

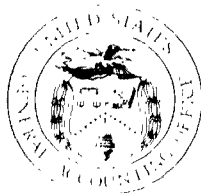
GAO

Fact Sheet for the Chairman,  
Legislation and National Security  
Subcommittee, House Committee on  
Government Operations

November 1991

# DEFENSE HOUSING

## Difficulties Associated With Managing an Aging Family Housing Inventory



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**National Security and  
International Affairs Division**

B-245736

November 12, 1991

The Honorable John Conyers, Jr.  
Chairman, Legislation and National  
Security Subcommittee  
Committee on Government Operations  
House of Representatives

Dear Mr. Chairman:

As requested, we are providing you with information on the federal government's inventory of military family housing. We performed our work as a follow-on to our previous report, Air Force Housing: Proposal for Financing Improvements to Family Housing (GAO/NSIAD-91-181, May 21, 1991). Specifically, you requested that we obtain information on the age of these housing units and the relative costs to renovate or replace them. In addition, we are providing in appendix I a synopsis of what happened to 28 family housing units on Antigua, a small Caribbean island, in the 1970s and 1980s as an example of some of the difficulties faced by housing managers.

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**Results in Brief**

The federal government has an inventory of approximately 400,000 military family housing units, about 72 percent of which are 26 years or older. This is the point at which many of the major components of a dwelling reach the end of their estimated useful life. The Department of Defense (DOD) estimates that almost 200,000 of these dwellings would require about \$11 billion for renovations over the next decade to maintain them in a habitable condition. The replacement value of the 400,000 units currently exceeds \$39 billion.

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**Background**

During fiscal year 1990, DOD spent about \$10 billion to provide housing for military service members. About \$6.4 billion was spent to provide housing allowances to service members residing in private sector housing,<sup>1</sup> and at least \$3.4 billion was spent to operate and build family housing units, bachelor quarters, barracks, and dormitories.<sup>2</sup>

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<sup>1</sup>This amount includes \$5.2 billion for basic allowances for quarters and \$1.2 billion for variable housing allowances for high-cost areas.

<sup>2</sup>The cost to operate bachelor quarters, barracks, and dormitories is not readily available.

The federal government has essentially three options for maintaining its inventory of military family housing: repairs, renovation, and replacement. Repairs restore an unserviceable part of a dwelling so that it may be used, but they do not as a rule add to the value of the unit. Defective parts or materials may need repairs after they have deteriorated or broken down either with use, by the action of the elements, or because of lack of maintenance. Renovation, in contrast, involves major repairs and upgrades (also called modernizations) that are performed simultaneously instead of piecemeal and often add to the value of the unit. Dwellings may be gutted for needed work on foundations, walls, ceilings, and floors, and for major upgrades of appliances, wiring, plumbing, kitchens, and baths, as well as heating, ventilating, and air conditioning systems. Replacement represents construction of new dwellings with an estimated useful life of 40 years.

## Government-Owned Military Family Housing Is Aging

DOD's fiscal year 1992 inventory shows that, on the whole, the federal government's military family housing units are quite old. Of the approximately 400,000 units, only 7 percent of the inventory is less than 11 years old, whereas 72 percent of these dwellings are more than 25 years old (see table 1). The replacement value of the 400,000 units exceeds \$39 billion.

