

# CONSTRUCTION CONTRACT DOCUMENTS

**FOR** 

TRAILER, TEMPORARY,
OR PERMANENT DEFENSE
HOUSING PROJECTS

PEFENSE HOUSING BULLETIN

HOUSING ADMINISTRATION WASHINGT ON 25, D. C.

March 1954

### CONSTRUCTION CONTRACT DOCUMENTS FOR DEFENSE HOUSING

### INTRODUCTION

This Bulletin is designed for use by PHA Field Offices, Local Authorities (if assisting in project development under an Agency Development Agreement), and Architect-Engineers in the preparation of the essential contract documents for construction of defense housing projects.

The use of the following Government Standard Forms is mandatory:

Invitation for Bids	Form No.	20 Revised March 1953
Bid Form	. II	21 "
Instructions to Bidders	Ti .	22 n
Construction Contract	· ·	23 "
General Provisions		23A Dated March 1953
Bid Bond (if bid is so secured) .	n n	24 Revised November 1950
Performance Bond	H.	25 "
Payment Bond	, II	25A n

The printed matter on these forms is not to be altered. Additional matter is to be inserted in the blank spaces on Forms 20, 21, and 23, as indicated on the "Specimen" forms bound herein, prior to issuance of the Invitation for Bids, so that bidders may be fully informed.

The use of the "Addendum to Standard Form 22-Instructions to Bidders" is mandatory.

The use of the "General Conditions" without any changes is mandatory since it furnishes the necessary supplements to these revised standard forms.

It is to be noted that all construction contracts are to include the furnishing and installing of all requisite equipment.

In preparing the Technical Specifications for temporary housing, refer to Bulletin No. DH-2, Specifications for Trailer Projects and for Temporary Projects using DHT Series 1 (Rev) Standard Plans as revised. For permanent housing, refer to Bulletin No. LR-13, Guide Specifications.

This issue of Bulletin No. DH-1 supersedes all previous issues. The changes incorporated herein have been brought about by the revision of Government Standard Forms by the General Services Administration.

STANDARD FORM 20
REVISED MARCH 1953
GENERAL SERVICES ADMINISTRATION
GENERAL REGULATION NO. 13

NAME AND LOCATION OF PROJECT

### INVITATION FOR BIDS

(CONSTRUCTION CONTRACT)

(Field Office to furnish, if any)

DATE (of issuance)

BUENDENCE

(name) (project number) (location)

PUBLIC HOUSING ADMINISTRATION Housing and Home Finance Agency

BY (Issuing office)

Field Office, Fublic Housing Administration

Sealed bids in triplicate for furnishing all labor, equipment, and materials and performing all work for the project described herein will be received until (hour), S. T., (date)

in the office of PUBLIC HOUSING ADMINISTRATION (room number)

(address)

and then publicly opened.

Information regarding bidding material, bid guarantee, and bonds
opecifications, Drawings, and Forms of bidding and contract documents are
on file at the office of (name) (address)

A deposit of \$\frac{1}{2}\$ per set will permit withdrawal for bidding purposes which will be refunded upon return of the documents in good condition within ten (10) days after bid opening.

Fid Guaranty shall be in acceptable form and in an amount not less than five (5%) percent of the amount of the bid. If a bond, it shall be executed on Government Standard Form 24.

The successful bidder will be required to furnish and pay for satisfactory performance and payment bonds executed on Government Standard Forms 25 and 25A, respectively. The performance bond shall be in a penal sum of not less than fifty (50%) percent of the contract price. If the contract price is not greater than one million dollars the penal sum of the payment bond shall be not less than fifty (50%) percent of the contract (Continue on other side)

Description of work

(Insert here the exact language appearing on the title page of the Specifications, amplified if deemed necessary)

price; if greater than one million but not in excess of five million dollars, forty (40%) percent of the contract price; if in excess of five million dollars the penal sum shall be two million five hundred thousand dollars (\$2,500,000).

Not less than the minimum wages, as set forth in the Specifications, must be paid on this project.

No bid shall be withdrawn for a period of thirty (30) days subsequent to the opening of bids without the consent of the Government.

The furnishing by the Government to any bidder of this Invitation for Bids or any Bid Forms shall not be construed as an acknowledgement by the Government that such bidder is qualified to perform the work contemplated for this project.

All three copies of the Bid shall bear the genuine signature of the bidder.

STANDARD FORM 22
REVISED MARCH 1932
GENERAL SERVICES ADMINISTRATION
GENERAL REGULATION NO. 13

### INSTRUCTIONS TO BIDDERS

(CONSTRUCTION CONTRACTS)

(These instructions are not to be incorporated in the contract)

- 1. Explanation to Bidders. Any explanation desired by bidders regarding the meaning or interpretation of the drawings and specifications must be requested in writing and with sufficient time allowed for a reply to reach them before the submission of their bids. Oral explanations or instructions given before the award of the contract will not be binding. Any interpretation made will be in the form of an addendum to the specifications or drawings and will be furnished to all bidders and its receipt by the bidder shall be acknowledged.
- 2. Conditions at Site of Work. Bidders should visit the site to ascertain pertinent local conditions readily determined by inspection and inquiry, such as the location, accessibility and general character of the site, labor conditions, the character and extent of existing work within or adjacent thereto, and any other work being performed thereon.
- 3. Bidder's Qualifications. Before a bid is considered for award, the bidder may be requested by the Government to submit a statement of facts in detail as to his previous experience in performing similar or comparable work, and of his business and technical organization and financial resources and plant available and to be used in performing the contemplated work.
- 4. Bid Guaranty. Where security is required, failure to submit the same with the bid may be cause for rejection. The bidder, at his option, may furnish a bid bond, postal money order, certified check, or cashier's check, or may deposit, in accordance with Treasury Department regulations, bonds or notes of the United States (at par value) as security in the amount required: Provided, That where the total amount of the bid is \$2,000 or less, the contracting agency may declare a bid bond unacceptable by so stating in the specifications or Invitation for Bids.

In case security is in the form of postal money order, certified check, cashier's check, or bonds or notes of the United States, the Government may make such disposition of the same as will accomplish the purpose for which submitted.

- Checks may be held uncollected at the bidder's risk. Checks, or the amounts thereof, and bonds or notes of the United States deposited by unsuccessful bidders will be returned as soon as practicable after the opening.
- 5. Preparation of Bids. (a) Bids shall be submitted on the forms furnished, or copies thereof, and must be manually signed. If crasures or other changes appear on the forms, each such erasure or change must be initialed by the person signing the bid.
- (b) The form of bid will provide for quotation of a price, or prices, for one or more items which may be lump sum bids, alternate prices, scheduled items resulting in a bid on a unit of construction or a combination thereof, etc. Where required on the bid form, bidders must quote on all items and they are warned that failure to do so may disqualify the bid. When quotations on all items are not required, bidders should insert the words "no bid" in the space provided for any item on which no quotation is made.
- (c) Alternative bids will not be considered unless called for.
- (d) Unless specifically called for, telegraphic bids will not be considered. Modification by telegraph of bids already submitted will be considered if received prior to the time fixed in the Invitation for Bids. Telegraphic modifications shall not reveal the amount of the original or revised bid.
- 6. Submission of Bids. Bids must be submitted as directed on the bid form.
- 7. Receipt and Opening of Bids. (a) Bids will be submitted prior to the time fixed in the Invitation for Bids. Bids received after the time so fixed are late bids; and the exact date and hour of mailing such bids, as shown by the cancellation stamp or by the stamp of an approved metering device will be recorded. Such late bids will be considered, Provided, They are received before the award has been made, And provided further, The failure to arrive on time was due solely to a delay in the mails for which the bidder was not responsible; otherwise late bids will not be con-

sidered but will be held unopened until the time of award and then returned to the bidder, unless other disposition is requested or agreed to by the bidder.

- (b) Subject to the provisions of paragraph 5(d) of these instructions, bids or bid modifications which were deposited for transmission by telegraph in time for receipt, by normal transmission procedure, prior to the time fixed in the Invitation for Bids and subsequently delayed by the telegraph company through no fault or neglect on the part of the bidder, will be considered if received prior to the award of the contract. The burden of proof of such abnormal delay will be upon the bidder and the decision as to whether or not the delay was so caused will rest with the officer awarding the contract.
- (c) No responsibility will attach to any officer for the premature opening of, or the failure to open, a bid not properly addressed and identified.
- 8. Withdrawals of Bids. Bids may be withdrawn on written or telegraphic request received from bidders prior to the time fixed for opening. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal of the bid after it has been opened.
- 9. Bidders Present. At the time fixed for the opening of bids, their contents will be made public for the information of bidders and others properly interested, who may be present either in person or by representative.
- 10. Bidders Interested in More than One Bid. If more than one bid be offered by any one party, by or in the name of his or their clerk, partner, or other person, all such bids will be rejected. A party who has quoted prices to a

bidder is not thereby disqualified from quoting prices to other bidders or from submitting a bid directly for the work.

- 11. Award of Contract. (a) The contract will be awarded as soon as practicable to the lowest responsible bidder, price and other factors considered, provided his bid is reasonable and it is to the interest of the Government to accept it.
- (b) The Government reserves the right to waive any informality in bids received when such waiver is in the interest of the Government. In case of error in the extension of prices, the unit price will govern.
- (c) The Government further reserves the right to accept or reject any or all items of any bid, unless the bidder qualifies such bid by specific limitation; also to make an award to the bidder whose aggregate bid on any combination of bid items is low.
- 12: Rejection of Bids. The Government reserves the right to reject any and all bids when such rejection is in the interest of the Government; to reject the bid of a bidder who has previously failed to perform properly or complete on time contracts of a similar nature; and to reject the bid of a bidder who is not, in the opinion of the Contracting Officer, in a position to perform the contract.
- 13. Contract and Bonds. The bidder to whom award is made shall, within the time established in the bid and when required, enter into a written contract with the Government and furnish performance and payment bonds on Government Etandard Forms. The bonds shall be in the amounts indicated in the specifications or the Invitation for Bids.

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(For additional provisions, see "Addendum to Standard Form 22" which follows)

### ADDENDUM TO STANDARD FORM 22 - INSTRUCTIONS TO BIDDERS

14. Data on Specialty Items. (a) Each general bidder who includes in his bid the costs of the mechanical branches of the contract work shall submit, with his bid, in a separate sealed envelope identified on the outside by his name, project number, and marked "Data on Specialty Items", a breakdown of his overall bid showing the amounts included therein for the following subcontracts and work:

Amount of plumbing bid
Amount of heating bid
Amount of electric bid
All remaining work
Overall bid price



- (b) This information is required for analytical purposes, shall have no bearing upon the determination of the lowest responsible bidder, and will not be divulged to the public at bid opening.
- 15. Options. (a) The attention of all bidders, whether prime or subcontract, is directed to the "List of Options" contained in the Special Conditions.
- (b) The contract will be based upon the completion of the work according to the Specifications and Drawings, together with all Addenda thereto, under the lowest proposal submitted by a responsible bidder, irrespective of the options permitted by the contract which the bidder proposes to use. The Contracting Officer has determined, by inclusion of such options, that any are equally acceptable. Therefore, the bidder is required to submit his lowest proposal for the work to be performed since no other will be considered.
- 16. Collusive Agreements. (a) Each bidder submitting a bid shall attach thereto his executed Non-Collusive Affidavit in the form herein provided.
- (b) After execution of the contract, each bidder proposed by the Contractor to perform subcontract work shall submit to the Contractor a Non-Collusive Affidavit in the form provided under the Section entitled "SUBCONTRACTS" in the General Conditions.
- (c) The Government reserves the right to reject the bid of any bidder for the prime contract or to withhold approval of any subcontractor who fails to observe these provisions.
- 17. Bidder's Ability to Perform. The ability of a bidder to obtain a performance bond shall not be regarded as the sole test of such bidder's competency or responsibility.

# ADDENDUM TO INSTRUCTIONS TO BIDDERS (continued)

- 18. Failure to Examine Site, Drawings, Documents, Etc. The attention of all bidders is expressly directed to the previsions of Clause 2 of the Instructions to Bidders, and also to Section 10e of the General Conditions relative to the Contractor's warranty against the presentation of certain types of claims as set forth therein.
- 19. Unit Prices. (a) Subsequent to bid opening, but prior to and as a condition of award of the contract, the successful bidder shall negotiate and agree with the Contracting Officer upon mutually acceptable unit prices for the items listed under the caption "UNIT PRICES" in the Special Conditions, conforming to the terms thereof.
  - (b) No unit prices will be quoted in or submitted with any bid.

STANDARD FORM 27 REVISED MARCH 1951 GENERAL STRUCES ADMINISTRATION GENERAL REGULATION NO. 13 BID FORM (CONSTRUCTION CONTRACT)	(If any, same as on Invitation for Bids)
Read the Instructions to Bidders (Standard Form 22)  This form to be submitted in triplicate.  NAME AND LOCATION OF PROJECT	(same as on Invitation)
(same as on Invitation for B	ids)
TO: PUBLIC HOUSING ADMINSTRATION	(Deto)

In compliance with your invitation for bids of the above date, the undersigned hereby proposes to furnish all labor, equipment, and materials and perform all work for

(same as on Invitation for Bids under "Description of Work)

t (same as on Invitation for Bids under "Name and Location of Project")

in strict accordance with the specifications, schedules, drawings, and conditions for the consideration of the following amount(s)

and agrees that, upon written acceptance of this bid, mailed, or otherwise furnished, within calendar days ( 30 calendar days unless a shorter period be inserted by the bidder) after the date of opening of bids, he will within 10 calendar days (unless a longer period is allowed) after receipt of the prescribed forms, execute Standard Form 23, Construction Contract, and give performance bond and payment bond on Government standard forms, if these forms are required, with good and sufficient surety or sureties.

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The undersigned agrees that if awarded the contact after the date of receipt of notice within calendar days after the date of receipt of the calendar days after the date of receipt of the calendar days after the date of receipt of the calendar days after the date of receipt of the calendar days after the date of receipt of the calendar days after the date of receipt of the calendar days after the date of receipt of the calendar days after the date of receipt of the calendar days after the date of receipt of the calendar days after the date of receipt of notice within the calendar days after the date of receipt of notice within the calendar days after the date of receipt of notice within the calendar days after the date of receipt of notice within the calendar days after the date of receipt of notice within the calendar days after the date of receipt of notice within the calendar days after the date of receipt of notice within the calendar days after the date of receipt of notice within the calendar days after the date of receipt of notice within the calendar days after the days after	e to proceed, as ceipt of notice t	id that he will o proceed, (See	complete the world special Con-
The undersigned acknowledges receipt of the folltions (Give number and date of each):	lowing addenda	to the drawin	gs and/or specifica
The undersigned represents (Check appropriate ) of the bidder and its affiliates is $\[ \] 500$ or $\[ \] $ has not, employed or retained any company or person, paid or agreed to pay to any company or person, paid or agreed to pay to any company or person working solely for the bidder) any fee, commiss or resulting from the award of this contract, and requested by the contracting officer. (Note: For ing the term "bona fide employee," see General, secs. 150.7 and 150.5 (d) Fed. Reg., Dec. 31,	nore, less thereon (other than the contraction (other than the contraction) (other than the contraction) (other than the contraction of the contraction of the contraction of the contraction (other than the contraction of the contracti	an 500; (2) (an a full-time b;; and (b) that a full-time bo or brokerage feach information to of the representation.	that he has has he has he has, has has has has has has contingent upon relating thereto as the has he had h
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BY (Signature in ink. Type or print name under signature)			
TITLE (Type or print)		-	
STATE OF INCORPORATION (Type or print)			
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DIDECTIONS FOR	MOMETTINA PIPA		
Bid documents shall be enclosed in a which shall be sealed and clearly labeled project number, name of bidder, and date premature opening of any bid. Address the PUBLIC HOUSING AF	sealed, marked, envelopes (in d with the wo and time of ne outer enve OMINISTRATION	and addressed as ner and oute rds "Bid Doc opening, to lope to:	r) both of uments", the
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CAUTION: Do not include in the envelope any Bids should not be qualified by exc	y bids for othe	r work.	

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### INSTRUCTIONS

- 1. This form shall be used for construction work or the furnishing of supplies or services whenever a bid bond is required. There shall be no deviation from this form except as authorized by the General Services Administration.
- 2. The surety on the bond may be any corporation authorized by the Secretary of the Treasury to act as surety, or two responsible individual sureties. Where individual sureties are used, this bond must be accompanied by a completed Affidavit of Individual Surety for each individual surety (Standard Form 28).
- 3. The name, including full Christian name, and business or residence address of each individual party to the bond shall be inserted in the space provided therefor, and each such party shall sign the bond with his usual signature on the line opposite the seroll seal, and if signed in Maine or New Hampshire, an adhesive seal shall be affixed opposite the signature.
- 4. If the principals are partners, their individual names shall appear in the space provided therefor, with the recital that they are partners composing a firm, naming it, and all the members of the firm shall execute the bond as individuals.
- 5. If the principal or surety is a corporation, the name of the State in which incorporated shall be inserted in the space provided therefor, and said instrument shall be executed and attested under the corporate seal as indicated in the form. If the corporation has no corporate seal the fact shall be stated, in which case a scroll or adhesive seal shall appear following the corporate name.
- 6. The official character and authority of the person or persons executing the bond for the principal, if a corporation, shall be certified by the secretary or assistant secretary, according to the form herein provided. In lieu of such certificate there may be attached to the bond copies of so much of the records of the corporation as will show the official character and authority of the officer signing, duly certified by the secretary or assistant secretary, under the corporate seal, to be true copies.
- 7. The date of this boud must not be prior to the date of the instrument in connection with which it is given.

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arty making the foregoing proposal or bid, that such proposal or bid is enuine and not collusive or sham; that said bidder has not colluded, compired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any anner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or of my other bidder, or to fix any overhead, profit or cost element of said bid rice, or of that of any other bidder, or to secure any advantage against the overnment or any person interested in the proposed contract; and that all tatements in said proposal or bid are true.  **YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY	eposes and says:			
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	·			

My commission expires \_\_\_\_\_\_, 19\_\_\_\_\_.

### FORM OF STATEMENT OF BIDDER'S QUALIFICATIONS

(This statement need not be furnished unless requested by the Government)

## STATEMENT OF BIDDER'S QUALIFICATIONS General Contractor

(All questions must be answered, and the data given must be clear and comprehensive. This statement must be notarized. If necessary, add separate sheets for items marked with an asterisk (\*) below.)

- 1. Name of bidder.
- 2. Permanent main office address.
- 3. When organized.
- 4. Where incorporated.
- 5. How many years have you been engaged in the contracting business under your present firm name?
- 6. \*Contracts on hand: (Schedule these, showing gross amount of each contract and approximate anticipated dates of completion.)
- 7. \*General character of work performed by your company.
- 8. Have you ever failed to complete any work awarded to you?
- 9. \*Have you ever defaulted on a contract?
- 10. \*List the more important structures or projects which have been constructed recently by your company. State the approximate contract price for each, and the month and year when completed.
- 11. \*List your major equipment which will be available for this contract work.
- 12. \*State your experience in construction work which is similar in magnitude, character, or importance to this project.
- 13. \*Describe the background and experience of yourself and the principal members of your organization, including officers.
- 14. \*How much credit do you have available; furnish written evidence.
- 15. Furnish a financial statement, which is not more than 60 days old, in the following form: (See the form of Condensed Current Financial Statement, on the two following pages.)

### CONDENSED CURRENT FINANCIAL STATMENT

	Condition at close of business	19
	ASSETS	DOLLARS
L.	Cash: (a) On hand \$, (b) In (c) Elsewhere \$	bank \$
•	(c) Elsewhere \$  Notes receivable (a) Due within 90 days (b) Due after 90 days (c) Past due	
•	Accounts receivable from completed contrac approved for payment	ts, exclusive of claims not
• 6	Sums earned on uncompleted contracts as sh estimate	
	(a) Amount receivable after ded	ucting retainage
	(b) Retainage to date, due upon	completion of contracts
•	Accounts receibable from sources other than	n construction contracts
) <b>5</b>	Deposits for bids or other guarantees:  (a) Recoverable within 90 days  (b) Recoverable after 90 days	
•	Interest accrued on loans, securities, etc	
•	Real Estate (a) Used for business purpose	* one can be a superior to the contract of the
	(b) Not used for business pu	rposes
•	Stocks and Bonds: (a) Listedpresent ma:	rket value
	(b) Unlisted Present	value
0	Materials in stock not included in Item 4	·
	(b) Other materials (p	ntracts (present value) resent value)
•	Equipment, book value Furniture and fixtures, book value	
•	Other accets	
•	Other assets	TOTAL ASSETS
	LIABILITIE	S
	Notes Payable: (a) To banks regular	
	(b) To banks for certific	ed checks
	(c) To others for equipme	
	1 1	of equipment obligations

		4, 11 to 1 to 1 to 1 to 1 to 1	
	CONDENSED CURRENT FINANCIAL STA	TEMENT (continued	)
2.	* Accounts Payable: (a) Not past due		
3.	Real estate encumbrances		
4.	Other lightlities		
5.	Other liabilitiesReserves		<del></del>
6.			
7.	Surplus (net worth) Earned \$	Emerged &	
•	our brus (mee wor out) railled &	onearned &	
	TOTAL LIABILITIES		
	TOTILI TITUTE TITUTE		
	CONTINGENT LIABILITIES	DOLLARS	CTS.
1.	Liability on notes receivable, discounted or sold		
2.	Liability on accounts receivable,		
~ 0	pledged, assigned or sold		
3.	Liability as bondsmen		* * * * * * * * * * * * * * * * * * *
4.	Liability as guarantor on contracts or		
4.	on eccepts of others	÷.	
5.	on accounts of others		
<b>/•</b>	Other contingent liabilities		
	MOUNT COMMINICIPME TO A POTT TESTED		
	TOTAL CONTINGENT LIABILITIES		

<sup>\*</sup> Include all amounts owing subcontractors for all work in place and accepted on completed and uncompleted contracts, including retainage.

Bulletin No. DH-1

REVISED MARCH 1951		CONTRACT NO.
GENERAL SERVICES AUMINISTRATION . CONSTR.	UCTION CONTRACT	CONTRACT NO.
(See inst	ructions on reverse)	DATE OF CONTRACT
NAME AND ADDRESS OF CONTRACTOR	- donons on reverse)	- Continue
THE AND ADDRESS OF CONTRACTOR		CHECK APPROPRIATE BOX
		Individual
		Partnership
		Incorporated in the
		State of
DEPARTMENT OR AGENCY		
PUBLIC HOUSING ADMINSTRATION		
CONTRACT FOR (Work to be performed)	The second state of the se	
t and so portorment		
PLACE		
AMOUNT OF CONTRACT (Express in words and figures)		
and inguies)		
DMINISTRATIVE DATA (Optional)		
Lie and Tepresented by the Contracting Off	icer executing this contrac	t. and the individual partne
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Alterations. The following changes were made in this contract before it was signed by the parties hereto:

- · 1. The following paragraphs are added to Clause 7 of the General Provisions:
  - (e) Each claim item excepted from the operation of the Contractor's release shall embrace no more than one claim, with the basis and scope of each clearly defined and the amount stated.

(f) The Government will make no payment for stored material which, in the opinion of the Contracting Officer, is not properly stored and protected.

- 2. The following paragraph is added to Clause 9 of the General Provisions:
  - (e) Neither inspection, testing, approval, nor acceptance of any material, finished articles, or work, in whole or in part, by the Government or its agent, shall relieve the Contractor or his Sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract Documents.

In witness whereof, the parties hereto have executed this contract as of the date entered on the first page hereof.

THE UNITED STATES OF AMERICA	CONTRACTOR
By	
	(Name of Contractor)
(Official title)	By (Signature)
	(Titio)

### INSTRUCTIONS

- 1. This form shall be used, as required by GSA regulations, for contracts for the construction, alteration, or repair of public buildings or works.
- 2. The full name and business address of the Contractor must be inserted in the space provided on the face of the form. The Contractor shall sign in the space provided above with his usual signature and typewrite or print name under all signatures to the contract and bonds.
- 3. An officer of a corporation, a member of a partnership, or an agent signing for the Contractor shall place his signature and title after the word "By" under the name of the Contractor. A contract executed by an attorney or agent on behalf of the Contractor shall be accompanied by two authenticated copies of his power of attorney, or other evidence of his authority to act on behalf of the Contractor.

Bulletin No. DH-1

TANDARD FORM 23 LEVISED MARCH 1955		CONTRACT NO.
BENERAL REGULATION NO. 18	CONSTRUCTION CONTR	
NAME AND ADDRESS OF CONTRACTOR	Principal and the company of the second seco	CHECK APPROPRIATE BOX
		1 Individual
		Partnership
		Incorporated in the State of
		State of
EPARTMENT OR AGENCY	garante de la composition della composition dell	The second secon
PUBLIC HOUSING ADMINST	ration	
DETRACT FOR (Work to be performed)	<del>an and the second to the transport of the second to the s</del>	gen an antique d'autre français de la company de la compan
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	and the second s	
MOUNT OF CONTRACT (Express in words and i	(guros)	
DMINISTRATIVE DATA (Optional)	and the second s	
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Addendum No.		
all as prepared by		, Architect
	The second secon	
WORK SHALL DE STARTED		BE COMPLETED
on the date established Notice to Proceed.	calen	n the number of consecutive dar days stipulated in the al Conditions.

NOTE: These pages 17 and 18 supersede pages 17 and 18 dated 3-1-54. Paragraph 3 under "Alterations" on page 18 has been added.

Alterations. The following changes were made in this contract before it was signed by the parties hereto:

- 1. The following paragraphs are added to Clause 7 of the General Provisions:
  - (e) Each claim item excepted from the operation of the Contractor's release shall embrace no more than one claim, with the basis and scope of each clearly defined and the amount stated.
  - (f) The Government will make no payment for stored material which, in the opinion of the Contracting Officer, is not properly stored and protected.
- 2. The following paragraph is added to Clause 9 of the General Provisions:
  - (e) Neither inspection, testing, approval, nor acceptance of any material, finished articles, or work, in whole or in part, by the Government or its agent, shall relieve the Contractor or his Sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract Documents.

In witness whereof, the parties hereto have executed this contract as of the date entered on the first page hereof.

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### INSTRUCTIONS

- 1. This form shall be used, as required by GSA regulations, for contracts for the construction, alteration, or repair of public buildings or works.
- 2. The full name and business address of the Contractor must be inserted in the space provided on the face of the form. The Contractor shall sign in the space provided above with his usual signature and typewrite or print name under all signatures to the contract and bonds.
- 3. An officer of a corporation, a member of a partnership, or an agent signing for the Contractor shall place his signature and title after the word "By" under the name of the Contractor. A contract executed by an attorney or agent on behalf of the Contractor shall be accompanied by two authenticated copies of his power of attorney, or other evidence of his authority to act on behalf of the Contractor.

  18-17412-8 8.8. SOURSHAREST PRINTING OFFICE.

CANDARD FORM 23 VISED MARCH 1983 INDEAL SERVICES ADMINISTRATION INERAL REGULATION NO. 13	CONSTRUCTION CONTRACT	CONTRACT NO.
	(See instructions on reverse)	DATE OF CONTRACT
ME AND ADDRESS OF CONTRACTOR		CHECK APPROPRIATE BOX
	,	Individual
		Partnership
		Incorporated in the State of
PARTMENT OR AGENCY	manus en	The definition of the state of
PUBLIC HOUSING ADMINST	RATION	·
NTRACT FOR (Wark to be performed)	TOTAL PROPERTY CONTROL OF THE TOTAL STATE OF THE STATE OF	The transfer of the control of the c
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MISTRATIVE DATA (OPTIONAL)		
1		
overnment, represented by the	nto this date by the United States of Contracting Officer executing this con	tract, and the individual, partner
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NOTE: These pages 17 and 18 should be substituted for pages 17 and 18 dated 11-24-54. Paragraph 3 under "Alterations" was omitted from page 18 dated 11-24-54.

Alterations. The following changes were made in this contract before it was signed by the parties hereto:

- 1. The following paragraphs are added to Clause 7 of the General Provisions:
  - (e) Each claim item excepted from the operation of the Contractor's release shall embrace no more than one claim, with the basis and scope of each clearly defined and the amount stated.

(f) The Government will make no payment for stored material which, in the opinion of the Contracting Officer, is not properly stored and protected.

- 2. The following paragraph is added to Clause 9 of the General Provisions:
  - (e) Neither inspection, testing, approval, nor acceptance of any material, finished articles, or work, in whole or in part, by the Government or its agent, shall relieve the Contractor or his Sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract Documents.
- 3. Clause 19 of the General Provisions is revised.

In witness whereof, the parties hereto have executed this contract as of the date entered on the first page hereof.

