 program. This folio was recently completed by four outstanding architectural firms and presently includes 56 different house types all of which can have variations in treatment, suitable for utilization in most types of geographic and climatic conditions. We feel that the utilization of the folio will preclude poor design and produce a uniform quality standard among the services for dwellings in a given geographic area and that ultimately the design folio will reduce design costs (United States Congress 1964:631).

During FY 1965 and FY 1966, military housing designs typically were taken from the DoD *Design Folio*. The types of housing constructed included duplexes for field-grade officers. Company officers housing were either duplexes or fourplexes. NCO housing was comprised of four or sixplexes along with some duplexes (United States Congress 1965b Part 4:115). However, the focus of the early years of the family housing program was to provide two-story townhouse units for enlisted personnel in E-04 to E-05 ranks and for junior officers. Approximately 80 to 85 per cent of the FY 1966 military family housing construction program was directed towards enlisted personnel, who were most in need of family housing (United States Congress 1965b Part 4:333). The two reasons for selecting townhouses were that the military needed to construct as many high-quality units as they could within in the statutory cost and size limitations imposed by Congress, and that the townhouse was deemed the most cost effective design. Yet, townhouses were not constructed to house higher ranking personnel. During Congressional hearings for FY 1966 military construction program, members of Congress repeatedly voiced concern that such high-density housing would lead to the creation of slums (United States Congress 1965b Part 4:357; 359).

The implementation of the *Design Folio* was met with resistance from Congress. Congressmen expressed a preference for construction of single-family houses, particularly where land was available (United States Congress 1965b:116ff). In 1970, Representative Sikes, a long-term member of the House of Representatives Committee on Appropriations, opined "Folio or garden type housing is an

abomination which never should have been inflicted on military families and should be discarded” (Ludvigen 1970:280). “Defense housing authorities have conceded that the designs themselves leave much to be desired from the point of view of livability, attractiveness and space and extensive modifications to the folio are in the works” (Ludvigen 1970:28).

A 1968 study determined that the standards for military family housing “are inferior to the standards of comparable civilian housing, as represented by actual civilian homes. The reason for this is simply that the space and cost limitations imposed on military family housing are unrealistic.” The 1968 study recommended that all housing built using these standards be classified as inadequate, but the recommendation was never adopted (Ludvigen 1970:28). The cost ceiling and size limitations for unit construction legislated by Congress were the major reasons for the qualitative deficiencies perceived in family housing between military and civilian sectors (Ludvigen 1970:29). Chapter 5 provides a detailed summary of civilian market housing constructed during the period.

By the early 1970s, the design standards for family housing were proposed for revision. The FY 1975 budget request contained a line item of \$200,000 to “provide architectural and engineering planning and design for family housing dwelling units and properties included in the Defense family housing management account” (United States Congress 1974a:179). The purpose of the request was to prepare feasibility studies for site adaptation, working drawings, specification, and estimates, project planning reports, and final design drawings of family housing construction projects (United States Congress 1974a:179).

### **Five-Year Plans to Eliminate the Family Housing Deficits**

Secretary of Defense McNamara introduced five-year planning cycles as management tools for the DoD. The first five-year planning cycle was FY 1964-1968. In the FY 1964 military family housing appropriation, McNamara outlined a plan to eliminate the family housing unit deficit at the end of five years (i.e., FY 1968). The number of military families eligible to receive government housing DoD-wide was reported as 1,022,000. The overall number was reduced by 20 percent to guard against over building and personnel decreases. This left a total military family housing need of 818,000 units. Of this total, adequate government-owned quarters numbered 349,000, while suitable community

support provided 341,000 units. The total revised deficit was 128,000 units. Approximately one-third of the requirement (i.e., 42,200 units) was projected to be provided through community support over the next five years. An additional 5,000 substandard housing units were retained for ineligible families. Future leasing secured in the U.S. and rental guarantee programs used overseas were projected to add 15,800 units, while trailer spaces added 2,000 units, and renovations of inadequate quarters into adequate quarters contributed 900 units. Thus, the number of new family housing units planned for construction for the next five years totaled 62,100 units (United States Congress 1963:200). The proposed plan was to request 12,100 new family housing units for FY 1964, followed by 12,500 units during the next four fiscal years. It was acknowledged that the exact numbers after FY 1964 were for planning projections only and would be revisited before submitting each fiscal year budget (United States Congress 1964:219-220; 1967a Part 1:16).

The entire continental U.S. portion of the five-year family housing construction program totaled 51,857 units. The justification for the installations selected to receive the new family housing included military necessity (1,815 units); saturated community (10,355 units); isolated community (2,670 units); substandard private housing (15,394 units); replacements (9,015 units); excessive distance (550 units); and excessive cost (12,058) (United States Congress 1963:200). In the early years of the five-year program, new family housing was planned to meet the needs of corporals and sergeants, a high percentage of whom were married with two to three dependent children (United States Congress 1964:221-222).

This progressive program for family housing construction never came to fruition. By FY 1966, it was apparent that the five-year goal to build 62,100 new family housing units was not be reached due to lower numbers of family housing units authorized by Congress. The DoD proposed to complete the construction program in FY 1969 in six years with the crucial support of the congressional appropriations committee (United States Congress 1965a Part 1:10-11). The total number of family housing units planned for construction was 62,500. Instead of meeting the family housing deficit, the housing deficit continued to grow. Military housing requirements doubled from the projected numbers used in the five-year plan (Ludvigsen 1970:26).

A critical factor that up-ended the orderly execution of the FY 1964-FY 1969 five-year family housing program was the increasing direct U.S. involvement in the conflict in Vietnam. The war effort both increased housing need and diverted funding from domestic construction programs to the war effort in Southeast Asia. Both new family housing construction and general military construction languished during the period FY 1966 and FY 1967. The entire family housing program for FY 1966, though funded, was deferred until 1967 and later. The DoD submitted no request for new family housing construction for FY 1967.

The five-year plan for FY 1970 to FY 1974 estimated a new family housing requirement of 47,300 units at a cost of \$1.2 billion. Of this number, the Army's share was 11,530 family housing units. Even under this five-year plan, DoD forecast that the military family housing deficit would not decrease, but continue to grow (Ludvigsen 1970:26).

In FY 1973, the Army launched the Army Adequate Housing Program to erase their bachelor officer and family housing deficits. This initiative to improve both family housing and bachelor officer housing was the result of the return to the All-Volunteer Army. The Army's intent for these programs was to provide housing for all eligible personnel over a period of 5 years (United States Congress 1972a:119,130). Under the new program, the DoD recalculated the military family housing deficit as being 93,000 units costing \$2.3 billion.

### **Community Support Programs**

Private-sector housing, or community support, comprised a major element of the DoD family housing program. The military undertook efforts to bolster housing in communities adjacent to military installations. Key initiatives included the Section 809, Section 810, and Section 236 programs.

Early in the 1960s, the DoD continued to explore programs to increase the numbers of family housing units for military family. The DoD worked with the FHA to support lower income military families through the Section 809 and Section 810 programs as described earlier in this chapter. Section 809 did not remain an important tool in the family housing program after the early 1960s based on records from congressional hearings.

In contrast, Section 810 housing was anticipated to provide additional military family housing, although the DoD did not anticipate Section 810 housing would yield a significant number of new units. Section 810 housing projects located in low-cost areas were the exceptions. The military required housing units having two bedrooms or more and such units could not be produced by private sector developers at rents that enlisted personnel and junior officers could afford. The increase in the BAQ that occurred effective 1 January 1963 was anticipated to increase the program's practicality. However, the statute limited the number of units that could be constructed under Section 810 to 5,000 (United State Congress 1962a:4608).

During the late 1960s, the DoD developed working relationships with the FHA and the VA to identify housing that could be used for military personnel. Housing units under the jurisdiction of these two agencies could be rented to military personnel to help alleviate housing shortages in select areas (United States Congress 1969b Part 3:14-17, 528-529).

Section 120 of the Housing and Urban Development Act of 1970 specifically authorized military occupancy in rental housing for units built under Title II of the National Housing Act (United States Congress 1973a:125-126). The DoD and HUD negotiated an interdepartmental agreement that authorized the FHA to provide 5,000 low-cost units for military personnel. These units were to be subsidized by the FHA under Section 236 of the National Housing Act. The units would be available for those enlisted personnel who would not normally be eligible for on-post housing.

The DoD anticipated 10,000 Section 236 housing units reserved for military personnel available in FY 1972 (United States Congress 1971 Part 1:4-5). If no military personnel needed the units, the units would be made available to the civilian market. The DoD would have "no legal and binding obligation to keep those units occupied for the full 40-year period" of the Section 236 program (United States Congress 1971 Part 1:6). Under the program, the builder or sponsor would set aside a select number of units for military personnel who met the FHA requirements for rental housing assistance (United States Congress 1971 Part 1:7). These units were not intended to be constructed on land owned by the Federal government (United States Congress 1971 Part 1:11).

Section 236 housing was viewed as a way to support lower-income military families and those in the lower enlisted grades who were not eligible for on-post family housing (United States Congress 1971 Part 1:105). Section 236 housing was proposed for construction in the vicinity of Fort Meade, Fort Gordon, Fort Carson, Fort Monmouth, and Redstone Arsenal (United States Congress 1971 Part 1:49). By the end of FY 1972, 6,976 units out of 9,350 units total (75 percent) had been completed, were under construction, or were covered by letter of feasibility (United States Congress 1973a:125-126). The Section 236 program was suspended on 8 January 1973, when President Nixon's Secretary of HUD placed a moratorium, then a cancellation, on the construction of Federally-subsidized housing projects, including units provided under Section 236 (United States Congress 1973a:36).

Relying on community support to house military personnel in off-post housing appeared to be a viable solution when the local community housing and rental markets were strong, as happened during the early 1960s. However, during 1968-1970, concurrently with the war in Vietnam, the U.S. experienced a major housing crisis. Interest rates rose to all-time highs. Mortgages were unavailable in many areas across the country, and new housing starts fell drastically. The U.S. Treasury offered 18-month treasury notes at 8.25 percent. The Federal National Mortgage Association (Fannie Mae) followed with 14-month bonds at 8.75 percent, and "home-buyers in many areas can expect to pay up to ten percent – if they can get the loan" (Ludvigsen 1970:29). Rental units were in short supply in metropolitan areas (Ludvigsen 1970:29). The tight credit crunch meant that the development of new community housing assets could not be relied upon to house military personnel. Military personnel were at a disadvantage in the civilian market due to their frequent reassignments that made home-buying impractical, combined with the fact that landlords and bankers considered military personnel to be poor risks. By this time, the BAQ no longer covered rent in the civilian market (Ludvigsen 1970:29).

### **The Family Housing Program Under the Nixon Administration**

President Nixon and the Secretary of Defense Laird continued support for adequate family housing as important to the morale and quality of life of military personnel, especially in light of the transition to an All-Volunteer Force/All-Volunteer Army (United States 1973a:120). Mr. Shillito, Assistant Secretary of Defense (Installations and Logistics) testified before Congress in July 1969 that "in view of the large deficiency in this [family housing] program, and our continuing emphasis on making the military

service an attractive career, we feel it imperative to continue with a reasonable program for meeting our requirements for adequate quarters for military families” (United States 1969a Part 1:2). The DoD continued “on-going efforts and plans to provide more adequate housing on base, for upgrading the condition of our Government-owned inventory and for an aggressive policy of ensuring assistance to our military families in finding adequate off-base quarters in the community. Our goal is to ensure that adequate housing is available to every serviceman and his family” (United States Congress 1971 Part 1:108).

The budget for FY 1970 was the first budget presented to Congress by the Nixon administration. The budget was also the first budget of the DoD five-year planning cycle for FY 1970 through FY 1974 (United States 1969a Part 1:2, 12). During this five-year cycle, the U.S. ended involvement in Vietnam and the DoD transitioned to an All-Volunteer Force/All-Volunteer Army. President Nixon instituted austere Federal budgets to control spending and general inflation. Challenges to the military family housing construction budget included “programming against a decreasing force structure and a contracting base establishment” (United States Congress 1971 Part 1:108). The focus of the military family housing program was on providing adequate family housing for married career trained military personnel “on hardcore U.S. installations where we [DoD] have valid, firm, and approved plans”, i.e., installations that were not planned for realignment or downsizing (United States Congress 1971 Part 1:108). Some budgeting rules changed. Budgets for FY 1970 revised and FY 1971 allowed budget projections to include estimates made on the “analysis of the actual costs...required to complete the project” using cost trends for the specific type of construction. This change in the budgeting process allowed the Army to factor inflation rates into cost projections for projects likely to be contracted and completed over an extended period (United States Congress 1970 Part 1:6, 23).

### **The DoD’s Response to Housing Discrimination and Civil Rights Legislation**

The discussion of discrimination in family housing is relevant to the Army’s Vietnam War Era housing due to the DoD’s all options approach to solving the housing shortage. The DoD relied on a variety of tools that ranged from on-post housing to working with the civilian sector to develop sufficient private-sector housing to meet its housing demand. As the country grappled with discrimination in all aspects of American society, the DoD sought to address the racial injustices facing its service

members. These injustices extended to housing discrimination, and in particular, to access to private-sector, off-post housing for its eligible personnel. As off-post, private-sector housing was the preferred method for meeting the housing need, the DoD had a legitimate concern and mandated role in insuring equal access to housing.

The DoD recognized that housing discrimination based on race posed a real problem in the military's ability to realize "full equal opportunity (and full military effectiveness) for all the men and women who serve their nation in uniform" (McNamara 1968:191). The Committee on Equal Opportunity in the Armed Forces, which was commissioned by President Kennedy in 1962, issued a report in 1963 summarizing racial discrimination in the military. The report addressed numerous concerns, including discrimination in the civilian housing market. President Kennedy directed Secretary McNamara to provide recommendations on how to address the problems enumerated in the Committee's report, and specifically charged the military with a leadership role in addressing discrimination (Kennedy 1963:2).

### *President's Committee on Equal Opportunity in the Armed Forces*

The President's Committee found that despite the U.S. Supreme Court's ruling that segregation in public facilities and public schools was unconstitutional, "a very substantial number of communities neighboring military bases practice various forms of segregation" with the "pattern of discrimination and segregation is, of course, particularly noticeable in the southern communities" (President's Committee 1963:43). The Committee noted forms of discrimination also were found in northern states by concluding that "Discrimination in housing is almost universal" (President's Committee 1963:44).

African American service members faced discrimination in all aspects of daily life. The Committee requested each branch of the armed services to provide data (Table 3.6) on the degree of segregation facing their Black members. Public schools, theaters, and dining facilities represented the three public facilities where African American Army personnel experienced the greatest degree of segregation (President's Committee 1963:45).

In summarizing the difficulty African American service members faced in the housing market, the Committee noted:

Table 3.6 Segregation of Public Facilities in Communities Adjacent to Military Installations

Table III

**SEGREGATION OF PUBLIC FACILITIES IN COMMUNITIES  
ADJACENT TO MILITARY INSTALLATIONS**

Types of Segregated Public Facility	Number of Surveyed Installations and Activities With Such Segregated Facilities *		Number of Personnel Stationed Where Facilities Are Segregated		Percentage of Surveyed Installations and Activities With Segregated Facilities	
	ARMY	NAVY	ARMY	NAVY	ARMY	NAVY
Public Schools	48	143	178, 109	58, 500	24%	25%
Restaurants and Bars	68	238	257, 893	110, 000	34%	43%
Theaters	63	223	232, 301	105, 000	31%	40%
Swimming Pools	19	226	178, 201	102, 000	9%	40%
Golf Courses	38	164	190, 931	82, 000	19%	29%
Beaches	10	203	123, 502	90, 000	5%	36%
Bowling Alleys	32	194	205, 901	103, 000	16%	35%
Libraries	10	49	130, 179	28, 000	5%	9%
Public Transportation	4	47	41, 091	22, 000	2%	8%
Hotels, Motels	12	252	205, 618	141, 000	6%	45%
Churches	23	163	127, 402	70, 000	11%	29%

\* The Army survey for this table covered 201 installations and activities, while the Navy survey covered 559. Each installation and activity surveyed had 100 or more military personnel assigned to it.

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Source: President's Committee 1963:45.

Discrimination in housing confronts him immediately in most sections of the country. Private housing in many parts of town is not available. Many real estate agents will have nothing to do with him. He is forced to that part of town and that type of housing occupied by Negroes. Here in many cases are structures well below acceptable standards, expensive, dirty, dilapidated – in all respects undesirable. Often Negro housing areas are farthest from the base. Almost always the available segregated housing is below the standard available for white military personnel. Frequently little or no housing is available and space is at a premium. After one or two nights sleeping with his family in his car or at an expensive Negro motel (if he can find one) he takes whatever turns up (President's Committee 1963:47).

It was not uncommon for families to decide not to accompany active service members because of the difficult social conditions (President's Committee 1963:49). The report noted that many of the Black service members were well-educated and "specially skilled". The effects of the indignities of discrimination on and off post affected morale and performance (President's Committee 1963:48; 49).

The report authors chastised installation commanders for failing to offer support for those service members facing discrimination. Transfer requests often were denied from service members who had

been targets for discrimination in local communities and base commanders were ill-equipped, and in some cases, unwilling to provide solutions (President's Committee 1963:53-55). The Committee also faulted higher authorities for failing to provide guidance or to develop a proactive program for addressing off-post discrimination. The Army and Air Force were further criticized for not developing directives in line with the Gilpatric Memorandum (President's Committee 1963:56). Issued in June 1961, the Deputy Secretary of Defense Gilpatric, in part, directed the military to

“in those areas where unsegregated facilities are not readily available to members of the Armed Forces in adjacent or surrounding communities, it is the policy of the Department of Defense to provide such facilities on military installations to the extent possible. In addition, local commanders are expected to make every effort to obtain such facilities off base for members of the Armed Forces through command-community relations committees” (President's Committee 1963:58).

While the Navy incorporated the above provision into directives, none of the services issued manuals or regulations outlining how the provisions of the Gilpatric Memorandum would be implemented (President's Committee 1963:58).

Despite the lack of a comprehensive approach to the discrimination problem, the military did take steps to ameliorate selected conditions. According to the report, the Secretary of Defense issued a memorandum providing “that private housing leased by the Services for assignment to military personnel may be obtained only where the lessor agrees that the Service may assign it without discrimination” (President's Committee 1963:57). In addition, the military services were working with the Department of Health, Education and Welfare and the Department of Justice to desegregate schools in certain communities through the construction of new schools on military installations. The payments to local schools for the education of military dependents then would be withdrawn as the children of military personnel transitioned to base schools (President's Committee 1963:57).

The President's Committee strongly recommended, and base commanders requested, that the DoD develop instructions for eliminating “discriminatory practices as they affect members of the Armed Forces and their dependents within the neighboring civilian communities” (President's Committee 1963:61). The Committee also recommended implementation of a program of monitoring and reporting, with career advancement and promotion tied to efforts to eliminate discrimination. Further-

more, the President's Committee urged the adoption of anti-discrimination measures as part of the command philosophy (President's Committee 1963:62, 63). Establishment of an office dedicated to racial equality within each branch of the military was suggested.

In the area of housing policy, the President's Committee urged the DoD to act with "vigor and sensitivity" to address the difficult housing conditions experienced by African American service members living off post (President's Committee 1963:73). The extent to which Black members of the Armed Services faced housing discrimination was difficult to quantify since the annual housing questionnaire did not include any questions about race. Modification of the questionnaire was recommended. Data from the revised questionnaire then could be used to support programs for additional on-post housing or to develop housing controlled by the Federal government to address housing discrimination (President's Committee 1963:76). Additional recommendations included urging installation commanders and housing officials to encourage local developers to construct units that would be available to military personnel regardless of race and to develop lists of housing opportunities that were available regardless of race (President's Committee 1963:77).

Another recommendation included expanding the then current leased housing program and ensuring that African Americans were not assigned to housing units in substandard neighborhoods. Similarly, the Section 810 housing program, which provided rental and for-sale housing to military and essential civilian personnel, should be expanded and lists of FHA-insured housing, which would be subject to President Kennedy's Executive Order on discrimination in housing, should be developed and made available to installation personnel (President's Committee 1963:79). The President's Committee also recommended the development of manuals and regulations specifically for housing offices.

Despite developing across the board recommendations for tackling racial discrimination within the Armed Services, the President's Committee noted that its investigations were hampered due to a lack of data; almost all information on race was limited to data collected at the time of entry into the military. The Committee strongly encouraged the collection of data on race, with the appropriate safeguards to prevent abuse (President's Committee 1963:90).

In 1967, the DoD surveyed approximately 17,000 military families. In its guidance to installation commanders, the DoD requested commanding officers to request property owners to make housing units available to military personnel regardless of race, color, or national origin (*Commanders Digest* 1967:117). The DoD also established an Off-base Housing Equal Opportunity Board, with a coordinator designated within each service's office of the secretary and the Office of the Secretary of Defense (*Commanders Digest* 1967:117).

The survey results indicated that

in the majority of the communities covered, over half of the families of Negro servicemen living off-base were dissatisfied with their housing, and that on the average four out of ten such families were having difficulty finding suitable housing, principally as a result of racial discrimination. Most important, we found that this situation was adversely affecting the morale, job performance and career motivation of thousands of Negro servicemen, and thereby, the operational effectiveness of the Defense program (McNamara 1968:191).

DoD policy to address housing discrimination in the civilian sector encouraged voluntary compliance of owners and managers with anti-discrimination in rental housing. In cases where the private sector property owners refused to desegregate their rental units, the DoD forbid military personnel from renting or leasing units until those owners made housing available to all members of the military regardless of race. Secretary of Defense McNamara noted that progress had been made by the end of the 1960s, yet sufficient numbers of property owners refused to voluntarily forgo racial discrimination. He was

convinced that the time has come when we must insist on this simple measure of equity for our Negro servicemen and that once having made a sincere attempt to obtain voluntary compliance, the Department should delay no further in taking appropriate action to remedy an unsatisfactory situation. The Negro serviceman and his family deserve the opportunity, on-base and off-base, to live with pride and dignity (McNamara 1968:92).

Secretary McNamara went to identify housing discrimination as an "urgent priority" and declared "There can and will be no compromise with this gross injustice" (*Commanders Digest* 1967:161).

Four findings were developed from the DoD housing survey on housing discrimination: enlisted personnel were particularly affected; African American families faced acute discrimination; more than

50 percent of African American families were dissatisfied with their housing conditions and more than 40 percent had difficulty finding housing; and the inability of Black service members to find affordable housing affected morale, job performance, and family life (*Commanders Digest* 1967:289). In communities where the DoD was unable to enforce voluntary compliance in the private sector with the DoD policy of “open housing,” the agency prohibited service members from renting or leasing from those landlords unless the housing was available to all service member regardless of race (*Commanders Digest* 1967:205, 413).

The DoD continued its efforts to support anti-discrimination measures when the agency issued DoD Directive 1100.05 “Equality Opportunity within the Department of Defense” in December 1970 (*Commanders Digest* 1971:126). Based on 1967 pilot programs at select installations, the Directive required all members of the military to obtain a referral from the installation housing referral office in order to avoid leasing or renting housing that was prohibited due the owner’s refusal to adopt anti-discrimination policies (*Commanders Digest* 1967:205, 413). By 1971, all members of the military seeking housing opportunities were required to seek a referral (*Commanders Digest* 1971:126, 387).

## **The Legislative Record**

This section explores annual legislation enacted to address military family housing during the Vietnam War Era. As noted above, Congress did not pass a specific law for the construction of new housing during the era; instead, Congress controlled the military family housing construction program through direct yearly appropriations (United States Congress 1962a:4021). The DoD requested projects for specific installations in the annual family housing authorization. Congress reviewed the family housing requests line-by-line. Congressional appropriation was a two-step process for each annual family housing appropriation. The first step was the authorization bill for family housing that listed the installations receiving new family housing construction. The second step was the appropriation bill that designated the amount allotted for construction to each service in a lump sum. Congress typically authorized fewer family housing units than the DoD requested and funded even fewer family housing units (United States Congress 1962a:4021). Congress also controlled family housing by legislating the costs and sizes of family housing units. Changes to costs of family housing units and unit sizes appeared periodically in the authorization bills.

## Costs of Family Housing Units Between 1963 and 1975

The costs of family housing units were controlled by congressional legislation. Throughout the era, the costs of family housing rose dramatically, both for military and civilian housing. For the military, the costs allowed for family housing were graduated by rank of occupant. Higher ranking officers had larger spatial allocations and more expensive units than junior officers, and officers typically were accorded larger, more costly units than NCOs. In 1962, the established cost limitations for family housing units constructed in the continental U.S. were established as:

- \$22,000 (\$191,242 in 2020 dollars) for generals or equivalent;
- \$19,800 (\$171,118 in 2020 dollars) for colonels or equivalent;
- \$17,600 (\$152,993 in 2020 dollars) for major and/or lieutenant colonel or equivalent;
- \$15,400 (\$133,869 in 2020 dollars) for all other commissioned or warrant officer personnel or equivalent;
- \$13,200 (\$114,745 in 2020 dollars) for enlisted personnel (United States Congress Public Law 87-554 1962 Section 506; 1962a:4610).

The cost limitations applied out to five feet around each family housing unit; this rule was designed to capture the costs of the site work and utility connections going into the units. By FY 1963, the established cost limits for all family housing units included the provision of “shades, screens, ranges, refrigerators, and all other installed equipment and fixtures” (United States Congress Public Law 88-174 1963). The average cost of family housing units at a specific location in the continental U.S. in excess of 50 units constructed in the continental U.S. was not to exceed \$17,500 (\$150,320 in 2020 dollars); this cost included land acquisition, site preparation and installation of utilities (United States Congress 1962a:4610). The not-to-exceed cost of a single-family housing unit in the continental U.S. was \$26,000 (\$223,333 in 2020 dollars) (United States Congress Public Law 87-554 1962). These legislated housing costs were comparable with the average cost ranging between \$12,000 to \$25,000 common in the civilian housing market during the 1960s as discussed in Chapter 5. A summary of the allowable costs for military family housing are shown on Table 3.7.

**Table 3.7** *Legislated Cost Limitations on Family Housing Constructed in the Continental U.S. (other than Hawaii and Alaska) and Puerto Rico per Year Altered, 1963-1975*

Fiscal Year	Generals	Colonels	Major/Lt. Colonels	Other commissioned and warrant officers	Enlisted Personnel 2	Average cost for projects with 50 or more units	Not-to-exceed costs for a single unit	Source
1963	\$22,000	\$19,800	\$17,600	\$15,400	\$13,200.00	\$17,500 per project	\$26,000	U.S. Congress 1962a:4610; Public Law 87-554 1962
1965	\$24,000	\$19,800	\$17,600	\$15,400 (1)	\$13,200 (2)	\$17,500 per project	\$28,000	U.S. Congress Public Law 88-390 1964; 1964:17
1966	\$24,000	Costs remain same as in FY 1965				\$17,500 average cost per military department	\$28,000	U.S. Congress Public Law 89-188 1965
1968	No cost limits specified					\$19,500	\$35,000	U.S. Congress Public Law 90-110 1967
1969	No cost limits specified					\$19,500	\$35,000	U.S. Congress Public Law 90-408 1968
1970	No cost limits specified					\$21,000	\$40,000	U.S. Congress Public Law 92-142 1969
1971	No cost limits specified					\$23,000	\$40,000	U.S. Congress Public Law 91-511 1970
1972	No cost limits specified					\$24,000	\$42,000	U.S. Congress 1973a:123; Public Law 92-145 1971
1973	No cost limits specified					\$24,000	\$44,000	U.S. Congress Public Law 92-545 1972
1974	No cost limits specified					\$27,500	\$44,000	U.S. Congress 1973a:123; Public Law 92-166 1973
1975	No cost limits specified					\$30,000	\$46,000	U.S. Congress 1974c:37

(1) except that four-bedroom housing units authorized may be constructed at a cost not to exceed \$17,000

(2) except that four-bedroom housing units authorized may be constructed at a cost not to exceed \$15,000

For FY 1965, the DoD requested several changes to the laws governing the costs of family housing. One change proposed by the DoD increased the cost limits for family housing units for general officers' quarters from \$22,000 (\$183,340 in 2020 dollars) to \$24,000 (\$200,106 in 2020 dollars). In addition, the DoD requested an exception to construct four-bedroom family housing units for lower ranking commissioned and warrant officers at a not-to-exceed cost of \$17,000 (\$141,742 in 2020 dollars) and to construct four-bedroom family housing units for enlisted personnel at a not-to-exceed cost of \$15,000 (\$125,066 in 2020 dollars). The not-to-exceed cost of a single-family housing unit constructed in the continental U.S. was increased to \$28,000 (\$233,457 in 2020 dollars) (United States Congress Public Law 88-390 1964).

Starting in In FY 1966, the hierarchy of housing unit costs per rank were no longer discussed in the congressional appropriation hearings. Instead, the DoD focused on the average cost of a dwelling unit. In FY 1966, the DoD requested a change in the application of average cost per unit, which currently was established at \$17,500 (\$141,799 in 2020 dollars) per project of 50 or more units per location of family housing built for company grade officers and below. The DoD proposed that "in lieu of a project being the controlling element, that this average unit cost limitation be applied to each military department's domestic program" (United State Congress 1965b Part 4:312). This change in language recognized that housing projects constructed in high-cost regions of the country could not include the necessary amenities and features within the statutory limits, while housing in less expensive areas of the country could be completed within or below the cost limitations. This modification allowed the Army to equalize family housing costs across its entire construction program and offered greater uniformity in the housing product (United States Congress 1965b Part 4:312). This change was adopted into the authorization legislation (United States Congress Public Law 89-188 1965).

As shown on Table 3.7, the average cost per unit continued to rise annually between FY 1969 when the average cost was \$19,000 (\$136,227 in 2020 dollars) and the average cost of \$27,500 (\$146,594 in 2020 dollars) in FY 1974. In FY 1968, the average cost included the cost of the unit, and proportionate costs of land acquisition, site preparation, and installation of utilities (United States Congress Public Law 90-408 1968). Similarly, the not-to-exceed costs for single family housing units increased from \$26,000 (\$223,333 in 2020 dollars) in FY 1963 to \$44,000 (\$260,350 in 2020 dollars) in FY 1973.

The annual increase in average cost per housing unit and the not-to-exceed costs reflected the rising costs of materials and labor that were occurring during the late 1960s and early 1970s. The DoD explained that the increases were needed to “prevent a deterioration in the quality and standard of family housing units that we [the DoD] are building” (United States Congress 1967b:36). The increases also matched more closely the currently accepted construction cost indices for civilian residential construction. The DoD also requested an increase in the never-to-exceed cost of an individual family housing unit in the continental U.S. to \$35,000 (\$264,496 in 2020 dollars). The cost increase included the cost of the family unit and the proportionate costs of land acquisition, site preparation, and installation of utilities (United States Congress 1967b:36; 1968:53; Public Law 90-408 1968).

Costs of family housing units were always higher in Alaska and Hawaii than in the continental U.S. In these states, the average cost in 1962 per unit of all such units shall not exceed \$32,000 (\$278,170 in 2020 dollars), and the not-to-exceed cost of an individual housing units was \$40,000 (\$347,712 in 2020 dollars). By FY 1974, the average cost of all units of family housing in Alaska and Hawaii was increased to \$37,000 (\$197,235 in 2020 dollars) and the not-to-exceed cost of a single-family housing unit was increased to \$44,000 (\$235,550 in 2020 dollars) (United States Congress Public Law 93-166 1973). These higher costs were due to the locations where the housing units were built, as well as the cost of materials and labor.

### **Sizes of Family Housing Units Between 1963 and 1975**

Congress also legislated the size of family housing units in U.S. Code Title 10, sections 4474, 7574, and 9774. Sizes of family housing units also were graduated according to military rank (Table 3.8). In FY 1963, general officers were entitled to 2,100 square feet; in FY 1964, the commanding officer at a station was allotted an additional 10 per cent more square footage (United States Congress Public Law 88-174 1963). Colonels were allotted family housing units with 1,670 square feet. Majors and lieutenant colonel were allotted 1,400 square feet. Company grade officers below major and warrant officers were allotted family housing units with 1,250 square feet, unless they required four bedrooms, when they were allotted 1,400 square feet. Enlisted men typically were allotted three-bedroom family housing units with 1,080 square feet. If an enlisted persons’ family required four bedrooms, then the enlisted person was entitled to 1,250 square feet (United States Congress Public Law 87-554

1962; 1962a:640; 1965b Part 4:330). In FY 1972, Congress amended the legislation so that enlisted personnel who required five bedrooms was allotted 1,400 square feet (United States Congress Public Law 92-145 1971). As shown on Table 3.8, the legislated square footages for units remained essentially the same with a few minor adjustments between 1963 and 1973.

In FY 1974, the DoD proposed major increases in size limits and space allowances for family housing units. The new space allowances were the result of recommendations by the Office of the Secretary of Defense tri-service task group. The recommendation to increase family housing unit sizes was based on an occupant survey conducted by each military department (United States Congress

**Table 3.8** *Legislated Sizes of Units in Square Footage Based on Rank, 1963-1975*

Fiscal Year	Generals	Colonels (Senior Grade)	Major/Lt. Colonels (Field Grade)	Other commissioned and warrant officers (Company Grade)	Enlisted Personnel	Sources
1963	2,100	1,670	1,400	1,250 (2)	1,080 (3)	U.S. Congress 1962a:4640; Public Law 87-554 1962
1965	2,100 (1)	1,670	1,400	1,250 (2)	1,080 (3)	U.S. Congress 1964:625; AMCR 210-11 DA 3/1965: App V; U.S. Congress 1965b Part 4:330; Public Law 88-390 1964
1967	2,100 (1)	1,670	1,400	1,250 (2)	1,080 (3)	U.S. Army AR 210-50 Revision 1967
1973	2,100	1,670	1,400	1,250 (2)	1,080 (3) (4)	U.S. Congress 1973c:141-142
1974	2,100	1,700	1,400 (5)	1,350 (6)	1,200 (7)	U.S. Congress 1973c:142; Public Law 93-166 1973

(1) Maximum limitations on net floor areas are increased 10 percent for quarters of commanding officers of stations, bases or installations based on the authorized grade.

(2) If the construction of four-bedroom units for officers holding grades below major is required, such units may be constructed with a net floor area of 1,400 square ft or less.

(3) If the construction of four-bedroom units for enlisted men is required, such units may be constructed with a net floor area of 1,250 square ft or less.

(4) If the construction of five-bedroom units for enlisted men is required, such units may be constructed with a net floor area of 1,400 square ft or less.

(5) The size allowed for Field Grade officer unit with five bedrooms was 1,550 square ft.

(6) For company grade officers and senior NCOs, a three-bedroom unit was allowed 1,350 square ft; a four-bedroom unit was allowed 1,450 square ft; and a five-bedroom unit was allowed 1,550 square ft.

(7) For enlisted NCOs grade E-06 and below, a three-bedroom unit was allowed 1,200 square ft; a four-bedroom unit was allowed 1,350 square ft; and a five-bedroom unit was allowed 1,550 square ft.

1973a:142). The updated space allocations were included in the FY 1974 authorization legislation (United States Congress Public Law 93-166 1973). As Mr. Filiakas testified, “These limitations have not been upgraded in years with the result that today, we are building to standards that no longer meet the lifestyle of modern day living. Research on civilian housing design trends and a survey of information and opinions of our own military servicemen and their wives as to the adequacy of military family housing, indicate a critical need for additional floor area to accommodate contemporary living habits and requirements” (United States Congress 1973a:122).

The proposal allowed larger square footage in housing units and for more gradations of family housing unit sizes within ranks based on the number of bedrooms (Figure 3.2). In addition, the DoD proposed “grouping senior NCO’s and company grade officers for house size” (United States Congress 1973a:123, 141-142). This proposal meant that housing for company grade officers and NCOs could be interchangeable and assigned to either military grade depending on the personnel needing housing (United States Congress 1973a:123, 141-142). The rationale for the larger family housing space allowances was DoD’s belief “that these standards will improve the overall quality of our family housing in a broad sense, and, of course, we supplement that with our current construction criteria which

PROPOSED FISCAL YEAR 1974 SPACE CRITERIA			
	Current statistical limit net	Legislative proposal	Percent increase statistical limit net
General officers.....	2,100	2,100	0
Senior grade.....	1,670	1,700	2
Field grade:			
3-bedroom.....	1,400	1,400	0
4-bedroom.....	1,400	1,550	11
Company grade: <sup>1</sup>			
2-bedroom.....	<sup>2</sup> 950	950	0
3-bedroom.....	1,250	1,350	8
4-bedroom.....	1,400	1,450	4
5-bedroom.....	1,400	1,550	11
Enlisted: <sup>3</sup>			
2-bedroom.....	<sup>2</sup> 950	950	0
3-bedroom.....	1,080	1,200	11
4-bedroom.....	1,250	1,350	8
5-bedroom.....	1,400	1,550	8

<sup>1</sup> Includes senior NCO's.  
<sup>2</sup> Administrative control.  
<sup>3</sup> E-6's and below.

Figure 3.2 Proposed Fiscal Year 1974 Space Criteria

Source: United States Congress 1973b:577.

provide appropriate guidelines for quality of construction materials, et cetera” (United States Congress 1973a:141).

The larger square footages were designed to improve the quality and livability of the family housing by increases the sizes of select rooms and including additional storage. Specifically,

The changes requested will allow appropriate increases in the size of dining rooms, secondary bedrooms, and the bathroom area to permit two full baths on the second floor of two-story, three-bedroom units in lieu of one and one-half now permitted, as well as permitting more appropriate circulation space required to support the enlarged areas. The requested increases in net areas will, of course, increase gross areas in proper proportion to provide needed additional interior storage space. The total impact of the requested increases will be improved overall livability (United States Congress 1973:a142).

### **Military Family Housing Appropriations During the Five-Year Planning Cycles**

The following section discusses the numbers of family housing units authorized for construction in the two, five-year planning cycles between FY 1964 and FY 1969 and FY 1970 and FY 1974. Table 3.9 provides an overview of the annual DoD requests for family housing units worldwide, units requested by the Army, and the numbers of units authorized by Congress in annual authorization bills. A list of the individual Army installations in the continental U.S. and the numbers of family housing units authorized by fiscal year is presented in Appendix 2.

For the five-year plan from FY 1964 to FY 1968/FY 1969, the DoD set the number of required new family housing units at 62,100 (United States Congress 1963:200). The number of units authorized by Congress for this period was 43,870. The Army’s authorized number of family housing units numbered 8,732 units (see Table 3.9).

The impacts of the increasing U.S. involvement in Vietnam resulted in lower funding for family housing. The FY 1966 family housing program was funded for 8,500 family housing units. However, in December 1965, Secretary of Defense Robert S. McNamara issued an order to defer the award of 550 military construction contracts, including the family housing (United States Congress 1967a Part 1:19). The projects, which were authorized in FY 1966 and earlier, were located across the country

**Table 3.9 DoD and Army Requested and Authorized Family Housing Units for the DoD and the Army by Years**

Fiscal Year	Total DoD Family Housing Requested (worldwide) in Units	DoD Family Housing Units Authorized (worldwide)	Army Family Housing Units Requested (worldwide)	Army Family Housing Units Authorized in Public Laws (worldwide)	Army Family Housing Units Funded/ Contracted* (worldwide)	Army Portion of DoD Family Housing New Construction Budget	Sources
1963	15,151	12,298	3,952	2,725	1,600	\$46,625,000	U.S. Congress Public Law 87-554 1962
1964	12,021	10,140	1,847	1,847	1,366	\$34,681,000	U.S. Congress Public Law 88-174 1963
1965	12,500	9,886	2,655	2,135	Unknown	\$35,600,000	U.S. Congress Public Law 88-390 1964
1966	12,500	11,189	2,470	2,050	1,680	\$54,064,000	U.S. Congress Public Law 89-188 1965
1967	0	0	0	0	0	\$0	U.S. Congress Public Law 89-568 1966
1968	12,500	10,655	2,850	2,200	1,350	\$32,447,000	U.S. Congress Public Law 90-110 1967
1969	2,000	2,000	500	500	500	\$9,750,000	U.S. Congress Public Law 90-408 1968
1970	4,800	4,800	1,200	1,200	1,200*	\$25,660,000	U.S. Congress Public Law 91-142 1969
1971	8,000	7,600	1,700	1,300	1,499*	\$41,032,000	U.S. Congress Public Law 91-511 1970
1972	9,684	9,432	1,920	1,578	1,518*	\$51,854,900	U.S. Congress Public Law 92-145 1971
1973	12,181	11,716	4,409	3,948	2,258*	\$100,098,000	U.S. Congress Public Law 92-545 1972
1974	11,668	12,379	6,135	5,369	1847*	\$178,208,000	U.S. Congress Public Law 93-166 1973
1975	10,462	6,802	4,360	2,600	Unknown	\$78,478,900	U.S. Congress 1974b Senate Report No. 1302

\*Numbers of contracted units may include units authorized in previous fiscal years.

and affected construction activities on 285 installations (*Commanders Digest* 1967:29). Funds for the FY 1966 family housing construction program were released in January 1967, but actual construction of the projects often occurred years later (United States Congress 1967a Part 1:19). No request for new family housing was requested in FY 1967 (United States Congress 1970:33). Funding of the family housing program in the years following 1967 also were often deferred or frozen for periods between FY 1966 through FY 1969 during the height of the war in Vietnam. The Army's portion of the DoD family housing requests remained at low levels throughout the Vietnam War Era.

Table 3.10 summarizes DoD total military construction and total military family housing appropriations from 1963 through 1972. For seven years, the total cost of military construction were above \$ 1 million dollars. The highest amount was in FY

**Table 3.10 Military Construction and Family Housing Appropriations Current Dollars Compared to Contrast Fiscal Year 1972 Dollars**

MILITARY CONSTRUCTION AND FAMILY HOUSING APPROPRIATIONS CURRENT DOLLARS COMPARED TO CONSTANT FISCAL YEAR 1972 DOLLARS										
[In millions of dollars]										
	Fiscal year—									
	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Total military construction:										
Current dollars.....	1,319	948	940	2,329	1,097	1,402	1,168	960	1,322	1,479
Constant fiscal year 1972 dollars.....	2,033	1,432	1,390	3,294	1,497	1,824	1,420	1,073	1,388	1,479
Family housing construction:										
Current dollars.....	240	164	159	177	0	154	49	125	218	285
Constant fiscal year 1972 dollars.....	369	247	232	250	0	200	60	140	229	285

<sup>1</sup> Adjusted to reflect initial transfers to the family housing account.

Source: United States Congress 1971 Part 1:58.

1966 when the overall military construction budget topped \$2.3 million dollars. The family housing construction budget represented a much smaller line item in the overall military construction budgets. Yet, it is clear that congressional appropriations for FY 1963 to FY 1972 for family housing construction fluctuated greatly in the amount of money appropriated. Appropriations began at a high level in 1963 at \$240 million, then dipped to zero dollars in 1967 and gradually rose again at the end of the 1960s to reach \$285 million in FY 1972 (United States Congress 1971 Part 1:58). This table illustrates that family housing was a lower priority during the peak of the Vietnam War Era.

The five-year plan for FY 1970 to FY 1974 estimated a requirement of 47,300 new family housing units. During this five-year period, Congress authorized 45,927 family housing units. Of this number, the Army was authorized 15,364 new family housing units, more units than were authorized between FY 1964 and FY 1969 (see Table 3.9). Even under this five-year plan, DoD forecast that the military family housing units needed by the end of FY 1974 would grow to 121,600 family housing (Ludvigsen

1970:26). In FY 1970, the DoD owned or maintained approximately 365,000 family housing units of which 129,000 were in the Army inventory (Ludvigsen 1970:26).

## **Challenges to the Military and Army Family Housing Construction Program**

The implementation of DoD's on-post new family housing construction program faced numerous challenges as acknowledged by both the DoD and Congress. Both the DoD and Congress worked within their own systems that often appeared at cross purposes; world events, political priorities, and economic conditions often intervened to influence final outcomes. The DoD proposed aggressive and comprehensive family housing construction projects, while Congress scrutinized projects and funding individually. The appropriations process entailed numerous hearings and testimony. Congressional funding appropriated for family housing typically was far lower than requested by the DoD to satisfy needed family housing requirements.

Congress also influenced the construction of family housing through legislative action that impacted the design and quality of the family housing units. The most notable legislative limits were family housing unit costs and unit size, which were discussed in a previous section. Congress also set a 15-month limit for contracting family housing projects. If family housing units were not under contract within 15 months, then the authorization lapsed. The rule was designed to get family housing under construction quickly. However, the timing of the appropriations and the final bill for a typical fiscal year often occurred between September and December of the fiscal year, which left a short turn-around time for project design, bidding, and contract award before the new fiscal year began and the 15-month clock ended.

The DoD sought to consolidate the military family housing program across the services and established a rigorous process for determining requirements for programming family housing for new on-post construction. The DoD's five-year planning cycles to manage the family housing construction program comprehensively made it difficult to respond to demographic of military families requiring larger housing units or to the housing trends in the civilian market.

Congressional committees justly were concerned about the costs of the family housing program and prodded the DoD to contain labor and construction costs. Congress also prodded the DoD to adopt streamlined standards and contracting methods to reduce costs. Congress stated that the Army construction specifications for materials and construction techniques were too rigorous. The inspections required for Army contracts were too onerous for civilian contractors to meet. Congress expressed the opinion that “Homes could be built a lot faster if DoD would junk its rigid, standard design folio in favor of the so-called turnkey concept in which the contractor does the detail design” (Ludvigsen 1970:28).

Political events outside the control of either DoD or Congress also affected the military family housing program. Federal appropriations for the construction of family housing became a low priority as DoD and Congress turned their focus to the war in Vietnam during the mid-1960s (Beard 2003:16). Budgets for family housing were deferred to redirect funds to support the war. Later, in FY 1970, 75 percent of the DoD’s military construction program, including family housing, was frozen by the Nixon administration as an anti-inflationary measure. However, Secretary of Defense Laird requested and obtained an exemption when it became apparent that only half of the family housing authorized was under contract. The exemption allowed work to proceed on the construction of 2,840 family housing units from the FY 1969 and FY 1970 authorized budgets (Ludvigsen 1970:27-28).

## **Conclusion**

During the Vietnam War Era (1963-1975), the Army’s on-going family housing program was conducted as part of the larger DoD military family housing program. The DoD, the Army, and Congress agreed that military family housing was important to the overall morale of military and Army personnel and necessary to retain highly-trained career military personnel. Family housing was needed due to changing Army demographics that resulted in the increasing numbers of married career officers and enlisted personnel eligible for family housing. The trend in Army demographics reflected in the demographics in the civilian population as discussed further in Chapter 4.

Secretary of Defense Robert McNamara radically reorganized the military family housing program and imposed new standards and policies for all services that directly affected the Army family housing program. Major changes in the DoD policy were the reliance on the civilian private sector to pro-

vide military family housing requirements and the construction of on-post family housing as the last option. Housing standards based on a 1964 *Design Folio* reflected both the legislated constraints on Army family housing unit costs and sizes based on rank of occupant, while looking to civilian housing trends for ideas on design and construction materials and techniques. The *Design Folio* promulgated the use of the townhouse as the most efficient way to contain costs and to house lower ranked officers and enlisted personnel. Further discussion of the civilian housing market is found in Chapter 5, while a detailed discussion of what the Army built is found in Chapter 6.

The numbers of on-post Army family housing units constructed were dependent on DoD standards and policies, legislated constraints on family housing units costs and sizes, and congressional authorizations and monetary appropriations. The prosecution of the Vietnam War had a direct effect on the Army housing appropriations and the types and numbers of housing constructed. The more money diverted to the war effort during the time period 1965-1968, the fewer family housing units were constructed. The numbers of family housing units increased as the Vietnam War wound down during the early 1970s and as the Army transitioned to an All-Volunteer Army.

Despite challenges in planning, authorization, funding and construction, the Army retains over 7,500 family housing units on active Army installations. Army military housing has been recognized as an important theme in U.S. military history contributing to the physical evolution of military installations as well as embodying the U.S. national response to societal and demographic change within our largest military institution. As summed up by Mr. Filiakas in testifying before Congress in 1973, "In summary, I would say that the DOD military family housing program reflects a balanced approach to achieving our objective of decent and adequate housing for all servicemen and families, by continuing a prudent and moderate on-base construction and improvement program coupled with an aggressive policy for obtaining suitable off-base housing in the civilian communities near our military installations" (United States Congress 1973a:127).

## **Chapter 4: Demographic and Social Changes and the Impact on Housing during the Vietnam War Era**

### **Introduction**

Complex demographic changes in American society were reflected in an increasingly segmented private-sector residential housing market during the Vietnam War Era. The country's overall population had grown from 152 million in 1950 to 205 million in 1970 (United States Census Bureau var.). This growth was accompanied by major societal changes that influenced nationwide expectations on the size, plan, and types of housing offered in the private sector.

Changing demographics facilitated the introduction of new housing products as income levels and the cost of housing rose. The resulting housing market afforded greater diversity and the market historically dominated by single-family dwellings on individual lots began to accommodate variety in housing choice. These changes occurred as marketing efforts in the housing industry became more sophisticated. Advertisers and purveyors of good taste helped create consumer demand, which, in turn, influenced residential construction. Broad societal demographic changes occurred against the backdrop of racial injustice as Federal efforts to eliminate barriers to free access to housing increased during the era.

### **Demographic Changes**

#### **Changing Household Type, Size, and Number**

Women played an important role in the evolving Vietnam War Era housing market. The number of single-person households increased during the period, in part due to women entering the workforce.

Women also headed households in greater numbers. Whether working after college and before marriage, following a divorce or death of spouse, or to augment the family income, more women joined the workforce in an expanded number of occupations. Consequently, working women contributed to the demand for variety in housing types and for safe and convenient housing locations. Women often were excluded from mortgage financing based on sex and income. Mortgages frequently required the guarantee of a male family member or outright cash sale. As a result, households headed by women accounted for a disproportionate percentage of the rental market.

As noted in Table 4.1, the number of single-person households steadily grew between 1963 (n = 7,501) and 1975 (n = 13,939). However, the formation of the single-person household was not the only demographic change. Two-person households also grew during the period, increasing from 15,279 in 1963 to 21,753 in 1975. These households could comprise, as defined by the U.S. Census Bureau, young married couples or retirees, a group for which single-family, multi-bedroom houses often was unappealing. Large households having five or more members remained relatively constant.

**Table 4.1** *Households by Size: 1963 to 1975*

Year	All households	Number of people							Average number of people per household
		One	Two	Three	Four	Five	Six	Seven or more	
1975	71,120	13,939	21,753	12,384	11,103	6,399	3,059	2,484	2.94
1974	69,859	13,368	21,495	11,913	10,900	6,469	3,063	2,651	2.97
1973	68,251	12,635	20,632	11,804	10,739	6,426	3,245	2,769	3.01
1972	66,676	12,189	19,482	11,542	10,679	6,431	3,374	2,979	3.06
1971	64,778	11,446	18,892	11,071	10,059	6,640	3,435	3,234	3.11
1970	63,401	10,851	18,333	10,949	9,991	6,548	3,534	3,195	3.14
1969	62,214	10,401	18,034	10,769	9,778	6,387	3,557	3,288	3.19
1968	60,813	9,802	17,377	10,577	9,623	6,319	3,627	3,488	3.23
1967	59,236	9,200	16,770	10,403	9,559	6,276	3,491	3,550	3.28
1966	58,406	9,093	16,679	9,993	9,465	6,257	3,465	3,465	3.30
1965	57,436	8,631	16,119	10,263	9,269	6,313	3,327	3,514	3.31
1964	56,149	7,821	15,622	10,034	9,565	6,328	3,373	3,405	3.33
1963	55,270	7,501	15,279	9,989	9,445	6,240	3,473	3,342	3.33

(Numbers in thousands, except for averages)

Source: U.S. Census Bureau var.

A review of the census data suggests that, in general, the average number of people per household steadily declined from 3.33 in 1963 to 2.94 in 1975 (United States Census Bureau var.).

The number of households grew steadily during the 1963-1975 time period, with married couples representing the overwhelming number of households. More than 40,000,000 married-couple households were enumerated in census data; that number grew to more than 46,000,000 in 1975. The period also saw the number of female householders steadily increase. In 1963, the number of female households was

**Table 4.2 Households by Type: 1963 to 1975**

Year	Total households	Family households			
		Total	Married couples	Other family	
				Male householder	Female householder
1975	71,120	55,563	46,951	1,485	7,127
1974	69,859	54,917	46,787	1,421	6,709
1973	68,251	54,264	46,297	1,432	6,535
1972	66,676	53,163	45,724	1,331	6,108
1971	64,778	52,102	44,928	1,254	5,920
1970	63,401	51,456	44,728	1,228	5,500
1969	62,214	50,729	44,086	1,221	5,422
1968	60,813	50,012	43,507	1,195	5,310
1967	59,236	49,086	42,743	1,190	5,153
1966	58,406	48,399	42,263	1,163	4,973
1965	57,436	47,838	41,689	1,167	4,982
1964	56,149	47,381	41,341	1,204	4,836
1963	55,270	46,872	40,888	1,295	4,689

(Numbers in thousands)

Source: United States Census Bureau var.

more than 4,600,000; by 1975, that number had grown to more than 7,000,000. At the same time, the number of male households remained approximately the same: 1,295,000 in 1963 and 1,485,000 (United States Census Bureau var.). Table 4.2. presents data on the number of households during the Vietnam War Era. The increasing rate of household formation during the period resulted in a corresponding demand for housing, which in turn led to a record level of new house construction (United States Department of Housing and Urban Development 1974:205).

Retirees and young adults particularly contributed to the increase in household formation. Retirees were able to live independently of their adult children. At the same time, adult children could afford to leave their family homes and establish households at earlier ages than before (United States Department of Housing and Urban Development 1974:166).

According to a 1968 HUD survey, the overwhelming majority of households moving to new housing units were families, with 95 percent of households comprised of a husband and wife moving to new single-family houses and 62 percent of households comprising a husband and wife moving to rental units. Those households moving to rental units were childless or had only one child, while those moving into single-family houses had four or more family members (United States Department of Housing and Urban Development 1969:8). Households moving into new housing units generally were headed by middle age white men. Households headed by women moved from owner-occupied units to new rental units (United States Department of Housing and Urban Development 1969:9). Few racial minorities moved to new owner-occupied units. More commonly they moved to new rental units, and those moving to rental units had a significantly higher income, “earnings in the top third of the income distribution for all nonwhite families, likely due in part to the FHA’s discriminatory policies. Less than half of the nonwhite families occupying new single-family homes of their own had earnings that high”. In fact, more than half of the nonwhite families surveyed who moved to new owner-occupied housing had incomes below \$6,000 (\$45,342 in 2020 dollars) (Friedman n.d.; United States Department of Housing and Urban Development 1969:9).

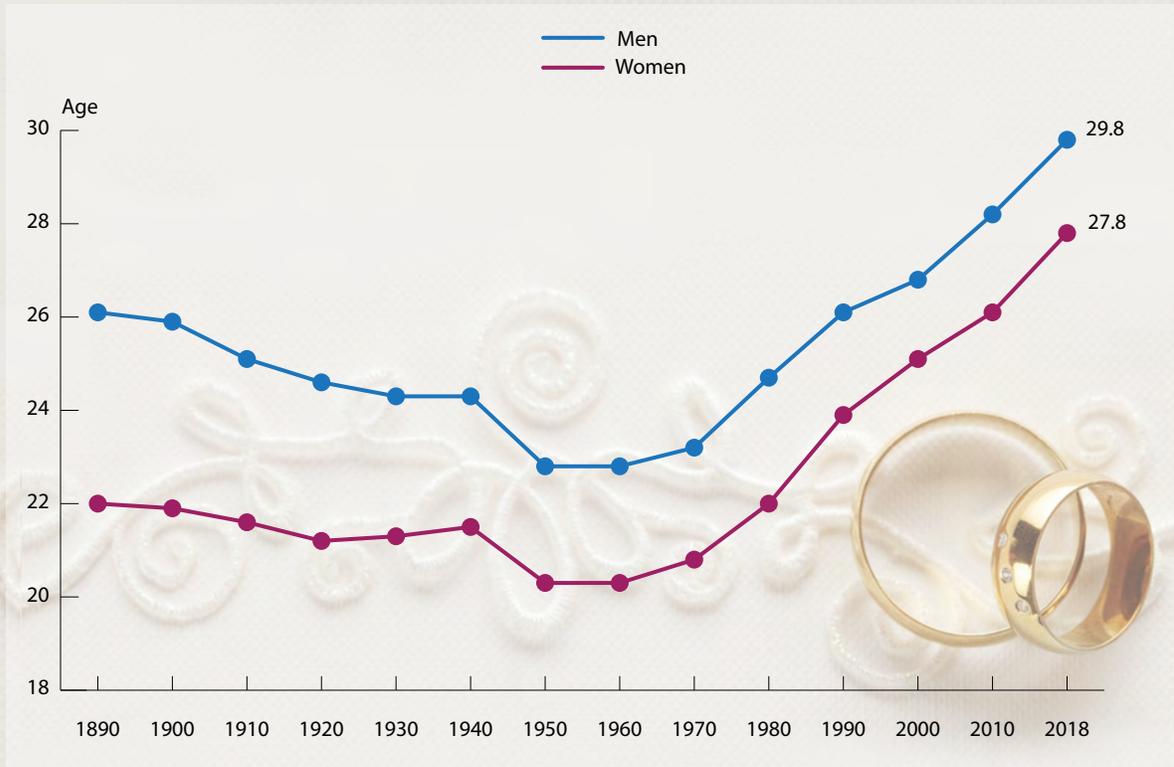
### **Changing Birth and Marriage Rates**

Marriage and household formation rates changed during the post-World War II period and had implications for the future housing market. The average age for marriage for women dropped from 22 to 20 years, with some women marrying in their teens during the years following the end of World War II. The postwar prosperity and the “pro-family social attitudes . . . stimulated earlier marriages and a sharp, albeit temporary, upturn in childbearing” (Wetzel 1990:7). This trend in young-age-at-marriage began to recede by 1964. After that date, the median age for marriage rose, reaching 25.1 by 2000 (California Department of Transportation 2011:28). After peaking in 1957, at the height of the baby boom, the fertility rate fell by the early 1970s to below the replacement level necessary to offset the death rate; it remained low through the late twentieth century (Wetzel 1990:9).

The rise in age of first marriage represented a “profound behavioral change . . . because older ages at first marriage are associated with lower divorce rates” (Wetzel 1990:7). Figure 4.1 presents age at first marriage over time. A corresponding decline in the birth rate resulted in a decline in household

# People are Waiting to Get Married

Median Age at First Marriage: 1890 to Present



United States<sup>®</sup>  
**Census**  
Bureau

U.S. Department of Commerce  
Economics and Statistics Administration  
U.S. CENSUS BUREAU  
[census.gov](https://www.census.gov)

Source: 1890 to 1940 Decennial Censuses and 1950 to 2018  
Current Population Survey, Annual Social  
and Economic Supplements  
[www.census.gov/prod/www/decennial.html](https://www.census.gov/prod/www/decennial.html) and  
[www.census.gov/topics/families.html](https://www.census.gov/topics/families.html)

**Figure 4.1** Age at First Marriage

Source: United States Census Bureau var.

size during the 1970s (United States Department of Housing and Urban Development 1974:166). Marriage remained extremely popular through the period; 84 percent of Americans aged 30 to 44 were married in 1970 (Fry and Cohn 2010).

## Income and Wages

Incomes also increased between 1950 and 1970. The median household income grew 189 percent for homeowners and 125 percent for renters, while the cost of living grew only 61 percent. Because incomes grew more than the cost of living, homeowners and renters were able to improve the quality and size of their housing (United States Department of Housing and Urban Development 1974:166). Table 4.3 characterizes the typical American household. As the table illustrates, the median home value increased between 1950 (n = \$7,400) (\$ 80,830 in 2020 dollars) and 1970 (n = \$17,100) (\$115,774 in 2020 dollars) and rents grew from \$42 per month in 1950 to \$108 in 1970 (\$459 and \$731 in 2020 dollars) (Friedman n.d.).

**Table 4.3** *Characteristics of the Typical American Household*

Characteristic	1950	1960	1970
Median income of families and primary individuals			
Owner	\$3,360	\$5,900	\$9,700
Renter	\$2,800	\$4,100	\$6,300
Median home value <sup>1</sup>	\$7,400	\$11,900	\$17,100
Median value/income ratio <sup>1</sup>	2.09	1.92	1.79
Median gross rent <sup>2</sup>	\$42	\$71	\$108
Median gross rent as percentage of income <sup>2</sup>	17.9%	19.7%	21.0%
Median persons per household	3.1	3.0	2.7
Median number of rooms	4.6	4.9	5.1
Median persons per room	Less than 0.75	0.59	0.50

<sup>1</sup> One family homes on less than 10 acres with no business on property.  
<sup>2</sup> Excludes one family homes on 10 acres or more.  
 Source: Department of Commerce, Bureau of the Census, Census of Housing, 1950, 1960, 1970.

Source: United States Department of Housing and Urban Development 1974:170.

The estimated median income for men was \$40,521 (in 2019 dollars) in 1963. After dropping to \$38,000 (in 2019 dollars), the estimated median income continued to rise and peaked at \$44,778 (in 2019 dollars) in 1973. As a general rule, a man married during the 1960s and 1970s, was unlikely to have a spouse who was a breadwinner (Fry and Cohn 2010; United States Census Bureau var.).

The estimated median income in 1963 was \$14,892 (in 2019 dollars) for women. Like men, women's estimated median income rose during the period. Women's median income peaked in 1972 at \$17,438 (in 2019 dollars). Despite increasing wages, men continued to out-earn women, with men earning nearly twice the salary of a women during the period. In 1970, for example, median earnings

for full-time women employees was 52 percent of that of men (Fry and Cohn 2010). Forty-five percent of women 16 and older were in the labor force in 1973 (Fry and Cohn 2010; U.S. United States Census Bureau var.).

Full-time women workers with year round employment had significantly higher median earnings than part-time or seasonal women workers. Even though women's median earnings increased between 1963 and 1975, the female-to-male earnings ratio remained relatively constant (United States Census Bureau var.). Table 4.4 presents data on women and men earnings. As noted above, higher incomes resulted in better housing outcomes.

The per capita income of American workers grew from \$2,464 (\$16,536 in 2019 dollars) to \$4,818 (\$20,874 in 2019 dollars) during the time period (United States Census Bureau var.). Those households at the lowest fifth of the income ladder had annual incomes of \$3,000 (\$10,124 in 2019 dollars) in 1973, while those at lowest end of the upper income bracket had annual incomes of \$19,000 (\$127,513 in 2019 dollars). By 1975, the income of the lowest fifth rose to \$5,000 (\$21,663 in 2019 dollars) and income of the lower end of upper income households rose to \$32,129 (\$139,201 in 2019 dollars) (United States Census Bureau var.). By comparison, Army enlisted grade E-04 with four years of service, the most junior enlisted person for whom much of the Vietnam War Era housing was constructed, earned \$2,727.60 in basic pay and BAQ (\$23,100 in 2019 dollars) in 1963; he earned \$5,896.80 (\$23,100 in 2019 dollars) in 1973. An E-05 earned \$3,002.88 (\$25,437 in 2019 dollars) in 1963, and \$6,271.92 in 1973 (\$36,598.86 in 2019 dollars). Chapter 3 presents more detailed information on military pay rates on Table X. Household income levels for the years 1967 (the earliest date for which such data were available) and 1975 are presented in Table 4.5.

