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UNITED STATES GENERAL ACCOUNTING OFFICE

WASHINGTON, D.C. 20548

DEFENSE DIVISION

B-170403

SEP 24 1971

The Honorable  
The Secretary of Defense



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Attention: Assistant Secretary of Defense  
(Comptroller)

Dear Mr. Secretary:

The General Accounting Office has reviewed the use of the "turn-key" procurement method by the Department of Defense (DOD) in contracting for construction of family housing. We examined into the initial DOD test of this method, which was made at three locations: the U. S. Naval Base, Philadelphia, Pennsylvania; Ent Air Force Base, Colorado Springs, Colorado; and Oak Knoll Naval Hospital, Oakland, California. Competitive negotiated procurement was used, with the contracts awarded to the contractor submitting the proposal determined to have the best overall combination of price and quality.

Our observations are summarized below.

RESULTS OF COST COMPARISON BETWEEN  
CONVENTIONAL AND TURN-KEY METHODS  
OF CONSTRUCTION

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We found it cost less to build houses under the turn-key method than it would have had they been conventionally built. The estimated savings were being realized without significant loss of quality or features normally found in conventional housing. In fact, at two of the locations--Oak Knoll and Philadelphia--the turn-key projects generally provided more living space. At Philadelphia, garages and basements were provided. These features are not usually offered under conventional procurement.

As shown in the attached schedules, the estimated savings were about \$148,000 for the 100 units at the Philadelphia site; \$147,000 for the 40 units at Ent Air Force Base; and \$16,000 for the 36 units at Oak Knoll Naval Hospital.

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SUGGESTED CHANGES IN CRITERIA FOR  
TURN-KEY PROCUREMENT

The turn-key method shows promise as an acceptable alternative to the conventional method for procuring housing. As discussed below, we believe that the method's effectiveness could be improved by certain refinements in the instructions for its use.

Selection of the site

At the Oak Knoll and Philadelphia projects, sites selected presented special problems. The one selected at Oak Knoll was the site of a former hospital, located on a hill. Several concrete footings, which had supported the former hospital, were still buried in the ground and complicated grading. This discouraged some potential bidders from submitting proposals because of the uncertain terrain.

The site selected for the Philadelphia project required up to 70-foot pilings to support the weight of the housing units. As in the case of Oak Knoll, site problems appear to have been a deterrent to some potential bidders.

In turn-key construction, the contractor is expected to complete the project with minimum participation from agency personnel. Unusual or particularly difficult terrain problems are likely to not only delay construction but also, understandably, to increase agency concern over the contractor's effective resolution of the problems. This, in turn, can lead to greater involvement on the part of agency representatives. DOD criteria for turn-key construction provide no specific guidance on this matter. We suggest that you consider amending the criteria to point out the desirability, when using this procurement method, of selecting sites that do not require unusual or extensive work on the part of the home builder.

Identification of evaluation  
factors

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The DOD criteria state that "numerical weights (assigned technical evaluations) and method of relating cost to technical points, shall not be included in the Request for Proposal (RFP)." The technical, or quality factors, cover such things as ingenuity of design and materials to be used and are employed by local evaluation boards to select the best overall proposal.

In this connection, some local residential builders who had been furnished the RFP for the Oak Knoll project did not submit a proposal. Some reasons given were lack of knowledge and uncertainty over factors to be considered in evaluating proposals. They felt that the probability of their being selected under such circumstances did not justify the cost of preparing a proposal. We believe that such concern is understandable.

In our opinion, the RFP should contain the relative weight to be assigned cost and quality factors, as well as a clearer idea of how proposals are to be evaluated. In this regard, a recent Comptroller General decision (B-170220) issued to the Secretary of the Army on August 26, 1971, relating to a protest of the award of a turn-key family housing contract discussed the need not only to identify the evaluation criteria but also the relative importance of each factor, as well. It states, in part:

"Conceding that the solicitation adequately identified the evaluation criteria, it is nevertheless obvious that no indication is given in the RFP as to the relative importance of each factor. We have, as you know, repeatedly stressed the need for such identification. E.g., 49 Comp. Gen. 229 (1969); 47 id. 252 (1967); cf. 50 id. 59 (1970). Moreover, we believe that in this context it is particularly critical that offerors be apprised of the evaluation formula."