THE UNITED STATES OF AMERICA	CONTRACTOR		
Ву	(Name of Contractor)		
(Official title)	By (Signature)		
	(Title)		
		-	

### INSTRUCTIONS

- 1. This form shall be used, as required by GSA regulations, for contracts for the construction, alteration, or repair of public buildings or works.
- 2. The full name and business address of the Contractor must be inserted in the space provided on the face of the form. The Contractor shall sign in the space provided above with his usual signature and typewrite or print name under all signatures to the contract and bonds.
- 3. An officer of a corporation, a member of a partnership, or an agent signing for the Contractor shall place his signature and title after the word "By" under the name of the Contractor. A contract executed by an attorney or agent on behalf of the Contractor shall be accompanied by two authenticated copies of his power of attorney, or other evidence of his authority to act on behalf of the Contractor.

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	The rate of premium on this bond is	per thousand.	
	Total amount of premium charged, \$	•••••	
	(The above must be filled in by corporate su	rety)	
	CERTIFICATE AS TO CORPORATE PRIN	CIPAL	en e
I,	, certify that I am the	***************************************	secretary
of the corpo	oration named as principal in the within bond; that		·····
corporation	the said bond on behalf of the principal, was then; that I know his signature, and his signature thereto is sed, and attested for and in behalf of said corporation by a	genuine: and that	said bond was duly
			CORPORATE SEAL

### INSTRUCTIONS

- 1. This form shall be used for construction work or the furnishing of supplies or services, whenever a performance bond is required. There shall be no deviation from this form except as authorized by the General Services Administration.
- 2. The surety on the bond may be any corporation authorized by the Secretary of the Treasury to act as surety, or two responsible individual sureties. Where individual sureties are used, this bond must be accompanied by a completed Affidavit of Individual Surety for each individual surety (Standard Form 28).
- 3. The name, including full Christian name, and business or residence address of each individual party to the bond shall be inserted in the space provided therefor, and each such party shall sign the bond with his usual signature on the line opposite the scroll seal, and if signed in Maine or New Hampshire, an adhesive seal shall be affixed opposite the signature.
- 4. If the principals are partners, their individual names shall appear in the space provided therefor, with the recital that they are partners composing a firm, naming it, and all the members of the firm shall execute the bond as individuals.
- 5. If the principal or surety is a corporation, the name of the State in which incorporated shall be inserted in the space provided therefor, and said instrument shall be executed and attested under the corporate seal as indicated in the form. If the corporation has no corporate seal the fact shall be stated, in which case a scroll or adhesive seal shall appear following the corporate name.
- 6. The official character and authority of the person or persons executing the bond for the principal, if a corporation, shall be certified by the secretary or assistant secretary, according to the form herein provided. In lieu of such certificate there may be attached to the bond copies of so much of the records of the corporation as will show the official character and authority of the officer signing, duly certified by the secretary or assistant secretary, under the corporate seal, to be true copies.
- 7. The date of this bond must not be prior to the date of the instrument in connection with which it is given.

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REVISED NOVEMBER 1950 PRESCRIBED BY GENERAL RERVICES ADMINISTRATION GENERAL REGULATION NO. 9		AENT BOND		DATE BOAD EXECUTED
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### INSTRUCTIONS

- 1. This form, for the protection of persons supplying labor and material, shall be used whenever a payment bond is required under the act of August 24, 1935, 49 Stat. 793, as amended (40 U. S. C. 270a-270e). It may also be used in any other case in which a payment bond is to be required. There shall be no deviation from this form except as authorized by the General Services Administration.
- 2. The surety on the bond may be any corporation authorized by the Secretary of the Treasury to act as surety, or two responsible individual sureties. Where individual sureties are used, this bond must be accompanied by a completed Affidavit of Individual Surety for each individual surety (Standard Form 28).
- 3. The name, including full Christian name, and business or residence address of each individual party to the bond shall be inserted in the space provided therefor, and each such party shall sign the bond with his usual signature on the line opposite the scroll seal, and if signed in Maine or New Hampshire, an adhesive seal shall be affixed opposite the signature.
- 4. If the principals are partners, their individual names shall appear in the space provided therefor, with the recital that they are partners composing a firm, naming it, and all the members of the firm shall execute the bond as individuals.
- 5. If the principal or surety is a corporation, the name of the State in which incorporated shall be inserted in the space provided therefor, and said instrument shall be executed and attested under the corporate seal as indicated in the form. If the corporation has no corporate seal the fact shall be stated, in which case a scroll or adhesive seal shall appear following the corporate name.
- 6. The official character and authority of the person or persons executing the bond for the principal, if a corporation, shall be certified by the secretary or assistant secretary, according to the form herein provided. In lieu of such certificate there may be attached to the bond copies of so much of the records of the corporation as will show the official character and authority of the officer signing, duly certified by the secretary or assistant secretary, under the corporate seal, to be true copies.
- 7. The date of this bond must not be prior to the date of the instrument in connection with which it is given.

STANDARD FORM 23A

MARCH 1953

PRESCRIBED BY GENERAL
SERVICES ADMINISTRATION
GENERAL REGULATION NO. 15

### GENERAL PROVISIONS

(CONSTRUCTION CONTRACTS)

#### 1. DEFINITIONS

(a) The term "head of the department" as used berein shall mean the head or any assistant head of the executive department or independent establishment involved, and the term "his duly authorized representative" shall mean any person authorized to act for him other than the Contracting Officer.

(b) The term "Contracting Officer" as used herein, shall include his duly appointed successor or his authorized representative.

#### 2. SPECIFICATIONS AND DRAWINGS

The Contractor shall keep on the work a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In any case of discrepancy either in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without this determination shall be at his own risk and expense. The Contracting Officer shall furnish from time to time such detail drawings and other information as he may consider necessary, unless otherwise provided.

#### 3. CHANGES

The Contracting Officer may at any time, by a written order, and without notice to the sureties, make changes in the drawings and/or specifications of this contract and within the general scope thereof. If such changes cause an increase or decrease in the amount due under this contract, or in the time required for its performance, an equitable adjustment shall be made and the contract shall be modified in writing accordingly. Any claim of the Contractor for adjustment under this clause must be asserted In writing within 30 days from the date of receipt by the Contractor of the notification of change: Provided, however, That the Contracting Officer, if he determines that the facts justify such action, may receive and consider, and adjust any such claim asserted at any time prior to the date of final settlement of the contract. If the parties fail to agree upon the adjustment to be made the dispute shall be determined as provided in Clause 6 hereof. But nothing provided in this clause shall excuse the Contractor from proceeding with the prosecution of the work as changed. Except as otherwise herein provided, no charge for any extra work or material will be allowed.

### 4. CHANGED CONDITIONS

The Contractor shall promptly, and before such conditions are disturbed, notify the Contracting Officer in writing of: (1) subsurface or latent physical conditions at the site differing materially from those indicated in this contract, or (2) unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in this contract. The Contracting Officer shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or the time required for, performance of this contract, an equitable adjustment shall be made and the contract modified in writing accordingly. Any claim of the Contractor for adjustment hereunder shall not be allowed unless he has given notice as above required; provided that the Contracting Officer may, if he determines the facts so justify, consider and adjust any such claim asserted before the date of final settlement of the contract. If the parties fail to agree upon the adjustment to be made, the dispute shall be determined as provided in Clause 6 hereof.

### 5. TERMINATION FOR DEFAULT—DAMAGES FOR DELAY—TIME EXTENSIONS

(a) If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with such diligence as will insure its completion within the time specified in this contract, or any extension thereof, or fails to complete said work within such time, the Government may, by written notice to the Contractor, terminate his right to proceed with the work or such part of the work as to which there has been delay. In such event the Government may take over the work and prosecute the same to completion, by contract or otherwise, and the Contractor and his surcties shall be liable to the Government for any excess cost occasioned the Government thereby, and for liquidated damages for delay, as fixed in the specifications or accompanying papers, until such reasonable time as may be required for the final completion of the work, or if liquidated damages are not so fixed, any actual damages occasioned by such delay. If the Contractor's right to proceed is so terminated, the Government may take possession of and utilize in completing the work such materials, appliances, and plant as may be on the site of the work and necessary therefor.

(b) If the Government does not terminate the right of the Contractor to proceed, as provided in paragraph (a) hereof, the Contractor shall continue the work, in which event he and his sureties shall be liable to the Government, in the amount set forth in the specifications or accompanying papers, for fixed, agreed, and liquidated damages for each calendar day of delay until the work is completed or accepted, or if liquidated damages are not so fixed, any actual damages occasioned by such delay.

(c) The right of the Contractor to proceed shall not be terminated, as provided in paragraph (a) hereof, nor the Contractor charged with liquidated or actual damages, as provided in paragraph (b) hereof because of any delays in the completion of the work due to unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God, or of the public enemy, acts of the Government, in either its sovereign or contractual capacity, acts of another contractor in the performance of a contract with the Government, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather, or delays of subcontractors or suppliers due to such causes: Provided, That the Contractor shall within 10 days from the beginning of any such delay, unless the Contracting Officer shall grant a further period of time prior to the date of final settlement of the contract, notify the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of the delay and extend the time for completing the work when in his judgment the findings of fact justify such an extension, and his findings of fact thereon shall be final and conclusive on the parties hereto, subject only to appeal as provided in Clause 6 hereof.

### 6. DISPUTES

Except as otherwise provided in this contract, any dispute concerning a question of fact arising under this contract which is not disposed of by agreement shall be decided by the Contracting Officer, who shall reduce his decision to writing and mail or otherwise furnish a copy thereof to the Contractor. Within 30 days from the date of receipt of such copy, the Contractor may appeal by mailing or otherwise furnishing to the Contracting Officer a written appeal addressed to the head of the department, and the decision of the head of the department or his duly authorized representatives for the hearings of such appeals shall, unless determined by a court of competent jurisdiction to have been fraudulent, arbitrary, capricious, or so grossly erroneous as necessarily to imply bad faith, be final and conclusive: Provided, That, if no such appeal to the head

of the department is taken, the decision of the Contracting Officer shall be final and conclusive. In connection with any appeal proceeding under this clause, the Contractor shall be afforded an opportunity to be heard, and to offer evidence in support of its appeal. Pending final decision of a dispute hereunder, the Contractor shall proceed diligently with the performance of the contract and in accordance with the Contracting Officer's decision.

### 7. PAYMENTS TO CONTRACTORS

(a) Unless otherwise provided in the specifications, partial payments will be made as the work progresses at the end of each calendar month, or as soon thereafter as practicable, or at more frequent intervals as determined by the Contracting Officer, on estimates made and approved by the Contracting Officer. In preparing estimates the material delivered on the site and preparatory work done may be taken into consideration.

(b) In making such partial payments there shall be retained 10 percent on the estimated amount until final completion and acceptance of all work covered by the contract: Provided, however, That the Contracting Officer, at any time after 50 percent of the work has been completed, if he finds that satisfactory progress is being made, may make any of the remaining partial payments in full: And provided further, That on completion and acceptance of each separate building, public work, or other division of the contract, on which the price is stated separately in the contract, payment may be made in full, including retained percentage thereon, less authorized deductions.

(c) All material and work covered by partial payments made shall thereupon become the sole property of the Government, but this provision shall not be construed as relieving the Contractor from the sole responsibility for all materials and work upon which payments have been made or the restoration of any damaged work, or as a waiver of the right of the Government to require the fulfillment of all of the terms of the contract.

(d) Upon completion and acceptance of all work required hereunder, the amount due the Contractor under this contract will be paid upon the presentation of a properly executed and duly certified voucher therefor, after the Contractor shall have furnished the Government with a release, if required, of all claims against the Government arising under and by virtue of this contract, other than such claims, if any, as may be specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein. If the Contractor's claim to amounts payable under the contract has been assigned under the Assignment of Claims Act of 1940, as amended (41 U. S. C. 15), a release may also be required of the assignee at the option of the Contracting Officer,

### 8. MATERIALS AND WORKMANSHIP

Unless otherwise specifically provided for in the specifications, all equipment, materials, and articles incorporated in the work covered by this contract are to be new and of the most suitable grade of their respective kinds for the purpose and all workmanship shall be first class. Where equipment, materials, or articles are referred to in the specifications as "equal to" any particular standard, the Contracting Officer shall decide the question of equality, The Contractor shall furnish to the Contracting Officer for his approval the name of the manufacturer of machinery, mechanical and other equipment which he contemplates incorporating in the work, together with their performance capacities and other pertinent information. When required by the specifications, or when called for by the Contracting Officer, the Contractor shall furnish the Contracting Officer for approval full information concerning the materials or articles which he contemplates incorporating in the work. Samples of materials shall be submitted for approval when so directed. Machinery, equipment, materials, and articles installed or used without such approval shall be at the risk of subsequent rejection. The Contracting Officer may in writing require the Contractor to remove from the work such employee as the Contracting Officer deems incompetent, careless, insubordinate, or otherwise objectionable, or whose continued employment on the work is deemed by the Contracting Officer to be contrary to the public interest.

### 9. INSPECTION

(a) Except as otherwise provided in paragraph (d) hereof all material and workmanship, if not otherwise designated by the specifications, shall be subject to inspection, examination, and test by the Contracting Officer at any and all times during manufacture and/or construction and at any and all places where such manufacture and/or construction are carried on. The Government shall have the right to reject defective material and workmanship or require its correction. Rejected workmanship shall be satisfactorily corrected and rejected material shall be satisfactorily replaced with proper material without charge therefor, and the Contractor shall promptly segregate and remove the rejected material from the premises. If the Contractor fails to proceed at once with the replacement of rejected material and/or the correction of defective workmanship the Government may, by contract or otherwise, replace such material and/or correct such workmanship and charge the cost thereof to the Contractor, or may terminate the right of the Contractor to proceed as provided in Clause 5 of this contract, the Contractor and surety being liable for any damage to the same extent as provided in said Clause 5 for terminations thereunder.

(b) The Contractor shall furnish promptly without additional charge, all reasonable facilities, labor, and materials necessary for the safe and convenient inspection and test that may be required by the Contracting Officer. All inspection and tests by the Government shall be performed in such manner as not unnecessarily to delay the work. Special, full size, and performance tests shall be as described in the specifications. The Contractor shall be charged with any additional cost of inspection when material and workmanship are not ready at the time inspection is requested by the Contractor.

(c) Should it be considered necessary or advisable by the Government at any time before final acceptance of the entire work to make an examination of work already completed, by removing or tearing out same, the Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective or nonconforming in any material respect, due to fault of the Contractor or his subcontractors, he shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the actual direct cost of labor and material necessarily involved in the examination and replacement, plus 15 percent, shall be allowed the Contractor and he shall, in addition, if completion of the work has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

(d) Inspection of material and finished articles to be incorporated in the work at the site shall be made at the place of production, manufacture, or shipment, whenever the quantity justifies it, unless otherwise stated in the specifications; and such inspection and written or other formal acceptance, unless otherwise stated in the specifications, shall be final. except as regards latent defects, departures from specific requirements of the contract, damage or loss in transit, fraud, or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of material and workmanship for final acceptance as a whole or in part shall be made at the site. Nothing contained in this paragraph (d) shall in any way restrict the Government's rights under any warranty or gustantee.

### 10. SUPERINTENDENCE BY CONTRACTOR

The Contractor shall give his personal superintendence to the work or have a competent foreman or superintendent, satisfactory to the Contracting Officer, on the work at off times during progress, with authority to act for him.

#### PERMITS AND RESPONSIBILITY FOR WORK, ETC.

The Contractor shall, without additional expense to the Government, obtain all licenses and permits required for the prosecution of the work. He shall be responsible for all damages to persons or property that occur as a result of his fault or negligence in connection with the prosecution of the work. He shall also be responsible for all materials delivered and work performed until completion and final acceptance, except for any completed unit thereof which theretofore may have been finally accepted.

#### 12. OTHER CONTRACTS

The Government may undertake or award other contracts for additional work, and the Contractor shall fully cooperate with such other contractors and Government employees and carefully fit his own work to such additional work as may be directed by the Contracting Officer. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other contractor or by Government employees.

#### 13. PATENT INDEMNITY

Except as otherwise provided, the Contractor agrees to indemnify the Government and its officers, agents and employees against liability, including costs and expenses, for infringement upon any Letters Patent of the United States (except Letters Patent issued upon an application which is now or may hereafter be, for reasons of national security, ordered by the Government to be kept secret or otherwise withheld from issue) arising out of the performance of this contract or out of the use or disposal by or for the account of the Government of supplies furnished or construction work performed hereunder.

### 14. ADDITIONAL BOND SECURITY

If any surety upon any bond furnished in connection with this contract becomes unacceptable to the Government, or if any such surety fails to furnish reports as to his financial condition from time to time as requested by the Government, the Contractor shall promptly furnish such additional security as may be required from time to time to protect the interests of the Government and of persons supplying labor or materials in the prosecution of the work contemplated by this contract.

### 15. COVENANT AGAINST CONTINGENT FEES

The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration the full amount of such commission, percentage, brokerage, or contingent fee.

### 16. OFFICIALS NOT TO BENEFIT

No member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this contract, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

### .17. BUY AMERICAN ACT

The Contractor agrees that in the performance of the work under this contract the Contractor, subcontractors, material men and suppliers shall use only such unmanufactured articles, materials and supplies (which term "articles, materials and supplies" is hereinafter referred to in this clause as "Supplies") as have been mined or produced in the United States, and only such manufactured supplies as have been manufactured in the United States substantially all from supplies mined, produced, or manufactured, as the case may be, in the United States. Pursuant to the Buy American Act (41 U. S. C. 10a-d), the

foregoing provisions shall not apply (i) with respect to supplies excepted by the head of the department from the application of that Act, (ii) with respect to supplies for use outside the United States, or (iii) with respect to the supplies to be used in the performance of work under this contract which are of a class or kind determined by the head of the department or his duly authorized representative not to be mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, or (iv) with respect to such supplies, from which the supplies to be used in the performance of work under this contract are manufactured, as are of a class or kind determined by the head of the department or his duly authorized representative not to be mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, provided that this exception (iv) shall not permit the use in the performance of work under this contract of supplies manufactured outside the United States if such supplies are manufactured in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality.

#### 18. CONVICT LABOR

In connection with the performance of work under this contract, the Contractor agrees not to employ any person undergoing sentence of imprisonment at hard labor.

#### 19. NONDISCRIMINATION IN EMPLOYMENT

In connection with the performance of work under this contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of race, creed, color, or national origin; and further agrees to insert the foregoing provision in all subcontracts hereunder except subcontracts for standard commercial supplies or for raw materials.

### 20. DAVIS-BACON ACT (40 U. S. C. 276a-a(7))

(a) All mechanics and laborers employed or working directly upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Copeland Act (Anti-Kickback) Regulations (29 CFR, Part 3)) the full amounts due at time of payment, computed at wage rates not less than those contained in the wage determination decision of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor or subcontractor and such laborers and mechanics; and a copy of the wage determination decision shall be kept posted by the Contractor at the site of the work in a prominent place where it can be easily seen by the workers.

(b) In the event it is found by the Contracting Officer that any laborer or mechanic employed by the Contractor or any subcontractor directly on the site of the work covered by this contract has been or is being paid at a rate of wages less than the rate of wages required by paragraph (a) of this clause, the Contracting Officer may (1) by written notice to the Government Prime Contractor terminate his right to proceed with the work, or such part of the work as to which there has been a failure to pay said required wages, and (2) prosecute the work to completion by contract or otherwise, whereupon such Contractor and his suretics shall be liable to the Government for any excess costs occasioned the Government thereby.

(c) Paragraphs (a) and (b) of this clause shall apply to this contract to the extent that it is (1) a prime contract with the Government subject to the Davis-Bacon Act or (2) a subcontract under such prime contract.

### 21. EIGHT-HOUR LAWS-OVERTIME COMPENSATION

No laborer or mechanic doing any part of the work contemplated by this contract, in the employ of the Contractor

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or any subcontractor contracting for any part of said work contemplated, shall be required or permitted to work more than eight hours in any one calendar day upon such work, except upon the condition that compensation is paid to such taborer or mechanic in accordance with the provisions of this clause. The wages of every laborer and mechanic employed by the Contractor or any subcontractor engaged in the performance of this contract shall be computed on a basic day rate of cight hours per day and work in excess of eight hours per day is permitted only upon the condition that every such laborer and mechanic shall be compensated for all hours worked in excess of eight hours per day at not less than one and one-half times the basic rate of pay. For each violation of the requirements of this clause a penalty of five dollars shall be imposed for each laborer or mechanic for every calendar day in which such employee is required or permitted to labor more than eight hours upon said work without receiving compensation computed in accordance with this clause, and all penaltics thus imposed shall be withheld for the use and benefit of the Government: Provided, That this stipulation shall be subject in all respects to the exceptions and provisions of the Eight-Hour Laws as set forth in 40 U. S. C. 321, 324, 325, 325a, and 326, which relate to hours of labor and compensation for overtime.

#### 22. APPRENTICES

Apprentices will be permitted to work only under a bona fide apprenticeship program registered with a State Apprenticeship Council which is recognized by the Federal Committee on Apprenticeship, U. S. Department of Labor; or if no such recognized Council exists in a State, under a program registered with the Bureau of Apprenticeship, U. S. Department of Labor.

### 23. PAYROLL RECORDS AND PAYROLLS

(e) Payroll records will be maintained during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records will contain the name and address of each such employee, his correct classification, rate of pay, daily and weekly number of hours worked, deductions made and actual wages paid. The Contractor will make his employment records available for inspection by authorized representatives of the Contracting Officer and the U. S. Department of Labor, and will permit such representatives to interview employees during working hours on the job.

(b) A certified copy of all payrolls will be submitted weekly to the Contracting Officer. The Government Prime Contractor will be responsible for the submission of certified copies of the payrolls of all subcontractors. The certification will affirm that the payrolls are correct and complete, that the wage rates contained therein are not less than the applicable rates contained in the wage determination decision of the Secretary of Labor attached to this contract, and that the classifications set forth for each laborer or mechanic conform with the work he performed.

### 24. COPELAND (ANTI-KICKBACK) ACT-NONRE-BATE OF WAGES.

The regulations of the Secretary of Labor applicable to Contractors and subcontractors (29 CFR, Part 3), made pursuant to the Copeland Act, as amended (40 U. S. C. 276c) and to aid in the enforcement of the Anti-Rickback Act (18 U. S. C. 874) are made a part of this contract by reference. The Contractor will comply with these regulations and any amendments or modifications thereof and the Government Prime Contractor will be responsible for the submission of affidavits required of subcontractors thereunder. The foregoing shall apply except as the Secretary of Labor may specifically provide for reasonable limitations, variations, tolerances, and exemptions.

### 25. WITHHOLDING OF FUNDS TO ASSURE WAGE PAYMENT

There may be withheld from the Contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics employed by the Contractor or any subcontractor the full amount of wages required by this contract. In the event of failure to pay any laborer or mechanic all or part of the wages required by this contract, the Contracting Officer may take such action as may be necessary to cause the suspension, until such violations have ceased, of any further payment, advance, or guarantee of funds to or for the Government Prime Contractor.

### 26. SUBCONTRACTS—TERMINATION

The Contractor agrees to insert Clauses 20 through 26 hereof in all subcontracts and further agrees that a breach of any of the requirements of these clauses may be grounds for termination of this contract. The term "Contractor" as used in such clauses in any subcontract shall be deemed to refer to the subcontractor except in the phrase "Government Prime Contractor."

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### 11. PERMITS AND RESPONSIBILITY FOR WORK, ETC.

The Contractor shall, without additional expense to the Government, obtain all licenses and permits required for the prosecution of the work. He shall be responsible for all damages to persons or property that occur as a result of his fault or negligence in connection with the prosecution of the work. He shall also be responsible for all materials delivered and work performed until completion and final acceptance, except for any completed unit thereof which theretofore may have been finally accepted.

#### 12. OTHER CONTRACTS

The Government may undertake or award other contracts for additional work, and the Contractor shall fully cooperate with such other contractors and Government employees and carefully fit his own work to such additional work as may be directed by the Contracting Officer. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other contractor or by Government employees.

### 13. PATENT INDEMNITY

Except as otherwise provided, the Contractor agrees to indemnify the Government and its officers, agents and employees against liability, including costs and expenses, for infringement upon any Letters Patent of the United States (except Letters Patent issued upon an application which is now or may hereafter be, for reasons of national security, ordered by the Government to be kept secret or otherwise withheld from issue) arising out of the performance of this contract or out of the use or disposal by or for the account of the Government of supplies furnished or construction work performed hereunder.

#### 14. ADDITIONAL BOND SECURITY

If any surety upon any bond furnished in connection with this contract becomes unacceptable to the Government, or if any such surety fails to furnish reports as to his financial condition from time to time as requested by the Government, the Contractor shall promptly furnish such additional security as may be required from time to time to protect the interests of the Government and of persons supplying labor or materials in the prosecution of the work contemplated by this contract.

### 15. COVENANT AGAINST CONTINGENT FEES

The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration the full amount of such commission, percentage, brokerage, or contingent fee.

### 16. OFFICIALS NOT TO BENEFIT

No member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any shore or part of this contract, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

### 17. BUY AMERICAN ACT

The Contractor agrees that in the performance of the work under this contract the Contractor, subcontractors, material men and suppliers shall use only such unmanufactured articles, materials and supplies (which term "articles, materials and supplies" is hereinafter referred to in this clause as "Supplies") as have been mined or produced in the United States, and only such manufactured supplies as have been manufactured in the United States substantially all from supplies mined, produced, or manufactured, as the case may be, in the United States. Pursuant to the Buy American Act (41 U. S. C. 10a-d), the

foregoing provisions shall not apply (i) with respect to supplies excepted by the head of the department from the application of that Act, (ii) with respect to supplies for use outside the United States, or (iii) with respect to the supplies to be used in the performance of work under this contract which are of a class or kind determined by the head of the department or his duly authorized representstive not to be mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, or (iv) with respect to such supplies, from which the supplies to be used in the performance of work under this contract are manufactured, as are of a class or kind determined by the head of the department or his duly authorized representative not to be mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, provided that this exception (iv) shall not permit the use in the performance of work under this contract of supplies manufactured outside the United States if such supplies are manufactured in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality.

### is, CONVICT LABOR

In connection with the performance of work under this contract, the Contractor agrees not to employ any person undergoing sentence of imprisonment at hard labor.

### 19 NONDISCRIMINATION IN EMPLOYMENT

In connection with the performance of work under this contract, the Contractor agrees not to discriminate against any employee or applicant for supplyment because of race, creed, color, or national origin, and further agrees to insert the for going provision in all subcentracts hereunder except subcontracts for standard commercial amplies or for aw materials.

### 20. DAVIS-BACON ACT (40 U. S. C. 276a-a(7))

(a) All mechanics and laborers employed or working directly upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Copeland Act (Anti-Kickback) Regulations (29 CFR, Part 3)) the full amounts due at time of payment, computed at wage retes not less than those contained in the wage determination decision of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor or subcontractor and such laborers and mechanics; and a copy of the wage determination decision shall be kept posted by the Contractor at the site of the work in a prominent place where it can be easily seen by the workers.

(b) In the event it is found by the Contracting Officer that any laborer or mechanic employed by the Contractor or any subcontractor directly on the site of the work covered by this contract has been or is being paid at a rate of wages less than the rate of wages required by paragraph (a) of this clause, the Contracting Officer may (1) by written notice to the Government Prime Contractor terminate his right to proceed with the work, or such part of the work as to which there has been a failure to pay said required wages, and (2) prosecute the work to completion by contract or otherwise, whereupon such Contractor and his sureties shall be liable to the Government for any excess costs occasioned the Government thereby.

(c) Paragraphs (a) and (b) of this clause shall apply to this contract to the extent that it is (1) a prime contract with the Government subject to the Davis-Bacon Act or (2) a subcontract under such prime contract.

### 21. EIGHT-HOUR LAWS-OVERTIME COMPENSA-

TION

No laborer or mechanic doing any part of the work contemplated by this contract, in the employ of the Contractor

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NOTE: These pages 25 and 26 supersede pages 25 and 26 dated 3-1-54. Clause 19 has been revised.

or any subcontractor contracting for any part of said work contemplated, shall be required or permitted to work more than eight hours in any one calendar day upon such work, except upon the condition that compensation is paid to such laborer or mechanic in accordance with the provisions of this clause. The wages of every laborer and mechanic employed by the Contractor or any subcontractor engaged in the performance of this contract shall be computed on a basic day rate of eight hours per day and work in excess of eight hours per day is permitted only upon the condition that every such laborer and mechanic shall be compensated for all hours worked in excess of eight hours per day at not less than one and one-half times the basic rate of pay. For each violation of the requirements of this clause a penalty of five dollars shall be imposed for each laborer or mechanic for every calendar day in which such employee is required or permitted to labor more than eight hours upon said work without receiving compensation computed in accordance with this clause, and all penalties thus imposed shall be withheld for the use and benefit of the Government: Provided, That this stipulation shall be subject in all respects to the exceptions and provisions of the Eight-Hour Laws as set forth in 40 U. S. C. 321, 324, 325, 325a, and 326, which relate to hours of labor and compensation for overtime.