Income level, homeowner age, and family size affected the types of housing purchased. In general, householders who "traded up" were older and wealthier than those entering homeownership for the first time. Indeed, new housing units served a specific segment of the population: those who could afford to trade up. Established households with older children traded-up into larger houses more compatible with their lifestyles and expectations. Larger houses were more expensive to build; marketing and builders targeted families with the financial means to trade up from a smaller, older dwelling to one that was newer and larger. Families acquiring these larger dwellings were not repre-

**Table 4.4. Number and Real Median Earnings of Workers by Sex – 1963 to 1975**

<b>Number and Real Median Earnings of Total Workers and Full-Time, Year-Round Workers by Sex and</b>								
(Earnings in 2019 dollars, adjusted using the CPI-U-RS. People 15 years and older as of March of the following year beginning in 1980, and people 14 years old and older in 1963. For more information on nonsampling error, and definitions, see < <a href="https://www2.census.gov/programs-surveys/cps/techdocs/cpsmar20.pdf">https://www2.census.gov/programs-surveys/cps/techdocs/cpsmar20.pdf</a> >)								
Year	Total workers							
	Male				Female			
	Number of workers (thousands)		Median earnings (dollars)		Number of workers (thousands)		Median earnings (dollars)	
	Total	With earnings	Estimate	Margin of error <sup>1</sup> (±)	Total	With earnings	Estimate	Margin of error <sup>1</sup> (±)
1975 <sup>18</sup>	59,509	59,268	41,913	371	43,725	42,926	17,127	299
1974 <sup>18,19</sup>	60,102	59,866	42,765	N	43,694	42,854	16,706	N
1973	59,816	59,438	44,778	N	42,835	41,583	16,855	N
1972 <sup>20</sup>	58,194	57,774	43,793	N	40,723	39,470	17,438	N
1971 <sup>21</sup>	57,303	56,886	41,703	N	39,910	38,485	16,855	N
1970	56,265	55,821	42,140	N	39,682	38,273	16,085	N
1969	55,700	55,273	42,651	N	39,060	37,737	15,851	N
1968	55,095	54,026	41,602	N	38,279	35,695	16,222	N
1967 <sup>22</sup>	54,412	53,222	40,402	N	36,971	34,391	15,778	N
1966 <sup>23</sup>	53,016	N	40,854	N	35,295	N	16,361	N
1965 <sup>24</sup>	N	N	38,461	N	N	N	16,505	N
1964	51,978	N	38,091	N	33,146	N	15,465	N
1963	51,039	N	40,521	N	32,188	N	14,892	N

N Not available.

<sup>1</sup> A margin of error (MOE) is a measure of an estimate’s variability. The larger the MOE in relation to the size of the estimate, the less reliable the estimate. This number, when added to and subtracted from the estimate, forms the 90 percent confidence interval. MOEs shown in this table are based on standard errors calculated using replicate weights. For more information, see “Standard Errors and Their Use” at <<https://www2.census.gov/library/publications/2020/demo/p60-270sa.pdf>>.

<sup>2</sup> Estimates reflect the implementation of an updated data processing system, allowing users to evaluate the impact, and should be used to make comparisons to 2018 and subsequent years.

<sup>3</sup> The 2014 CPS ASEC included redesigned questions for income and health insurance coverage. All of the approximately 98,000 addresses were eligible to receive the redesigned set of health insurance coverage questions. The redesigned income questions were implemented to a subsample of these 98,000 addresses using a probability split panel design. Approximately 68,000 addresses were eligible to receive a set of income questions similar to those used in the 2013 CPS ASEC and the remaining 30,000 addresses were eligible to receive the redesigned income questions. The source of these 2013 estimates is the portion of the CPS ASEC sample which received the redesigned income questions, approximately 30,000 addresses.

<sup>4</sup> The source of these 2013 estimates is the portion of the CPS ASEC sample which received the income questions consistent with the 2013 CPS ASEC, approximately 68,000 addresses.

<sup>5</sup> Implementation of 2010 Census-based population controls. Beginning with 2010, MOEs in this table were calculated using replicate weights. Before 2010, MOEs were calculated using the generalized variance function.

<sup>6</sup> Median earnings are calculated using \$2,500 intervals. Beginning with 2009 income data, the Census Bureau expanded the upper income intervals used to calculate medians to \$250,000 or more. Medians falling in the upper open-ended interval are plugged with “\$250,000.” Before 2009, the upper open-ended interval was \$100,000 and a plug of “\$100,000” was used.

<sup>7</sup> Data have been revised to reflect a correction to the weights in the 2005 CPS ASEC.

<sup>8</sup> Implementation of a 28,000 household sample expansion.

<sup>9</sup> Implementation of 2000 Census-based population controls.

<sup>10</sup> Full implementation of 1990 Census-based sample design and metropolitan definitions, 7,000 household sample reduction, and revised editing of responses on race.

<sup>11</sup> Introduction of 1990 Census sample design.

## Female-to-Male Earnings Ratio: 1960 to 2019

...er as of March of the following year for previous years. Before 1989 earnings are for civilian workers only. For information on confidentiality protection, sampling error,

Full-time, year-round workers								
Male				Female				Female-to-male earnings ratio
Number of workers (thousands)		Median earnings (dollars)		Number of workers (thousands)		Median earnings (dollars)		
Total	With earnings	Estimate	Margin of error <sup>1</sup> (±)	Total	With earnings	Estimate	Margin of error <sup>1</sup> (±)	
37,316	37,267	55,275	356	17,738	17,452	32,512	271	0.588
N	37,916	55,622	393	N	16,945	32,680	262	0.588
39,643	39,581	57,692	N	17,547	17,195	32,673	N	0.566
38,234	38,184	55,911	N	16,976	16,675	32,351	N	0.579
36,868	36,819	53,054	N	16,353	16,002	31,571	N	0.595
36,193	36,132	52,828	N	15,805	15,476	31,363	N	0.594
37,055	37,008	50,862	N	15,678	15,374	30,769	N	0.605
37,099	37,068	49,494	N	15,336	15,013	28,783	N	0.582
36,695	36,645	48,200	N	15,141	14,846	27,852	N	0.578
N	N	47,450	N	N	N	27,310	N	0.576
N	N	45,465	N	N	N	27,245	N	0.599
N	N	44,826	N	N	N	26,514	N	0.591
N	N	43,803	N	N	N	25,820	N	0.589

<sup>12</sup> Data collection method changed from paper and pencil to computer-assisted interviewing. In addition, the 1994 CPS ASEC was revised to allow for the coding of different income amounts on selected questionnaire items. Limits either increased or decreased in the following categories: earnings limits increased to \$999,999; social security limits increased to \$49,999; supplemental security income and public assistance limits increased to \$24,999; veterans' benefits limits increased to \$99,999; child support and alimony limits decreased to \$49,999.

<sup>13</sup> Implementation of 1990 Census population controls.

<sup>14</sup> Implementation of a new CPS ASEC processing system.

<sup>15</sup> Recording of amounts for earnings from longest job increased to \$299,999. Full implementation of 1980 Census-based sample design.

<sup>16</sup> Implementation of Hispanic population weighting controls and introduction of 1980 Census-based sample design.

<sup>17</sup> Implementation of 1980 Census population controls. Questionnaire expanded to allow the recording of up to 27 possible values from a list of 51 possible sources of income.

<sup>18</sup> First year medians were derived using both Pareto and linear interpolation. Before this year, all medians were derived using linear interpolation.

<sup>19</sup> Some of these estimates were derived using Pareto interpolation and may differ from published data, which were derived using linear interpolation.

<sup>20</sup> Implementation of a new CPS ASEC processing system. Questionnaire expanded to ask 11 income questions.

<sup>21</sup> Full implementation of 1970 Census-based sample design.

<sup>22</sup> Introduction of 1970 Census sample design and population controls.

<sup>23</sup> Implementation of a new CPS ASEC processing system.

<sup>24</sup> Questionnaire expanded to ask eight income questions.

<sup>25</sup> Implementation of new procedures to impute missing data only.

<sup>26</sup> Full implementation of 1960 Census-based sample design and population controls.

<sup>27</sup> Introduction of 1960 Census-based sample design. Implementation of first hotdeck procedure to impute missing income entries.

Source: U.S. Census Bureau, Current Population Survey, 1961 to 2020 Annual Social and Economic Supplements (CPS ASEC).

**Table 4.5 Income Limits of Each Fifth and Top 5 Percent of All Households: 1967 to 1975**

<b>Income Limits for Each Fifth and Top 5 Percent of All Households: 1967 to 1975</b>						
(Households as of March of the following year. Income in current and 2019 CPI-U-RS adjusted dollars (28))						
<b>Current Dollars</b>						
Year	Number (thousands)	Upper limit of each fifth (dollars)				Lower limit of top 5 percent (dollars)
		Lowest	Second	Third	Fourth	
1975 (16)	72,867	5,000	9,384	14,180	20,360	32,129
1974 (16)(15)	71,163	4,860	9,015	13,321	19,333	30,600
1973	69,859	4,397	8,455	12,510	18,012	28,950
1972 (14)	68,251	4,050	7,800	11,528	16,500	26,555
1971 (13)	66,676	3,800	7,244	10,660	15,200	24,138
1970	64,778	3,688	7,065	10,276	14,661	23,175
1969	63,401	3,575	6,860	9,921	13,900	21,800
1968	62,214	3,323	6,300	9,030	12,688	19,850
1967 (12)	60,813	3,000	5,850	8,303	11,840	19,000
<b>2019 Dollars</b>						
Year	Number (thousands)	Upper limit of each fifth (dollars)				Lower limit of top 5 percent (dollars)
		Lowest	Second	Third	Fourth	
1975 (16)	72,867	21,663	40,657	61,436	88,211	139,201
1974 (16)(15)	71,163	22,787	42,268	62,458	90,646	143,473
1973	69,859	22,678	43,607	64,521	92,898	149,311
1972 (14)	68,251	22,195	42,747	63,177	90,426	145,531
1971 (13)	66,676	21,450	40,890	60,172	85,799	136,251
1970	64,778	21,730	41,627	60,546	86,383	136,548
1969	63,401	22,102	42,410	61,334	85,933	134,773
1968	62,214	21,460	40,685	58,316	81,939	128,191
1967 (12)	60,813	20,134	39,261	55,723	79,461	127,513

Source: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplements (CPS ASEC). For information on confidentiality protection, sampling error, nonsampling error, and definitions, see <<https://www2.census.gov/programs-surveys/cps/techdocs/cpsmar20.pdf>>.

Footnotes are available at <[www.census.gov/topics/income-poverty/income/guidance/cps-historic-footnotes.html](http://www.census.gov/topics/income-poverty/income/guidance/cps-historic-footnotes.html)>.

Citation: <https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-income-households.html>

sentative of first-time homeowners. The new housing market generally served higher income buyers, and new housing attracted those who sought amenities only available in new housing. New housing frequently was unaffordable to lower income households (United States Department of Housing and Urban Development 1969:2). The new house owners between 35 and 44 years old represented the largest segment of the single-family housing market; while householders under 35 tended to be renters (*House and Home* Feb. 1963:92).<sup>1</sup>

### **The Result of Demographic and Societal Changes on the Housing Market**

The small house construction that dominated the interwar and immediate post World War II periods gave way to the construction of larger houses with expanded living areas, more bedrooms, and more bathrooms. Small, affordable dwellings met the historically high demand for housing following the conclusion of World War II. After the immediate housing shortage subsided, the target for new house construction changed. The housing industry was no longer directed at constructing as many houses as possible as quickly as possible to alleviate the housing shortages of the Great Depression, and expanding peace-time economy. The housing industry of the 1960s pivoted from the inter-war and postwar paradigms. New house construction evolved to meet the dual demands for choice in housing (i.e., condominiums, apartments, and townhouses) and to larger houses having more rooms. These houses not only had greater square footages than earlier models, they also had more bedrooms, more bathrooms, and more specialized space (i.e., separate dining rooms, living rooms, and recreation rooms).

HUD data provides concrete statistics on evolving house size during the period. Houses increased in size and room number between 1966 and 1974. While the number of houses sold or sold while under construction between 1966 and 1974 fluctuated in size from between 1,000 to over 2,400 square feet, houses over 1,000 square feet consistently comprised a larger segment of the housing market. The volume of housing built or sold while under construction that was under 1,000 square feet in size shrank as the pool of larger houses increased (United States Department of Commerce 1975:15). The comparison between the number of houses under 1,000 square feet that were constructed be-

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<sup>1</sup> Due to inconsistent pagination, the page number refers to the PDF page number and not the page number printed on the magazine page.

tween 1971 and 1974 with the number of houses greater than 2,400 square feet illustrates the move towards bigger dwellings. Between 1971 and 1974, nation-wide construction of 1,000 square foot houses decreased from 115,000, to 106,000, to 82,000; and finally, to 60,000 units. The larger house construction inverted the trend for the same time period: from 84,000, to 97,000, to 125,000, and to 115,000 dwellings (United States Department of Commerce 1975:15).

The results of a 1968 survey conducted by HUD presented statistical data on interior plans over time. Of the single-family houses completed in 1959 through March 1960, 21 percent contained four rooms or fewer, 38 percent contained five rooms, and 5 percent contained 8 or more rooms. In contrast, by the late 1960s, 7 percent of new single-family houses contained 4 rooms or fewer, 29 percent had five rooms, and 19 percent had 8 rooms or more. Up until the early 1960s, the average size of owner-occupied units in the housing inventory declined “because new units on the average were considerably smaller than the large stock of sizeable units built prior to 1939 (United States Department of Housing and Urban Development 1969:10). By the 1960s, that trend was reversed.

Increased house sizes were attributable to a greater number of bedrooms as well as to an increase total number of rooms, as dens, recreation rooms, and separate dining rooms became popular. A greater number of bathrooms also became the norm (United States Department of Housing and Urban Development 1969:11). Between 1966 and 1974, three-bedroom houses dominated the housing market. This house type generally, comprised over 60 percent of houses completed and sold/started between 1971 and 1974. Four-bedroom houses were the second most popular, generally representing 25 percent of the houses completed and sold/started. Houses completed with two bedrooms or less comprised less than 15 percent of the housing market (United States Department of Commerce 1975:27).

Three-quarters of the houses surveyed by HUD in 1968 survey had more than one bathroom; by comparison, less than one quarter of the houses constructed in 1960 had multiple bathrooms (United States Department of Housing and Urban Development 1969:11). Approximately 10 percent of the houses built during the 1960s had 2.5 bathrooms. Nearly 17 percent of houses constructed during the 1970s had 2.5 bathrooms. In general, more than 60 percent of new houses sold/started and completed had more than one bathroom between 1966 and 1974; the two-bath dwelling was the most common (Sarkar 2011:3; United States Department of Commerce 1975:33).

The 1968 HUD survey noted the desire for homeownership was a significant and important motivator for those who moved into new units. As HUD explained in its report, “their heavy responses in terms of desiring ownership is indicative of the weight of this motivation in home purchase decisions” (United States Department of Housing and Urban Development 1969:23). Family size and income, while important, were not the prominent reasons for homeownership (United States Department of Housing and Urban Development 1969:23).

The number of two-story and split-level houses grew dramatically during the 1960s; a trend that continued into the 1970s. As the children of baby boomers entered their teenage years, their parents looked for larger houses that could accommodate changing living styles. Concurrently, the rising cost of land compelled builders to maximize the number of dwelling units within a development. These combined forces manifested in the rising popularity of two-story dwellings and made the sprawling ranch less economically viable (California Department of Transportation 2011:78).

The postwar family typically included five family members living in an 800 square-foot dwelling with two bedrooms and one bath. By the 1960s, houses got bigger and in some cases nearly tripled the size of the typical 1950s dwelling, and occupied larger lots. Houses grew in size as the size of the typical family became smaller (Hayden 2003:190). Land consumption for residential uses grew faster than the population growth projections and increasing house sizes impacted the environment and land use management decisions (Hayden 2003:190).

In general, smaller families were living in larger houses. However, some housing consumers rejected that model. Unmarried households, new households, and widowed/widower households demanded smaller housing, such as apartments, condominiums, and townhouses, to meet their specific needs.

### **The Cost of Housing**

The average cost of a new house in the late 1960s ranged from \$12,500 to \$25,000, with approximately 17 percent of the new houses constructed costing less than \$12,500. Twenty-eight percent of new houses cost more than \$25,000 (United States Department of Housing and Urban Development 1969:15).

The cost of housing increased dramatically during the early 1970s; this rapid increase represented a “recent phenomenon” in the housing market (United States Department of Housing and Urban Development 1974:206). Rising housing costs were less rapid than rising American incomes (United States Department of Housing and Urban Development 1974:207). High mortgage interest rates and increased property taxes, as components of the total cost of homeownership, contributed to the higher cost of housing between 1967 and 1972 (United States Department of Housing and Urban Development 1974:209).

The rising cost of land was a contributing factor to escalating house prices. By 1972, land accounted for a larger percentage of the total new house value than in any time since World War II. The percentage of new house price attributed to land value would have been still larger had it not been for the 12 percent decline in lot size dating from 1967 (United States Department of Housing and Urban Development 1974:211).

By 1974, fewer and fewer new houses were available for less than \$35,000 (\$186,574 in 2020 dollars, and most houses sold for \$40,000 (\$213,227 in 2020 dollars) to \$45,000 (\$239,880 in 2020 dollars) (Friedman n.d.). Houses at the lower end of that price range generally consisted of two-bedroom, single-bathroom houses contained in 1,200 square feet.

Scarcity of land in suburbs adjacent to urban areas led to increased land costs and drove the construction of new neighborhoods further from central cities and established suburbs. While construction costs also rose during the period, the rate of increase was less sharp than increased cost of land. Higher prices for selected materials, particularly lumber, contributed to higher overall construction costs. These market forces and the desire for greater development prompted local and regional officials to promote planned unit development or cluster developments principles. These principles are discussed in greater detail in the following chapter.

### **Types of Housing Constructed**

As the country transitioned into the Vietnam War Era, the demographic changes impacted the types of housing constructed in both the civilian and military sectors. Adults who were in their early twen-

ties during the 1950s often had children who were teenagers by the 1960s. These families began buying houses that were larger and had more rooms than those constructed during the years immediately following the end of the war. At the same time, baby boomers born after the war were reaching adulthood; these newly formed, young households often were childless. The single-person households, the childless couples, and the retiree households sought housing alternatives to three or four bedroom single-family dwellings (Pratt Institute n.d.:10).

By the end of the Vietnam War Era, the single-family housing market had become segmented by demographics: young-married couple with children, mature families with teenagers, empty-nesters and childless couples, and single person households. Childless couples preferred house plans that offered flexibility, such as a den that could be converted to a guest bedroom. Houses that had family rooms, mudrooms, multiple bedrooms, and easy outdoor access from the kitchen appealed to young families. The location of the master bedroom was key; placement near secondary bedrooms was deemed important for families with young children. Older, “move-up” families purchased houses having discreet age-based activity areas in the house: family rooms for teenagers and living rooms for adults. Formal dining rooms also were requested to facilitate entertaining. Master bedrooms were desirable away from the secondary bedrooms (*House and Home* Oct. 1974:98).

Townhouses increasingly became an important segment of the housing market. These affordable units appealed to a select segment of home buyers. In addition, they were favored by planners and as a cost-effective way to increase homeownership and to provide quality housing with amenities. Townhouse design and construction are discussed in greater detail in the following chapter.

## **Social Changes**

### **Consumerism and Good Taste**

Echoing the trend following World War I, the U.S. experienced increased consumerism after World War II, which continued through the twentieth century. The connections between good taste, Americanism, and housing as a medium of social advancement that began after World War II accelerated during the Vietnam War Era. Advertising, which emerged as a field following World War I to cultivate

customers in the competitive market for consumer goods, increased and refined marketing approaches to new technologies. Technological changes in manufacturing enabled mass production of consumer goods for a peace-time market weary of war-time shortages (R. Christopher Goodwin & Associates, Inc. 2021:74-75). Production of consumer goods flooded the market as industry transitioned from war production; American consumers had the money to purchase a vast array of products, including new houses, furnishings, and appliances. Postwar Americans continuously upgraded their consumer goods, with the latest models (Pettis et al. 2012:62). Upgrading to the newest consumer goods also translated into upgrading to a larger and newer house, particularly among households with children. Trading up to a larger house with the latest appliances came to represent economic status (Pettis et al. 2012:63).

At the same time, designers used popular magazines to promote “good taste” to the postwar public. Elizabeth Gordon, editor-in-chief at *House Beautiful* was particularly influential in informing American families, who now had more money and leisure time, on how their postwar houses could embody style, sophistication, and relaxation. She advocated house designs reflecting a less formal living arrangement than had characterized dwellings constructed previously. Modern architecture was best suited to attain those goals (Penick 2017:99).

Through her platform at *House Beautiful*, she promulgated the “American Style,” which incorporated performance, informality, convenience, and comfort, as a design aesthetic having social implications (Penick 2017:97). The American Style captured technology for use in dwelling interiors,

. . . in the form of appliances, gadgetry, new maintenance-free materials, heating, ventilation, or solar shading. Significantly, the American Style-meant to be adopted in suburbs across the nation-adeptly accommodated the most influential technology of the twentieth century: the automobile (Penick 2017:103-104).

Through her Pace Setter houses, Gordon educated the less-discerning consumer who could not afford an architect-designed house and brought high-style to the masses. While the Pace Setters program was launched during the late 1940s, this concept of using a model home to promote good living accelerated during the suburban boom of the 1950s and 1960s. Gordon’s magazine was not the first to use a model home to convey new concepts. *Life*, *Collier’s*, and *Ladies’ Home Journal* had similar programs (Penick 2017:37). *House Beautiful*, however, excelled at using the media to achieve

the goals of improving residential design in the postwar period (Penick 2017:49). She succeeded in making average Americans feel they could attain good taste.

Trade magazines, like *House and Home*, also offered the consumer a “better way of living” by building showcase houses that included the latest in innovation and technology, including “push-pull mixing faucets, prefinished wall paneling, luminous ceilings,” air conditioning, carpeting, and landscaping. The later three exceeded the FHA minimum standards (*House and Home* Oct. 1963:57.).

Gordon’s Pace Setter houses represented a departure from earlier house forms. Gone were the formal living and dining rooms used for entertaining; they were replaced by the family room, eat-in kitchen and recreation room. Outdoor living spaces bridged two functions of family life by combining passive activities like relaxing, lounging, and eating with more active activities as represented in pools and yards where family members could exercise and play. In contrast, the Vietnam War Era civilian housing market experienced a return of the separate living and dining rooms to delineate spaces for adults and children.

The idea of tying consumerism and homeownership to what it meant to be an American played well into the anti-communist fervor that gripped much of the country during the Cold War period. Consumerism and the private construction of new houses were seen as thwarting the twin evils of socialism and communism. As William Levitt was quoted in *Harper’s*, “No man who has a house and lot can be a Communist” (Hayden 2003:135). In other words, the only way to protect Americans from Communism was through Capitalism via homeownership, and all its accompanying goods and products.

Construction of the postwar suburb facilitated mass consumption; homeowners needed to purchase brand new appliances, furniture, and accessories for their new, often larger, houses (Hayden 2003:128). The postwar consumerism was concurrent with the rise of the television advertiser. Airwaves of the 1950s were filled with commercials for model houses that were brimming with the latest consumer goods. In extreme examples of the push towards consumerism, some homeowners purchased items that their houses physically could not accommodate (Harris 2015:322). While Gordon used the model home to promote good taste and to sell new products, television advertisers perfected the means to create the demand. Buying a house, acquiring the latest gadgets and products,

and having good taste, as defined by publications like *House Beautiful* and *House and Home*, were the ways in which American families could express their Americanism.

Homeowners during the Vietnam War Era were receptive to these influences. They had the financial means and the clout to demand housing that replicated what was being promoted by the purveyors of good taste. Single-family homeowners increasingly bought larger houses, with more rooms and the latest amenities.

### **Segregation**

The 1960s marked an important period in American history when African Americans and other marginalized populations sought equal treatment in all aspects of American life, including housing. The Kennedy and Johnson administrations took steps to improve equal access to educational and employment opportunities. The Kennedy administration, and later the Johnson administration, added access to housing as an element to their equal opportunity agendas. The military followed the lead the presidents established in accordance with Executive Branch mandates and directives. The DoD response to segregation is presented in detail in Chapter 3.

The Federal government had a long history of endorsing racial segregation in the housing market. Even as one Federal department promoted desegregation, another agency actively encouraged race-based policies. Beginning in 1930, the FHA supported the creation of new and the maintenance of existing homogeneous neighborhoods based on race and ethnic background. This goal was accomplished through redlining and the promotion of deed restrictions. These practices continued through the 1960s (Rothstein 2017:108). Notably, during the immediate postwar period, the Truman administration desegregated the armed forces. Executive Order 9981 mandated the “equality of treatment and opportunity for all persons in the armed services without regard to race, color, religion or national origin” (Truman 1948). While African Americans could serve with White soldiers, once they left the military, they could not become neighbors in the same neighborhoods. Anti-discrimination policies had a direct effect on DoD housing policy. Federal action to address housing discrimination is addressed below. This policy provides context for DoD action that is discussed in greater detail in Chapter 3.

### ***Federal Agency Policy towards Segregation***

Federal agencies charged with making housing more accessible adopted restrictive policies regarding housing integration. At the same time, the judicial and executive branches reduced some of effects of Federal agency segregation policies. These policies also had implications for military personnel. DoD strategy relied on private-sector housing in neighborhoods located near or adjacent to military installations to meet the housing need. Indeed, off-post, private-sector housing was the preferred option for fulfilling family housing obligations. All too often, the private sector discriminated against service members of color. These discriminatory actions were reflected in landlords who refused to rent to African Americans or through FHA guidelines that discouraged the sale of White-owned properties to Blacks. Housing discrimination hindered the Army's efforts to provide housing.

Between the 1930s through the 1950s, the FHA issued a series of *Underwriting Manuals* that were used to assess neighborhood soundness for the purposes of guaranteeing mortgages. The *Underwriting Manuals* identified the qualities that made a neighborhood a worthy investment as well as recognizing those attributes deemed negative for additional investment. Race and ethnic origin were determining factors for whether builders or property owners could obtain mortgages guaranteed by the Federal government. Although many of the Federal government's housing policies and programs were established during the Great Depression, these policies continued even after the financial crisis had ended. The Homeowners' Loan Corporation (HOLC) was one such agency having a lasting impact on housing policy.

Established in 1933, HOLC, through its branch offices and private-sector appraisers, evaluated neighborhoods based on ethnic and racial composition. Using a grading system to rate neighborhoods from "A" ("Best") to "D" ("Hazardous"), HOLC developed color-coded maps based on the neighborhood rating. The color red was used to designate "D" neighborhoods, with neighborhoods home to immigrants, the working class, and racial minorities receiving "D" ratings. Failure to obtain a rating above a "D" meant property owners in these redlined neighborhoods were unable to take advantage of HOLC's programs (R. Christopher Goodwin & Associates, Inc. 2021:95-96). Consequently, many diverse central city residents were unable to receive the same benefits as their White suburban counterparts.

The FHA, in addition to issuing its *Underwriting Manual*, promoted the racial segregation through the adoption of deed restrictions. In the absence of zoning regulations, deed restrictions were used by property owners and encouraged by the Federal government and local municipalities to restrict uses and to guide the design and construction of new neighborhoods. Beginning in the mid-1930s, the FHA promoted deed restrictions as a means of controlling new development. However, deed restrictions also served dual purposes: they frequently were used to restrict access to housing by ethnic and racial minorities for much of the twentieth century (R. Christopher Goodwin & Associates, Inc. 2021:109-111). Court decisions and Federal law eventually removed restrictive covenants and deeds from the segregation legal tool box.

### *Supreme Court's Role in Effecting Housing Policy*

Several important Supreme Court decisions directly impacted housing discrimination. Each of these rulings chipped away at discriminatory housing practices. In 1948, the U.S. Supreme Court, in a unanimous six-justice ruling, determined racially restrictive covenants unconstitutional. This opinion was in direct contrast to FHA policy and procedures (Rothstein 2017:88). The case was the result of the objections of White homeowners, Louis and Fern Kraemer, to the purchase of a house in their neighborhood by J.D. and Ethel Shelley, who were African American. Unbeknownst to the Shelleys, the property in question was subject to restrictive covenants prohibiting the sale of the property in the St. Louis, Missouri, neighborhood to Blacks (Vinson 1948:5). In its opinion, the high court observed:

It should be noted that these covenants do not seek to proscribe any particular use of the affected properties. Use of the properties for residential occupancy, as such, is not forbidden. The restrictions of these agreements, rather, are directed toward a designated class of persons and seek to determine who may and who may not own or make use of the properties for residential purposes. The excluded class is defined wholly in terms of race or color; “‘simply that and nothing more.’” (Vinson 1948:10).

The Court determined enforcement of the stipulations of restrictive covenants based on race were a violation of the Fourteenth Amendment. The Court further recognized “Because of the race or color of these petitioners they have been denied the rights of ownership or occupancy enjoyed as a matter of course by other citizens of different race or color” (Vinson 1948:20-21).

Three of the justices, Reed, Jackson, and Rutledge, excused themselves from participating in the case: questions over their objectivity might have been raised as the properties in which they resided were subject to racial restrictions (Rothstein 2017:91; Vinson 1948:23). Despite the 1948 ruling, the inclusion of such provisions in deeds continued until a Federal appeals court ruled that such provisions violated the Federal Housing Act of 1968 and that “recording deeds with such clauses would constitute state action in violation of the Fourteenth Amendment (Rothstein 2017:90).

*Shelley v. Kraemer* did not prohibit private property owners or developers from refusing to sell to African Americans. Such a prohibition did not occur until 1953, when the Supreme Court decided *Barrows v. Jackson*. In the *Barrows* decision, the Court maintained property owners could not collect damages from White property owners who violated the provisions of restrictive covenants by selling to African Americans “on the grounds that the white sellers more or less represented the interest of minority purchasers” (Brooks and Rose 2010:12). In other words, neighbors could no longer sue one another for violating the terms of the restrictive covenants (California Department of Transportation 2011:30).

The Supreme Court further ruled on race-based housing discrimination in an opinion issued at the end of the 1960s. In *Jones v. Mayer*, it ruled all housing discrimination unconstitutional. The decision was centered on a bi-racial couple in St. Louis, Missouri who attempted to purchase a tract house. The ruling covered all aspects of housing: new and existing housing, rental and for-sale housing, public and privately financed housing. The decision was based on legislation enacted in 1866 to protect former slaves. Specifically, the nineteenth century law stated:

‘All citizens of the United States shall have the same right, in every state and territory, as is enjoyed by white citizens thereof to inherit, purchase, lease, sell, hold and convey real and personal property’ (*House and Home* July 1968:12).

In rendering the Court’s 7 to 2 decision, Justice Potter Stewart stated Congress guaranteed African Americans “the freedom to buy whatever a white man can buy, the right to live wherever a white man can live” (Cornell Law School n.d.; *House and Home* July 1968:12).

### *Executive Branch Efforts to Address Housing Segregation*

Executive branch action regarding housing discrimination was concurrent with Supreme Court rulings. Both the Kennedy and Johnson administrations undertook efforts to combat discrimination in housing. These efforts coincided with the nationwide civil rights movement. The civil rights movement gained traction among large segments of the American population during the 1960s. Black Americans' struggle for the right to vote and to attend schools of their choice extended to the right to equal opportunity in housing. The Kennedy administration took modest steps to address housing discrimination. Presidential action accelerated after Kennedy's assassination, when President Johnson took up the mantle of equal access to housing.

#### *President Kennedy's Executive Order*

In 1962, President John F. Kennedy continued the modest advances made towards fair and equal access to housing when he issued Executive Order 11063—Equal Opportunity in Housing—on 20 November 1962. The executive order recognized housing discrimination as inconsistent with the public policy of the country as expressed in the Constitution; that discrimination denied Federal housing assistance to Americans based on their color, race, national origin, or religion; and that discrimination resulted in segregation (Kennedy 1962).

The executive order directed Federal agencies, including the FHA, to “take all action necessary and appropriate to prevent discrimination because of race, color, creed, or national origin” in all housing (for sale, leased, or rented) owned, insured, or guaranteed by the Federal government and to take appropriate action, including litigation, to end discrimination (Kennedy 1962). The order further directed Federal agencies to submit to the President's Committee on Equal Opportunity in Housing, which the executive order established, a list of programs affected by the order. All departments and agencies were responsible for adherence to the order and were required to submit within 30 days rules, regulations, procedures, and policies that would result in compliance with the order (Kennedy 1962). The DoD was not exempt from compliance, and the executive order had an immediate effect on Army housing policy. The military services subsequently developed policies and programs to meet the terms of the order.

Under the executive order, Federal agencies that determined any person, organization, or agency violated the terms of the order could “end and remedy such violation” by canceling or terminating any agreement or contract, in whole or in part, refrain from providing aid to such entity, or invoke sanctions against such violator (Kennedy 1962). Kennedy’s executive order “attempted to end the financing of residential segregation by federal agencies” (Rothstein 2017:177).

The building industry was lukewarm to Kennedy’s executive order barring racial discrimination in Federal housing programs. The industry sought relief from potential financial loss associated with compliance (*House and Home* Jan. 1963:3). Some builders were more receptive to Kennedy’s mandate than others.

Levittown, New Jersey, for example, did not provide a welcoming reception to African Americans looking to move to the neighborhood. Indeed, the New Jersey neighborhood was subject to protests by the National Association for the Advancement of Colored People (NAACP), the American Friends Service Committee, and a state agency, despite Kennedy’s directive (Housing and Home Finance Agency 1964:12). By contrast, Eichler Homes and Hankin Homes developed reputations for their non-discrimination and open-occupancy policies (Housing and Home Finance Agency 1964:8). Open-occupancy was a term used during the early 1960s to indicate a developer sold or rented to prospective residents regardless of race as opposed to those who only sold or rented property to prospective White residents. Even by the mid-1960s, Levittown remained predominately White. By 1964, 30 African American families had moved to a neighborhood of 5,500 (Housing and Home Finance Agency 1964:17).

#### *President Johnson and the Civil Rights Act of 1964*

Days after the assassination of President Kennedy, President Lyndon B. Johnson made passage of wide-sweeping civil rights legislation a top priority of his administration. To fulfill this goal, Johnson built on the efforts of President Kennedy, who had introduced similar legislation to Congress the year before, where it had languished. Johnson’s legislation was introduced in the Senate by Senator Everett Dirksen of Illinois on 26 May 1964. After an 82-day filibuster, the longest in Senate history, the bill

passed the Senate by a vote of 73 to 27, before proceeding to the House of Representatives (Library of Congress n.d.; O'Donnell 2014).

On 2 July 1964, President Johnson signed into law the Civil Rights Act of 1964. Passage of the legislation represented a months-long efforts by President Johnson and his key supporters in Congress, the Civil Rights movement, and Federal agencies. Divided into 11 sections, the law prohibited discrimination based on race, national origin, sex, color, or religion for Federally-funded programs, public accommodations, the workplace, and public facilities. In addition, the law strengthened existing prohibitions on school segregation and voter registration discrimination (Library of Congress n.d.). The legislation effectively ended “Jim Crow” policies and legislation that were common mostly in Southern states, which promoted the doctrine of “separate but equal” upheld by the U.S. Supreme Court in the 1896 *Plessy v. Ferguson* case (United States Department of Labor n.d.).

### *The Civil Rights Act of 1968*

Between 1966 and 1967, Congress regularly deliberated fair housing legislation to no avail (United States Department of Housing and Urban Development n.d.). In the wake of the assassination of Dr. Martin Luther King, Jr. on 4 April 1968, Congress enacted the Civil Rights Act of 1968, which is more commonly known as the Fair Housing Act of 1968.<sup>2</sup> The legislation represented the first time since 1883 that the Federal “government endorsed the rights of African Americans to reside wherever they chose and could afford” (Rothstein 2017:177-178). Dr. King had been conducting fair housing marches during the mid-1960s; President Johnson considered enactment of the legislation a “fitting memorial to the man’s life and work” (United States Department of Housing and Urban Development n.d.). The law went further than Kennedy’s Executive Order, which applied solely to Federal agencies and programs.

The legislation prohibited discrimination in the sale, renting, or financing of housing based on race, national origin, color, sex, or religion and applied to property owners, landlords, and developers, as well as, financial and lending institutions, municipalities, and insurance companies (United States Department of Justice 2021). Additionally, the legislation provided a mechanism for people who had been subject to housing discrimination to file a complaint with HUD or in Federal or state court.

<sup>2</sup> Title VIII of the legislation is known as the Fair Housing Act. The Fair Housing Act has come to reference the entire legislation, not just Title VIII.

Ultimately, national sentiment proved too much for the Levitt company. Bill Levitt, representing the country's largest house builder at the time, quietly announced that his company would end racially discriminatory selling practices in its neighborhoods one day after the assassination of Dr. King. Five days later, Levitt made the policy public when he took out ads in the country's five leading newspapers, leading some competitors to accuse Levitt of opportunism (*House and Home* May 1968:7).

The military response to the various orders, rulings, and legislation is detailed in Chapter 3.

## Conclusion

The civilian housing market could respond more quickly to market forces by adjusting inventory based on the analysis of industry trends and population projections. For a variety of reasons, the military was less nimble in its ability to respond to changing conditions. As explored in greater detail in Chapter 3, several factors affected the Army's housing program. The established five-year military planning horizon; the requirement to survey existing availability of community housing resources; projected force strength; the cumbersome appropriations process; and the accompanying congressional cost and space limitations played roles in the Army's capacity to provide housing that truly was comparable to that in the civilian sector. Decisions regarding family housing were somewhat divorced from real-time demographic and market changes.

While the military was less flexible than the civilian sector in its ability to efficiently respond to changing housing trends, it was able to respond more rapidly to address executive I direction regarding housing discrimination because it was required by law to do so. The Army also was obligated to enforce Federal mandates. In addition, it attempted to address housing inequality in its duty to meet the family housing needs of all its soldiers.

## **Chapter 5: Civilian-Sector Housing Constructed during the Vietnam War Era**

### **Introduction**

This chapter explores changes in the private sector housing market during the Vietnam War Era. While the Army family housing program of the era was exclusively a military program designed to support the Army mission by providing adequate family housing to qualifying personnel within approved congressional funding, developments in the civilian housing sector during the period influenced popular expectations for housing design, acceptable building types, interior spatial requirements, and amenities. The DoD recognized the influence of the civilian sector in housing design and construction and its impact on the quality of military life through the development of its own design folio of standardized designs prepared by a collaboration of private sector architects. This design folio and its revisions drew upon architectural trends and development approaches found in the private sector housing industry.

Federal agencies historically influenced residential design through housing policies and standards; demographic and societal changes during the period compelled those agencies to revise their guidance to reflect those changes. At the same time, the private sector introduced new approaches to housing development in response to changes in population and household composition. These new approaches reflected a greater appreciation for environmental concerns and the necessity for containing land costs. The housing market offering a greater range of choice in housing products. Once such response was a reevaluation and reinterpretation of an historic urban house type, the townhouse. This chapter concludes with a discussion of popular domestic architectural styles and forms.

## **Federal Agencies Involved in Homeownership**

The Federal government created a number of programs to encourage homeownership. These programs were administered by the Veteran's Administration (now the Department of Veterans Affairs) and the FHA. The FHA, in particular, developed standards to ensure quality in construction. Adherence to the standards was required in order to take advantage of agency programs and incentives. The DoD frequently incorporated FHA standards into its own design guidance.

### **The Veteran's Administration Homeownership Program**

The Serviceman's Readjustment Act, popularly referred to as the G.I. Bill, was enacted in 1944. Generally, homebuyers taking advantage of VA loans received greater government assistance than those using the FHA loan programs. One of the many provisions of the G.I. Bill included homeowner assistance by guaranteeing mortgages and allowing veterans to finance the entire purchase price of a house without down payment or mortgage insurance (Pettis et al. 2012:56). Veterans, including women, who applied for the program within two years of leaving the service, or who applied two years after the end of the war were eligible. The VA followed FHA guidelines, standards, and practices, even though the VA program was separate from that of the FHA. The G.I. Bill originally expired in 1956; however, a series of updates extended benefits through the Vietnam War Era. Service members could take advantage of applicable programs to purchase housing during the period.

The VA loan program was highly successful during the years immediately following the end of World War II: 40.5 percent and 42.8 percent of houses constructed in 1946 and 1947, respectively, were financed with VA loans. By 1950, the percentage of VA-guaranteed loans dropped to 26 percent, and declined even further to just under 10 percent of all loans in 1958 to 5 percent in 1962 (*House and Home* June 1963:107; Pettis et al. 2012:56). The VA loan program persisted even through resistance from the home industry, Federal housing officials, and members of Congress (*House and Home* June 1963:108).

### **The FHA and the Move towards Standardization**

The earliest attempt by the Federal government to codify residential construction practices occurred in 1922 when the Bureau of Standards issued *Recommended Minimum Requirements for Small Dwell-*

*ing Construction*. New house construction was a tool the Roosevelt administration to ease the economic hardship brought about by the Great Depression. As house construction increased, revisions to earlier standards became necessary. The revised 1932 standards outlined general construction requirements and acceptable practices. The FHA, which was established under the National Housing Act of 1934, published its first set of guidelines, *Circular 2, Property Standards; Requirements for Mortgage Insurance Under Title II of the National Housing Act* in 1935 (National Institute of Building Sciences 2003:2).

The correlation between the standards and mortgage guarantees was profound. In order for a property owner to obtain an FHA-guaranteed mortgage, compliance with FHA standards was mandatory. The agency's standards filled a void in the construction market at a time when few municipalities had enacted building codes. The purpose of the standards was to minimize mortgage risk and improve the quality of housing (National Institute of Building Sciences 2003:3). The FHA standards, while focusing on neighborhood design and planning, offered the minimum basic requirements for construction and equipment (National Institute of Building Sciences 2003:2).

The standards continued to be modified and revised through the 1940s and into the early 1950s. It was during the post-World War II period that regional *Minimum Property Requirements*, as the standards became known, were prepared. Over 20 separate editions of the *Minimum Property Requirements* had been issued during the early 1950s through the mid-1950s. In 1958, the standards were revised again and renamed the *Minimum Property Standards for One and Two Living Units*. The new standards eliminated the regional publications and made the *Minimum Property Standards* applicable nationwide. The reasons for the elimination of regional requirements were numerous. Builders were operating at a larger scale, and local building customs and traditions gave way to a "more general pattern of construction practices," and frequently, the regional documents were outdated and deficient (National Institute of Building Sciences 2003:5; R. Christopher Goodwin & Associates, Inc. 2003:3-47-3-48).

Creation of the *Minimum Property Standards* in 1958 represented an important step towards the development of building codes. The 1958 standards

originally intended by FHA as a set of minimal default requirements where local codes were poor or unenforced...became a de factor building code, a larger prescriptive document that went well beyond local codes in specifying allowable building methods, materials, components, and finishes, as well as minimum dimensions, room sizes, and the like (National Institute of Building Sciences 2003:6).

These standards were nominally revised and reissued through the 1960s.

Congress created HUD in 1965. This action resulted in the eventual elimination of the FHA as an independent agency with its own staff and autonomous budget authority (National Institute of Building Sciences 2003:6). However, minimum standards for residential construction continued to be issued and expanded. In 1973, HUD issued revamped standards in four volumes:

Volume 1, *Minimum Property Standards for One and Two Family Housing*

Volume 2, *Minimum Property Standards for Multifamily Housing*

Volume 3, *Minimum Property Standards for Care-Type Housing*

Volume 4, *Manual of Acceptable Practices to the HUD Minimum Property Standards* (National Institute of Building Sciences 2003:6).

By the late 1970s, the need for *Minimum Property Standards* had diminished. The guidance, in its various iterations, helped provide uniformity and consistency in the housing market by recommending standard approaches to all aspects of design, construction, and materials. As the National Association of Home Builders Research Foundation stated in a 1980 report to HUD, the *Minimum Property Requirements*

. . . was essentially a textbook for home building with detailed instructions and illustrations for all phases of construction, written in simple language and logical format for the home building industry. Many builders were influenced to alter practices, resulting in better homes at less cost. Lenders were better able to judge the soundness and value of homes for mortgage applications. Building code groups modified their requirements to resemble the superior technical provisions of the MPS. Manufacturers were able to standardize products and market them nationally, and FHA approval of a product became paramount to market acceptance.

In fact, the earlier FHA program was so successful that the private financial sector became convinced that they could assume the same risks on a profitable basis. *At the same time, building codes were becoming more responsive, and most communities who previously had an inadequate code or no code at all were adopting an updated building code based on a national model code* [emphasis in the original]. Meanwhile, building methods, materials, and products had become increasingly standardized across the U.S. In short, there was a new climate portending a long term decline in FHA activity in home building, and a steadily decreasing role for the MPS (National Institute of Building Sciences 2003:8).

Data on the number of mortgages guaranteed by the FHA at the end of the Vietnam War Era supports the National Association of Home Builders Research Foundation's findings. The number of houses constructed using FHA financing declined dramatically by the mid-1970s. Housing starts using FHA-guaranteed mortgages averaged fewer than 3,000 per month during January through April. This output was less than half of the previous year's total and one-tenth of the production for the same period in 1970-1972. Dwellings that were sold with FHA mortgages comprised only 5 percent of all houses sold during the first quarter of 1974, compared with 13 percent for the same period in 1973 and 29 percent for all of 1972 and 40 percent in 1971 (*House and Home* Aug. 1974:22). Similarly, the percentage of houses completed using FHA-insured loans declined between 1971 (n = 22 percent) and 1974 (n = 4 percent) while houses completed using conventional financing increased from 55 percent in 1971 to 72 percent in 1974 (United States Department of Commerce 1975:12).

Federally issued construction guidance was beneficial during a period when building codes were not the norm. Construction practices had changed dramatically from when the guidance was first issued during the early 1920s. In fact, by late twentieth century, the standards had become somewhat of a hindrance, particularly in the creation of affordable housing (National Institute of Building Sciences 2003:8). In addition, because the standards were used so heavily, particularly during the early post-war period, consumers had few options in house design, amenities, or size (Hayden 2003:15).

The standards' ultimate success led to their decline. HUD revised the *Minimum Property Standards* in 1979 and again in 1982. In 1983, Congress enacted Public Law 98-181. Title IV, Section 405 of that legislation permitted HUD to allow compliance with a model or local code to satisfy the requirements for a mortgage guaranteed by the Federal government (National Institute of Building Sciences 2003:10).

This legislation effectively eliminated the need for the single-family housing minimum standards except for determining compatibility with state or local codes or model codes (National Institute of Building Sciences 2003:10, 12).

As summarized in the above discussion, the property requirements and standards were updated continuously, with a complete overhaul occurring periodically. For the most part, the standards were the same from year-to-year with major exceptions occurring in 1932, 1958, and 1973. The content provided in the standards grew as the documents became more comprehensive and detailed. Changes to the standards were presented through the insertion of Interim Revisions included at the beginning of the document; complete reprintings occurred periodically to reflect interim and general revisions. Technical publications, covering topics such as multi-unit buildings, neighborhood standards, and specific materials and construction techniques supplemented the standards.

#### ***Minimum Property Standards for One and Two Family Dwellings, 1965***

The minimum property standards applied to buildings with not more than two living units; for buildings having more than two units, the *Minimum Property Standards for Multifamily Housing* applied (Federal Housing Administration 1965:19). The *Minimum Property Standards for One and Two Living Units* applied to detached, semi-detached, row, and end-row dwellings containing one or two living units (Federal Housing Administration 1965:20).

The standards provided general perimeters for siting a dwelling on a building lot in order to allow for usable outdoor space for recreation, gardening, landscaping, and outdoor living while enabling privacy, natural light, and ventilation for the dwelling interior. For dwellings located in a planned unit development, the criteria presented in “Land Planning Bulletin No. 6” and Chapter III, Site Planning, of the *Minimum Property Standards for Multifamily Housing* applied (Federal Housing Administration 1965:23). The maximum lot coverage was 30 percent for a single-family, detached dwelling, 35 percent for a duplex or end-row dwelling, and 45 percent for row houses (Federal Housing Administration 1965:23).<sup>1</sup>

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<sup>1</sup> The Federal Housing Administration referred attached dwellings as row houses. The military and trade publications called these buildings townhouses. When discussing this building type in reference to FHA standards, row house will be used.

The standards also outlined minimum room sizes for living units that were based on the number of bedrooms. The greater the number of bedrooms, the larger the size of the living room, dining room, and kitchen (Table 5.1) (Federal

**Table 5.1** Minimum Room Sizes for Living Units

<b>602-3.1 Separate Rooms</b>					
	<i>L. R.</i>	<i>D. R.</i>	<i>K.</i>	<i>Total B. R.</i>	<i>Min. B. R.</i>
LU with 1-BR.....	160	80	60	120	-----
LU with 2-BR.....	160	80	60	200	80
LU with 3-BR.....	170	95	70	280	80
LU with 4-BR.....	180	110	80	380	80
Least Dimension....	11'	8'	3'-4'' <sup>1</sup>	-----	8'

<sup>1</sup> Clear passage space, face of base cabinet to face of base cabinet or face of opposite wall.\*

Source: Federal Housing Administration 1965:32.

Housing Administration 1965:32). Each living unit was to have one closet per bedroom, a coat closet, and a linen closet. General storage, in addition to that provided by the closets, also was to be included.

The builder maintained lawns and plantings until the property transferred to the homeowner. A minimum of one shade tree was to be planted for each house lot; a street tree could be planted as an alternative. The FHA would approve other plantings after taking local practices and customs into consideration (Federal Housing Administration 1965:240).

The Minimum Property Standards provided guidance on a variety of materials the FHA found acceptable for use in residential construction including asbestos, asphalt, wood, and aluminum. Vinyl was not among the materials approved for exterior materials.

***Minimum Property Standards for One and Two Family Dwellings, 1973***

The 1973 edition of the *Minimum Property Standards* were revised to reflect then-current practices in residential construction and neighborhood design and to recognize changing attitudes concerning the environment, vehicular safety, and expectations regarding appropriate use of living spaces. Like the 1965 standards, those revised in 1973 applied to single-family, duplex, and row house dwellings. Multi-family units were discussed in the minimum standards for multi-family and care-type housing (United States Department of Housing and Urban Development 1973a:1-3). In general, an enhanced level of detailing for all aspects of the site planning, environmental, and construction elements of residential design were provided. The lack of illustrations depicting key concepts was a major difference

between the 1973 and the earlier edition of the standards. Other notable differences between the 1965 and 1973 standards briefly are summarized.

In a change from the earlier standards, the 1973 publication required new residential construction to “relate well” to the natural topography and climatic conditions, and to provide “attractive on-site and offsite views” (United States Department of Housing and Urban Development 1973a:3-7). The construction of carports and garages had to take into consideration sight distances. Clear views of vehicular and pedestrian traffic were required. In addition, parameters for the distance from the residential unit and the location of parking courts and covered parking spaces were stipulated (United States Department of Housing and Urban Development 1973a:3-16-3-17).

Common-use facilities were recognized. These facilities included recreational, community social rooms, and limited commercial uses. In terms of recreational opportunities, the standards stated that

Improved open space for both active and passive recreation shall be provided as appropriate where permanent maintenance can be assured. The improvement shall be consistent with the size of the development, age levels, and needs of intended occupants, and shall consider operation and maintenance costs (United States Department of Housing and Urban Development 1973a:3-31).

In an important difference between the earlier standards, the 1973 standards stated:

Each dwelling unit shall contain space that is conducive to general family living and group activities such as entertaining, reading, writing, listening to music, watching television, relaxing and frequently children’s play (United States Department of Housing and Urban Development 1973a:4-5).

The standards identified the basic furniture and amount of space required to satisfy those various activities. Table 5.2 presents the minimum room sizes. While the sizes of the rooms did not change between 1965 and 1973, the later standards noted the smallest allowable dimension for each room type.

**Table 5.2 Minimum Room Sizes for Separate Rooms, 1975**

MIN. ROOM SIZES						
*A. Min. Room Sizes for Separate Rooms						
Names of Space (1)	Min. Area (Sq Ft) (7)					Least Dimension
	LU with 0-BR	LU with 1-BR	LU with 2-BR	LU with 3-BR	LU with 4-BR	
LR	NA	160	160	170	180	11'-0"
DR	NA	80	80	95	110	8'-0"
BR (primary) (2)	NA	120(8)	120	120	120	9'-4"
BR (secondary)	NA	NA	80	80	80	8'-0"
Total area, BR's	NA	120	200	280	380	---

Source: United States Department of Housing and Urban Development 1973a:4-8.

In addition, the size and type of fixtures, which were based on the number of bedrooms, to be provided in kitchens were enumerated.

The once dominant agency began to see its influence diminish during the period, as fewer homeowners sought FHA-guaranteed mortgages. FHA's slow approval times and the intricacies of navigating a sprawling agency led many builders to avoid using the agency altogether. The number of loans the FHA insured peaked in 1955, when 50 percent of non-farm loans were insured by the agency. By 1962, that number had fallen to 18 percent.

### ***Minimum Property Standards: Multifamily Housing, 1973***

In 1973, HUD issued new standards for multi-unit residential buildings. These standards were intended to provide "illustrations and data representing good current practice in residential design and construction technology" and to function as a "guidance document only" (United States Department of Housing and Urban Development 1973b:iii). They did not serve as a substitute for compliance with local zoning ordinances or building codes (United States Department of Housing and Urban Development 1973b:1-5). The standards applied to buildings having three or more units.

The standards outlined the minimum side and rear yard distances between buildings as well as front yard setbacks from the street to ensure maximum privacy (United States Department of Housing and Urban Development 1973b:3-8-3-11). Parking was to be provided for multi-family units in sufficient numbers to accommodate residents, guests, and service vehicles; however, calculation of the specific number of spaces required compliance with HUD's land use intensity criteria (United States Department of Housing and Urban Development 1973b:3-15).

In terms of landscape and vegetation, existing plant material was to be preserved and protected to the extent possible (United States Department of Housing and Urban Development 1973b:3-5). Common use and recreation facilities were to be provided. These facilities were to be consistent with the size of the project, accommodate various ages, and meet the needs of the intended occupants. Open space for active recreation also was to be incorporated in the site design (United States Department of Housing and Urban Development 1973b:3-31).

The 1973 standards enumerated the minimum sizes for habitable rooms including the living room, dining area, bedrooms, and kitchens. The living room was to be of such size to accommodate a couch, easy chairs, a desk and chair, a television set, and a table. The dining area could be combined with the living area or the kitchen, or be a separate room. The size of the dining area depended on the intended number of bedrooms and occupants. The size of the bedroom similarly depended on the number of occupants, and was to accommodate a bed, dresser, and chair (United States Department of Housing and Urban Development 1973b:4-6-4-7). Minimum dimensions for kitchen counter

**Table 5.3 Minimum Room Sizes in Multi-family Buildings**

MINIMUM ROOM SIZES						
A. Minimum Room Sizes for Separate Rooms						
Name of Space(1)	Minimum Area (Sq Ft) (7)					Least Dimension
	LU with 0-BR	LU with 1-BR	LU with 2-BR	LU with 3-BR	LU with 4-BR	
LR	NA	160	160	170	180	11'-0"
DR	NA	100	100	110	120	8'-4"
BR (primary) (2)	NA	120	120	120	120	9'-4"
BR (secondary)	NA	NA	80	80	80	8'-0"
Total area, BR's	NA	120	200	280	380	----
OHR	NA	80	80	80	80	8'-0"

B. Minimum Room Sizes for Combined Spaces						
Combined Space (1) (4)	Minimum Area (Sq Ft) (7)					Least Dimension(3)
	LU with 0-BR	LU with 1-BR	LU with 2-BR	LU with 3-BR	LU with 4-BR	
LR-DA	NA	210	210	230	250	
LR-DA-SL	250	NA	NA	NA	NA	
LR-DA-K (5)	NA	270	270	300	330	
LR-SL	210	NA	NA	NA	NA	
K-DA (6)	100	120	120	140	160	

**Notes**

(1) Abbreviations:

LU = Living Unit	K = Kitchen
LR = Living Room	NA = Not Applicable
DR = Dining Room	BR = Bedroom
DA = Dining Area	OHR = Other Habitable Room
O-BR = LU with no separate Bedroom	SL = Sleeping Area

(2) Primary Bedrooms shall have at least one uninterrupted wall space of at least 10 ft.

Source: United States Department of Housing and Urban Development 1973b:4-9).

tops, sizes of sinks, and the arrangement of appliances were provided (United States Department of Housing and Urban Development 1973b:4-10-4-11). All units were to include a bathroom having a sink, toilet, and bathtub. Additional guidance on the size and location of storage spaces also was provided. Table 5.3 provides the minimum dimensions for select rooms. While the 1973 document general provisions regarding basic minimum requirements for site planning and room sizes, the majority of the publication was dedicated to material and construction standards.

## Transportation Policy

Mid-twentieth century highway policy facilitated suburbanization. Federal highway legislation enacted after World War II enabled millions of workers to move further from employment centers historically located in central cities. These efforts had a lasting impact on neighborhood design.

The Federal Highway Aid Act of 1956, for example, expanded the limited system of highways constructed under the earlier Federal Highway Act of 1944. The 1956 legislation authorized 41,000 miles of highway construction, 5,000 miles of which were in urban centers. Easier access to areas that once were remote aided the movement of goods, services, and people (R. Christopher Goodwin & Associates, Inc. 2003:3-46). It also encouraged the residential exodus from the cities to the suburbs.

By 1960, more than half of the populations of major metropolitan areas such as Atlanta, Cleveland, Detroit, and Milwaukee lived in the suburbs and commuted to the center cities (Sherman 2014:4). Efficient means of moving large numbers of workers commuting via automobile to their places of employment were required (Sherman 2014:4). New, high speed, limited access highway construction was seen as the solution. Highway construction often was paired with urban renewal efforts. Frequently, new highway were constructed in blighted neighborhoods that were slated for urban renewal.

During the Vietnam War Era, transportation projects were managed through a myriad of Federal agencies and bureaus. President Johnson submitted legislation to Congress that would streamline transportation policy by uniting 35 Federal agencies into one. That goal was achieved on 15 October 1966, President Johnson signed the Department of Transportation Act into law (Weingroff 2017).

Highway construction continued through the end of the 1960s. Often, it was seen as a way of allowing residents to live in more financially affordable neighborhoods, which increasingly were located further and further away from the urban employment centers. These highways attempted to provide suburbanites with easy, efficient, and quick access to the central cities (California Department of Transportation 2011:18; Kunstler 1993:107). Construction of the interstate highway system continued through the 1970s.

## **Planning Trends**

For numerous reasons, new patterns for suburban neighborhood development arose during the mid-1960s. Some of the reasons for a new approach to suburban neighborhood design were due to costs. The housing industry became increasingly concerned with the cost of land and supplying utilities to neighborhoods that were further and further away from cities and older, inner ring suburbs. Oth-

er reasons focused on the design and aesthetic quality of postwar residential developments. The postwar curvilinear street system was criticized for its “machine made quality” and the “monotony to curved roads...There is dreariness to all houses sitting the same distance from the street. Variety is absent” (Pratt Institute n.d.:7). Additionally, an absence of housing choice was seen as a way to limit economic diversity within neighborhoods. Still others were concerned with the impact sprawling neighborhoods had on the natural environment. These disparate viewpoints coalesced into the planned unit development concept. The DoD, like the FHA, incorporated these ideals in its neighborhood guidelines and instructions.

Concurrent with the push for more environmentally sensitive neighborhoods offering variety in housing choice was the continued efforts to improve the nation’s urban centers. The FHA’s policies actively encourage disinvestment of urban neighborhoods, many of which were home to racial and ethnic minorities. The Army’s Vietnam War Era housing policy is linked to the greater issues associated with housing and urban renewal policies.

### **Planned Unit Development**

Alternately known as density planning, cluster planning, or planned unit developments, this approach to creating visually appealing neighborhoods that incorporated recreational opportunities, green space, community buildings, and choice in housing, while efficiently using available land received support from numerous entities. Local municipalities, Federal agencies like the FHA, trade magazines, and academics encouraged the construction of new neighborhoods based on those principles. Planned unit development represented a fundamental change to residential zoning and were seen as providing a more holistic approach to neighborhood design by presenting “an entire planned unit” (Hanke 1965:19).

By 1965, urban planning experts began advocating for changes in land use and zoning policies. These changes encouraged a re-examination of density as applied to land use management, with a particular emphasis on how open spaces and recreational areas could be provided by grouping buildings together and limiting lot sizes. This shift occurred as academic institutions lamented the fact that neighborhoods

of the 1940s and 1950s abandoned ideal neighborhood design as exemplified in the Greenbelt towns of the 1930s and Radburn, New Jersey (Hanke 1965:15, 18; Pratt Institute n.d.:15-17).

Contemporary builders recognized the current approach to suburbanization did not adequately address issues. As quoted in *House and Home*, Washington, D.C. architect Jack Cohen stated,

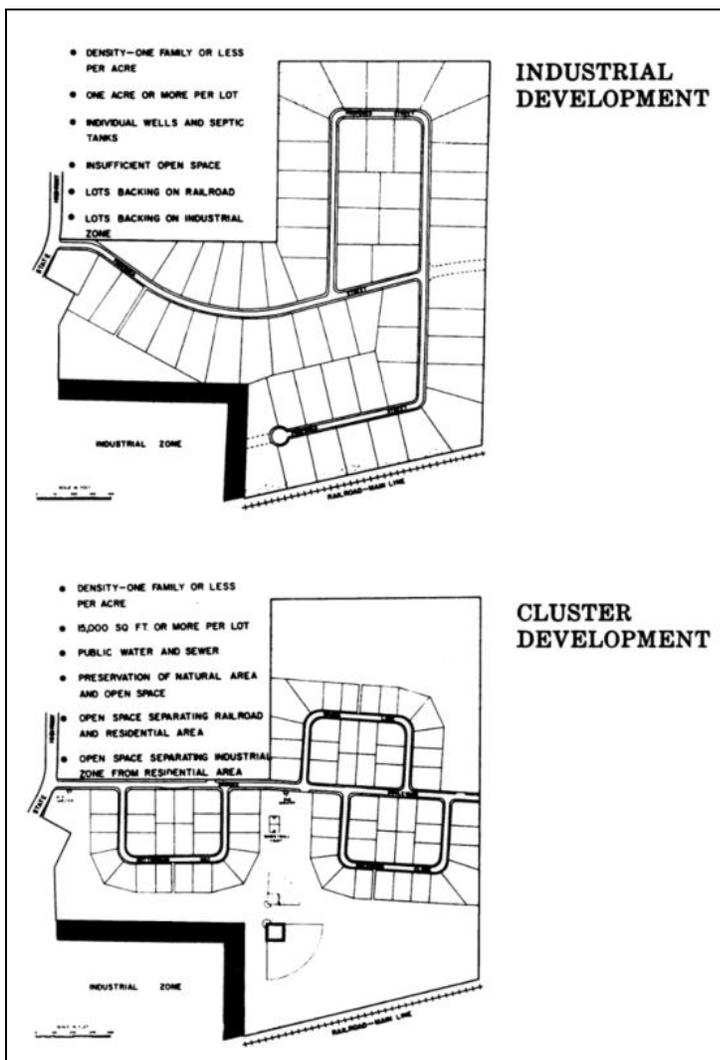
We have to recognize that the suburbs we've lived with for the last thirty years have not been the best-planned solutions to our housing needs. If lower-income families of urban areas had an opportunity to move into some of these new suburban towns, it would benefit the total environment and broaden the housing market (*House and Home* Sept. 1968:105).

Contemporary philosophy represented a departure from earlier zoning principles that had been implemented during the immediate postwar years. Those principles adopted lot size as a method of controlling density and emphasized the exploitation of profit margins. Communal open spaces were not provided because they reduced the overall lot count and limited potential builder profits. As a consequence, green spaces were eliminated in favor of maximizing the number of saleable lots (Hanke 1965:16). These development patterns occurred at the same time that Americans increasingly engaged in recreational activities. As critics noted, the postwar model of suburban development "remains unadjusted today to the new way of living inherent in our greater leisure and new recreation patterns" (Hanke 1965:16). Planned unit developments were seen as a return to the Greenbelt and Radburn aesthetics.

The lack of open space and recreational areas were not the only concerns of Vietnam War Era planning and land use practitioners. These professionals also attempted to address the increasing cost of land. Density zoning was encouraged because it did not consume as much land as traditionally designed neighborhoods.

The cost of land had increased disproportionately to other costs associated with house construction; homeowners were paying more for the land than they were for the house, with land costs and the corresponding increase in utilities, such as roads, sidewalks, and sewers, increasing the total value of the houses insured by the FHA from 10 percent in 1950 to 20 percent at the end of the 1960s (Pratt Institute n.d.:18).

Instead of relying on lot size as the determinate in neighborhood density, planned unit developments relied “upon a maximum number of living units per acre, applied to the development unit as a whole” (Hanke 1965:17). By grouping, or clustering housing units, developers could build the same number of units as they could under traditional zoning. Conventional zoning called for the number of dwellings to be evenly distributed throughout the development. By contrast, the density zoning principle encouraged the uneven distribution of units throughout the development parcel, thereby encouraging variety in dwelling type, lot size, and public and private spaces without sacrificing the total number of units (Hanke 1965:18; Pratt Institute n.d.:12, 28). For the purposes of efficient management and communication, the minimum recommended size for a planned unit development was 50 living units and a maximum of 1,000 units (Hanke 1965:20, 21).