As you know from your review of the Acting Comptroller General's letter of August 26, 1971, (B-170220, B-170731, B-171015) requesting your comments on the necessity of disclosing the scoring scheme, this matter is of particular interest to us. We note, however, in response to the August 26 letter by Mr. Glenn V. Gibson, Deputy Assistant Secretary of Defense, that DOD does not deem it necessary to identify for proposers the actual weights assigned the evaluation factors.

For the reasons discussed above and after consideration of the reasons offered in support of the DOD position, we still believe that it is important to disclose the relative importance of the evaluation factors so that offerors might better understand how their proposal will be judged. Furthermore, we believe that appropriate revisions to the DOD criteria would tend to minimize misgivings some potential and actual bidders may have regarding fair treatment in this respect.

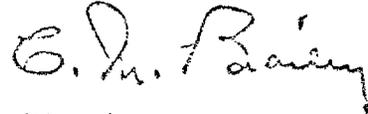
This report contains recommendations for improving the DOD criteria and

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Therefore, the provisions of section 236 of the Legislative Reorganization Act of 1970 apply. We shall appreciate receiving copies of the statements that you furnish to the specified committees in accordance with these provisions.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "E. M. Bailey".

Director

Attachment

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COST COMPARISONS OF CONVENTIONAL AND  
TURN-KEY PROJECTS AT  
NAVAL SHIPYARD, PHILADELPHIA, PENNSYLVANIA,  
ENT AIR FORCE BASE, COLORADO SPRINGS, COLORADO  
OAK KNOLL NAVAL HOSPITAL, OAKLAND, CALIFORNIA

GENERAL EXPLANATORY

Comparisons for the Philadelphia and Oak Knoll projects essentially are those prepared by Naval Facilities Engineering Command field personnel. The one at Ent was made by housing personnel of Air Force headquarters. We made some changes to the computations to make them more comparable. For instance, at Oak Knoll and Philadelphia, we added a factor for cost escalation between the time of contract award for the turn-key project and the earlier award for the conventional one--the Air Force included such a factor in its comparison.

At Philadelphia, we compared the cost and features of the 100-unit turn-key project with those for a 400-unit Capehart housing project built adjacent to the Naval Shipyard during 1962-1964. We adjusted the Capehart costs to reflect 1969 construction prices prevailing at the time the contract for the turn-key project was awarded.

At Ent, a comparison was made between the estimated costs for the 40-unit project which went out for bid initially in April 1967 under the conventional method and the actual contract award in February 1969 following a decision to use the turn-key method instead. Revisions were made to the 1967 figures to reflect higher costs prevailing in 1969.

At Oak Knoll, we compared the cost and features of the turn-key project with the other projects to the same extent under the conventional method

at the time. We applied cost escalation factors to the conventionally-built projects, since the contracts were awarded prior to the turn-key award.

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COMPARISON OF CONVENTIONAL AND  
TURN-KEY HOUSING AT WILSON BLVD.,  
PHILADELPHIA

<u>Comparison of Costs</u>	<u>Capehart (400 homes)</u>		<u>Turn-Key (100 homes)</u>	
	1962 - 1964		1969 - In process	
	<u>Estimated Costs<sup>1/</sup></u>		<u>Costs</u>	
	<u>Average per house</u>	<u>Total</u>	<u>Average per house</u>	<u>Total</u>
Construction costs	\$15,513	\$6,205,231	\$18,960	\$1,896,000
Increased construction costs (1962 - 1969)	5,259	2,103,573 <sup>2/</sup>	N/A	N/A
Design costs	439	175,531 <sup>2/</sup>	100	10,000
Supervision, Inspection, OH )				
Government-furnished equipment )	375	150,000 <sup>2/</sup>	1,021	102,100
Demolition costs	N/A	N/A	28	2,750
	<u>\$21,586</u>	<u>\$8,634,335</u>	<u>\$20,109</u>	<u>\$2,010,850</u>