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(a) Payroll records will be maintained during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records will contain the name and address of each such employee, his correct classification, rate of pay, daily and weekly number of hours worked, deductions made and actual wages paid. The Contractor will make his employment records available for inspection by authorized representatives of the Contracting Officer and the U. S. Department of Labor, and will permit such representatives to interview employees during working hours on the job.

(b) A certified copy of all payrolls will be submitted weekly to the Contracting Officer. The Government Prime Contractor will be responsible for the submission of certified copies of the payrolls of all subcontractors. The certification will affirm that the payrolls are correct and complete, that the wage rates contained therein are not less than the applicable rates contained in the wage determination decision of the Secretary of Labor attached to this contract, and that the classifications set forth for each taborer or mechanic conform with the work he performed.

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### 25. WITHHOLDING OF FUNDS TO ASSURE WAGE PAYMENT

There may be withheld from the Contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics employed by the Contractor or any subcontractor the full amount of wages required by this contract. In the event of failure to pay any laborer or mechanic all or part of the wages required by this contract, the Contracting Officer may take such action as may be necessary to cause the suspension, until such violations have ceased, of any further payment, advance, or guarantee of funds to or for the Government Prime Contractor.

### 26. SUBCONTRACTS—TERMINATION

The Contractor agrees to insert Clauses 20 through 26 hereof in all subcontracts and further agrees that a breach of any of the requirements of these clauses may be grounds for termination of this contract. The term "Contractor" as used in such clauses in any subcontract shall be deemed to refer to the subcontractor except in the phrase "Government Prime Contractor."

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### 19. NONDISCRIMINATION IN EMPLOYMENT

In connection with the performance of work under this contract, the contractor agrees not to discriminate against any employee or applicant for employment because of race, religion, color, or national origin. The aforesaid provision shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the nondiscrimination clause. The contractor further agrees to insert the foregoing provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials.

### GENERAL CONDITIONS

### 1. DEFINITIONS

Wherever used in any of the contract documents, the following meanings shall be given to the terms herein defined:

- a. The "Contract" means the agreement executed by the Government and the Contractor of which these General Conditions form a part.
- b. The terms "Government" and "Contractor" mean the respective parties to the contract,
- c. The Contract Documents are composed of the Construction Contract, Performance Bond, Payment Bond, General Provisions, General Conditions, Special Conditions, General Scope of Work, Schedule of Drawings, Technical Specifications, and the Drawings. In the event of conflict between the following listed documents the provisions of such documents shall govern in the order listed:
  - (1) Construction Contract
  - (2) General Provisions
  - (3) General Conditions
  - (4) Special Conditions
  - (5) General Scope of Work
  - (6) Technical Specifications
  - (7) Drawings

The various provisions in Addenda shall be construed in the order of preference of the document which each modifies.

- d. The term "Project" means the building or facility, improvement, alteration, addition or repair, the construction work for which is contemplated in whole or in part under the Contract.
- e. The "head of the department", as that term is used herein, means the Commissioner of Public Housing Administration.
- f. The "Contracting Officer", as that term is used herein, means the person signing this contract or his duly appointed successor, or his duly authorized representative.
- g. The term "Project Engineer" means the Contracting Officer's representative on the site who has been assigned to superintend the work at the Project. The scope of the Project Engineer's responsibilities and functions will be detailed to the Contractor subsequent to the execution of this contract. He shall not be deemed to be the Contracting Officer except to the extent and in accordance with the authority delegated to him.

GENERAL CONDITIONS

### 2. CONTRACTOR

Only one Contractor is recognized as a party to this Contract, and where the term "Contractor" is used the prime contractor who signed this Contract is referred to. For convenience, the Technical Specifications have been divided into separate headings or divisions to cover the various trades represented in the work, and where subcontractors, such as "Mason Contractor", "Carpenter Contractors", and other subcontractors are referred to it has been for convenience only.

### 3. LAYING OUT THE WORK

- a. The Contracting Officer will establish such general reference points as in his judgment will enable the Contractor to proceed with the work. The Contractor shall protect and preserve all stakes, benches, and other markers used to identify the reference points.
- b. If the Contractor requires the establishment of additional reference points or replacement of points already established, he shall give the Contracting Officer 24 hours notice and shall, at his own expense, provide all material and equipment and such qualified helpers as the Contracting Office may require for such establishment or replacement.
- c. The Contractor shall lay out the work and shall be responsible for the accuracy of all lines, grades and measurements of the work executed by him under the Contract. He must erify the figures shown on the Drawings before laying out the work and shall be responsible for any error resulting from his failure so to do.

### 4. SUBCONTRACTS

- a. The Contractor shall utilize the services of specialty subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty subcontractors; Provided, however, that if the Contracting Officer shall determine that the specialty work in question has been customarily performed by the Contractor's own organization and that said organization is presently competent to perform such work, the Contractor shall be permitted to do so; Provided further, that if the Contracting Officer shall determine that the performance of any specialty work by a specialty subcontractor will result in materially increased costs or inordinate delay, the requirements of this paragraph shall not apply.
- b. The Contractor shall not award any work to any subcontractor without prior written approval of the Contracting Officer, which approval will not be given until the Contractor submits to him a written statement containing such information as the Contracting Officer may require concerning the proposed subcontractor and the scope of the subcontract, together with the proposed subcontractor's non-collusive affidavit in the following form:

CENTRAL COMPTITIONS

# $\frac{A}{F} \underbrace{F}_{\text{Subbidder}} \underbrace{F}_{\text{Subbidder}} \underbrace{F}_{\text{Subbidder}}$

	(Subbidder)	•
State of)		
County of ss.	e 🕶	
	, being fi	rst duly
sworn, disposes and says:		·
(Name of Contractor) for subcotion of Defense Housing Project No.  (State) , and the party as subcontractor for said work as and not collusive or sham; that said or agreed, directly or indirectly which or to refrain from bidding, and rectly, sought by agreement or collarly person, to fix the bid price of any overhead, profit or cost element bidder, or to secure by advantage a ested in the proposed contract; and bid are true.	or officer of the firm of, etc) the ated 19, to ontract work in connection with the located in (proposed by said (name of Con a result of said bid, that such bid id bidder has not colluded, conspire with any bidder or person, to put in a has not in any manner, directly or lusion, or communication or conferent affiant or of any other bidder, or not of said bid price, or of that of against the Government or any person a that all statements in said proposed	construc- construc- construc- construc- construc- is genuine d, connived a sham indi- ce, with to fix any other inter-
(any) 1/30/54	Signature of:  Bidder if the bidder is an individual;  or  Partner if the bidder is a partnership;  or  Officer if the bidder is a corporation.	
Subscribed and sworn to before me t	his day of	THE STREET STREET, STR
My commission expires	, 19	

GENERAL CONDITIONS

- c. The Contractor shall be as fully responsible to the Government for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.
- d. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Provisions, General Conditions, Special Conditions and other documents comprising the Contract in so far as they are applicable to the work of subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Government may exercise over the Contractor under any privisions of the Contract.
- e. Nothing contained in the Contract shall create any contractual relation between any subcontractor and the Government.

### 5. ACCESS TO SITE - OCCUPATION OF PREMISES

- a. The Contractor shall provide and maintain such means of access to the site, and to all portions thereof, as are adequate and sufficient to permit prosecution of his work without undue interference or delay.
- b. Nothing herein contained and nothing marked upon the Drawings shall be interpreted as giving the Contractor exclusive occupancy of the territory or right-of-way provided. The Government and its employees for any purpose, and the other contractors of the Government for any purpose required by their respective contracts, may enter or cross such territory or occupy portions of it or take materials therefrom as directed or permitted.

### 6. FITTING AND COORDINATION OF THE WORK

- a. The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, subcontractors, or materialmentengaged upon the tork. He shall be prepared to guarantee to each of his subcontractors the dimensions which they may require for the fitting of their work to all surrounding work and shall do, or cause his agents to do, all cutting, fitting, adjusting, and patching necessary to make the several parts of the work come together properly and to fit the work to receive, or be received by, that of other contractors.
- b. When two or more contracts are being executed at one time on the same or adjacent land, in such manner that the work on one contract may interfere with the work on another, the Contracting Officer shall decide which contractor shall cease work and which continue, or whether the work on both contracts shall progress at the same time and in what manner. When the territory of one contract is the necessary or convenient means of access for the transportation or movement of men, machines, animals, or appliances for the execution of another contract, such privilege of access or any other reasonable privilege

may be granted by the Contracting Officer to the contractor desiring it, to the extent, amount, in the manner, and at the time as the Contracting Officer may in his discretion, deem advisable. Any decisions as to the method or time of conducting the work or the use of the territory shall not be made the basis of claims for delay or damage. The Contractor shall not cause any unnecessary hindrance or delay to any other contractor on the premises, and shall be responsible for all damages done to the work of such other contractor by him or by his employees.

c. If the work of the Contractor has been damaged by other Contractors or by others than the employees of the Government in the course of their employment the Contractor agrees to restore such damaged work without cost to the Government and to seek redress for his damage only from those who directly caused it.

### 7. MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts or neglect on the part of the Contractor, any other contractor or any subcontractor shall suffer less or damage on the work, the Contractor agrees to settle with such other contractor or subcontractor by agreement or arbitration, if such other contractor or subcontractor will so settle. If such other contractor or subcontractor shall assert any claim against the Government on account of any damage alleged to have been so sustained, the Government shall notify the contractor, who shall indemnify and save harmless the Government against any such claim.

# 8. BREAKDOWN, PROGRESS SCHEDULE AND PERIODICAL ESTIMATES

- a. For the purpose of preparing an acceptable progress schedule, and as a basis upon which partial payments to the Contractor may be authorized, immediately after execution of the Contract, and before the first partial payment is made, the Contractor shall furnish, on forms to be supplied by the Government, a detailed estimate, (herein termed "Breakdown"), giving a complete breakdown of his Contract price, so arranged and itemized as to meet the approval of the Contracting Officer. If the Contract covers more than one project, a separate Breakdown shall be furnished for each project.
- b. The values employed in making up this Breakdown are for the purpose of making partial payments and shall not be taken as a basis for additions to or deductions from the contract price.
- c. Not later than ten (10) days after approval of the Breakdown, the Contractor shall submit for approval in like manner a carefully considered Progress Schedule, prepared in accordance with specimen form and instructions supplied by the Government. If the contract covers more than one project a saparate Progress Schedule shall be submitted for each project.

d. In order to receive partial payments as the work progresses the Contractor shall submit, on forms supplied by the Government, Periodical Estimates showing the value of the work performed each month, based upon the items appearing in the approved Breakdown. Such estimates must be submitted not later than ten days in advance of the date set for payment, and are subject to correction and revision as required.

### 9. CHANGES IN THE WORK

- a. In determining the value of any change, either extra or credit, the contracting parties are restricted to the use of the three following methods, singly or in combination. Method (1) shall be used to establish the equitable value of the change in every case where it can be fixed prior to performance of the changed work. Method (2), and no other, shall be used to establish changed values for any and all items for which unit prices have been established under the terms of the Contract. Method (3) shall be used only to establish values which are indeterminate otherwise, or in an emergency endangering life or property. The Contracting Officer, at the time he issues the written Proceed Order shall, in the case of Methods (2) or (3), fix a maximum amount to be spent on the extra work involved in such order, including allowable overhead and profit, which shall not be exceeded. If additional work remains to be done after that sum has been obligated the additional work shall be subject of a separate written Proceed Order. If such Order is a credit order the limiting sum so fixed shall be the minimum credit due the Government.
  - Method (1) The contracting parties shall negotiate and agree upon the equitable value of the change prior to issuance of the order, and the order shall stipulate the corresponding lump-sum adjustment of the contract price.
  - Method (2) The applicable agreed unit price shall be applied to the net change in quantity, estimated or actual as agreed, of the item involved.
  - Method (3) The order shall direct the Contractor to proceed on a "time-and-material" or other basis, which shall be stated in the order, whereupon the Contractor shall so proceed, and keep accurately and present a correct account of the cost in such form, at such time, and substantiated by such supporting papers, as the Contracting Officer may require. Upon completion of the change and agreement upon the equitable value thereof the Contracting Officer shall issue a Change Order effecting the equitable adjustment of the contract price.

- b. Under Method (2), it is understood and agreed that the unit prices include all items of cost, overhead and profit for the Contractor and any subcontractor.
- c. Items adjusted under Method (3) may include items of work for which unit prices have already been established as well as other items for which no unit prices have been established. In such a case, in adjusting such change, the items of work for which unit prices have been established shall be included without further allowance for overhead and profit, or deducted without such further allowance. As to the other items of work that may be done under Method (3), there shall be made such reasonable allowance for overhead and profit combined as the Contracting Officer shall deem equitable for the extra work performed, not to exceed the following:
  - (1) To the Contractor, for work which he performs with his own forces, not to exceed 15% of his net extra cost, excluding those items for which unit prices have been established.
  - (2) To a subcontractor, for work which he performs with his own forces, not to exceed 15% of his net extra cost, excluding those items for which unit prices have been established.
  - (3) To the Contractor, for subcontracted work supervised by him, not to exceed 7-1% of the amount otherwise due his subcontractor, excluding those items for which unit prices have been established.

The percentages allowed by the Contracting Officer shall be applied to the net additional cost (as defined in subsection "d" immediately following and as determined above) to the Contractor or subcontractor, as the case may be, but if the net cost value of a change, excluding those items for which unit prices have been established, is a credit, the credit given shall be the net cost.

d. The "net cost" as used herein, shall mean the difference between all proper cost additions and deductions, excluding those items for which unit prices have been established. The "cost" as used herein may include all items of labor, material, the use of power tools and equipment, and all such items of cost as public liability and workmens' compensation insurance, pro rata charges for foremen, social security, cld age and unemployment insurance. Among the items considered as overhead are insurance other than named above, bond premiums, supervision, superintendents, timekeepers, clerks, watchmen, small tools, incidental job burdens, general office expense, and all other items not included in the "cost" as herein defined.

e. Prior to the issuance of any Change Order effecting a firm adjustment in the contract price under Method (2) or Method (3), the Contractor shall submit to the Contracting Officer a proposal, or statement of work performed, in multiple-copy form as required, satisfactorily itemized as to quantities and prices used in computing the value of the change.

#### 10. CLAIMS FOR EXTRA COST

- a. If the Contractor claims that any instructions by drawings or otherwise involve extra cost or extension of time, he shall, within ten days after the receipt of such instructions, and in any event before proceeding to execute the work, submit his protest thereto in writing to the Contracting Officer, stating clearly and in detail the basis of his objections. No such claim shall be valid unless so made.
- b. Claims for additional compensation for extra work, due to alleged errors in spot elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the plans and topographical maps issued.
- c. Any discrepancies which may be discovered between actual conditions and those represented by the topographical maps and plans shall at once be reported to the Contracting Officer, and work shall not proceed, except at the Contractor's risk, until written instructions have been received by him from the Contracting Officer.
- d. If, on the basis of the available evidence, the Contracting Officer determines that an adjustment of the Contract price or time is justifiable, the procedure shall then be as provided herein for "Changes in the Work".
- e. The Contractor warrants that he has thoroughly examined and is familiar with the Drawings, Specifications, and all other documents comprising the Contract. The Contractor agrees, that by execution of this Contract his failure when he was bidding on this Contract to examine any form, instrument or document, or to visit the site and acquaint himself with conditions there existing, in no wise relieves him from any obligation under the Contract and that he will present no claim based on facts regarding which he should have been on notice as a result thereof.

# 11. RIGHT OF THE GOVERNMENT TO TERMINATE CONTRACT

If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or fail to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to his employees or to his subcontractors, or persistently disregard instructions of the Government, or fail to observe or perform the provisions of the Contract, or otherwise be guilty of a substantial violation of any provision of the Contract, then the Government may, by at least five days prior written notice to the Contractor, without prejudice to any other rights or remedies of the Government, terminate the Contractor's right to proceed with the work. In such event, the Government may take over and prosecute the work to completion, by contract or otherwise, and the Contractor and his sureties shall be liable to the Government for any excess cost occasioned the Government thereby; and in any such case the Government may take possession of and utilize in completing the work such materials, appliances, and plant as may be on the site of the work and necessary therefor. The foregoing provisions are in addition to, and not in limitation of the rights of the Government under any other provisions of the Contract.

# 12. TERMINATION FOR CONVENIENCE OF THE GOVERNMENT

- a. The Government may terminate this contract in whole or in part at any time by a notice in writing from the Contracting Officer to the Contractor, specifying the date upon which such termination shall become effective and the extent to which the performance of such contract shall be terminated. Termination shall be effective upon the date and to the extent specified in said notice.
- b. Upon receipt of the notice of termination the Contractor shall, except insofar as the notice directs otherwise with respect to this Contract, or, in the event of partial termination, with respect to the part thereof covered by the notice:
  - (1) Discontinue all work and the placing of all orders for materials and facilities otherwise required for the performance thereof;
  - (2) Cancel all existing orders and subcontracts to the extent such orders and subcontracts are chargeable to the performance thereof:
  - (3) Transfer to the Government, in accordance with the direction of the Contracting Officer, all materials, supplies, work in process facilities, equipment, machinery or tools acquired by the

Contractor in connection with the performance thereof, and all plans, drawings, working drawings, sketches, specifications and information for use in connection therewith: Provided, That the Contractor may retain any such equipment, machinery and tools if he so elects and will forego reimbursement thereon.

- (4) Take such action as may be necessary to secure to the Government the benefits of any rights remaining in the Contractor under orders or subcontracts chargeable thereto to the extent that such orders or subcontracts are so chargeable;
- (5) Take such action as the Contracting Officer may prescribe for the protection and preservation of all property in the possession or control of the Contractor, title to which is transferable to the Government under the provisions of this Section.

Should the notice of termination cover only a portion of this contract, the Contractor shall proceed to completion of such portions as are not terminated.

- c. Upon compliance by the Contractor with the above provisions of this Section and subject to deductions for payments previously made, the Government shall pay the Contractor an equitable sum, to be determined by the Contracting Officer, in full settlement of all claims of the Contractor under this contract. In determining this equitable sum, the Contracting Officer shall give due consideration to the percentage of the total contract price which is equal to the percentage of the contract work completed, and to costs of the Contractor incurred as a result of any special factors and conditions entering into the contract work which may exist and to costs incurred as a result of the termination thereof, but the Contracting Officer shall give no consideration to claims for anticipated profits on the portion of the contract work which is not completed.
- d. The Contractor shall furnish, if requested, his complete records, including quantity take-off sheets, cost analysis showing how he arrived at unit prices, complete file on all quotations on materials and subbids, the actual contracts placed for service, materials, and sub-contracts, copy of actual cost performance, together with any other relevant data or documents necessary in the opinion of the Contracting Officer to determine an equitable settlement.
- e. Subject to the approval of the Contracting Officer, the Government shall reimburse the Contractor for expenditures made and costs incurred after the date of termination for the protection of Government property and for such other expenditures and costs as may be necessary in connection with the settlement of this contract.

- f. The obligation of the Government to make any of the payments required by this Section shall be subject to any unsettled claim for labor or material and to any claim which the Government may have against the Contractor under or in connection with this contract, and payments under this Section shall be subject to reasonable deductions by the Contracting Officer on account of defects in materials or workmanship.
- g. The sum of all amounts payable under this Section, plus the sum of all amounts previously paid under this contract, exclusive of costs incurred under Subsection "e" hereof, shall not exceed the total contract price.
- h. Should the above provisions of this Section not result in payment to the Contract of at least \$100, then that amount shall be paid to the Contractor in lieu of any and all payments hereinbefore provided for in this Section.
- i. Any dispute arising out of termination under this Section shall be decided in accordance with the procedure prescribed in Clause 6 of the General Provisions.
- j. Upon the making of the payments called for by this Section, all obligations of the Government to make further payments or to carry out other undertakings hereunder shall cease forthwith and forever, except that all rights and obligations of the respective parties under the terms, if any, of this contract applicable to patent infringements shall remain in full force and effect, and the Contractor shall not be excused from any warranty or guaranty on work in place on the completed portion of the Contract.

### 13. ASSIGNMENT OF CONTRACT

Except as provided in the Assignments of Claims Act of 1940 as amended, neither the Contract nor any part thereof nor any claim arising therefrom shall be assigned to any person, firm or corporation. This provision shall not preclude the Contractor from sub-letting parts of the work in accordance with Section 4 of the General Conditions.

#### 14. DRAWINGS

- a. The general character of the detail work is shown on the Drawings but minor modifications may be made by the Contracting Officer in the full size drawings or models. The Contractor shall not attempt to execute any part of the work requiring such drawings until he has received the same.
- b. Where the word "similar" occurs on the Drawings, it shall be interpreted in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection to other parts of the work.

- c. Where, on any Drawings, a portion of the work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other like portions of the work. Where ornament or other details is indicated by starting only, such detail shall be continued throughout the courses or parts in which it occurs and shall also apply to all other similar parts in the work, unless otherwise indicated.
- d. In case of difference between small and large scale drawings, the larger scale drawing shall take precedence.

#### 15. OWNERSHIP OF DRAWINGS AND SPECIFICATIONS

Except the Contractor's executed set, all Drawings and the Specifications are and remain the property of the Government. Such Drawings and Sepcifications are not to be used on other work, and those sets in usable condition shall be returned to the Government, upon request, at the completion or cessation of the work or termination of the contract.

### 16. SHOP DRAWINGS

- a. Shop drawings of all fabricated work shall be submitted to the Contracting Officer for approval and no work shall be fabricated by the Contractor, save at his own risk, until approval has been given. The Contractor will be advised as to the exact procedure to be followed with respect to the number of prints required, where submitted, letters of transmittal, making corrections, etc. Prints of finally approved shop drawings will be required in such number as the Contracting Officer may direct.
- b. The Contractor shall submit all shop drawings on dates sufficiently in advance of requirements to afford ample time for checking same, including time for correcting, resubmission, and recheck, if necessary, and no claim for extension of the contract time will be granted the Contractor by reason of his failure in this respect.
- c. All shop drawings submitted must bear the stamp of approval of the Contractor as evidence that the drawings have been checked by the Contractor. Any drawings submitted without this stamp of approval will not be considered and will be returned to the Contractor for proper resubmission. If the shop drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment; otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though such shop drawings have been approved.

d. Where a shop drawing as submitted by the Contractor indicates a departure from the Contract which the Contracting Officer deems to be a minor adjustment in the interest of the Government not involving a change in Contract price or extension of time, the Contracting Officer may approve the drawing but the approval will contain, in substance, the following:

"The modification shown on the attached drawing is approved in the interest of the Government to effect an improvement for the project and is ordered with the understanding that it does not involve any change in the Contract price or time; that it is subject generally to all Contract stipulations and covenants; and that it is without prejudice to any and all rights of the Government under the Contract and bonds."

e. The approval of shop drawings by the Contracting Officer will be general and shall not relieve the Contractor from the responsibility for adherence to the Contract, nor shall it relieve him of the responsibility for any error which may exist.

### 17. REQUESTS FOR SUPPLEMENTARY INFORMATION

It shall be the responsibility of the Contractor to make timely requests of the Contracting Officer, for such large scale and full size drawings, color schemes, and other additional information, not already in his possession, which he will require in the planning and production of the work. Such requests may be submitted from time to time as the need is approached, but each such request shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and shall list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information which the Contracting Officer may require in responding to the request of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provisions of this Section.

#### 18. MATERIALS REFERRED TO BY NAME - NUMBER - SYMBOL

a. Materials specified by reference to the number or symbol of a specific standard, such as a Commercial Standard, a Federal Specification or other similar standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in such reference. The standards referred to, except as modified in the Technical Specifications shall have full force and effect as though printed therein

b. Specific reference in the Technical Specifications to any article, device, product, material, fixture, form, or type of construction, etc., by name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition, and the Contractor, in such cases, may at his option use any article, device, product or material, fixture, form or type of construction which, in the judgment of the Contracting Officer, expressed in writing, is equal to that named.

## 19. SAMPLES, CERTIFICATES AND TESTS

- a. No samples shall be submitted with any bid nor before the award of the Contract and acceptance of the Contractor's Bond.
- b. No material for which samples are required shall be delivered to the site for use until representative samples have been approved in writing by the Contracting Officer.
- c. The Contractor shall furnish for approval all samples (and certificates related to them) as stipulated under the several divisions of the Technical Specifications as well as all other samples as requested by the Contracting Officer. Samples shall be delivered with all transportation charges prepaid to a location designated by the Contracting Officer and in ample time for proper consideration and action. In general, 20 days is the minimum time required for making tests.
- d. Pack samples so as to reach their destination in good condition; ship in tight metal containers samples of paste or liquid materials.
- e. Label, or otherwise properly mark on the container the material or product represented, its place of origin, the name of the producer, the name of the Contractor, and the name and symbol of the Project for which it is intended.
- f. Submit to the Contracting Officer, in triplicate, a certificate describing each sample submitted for approval, certifying that the material, equipment or accessory submitted complies with Contract requirements. The certificates shall include the following information:
  - (1) Name and brand of the product, name of manufacturer, location of plant.
  - (2) Name and location of at least two structures on which substantial quantities of the material represented by the sample were used, and the approximate dates of use or installation.
  - (3) An outline showing chemical and physical properties of the material represented by the sample submitted and giving the name of the laboratory or testing authority which obtained the data, and the dates of the tests. (NOTE: The information required by this subparagraph f(3) may be omitted for materials

which are required to conform to Federal Specifications or A.S.T.M. Standards; <u>Provided</u>: A certified Statement by an acceptable laboratory or testing authority is furnished in lieu thereof. If the statement originates with the producer, the Contractor shall endorse all claims and submit the statement in his own name; he shall also guarantee that all material furnished for use on the Project will be in compliance with the samples and certified statements.)

- g. Approval of any material by the Contracting Officer shall be general only and shall not constitute a waiver of the right of the Government to demand full compliance with Contract requirements. After actual deliveries, the Government will make such check tests as it deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Government shall have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.
- h. When a material has been approved, no change in brand or make will be permitted unless:
  - (1) The manufacturer cannot make satisfactory delivery; or
  - (2) The material delivered fails to comply with the Contract requirements.
- i. Wherever materials are required to comply with A.S.T.M. Standards or Federal Specifications, and such specifications shall be accepted as establishing the technical qualities and testing methods, they shall not govern the number of tests required to be made. The number of tests required on material delivered for use shall in all cases be at the discretion of the Contracting Officer. He may require laboratory tests on samples submitted for approval or may approve materials on the basis of data submitted in certificates with samples.
- j. Check tests will be made on materials delivered for use only as frequently as the Contracting Officer considers necessary to insure compliance of materials used with Contract requirements.
- k. Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:
  - (1) The Contractor will furnish without extra cost, including packing and delivery charges, all samples required for testing purposes;
  - (2) The Contractor will assume all costs of re-testing materials which fail to meet contract requirements;
  - (3) The Contractor will assume all costs of testing materials offered in substitution for those found deficient; and
  - (4) The Government will pay all other expenses.

1. Samples of materials not subject to destruction tests, when approved, will be sent to the Project office and kept there until completion of the work. They may be built into the work after a substantial quantity of the materials they represent have been built in and approved. Samples that are not approved will be returned to the Contractor only upon his request and at his expense; if the return of such samples is not requested within 30 days after rejection or disapproval, they will be treated as unclaimed material. The failure of samples to meet Contract requirements will be sufficient cause for refusal to consider any further samples from manufacturers whose materials have failed.

# 20. NOTICES, CODES, PERMITS

The Contractor shall not be required to obtain a building permit. Any required building permit will be supplied by the Government at its expense, and any delays occasioned because of lack of, or failure to obtain, a building permit after Notice to Proceed shall not be the basis for the assessment of liquidated damages. The contractor, however, shall be required, in accordance with Clause 11 of the General Provisions, to obtain all other permits, including but not limited to permits for the use of streets and public spaces and connection with utilities, and shall give all required notices and comply with all applicable ordinances, codes, rules and regulations, except to the extent that the drawings or the specifications may otherwise require or provide. Where a permit is required for connection to any water, sewer, electric, gas or other utility line, he shall ascertain whether a permit to connect will be granted by the appropriate governmental body or utility company on the basis of construction in accordance with the plans and specifications, and shall not install any work in connection therewith until grant of such permit is assured. In the event the privilege of connecting is refused and the Contractor has proceeded with installation, the cost and removal of work in place shall be at the sole expense of the contractor. Should the contractor ascertain that such permits will not be granted on the basis of the plans and specifications, he shall immediately report the matter to the Contracting Officer for decision, and will not proceed with the portion of the work affected until receipt of a written order from the Contracting Officer to do so. Any change required will be ordered in accordance with Clause 3 of the General Provisions.