**Figure 5.1** Industrial Development vs. Cluster Development  
 Source: Pratt Institute n.d.:11.

Figure 5.1 depicts two different concepts for neighborhood development. Industrial development employed the traditional site plan in terms of lot improvement, density, and road arrangement. Open space and recreational areas were not provided. By contrast, the cluster development example grouped lots together, blocks were shorter, and both open space and recreational fields were provided.

The increasing costs related to the overall construction process prompted the FHA to adopt planned unit development ideals. The agency addressed this evolution in land use and subdivision development in Land Planning Bulletin 6, *Planned-unit Development with a Homes Association* (Hanke 1965:18). A planned unit development, as defined by the FHA and planning experts,

...is a residential land subdivision of individually owned homes with neighborhood owned open areas and recreation facilities. It is a relatively new approach to a time proven concept of residential land use. Basically, it incorporates a variation of the "village square" idea (Hanke 1965:18).

In addition to defining planned unit developments, *Planned-unit Development with A Homes Association*, offered pointers for meeting FHA requirements and obtaining support from local planning departments and commissions. Townhouse design featured prominently in the publication (Federal Housing Administration 1964).

The FHA promoted the creation of property-owners associations to assume some of the responsibilities of local government. Such organizations would be responsible for maintenance of open spaces, community centers, swimming pools, and tennis courts by levying assessments. Protective covenants would provide the legal instrument for their creation. Each property owner had voting rights concerning the common properties and was subject to proportionate assessment to pay association expenses (Pratt Institute n.d.:30).

Other mechanisms for paying for planned unit development amenities included conveyance to the municipality, whereby the town or village would assume responsibility for the recreational areas. Another alternative was the creation of a special district, such as a park district, that would be subject to a special levy (Pratt Institute n.d.:30).

Municipal planning departments and environmental groups also encouraged cluster developments because they could be designed to avoid sensitive environmental areas or areas that were difficult to develop. In sum, planned unit developments facilitated affordable housing by offering variety in house type at different price points; reduced costs due to shorter utility networks; encouraged small yards that maximized outdoor recreation while limiting maintenance; promoted large green spaces accessible to all neighborhood residents in addition to the private spaces of individual house lots; and enabled construction of community recreation centers for swimming, meetings, and other neighborhood activities.

The DoD the planned unit development as efficient and effective tool for creating neighborhoods constructed during the Vietnam War Era. The *Design Folio*, specifically stated, "Well-designed, multi-sto-

ry row-unit town houses, closely sited amid large open areas can effect the desired economies” (United States Department of Defense 1964). Sample site plans clearly depict planned unit development concepts. This neighborhood design strategy continued through the early 1970s. The *Construction Criteria Manual* issued in 1972 provided instruction for calculating land use density (United States Department of Defense 1972:16-3-16-4).

### **Community Building**

Like planned unit developments and density zoning, community building was based on the early twentieth century planning principle coined by Clarence Perry. This approach to neighborhood design grew in popularity during the 1960s. Community building had its antecedents in the nineteenth century garden city movement (California Department of Transportation 2011:51). Under the principles of community building, the builder would construct or set aside land for the future construction of public buildings, shopping centers, or civic buildings. For example, larger builders would set aside land within their neighborhoods for a school that later would be constructed by the local school board. Other public, religious, or civic buildings, such as libraries, fire stations, and community centers occasionally were constructed by the developer; however, more often they were deeded to the homeowners’ association or the local municipality or sold or donated to a religious entity (California Department of Transportation 2011:49, 50). The developer identified the location of the community building in the project site plan.

In the case of shopping centers, if such a resource was constructed, the builder not only constructed the facility but also retained ownership (California Department of Transportation 2011:51). Shopping centers generally were constructed at the intersections of major streets at the neighborhood perimeter or functioned as a boundary between two sections of the neighborhood (California Department of Transportation n.d.:51).

As with cluster developments, community building neighborhoods incorporated variety in housing types into their projects. Two-story apartment buildings could be located in two areas. They were constructed to separate commercial from residential uses or were built along major roads as a barrier between transportation routes and single-family dwellings (California Department of Transportation 2011:52).

## Urban Renewal

Urban renewal and suburbanization are intertwined. Understanding urban renewal provides a richer, more comprehensive context for understanding Vietnam War Era housing policy and suburbanization. This understanding is particularly important as it relates to the military's efforts to address segregation and housing discrimination.

Expansion of the suburbs occurred, in many cases, at the expense of urban centers. FHA's policies for rating neighborhoods for their investment worthiness frequently resulted in large-scale disinvestment in city centers. Neighborhoods that comprised racially, economically, and ethnically diverse populations often received unfavorable ratings. Many of these neighborhoods were located in dense, urban areas. Urban residents were unable to obtain the same favorable loan terms that were available to suburban residents. A lack of investment in the cities also was a result of the 1954 *Brown v. Board of Education* U.S. Supreme Court decision that desegregated public schools across the country. Rather than send their children to integrated schools, many middle class White families enrolled their children in private schools or moved to the predominately White suburbs. Riots following the assassination of Dr. Martin Luther King, Jr. in 1968 continued the process of white flight begun a decade earlier.

While the suburbs underwent unprecedented growth during the postwar period, the cities entered a period of prolonged economic distress. Urban renewal initiatives sought to address the real and perceived blight in cities across the country. Many of the neighborhoods subject to urban renewal and redevelopment were located in the economically, racially, and ethnic neighborhoods that had been excluded from favorable FHA, and later, Veteran's VA policies (R. Christopher Goodwin & Associates, Inc. 2019:VIII-302, IX-362; Rothstein 2017:50; 70). Entire neighborhoods were demolished as part of urban renewal or Federal highway projects, frequently, without any provisions for relocating families displaced by those projects (Rothstein 2017:129). These programs used Federal funds to clear residential neighborhoods for developments that included public and private housing and commercial uses (Nelson and Ayers n.d.). Highways built through urban centers also used Federal funds for their construction.

Federally funded urban renewal projects began in 1955. A number of laws enacted during the Vietnam War Era. These initiatives built upon earlier efforts and sought to correct past failures. The years during which major urban renewal legislation and programs were enacted are summarized below.

- 1954

Housing Act of 1954 created the 701 Planning Grant Program, which provided financial support to municipalities of less than 25,000 so they could establish planning agencies. Among other provisions, the legislation authorized creation of a mortgage insurance program for subsidizing the rehabilitation of dwellings and new construction of housing in urban renewal areas. The legislation also authorized the creation of 35,000 new housing units for those displaced by slum-clearance projects.

Later amendments to the act encouraged urban redevelopment plans, not all of which included housing. The legislation also required comprehensive planning prior to securing Federal aid, making this provision the first of its kind.

- 1959

Amendments to Housing Act enabled universities to receive urban renewal funds without making provisions for housing.

- 1961

Omnibus Housing Act, in addition to authorizing \$2 billion in urban renewal funds and \$75 million to expand the 701 Planning Grant Program, the legislation, among other provisions, also authorized the FHA to insure mortgages for condominiums, which resulted in a dramatic increase in that type of housing.

- 1964

Legislation enacted in 1964 mandated that all municipalities receiving urban renewal funds had to enact minimum housing code standards and demonstrate those standards were being enforced.

Allowed urban renewal funds to be used to enforce housing codes in urban renewal areas

Prohibited demolition projects until the Housing and Home Finance Agency determined that the project goals could not be met through rehabilitation.

Authorized urban planning aid through the 701 program for select communities

- 1965  
The Housing Act of 1965 extended urban renewal through 1 October 1969. In addition, it extended urban renewal code enforcement efforts; provided homeowner rehabilitation grants for low-income residents in urban renewal areas; and authorized grants for the creation of green spaces and recreational areas, among other initiatives.
- 1966  
The Demonstration Cities and Metropolitan Development Act of 1966 mandated that a “substantial” supply of low and moderate cost housing be provided in urban renewal areas.
- 1974  
Housing and Community Development Act of 1974 established Community Development Block Grants (CDBG), which was a bundling of grant funding programs into one program, and ended urban renewal. CDBG funds allowed individual communities to identify community development needs (Nelson and Ayers n.d.).

## House Builders in the Civilian Sector

The house building industry underwent a transformation during the 1960s and the 1970s as the types of businesses engaged in residential construction evolved. Large-scale builders, as defined by volume of houses constructed or revenue, increased their market share. In other words, fewer construction companies were building a greater number of the new house inventory. Builders who constructed more than 100 houses per year, with 19 out of 20 builders constructing more than 10 houses a year, began to dominate the market (Hanke 1965:16-17). House builders continued to focus on the construction of single-family houses; however, market savvy builders diversified into other housing products, including townhouses, apartments, condominiums, and prefabricated dwellings.

### Types of House Builders

The residential construction industry was comprised of small, sole proprietors and large corporations. Both types of businesses grew during the Vietnam War Era. In the early 1960s, small and medium-sized builders represented a significant portion of the residential construction market; however, the large builders were beginning to acquire a greater share of the house construction industry

(*House and Home* Jan. 1963:56). In addition to this change, the builders who could construct 2,000 houses per year on a single site nearly disappeared from the sector (*House and Home* Jan. 1963:59).

The overwhelming number of enterprises engaged in the residential construction industry built single-family units. A 1969 survey conducted by the National Association of Home Builders sheds light on what type of housing product was constructed and how much. According to the survey results, fewer than 10 percent of the responders “considered multifamily building their primary product,” while those firms having unit production of less than 100 units more likely indicated that their products consisted of custom houses or single-family houses that were sold on the open market or were built on speculation. However, those builders engaged in the construction of more than 100 units likely built multi-family units and/or single-family buildings on a speculative basis (United States Department of Housing and Urban Development 1974:186). Table 5.4 presents the types of housing constructed by small, medium, and large firms based on the National Association of Home Builders 1969 survey. Only 9 percent of the respondents were engaged in the construction of multi-family units, while 49 percent constructed speculative or custom single-family units.

**Table 5.4** Percentage of Firms or Operators by Category

Primary Product Operation	Total 1969 Survey	Builders Surveyed		
		Small (1-25 units)	Medium (26-100 units)	Large (101+ units)
Speculative single family	20.4%	19.8%	33.0%	34.7%
Custom single family	19.0	26.8	13.8	4.2
Multifamily	9.3	4.8	13.5	31.7
Not classified above	51.3	46.6	39.7	29.4

Source: National Association of Home Builders, Profile of the Builder and His Industry, 1969

Source: United States Department of Housing and Urban Development 1974:186.

Small- and medium-sized building companies (i.e., those companies producing less than 100 units per year) organized as sole proprietors grew between 1968 and 1971. This type of ownership structure was most common for builders of single-family housing and those who constructed between 1 and 25 units. These types of firms were more likely to remain in the housing industry for short periods of time (United States Department of Housing and Urban Development 1974:187). In general, the house construction industry consisted of “individual craftsmen, real estate operators, and other small entrepreneurs who may build housing during periods of plentiful mortgage credit and turn to other activities during periods of tight money” (United States Department of Housing and Urban Development 1974:186).

Large homebuilders, i.e., those firms either having annual sales of more than \$10 million or annual volume of more than 250 units, represented less than one percent of the of the industry. These stable and well-capitalized businesses were characterized by:

- An increased share of the market in 1974: 28 percent of the housing production and 24 percent of dollar revenues for 1972;
- A high level of mergers and acquisitions; and,
- Irregular financial performance (United States Department of Housing and Urban Development 1974:187).

The number of homebuilders producing more than 200 units per year consistently captured an increasing share of the market and the number of firms having annual sales of more than \$10 million grew from 119 in 1968 to 369 in 1972 (United States Department of Housing and Urban Development 1974:187, 188). The 1960s and early 1970s also was marked by an increase in the number of mergers and acquisitions. The reasons for these changes included a desire to diversify into other product lines. For example, a business might want to add the construction of townhouses or garden apartments to its single-family construction portfolio. The objective of moving into different regions also fueled the merger and acquisitions trend, as did vertical integration. In this latter scenario, a house builder might acquire a building supply company, land developer, or financial institution to help streamline its construction processes (United States Department of Housing and Urban Development 1974:190).

By the end of the Vietnam War Era, these large companies had firm control over the new house market. One half of one percent of the 30,000 builders in the country constructed more than 16 percent of the housing in 1973 (*House and Home* Mar. 1974:90). The largest homebuilders produced more multi-family units than single-family units, and the multi-family units frequently were low-rise apartment buildings (United States Department of Housing and Urban Development 1974:193). The largest firms in terms of volume also diversified into the townhouse market (United States Department of Housing and Urban Development 1974:193).

Specifically, 45 percent of their production was in rental properties; 28 percent of production comprised for-sale apartments or attached houses (i.e. townhouses and multiplex units); and just 27 per-

cent of their products was devoted to “traditional” single-family, detached dwellings, with many of the house builders constructing combinations of housing products (*House and Home* Mar. 1974:90).

Ironically, Levitt & Sons, once one of the largest homebuilders in the country and synonymous with large-scale sprawling postwar suburbs, was not considered a top ten builder of detached dwellings by the end of the Vietnam War Era (*House and Home* Mar. 1974:90). The company, which adapted assembly line factory production techniques to the construction of suburban neighborhoods, began the postwar era with a boom, but closed the Vietnam War Era on a whimper. The conglomerate International Telephone & Telegraph (ITT) acquired Levitt & Sons in 1968 (Diehl 1978). During the mid-1970s, William Levitt, son of the company’s founder, attempted to buy back the money-losing Levitt & Sons division from ITT (Hammer 1974).

### **New Entrants to the Housing Market**

New businesses entered the housing market during the period. Some of these businesses were marginally associated with the housing market; however, they had manufacturing expertise that could be applied to the residential construction industry. Such businesses included large manufacturers like Reynolds, Alcoa, and Christiania Oil Corp, in addition to businesses that were involved in the financial services sector (*House and Home* Jan. 1963:59, 60).

Newcomers to the industry also included prefabricators, i.e., mobile home builders. “Conventional” house builders were those companies that continued to construct housing on site. This sector comprised approximately 110,000 firms of which the majority built less than 25 units each year (United States Department of Housing and Urban Development 1974:185).

During the 1950s, one sixteenth of houses were manufactured; by 1963, the number of houses constructed in factories increased to one sixth of the houses that were built. Mobile home manufacturers grew to approximately 600 companies by the mid-1970s (United States Department of Housing and Urban Development 1974:185). The entry of mobile home manufacturers into the larger housing industry helped usher in an increase in the use of prefabrication and industrialization in all aspects of house construction (United States Department of Housing and Urban Development 1974:185).

## Housing Starts during the Vietnam War Era

The Vietnam War Era marks the beginning of concrete diversification of the housing market. New housing products and options became available. Single-family housing continued to dominate the market during the period; however, the construction of alternatives such as townhouses and condominiums made modest inroads in the market.

The total number of housing units started between 1963 and 1975 consistently surpassed one million, with the number of new housing starts surpassing 2 million in 1971, 1972, and 1973. The number of new privately owned, single-unit residential building starts declined between 1963 and 1970 before increasing in 1971. The number of new housing starts for single-unit buildings in 1971 (n = 1,515,000) surpassed the number started in 1963 (n = 1,012,000). Housing starts for single-unit buildings remained over a million for the years 1971, 1972, and 1973, after which date housing starts fell (United States Census Bureau var.).

A comparison of the number of housing units completed indicates that the number of units completed was slightly less than those that were started. Annual data for new privately owned housing units completed for the period 1968, the earliest date available, and 1975 is presented in Table 5.5. The number of new units completed increased each year, peaking in 1973, before declining in 1974. As indicated in Table 5.5, the overwhelming number of new units completed were represented by the single-family dwelling (United States Census Bureau var.).

**Table 5.5** *New Privately Owned Housing Units Started (1963-1975)*

<b>New Privately Owned Housing Units Completed</b>				
<b>Annual Data</b>				
(Components may not add to total because of rounding. Number of housing units in thousands.)				
<b>Year</b>	<b>Total</b>	<b>In structures with--</b>		
		<b>1 unit</b>	<b>2 to 4 units</b>	<b>5 units or more</b>
1968	1,319.8	858.6	77.4	383.6
1969	1,399.0	807.5	79.8	512.1
1970	1,418.4	801.8	85.1	531.5
1971	1,706.1	1,014.0	106.1	586.1
1972	2,003.9	1,160.2	119.2	724.7
1973	2,100.5	1,197.2	123.5	779.8
1974	1,728.5	940.3	95.3	692.9
1975	1,317.2	874.8	60.4	381.8

1968 is the earliest year for which data were available.

Source: United States Census Bureau var.

Inflation and high interest rates threatened the housing industry during the mid-1970s and housing industry experts and builders sounded the alarm. These twin problems were compounded by rising construction costs and global shortages of materials. The housing starts for 1974 and 1975 suggest these fears were realized. Housing starts for 1974 fell below 2 million for the first time for that decade and remained below 2 million in 1975 (Table 5.6) (*House and Home* July 1974:6; United States Census Bureau var.).

In 1950, single-family, detached houses represented 63 percent of the housing inventory, while buildings having more

than 5 units represented just 11 percent of the housing market. Attached housing, including three or more attached houses, i.e., townhouses, comprised slightly more than six percent of the market (United States Census Bureau var.). HUD defines single-family housing as detached, i.e., freestanding buildings, whereas attached are those dwellings that share one or more walls (Sarkar 2011:2).

The number of single-family, detached houses grew in 1960 to include nearly 70 percent of housing market. The number of multi-family units declined slightly to 10.7 percent while the number of attached units remained nearly the same as in 1950. After peaking at 68.8 percent of the housing market in 1970, the number of single-family, detached units declined to 66 percent of the housing market. The number of buildings with five or more units increased to 14.5 percent of the market. Importantly, the number of attached units declined significantly to 2.9 percent of the housing market (United States Census Bureau var.). The number of multi-family units constructed also increased.

**Table 5.6** *New Privately Owned Housing Units Completed (1968-1975)*

<b>New Privately Owned Housing Units Started</b>				
<b>Annual Data</b>				
(Components may not add to total because of rounding. Number of housing units in thousands.)				
<b>Year</b>	<b>Total</b>	<b>In structures with--</b>		
		<b>1 unit</b>	<b>2 to 4 units</b>	<b>5 units or more</b>
1963	1,603.2	1,012.4	(NA)	(NA)
1964	1,528.8	970.5	108.3	450.0
1965	1,472.8	963.7	86.7	422.5
1966	1,164.9	778.6	61.2	325.1
1967	1,291.6	843.9	71.7	376.1
1968	1,507.6	899.4	80.7	527.3
1969	1,466.8	810.6	85.1	571.2
1970	1,433.6	812.9	84.9	535.9
1971	2,052.2	1,151.0	120.5	780.9
1972	2,356.6	1,309.2	141.2	906.2
1973	2,045.3	1,132.0	118.2	795.0
1974	1,337.7	888.1	68.0	381.6
1975	1,160.4	892.2	64.0	204.3

Source: United States Census Bureau var.

Approximately 22 percent of housing starts in 1960 were comprised of multi-family units; by 1972, that number increased to 45 percent (United States Department of Housing and Urban Development 1974:166).

A review of housing data from select states provides context on the relative popularity of attached dwellings. Single-family detached housing units dominated the housing market in North Carolina; this house type consistently comprised more than 80 percent of the housing market. Maryland had, by far, the largest number of attached houses for each of the years 1950 (n = 24 percent), 1960 (n = 25 percent), and 1970 (n = 18 percent). The building stock of Baltimore City likely contributed to the large number of attached dwellings in the state's inventory. In general, each of the states had a decline in the number of attached units in their inventories from 1960 and 1970 (United States Census var.). Table 5.7 presents the number of housing units by housing type, i.e., single-family, attached, and multi-family units, nationally and for certain states for the years 1950, 1960, and 1970.

The dominance of the single-family dwelling as a segment of the housing market stands in sharp contrast to what the military built during the period. Attached dwellings approached 46 percent of the military family housing inventory according to Congressional testimony. The military not only built more townhouses as a percentage of the entire housing stock, but in most cases, exceeded the percentage of such buildings in the states presented in Table 5.7. The military's construction program, including the Army's, is discussed in greater detail in Chapter 6.

Housing completions increased 47 percent between 1968 (n = 1,360,500) and 1972 (n = 1,999,200) (United States Department of Housing and Urban Development 1974:185). Privately owned, single-family houses completed between 1968 (n = 858,600) and 1972 (n = 1,143,000) rose 33 percent. However, completions of privately owned buildings having two or more units increased dramatically. That segment of the housing market increased by 80 percent the number of multi-family units complete between 1968 (n = 461,200) and 1972 (n = 828,200) (United States Department of Housing and Urban Development 1974:185). Diversification in the housing market defines the Vietnam War Era. The single-family dwelling remained the most common type of housing; however, other options began to encroach on the market.

**Table 5.7 Number of Housing Units by Type: 1950-1970**

	<b>1950</b>									
	1, detached		1, attached		2 to 4		5 or more		Mobile home	
	Number	%	Number	%	Number	%	Number	%	Number	%
US	29115698	63.3%	2798632	6.1%	8676183	18.9%	5077667	11.0%	315218	0.7%
CO	308154	70.6%	19861	4.6%	57729	13.2%	45200	10.4%	5282	1.2%
GA	724747	75.0%	40263	4.2%	152028	15.7%	46489	4.8%	3145	0.3%
HI	N.A.		N.A.		N.A.		N.A.		N.A.	
LA	565944	72.8%	62507	8.0%	110882	14.3%	35794	4.6%	2545	0.3%
MD	315202	45.7%	165950	24.1%	148592	21.6%	56799	8.2%	2573	0.4%
NC	876694	82.8%	31250	3.0%	119826	11.3%	26141	2.5%	4456	0.4%
SC	456018	81.8%	16267	2.9%	70314	12.6%	13378	2.4%	1695	0.3%
TX	1883065	78.7%	92639	3.9%	292591	12.2%	103042	4.3%	22491	0.9%
<b>1960</b>										
	1, detached		1, attached		2 to 4		5 or more		Mobile home	
	Number	%	Number	%	Number	%	Number	%	Number	%
	US	40103346	68.8%	3655210	6.3%	7551865	13.0%	6237798	10.7%	766565
CO	434660	73.1%	32164	5.4%	52494	8.8%	62111	10.4%	12979	2.2%
GA	915194	78.2%	64009	5.5%	120147	10.3%	57832	4.9%	12689	1.1%
HI	108966	65.9%	13808	8.3%	20885	12.6%	21706	13.1%	25	0.0%
LA	740691	75.7%	69779	7.1%	113788	11.6%	44658	4.6%	9445	1.0%
MD	509406	54.5%	232912	24.9%	103968	11.1%	78444	8.4%	9521	1.0%
NC	1147871	86.8%	50883	3.8%	71453	5.4%	33499	2.5%	19133	1.4%
SC	583185	86.0%	25376	3.7%	42594	6.3%	16128	2.4%	11072	1.6%
TX	2623673	83.2%	147386	4.7%	208864	6.6%	136152	4.3%	36878	1.2%
<b>1970</b>										
	1, detached		1, attached		2 to 4		5 or more		Mobile home	
	Number	%	Number	%	Number	%	Number	%	Number	%
	US	44800684	66.2%	1989867	2.9%	9006950	13.3%	9828696	14.5%	2072887
CO	519105	69.9%	13934	1.9%	63646	8.6%	115026	15.5%	31147	4.2%
GA	1082964	73.8%	14848	1.0%	148073	10.1%	144367	9.8%	76435	5.2%
HI	135809	62.9%	4187	1.9%	22686	10.5%	53049	24.6%	161	0.1%
LA	870181	75.9%	23230	2.0%	141308	12.3%	73081	6.4%	38305	3.3%
MD	631128	51.1%	218943	17.7%	128411	10.4%	235855	19.1%	20343	1.6%
NC	1314871	81.2%	18708	1.2%	117552	7.3%	69943	4.3%	98474	6.1%
SC	662922	82.4%	3768	0.5%	59260	7.4%	28697	3.6%	50211	6.2%
TX	3010366	79.0%	47127	1.2%	258708	6.8%	398198	10.5%	94687	2.5%

Attached units in 1950 include row houses (3 or more attached houses) and semi-detached (2 units side-by-side); in the latter case, the units might not be completely separated (a complete wall from basement through attic). 1970 counts are restricted to "year-round" housing units -- seasonal and migratory vacants were excluded. In 1970 and earlier censuses, mobile homes had to be occupied to be counted as housing units.

Source: United States Census Bureau var.

## Technological Trends in the Housing Market

The postwar construction industry took advantage of the innovations developed during World War II. These innovations introduced new materials and construction techniques. After the war, those advances were applied to the residential construction industry.

In terms of materials, aluminum, steel, porcelain enamel, concrete masonry units, simulated stone, fiberboard, and plywood, became common place during the 1950s. Metal and aluminum window frames replaced the traditional wood sash and lath and plaster. Aluminum siding and brick veneer became popular and air conditioning and heat pumps were more and more common. Asphalt singles replaced wood shingles, and casement, horizontal slider, and picture windows were substituted for double-hung units (R. Christopher Goodwin & Associates, Inc. 2003:3-33).

Aluminum in particular gained traction as a building material. During the early 1970s, aluminum was used as a light-weight framing material. Experts predicted that aluminum frames would be used in 10 percent of new houses by 1980. While the material was used for doors, its application as an exterior siding material was gaining in popularity. Some houses were being constructed with insulating and reflective glass as a way to reduce heating and cooling costs (United States Department of Housing and Urban Development 1974:202).

By the end of the period, the industry began experimenting with an ever-increasing array of new products such as epoxies, fiberglass, and plastics, with plastic assuming more and more uses (United States Department of Housing and Urban Development 1974:199). One of the most significant changes in materials included the dramatic increase in the use of plastics. Plastic was used for almost all interior and exterior dwelling components. Some builders experimented with plastic exterior walls and others with fiberglass walls. Complete bathroom assemblies employing plastic were not uncommon. The material also was used for insulation, cabinets, roofing shingles, and as “manufactured marble” for vanity tops. Most importantly, plastic began to replace metal in plumbing systems. Use of vinyl, ubiquitous in late-twentieth century construction, as an exterior cladding material was beginning to gain in popularity (United States Department of Housing and Urban Development 1974:202).

Architects helped the building industry in the search for better materials. They assisted the materials industry design prototype houses and develop new materials, as it entered the actual construction of housing. These industries included Alcoa, Reynolds, Universal Atlas Cement, and the Douglas Fir Plywood Association, among others. An example of this type of collaboration was the introduction of products like Plywood Texture 111 (*House and Home* Aug. 1963:111).

Industrialization of the housing market emerged during the early 1970s. This process entailed the “introduction of industrially produced components into the onsite production of housing”. These components included roof trusses, kitchen cabinets, windows, electrical parts, and exterior wall units (United States Department of Housing and Urban Development 1974:199). The industrialization of housing was reflected in the increase in the production of complete house “packages” (United States Department of Housing and Urban Development 1974:199). In 1973, *Automation in Housing* magazine predicted that

70 percent of all housing starts in 1973 would involve the use of at least some major industrialized components (exterior wall units, interior panels, roof trusses, floor system, utility cores, gable ends, soffit systems, prehung doors, etc.). This level of usage represents an increase from 48 percent in 1969 (United States Department of Housing and Urban Development 1974:199).

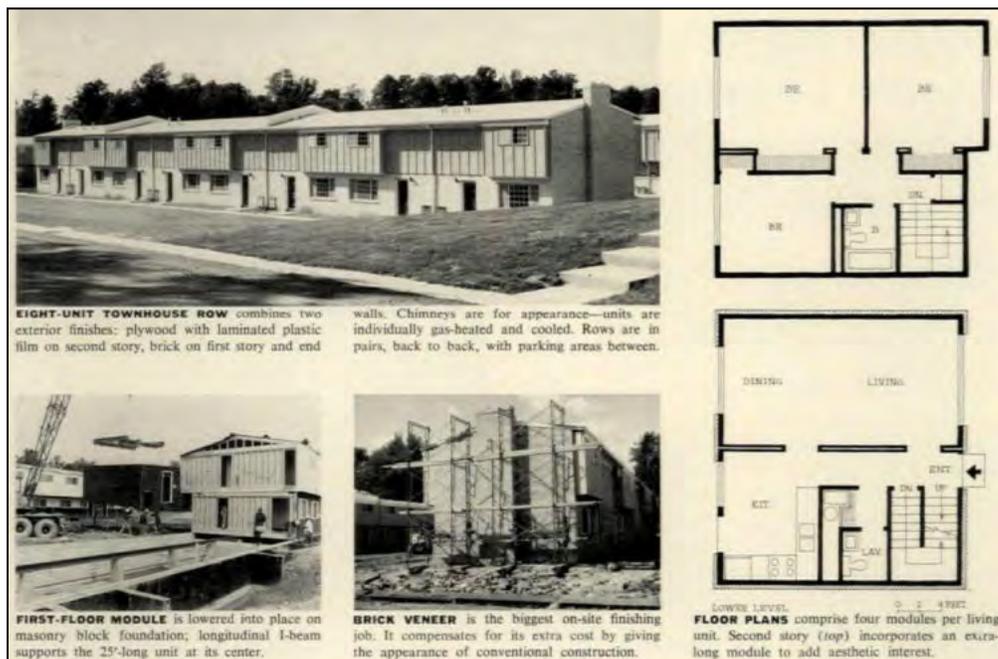
Despite the findings presented by *Automation in Housing*, some housing experts believed the actual use of industrialized components was higher; with the real percentage closer to 90 percent when the use of such factory-produced elements as kitchen cabinets and prehung doors were taken into consideration (United States Department of Housing and Urban Development 1974:199).

As more and more house components were manufactured in a factory, parallel innovations in on-site construction occurred. An increase in the use of automatic gun-nailers that could deliver multiple nailings simultaneously; panel cranes that lifted and placed floor, wall, and ceiling panels into their correct positions at the building site; framing forms; and adhesive guns occurred during the early 1970s (United States Department of Housing and Urban Development 1974:202).

Despite the introduction of new materials, many traditional materials including wood, concrete, steel, and glass, among others, continued to be used in residential construction. The novelty that occurred

during the period was the way in which they were used. Wood continued to be used in house construction, albeit less frequently. Hardwood floors, for example, became a custom option because of its high costs. Wood became an ornamental feature of the house's exterior rather than the primary cladding material (United States Department of Housing and Urban Development 1974:202). The use of concrete for floors, walls, and ceilings also became more common. Similarly, steel as a residential building component became more frequent. The material had been used extensively in commercial and heavy construction; however, its application to residential construction represented an innovation. Steel was used for floor joists, roof trusses, studs, and doors, largely in response to the high cost of lumber.

Builders experimented with new construction techniques originally used in the construction of low-income housing adapted them for middle-income rental units. Brick veneer and false chimneys could be added to these so-called stackup townhouses, which used modular boxes, to create visual interest and a sense of refinement. In plan, the dwellings had an open dining/living room space (Figure 5.2) (*House and Home* Oct. 1968: 80-81). Prefabrication of components, specifically those that would have been constructed on site, helped make house construction more efficient (United States Department of Housing and Urban Development 1974:212).



**Figure 5.2** Construction, Elevation, and Floor Plan of Stackup Townhouses  
 Source: *House and Home* Oct. 1968:81.

## **New Approaches to Neighborhood Design**

The FHA, through its minimum standards, helped to erase regional differences in building types and architectural character. Because builders across the country were required to comply with FHA standards, housing during the postwar period became increasingly uniform. Standardized building materials also helped homogenize the residential construction market (Pettis et al. 2012:90). As discussed in greater detail in Chapter 4, demographic changes impacted the housing industry. Young couples, single-person households, and retirees played growing roles in the housing market of the mid-1960s and 1970s. These segments of the housing market preferred townhouses or apartments over single-family detached dwellings having three or four bedrooms (Pratt Institute n.d.:10). The housing industry and design professionals of the Vietnam War Era began to move away from the dwelling and neighborhood models that had developed following World War II.

### **Residential Construction and Suburbanization following World War II**

During the 1930s, in an effort to jumpstart the economy, to slow the collapse in the housing market, and to return workers to the workforce, Federal policies promoted the construction of new single-family housing, with a particular emphasis on small houses. As the country emerged from the Great Depression and wartime austerity, the housing construction boom took off in earnest. By adapting mobilization construction techniques developed during World War II for the civilian market, the building industry constructed thousands of new houses to meet the pent-up housing demand. These builders, of whom Abraham Levitt, with his sons William and Alfred, was one of the most well-known, adopted standardization to rapidly construct affordable houses. Standardization lowered material costs and simplified the construction process (R. Christopher Goodwin & Associates, Inc. 2003:3-32).

To keep costs low, and in conformance with the prevailing small house movement promoted by the FHA and the Architect's Small House Service Bureau, Levittown houses were small. Many were completed in the Cape Cod, ranch, or minimal traditional forms. The minimal traditional dwelling type is a postwar reinterpretation of the Cape Cod type that was popular during the 1920s and 1930s; however, the postwar version of the dwelling was significantly smaller than its predecessor (California Department of Transportation 2011:67).

Levittown came to epitomize the postwar housing boom. Large-scale neighborhoods were built in rural areas adjacent to major metropolitan centers. Levittowns in New Jersey; New York, and Pennsylvania were located within commuting distance of Trenton, New York, Philadelphia. Many Levittown neighborhoods lacked the holistic planning that came to define later developments. The Nassau County, New York, Levittown, for example, did not provide basic infrastructure and services, leaving Federal, state, and local governments to absorb such costs (Hayden 2004:132). Levitt & Sons New York development passed the costs for road improvements to and from the new neighborhoods; sewer connections; and trash removal to state and local governments (Hayden 2004:136-137). The Levitts provided no recreational opportunities in their New York community of 80,000 residents; instead they relied on nearby public facilities such as Jones Beach (Hayden 2004:136).

Unlike select contemporary builders such as American Community Builders' of Park Forest, Illinois, or Madison, Wisconsin's Marshall Erdman, the Levitts did not employ professional planners or architects to design either the neighborhoods or the individual houses (Hayden 2004:141-146; Andrzejewski 2015:281-301). In fact, Erdman went a step further than most builders and sold customized prefabricated houses (Andrzejewski 2015:293). Consequently, Levitt neighborhoods consisted of uninterrupted rows of near-identical housing, and homeowners had limited options in house designs from which to choose (Hayden 2004:134).

As the country entered the Vietnam War Era, the house-buying public began to demand options in housing choice and neighborhood design. The Pratt Institute aptly summarized the house-buying public's dissatisfaction with the current housing market:

To suggest that suburban development can be repetitious and dull yet well received by the buying public is contrary to logic. It is based on hindsight, on a recollection of the frenetic efforts to overcome the urban housing shortage after World War II.

Today the buying public won't "take what it can get." It has preferences, and they must be served if developers are to stay in business (Pratt Institute n.d.:12).

## **Suburbanization during the Vietnam War Era**

Chapter 4 summarizes the demographic and social changes that affected the civilian housing market. The number of house types catering to newly formed households or those that were downsizing grew through the 1960s to include apartments, condominiums, and townhouses. These dwelling types appealed to those who did not want a single-family house. As houses got larger during the 1960s and 1970s, they became undesirable and/or unaffordable for young married couples, single people, and the elderly. In fact, apartments represented the fastest growing segment of the housing industry in 1963 (*House and Home* Aug. 1963:81).

Population shifts played an equal role in the changing demographic equation. By 1970, more than one-third of Americans lived in the suburbs, with the suburban population (n = approximately 56 million) exceeding the population of the cities (California Department of Transportation 2011:15). Population growth was regional, with some sections of the country growing more rapidly than others.

The construction of high-speed, limited-access highways facilitated a profound shift in the country's population. Not only were more and more people relocating to the suburbs, but more and more businesses were chasing their workers to exurban fringes. Retail, manufacturing, and government jobs relocated to the suburbs, and by 1973, employment in the suburbs surpassed that of the cities (California Department of Transportation 2011:18). The increasing suburban population put pressure on the finite supply of land. Land use guidelines and domestic design evolved to reflect not just these multi-layered changes but also to address increasing house prices.

## **Housing Trends**

The design industry responded to the challenge of providing better neighborhoods and additional housing options in a variety of ways that included new approaches to neighborhood layout, new-found appreciation of a historical dwelling type, updated exterior design, and reconsideration of residential floor plans. Trade magazines acknowledged the dismal design aesthetic of the single-family house, noting single-family houses “stood little chance of winning awards for exterior design excellence. Even so, they reflect much of the considerable change-for-the-better taking place in the design

of single-family homes—changes in floor plans. . . and in interior design and features” (*House and Home* May 1963:88).

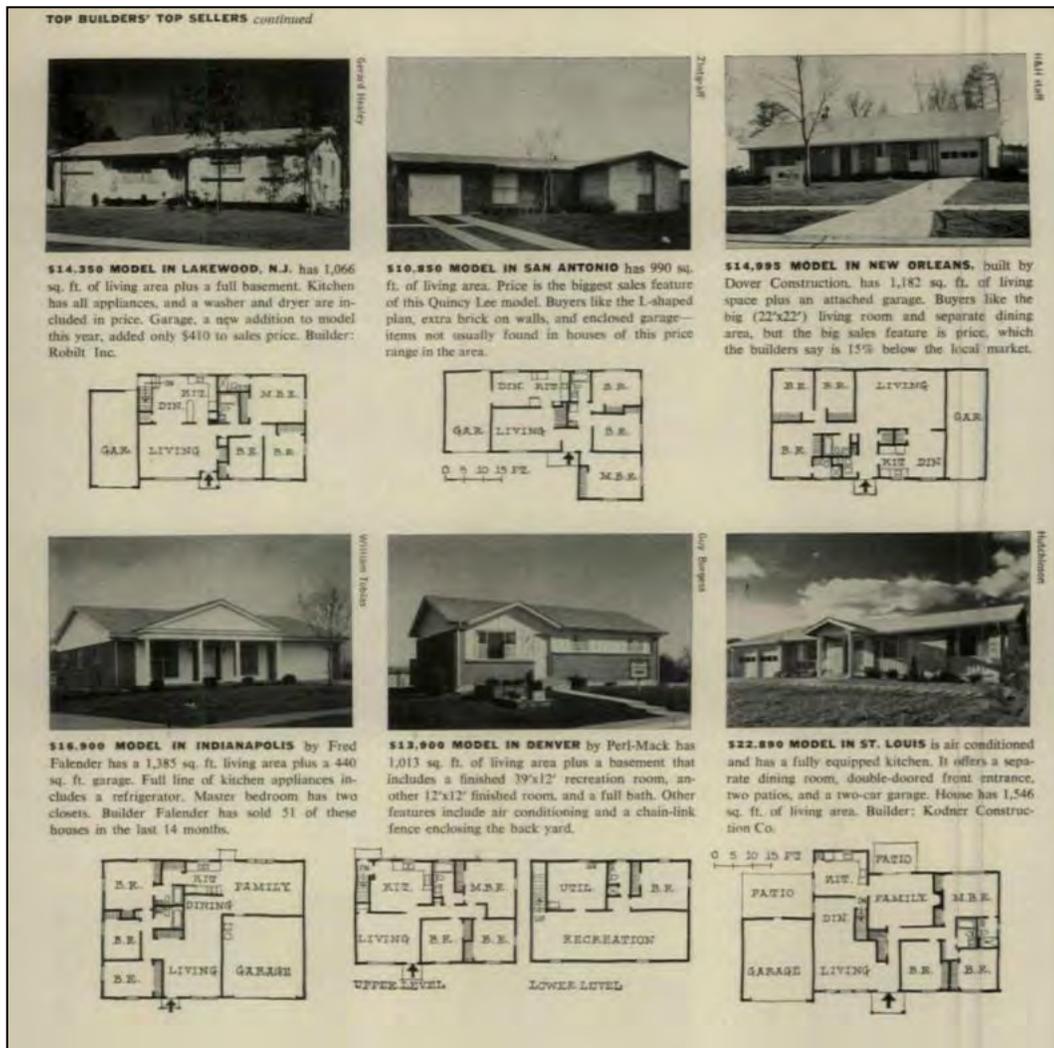
The ever-increasing house size was a reaction to changing family dynamics and consumer demand. The demand was led, in part, by tastemakers who set the tone for middle-class house buyers looking for guidance on appropriate housing expectations. Housing features that were introduced in custom houses filtered down to mass-market housing. These features included the open floor plan, living rooms located at the back of the house, glass walls that opened on to patios, a closed façade facing on to the street, and interior kitchens and baths. Features like eat-in kitchens, separate dining rooms, master bedrooms, and walk-in closets were in demand (*House and Home* May 1963:112). Builders began offering additional appliances as a means of competing with the apartment market that came fully supplied. Similarly, single-family house builders began offering air conditioning as a way to compete the apartment sector.

On the exterior, strong horizontal lines, “big roofs” and deep overhangs that helped make small houses look larger were techniques first employed in custom-designed houses (*House and Home* Aug. 1963:110). House builders quickly learned they needed to “load up their units with goodies—design, amenities, style, landscaping, the works, so customers can’t resist their merchandise—as opposed to the same priced unit with fewer goodies a block away” as the 1960s came to a close (*House and Home* Dec. 1968:67). In its summary of current trends, *House and Home* noted:

Since 1950 the finished area in single family homes has increased almost 70%. Of homes built in 1967, some 88% had three or more bedrooms, 67% had garages, 50% had two or more bathrooms and 45% had full basements.

Air condition, playrooms, indoor-outdoor areas, all-electric kitchens, washer-dryer laundries, special plumbing fixtures, hi-fi set ups, bar facilities and sauna baths are not uncommon in today’s new homes (*House and Home* Sept. 1968:30).

Figure 5.3 depicts popular floor plans and house types at different price points from the period.



**Figure 5.3** Popular House Forms and Floor Plans  
 Source: House and Home May 1963:92.

Chapter 4 summarizes the consistently rising cost of housing during the Vietnam War Era. Specifically, prices increased 118 percent for FHA-insured houses and 133 percent for houses constructed with conventional mortgages between 1950 and 1968. At the same time, the median household income rose 141 percent during the same time period (*House and Home* Sept. 1968:30). In response to increased incomes, the housing industry began constructing larger dwellings with more amenities (*House and Home* May 1963:88; Sept. 1968:30). Increased labor and land costs and the demand for larger houses led to the increase in house prices. The planned unit development, townhouse, contemporary style, and open floor plan could be interpreted as nascent rejection of the lack of choice in housing type and neighborhood design, for those who did not or could not afford a new single-family house, particularly one that was increasingly larger than in years past.

## **Better Neighborhood Design**

The increasing cost of land compelled house builders to shift to the planned unit development model of new neighborhood construction, which incorporated a much higher density of housing than traditional neighborhoods. Builders hired architects to design the housing units, many of which were townhouses. Such neighborhoods incorporated a variety of housing types from townhouses, to apartment buildings, to single-family dwellings and afforded diversity in housing price.

Through much of the postwar period, architects generally were not involved in the design of housing built on speculation, a business model which fueled the postwar housing boom. Residential commissions usually were undertaken mostly for wealthy clients who could afford custom houses. As architect Claude Oakland stated, “We should not build what the public wants, but what the public would want if it were offered.” (*House and Home* Aug. 1963:105). The popularity of the planned unit development changed this calculus. High-density housing in planned unit developments attracted architects to the mass-housing market. This planning tool was “a field where builders apparently feel the need of architectural advice (and are ready to pay for it), where lenders apparently feel the need of design reassurance, and where architects seem eager to make a contribution”. The editors of the housebuilding trade magazine *House and Home* posited that collaboration between builders and architects in the design of planned unit developments would translate to more collaboration in the design of single-family dwellings in general (*House and Home* Aug. 1963:111).

## **A New Appreciation for the Townhouse**

There was a recognition by design and planning professionals at some level that townhouses fulfilled a need that was lacking in the current housing market. This recognition was reflected in their prominence in planned unit developments and in their adoption by architects as a house type worthy of legitimate design consideration. Demand for this housing type drove part of this re-examination.

As the Vietnam War Era progressed, trade journals consistently promoted the construction of townhouses. Architects, planners, developers, and local government realized the single-family housing model was not an efficient use of land. Design and land use professionals advocated for the construc-

tion of townhouses because they did not require as much land to construct and they could provide more greenspace than their detached, single-family counterparts. Urban townhouses were termed “formal,” whereas the suburban examples took “on the forms and finishes of the single-family house with which it competes. . .the suburban version often turns outward towards the countryside it has helped preserve” (*House and Home* Oct. 1968:82).

Adoption of the townhouse as an appropriate solution to contemporary housing needs prompted clarification on what constituted a townhouse. The Vietnam War Era is noteworthy for a change in terminology from row house to townhouse. Both row houses and townhouses are attached single-family dwellings that are aligned in a row and consist of the three or more units. However, the former had negative socio and economic connotations that were expressed by members of Congress and summarized in trade magazines (United States Congress 1967a Part 1:16). As defined in *House and Home*,

Townhouse and row house both mean attached for-sale housing—but with a world of difference.

Unfortunately, some builders still think the difference is in name only. But the fact is that row housing has a bad image. It calls to mind the long drab lines of city buildings built many years ago with no green space around them, dull exteriors, and cramped interiors. And simply calling a row house a townhouse won’t destroy this image.

What will destroy yesterday’s row-house image is exciting design and imaginative land planning (*House and Home* Dec. 1963:72).

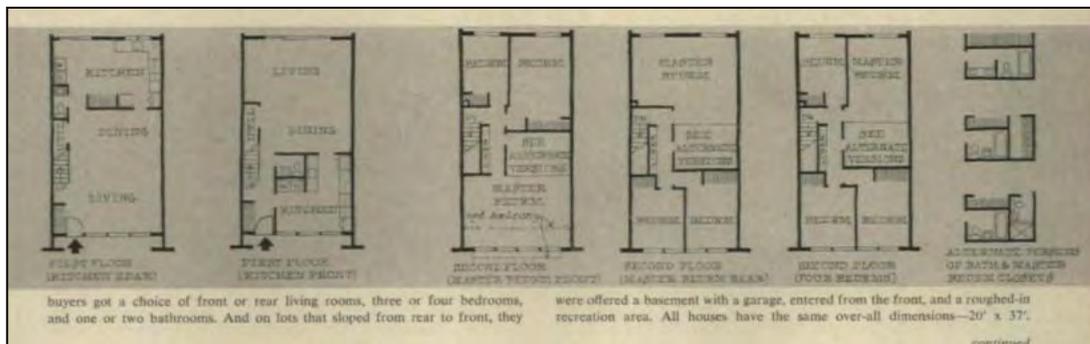
The change in terminology ultimately was driven by marketing considerations rather than design innovation. The *House and Home* townhouse definition combined the integration of planned unit development, modern design, and new concepts in interior layout.

Architects rose to the challenge and developed designs at a variety of price points and sizes. Examples of townhouse design are presented in Figures 5.4-5.7. They ranged in cost from \$15,990 (\$137,349 in 2020 dollars) for a 1,338 square foot town house to prefabricated town houses costing \$11,500 to \$13,000 (\$98,781 to \$111,666 in 2020 dollars) for 816 square feet and 1,020 square feet of living space (Friedman n.d.; *House and Home* Oct. 1963:72-82). Townhouses could be expressed in modern

or traditional architectural styles. Those townhouses that had no architectural stylistic references were executed in the Modern idiom. Ornamentation was absent. Piers delineated individual units, which were defined by exposed steel elements that to create window bays containing horizontal sliding windows. Townhouses recalling the Colonial Revival style, also employed minimal stylistic references; however, arched openings, applied pediments, multi-light, double-hung windows, and shutters recall familiar styles. In plan, the revival style townhouse assumed a more traditional room arrangement, with walls defining the spaces. Those completed in a more modern aesthetic incorporated open floor plans (*House and Home* Oct. 1963:72-82; Dec. 1963:72-82).



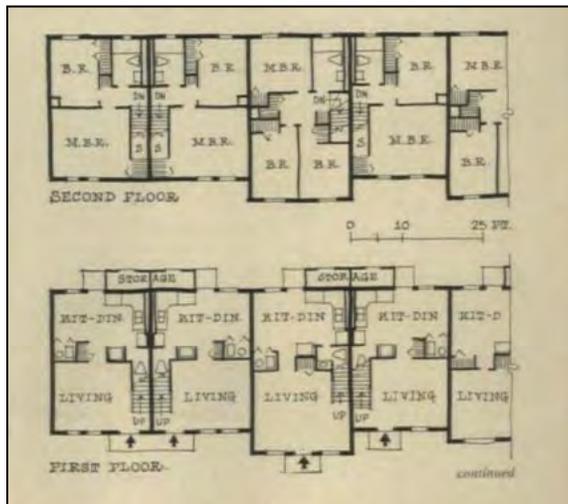
**Figure 5.4** Townhouse Project in Rockland County, New York. Architect: Matthew J. Warshauer  
Source: *House and Home* Oct. 1963:79.



**Figure 5.5** Plans for Townhouse project in Rockland County, New York. Architect: Matthew J. Warshauer  
Source: *House and Home* Oct. 1963:79.



**Figure 5.6** *Townhouse Project in Florida*  
 Source: House and Home Oct. 1963:85.



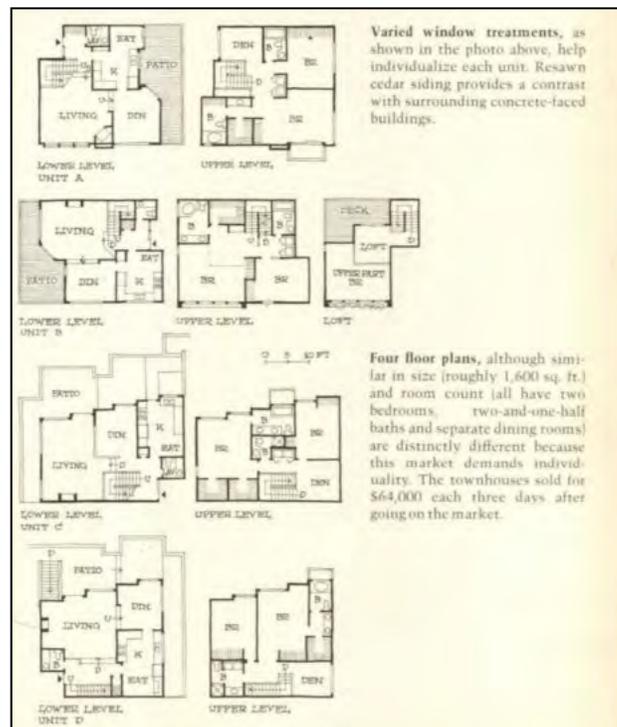
**Figure 5.7** *Plans for Townhouse Project in Florida*  
 Source: House and Home Oct. 1963:85.

A fourplex project constructed in Los Angeles was executed in the Contemporary style. The two-bedroom units occupied 1,600 square feet, incorporated separate dining rooms, and sold for \$64,000 (\$341,163 in 2020 dollars) (Figures 5.8 and 5.9) (Friedman n.d.; *House and Home* Dec. 1974:73). These examples included most of the elements of planned unit development criteria and Contemporary design.



**Figure 5.8** Fourplex Townhouse in Los Angeles

Source: *House and Home* Dec. 1974:73.



**Figure 5.9** Fourplex Townhouse in Los Angeles (Plan)

Source: *House and Home* Dec. 1974:73.

As the townhouse segment of the housing industry matured, some townhouse builders marketed to upper-income home buyers by selling townhouses that ranged between \$20,000 and \$25,000 (\$151,140 to \$188,925 in 2020 dollars). These homeowners had average incomes of \$12,000 to \$15,000 (\$90,684 to \$113,355 in 2020 dollars) depending on location and were moving not from apartments but from single-family houses. Families moving into this townhouse market averaged 1.0 children. The neighborhoods in which these townhouses were constructed offered what was called “country-club living” because of the recreational amenities they provided, including club houses, pools, and playgrounds (Friedman n.d.; *House and Home* May 1968:100, 101).

Townhouses constructed during the mid-1970s for the young family and empty-nester population adopted open floorplans for public spaces. The units are noteworthy for their Contemporary style, inclusion of game rooms in select models; and the absence of formal dining rooms (*House and Home* Mar. 1974:114-116).

The military adopted the townhouse for its cost efficiency and adherence to planned unit development principles. Selection of the townhouse type occurred during a period when it was gaining in popularity for its ability to meet a variety of living, environmental, planning, and cost standards. The Army constructed more townhouses than civilian-sector builders, it recognized the building type as the most practical solution to meeting its family housing needs while remaining with the cost and size limitations mandated by Congress. Further discussion on military housing is presented in Chapter 6.

### **Popular Architectural Styles and Forms**

As architectural historian Virginia McAlester noted in her compendium of domestic architectural styles and forms, trade journals and professional design organizations such as the American Institute of Architects rewarded modern design, such as the ranch form and the Contemporary style, in their design competitions. Nine merchant builders were winners of the 1968 Homes for Better Living Program. Their award winning designs incorporate tenets of the Contemporary style, including steeply pitched roofs, geometric elevations, and obscured or hidden entrances (Figure 5.10). In plan, select dwellings incorporated galley kitchens, dens or recreational rooms, sunken living rooms, and semi-

open floor plans (i.e., some of the main floor living spaces opened into one another) (*House and Home* Aug. 1968:68-83; Aug. 1974:80-85).

Houses constructed during the Vietnam War Era fall under the broad umbrella of Modern style, which includes three forms and styles: the Early Modern (i.e., Prairie, Craftsman, and Modernistic), the Bankers Modern (i.e., minimal traditional, ranch, and split level forms), and Mainstream Modern (International, Contemporary, and Shed) (McAlister 2013:549). Houses constructed by the Army during the Vietnam War Era include ranch and split level forms and the Contemporary and Shed styles. Popular architectural styles from the period were applied to both single-family and duplex dwellings as well as townhouses.

### *Ranch*

The ranch type generally was popularized between 1935 and 1975 and was characterized by its roof overhang, off-centered, often recessed entry, and attached garage. These single-story dwellings frequently had asymmetrical façades defined by picture windows. While roof forms include hipped, cross-hipped, and cross-gabled, the most common roof form employed on ranch-type houses was the side gable. Window openings equally were varied in terms of size, location, and material; aluminum and steel window were common. The picture



**Figure 5.10** *Select Winners of 1968 Homes for Better Living Program*  
Source: *House and Home* Aug. 1968:68.

window represented the most recognizable character-defining feature of ranch houses. Ranch houses exhibited a high degree of standardization because many of the construction materials including gypsum board, lumber, and sheetrock that were manufactured to standard dimensions. Exterior materials could include brick, stone, asbestos, or wood. Design magazines helped popularize the type. *House Beautiful* and *Home and Garden* promoted the benefits of the casual family-focused lifestyle of the postwar years, which the ranch facilitated. Stylistic modifications emerged during the 1970s as the pitch of the roof increased and traditional ornamentation was applied (McAlester 2013:597-603).

### ***Split-level***

The split-level house form was contemporaneous with the ranch, and gained popularity in the 1950s. This dwelling form is defined by the division of spaces separated by a partial flight of stairs. Because split-levels required less land than other house forms, they were cost effective, particularly in areas with high land costs. These houses could look like a typical two-story dwelling; and frequently, the garage was incorporated under the house. This dwelling type was ideal for those houses constructed on sloping ground. While they were constructed throughout the country, they were less popular in the south and southwest. Split-level dwellings used the same types of materials and windows as found on ranches (McAlester 2013:613-614).

### ***Contemporary***

Contemporary dwellings are defined by low-pitched, and sometimes flat roofs, natural materials, uninterrupted wall surfaces, recessed or hidden entry, and asymmetry. Types include the front-gable, the side-gable, gable-roof variations, flat roofs, and butterfly and slant roofs. No exterior ornamentation is present. The interior plan distinguishes the Contemporary dwelling from other styles; a hall for circulation was omitted. The highly functional interior affords sweeping views of the outdoors; large expanses of fixed windows were common. The integration between indoor and outdoor spaces was a key character-defining feature of Contemporary dwellings and could be accomplished by constructing various outdoor living spaces or through the incorporation of interior courtyards. This house style was ideal for steep hillsides.

The Contemporary style gained popularity after 1945 and remained popular through the mid-1960s. Frequently, the style was promoted by architectural and design magazines. Many of the style's proponents, such as Joseph Eichler and Charles M. Goodman, won architectural awards (McAlester 2013:629-634).

### ***Shed***

The Shed house became popular during the mid-1960s. The multi-directional shed roof forms were the style's most prominent feature. Shed houses were clad in wood siding; brick was used infrequently. The houses have smooth roof-wall junctions and asymmetrical elevations. Elevations are boldly geometric and have complex massing. Large openings with fixed windows are typical. While wood shingles were used in early examples of the style, later versions of the style have vertical, horizontal or diagonal wood siding, T1-11 wood siding, and/or brick veneer. The style originally was marketed for vacation houses, but later was popularized through builders' house pattern books. The style also was promoted in magazines such as *Architectural Record*. The style was one of the earliest to be adapted for energy conservation. Traditionally inspired houses supplanted both the Shed style by the 1980s (McAlester 2013:649-650).

### **Conclusion**

Federal housing policies, intertwined with societal and demographic changes, led to a reexamination of suburban design. Clustering housing units and reducing lot size were seen as tools to keep rising land costs in check. While the single-family dwelling continued to dominate the housing market, other housing options became available. The townhouse became a reasonable choice for newly married couples, single householders, and empty nesters. The military adopted both the planned unit development concept and the townhouse form for their cost efficiency. Together, they enabled the military to maximize military family housing added to the Army inventory during the period.

## Chapter 6: The Solution – The Family Housing Program

### Introduction

The DoD developed policies, procedures, and guidance for family housing constructed between 1963 and 1975. These documents established the minimum acceptable design standards for all newly constructed family housing. Both site planning and residential design were based on models developed in the civilian sector. The DoD retained four of the country's leading architectural firms to prepare a design folio that guided much of the construction through the period.

DoD policy regarding family housing was clear. If, after an analysis of housing opportunities available in the surrounding community the Army determined that an installation's housing requirements could not be met by the private sector, only then could an Army plan, develop, and propose new, on-post family housing. Construction proposals from all branches of the military were vetted fully through the DoD and presented to Congress for authorization and funding on an annual basis. Once approved, construction of family housing was undertaken by the respective services. The DoD prepared a variety of instructions and manuals to assist installations in the development of new on-post residential assets.

The overall design of Army family housing during the Vietnam War Era generally followed three phases of progressive development influenced by past precedence in military housing (1963 -1964), DoD efforts to standardize design among the services through application of the *Design Folio for Family Housing* (1964 -1972) (United States Department of Defense 1964), and DoD revision to the *Design Folio* (1973-1975). Army family housing in the initial years of the era (1963 -1964) are identical

in design to units developed under Capehart Act program or Military Construction, Army (MCA).<sup>1</sup> The Capehart Act expired in 1962 and the limited numbers of Vietnam era units constructed during the opening years of the period likely reflect either the completion of projects that were programmed and/or started before the legislation expired or an expedient default to plans at hand to address the need for adequate Army family housing at the onset of the Vietnam conflict. Capehart and MCA units in the Vietnam War Era inventory were constructed in accordance with *Construction Procedures for Development of Capehart and MCA Housing Projects EM 415-3-4* issued in 1959 and the 1961 *Installations. Site Planning of Family Housing Areas. EM 210-3-10* issued by the USACE. Those documents are discussed at length in *Housing An Army: The Wherry and Capehart Era Solutions to the Postwar Family Housing Shortage (1949-1962)* (R. Christopher Goodwin & Associates, Inc. 2003). The majority of the housing constructed during the Vietnam War Era was built after 1966, following Congressional funding for the construction of significant numbers of new family housing units. Extant examples from all three phases of development are found in the Army real property inventory and demonstrate compliance with instructions, manuals, and policies issued for the construction of military family housing by DoD as applied by Army.

This chapter provides a summary of the instructions and directives that shaped Vietnam War Era Army family housing. The chapter concludes with a discussion of associated property types, which were developed through a review of DoD-issued graphic and written guidelines, previous architectural surveys, and site investigation of 10 selected active installations.

## **Manuals, Procedures, and Instructions**

### ***DoD Design Folio for Family Housing***

The DoD issued new guidance for the construction of family housing in the form of an illustrated folio. Prior to adoption of the folio in 1964, “each of the military departments has utilized standard designs for repetitive-type facilities which conform to DOD construction criteria, but which nevertheless reflect the individual requirements of the using Department” (United States Congress 1965a Part 1:13).

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<sup>1</sup>The acronym MCA meant Military Construction, Army when discussing housing constructed during the late 1950s and early 1960s. By the Vietnam War Era, MCA meant Military Construction Appropriations

The DoD, in a “fresh departure” from that policy and with the goal of improving design, developed a series of standard DoD definitive plans for “repetitive facilities,” including family housing, bachelor officers’ quarters, community facilities, and enlisted soldiers’ dining facilities (United States Congress 1965a Part 1:13).

Application of the DoD *Design Folio* became mandatory on 1 July 1964. Amenities, size, and layout would be standardized, which enabled dwellings to be constructed anywhere in the country within budgets that considered regional economic conditions (United States Congress 1965b:331). This design portfolio represented the work “of four of the best architectural firms---we think---around” (United States Congress 1965b:332). The four firms involved in the preparation of the *Folio* were: A. Quincy Jones and Frederick Emmons, George Matsumoto, Robert A. Little and George F. Dalton, and Keyes, Lethridge & Condon. Jones and Emmons (temperate climates) and Little & Dalton (cold climates) were tasked with designing townhouses, while George Matsumoto (temperate climates) and Keyes, Lethridge, and Condon (cold climates) were responsible for designing single-family and duplex units (Rixey 1963). Appendix 3 provides biographical information on the four firms.

The DoD had high expectations for the *Folio*. In issuing the Scope of Work in September 1963 for the preparation of the document, the DoD called for “the highest caliber of house and site design in order that the houses resulting therefrom will be excellent in planning, appearance and siting and will be the best obtainable within the imposed size and cost limitations” (Reed 1963). Additionally, the DoD advised the architects that it was “critical that the level of professional effort be of the highest order” when it issued the Scope of Work; the architects had four months to complete the project, with final drawings due in January 1964 (Little 1963:1; Reed 1963). While the DoD preferred more conservative approaches to the designs, the department deemed the *Folio* “an excellent effort” (Jones 1963; Rixey 1964).

According to architect A. Quincy Jones, the *Design Folio* was “only indicative of the minimum quality, and that each architect should come up with a solution equal to or better than those presented in the portfolio”. The DoD, however, felt the “designs would be used as almost a prototype plan.” Jones felt that position was a “backward step” as a solution for the family housing problem (Jones 1967:2).

The *Design Folio* was intended for nationwide application and its use enabled the DoD to project costs on an index-cost basis (United States Congress 1965b:331). The drawings in the *Folio* were to be used to develop program-based average construction costs while enabling all branches of the military to stay within the cost limitations imposed by Congress.

The *Design Folio* applied to the construction of enlisted and junior officer housing and represented approximately 80 percent of the family housing programmed for 1965. Housing for these ranks was considered high density and comprised townhouses and garden apartments. The DoD selected these housing types because they were cost effective to build (United States Congress 1965b:355). Townhouses were not to be constructed for personnel with a rank of field grade officer or above because the “immediate needs are for the enlisted and junior officers” (United States Congress 1965b:357).

The number of attached dwelling units constructed increased during the 1960s. In FY 1963, townhouses represented 22 percent of all housing units constructed by the military; by FY 1964, that number increased to 46 percent. By contrast, townhouses comprised approximately six percent of the civilian housing market in 1960 and less than three percent in 1970 (United States Census Bureau var.). Townhouse construction represented 61 percent of military housing types built in FY 1965.

The designs of housing units constructed in FY 1965 were based on the DoD *Folio*. The *Folio* promoted clustering the townhouses rather than building “sticks” along rectilinear street systems, which helped to minimize costs through concentrated development in smaller footprints (United States Congress 1965b:356). The DoD also preferred this design approach for high-density unit development; schematic examples in the portfolio took advantage of the natural topography and afforded open vistas (United States Congress 1965b:356). The townhouse neighborhoods built by the military adhered to the principles of the planned unit development or cluster development. The *Design Folio*, other than generally recommending the inclusion of open space, did not specifically include drawings or recommendations for athletic or recreational facilities.

Construction of housing in accordance with the options presented in the *Folio* yielded housing densities of 12 (or 7.5 units per gross acre) to 16 units per net acre in neighborhoods for enlisted person-

nel. In terms of number of people per gross acre, the DoD ratios translated to 30 people per gross acre for neighborhoods of junior officers and 31 people per gross acre for enlisted personnel neighborhoods (United States Congress 1965b:357).