**Table 1: DOD Family Housing Inventory**

Age	Army		Navy/Marine Corps		Air Force		Total		Cumulative percentage
	Number of units	Percentage of total	Number of units	Percentage of total	Number of units	Percentage of total	Number of units	Percentage of total	
0-5	7,236	5	4,768	5	2,550	2	14,554	4	4
6-10	5,245	3	4,696	5	2,550	2	12,491	3	7
<b>0-10</b>	<b>12,481</b>	<b>8</b>	<b>9,464</b>	<b>10</b>	<b>5,100</b>	<b>4</b>	<b>27,045</b>	<b>7</b>	
11-15	5,245	3	7,965	8	9,600	7	22,810	6	13
16-25	12,159	7	19,964	22	27,125	19	59,248	15	28
<b>11-25</b>	<b>17,404</b>	<b>10</b>	<b>27,929</b>	<b>30</b>	<b>36,725</b>	<b>26</b>	<b>82,058</b>	<b>21</b>	
26-35	105,492	63	27,557	30	52,600	37	185,649	46	74
Over 35	31,754	19	27,882	30	45,975	33	105,611	26	100
<b>Over 25</b>	<b>137,246</b>	<b>82</b>	<b>55,439</b>	<b>60</b>	<b>98,575</b>	<b>70</b>	<b>291,260</b>	<b>72</b>	
<b>Total</b>	<b>167,131</b>	<b>42</b>	<b>92,832</b>	<b>23</b>	<b>140,400</b>	<b>35</b>	<b>400,363</b>	<b>100</b>	

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## Renovation Costs Over Next Decade Estimated at Approximately \$11 Billion

Because of their age, many of DOD's family housing units are at a stage where major renovations are being considered. In a July 3, 1991, response to a request from the House Committee on Appropriations, DOD estimated that it would cost about \$11 billion over the next decade to renovate almost 200,000 of these dwellings. The average cost per dwelling would be about \$56,000, not including minor maintenance and repairs, which could add another \$3.4 billion.

DOD officials believe these figures represent the magnitude of renovation needs for major repairs and upgrades to the existing inventory of family housing. They stated that any cost reductions resulting from the April 1991 base realignments and closures would probably be offset by increases in costs for additional needed renovation work identified during more in-depth inspections. At an operational level, the Navy's Atlantic Division, based in Norfolk, Virginia, estimated that within the next 5 years almost one-quarter of its 11,800 family dwellings will become structurally unsafe because of lack of funds for needed renovations.

DOD officials stated that these "whole-house revitalizations" would be cost-effective because they could extend the useful life of these dwellings another 25 years, cost significantly less than replacing them with new units, and reduce operating costs. The expected cost reductions would result from fewer emergency repairs and utility savings from the use of energy-efficient appliances and improved insulation, windows, doors, and heating, ventilating, and air conditioning systems.

An alternative to the renovations would be to continue operating the dwellings, performing minor repairs as needed until the units become unsafe to occupy. Once the units become unsafe, DOD would have to decide whether to perform the renovations needed to make them safe, board them up, or destroy them. If the housing units are neither renovated nor replaced, DOD would have to pay the affected service members housing allowances in lieu of providing government-owned housing.

The decision whether to repair, renovate, or replace military family housing is difficult, but, as illustrated by the Navy's experience with family housing on Antigua, delays in making renovations can result in more costly renovations later. (See app. I.)

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## Scope and Methodology

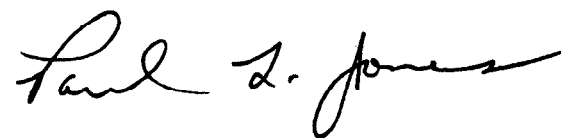
In conducting this review, we collected and analyzed military housing data. We interviewed housing officials in the Office of the Secretary of Defense and at Army, Navy, and Air Force headquarters in the Washington, D.C., area and Navy housing officials in the Norfolk, Virginia, area. We also visited military family housing areas in the Washington, D.C., and Norfolk areas. We did not independently verify the data provided by housing officials. We performed our work from June through September 1991 in accordance with generally accepted government accounting standards. We did not obtain written comments from DOD, but we discussed the information we developed with agency officials and considered their comments in preparing this fact sheet.

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Unless you announce its contents earlier, we plan no further distribution of this fact sheet until 15 days from its issue date. At that time, we will send copies to the Secretaries of Defense, the Army, the Navy, and the Air Force; the Director of the Office of Management and Budget; and appropriate congressional committees. Copies will also be made available to others on request.

Please contact me at (202) 275-3990 if you or your staff have any questions about this fact sheet. Major contributors were George E. Breen, Jr., Assistant Director, and William J. Rigazio, Evaluator-in-Charge.