### 21. BUY AMERICAN ACT

The following materials have been excepted by the head of the department under the provisions of Clause 17 of the General Provisions:

Antimony	Jute	Platinum	Asphalt - native
Asbestos	Kaurigum	Silk	Carnauba Wax
Chromium	Lac	Sisal	Copper, natural - nickel alloy
Cork	Mercury	Tin	Manganese ore - 35% and over
Flax	Mica	Titanium	Oil. China wood (tung oil)
Hemp	Nickel	Tungsten	Rubber - natural

#### 22. CONVICT-MADE MATERIALS

No materials manufactured or produced in a penal or correctional institution shall be incorporated in the project under this Contract.

#### 23. CARE OF THE WORK

- a. The Contractor shall adopt reasonable methods during the life of the contract to furnish continuous protection to the site and to the work, materials and equipment thereon to the end that loss or damage may be prevented. He shall refuse entry to persons not having business on the site. He shall be responsible for all damages to persons or property that occur as a result of his fault or negligence in connection with the prosecution of the work and for the proper care and protection of all materials delivered and work performed until completion and final acceptance, whether or not the same has been covered by partial payments made by the Government, and whether or not the damage to the work was caused by the Contractor or by other contractors or by others than the employees of the Government in the course of their employment.
- b. In the event of delay in the completion of the contract work due to loss or damage caused by failure of the Contractor to adopt reasonable and continuous protective methods, the Contractor shall not be relieved from payment of liquidated damages because of such delay.
- c. In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorization from the Government, is authorized to act at his discretion to prevent such threatened loss or injury, and he shall so act. Likewise, he shall so act if instructed to do so by the Government. Any compensation claimed by the Contractor on account of such emergency work shall be determined by the Contracting Officer, subject to appeal in case of dispute, as provided in Clause 6 of the General Provisions.
- d. The Contractor shall avoid damage as a result of his operations to work which is to remain unchanged, including existing sidewalks, streets, curbs, pavements, utilities or adjoining property, the work of other contractors and the property of the Government and others, and he shall at his cwn expense completely repair any damage thereto caused by his operations.

e. Wherever required by law, the Contractor shall shore up, brace, underpin, secure, and protect as may be necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the Project. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Government from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the Government may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

#### 24. TEMPORARY HEATING

- a. The Contractor for general construction shall provide, maintain, and pay all costs of temporary heating, covering and enclosures as directed by the Contracting Officer, and as necessary to protect properly all work and materials against damage by dampness and cold, to dry out of the work, and to facilitate the completion of the work. The fuel, equipment, materials and methods used shall at all times be adequate for the purpose, and satisfactory to the Contracting Officer. The said Contractor shall maintain the critical installation temperatures called for in the Technical Specifications for various branches of the work in those spaces where such work is being performed. The maintenance of proper heat, ventilation, and adequate drying out of the work are the responsibilities of the said Contractor and any work damaged by dampness, insufficient or abnormal heat shall be replaced to the satisfaction of the Contracting Officer by and at the expense of the said Contractor.
- b. The permanent heating equipment furnished and installed for this Project may be utilized but the said Contractor shall supply any additional equipment required at his expense. Permanent equipment so used shall be delivered to the Government in the condition and at the time required by the Contract.

### 25. ACCIDENT PREVENTION

The Contractor shall exercise proper precaution at all times for the protection of persons and property. The safety provisions of applicable law, building and construction codes shall be observed, and the Contractor shall take or cause to be taken such additional safety and health measures as the Contracting Officer may determine to be reasonably necessary. Machinery, equipment and all hazards shall be guarded in accordance with the safety provisions of the Manual of Accident Prevention in Construction published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable law.

### 26. SANITARY FACILITIES

The Contractor shall furnish, install and maintain ample sanitary facilities for the workmen. As the needs arise, enclosed temporary toilets, in sufficient number, shall be placed as directed by the Contracting Officer. Permanent toilets installed under this contract shall not be used during construction of the Project. Drinking water shall be provided from a safe source, so piped or transported as to be kept clean and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing governing health regulations.

#### 27. USE OF PREMISES

- a. The Contractor shall confine his apparatus, stored materials, and construction operations to the limits prescribed by ordinances or permits, or as may be directed by the Contracting Officer, and shall not unreasonably encumber the premises with his materials, or idle equipment.
- b. The Contractor shall not load any structure or permit any part thereof to be loaded to such an extent as to endanger its safety.
- c. The Contractor shall comply with and enforce any instructions of the Contracting Officer, or local laws or regulations regarding signs, advertising, fires, danger signals, barricades, and smoking.

# 28. REMOVAL OF DEBRIS, CLEANING, ETC.

The Contractor shall, periodically or as directed by the Contracting Officer during the progress of the work, remove and properly dispose of the resultant dirt and debris, and keep the premises reasonably clear. Upon completion of the work, he shall remove all temporary construction, facilities and unused materials provided for the work, and put the buildings and premises in a neat and clean condition. Trash or combustible materials shall not be allowed to accumulate in the buildings or elsewhere on the premises. Trash burning on the site will be subject to prior approval of the representative of the Contracting Officer and existing local and State regulations.

#### 29. RIGHT OF REVIEW

The Government and its authorized representatives and agents shall, at all times, have access to and be permitted to observe and review all work, materials, equipment, pay rolls, personnel records, employment conditions, material invoices, contracts, books of account, and other relevant data and records; Provided, however, that all instructions and approvals with respect to the work shall be given to the Contractor only by the Contracting Officer or his authorized representative.

#### 30. FINAL INSPECTION

- a. When the work is substantially completed the Contractor shall notify the Contracting Officer in writing that the work will be ready for final inspection on a definite date which shall be stated in such notice. Such notice shall be given at least fifteen (15) days prior to the date stated for final inspection, and the notice shall bear the signed concurrence of the Project Engineer.
- b. If the Contracting Officer determines that the state of preparedness is as represented he will arrange to have final inspection commenced on the date stated in such notice, or as nearly thereafter as is practicable.
- c. Failure by the Government to reject any portion of the work during inspection made at the place of production, manufacture or shipment shall not be construed as acceptance of such work. Inspection for final acceptance will be made only at the site of the project.

#### 31. DEDUCTION FOR UNCORRECTED WORK

If the Contracting Officer deems it inexpedient to require the Contractor to correct work injured or not done in accordance with the Contract, an equitable deduction from the Contract Price shall be made by agreement between the Contractor and the Contracting Officer subject to appeal, in case of dispute, as provided in Clause 6 of the General Provisions.

#### 32. INSURANCE

- a. The Contractor shall carry Workmen's Compensation Insurance for all his employees engaged in work at the site, in accordance with State or Territorial Workmen's Compensation Laws, and shall require each of his subcontractors to carry such insurance for all their employees similarly engaged.
- b. Before commencing work, the Contractor shall submit to the Contracting Officer satisfactory proof that such insurance is in force, in the form of certificates or other acceptable evidence. Said insurance shall be written with financially responsible companies, approved by the Contracting Officer, and shall be kept in force until the Contractor's work is completed and accepted by the Government. Insurance contracts which expire before the work is completed and accepted shall be renewed and satisfactory evidence of such renewals shall be furnished the Contracting Officer by the Contractor.

- c. The Contractor shall carry Manufacturers' and Contractors' Public Liability Insurance with Limits of not less than \$50,000/\$100,000 to protect the Contractor against claims for injury to or death of one or more than one person as a result of accidents which may occur at the site from operations under the Contract. The Contractor shall require his subcontractors to carry such insurance. Such insurance shall cover the use of all equipment, hoists, and vehicles on the site, and satisfactory evidence that it is in force shall be submitted to the Contracting Officer prior to commencement of work.
- d. The Contractor shall carry Builder's Risk (fire and extended coverage) Insurance upon all work in place and/or materials stored at the building site including foundation and building equipment. Before commencing work on the superstructure, the Contractor shall submit to the Contracting Officer his Builder's Risk policy which shall meet with the approval of the Contracting Officer in every respect. A certificate in lieu of this policy will not be accepted. The Contractor, in installing equipment supplied by the Government, shall carry insurance on such equipment from the time he takes possesssion thereof until his contract work is accepted by the Government. Builder's Risk Insurance need not be carried on excavations, piers, footings, or upon foundations until such time as work on the superstructures is started. It need not be carried on landscape work. Policy shall furnish coverage at all times for the full cash value of all completed construction as well as materials in place and/or stored at the site, whether or not partial payment has been made by the Government. The Contractor may terminate this insurance on buildings taken over for occupancy by the Government pursuant to the appropriate provision of the Special Conditions, as of the date said buildings are taken over.

#### 33. HOURS OF WORK - PREMIUM WAGES

- a. The basic day of eight hours, as established by mutual consent of the Contractor or subcontractor and the laborers and mechanics employed by him in the development of the Project, shall constitute the regular working hours for such employees.
- b. Any work necessary to be performed after regular working hours, or on Sundays or legal holidays, shall be performed without additional expense to the Government, except as may be specifically permitted or directed by the Contracting Officer.
- c. If the Contractor or any of his subcontractors finds it necessary or desirable to exceed the prevailing wage rates specified in his contract, any expense incurred by the Contractor or any subcontractor because of the payment of wages in excess of such rates shall not be cause for any increase in the amount payable under his contract. The Government shall not consider or allow any claim for extra compensation made by the Contractor or any subcontractor because of such payments.

### 34. QUALIFICATIONS FOR EMPLOYMENT - DISCRIMINATION

- a. No person under the age of sixteen (16) years shall be employed in the development of the Project. No person whose age or physical condition is such as to make his employment dangerous to his health or safety or to the health and safety of others shall be employed in the development of the Project; provided, that this shall not operate against the employment of physically handicapped persons, otherwise employable, where such persons may be safely assigned to work which they can ably perform.
- b. No laborer or mechanic employed in the development of the Project shall be discharged or in any other manner discriminated against because such laborer or mechanic has filed any complaint or instituted or caused to be instituted any proceedings or has testified or is about to testify in any proceedings under or relating to the labor standards incorporated in this Contract.

#### 35. PERSONS ENTITLED TO BENEFITS OF LABOR AND MATERIALS PROVISIONS

- a. The Contractor and each subcontractor shall extend to every person employed by him in the development of the Project the benefits of the labor and wage provisions of this contract regardless of any contractual relationship between the Contractor and such person, or between any subcontractor and such person.
- b. The Contractor shall promptly pay all amounts due from him for services rendered, work performed, and materials supplied.

#### 36. WEEKLY PAYMENTS BY CASH OR CHECK

Every employee of the Contractor or a subcontractor shall be paid weekly in lawful money of the United States, or by check if the Contractor provides or secures convenient and satisfactory facilities approved by the Contracting Officer for the cashing of the same without cost or expense to the employee, in the full amount accrued to each individual at the time of closing of the payroll, which shall be closed at the latest date practicable prior to the date of payment, and there shall be no deductions or rebates on account of goods purchased, rent, or other obligations, but such obligations shall be subject to collection only by legal process.

### 37. SUBMITTAL OF PAYROLLS AND RELATED REPORTS

- a. Notwithstanding the provisions of Clause 23(b) of the General Provisions but not in contravention thereof, the Contractor shall, not later than the 7th day following the payment of wages, submit to the Contracting Officer the original and one legible copy of his payroll and of the payrolls of each of his subcontractors, on forms furnished by the Government, with the Payroll Summary completed and the Affidavit notarized on the back of the final sheet of each payroll.
- b. The Contractor shall also furnish to the Government any other information or certifications relating to employees in such form as may be required.
- 38. DISPUTES CONCERNING WAGE RATES AND CLASSIFICATION OF LABOR
- a. All disputes concerning prevailing wage rates or classifications arising under this Contract involving (1) significant sums of money, (2) large groups of employees, or (3) novel or unusual situations shall be promptly decided by the Contracting Officer or, at his option, referred to the Secretary of Labor of the United States. The decision of the Contracting Officer or the Secretary of Labor, as the case may be, shall be final.
- b. All questions arising under this Contract relating to the application or interpretation of the Anti-Kickback Act, the Davis-Bacon Act, or other Federal statutes applicable to labor standards shall be referred to the Secretary of Labor of the United States for ruling or interpretation, and such ruling or interpretation shall be final.

#### 39. WARRANTY OF TITLE

No material, supplies, or equipment for the work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor warrants good title to all materials, supplies, and equipment installed or incorporated in the work and agrees, upon completion of all work, to deliver the premises together with all improvements and appurtenances constructed or placed thereon by him to the Government free from any claims, liens, or charges and further agrees that neither he nor any person, firm or corporation furnishing any material or labor for any work covered by this contract shall have any right to a lien upon the premises or any improvement or appurtenance thereon, provided that this shall not preclude the Contractor from installing metering devices and other equipment of utility companies or of municipalities, the title to which is commonly

retained by the utility company or the city. In the event of the installation of any such metering device or equipment, the Contractor shall advise the Government as to the owner thereof. Nothing contained in this paragraph, however, shall defeat or impair the right of such persons furnishing materials or labor under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Government. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

#### 40. GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use or occupancy of the premises by the Government shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any camage to other work resulting therefrom which shall appear within a period of one year from the date of final acceptance of the work unless a longer period is specified. The Government will give notice of observed defects with reasonable promptness.

#### 41. FEDERAL TAXES

Prices stated herein include any Federal tax heretofore imposed by the Congress which is applicable to the material in this Contract. If any sales tax, processing tax, adjustment charge, or other taxes or charges are imposed or changed by the Congress after the date of this Contract, and made applicable directly upon the production, manufacture or sale of the supplies covered by this Contract, and are paid by the Contractor on the articles or supplies herein contracted for, then the prices named in this Contract will be increased or decreased accordingly, and any amount due the Contractor as a result of such change will be charged to the Government and entered on vouchers (or invoices) as separate items.

#### 42. RENEGOTIATION

- a. This contract is subject to the Renegotiation Act of 1951 (Public Law 9, 82nd Congress) and shall be deemed to contain all the provisions required by Section 104 of said Act.
- b. The contractor (which term as used in this clause means the party contracting to furnish the materials or perform the work required by this contract) agrees to insert the provisions of this clause, including this paragraph (b), in all subcontracts as required by Section 104 of the Renegotiation Act of 1951: provided, that the contractor shall not be required to insert the provisions of this clause in any subcontract of a class or type described in Section 106(a) of the Renegotiation Act of 1951.

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### 1. TIME FOR COMPLETION

a. The work shall be commenced at the start of business on the date
stipulated in the Notice to Proceed to the Contractor and shall be fully
completed within consecutive calendar days thereafter, exclusive of
Landscaping. An additional consecutive calendar days will be
allowed in which to complete the Landscaping, exclusive of maintenance and replacement.

b. Groups of dwelling units shall be progressively completed, suitable and ready for occupancy, including utilities, sidewalks and driveways servicing such units exclusive of Landscaping, within the number of consecutive calendar days from the established starting date as follows:

(1)	Not less than	_ dwelling uni	its within	days;
(2)	An accumulated total of	dwelling	g units within	days;
(3)	An accumulated total of (continue	dwelling as desired)	g units within	days;

and all the balance of the entire work shall be fully completed within the number of consecutive calendar days first set forth in la. above.

#### 2. LIQUIDATED DAMAGES

- a. Since actual damages for any delay in completion are impossible of determination, the Contractor and his Sureties shall be liable for and shall pay to the Government the sums hereinafter stipulated as fixed, agreed and liquidated damages for each calendar day of delay until the work is completed or accepted;
  - (1) \$\_\_\_\_\_per dwelling unit per calendar day applicable to dwelling units and related work as set forth in Section 1b. above;
  - (2) \$\_\_\_\_per calendar day applicable to all the balance of the contract work except Landscaping; and
  - (3) \$ per calendar day applicable to Landscaping.
- b. The Government may accept any part of the work if there has been such a degree of completion as will, in its opinion, make such part reasonably safe, fit and convenient for the use and accommodation for which it was intended.

#### COMMUNICATIONS

a. All notices, demands, requests, instructions, approvals, proposals and claims must be in writing.

b. Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the Contractor's bid (or at such other office as he may from time to time designate in writing to the Government, or deposited in the United States mail in a sealed, postage-prepaid envelope, or if delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.

c. All papers required to be delivered to the Government shall, unless
otherwise specified in writing to the Contractor, be delivered to the
at , and any notice to or demand upon the Govern-
ment shall be sufficiently given if so delivered, or deposited in the United
States mail in a sealed, postage-prepaid envelope, or delivered with charges
prepaid to any telegraph company for transmission to said
at such address, or to such other representatives of the
Government or to such other address as the Government may subsequently
specify in writing to the Contractor for such purpose.

d. Any such notice shall be deemed to have been given as of the time of actual delivery or (in the case of mailing) when the same should have been received in due course of post, or in the case of telegrams, at the time of actual receipt, as the case may be.

### 4. SIGNS

- a. The Contractor shall construct on the site of the Project at locations to be designated by the Contracting Officer \_\_\_\_\_\_signs, /1 as follows:
  - (1) These signs shall be built of concrete and wood. The sign-board shall be of 3/4" Marine plywood, 6'-0" long, 4'-0" high, securely fastened to 4" x 4" wood posts 10 feet long, set in concrete bases 10" square. Bettom of sign shall be 3'-6" above grade. Bottom of posts shall extend into concrete bases to a point 2'-6" below grade. Concrete bases shall extend 3'-0" below grade and 0'-4" above grade, with tops beveled down 1" away from posts on all sides. Posts shall be of No. 1 Y.P. or equal -S4S. Protect all edges of plywood with a band and moulding.
  - (2) The entire woodwork shall be given a lead-in-oil priming cost on all surfaces before assembly and two such coats after assembly. The field of the sign shall be white and all lettering shall be black. The sign shall be lettered in accordance with the following, and the sizes and the character of lettering shall be as per detail furnished by the Contracting Officer.

<sup>/1</sup> For most projects, one sign should be sufficient.

(PROJECT NAME)

(Project Number)

DEFENSE HOUSING PROJECT

These dwellings are

constructed for occupancy

by those engaged in the

national defense effort

PUBLIC HOUSING ADMINISTRATION

HOUSING AND HOME FINANCE AGENCY

\*Assisted by the (name of Local Authority)

\*NOTE: Omit this line if no Local Authority is assisting under an Agency Development Agreement and substitute five small stars.

- b. The Contractor shall maintain these Project signs in good condition satisfactory to the Contracting Officer during the construction period, and upon completion of the Contract work or when directed, shall turn them over to the Government cleaned (freshly painted and lettered, if required) and in acceptable condition.
- c. Subject to prior approval of the Contracting Officer as to size, design, type and location, and to local regulations, the Contractor and his subcontractors may erect temporary signs for purposes of identification and controlling traffic. The Contractor shall furnish, erect and maintain such signs as may be required by Safety Regulations or as necessary to safeguard life and property.

#### 5. JOB OFFICES

a. The Contractor shall furnish and maintain, during construction of the Project, adequate facilities at the site for the use of the Government Representatives as follows:

(Here should be specified in some detail the facilities and services required, such as adequate office space, light, heat, hot and cold water, toilet facilities, janitor service, local telephone, closets, sample room, plan tables, plan racks, etc. These facilities and services should be held to a practicable minimum, consistent with the project size, time for contract construction, and the nature of this Defense operation.)

b. The Contractor and his subcontractors may maintain such office and storage facilities on the site as may be necessary in the proper conduct of the work. These shall be located so as to cause no interference to any work to be performed on the site. The Contracting Officer shall be consulted with regard to locations.

c. Upon completion of the Project, or as directed by the Contracting Officer, the Contractor shall remove all such temporary structures and facilities from the site, same to become his property, and leave the premises in the condition required by the Contract.

### 6. MINIMUM RATES OF PAY

In accordance with the provisions of the contract, not less than the rates listed herein shall be paid to the following trades and occupations:

Classification	Rate per hour
Air Compressor Operators	
Air Hammer Operators	maja adapti fingang pana-na-harang pang-na-na-na-na-ng-na-na-na-ng-na-na-ng-ng-na-na-na-na-na-na-na-na-na-na-n -
Asbestos Workers	And the state of t
Asbestos Workers! Helpers	
Asbestos Workers! Improvers	and the second s
Asphalt Rakers	An extraord and community of the Association (Association of the Association (Association of the Association (Association of the Association of the Association (Association of the Association of the Asso
Asphalt Tampers and Smoothers	
Blacksmiths	Committee and Control conference and Control
Blacksmiths Helper	AND
Boilermakers	
Boilermakers: Helper	
Bricklayers	
Bricklayers Apprentices 1)	
2) year	
3)	COSTANTO VEREEN MANAGES IN AND AND AND AND AND AND AND AND AND AN
Brick Tenders	
Carpenters	Sign and Appelled to the Commence of the Comment of
Carpenters Apprentices 1)	Approximately the Company of the Com
2) year	
3)	(many accounts commented to the commente
Cement Finishers	Constitution Constitution (Constitution Constitution Cons
Electricians	without these and a south of the professional and a south of the south
Electricians Helpers (Apprentices)	MATERIAL STATE OF THE STATE OF
Elevator Constructors	the control of the co
Elevator Constructors Helpers Engineers	
Engineers Apprentices	Commission of Section Commission
Engineers apprencices Firemen	A WHITE COMPARISON AND AND AND AND AND AND AND AND AND AN
Glaziers	softmadelphicanical and approximate and approximate an experience of the softman and approximate and approxima
Granite Cutters	
Hod Carriers	Annual Control of the
Ironworkers - Ornamental and Bronze	West and the second sec
Ironworkers - Structural	
Ironworkers - Reinforcing	Characteristic and the control of th
Ironworkers Apprentices - Structural	

Classification	Rate per hour
Laborers - Common	
Laborers - Building	
Lathers	
Linoleum Layers	
Marble Masons	
Marble Masons' Helpers	
Mosaic and Terrazzo Workers	
and the contract of the contra	
Mosaic and Terrazzo Workers' Helpers	
Olders and Greasers	
Operators - Cement & Concrete Mixer (Under 21E)	
Operators - Cement & Concrete Mixer (21E & Over)	
Operators - Crane, Clamshell, Drag Line	
Operators - Derrick	
Operators - Trenching Machine	CONTRACTOR OF THE PROPERTY OF
Operators - Backfilling Machine	
Operators - Bulldozer	
Operators - Hoist - One Drum	
Operators - Hoist - Two Drum	
Operators - Machine Road Grader	د الاستان المساور ا
Operators - Power Shovel (Enginemen)	
Operators - Pile Drivers	
Operators - Road Roller	
Operators - Pumps	
Operators - Tractor 50 H.P. and under	
Operators - Tractor over 50 H.P.	
Painters	
Painters - Steel Painting	
Plasterers	
Plasterers' Apprentice 1)	
2) years	
3)	
Plasterers' Laborers and Tenders	
Plumbers	
Plumbers' Apprentices	
Roofers - Composition	
Roofers - Composition - Kettlemen	
Roefers - Composition - Apprentices	
Roofers - Slate and Tile	
Sheet Metal Workers	
Sheet Metal Workers' Apprentices 1)	
2) years	
wa is see a control of the control o	
Sheet Metal Workers' Helpers	
Sprinkler Fitters	
Sprinkler Fitters' Helpers	

	SPECIAL CONDITIONS
Classification	Rate per hour
Steam Fitters Apprentices 1)	
2) years 3) Steam Fitters' Helpers	
Stone Masons' Helpers	
Truck Drivers Tile Layers' Helpers	

#### 7. UNIT PRICES

a. The unit prices set forth in this Section become a part of the Contract and shall be used, where applicable, to determine the equitable adjustment of the Contract price in connection with changes or extra work ordered under the Contract, and the "Rules of Measurement" herein contained shall govern.

b. It is mutually understood and agreed that such unit prices include all items of cost, overhead and profit, and that they constitute complete reimbursement to the Contractor for additional work or to the Government for work omitted, as the case may be, and shall be made the subject of a separate "UNIT PRICE AGREEMENT" in form satisfactory to the Contracting Officer.

#### c. Rules of Measurement:

- (1) General excavation shall be assumed to extend 2 feet outside of wall lines.
- (2) Hand excavation shall be computed from the level at which hand excavation actually starts.
- (3) Footing excavation shall be computed from the actual size of the cut.
- (4) Trenches for walls shall be assumed to be 2 feet wider than wall thickness but in no case less than 3 feet in width, and with sides vertical.
- (5) Trenches for pipes shall be assumed to be 2 feet wider than the outside diameter of the pipe barrel, and with sides vertical.
- (6) Backfill shall be the volume of excavation computed under the foregoing rules less the volume of displacement by walls and footings.

- (7) Where rock excavation replaces earth excavation required under the Contract such earth excavation shall be credited.
- (8) The quantities of sheet piling for banks and of all form work shall be based upon contact area.
- (9) Concrete quantities shall be computed from plan size, or if there are no drawings, from actual reasuremen's of the work ordered and placed.
- (10) The quantity of rock excavation shall be its in-place volume before removal. It shall be determined by cross-sectioning at such intervals as will assure accuracy, with instrument readings taken of the top elevations of rock upon exposure but before disturbance, and of the bottom elevations when exposed. The definition of "rock" as contained in the Technical Specifications shall govern and corputations shall be in accordance with these "Rules of Measurement."

#### d. Unit Prices:

(1)	General excavation (machine) left on site as directed	per	cu.	yd .	
(2)	General excavation (machine) removed from site	per	cu.	yd.	
(3)	Hand excavation to 5 ft. depth left on site as directed	per	cu.	yd.	
(4)	Hand excavation to 5 ft. depth removed from sits	per	cu.	yd.	\$ ggg manacative secretaristics representative excepts
(5)	Hand excavation per 1 ft. depth extra (added to Items #3 and #4 for each additional foot below 5 ft. depth)	per	cu.	yd ,	
(6)	Removal from site of stacked excavate material other than rock		cu.	yd.	
(7)	Backfill due to extra excavation	per	cu.	yd.	CONCESSES AND ADDRESS AND ADDR

	(8)	Rock excavation other than in trenche using explosives, left on site as directed		cu.	yd.	\$
<u>/1</u>	(9)	Rock excavation in trenches, using explosives, left on site as directed	per	cu.	yd.	\$
Alternate	(8)	Rock excavation other than in trenche where explosives are prohibited, left on site as directed	-	cu.	yd.	 Committee Committee Commit
<u>/1</u>						
Alternate	(9)	Rock excavation in trenches, where explosives are prohibited, left on site as directed	per	cu.	yd.	\$ ayuuqaneimeeneeninti seesi kassi
	(10)	Removal from site of excavated rock, truck body water level measurement.	per	cu.	yd.	\$
	(11)	Reinforcing steel, in place	per	lb.		\$
	(12)	(a) 2000# \$ per (b) 2500# \$ per	r cu r cu	. yd . yd	•	
	(13)	Concrete units for foundations:  (a.) 8" \$ pe  (b) 10" \$ pe  (c) 12" \$ pe	r sq		9	

Trans # 7

Bulletin No. DH-1

SPECIAL CONDITIONS

#### 8. LIST OF OPTIONS

- a. Permissible options with respect to the items shown are set forth in the list following and shall be at the option of the bidder wherever applicable to the work included in his bid, whether such bid be for prime or for subcontract work.
- b. The permissible options listed in this Section, once they are selected and the Contracting Officer notified, shall become fixed parts of the respective contracts or subcontracts, and must be used throughout the entire Contract work subject to change only by written order of the Contracting Officer in the manner provided in the General Conditions for "Changes in the Work", and if such change be made at the Contractor's request, with no change in Contract time and no increase in the Contract Frice.
- c. Where, on the Drawings or in the Specifications, acceptability of optional materials or methods is indicated for items not included in the list following, it shall be the privilege of a contractor or subcontractor to utilize those which best suit his purpose in the performance of his work. As to these options there must be uniformity within each building.
- d. In exercising the options chosen from the list following, the Contractor or subcontractor shall assume all the responsibilities for his selections which he otherwise assumes under his Contract or subcontract for materials and methods prescribed thereunder without options, particularly with respect to securing timely deliveries, the passing of required tests, the adequacy of methods for the purposes for which intended, and the proper adaption to adjoining work so as to fit and coordinate therewith in an acceptable manner without extra cost.
  - e. List of Options:

Name of Item	Specified Under Division	Option
1	••••	
2	••••••	* * * * * * * * * * * * * * * * * * *
3	• • • • • • • • • • • •	

#### 9. PARTIAL OCCUPANY

The Government, at its election, may from time to time occupy any of the dwelling units, buildings, or other portions of the Project as the work in connection therewith is completed to such a degree as will, in the opinion of the Contracting Officer, permit the use of the dwelling units buildings, or other portions of the Project for the purpose for which intended. The Contracting Officer will, prior to any such partial occupancy, give notice to the Contractor thereof, and such occupany shall be upon the following terms.