The DoD revisited the *Folio* at the end of the 1960s with plans to update and modify the designs because the housing that had been constructed had not lived up to expectations. The DoD recognized that the housing that had been constructed was “on average not up to what it should be, and the Defense Department is currently taking steps to improve the conditions” (Jones 1967:1). The DoD identified three goals for revised design and development procedures:

- Improve the selection process for architect-engineer firms by focusing on the previous work quality of the selected firms;
- Create an operating system that facilitated more freedom of design by the selected firms; and,
- Establish an architectural advisory panel to review each project during the preliminary design process and during the construction process (Jones 1967:1).

Part of the revisions included removing “the originating architect’s name from those drawings being revised and substitute an appropriate DOD title block” (Gerber 1968). Jones and Emmons agreed that their firm’s name should be removed from future folios and informed the DoD accordingly (Jones 1968).

Research suggests that two of the three goals for modification were implemented. Creation of an improved operating system generally corresponds with the turnkey procurement process, which is summarized later in this chapter. The DoD also created an architectural advisory panel. A review of A. Quincy Jones’ papers located at the University of California Los Angeles, Library Special Collections, Charles E. Young Research Library, suggests that Jones served on one such panel for the design of family housing at the Presidio of San Francisco (Jones var.).

References in the archival record indicate that the original *Design Folio* was revised. However, an exhaustive search failed to uncover copies of a revised *Folio* and accompanying written guidance. The materials are not among the Army records archived at the National Archives at College Park, Maryland.

### **Concepts Presented in the *Design Folio***

The *Design Folio* presented plans for neighborhood layouts that incorporated elements of planned unit development features. In accordance with both DoD policy and planned unit development tenets, townhouses represented the majority of housing types. Townhouses were clustered together, often around parking courts to contain development costs (United States Congress 1965b:356).

In the *Folio*, architects promoted screening single-family and duplex units from the higher-density townhouses through the use of trees and landscaping. They noted open space, green spaces, and recreational areas on site-plan schematics. Similarly, plans clearly defined the public and private outdoor spaces for individual housing units, with privacy screens and small courtyards delineating the private family areas from the public neighborhood spaces. Schematics presented in the *Folio* also encouraged builders to take advantage of natural topography and open vistas (United States Congress 1965b:356).

In terms of dwelling design, the housing promoted was decidedly Modern, incorporating modest elements of Contemporary and Shed styles. Buildings incorporated shed or low-pitched gable roofs and flat or slightly textured wall planes. Townhouse designs were prepared to take into account variation in terrain. Exterior ornamentation was absent. In plan, the dwellings incorporated open plans with galley or eat-in kitchens and open dining and living rooms. Bedroom number, and consequently bedroom layout, depended the number of bedrooms, which was based on rank and number of dependents.

The *Design Folio* in its entirety is available on the Army's Program Comment for Vietnam War Era Historic Housing, Associated Buildings and Structures, and Landscape Features [website](#).

### **Contracting and Construction Procedures**

The Army issued competitive bids to complete construction for family housing. The Chief of Engineers for the USACE reorganized the family housing section during the mid-1960s because too many USACE districts were participating in the program. The USACE then centralized responsibility for family housing, with 6 districts responsible for design and design supervision. The local district engineer handled the invitation for bids, execution of the bids, and oversaw contract execution (United States Congress 1969b:695).

By the early 1970s, the USACE structure comprised headquarters, 11 operating divisions, and 36 district offices, with headquarters, eight operating divisions and 11 district offices supervising military construction (Comptroller General of the United States 1973b:6). Each USACE subdivision had the following responsibilities:

- Headquarters: Implementing approved construction programs and reviewing design work for all projects
- Divisions: Reviewing and controlling both the awarding of contracts and the supervising and inspecting of projects under construction
- District Offices: Awarding contracts and supervising and inspecting projects under construction (Comptroller General of the United States 1973b:6).

The installation became responsible for the project upon its completion.

Construction procedures continued to apply those developed for the construction of Capehart and MCA housing until the Army revised its construction criteria and standards in 1966. The 1966 technical manual referenced family housing and cross-referenced earlier guidance contained in Department of the Army, Corps of Engineers, Engineer Manual 415-3-4 *Construction Procedures for Development of Capehart and MCA Family Housing Projects* (United States Department of the Army 1966:6, v-10)<sup>2</sup>.

By 1969, DoD procurement regulations were modified to recognize different methods for awarding contracts. The Armed Services Procurement Regulation allowed for negotiation, turnkey, and “cost type” contracts, when warranted (United States Congress 1969b:698). The Army maintained that competitive bidding afforded the best cost. For the construction of 250 units at Fort Meade, Maryland, for FY 1970, the Army adopted a new bidding procedure: two-step formal advertising. Under this new method, contractors submitted their own FHA-compliant designs for evaluation; the cost was not included in the bid. Builders were encouraged to adapt their own designs to meet military requirements. The second step in the process entailed the preparation of bids from all contractors who submitted acceptable proposals under step one (United States Congress 1969b:698).

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<sup>2</sup>With the exception of the *Construction Criteria Manual* in 1972, extensive research was undertaken to locate contemporary engineering and technical manuals issued by the Army or the USACE that specifically governed family housing. This effort was unsuccessful.

## **Turnkey Contracting Method**

The DoD developed the turnkey method for awarding family housing construction projects because of the difficulty of obtaining bids within the Congressionally authorized limits. Turnkey projects allowed flexibility in proposal selection. Dissatisfaction with the *Design Folio* also prompted an exploration of other means of awarding construction projects.

The turnkey procurement method, or “one-step procurement process, which are most commonly referred to as turnkey, together with two-step procurement contracts under the terminology of turnkey” was selected on a case-by-case basis. Some projects would be completed using government-owned drawings, i.e., the *Design Folio*, while others were completed under the alternative turnkey procurement process (United States Congress 1971:51, 55).

The difference between the two types of turnkey procurement was that the two-step process “pre-qualifies acceptable project design concepts as a separate step in the contract process, rather than combining the evaluation of the design concepts with the bid pricing to determine the successful bidder as is done in the true turnkey” (United States Congress 1971:55). In testimony before Congress, DoD representatives were vague in clarifying if turnkey projects were cost effective (United States Congress 1971:55). Economic downturn in the construction industry and material surpluses were identified as factors for contractor and builder participation in turnkey projects (United States Congress 1971:55). The DoD recommended an all-options approach to construction, both turnkey methods and regular procurement processes, because each process had advantages and disadvantages (United States Congress 1971:56).

## **Master Planning in the Army**

In accordance with AR 210-20 *Installations. Master Planning for Permanent Army Installations*, each permanent installation established a planning board comprised of the post engineer, the chief of each major or technical staff section, the Division Engineer, and the Commanding Officer (United States Department of the Army 1968:1-2). Master plan components were revised when the installation’s mission changed, the installation’s long-range plan or projected strength was revised, or “other

conditions... changed which affect the validity of the plans as originally approved” (United States Department of the Army 1968:1-5). Several funding sources were available for construction of projects in accordance with the master plan, including:

- Operation and Maintenance, Army (OMA),
- Military Construction, Army (MCA),
- Non-appropriated funds,
- Research, Development, Test and Evaluation, and
- Procurement of Equipment and Missiles, Army (PEMA).

The latter two funding sources were available for the Special Staff agencies and major commands (United States Department of the Army 1968:1-1). By 1973, funds from the Family Housing Management Account (FHMA) were available for use for the construction of family housing (United States Department of the Army 1972:1-1).

The master plan required the development of a general site plan of the installation. Along with other requirements, the site plan identified the recommended locations of family housing areas. Those areas were to be of sufficient size to “accommodate the long-range requirement and an additional allowance of 25 percent for potential expansion” (United States Army 1968:3-4). The site plan also was required to depict locations for major outdoor sports and recreational areas, and indicate which of those areas were to be retained, modified, or abandoned (United States Department of the Army 1968:3-6). Key considerations in the design of recreation areas included safety, ease of maintenance, variety in equipment, and durability of the play areas. AR 210-20 also provided instructions on how to complete the tabulation of installation housing needs.

### **Provisions for Recreational Facilities**

The Army, Air Force, and Navy issued joint guidance in 1969, *Children’s Play Areas and Equipment*, for the construction of outdoor recreation areas. The technical manual provided direction on the layout, siting, and equipment for these facilities in family housing neighborhoods. The 1969 manual’s

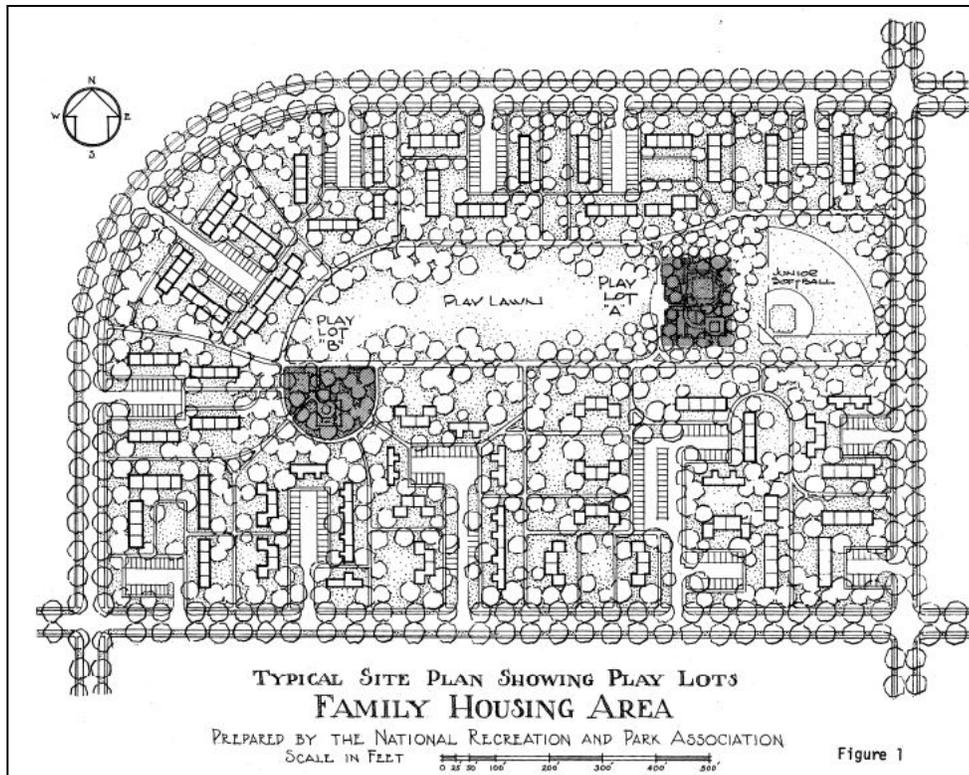
detailed instruction offered a stark contrast to the two pages of guidance presented in *Site Planning of Family Housing Areas. Installations*. EM 210-3-10 in 1961 (United States Army Corps of Engineers 1961:11-13). The development of a more robust and detailed guidance on recreational facilities recognized the increased importance of outdoor children’s play areas in making communities more livable and were encouraged in planned unit development principles, which promoted the construction of open spaces and recreational fields.

The guidance applied to play lots and playgrounds in family housing neighborhoods and elementary schools. Play lots, or tot lots, were intended to be small play areas located in multi-family (i.e., townhouse and apartments), neighborhoods for use by preschool children or in conjunction with an elementary school or neighborhood playgrounds; whereas playgrounds were larger, and could accommodate a greater variety of activities and ages (United States Departments of the Army, Air Force, and Navy 1969:1). The example in Figure 6.1 illustrates the locations of playlots for family housing areas.

Elementary schools were intended to provide the source of play grounds and fields. Tot lots could also be built in single-family neighborhoods if they were located removed from elementary schools (United States Departments of the Army, Air Force, and Navy 1969:2). Military-appropriated funds could not be used for the construction of playgrounds on school grounds; rather, “educational authorities at dependents’ schools on military installations” provided funding for such construction (United States Departments of the Army, Air Force, and Navy 1969:1).

This technical manual was intended for use in conjunction with *the Department of Defense Design Folio for Military Family Housing*. The Office of the Chief of Engineers collaborated with the National Recreation and Park Association in the preparation of the guidance. Play lots could include any of the following:

- (a) an enclosed area for play equipment and such special facilities as a sand area and a spray pool, and
- (b) an open, turfed area for active play, and
- (c) a shaded area for quiet activities (United States Departments of the Army, Air Force, and Navy 1969:2).



**Figure 6.1** *Typical Site Plan Showing Playlots*

Source: United States Departments of the Army, Air Force, and Navy 1969:9.

The lots were to be located within 300 to 400 feet of each living unit served and encompass a minimum enclosed area of 2,000 square feet to serve 30 preschool children or approximately 100 families (United States Departments of the Army, Air Force, and Navy 1969:2). Playgrounds, because of their larger size, accommodated more equipment and more users. Playgrounds were recommended for construction at elementary schools; when this option was not feasible, a separate playground outside the school could be approved. Playgrounds included the following features:

- (a) a playlot for preschool children,
- (b) an enclosed area with playground equipment to be used by school-age children,
- (c) an open grassy area for active games,
- (d) a shaded area for passive recreation,
- (e) a paved area,

- (f) an area for field games, and
- (g) a buffer area (United States Departments of the Army, Air Force, and Navy 1969:4).

More than one playground was to be provided if such a facility could not be constructed at the school, if the population to be served exceeded 1,500 families, or if the location of the playground was too removed from the family housing area (United States Departments of the Army, Air Force, and Navy 1969:4). In both types of recreational areas, benches and landscaping were included. Tables 6.1 and 6.2 presents the types of equipment for playlots and playgrounds and the appropriate spatial requirements for their installation.

### Post-1972 Design Guidance

In 1972, the DoD issued guidance, *Construction Criteria Manual*, for the construction of facilities, including family housing on military installations. The criteria applied to all aspects of construction including environmental quality, site planning, architectural design, structural components, utilities, and cost review and reporting (United States Department of Defense 1972). Family housing, specifically, was discussed in Chapter 16 of the manual, which identified criteria, policy, and standards related to the design and construction of family housing (United States Department of Defense 1972:16-1). Design standards and specifications were codified in the DoD *Design Folio for*

**Table 6.1** List of Equipment for Playlots

Equipment	Number of pieces	Play space requirements
Climber.....	1	10 x 25 feet.
Junior swing set (4 swings).....	1	16 x 32 feet.
Play sculpture.....	1	10 x 10 feet.
Play wall or play house.....	1	15 x 15 feet.
Sand area.....	1	15 x 15 feet.
Slide.....	1	10 x 25 feet.
Spray pool (including deck).....	1	36 x 36 feet.

Source: United States Departments of the Army, Air Force, and Navy 1969:7.

**Table 6.2** List of Equipment for Playgrounds

Equipment	Number of pieces	Play space requirements
Balance beam.....	1	15 x 30 feet.
Climbers.....	3	21 x 50 feet.
Climbing poles.....	3	10 x 20 feet.
Horizontal bars.....	3	15 x 30 feet.
Horizontal ladder.....	1	15 x 30 feet.
Merry-go-round.....	1	40 x 40 feet.
Parallel bars.....	1	15 x 30 feet.
Senior swing set (6 swings).....	1	30 x 45 feet.
Slide.....	1	12 x 35 feet.

Source: United States Departments of the Army, Air Force, and Navy 1969:7.

*Military Family Housing* and in *DoD Guide Specifications for Military Family Housing* (DoD 4270.21-SPEC) (United States Department of Defense 1972:16-3)<sup>3</sup>. The purpose of the construction standards was to provide “to the extent practicable, comparable, adequate housing at all locations, Service-wide” (United States Department of Defense 1972:16-19). This subtle acknowledgement suggests that the military wanted parity across the country regardless of service, rather than parity with civilian sector.

The criteria applied to all family housing constructed on military installations, regardless of funding program or procurement mechanism. The provisions of Chapter 16 did not govern in isolation; relevant guidance from other chapters in the manual were applicable when specific criteria governing family housing were not enumerated in Chapter 16 (United States Department of Defense 1972:16-1).

Site planning criteria stipulated compliance with the installation master plans, which were to be revised and updated to reflect the five-year programming plan for family housing. Additionally, family housing areas were required to comply with land use intensity ratios calculated in the revised *Design Folio* (United States Department of Defense 1972:16-3). The planning principles of density or cluster zoning and the preservation of green space remained applicable.

In terms of design, the manual stated:

Design of housing projects shall be adapted, insofar as practicable, to climatic conditions, construction materials, and building techniques prevailing in the region, except that these criteria shall take precedent.

Furthermore,

It is intended that these standards and criteria shall be applied uniformly to the design of housing projects in such a way that regardless of geographic location, method of funding or procurement, the resultant housing units and the site development shall be comparable with respect to

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<sup>3</sup> Attempts to find the correct version of the folio and specifications referenced in the *Construction Criteria Manual* were unsuccessful. By 1982, DoD 4270.21-SPEC had been renamed, *Policy and Criteria for Operation, Maintenance and Repair of Defense Family Housing*. See Mitchell, James G. *Letter to Lawrence J. Korb*, 3 December 1982, available at <https://www.gao.gov/assets/plrd-83-19.pdf>, accessed September 2021.

the scope, equipment, quality and livability of the accommodations provided (United States Department of Defense 1972:16-1).

Space limitations on family housing were established by law. Legislation stipulated that housing constructed through the turnkey procurement process enabled a 15 percent increase in the statutory space limitation. The increase in size limitations for the construction of turnkey housing was intended to permit “‘off-the-shelf’ house designs currently being constructed in the commercial marketplace.” The 15 percent increase was not allowed “where plans submitted by turnkey proposers are designed specifically for the military family housing project or where designs are not currently being offered to the commercial market” (United States Department of Defense 1972:16-2).

Dwelling unit size and number of bedrooms also were codified by statute. However, the size of the unit, in terms of area limitations applied “only to the maximum size of living units by personnel rank or grade without regard to the number of bedrooms, except for 4 and 5-bedroom units for enlisted personnel and company grade officers” (United States Department of Defense 1972:16-2).

The master planning process was coordinated with the five-year family housing programming plan and site plans complied with Land Use Intensity guidelines and criteria. Existing plant materials were to the extent possible and easily maintained plant materials were selected. Off-street parking via driveways was preferred. Driveways were of sufficient size to accommodate two cars: one sheltered by a carport and one unsheltered (United States Department of Defense 1972:16-4-16-5). The Army identified privacy fencing as an important component to the family housing units, which were designed in accordance with local custom (United States Department of Defense 1972:16-17).

The *Construction Criteria Manual* tied directly to the revised *Design Folio*; the “definitive plans included in the *Design Folio* are to be the basis for design and development of all conventionally constructed family housing units, and shall serve as the minimum design quality expected from both a functional and aesthetic standpoint for all units procured under turnkey procedures” (United States Department of the Army 1972:16-5). Modifications to housing designs presented in the *Design Folio* or designs based on plans that were not included in the *Folio* required prior approval of the Office of

the Deputy Assistant Secretary of Defense (Installation and Housing) (United States Department of Defense 1972:16-5).

The *Design Folio* identified room arrangements and minimum dimensions (United States Department of Defense 1972:16-9). The number of bathrooms provided was dependent on the number of bedrooms and number of stories. Four- and five-bedroom units could include two full baths and one half-bath.

Basements, particularly for two-story units and in cold environments, could be considered if cost permitted. Natural light and ventilation were recommended in basements. General storage was provided for those units lacking basements, contained basements without easy exterior access, or houses without useable attics. Storage space, in those instances, would be divided between indoor and outdoor areas (United States Department of Defense 1972:16-9).

Townhouses and multi-story buildings were to be constructed for enlisted personnel and company grade officers, regardless of procurement process; a limited number of single-family and duplex units also would be allowed. This high-density housing type would be considered for field grade officers for projects planned in high-cost areas. Each project could set aside 20 percent of enlisted personnel housing and 20 percent of company grade housing for the construction of single-story units and the same percentage of two-story duplexes. The single-story units could only consist of duplexes or be attached as end units in townhouse construction. The Army authorized single-family units for majors, personnel of equivalent rank, or those of higher rank. The manual allowed construction of apartment buildings at those installations that included "schools and/or special training activities requiring permanent change of station, but less than a full length tour" (United States Department of Defense 1972:16-6).

Materials were selected for their economy and durability. Other materials could be used after approval from headquarters of the appropriate service. Widespread use of new materials was not authorized until such time as specifications were codified in 4270.21-SPEC (United States Department of Defense 1972:16-8). In terms of exterior materials, only those specified in 4270.21-SPEC and that were appropriate for the locale were authorized. Aluminum siding could be installed on the upper

level of the living units and where it would not be subject to damage; it could not be installed closer than 6 feet to finish grade nor installed in locations with a history of severe and recurrent hail storms (United States Department of Defense 1972:16-11).

Each unit was to have a carport. Garages could be constructed only in those climates where the “winter design temperature is -10°F or colder” or where frequent exposure to salt air or high winds made enclosed parking necessary. Outdoor living spaces such as porches or terraces were to be provided for each dwelling unit. These outdoor spaces were to be designed in such a manner as to provide privacy from adjacent units (United States Department of Defense 1972:16-9).

The DoD instructed cooperation and coordination among the services for the development and construction of family housing projects. The *Construction Criteria Manual* recommended that the same architect-engineer firm be used for projects located in that geographic area, regardless of the military service constructing the housing.

Chapter 16 of the *Construction Criteria Manual* is included in its entirety in Appendix 5.

## **What was Built**

The Army considers its Vietnam War Era housing eligible for inclusion in the NRHP under Criterion A for its association with military history of the Vietnam conflict. The Army recognizes the role the Vietnam conflict played in American history from the early 1960s through the mid-1970s. The conflict in Southeast Asia significantly impacted construction appropriations as funding was diverted to combat activities. Federal appropriations influenced the type and number of housing constructed. The Army was marked by a change in housing policy that included a shift from single-family and duplex units to multiplex, i.e., townhouse and apartment building, construction. While the Army historically constructed townhouses throughout the twentieth century, the scale of townhouse construction during the period was greater than in years previous. This paradigm shift was in response to the need to provide increasing numbers of housing units for a larger segment of the military population that historically had been excluded from family housing benefits (United States Department of the Army 2021a:17-18).

The Army's housing program during the Vietnam War Era marked a departure from historical Army policy in a number of ways. Cost limitations imposed by Congress were a major factor influencing the selection of building types; however, Congress often expressed the prevailing American preference for single family dwellings in their hearing comments on military family housing. The type and style of housing the Army built during the period reflected the general tension between high density family housing designed in a Modern idiom emphasizing scale, massing, and proportion, and the traditional culturally-bound image of the American home associated with single family dwellings reflecting revivalist design on self-contained lots.

Because of strict funding and size restraints, the DoD turned toward high-density construction in planned unit developments. High-density development was a response to the challenges of rising construction, materials, and land costs. In order to provide as many units as efficiently and economically as possible, the DoD relied on the construction of townhouses and a smaller number of apartment buildings. This decision, like the decision to move in stylistically Modern direction, created another source of tension for the military.

High-density housing, in general, and townhouses, specifically had negative associations during the period. Multiple, attached dwelling units constructed in row and rows of monotonous blocks were associated with blight and poverty. Indeed, the eradication of urban blight was the focus of urban renewal and highway projects of the 1950s and 1960s. Urban renewal became the tool for eliminating the urban slums and the building form most associated with it: the townhouse. As state and Federal governments demolished urban neighborhoods comprised of townhouses, new suburban townhouses were constructed for military use. Both the form, i.e., the townhouse and apartment building, and the density, were in conflict with the American ideal of a single-family dwelling on a large lot. Despite the efforts of contemporary housing industry magazines and professionals to rebrand the townhouse and adapt the urban house form to a suburban setting, the townhouse and high-density developments continued to have their detractors.

The DoD chose Modernists architects, who were regionally and nationally recognized for their Modern designs. These firms did not rely on traditional architectural vocabulary in their residential commissions. Stylistic references that had become associated with domestic architecture were absent.

Their dwellings did not include the comfortable and familiar ornamentation that Americans had come to associate with single-family homeownership. Period architectural and design magazines heavily encouraged and promoted the types and style of the dwellings designed by these four firms; award-winning designs included those that rejected all historic references. This high-style Modern approach to domestic design also found audiences in private commissions that catered to discerning homeowners. In selecting the four firms, the DoD chose to move its new housing in a Modern direction, one that was unsettling to the general public.

At the same time, the DoD, under Secretary McNamara, adopted a business model for its administration and management. These changes were undertaken to streamline procedures, improve efficiency, and save money. The creation of a family housing office within the office of the Secretary of Defense was the result of one of those changes. From that point forward, family housing programs were consolidated and centralized to effectuate greater cost savings.

Changing military demographics required a response from military officials. Not only did larger numbers of married enlisted soldiers join the military, they also had more children. New guidelines and instructions promoting family-friendly amenities in the design of new neighborhoods were prepared. The planned unit development, which encouraged the creation of greenspaces and parks, complemented the evolving DoD guidance. Specific instructions for the design and construction of playgrounds were developed during the period. The DoD also needed to retain service members as it transitioned to the All-Volunteer Army; family housing was one of the tools selected to accomplish that goal.

The housing the Army built was a reflection of these overlapping and conflicting forces. Army housing of the period reflected a stripped-down Modernist approach to housing in a highly structured development setting. All of these occurred within the confines of congressional limitations on unit size and funding. The type and style of Army housing from period was rejected by Congress and many Americans. Congress lamented the construction of townhouses during the annual appropriations hearings. Style, under the Modern idiom, is reflected in scale, proportion, and materials, rather than the application of ornamentation. Generally, modifications to the units over time included exterior cosmetic

changes and the application of ornamentation in an effort to add “style” to the buildings. Family housing constructed by the Army during the period also was presented as an incentive to retain members.

Review of previous investigations, the drawings included in the *Design Folio for Military Family Housing*, Army real property inventory, and site data collected at 10 Army installations containing collections of Vietnam War Era family housing were used in the identification of property types significant under the current historic context. Criteria for inventory selection included geographic distribution; ability to represent variety in house type (i.e., single-family, duplex and townhouse); unit size; and type of ancillary buildings (i.e. garages, carports, and storage buildings) based on data included in the “Vietnam Era Housing Database 10/20/2021” (U.S. Department of the Army 2021b).

Site visits included the systematic review of cultural resource and planning reports in addition to on-post architectural survey of selected examples of housing constructed during the period. Personnel at the cultural resources offices, real property offices, post historians offices, and the housing partners were interviewed. Inventory included reconnaissance-level, windshield survey of residential neighborhoods to characterize the neighborhoods and then select building exteriors and interiors were inspected to document each housing type represented. Installations included:

- Fort Benning, Georgia;
- Fort Bragg, North Carolina;
- Fort Carson, Colorado;
- Fort Detrick, Maryland;
- Fort Gordon; Georgia;
- Fort Hood, Texas;
- Fort Jackson, South Carolina;
- Fort Polk, Louisiana;
- Fort Shafter, Hawaii; and
- Schofield Barracks, Hawaii

Data was collected systematically on standardized forms, which are presented in Volume 2 of this report.

Army housing constructed during the period reflects the role family housing within the context of military history. Construction occurred across three time periods, some of which overlap. The time periods include housing completed after the Capehart legislation expired in 1962; units based on the *Design Folio*; and units constructed after 1972. The units were constructed in accordance with the prevailing instructions and directives appropriate to the three identified time periods.

The archival research revealed that many of the Capehart units in the Vietnam War Era inventory were constructed between 1963 and 1964. It is likely that these units were programmed before the legislation expired, which explains their post 1962 construction dates. The DoD mandated the use of the *Folio* for all family housing constructed from 1 July 1964; the *Folio* guided the construction of all new units until the early 1970s. The DoD issued new written guidance on the design and construction of family housing in October 1972. The 1972 *Construction Criteria Manual* and the site investigations provide data for these units.

The types of housing constructed under the Capehart program are discussed at length in *Housing an Army: The Wherry and Capehart Era Solutions to the Family Housing Shortage (1949-1962)* (R. Christopher Goodwin & Associates, Inc. 2003). Preparation of the 2003 report was the result of a Program Comment for that class of resource issued by the ACHP in May 2002. For these reasons, the current investigation does not go into great detail on associated Vietnam War Era property types constructed under the Capehart program.

Generally, the Army had single-family, duplex, and townhouse units constructed throughout the era. Apartment buildings were constructed after 1972. Buildings are one or two-stories tall, and include some split-levels. RCG&A's research and site investigations determined that the overwhelming majority of buildings, especially townhouses and limited numbers of apartments, housed enlisted service members and their families. Townhouse construction proved to be the most economical; this dwelling type was the only way the Army could meet the stringent space and cost restrictions imposed by Congress. Single-family and duplex units were reserved for field grade, senior, and general

grade officers. Based on Congressional testimony and the real property inventory provided by the Army, duplex and townhouse units dominate the current housing stock. Site investigation confirmed few single-family dwellings were constructed. These buildings reflected the themes explored in the previous chapters.

The DoD's 1972 *Construction Criteria Manual* offers written guidance on houses built after 1972. Data from the *Construction Criteria Manual*, the Army's real property inventory, and limited installation-level survey data informs the discussion on associated property types for housing constructed after 1972. The guidance was issued in October 1972; manifestations of the construction criteria might not be present in buildings constructed before that date. The 1972 manual made numerous references to a revised folio, and archival research, suggests that the DoD intended to revise the 1964 document. However, an extensive search did not yield that document.<sup>4</sup> The 1972 manual's guidance demonstrates that townhouses continued to be the preferred option for enlisted and company grade personnel; single-unit houses were authorized for majors or equivalent or higher (United States Army 1972:16-6). The 1972 manual also referenced the construction of apartment buildings. The site investigations augmented and support that data.

In addition to the three periods described above, the military, including the Army, constructed housing using the turnkey procurement process. This modified contracting mechanism allowed private-sector builders to use their own designs to build housing on military property as long as that housing met DoD standards. These houses could exceed the Congressional cost limitations as long as they were not constructed using government-provided designs. This housing was intended to be similar to what was constructed in the adjacent community. Turnkey housing may be present at a select number of Army installations; however, very little archival data was recorded regarding the number of units that were built, where they were built, and what they looked like. No known turnkey projects were surveyed during the current site investigations.

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<sup>4</sup>The United States Department of the Navy published *Design Manual. Family Housing NAVFAC DM-35* in August 1971. That document provided detailed written and graphic instructions for the construction of family housing. The graphics included in the manual were adapted from the apparently revised design manual. Archival research was unable to identify a similar document prepared by the Army or the USACE. Electronic document, [https://www.google.com/books/edition/Design\\_Manual/PfrIcYGEspEC?hl=en&gbpv=1&dq=Design+Manual+35++august+1971&pg=PP1&printsec=frontcover](https://www.google.com/books/edition/Design_Manual/PfrIcYGEspEC?hl=en&gbpv=1&dq=Design+Manual+35++august+1971&pg=PP1&printsec=frontcover), accessed October 2021.

Eight installations out of the 14 included in the FY 1971 budget were planned as turnkey projects, including the construction of 250 family housing units at Fort Meade, two projects of 100 and 150 units at Fort Leavenworth, two projects of 150 and 240 units at Fort Carson, 40 units at Rock Island Arsenal, and 1 unit at the Sacramento Army Depot (United States Congress 1970:10, 595; 1973a:39-41).<sup>5</sup> In contrast to conventional procurement policies, turnkey drawings and specifications were not owned by the Federal government (United States Congress 1971:51).

In congressional hearings for FY 1972, the DoD reported mixed success with turnkey housing. The anticipated government savings from not having to prepare construction plans and specifications evaporated when the government had to review, analyze, and evaluate the plans and specifications submitted by the bidding contractors. “Although we are witnessing the involvement of new builders, we are not getting off-the-shelf designs. In fact, in several cases, we bought back previously built Government designs”, reported Mr. Filiakas (United States Congress 1971:141). Despite this review, turnkey procurement continued to be used in the military family housing program. In FY 1970, 26 per cent of the total family housing program was constructed using turnkey. In FY 1971, 56 per cent of the total construction was turnkey, while in FY 1972, turnkey accounted for 61 per cent of the total family housing program (United States Congress 1972a:12). In congressional hearings for FY 1973, the DoD expressed a very positive opinion of the turnkey program, and congressmen expressed satisfaction of turnkey construction that they had visited at installations (United States Congress 1972a:12, 38). By May 1973, the DoD developed a policy and guidance for the “enhanced and uniform use of the turnkey procedures for military departments” (United States Congress 1973a:9).

### **Site Plan, Neighborhood Design, and Landscaping**

The neighborhoods of the era exhibit three different design approaches based on their periods of construction and reflect civilian-sector trends in site planning and neighborhood design. All three types of neighborhoods are located outside the cores of older installations (R. Christopher Goodwin

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<sup>5</sup> In testimony before the House Subcommittee on Appropriations, Dr. J. Ronald Fox, Assistant Secretary of the Army (installations and Logistics) stated 14 installations were using the turnkey procurement method. This number appears to have been an error, as clarified later in the hearing (United States Congress 1970 Part 1:10, 595).

& Associates, Inc. 2003:5-21). Many of the drawings in the *Design Folio* include examples of house designs suited for a variety of terrain. Consequently, many townhouses reflect changes in grade. Variety in housing type as well as number of stories are present at some installations; whereas, other installations, contain one type of dwelling, all with the same number of stories. Uniform front and side yard setbacks were common. Neighborhoods varied in size, with some neighborhoods encompassing more than 200 units; the Cardinal Heights neighborhood at Fort Bragg is an example. In other cases, Vietnam War Era housing consisted of infill construction in established neighborhoods. The housing constructed at USAG Hawaii, represents this trend. Neighborhood amenities, including street lights, sidewalks, bus shelters, and collective mailboxes often are present. Whereas the collective mailboxes may date to the period, such as the case at the Dogwood Terrace neighborhood at Fort Polk, some elements, such as bus shelters, were added after the Vietnam War Era.

#### ***Capehart Units (1963-1964)***

Capehart era neighborhoods comprise curvilinear streets, long blocks, and small front-yard setbacks. These setbacks are regular, uniform in size, and equilateral in distance from the street and to each other. Side yard setbacks are spacious in response to privacy concerns associated with the earlier Wherry housing. Large rear yards may be common, with many of them unfenced. These units were sited in accordance with guidance developed by the USACE for the development of Capehart housing.

Single-family and duplex units include parking stubs, or a small pad large enough for one vehicle. This pad ends just before the front of the dwelling. Carports also are present. In multi-unit Capehart housing, an open court often accommodates multiple cars. In some instances, these courts are covered.

Storage facilities were attached or detached from the house and located at the end of driveways or at the rear of the buildings. In some cases, the storage areas were screened by plantings or fencing (R. Christopher Goodwin & Associates, Inc. 2003:5-22-5-25).

These trends correspond with private-sector housing from the period. In the immediate postwar years through the early 1960s, houses continued to be constructed on relatively large lots. Rows upon rows of uniformly sited dwellings along gently curving streets define civilian-sector neighborhoods of the period.

### ***Design Folio Units (1964-1972)***

The principles of cluster unit development first emerged during the Vietnam War Era and remained popular through 1975. Cluster unit development encouraged maximization of open space through smaller building lots and grouping higher density housing, such as apartment buildings and townhouses, together. The same density could be achieved through cluster development as in traditional suburban neighborhood design; however, green spaces and parks also could be accommodated, elements that many traditional mid-twentieth century neighborhoods lacked. These types of developments incorporated gently curving major arteries with secondary roads, such as loops and culs-de-sac, leading to the housing clusters, which frequently were sited around communal parking. In townhouse clusters, surface lots provided parking as individual garages were absent. Communal carports serving groups of townhouses may be present. By contrast, civilian-sector townhouse design introduced integral garages.

Drawings included in the *Design Folio* and data compiled from previous architectural investigations at select Army installations and collected during the site investigations show that Vietnam War Era neighborhoods were designed in accordance with cluster unit development principles. Generally, sidewalks are present, and in select, cases, link housing areas to one another (Figures 6.2-6.7) (United States Department of Defense 1964).

### ***Post-1972 Units***

Dwellings constructed during this time period have 20-foot side-yard setbacks, i.e. 10-foot side yards between end walls for single-family units, 25 feet from end units of row or duplex units, or 25 feet from two-story single-family units. No duplex or row units was closer than 20 feet to adjacent buildings (United States Department of Defense 1972:16-4). By contrast, the minimum side yard setback for Capehart era housing was 25 feet, with 40 feet preferred (R. Christopher Goodwin & Associates, Inc. 2003:5-22).



This plan shows how the buildings of the previous page might be located on typical gently rolling terrain. The purpose of the drawing is to show principles of site planning, not to represent any given actual locality.

Good sites for any housing should take full advantage of natural assets of the site as a first consideration — including drainage, views, slopes, water, trees, sun and wind directions. The design shown here provides for a community center located at a point on the street. In the main housing area at center left are horizontal groups of houses, each group located around its entrance court. This is the PUBLIC AREA of each group and contains parking for families and guests, as well as small "weekender" buildings next to mail for kids. Each house has its own focal front yard outside its kitchen window, facing the Entrance Court. Groups of houses are patterned to fit the contours and to give variety. For example, groups of houses EM 1, 2 and 3 are on flat ground, while EM 4 is used on the hillside.

On the other side of each building is the PRIVATE AREA for each family. Here, each family has a walled or fenced garden outside its own living floor. From each garden, one can go through a gate to the Community Park, which is a combined quiet and recreation area, and through which one can walk to the Community Center without crossing automobile traffic.

At the bottom of the drawing, stagger terraces is utilized for the other buildings designed for hillside conditions — EM 5, 6 and 7. At the upper right is the beginning of a separate community of detached houses — EM 1 and 2.

Figure 6.2 Design Group I, Horizontal Scheme Site Plan  
 Source: United States Department of Defense 1964.



Figure 6.3 Design Group I, Horizontal Scheme Site Plan  
 Source: United States Department of Defense 1964.

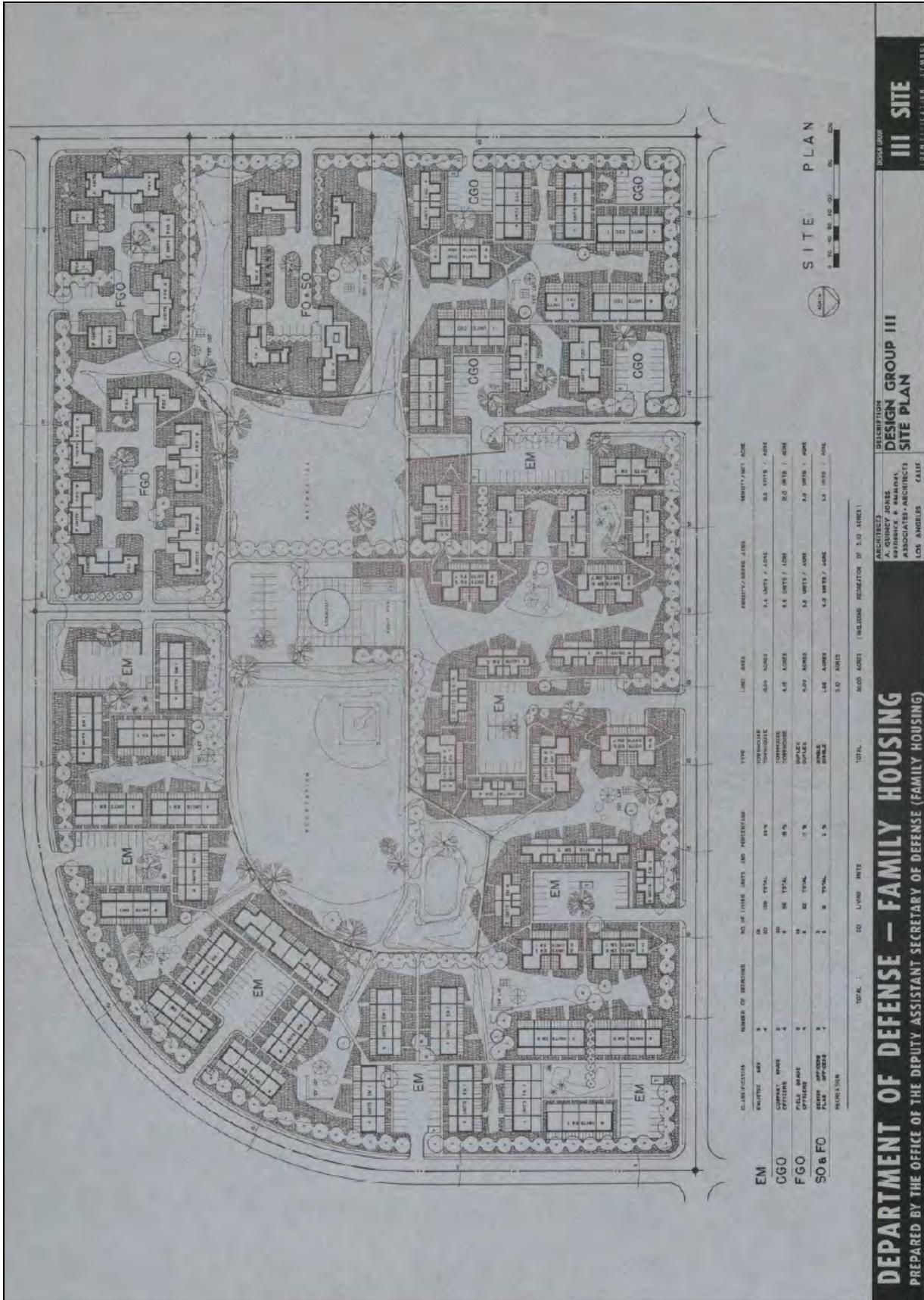


Figure 6.4 Design Group III, Site Plan  
 Source: United States Department of Defense 1964.



Figure 6.5 Design Group IV, Site Plan  
 Source: United States Department of Defense 1964.

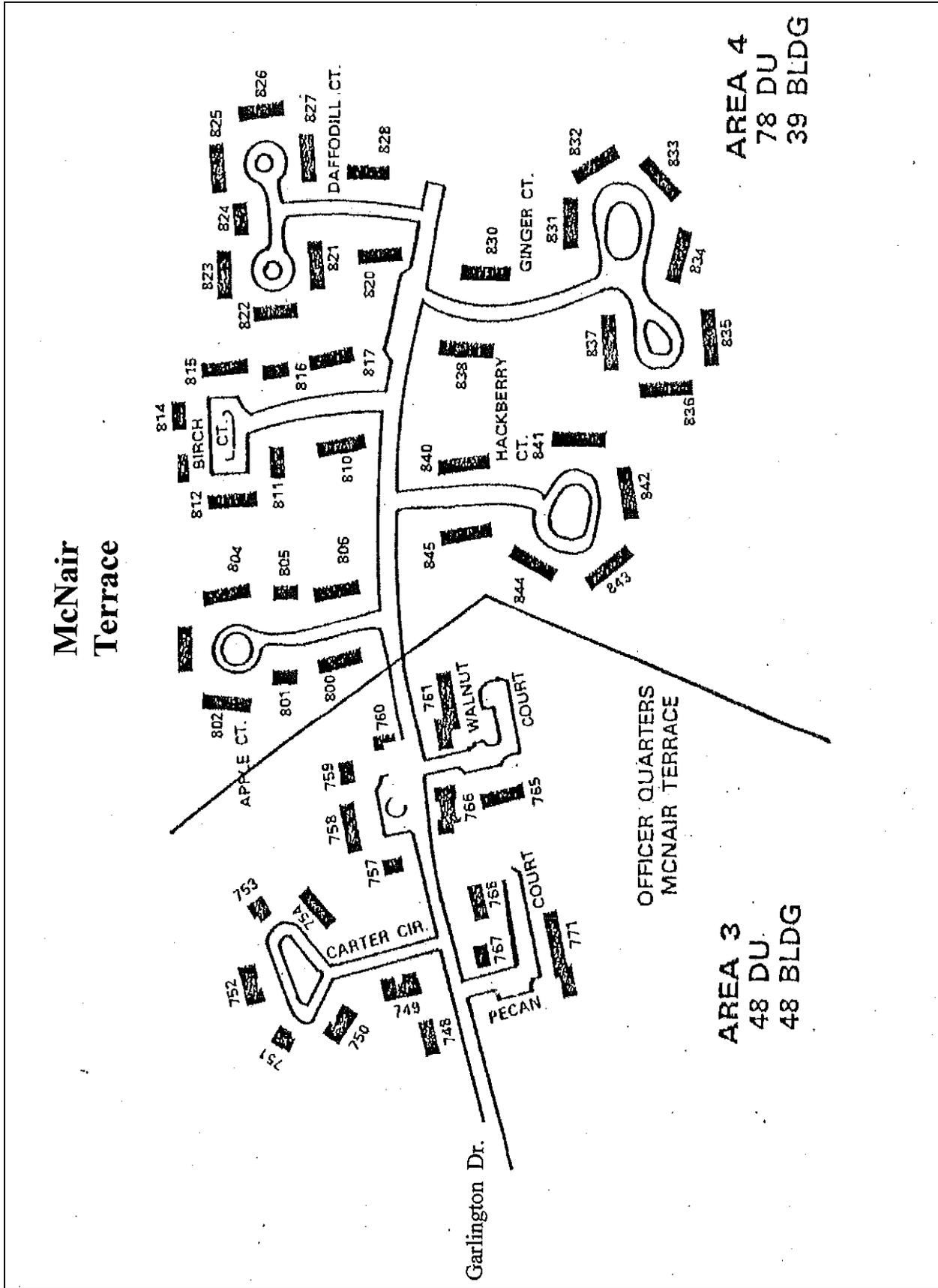


Figure 6.6 McNair Terrace, Fort Gordon, Georgia  
 Source: Fort Gordon RCI Housing Office n.d.

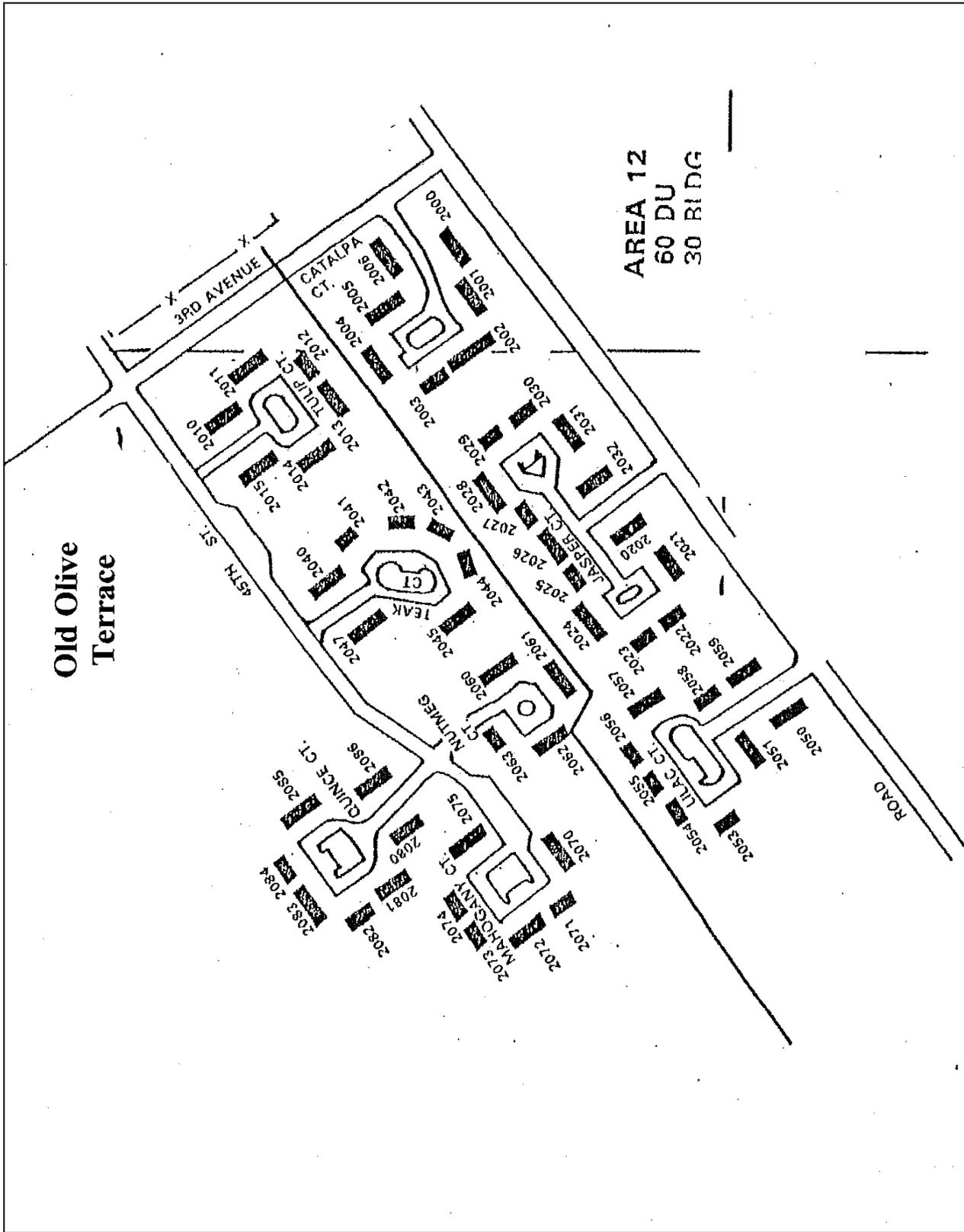


Figure 6.7 Old Olive Terrace, Fort Gordon, Georgia  
 Source: Fort Gordon RCI Housing Office n.d.

Larger, off-street parking areas are associated with single-family or duplex units constructed after 1972. Parking areas are larger than for units constructed under the Capehart program or those based on the 1964 *Design Folio*. These larger parking spaces were able to accommodate two cars per unit; one of the spaces was to be covered (United States Department of Defense 1972:16-5).

These neighborhoods also incorporated culs-de-sacs accessible from a primary road, with the townhouses or duplexes arranged around the culs-de-sac. Collective parking served multiple units. Sidewalks may be present on both sides of the street (Figures 6.8. and 6.9)

### ***Neighborhood Recreational Facilities***

Recreational facilities included playgrounds and tot lots as well as community centers. Generally, little original play equipment survives. In most cases, existing play equipment replaced earlier equipment or represents a new feature introduced into the neighborhood. Some recreational buildings were constructed; they were contemporary to the neighborhood or constructed during the early twenty-first century.



**Figure 6.8** *Batan Neighborhood, Fort Bragg, North Carolina*  
Source: R. Christopher Goodwin & Associates, Inc. 2021.



**Figure 6.9** *Comanche III Neighborhood, Fort Hood, Texas*  
Source. R. Christopher Goodwin & Associates, Inc. 2021.

### Capehart Units

The research indicated a general lack of appreciation for the benefits of outdoor public recreational space integrated into predominately residential neighborhoods. USACE did not actively provide guidance for the design of neighborhood playgrounds until 1961. The 1961 manual dictated minimum and maximum lot sizes for playgrounds and athletic activities. Smaller playgrounds also were to be provided in Capehart neighborhoods comprised of multi-family buildings (R. Christopher Goodwin & Associates, Inc. 2003:5-26).

Minimal neighborhood recreational facilities in military neighborhoods corresponds with the trend found in the civilian sector. Developers such as Levitt & Sons did not make provisions for common outdoor public recreation in their developments, instead open space comprised yards of individual

homeowners and nearby public parks management by local municipalities provided opportunities for outdoor recreation.

### Design Folio Units

In 1969, the three branches of the military issued design guidelines for playgrounds. In addition, the *Design Folio* depicted recreational facilities. While the specific types and designs of such resources were not provided, the *Folio* acknowledged the necessity of such features. Community centers and outdoor recreational facilities were constructed with these neighborhoods (Figure 6.10) (United States Department of Defense 1964).

### Post-1972 Units

The 1972 *Construction Criteria Manual* provided guidance for the construction of a variety of indoor and outdoor recreational facilities. Such facilities included outdoor tracks, swimming pools, family/



**Figure 6.10** Community Center Venable Village (constructed 1970) Fort Hood, Texas  
Source: Murphey 2018.

community service centers, camp grounds, and recreation pavilions, among others. The size of such resources depended on military population, defined as military population plus 10 percent of the dependents, at the installation or youth population and on resource type (United States Department of Defense 1972:3-23-3-76). For example, a two-lane bowling alley was permissible for a military population up to 250 while a four-lane bowling alley was permissible for a military population of 251 to 1,000 (United States Department of Defense 1972:3-23). Specific guidance on the design or style of such facilities was not provided. The post-1972 neighborhoods that were surveyed as part of the selected site investigations completed for this current report did not include examples of recreational facilities.

### *Landscaping*

In general, formal landscaping was absent and existing landscaping was minimal. Large stands of trees were present at select neighborhoods; these stands functioned as buffers from the adjacent neighborhoods or uses. Deciduous trees defined individual dwelling units and foundation shrubs were present. Small yards were common.

### *Capehart Units*

Vietnam War Era Capehart neighborhoods adopted minimal formal landscaping. Landscaping was the responsibility of the project sponsors, i.e., contractors, who were required to consult a site planner or landscape architect. Landscape efforts focused on maintaining existing trees and landscape features rather than on developing a comprehensive landscape design. USACE guidance focused on simple designs and limited plant materials. The end result was the development of sparsely landscaped neighborhoods (R. Christopher Goodwin & Associates, Inc. 2003:5-26-5-27).

### *Design Folio Units*

The *Design Folio* encouraged copious plantings, particularly along the neighborhood edges. This planting served as a buffer between the residential neighborhood and adjacent neighborhoods and uses. Swaths of trees as well as individual shade trees may be present (Figures 6.2-6.5) (United States Department of Defense 1964).

### Post-1972 Units

Houses constructed during this period had very little landscaping. DoD guidance was minimal. As with Capehart program housing, the DoD preferred simplicity and ease of maintenance in the selection of landscape materials and emphasized “area environment rather than unit treatment” (United States Department of Defense 1972:16-4) (Figure 6.11).

### **Building Types**

Housing constructed during the three time periods reflect trends appropriate to their periods of construction and the design instructions under which they were built. Vietnam War Era dwellings constructed late in the Capehart program, like those constructed in the civilian sector, included a preponderance of single-story, single-family and duplex units, reflecting contemporary trends in dwelling type and size. Because of the higher costs associated with these building types, they are likely to be associated with higher ranking service members (R. Christopher Goodwin & Associates,



**Figure 6.11** *Shoshoni Village Neighborhood, Fort Carson, Colorado*  
Source: R. Christopher Goodwin & Associates, Inc. 2021.

Inc. 2003:5-20-5-21). Although townhouses were constructed under the Capehart program, the move towards townhouse construction accelerated during the Vietnam War Era as all branches of the military struggled to provide housing as efficiently as possible for enlisted personnel and lower ranking officers.

The majority of dwellings constructed between 1964 and 1972 comprised townhouses, with two-story buildings dominating. This house type was associated with enlisted personnel and lower ranking officers and was preferred for its cost-effectiveness. The uptick in the construction of townhouses corresponds with the increase in townhouse construction in the civilian sector. The period between the mid-1960s through the early 1970s was defined by across-the-board increases in construction costs, including land, labor, and materials, making townhouse construction the most efficient construction option given the tight cost limitations imposed by Congress.

Townhouse construction generally increased during the 1960s in both the civilian and military sectors. What is notable is the degree to which the military built attached units. In FY 1963, townhouses represented 22 percent of all housing units constructed by the military; by FY 1964, that number increased to 46 percent. By contrast, townhouses comprised approximately six percent of the civilian housing market in 1960 and less than three percent in 1970 (United States Census Bureau var.). Townhouse construction represented 61 percent of military housing types programmed in FY 1965 (United States Department of Defense 1965b:356).

A review of the 1972 *Construction Criteria Manual* suggested townhouses remained the preferred house type not only in terms of policy but also in terms of land use. A select number of apartment buildings also were constructed. New projects were to be completed in compliance with the land use intensities outlined in the manual and in the revised *Design Folio* site planning instructions. Enlisted and company grade officer neighborhoods had higher land use intensities than field grade officer neighborhoods and those for colonels and general officers (United States Department of Defense 1972:16-4).

## Exterior Design

Unlike earlier Army housing programs, the adoption of regional styles was not encouraged. The abandonment of regional styles began under the Wherry and Capehart period when subtle nods towards the Colonial Revival style were applied to the dwelling designs, particularly in those dwellings constructed under the Wherry program.

By the time Capehart units were constructed, the ranch type dwelling was firmly established in the civilian market and was adopted by the military. As discussed in Chapter 5, the FHA standards contributed to the move away from regional styles during the postwar period. In general, much of the country's domestic architecture rejected overt stylistic references.

The 1964 *Folio* presented designs that represented a total rejection of historical stylistic references. These modern dwellings were decidedly Contemporary. Designs were arranged not by regional style but rather by climate, with those proposed for use in single-family or duplex units constructed in warm climates particularly Contemporary in design. Dwellings following *Folio* design were more modest versions in execution and exterior treatment than what was depicted in the *Folio* and what was constructed in the civilian sector.

As with the designs presented in 1964 *Folio*, post-1972 units abandoned regional and historical stylistic references. Rather, the 1972 *Design Criteria Manual* referenced climatic conditions, materials, and techniques in the discussion of regional considerations (United States Department of Defense 1972:16-1). Style was not a design consideration.

A variety of materials were present including vinyl, aluminum, brick veneer, and stucco. Synthetic siding may replace original wood siding, and in some cases, vinyl and aluminum siding have been replaced multiple times. Roofs are hipped, side gable, or shed. Horizontal sliding windows dominated, with many of them fabricated of vinyl or aluminum. Housing constructed at USAG Hawaii incorporated jalousie windows.

### ***Capehart Units***

Capehart units were constructed in accordance with contemporary design and construction trends. Consequently, the single-family and duplex units adopted the elements of the ranch form. They had rectangular footprints and terminated in side-gable or flat roofs. The design of the buildings emphasized horizontality as expressed through the wide, low elevations and horizontal bands of sliding windows. Stylistic references were abandoned and the buildings did not exhibit any ornamentation. Rear elevations integrated interior and exterior spaces through the introduction of sliding glass doors and, in a departure from their predecessors, larger expanses of windows. Some dwellings incorporated integrated carports or garages (R. Christopher Goodwin & Associates, Inc. 2003:5-29).

### ***Design Folio Units***

As with the Capehart units, housing based on the 1964 *Design Folio* eschewed stylistic references. Flat and gable roofs sheathed in composition shingles were common and buildings could be clad in wood siding, including board-and-batten, plywood, or shingles; asbestos; and concrete block. Horizontal sliding windows were located under the eaves or below the second floor. Sliding-glass doors, which spanned the entire width of the unit in select examples, provided access to rear yards. Some designs also included balconies. Privacy fences helped delineate individual units in townhouse buildings. Options accommodated changes in terrain, with examples in the *Folio* offering choices in unit access from either the upper or lower level, depending on site grading (Figures 6.12-6-18) (United States Department of Defense 1964). Single-story townhouse buildings also were present. The large picture windows found in select single-family and duplex units constructed under the Capehart program were no longer present on buildings constructed after 1964.

### ***Post-1972 Units***

Units constructed during this period resembled schematics presented in the revised *Design Folio*. Those drawings were to “provide the basis for design development of all conventionally constructed family housing units” (United States Department of Defense 1972:16-5). These dwellings incorporated complex roof forms and changes in building plane (Figure 6.19). Changes in building plane

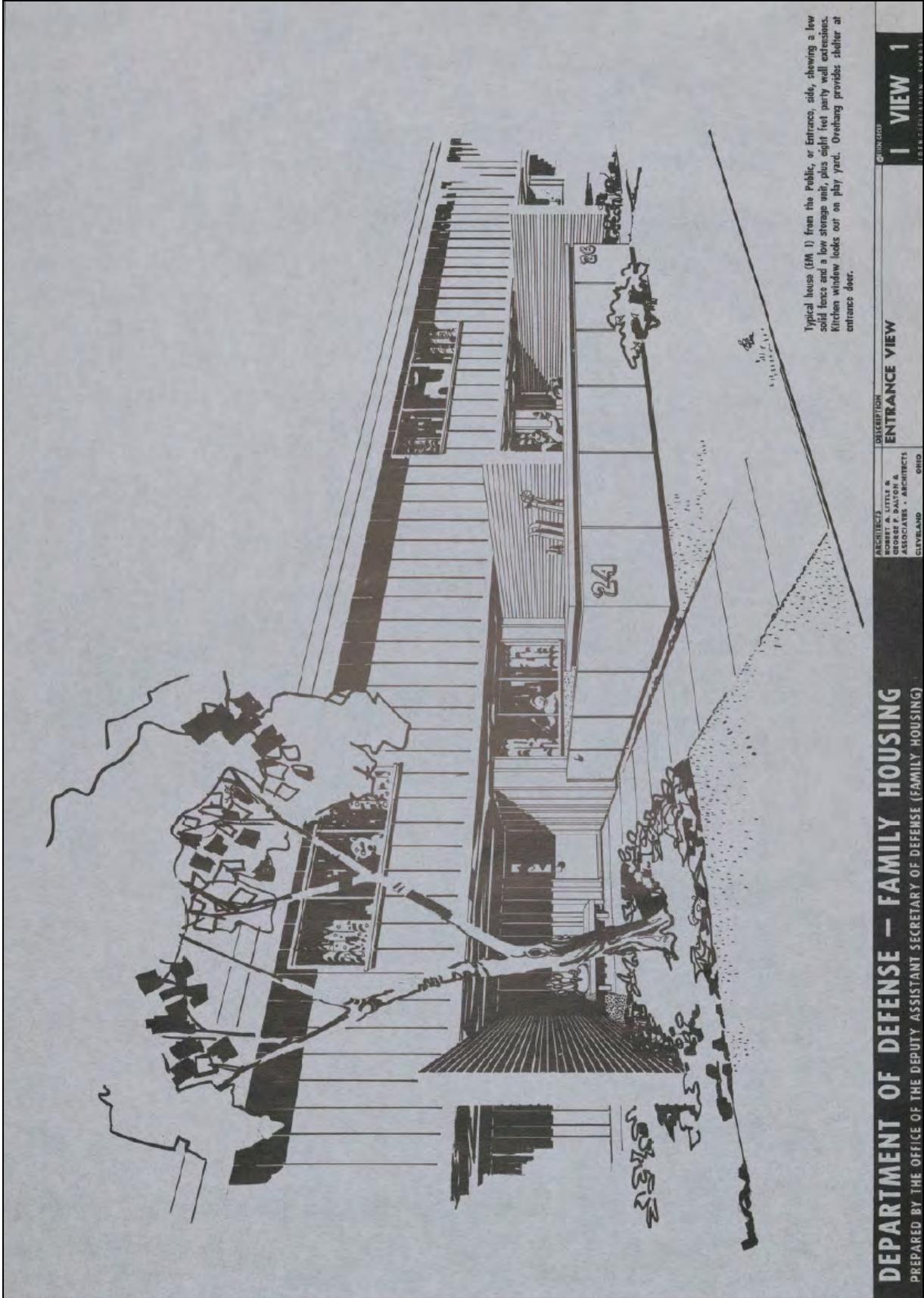
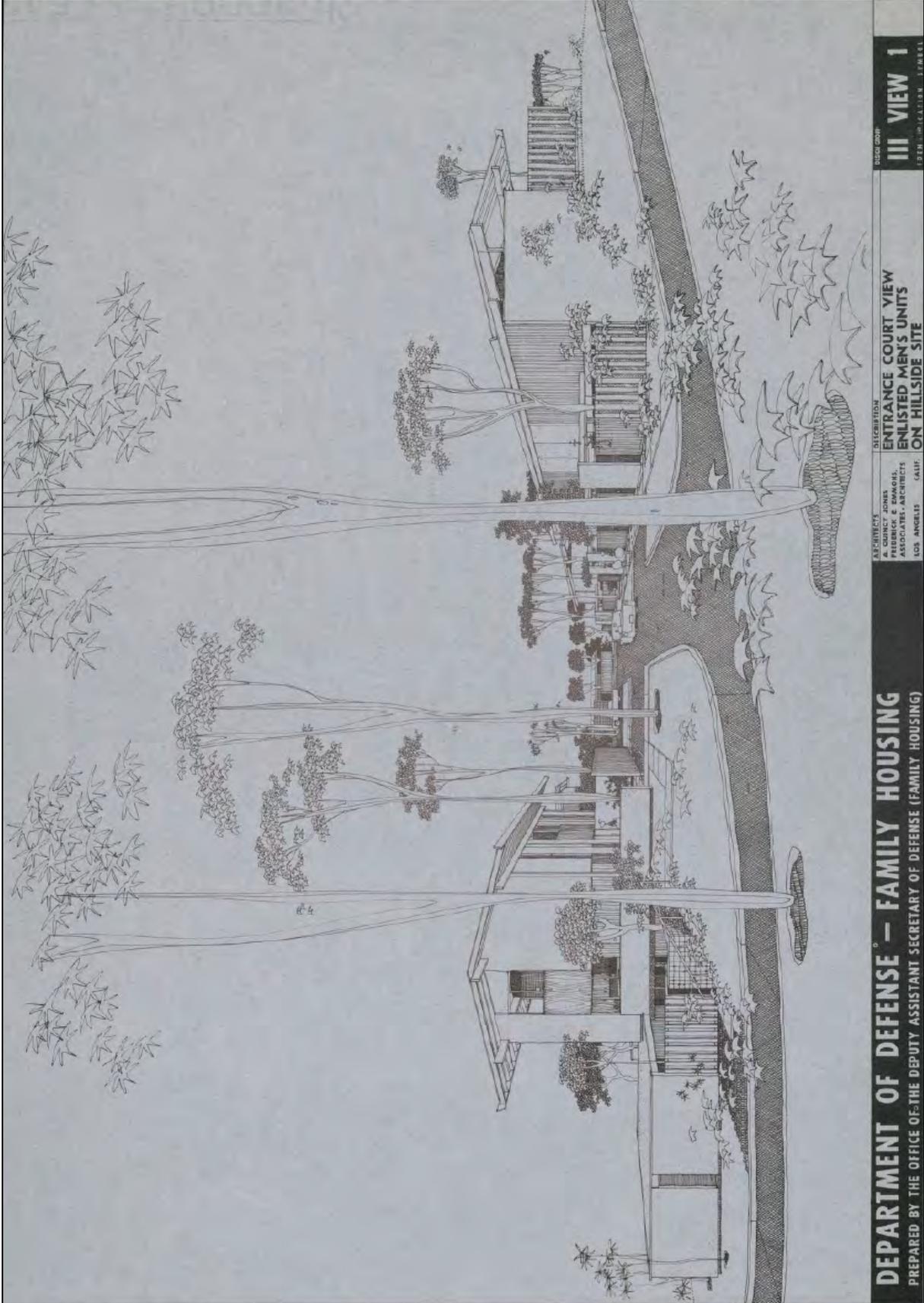


Figure 6.12 Entrance View for Townhouse Unit  
Source: United States Department of Defense 1964.