<u>Comparison of Areas</u>	<u>Square feet per unit</u>		<u>Square feet per unit</u>	
Total Room Area:				
Three-Bedroom	(340 units)	791	(60 units):	1,042
Four-Bedroom	( 60 units)	902	(40 units)	1,100
Total Usable Area: <sup>3/</sup>				
Three-Bedroom		1,061		1,250
Four-Bedroom		1,265		1,250
Gross Area: <sup>4/</sup>				
Three-Bedroom		1,188		2,106
Four-Bedroom		1,452		2,106

Computation of  
Estimated Savings

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Capehart per unit cost	\$21,586
Turn-Key per unit cost	20,109
Estimated Savings	\$ 1,477 x 100 units = <u>\$147,700</u>

~~1/ This has included land value of \$450,000. Turn-key project being built on  
2/ This has included land value of \$450,000. Turn-key project being built on  
3/ This has included land value of \$450,000. Turn-key project being built on  
4/ This has included land value of \$450,000. Turn-key project being built on~~

COMPARISON OF CONVENTIONAL AND  
TURN-KEY HOUSING AT ENT AYB

<u>Comparison of Costs</u>	(40 units)	(40 units)
	<u>Conventional</u>	<u>Turn-Key</u>
Construction costs (including site work)	\$1,016,706 <sup>a/</sup>	\$1,010,484
10% Cost increase	101,671 <sup>b/</sup>	--
4 General Officer Quarters	25,000 <sup>c/</sup>	--
Sub-total	<u>\$1,143,377</u>	<u>\$1,010,484</u>
Design	23,100 <sup>d/</sup>	8,800
SICH-GFE-CONT	<u>30,775</u>	<u>30,775</u>
Total	<u>\$1,197,252</u>	<u>\$1,050,059</u>
Per Unit	\$ 29,932	\$ 26,251

Computation of  
Estimated Savings

Conventional per unit cost	\$29,932
Turn-key per unit cost	26,251
Estimated Savings	<u>\$ 3,681 x 40 units = \$147,240</u>

a/ April 1967 bid amount.

b/ Cost escalation from April 1967 to January 1969.

c/ Not included in 1967 bid. Originally planned as Colonel's quarters.

d/ April 1967 cost - does not reflect any cost escalation.

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Cost Comparison of Conventional Housing  
with Turn-Key Housing at Oak Hill

Open	Bld of	Date	Units	Net Sq. Feet	Construction Cost	Escalator <sup>a</sup> Cost	Total Construction Cost	Supervision, Inspection, & Overhead Cost	Total Cost
9/67	300	1143	\$ 17,710	\$1,063	\$ 18,773	\$ 470	\$ 19,243	\$ 620	\$ 19,863
2/68	100	1071	18,802	752	19,554	498	20,052	658	20,710
5/68	364	1173	17,520	438	17,958	393	18,351	613	18,964
5/68	340	1096	17,318	433	17,751	339	18,090	617	18,707
5/68	100	1146	17,473	437	17,910	797	18,707	612	19,319
8/68	100	1143	17,663	179	18,042	854	18,906	625	19,531
Totals									
217	1304	6772	\$106,686	\$3,302	\$109,988	\$3,301	\$113,289	\$3,745	\$117,034
1129	1129	\$ 17,781	\$ 550	\$ 18,331	\$ 550	\$ 18,881	\$ 624	\$ 19,505	\$ 19,516
Conventional Average									
10/68	36	1153	\$ 18,284	-0-	\$ 18,284	\$ 139	\$ 18,423	\$ 510	\$ 18,933
Division of									
Conventional Average per unit cost									
Turn-key per unit cost									
Estimated savings									
$\frac{\$ 19,516}{19,063} \times 453 \times 36 \text{ units} = \$16,308$									

Percent per annum for cost escalation.

of Division of abandoned design costs would increase Conventional average to \$197.