- a. The one year guarantee period called for in the General Conditions shall not begin to run until the final acceptance of all work under the Contract.
- b. The occupancy or use of any space in the Project shall not constitute an acceptance of work not performed in accordance with the Contract or relieve the Contractor of liability to perform any work required by the Contract but not completed at the time of said occupancy.
- c. The Contractor shall be relieved of all maintenance costs on the buildings occupied under this agreement.
- d. The Contractor shall not be responsible for wear and tear or damage resulting from said occupancy.
- e. The Government shall assume risk of loss with respect to any building occupied by it under the terms of this agreement; Provided, the Contractor shall assume full responsibility for loss or damage traceable to his fault or negligence in the performance of his Contract.
- f. The Contractor shall not be required to furnish heat, light, power and water used in the buildings occupied without proper remuneration therefor.

#### 10. DISCRIMINATION

### 8. LIST OF OPTIONS

- a. Permissible options with respect to the items shown are set forth in the list following and shall be at the option of the bidder wherever applicable to the work included in his bid, whether such bid be for prime or for subcontract work.
- b. The permissible options listed in this Section, once they are selected and the Contracting Officer notified, shall become fixed parts of the respective contracts or subcontracts, and must be used throughout the entire Contract work subject to change only by written order of the Contracting Officer in the manner provided in the General Conditions for "Changes in the Work", and if such change be made at the Contractor's request, with no change in Contract time and no increase in the Contract Price.
- c. Where, on the Drawings or in the Specifications, acceptability of optional materials or methods is indicated for items not included in the list following, it shall be the privilege of a contractor or subcontractor to utilize those which best suit his purpose in the performance of his work. As to these options there must be uniformity within each building.
- d. In exercising the options chosen from the list following, the Contractor or subcontractor shall assume all the responsibilities for his selections which he otherwise assumes under his Contract or subcontract for materials and methods prescribed thereunder <u>without</u> options, particularly with respect to securing timely deliveries, the <u>passing</u> of required tests, the adequacy of methods for the purposes for which intended, and the proper adaption to adjoining work so as to fit and coordinate therewith in an acceptable manner without extra cost.
  - e. List of Options:

	Specified Under Division	Option	
1	• • • • • • • • • • • • • • • • • • • •	•••••	• • • • • •
2	****	•••••••••••••••	
3	****	* * * * * * * * * * * * * * * * * * * *	

NOTE: These pages 59 and 60 supersede the corresponding pages of Bulletin No. DH-1 dated 3-1-54. In paragraph 10 the reference to "General Conditions" has been changed to "General Provisions."

#### 9. PARTIAL OCCUPANCY

The Government, at its election, may from time to time occupy any of the dwelling units, buildings, or other portions of the Project as the work in connection therewith is completed to such a degree as will, in the opinion of the Contracting Officer, permit the use of the dwelling units buildings, or other portions of the Project for the purpose for which intended. The Contracting Officer will, prior to any such partial occupancy, give notice to the Contractor thereof, and such occupancy shall be upon the following terms.

- a. The one year guarantee period called for in the General Conditions shall not begin to run until the final acceptance of all work under the Contract.
- b. The occupancy or use of any space in the Project shall not constitute an acceptance of work not performed in accordance with the Contract or relieve the Contractor of liability to perform any work required by the Contract but not completed at the time of said occupancy.
- c. The Contractor shall be relieved of all maintenance costs on the buildings occupied under this agreement.
- d. The Contractor shall not be responsible for wear and tear or damage resulting from said occupancy.
- e. The Government shall assume risk of loss with respect to any building occupied by it under the terms of this agreement; Provided, the Contractor shall assume full responsibility for loss or damage traceable to his fault or negligence in the performance of his Contract.
- f. The Contractor shall not be required to furnish heat, light, power, and water used in the buildings occupied without proper remuneration therefor.

#### 10. NONDISCRIMINATION IN EMPLOYMENT

### 11. DRAWINGS AND SPECIFICATIONS

The Government will furnish the Contractor without charge copies of the Drawings and Specifications. Additional copies requested by the Contractor will be furnished at cost.

#### 12. PROJECT PHOTOGRAPHS

The Contractor shall employ a commercial photographer to take six views of the work and shall deliver the negatives and three prints of each to the Project Engineer within five days after exposure. Two shall be taken at about the halfway point in progress, and four upon completion, when directed by the Project Engineer and from camera positions chosen by him. Negatives shall be not less than 4" X 5", each permanently numbered and identified by means of a transparent title panel attachment securely cemented thereon in the lower right-hand corner, showing (1) date of exposure, (2) serial number, (3) project number, (4) project location, (5) brief description of view. For example:

-	3"	max	imum	on	prin	ե	
ě	May	10,	1952	2	No.	3	÷
0	VA-3	3-D-	l I	nyt	town,	Va	:

: Looking N. W. from S.E.:

: Corner of Project :

1-1/4 maximum on print

Prints shall be 8" X 10", black and white, medium weight, glossy finish, unmounted, each stamped on back with the photographer's name and address. They shall be clear views, with good detail and contrast.

GENERAL	SCOPE	OF	WORK
Chimiter	COOLE	OT.	M. OTPT7

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This "General Scope of Work" Division of the Specifications is applicable to all work contemplated.

#### 2. PROJECT SITE

The Projec	t site of Def	ense Housing Proje	et No.	consists of that
			(by general (on the)	
within the	(City)	(County)	, (State	) all as
shown on the	e <u>(titl</u>	e of drawing or dr	awings) designated	l as Drawing(s)
No.(s)		C		

#### 3. RESPONSIBILITIES OF CONTRACTOR

Except as otherwise specifically stated in the Contract, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, heat, power, transportation, superintendence, temporary construction of every nature, taxes legally collectible because of the work, and all other services and facilities of every nature whatsoever necessary to execute the work to be done under the Contract and deliver it complete in every respect within the specified time.

#### 4. WORK BY OTHERS

The following work will be done by others:

- a. At no expense to the Contractors
  - (1) Om site:
  - (2) Off site:
    - (a) .......
    - (b) ................

# GENERAL SCOPE OF WORK

b. At the expense of the Contractor:

# 5. WORK NOT INCLUDED IN CONTRACT

a. Work noted on the Drawings or mentioned in the Specifications, or both, as not being a part of the Contract.

# SCHEDULE OF DRAWINGS

Drg.

Date

Title

SITE

ARCHITECTURAL

STRUCTURAL

PLUMBING

HEATING

ELECTRICAL

etc.

HHFA
PHA
3-1-5/

Bulletin No. DH-1

# FORM OF UNIT PRICE AGREEMENT

# UNIT PRICE AGREEMENT

المارية المراجعة <del>المتعدد المتعدد المراجعة المتعدد ال</del>	Same the second of the second
(name of contractor), hereinafter of the United States of America, hereinaft do mutually understand and agree, pursu of the "Special Conditions" of the Specifor (exact title of specifications) condition of award to the Contractor of of said Project, the fused, where applicable, to determine the tract price in connection with changes contract, and that the "Rules of Measur of the said "Special Conditions" shall	er called the "Government", ant to Section, "Unit Prices", ifications dated, 195,
It is further mutually understood and a include all items of cost, overhead and complete reimbursement to the Contractor Government for work omitted, as the case	profit, and that they constitute r for additional work or to the
(list of items	and prices)
THE UNITED STATES OF AMERICA	CONTRACTOR
Ву	(name of contractor
Contracting Officer Date	Ву
	Title
	Date

Per. march 1954

# CONSTRUCTION CONTRACT DOCUMENTS

**FOR** 

TRAILER, TEMPORARY,
OR PERMANENT DEFENSE
HOUSING PROJECTS

DEFENSE HOUSING BULLETIN

PUBLIC HOUSING ADMINISTRATION

HOUSING AND HOME FINANCE AGENCY

WASHINGTON 25, D. C.

JANUARY 1952

# CONSTRUCTION CONTRACT DOCUMENTS FOR DEFENSE HOUSING

# INTRODUCTION

This Bulletin is designed for use by PHA Field Offices, Local Authorities (if assisting in project development under an Agency Development Agreement), and architect-engineers, in the preparation of the essential contract documents for construction of defense housing projects.

The most recent issues of Government Standard Forms shall be used for the following:

Contract

Form No. 23 (Revised 4-3-42) modified for HHFA-PHA use

Performance Bond Payment Bond Form No. 25 (Revised November 1950) Form No. 25-A (Revised November 1950)

and (if bid security is in the form of a bond)

Bid Bond

Form No. 24 (Revised November 1950)

THE GENERAL CONDITIONS SHALL BE USED VERBATIM, since they reflect the requirements of the Standard Forms. Although they are issued in a Bulletin, their use is mandatory.

It is to be noted that all construction contracts are to include the furnishing and installation of all requisite equipment.

In preparing Technical Specifications for temporary housing, refer to a forth-coming bulletin, No. DH-2, Specifications for Trailer Projects, and or Temporary Projects using DHT Series 1 Standard Plans. For permanent housing, refer to Bulletin No. LR-13, Guide Specifications.

# CORRECTION OF STANDARD FORM NO. 23, CONTRACT (CONSTRUCTION)

- 1. <u>Deletion</u>. On page 25 dated 1-25-52 of this Bulletin (which is page 6-a of Standard Form No. 23, Revised April 3, 1942, overprinted for defense housing) in the first line of subparagraph (d) of Article 17, delete the phrase "(copy of which is attached)".
- 2. Reference. Also on page 25 dated 1-25-52, in the blank space at the top of the page, insert the phrase "(See page iii of this Bulletin)".
- 3. Contract Preparation and Execution. When preparing construction contract documents using Standard Form No. 23, revised April 3, 1942 (overprinted for defense housing) the deletion directed by paragraph 1 hereof shall be made on page 6a of each copy of the form. Further, when executing contracts on such forms the Contracting Officer and the Contractor shall each initial each page of the contract where the printed form has been changed or amended in each copy of the contract as evidence that the deletion was made prior to execution.

HHFA	
PHA	
1-25-5	>

Bulletin No. DH-1

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r Uniti	or	<b>ナバハ</b> ア エ	MILLOW	ron	טעגם

# INVITATION FOR BIDS

All A S V and the set of the set	The Property of the State of th
PUBLIC HOUSING ADMINISTRATION Housing and Home Finance Agency	(Place)
the Contract Documents, will be receive (	t to the conditions contained herein, and
Proposed forms of contract documents, i	ncluding plans and specifications, are onat,
Copies of the documents may be obtained for deposit will be refunded to each person within 10 days after bid opening.	by depositing \$ with the or each set of documents so obtained. Such who returns the documents in good condition
percent (5%) of the bid. It may be eit dard Form 24 by the bidder and acceptable	curity in an amount equal to at least five ther a bid bond executed on Government Stan- ble sureties, or a certified check or bank United States, or negotiable U.S. Government
The successful bidder will be required ance and payment bonds executed on Gove	to furnish and pay for satisfactory perform- ernment Standard Forms 25 and 25-A.
Attention is called to the fact that no in the specifications, must be paid on	ot less than the minimum wages, as set forth this project.
The Government reserves the right to remalities in the bidding.	eject any or all bids or to waive any infor-
No bid shall be withdrawn for a period opening of bids without the consent of	of thirty (30) days subsequent to the the Government.
Receipt of this Invitation by any bidde by the Government that such bidder is of for this project.	er shall not be construed as an admission qualified to perform the work contemplated
	By
	Title

### 1. USE OF SEPARATE BID FORMS

Attention is directed to the fact that these Specifications include a complete set of bidding and contract forms. These are for the convenience of bidders, and are not to be detached from the Specifications, or filled out, or executed Separate copies of Bid Forms are furnished for that purpose, in quadruplicate, three to be submitted with the bid and one to be retained by the bidder for his records. All (3) copies of the bid shall be signed.

### 2. INTERPRETATIONS

### 3. ALTERNATIVE BIDS

Alternative bids will not be considered unless called for.

# 4. PROPOSALS

- a. All bids must be submitted on forms prepared by the Government and shall be subject to all requirements of the Specifications, including the Drawings, and this Instructions to Bidders.
- b. Bid Documents shall be enclosed in envelopes (outer and inner), both of which shall be sealed and clearly labeled with the words "Bid Documents", the project number, name of bidder, and date and time of opening, to guard against premature opening of any bid.
- c. A second inner sealed envelope marked "Data on Specialty Items" containing the information required by Section 9, below shall be enclosed in the outer envelope.
- d. The Contracting Officer may consider as informal any bid on which there is an alteration of or departure from the Bid Form hereto attached.
- e. The Contract will be based upon the completion of the work according to the Specifications (including the Drawings), together with all Addenda thereto, under the lowest proposal submitted by a responsible bidder, irrespective of the options permitted by the Contract which the bidder chooses to use. The Contracting Officer has determined, by its inclusion of the options, that any of the requested options are equally acceptable. The bidder is, therefore, required to submit only his lowest proposal for the work to be performed, since no other will be considered.

### 5. BID GUARANTY

- a. The bid must be accompanied by a bid guaranty which shall not be less than five percent (5%) of the amount of the bid, and at the option of the bidder may be a certified check, bank draft, U. S. Government Bonds (at par value), or a bid bond, executed on Government Standard Form 24, secured by a guaranty company or a surety company. No bid will be considered unless it is so guaranteed. Certified check or bank draft must be made payable to the Treasurer of the United States. Cash deposits will not be accepted. The bid guaranty shall insure the execution of the contract and the furnishing of performance and payment bonds by the successful bidder all as required by the Specifications.
- b. Revised Bids, whether forwarded by mail or telegram, if representing an increase in excess of five percent (5%) of the original bid, must have the bid guaranty adjusted accordingly; otherwise the revision of the bid will not be considered and the original bid shall remain in force.
- c. In case Bid Guaranty is in the form of a certified check, bank draft, or U. S. Government Bonds, the Government may make such disposition of the same as will accomplish the purpose for which submitted. Certified checks or bank drafts, or the amount thereof, and U. S. Government bonds of unsuccessful bidders will be returned as soon as practicable after the opening of Bids.

### 6. COLLUSIVE AGREEMENTS

- a. Each person submitting a bid for any portion of the work contemplated by the bidding documents shall execute an affidavit in the form herein provided, to the effect that he has not colluded with any other person, firm or corporation in regard to any bid submitted. Such affidavit shall be attached to the bid.
- b. Each person submitting a low bid for any subcontract work shall submit to the Contractor an affidavit in the form provided in Section 4 of the General Conditions.
- c. Failure on the part of any bidder for either the prime contract or subcontracts to observe these provisions shall be cause for rejection of his bid.

### 7. STATEMENT OF BIDDERS! QUALIFICATIONS

Each copy of each bid must be accompanied by a statement in the form included in the Specifications, of the bidder's financial resources, his construction experience, and his organization and equipment available for the work contemplated. The Government shall have the right to take such steps as it deems necessary to determine the ability of the bidder to perform the work

and the bidder shall furnish the Government all such information and data for this purpose as the Government may request. The right is reserved to reject any bid where an investigation of the available evidence or information does not satisfy the Government that the bidder is qualified to carry out properly the terms of the Contract.

### 8. OPTIONS

The attention of all bidders, whether prime or subcontract, is directed to the "List of Options" contained in the Special Conditions.

### 9. DATA ON SPECIALTY ITEMS

a. Each general bidder who includes in his bid the costs of the mechanical branches of the contract work shall submit, with his bid, in a separate sealed envelope identified on the outside by his name, project number, and marked "Data on Specialty Items"., a breakdown of his overall bid showing the amounts included therein for the following subcontracts and work:

Amount	of	plumbing	bid -	como como			-	-	ir grojek	· comme	OLORD O		e (18)	o	\$ <i>6</i> e	• •	•	• • •	<b>D</b> • 6		• • •	• •	<b>.</b> .
Amount	of	heating b	id		·	Charles - C		(28)	•••	anno s		<b>0</b>	cate:	cuttin.	\$ <b>¢</b>	••		• • •		• • •		••	<b>.</b>
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b. This information is required for analytical purposes, shall have no bearing upon the determination of the lowest responsible bidder, and will not be divulged to the public at bid opening.

### 10. UNIT PRICES

- a. Subsequent to bid opening and prior to and as a condition of award, the successful bidder shall negotiate with the Contracting Officer and agree upon mutually acceptable unit prices for the items listed in Section 7 of the Special Conditions, and conforming to the terms thereof.
  - b. No unit prices will be quoted in or submitted with any bid.

### 11. CORRECTIONS

Erasures or other changes in the bids must be explained or noted over the signature of the bidder.

### 12. TIME FOR RECEIVING BIDS

- a. Bids received prior to the time of opening will be securely kept, unopened. The officer whose duty it is to open them will decide when the specified time has arrived, and no bid received thereafter will be considered; except that when a bid arrives, by mail after the time fixed for opening, but before award is made, and it is shown to the satisfaction of the officer authorized to make the award that the non-arrival on time was due solely to delay in the mails for which the bidder was not responsible, such bid will be received and considered. No responsibility will attach to an officer for the premature opening of a bid not properly addressed and identified. Unless specifically authorized, telegraphic bids will not be considered, but modification by telegraph of bids already submitted will be considered if received prior to the hour set for opening; Provided, that written confirmation of such modification over the signature of the bidder is placed in the mail and postmarked prior to the time set for bid opening.
- b. Bidders are cautioned that, while telegraphic modifications of bids may be received as provided above, such modifications, if not explicit and if in any sense subject to misinterpretation, shall make the bid so modified or amended subject to rejection.
- c. Bidders are cautioned to allow ample time for transmittal of bids by mail or otherwise. Bidders should secure correct information relative to the probable time of arrival and distribution of mail at the place where bids are to be opened; and, so far as practicable, make due allowance for possible delays in order to avoid the necessity for investigations of claims that such delays in receipt of bids were due solely to delay in the mails as provided in this Section.

### 13. OPENING OF BIDS

At the time and place fixed for the opening of bids, every bid received within the time fixed for receiving bids will be opened and publicly read aloud, irrespective of any irregularities therein. Bidders and other persons properly interested may be present, in person or by representative.

### 14. WITHDRAWAL OF BIDS

Bids may be withdrawn on written or telegraphic request dispatched by the Bidder in time for delivery in the normal course of business prior to the time fixed for opening; Provided, that written confirmation of any telegraphic withdrawal over the signature of the bidder is placed in the mail and postmarked prior to the time set for bid opening. Negligence on the part of the bidder in preparing his bid confers no right of withdrawal or modification of his bid after such bid has been opened.

# 15. AWARD OF CONTRACT: REJECTION OF BIDS

- a. The Contract will be awarded to the responsible bidder submitting the lowest proposal complyint with the conditions of the Invitation for Bids, provided his bid is reasonable and it is to the interest of the Government to accept it. The bidder to whom the award is made will be notified at the earliest practicable date. The Government, however, reserves the right to reject any and all bids and to waive any informality in bids received whenever such rejection or waiver is in the interest of the Government.
- b. The Government also reserves the right to reject the bid of any bidder who has previously failed to perform properly, or to complete on time, contracts of a similar nature; who is not in a position to perform the contract; or who has habitually and without just cause neglected the payment of bills or otherwise disregarded his obligations to subcontractors, materialmen, or employees. In determining the lowest responsible bidder the following elements, in addition to those above mentioned, will be considered; whether the bidder involved (1) maintains a permanent place of business; (2) has adequate plant equipment available to do the work properly and expeditiously; (3) has suitable financial resources to meet the obligations incident to the work; (4) has appropriate technical experience. The Government reserves the right to consider as unqualified to perform the work of general construction, any bidder who does not habitually perform with his own forces the branches of structural concrete, masonry, and carpentry.
- c. The ability of a bidder to obtain a performance bond shall not be regarded as the sole test of such bidder's competency or responsibility.

### 16. ESTIMATES OF COSTS

The successful bidder may be required to cooperate with the Contracting Officer and the Architect in a breakdown of his bid price in order to show the division of costs between the dwelling facilities, non-dwelling facilities and site improvements.

# 17. PERFORMANCE AND PAYMENT BOND. EXECUTION OF CONTRACT

- a. Subsequent to the award and within ten days after the prescribed forms are presented for signature, the successful bidder shall execute and deliver to the Contracting Officer a contract in the form included in the Specifications in such number of counterparts as the Contracting Officer may require. Separate contract forms, in lieu of those found in the Specifications, shall be used for the purpose.
- b. Having satisfied all conditions of award as set forth elsewhere in these documents, the successful bidder shall, within the period specified in 17 a. above, furnish a performance and a payment bond, executed on Government

Standard Form 25 and 25-A respectively, each in a penal sum of at least 50% of the amount of the contract as awarded, as security for the faithful performance of the contract, and for the payment of all persons, firms or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services, of any nature, employed or used by him in performing the work. Such bonds shall bear a date the same as or subsequent to the date of the contract.

- c. On each such bond the rate of premium shall be stated, together with the total amount of the premium charged. The current power of attorney for the person who signs for any surety company shall be attached to such bond.
- d. The failure of the successful bidder to execute such contract and to supply the required bonds within ten days after the prescribed forms are presented for signature, or within such extended period as the Government may grant based upon reasons determined adequate by the Government shall constitute a default, and the Government may either award the contract to the next responsible bidder or readvertise for bids, and may charge against the bidder the difference between the amount of the bid and the amount for which a contract for the work is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the bid guaranty.

# 18. EXAMINATION OF SITE, DRAWINGS, ETC.

Each bidder shall visit the site of the proposed work and fully acquaint himself with conditions relating to construction and labor so that he may fully understand the facilities, difficulties and restrictions attending the performance of the work under the contract, and shall thoroughly examine and be familiar with the Drawings and the Contract Documents. The attention of all bidders is expressly directed to the provisions of Section 10e of the General Conditions regarding failure so to do.

HHFA		
PHA		
1-25-	5	-

Bulletin No. DH-1

	FORM OF BID
	BID (Date)
To: Public Housing Administration	
19, and the Instructions to Bidd the undersigned hereby proposes to f perform and complete all work for the No, at by and in strict accordance with the	with your Invitation for Bids dated lers and other documents relating thereto, furnish all labor and materials and to ne construction of Defense Housing Project , , as required to Contract Documents, schedules and drawings rement, for the sum of Dollars (\$
delivered to the undersigned within of the bids, or at any time thereaft signed agrees that he will execute a to the Instructions to Bidders as reance with the bid as accepted, and the bonds as specified, with good and su	cance of this bid is mailed, telegraphed or thirty (30) days after the date of opening for before this bid is withdrawn, the underend deliver a contract in the form attached equired by the Contract Documents, in accordinate the will give performance and payment afficient surety or sureties, all within forms are presented to him for signature.
Enclosed is security as require	ed, consisting of
Attached hereto is the required	l Non-Collusive Affidavit.
Notice of acceptance should be undersigned at the following officia	mailed, telegraphed or delivered to the
	By
	Title

STANDARD FORM 24 REVISED NOVEMBER 1950 PRESCRIBED BY GENERAL SERVICES ADMINISTRATION GENERAL REGULATION NO. 5

# BID BOND

(See Instructions on Reverse)

DA	TF	BOI	ND	EX	FC.	UT	ΕC

			(500 1100	ii wellollo	 ,		
PRINCIPAL					 		
SURETY							
PENAL SUM O	F BOND (express)	in words and fit	gures)			DATE OF BID	

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL and SURETY above named, are held and firmly bound unto the United States of America, hereinafter called the Government, in the penal sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal has submitted the accompanying bid, dated as shown above, for

NOW THEREFORE, if the principal shall not withdraw said bid within the period specified therein after the opening of the same, or, if no period be specified, within sixty (60) days after said opening, and shall within the period specified therefor, or, if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, execute such further contractual documents, if any, as may be required by the terms of the bid as accepted, and give bonds with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of the resulting contract, and for the protection of all persons supplying labor and material in the prosecution of the work provided for in such contract, or in the event of the withdrawal of said bid within the period specified, or the failure to enter into such contract and give such bonds within the time specified, if the principal shall pay the Government the difference between the amount specified in said bid and the amount for which the Government may procure the required work, supplies, and services, if the latter amount be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the

date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

In Presence of: WITNESS	INDIVIDUAL PRINCIPAL	,,,
1.	as to	[SEAL]
2.	as to	[SEAL]
3	as to	[SEAL]
4	as to	[SEAL]
WITNESS	INDIVIDUAL SURETY	
1.	as to	[SEAL]
2	as to	[SEAL]
	CORPORATE PRINCIPAL	
Attest	BUSINESS ADDRESS	
	BY	AFFIX
	TITLE	CORPORATE SEAL
	CORPORATE SURETY	
Attest:	BUSINESS ADDRESS	
	ВУ	AFFIX
	TITLE	CORPORATE SEAL

	The rate of premium on this bond is per thousand.	
Total amount of premium charged, \$	Total amount of premium charged, \$	
	Total amount of premium charged, \$	
	CERTIFICATE AS TO CORPORATE PRINCIPAL	
Ι,	, certify that I am thesecre	tary
of the o	orporation named as principal in the within bond; that	·• <b>,</b>
corpora	ned the said bond on behalf of the principal, was then	said duly
	CORPORA	TE ]

### INSTRUCTIONS

- 1. This form shall be used for construction work or the furnishing of supplies or services whenever a bid bond is required. There shall be no deviation from this form except as authorized by the General Services Administration.
- 2. The surety on the bond may be any corporation authorized by the Secretary of the Treasury to act as surety, or two responsible individual sureties. Where individual sureties are used, this bond must be accompanied by a completed Affidavit of Individual Surety for each individual surety (Standard Form 28).
- 3. The name, including full Christian name, and business or residence address of each individual party to the bond shall be inserted in the space provided therefor, and each such party shall sign the bond with his usual signature on the line opposite the scroll seal, and if signed in Maine or New Hampshire, an adhesive seal shall be affixed opposite the signature.
- 4. If the principals are partners, their individual names shall appear in the space provided therefor, with the recital that they are partners composing a firm, naming it, and all the members of the firm shall execute the bond as individuals.
- 5. If the principal or surety is a corporation, the name of the State in which incorporated shall be inserted in the space provided therefor, and said instrument shall be executed and attested under the corporate seal as indicated in the form. If the corporation has no corporate seal the fact shall be stated, in which case a scroll or adhesive seal shall appear following the corporate name.
- 6. The official character and authority of the person or persons executing the bond for the principal, if a corporation, shall be certified by the secretary or assistant secretary, according to the form herein provided. In lieu of such certificate there may be attached to the bond copies of so much of the records of the corporation as will show the official character and authority of the officer signing, duly certified by the secretary or assistant secretary, under the corporate seal, to be true copies.
- 7. The date of this bond must not be prior to the date of the instrument in connection with which it is given.

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# FORM OF NON-COLLUSIVE AFFIDAVIT

	(Prime B	idder)	
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State of	) ss.		
County of	)		
	and the state of t		
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		bid, that such proposal or bid	
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pired, connived or	agreed, directly o	r indirectly, with any bidder or	r per-
on, to put in a sha	m bid or to refrai	n from bidding, and has not in a	any
anner, directly or	indirectly, sought	by agreement or collusion, or	commu
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# FORM OF STATEMENT OF BIDDER'S QUALIFICATIONS

# STATEMENT OF BIDDER'S QUALIFICATIONS General Contractor

(All questions must be answered, and the data given must be clear and comprehensive. This statement must be notarized. If necessary, add separate sheets for items marked with an asterisk (\*) below.)

- 1. Name of bidder.
- 2. Permanent main office address.
- 3. When organized.
- 4. Where incorporated.
- 5. How many years have you been engaged in the contracting business under your present firm name?
- 6. \*Contracts on hand: (Schedule these, showing gross amount of each contract and approximate anticipated dates of completion.)
- 7. \*General character of work performed by your company.
- 8. Have you ever failed to complete any work awarded to you?
- 9. \*Have you ever defaulted on a contract?
- 10. \*List the more important structures or projects which have been constructed recently by your company. State the approximate contract price for each, and the month and year when completed.
- 11. \*List your major equipment which will be available for this contract work.
- 12. \*State your experience in construction work which is similar in magnitude, character, or importance to this project.
- 13. \*Describe the background and experience of yourself and the principal members of your organization, including officers.
- 14. \*How much credit do you have available; furnish written evidence.
- 15. Furnish a financial statement, which is not more than 60 days old, in the following form: (See the form of Condensed Current Financial Statement, on the two following pages.)