**DEPARTMENT OF DEFENSE — FAMILY HOUSING**  
 PREPARED BY THE OFFICE OF THE DEPUTY ASSISTANT SECRETARY OF DEFENSE (FAMILY HOUSING)

**ARCHITECTS**  
 A. CURRY, JONES  
 & WARD, INC.  
 ASSOCIATE ARCHITECTS  
 LOS ANGELES, CALIF.

**DESCRIPTION**  
**ENTRANCE COURT VIEW**  
**ENLISTED MEN'S UNITS**  
**ON HILLSIDE SITE**

**SCALE**  
**1/8" = 1'-0"**  
**III VIEW 1**  
 1964-11-11

**Figure 6.13** Entrance View for Townhouse on Hillside Site  
 Source: United States Department of Defense 1964.

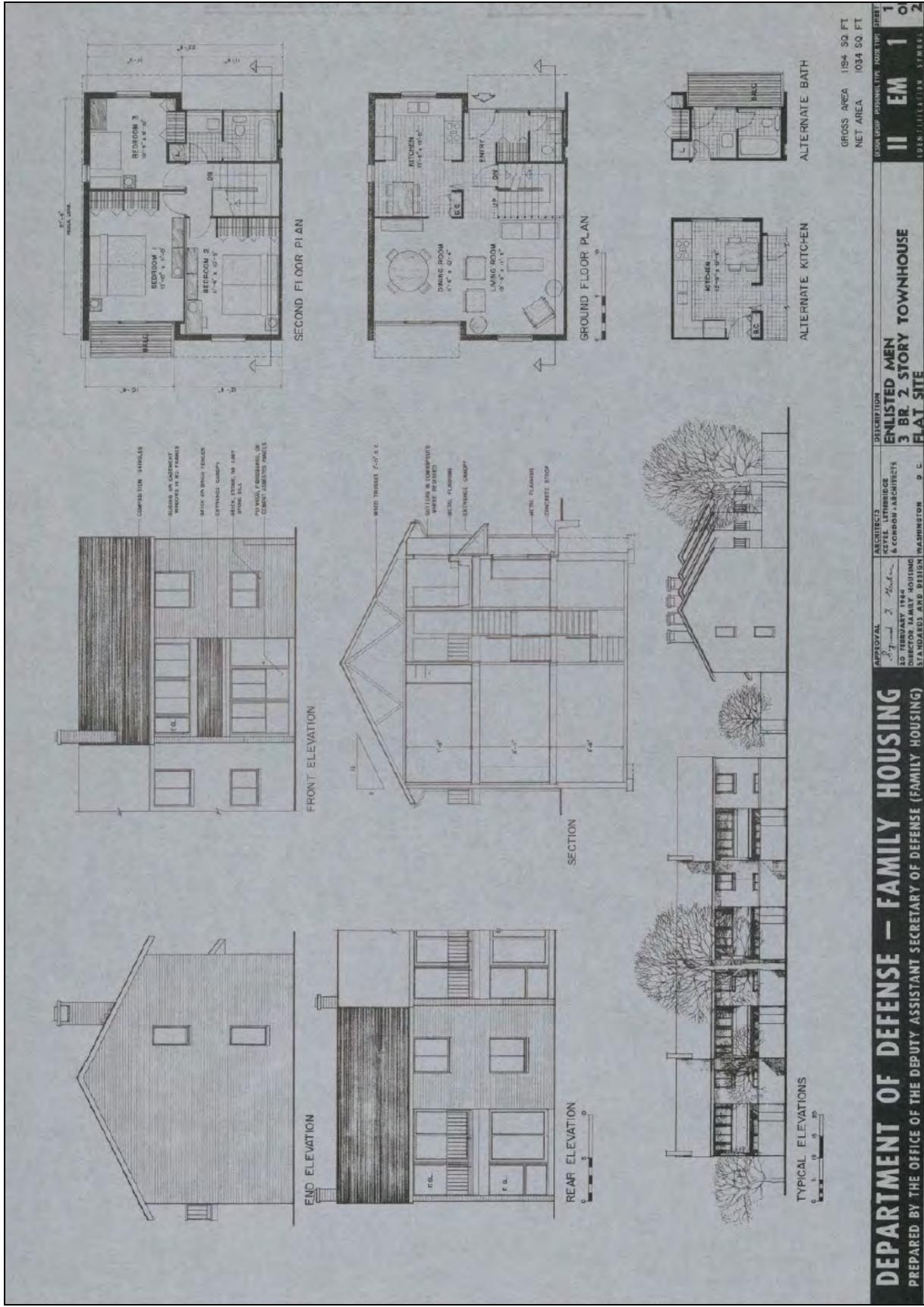
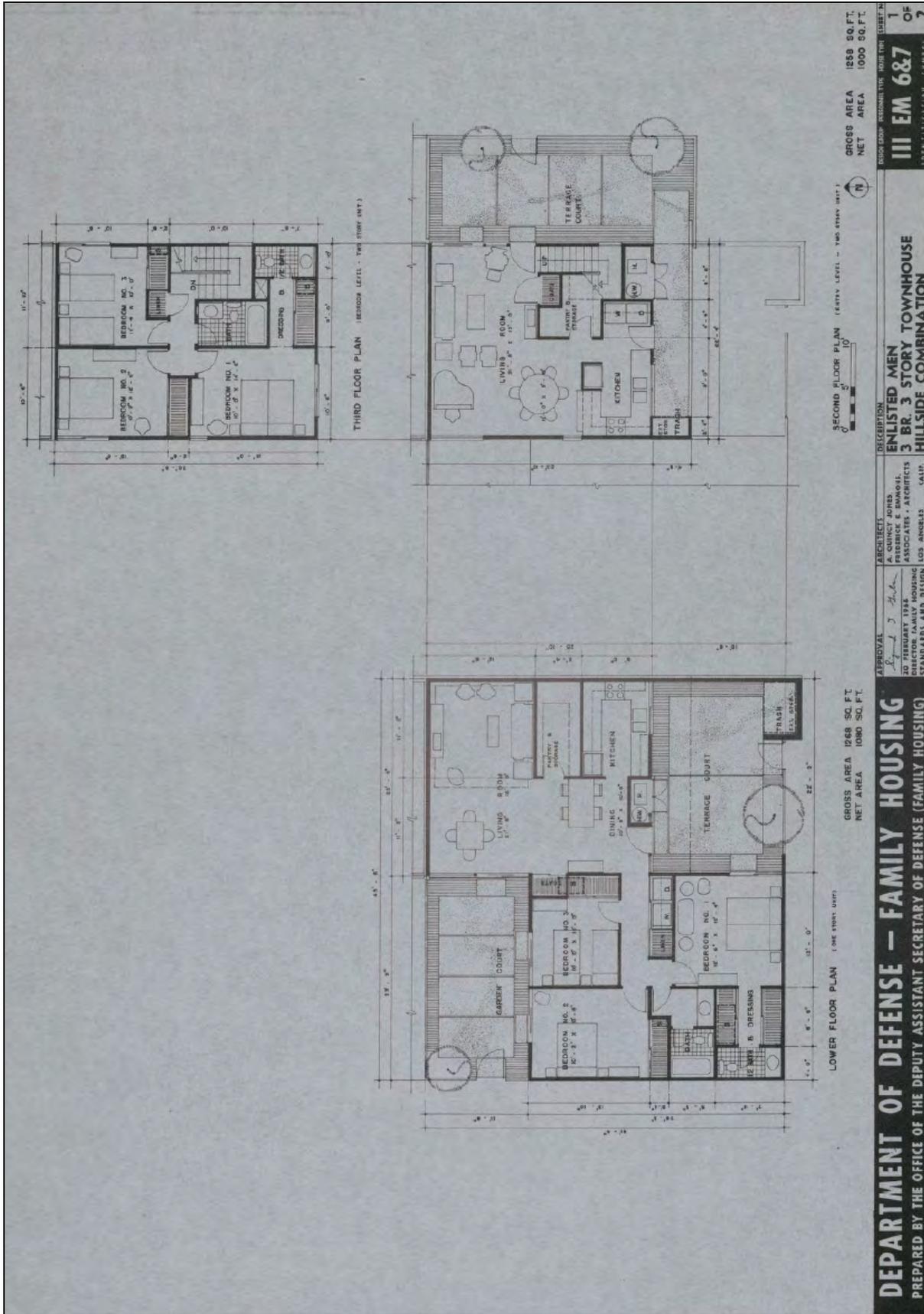


Figure 6.14 Enlisted Men, 3-bedroom, 2-story Townhouse  
 Source: United States Department of Defense 1964.



<b>DEPARTMENT OF DEFENSE -- FAMILY HOUSING</b> PREPARED BY THE OFFICE OF THE DEPUTY ASSISTANT SECRETARY OF DEFENSE (FAMILY HOUSING)		APPROVAL <i>[Signature]</i> DIRECTOR, FAMILY HOUSING STANDARDS AND DESIGN	ARCHITECTS A. QUINCY JONES FREDERICK E. BARNOSE, ASSOCIATES - ARCHITECTS LOS ANGELES, CALIF.	DESCRIPTION <b>ENLISTED MEN          3 BR. 3 STORY TOWNHOUSE          HILLSIDE COMBINATION</b>	GROSS AREA 1268 SQ. FT. NET AREA 1080 SQ. FT.	GROSS AREA 1258 SQ. FT. NET AREA 1000 SQ. FT.	HOUSE NO. <b>III EM 6&amp;7</b> OF <b>1</b> IDENTIFICATION SYMBOLS <b>2</b>
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Figure 6.15 Enlisted Men, 3-bedroom, 2-story Townhouse (Hillside)  
 Source: United States Department of Defense 1964.



*Figure 6.16 Shoshoi Village Townhouse, Fort Carson, Colorado*  
Source: Plimpton and Kosik 2018:4.

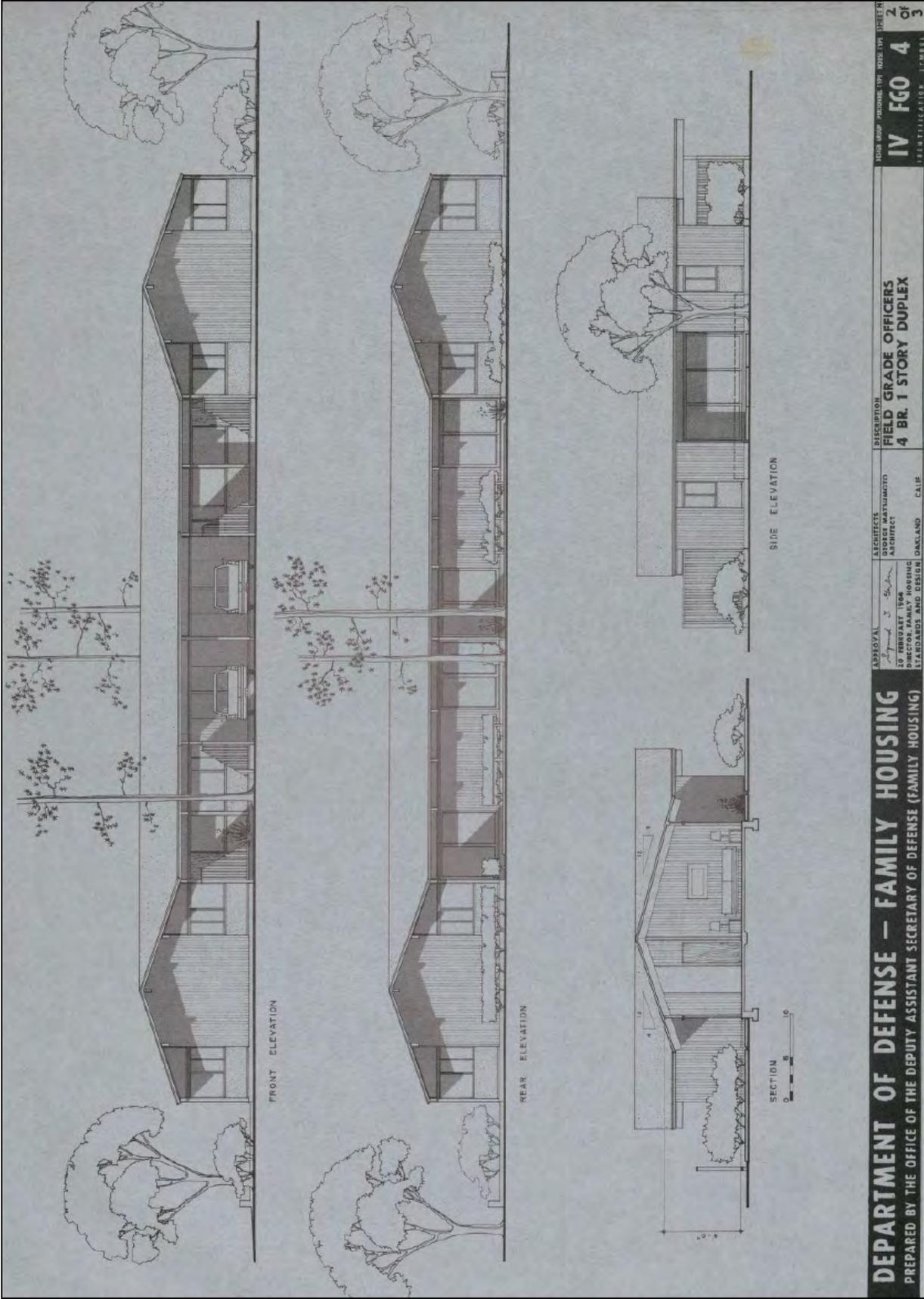


Figure 6.17 Field Grade Officer Housing  
 Source: United States Department of Defense 1964.



**Figure 6.18** Gordon Terrace Neighborhood (1966), Fort Gordon, Georgia  
Source: Fort Gordon Cultural Resources Management Office.

also were present in select units. Materials, window sizes, and construction details presented in the *Folio* were intended to be adapted to meet and be compatible with local conditions (United States Department of Defense 1972:16-5). Buildings constructed after 1972 adopted the forms and designs from earlier periods. Single-story, single-family or duplex units, single-story townhouses, two-story duplexes and townhouses: and two-story apartment buildings were built. Exterior ornamentation was absent (Figures 6.20-6.22).



**Figure 6.19** *Olive Terrace Neighborhood (1974-1975), Fort Gordon, Georgia*  
Source: Fort Gordon Cultural Resources Management Office, 1978.



**Figure 6.20** *Batan Neighborhood, Fort Bragg, North Carolina*  
Source: R. Christopher Goodwin & Associates, Inc. 2021.



**Figure 6.21** *Dogwood Terrace Neighborhood, Fort Polk, Louisiana*  
Source: R. Christopher Goodwin & Associates, Inc. 2021.



**Figure 6.22** *Apartment Building, Akolea Neighborhood, Schofield Barracks, Hawaii*  
Source: R. Christopher Goodwin & Associates, Inc. 2021.

## **Interior Plan**

The Capehart units constructed during the period were documented in the historic context prepared in 2003. The 1964 *Design Folio* examples of interior layout based on type of dwelling, for example, single-family, duplex, or townhouse, and type of terrain, either hillside or plat lot. In general, interiors adopted the open floor plan, regardless of period of construction. Sliding doors may connect the living room to outdoor patios or balconies. Buildings were single story, two stories, or split level.

## ***Capehart Units***

The open floor plan began to emerge with the Capehart program dwellings. Screens and partitions were used to delineate spaces in the open concept floor plan. Three or four bedrooms were not uncommon. The units featured entry halls or vestibules, storage spaces, and utility rooms. As with the exterior, interior ornamentation was absent (R. Christopher Goodwin & Associates, Inc. 2003:5-29-5-30).

### ***Design Folio Units***

Units based on the 1964 *Design Folio* adopted more open floorplans than units constructed under the Capehart program. Typically living and dining rooms were combined. Eat-in or galley kitchens may were present, and units for company grade officers included utility and storage units housing washers and dryers. Units may include separate dining rooms, with the living room opening onto the kitchen. Most units had front entries. Bedroom location depended on type of dwelling. Bedrooms typically were located on the second floor of townhouse units and at the rear or side of the dwelling in single-story duplex units (Figures 6.23-6.26) (United States Department of Defense 1964). The open stair found in two-story units represented minimal stylistic references.

### ***Post-1972 Units***

The *Construction Criteria Manual* referenced the definitive plans included in the revised *Design Folio*. No other guidance for interior plan was provided. Site investigation revealed the presence of first floor powder rooms. The open stair found in select *Design Folio* units evolved in to a closed stair in select units. In suite bathrooms may be provided in the master bedrooms. All bedrooms had closets and interior storage rooms may be included (Figures 6.27 and 6.28).

### **Hierarchy in Design**

Hierarchy in design was achieved through building type, i.e., townhouse, duplex, or single family, and unit size regardless of construction date. Rather building type and size were more indicative of rank. Enlisted service members and company grade officers were housed in townhouses; however, the townhouses for enlisted soldiers were smaller than those for company grade officers. Field grade, senior, senior, and general officer housing consisted of duplexes for field grade officers and single-family units for senior and general officers. Stylistic differences and differences in materials, however, do not suggest hierarchy.

### **Changes over Time**

Regardless of construction period or building type, all buildings have undergone a continuous program of modification and alteration. A comprehensive plan to modify and upgrade the units was undertaken

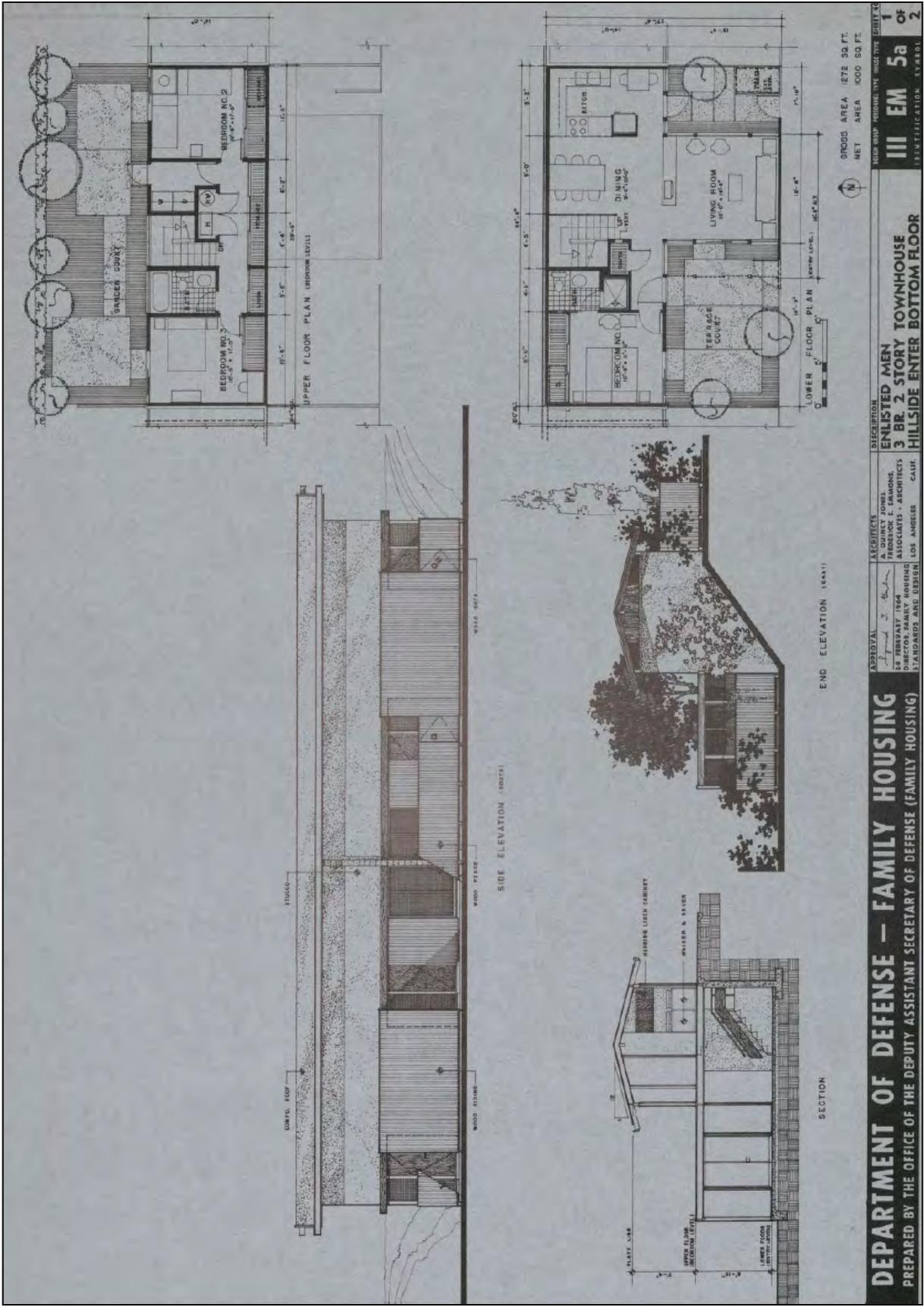


Figure 6.23 Plan for Enlisted Men Townhouse (Hillside)  
 Source: United States Department of Defense 1964.

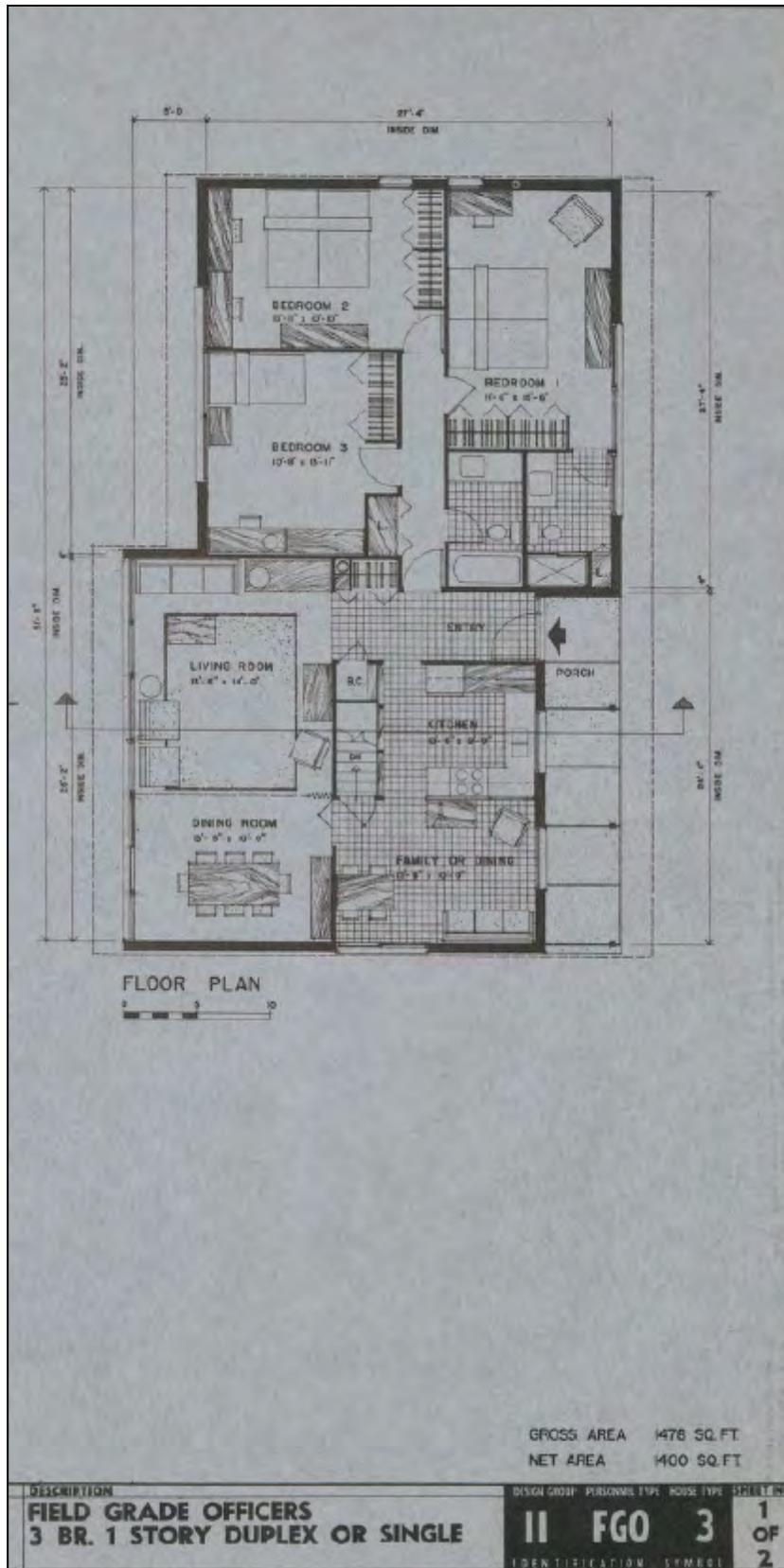


Figure 6.24 Plan for Field Grade Officer Housing  
Source: United States Department of Defense.

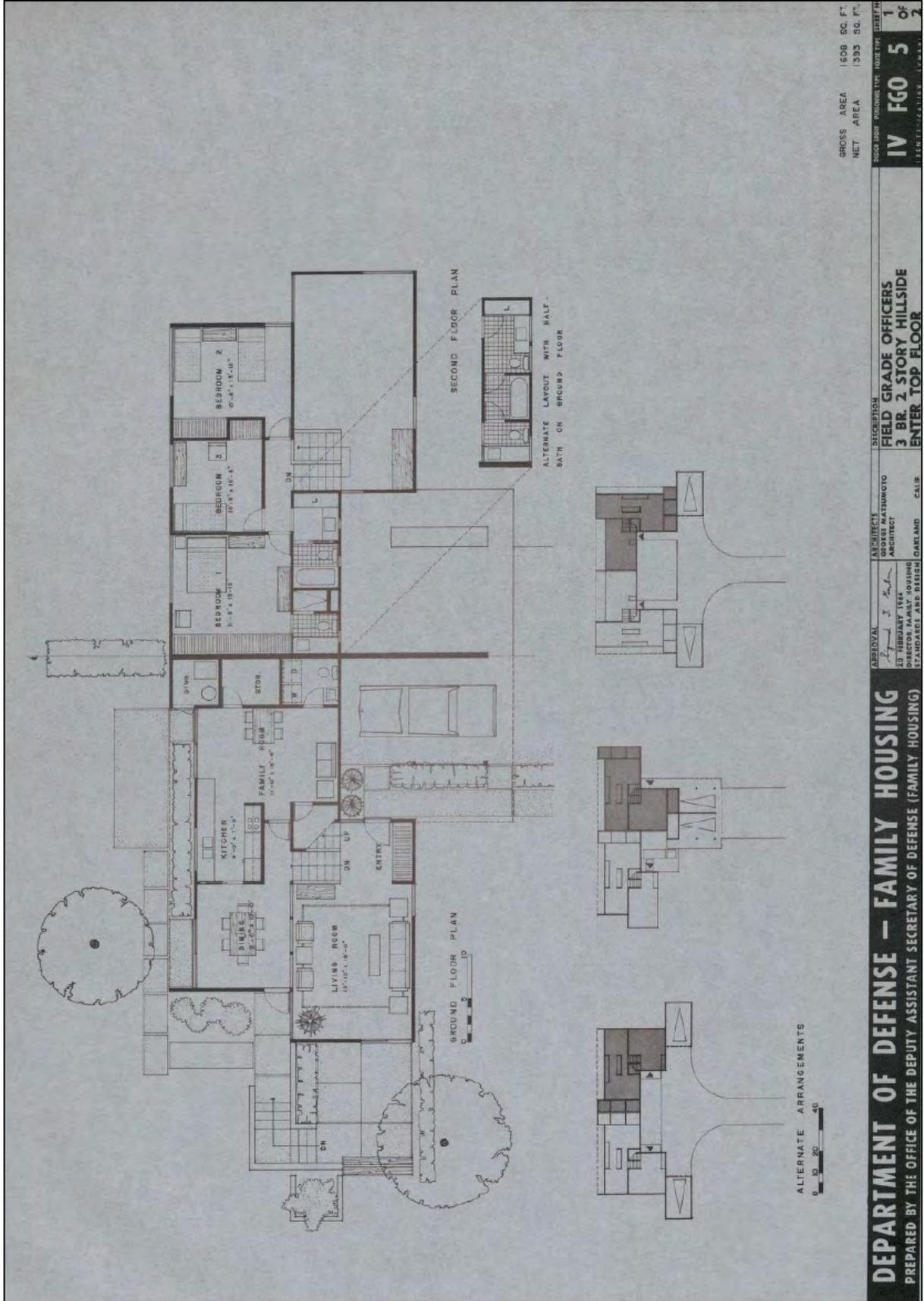
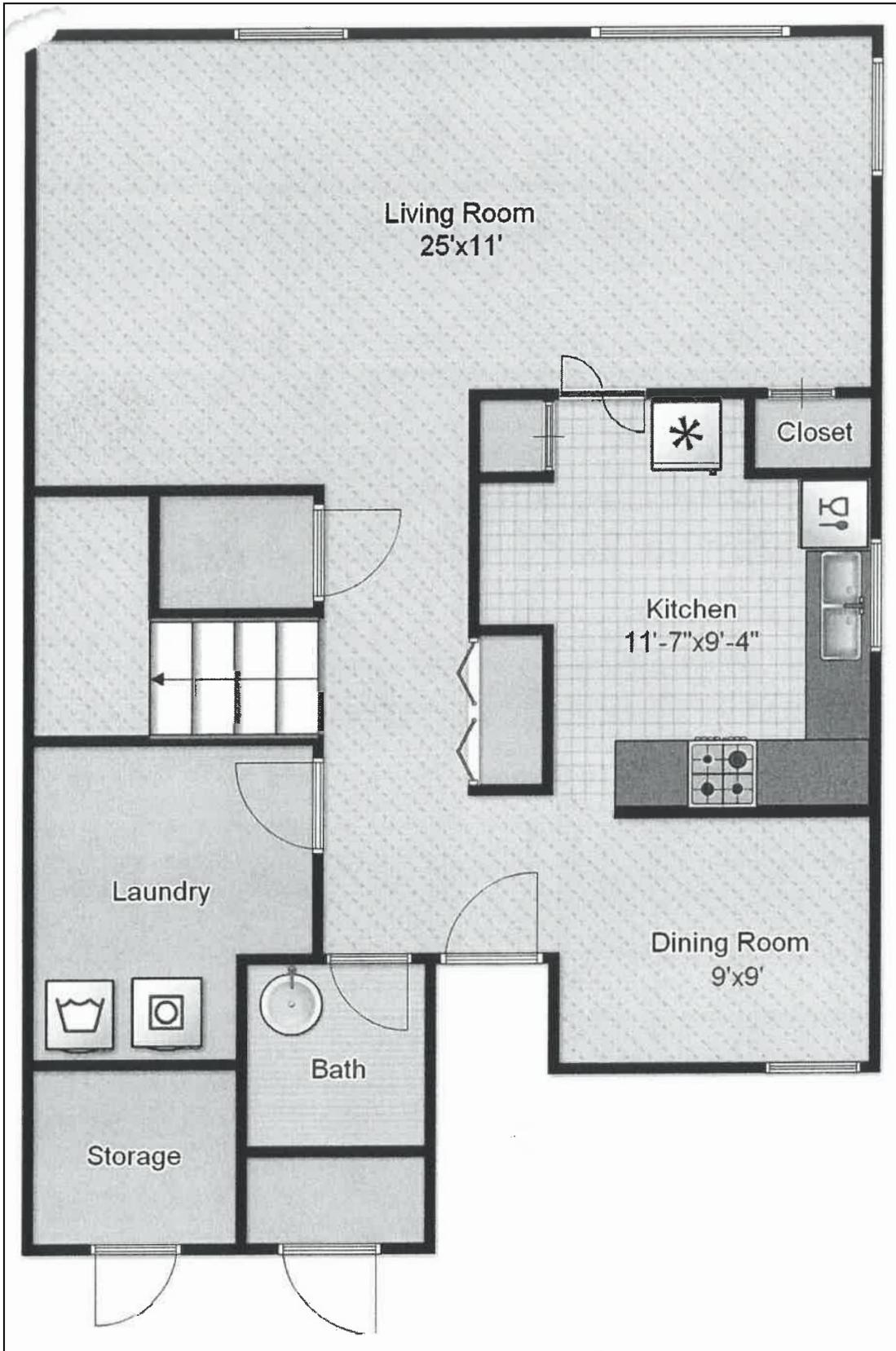


Figure 6.25 Plan for Field Grade Officer Housing, 3-bedroom Unit  
Source: United States Department of Defense.



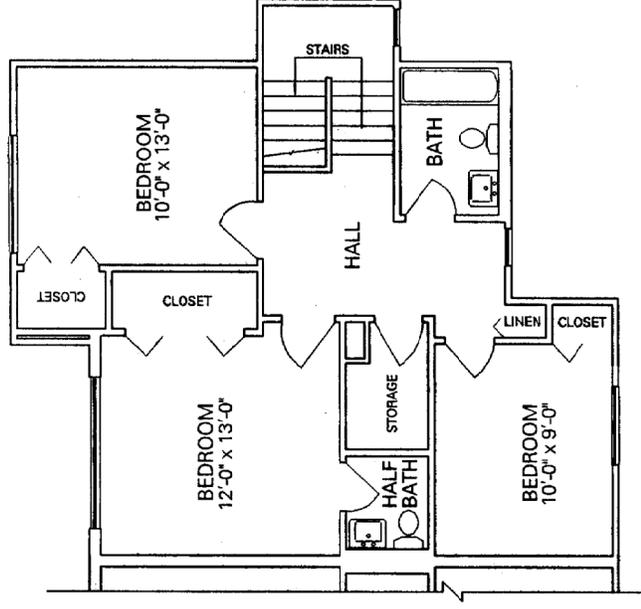
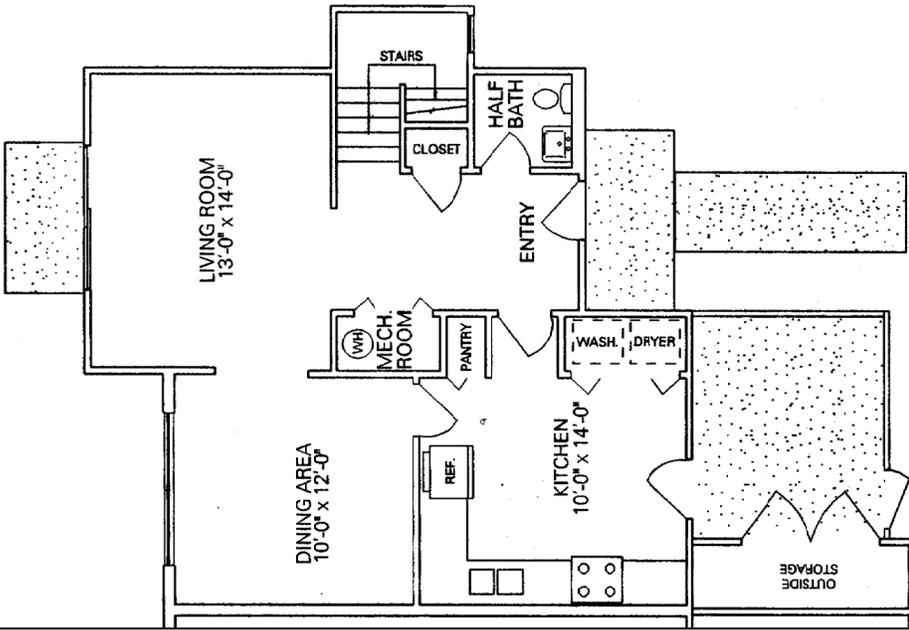
*Figure 6.26 Interior Stair, Building 1724, Gordon Terrace Neighborhood, Fort Gordon, Georgia*  
Source. R. Christopher Goodwin & Associates, Inc. 2021.



**Figure 6.27** Floorplan, two-story duplex, Ardennes Neighborhood, Fort Bragg, North Carolina  
 Source: Corvias Family Living n.d.

# BUILDING LIST

AREA 12		AREA 13	
BLDG.	D.U.	BLDG.	D.
2003	2	2012	
2005	2	2041	
2022	2	2042	
2023	2	2043	
2025	2	2044	
2027	2	2046	
2029	2	2063	
2030	2	2071	
2052	2	2073	
2053	2	2074	
2054	2	2082	
2055	2	2084	
2056	2		
2058	2		



2 STORY DUPLEX  
LOCATION: OLIVE T.  
GRADE: E-4 / E-9

HQ U.S. ARMY SIGNAL CENTER AND FORT GORDON DIRECTORATE OF PUBLIC WORKS FORT GORDON, GEORGIA			
FAMILY HOUSING			
FLOOR PLAN - TYPE "G"			
SIZE	AUTHORITY	DRAWING NUMBER	PLZ
SCALE: AS SHOWN	DATE: MARCH 1986	SHEET	1 C

Figure 6.28 Floorplan, two-story duplex, Olive Terrace, Fort Gordon, Georgia  
Source: Betty Balfour Communities, 1996.

at select installations. These modifications resulted in neighborhood-wide uniformity and consistency in material replacement and design changes. In other cases, modifications may have occurred as a result of funding constraints or selective material failure and replacement. In this instance, all were not subject to the same degree and type of modification. Housing constructed during all three periods exhibited similar classes of changes in interior and exterior materials, and in some cases, changes in plan. These changes reflected replacement materials due to wear, abatement, and/or failure of original interior and exterior materials. Exterior cosmetic redesigns to meet current stylistic trends occurred at select installations. Specifically, new exterior ornamentation was present referencing earlier architectural styles and new shutters were applied. New replacement windows differed in size, type, and configuration from the originals, changes that altered the original design intent of the building.

Many interior modifications included replacement fixtures and tiles in the bathrooms, replacement cabinets and appliances in kitchens, and new flooring throughout. In addition, floor plans of select units were reconfigured or units combined to meet current space and size norms. Select neighborhoods exhibited selective or wholesale demolition (Figures 6.29 – 6.31).

The entry porches were added after 2008 and the end unit was combined with the adjacent unit to create one four-bedroom unit with a master suite. Source: R. Christopher Goodwin & Associates, 2021.

### **Properties of Particular Importance**

A Property of Particular Importance, as defined in the Program Comment Plan for Vietnam War Era housing, is one that is “substantially distinctive and unique in their design, method of construction, and building materials” and “exhibit a high degree of integrity with enough significant design characteristics and original historic building materials present and intact to be considered truly distinctive” (U.S. Department of the Army 2021a:34). Architectural design and stylistic and material integrity must be present in order to be considered a Property of Particular Importance.

Vietnam War Era housing was constructed during three progressive and overlapping stages: 1963-1964, 1964-1972, and 1973-1975. Housing constructed during the period should retain those elements from their respective construction periods. The military applied civilian-sector residential design and



*Figure 6.29. Pierce Terrace Neighborhood, Fort Jackson, South Carolina*



*Figure 6.30. Olive Terrace (1974-1975), Fort Gordon, Georgia*  
Source: Fort Gordon Cultural Resources Management Office, 1978.



**Figure 6.31** *Olive Terrace, Fort Gordon, Georgia*  
Source: R. Christopher Goodwin & Associates, Inc. 2021.

planning principles to the construction of Army family housing built during the period. The execution of the housing was constrained by cost and size limitations established by Congress. Those buildings and neighborhoods that maintain design and materials from their respective construction stages, meet the Congressional mandates, and yet are distinctive from compatible housing available in the civilian sector may be considered a Property of Particular Importance.

In addition to satisfying the design component, installations having Vietnam War Era housing should retain integrity of original historic building materials and design elements, including exterior cladding, window type and configuration, and roof materials, to be considered a Property of Particular Importance. Efforts to update the buildings, including the construction of additions and the application of stylistic ornamentation, will not have been conducted; the original design intent of the buildings will

remain intact. Ancillary buildings, such as car ports and storage sheds, also will retain their original construction materials and design. Similarly, Vietnam War Era neighborhoods will retain their original configuration and layout. These neighborhoods will not have been subject to the demolition and/or new construction of dwelling units, ancillary buildings, or landscape features, including circulation networks, playgrounds and recreational facilities. Neighborhood new construction, if present, will be isolated.

## Conclusion

The DoD's policies, procedures, and guidance for family housing constructed between 1963 and 1975 provided general parameters for the design and construction of new family housing. New units were built accordingly while meeting the cost limitations imposed by Congress. The 1964 *Design Folio* guided much of the housing built after that date; analysis of the drawings and data provided in previous investigations suggests what ultimately was constructed were modest interpretations of designs presented in the *Folio*. The Contemporary style characterizes many of the units. The vast majority of units likely will have been subject to interior and exterior modifications due to materials replacement.

## Chapter 7: Summary and Conclusion

The *Historic Context on Army Vietnam War Era Historic Housing, Associated Buildings and Structures, and Landscape Features (1963-1975)* was prepared by RCG&A for Cherokee Nation Management & Consulting on behalf of the Army to support Federal stewardship for this class of properties under the NHPA of 1966, as amended. The current study develops the historic context appropriate to the significance of this class of resources in accordance with the Criteria for Evaluation for NRHP (36 CFR 60 [a-d]) applying guidance found in the *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (National Park Service 1990, revised 1991, 1995, 1997:7-9). The *Historic Context* further supports the *Program Comment Plan for Army Vietnam War Era Historic Housing, Associated Buildings and Structures, and Landscape Features (1963-1975)*.

### Summary of Results

The Army housing program faced the challenge of increased housing demand from a growing number of enlisted service members and junior officers accompanied by their families from 1963 to 1975. The military responded to this demand with new on-post family housing eligibility requirements. Early in the Vietnam War Era, minimal funding was directed towards new family housing, as Federal military appropriations focused on the military challenges of the conflict in Southeast Asia. The Army initially maintained and upgraded older family housing units in the existing state-side housing inventory, particularly those constructed under the Wherry and Capehart programs.

Under Secretary of Defense Robert McNamara, the DoD adopted a general policy to rely “to the maximum extent possible on the civilian community to provide housing for our service families” (United

States Congress 1963:178). DoD planners acknowledged the large military family housing deficit and instituted a complex program using various tools to meet the demand. Construction of on-post housing was an option pursued after all available community support resources had been exhausted. The emphasis of relying of the local civilian community support to provide housing to military families continued throughout the Vietnam War Era.

The DoD, including the Army, navigated a complex network of requirements and programs to meet the family housing need in the Vietnam War Era. First and foremost, military planners assessed the ability of the civilian sector to serve as the primary source for family housing. Only after the survey of housing units available in the local private sector, combined with the analysis of then-current and projected force levels and then-current on-post housing levels, would the Army authorize the construction of new on-post housing based on a determination of insufficient housing availability. Working with the FHA, the military sought to incentivize private-sector builders to construct housing affordable to enlisted personnel and lower ranking officers. A number of programs were developed to encourage private-sector construction of housing; these efforts were met with varying degrees of success.

The Army's family housing program operated with a deficit of housing units during the era for several reasons. The civilian sector was unable to provide housing units in sufficient numbers to the Army and the Army was unable to secure authorization for new construction. Army family housing demand exceeded the number of units authorized, funded, and constructed. Army funding requests for new construction were submitted to Congress as part of annual DoD budget requests, which Congress approved, modified, or rejected. The U.S. Congress enforced strict size and funding limits for family housing that influenced the design of the housing units constructed throughout the period.

The Vietnam War Era was a period of national demographic and social changes that affected housing expectations and the types of housing offered in the civilian market. Although detached single-family houses continued to dominate the civilian housing market during the era, other housing options increasingly became available. Housing demand was driven by a larger percentage of single person, young married couples, and retiree households. These groups often sought alternatives to traditional single-family houses. In addition, the increasing cost of land and development were reflected in new approaches, which emphasized higher density construction. The civilian market responded through

greater construction of apartments, condominiums, and townhouses, and through the construction of planned unit, or cluster unit, neighborhoods, which economized on land costs. At the same time, the single-family housing market changed; housing demand grew for larger dwellings containing more rooms, and occupying smaller lots.

Civil rights also affected the military housing program. The Army was mandated, as were all other Federal agencies, to comply with President Kennedy's Executive Order governing equal access to housing. Because the Army often relied on the private sector to meet the majority of its housing need, housing discrimination in the civilian sector became a real concern, and the Army acted accordingly. On-post family housing offices were created, which directed service members to properties whose owners complied with anti-discrimination measures.

Where the construction of on-post housing was justified, the Army maximized the number of units constructed within budgetary and legislative constraints. In addition, the Army housing program also meet internal requirements, including consistency with the five-year plans, design criteria, and specifications.

Military planners drew upon innovations emerging in the civilian housing market; including development trends in cluster unit development, popular tastes in housing building types and styles, and responses to local building conditions. In general, trends in the civilian housing sector reflected increased single-family house size, greater spatial specialization in plan, and a greater variety in house types, such as the townhouse and multi-plex buildings.

Army family housing during the Vietnam War Era can be categorized into three phases of development. Family housing units constructed between 1963-1964 reflect the end of the Capehart housing program that officially expired in 1962. A distinct change in the form and appearance of family housing construction occurred with the use of the DoD mandated *Design Folio for Family Housing* from 1964 until 1972. In 1972, the DoD issued the *Construction Criteria Manual*, which influenced the design of family housing units authorized and funded after this date.

The focus of the Army's on-post family housing construction program in the mid-1960s was to provide housing for married junior officers and enlisted personnel in the E-04 to E-06 grades. The military

adopted the two-story townhouse as the most efficient housing unit to house large numbers of military personnel within the legislated costs. Multi-plex housing units in apartment buildings also were constructed at the conclusion of the era. Higher ranking officers and NCOs typically were housed in one or two-story duplexes, while the higher ranking officers and NCOs received single-family units. While the 1964 *Design Folio* favored the Contemporary style, most of the family housing units constructed during the Vietnam War Era have minimal architectural stylistic references.

## Conclusion

The *Historic Context on Army Vietnam War Era Historic Housing, Associated Buildings and Structures, and Landscape Features (1963-1975)* documents a significant theme in military history important to understanding Army military housing and development during this turbulent period in American history. The Army's current inventory of over 7,500 on-post family housing units illustrates the evolution and implementation of the Army housing program during the era.

Army Vietnam War Era housing is considered to be eligible for inclusion in the NRHP under Criterion A for its association with the conflict in Vietnam. Many Vietnam War Era housing units have undergone exterior and interior modification and alteration. Alterations included the application of replacement materials due to failure, abatement, and/or wear. At select installations, exterior modifications also were undertaken to reflect current trends in domestic architecture. Interior modifications generally consisted of replacement finishes, fixtures, and appliances. In some cases, units were combined, which resulted in the modification of the existing plan. In addition, some Vietnam War Era neighborhoods have undergone demolition and new construction. These changes were completed holistically across an installation's inventory of Vietnam War Era housing or completed when funding permitted.

Vietnam War Era buildings, associated outbuildings, and neighborhoods retain integrity of association, feeling, location, and setting to convey their association with military family housing constructed to support the Vietnam War under Criterion A. While recognizable as a class, these buildings, do not retain sufficient integrity of design, materials, or workmanship to embody a type, method or period of construction under Criterion C.

The Program Comment Plan for Vietnam War Era Housing issued in December 2021 provides criteria for identifying Vietnam War Era housing that may be Properties of Particular Importance. Inventory conducted at the 10 Army installations confirmed that the military followed civilian-sector housing trends and did not construct substantially distinctive or distinguishable housing. Due to continuous modification and alteration, many no longer retain a high degree of integrity of design and materials. Those units that retain integrity of design and materials are not substantially distinctive or distinguishable to convey significance under NRHP Criterion C. Additionally, no Properties of Particular Importance were identified.

## References

Andrzejewski, Anna Vemer

- 2015 "Selling Suburbia. Marshall Erdman's Marketing Strategies for Prefabricated Buildings in the Postwar United States," *Making Suburbia. New Histories of Everyday America*. John Archer, Paul J.P. Sandul, and Katherine Solomonson, Eds. University of Minnesota Press, Minneapolis, Minnesota.

Baldwin, William C.

- 1996 *Four Housing Privatization Programs: A History of the Wherry, Capehart, Section 801, and Section 802 Family Housing Programs in the Army*. Published for the U.S. Army Corps of Engineers, Office Of History, Alexandria, Virginia.

Beard, Kirby D.

- 2003 *The Military Housing Privatization Initiative and the Defense Department's Military Family Housing Revitalization Plan*. Thesis. Electronic document, <https://core.ac.uk/download/pdf/36703392.pdf>, accessed August 2021.

Brooks, Richard R. W., and Carol M. Rose

- 2010 "Racial Covenants and Segregation, Yesterday and Today." Straus Working Paper 08/10. Electronic document, <http://www.law.nyu.edu/sites/default/files/siwp/Rose.pdf>, accessed August 2021.

California Department of Transportation

- 2011 *Tract Housing in California, 1945-1973. A Context for National Register Evaluation.* California Department of Transportation, Sacramento, California.

Cole, Alice C., Alfred Goldberg, Samuel A. Tucker, and Rudolph A. Winnacker, editors

- 1978 *The Department of Defense Documents on Establishment and Organization 1944-1978.* Officer of the Secretary of Defense Historical Office, Washington, DC. Electronic document, <https://history.defense.gov/Portals/70/Documents/other/DODDocsE-standOrg1944-1978.pdf>, accessed September 2021.

*Commanders Digest*

- 1967 Various. Electronic document, <https://hdl.handle.net/2027/uiug.30112106761494>, accessed August 2021.
- 1971 Various. Electronic document, <https://hdl.handle.net/2027/mdp.39015078412338>, accessed August 2021.
- 1972 Various. Electronic document, <https://hdl.handle.net/2027/mdp.39015078412338>, accessed August 2021.
- 1973 Various. Electronic document, <https://hdl.handle.net/2027/mdp.39015078412338>, accessed August 2021.

Comptroller General of the United States

- 1973a *Report to the Congress. Further Improvement Needed in Assisting Military Personnel in Finding Adequate Housing Near Bases.* Government Printing Office, Washington, DC. Electronic document, <https://hdl.handle.net/2027/uiug.30112068990990>, accessed September 2021.

1973b *Report to the Subcommittee on Military Construction Committees on Appropriations. United States Senate, House of Representatives. Comparative Costs to Design, Supervise, and Inspect Military Construction Projects.* Government Printing Office, Washington, DC. Electronic document, <https://gao.justia.com/department-of-defense/1973/1/comparative-costs-to-design-supervise-and-inspect-military-construction-projects-b-133316/B-133316-full-report.pdf>, accessed August 2021.

#### Cornell Law School

n.d. “Joseph Lee Jones et ux., Petitioners, v. Alfred H. Mayer Co. et al.” Electronic document, <https://www.law.cornell.edu/supremecourt/text/392/409>, accessed October 2021.

#### Defense Manpower Data Center

1954-1975 *Military Personnel On Active Duty By Grade in Which Serving.* Annual statistics prepared June 30 of each year. Department of Defense, Washington, DC. Electronic documents, <https://historyinpieces.com/research/us-military-personnel-1954-2014>, accessed August 2021.

#### Defense Supply Agency

1974 *Military Family Housing.* Defense Supply Agency Regulation 4165.1. Electronic document, [https://www.google.com/books/edition/Military\\_Family\\_Housing/37R-f-TwT-MgC?hl=en&gbpv=1&dq=defense+supply+agency+military+family+housing&printsec=frontcover](https://www.google.com/books/edition/Military_Family_Housing/37R-f-TwT-MgC?hl=en&gbpv=1&dq=defense+supply+agency+military+family+housing&printsec=frontcover), accessed September 2021.

#### Diehl, Jackson

1978 “The Rise and Fall of Levitt Era,” *The Washington Post*. Electronic document, <https://www.washingtonpost.com/archive/local/1978/10/14/the-rise-and-fall-of-levitt-era/266d6a7d-0882-426f-9009-28655fde09ef/>, accessed November 2021.

Federal Housing Administration (FHA)

- 1964 *Planned-unit Development with A Homes Association*. Government Printing Office, Washington, DC. Electronic document, <https://hdl.handle.net/2027/mdp.39015027881997>, accessed October 2021.
- 1965 *Minimum Property Standards for One and Two Living Units*. Government Printing Office, Washington, DC. Electronic document, <https://hdl.handle.net/2027/mdp.39015027654048>, accessed September 2021.

Friedman, Morgan

- n.d. Inflation Calculator. Electronic document, <https://westegg.com/inflation/>, accessed August 2021.

Fry, Richard, and D’Vera Cohn

- 2010 “Women, Men and the New Economics of Marriage.” Electronic document, <https://www.pewresearch.org/social-trends/2010/01/19/women-men-and-the-new-economics-of-marriage/>, accessed November 2021.

Gerber, Sigmund I.

- 1968 Letter to A. Quincy Jones, Jones and Emmons, Architects. 6 September. University of California Los Angeles (UCLA) Library. Department of Special Collections. Collection 1692. Jones, A. Quincy, 1913-1979. Papers, 1942-1979. Box 3912.

Gibbons, Gregory K., and Rebecca L. Palmer

- 2015 Memorandum of Agreement between the Hawthorne Army Depot, Hawthorne, Nevada and the Nevada State Historic Preservation Officer regarding Resolution of Adverse Effects for the Demolition for the Conelly Housing Complex. Available from the Army Federal Preservation Officer, Washington, D.C.

Goldman, Nancy

- 1976 "Trends in Family Patterns of U.S. Military Personnel During the 20<sup>th</sup> Century". Published in *The Social Psychology of Military Service*, Sage Publications, Beverly Hill, California. Pp. 119-133.

Greenstone, Michael, and Adam Looney

- 2012 "The Marriage Gap: The Impact of Economic and Technological Change on marriage Rates." Electronic document, <https://www.brookings.edu/blog/jobs/2012/02/03/the-marriage-gap-the-impact-of-economic-and-technological-change-on-marriage-rates/>, accessed August 2021.

Griffith, Robert K.

- 1980 *Conscription and the All-Volunteer Army in Historical Perspective*. Published in *Parameters*, Journal of the U.S. Army War College, Carlisle, Pennsylvania. Electronic document, <https://apps.dtic.mil/sti/citations/ADA516887>, accessed September 2021.

Hammer, Alexander R.

- 1974 "Levitt Set to Buy Back Concern He Sold I.T.T.," *The New York Times*. 15 February, p.43. Electronic document, <https://www.nytimes.com/1974/02/15/archives/levitt-set-to-buy-back-concern-he-sold-itt.html>, accessed November 2021.

Hanke, Byron R.

- 1965 "Planned United Development and Land Use Intensity," *University of Pennsylvania Law Review*. Vol.114:15, pp. 15-46. Electronic document, [https://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=6231&context=penn\\_law\\_review](https://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=6231&context=penn_law_review), accessed September 2021.

Harris, Dianne

- 2015 "A Tiny Orchestra in the Living Room," *Making Suburbia. New Histories of Everyday America*. John Archer, Paul J.P. Sandul, and Katherine Solomonson, Eds. University of Minnesota Press, Minneapolis, Minnesota.

Hartman, Ellen R., Susan I. Enscoe, and Adam D. Smith

- 2014 *Vietnam and the Home Front: How DoD Installations Adapted, 1962-1975*. Construction Engineering Research Laboratory, U.S. Army Engineer Research and Development Center, ERDC/CERL TR-14-7. DoD Legacy Resource Management Program.

Hayden, Dolores

- 2004 *Building Suburbia. Green Fields and Urban Growth. 1820-2000*. Vintage Books, New York, New York.

Historical Military Pay Charts 1949 to 2022

- Var. Electronic documents, <https://militarybenefits.info/historical-military-pay-rates/>, accessed October 2021.

Holland, Martin J.

- 1996 *Forging a 'New' Army: The End of the Draft and the Transition to an All-Volunteer Army*. Master of Arts thesis, Department of History, University of North Carolina, Chapel Hill, North Carolina. Electronic document, <https://apps.dtic.mil/sti/citations/ADA307516>, accessed September 2021.

*House and Home*

- 1963 (Jan.) Various. Electronic document, <https://usmodernist.org/HH/HH-1963-01.pdf>, accessed September 2021.
- 1963 (Feb.) Various. Electronic document, <https://usmodernist.org/HH/HH-1963-02.pdf>, accessed September 2021.
- 1963 (May) Various. Electronic document, <https://usmodernist.org/HH/HH-1963-05.pdf>, accessed September 2021.
- 1963 (June) Various. Electronic document, <https://usmodernist.org/HH/HH-1963-06.pdf>, accessed September 2021.
- 1963 (Aug.) Various. Electronic document, <https://usmodernist.org/HH/HH-1963-08.pdf>, accessed September 2021.
- 1963 (Oct.) Various. Electronic document, <https://usmodernist.org/HH/HH-1963-10.pdf>, accessed September 2021.
- 1963 (Dec.) Various. Electronic document, <https://usmodernist.org/HH/HH-1963-12.pdf>, accessed September 2021.
- 1968 (May) Various. Electronic document, <https://usmodernist.org/HH/HH-1968-05.pdf>, accessed September 2021.
- 1968 (July) Various. Electronic document, <https://usmodernist.org/HH/HH-1968-07.pdf>, accessed September 2021.
- 1968 (Aug.) Various. Electronic document, <https://usmodernist.org/HH/HH-1968-08.pdf>, accessed October 2021. <https://usmodernist.org/HH/HH-1968-09.pdf>, accessed September 2021.

- 1968 (Sept.) Various. Electronic document, <https://usmodernist.org/HH/HH-1968-09.pdf>, accessed October 2021.
- 1968 (Oct.) Various. Electronic document, <https://usmodernist.org/HH/HH-1968-10.pdf>, accessed October 2021.
- 1968 (Dec.) Various. Electronic document, <https://usmodernist.org/HH/HH-1968-12.pdf>, accessed October 2021.
- 1974 (Mar.) Various. Electronic document, <https://usmodernist.org/HH/HH-1974-03.pdf>, accessed October 2021.
- 1974 (July) Various. Electronic document, <https://usmodernist.org/HH/HH-1974-07.pdf>, accessed October 2021.
- 1974 (Aug.) Various. Electronic document, <https://usmodernist.org/HH/HH-1974-08.pdf>, accessed October 2021.
- 1974 (Oct.) Various. Electronic document, <https://usmodernist.org/HH/HH-1974-10.pdf>, accessed October 2021.
- 1974 (Dec.) Various. Electronic document, <https://usmodernist.org/HH/HH-1974-12.pdf>, accessed October 2021.

#### Housing and Home Finance Agency

- 1964 *Equal Opportunity in Housing. A Series of Case Studies*. Government Printing Office, Washington, DC. Electronic document, <https://www.huduser.gov/PORTAL/sites/default/files/pdf/EQUAL-OPPORTUNITY-IN-HOUSING3-061721.pdf>, accessed August 2021.

Jones, Quincy A.

- Var. UCLA Library. Department of Special Collections. Collection 1692. Jones, A. Quincy, 1913-1979. Papers, 1942-1979. Box 3982.
- 1963 Letter to Thomas D. Rixely, Deputy Assistant Director, Family Housing Standards and Design, U.S. Department of Defense. 12 December. UCLA Library. Department of Special Collections. Collection 1692. Jones, A. Quincy, 1913-1979. Papers, 1942-1979. Box 3912.
- 1967 Memorandum/Record of Telephone Conversation between David Swanson, Department of Defense, Army Corps of Engineers. UCLA Library. Department of Special Collections. Collection 1692. Jones, A. Quincy, 1913-1979. Papers, 1942-1979. Box 3912.
- 1968 Letter to Robert A. Little, Robert A. Little & Associates. 21 October. UCLA Library. Department of Special Collections. Collection 1692. Jones, A. Quincy, 1913-1979. Papers, 1942-1979. Box 3912.

Kennedy, John F.

- 1961 Special Message to Congress on Defense Budget. Electronic document, <https://www.presidency.ucsb.edu/documents/special-message-the-congress-the-defense-budget>, accessed November 2021.
- 1962 "Executive Order 11063—Equal Opportunity in Housing." Electronic document, <https://www.presidency.ucsb.edu/documents/executive-order-11063-equal-opportunity-housing>, accessed August 2021.
- 1963 Letter to Secretary of Defense. 21 June. Electronic document, <http://blackfreedom.proquest.com/wp-content/uploads/2020/09/desearmed1.pdf>, accessed September 2021.

Kunstler, James Howard

1993 *The Geography of Nowhere*. Simon & Schuster, New York, New York.

Library of Congress

n.d. "The Civil Rights Act of 1964: A long Struggle for Freedom." Electronic document, <https://www.loc.gov/exhibits/civil-rights-act/civil-rights-act-of-1964.html>, accessed August 2021.

Little, Robert A.

1963 Letter to Francis D. Lethbridge; A. Quincy Jones, George Matsumoto; and George F. Dalton. 5 December. UCLA Library. Department of Special Collections. Collection 1692. Jones, A. Quincy, 1913-1979. Papers, 1942-1979. Box 3912.

Ludvigsen, Eric C.

1970 "Everyone Talks About Family Housing, But..." *Army*. March.

McAlester, Virginia Savage

2013 *A Field Guide to American Houses*. Alfred A. Knopf, New York, New York.

McNamara, Robert S.

1968 *The Fiscal Year 1969-73 Defense Program and the 1966 Defense Budget*. Electronic document, [https://history.defense.gov/Portals/70/Documents/annual\\_reports/1969\\_DoD\\_AR.pdf?ver=N\\_8787fYup2aOHCCfw91sQ%3d%3d](https://history.defense.gov/Portals/70/Documents/annual_reports/1969_DoD_AR.pdf?ver=N_8787fYup2aOHCCfw91sQ%3d%3d), accessed September 2021

Mitchel, James G.

1982 *Letter to Lawrence J. Korb*. 3 December. Electronic document, <https://www.gao.gov/assets/plrd-83-19.pdf>, accessed September 2021.

Moskos, Charles C.

- 1986 "The American Enlisted Man in the All-Volunteer Army." Published in *Life in the Rank and File*, edited by David R. Segal and H. Wallace Sinaiko. Pergamon-Brassey's, Washington DC.

Murphey, Joseph S.