Sincerely yours,



Paul L. Jones  
Director,  
Defense Force Management Issues



# Navy's Experience With Antigua Housing Units Illustrates Difficulties in Deciding to Repair, Renovate, or Replace

The Navy's decision during the 1970s and 1980s not to renovate 28 government-owned military family housing units on Antigua illustrates the difficulties in deciding whether to repair, renovate, or replace military family housing. The Navy's experience with the Antigua housing units cannot be considered representative of the problems associated with all aging military family housing; nevertheless, it provides some evidence that, while in the short term it may appear to be less expensive to repair than to renovate, delaying renovations could have long-term consequences. The housing will likely deteriorate further, requiring more extensive—and more costly—renovations, or even replacements.

The Navy acquired the 28 units in 1968 as part of its support facility on the island. The units, consisting of 24 three-bedroom and 4 four-bedroom units designed for both officers and enlisted personnel and their families, were grouped in seven prefabricated wood frame buildings sitting on concrete pier foundations.

In 1976, the Navy Atlantic Division's representatives visited the site and recommended that all 28 units be renovated because of severe deterioration resulting primarily from seaborne winds. A Navy official estimated that these improvements would add 10 to 15 years to their life and reduce their operating costs. A contract was prepared for the recommended renovations,<sup>3</sup> but the renovations were not made because the Navy was uncertain about whether it would continue to use the support facility. Instead, some minor repairs were performed, and the units continued in use. However, the Atlantic Division housing officials reported that the quality of life provided the occupants declined.

The facility was still in operation in 1987, when the Atlantic Division reevaluated the condition of the dwellings. The inspection determined that the dwellings had further deteriorated to the point where the inspection report estimated that the cost of the repairs and renovations would exceed the cost to build new dwellings by about \$300,000 (\$3.61 million compared with \$3.34 million). Consequently, the report recommended that the units be replaced and that additional temporary repairs be made to allow continued use of the units in the meantime. The report cautioned, however, that even if the temporary repairs were made, some of the units would not be safe to occupy during tropical storms.

<sup>3</sup>Navy officials could not provide the estimated cost to renovate these units.



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**Appendix I**  
**Navy's Experience With Antigua Housing**  
**Units Illustrates Difficulties in Deciding to**  
**Repair, Renovate, or Replace**