# CONDENSED CURRENT FINANCIAL STATEMENT

	Condition at close of business19
	ASSETS DOLLARS
L.	Cash: (a) On hand \$, (b) In bank \$, (c) Elsewhere \$
2.	Notes receivable (a) Due within 90 days
3.	
4.	estimate
	(a) Amount receivable after deducting retainage (b) Retainage to date, due upon completion of contracts
5.	Accounts receivable from sources other than construction contracts
6.	Deposits for bids or other guarantees:  (a) Recoverable within 90 days  (b) Recoverable after 90 days
7.	Interest accrued on loans, securities, etc.
8.	Real Estate (a) Used for business purposes
_	(b) Not used for business purposes
9.	Stocks and Bonds: (a) Listed—present market value
_	(b) UnlistedPresent value
υ.,	(a) For uncompleted contracts (present value)
	(b) Other materials (present value)
٦.	Equipment, book value
2.	* * · ·
з.	Other assets
	TOTAL ASSETS
	LIABILITIES
l.	Notes Payable: (a) To banks regular
-	(b) To banks for certified checks
	(c) To others for equipment obligations
	(d) To others exclusive of equipment obligations

	CONDENSED CURRENT FINANCIAL STATEM	MENT (continued)
2.	* Accounts Payable: (a) Not past due	
3.	Real estate encumbrances	
4.		
5.	Reserves	
6.	Capital stock paid up: (a) Common	
7	(d) Preferred	* bearing
/ +	Surprus (net worth) Earned o	onestned &
	TOTAL LIABILITIES	
	CONTINGENT LIABILITIES	DOLLARS CTS.
1.	Liability on notes receivable, discounted or sold	
2.	Liability on accounts receivable, pledged, assigned or sold	
3.	Liability as bondsmen	
4.	Liability as guarantor on contracts or on accounts of others	
5.	Other contingent liabilities	
	TOTAL CONTINGENT LIABILITIES	

Include all amounts owing subcontractors for all work in place and accepted on completed and uncompleted contracts, including retainage.

HHFA-	РНА	. 7	-24	524	52

Bulletin	No.	DH-1
Contract No		

U. S. Standard Form No. 23—Rev.
Approved by the Secretary of the Treasury
Revised April 3, 1942

(Overprinted for Defense Housing)

		(CONSTRUC	CTION)		
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MOTE: DELISTRORM	MSE HOO	en de la companya de			**************************************
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$Contract\ for$				_ Amount, \$_	
Place	r Tirking Carlos Sangeraya Tirking Carlos Sangeraya				·

### CONTRACT FOR CONSTRUCTION

This Contract, entered into this	day of		, 19	, by
THE UNITED STATES OF AMERICA, hereinafter cal	led the Government,	represented	by the contr	acting
officer executing this contract, and				

a corporation organized and existing under the laws of the State of a partnership consisting of

ARTICLE 1. Statement of work.—The contractor shall furnish the materials, and perform the work for

for the consideration of

in strict accordance with the specifications, schedules, and drawings, all of which are made a part hereof and designated as follows:

The work shall be commenced

and shall be completed

U. S. Standard Form No. 23 (Revised April 3, 1942) SHEET 2

ARTICLE 2. Specifications and drawings.—The contractor shall keep on the work a copy of the drawings and specifications and shall at all times give the contracting officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In any case of discrepancy in the figures, drawings, or specifications, the matter shall be immediately submitted to the contracting officer, without whose decision said discrepancy shall not be adjusted by the contractor, save only at his own risk and expense. The contracting officer shall furnish from time to time such detail drawings and other information as he may consider necessary, unless otherwise provided.

ARTICLE 3. Changes.—The contracting officer may at any time, by a written order, and without notice to the sureties, make changes in the drawings and/or specifications of this contract and within the general scope thereof. If such changes cause an increase or decrease in the amount due under this contract, or in the time required for its performance, an equitable adjustment shall be made and the contract shall be modified in writing accordingly. No change involving an estimated increase or decrease of more than Five Hundred Dollars shall be ordered unless approved in writing by the head of the department or his duly authorized representative. Any claim for adjustment under this article must be asserted within 10 days from the date the change is ordered: Provided, however, That the contracting officer, if he determines that the facts justify such action, may receive and consider, and with the approval of the head of the department or his duly authorized representative, adjust any such claim asserted at any time prior to the date of final settlement of the contract. If the parties fail to agree upon the adjustment to be made the dispute shall be determined as provided in article 15 hereof. But nothing provided in this article shall excuse the contractor from proceeding with the prosecution of the work so changed.

ARTICLE 4. Changed conditions.—Should the contractor encounter, or the Government discover, during the progress of the work subsurface and/or latent conditions at the site materially differing from those shown on the drawings or indicated in the specifications, or unknown conditions of an unusual nature differing materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the plans and specifications, the attention of the contracting officer shall be called immediately to such conditions before they are disturbed. The contracting officer shall thereupon promptly investigate the conditions, and if he finds that they do so materially differ the contract shall, with the written approval of the head of the department or his duly authorized representative, be modified to provide for any increase or decrease of cost and/or difference in time resulting from such conditions.

ARTICLE 5. Extras.—Except as otherwise herein provided, no charge for any extra work or material will be allowed unless the same has been ordered in writing by the contracting officer and the price stated in such order.

ARTICLE 6. Inspection.—(a) All material and workmanship (if not otherwise designated by the specifications) shall be subject to inspection, examination, and test by Government inspectors at any and all times during manufacture and/or construction and at any and all places where such manufacture and/or construction are carried on. The Government shall have the right to reject defective material and workmanship or require its correction. Rejected workmanship shall be satisfactorily corrected and rejected material shall be satisfactorily replaced with proper material without charge therefor, and the contractor shall promptly segregate and remove the rejected material from the premises. If the contractor fails to proceed at once with the replacement of

manship the Government may, by contract or otherwise, replace such material and/or correct such workmanship and charge the cost thereof to the contractor, or may terminate the right of the contractor to proceed as provided in article 9 of this contract, the contractor and surety being liable for any damage to the same extent as provided in said article 9 for terminations thereunder.

(b) The contractor shall furnish promptly without additional charge, all reasonable facilities, labor, and materials necessary for the safe and convenient inspection

rejected material and/or the correction of defective work-

materials necessary for the safe and convenient inspection and test that may be required by the inspectors. All inspection and tests by the Government shall be performed in such manner as not unnecessarily to delay the work. Special, full size, and performance tests shall be as described in the specifications. The contractor shall be charged with any additional cost of inspection when material and workmanship is not ready at the time inspection is required by the contractor.

- (c) Should it be considered necessary or advisable by the Government at any time before final acceptance of the entire work to make an examination of work already completed, by removing or tearing out same, the contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any material respect, due to fault of the contractor or his subcontractors, he shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus 15 percent, shall be allowed the contractor and he shall, in addition, if completion of the work has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.
- (d) Inspection of material and finished articles to be incorporated in the work at the site shall be made at the place of production, manufacture, or shipment, whenever the quantity justifies it, unless otherwise stated in the specifications; and such inspection and acceptance, unless otherwise stated in the specifications, shall be final, except as regards latent defects, departures from specific requirements of the contract and the specifications and drawings made a part thereof, damage or loss in transit, fraud, or such gross mistakes as amount to

fraud. Subject to the requirements contained in the preceding sentence, the inspection of material and workmanship for final acceptance as a whole or in part shall be made at the site.

ARTICLE 7. Materials and workmanship.—Unless otherwise specifically provided for in the specifications, all workmanship, equipment, materials, and articles incorporated in the work covered by this contract are to be of the best grade of their respective kinds for the purpose. Where equipment, materials, or articles are referred to in the specifications as "equal to" any particular standard, the contracting officer shall decide the question of equality. The contractor shall furnish to the contracting officer for his approval the name of the manufacturer of machinery, mechanical and other equipment which he contemplates incorporating in the work, together with their performance capacities and other pertinent information. When required by the specifications, or when called for by the contracting officer, the contractor shall furnish the contracting officer for approval full information concerning the materials or articles which he contemplates incorporating in the work. Samples of materials shall be submitted for approval when so directed. Machinery, equipment, materials, and articles installed or used without such approval shall be at the risk of subsequent rejection. The contracting officer may require the contractor to remove from the work such employee as the contracting officer deems incompetent, careless, insubordinate, or otherwise objectionable, or whose continued employment on the work is deemed by the contracting officer to be contrary to the public interest.

ARTICLE 8. Superintendence by contractor.—The contractor shall give his personal superintendence to the work or have a competent foreman or superintendent, satisfactory to the contracting officer, on the work at all times during progress, with authority to act for him.

ARTICLE 9. Delays-Damages.-If the contractor refuses or fails to prosecute the work, or any separable part thereof, with such diligence as will insure its completion within the time specified in article 1, or any extension thereof, or fails to complete said work within such time, the Government may, by written notice to the contractor, terminate his right to proceed with the work or such part of the work as to which there has been delay. In such event the Government may take over the work and prosecute the same to completion, by contract or otherwise, and the contractor and his sureties shall be liable to the Government for any excess cost occasioned the Government thereby. If the contractor's right to proceed is so terminated, the Government may take possession of and utilize in completing the work such materials, appliances, and plant as may be on the site of the work and necessary therefor. If the Government does not terminate the right of the contractor to proceed, the contractor shall continue the work, in which event it will be impossible to determine the actual damages for the delay and in lieu thereof the contractor shall pay to the Government as fixed, agreed, and liquidated damages for each calendar day of delay until the work is completed or accepted the amount as set forth in the specifications or accompanying papers and the contractor and his sureties shall be liable for the amount thereof: Provided, That the right of the contractor to proceed shall not be terminated or the contractor charged with liquidated damages because of any delays in the completion of the work due to unforeseeable causes beyond the control and without the fault or negligence of the contractor, including, but not restricted to, acts of God, or of the public enemy, acts of the Government, acts of another contractor in the performance of a contract with the Government, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather or delays of subcontractors due to such causes, if the contractor shall within 10 days from the beginning of any such delay (unless the contracting officer, with the approval of the head of the department or his duly authorized representative, shall grant a further period of time prior to the date of final settlement of the contract) notify the contracting officer in writing of the causes of delay, who shall ascertain the facts and the extent of the delay and extend the time for completing the work when in his judgment the findings of fact justify such an extension, and his findings of fact thereon shall be final and conclusive on the parties hereto, subject only to appeal, within 30 days, by the contractor to the head of the department concerned or his duly authorized representative, whose decision on such appeal as to the facts of delay and the extension of time for completing the work shall be final and conclusive on the parties hereto.

ARTICLE 10. Permits and responsibility for work.—The contractor shall, without additional expense to the Government, obtain all required licenses and permits and be responsible for all damages to persons or property that occur as a result of his fault or negligence in connection with the prosecution of the work, and shall be responsible for all materials delivered and work performed until completion and final acceptance. Upon completion of the contract the work shall be delivered complete and undamaged.

ARTICLE 11 Fight hour law Overtime compensation Convict labor.—(a) No laborer or mechanic doing any part of the work contemplated by this contract, in the employ of the contractor or any subcontractor contracting for any part of said work contemplated, shall be required or permitted to work more than eight hours in any one calendar day upon such work at the site thereof, except upon the condition that compensation is paid to such laborer or mechanic in accordance with the provisions of this article. The wages of every laborer and mechanic employed by the contractor or any subcontractor engaged in the performance of this contrast shall be computed on a basic day rate of eight hours per day and work in excess of eight hours per day is permitted only upon the condition that every such laborer and mechanic shall be compensated for all hours worked in excess of eight hours per day at not less than one and one-half times the basic rate of pay. For each violation of the requirements of this article a penalty of five dollars shall be imposed upon the contractor for each laborer or mechanic for every calendar day in which such employee is required or permitted to labor more than eight hours upon said work without receiving compensation computed in accordance with this article, and all penalties thus imposed shall be withheld for the use and benefit of the Government: Provided, That this stipulation shall be subject in all respects to the exceptions and provisions of U. S. Code, title 49, sections 321, 324, 325, 325a, and 326, relating

### [CONSTRUCTION CONTRACT]

### to hours of labor and commonsation for evertime.

(b) The contractor shall not employ any person undergoing sentence of imprisonment at hard labor.

ARTICLE 12. Covenant against contingent fees.—The contractor warrants that he has not employed any person to solicit or secure this contract upon any agreement for a commission, percentage, brokerage, or contingent fee. Breach of this warranty shall give the Government the right to terminate the contract, or, in its discretion, to deduct from the contract price or consideration the amount of such commission, percentage, brokerage, or contingent fees. This warranty shall not apply to commissions payable by contractors upon contracts or sales secured or made through tona fide established commercial or selling agencies maintained by the contractor for the purpose of securing business.

ARTICLE 13. Other contracts.—The Government may award other contracts for additional work, and the contractor shall fully cooperate with such other contractors and carefully fit his own work to that provided under other contracts as may be directed by the contracting officer. The contractor shall not commit or permit any act which will interfere with the performance of work by any other contractor.

ARTICLE 14. Officials not to benefit.—No Member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE 15. Disputes.—Except as otherwise specifically provided in this contract, all disputes concerning questions of fact arising under this contract shall be decided by the contracting officer subject to written appeal by the contractor within 30 days to the head of the department concerned or his duly authorized representative, whose decision shall be final and conclusive upon the parties thereto. In the meantime the contractor shall diligently proceed with the work as directed.

ARTICLE 16. Payments to contractors.—(a) Unless otherwise provided in the specifications, partial payments will be made as the work progresses at the end of each calendar month, or as soon thereafter as practicable, on estimates made and approved by the contracting officer. In preparing estimates the material delivered on the site and preparatory work done may be taken into consideration.

(b) In making such partial payments there shall be retained 10 percent on the estimated amount until final completion and acceptance of all work covered by the contract: Provided, however, That the contracting officer, at any time after 50 percent of the work has been completed, if he finds that satisfactory progress is being made, may make any of the remaining partial payments in full: And provided further, That on completion and acceptance of each separate building, vessel, public work, or other division of the contract, on which the price is stated separately in the contract, payment may be made in full, including retained percentages thereon, less authorized deductions.

- (c) All material and work covered by partial payments made shall thereupon become the sole property of the Government, but this provision shall not be construed as relieving the contractor from the sole responsibility for all materials and work upon which payments have been made or the restoration of any damaged work, or as a waiver of the right of the Government to require the fulfillment of all of the terms of the contract.
- (d) Upon completion and acceptance of all work required hereunder, the amount due the contractor under this contract will be paid upon the presentation of a properly executed and duly certified voucher therefor, after the contractor shall have furnished the Government with a release, if required, of all claims against the Government arising under and by virtue of this contract, other than such claims, if any, as may be specifically excepted by the contractor from the operation of the release in stated amounts to be set forth therein.

ARTICLE 17. Rate of wages. (In accordance with the act of August 30, 1935, 49 Stat. 1011, as amended by the act of June 15, 1940, 54 Stat. 399 (U. S. Code, title 40, secs. 276a and 276a-1), this article shall apply if the contract is in excess of \$2,000 in amount and is for the construction, alteration, and/or repair, including painting and decorating, of a public building or public work within the geographical limits of the States of the Union, the Territory of Alaska, the Territory of Hawaii, or the District of Columbia.)

- (a) The contractor or his subcontractor shall pay all mechanics and laborers employed directly upon the site of the work, unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the specifications, regardless of any contractual relationship which may be alleged to exist between the contractor or subcontractor and such laborers and mechanics; and the scale of wages to be prid shall be posted by the contractor in a prominent and easily accessible place at the site of the work. The contracting officer shall have the right to withhold from the contractor so much of accrued payments as may be considered necessary by the contracting officer to pay to laborers and mechanics employed by the contractor or any subcontractor on the work the difference between the rates of wages required by the contract to be paid laborers and mechanics on the work and the rates of wages received by such laborers and mechanics and not refunded to the contractor, subcontractors, or their agents.
- (b) In the event it is found by the contracting officer that any laborer or mechanic employed by the contractor or any subcontractor directly on the site of the work covered by the contract has been or is being paid a rate of wages less than the rate of wages required by the contract to be paid as aforesaid, the Government may, by written notice to the contractor, terminate his right to proceed with the work or such part of the work as to which there has been a failure to pay said required wages and prosecute the work to completion by contract or otherwise, and the contractor and his sureties shall be liable to the Government for any excess costs occasioned the Government thereby.

(c) The regulations of the Sceretary of Labon referred to in article 19 hereof, allow certain permissible deductions" from the wages required by this article to be paid.

ARTICLE 18. Domestic preference.—In the performance of the work covered by this contract the contractor, subcontractors, material men or suppliers shall use only such unmanufactured articles, materials, and supplies as have been mined or produced in the United States, and only such manufactured articles, materials, and supplies as have been manufactured in the United States substantially all from articles, materials, or supplies mined, produced, or manufactured, as the case may be, in the United States. The foregoing provision shall not apply to such articles, materials, or supplies of the class or kind to be used or such articles, materials, or supplies from which they are manufactured, as are not mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, or to such articles, materials, or supplies as may be excepted by the head of the department under the proviso of title III, section 3, of the act of March 3, 1933, 47 Stat. 1520 (U. S. Code, title 41, sec. 10b).

Anticles 10. Nonvolute of wages. The contractor chall comply with the regulations of the Socretary of Labor pursuant to the aut of June 13, 1934, 48 Stat. 948 (U.S. Godo, 1915 19, 2005, 276b and 276c), and any amendments

sions to be inserted in subcontracts to insure compliance therewith by all subcontractors subject thereto, and shall be responsible for the submission of affidavits required of subcontractors thereunder, except as the Secretary of Labor may specifically provide for reasonable limitations, variations, tolerances, and exemptions from the requirements thereof.

ARTICLE 20. Additional security.—Should any surety upon any bond furnished in connection with this contract become unacceptable to the Government, or if any such surety shall fail to furnish reports as to his financial condition from time to time as requested by the Government, the contractor must promptly furnish such additional security as may be required from time to time to protect the interests of the Government or of persons supplying labor or materials in the prosecution of the work contemplated by the contract.

ARTICLE 21. Definitions.—(a) The term "head of the department" as used herein shall mean the head or any assistant head of the executive department or independent establishment involved, and the term "his duly authorized representative" shall mean any person authorized to act for him other than the contracting officer.

(b) The term "contracting officer" as used herein shall include his duly appointed successor or his authorized representative.

ARTICLE 22. Alterations.—The following changes were made in this contract before it was signed by the parties hereto:

- (a) The following subparagraph is added to ARTICLE 6 hereof:
  - (e) Neither inspection, testing, approval or acceptance of the work, in whole or in part, by the Government or its agent, shall relieve the Contractor or his Sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract Documents.
- (b) The following sentence is added to ARTICLE 9 hereof:

No payment or compensation of any kind shall be made to the Contractor for damages because of hindrance or delay from any cause in the progress of the work, whether such hindrance or delay be avoidable or unavoidable.

- (c) Subparagraph (d) of ARTICLE 16 is amended as follows:
  - The words "if required" are deleted.
- (d) The following subparagraphs are added to ARTICLE 16 hereof:
  - (e) Each claim item that may be excepted from the operation of the Contractor's release shall embrace no more than one claim, with the basis and scope of each clearly defined and the amount stated.
  - (f) The Government will make no payment for stored materials which, in the opinion of the Contracting Officer, are not properly stored.
- (e) ARTICLES 11(a), 17 and 19 preceding are hereby deleted and the following substituted in lieu thereof

ARTICLE 17. Labor Standards. - (a) Rate of Wages. - This stipulation (a) shall apply if the Contract is in excess of \$2,000.00 in amount.

(1) All mechanics and laborers employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Anti-Kickback Regulations (29 C.F.R. Part 3)), the full amounts due at time of payment computed at wage rates not less than those contained in the wage

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### SF-23 (overprinted for Defense Housing) Sheet 6a

determination decision of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or subcontractor and such laborers and mechanics; and the wage determination decision shall be posted by the Contractor at the site of the work in a prominent place where it can be easily seen by the workers.

- (2) The Contracting Officer may withhold or cause to be withheld from the Contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics employed by the Contractor or any subcontractor on the work the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic employed or working on the site of the work, all or part of the wages required by the contract, the Contracting Officer may after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased, and also in such event the Contracting Officer after written notice to the Contractor may terminate the Contractor's right to proceed with the work or such part of the work as to which there has been a failure to pay said required wages and prosecute the work to completion by contract or otherwise, and the Contractor and his sureties shall be liable to the Government for any excess costs occasioned the Government thereby.
- (b) Payroll Records and Payrolls. (1) Payroll records will be maintained during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records will contain the name and address of each such employee, his correct classification, rate of pay, daily and weekly number of hours worked, deductions made and actual wages paid.
- (2) The Contractor will submit weekly a certified copy of all payrolls to the Contracting Officer. The certification will affirm that the payrolls are correct and complete, that the wage rates contained therein are not less than those, if any, determined by the Secretary of Labor and that the classifications set forth for each laborer or mechanic conform with the work he performed. The Contractor will make his employment records available for inspection by authorized representatives of the Contracting Officer and the Department of Labor, and will permit such representatives to interview employees during working hours on the job.
- (c) <u>Apprentices</u>. Apprentices will be permitted to work only under a bona fide apprenticeship program registered with a State Apprenticeship Council which is recognized by the Federal Committee on Apprenticeship, U. S. Department of Labor; or if no such recognized Council exists in a State, under a program registered with the Eureau of Apprenticeship, U. S. Department of Labor.
- (d) Nonrebates of Wagas. The Contractor will comply with the regulations (copy of which is attached) of the Secretary of Labor made pursuant to the Anti-Kickback Act of June 13, 1934, 48 Stat. 948; 62 Stat. 740, 63 Stat. 108; 18 U.S.C. 874, 40 U.S.C. 276b, c, and any amendments or modifications thereof, will cause appropriate provisions to be inserted in subcontracts to insure compliance therewith by all subcontractors subject thereto, and will be responsible for the submission of affidavits required of subcontractors thereunder, except as the Secretary of Labor may specifically provide for reasonable limitations, variations, tolerances and exemptions from the requirements thereof.
- (e) <u>Right-Hour Law Overtime Compensation</u>. -- No laborer or mechanic doing any part of the work contemplated by this contract, in the employ of the Contractor or any subcontractor contracting for any part of said work contemplated, shall be required or permitted to work more than eight hours in any one calendar day upon such work, except upon the condition that compensation is paid to such laborer or mechanic in accordance with the provisions of this stipulation of the contract. The wages of every laborer and mechanic employed by the Contractor or any subcontractor engaged in the performance of this contract shall be computed on a basic day rate of eight hours per day is permitted only upon the condition that every such laborer and mechanic shall be compensated for all hours worked in excess of eight hours per day at not less than one and one-half times the basic rate of pay. For each violation of the requirements of this stipulation of the contract a penalty of five dollars shall be imposed upon the Contractor for each laborer or mechanic for every calendar day in which such employee is required or permitted to labor more than eight hours upon said work without receiving compensation computed in accordance with this stipulation of the contract, and all penalties thus imposed shall be withheld for the use and benefit of the Government; PROVIDED, That this stipulation shall be subject in all respects to the exceptions and provisions of the Eight-Hour Laws as set forth in U. S. Code, title 40, Sections 321, 324, 325, 325a, and 326, which relate to hours of labor and compensation for overtime.
- (f) <u>Subcontract Stipulations</u>. The Contractor will insert in each of his subcontracts the provisions set forth in stipulations (a), (b), (c), (d), (e), and (g) hereof, and such other stipulations as the Contracting Officer may by appropriate instructions require.
- (g) Breach of Stipulations. A breach of any of the stipulations (a) through (f) may be grounds for termination of the contract.

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determination decision of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or subcontractor and such laborers and mechanics; and the wage determination decision shall be posted by the Contractor at the site of the work in a prominent place where it can be easily seen by the workers.

- (2) The Contracting Officer may withhold or cause to be withheld from the Contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics employed by the Contractor or any subcontractor on the work the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic employed or working on the site of the work, all or part of the wages required by the contract, the Contracting Officer may after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased, and also in such event the Contracting Officer after written notice to the Contractor may terminate the Contractor's right to proceed with the work or such part of the work as to which there has been a failure to pay said required wages and prosecute the work to completion by contract or otherwise, and the Contractor and his sureties shall be liable to the Government for any excess costs occasioned the Government thereby.
- (b) <u>Payroll Records and Payrolls</u>. (1) Payroll records will be maintained during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records will contain the name and address of each such employee, his correct classification, rate of pay, daily and weekly number of hours worked, deductions made and actual wages paid.
- (2) The Contractor will submit weekly a certified copy of all payrolls to the Contracting Officer. The certification will affirm that the payrolls are correct and complete, that the wage rates contained therein are not less than those, if any, determined by the Secretary of Labor and that the classifications set forth for each laborer or mechanic conform with the work he performed. The Contractor will make his employment records available for inspection by authorized representatives of the Contracting Officer and the Department of Labor, and will permit such representatives to interview employees during working hours on the job.
- (c) Apprentices. Apprentices will be permitted to work only under a bona fide apprenticeship program registered with a State Apprenticeship Council which is recognized by the Federal Committee on Apprenticeship, U. S. Department of Labor; or if no such recognized Council exists in a State, under a program registered with the Bureau of Apprenticeship, U. S. Department of Labor.
- (d) Nonrebate of Wages. The contractor will comply with the regulations of the Secretary of Labor made pursuant to the Anti-Kickback Act of June 13, 1934, 48 Stat. 948; 62 Stat. 740, 63 Stat. 108; 18 U.S.C. 874, 40 U.S.C. 276b, c, and any amendments or modifications thereof, (which regulations are incorporated herein and made a part hereof), will cause appropriate provisions to be inserted in subcontracts to insure compliance therewith by all subcontractors subject thereto, and will be responsible for the submission of affidavits required of subcontractors thereunder, except as the Secretary of Labor may specifically provide for reasonable limitations, variations, tolerances and exemptions from the requirements thereof.
- (e) <u>Right-Hour Law</u> <u>Overtime Compensation</u>. -- No laborer or mechanic doing any part of the work contemplated by this contract, in the employ of the Contractor or any subcontractor contracting for any part of said work contemplated, shall be required or permitted to work more than eight hours in any one calendar day upon such work, except upon the condition that compensation is paid to such laborer or mechanic in accordance with the provisions of this stipulation of the contract. The wages of every laborer and mechanic employed by the Contractor or any subcontractor engaged in the performance of this contract shall be computed on a basic day rate of eight hours per day and work in excess of eight hours per day is permitted only upon the condition that every such laborer and mechanic shall be compensated for all hours worked in excess of eight hours per day at not less than one and one-half times the basic rate of pay. For each violation of the requirements of this stipulation of the contract a penalty of five dollars shall be imposed upon the Contractor for each laborer or mechanic for every calendar day in which such employee is required or permitted to labor more than eight hours upon said work without receiving compensation computed in accordance with this stipulation of the contract, and all penalties thus imposed shall be withheld for the use and benefit of the Government: PROVIDED, That this stipulation shall be subject in all respects to the exceptions and provisions of the Eight-Hour Laws as set forth in U. S. Code, title 40, Sections 321, 324, 325, 325a, and 326, which relate to hours of labor and compensation for overtime.
- (f) Subcontract Stipulations. The Contractor will insert in each of his subcontracts the provisions set forth in stipulations (a), (b), (c), (d), (e), and (g) hereof, and such other stipulations as the Contracting Officer may by appropriate instructions require.
- (g) Breach of Stipulations. A breach of any of the stipulations (a) through (f) may be grounds for termination of the contract.

(6a)

WOTE: This page 25 (sheet 6a of SF-23 overprinted for Defense Housing) supersedes page 25 of Bulletin No. DH-1, dated 1-25-52. Paragraph (d), Nonrebates of Wages, has been revised. Page iii, Correction of Standard Form No. 23, Contract (Construction) dated 2-4-52, is hereby rescinded.

[CONSTRUCTION CONTRACT]

U. S. Standard Form No. 23 (Revised April 3, 1942) SHEET 4

IN WITNESS WHEREOF, the parties hereto have executed this contract as of the day and year first above written.