- 2018 *Historic Resources Inventory. Exterior Survey and National Register Evaluation of 166 Buildings and Structures, Fort Hood, Bell County, Texas. U.S. Army Fort Hood Archeological Resource Management Series. Report 67.* Prepared for Environmental Division, U.S. Army Garrison, Fort Hood. Available from Office of the Assistant Secretary of the Army Installations, Energy and Environment, Washington, DC.

National Institute of Building Sciences

- 2003 *Part 1. Minimum Property Standards for One-and Two-Family Dwellings.* March. Prepared for the U.S. Department of Housing and Urban Development, Office of Policy Development and Research. Electronic document, [https://www.huduser.gov/Publications/pdf/mps\\_report.pdf](https://www.huduser.gov/Publications/pdf/mps_report.pdf), accessed August 2021.

National Park Service

- n.d. *Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places.* Government Printing Office, Washington, DC. Available upon request. Visit <https://www.nps.gov/subjects/nationalregister/publications.htm>, for additional information.
- 1985 *Guidelines for Local Surveys: A Basis for Preservation Planning.* National Register Bulletin 24. Electronic document, [https://www.nps.gov/subjects/nationalregister/upload/NRB24-Complete\\_Part1t.pdf](https://www.nps.gov/subjects/nationalregister/upload/NRB24-Complete_Part1t.pdf), accessed October 2021.

1997 *How to Apply the National Register Criteria for Evaluation*. Electronic document, [https://www.nps.gov/subjects/nationalregister/upload/NRB-15\\_web508.pdf](https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf), accessed October 2021.

Nelson, Robert K., and Edward I. Ayers, ed.

n.d. "Renewing Inequality," *American Panorama*. Electronic document, <https://dsl.richmond.edu/panorama/renewal/#view=0/0/1&viz=cartogram&text=defining>, accessed September 2021.

O'Donnell, Michael

2014 "How LBJ Saved the Civil Rights Act," *The Atlantic*. April. Electronic document, <https://www.theatlantic.com/magazine/archive/2014/04/what-the-hells-the-presidency-for/358630/>, accessed August 2021.

Penick, Monica

2017 *Tastemaker. Elizabeth Gordon, House Beautiful, and the Postwar American Home*. Yale University Press, New Haven, Connecticut.

Peterson, Pat

2008 The Truth About Tonkin. *Naval History Magazine*. Volume 22, Number 1. Electronic document, <https://www.usni.org/magazines/naval-history-magazine/2008/february/truth-about-tonkin>, accessed November 2021.

Pettis, Emily, Amy Squitieri, Christina Slattery, Christine Long, Patti Kuhn, Debra McClane, and Sarah Groesbeck

- 2012 *A Model for Identifying and Evaluating the Historic Significance of Post-World War II Housing*. NCHRP Report 723. Transportation Research Board, Washington, DC. Electronic document, <https://www.nap.edu/catalog/22709/a-model-for-identifying-and-evaluating-the-historic-significance-of-post-world-war-ii-housing>, accessed September 2021.

Plimpton, Kathryn, and Alexandra Kosik

- 2018 “Form 1403b: Post-World War II Residential Suburban Subdivision Form (1945-1975)” presented in *Architectural Inventory and Evaluation of 1970s-Era Family Housing at Fort Carson Army Garrison, Fort Carson, Colorado*. Available from Office of the Assistant Secretary of the Army Installations, Energy and Environment, Washington, DC.

Pratt Institute

- n.d. *Cluster Design: A Look at Brookhaven*. School of Architecture, Pratt Institute, Brooklyn, New York. Electronic document, <https://hdl.handle.net/2027/uc1.b5087505>, accessed August 2021.

President’s Committee on Equal Opportunity in the Armed Forces (President’s Committee)

- 1963 *Equality of Treatment and Opportunity for Negro Military Personnel Stationed within the United States. Initial Report*. 13 June. Electronic document, <http://blackfreedom.proquest.com/wp-content/uploads/2020/09/desegarmed1.pdf>, accessed September 2021.

R. Christopher Goodwin & Associates, Inc.

- 1995 *National Historic Context for Department of Defense Installations, 1790-1940*. Four Volumes. Prepared for U.S. Army Corps of Engineers, Baltimore District, Baltimore, Maryland, by R. Christopher Goodwin & Associates, Inc., Frederick, Maryland.
- 2003 *Housing an Army: The Wherry and Capehart Era Solutions to the Postwar Family Housing Shortage (1949-1962)*. An Historic Context prepared for the U.S. Department of the Army.
- 2019 *The Architecture of Coastal Connecticut, 1900-70: Historic Context and Property Types*. Prepared for the Connecticut State Historic Preservation Office, Department of Economic & Community Development. Hartford, Connecticut.
- 2021 *Army Inter-War Era Housing Historic Context (1919-1940)*. Prepared for the U.S. Department of the Army.

Reed, John J.

- 1963 Letter to A. Quincy Jones, Jones & Emmons. 24 September. UCLA Library. Department of Special Collections. Collection 1692. Jones, A. Quincy, 1913-1979. Papers, 1942-1979. Box 3912.

Richfield, Clare J.

- 2007 *The Suburban Ranch House in Post-World War II America: A Site of Contrast in an Area of Unease, Uncertainty, and Instability*. Unpublished manuscript.

Rixey, Thomas D.

- 1963 Letter to A. Quincy Jones. 11 October. UCLA Library. Department of Special Collections. Collection 1692. Jones, A. Quincy, 1913-1979. Papers, 1942-1979. Box 3912.

- 1964 Letter to A. Quincy Jones. 12 May. UCLA Library. Department of Special Collections. Collection 1692. Jones, A. Quincy, 1913-1979. Papers, 1942-1979. Box 3912.

Rothstein, Richard

- 2017 *The Color of Law*. Liveright Publishing Corporation, New York, New York.

Sarkar, Mousumi

- 2011 "How American Homes Vary by the Year They Were Built," Working Paper No. 2011-18. U.S. Census Bureau. Electronic document, <https://www.census.gov/content/dam/Census/programs-surveys/ahs/working-papers/Housing-by-Year-Built.pdf>, accessed September 2021.

Sherman, Bradford P.

- 2014 "Racial Bias and Interstate Highway Planning: A Mixed Methods Approach," *CURE J: College Undergraduate Research Electronic Journal*, University of Pennsylvania. Electronic document, <https://repository.upenn.edu/cgi/viewcontent.cgi?article=1208&context=curej>, accessed September 2021.

Stewart, Richard W.

- 2010 *American Military History. Volume II: The United States Army in a Global Era, 1917-2008*. Center for Military History, United States Army, Washington, DC. Electronic document, <https://history.army.mil/html/books/030/30-22/index.html>, accessed September 2021.

Truman, Harry S.

- 1948 "Executive Order 9981: Desegregation of the Armed Forces." Electronic document, <https://www.ourdocuments.gov/doc.php?flash=false&doc=84#>, accessed August 2021.

## United States Army

- 1965 Fact Sheet: Percentage of Army Personnel Housed in Government Quarters. 3 June. Memorandum prepared for Chief of Staff, United States Army. Provided by Librarian, U.S. Army Center of Military History.

## United States Army Corps of Engineers

- 1961 *Site Planning of Family Housing Areas. Installations*. EM 210-3-10. 30 November. Electronic document, [https://www.google.com/books/edition/Site\\_Planning\\_of\\_Family\\_Housing\\_Areas/Vpejii2Q43QC?hl=en&gbpv=0](https://www.google.com/books/edition/Site_Planning_of_Family_Housing_Areas/Vpejii2Q43QC?hl=en&gbpv=0), accessed September 2021.

## United States Army Environmental Center

- 1998 *U.S. Army Cold War Era Military-Industrial Historic Properties. Thematic Study and Guidelines: Identification and Evaluation of U.S. Army Cold War Era Military-Industrial Historic Properties*. Electronic document, <https://aec.army.mil/application/files/1214/9505/0216/ADA353034.pdf>, accessed November 2021.

## United States Army Materiel Command, Headquarters

- 1965 *Installations. Family Housing Management*. AMCR 210-11. March. Electronic document, [https://www.google.com/books/edition/Installations/L2oO-\\_btc0UC?hl=en&gbpv=1&dq=Installations.+Family+Housing+Management&printsec=frontcover](https://www.google.com/books/edition/Installations/L2oO-_btc0UC?hl=en&gbpv=1&dq=Installations.+Family+Housing+Management&printsec=frontcover), accessed September 2021.
- n.d. *The Early Years of AMC – 1962-1975*. Electronic document, <http://www.arm.army.mil/>, accessed October 2021.

## United States Census Bureau

- var. <https://www.census.gov/data.html>, accessed September 2021.

- 1965 "Population Estimates," Series P-25, No. 302. 11 March. Government Printing Office, Washington, DC. Electronic document, <https://www2.census.gov/library/publications/1965/demographics/P25-302.pdf>, accessed September 2021.
- 1975 "Population Estimates and Projections," Series P-25, No. 601. October. Government Printing Office, Washington, DC. Electronic document, <https://www2.census.gov/library/publications/1975/demographics/P25-601.pdf>, accessed September 2021.

#### United States Commission on Civil Rights

- 1963 Family Housing and the Negro Servicemen. 1963 Staff Report. Electronic document, [https://www.google.com/books/edition/Family\\_Housing\\_and\\_the\\_Negro\\_Serviceman/83BAAAAIAAJ?hl=en&gbpv=1&dq=Family+housing+and+the+Negro+serviceman&printsec=frontcover](https://www.google.com/books/edition/Family_Housing_and_the_Negro_Serviceman/83BAAAAIAAJ?hl=en&gbpv=1&dq=Family+housing+and+the+Negro+serviceman&printsec=frontcover), accessed September 2021.

#### United States Congress

- 1962a *Military Construction Authorization Fiscal Year 1963. Hearings before the Committee on Armed Services. House of Representatives. Eighty-Seventh Congress. Second Session.* Government Printing Office, Washington, DC. Electronic document, [https://www.google.com/books/edition/Military\\_Construction\\_Authorization\\_Fisc/190tA-AAAMAAJ?hl=en&gbpv=0](https://www.google.com/books/edition/Military_Construction_Authorization_Fisc/190tA-AAAMAAJ?hl=en&gbpv=0), accessed August 2021.
- 1962b *Subcommittee No. 1 Consideration of H.R. 11050, to Amend Section 302 of the Career Compensation Act of 1949, as Amended (37 U.S.C. 252), to Increase the Basic Allowance for Quarters of Members of the Uniformed Services.* Government Printing Office, Washington, DC. Electronic document, [https://www.google.com/books/edition/Subcommittee\\_No\\_1\\_Consideration\\_of\\_H\\_R\\_1/0QNEAQAAMAAJ?hl=en&gbpv=0](https://www.google.com/books/edition/Subcommittee_No_1_Consideration_of_H_R_1/0QNEAQAAMAAJ?hl=en&gbpv=0), accessed August 2021.

- 1962 Public Law 87-554. 27 July. Electronic document, <https://www.govinfo.gov/content/pkg/STATUTE-76/pdf/STATUTE-76-Pg223.pdf>, accessed November 2021.
- 1963 *Military Construction Appropriations for 1964. Hearings Before the Subcommittee of the Committee on Appropriations. United States Senate. Eighty-Eighth Congress. First Session on H.R. 9139.* Government Printing Office, Washington, DC. Electronic document, <https://books.google.ht/books?id=WnwtAAAAMAAJ>, accessed August 2021.
- 1963 Public Law 88-174. 7 November. Electronic document, <https://www.govtrack.us/congress/bills/88/hr6500/text>, accessed November 2021.
- 1964 *Military Construction Appropriations for 1965. Hearings before the Subcommittee of the Committee on Appropriations and the Committee on Armed Services. United States Senate. Eighty-Eight Congress. Second Session on H.R. 11369.* Government Printing Office, Washington, DC. Electronic document, [https://www.google.com/books/edition/Military\\_Construction\\_Appropriations\\_for/kC2DISKqvw4C?hl=en&gbpv=1&dq=military+construction+appropriations+1965&printsec=frontcover](https://www.google.com/books/edition/Military_Construction_Appropriations_for/kC2DISKqvw4C?hl=en&gbpv=1&dq=military+construction+appropriations+1965&printsec=frontcover), accessed August 2021.
- 1964 Public Law 88-390. 1 August. Electronic document, <https://www.govinfo.gov/content/pkg/STATUTE-78/pdf/STATUTE-78-Pg341.pdf>, accessed October 2021.
- 1965a *Military Construction Appropriations for 1966. Hearings Before a Subcommittee of the Committee on Appropriations. House of Representatives. Eighty-ninth Congress. First Session. Parts 1 and 2.* Government Printing Office, Washington, DC. Electronic document, [https://hdl.handle.net/2027/uc1.\\$b655524?urlappend=%3Bseq=621](https://hdl.handle.net/2027/uc1.$b655524?urlappend=%3Bseq=621), accessed August 2021.
- 1965b *Military Construction Appropriations for 1966. Hearings Before a Subcommittee of the Committee on Appropriations. House of Representatives. Eighty-ninth Congress. First Session. Part 4.* Government Printing Office, Washington, DC. Electronic document, <https://hdl.handle.net/2027/uc1.31210019459161>, accessed August 2021.

- 1965c *Military Construction Authorization Fiscal Year 1966. Hearings before the Committee on Armed Services and the Subcommittee on Military Construction of the Committee on Appropriations. United States Senate. Eighty-Ninth Congress. First Session on S. 1771 (H.R. 8439).* Government Printing Office, Washington, DC. Electronic document, [https://www.google.com/books/edition/Military\\_Construction\\_Authorization\\_Fisc/AYG9Admls3QC?hl=en&gbpv=1&dq=Military+Construction+Authorization](https://www.google.com/books/edition/Military_Construction_Authorization_Fisc/AYG9Admls3QC?hl=en&gbpv=1&dq=Military+Construction+Authorization), accessed September 2021.
- 1965 Public Law 89-188. 16 September. Electronic document, <https://www.govinfo.gov/content/pkg/STATUTE-79/pdf/STATUTE-79-Pg793.pdf>, accessed November 2021.
- 1966 Public Law 89-768. 12 September. Electronic document, <https://www.govinfo.gov/content/pkg/STATUTE-80/pdf/STATUTE-80-Pg739.pdf>, accessed November 2021.
- 1967a *Military Construction Appropriations for 1968. Hearings before a Subcommittee of the Committee on Appropriations. House of Representatives. Ninetieth Congress. First Session. Part 1.* Government Printing Office, Washington, DC. Electronic document, [https://www.google.com/books/edition/Military\\_Construction\\_Appropriations\\_for/Esxe7ANs8vUC?hl=en&gbpv=1&dq=military+construction+appropriations+1968&print-sec=frontcover](https://www.google.com/books/edition/Military_Construction_Appropriations_for/Esxe7ANs8vUC?hl=en&gbpv=1&dq=military+construction+appropriations+1968&print-sec=frontcover), accessed September 2021.
- 1967b *Military Construction Authorization Fiscal Year 1968. Joint Hearings before the Subcommittees on Military Construction of the Committee of the Armed Services and the Committee on Appropriations. United States Senate. Ninetieth Congress. First Session on S. 1241 (H.R. 11722).* Government Printing Office, Washington, DC. Electronic document, [https://books.googleusercontent.com/books/content?req=AKW5Qafm-L6UqhTDnK3DpaZjT8sA7yj7G7gc1l\\_qKKQRYoBN5blMXF\\_ensXVTuWDGfQOQAs-jFGSX9Z-ujx7BfjWdBozGShpj0tGg7nDKhF0r1L7lAnyAfTJfCoeuQxmod5CUAoWp\\_de-qKj2OV7zWXIFFIJIN-mvHRtZLeXWcH1i1zAuLN0YO0bbmIz9juGCo741LcFysZzWQ-JM5qOynz-D0COx-4Btc2d0lgZqtjt0ONiv4QTUs9QEcguwmGPG\\_KTzI5wGHhVm-7LXU-vgoWMplpQidlDrKyjpAw](https://books.googleusercontent.com/books/content?req=AKW5Qafm-L6UqhTDnK3DpaZjT8sA7yj7G7gc1l_qKKQRYoBN5blMXF_ensXVTuWDGfQOQAs-jFGSX9Z-ujx7BfjWdBozGShpj0tGg7nDKhF0r1L7lAnyAfTJfCoeuQxmod5CUAoWp_de-qKj2OV7zWXIFFIJIN-mvHRtZLeXWcH1i1zAuLN0YO0bbmIz9juGCo741LcFysZzWQ-JM5qOynz-D0COx-4Btc2d0lgZqtjt0ONiv4QTUs9QEcguwmGPG_KTzI5wGHhVm-7LXU-vgoWMplpQidlDrKyjpAw), accessed September 2021.

- 1967 Public Law 90-110. 21 October. Electronic document, <https://www.govinfo.gov/content/pkg/STATUTE-81/pdf/STATUTE-81-Pg279.pdf#page=32>, accessed November 2021.
- 1968a *Military Construction Authorization Fiscal Year 1969. Joint Hearings Before the Subcommittees on Military Construction of the Committee on Armed Services and the Committee on Appropriations. United States Senate. Ninetieth Congress. Second Session on S. 3225 (H.R. 16703).* April. Government Printing Office, Washington, DC. Electronic document, [https://www.google.com/books/edition/Military\\_Construction\\_Authorization\\_Fisc/zQc3AQAAIAAJ?hl=en&gbpv=1&dq=Military+Construction+Authorization+Fiscal+Year+1969.+Joint+Hearings+Before+the+Subcommittees+on+Military+Construction+of+the+Committee+on+Armed+Services+and+the+Committee+on+Appropriations.+United+States+Senate.+Ninetieth+Congress.+Second+Session+on+S.+3225+\(H.R.+16703\)&printsec=frontcover](https://www.google.com/books/edition/Military_Construction_Authorization_Fisc/zQc3AQAAIAAJ?hl=en&gbpv=1&dq=Military+Construction+Authorization+Fiscal+Year+1969.+Joint+Hearings+Before+the+Subcommittees+on+Military+Construction+of+the+Committee+on+Armed+Services+and+the+Committee+on+Appropriations.+United+States+Senate.+Ninetieth+Congress.+Second+Session+on+S.+3225+(H.R.+16703)&printsec=frontcover), accessed September 2021.
- 1968 Public Law 90-408. 21 July. Electronic document, <https://www.govinfo.gov/content/pkg/STATUTE-82/pdf/STATUTE-82-Pg367.pdf#page=1>, accessed October 2021.
- 1969a *Military Construction Appropriations for Fiscal Year 1970. Hearings before a Subcommittee of the Committee on Appropriations. House of Representatives. Ninety-First Congress. First Session. Part 1.* Electronic document, [https://www.google.com/books/edition/Office\\_of\\_the\\_Secretary\\_of\\_Defense\\_Safeg/nBVEAQAAAMAAJ?hl=en&gbpv=1&dq=Military+Construction+Appropriations+for+Fiscal+Year+1970.+Hearings+before+a+Subcommittee+of+the+Committee+on+Appropriations.+House+of+Representatives.+Ninety-First+Congress.+First+Session&printsec=frontcover](https://www.google.com/books/edition/Office_of_the_Secretary_of_Defense_Safeg/nBVEAQAAAMAAJ?hl=en&gbpv=1&dq=Military+Construction+Appropriations+for+Fiscal+Year+1970.+Hearings+before+a+Subcommittee+of+the+Committee+on+Appropriations.+House+of+Representatives.+Ninety-First+Congress.+First+Session&printsec=frontcover), accessed October 2021.

- 1969b *Military Construction Appropriations for 1970. Hearings Before a Subcommittee of the Committee on Appropriations. House of Representatives. Ninety-First Congress. First Session. Part 3.* Government Printing Office, Washington, DC. Electronic document, [https://www.google.com/books/edition/\\_/BPDhaetVPswC?hl=en&gbpv=0](https://www.google.com/books/edition/_/BPDhaetVPswC?hl=en&gbpv=0), accessed August 2021.
- 1969 Public Law 91-142. 5 December. Electronic document, <https://www.govinfo.gov/content/pkg/STATUTE-83/pdf/STATUTE-83-Pg293.pdf#page=21>, accessed November 2021.
- 1970 *Military Construction Appropriations for 1971. Hearings Before a Subcommittee of the Committee on Appropriations. House of Representatives. Department of the Army. Ninety-First Congress. Second Session. Parts 1 and 2.* Government Printing Office, Washington, DC. Electronic document, [https://www.google.com/books/edition/Military\\_Construction\\_Appropriations\\_for/YUE2AQAAIAAJ?hl=en&gbpv=0](https://www.google.com/books/edition/Military_Construction_Appropriations_for/YUE2AQAAIAAJ?hl=en&gbpv=0), accessed August 2021.
- 1970 Public Law 91-511. 26 October. Electronic document, <https://www.govinfo.gov/content/pkg/STATUTE-84/pdf/STATUTE-84-Pg1204.pdf#page=1>, accessed November 2021.
- 1971 *Military Construction Appropriations for 1972. Hearings Before a Subcommittee of the Committee on Appropriations. House of Representatives. Family Housing. Office of the Secretary of Defense. Ninety-Second Congress. First Session. Part 1.* Government Printing Office, Washington, DC. Electronic document, [https://www.google.com/books/edition/Military\\_Construction\\_Appropriations\\_for/ooS2AAAAIAAJ?hl=en&gbpv=0](https://www.google.com/books/edition/Military_Construction_Appropriations_for/ooS2AAAAIAAJ?hl=en&gbpv=0), accessed August 2021.
- 1971 Public Law 92-145. 27 October. Electronic document, <https://uscode.house.gov/statutes/pl/92/145.pdf>, accessed November 2021.

- 1972a *Military Construction Appropriations for 1973. Hearings Before a Subcommittee of the Committee on Appropriations. House of Representatives. Ninety-Second Congress. Second Session. Part 1.* Government Printing Office, Washington, DC. Electronic document, [https://www.google.com/books/edition/Military\\_Construction\\_Appropriations\\_for/aLcusBakNocC?hl=en&gbpv=0](https://www.google.com/books/edition/Military_Construction_Appropriations_for/aLcusBakNocC?hl=en&gbpv=0), accessed August 2021.
- 1972b *Military Construction Authorization Fiscal Year 1973. Joint Hearing Before the Subcommittees on Military Construction of the Committee on Armed Services and the Committee on Appropriations. United States Senate. Ninety-Second Congress. Second Session on S. 3448.* Electronic document, [https://www.google.com/books/edition/Military\\_Construction\\_Authorization\\_Fisc/et4PAAAAIAAJ?hl=en&gbpv=1&dq=military+construction+authorization+1973&printsec=frontcover](https://www.google.com/books/edition/Military_Construction_Authorization_Fisc/et4PAAAAIAAJ?hl=en&gbpv=1&dq=military+construction+authorization+1973&printsec=frontcover), accessed October 2021.
- 1972 Public Law 92-545. 25 October. Electronic document, <https://www.govinfo.gov/content/pkg/STATUTE-86/pdf/STATUTE-86-Pg1135.pdf>, accessed August 2021.
- 1973a *Military Construction Appropriations for 1974. Hearings Before a Subcommittee of the Committee on Appropriations. House of Representatives. Ninety-Third Congress. First Session. Part 1.* Government Printing Office, Washington, DC. Electronic document, [https://www.google.com/books/edition/Military\\_Construction\\_Appropriations\\_for/uppcyAEACAAJ?hl=en&gbpv=0](https://www.google.com/books/edition/Military_Construction_Appropriations_for/uppcyAEACAAJ?hl=en&gbpv=0), accessed August 2021.
- 1973b *Military Construction Authorization Fiscal Year 1974. Hearings Before Subcommittee No. 5 of the Committee on Armed Services, House of Representatives, Ninety-Third Congress, First Session on H.R. 9005.* Government Printing Office, Washington, D.C. Electronic document, [https://books.googleusercontent.com/books/content?req=AK-W5QacoiA-XqRzw6eRhvi3\\_Rz-32yZgEt\\_1C2lwFtuW8VpENTqrVbr0AsR0Cs-N-OqG1K-0MCFVhvcARLKVfE5TqdbRI1vTL-djwAuGiNpL6ae\\_C1hzR91KIOUJVm5ijCUpp8ygonfw5Rf\\_tnlqzHN3wJvxWZnT4Z4hkhFJgd7vKVgIDVm3kk0PXaW0W-8eCmqQsZNTN-qfzs5g\\_AV5ARayMn2OEN35BucdFRqKiXqwlhLJIMC\\_Hdi6tVMaXZrm3MCXPMhy0MO-qT\\_ByocuXGmxFtXkr3rKicWrw](https://books.googleusercontent.com/books/content?req=AK-W5QacoiA-XqRzw6eRhvi3_Rz-32yZgEt_1C2lwFtuW8VpENTqrVbr0AsR0Cs-N-OqG1K-0MCFVhvcARLKVfE5TqdbRI1vTL-djwAuGiNpL6ae_C1hzR91KIOUJVm5ijCUpp8ygonfw5Rf_tnlqzHN3wJvxWZnT4Z4hkhFJgd7vKVgIDVm3kk0PXaW0W-8eCmqQsZNTN-qfzs5g_AV5ARayMn2OEN35BucdFRqKiXqwlhLJIMC_Hdi6tVMaXZrm3MCXPMhy0MO-qT_ByocuXGmxFtXkr3rKicWrw), accessed September 2021.

- 1973c *Military Construction Appropriations for 1974. Hearings Before a Subcommittee for the Committed on Appropriations. House of Representatives. Ninety-Third Congress. First Session.* Electronic document, <https://www.google.com/search?tbm=bks&q=Military+Construction+Appropriations+for+1974.+Hearings+Before+a+Subcommittee+for+the+Committed+on+Appropriations.+House+of+Representatives.+Ninety-Third+Congress.+First+Session.+Electronic+document>, accessed October 2021.
- 1973 Public Law 93-166. 29 November. Electronic document, <https://www.govinfo.gov/content/pkg/STATUTE-87/pdf/STATUTE-87-Pg661.pdf>, Accessed November 2021.
- 1974a *Military Construction Appropriations for Fiscal Year 1975. Hearings before a Subcommittee of the Committee on Appropriations. United States Senate. Ninety-Third Congress. Second Session on H.R. \_\_\_\_\_.* Electronic document, [https://www.google.com/books/edition/Military\\_Construction\\_Appropriations\\_for/DdrPAAAAMAA-J?hl=en&gbpv=1&dq=Military+Construction+Appropriations+for+Fiscal+Year+1975.+Hearings+before+a+Subcommittee+of+the+Committee+on+Appropriations.+United+States+Senate&printsec=frontcover](https://www.google.com/books/edition/Military_Construction_Appropriations_for/DdrPAAAAMAA-J?hl=en&gbpv=1&dq=Military+Construction+Appropriations+for+Fiscal+Year+1975.+Hearings+before+a+Subcommittee+of+the+Committee+on+Appropriations.+United+States+Senate&printsec=frontcover), accessed October 2021.
- 1974b *Military Construction Appropriation Bill, 1975. United States Senate. Ninety-Third Congress. Second Session. Report No. 93-1302.* Box 21, folder 1975/01/03 HR17468 Military Construction Appropriation Act, White House Records Office: Legislation Files at the Gerald R. Ford Library. Electronic Document, <https://www.fordlibrarymuseum.gov/library/document/0055/1668946.pdf>, accessed October 2021.

- 1974c *Military Construction Authorization Fiscal Year 1975. Hearings before Subcommittee No. 5 of the Committee on Armed Services. House of Representatives. Ninety-Third Congress. Second Session. On H.R. 14126.* Electronic document, [https://www.google.com/books/edition/Military\\_Construction\\_Authorization\\_Fisc/gNAfAAAAMAAJ?hl=en&gbpv=1&dq=Military+Construction+Authorization+Fiscal+Year+1975.+Hearings+before+Subcommittee+No.+5+of+the+Committee+on+Armed+Services.+House+of+Representatives.+Ninety-Third+Congress.+Second+Sessio&printsec=frontcover](https://www.google.com/books/edition/Military_Construction_Authorization_Fisc/gNAfAAAAMAAJ?hl=en&gbpv=1&dq=Military+Construction+Authorization+Fiscal+Year+1975.+Hearings+before+Subcommittee+No.+5+of+the+Committee+on+Armed+Services.+House+of+Representatives.+Ninety-Third+Congress.+Second+Sessio&printsec=frontcover), October 2021.
- 1975a *Military Construction Appropriations for 1976. Hearings Before a Subcommittee of the Committee on Appropriations. House of Representatives. Ninety-Fourth Congress. First Session. Part 2.* Electronic document, [https://www.google.com/books/edition/Military\\_Construction\\_Appropriations\\_for/KoEdAAAAMAAJ?hl=en&gbpv=1&dq=military+construction+appropriations+1976&printsec=frontcover](https://www.google.com/books/edition/Military_Construction_Appropriations_for/KoEdAAAAMAAJ?hl=en&gbpv=1&dq=military+construction+appropriations+1976&printsec=frontcover), accessed October 2021.
- 1984 *Military Housing Allowances: An Analysis of Alternatives for Change.* Staff working paper. Prepared for the Congressional Budget Office. Electronic document, <https://www.cbo.gov/publication/15160>, accessed September 2021.

#### United States Department of the Army

- 1964 *Installations. Family Housing Management.* Army Regulation AR 210-50. August. Rev. 1968. Headquarters, Department of the Army, Washington, DC. Electronic document, [https://p94008.eos-intl.net/ELIBSQL10\\_P94008\\_Documents/Military%20Documents%2010/AR-00210-00050-08071964-04620.pdf](https://p94008.eos-intl.net/ELIBSQL10_P94008_Documents/Military%20Documents%2010/AR-00210-00050-08071964-04620.pdf), accessed September 2021.
- 1965 *Fact Sheet: Percentage of Army Personnel Housed in Government Quarters.* Prepared for Chief of Staff, United States Army. June 3. Provided by U.S. Army Center of Military History, Washington, DC.

- 1966 *Basic Criteria and Construction Standards for Army Facilities*. Technical Manual TM 5-800-1. Headquarters, Department of the Army, Washington, DC. Electronic document, <https://usace.contentdm.oclc.org/digital/collection/p16021coll9/id/1854/rec/26>, accessed September 2021.
- 1968 *Installations. Master Planning for Permanent Army Installations*. Army Regulation AR 210-20. May. Department of the Army, Washington, DC. Electronic document, [https://p94008.eos-intl.net/ELIBSQL10\\_P94008\\_Documents/Military%20Documents%209/AR-00210-00020-05221968-04600.pdf](https://p94008.eos-intl.net/ELIBSQL10_P94008_Documents/Military%20Documents%209/AR-00210-00020-05221968-04600.pdf), accessed September 2021.
- 1972 *Installations. Master Planning for Permanent Army Installations*. Army Regulation AR 210-20. November. Department of the Army, Washington, DC. Electronic document, <https://p94008.eos-intl.net/P94008/OPAC/Common/Pages/GetDoc.aspx?ClientID=MP94008&MediaCode=49388292>, accessed September 2021.
- 2021a *Final Program Comment Plan for Army Vietnam War Era Historic Housing, Associated Buildings and Structures, and Landscape Features (1963-1975)*. 28 December. Office of the Assistant Secretary of the Army Installations, Energy and Environment, Washington, DC.
- 2021b "Vietnam Era Housing Database 10/20/2021." Office of the Assistant Secretary of the Army Installations, Energy and Environment, Washington, DC.

United States Departments of the Army, Air Force, and Navy

- 1969 *Children's Play Areas and Equipment*. TM 5-803-11. Government Printing Office, Washington, DC. Electronic document, <https://usace.contentdm.oclc.org/digital/collection/p16021coll9/id/1786/rec/1>, accessed September 2021.

United States Department of Commerce

- 1975 *U.S. Bureau of the Census, Construction Report-Series C25. Characteristics of new One-Family Homes, 1974.* Government Printing Office, Washington, DC. Electronic document, <https://www.huduser.gov/Publications/pdf/HUD-791.pdf>, accessed October 2021.

United States Department of Defense

- 1964 *Design Folio for Military Family Housing.* Located among the George Matsumoto Architectural Drawings and Others Papers MC 00042. North Carolina State University Special Collections Research Center, Raleigh, North Carolina.
- 1972 *Construction Criteria Manual.* DoD 4270.1-M. 1 October. Office of the Assistant Secretary of Defense (Installations and Logistics). United States Department of Defense. Electronic document, [https://www.google.com/books/edition/Construction\\_Criteria\\_Manual/8SRSAAAAMAAJ?hl=en&gbpv=0](https://www.google.com/books/edition/Construction_Criteria_Manual/8SRSAAAAMAAJ?hl=en&gbpv=0), accessed September 2021.
- 1978 *U.S. Military Personnel in South Vietnam 1960 through 1973: Table P28.01S.* Published in *Institute of Medicine, Veterans and Agent Orange: Health Effects of Herbicides Used in Vietnam*, National Academies Press, Washington, DC, 1994. Provided by Librarian, U.S. Army Center of Military History., Washington, DC.
- 1990 *Selected Manpower Statistics.* Washington Headquarters Services, Directorate for Information, Operations and Reports. U.S. Government Printing Office, Washington, D.C. Electronic document, <https://apps.dtic.mil/sti/citations/ADA235849>, accessed September 2021.
- n.d. *Robert S. McNamara biography.* Historical Office, Office of the Secretary of Defense. Electronic document, <https://history.defense.gov/Multimedia/Biographies/Article-View/Article/571271/robert-s-mcnamara/>, accessed September 2021.

United States Department of Housing and Urban Development

- n.d. "History of Fair Housing." Electronic document, [https://www.hud.gov/program\\_offices/fair\\_housing\\_equal\\_opp/aboutfheo/history](https://www.hud.gov/program_offices/fair_housing_equal_opp/aboutfheo/history), accessed August 2021.
- 1969 *Housing Surveys. Parts 1 and 2. Occupants of New Housing Units, Mobile Homes, and the Housing Supply.* Government Printing Office, Washington, DC. Electronic document, <https://www.huduser.gov/portal/sites/default/files/pdf/Housing-Surveys-Parts-1-and-2-Occupants.pdf>, accessed August 2021.
- 1973a *Minimum Property Standards for One and Two Living Units.* Government Printing Office, Washington, DC. Electronic document, [https://www.google.com/books/edition/Minimum\\_Property\\_Standards\\_for\\_One\\_and\\_Two\\_Living\\_Units/TL\\_m16MII8gIC?hl=en&gbpv=0](https://www.google.com/books/edition/Minimum_Property_Standards_for_One_and_Two_Living_Units/TL_m16MII8gIC?hl=en&gbpv=0), accessed September 2021.
- 1973b *Minimum Property Standards: Multifamily Housing.* Government Printing Office, Washington, DC. Electronic document, [https://www.google.com/books/edition/Minimum\\_Property\\_Standards\\_Multifamily\\_Housing/FVJZAAAIAAJ?hl=en&gbpv=0](https://www.google.com/books/edition/Minimum_Property_Standards_Multifamily_Housing/FVJZAAAIAAJ?hl=en&gbpv=0), accessed November 2021.
- 1974 *Housing in the Seventies. A Report of the National Housing Policy Review.* Government Printing Office, Washington, DC. Electronic document, <https://www.huduser.gov/Publications/pdf/HUD-968.pdf>, accessed September 2021.

United States Department of Justice

- 2021 "The Fair Housing Act." Electronic document, <https://www.justice.gov/crt/fair-housing-act-1>, accessed August 2021.

United States Department of Labor

- n.d. "Legal Highlight: The Civil Rights Act of 1964." Electronic document, <https://www.dol.gov/agencies/oasam/civil-rights-center/statutes/civil-rights-act-of-1964>, accessed August 2021.

United States Department of the Navy

- 1971 *Design Manual. Family Housing*. NAVFAC DM-35. August. Naval Facilities Engineering Command, Washington, DC. Electronic document, [https://www.google.com/books/edition/Design\\_Manual/PfrIcYGEspEC?hl=en&gbpv=1&dq=Design+Manual+35++august+1971&pg=PP1&printsec=frontcover](https://www.google.com/books/edition/Design_Manual/PfrIcYGEspEC?hl=en&gbpv=1&dq=Design+Manual+35++august+1971&pg=PP1&printsec=frontcover), accessed October 2021.

Veterans Administration

- 1971 *Data on Vietnam Era Veterans*. Reports & Statistic Service, Office of Controller, Veterans Administration, Washington, DC. Electronic document, <https://hdl.handle.net/2027/uiug.30112105191735>, accessed August 2021.

Vinson, Fred M.

- 1918 *Shelley et ux v. Kraemer et ux*. Electronic document, <https://tile.loc.gov/storage-services/service/l/usrep/usrep334/usrep334001/usrep334001.pdf>, accessed August 2021.

Weingroff, Richard

- 2017 "The Greatest Decade 1956-1966. Part 2. The Battle of Its Life." Electronic document, <https://www.fhwa.dot.gov/infrastructure/50interstate2.cfm>, accessed September 2021.

Wetzel, James R.

- 1990 "American Families: 75 Years of Change," *Monthly Labor Review*, March, pp. 4-13. Electronic document, <https://www.bls.gov/mlr/1990/03/art1full.pdf>, accessed August 2021.

## **Appendix 1**

### **Current Army Housing Inventory of Vietnam War Era Housing**

## Introduction

This table details the numbers of unit types located at installations by year. The data represent the current inventory of family housing units as reported by the installations and compiled in the “Vietnam Era Housing Database 10/20/2021” provided by the Office of the Assistant Secretary of the Army Installations, Energy and Environment, Washington, DC. Some installations reported no data on the current housing types, resulting in only 5,637 family housing units reported. Demolished units and units classified under other uses are not reflected in the totals. Duplexes were constructed mainly in 1963 and between 1970 and 1975. Multiplex housing and townhouses mostly were constructed between 1964 and 1969.

Installations	Years														
	Structure Type by Units	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	Grand Total
<b>Aberdeen Proving Ground</b>						4									4
TOWNHOME						4									4
<b>Dugway Proving Ground</b>	24	15													39
HOUSING	24	15													39
<b>Fort Benning</b>	304						282		340				366		1292
Duplex	304												366		670
TOWNHOME							282		340						622
<b>Fort Bragg</b>															
(blank)															
<b>Fort Campbell</b>	230														230
Duplex	230														230
<b>Fort Carson</b>	255							150	238	196					839
Duplex								150	8	88					246
Fiveplex	10														10
Fourplex	116								80	108					304
Sixplex	126								150						276
Triplex	3														3
<b>Fort Detrick</b>			40												40
Single family			2												2
TOWNHOME			38												38
<b>Fort Gordon</b>				146	18			381				91	104		740
3-Plex								6							6
4-Plex				60	8			160							228
5-Plex				20				19							39
6-Plex				36	6			32							74
8-Plex					2										2
Duplex				28	2			164				90	104		388
Single				2								1			3
<b>Fort Hood</b>										262	676	894			1832
6-Plex											210				210

Duplex					262	238	894	1394
Quad						228		228
<b>Fort Irwin</b>	<b>120</b>							<b>120</b>
SFH	120							120
<b>Fort Jackson</b>		<b>7</b>	<b>25</b>	<b>68</b>	<b>19</b>			<b>119</b>
5 Plex				10				10
6 Plex			5	19				24
Duplex			8	22	4			34
Quad			12	17	15			44
Single family		7						7
<b>Fort Leavenworth</b>	<b>44</b>							<b>44</b>
4-Plex	44							44
<b>Fort Meade</b>								
(blank)								
<b>Fort Polk</b>								
(blank)								
<b>Fort Riley</b>								
(blank)								
<b>Fort Sill</b>								
(blank)								
<b>Fort Stewart</b>	<b>38</b>							<b>38</b>
Duplex	22							22
Single	16							16
<b>Hawaii</b>					<b>52</b>	<b>193</b>	<b>11</b>	<b>256</b>
Duplex					1			1
Multiplex					51	193		244
Stand Alone							11	11
<b>Joint Base Lewis McChord</b>	<b>10</b>							<b>10</b>
Ranch	10							10
<b>McAlester Army Ammunition Plant</b>				<b>6</b>				<b>6</b>
HOUSING				6				6
<b>Redstone Arsenal</b>						<b>18</b>		<b>18</b>
Single						18		18
<b>Rock Island Arsenal</b>						<b>10</b>		<b>10</b>



## **Appendix 2**

### **Table of Family Housing Units by Installation and Date of Authorization from Legislative Record**



Rocky Mountain Arsenal	CO	44												
U.S. Army Hawaii	HI	250		100					300	300	640	600	1,000	
Fort Benjamin Harrison	IN	100												
Fort Ritchie	MD	179												
Picatinny Arsenal	NJ	40												
White Sands Missile Range	NM	280												
Carlisle Barracks	PA	36				100				60				
Charleston Transportation Depot	SC	10												
Fort Sam Houston	TX	204												
Dugway Proving Ground	UT	67												
Fort Belvoir	VA	200			300		250				150	700		
Fort Lee	VA	100												
Fort Myer	VA	525	120		120		120							
Fort Irwin	CA		65	100										
Fort Ord	CA		200	150										
Fort Carson	CO	280	280					150	240	200	300	200		
Aberdeen Proving Ground	MD		100	100									166	
Fort Detrick	MD		40											
Savanna Army Depot	IL		32											
Sacramento Army Depot	CA								1					
Rock Island Arsenal	IL						50		40					
Natick Laboratories	MA								28					
New Cumberland AD	PA								20					
Presidio of San Francisco	CA			100	150		200							
Two Rock Ranch Station	CA			40										
Fort Sheridan	IL			250										
Fort Jackson	SC			250	180		200		240	300				
U.S. Military Academy, West Point	NY				200					150				
Fort Monroe	VA				50								200	
Fort Bragg/Pope AFB	NC									150	500	136		
Sierra Army Depot	CA										80			

Walter Reed Army Medical Center	DC											300		
U.S. Army Installations, St. Louis	MO											200		
Red River Army Depot	TX												21	
Tobyhanna Army Depot	PA												86	
Camp Drum	NY										88			
Naval Postgraduate School	CA				290									
Hawthorne Ammunition Depot	NV						100							
McAlester Ammunition Depot	OK						30							
Source: United States Congress 1969														
Enrolled Bill H.R. 17468 Military Construction Appropriation Act, 1975 <a href="https://www.fordlibrarymuseum.gov/library/document/0055/1668946.pdf">https://www.fordlibrarymuseum.gov/library/document/0055/1668946.pdf</a>							p.69							

## **Appendix 3**

### **Biographies of Folio of Design Architects**

### **Robert A. Little and George F. Dalton, Associates**

The firm Robert A. Little and George F. Dalton, Associates was based in Cleveland, Ohio. Both architects worked on numerous projects in Cleveland and the surrounding area. George F. Dalton (1915-2011) was a life-long Clevelander; Robert A. Little (1919-2005) was born in Boston and moved to Cleveland during the late 1940s. Dalton attended Cornell University. Little attended Harvard University and studied under Marcel Breuer and Walter Gropius. Dalton helped design what would become the Marine Corps' Camp Lejeune during World War II. Little designed a residential neighborhood in Pepper Pike, a suburb of Cleveland during the early 1950s. The firm was known as Westlake Reed Leskosky before it was acquired by DLR Group in 2016 (Dooley n.d.; Keegan 2016; Segal 2011).

### **A. Quincy Jones and Frederick E. Emmons, Associates**

Archibald Quincy Jones (1942-1979) and Frederick E. Emmons were in partnership between 1951 and 1969. Jones graduated from University of Washington. During his career, Jones was a visiting professor and fifth year design critic and dean of the School of Architecture and Fine Arts at University of Southern California and served as visiting lecturer and design critic at numerous academic institutions in the United States. He also worked for several major corporations, including U.S. Gypsum and U.S. Steel Corporation, as well as the U.S. Department of Defense. He lectured and served on panels around the world (Online Archive of California n.d.).

Frederick E. Emmons (1907-1999) graduated from the Cornell University's College of Architecture, Art, and Planning in 1929. Upon graduation he moved to New York City, where he was employed by McKim, Mead & White. After two years, he moved to Los Angeles. Jones and Emmons formed their partnership in 1950 (Haithman 1999). The firm entered a relationship with Joseph Eichler, which lasted from the early 1950s through the late 1960s (Haithman 1999; USModernist n.d.a). After retiring from architecture, Emmons served as the chairman of the Belvedere, California, city Planning Commission for 13 years (Haithman 1999).

### **Keyes, Lethbridge & Condon**

The Washington, D.C.-based architectural firm of Keyes, Lethbridge & Condon was established in 1958. Earlier iterations of the firm had been established in 1951 under the name Keyes, Smith, Satterlee & Lethbridge. The firm's founding partners, Arthur Keyes, Donald Lethbridge, and David Condon, arrived in Washington during World War II; all three men served in the Navy during the war (Forgey, 1992; Kelly 2015:188).

Vermont native Arthur H. Keyes, Jr. (1917-1912) attended Princeton University (BArch, 1939) and Harvard University (MArch 1942). Like Keyes, David Lethbridge (1920-2008) attended Yale University's school of architecture; he trained with local architects before establishing a firm with Keyes. David Condon (1916-1996) attended the University of California, Berkeley. He also worked for a local Washington architectural firm before joining Keyes and Lethbridge (Kelly 2015:188).

The firm established itself as practitioners of the modern aesthetic during the postwar building boom that occurred in the nation's capital and surrounding suburbs. Many of the firm's commissions were residential; Keyes, Lethbridge & Condon, and its successor firms, designed approximately 2,500 houses for area developers (Forgey 1992).

## George Matsumoto

George Matsumoto (1922-2016) was raised in San Francisco. His architecture studies at the University of California, Berkeley were interrupted when his family was sent to an internment camp in Poston, Arizona. He completed his undergraduate degree at the University of Washington in St. Louis, Missouri. He attended Cranbrook Academy of Art in Michigan, where he studied under Eliel Saarinen. He later worked for Skidmore, Owings, & Merrill in Chicago and Saarinen and Swanson. Matsumoto joined Henry Kamphoefner to start the School of Design at North Carolina State University in Raleigh in 1948 (North Carolina State University Special Collections Research Center n.d.; USModernist n.d.b). He won over 30 awards for his residential designs, and many of his architectural designs were published. He left North Carolina State University in 1961 after taking a faculty position with the College of Environmental Design at the University of California, Berkeley, where he taught until 1967. He continued his architectural practice through 1991, focusing on community centers and collegiate projects (North Carolina State University Special Collections Research Center n.d.).

## References

Dooley, Dennis

n.d. *Robert A. Little, FAIA, Architect, 1919-2005*. Electronic document, [http://clevelandartsprize.org/awardees/robert\\_little.html](http://clevelandartsprize.org/awardees/robert_little.html), accessed October 2021.

Forgey, Benjamin

1992 "The Men Who made Theirs Modern," *Washington Post*. 6 June. Electronic document, <https://www.washingtonpost.com/archive/lifestyle/1992/06/06/the-men-who-made-theirs-modern/87892612-d5f3-4521-b08c-c1725f6cc1af/>, accessed October 2021.

Haithman, Diane

1999 "Frederick E. Emmons; Retired L.A. Architect," *Los Angeles Times*. 28 August. Electronic document, <https://www.latimes.com/archives/la-xpm-1999-aug-28-mn-4441-story.html>, accessed October 2021.

Keegan, Edward

2016 "DLR Group Acquires Westlake Reed Leskosky." *Architect*. Electronic document, [https://www.architectmagazine.com/practice/dlr-group-acquires-westlake-reed-leskosky\\_o](https://www.architectmagazine.com/practice/dlr-group-acquires-westlake-reed-leskosky_o), accessed October 2021.

Kelly, Clare Lise

2015 *Montgomery Modern. Modern Architecture in Montgomery County, Maryland, 1930-1979*. Maryland-National Capital Park and Planning Commission, Silver Spring, Maryland.

North Carolina State University Special Collections Research Center

n.d. *George Matsumoto Architectural Drawings and Others Papers 1930-2009*. Electronic document, <https://www.lib.ncsu.edu/findingsaids/mc00042/summary>, accessed October 2021.

Online Archive of California

n.d. "A. Quincy Jones Papers, 1942-1979." Electronic document,  
<https://oac.cdlib.org/findaid/ark:/13030/tf0j49n6wn/admin/#did-1.2.1>,  
accessed October 2021.

Segal, Grant

2011 "George F. Dalton was A Leading Local Architect: News Obituary," *The Plain Dealer*. 12  
September. Electronic document,  
[https://www.cleveland.com/obituaries/2011/09/george\\_f\\_dalton\\_was\\_a\\_leading.html](https://www.cleveland.com/obituaries/2011/09/george_f_dalton_was_a_leading.html),  
accessed October 2021.

USModernist

n.d.a *Archibald Quincy Jones, FAIA (1913-1976)*. Electronic document,  
<https://usmodernist.org/qjones.htm>, accessed October 2021.

n.d.b *George Matsumoto, FAIA (1922-2016)*. Electronic document,  
<https://usmodernist.org/matsumoto.htm>, accessed October 2021.

## **Appendix 4**

### **List of Architects Who Designed Vietnam War Era Housing**

## APPENDIX 4: LIST OF CONTRACTORS AND ARCHITECTS

Year of Contract	Installation Name	Architect/Contractor	Notes	Source
1965	Fort Irwin, CA	Quiller Construction Company, Inc., Los Angeles, CA	100 units of family housing under small business set-aside	U.S. Congress 1965:Part 2:18
1965	Aberdeen Proving Ground, MD	Security Construction Company, Richmond, VA	100 units of family housing under small business set-aside	U.S. Congress 1965:Part 2:18
1965	Presidio of San Francisco, CA	Lincoln-Winn, Orinda, CA	100 units of family housing under small business set-aside	U.S. Congress 1965:Part 2:18
1965	Fort Ord, CA	Dale Building Company, Beverly Hills, CA	100 units of family housing under small business set-aside	U.S. Congress 1965:Part 2:18
1965	Fort Gordon, GA	Wise, Simpson, Aiken & Associates, Architects-Engineers, Atlanta, Georgia	Housing at Gordon Terrace and McNair Terrace	Survey rpt 2005
1963	Fort Detrick, MD	Donald Grigsby, Contractor, Mount Airy, MD	38 units of family housing	Drawing
1963	Fort Detrick, MD	McGaughan & Johnson, Washington, D.C.	2 single-family houses	Drawing
1967	Fort Jackson, SC	Lake McDonald Inc., Vidalia, GA	180 units of family housing under small business set-aside	U.S. Congress 1969:Part 2:95
1967	Fort Meade, MD	Security Construction Company, Inc. [Richmond, VA]	340 units of family housing under small business set-aside	U.S. Congress 1969:Part 2:95
1968	Hawthorne Naval Ammunition Depot, NV	Jacobson Construction Co., Inc. 1919 North Temple, Salt Lake City, Utah	100 units of family housing under small business set-aside	U.S. Congress 1969:Part 3:217
1968-1969	Fort Gordon, GA	Wise, Simpson, Aiken & Associates, Architects-Engineers, Atlanta, Georgia	200 Housing Units	Survey rpt 2005
	Fort Leavenworth	Neville E. Sharp & Simon Architects-Engineers; Herbert E. Duncan Architects, Inc.; R. Bruce Widstrom, Associates, Inc., Urban Planners Incorporated, Architects; Urban Sysms Development Corporation, Developer	96 MCA duplex units completed in 63; 250-FGO townhouse project for FY 66, 68, 69 completed in 1969; 100-unit FGO townhouse project, 1970; 150-unit townhouse project completed in 1971	Drawings provided by Fort Leavenworth
1969	Fort Jackson, SC	Northeast Construction of West Virginia, Albuquerque, NM	160 units of family housing under small business set-aside	U.S. Congress 1970:50
1969	Fort Stewart, GA	Southwide Construction Co., Augusta, GA	120 units of family housing under small business set-aside	U.S. Congress 1970:50

1969	Redstone Arsenal, AL	Ranger Construction Co., Huntsville, AL	170 units of family housing under small business set-aside	U.S. Congress 1970:50
1969	Presidio of San Francisco, CA	Cannon Construction Corp., Beverly Hill, CA	102 units of family housing under small business set-aside	U.S. Congress 1970:50
1969	Fort Monmouth, NJ	Hall Construction Co., Inc., Little Silver, NJ	100 units of NCO family housing under small business set-aside	U.S. Congress 1970:50
1971	Sacramento Army Depot, CA	Streng Bros. Homes Inc. Sacramento CA	Single unit, family housing	U.S. Congress 1972a:164
1974-1975	Fort Gordon, GA	Cooper Carry & Associates, Atlanta, Georgia	200 units family housing	Fort Gordon drawings
1975	Camp Drum, NY	Ballard Construction Inc., Syracuse NY	88 family housing units	U.S. Congress 1974a:52
1975	Natick Laboratories, MA	Sydney Construction Co., Inc., Newtown Highlands, MA	Design and construction of 28 family housing units	U.S. Congress 1974a:52

## **Appendix 5**

### **Chapter 16 – *Construction Criteria Manual, 1972***

## CHAPTER 16

### FAMILY HOUSING FACILITIES CRITERIA

#### 16-1 APPLICABILITY

A. This chapter sets forth the policy, standards and criteria pertaining to the design, construction and improvement of all military family housing in the United States and its possessions, and in foreign countries regardless of the source of funds or method of procurement used. Any exceptions and/or waivers, statutory limitations excepted, shall require the prior approval of the Deputy Assistant Secretary of Defense (Installations and Housing) (DASD(I&H)).

B. These criteria are applicable to the construction and improvement of family housing facilities, including that procured by turnkey procedures. Where specific criteria are not included, the general criteria presented in preceding chapters are applicable. Therefore, for the design of these facilities, this chapter must be used in conjunction with the remainder of this Manual.

#### 16-2 OBJECTIVES

16-2.1 **QUALITY:** The goal of the military family housing construction program is to provide, at the earliest practical beneficial occupancy date, new housing of the highest possible quality within the space and cost limitations set by the Congress, and at the most reasonable cost considering both initial investment and ultimate maintenance costs. Special emphasis shall be placed on obtaining the best practical, functional and aesthetic design for each project, both with respect to living units and site. Another goal is to pursue a vigorous program for the improvement of existing public quarters in order that obsolescence may be continuously eliminated.

16-2.2 **REGIONAL CONSIDERATIONS:** Design of housing projects shall be adapted, insofar as practicable, to climatic conditions, construction materials, and building techniques prevailing in the region, except that these criteria shall take precedent.

16-2.3 **COMPARABILITY:** It is intended that these standards and criteria shall be applied uniformly to the design of housing projects in such a way that regardless of geographic location, method of funding or procurement, the resultant housing units and the site development shall be comparable with respect to the scope, equipment, quality and livability of the accommodations provided.

16-3.1 NET AREAS: Sections 4774, 7574, and 9774 of Title 10, U. S. Code, establish net area limitations for family housing constructed with appropriated funds. These regulations shall apply to all family housing including rental guaranty and surplus commodity housing in foreign countries. Public Law 91-142 authorized a permissible increase of 15 percent to the statutory floor areas included in Title 10, U. S. Code to permit award of turnkey construction contracts. The intent of this language is to permit turnkey proposers to utilize "off-the-shelf" house designs currently being constructed in the commercial marketplace. This 15 percent increase is not permitted where plans submitted by turnkey proposers are designed specifically for the military family housing project or where designs are not currently being offered to the commercial market. In all other cases, the proposers' submissions shall not reflect a decrease in the statutory net areas or the administrative net areas stipulated in 16-3.1.A that is greater than 2 percent.

A. Net Area Definition. Includes that space inside exterior and party walls. Excludes (1) unfinished basement or service and bulk storage space in lieu of basement; (2) attic; (3) garage; (4) carport; (5) open or screened porches and stairwells; and (6) in multi-family dwellings, common stairways, halls and entries. Net area shall be calculated as indicated in the Department of Defense Design Folio for Military Family Housing.

B. Enclosed Porches. In localities subject to adverse weather conditions, such as wind driven mist and/or noxious atmosphere, open porches may be enclosed with appropriate fenestration and/or screening and not considered to increase the net area of the quarters, provided that heat and/or air conditioning is not added and the basic character of the enclosed area is still that of a porch.

C. Size of Living Units by Bedroom Count. Statutory floor area limitations apply only to the maximum size of living units by personnel rank or grade without regard to the number of bedrooms provided, except for 4 and 5-bedroom units for enlisted personnel and company grade officers. Administratively, all 2-bedroom units shall not exceed 950 square feet. It is not contemplated that 2-bedroom units will be built for occupants in the grade of major or equivalent or higher, and that only 4-bedroom units will be built for senior officers, such as colonels or equivalent, or higher.

**16-3.2 COSTS:** Annual authorization acts establish cost limitations for new family housing constructed with appropriated funds for the specific program under consideration. The applicable cost limitations shall be verified prior to the issuance of design directives.

**A. Overseas.** Specific cost limitations for new construction will be included in the annual program development guidance, issued by the DASD(I&H) for Alaska, Hawaii and other overseas locations.

**B. Application.** Cost limitations shall include the cost of advance planning and design.

#### **16-4 DESIGN POLICY, STANDARDS AND CRITERIA**

**16-4.1 APPLICABLE GUIDANCE:** The design of housing projects shall conform to the policy and standards established by the following:

(a) DoD Design Folio for Military Family Housing (short title, Design Folio)

(b) DoD Guide Specifications for Military Family Housing (short title, DoD 4270.21-SPEC)

The DASD(I&H) shall publish, revise, as necessary in coordination with the Military Departments, and distribute separately from this Manual, the guidance listed above in items (a) and (b) of section 16-4.1.

#### **16-4.2 SITE PLANNING**

**A. Master Plans.** Master plans shall be revised to reflect the current five-year plan for the programming of family housing. Housing projects to be constructed at installations with planned future housing increments shall be designed as a part of an overall housing siting plan reflecting the OSD approved five-year plan. In revising master plans, cognizance shall be taken of the safety and noise criteria included in Chapter 4.

**B. Land Use Intensity (LUI).** Project site plans shall be in accordance with the LUI principles and criteria included in the site planning section of the Design Folio and shall conform with the criteria in Table 16-1.

TABLE 16-1 LIVING UNITS LAND USE INTENSITY

Grade	Land Use Intensity	
	Target	Acceptable Range
Enlisted and Company Grade Officers	4.1	4.0 to 4.5
Field Grade Officers		
Single Units	3.2	3.0 to 3.5
Semi-detached Units	3.7	3.5 to 3.9
Colonels	3.0 <sup>1/</sup>	-
General Officers	2.7 <sup>1/</sup>	-

<sup>1/</sup> This figure represents the normal design effort; however, due to the small number of such units usually involved in any project, site planning should be on a project case basis.

C. Land Use Intensity (LUI) Computations. LUI ratios shall be determined for each new construction project in conformance with sheet 2 of 19, Site Planning, in the Design Folio, and reported at the time project funding is requested. Where projects are to be accomplished by turnkey procedures, target LUI's shall be reported with fund request and included in RFP.

D. Building Separation. One-story single units shall normally be sited so that party (or end) walls are not closer than 20 feet apart (10 foot side yards) and under no condition closer than 15 feet apart (7-1/2 foot side yards). End units of row and duplex units and two-story single units shall normally be sited 25 feet from adjacent end units of row or duplex units or two-story single units, and under no condition closer than 20 feet to adjacent end units of row or duplex units.

E. Safety and Noise Considerations. See Chapter 4, Site Planning Criteria.

F. Landscaping. Shall conform to the following:

(1) Planting. Existing trees and ground cover shall be retained to the maximum practicable extent. An economical selection of seeding, sodding, and/or sprigging shall be provided for stabilization of finished grades. Simple, easily maintained plantings of appropriate trees and shrubs, with emphasis on area environment rather than unit treatment, shall be provided.

(2) Underground Sprinklers. Underground sprinkler systems may be provided only for common use areas in arid regions.

G. Off-Street Parking. Every effort shall be made to include off-street "private driveway parking" in basic designs. Driveway lengths shall be limited to space for two cars, one under cover and one in the open. Indented, gang parking areas are not considered to be off-street parking.

H. Trash and Garbage Collection. Appropriate architecturally treated screening of trash and garbage containers at each individual living unit shall be provided. The use of detachable, centrally located trash containers, centrally placed can collection buildings, and/or other similar systems for central deposit and collection of trash in family housing areas is prohibited, except for low rise (walkup type) and high rise apartment buildings. The Assistant Secretary of the Army (Installations and Logistics), the Assistant Secretary of the Navy (Installations and Logistics) and the Assistant Secretary of the Air Force (Installations and Logistics) are delegated authority to approve exceptions to these criteria where it is shown during project design that central trash deposit and collection systems (1) can be located and appropriately architecturally screened in a manner that they will not be visible from the main approach to units or clusters; (2) will not impede pedestrian and auto traffic, nor reduce the number of planned parking spaces; and (3) will not create a hazard to small children or a sanitary, rodent, or odor nuisance for the occupants.

### 16-4.3 LIVING UNITS

A. Definitive Plans. The definitive plans included in the Design Folio are to be the basis for design development of all conventionally constructed family housing units, and shall serve as the minimum design quality expected from both a functional and aesthetic standpoint for all units procured under turnkey procedures. Designs based on modification of the Design Folio definitives or on plans not currently included in the Design Folio, shall require the prior clearance of the ODASD(I&H). It is recognized that minor revisions will be necessary to accommodate various methods of structural framing and/or piping for the plumbing or duct work for the heating and cooling systems. The types of materials, sizes of glass areas, construction details, etc., shown on the drawings are not intended to be mandatory, but shall be adapted to local conditions and requirements, and be compatible with the existing housing.

B. Type of Living Unit. Multi-story, row type townhouses interspersed with some single-story and/or two-story duplex units for

variety, shall normally be utilized for enlisted personnel and company grade officers, regardless of procurement procedure used. Consideration shall be given to this type of housing for field grade officers in high construction cost areas or where available land is scarce and/or expensive. Twenty percent of the units for enlisted personnel and twenty percent of the units for company grade officers in a particular project may be single-story units and an equal percentage may be two-story duplexes to provide site planning and additional variety. Single-story units, referenced above, shall be either in duplex configurations or connected to the ends of two-story row type townhouses. Two-bedroom requirements can be most economically realized in the one-story units or flats in two-story buildings. At project sites involving steep gradients, extreme care shall be taken to select unit types which most efficiently and economically adapt to the site with minimum change in existing contours. Single units and apartment units may be provided as follows:

(1) Single Units. Single units may be provided for majors or equivalent or higher, except that for overseas housing projects single units may be provided only for colonels, Navy captains and flag officers.

(2) Apartment Houses. Consideration shall be given to apartment type living units at installations with missions which include schools and/or special training activities requiring permanent change of station, but less than a full length tour.

16-4.4 COMPLETE PROJECTS OF BASIC ADEQUACY: A completely adequate, fully equipped housing project in accordance with the provisions of this chapter, including all required elements, finishes, equipment, and basic site improvements, shall be provided from the construction funds specifically designated for the project under the base bid.

A. Living Units. Shall include the following mandatory items:

- (1) Range
- (2) Refrigerator of appropriate size
- (3) Adequate kitchen cabinet and counter space
- (4) Kitchen exhaust fan
- (5) Garbage disposers, except at those installations with inadequate sewage disposal systems.

(6) Dishwashers

(7) All two-story living units shall have a powder room on the ground floor (the floor containing the kitchen).

(8) Finishes for bathrooms and powder rooms, including use of plastic tub/shower units and ceramic tile wainscots shall be as stipulated in DoD 4270.21-SPEC.

(9) Interior finish for all areas shall be one of those stipulated in DoD 4270.21-SPEC, except that resilient floor finish in kitchens, bath and powder rooms shall be sheet vinyl. Asphalt tile and carpeting shall not be used.

(10) Air conditioning when permitted in accordance with Chapter 8. Alternate provision for the installation of occupant-owned air conditioning units is prohibited.

(11) Auxiliary (storm) sash when authorized and an option for double glazing in lieu thereof (see Chapter 5).

(12) Utility connections and dryer vent for occupant-owned clothes washers and electric clothes dryers.

(13) Screens

(14) Venetian blinds or window shades or drapes.

(15) Adequate bulk storage space (see Section 16-4.5.G)

(16) Telephone outlets (see Section 16-4.5.G)

(17) Courtyards and outdoor gardens are essential to the livability of townhouses. Walls, privacy fencing, paving, and landscaping necessary to achieve the required privacy and appearance shall be provided under the basic bid. Fenced service and drying yards shall not be provided. Sleeves may be provided in patio slabs to receive removable clothes drying devices.

B. Site Improvements. Shall include the following mandatory features:

(1) Complete utility services

(2) Required roads, driveways, parking, walks, and street lighting.