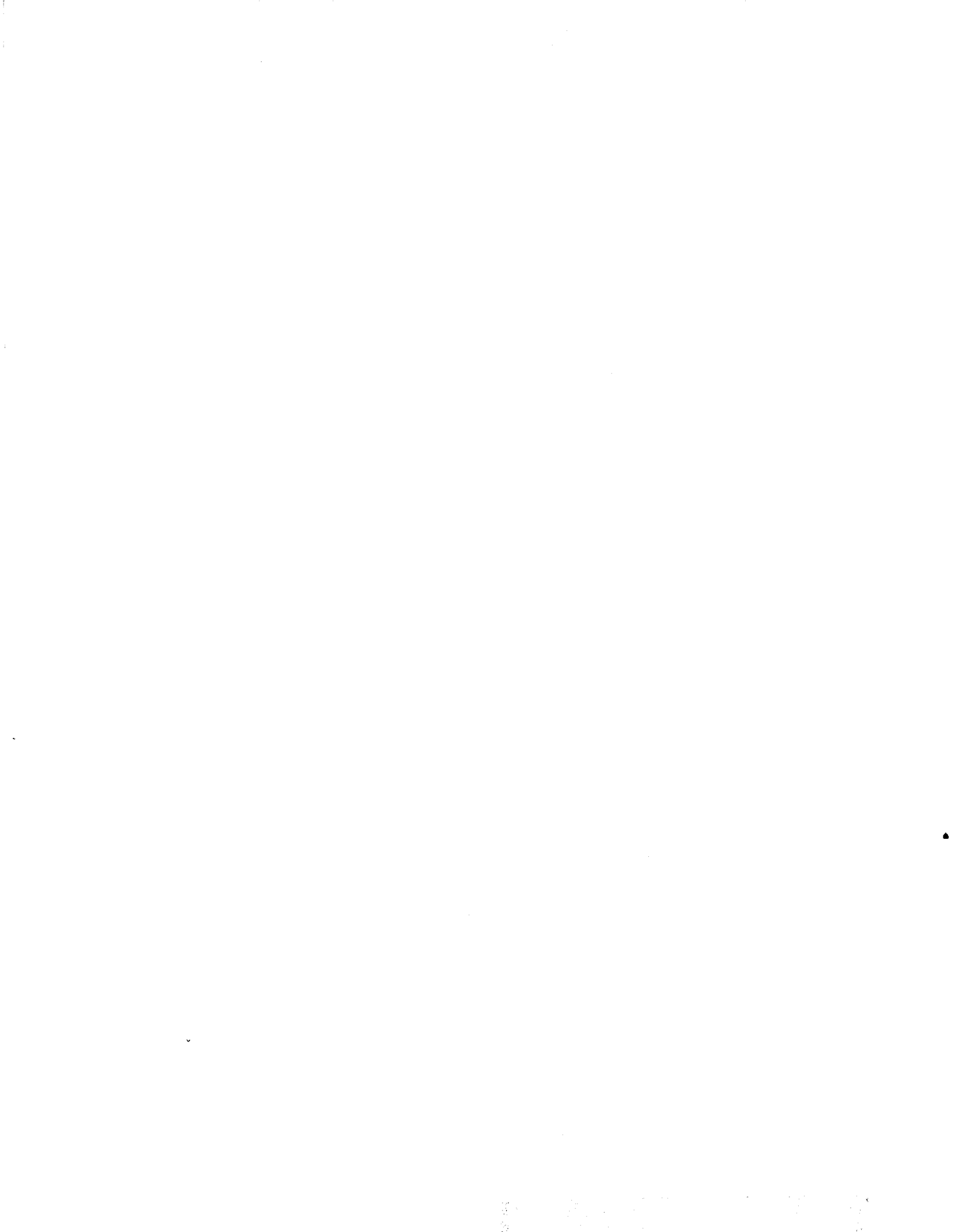
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The Atlantic Division housing officials cited the inspection report as describing numerous safety and health hazards in the dwellings which adversely affected the quality of life provided the service members. These included evidence of extensive water damage to the frames of the windward walls, widespread mold throughout the interior, sagging floors, windows and doors that would neither open nor close, corroded wiring, contamination of ground water resulting from deteriorated water and sewage lines, termite damage, and rodent infestation, as well as contamination of the dwellings and the ground around the units from insecticides used for termite control. Consequently, Navy officials told us the units were scheduled for replacement and the minimum amount of maintenance necessary to keep the units habitable was performed.

Two years later, in 1989, 10 units were destroyed during a hurricane.<sup>4</sup> In 1990, Congress appropriated about \$1.7 million to replace them, with occupancy expected in March 1993. Temporary repairs were made on the remaining 18 units to include replacing all of the roofs, and the remaining 18 units have been recommended for replacement. The Atlantic Division officials told us that the average unit cost in fiscal year 1990 dollars to replace both the 10 destroyed units and the remaining 18 units was about \$170,000. In contrast, in 1987 the estimated unit cost in fiscal year 1990 dollars to replace all 28 units was \$132,000, or almost \$38,000 less per unit. The Commander at Antigua has reported that government-owned family housing is urgently needed because adequate and affordable housing is unavailable in the private sector of Antigua, which is a high-cost resort area, and that the existing government-owned housing is in urgent need of renovation.

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<sup>4</sup>Hurricane Hugo also caused extensive damage to military housing units in Puerto Rico and the Charleston, South Carolina, naval complex. In 1991, tornadoes caused extensive damage to family housing at McConnell Air Force Base in Kansas, and the eruption of Mount Pinatubo in the Philippines damaged both Navy and Air Force housing.



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