I, , certify that I am the secretary of the corporation named as contractor herei who signed this contract on behalf of the contractor, was then of said corporation; that said contract who signed for and in behalf of said corporation by authority of its governing body, and is with the scope of its corporate powers.					
I, , certify that I am the secretary of the corporation named as contractor hereing that the signed this contract on behalf of the contractor, was then of said corporation; that said contract who signed for and in behalf of said corporation by authority of its governing body, and is with the scope of its corporate powers.  Corporate Seal  I hereby certify that, to the best of my knowledge and belief, based upon observation a who signed this contract for thad authority to execute the same, and is the individual who signs similar contracts on behalf of this corporation with the public generally.		By			
I, , certify that I am the secretary of the corporation named as contractor herei hat who signed this contract on behalf of the contractor, was then of said corporation; that said contract we know signed for and in behalf of said corporation by authority of its governing body, and is with the scope of its corporate powers.    Corporate   Corporate   Corporate   Seal				(Official title)	
I, , certify that I am the secretary of the corporation named as contractor herei that tho signed this contract on behalf of the contractor, was then of said corporation; that said contract we compared the scope of its corporate powers.  I hereby certify that, to the best of my knowledge and belief, based upon observation and muiry, had authority to execute the same, and is to ndividual who signs similar contracts on behalf of this corporation with the public generally.					
I, , certify that I am the secretary of the corporation named as contractor hereinat ho signed this contract on behalf of the contractor, was then of said corporation; that said contract welly signed for and in behalf of said corporation by authority of its governing body, and is with the scope of its corporate powers.  [CORPORAT SEAL]  I hereby certify that, to the best of my knowledge and belief, based upon observation a who signed this contract for the had authority to execute the same, and is the ndividual who signs similar contracts on behalf of this corporation with the public generally.	wo witnesses:				Contractor
I, , certify that I am the secretary of the corporation named as contractor hereinat tho signed this contract on behalf of the contractor, was then of said corporation; that said contract we uly signed for and in behalf of said corporation by authority of its governing body, and is with the scope of its corporate powers.  CORPORAT SEAL  I hereby certify that, to the best of my knowledge and belief, based upon observation a who signed this contract for the nature of the same, and is the natural who signs similar contracts on behalf of this corporation with the public generally.		<del></del>			
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### DIRECTIONS FOR PREPARATION OF CONTRACT

- 1. This form shall be used for every formal contract, except contracts on a cost-plus basis, for the construction or repair of public buildings or works, but its use will not be required in foreign countries.
- 2. There shall be no deviation from this standard contract form, except as provided for in these directions, as required or authorized by law, or as authorized by the Director of Procurement. Where interlineations, deletions, additions, or other alterations are permitted, specific notation of those made shall be entered in the blank space following the article entitled "Alterations" before signing. This article is not to be construed as general authority to deviate from the standard form. Deletion of the descriptive matter not applicable in the preamble need not be noted in the article entitled "Alterations."
- 3. The blank space of article 1 is intended for the insertion of a statement of the work to be done, together with place of performance, or for the enumeration of papers which contain the necessary data.
- 4. If it is deemed necessary to include an article on patents, the Invitation to Bidders shall so state and the following article be used:

ARTICLE \_\_\_\_\_\_. Patents.—The contractor shall hold and save the Government, its officers, agents, servants, and employees, harmless from liability of any nature or kind, including costs and expenses, for or on account of any patented or unpatented invention, article, or appliance manufactured or used in the performance of this contract, including their use by the Government.

Where any patent or patents are to be excepted from the operation of this article, such exceptions will be specifically stated, by reference to the patent number, date of issue and name of patentee, in a proviso to be added to the article.

- 5. Where only one payment is contemplated, upon completion of the contract, all except paragraph (d) of article 16, "Payments to Contractor," must be stricken out.
  - 6. If approval of the contract is required before it shall become binding, the following article must be added:

ARTICLE \_\_\_\_\_. Approval.—This contract shall be subject to the written approval of \_\_\_\_\_\_ and shall not be binding until so approved.

Contracts subject to approval are not valid until approved by the authority designated to approve them, and the contractor's copy will not be delivered, nor any distribution made, until such approval. All changes and deletions must have been made before the contract is forwarded for approval.

- 7. The number of executed copies and of certified copies, designation of disbursing officer, statement of appropriation, amount of bond, designation of place of inspection, as well as other administrative details, shall be as directed by the department to which the contract pertains.
- 8. All blank spaces must be filled in or ruled out. The contract must be dated, and the bond must bear the same or subsequent date.
- 9. An officer of a corporation, a member of a partnership, or an agent signing for the principal, shall place his signature and title after the word "By" under the name of the principal. A contract executed by an attorney or agent on behalf of the contractor shall be accompanied by two authenticated copies of his power of attorney, or other evidence of his authority to act on behalf of the contractor.
- 10. If the contractor is a corporation, one of the certificates following the signatures of the parties must be executed. If the contract is signed by the secretary of the corporation, then the first certificate must be executed by some other officer of the corporation under the corporate seal, or the second certificate executed by the contracting officer. In lieu of either of the foregoing certificates there may be attached to the contract copies of so much of the records of the corporation as will show the official character and authority of the officer signing, duly certified by the secretary or assistant secretary, under the corporate seal, to be true copies.
- 11. The full name and business address of the contractor must be inserted, and the contract signed with his usual signature. Typewrite or print name under all signatures to contract and bond.
- 12. The contracting officer must fill in the citation of the act authorizing the contract as indicated at the end of the last page of the contract, or equivalent information must be furnished elsewhere in the contract.
  - 13. The Invitation, Bid, Acceptance, and Instructions to Bidders are not to be incorporated in the contract.
- 14. The specifications should include a paragraph stating the amount of liquidated damages that will be paid by the contractor for each calendar day of delay, as indicated in article 9 of the contract. If time is not of the essence of the contract the words "No liquidated damages" or an equivalent phrase should be inserted on the reverse side of Standard Form No. 20. So much of the language in article 9 as relates to liquidated damages shall then be deleted.
- 15. Additional contract provisions and instructions, deemed necessary for the particular work, not inconsistent with the standard forms nor involving questions of policy, may be incorporated in the specifications or other accompanying papers.

PENAL SUM OF BOND (express in words and figures)

DATE OF CONTRACT

STANDARD FORM 25 REVISED NOVEMBER 1950 PRESCRIBED BY GENER SERVICES ADMINISTRATION GENERAL REGULATION NO. 5

PRINCIPAL

SURETY

# PERFORMANCE BOND

(See Instructions on Reverse)

CONTRACT NO.

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL and SURETY above named, are held and firmly bound unto the United States of America, hereinafter called the Government, in the penal sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Government, numbered and dated as shown above and hereto attached;

NOW THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Government, with or without notice to the surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

In Presence	of: WITNESS		INDIVID	UAL PRINCIPAL	
1		a	s to		[SEAL]
2		a	s to		[SEAL]
3		a	s to		[SEAL]
4		a	s to		[SEAL]
	WITNESS		INDIVI	DUAL SURETY	
1	<u> </u>	a	s to	••••••••••••••••••••••••••••••••••••••	[SEAL]
2		а	s to		[SEAL]
			CORPORATE PRINCIPAL		
Attest:			BUSINESS ADDRESS		
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			TITLE		CORPORATE SEAL
			CORPORATE SURETY		<u>'                                    </u>
Attest:			BUSINESS ADDRESS		
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The rate of premium	on this bond is	per thousa	ınd.	
Total amount of pre	mium charged, \$	······		10 - <del>1</del> 0 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -
(	The above must be filled in by corp	oorate surety)		
CE	ERTIFICATE AS TO CORPORAT	E PRINCIPAL		
I,	, certify that I a	m the		secretary
of the corporation named as princ	ipal in the within bond; that	l		9
who signed the said bond on beha corporation; that I know his sign signed, sealed, and attested for and	nature, and his signature then	reto is genuine; an	d that said	bond was duly
				[ CORPORATE ]

### INSTRUCTIONS

- 1. This form shall be used for construction work or the furnishing of supplies or services, whenever a performance bond is required. There shall be no deviation from this form except as authorized by the General Services Administration.
- 2. The surety on the bond may be any corporation authorized by the Secretary of the Treasury to act as surety, or two responsible individual sureties. Where individual sureties are used, this bond must be accompanied by a completed Affidavit of Individual Surety for each individual surety (Standard Form 28).
- 3. The name, including full Christian name, and business or residence address of each individual party to the bond shall be inserted in the space provided therefor, and each such party shall sign the bond with his usual signature on the line opposite the scroll seal, and if signed in Maine or New Hampshire, an adhesive seal shall be affixed opposite the signature.
- 4. If the principals are partners, their individual names shall appear in the space provided therefor, with the recital that they are partners composing a firm, naming it, and all the members of the firm shall execute the bond as individuals.
- 5. If the principal or surety is a corporation, the name of the State in which incorporated shall be inserted in the space provided therefor, and said instrument shall be executed and attested under the corporate seal as indicated in the form. If the corporation has no corporate seal the fact shall be stated, in which case a scroll or adhesive seal shall appear following the corporate name.
- 6. The official character and authority of the person or persons executing the bond for the principal, if a corporation, shall be certified by the secretary or assistant secretary, according to the form herein provided. In lieu of such certificate there may be attached to the bond copies of so much of the records of the corporation as will show the official character and authority of the officer signing, duly certified by the secretary or assistant secretary, under the corporate seal, to be true copies.
- 7. The date of this bond must not be prior to the date of the instrument in connection with which it is given.

STANDARD FORM 25A REVISED NOVEMBER 1950 PRESCRIBED BY GENERAL SERVICES ADMINISTRATION GENERAL REGULATION NO. 5

# PAYMENT BOND

(See Instructions on Reverse)

PRINCIPAL SURETY PENAL SUM OF BOND (express in words and figures) CONTRACT NO. DATE OF CONTRACT

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL and SURETY above named, are held and firmly bound unto the United States of America, hereinafter called the Government, in the penal sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Government, numbered and dated as shown above and hereto attached;

NOW THEREFORE, if the principal shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

In Presence of	f:			INDIVIDUAL PRINCIPAL	
1			a	s to	[SEAL]
2			a:	s to	[SEAL]
3		***************************************	a:	s to	[SEAL]
4			a	s to	[SEAL]
	WITNESS			INDIVIDUAL SURETY	
1			a:	s to	[SEAL]
2			a	s to	[SEAL]
				CORPORATE PRINCIPAL	
Attest:				BUSINESS ADDRESS	
				ВУ	AFFIX
				TITLE	- CORPORATE SEAL
				CORPORATE SURETY	
Attest:				BUSINESS ADDRESS	
				ВУ	AFFIX
				TITLE	CORPORATE

The	rate of premium on this bond is	per thousand	
Tot	al amount of premium charged, \$		
	(The above must be filled in by	corporate surety)	
	CERTIFICATE AS TO CORPO	RATE PRINCIPAL	
I,	, certify that	t I am the	secretary
The rate of premium on this bond is per thousand.  Total amount of premium charged, \$  (The above must be filled in by corporate surety)  CERTIFICATE AS TO CORPORATE PRINCIPAL  I,, certify that I am the secretary  of the corporation named as principal in the within bond; that, of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested for and in behalf of said corporation by authority of its governing body.  [CORPORATE SEAL]			
			CORPORATE SEAL

### INSTRUCTIONS

- 1. This form, for the protection of persons supplying labor and material, shall be used whenever a payment bond is required under the act of August 24, 1935, 49 Stat. 793, as amended (40 U. S. C. 270a-270e). It may also be used in any other case in which a payment bond is to be required. There shall be no deviation from this form except as authorized by the General Services Administration.
- 2. The surety on the bond may be any corporation authorized by the Secretary of the Treasury to act as surety, or two responsible individual sureties. Where individual sureties are used, this bond must be accompanied by a completed Affidavit of Individual Surety for each individual surety (Standard Form 28).
- 3. The name, including full Christian name, and business or residence address of each individual party to the bond shall be inserted in the space provided therefor, and each such party shall sign the bond with his usual signature on the line opposite the scroll seal, and if signed in Maine or New Hampshire, an adhesive seal shall be affixed opposite the signature.
- 4. If the principals are partners, their individual names shall appear in the space provided therefor, with the recital that they are partners composing a firm, naming it, and all the members of the firm shall execute the bond as individuals.
- 5. If the principal or surety is a corporation, the name of the State in which incorporated shall be inserted in the space provided therefor, and said instrument shall be executed and attested under the corporate seal as indicated in the form. If the corporation has no corporate seal the fact shall be stated, in which case a scroll or adhesive seal shall appear following the corporate name.
- 6. The official character and authority of the person or persons executing the bond for the principal, if a corporation, shall be certified by the secretary or assistant secretary, according to the form herein provided. In lieu of such certificate there may be attached to the bond copies of so much of the records of the corporation as will show the official character and authority of the officer signing, duly certified by the secretary or assistant secretary, under the corporate seal, to be true copies.
- 7. The date of this bond must not be prior to the date of the instrument in connection with which it is given.

# GENERAL SPECIFICATIONS

### DEFINITIONS

Wherever used in any of the contract documents, the following meanings shall be given to the terms herein defined:

- a.. The "Contract" means the agreement executed by the Government and the Contractor of which these General Conditions form a part.
- The terms "Government" and "Contractor" mean the respective parties to the contract.
- c. The Contract Documents are composed of the Invitation for Bids; Contractor's Bid; Bid Bond; Non-Collusive Affidavit; Statement of Bidder's Qualifications; Contract, executed on Government Standard Form No. 23; Performance Bond; Payment Bond; Instructions to Bidders; General Conditions; Special Conditions; General Scope of Work; Schedule of Drawings; Technical Specifications; and Drawings. In the event of conflict between the following listed documents, the provisions of such documents shall govern in the order listed:
  - The Contract Instrument

  - (2) General Conditions
    (3) Special Conditions
    (4) General Scope of Work
  - (5) Technical Specifications
  - Drawings

The various provisions in Addenda shall be construed in the order of preference of the document which each modifies.

- d. The term "Project" means the building or facility, improvement, alteration, addition or repair, the construction work for which is contemplated in whole or in part under the Contract.
- e. The term "Specifications" means the volume which includes, and the term shall include, the Instructions and Forms (consisting of the Form of Invitation for Bids, Instructions to Bidders, Form of Bid, Form of Bid Bond, Form of Non-Collusive Affidavit, Form of Statement of Bidder's Qualifications, Form of Contract, and Forms of Performance and Payment Bonds), the General Specifications (consisting of the General Conditions, the Special Conditions, the General Scope of Work, and the Schedule of Drawings), and the Technical Specifications.
- f. The term "Technical Specifications" means the specifications describing the work in detail.

- g. The term "Drawings" means the drawings enumerated in the Schedule of Drawings.
- h. The term "Project Engineer" means the Government representative assigned to superintend the work at the Project.

### 2 CONTRACTOR

Only one Contractor is recognized as a party to this Contract, and where the term "Contractor" is used the prime contractor who signed this Contract is referred to. For convenience, the Technical Specifications have been divided into separate headings or divisions to cover the various trades represented in the work, and where subcontractors, such as "Mason Contractor", "Carpenter Contractors", and other subcontractors are referred to it has been for convenience only.

### 3. LAYING OUT THE WORK

- a. The Contracting Officer will establish such general reference points as in his judgment will enable the Contractor to proceed with the work. The Contractor shall protect and preserve all stakes, benches, and other markers used to identify the reference points.
- b. If the Contractor requires the establishment of additional reference points or replacement of points already established, he shall give the Contracting Officer 24 hours notice and shall, at his own expense, provide all material and equipment and such qualified helpers as the Contracting Officer may require for such establishment or replacement.
- c. The Contractor shall lay out the work and shall be responsible for the accuracy of all lines, grades and measurements of the work executed by him under the Contract. He must verify the figures shown on the Drawings before laying out the work and shall be responsible for any error resulting from his failure so to do

### 4. SUBCONTRACTS

a. The Contractor shall utilize the services of specialty subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty subcontractors; <a href="Provided">Provided</a>, however, that if the Contracting Officer shall determine that the specialty work in question has been customarily performed by the Contractor's own organization and that said organization is presently competent to perform such work, the Contractor shall be permitted to do so; <a href="Provided further">Provided further</a>, that if the Contracting Officer shall determine that the performance of any specialty work by a specialty subcontractor will result in materially increased costs or inordinate delay, the requirements of this paragraph shall not apply.

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The Contractor shall not award any work to any subcontractor without prior written approval of the Contracting Officer, which approval will not be given until the Contractor submits to him a written statement containing such information as the Contracting Officer may require concerning the proposed subcontractor and the scope of the subcontract, together with the proposed subcontractor's non-collusive affidavit in the following form:

A F E	FIDAVIT		
(s	Subbidder)		
State of) ss.			
Configuration common to the purple of community and information on spins on collection (Configuration of Configuration			
		, being first du	ıly
sworn, deposes and says:			
That he is (a partner or of making a certain proposal or bid of (name of Contractor) for subcottion of Defense Housing Project No (State), and the party as subcontractor for said work as and not collusive or sham; that so or agreed, directly or indirectly bid or to refrain from bidding, arrectly, sought by agreement or collustry and person, to fix the bid price of any overhead, profit or cost element bidder, or to secure any advantage ested in the proposed contract; arbid are true.	y proposed by said, loogy proposed by said ( a result of said bid, aid bidder has not coll with any bidder or per nd has not in any manned llusion, or communicati of affiant or of any ote ent of said bid price, e against the Government	name of Contract that such bid is tuded, conspired, eson, to put in a er, directly or it tion or conference ther bidder, or to or of that of ar at or any person	tor) s genuine connived sham indi- e, with to fix ny other inter-
	Signature of: Bidder if the bidder indivious or Partner if the bidder partners or Officer if the bidder corporat	ridual;	
Subscribed and sworn to before me	this day o	of	<b>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</b> ,,,,
My commission expires	. 19		

- c. The Contractor shall be as fully responsible to the Government for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.
- d. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions, Special Conditions and other documents comprising the Contract in so far as they are applicable to the work of subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Government may exercise over the Contractor under any provisions of the Contract.
- e. Nothing contained in the Contract shall create any contractual relation between any subcontractor and the Government.

# 5. ACCESS TO SITE - OCCUPATION OF PREMISES

- a. The Contractor shall provide and maintain such means of access to the site, and to all portions thereof, as are adequate and sufficient to permit prosecution of his work without undue interference or delay.
- b. Nothing herein contained and nothing marked upon the Drawings shall be interpreted as giving the Contractor exclusive occupancy of the territory or right-of-way provided. The Government and its employees for any purpose, and the other contractors of the Government for any purpose required by their respective contracts, may enter or cross such territory or occupy portions of it or take materials therefrom as directed or permitted.

# 6. FITTING AND COORDINATION OF THE WORK

- a. The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, subcontractors, or materialmen engaged upon the work. He shall be prepared to guarantee to each of his subcontractors the dimensions which they may require for the fitting of their work to all surrounding work and shall do, or cause his agents to do, all cutting, fitting, adjusting, and patching necessary to make the several parts of the work come together properly and to fit the work to receive, or be received by, that of other contractors.
- b. When two or more contracts are being executed at one time on the same or adjacent land, in such manner that the work on one contract may interfere with the work on another, the Contracting Officer shall decide which contractor shall cease work and which continue, or whether the work on both contracts shall progress at the same time and in what manner. When the territory of one contract is the necessary or convenient means of access for the transportation or movement of men, machines, animals, or appliances for the execution of another contract, such privilege of access or any other reasonable privilege

may be granted by the Contracting Officer to the contractor desiring it, to the extent, amount, in the manner, and at the time as the Contracting Officer may in his discretion, deem advisable. Any decisions as to the method or time of conducting the work or the use of the territory shall not be made the basis of claims for delay or damage. The Contractor shall not cause any unnecessary hindrance or delay to any other contractor on the premises, and shall be responsible for all damages done to the work of such other contractor by him or by his employees.

c. If the work of the Contractor has been damaged by other Contractors or by others than the employees of the Government in the course of their employment the Contractor agrees to restore such damaged work without cost to the Government and to seek redress for his damage only from those who directly caused it.

#### 7. MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts or neglect on the part of the Contractor, any other contractor or any subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other contractor or subcontractor by agreement or arbitration, if such other contractor or subcontractor will so settle. If such other contractor or subcontractor shall assert any claim against the Government on account of any damage alleged to have been so sustained, the Government shall notify the Contractor, who shall indemnify and save harmless the Government against any such claim.

## 8. BREAKDOWN, PROGRESS SCHEDULE AND PERIODICAL ESTIMATES

- a. For the purpose of preparing an acceptable progress schedule, and as a basis upon which partial payments to the Contractor may be authorized, immediately after execution of the Contract, and before the first partial payment is made, the Contractor shall furnish, on forms to be supplied by the Government, a detailed estimate, (herein termed "Breakdown"), giving a complete breakdown of his Contract price, so arranged and itemized as to meet the approval of the Contracting Officer. If the Contract covers more than one project, a separate Breakdown shall be furnished for each project.
- b. The values employed in making up this Breakdown are for the purpose of making partial payments and shall not be taken as a basis for additions to or deductions from the contract price.
- c. Upon approval of the Breakdown the Contractor shall, without delay, submit for approval in like manner a carefully considered Progress Schedule, prepared in accordance with a specimen form and instructions supplied by the Government, showing the proposed dates of starting and completing each of the various branches of the work, the anticipated monthly payments to become due the Contractor, and the accumulated percent of progress each month. This chart shall correspond to the major subdivisions of the approved Breakdown

and incorporate information taken therefrom as required. If the Contract covers more than one project, a separate Progress Schedule shall be furnished for each project.

- d. At the time of submitting his Progress Schedule the Contractor shall file also his general "Plan of Operations" showing concisely the manner in which he proposes to carry out the work on the site. This will indicate the point of entrance, the course he intends to pursue, the sequence of operations, the successive blocks of dwelling units to be ready for occupancy, and such other general information as will assist the Government in planning its arrangments with others for services and materials not furnished by the Contractor, and in preparing for tenancy. Any later deviation from this Plan shall be discussed with and receive the concurrence of the Contracting Officer amply in advance of the date it is proposed to place it in effect.
- e. In order to receive partial payments as the work progresses the Contractor shall submit, on forms supplied by the Government, Periodical Estimates showing the value of the work performed each month, based upon the items appearing in the approved Breakdown. Such estimates must be submitted not later than ten days in advance of the date set for payment, and are subject to correction and revision as required.

#### 9. CHANGES IN THE WORK

- a. Government representatives shall have no authority to alter the terms or conditions of the Contract Documents without written authority from the Contracting Officer.
- b. In determining the value of any change, either additive or subtractive, the contracting parties are restricted to the use of the three following methods, singly or in combination. Method (1) shall be used to establish the equitable value of the change in every case where it can be fixed prior to performance of the changed work. Method (2), and no other, shall be used to establish changed values for any and all items for which unit prices are set forth in the Contract. Method (3) shall be used only to establish values which are indeterminate otherwise, or in an emergency endangering life or property. The Contracting Officer at the time he issues the written Proceed Order shall, in the case of both Methods 2 and 3, fix a maximum amount to be spent on the work which shall not be exceeded. If additional work remains to be done after that sum has been expended the additional work shall be the subject of a separate written order.
  - (1) The Contracting parties shall negotiate and agree upon the equitable value of the change prior to issuance of the order, and the order shall stipulate the corresponding lump-sum adjustment of the Contract price.

- (2) The applicable agreed unit price shall be applied to the net change in quantity, estimated or actual as agreed, of the item involved.
- (3) The order shall direct the Contractor to proceed on a time and material basis, whereupon the Contractor shall so proceed and keep accurately and present, in such form and at such times as the Contracting Officer may require, a correct account of the cost, together with all proper vouchers and supporting papers therefor. Upon completion of the change and agreement upon the total value thereof, the Contracting Officer shall issue a second written order, effecting the equitable adjustment of the contract price.
- d. For extra work performed, the allowances for overhead and profit combined, included in the total cost to the Government, shall be based upon the following schedule:
  - (1) To the Contractor, for work which he performs with his own forces, not to exceed 15% of his net extra cost.
  - (2) To a subcontractor, for work which he performs with his own forces, not to exceed 15% of his net extra cost.
  - (3) To the Contractor, for subcontract work supervised by him, not to exceed 7-1/2% of the amount due his subcontractor.

These percentages shall be applied to the net additional cost as defined in subsection e. immediately following. If the net cost value of a change results in a credit from the Contractor or subcontractor, the credit given shall be the net cost without overhead or profit.

- e. The "net cost" as used herein shall mean the difference between all proper cost additions and deductions. The "cost" as used herein may include all itmes of labor or materials, the use of power tools and equipment, and all such items of cost as public liability and workmens' compensation insurance, pro rata charges for foremen, social security, old age and unemployment insurance. Among the items to be considered as overhead are insurance other than as mentioned above, bond premiums, supervision, superintendents, time-keepers, clerks, watchmen, small tools, incidental job burdens and general office expense, and all other items not included in the cost as herein defined.
- f. Prior to the issuance of any order effecting a firm adjustment in the contract price the Contractor shall submit to the Contracting Officer a satisfactorily itemized proposal, in multiple-copy form as required, of the quantities and prices used in computing the value of any change that may be ordered.

#### 10. CLAIMS FOR EXTRA COST

- a. If the Contractor claims that any instructions by drawings or otherwise involve extra cost or extension of time, he shall, within ten days after the receipt of such instructions, and in any event before proceeding to execute the work, submit his protest thereto in writing to the Contracting Officer, stating clearly and in detail the basis of his objections. No such claim shall be valid unless so made.
- b. Claims for additional compensation for extra work, due to alleged errors in spot elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the plans and topographical maps issued.
- c. Any discrepancies which may be discovered between actual conditions and those represented by the topographical maps and plans shall at once be reported to the Contracting Officer, and work shall not proceed, except at the Contractor's risk, until written instructions have been received by him from the Contracting Officer.
- d. If, on the basis of the available evidence, the Contracting Officer determines that an adjustment of the Contract price or time is justifiable, the procedure shall then be as provided herein for "Changes in the Work".
- e. By execution of this Contract the Contractor warrants that he has visited the site of the proposed work and fully acquainted himself with the conditions there existing relating to construction and labor, and that he fully understands the facilities, difficulties and restrictions attending the execution of the work under the Contract. The Contractor further warrants that he has thoroughly examined and is familiar with the Drawings, Specifications, and all other documents comprising the Contract. The Contractor agrees, that by execution of this Contract his failure when he was bidding on this Contract to examine any form, instrument or document, or to visit the site and acquaint himself with conditions there existing, in no wise relieves him from any obligation under the Contract and that he will present no claim based on facts regarding which he should have been on notice as a result thereof.

#### 11. RIGHT OF THE GOVERNMENT TO TERMINATE CONTRACT

If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or fail to supply enough properly skilled workmen or

proper materials, or if he should fail to make prompt payment to his employees or to his subcontractors, or persistently disregard instructions of the Government, or fail to observe or perform the provisions of the Contract, or otherwise be guilty of a substantial violation of any provision of the Contract, then the Government may, by at least five days prior written notice to the Contractor, without prejudice to any other rights or remedies of the Government, terminate the Contractor's right to proceed with the work. In such event, the Government may take over and prosecute the work to completion, by contract or otherwise, and the Contractor and his sureties shall be liable to the Government for any excess cost occasioned the Government thereby; and in any such case the Government may take possession of and utilize in completing the work such materials, appliances, and plant as may be on the site of the work and necessary therefor. The foregoing provisions are in addition to, and not in limitation of the rights of the Government under any other provisions of the Contract.

## 12. TERMINATION FOR CONVENIENCE OF THE GOVERNMENT

- a. The Government may terminate this contract in whole or in part at any time by a notice in writing from the Contracting Officer to the Contractor, specifying the date upon which such termination shall become effective and the extent to which the performance of such contract shall be terminated. Termination shall be effective upon the date and to the extent specified in said notice.
- b. Upon receipt of the notice of termination the Contractor shall, except insofar as the notice directs otherwise with respect to this Contract, or, in the event of partial termination, with respect to the part thereof covered by the notice:
  - (1) Discontinue all work and the placing of all orders for materials and facilities otherwise required for the performance thereof;
  - (2) Cancel all existing orders and subcontracts to the extent such orders and subcontracts are chargeable to the performance thereof:
  - (3) Transfer to the Government, in accordance with the direction of the Contracting Officer, all materials, supplies, work in process facilities, equipment, machinery or tools acquired by the Contractor in connection with the performance thereof, and all plans, drawings, working drawings, sketches, specifications and information for use in connection therewith: Provided, That the Contractor may retain any such equipment, machinery and tools if he so elects and will forego reimbursement thereon.

- (4) Take such action as may be necessary to secure to the Government the benefits of any rights remaining in the Contractor under orders or subcontracts chargeable thereto to the extent that such orders or subcontracts are so chargeable;
- (5) Take such action as the Contracting Officer may prescribe for the protection and preservation of all property in the possession or control of the Contractor, title to which is transferable to the Government under the provisions of this Section.