- (3) Basic landscaping
- (4) Adequate drainage
- (5) Screened pads or racks and enclosures for refuse cans
- (6) Safety fencing when required (see Section 16-4.11. A)
- (7) Project master meters for electric, water, and gas utilities when required to obtain "bulk" utility rates (see Section 16-4.12)

16-4.5 ARCHITECTURAL CRITERIA

A. Types of Construction and Finishes. Types of construction, materials and finishes shall be selected for economy as well as durability, with initial cost balanced against maintenance and operating costs. Only those materials permitted by DoD 4270.21-SPEC shall be used. Newly developed materials not included in 4270.21-SPEC may be used in limited applications with prior clearance from the headquarters of the Military Department involved. Such materials may not be used extensively until such time that quality and durability are assured and appropriate specifications are included in 4270.21-SPEC.

B. Design Requirements for Heating and Cooling. As follows:

(1) Insulation and Heat Transfer. Living units shall be designed so that the overall heat transmission coefficients will not exceed those given in Table 16-2.

TABLE 16-2 MAXIMUM "U" FACTORS  
"U" Factor <sup>1/</sup>

Element	"U" Factor <sup>1/</sup>	
	Warmer Areas <sup>2/</sup>	Cooler Areas <sup>3/</sup>
Upper story ceilings	0.05	0.07
Exterior walls	0.10	0.20
Overhanging floors and floors over unheated spaces (slab-on-grade floors in locations having more than 3,500 heating degree days annually shall be provided with perimeter insulation one-inch thick).	0.10	0.20

1/ In specific cases, consideration shall be given to decreasing these factors so smaller capacity heating or cooling equipment may be used. An economic study, based on a 25-year life, shall be made to determine whether smaller factors would result in a lower total cost.

2/ Wet bulb temperature of 67°F or higher 1,000 or more hours during the six warmest months of the year.

3/ Wet bulb temperature of 67°F or higher less than 1,000 hours during the six warmest months of the year.

(2) Design Considerations for Cooling. To reduce solar heat penetration and facilitate cooling, consideration shall be given to the following design features in addition to those contained in Chapter 4:

(a) Reduced window and glass areas, particularly those facing west and southwest, and increased use of fixed windows.

(b) Roof surfaces of high reflectivity.

(c) Location of car shelters on the west or southwest sides of living units.

(d) Use of existing trees and new basic plantings.

C. Industrialization. Housing shall be designed in accordance with the principles of modular measure to permit construction by conventional or industrialized methods.

D. Basements. Basements shall be considered where sites and costs permit, especially for two-story units and in cold climates requiring deep footings. Basements should be provided with natural light and ventilation to the maximum extent possible.

E. Habitable Rooms. The Design Folio indicates the desired arrangement and minimum dimensions of habitable rooms in living units. In addition, ceiling heights in habitable rooms shall be not less than 8'-0", and the clear finished width of living rooms shall be not less than 12'-0".

F. Car Shelters. Carports may be provided at the rate of one per living unit. Garages in lieu of carports may be provided in locations where the winter design temperature is  $-10^{\circ}\text{F}$  or colder, and in locations where constant exposure to salt air or high winds require enclosed shelter.

G. Outdoor Living Facilities. A terrace or porch arranged for privacy from adjacent units, shall be provided for each living unit.

H. Bulk Storage Requirements. General storage space shall be provided for houses which do not have basements or have basements without easy outdoor access or do not have usable attic space. The space shall be divided between the interior and exterior of the unit, and shall conform to Table 16-3.

TABLE 16-3 GENERAL STORAGE SPACE CRITERIA FOR HOUSING WITHOUT BASEMENTS OR USEABLE ATTICS

Type of Unit	Combined Total of Exterior and Interior <sup>1/</sup> Storage in Square Feet					
	2-Bedroom		3-Bedroom		4-Bedroom	
	Max.	Min.	Max.	Min.	Max.	Min.
Enlisted & Company Grade Officers	70	40	85	50	100	60
Field Grade & Senior Officers	-	-	110	50	120	60
General Officers or Equivalent	-	-	-	-	200	60

<sup>1/</sup> The minimum area of exterior storage space shall be 24 square feet for 2 and 3-bedroom units and 30 square feet for 4-bedroom units. Such space should be at least 4 feet in depth.

I. Closet Requirements. Minimum closet sizes shall normally be provided in accordance with Table 16-4.

TABLE 16-4 CLOSET ALLOWANCE CRITERIA

Area or Room	Minimum Width in Feet <sup>1/</sup>				
	EM	CGO	FGO	Colonel Navy Captain	General or Admiral
Entry Hall	3	3	4	4	5
Bedroom No. 1	6	6	8	8	10
Bedroom No. 2	4	4	6	6	6
Bedroom No. 3	3	3	4	4	4
Bedroom No. 4	3	3	3	3	3
Linen	2	2	3	2	4

<sup>1/</sup> Normal clear depth shall be 2 feet, 2 inches except that linen closets may be 16 inches deep. Widths listed above which exceed 4 feet may be divided between two closets. The closet width shall not extend beyond either jamb more than 1/4 the width of the door opening.

J. Bathrooms. The number of bathrooms in any single living unit shall conform to the following:

(1) Two-bedroom Units. One full bath in one-story units. One and one-half baths in two-story units.

(2) Three-bedroom Units. Maximum of two full baths, except that two-story, 3-bedroom field grade officer units may have two and one-half baths (including the powder room, with the private bath off the master bedroom having either a shower stall or tub unit).

(3) Four and Five-bedroom Units. Normally two full baths, except that in a two-story unit an additional one-half bath (powder room) shall also be provided on the main floor.

(4) Option. One full bath and two one-half baths may be provided in lieu of two full baths. A maximum of two and one-half baths may be provided in 3-bedroom field grade officers units when one of the bedrooms and a full bath is located on a different floor level from the other two bedrooms. An additional bath may be provided when required for domestics in quarters of flag officers, and colonels and Navy captains who are commanders of installations.

K. Exterior Wall Surfaces. Exterior wall surfaces shall be one of the materials included in the DoD 4270.21-SPEC and appropriate for the locale which will result in minimum maintenance. Aluminum siding may be specified only on the upper part of living units where it will not be subject to physical damage, but in no case closer than 6 feet to finish grade. Aluminum siding shall not be installed on family housing in areas having a history of recurrent, severe hail storms.

L. Interior and Exterior Paintwork. Appropriate paint systems and paint colors shall be selected from those included in the DoD 4270.21-SPEC.

16-4.6 ELECTRICAL CRITERIA: The completed installation shall comply with all applicable requirements of the National Electrical Code.

A. Underground Installation. Underground installation of the secondary electrical service shall be a base bid item. Bidding documents shall include secondary overhead electrical as a deductive alternate. Contract award for underground installation of the secondary service in excess of \$100 premium per unit shall not be made without prior approval of the DASD(I&H); and conversely, when the premium is \$100 or less, the underground installation shall normally be incorporated into the contract.

**B. Service Panels.** Load center panelboards for individual living units shall be of the plug-in circuit breaker type. Capacities for the various types of living units shall conform with the provisions of DoD 4270.21-SPEC. Service panels shall be located in the utility room or other service area in such a manner as to provide convenient access. Panels and panelboards should not be exposed in living areas.

**C. Wiring.** Maximum use shall be made of non-metallic sheathed cable for branch circuit wiring, and of service entrance cable for heavy-duty interior circuits, as well as for service entrance conductors. Installed conductors in rigid conduit or electrical metallic tubing shall be used only where specifically required by the National Electrical Code.

**D. Convenience Outlets for Occupant-Owned Air Conditioners.** Since window type air conditioning units have a high noise level, poor filtration and a high energy consumption, the use of such units is discouraged. However, when necessary a maximum of two electrical outlets per family housing unit may be provided. Only 208 (230) volt 20 ampere capacity outlets shall be used for this purpose. Outlets may be provided under the following conditions:

(1) **Existing Facilities.** Where the wet-bulb temperature is 67° F or higher for 1,000 to 1,400 hours during the six warmest months of the year. A maximum of two such outlets per living unit may be provided. However, family housing units so provided will be precluded from receiving a central air conditioning system for a period of 10 years.

(2) **New Facilities.** Where the wet-bulb temperature is 67° F or higher for 800 to 1,000 hours during the six warmest months of the year. However, family housing units so provided will be precluded from receiving a central air conditioning system for a period of 10 years thereafter.

#### 16-4.7 TV ANTENNA CRITERIA

**A. Master TV Antenna System.** A master television antenna system may be provided only when adequate reception of the nearest television station(s) cannot be obtained on the most efficient type of indoor antenna. Prewired TV antenna outlets are limited to two per living unit. In living units with attic space, consideration should be given to installing the antenna in the attic space. The use of rooftop antennas is prohibited.

**B. Community Antenna Television (CATV) Facilities.** The provision of TV distribution service to military personnel on U. S. bases is normally a matter between local base commanders and local business interests, or between local business interests and occupants of military family housing. General guidance as to the provision of this service is provided by the Military Departments concerned. Since the needs for this type of service depend on varying circumstances at individual locations, there are no general criteria for service-wide requirements. As a general rule, where the service is provided it is paid for by the individual subscriber in a manner similar to payment for telephone service. Appropriated funds shall not be used in providing this service.

**16-4.8 TELEPHONE FACILITIES:** The furnishing of telephone facilities for family housing is excluded from the Defense Family Housing Property Account. However, empty, thin wall conduit may be provided to a telephone outlet plate to facilitate future installation of telephone. This procedure should be a requirement for industrialized housing where interior finish is factory applied. Such provision is limited to two outlets, and it is recommended that one be provided in the kitchen and the other in the master bedroom.

**A. Telephone Company Participation.** Experience indicates that normally when the local telephone company is given notice of the forthcoming construction, the telephone company will wire the outlets (at no cost to the contractor or to the Government) during construction. This practice is encouraged, and in such instances, the aforementioned limitation of two outlets does not apply.

**B. Government-Furnished Telephone Service.** Government-furnished telephone service to family housing units shall be in accordance with DoD Directive 4640.3, "Unofficial Telephone Service at Military Activities", and DoD Instruction 4640.4, "Standard Rates for Unofficial Telephone Service at DoD Installations".

**16-4.9 HEATING, COOLING AND VENTILATION CRITERIA:** Heating systems and air conditioning systems shall be combined in locations where air conditioning is authorized. In a project where air conditioning is not currently authorized but where the wet bulb temperature is 67°F or higher 800 hours or more during the six warmest months of the year, the heating system shall be of the warm air type designed to be readily and economically adaptable to the addition of air conditioning. Sufficient space shall be provided for the installation of future air conditioning equipment and access for the maintenance thereof.

A. Heating. Selection of the method of heating for family housing shall be based upon an economic study of all locally available fuels, including electricity. The local public utilities commission or appropriate regulatory agency shall be consulted regarding the history of rate increases and the possibility of increases in the foreseeable future. The lowest cost source of heat, considering all factors, shall be selected. Controls shall conform to the following:

(1) Thermostats. All heating thermostats shall be adjustable up to a maximum setting of 75°F; thermostats with higher settings and locking devices set in the field at 75°F shall not be used.

B. Humidifying. Humidification equipment shall be installed in all warm air heating systems in housing located in areas having more than 3,000 heating degree days. Humidistats or direct on-off controls may be used.

C. Cooling and Ventilation. Air conditioning (central type) or mechanical ventilation shall be provided in accordance with and shall be installed in all units which qualify under the provisions of Chapter 8. Controls shall conform to the following:

(1) Thermostats. All air conditioning thermostats shall be adjustable down to a minimum setting of 75°F; thermostats with lower settings and locking devices set in the field at 75°F shall not be used. Thermostats with provisions for automatic change-over between air conditioning control and heating control shall not be used.

16-4.10 PLUMBING CRITERIA: The plumbing system shall be installed in accordance with the provisions of the National Plumbing Code, and in compliance with the following criteria:

(1) Plumbing Stacks. Common plumbing stacks serving one or more dwelling unit shall be used to the maximum extent practicable.

(2) Cut-Off Valves. Interior main water service cut-off valves shall be provided in lieu of curb service stops. A water cut-off valve shall also be provided on the cold water supply at the water heater.

(3) Pipe Insulation. Pipe insulation shall not be installed on water lines that are located in heated spaces or in spaces not subject to freezing.

(4) Plumbing Fixtures. Selection of plumbing fixtures shall be in strict compliance with the provisions of the DoD 4270.21-SPEC.

16-4.11 **INSTALLED EQUIPMENT:** Each living unit shall be provided with a range, refrigerator, kitchen exhaust fan, dishwasher, water heater, and utility connections and dryer vent for a clothes washer and electric clothes dryer. Garbage disposers will be provided where the sewage disposal systems are adequate.

A. Procurement. Refrigerators, ranges, dishwashers, domestic water heaters, and garbage disposers shall be procured through the General Services Administration (GSA), and furnished to the contractor as Government-furnished equipment (GFE). The following information shall be included in orders to GSA for this equipment:

(1) Refrigerators. Size selected from Table 16-5; Type IV, Grade A of Federal Specification AA-R-211; color white.

TABLE 16-5 REFRIGERATOR ALLOWANCE CRITERIA <sup>1/</sup>

Unit	Size
Two-bedroom	12
Three-bedroom	14
Four-bedroom	14

<sup>1/</sup> On occasion, procurement conditions are such that it is as economical or more economical for GSA to procure a larger size than the size 12 refrigerators specified above. On such occasions, the larger size may be accepted (but shall not be specified in the original requisition).

(2) Ranges

a. Gas. EM through FGO - Type I, Size 30; Senior and General Officers - Type III, Size 40; of Federal Specification S-R-44. Orders shall also stipulate whether ranges are to be "free standing" or "slide-in" type and that color be white.

b. Electric. EM through FGO - Style I, Size 3; Senior and General Officers - Style II double oven (40-inch ranges); of Federal Specification W-R-101. Orders shall also stipulate whether ranges are to be "free standing" or "slide-in" type and that color shall be white.

(3) Water Heaters. Size and capacity required and whether gas or electric is required. Gas water heaters shall be Type II with tinned copper dip tubes and glass lining of Military Specification MIL-W-16633. Electric water heaters shall be Class 1 or Class 2 regular heaters with glass lining of Federal Specification W-H-00196G.

(4) Garbage Disposers. Stipulate number required. Since only one type of garbage disposer is being procured under Federal Specification OO-G-001513 (GSA-FSS), no additional requirements need to be included in orders.

(5) Dishwashers. Stipulate number required and Type II (pump drain) dishwashers with drop front doors, in white color, conforming to Federal Specification OO-D-420. Dishwashers may be provided in living units of all grades. Where they are provided they shall be included for the entire project (all grades) or not at all, except that they shall be provided in units for installation commanders and flag officers in all projects.

B. Supplemental Equipment. The following equipment may be provided subject to the stated restrictions:

(1) Food Freezers. Food freezers of appropriate capacity are authorized in isolated locations where commissaries are not available, and in those living units where the official duties of the occupant require extensive entertaining, such as the commanding officer of an installation or of a major command.

(2) Washers and Dryers. Clothes washers and dryers may be provided only to the extent required in living units outside the conterminous United States. In planning new overseas projects, common utility and laundry rooms normally shall be provided to the maximum extent practicable. In duplex units, a common utility and laundry room may be provided with one washer and one dryer.

16-4.12 **TERMITE PROTECTION:** In areas of known infestation, positive measures will be taken to protect housing against damage by termites. Soil treatment and the treatment of lumber are the preferred and most effective methods (see DoD 4270.21 - SPEC for appropriate treatments).

16-4.13 **FENCING:**

A. Safety Fencing. Safety fencing may be installed in family housing areas only as a safeguard against safety hazards, or

to preclude known incidents of vandalism. Therefore, when safety fencing is required, it shall be included in the base bid and not listed as a deductive item.

B. Perimeter Fencing. Perimeter fencing may be installed only if required for safety reasons such as to prevent access to high speed highways by children, or to preclude known incidents of vandalism. Perimeter fencing shall not be installed merely to define Government property or to separate commercial housing from military housing.

C. Privacy Fencing. Privacy fencing (or screen fencing) shall be an integral part of the project design effort and shall be minimized to the extent necessary to achieve the required privacy. Design approaches shall take full cognizance of local practice, climatic conditions and total cost (initial and maintenance costs).

16-4.14 MASTER METERING OF FAMILY HOUSING: Master meters shall be installed as a part of the construction project when such meters are required to obtain bulk rates for the utility involved. The following shall apply:

(a) The need for accurate consumption and cost figures for electricity, gas, and water utilities used in family housing is well established. Such cost figures must be more accurate than those that can be provided through engineered estimates. In addition, utilities conservation programs cannot be effectively prosecuted without good consumption information. To this end, it is the intent that family housing projects, both existing and planned, shall be master metered to the maximum extent that is economically practicable. Master meters shall have an integrated demand indicator.

(b) In general, a water meter will supply at least 150 housing units, a gas meter at least 50 units, and an electric meter at least 50 units. Therefore, family housing projects with fewer than 50 units normally will not be master metered. However, engineering judgment may indicate the desirability of metering a project with fewer units.

(c) When the number of housing units equals or exceeds the above limits, the project shall be master metered. For any one project, not more than two line meters will be used for the metering of a specific utility. When additional units are constructed, the new family housing units shall be considered as a separate project for metering purposes, and not more than two additional line meters may be installed for each utility, or the existing metering system may be modified to meter the new area, whichever is more economical.

(d) When the project layout is such that it is not possible to meter a specific utility for the entire project with two line meters, then two typical areas of the project should be selected for partial metering. The demand and consumption figures for the specific utility shall be prorated in direct proportion to the number metered. A typical area shall be one that provides a reasonably uniform sampling of all housing configurations and occupant grades. It is conceivable that metering two typical areas is not practicable, in which case the two meters should be located in such a manner that their combined readings will provide a uniform sample.

(e) In those instances where family housing units are not covered by master meters, consideration should be given to continuous sampling of electrical consumption by use of a portable recording watt-hour meter.

**16-4.15 FIRE PROTECTION:** Housing projects shall be designed to assure the maximum feasible fire protection to life and property. Fire safety shall receive careful consideration in all aspects of planning and design, including the design and arrangement of heating, electrical, and other utility installations; protective features should be provided in accordance with the requirements of pertinent recognized fire safety codes whenever practicable. Non-combustible materials shall be employed for interior finishes to the greatest extent practicable. Adequate means of exit to afford prompt and unobstructed egress shall be provided for each living unit.

**A. Standards.** Fire protection criteria for one and two family living units shall conform to the DoD Design Folio, Section 16-4.2 of this chapter, FHA's Minimum Property Standards, and the following additional criteria:

(1) Each bedroom shall have an outside window which has a clear opening sufficient to permit evacuation of the occupants, and which can be easily opened from the inside.

(2) Walls separating individual living units shall have a fire resistance rating of one hour.

(3) Floors between individual living units shall have a fire resistance rating of one hour.

(4) Wood shingles or wood shakes shall not be used for roof covering.

B. Fire Extinguishers. Fire extinguishers shall not be provided in individual living units.

C. Water Supply. The following fire flows shall be available for one and one-half hours: one-story structure, 500 gpm; two-story structure, 750 gpm. Fire hydrants shall be located to provide the required fire flows with hose lines not exceeding 350 feet.

## 16-5 PROJECT DEVELOPMENT

A. Each project must provide all mandatory features and be complete in accordance with Section 16-4.4 under the base bid. Within this framework, it is desired to provide, to the extent practicable, comparable, adequate housing at all locations, Service-wide. Deductive bid items shall be developed to permit flexibility of contract award in the event the lowest bid exceeds the Government estimate. They shall amount to from three to five percent of the estimated contract cost. Additive bid items shall not be used.

B. In establishing deductive bid items, special consideration shall be given to the impact on operation and maintenance (O&M) costs, and to the requirements of the area based on climatic conditions and local customs in housing construction and site development. Deductive items shall be only for those items which may be eliminated without jeopardizing function and without undue adverse impact upon O&M costs.

16-5.1 **CONTRACTOR OPTIONS:** Maximum flexibility shall be offered bidders in the contract documents for provisions of optional materials and methods of fabrication when such materials and methods are included in the DoD 4270.21-SPEC. When selecting options for inclusion in contract documents, care shall be taken to insure that options do not have a detrimental effect on the designed character of housing units.

16-5.2 **VALUE ENGINEERING:** Project review shall include value engineering as a routine procedure and such review shall be applicable to the site development portion, as well as to the living units.

### 16-5.3 **UTILIZATION, SELECTION AND COST OF ARCHITECT-ENGINEER (A-E) CONTRACTORS:**

A. Utilization. To avoid costly duplication of design effort while expediting development work, it is considered appropriate to utilize the same A-E for those projects which may be either near each other geographically or which would draw on the same metropolitan area for the A-E capability regardless of the Military Services involved.

B. Selection. Selection of architect/engineer contractors shall conform to the requirements of Section 18 of the Armed Services Procurement Regulation.

C. Design Costs. As a target objective, the average design cost for all projects in a Departmental program shall not exceed 2.5 percent of estimated contract costs.

16-5.4 CONSOLIDATION OF PROJECTS: Consolidation of projects in areas of dual or Tri-Service need should be considered for development as joint construction projects. The advertisement of groupings of projects on a combined basis in an effort to get the best bidding effort, as well as expediting development of the program, may have considerable merit. However, in order to insure that the small builder will not be precluded from competing, the bidding documents should provide for invitations for bids on each project separately, as well as a combined bid for certain groupings of projects. It is apparent, however, that size and proximity of projects, regional considerations, local economic conditions, and contractor capability will enter into the final decision as to whether or not two or more projects should be included under one invitation for bids.

## 16-6 CONTRACT ADMINISTRATION

16-6.1 CONSTRUCTION TIME: Actual construction time to be allowed shall be minimized to the extent practicable and reasonable for the magnitude of the project and locality involved. Contracting officers shall be directed to co-operate with the contractor, within regulations, to facilitate the earliest possible beneficial occupancy.

16-6.2 INVITATION FOR BIDS: Special consideration shall be given to projects which could be advertised in the fall or winter even though the winter weather would normally preclude on-site construction. In these instances, the bidding documents may provide for payments for acceptable materials and mechanical equipment, and/or prefabricated assemblies suitably stored on the site or under approved bonded storage conditions. Such provisions would permit precutting, prefabrication or manufacture of modules, wall and partition panels, doors and closet assemblies, kitchen cabinetry, plumbing trees, and similar items during the winter months, as well as the purchase of certain mechanical equipment during the "off-season".

16-6.3 CONTRACT ADMINISTRATION COSTS: Cost for administration, supervision and inspection for any project normally should not exceed 3.5 percent of the cost of the project. However,

in view of abnormal costs occasionally experienced with projects primarily outside the conterminous United States and the potential economies related to reduced unit SIOH costs as the size of the project increases, each Military Department will monitor their resources to minimize SIOH costs with a target objective of the program average cost of SIOH not exceeding 3.5 percent.

#### 16-7 SCHOOL FACILITIES

Concurrent with the planning of new housing projects, consideration should be given to the resulting increased demand placed on existing education facilities. For housing projects within the United States, it is important that representatives of the Military Department concerned, including the installation commander, work closely with local, state and Federal authorities to determine 1) whether additional school facilities are needed, 2) whether Federal assistance is required for their accomplishment, and 3) whether needed facilities should be located on or off Federal property. In those instances where additional school facilities are determined to be required, the necessary actions, including site selection and required application to state and/or Federal agencies, should be made at the earliest possible date to insure the availability of adequate facilities at the time of beneficial occupancy of the new housing units. For overseas projects, the proper Military Department representative should consult with the school area superintendent regarding the need for additional educational facilities.

#### 16-8 UTILITIES

Electric, gas, and water utilities for family housing shall be provided in accordance with the policy set forth in DoD Instruction 4165.37, "Policy for Provision of Utility Services for Military Family Housing".

#### 16-9 PROJECT PROGRESS REPORTS

Progress reports on the design and construction of family housing projects shall be submitted in accordance with the provisions of DoD Instruction 7220.5, "Progress Report on Military Family Housing Projects".

## **Appendix 6**

### **Site Reports for Housing at 10 Installations**

## **Fort Benning**

### **Vietnam War Era Housing Site Visit Report**

#### **Introduction**

Fort Benning is located southeast of Columbus in Chattahoochee, Marion, and Muscogee counties, Georgia, and Russell County, Alabama. The post is bisected by both the Chattahoochee River and U.S. Highway 280. Encompassing 285 square miles, the installation is known as the U.S. Army Maneuver Center of Excellence and serves as a training site for infantry soldiers. The installation was founded in 1918.

There are 1,292 units of Vietnam War Era housing located at Fort Benning. These units are managed by the privatized housing Partner, The Michaels Company. Units were constructed between 1963 and 1975 and were anticipated to include duplexes, fourplex, sixplex, and eightplex townhouses.

The site visit was completed between October 12<sup>th</sup> and October 15<sup>th</sup>, 2021, by Molly Soffiatti.

#### **Installation Contacts**

The surveyor met with Fort Benning's Cultural Resources Manager, Real Property representative, and housing Partner. Fort Benning does not maintain a post historian.

##### *Cultural Resources Manager*

Ronald Hobgood, Cultural Resource Manager, [ronald.e.hobgood.civ@mail.mil](mailto:ronald.e.hobgood.civ@mail.mil), (706) 545-3734

##### Data Requested:

Mr. Hobgood provided the most recent Integrated Cultural Resource Management Plan (ICRMP), which expired in 2019. A new, updated ICRMP currently is being completed by Fort Benning staff. Mr. Hobgood provided a CD-ROM of scans of plans and drawings of Vietnam War Era housing. Fort Benning follows Army Alternate Procedures with the Georgia State Historic Preservation Office (GA SHPO), which includes a yearly presentation of undertakings at the post. This strategy was adopted in 2003. No letter writing or correspondence is required. Therefore, no SHPO correspondence was available. The Partner stated that no undertakings with Vietnam War Era housing have occurred since reaching the 50-year age requirement.

##### *Real Property*

Timothy Stone, Facility Utilization Specialist/Realty Officer/RPAO, [Timothy.j.stone.civ@mail.mil](mailto:Timothy.j.stone.civ@mail.mil), (706) 888-1553

Mr. Stone provided access to Real Property Card records. Due to the size of the inventory, three units from each construction year, 1963, 1969, 1971, and 1975, were selected across neighborhoods for scanning. Real Property folders contained data on construction and modifications.

##### *Base Historian*

Fort Benning does not have a base historian.

### *Housing Partner*

Contact: Richard Foster, The Michaels Organization, [rfoster@tm.com](mailto:rfoster@tm.com), (706) 330-4418

### Data Requested

Mr. Foster provided floorplans for housing units and allowed survey staff to photograph Partner maps of neighborhoods. Four neighborhoods containing 1,292 units of housing were identified as from the era: Bouton Heights (Bouton), Davis Hill (Davis), Perkins Place (Perkins), and Indianhead Terrace (Indianhead). Bouton contains 334 units and includes a long, winding road named Doane Loop that oftentimes is considered a separate development in Army inventories. Resources in Bouton were constructed between 1971 and 1975. Davis Hill contains 372 units constructed between 1971 and 1975. The units in Davis Hill have been fully renovated. Perkins contains 172 units constructed in 1963. These units all have received updated kitchens and roofs. Indianhead contains 414 units constructed between 1963 and 1969. The date of management transfer was in 2006. The initial development period (IDP) is classified as between 2006 and 2016. No undertakings have occurred with Vietnam War Era housing that has reached the 50-year age requirement.

### **Previous Investigations**

No previous investigations of Fort Benning's Vietnam War Era housing have been undertaken.

### **INVENTORY:**

#### **Windshield Survey**

The windshield survey occurred on October 12, 2021. Bouton Heights (Bouton), Perkins Place (Perkins), Indianhead Terrace (Indianhead), and Davis Hill (Davis) all were surveyed. Inventory forms were developed for the neighborhoods and buildings and can be found in Volume 2 of this report.

#### *Bouton Heights (Bouton)*

Bouton is defined by the east-west curving First Cavalry Division Road off of which are culs-de-sac or "courts." Eight courts are located north of First Cavalry Division Road, and eight courts are located south of the road (Figure 1). Sidewalks are present on both sides of the street with sloping curbs. Units are setback about five-to-ten feet from the road and generally are accessed by walkways off of a communal sidewalk surrounding a parking lot, which surrounds a court. The court features a central green space characterized by deciduous and coniferous trees (Figure 2). Parking lots are present. Amenities include a tree lawn, running trails, a playground, and parks. An elementary school is present immediately adjacent to the community. Streetlights are present. Housing units generally are two-story vinyl-clad fourplex and sixplex townhouses.



Figure 1: View looking across First Cavalry Road to court



Figure 2: View of central greenspace in courts

*Perkins Place (Perkins)*

The neighborhood is defined by curvilinear streets containing one-story brick Modern Minimalist duplexes with garages and parking pads located about 10-to-20 feet back from the roadway. The neighborhood is bordered by a golf course. Lumpkin Road is located at the southern end of this neighborhood. Perkins features curvilinear streets. There are two culs-de-sac located at the southeast end of the neighborhood. Sidewalks typically are present on both sides of the street and are punctuated by driveways (Figure 3). Lawns with deciduous trees line the streets (Figure 4). Perkins contains an athletic field, playground, pool, community center, park, and paintball facilities.



Figure 3: Perkins Streetscape



Figure 4: Tree lined streets of Perkins

*Indianhead Terrace (Indianhead)*

Indianhead is defined by two distinct halves. The northern half is characterized by curvilinear roads punctuated by culs-de-sac (Figure 5). The southern portion features curvilinear roads without culs-de-sac with the exception of Lavoie Court. This neighborhood generally contains two-story vinyl-clad or one-story brick-clad duplex units located ten-to-20 feet back from curvilinear streets with a central pool, community center, and playground (Figure 6). The development also contains a dog park, basketball court, elementary school, and soccer field. The dwellings generally feature second-story overhangs or elements of the Minimalist Modern style. Sidewalks are present. Mature deciduous trees are present on flat lawns.



Figure 5: Indianhead Streetscape



Figure 6: New Indianhead Community Center

*Davis Hill (Davis)*

Two portions of Davis are present. The western portion includes curvilinear streets radiating out from a central core generally in an east-west arrangement and a singular cul-de-sac at the southeastern edge (Figure 7, Figure 8). The eastern portion also features curvilinear streets generally in the north-south arrangement and multiple culs-de-sac. The dwellings generally are one-story brick Modern Minimalist duplexes with integral garages set back ten-to-20 feet from the street. Lawns are present with deciduous trees. A modern playground is present.



Figure 7: Davis Streetscape



Figure 8: Davis Streetscape

## Inventory of Representative Buildings

Inventory was undertaken of representative buildings including 13 interiors in the four Vietnam War Era neighborhoods.

Address	Neighborhood	Construction Date	Building Subtype	Number of Bedrooms	Interior Access?
216 Lavoie	Indianhead	1969	Eightplex Townhouse	4	Yes
209 Garrett	Indianhead	1969	Sixplex Townhouse	3	Yes
143 Derrickson	Indianhead	1963	Duplex	4	Yes
508 Perkins	Perkins	1963	Duplex	3	Yes
500 Bjornsted	Perkins	1963	Duplex	4	Yes
104 Dial	Perkins	1963	Duplex	4	No
36A Doane Loop	Bouton	1963	Duplex	2	Yes
49B Doane Loop	Bouton	1963	Duplex	4	Yes
282 Lavoie	Indianhead	1969	Fourplex Townhouse	4	Yes
3A Yano	Bouton	1971-1975	Sixplex Townhouse	4	Yes
2B Yano	Bouton	1971-1975	Fourplex Townhouse	3	No
3D Kedenburg	Bouton	1971-1975	Fourplex Townhouse	4	Yes
1C Fournette	Bouton	1971-1975	Sixplex Townhouse	3	Yes
4 McKibben	Bouton	1971-1975	Fourplex Townhouse	4	No
563A Hartstock	Davis	1971-1975	Duplex	5	Yes
320A Ports	Davis	1971-1975	Duplex	4	Yes
2D Kedenburg	Bouton	1971-1975	Fourplex Townhouse	3	No

## Changes Over Time and Resource Integrity

The buildings have been subject to exterior modification in terms of materials, including replacement roofing materials, siding, windows, and doors. The neighborhoods have not undergone significant redesign, new construction, or demolition. Efforts to apply contemporary stylistic or architectural ornamentation were not undertaken. Interior modifications generally consisted of replacement finishes, fixtures, and appliances.

Despite modifications over time, Vietnam War Era buildings, associated outbuildings, and neighborhoods retain sufficient integrity of association, feeling, location, and setting to convey their association with the conflict in Vietnam (Criterion A). Due to modifications and alterations, the housing generally no longer retains a high degree of integrity of design and materials. The housing is not sufficiently distinctive or distinguishable in its design and construction relative to the national inventory, and is therefore not considered eligible for the NRHP under Criterion C.

## **Properties of Particular Importance**

The Program Comment Plan for Vietnam War Era Housing issued in December 2021 defines a Property of Particular Importance as one that is an

Army Vietnam War Era housing or neighborhoods that are, in the context of the nation-wide inventory of civilian sector housing and neighborhoods from this period, substantially distinctive and unique in their design, method of construction, and building materials used. Additionally, properties of particular importance must exhibit a high degree of integrity with enough significant design characteristics and original historic building materials present and intact to be considered truly distinctive within the nation-wide inventory (U.S. Department of the Army 2021:34).

The civilian housing sector influenced popular expectations for housing design, building types, interior spatial requirements, and amenities. Stylistically, many houses constructed during the period were executed in the Modern idiom; historical stylistic references were absent on houses constructed during the period. Award-winning residential designs of the period included those that firmly rejected historical precedent in exterior design and interior plan. While the military sought to adopt design principles advanced by the civilian architectural sector for Vietnam War Era housing constructed by the Army. Size limitations and cost criteria established by Congress for military family housing influenced the resulting housing stock in terms of architectural expression and interior design.

Inventory conducted at Fort Benning confirmed that the military followed civilian-sector housing trends and did not construct substantially distinctive or unique housing. Due to continuous modification and alteration, the units no longer retain a high degree of integrity of design and materials. Those units that retain integrity of design and materials are not substantially distinctive or unique within the inventory of civilian-sector housing and neighborhoods. No Properties of Particular Importance are present at Fort Benning.

## **Bibliography**

TerraXplorations

- 2015 *Integrated Cultural Resources Management Plan: 2015-2019*. Prepared for US Army Maneuver Center of Excellence, Directorate of Public Works, Environmental Management Division.

# **Fort Bragg**

## **Vietnam War Era Housing Site Visit Report**

### **Introduction**

Fort Bragg is located northwest of Fayetteville in Cumberland, Hoke, Harnett, and Moore counties in the state of North Carolina. The installation was founded on September 4, 1918. The installation is bisected by All American Highway and is bordered by Highways 295 and 210 to the south and east, respectively. Encompassing 251 square miles, the installation is known as the Home of the Airborne and Special Operation Force and encompasses Pope Field, established in 1919. When the Air Force became its own branch of the military in 1947, Pope Field officially became Pope Air Force Base until its transfer to Army control in 2011 under the Base Realignment and Closure (BRAC) recommendations to improve military efficiency and reduce redundancy. While operated as part of Fort Bragg, Pope Field continues to be used by the United States Air Force. For the purpose of this report, and due to their separate histories, family housing at Pope Field and Fort Bragg will be discussed separately.

There are 112 Vietnam War Era housing buildings located at Fort Bragg and 154 buildings located at Pope Field. These units are managed by the privatized housing partner, Corvias.<sup>1</sup> At Fort Bragg units were constructed by the Army between 1974 and 1975 and were anticipated to include duplexes and threeplex and fourplex townhouses. At Pope Field, units were constructed by the Air Force in 1964 and were anticipated to include duplexes.

The site visit was completed between October 12<sup>th</sup> and October 14<sup>th</sup>, 2021, by Samuel Young.

### **Installation Contacts**

The surveyor met with Fort Bragg's Army Housing representatives, Cultural Resources Manager, Real Property representative, and housing Partner. Fort Bragg does not maintain a post historian.

#### *Cultural Resources Manager*

Jeremy Spates, Historic Preservation Specialist; (910) 908-4279, [Jeremy.t.spates.ctr@mail.mil](mailto:Jeremy.t.spates.ctr@mail.mil)

Dr. Linda Carnes-McNaughton, Program Archeologist/Curator; (910) 908-4280, [linda.f.carnes-mcnaughton.civ@mail.mil](mailto:linda.f.carnes-mcnaughton.civ@mail.mil)

#### **Data Requested:**

Dr. Carnes-McNaughton provided the most recent draft Integrated Cultural Resource Management Plan (ICRMP), completed in 2016. She had stated the last ICRMP was approved in 2008 and is outdated. Dr. Carnes-McNaughton provided a CD-ROM of the draft ICRMP and a recent historic context on street names for the installation family housing. Upon request, no information included in the draft ICRMP is available to be published. The historic context on street names outlines the reasoning behind all installation family housing street names. Dr. Carnes-McNaughton had stated there are no Programmatic Agreements (PA) in relation to Vietnam War Era housing nor has there been any correspondence with the North Carolina Historic Preservation Office (NC SHPO). James Champagne, of Corvias, had stated that no undertakings with Vietnam War Era housing have occurred since the buildings are less than 50 years of age.

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<sup>1</sup> Fort Bragg was one of two installations surveyed that tabulated its inventory by building rather than by unit.

### *Real Property*

Kenya Allen, Real Property Supervisor, [Kenya.b.allen.civ@mail.mil](mailto:Kenya.b.allen.civ@mail.mil)

Mr. Allen provided access to Real Property Card records. Due to the size of the inventory, as well as missing components, two to three representative units from each Fort Bragg neighborhood, Ardennes and Bataan, were chosen for scanning. Real Property data for buildings originally constructed as Pope Airfield, the Cardinal Heights neighborhood, was not available. Real Property folders contained data on construction dates, materials, and modifications.

### *Base Historian*

Fort Bragg has not had a Base Historian in recent years. Belongings of the former base historian have been moved off-site, mothballed, and were not accessible. Research was undertaken at North Carolina State University (NCSU) Special Collections Library where original Vietnam War Era family housing architectural drawings were obtained and scanned.

### *Housing Partner*

Contact: James Champagne, Corvias, [james.champagne@corvias.com](mailto:james.champagne@corvias.com), (785) 477-5993

### Data Requested

Mr. Champagne provided copies of floorplans for housing units and neighborhood maps for Vietnam War Era neighborhoods Ardennes and Bataan. These two neighborhoods contain 112 buildings. Ardennes contains 75 buildings constructed between 1974 and 1975. Bataan contains 37 buildings constructed between 1971 and 1975. Housing data for Pope Field, specifically the Cardinal Heights neighborhood, also was provided. The date of management transfer was September 1, 2003. At Fort Bragg, no undertakings have occurred with Vietnam War Era housing as they have not reached the 50 year age threshold. The Cardinal Heights neighborhood at Pope Field was evaluated in 2010 and recommended not eligible.

### **Previous Investigations**

Cardinal Heights, a 1964-constructed neighborhood originally part of Pope Field and comprised of altered duplex and single-family housing units, has been treated under the Cold War Program Comment for Unaccompanied Personnel Housing (2006) as not eligible (United States Department of Defense 2006). The Ardennes and Bataan neighborhoods have not undergone survey. No further correspondence between Fort Bragg and the North Carolina State Historic Preservation Office (NCSHPO) were provided.

### **INVENTORY:**

#### **Windshield Survey**

The windshield survey occurred on October 12, 2021, with additional photographs taken on October 13, 2021. Ardennes, Bataan, and Cardinal Heights neighborhoods were surveyed. Inventory forms were developed for the neighborhoods and can be found in Volume 2 of this report.

### *Ardennes*

Ardennes is defined by a series of connected, curvilinear streets: Omaha, Lorraine, McLaney, Holland, and Pohl. Two new streets of family house have been added since the management transfer in 2003: Groesbeek Street and Wesel Way. Sloping sidewalks are present on the left side of the streets and provide access to

communal mailboxes (Figure 1). Buildings are set back 15 to 20 feet from the road and generally are accessed via poured-concrete car pads and walkways (Figure 2). Streets are lined with mature deciduous and coniferous trees. Amenities include a tree lawn, three playgrounds, and parks (Figure 3). An elementary school is present adjacent to the community. A new community center is located west of the neighborhood along Varsity Street (Figure 4). Streetlights are present. Housing units generally are one- and two-story stucco duplexes. The buildings are examples of the Minimalist Modern style.



Figure 1: View looking south on McLaney Street



Figure 2: View of building setbacks along Lorraine Street



Figure 3: Playground unit



Figure 4: The Ardennes Community Center on Varsity Street

*Batan (also spelled Bataan)*

The Batan neighborhood is defined by two curvilinear streets, originally three culs-de-sac, containing one-story stucco and vinyl siding Modern Minimalist triplexes and fourplexes with carports. The buildings are setback about 10-to-15 feet from the streets (Figure 5). Since 2003, new dwellings were constructed on Ashley and Seay streets where culs-de-sac had originally terminated. Sloped sidewalks are located on both sides of the streets and provide access to housing and communal mailboxes (Figure 6). The streets are lined with deciduous and coniferous trees. Batan contains an interior park behind housing on Ashley and Seay streets.



Figure 5: Building setbacks on Ashley Street



Figure 6: Sloping Sidewalks along Ashley Street.

### *Cardinal Heights*

The Cardinal Heights neighborhood is defined by the curvilinear Skytrain Drive and a series of circles and loops primarily comprised of duplex units, with select single-family housing off Hercules Drive and Globemaster Avenue. The neighborhood has minimal duplex housing variations, which generally included one-story, ranch-type with either central or side carports. The buildings are setback about 10-to-15 feet from the streets (Figure 7). Poured-concrete sidewalks are located on both sides of the streets and provide access to housing, school bus stops, and the Pope Community Center with pool and playground (Figure 8). The streets are lined with deciduous and coniferous trees.



Figure 7: Duplex units on Skytrain Drive



Figure 8: Pope Community Center

## Inventory of Representative Buildings

Inventory was undertaken of representative buildings including 5 interiors in the three Vietnam War Era neighborhoods.

Address	Neighborhood	Construction Date	Building Subtype	Number of Bedrooms	Interior Access?
30 Lorraine	Ardennes	1974	Duplex	2	Yes
10 Holland	Ardennes	1974	Duplex	4	Yes
19 Omaha	Ardennes	1974	Duplex	4	Yes
120 Ashley	Bataan	1975	Fourplex Townhouse	4	Yes
128 Ashley	Bataan	1975	Threeplex Townhouse	3	Yes
24, 26 Skytrain	Cardinal Heights	1964	Duplex	4	No
1, 3 Provider	Cardinal Heights	1964	Duplex	4	No
21 Commando	Cardinal Heights	1964	Single	3	No

## Changes over Time and Resource Integrity

The buildings were subject to changes over time. While the housing partners did not have data on when exterior modifications were completed to the Ardennes and Cardinal Heights neighborhoods, photographs maintained by the CRM provided information on the original appearance of the buildings. Visual observation suggests modifications to original historic materials occurred. In contrast, the dwellings in the Bataan neighborhood largely remain unaltered, with proposed improvements awaiting funding (Barnes, personal communications, 2021). Interior modification include cyclical replacement of original finishes and fixtures. The three neighborhoods have not undergone significant redesign, new construction, or demolition.

Interior modifications generally consist of cyclical maintenance resulting in replacement finishes, fixtures, and appliances. Despite exterior and interior modifications over time, Vietnam War Era buildings, associated outbuildings, and neighborhoods retain sufficient integrity of association, feeling, location, and setting to convey their association with the conflict in Vietnam and NRHP significance under Criterion A. Due to modifications and alterations, the housing generally no longer retains a high degree of integrity of design and materials. Those units that retain some degree of integrity of design and materials are not sufficiently distinctive or distinguishable in their design and construction relative to the national inventory, and the housing is therefore not considered eligible for the NRHP under Criterion C.

## Properties of Particular Importance

The Program Comment Plan for Vietnam War Era Housing issued in December 2021 defines a Property of Particular Importance as

Army Vietnam War Era housing or neighborhoods that are, in the context of the nation-wide inventory of civilian sector housing and neighborhoods from this period, substantially distinctive and unique in their design, method of construction, and building materials used. Additionally, properties of particular importance must exhibit a high degree of integrity with enough significant design characteristics and original historic building materials present and intact to be considered truly distinctive within the nation-wide inventory (U.S. Department of the Army 2021:34).

The civilian housing sector influenced popular expectations for housing design, building types, interior spatial requirements, and amenities. Stylistically, many houses constructed during the period were executed in the Modern idiom; historical stylistic references were absent on houses constructed during the period. Award-winning residential designs of the period included those that firmly rejected historical precedent in exterior design and interior plan. While the military sought to adopt design principles advanced by the civilian architectural sector for Vietnam War Era housing constructed by the Army, size limitations and cost criteria established by Congress for military family housing influenced the resulting housing stock in terms of architectural expression and interior design.

Inventory conducted at Fort Bragg confirmed that the military followed civilian-sector housing trends and did not construct substantially distinctive or unique housing. Due to continuous modification and alteration, the units no longer retain a high degree of integrity of design and materials. Those units that retain integrity of design and materials are not substantially distinctive or unique within the inventory of civilian-sector housing and neighborhoods. No Properties of Particular Importance are present at Fort Bragg.

Inventory forms have been developed for each surveyed unit and can be found in Volume 2 of this report.

## Bibliography

Barnes, Tonya

2021 Personal communications.

Champagne, James

2021 Personal communications.

Department of Defense

2006 *Cold War Program Comment for Unaccompanied Personnel Housing*. Electronic document, accessed October 28, 2021. <https://www.achp.gov/digital-library-section-106-landing/program-comment-cold-war-era-unaccompanied-personnel-housing>

United States Department of the Army

2021 *Final Program Comment Plan for Army Vietnam War Era Historic Housing, Associated Buildings and Structures, and Landscape Features (1963-1975)*. 28 December. Office of the Assistant Secretary of the Army Installations, Energy and Environment, Washington, DC.

**Fort Carson**  
**Vietnam War Era Housing Site Visit Report**

**Introduction**

Fort Carson is located south of Colorado Springs, Colorado, in Paso, Pueblo, and Fremont counties. Encompassing 137,404 square acres, the installation is significant for housing the 4<sup>th</sup> Infantry Division. The installation was established in 1942. There are 839 units of Vietnam War Era housing located at Fort Carson. These units are managed by the privatized housing Partner, Balfour Beatty Communities. Units were constructed between 1963 and 1972 and were anticipated to include duplexes and fourplex and sixplex townhouses. The site visit was completed between October 25<sup>th</sup> and October 27<sup>th</sup>, 2021, by Molly Soffiatti.

**Installation Contacts**

The surveyor met with Fort Carson's Cultural Resources Manager, Real Property representative, museum director, and housing Partner. Fort Carson does not maintain a post historian.

*Cultural Resources Manager*

Jennifer Kolise, Cultural Resource Manager, [jennifer.r.kolise.civ@army.mil](mailto:jennifer.r.kolise.civ@army.mil), 719-725-8333

Data Requested:

Ms. Kolise provided the most recent Integrated Cultural Resources Management Plan (ICRMP), which was completed in March 2017. Additionally, evaluations of three Vietnam War Era neighborhoods, Sioux, Apache, and Shoshoni villages have been completed and the findings are presented in *Final: Architectural Inventory and Evaluation of 1970s-Era Family Housing at U.S. Army Garrison Fort Carson, El Paso County, Colorado* (2019) and Colorado Form 1403b: Post-World War II Residential Suburban Subdivision Form (1945-1975). Colorado Form 1403b also has been prepared for Cherokee Village and Cheyenne Village. All five neighborhoods have been evaluated as ineligible for listing in the National Register of Historic Places. The Colorado State Historic Preservation Office (CO SHPO) concurred with the recommendations (Turner 2019).

*Real Property*

Mary Rosenthal, Realty Specialist, [mary.rosenthal.civ@army.mil](mailto:mary.rosenthal.civ@army.mil), (719) 526-2491 (699)

Data Requested:

Ms. Rosenthal provided access to Real Property Card records. Fort Carson's real property data has been digitized, and Ms. Rosenthal transmitted files to the surveyor via file transfer. Due to the size of the inventory, real property cards for the surveyed properties were reviewed.

### *Base Historian*

In lieu of a base historian, the surveyor met with the 4<sup>th</sup> infantry Division Museum Museum Director. Mr. Cline provided a tour of the museum summarizing the history of the 4<sup>th</sup> Infantry Division. Additionally, he provided access to a post-published 1970s-era book detailing the VOLAR program at fort Carson. The program was a pilot for the modern volunteer Army.

### *Housing Partner*

Contact: Larry Chernin, Residential QC Maintenance Specialist, Balfour Beatty Communities, [lchernin@bbcgrp.com](mailto:lchernin@bbcgrp.com), (267) 648-5962

### Data Requested:

Four neighborhoods containing 1,832 units of Vietnam War Era housing were identified: Comanche I, Comanche II, Comanche III, and Venable Village. No information was available on the four neighborhoods.

### **Previous Investigations**

An inventory of 1970s-era family housing is presented in *Final: Architectural Inventory and Evaluation of 1970s-Era Family Housing at U.S. Army Garrison Fort Carson, El Paso County, Colorado* (2019). Surveys and evaluations of Apache, Shoshoni, and Sioux villages are presented. All five Vietnam War Era neighborhoods at Fort Carson have been surveyed and evaluated in Colorado Cultural Resource Survey Form 1403b: Post-World War II Residential Suburban Subdivision Forms (1945-1975). The evaluations include Apache Village (2018; 5EP8418), Cherokee Village (2011; 5EP06035), Cheyenne Village (2012; 5EP06200), Shoshoni Village (2018; 5EP8420), and Sioux Village (2018; 5EP8419). Each neighborhood was found ineligible for listing in the National Register of Historic Places in these evaluations. SHPO concurrence was received in 2019 (Turner 2019).

### **INVENTORY:**

#### **Windshield Survey**

The windshield survey occurred on October 25, 2021. Cheyenne Village, Apache Village, Cherokee Village, Sioux Village, and Shoshoni Village all were surveyed. Inventory forms were developed for the neighborhoods and buildings inventoried and can be found in Volume 2 of this report.

#### *Cheyenne Village*

Cheyenne Village features curvilinear roads. Units generally are stucco ranch-type dwellings set 10-to-15 feet back from the street. Guadal Canal Circle and Iwo Jima Drive extend from Woodfill Road. These curvilinear roads spur into Kwajelein and Atu drives, which also are curvilinear streets. Concrete sidewalks are located on both sides of the roadways. A neighborhood park containing a gazebo and playground is present (Figures 1 and 2).



Figure 1: View of streetscape of Cheyenne Village



Figure 2: Examples of typical houses in Cheyenne Village

*Apache Village*

The neighborhood is defined by curvilinear roadways with culs-de-sac off of Harr Road. Units generally are stucco ranches with carports set 10-to-15 feet back from the street; front lawns define the buildings. Playgrounds are present. Sidewalks are present on both sides of the road. Concrete sidewalks are located on both sides of the roadway (Figures 3 and 4).



Figure 3: View of a parking area in Apache Village



Figure 4: View of curvilinear roads in Apache Village

*Cherokee Village*

Cherokee Village West is defined by curvilinear Aachen Drive off of which a grid street pattern is present. Concrete sidewalks are present on both sides of the road. Units generally are fourplex and sixplex townhouses with two-story cores and one-story flanking wings. Units generally are set 10-to-15 feet back from the street. Concrete sidewalks are located on both sides of the roadway. A neighborhood park is present with playground and gazebo. Additionally, a basketball court is located in the neighborhood (Figures 5 and 6).



Figure 5: View of a typical housing unit in Cherokee Village



Figure 6: View of a street in Cherokee Village

### *Sioux Village*

Sioux Village is defined by culs-de-sac with central parking surrounded by multi-unit townhouses. Buildings generally are located 10-to-15 feet back from the roadway. Sioux Village is defined by culs-de-sac with central parking surrounded by dwellings off of Funk and Harr avenues. Concrete sidewalks are located on both sides of the roadways. A small playground is present (Figures 7 and 8).



Figure 7: View of a cul-de-sac in Sioux Village



Figure 8: View of a cul-de-sac in Sioux Village

### *Shoshoni Village*

Units generally are fourplex townhouses or duplex buildings clad in vertical siding. Units are set 10-to-15 feet back from the roadway; are fourplex townhouses are the most common building. The neighborhood is defined by courts off of Funk Avenue. The courts contain central parking lots. Concrete sidewalks are located on both sides of the roadways. A basketball court and playground are present (Figures 9 and 10).



Figure 9: View of a street in Shoshoni Village



Figure 10: View of a typical housing unit in Shoshoni Village

## Inventory of Representative Buildings

Inventory was undertaken of representative buildings including four interiors in the four Vietnam War Era neighborhoods.

Address	Neighborhood	Construction Date	Building Subtype	Number of Bedrooms	Interior Access?
5520 Aachen Drive	Cherokee	1965	Sixplex Townhouse	N/A	No
5511 Aachen Drive	Cherokee	1965	Fourplex Townhouse	N/A	No
4416 Johnson Court	Shoshoni	1974	Duplex	4	Yes
4410A Johnson Court	Shoshoni	1974	Fourplex Townhouse	2	Yes
4612 Helwig Court	Sioux	1972	Sixplex Townhouse	N/A	No
4616C Helwig Court	Sioux	1972	Fourplex Townhouse	N/A	No
4810B Molnar Drive	Apache	1971	Duplex	3	Yes
4685B Allworth Court	Sioux	1972	Fourplex Townhouse	N/A	No
4679B Allworth Court	Sioux	1972	Duplex	N/A	No
4675A Allworth Court	Sioux	1972	Sixplex Townhouse	N/A	No
7260B Guadalcanal Circle	Cheyenne	1965	Duplex	3	Yes

## Changes Over Time and Resource Integrity

The buildings at Fort Carson have been subject to exterior modification in terms of materials, including replacement roofing materials, siding, windows, and doors. The neighborhoods have not undergone significant redesign, new construction, or demolition. Efforts to apply contemporary stylistic or architectural ornamentation were not undertaken. Interior modifications generally consisted of replacement finishes, fixtures, and appliances.

Despite modifications over time, Vietnam War Era buildings, associated outbuildings, and neighborhoods retain sufficient integrity of association, feeling, location, and setting to convey their association with the conflict in Vietnam (Criterion A). Due to modifications and alterations, the housing generally no longer retains a high degree of integrity of design and materials. The housing is not sufficiently distinctive or distinguishable in its design and construction relative to the national inventory, and is therefore not considered eligible for the NRHP under Criterion C.

## Properties of Particular Importance

The Program Comment Plan for Vietnam War Era Housing issued in December 2021 defines a Property of Particular Importance as one that is an

Army Vietnam War Era housing or neighborhoods that are, in the context of the nation-wide inventory of civilian sector housing and neighborhoods from this period, substantially distinctive and unique in their design, method of construction, and building materials used. Additionally, properties of particular importance must exhibit a high degree of integrity with enough significant design characteristics and original historic building materials present and intact to be considered truly distinctive within the nation-wide inventory (U.S. Department of the Army 2021:34).

The civilian housing sector influenced popular expectations for housing design, building types, interior spatial requirements, and amenities. Stylistically, many houses constructed during the period were executed in the Modern idiom; historical stylistic references were absent on houses constructed during the period. Award-winning residential designs of the period included those that firmly rejected historical precedent in exterior design and interior plan. While the military sought to adopt design principles advanced by the civilian architectural sector for Vietnam War Era housing constructed by the Army. Size limitations and cost criteria established by Congress for military family housing influenced the resulting housing stock in terms of architectural expression and interior design.

Inventory conducted at Fort Benning confirmed that the military followed civilian-sector housing trends and did not construct substantially distinctive or unique housing. Due to continuous modification and alteration, the units no longer retain a high degree of integrity of design and materials. Those units that retain integrity of design and materials are not substantially distinctive or unique within the inventory of civilian-sector housing and neighborhoods. No Properties of Particular Importance are present at Fort Carson.

## Bibliography

### Fort Carson Cultural Resources Management Program

- Var. *Colorado Cultural Resources Survey Form 1403b: Post-World War II Residential Suburban Subdivision Form (1945-1975).*
- 2017 *Integrated Cultural Resources Management Plan, U.S. Army Garrison, Fort Carson, Colorado, Fiscal Years 2017-2021.* Prepared for Fort Carson Cultural Resources Management Program, NEPA & Cultural Management Branch, Environmental Division, Directorate of Public Works, U.S. Army Garrison Fort Carson, Colorado.

### HDR, Inc.

- Var. *Colorado Cultural Resources Survey Form 1403b: Post-World War II Residential Suburban Subdivision Form (1945-1975).*

### Plimpton, Kathryn and Alexandra Kosik

- 2019 *Final: Architectural Inventory and Evaluation of 1970s-Era Family Housing at U.S. Army Garrison Fort Carson, El Paso County, Colorado.* Prepared for Fort Carson Cultural Resources Management Program, NEPA & Cultural Management Branch, Environmental Division, Directorate of Public Works, U.S. Army Garrison Fort Carson, Colorado.

### Turner, Steve

- 2019 Letter to George W. Thomas, 17 October.

## **Fort Detrick**

### **Vietnam War Era Housing Site Visit Report**

#### **Introduction**

Fort Detrick is a 1,212-acre facility located northwest of the City of Frederick, Frederick County, Maryland. The U.S. Army Garrison oversees 1,143 acres of the installation, and the National Cancer Institute Frederick (NCI) controls the remaining 69 acres. The installation was founded in 1943 as a research and development center for biological agents and weapons. The focus of the research at the installation changed in 1969 after President Nixon placed a ban on bioweapon development and stopped work in biological laboratories, such as Fort Detrick. The new focus of research at Fort Detrick since 1972 has been medical research.

Fort Detrick has 40 units of family housing authorized by Congress in fiscal year 1964 and completed in 1965. The units are managed by privatized housing Partner Balfour Beatty. The units comprise two single-family houses, thirteen duplexes, and three fourplex townhouses. The drawings were dated November 1963. The contractor was Donald Grigsby, Mount Airy, Maryland. The drawings for the two Colonels quarters at 1865 and 1866 Bullene Drive came from Carlisle Barracks and had as architects McGaughan & Johnson, Architect-Engineer, 2000 P Street, NW, Washington, D.C.; the drawings were dated March 1963.

The site visit occurred over three days: October 20, October 28, and November 9, 2021. Katherine Grandine conducted the investigations.

#### **Installation Contacts:**

The investigator met with the acting Cultural Resources Manager (CRM), who provided the initial escort to meet the Real Property Accountability Officer and the Engineer Technician. The installation has no post historian.

*Acting Cultural Resources Manager:* Alfred (Lynn) Hoch, Natural Resources/acting as CRM in the Environmental Division was detailed as the main Army contact by Carl Pritchard, Director, Department of Public Works, 301-606-5691 (office), 301-619-2033 (mobile), [alfred.l.hoch.civ@army.mil](mailto:alfred.l.hoch.civ@army.mil).

Mr. Hoch provided:

- Assistance with obtaining installation access pass and photograph pass and security clearances for all photographs and drawings.
- Digital copy of draft 2021 Integrated Cultural Resources Management Plan (ICRMP). The ICRMP did not mention Vietnam War Era housing.
- Introductions to Real Property office, drawings vault.
- Escort to conduct inventory of Vietnam War Era housing areas.
- Reported that no additional history, architectural survey, or Section 106 actions had been undertaken for family housing since 2000 Determination of Eligibility (DOE) on file at the Maryland State Historic Preservation Office (MD SHPO). The 2000 DOE did not include the housing constructed in 1965.

Mr. Hoch also contacted persons on the installation who might have information on the history of the installation. These contacts included:

- John Bennett, Master Planning Division Chief.

- Fort Detrick Housing Office at Building 1520.
- Public Affairs Office: USAG Public Affairs Office 301-619-2018. Mr. Hoch reported on 10/25/2021 that he had spoken with Lanessa Hill in PAO office, who told him that the PAO office has no documentation to support the current project. Ms. Hill cleared all photographs taken during the investigations on 11/9/2021.

None of those contacts had information relevant to this investigation.

*Real Property Accountable Officer:* Dakota Clark, 301-619-1132 (office)

Data provided:

- Print out of construction dates for family housing.
- Confirmed no original real property cards exist for family housing. Mr. Clark has recreated the real property files but had no original information.

*Engineer Technician:* Lauren Wolfe, Engineer Technician, [lauren.e.wolfe3.civ@army.mil](mailto:lauren.e.wolfe3.civ@army.mil)

Data provided:

- Access to vault, which holds original drawings.
  - Research in the drawings in the vault was conducted on 10/28/2021 and drawings of floorplans and elevations for 1950s and for 1965 housing were reviewed.
- Copies of original drawings that were vetted through Operations Security. Receipt of drawings occurred 12/21/2021.

*Housing Partner*

Thomas Kent Farley (Kent), Project Director, Balfour Beatty Communities, (757) 369-3595 (office), (484) 844-2520 (mobile), [tfarley@bbcgrp.com](mailto:tfarley@bbcgrp.com)

Data Provided:

- Building construction dates from Balfour Beatty Communities records.
- Confirmation of database analysis of numbers of Vietnam War Era housing units.
- Confirmed that the Housing Partner does not have real property cards or original drawings.
- Date of management transfer was 2004.
- Summary of Management Actions: Mr. Farley has information about when changes to the housing units occurred during Beatty Balfour management, but no historical records.
- Section 106 actions and correspondence – None.
- Confirmed selection of buildings to be surveyed based on floor plans, notified occupants of the site visit, as necessary.
- Facilitated interior access to selected housing units.

## **Previous Investigations**

The 40 housing units at Fort Detrick are examples of family housing designed in the period 1963-1964 and completed in 1965. The buildings were designed using the 1959 design criteria established under the Capehart housing program. No previous investigations have been undertaken for the 40 housing units at Fort Detrick. In 2000, the Army Corps of Engineers prepared an Individual Property/District Maryland Historical Trust Internal National Register (NR) Eligibility Review Form that documented buildings located on Fort Detrick constructed up to and including 1960. The determination of eligibility form recommended

that no historic district was located at Fort Detrick. The Vietnam War Era housing completed in 1965 was not included in the evaluation.

## **INVENTORY:**

### **Windshield Survey**

The windshield survey of the Vietnam War Era housing areas was conducted on October 20, 2021. Fort Detrick has 40 family housing units constructed during the Vietnam War Era in two neighborhoods: Nickel Place for enlisted personnel and Glick Place for officers. Both housing areas are located adjacent to larger residential areas where there are modern shared playground facilities. Inventory forms developed for the two neighborhoods can be found in Volume 2 of this report.

### Nickel Place

Nickel Place was constructed at the west end of an existing Capehart neighborhood constructed in 1958 for enlisted personnel. Nickel Place is a court located at the end of a paved access road. The court has a central parking area surrounded by three, two-story, fourplex townhouses built for enlisted personnel. The buildings exhibit no discernable architectural style (Figures 1 and 2).

The buildings are set back from the parking area by approximately 25 feet. The parking area has curbing, concrete sidewalks around the parking area, and concrete sidewalks leading to each entry. The area has street lighting. The landscaping is lawn with low foundation plantings in front of each building. The area has single trees and groups of trees dispersed in the vicinity.



Figure 1. Building 1728 at west end of Nickel Place, showing parking area



Figure 2. Building1729 in Nickel Place

### Glick Place

The group of two, two-story, split-level single-family houses and thirteen, two-story duplexes were constructed for officers on the west end of Bullene Drive and along Glick Place. Glick Place was constructed west of two culs-de-sac of officer Capehart housing. The two single family houses are located on Bullene Drive. The majority of the buildings are constructed to face each other along Glick Place that terminates in a cul-de-sac. The cul-de-sac has a central landscaped island surrounded by parking spaces. The units have individual driveways (Figures 3, 4, and 5).

The buildings have uniform setbacks of about 25 feet from the street. While no sidewalks are located along Bullene Drive, sidewalks are located along both sides of Glick Place. Sidewalks also lead to the entries of the individual units. The area has street lights. Landscaping comprises foundation plantings along the fronts of the buildings. A few trees are located in the front yard, but most trees are dispersed behind the buildings.



Figure 3. Glick Place looking from the cul-de-sac north towards Bullene Drive



Figure 4. Parking island at the south end of Glick Place



Figure 5. Typical landscaping in front of Building 1876 Glick Place

### Inventory of Representative Buildings

Inventory was undertaken of four representative buildings. The buildings included a single-family house, one unit of a three-bedroom duplex in Glick Place, and one unit of a fourplex townhouse in Nickel Place. The interior of the four-bedroom duplex had no interior access.

Address	Neighborhood	Construction Date	Building Subtype	Number of Bedrooms	Interior Access?
1727C Nickel Place	Nickel Place	1965	Fourplex Townhouse	4	Yes
1874A Glick Place	Glick Place	1965	Duplex	3	Yes
1866 Bullene Drive	Glick Place	1965	Single Family, split-level	4	Yes
1875 Glick Place	Glick Place	1965	Duplex	4	No

The two single-family buildings on Bullene Drive were constructed for officers. These buildings exhibit elements of the Contemporary style in the foyer, the split-level treatment, open floorplan on the lower level. The two single-family houses are also the largest units with 1,584 square feet and four bedrooms. The two-story duplexes constructed for officers contain three-bedroom and four-bedroom units. The three-bedroom unit contained 1,200 square feet. Interior access for a four-bedroom duplex was unavailable. The duplexes exhibit minimalist ornamentation that mainly appears in the patterning of the vinyl siding, windows just below the eave and deep eaves. The enlisted family housing unit contained 1,132 square feet and also

exhibited minimal exterior ornamentation, primarily patterning of vinyl siding, deep eaves, and windows located just below the eave line.

Inventory forms developed for each surveyed unit can be found in Volume 2 of this report.

### **Changes over Time and Resource Integrity**

The two Vietnam War Era neighborhoods at Fort Detrick have not undergone significant redesign, new construction, or demolition. However, modifications have occurred to all 40 family housing units. The family housing was designed with minimal ornamentation which was reflected in the siding, the overhanging roofs, and the locations and patterns of windows and doors. The original historic siding was patterned with vertical and horizontal wood siding and plastic faced plywood panels. This patterning is reflected in the current vinyl siding. The current vinyl siding covers the entire building and the plywood panels are not visible, if still present. The windows and doors are all replacement units. The original designs included the one-bay, one-story gabled entry porches found on all the buildings; the current materials of these porches are modern replacement materials. For example, the porch columns originally were wood, but have been replaced with PVC elements. Faux shutters have been installed along the front elevations of all family housing. The doors are all metal replacement units molded to represent paneled doors; original doors were wood units. The three-bedroom duplexes have adjoining projecting one-story entries under shed roofs supported with PVC columns; the projections contain unit doorways, foyers, and coat closets. Interior modifications generally consist of replacement finishes, fixtures, and appliances.

Despite exterior and interior modifications over time, Vietnam War Era family housing, associated outbuildings, and neighborhoods retain sufficient integrity of association, feeling, location, and setting to convey their association with the conflict in Vietnam and NRHP significance under Criterion A. Due to modifications and alterations, the housing generally no longer retains a high degree of integrity of design and materials and are not sufficiently distinctive or distinguishable in their design and construction relative to the national inventory; the housing is therefore not considered eligible for the NRHP under Criterion C.

### **Properties of Particular Importance**

The Program Comment Plan for Vietnam War Era Housing issued in December 2021 defines a Property of Particular Importance as one that is an

Army Vietnam War Era housing or neighborhoods that are, in the context of the nation-wide inventory of civilian sector housing and neighborhoods from this period, substantially distinctive and unique in their design, method of construction, and building materials used. Additionally, properties of particular importance must exhibit a high degree of integrity with enough significant design characteristics and original historic building materials present and intact to be considered truly distinctive within the nation-wide inventory (U.S. Department of the Army 2021:34).

The civilian housing sector influenced popular expectations for housing design, building types, interior spatial requirements, and amenities. Stylistically, many houses constructed during the period were executed in the Modern idiom; historical stylistic references were absent on houses constructed during the period. Award-winning residential designs of the period included those that firmly rejected historical precedent in exterior design and interior plan. While the military sought to adopt design principles advanced by the civilian architectural sector for Vietnam War Era housing constructed by the Army, size limitations and cost criteria established by Congress for military family housing influenced the resulting housing stock in terms of architectural expression and interior design.

Inventory conducted at Fort Detrick confirmed that the military followed civilian-sector housing trends and did not construct substantially distinctive or unique housing. Due to continuous modification and alteration, the units no longer retain a high degree of integrity of design and materials. The units are not substantially distinctive or unique within the inventory of civilian-sector housing and neighborhoods. No Properties of Particular Importance are present at Fort Detrick.

## **Bibliography**

Fort Detrick Directorate of Public Works

1963 Drawings of Family Quarters 40 Units. Provided by Fort Detrick.

U.S. Army Corps of Engineers

2000 Fort Detrick, Frederick County (F-3-161) Individual Property/District Maryland Historical Trust Internal National Register (NR) Eligibility Review Form. Available online at <https://mht.maryland.gov/secure/medusa/>.

## **Fort Gordon**

### **Vietnam War Era Housing Site Visit Report**

#### **Introduction**

Fort Gordon is located in eastern central Georgia approximately 9 miles southwest of Augusta, Georgia. The installation comprises approximately 55,000 acres in four counties of Georgia. The majority of the installation and the entire cantonment area lie within Richmond County, Georgia. Fort Gordon is bound to the north by U.S. Highway 78, on the east and south by U.S. Highway 1, and on its western perimeter by U.S. Highway 221.

Fort Gordon was established in 1941 as a World War II mobilization basic training center. The installation continued to train Signal Corps personnel and Army military police. The installation became permanent in 1956. During the Vietnam War Era, Fort Gordon conducted basic and specialty training, especially for Signal Corps. In 1974, Fort Gordon was established as the location for all Signal Corps training.

Fort Gordon has 740 housing units from the Vietnam War Era in three neighborhoods: Gordon Terrace, McNair Terrace, and the original Olive Terrace. The three neighborhoods are located southeast of the cantonment near an installation boundary. The housing units exhibit three periods of construction: 1966-1967, 1970, and 1974-1975. The 1966-1967 construction was completed in Gordon Terrace for enlisted personnel and in McNair Terrace for junior officers and comprises multiplex townhouses, duplexes, and single family units. The units completed in 1970 were constructed in Gordon Terrace and comprise duplexes and fourplexes. The construction completed in 1974 and 1975 occurred in McNair Terrace for officers and in Olive Terrace for senior enlisted personnel. The units constructed in 1974-1975 were one and two-story duplexes.

The site visit was conducted between October 12 and October 14, 2021, by Katherine Grandine.

#### **Installation Contacts:**

##### *Army Housing Office*

Mr. Challen Kelker, Housing Chief, 706-791-4302, [challen.j.kelker2.civ@mail.mil](mailto:challen.j.kelker2.civ@mail.mil)

Sylvia Thigpen, Housing Manager, RCI Housing Office, (G): 706-305-7985, (O): 706-791-7067, [Sylvia.i.thigpen.civ@mail.mil](mailto:Sylvia.i.thigpen.civ@mail.mil)

Opal Graves, RCI Housing Office, 769-223-5507, [opal.j.graves.civ@mail.mil](mailto:opal.j.graves.civ@mail.mil)

Kimberly Gillespie, RCI Housing Intern

Mr. Kelker assigned the visit arrangements to Ms. Sylvia Thigpen. Ms. Thigpen arranged installation access, photo pass, and coordinated the site visit schedule with other offices at Fort Gordon, such as the Directorate of Public Works and Public Affairs Office. Mr. Kelker, Ms. Graves, and Ms. Gillespie served as escorts for the neighborhood windshield survey, provided neighborhood maps, and provided contacts and directions to guide the surveyor around the installation. Ms. Graves and Ms. Gillespie also escorted the investigator during the inventory individual family housing units.

### *Housing Partner*

Jim Ewing, Project Director, Fort Gordon Family Homes, Beatty Balfour Communities  
M: 215-850-2928, [jewing@bbcgrp.com](mailto:jewing@bbcgrp.com)

Tommy Nobles, Quality Control Specialist

#### Data Provided:

- Neighborhood maps.
- Confirmation of DoD database analysis related to housing numbers.
- Confirmation that date of housing management transfer was 2006.
- Summary of Management Actions – information related to the Initial Development Plan (IDP).
- Section 106 actions and correspondence – None.
- Selection of buildings to be inventoried based on floor plans.
- Notifications to occupants to view occupied housing units.
- Tommy Nobles, Quality Control Specialist, served as the escort during the unit inventory and interacted with residents of occupied units.

### *Cultural Resources Manager/Historian*

Renee Lewis, NEPA Coordinator/ Cultural Resource Manager Environmental Division Directorate of Public Works (DPW) Fort Gordon, GA, 706-791-2403, [ruth.r.lewis8.civ@mail.mil](mailto:ruth.r.lewis8.civ@mail.mil)

#### Data provided:

- Digital copy of the 2020-2025 Integrated Cultural Resource Management Plan (ICRMP).
- Digital copy of the 2004 *Fort Gordon Cold War Architectural Survey Vol. 1: Historic Context and Survey Results* and *Vol. 4: Family Housing Survey Forms* containing forms on Vietnam War Era housing.
- A copy of *The History of Fort Gordon* (1996), and a hard copy of *From Spearpoints to Satellites* (2012).
- Digital copies of historic photographs assembled for the 2005 survey report.
- SHPO letter stating that recommendations in 2005 architectural report were concurred with. The recommendations were that the Vietnam War Era housing did not meet Criteria Consideration G for exceptional significance for properties less than 50 years of age, and, even when the buildings reached 50 years of age, they had no integrity to the Vietnam War Era.
- Section 106 Actions with SHPO correspondence – No additional Section 106 actions for Vietnam War Era housing.
- MOAs, PAs relevant to Vietnam War Era housing – None.
- Ms. Lewis contacted the Historian, US Army Signal Corps Signal Corps, about historic photographs. Those photographs subsequently were provided.
- Ms. Lewis facilitated access to the drawings vault.

### *Real Property/DPW*

Bill Graves, Chief, Real Property Branch, 706-791-6266, [billy.j.graves.civ@army.mil](mailto:billy.j.graves.civ@army.mil)

Data provided:

- Access to historical records including the Real Property Cards for family housing. Copies of the cards of the buildings inventoried during the site visit were reviewed to document general changes over time.
- Access to original floor plans to collect data on any architects.
- Access to the drawings for review.

#### *Historian, US Army Signal Corps*

Steve Rauch, Historian, US Army Signal Corps, Fort Gordon. Contact facilitated through Ms. Lewis, CRM

- Ms. Lewis provided a selection of photographs collected from Mr. Rauch.

#### *Public Affairs Office*

Anne Bowman, Public Affairs Officer (PAO) 706-791-4306, [Anne.h.bowman.civ@mail.mil](mailto:Anne.h.bowman.civ@mail.mil)

- No relevant data available.

### **Previous Investigations**

In 2005, an architectural survey with evaluation of the buildings in the neighborhoods of Gordon Terrace, McNair Terrace, and Olive Terrace was completed by the Construction Engineering Research Laboratory (CERL) (Smith and Stone 2005). The survey was conducted as part of an architectural survey of all Cold War era buildings located at Fort Gordon. Inventory forms were completed for each building subtype identified by CERL in the neighborhoods. The surveyors concluded that all buildings in the three neighborhoods had compromised integrity due to installation of vinyl siding, replacement of all windows and doors, and alterations to fencing of service yards.

At the time of the survey, the buildings were less than 50 years of age. The surveyors noted that the buildings did not meet the qualities of exceptional significance applying Criteria Consideration G for listing in the National Register of Historic Places and recommended that the buildings would “not become eligible for the National Register when they reach 50 years of age due to a severe lack of integrity” (Smith and Stone 2005). The results were presented to the Georgia Historic Preservation Division serving as the SHPO, who concurred with the “conclusions of the report [i.e., Vol. 4] that no historic properties (above-ground) at Fort Gordon are eligible for listing in the National Register of Historic Places” in correspondence dated 3 August 2005 (Georgia Historic Preservation Division 2005).

### **INVENTORY:**

#### **Windshield Survey**

The windshield survey occurred on October 12, 2021. Fort Gordon has three distinct neighborhoods containing housing constructed between 1965 and 1975. Gordon Terrace was built for enlisted personnel, McNair Terrace was built for junior officers, and the original Olive Terrace was built for senior enlisted. The neighborhoods are separate areas and do not adjoin each other. The neighborhoods were constructed out of the pine forest, and pine trees still surround each neighborhood. Neighborhood inventory forms are found in Volume 2 of this report.

### *Gordon Terrace*

Gordon Terrace is the largest neighborhood. It was constructed in two phases between 1966-1967 and 1970 and currently contains 167 buildings with 507 units. The neighborhood was constructed for junior enlisted personnel and senior NCOs. The neighborhood plan incorporates a main road that links the neighborhood to the cantonment area and bisects the neighborhood. Another main road crosses the neighborhood. A secondary road forms the boundary of the neighborhood. The cross streets include circular roads, straight streets, seven courts, and one cul-de-sac. The buildings include two-story multiplex townhouses and one- and two-story duplexes. The buildings exhibit minimal ornamentation (Figures 1-4).

The buildings have uniform setbacks from the streets. Most streets have concrete sidewalks, which lead to most unit entries. Multiplex buildings surrounding courts have paved parking areas. Other multiplexes have shared lots in fronts of the buildings. Duplexes typically have individual driveways.

The buildings have lawn in front of the buildings and low-scale plantings along the front foundations. Some street trees stand in front yards, but most trees are located to the rears of the buildings. Swing sets and playground equipment are dispersed throughout the neighborhood. One area had park benches. One basketball court was noted. Bus shelters added at a later date are located along the streets.



Figure 1. Dogwood Court in Gordon Terrace



Figure 2. Building 1652 Garcia Drive



Figure 3. 1952 Story Drive



Figure 4. Tot lot showing an older swing set and modern playground equipment

### *McNair Terrace*

McNair Terrace was constructed two phases in 1966-1967 and in 1974-1975 and contains 54 buildings with 116 units. This area originally was constructed for company grade officers and warrant officers. The neighborhood is accessed by one major street. Courts and culs-de-sac lead off from the main street. The west end of the neighborhood was constructed in 1966-1967 and has two-story multiplex townhouses, two-story duplexes, and two-story, single-family houses. The eastern section of the neighborhood was constructed in 1975 has one and two-story duplexes. The buildings exhibit minimal architectural ornamentation (Figures 5-8).

The community has concrete curbs throughout. Concrete sidewalks were located in the culs-de-sac along the roads for the buildings and some roads constructed in 1966, while culs-de-sac constructed in 1975 have fewer sidewalks. Duplexes are accessed from the concrete parking areas in front of the buildings. Multiplexes may have individual sidewalks leading to individual units. Multiplex townhouses typically are arranged around a court that provides shared parking. The duplexes and single family units are located in the culs-de-sac, some with double loops. Duplexes and single family units have carports. Some carports are separated between the units, but most have a central shared carport, where each unit has one covered and one uncovered parking spot.

The buildings typically have lawn in front of the buildings and low-scale plantings along the front foundations. Some street trees stand in front yards, but most trees are located to the rears of the buildings. Swing set and playground equipment are dispersed throughout the neighborhood. One tot lot with swing set, one basketball court, and one tennis court also were noted.



Figure 5. Building 765 Walnut Court



Figure 6. Building 752 Carter Circle



Figure 7. Apple Court



Figure 8. Daffodil Court

### *Olive Terrace*

Olive Terrace was constructed in 1974-1975 and contains 58 buildings with 117 units. This area originally was constructed for senior enlisted NCOs. Olive Terrace is located between two main roads from which culs-de-sac lead off. Buildings front onto the culs-de-sac that lead off of the central road. Six culs-de-sac are single circles or courts. Two culs-de-sac have double loops (Figures 9-10).

Since the neighborhood was constructed at one time, the buildings are uniform comprising one- and two-story duplexes. The buildings exhibit minimal architectural ornamentation.

The buildings have uniform setbacks from the street. The community has concrete curbs throughout. Concrete sidewalks were located along some roads into the culs-de-sac, but few sidewalk sections, if any, located in the culs-de-sac. Buildings are accessed from the concrete parking areas in the fronts of the buildings. Shared central carports are typical with one covered and one uncovered parking spot per unit.

Landscaping is limited to lawns, low foundation plantings, and an occasional tree. Most trees are located behind the houses. One tot lot was noted in this neighborhood.



Figure 9. Entry road to Tulip Court



Figure 10. Building 2084 Quince Court, showing parking areas and lawn

### Inventory of Representative Buildings

Inventory was undertaken of nineteen representative buildings. The buildings represented three periods of construction and included multiplex townhouses, duplexes, and one single-family house.

Address	Neighborhood	Date Constructed	Building Subtype	Number of Bedrooms	Interior Access
1927 Goodman Drive	Gordon Terrace	1970	Fourplex Townhouse	5	Yes
1603 Boxwood Court	Gordon Terrace	1966	Sixplex Townhouse	4	Yes
1912 Goodman Drive	Gordon Terrace	1970	Fourplex Townhouse	4	Yes
1847 Brainard Avenue	Gordon Terrace	1970	Duplex	3	Yes
1803 Garcia Drive	Gordon Terrace	1970	Duplex	4	Yes
771 Pecan Court	McNair Terrace	1966	Eightplex Townhouse	3	Yes
1724 Azalea Court	Gordon Terrace	1966	Fourplex Townhouse	3	Yes
751 Carter Circle	McNair Terrace	1966	Single family	3	Yes

752 Carter Circle	McNair Terrace	1966	Duplex	4	Yes
800 Apple Court	McNair Terrace	1975	Duplex	3	Yes
814 Birch Court	McNair Terrace	1975	Duplex	3	Yes
2010 Tulip Court	Olive Terrace	1975	Duplex	3	Yes
2084 Quince Court	Olive Terrace	1975	Duplex	3	Yes
1628 Hill Drive	Gordon Terrace	1970	Fourplex Townhouse	2	Yes
1952 Story Drive	Gordon Terrace	1970	Triplex Townhouse	5	Yes
1831 Garcia Drive	Gordon Terrace	1970	Duplex	4	Yes
761 Walnut Court	McNair Terrace	1967	Sixplex Townhouse	4	Yes
1950 Story Drive	Gordon Terrace	1970	Fourplex Townhouse	4	Yes
830 Ginger Court	McNair Terrace	1975	Duplex	4	Yes

The representative buildings inventoried during this investigation identified four subtypes of Vietnam War Era residential construction at Fort Gordon: multi-unit townhouses, duplex ranches, two-story duplexes, and one single family residence. Gordon Terrace contains multiplex townhouses and duplex ranches. McNair Terrace contains multiplex townhouses, one-story and two-story duplexes, and one single family house. Olive Terrace contains one-story and two-story duplexes.

Review of the 2005 architectural inventory forms and data collected during the current investigation revealed that the building subtypes noted on the original drawings matched the building codes found in the *1964 Design Folio* for buildings constructed in 1966 and 1967. Similar building codes were used to identify the family housing constructed in 1970 and may reference revisions to the original folio suggested in the archival record. Buildings completed in 1975 were identified by occupant rank and number of bedrooms. Inventory forms for each surveyed unit can be found in Volume 2 of this report.

### **Changes over Time and Resource Integrity**

The buildings and the neighborhoods have undergone substantial changes over time. The neighborhood plans of McNair Terrace and Olive Terrace remain unaltered. However, the plan of Gordon Terrace has been altered through the demolition of buildings in the north corner of the neighborhood.

Although the family housing at Fort Gordon constructed during 1966 and 1967 was based on the 1964 *Design Folio*, the buildings constructed at Fort Gordon were only imitative of the robust contemporary style presented in the *Design Folio*. The housing as constructed at Fort Gordon adopted a minimalist design aesthetic that comprised flat wall planes, roof overhangs, and the pattern of window openings. Minimal ornamentation was confined to the patterning of the original “hardboard” wood siding. The typical original siding on townhouses constructed in 1966-1967 and in 1970 was vertical board on the first story and wider horizontal boards on the second story. Other buildings featured horizontal siding on the first story and

vertical siding on the second story. Some one-story duplex units completed in 1970 had wood panel siding with wood battens. Some one-story duplex housing units constructed in 1975 were sheathed in wood shake panels. Windows were typically either two-over-two light, double-hung sash or sliding units. The doors originally were wood units with single square lights.

The exteriors of the all family housing units in the three neighborhoods exhibit alterations and modifications that have compromised the original minimalist design aesthetic of the buildings. The real property cards suggest that vinyl siding was first applied during the late 1980s. The vinyl siding currently on the buildings dates from the modernization program after 2006. The wholesale application of standard-width horizontal vinyl siding to all housing units has altered substantially the original appearance of the buildings. All windows have been changed to one-over-one-light units with pronounced aluminum casings. Currently windows on the front elevations are ornamented with faux shutters in an effort to add an element of architectural revivalism to the buildings. All doors currently are metal units without windows.

Interior modifications generally consist of replacement finishes, fixtures, and appliances. In select cases, the combining of units resulted in modifications to original floor plans. Despite exterior and interior modifications over time, Vietnam War Era buildings, associated outbuildings, and neighborhoods retain sufficient integrity of association, feeling, location, and setting to convey their association with military family housing constructed to support the conflict in Vietnam and NRHP significance under Criterion A. Due to modifications and alterations, the housing generally no longer retains a high degree of integrity of design and materials. The units are not sufficiently distinctive or distinguishable in their design and construction relative to the national inventory, and the housing is therefore not considered eligible for the NRHP under Criterion C.

### **Properties of Particular Importance**

The Program Comment Plan for Vietnam War Era Housing issued in December 2021 defines a Property of Particular Importance as one that is an

Army Vietnam War Era housing or neighborhoods that are, in the context of the nation-wide inventory of civilian sector housing and neighborhoods from this period, substantially distinctive and unique in their design, method of construction, and building materials used. Additionally, properties of particular importance must exhibit a high degree of integrity with enough significant design characteristics and original historic building materials present and intact to be considered truly distinctive within the nation-wide inventory (U.S. Department of the Army 2021:34).

The civilian housing sector influenced popular expectations for housing design, building types, interior spatial requirements, and amenities. Stylistically, many houses constructed during the period were executed in the Modern idiom; historical stylistic references were absent on houses constructed during the period. Award-winning residential designs of the period included those that firmly rejected historical precedent in exterior design and interior plan. While the military sought to adopt design principles advanced by the civilian architectural sector for Vietnam War Era housing constructed by the Army, size limitations and cost criteria established by Congress for military family housing influenced the resulting housing stock in terms of architectural expression and interior design.

Inventory conducted at Fort Gordon confirmed that the military followed civilian-sector housing trends and did not construct substantially distinctive or unique housing. Due to continuous modification and alteration, the units no longer retain a high degree of integrity of design and materials. The buildings are not

substantially distinctive or unique within the inventory of civilian-sector housing and neighborhoods. No Properties of Particular Importance are present at Fort Gordon.

## **Bibliography**

Fort Gordon RCI Housing Office

Var. Neighborhood maps.

Fort Gordon Real Property Office

Var. Real property records, original drawings.

Fort Gordon Cultural Resources Management Office

Var. Historic photographs.

Georgia Historic Preservation Division

2005 Letter: Section 110: Cold War Survey, Vol 4: Family Housing Survey Forms. August 3.  
Letter provided by Fort Gordon to Department of the Army.

Kane, Sharyn, and Richard Keeton

2012 *From Spearpoints to Satellites: The Story of the U.S. Army Signal Center & Fort Gordon, Georgia*. Prepared for Natural Resources Branch, Fort Gordon; Southeast Archeological Center, National Park Service; and, Hartrampf, a Wiley/Wilson Company.

# **Fort Hood**

## **Vietnam War Era Housing Site Visit Report**

### **Introduction**

Fort Hood is located in Killeen, Texas, in Bell and Coryell counties. Encompassing 214,000 square acres, the trains and deploys heavy forces via the 1<sup>st</sup> Cavalry Division. The installation was established in 1942. There are 1,832 units of Vietnam War Era housing located at Fort Hood. These units are managed by the privatized housing Partner, Lendlease. Units were constructed between 1969 and 1975 and were anticipated to include duplexes.

The site visit was completed between October 19<sup>th</sup> and October 21<sup>st</sup>, 2021, by Molly Soffiatti.

### **Installation Contacts**

The surveyor met with Fort Hood's Cultural Resources Manager, Real Property representative, and housing Partner. Fort Benning does not maintain a post historian.

#### *Cultural Resources Manager*

Sonny Wood, Archaeologist, [sonny.a.wood.civ@army.mil](mailto:sonny.a.wood.civ@army.mil), (254) 535-0850

#### Data Requested:

Mr. Wood provided the most recent Integrated Cultural Resources Management Plan (ICRMP), which was completed in August 2021. Fort Hood follows alternate consultation procedures with the Texas State Historic Preservation Office (TX SHPO), which includes a yearly report of undertakings at the post. No letter writing or correspondence is required. Therefore, no SHPO correspondence was available. The Partner later clarified that no undertakings with Vietnam War Era housing have occurred since reaching the 50-year age requirement. Mr. Wood provided *Historic Resources Inventory Exterior Survey and National Register Evaluation of 166 Buildings and Structures, Fort Hood, Bell County, Texas* (2018). Venable Village, constructed in 1969/1970, was evaluated in this document. All units were found ineligible due to a lack of integrity. SHPO concurrence was received in 2018 (Jones 2018).

#### *Real Property*

Jill Martin, [jill.d.martin.civ@army.mil](mailto:jill.d.martin.civ@army.mil), (254) 287-3955

#### Data Requested:

Ms. Martin provided access to Real Property Card records. Due to the size of the inventory, real property cards for the surveyed properties were accessed.

### *Base Historian*

Fort Hood does not have a base historian.

### *Housing Partner*

Contact: Ricardo Garcia, Lendlease, [ricardo.garcia@lendlease.com](mailto:ricardo.garcia@lendlease.com), (254) 383-0746

#### Data Requested:

Four neighborhoods containing 1,832 units of Vietnam War era housing were identified: Comanche I, Comanche II, Comanche III, and Venable Village.

### **Previous Investigations**

The Venable Village neighborhood was surveyed and evaluated in *Report 67: Historic Resources Inventory Exterior Survey and National Register Evaluation of 166 Buildings and Structures, Fort Hood, Bell County, Texas* (2018). Venable Village was evaluated as potentially eligible under National Register Criterion A; however, investigators found the neighborhood lacked integrity of design, materials, workmanship, and feeling. The neighborhood was recommended ineligible for listing in the National Register of Historic Places. SHPO concurrence was received in 2018 (Jones 2018). The three other Vietnam Era neighborhoods were not surveyed previously.

## **INVENTORY:**

### **Windshield Survey**

The windshield survey occurred on October 19, 2021. The buildings in the Comanche I, II, and III neighborhoods were inventoried. The buildings in Venable Village were not accessible; consequently, those buildings were not subject to inventory. Inventory forms were developed for the neighborhoods accessible for windshield survey and can be found in Volume 2 of this report.

### *Comanche I*

Curvilinear streets define the Comanche I neighborhood included the oxbow created by Karankawa Circle. Culs-de-sac are located throughout the neighborhood. The neighborhood generally contains one-story, ranch duplexes located 10-to-15 feet back from the roadway with parking pads and carports. A golf course is located next to the neighborhood. A park with community center and playground is present. A basketball court, streetlights, and collective mailboxes also are located in the neighborhood. Comanche I contains 262 units (Figures 1 and 2).



Figure 1: A streetscape in Comanche I



Figure 2: Further streetscape in Comanche I

### *Comanche II*

Curvilinear streets define the Comanche II neighborhood included in the oxbow created by Tiguas Street. Units generally are two-story duplexes located 10-to-15 feet back from the roadway with carports and parking pads. The buildings were constructed between 1973 and 1975. Units total 676. The neighborhood contains a park, playground, basketball court, streetlights, and collective mailboxes. Modern infill construction has occurred during the twenty-first century. Comanche II contains 728 units (Figures 3 and 4).



Figure 3: Example of a curvilinear street in Comanche II



Figure 4: View of Comanche II

### *Comanche III*

Laguna Drive is a curvilinear street creating an oxbow and is located off of Muskogee Road. Radiating courts are located off of Laguna Drive. Houses generally are two-story, duplexes set 10-to-15 feet back from the roadway with carports and parking pads. Units were constructed in 1973. The neighborhood contains a park, basketball and baseball facilities, and a playground. Streetlights and collective mailboxes are present. Multi-level infill construction has been added during the twenty-first century. Comanche III contains 1,298 units (Figures 5 and 6).



Figure 5: View of a corner of Comanche III



Figure 6: View of a modern playground in Comanche III

## Inventory of Representative Buildings

Inventory was undertaken of 14 buildings including 12 interiors in three Vietnam War Era neighborhoods.

Address	Neighborhood	Construction Date	Building Subtype	Number of Bedrooms	Interior Access?
52339-2 Biloxi Circle	Comanche III	1973	Duplex	4	Yes
52426-1 Miami Court	Comanche III	1973	Duplex	N/A	No
52335-1 Biloxi Circle	Comanche III	1973	Duplex	5	Yes
52312-1 Biloxi Circle	Comanche III	1973	Duplex	3	Yes
52402-2 Miami Court	Comanche III	19673	Duplex	4	Yes
51218-1 Maricopa Court	Comanche I	1969	Duplex	4	Yes
51215-1 Maricopa Court	Comanche I	1969	Duplex	N/A	No
51214-1 Maricopa Court	Comanche I	1969	Duplex	2	Yes
51516-3 Couchatta Street	Comanche II	1973-1975	Sixplex Townhouse	3	Yes
51452-2 Couchatta Street	Comanche II	1973-1975	Fourplex Townhouse	4	Yes
51447-1 Couchatta Street	Comanche II	1973-1975	Duplex	4	Yes
51763-1 Comanche Circle	Comanche II	1973-1975	Duplex	5	Yes
52501-1 Acoma Loop	Comanche III	1973	Duplex	3	Yes
52502-2 Acoma Loop	Comanche III	1973	Duplex	4	Yes

### Changes Over Time and Resource Integrity

The buildings have been subject to exterior modification including the installation of replacement roofing materials, siding, windows, and doors. Interior modifications generally consisted of replacement finishes, fixtures, and appliances. In select cases, the combining of units resulted in modifications to original floor plans. The neighborhoods have not undergone significant redesign, new construction, or demolition.

Despite modifications over time, Vietnam War Era buildings, associated outbuildings, and neighborhoods retain sufficient integrity of association, feeling, location, and setting to convey their association with the conflict in Vietnam and NRHP significance under Criterion A. Due to modifications and alterations, the housing generally no longer retains a high degree of integrity of design and materials. Those units that retain some degree of integrity of design and materials are not sufficiently distinctive or distinguishable in their design and construction relative to the national inventory, and the housing is therefore not considered eligible for the NRHP under Criterion C.

## **Properties of Particular Importance**

The Program Comment Plan for Vietnam War Era Housing issued in December 2021 defines a Property of Particular Importance as one that is an

Army Vietnam War Era housing or neighborhoods that are, in the context of the nation-wide inventory of civilian sector housing and neighborhoods from this period, substantially distinctive and unique in their design, method of construction, and building materials used. Additionally, properties of particular importance must exhibit a high degree of integrity with enough significant design characteristics and original historic building materials present and intact to be considered truly distinctive within the nation-wide inventory (U.S. Department of the Army 2021:34).

The civilian housing sector influenced popular expectations for housing design, building types, interior spatial requirements, and amenities. Stylistically, many houses constructed during the period were executed in the Modern idiom; historical stylistic references were absent on houses constructed during the period. Award-winning residential designs of the period included those that firmly rejected historical precedent in exterior design and interior plan. While the military sought to adopt design principles advanced by the civilian architectural sector for Vietnam War Era housing constructed by the Army. Size limitations and cost criteria established by Congress for military family housing influenced the resulting housing stock in terms of architectural expression and interior design.

Inventory conducted at Fort Hood confirmed that the military followed civilian-sector housing trends and did not construct substantially distinctive or unique housing. Due to continuous modification and alteration, the units no longer retain a high degree of integrity of design and materials. Those units that retain integrity of design and materials are not substantially distinctive or unique within the inventory of civilian-sector housing and neighborhoods. No Properties of Particular Importance are present at Fort Hood.

Inventory forms have been developed for each surveyed unit and can be found in Volume 2 of this report.

## **Bibliography**

Jones, Rich

2018 Letter to Mark Wolfe, 18 June.

Murphey, Joseph S.

*2018 Report 67: Historic Resources Inventory Exterior Survey and National Register Evaluation of 166 Buildings and Structures, Fort Hood, Bell County, Texas.* Prepared for Environmental Division, U.S. Army Garrison, Fort Hood.

# Fort Jackson

## Vietnam War Era Housing Site Visit Report

### Introduction

Fort Jackson is located east of Columbia in Richland County, South Carolina. The installation is bound to the west by US Highway 77. Encompassing 81 square miles, the installation is the largest initial entry training center in the U.S. Army, training 50 per-cent of all soldiers entering the Army each year. The installation was established in 1917.

There are 128 buildings identified as Vietnam War Era family housing located at Fort Jackson. These buildings are managed by the privatized housing Partner, Balfour Beatty Communities.<sup>1</sup> Units were constructed between 1968 and 1972 and were anticipated to include single-family, duplexes, and fourplex, fiveplex, and sixplex townhouses. Additionally, two-story, four-to-eight unit apartment buildings were anticipated in the Jack's Inn neighborhood, which most recently has been used as installation lodging.

The site visit was completed between October 25<sup>th</sup> and October 27<sup>th</sup>, 2021, by Samuel Young.

### Installation Contacts

The surveyor met with Fort Jackson's Army Housing representative, Cultural Resource Manager, Real Property representative, and housing Partner. Fort Jackson does not maintain a post historian.

#### *Cultural Resources Manager*

Doug Morrow, Wildlife Biologist; (803) 751-1793, [douglas.m.morrow.civ@mail.mil](mailto:douglas.m.morrow.civ@mail.mil)

#### Data Requested:

Mr. Morrow provided the most recent Integrated Cultural Resource Management Plan (ICRMP), active between 2009 and 2013, and the new draft ICRMP dated 2018, intended for use through 2023. Regarding built resources, the ICRMP overviews historic contexts and building phases at Fort Jackson, providing Secretary of the Interior-approved maintenance procedures for buildings which are or become eligible for listing in the National Register. Vietnam Era family housing is not directly mentioned, but would be applicable. Mr. Morrow also provided a copy of a 2015 Programmatic Agreement (PA) between the South Carolina State Historic Preservation Office and the United States Army Garrison Fort Jackson. The PA implements an alternate procedure for the Section 106 process for routine management on Fort Jackson. This PA, however, does not include Vietnam War Era family housing. Rather, the PA addresses determined eligible archeological sites at Fort Jackson. Mr. Morrow stated one Vietnam War Era neighborhood, Jack's Inn, is undergoing a Section 106 review through the U.S. Army Corps of Engineers. The buildings have been recommended not eligible for listing in the National Register. In January 2022, Mr. Morrow confirmed the installation has not received concurrence from the SHPO on Section 106 documentation.

#### *Real Property*

Reginald Darby, Real Property Accountable Officer; (803) 751-5057, [reginald.d.darby.civ@army.mil](mailto:reginald.d.darby.civ@army.mil)

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<sup>1</sup> Fort Jackson was one of two installations surveyed that tabulated its inventory by building rather than by unit.

Mr. Darby provided access to Real Property Card records. Due to the size of the inventory, resources surveyed for forms which represent the diversity of the installation building catalog, were selected across neighborhoods for scanning. Real Property folders contained data on construction dates, materials, and modifications.

#### *Base Historian*

Fort Jackson does not have a base historian.

#### *Housing Partner*

Contact: James Harper, Project Director; (803) 790-7913; [jharper@bbcgrp.com](mailto:jharper@bbcgrp.com),

#### Data Requested

Mr. Harper provided floorplans for housing units and Partner maps of neighborhoods. Three neighborhoods containing 128 Vietnam Era housing buildings were identified: Custer Court, Jack's Inn, and Pierce Terrace. Custer Court contains seven buildings. Resources in Custer Court were constructed between 1971 and 1975. Jack's Inn contains nine units constructed in 1968. The units in Jack's Inn became a short-term lodging facility and have undergone interior renovations. Pierce Terrace contains 112 buildings constructed between 1968 and 1972. The date of management transfer was in 2008. No undertakings have occurred with Vietnam War Era housing that has reached the 50-year age requirement since the management transfer. Family housing have undergone upgrades and renovations as funding has been available.

#### **Previous Investigations**

One Vietnam War Era neighborhood, Jack's Inn, currently is undergoing a Section 106 review through the U.S. Army Corps of Engineers; the result of the survey were not provided by the cultural resources team at Fort Jackson as the survey currently is under internal review. The report and survey results are currently under internal review by the U.S. Army Corps of Engineers. Jack's Inn is comprised of apartment buildings and originally was constructed as housing in 1968, but later utilized as a lodging facility. The buildings have been recommended not eligible for listing in the National Register and currently do not have concurrence from the South Carolina SHPO (Morrow, personal correspondence 2021). The Custer Court and Pierce Terrace neighborhoods have not been subject to previous investigations.

#### **INVENTORY:**

##### **Windshield Survey**

The windshield survey occurred on October 25, 2021. Custer Court, Jack's Inn, and Pierce Terrace all were surveyed. Inventory forms were developed for the neighborhoods and can be found in Volume 2 of this report.

##### *Custer Court*

Custer Court is a cul-de-sac comprised of seven single-family, ranch-type dwellings. A central median is located at the end of the cul-de-sac, which includes a gazebo and basketball hoop (Figure 1). There are no sidewalks in the neighborhood and each building has an individual mailbox. Buildings are set-back approximately 15-to-20 feet from the street (Figure 2). Mature coniferous trees line the streets and provide shade to the cul-de-sac.



Figure 1: View toward cul-de-sac median with gazebo



Figure 2: View of housing along Custer Court

### *Jack's Inn*

Jack's Inn is defined by two perpendicular streets comprised of nine ca. 1968, two-story, four-and-eight unit apartments clad in aluminum siding and brick veneer (Figure 3). Parking lots front onto poured-concrete sidewalks, which provide access to the buildings (Figure 4). Originally constructed as family housing during the Vietnam War Era, the buildings transitioned to lodging during the late-twentieth century.

The neighborhood is bordered by a heavily wooded area, though the neighborhood itself primarily consists of grass lawns with sparse deciduous trees.



Figure 3: Jack's Inn apartment housing



Figure 4: Jack's Inn parking and sidewalks

### *Pierce Terrace*

Pierce Terrace is comprised of two distinct components: pre-1978 housing and post-2008 housing. The post-2008 dwellings are set back 10-to-15 feet from the curvilinear streets, many of which are placed along culs-de-sac. Retaining walls are common in the post-2008 portion of Pierce Terrace.

The pre-1978 housing are located along curvilinear streets devoid of culs-de-sac (Figure 5). These residences generally have parking lots fronting along the buildings. Several buildings have undergone exterior cosmetic renovations and interior floorplan upgrades. Exterior renovations generally are limited to material replacement and new entry-porches with front-gable roofing to emulate the style of new construction in the neighborhood. Interior changes include renovating three bedroom units to two bedroom units and, in limited instances, combining two- and three-bedroom units into one four bedroom unit. The combining of units only has been undertaken at sixplex buildings, which historically were comprised of four three-bedroom units flanked by two two-bedroom end units. The entire neighborhood has sidewalks on both sides of the street, personal mailboxes, streetlights, school bus stops, and mature deciduous trees (Figure 6). Early twenty-first century playgrounds and gazebo structures are located throughout Pierce Terrace. While gazebos were constructed by the Army prior to Partner turnover, up to 43 playgrounds historically were constructed by the Army across the installation including the Vietnam Era neighborhoods. The Partner removed these and only about half have been replaced with new playground units across all family housing neighborhoods. Dwellings are diverse and include single-family, duplex, fourplex, fiveplex, and sixplex townhouses with varying exterior materials. Occasional exterior renovations have been undertaken by the property Partner, as funding permitted, resulting in variety in designs and materials. A school is located adjacent to the neighborhood, as well as, a community center, and series of playgrounds and gazebos (Figure 7).



Figure 5: Burt Street at Pierce Terrace facing west



Figure 6: Pierce Terrace streetscape with sidewalk, trees, and streetlights



Figure 7: Pierce Terrace Playground

## Inventory of Representative Buildings

Inventory was undertaken of representative building subtypes of 12 buildings including 5 interiors in the three Vietnam-era neighborhoods.

Address	Neighborhood	Construction Date	Building Subtype	Number of Bedrooms	Interior Access?
3073 Custer	Custer	1969	Single	4	Yes
3752 Knight	Jack's Inn	1968	Eightplex Apartment	2	No
3770 Gilmer	Jack's Inn	1968	Fourplex Apartment	2	No
5822 Burt	Pierce Terrace	1970	Duplex	3	Yes
5831 Burt	Pierce Terrace	1970	Sixplex Townhouse	2-3	No
5843 Imboden	Pierce Terrace	1970	Duplex	5	No
5837 Burt	Pierce Terrace	1970	Duplex	2	Yes
5845 Imboden	Pierce Terrace	1968	Fourplex Townhouse	3	No
5847 Imboden	Pierce Terrace	1970	Duplex	4	No
5858 Imboden	Pierce Terrace	1970	Sixplex Townhouse	3	No
5902 Chestnut	Pierce Terrace	1970	Fourplex Townhouse	2-3	Yes
5972 Terrell	Pierce Terrace	1970	Fourplex Townhouse	2	No

## Changes over Time and Resource Integrity

The buildings have been subject to minimal exterior modification in terms of materials, additions, and new construction. The neighborhoods have not undergone significant redesign, new construction, or demolition. Modifications to promote visual continuity between Vietnam War Era family housing and contemporary construction at Fort Jackson have been undertaken, including the addition of front-gabled entry porches to select units.

Interior modifications generally consist of cyclical maintenance resulting in replacement finishes, fixtures, and appliances. In the Pierce Terrace neighborhood, the combining of select units resulted in modifications to original floor plans. Despite exterior and interior modifications over time, Vietnam War Era buildings, associated outbuildings, and neighborhoods retain sufficient integrity of association, feeling, location, and setting to convey their association with the conflict in Vietnam and NRHP significance under Criterion A. Due to modifications and alterations, the housing generally no longer retains a high degree of integrity of design and materials. Those units that retain some degree of integrity of design and materials are not sufficiently distinctive or distinguishable in their design and construction relative to the national inventory, and the housing is therefore not considered eligible for the NRHP under Criterion C.

## Properties of Particular Importance

The Program Comment Plan for Vietnam War Era Housing issued in December 2021 defines a Property of Particular Importance as

Army Vietnam War Era housing or neighborhoods that are, in the context of the nation-wide inventory of civilian sector housing an neighborhoods from this period, substantially distinctive and unique in their design, method of construction, and building materials used. Additionally, properties of particular importance must exhibit a high degree of integrity with enough significant design characteristics and original historic building materials present and intact to be considered truly distinctive within the nation-wide inventory (U.S. Department of the Army 2021:34).

The civilian housing sector influenced popular expectations for housing design, building types, interior spatial requirements, and amenities. Stylistically, many houses constructed during the period were executed in the Modern idiom; historical stylistic references were absent on houses constructed during the period. Award-winning residential designs of the period included those that firmly rejected historical precedent in exterior design and interior plan. While the military sought to adopt design principles advanced by the civilian architectural sector for Vietnam War Era housing constructed by the Army, size limitations and cost criteria established by Congress for military family housing influenced the resulting housing stock in terms of architectural expression and interior design.

Inventory conducted at Fort Jackson confirmed that the military followed civilian-sector housing trends and did not construct substantially distinctive or unique housing. Due to continuous modification and alteration, the units no longer retain a high degree of integrity of design and materials. Those units that retain integrity of design and materials are not substantially distinctive or unique within the inventory of civilian-sector housing and neighborhoods. No Properties of Particular Importance are present at Fort Jackson.

Inventory forms have been developed for each surveyed unit and can be found in Volume 2 of this report.

## **Bibliography**

Morrow, Doug

2021 Personal correspondence.

Harper, James

2021 Personal correspondence.

United States Department of the Army

2021 *Final Program Comment Plan for Army Vietnam War Era Historic Housing, Associated Buildings and Structures, and Landscape Features (1963-1975)*. 28 December. Office of the Assistant Secretary of the Army Installations, Energy and Environment, Washington, DC.

# Fort Polk

## Vietnam War Era Housing Site Visit Report

### Introduction

Fort Polk is located southeast of Leesville in Vernon Parish, Louisiana. The installation is comprised of South Fort Polk and North Fort Polk. South Fort Polk is where a majority of soldiers, units, and army families are stationed, work, and live. Encompassing 6.12 square miles, the installation is known as the Joint Readiness Training Center and serves as a training post for infantry soldiers. The installation was founded in 1941.

There are 182 units of Vietnam War Era housing located at Fort Polk. These buildings are managed by the privatized housing Partner Corvias. Buildings were constructed between 1973 and 1974 and were anticipated to include duplexes and four-unit apartment buildings.

The site visit was completed between October 18<sup>th</sup> and October 20<sup>th</sup>, 2021, by Samuel Young.

### Installation Contacts

The surveyor met with Fort Polk's Army Housing representative, Cultural Resources Manager, Real Property representative, Museum Historian, and housing Partner.

#### *Cultural Resources Manager*

Jonathan Allen West; [jonathan.a.west6.civ@mail.mil](mailto:jonathan.a.west6.civ@mail.mil)

#### Data Requested:

Mr. West provided the most recent Integrated Cultural Resource Management Plan (ICRMP), which is in place for fiscal years 2019 through 2023. In regard to build resources, the ICRMP provides Standard Operation Procedure (SOP) for coordination for internal cultural resources review and the Section 106 process. Mr. West provided a CD-ROM of the ICRMP and correspondence with the Louisiana State Historic Preservation Office (LA SHPO). The *Cold War Era Historic Context, Survey, and Building Inventory, Fort Polk, Louisiana (Contract No. W912EE-04-D0003)* was sent to the LA SHPO for review in 2010. The LA SHPO concurred with the recommendation that no historic properties were present and no technical comments were offered.

#### *Real Property*

Patricia Levine, [patricia.a.levine.civ@mail.mil](mailto:patricia.a.levine.civ@mail.mil)

Ms. Levine had searched their entire records but could not located property records prior to 1976. She had stated it is likely they had been thrown out prior to data management transfer. Corvias did not have record of receiving property records during the data management transfer.

#### *Museum Historian*

Richard "Greg" Grant; (337) 531-4840, [Richard.grant33.civ@mail.mil](mailto:Richard.grant33.civ@mail.mil)

Mr. Grant had copies of the base newspaper, *The Observer*, during the years 1971-72 and 1974. Newspaper archives from 1973 were lost in a fire. Three newspaper articles were scanned capturing the bidding process for Army family housing and narratives capturing Army family move-ins during early 1974.

### *Housing Partner*

Contact: Wilfredo Motta, Operations Director at Corvias; Wilfredo.motta@corvias.com

### Data Requested

Mr. Motta provided floorplans for housing units and Partner maps of neighborhoods. Two neighborhoods containing 182 housing units were identified as from the era: Dogwood Terrace and Palmetto Terrace. Dogwood Terrace contains 56 units. Resources in Dogwood Terrace were constructed between 1973 and 1974. Palmetto Terrace contains 126 units constructed between 1973 and 1974. All building exteriors were renovated in 1997 and interiors were renovated between 2008 and 2012. The date of management transfer was September 2004. No undertakings have occurred with Vietnam War Era housing as they have not yet reached the 50 year threshold.

### **Previous Investigations**

Vietnam War Era Family Housing as not undergone formal evaluation at Fort Polk. *The Cold War Era Historic Context, Survey, and Building Inventory, Fort Polk, Louisiana (Contract No. W912EE-04-D0003)* survey undertaken in 2010 and sent to the Louisiana State Historic Preservation Office (LASHPO) in 2010 only surveyed mission-specific built resources and did not include family housing (Boggan 2010). No other investigation or correspondence with the LASHPO was provided.

### **INVENTORY:**

#### **Windshield Survey**

The windshield survey occurred on October 18, 2021. Dogwood Terrace and Palmetto Terrace both were surveyed. Inventory forms were developed for the neighborhoods and can be found in Volume 2 of this report.

#### *Dogwood Terrace*

Dogwood Terrace is comprised of two primary thoroughfares, Magnolia and Cypress drives, each having a series of culs-de-sac. The Vietnam War Era portion of Dogwood Terrace is comprised of Cypress Drive, Anderson Court, and Fournet Court. Primary thoroughfares have sloping sidewalks on both sides of the street, while culs-de-sac have sloping sidewalks on one side of the street (Figure 1). Buildings are set back 10-to-15 feet from the street and carports are located directly at the street. Buildings, comprised of single-story duplexes and two-story, four-unit apartment buildings, are uniform in design with brick-veneer and vinyl cladding as all exteriors were renovated in 1997. Amenities include tree lawns, a basketball court, a playground, and a community mailbox (Figure 2). Unlike Palmetto Terrace, these amenities pre-date the housing partner takeover. Bus stop structures, constructed by the housing Partner, are located on neighborhood streets to accommodate school-aged children (Figure 3). The buildings generally are ranch-type examples of the Minimalist-Modern style.



Figure 1: View looking south on Anderson Court



Figure 2: View of community mailboxes, basketball court, and playground.



Figure 3: School bus stop along Cypress Drive

### *Palmetto Terrace*

Palmetto Terrace is the largest on-post housing neighborhood comprised primarily of new construction. The neighborhood is defined by curvilinear streets, culs-de-sac, and loops lined with mature trees, school bus stops, and poured-concrete sidewalks (Figure 4). The southeast of the neighborhood, comprised of Magnolia Drive and a series of culs-de-sac or loops, dates to the Vietnam War Era. The Vietnam War Era housing is located roughly 10-to-15 feet from the street and has carports fronting to the street (Figure 5). Buildings, comprised of single-story duplexes and two-story, four-unit apartment buildings, are uniform in design with brick-veneer and vinyl cladding as all exteriors were renovated in 1997. Bus stops, constructed by the housing Partner, are located throughout the neighborhood for use by school children. Palmetto Terrace contains a dog park, community center and pool, community mailbox facility, and playgrounds (Figure 6). All amenities were constructed by the housing Partner when the new construction was undertaken within the northwest sector of the Palmetto Terrace.



Figure 4: Magnolia Drive streetscape



Figure 5: Vietnam Era Apartment Building



Figure 6: Community mailboxes with community pool in the background

### Inventory of Representative Buildings

Inventory was undertaken of 5 buildings including 3 interiors in the two Vietnam War Era neighborhoods.

Address	Neighborhood	Construction Date	Building Subtype	Number of Bedrooms	Interior Access?
5407 Anderon	Dogwood	1974	Duplex	3	Yes
5402 Fournet	Dogwood	1974	Duplex	3	Yes
5404 Fournet	Dogwood	1974	Duplex	3	No
5012 Ma Lee	Palmetto	1974	Apartment	2	Yes
5025 Johnson	Palmetto	1974	Duplex	4	No

### Changes over Time and Resource Integrity

The buildings have been subject to minimal exterior modification in terms of materials, additions, and new construction with the exception of roof replacements. The neighborhoods have not undergone significant redesign, new construction, or demolition. Exterior modifications were undertaken installation-wide in 1997 and 2008. In 1997, window and doors were replaced with modern vinyl units and the original stucco exterior was covered with vinyl siding and brick veneer (Motta, personal communications 2021).

Alterations undertaken in 2008 were limited to interior finishes. Interior modifications generally consist of replacement finishes, fixtures, and appliances. Despite exterior and interior modifications over time, Vietnam War Era buildings, associated outbuildings, and neighborhoods retain sufficient integrity of association, feeling, location, and setting to convey their association with military family housing

constructed to support the conflict in Vietnam and NRHP significance under Criterion A. Due to modifications and alterations, the housing generally no longer retains a high degree of integrity of design and materials. Those units that retain some degree of integrity of design and materials are not sufficiently distinctive or distinguishable in their design and construction relative to the national inventory, and the housing is therefore not considered eligible for the NRHP under Criterion C.

### **Properties of Particular Importance**

The Program Comment Plan for Vietnam War Era Housing issued in December 2021 defines a Property of Particular Importance as one that is an

Army Vietnam War Era housing or neighborhoods that are, in the context of the nation-wide inventory of civilian sector housing and neighborhoods from this period, substantially distinctive and unique in their design, method of construction, and building materials used. Additionally, properties of particular importance must exhibit a high degree of integrity with enough significant design characteristics and original historic building materials present and intact to be considered truly distinctive within the nation-wide inventory (U.S. Department of the Army 2021:34).

The civilian housing sector influenced popular expectations for housing design, building types, interior spatial requirements, and amenities. Stylistically, many houses constructed during the period were executed in the Modern idiom; historical stylistic references were absent on houses constructed during the period. Award-winning residential designs of the period included those that firmly rejected historical precedent in exterior design and interior plan. While the military sought to adopt design principles advanced by the civilian architectural sector for Vietnam War Era housing constructed by the Army, size limitations and cost criteria established by Congress for military family housing influenced the resulting housing stock in terms of architectural expression and interior design.

Inventory conducted at Fort Polk confirmed that the military followed civilian-sector housing trends and did not construct substantially distinctive or unique housing. Due to continuous modification and alteration, the units no longer retain a high degree of integrity of design and materials. Those units that retain integrity of design and materials are not substantially distinctive or unique within the inventory of civilian-sector housing and neighborhoods. No Properties of Particular Importance are present at Fort Polk.

Inventory forms have been developed for each surveyed unit and can be found in Volume 2 of this report.

## Bibliography

Boggan, Phil

2010 Letter to Charles H. Stagg. "Re: Draft Phase I CRM Report." June 28.

Motta, Wilfredo

2021 Personal communications.

United States Department of the Army

2021 *Final Program Comment Plan for Army Vietnam War Era Historic Housing, Associated Buildings and Structures, and Landscape Features (1963-1975)*. 28 December. Office of the Assistant Secretary of the Army Installations, Energy and Environment, Washington, DC.

**U.S. Army Garrison-Hawaii**  
**(Fort Shafter and Schofield Barracks)**  
**Vietnam War Era Housing Site Visit Report**

**Introduction**

The U.S. Army Garrison, Hawaii (USAG-HI) has locations throughout the state of Hawaii. Fort Shafter and Schofield Barracks, both of which are located on the island of Oahu in Honolulu County, were the focus of this current investigation. Fort Shafter encompasses 596.1 acres and was established in 1899. Schofield Barracks includes 17,482.26 acres and was established in 1909. There are 10 units of Vietnam War Era housing located at Fort Shafter and 246 units at Schofield Barracks. These units are managed by the privatized housing Partner, Lendlease. Units were constructed between 1971 and 1974 and were anticipated to include duplexes and threeplex, fourplex, and fiveplex townhouses. The site visit was completed between November 1<sup>st</sup> and November 4<sup>th</sup>, 2021, by Molly Soffiatti.

**Installation Contacts**

The surveyor met with USAG-HI's Conservation Branch Chief, Real Property representative, housing Partner, and Public Affairs Officer.

*Conservation Branch Chief*

Alice Roberts, Conservation Branch Chief, [alice.k.roberts.civ@army.mil](mailto:alice.k.roberts.civ@army.mil), (808) 656-6821

Data Requested:

Ms. Roberts provided the most recent Integrated Cultural Resources Management Plan (ICRMP), which was completed in 2018. Additionally, *National Register Eligibility Assessments for Three Neighborhoods at Fort Shafter & Schofield Barracks* (Fung Associates, Inc. 2018) includes assessments of the Ralston neighborhood, containing three Vietnam War Era units, and the Hauoli Heights/Parks neighborhood, containing 10 units of Vietnam War Era housing. The Vietnam War Era buildings within the Ralston neighborhood were recommended as ineligible for inclusion in the National Register of Historic Places (NRHP). The Hauoli Heights/Parks neighborhood was recommended NRHP eligible. State Historic Preservation Office (SHPO) concurrence was not available.

*Real Property*

James Livingston, Real Property Officer, [james.m.livingston.civ@army.mil](mailto:james.m.livingston.civ@army.mil), (808) 656-8300

Data Requested:

Mr. Livingston was unable to provide access to Real Property cards; however, he was able to provide dates for when each surveyed building was put into service.

### *Housing Partner*

Contact: Bryan Flower, Director of Cultural Resources, Public Partnerships, Lendlease, [bryan.flower@lendlease.com](mailto:bryan.flower@lendlease.com), (808) 392-1856

#### Data Requested:

Five neighborhoods containing 256 units of Vietnam-era housing were identified as from the era: Ralston, Leader Field, Hauoli Heights/Parks, Akolea, and Aloala.

### *Public Affairs*

Rick Black, Public Affairs Officer, [rick.e.black.civ@army.com](mailto:rick.e.black.civ@army.com), (808) 694-0505

#### Data Requested:

Mr. Black provided articles from *Hawaii Army Weekly* that mention that Aloala and Ralston neighborhoods. None of the articles provide context on the Vietnam War Era housing.

## **Previous Investigations**

The document *National Register Eligibility Assessments for Three Neighborhoods at Fort Shafter & Schofield Barracks* provides assessments for two neighborhoods that contain Vietnam War Era housing: Ralston and Hauoli Heights/Parks. In Ralston, two Vietnam War Era residences are present and considered non-contributing to a potential historic district because they were later infill to the Inter-War Era neighborhood. In the Parks neighborhood, the ten Vietnam Era houses are considered contributing to the potential historic district (Fung Associates, Inc. 2018:20). SHPO concurrence was not available.

The buildings in the Akolea and Aloalo neighborhoods have not been previously surveyed.

## **INVENTORY:**

### **Windshield Survey**

The windshield inventory took place on November 2, 2021. The Ralston, Leader Field, Akolea, and Aloala neighborhoods at Schofield Barracks and Hauoli Heights/Parks neighborhoods at Fort Shafter were surveyed. Inventory forms were developed for the neighborhoods and can be found in Volume 2 of this report.

#### *Fort Shafter-Hauoli Heights/Parks*

The neighborhood is defined by split-level and one-story Capehart-Wherry era houses and a selection of 10 Vietnam War Era single-story, single-family houses. The neighborhood has a rolling terrain, with houses sited on hills and is located in a wooded valley. Residences generally are located 10-to-15 feet back from the curb. The Parks neighborhood contains the curvilinear Parks Road and dead-end/culs-de-sac Parks Place and Parks Drive. There are concrete sidewalks present on one side of the street (Figures 1 and 2).



Figure 1: Example of Parks Road in the Parks Neighborhood



Figure 2: View of foliage in the Parks Neighborhood

### *Schofield Barracks-Ralston*

The neighborhood is defined by one-story stucco buildings from the Inter-war era. Three concrete-block residences, one single-family and two duplexes, in the northwest corner of the neighborhood were constructed during the Vietnam War Era. Dwellings are set approximately 10 feet back from the street. Ralston is an Inter-War Era neighborhood containing a grid with three culs-de-sac (Figures 3 and 4).



Figure 3: View of Ralston



Figure 4: Additional view of Ralston

### *Schofield Barracks-Akolea*

The neighborhood is defined by concrete-block dwellings, including two-story apartment buildings, fourplexes and duplexes. Carports are present. Residences are set back between 10-to-15 feet from the street. Akolea is defined by the curvilinear Akolea Drive off of which are 13 culs-de-sac. There are concrete

sidewalks present on one side of the street with a grass strip bordering the street. Akolea is slated to be demolished in 2028 (Figures 5 and 6).



Figure 5: View of example of houses in Akolea



Figure 6: View of apartment buildings in Akolea

### *Schofield Barracks-Aloala*

The neighborhood consists concrete-block dwellings, including two-story fourplexes and duplexes. Group carports are present. Residences are set back between 10-to-15 feet from the street with lawns. Aloala is defined by the curvilinear Hendrickson Loop off of which are culs-de-sac and another looping road, Mokihana Loop. There are concrete sidewalks present on one side of the street. Aloala is slated to be demolished in 2028 (Figures 7 and 8).



Figure 7: View of typical landscaping in Aloala



Figure 8: View of road scape in Aloala

## Inventory of Representative Buildings

Inventory was undertaken of representative buildings including 3 interiors in the four Vietnam War Era neighborhoods.

Installation	Address	Neighborhood	Construction Date	Building Subtype
Fort Shafter	1357 Parks Road	Parks	1973	Single Family
Fort Shafter	1365 Parks Road	Parks	1973	Single Family
Schofield Barracks	173 Dickman Road	Ralston	1972	Single Family
Schofield Barracks	440 Hendrickson Loop	Aloala	1973	Fourplex Apartment
Schofield Barracks	181 Aloala Way	Aloala	1973	Fourplex Townhouse
Schofield Barracks	141 Kupukupu Circle	Akolea	1974	Threeplex Townhouse
Schofield Barracks	169 Hoio Circle	Akolea	1974	Fiveplex Apartment
Schofield Barracks	159 Hoio Circle	Akolea	1974	Duplex
Schofield Barracks	159 Palapalai Circle	Akolea	1974	Fourplex Apartment
Schofield Barracks	184 Pai Circle	Akolea	1974	Duplex
Schofield Barracks	961 Hendrickson Loop	Aloala	1973	Fourplex Townhouse
Schofield Barracks	291 Molihana Loop	Akolea	1973	Duplex

## Changes over Time and Resource Integrity

The buildings have been subject to minimal exterior modification in terms of materials, additions, and new construction with the exception of roof replacements. The neighborhoods have not undergone significant redesign, new construction, or demolition. The family housing at the USAG HI Vietnam War Era neighborhoods have had extensive replacement of their roofing materials. The jalousie windows and concrete block and wood board-and-batten siding appear to be original.

Interior modifications generally consist of replacement finishes, fixtures, and appliances. In select cases, the combining of units resulted in modifications to original floor plans. Despite exterior and interior modifications over time, Vietnam War Era buildings, associated outbuildings, and neighborhoods retain sufficient integrity of association, feeling, location, and setting to convey their association with military family housing constructed to support the conflict in Vietnam and NRHP significance under Criterion A. Due to modifications and alterations, the housing generally no longer retains a high degree of integrity of design and materials. Those units that retain some degree of integrity of design and materials are not sufficiently distinctive or distinguishable in their design and construction relative to the national inventory, and the housing is therefore not considered eligible for the NRHP under Criterion C.

## **Properties of Particular Importance**

The Program Comment Plan for Vietnam War Era Housing issued in December 2021 defines a Property of Particular Importance as one that is an

Army Vietnam War Era housing or neighborhoods that are, in the context of the nation-wide inventory of civilian sector housing and neighborhoods from this period, substantially distinctive and unique in their design, method of construction, and building materials used. Additionally, properties of particular importance must exhibit a high degree of integrity with enough significant design characteristics and original historic building materials present and intact to be considered truly distinctive within the nation-wide inventory (U.S. Department of the Army 2021:34).

The civilian housing sector influenced popular expectations for housing design, building types, interior spatial requirements, and amenities. Stylistically, many houses constructed during the period were executed in the Modern idiom; historical stylistic references were absent on houses constructed during the period. Award-winning residential designs of the period included those that firmly rejected historical precedent in exterior design and interior plan. While the military sought to adopt design principles advanced by the civilian architectural sector for Vietnam War Era housing constructed by the Army. Size limitations and cost criteria established by Congress for military family housing influenced the resulting housing stock in terms of architectural expression and interior design.

Inventory conducted at USAG Hawaii confirmed that the military followed civilian-sector housing trends and did not construct substantially distinctive or unique housing. Due to continuous modification and alteration, the units no longer retain a high degree of integrity of design and materials. Those units that retain integrity of design and materials are not substantially distinctive or unique within the inventory of civilian-sector housing and neighborhoods. No Properties of Particular Importance are present at USAG Hawaii.

Inventory forms have been developed for each surveyed unit and can be found in Volume 2 of this report.

## **Bibliography**

Fung Associates, Inc.

- 2018 *National Register Eligibility Assessments for Three Neighborhoods at Fort Shafter & Schofield Barracks*. Prepared for Island Palm Communities, LLC.

United States Department of the Army

- 2021 *Final Program Comment Plan for Army Vietnam War Era Historic Housing, Associated Buildings and Structures, and Landscape Features (1963-1975)*. 28 December. Office of the Assistant Secretary of the Army Installations, Energy and Environment, Washington, DC.

U.S. Army Garrison-Hawai'i

- 2018 *An Integrated Cultural Resources Management Plan for the U.S. Army Garrison—Hawai'i, O'ahu Island*.