Should the notice of termination cover only a portion of this contract, the Contractor shall proceed to completion of such portions as are not terminated.

- c. Upon compliance by the Contractor with the above provisions of this Section and subject to deductions for payments previously made, the Government shall pay the Contractor an equitable sum, to be determined by the Contracting Officer, in full settlement of all claims of the Contractor under this contract. In determining this equitable sum, the Contracting Officer shall give due consideration to the percentage of the total contract price which is equal to the percentage of the contract work completed, and to costs of the Contractor incurred as a result of any special factors and conditions entering into the contract work which may exist and to costs incurred as a result of the termination thereof, but the Contracting Officer shall give no consideration to claims for anticipated profits on the portion of the contract work which is not completed.
- d. The Contractor shall furnish, if requested, his complete records, including quantity take-off sheets, cost analysis showing how he arrived at unit prices, complete file on all quotations on materials and subbids, the actual contracts placed for service, materials, and sub-contracts, copy of actual cost performance, together with any other relevant data or documents necessary in the opinion of the Contracting Officer to determine an equitable settlement.
- e. Subject to the approval of the Contracting Officer, the Government shall reimburse the Contractor for expenditures made and costs incurred after the date of termination for the protection of Government property and for such other expenditures and costs as may be necessary in connection with the settlement of this contract.
- f. The obligation of the Government to make any of the payments required by this Section shall be subject to any unsettled claim for labor or material and to any claim which the Government may have against the Contractor under or in connection with this contract, and payments under this Section shall be subject to reasonable deductions by the Contracting Officer on account of defects in materials or workmanship.

- g. The sum of all amounts payable under this Section, plus the sum of all amounts previously paid under this contract, exclusive of costs incurred under Subsection "e" hereof, shall not exceed the total contract price.
- h. Should the above provisions of this Section not result in payment to the Contract of at least \$100, then that amount shall be paid to the Contractor in lieu of any and all payments hereinbefore provided for in this Section.
- i. Any dispute arising out of termination under this Section shall be decided in accordance with the procedure prescribed in ARTICLE 15 of this Contract.
- j. Upon the making of the payments called for by this Section, all obligations of the Government to make further payments or to carry out other undertakings hereunder shall cease forthwith and forever, except that all rights and obligations of the respective parties under the terms, if any, of this contract applicable to patent infringements shall remain in full force and effect, and the Contractor shall not be excused from any warranty or guaranty on work in place on the completed portion of the Contract.

#### 13. ASSIGNMENT OF CONTRACT

Except as provided in the Assignments of Claims Act of 1940 as amended, neither the Contract nor any part thereof nor any claim arising therefrom shall be assigned to any person, firm or corporation. This provision shall not preclude the Contractor from sub-letting parts of the work in accordance with Section 4 of the General Conditions.

#### 14. DRAWINGS

- a. The general character of the detail work is shown on the Drawings but minor modifications may be made by the Contracting Officer in the full size drawings or models. The Contractor shall not attempt to execute any part of the work requiring such drawings until he has received the same.
- b. Where the word "similar" occurs on the Drawings, it shall be interpreted in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection to other parts of the work.
- c. Where, on any Drawings, a portion of the work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other like portions of the work. Where ornament or other detail is indicated by starting only, such detail shall be continued throughout the courses or parts in which it occurs and shall also apply to all other similar parts in the work, unless otherwise indicated.

d. In case of difference between small and large scale drawings, the larger scale drawing shall take precedence.

## 15. OWNERSHIP OF DRAWINGS AND SPECIFICATIONS

Except the Contractor's executed set, all Drawings and the Specifications are and remain the property of the Government. Such Drawings and Specifications are not to be used on other work, and those sets in usable condition shall be returned to the Government, upon request, at the completion or cessation of the work or termination of the contract.

## 16. SHOP DRAWINGS

- a. Shop drawings of all fabricated work shall be submitted to the Contracting Officer for approval and no work shall be fabricated by the Contractor, save at his own risk, until approval has been given. The Contractor will be advised as to the exact procedure to be followed with respect to the number of prints required, where submitted, letters of transmittal, making corrections, etc. Prints of finally approved shop drawings will be required in such number as the Contracting Officer may direct.
- b. The Contractor shall submit all shop drawings on dates sufficiently in advance of requirements to afford ample time for checking same, including time for correcting, resubmission, and recheck, if necessary, and no claim for extension of the contract time will be granted the Contractor by reason of his failure in this respect.
- c. All shop drawings submitted must bear the stamp of approval of the Contractor as evidence that the drawings have been checked by the Contractor. Any drawings submitted without this stamp of approval will not be considered and will be returned to the Contractor for proper resubmission. If the shop drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment; otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though such shop drawings have been approved.
- d. Where a shop drawing as submitted by the Contractor indicates a departure from the Contract which the Contracting Officer deems to be a minor adjustment in the interest of the Government not involving a change in Contract price or extension of time, the Contracting Officer may approve the drawing but the approval will contain, in substance, the following:

"The modification shown on the attached drawing is approved in the interest of the Government to effect an improvement for the project and is ordered with the understanding that it does not involve any change in the Contract price or time; that it is subject generally to all Contract stipulations and covenants; and that it is without prejudice to any and all rights of the Government under the Contract and bond or bonds."

e. The approval of shop drawings by the Contracting Officer will be general and shall not relieve the Contractor from the responsibility for adherence to the Contract, not shall it relieve him of the responsibility for any error which may exist.

#### 17. REQUESTS FOR SUPPLEMENTARY INFORMATION

It shall be the responsibility of the Contractor to make timely requests of the Contracting Officer, for such large scale and full size drawings, color schemes, and other additional information, not already in his possession, which he will require in the planning and production of the work. Such requests may be submitted from time to time as the need is approached, but each such request shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and shall list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information which the Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provisions of this Section.

#### 18. MATERIALS REFERRED TO BY NAME - NUMBER - SYMBOL

- a. Materials specified by reference to the number or symbol of a specific standard, such as a Commercial Standard, a Federal Specification or other similar standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in such reference. The standards referred to, except as modified in the Technical Specifications shall have full force and effect as though printed therein.
- b. Specific reference in the Technical Specifications to any article, device, product, material, fixture, form, or type of construction, etc., by name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition, and the Contractor, in such cases, may at his option use any article, device, product or material, fixture, form or type of construction which, in the judgment of the Contracting Officer, expressed in writing, is equal to that named.

#### 19. SAMPLES, CERTIFICATES AND TESTS

- a. No samples shall be submitted with any bid nor before the award of the Contract and acceptance of the Contractor's Bond.
- b. No material for which samples are required shall be delivered to the site for use until representative samples have been approved in writing by the Contracting Officer.
- c. The Contractor shall furnish for approval all samples (and certificates related to them) as stipulated under the several divisions of the Technical Specifications as well as all other samples as requested by the Contracting

Officer. Samples shall be delivered with all transportation charges prepaid to a location designated by the Contracting Officer and in ample time for proper consideration and action. In general, 20 days is the minimum time required for making tests.

- d. Pack samples so as to reach their destination in good condition; ship in tight metal containers samples of paste or liquid materials.
- e. Label, or otherwise properly mark on the container the material or product represented, its place of crigin, the name of the producer, the name of the Contractor, and the name and symbol of the Project for which it is intended.
- f. Submit to the Contracting Officer, in triplicate, a certificate describing each sample submitted for approval, certifying that the material, equipment or accessory submitted complies with Contract requirements. The certificates shall include the following information:
  - (1) Name and brand of the product, name of manufacturer, location of plant.
  - (2) Name and location of at least two structures on which substantial quantities of the material represented by the sample were used, and the approximate dates of use or installation.
  - (3) An outline showing chemical and physical properties of the material represented by the sample submitted and giving the name of the laboratory or testing authority which obtained the data, and the dates of the tests. (NOTE: The information required by this subparagraph f(3) may be omitted for materials which are required to conform to Federal Specifications or A.S.T.M. Standards; Provided: A certified Statement by an acceptable laboratory or testing authority is furnished in lieu thereof. If the statement originates with the producer, the Contractor shall endorse all claims and submit the statement in his own name; he shall also guarantee that all material furnished for use on the Project will be in compliance with the samples and certified statements.)
- g. Approval of any material by the Contracting Officer shall be general only and shall not constitute a waiver of the right of the Government to demand full compliance with Contract requirements. After actual deliveries, the Government will make such check tests as it deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Government shall have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.
- h. When a material has been approved, no change in brand or make will be permitted unless:
  - (1) The manufacturer cannot make satisfactory delivery; or
  - (2) The material delivered fails to comply with the Contract requirements.
- i. Wherever materials are required to comply with A.S.T.M. Standards or Federal Specifications, and such specifications shall be accepted as establishing the technical qualities and testing methods, they shall not govern the number of tests required to be made. The number of tests required on material delivered for use shall in all cases be at the discretion of the Contracting Officer. He may require laboratory tests on samples submitted for approval or may approve materials on the basis of data submitted in certificates with samples.

- j. Check tests will be made on materials delivered for use only as frequently as the Contracting Officer considers necessary to insure compliance of materials used with Contract requirements.
- k. Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:
  - (1) The Contractor will furnish without extra cost, including packing and delivery charges, all samples required for testing purposes:
  - (2) The Contractor will assume all costs of re-testing materials which fail to meet contract requirements;
  - (3) The Contractor will assume all costs of testing materials offered in substitution for those found deficient; and
  - (4) The Government will pay all other expenses.
- 1. Samples of materials not subject to destruction tests, when approved, will be sent to the Project office and kept there until completion of the work. They may be built into the work after a substantial quantity of the materials they represent have been built in and approved. Samples that are not approved will be returned to the Contractor only upon his request and at his expense; if the return of such samples is not requested within 30 days after rejection or disapproval, they will be treated as unclaimed material. The failure of samples to meet Contract requirements will be sufficient cause for refusal to consider any further samples from manufacturers whose materials have failed.

## 20. NOTICES, CODES, PERMITS

The Contractor shall not be required to obtain a building permit. Any required building permit will be supplied by the Government at its expense, and any delays occasioned because of lack of, or failure to obtain, a building permit after Notice to Proceed shall not be the basis for the assessment of liquidated damages. The contractor, however, shall be required, in accordance with Article 10, to obtain all other permits, including but not limited to permits for the use of streets and public spaces and connection with utilities, and shall give all required notices and comply with all applicable ordinances, codes, rules and regulations, except to the extent that the drawings or the specifications may otherwise require or provide. Where a permit is required for connection to any water, sewer, electric, gas or other utility line, he shall ascertain whether a permit to connect will be granted by the appropriate governmental body or utility company on the basis of construction in accordance with the plans and specifications, and shall not install any work in connection therewith until grant of such permit is

assured. In the event the privilege of connecting is refused and the Contractor has proceeded with installation, the cost and removal of work in place shall be at the sole expense of the contractor. Should the contractor ascertain that such permits will not be granted on the basis of the plans and specifications, he shall immediately report the matter to the Contracting Officer for decision, and will not proceed with the portion of the work affected until receipt of a written order from the Contracting Officer to do so. Any change required will be ordered in accordance with Article 3 of this Contract.

#### 21. DOMESTIC PREFERENCE

The following materials have been excepted by the head of the department under the provisions of ARTICLE 18 of the Contract:

Antimony	Jute	Copper, natural - nickel alloy
Asbestos	Kaurigum	Manganese Ore - 35% and over
Asphalt - native	Lac	Oil, China wood (tung oil)
Carnauba Wax	Mercury	Rubber - natural
Chromium	Mica	Sisal
Cork	Nickel	Tin
Flax	Platinum	Titanium
Hemp	Silk	Tungsten .

#### 22. CONVICT-MADE MATERIALS

No materials manufactured or produced in a penal or correctional institution shall be incorporated in the project under this Contract.

#### 23. CARE OF THE WORK

- a. The Contractor shall be responsible for all damages to persons or property that occur as a result of his fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance, whether or not the same has been covered by partial payments made by the Government, and whether or not the damage to his work was caused by the Contractor or by other contractors or by others than the employee of the Government in the course of their employment.
- b. The Contractor shall provide sufficient competent watchmen, both day and night, including Saturdays, Sundays, and Holidays, from the time the work is commenced until final completion and acceptance.
- c. In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorization from the Government, is authorized to act at his discretion to prevent such threatened loss or injury, and he shall so act. Likewise, he shall so act if instructed to do so by the Government. Any compensation claimed by

the Contractor on account of such emergency work shall be determined by the Contracting Officer, subject to appeal in case of dispute, as provided in Article 15 of the Contract.

- d. The Contractor shall avoid damage as a result of his operations to work which is to remain unchanged, including existing sidewalks, streets, curbs, pavements, utilities or adjoining property, the work of other contractors and the property of the Government and others, and he shall at his own expense completely repair any damage thereto caused by his operations.
- e. Wherever required by law, the Contractor shall shore up, brace, underpin, secure, and protect as may be necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the Project. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Government from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the Government may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

#### 24. TEMPORARY HEATING

- a. The Contractor for general construction shall provide, maintain, and pay all costs of temporary heating, covering and enclosures as directed by the Contracting Officer, and as necessary to protect properly all work and materials against damage by dampness and cold, to dry out of the work, and to facilitate the completion of the work. The fuel, equipment, materials and methods used shall at all times be adequate for the purpose, and satisfactory to the Contracting Officer. The said Contractor shall maintain the critical installation temperatures called for in the Technical Specifications for various branches of the work in those spaces where such work is being performed. The maintenance of proper heat, ventilation, and adequate drying out of the work are the responsibilities of the said Contractor and any work damaged by dampness, insufficient or abnormal heat shall be replaced to the satisfaction of the Contracting Officer by and at the expsne of the said Contractor.
- b. The permanent heating equipment furnished and installed for this Project may be utilized but the said Contractor shall supply any additional equipment required at his expense. Permanent equipment so used shall be delivered to the Government in the condition and at the time required by the Contract.

#### 25. ACCIDENT PREVENTION

The Contractor shall exercise proper precaution at all times for the protection of persons and property. The safety provisions of applicable law, building and construction codes shall be observed, and the Contractor shall take or cause to be taken such additional safety and health measures as the Contracting Officer may determine to be reasonably necessary. Machinery, equipment and all hazards shall be guarded in accordance with the safety provisions of the Manual of Accident Prevention in Construction published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable law.

#### 26. SANITARY FACILITIES

The Contractor shall furnish, install and maintain ample sanitary facilities for the workmen. As the needs arise, enclosed temporary toilets, in sufficient number, shall be placed as directed by the Contracting Officer. Permanent toilets installed under this contract shall not be used during construction of the Project. Drinking water shall be provided from a safe source, so piped or transported as to be kept clean and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing governing health regulations.

#### 27. USE OF PREMISES

- a. The Contractor shall confine his apparatus, stored materials, and construction operations to the limits prescribed by ordinances or permits, or as may be directed by the Contracting Officer, and shall not unreasonably encumber the premises with his materials, or idle equipment.
- b. The Contractor shall not load any structure or permit any part thereof to be loaded to such an extent as to endanger its safety.
- c. The Contractor shall comply with and enforce any instructions of the Contracting Officer, or local laws or regulations regarding signs, advertising, fires, danger signals, barricades, and smoking.

## 28. REMOVAL OF DEBRIS, CLEANING, ETC.

The Contractor shall, periodically or as directed by the Contracting Officer during the progress of the work, remove and properly dispose of the resultant dirt and debris, and keep the premises reasonably clear. Upon completion of the work, he shall remove all temporary construction, facilities and unused materials provided for the work, and put the buildings and premises in a neat and clean condition, and do all cleaning and washing required by the Specifications. Trash or combustible materials shall not be allowed to accumulate in the buildings or elsewhere on the premises. Trash burning on the site will be subject to prior approval of the representative of the Contracting Officer and existing local and State regulations.

### 29. RIGHT OF REVIEW

The Government and its authorized representatives and agents shall, at all times, have access to and be permitted to observe and review all work, materials, equipment, pay rolls, personnel records, employement conditions, material invoices, contracts, books of account, and other relevant data and records; Provided, however, that all instructions and approvals with respect to the work shall be given to the Contractor only by the Contracting Officer or his authorized representative.

#### 30. FINAL INSPECTION

- a. When the work is substantially completed the Contractor shall notify the Contracting Officer in writing that the work will be ready for final inspection on a definite date which shall be stated in such notice. Such notice shall be given at least fifteen (15) days prior to the date stated for final inspection, and the notice shall bear the signed concurrence of the Project Engineer.
- b. If the Contracting Officer determines that the state of preparedness is as represented he will arrange to have final inspection commenced on the date stated in such notice, or as nearly thereafter as is practicable.

## 31. DEDUCTION FOR UNCORRECTED WORK

If the Contracting Officer deems it inexpedient to require the Contractor to correct work injured or not done in accordance with the Contract, an equitable deduction from the Contract Price shall be made by agreement between the Contractor and the Contracting Officer subject to appeal, in case of dispute, as provided in Article 15 of the Contract.

#### 32. INSURANCE

- a. The Contractor shall carry Workmen's Compensation Insurance for all his employees engaged in work at the site, in accordance with State or Territorial Workmen's Compensation Laws, and shall require each of his subcontractors to carry such insurance for all their employees similarly engaged.
- b. Before commencing work, the Contractor shall submit to the Contracting Officer satisfactory proof that such insurance is in force, in the form of certificates or other acceptable evidence. Said insurance shall be written with financially responsible companies, approved by the Contracting Officer, and shall be kept in force until the Contractor's work is completed and accepted by the Government. Insurance contracts which expire before the work is completed and accepted shall be renewed and satisfactory evidence of such renewals shall be furnished the Contracting Officer by the Contractor.

- c. The Contractor shall carry Manufacturers' and Contractors' Public Liability Insurance with Limits of not less than \$50,000/\$100,000 to protect the Contractor against claims for injury to or death of one or more than one person as a result of accidents which may occur at the site from operations under the Contract. The Contractor shall require his subcontractors to carry such insurance. Such insurance shall cover the use of all equipment, hoists, and vehicles on the site, and satisfactory evidence that it is in force shall be submitted to the Contracting Officer prior to commencement of work.
- d. The Contractor shall carry Builder's Risk (fire and extended coverage) Insurance upon all work in place and/or materials stored at the building site including foundation and building equipment. Before commencing work on the superstructure, the Contractor shall submit to the Contracting Officer his Builder's Risk policy which shall meet with the approval of the Contracting Officer in every respect. A certificate in lieu of this policy will not be accepted. The Contractor, in installing equipment supplied by the Government, shall carry insurance on such equipment from the time he takes possession thereof until his contract work is accepted by the Government. Builder's Risk Insurance need not be carried on excavations, piers, footings, or upon foundations until such time as work on the superstructures is started. It need not be carried on landscape work. Policy shall furnish coverage at all times for the full cash value of all completed construction as well as materials in place and/or stored at the site, whether or not partial payment has been made by the Government. The Contractor may terminate this insurance on buildings taken over for occupancy by the Government pursuant to the appropriate provision of the Special Conditions, as of the date said buildings are taken over.

#### 33. HOURS OF WORK - PREMIUM WAGES

- a. The basic day of eight hours, as established by mutual consent of the Contractor or subcontractor and the laborers and mechanics employed by him in the development of the Project, shall constitute the regular working hours for such employees.
- b. Any work necessary to be performed after regular working hours, or on Sundays or legal holidays, shall be performed without additional expense to the Government, except as may be specifically permitted or directed by the Contracting Officer.
- c. If the Contractor or any of his subcontractors finds it necessary or desirable to exceed the prevailing wage rates specified in his contract, any expense incurred by the Contractor or any subcontractor because of the payment of wages in excess of such rates shall not be cause for any increase in the amount payable under his contract. The Government shall not consider or allow any claim for extra compensation made by the Contractor or any subcontractor because of such payments.

## 34. QUALIFICATIONS FOR EMPLOYMENT - DISCRIMINATION

- a. No person undergoing sentence of imprisonment at hard labor and no person under the age of sixteen (16) years shall be employed in the development of the Project. No person whose age or physical condition is such as to make his employment dangerous to his health or safety or to the health and safety of others shall be employed in the development of the Project; provided, that this shall not operate against the employment of physically handicapped persons, otherwise employable, where such persons may be safely assigned to work which they can ably perform.
- b. There shall be no discrimination against any employee or applicant for employment because of race, creed, color, or national origin. This provision shall be included in all subcontracts.
- c. No laborer or mechanic employed in the development of the Project shall be discharged or in any other manner discriminated against because such laborer or mechanic has filed any complaint or instituted or caused to be instituted any proceedings or has testified or is about to testify in any proceedings under or relating to the labor standards incorporated in this Contract.

#### 35. PERSONS ENTITLED TO BENEFITS OF LABOR AND MATERIALS PROVISIONS

- a. The Contractor and each subcontractor shall extend to every person employed by him in the development of the Project the benefits of the labor and wage provisions of this contract regardless of any contractual relationship between the Contractor and such person, or between any subcontractor and such person.
- b. The Contractor shall promptly pay all amounts due from him for services rendered, work performed, and materials supplied.

## 36. WEEKLY PAYMENTS BY CASH OR CHECK

Every employee of the Contractor or a subcontractor shall be paid weekly in lawful money of the United States, or by check if the Contractor provides or secures convenient and satisfactory facilities approved by the Contracting Officer for the cashing of the same without cost or expense to the employee, in the full amount accrued to each individual at the time of closing of the payroll, which shall be closed at the latest date practicable prior to the date of payment, and there shall be no deductions or rebates on account of goods purchased, rent, or other obligations, but such obligations shall be subject to collection only by legal process.

NOTE: These pages 53 and 54 supersede pages 53 and 54, dated 1-25-52. Former paragraph 37a has been removed and subpararranhs b and c have been renumbered.

- a. The Contractor shall, not later than the 7th day following the payment of wages, submit to the Contracting Officer two legible copies of his payroll and of the payrolls of each of his subcontractors, each with the Payroll Summary completed and the Affidavit notarized on the back of the final sheet. All of these copies shall be prepared on forms furnished by the Government.
- b. The Contractor shall also furnish to the Government any other information or certifications relating to employees in such form as may be required.

## 38. DISPUTES CONCERNING WAGE RATES AND CLASSIFICATION OF LABOR

- a. All disputes concerning prevailing wage rates or classifications arising under this Contract involving (1) significant sums of money, (2) large groups of employees, or (3) novel or unusal situations shall be promptly decided by the Contracting Officer or, at his option, referred to the Secretary of Labor of the United States. The decision of the Contracting Officer or the Secretary of Labor, as the case may be, shall be final.
- b. All questions arising under this Contract relating to the application or interpretation of the Anti-Kickback Act, the Davis-Bacon Act, or other Federal statutes applicable to labor standards shall be referred to the Secretary of Labor of the United States for ruling or interpretation, and such ruling or interpretation shall be final.

#### 39. PATENTS

The Contractor shall hold and save the Government, its officers, agents, servants, and employees, harmless from liability of any nature or kind, including costs and expenses, for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Contract, including its use by the Government, unless otherwise specifically stipulated in the Contract.

#### LO. WARRANTY OF TITLE

No material, supplies, or equipment for the work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor warrants good title to all materials, supplies,

## 34. QUALIFICATIONS FOR EMPLOYMENT - DISCRIMINATION

- a. No person undergoing sentence of imprisonment at hard labor and no person under the age of sixteen (16) years shall be employed in the development of the Project. No person whose age or physical condition is such as to make his employment dangerous to his health or safety or to the health and safety of others shall be employed in the development of the Project; provided, that this shall not operate against the employment of physically handicapped persons, otherwise employable, where such persons may be safely assigned to work which they can ably perform.
- b. There shall be no discrimination against any employee or applicant for employment because of race, creed, color, or national origin. This provision shall be included in all subcontracts.
- c. No laborer or mechanic employed in the development of the Project shall be discharged or in any other manner discriminated against because such laborer or mechanic has filed any complaint or instituted or caused to be instituted any proceedings or has testified or is about to testify in any proceedings under or relating to the labor standards incorporated in this Contract.

# 35. PERSONS ENTITLED TO BENEFITS OF LABOR AND MATERIALS PROVISIONS

- a. The Contractor and each subcontractor shall extend to every person employed by him in the development of the Project the benefits of the labor and wage provisions of this contract regardless of any contractual relationship between the Contractor and such person, or between any subcontractor and such person.
- b. The Contractor shall promptly pay all amounts due from him for services rendered, work performed, and materials supplied.

## 36. WEEKLY PAYMENTS BY CASH OR CHECK

Every employee of the Contractor or a subcontractor shall be paid weekly in lawful money of the United States, or by check if the Contractor provides or secures convenient and satisfactory facilities approved by the Contracting Officer for the cashing of the same without cost or expense to the employee, in the full amount accrued to each individual at the time of closing of the payroll, which shall be closed at the latest date practicable prior to the date of payment, and there shall be no deductions or rebates on account of goods purchased, rent, or other obligations, but such obligations shall be subject to collection only by legal process.

# 37. SUBMITTAL OF PAYROLLS AND RELATED REPORTS

a. The Contractor and each subcontractor shall furnish to the United States Department of Labor the names and addresses of all their subcontractors on the work at the earliest date practicable, and shall report monthly to the

Secretary of Labor of the United States (within five days after the close of each calendar month, on forms to be furnished by the United States Department of Labor), as to the number of persons on their respective payrolls on the particular Project, the aggregate amount of such payrolls, the total man hours worked, and itemized expenditures for materials.

- b. The Contractor shall, not later than the 7th day following the payment of wages, submit to the Contracting Officer two legible copies of his payroll and of the payrolls of each of his subcontractors, each with the Payroll Summary completed and the Affidavid notarized on the back of the final sheet; and, in addition, a third notarized copy of each final sheet, completed legibly on both sides. All of these copies shall be prepared on forms furnished by the Government.
- c. The Contractor shall also furnish to the Government any other information or certifications relating to employees in such form as may be required.

## 38. DISPUTES CONCERNING WAGE RATES AND CLASSIFICATION OF LABOR

- a. All disputes concerning prevailing wage rates or classifications arising under this Contract involving (1) significant sums of money, (2) large groups of employees, or (3) novel or unusual situations shall be promptly decided by the Contracting Officer or, at his option, referred to the Secretary of Labor of the United States. The decision of the Contracing Officer or the Secretary of Labor, as the case may be, shall be final.
- b. All questions arising under this Contract relating to the application or interpretation of the Anti-Kickback Act, the Davis-Bacon Act, or other Federal statutes applicable to labor standards shall be referred to the Secretary of Labor of the United States for ruling or interpretation, and such ruling or interpretation shall be final.

#### 39. PATENTS

The Contractor shall hold and save the Government, its officers, agents, servants, and employees, harmless from liability of any nature or kind, including costs and expenses, for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Contract, including its use by the Government, unless otherwise specifically stipulated in the Contract.

#### 40. WARRANTY OF TITLE

No material, supplies, or equipment for the work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor warrants good title to all materials, supplies,

and equipment installed or incorporated in the work and agrees, upon completion of all work, to deliver the premises together with all improvements and appurtenances constructed or placed thereon by him to the Government free from any claims, liens, or charges and further agrees that neither he nor any person, firm or corporation furnishing any material or labor for any work covered by this contract shall have any right to a lien upon the premises or any improvement or appurtenance thereon, provided that this shall not preclude the Contractor from installing metering devices and other equipment of utility companies or of municipalities, the title to which is commonly retained by the utility company or the city. In the event of the installation of any such metering device or equipment, the Contractor shall advise the Government as to the owner thereof. Nothing contained in this paragraph, however, shall defeat or impair the right of such persons furnishing materials or labor under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Government. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

#### 41. GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use or occupancy of the premises by the Government shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of one year from the date of final acceptance of the work unless a longer period is specified. The Government will give notice of observed defects with reasonable promptness.

#### 42. FEDERAL TAXES

Prices stated herein include any Federal tax heretofore imposed by the Congress which is applicable to the material in this Contract. If any sales tax, processing tax, adjustment charge, or other taxes or charges are imposed or changed by the Congress after the date of this Contract, and made applicable directly upon the production, manufacture or sale of the supplies covered by this Contract, and are paid by the Contractor on the articles or supplies herein contracted for, then the prices named in this Contract will be increased or decreased accordingly, and any amount due the Contractor as a result of such change will be charged to the Government and entered on vouchers (or invoices) as separate items.

#### 43. RENEGOTIATION

a. This contract is subject to the Renegotiation Act of 1951 (Public Law 9, 82nd Congress) and shall be deemed to contain all the provisions required by Section 104 of said Act.

b. The contractor (which term as used in this clause means the party contracting to furnish the materials or perform the work required by this contract) agrees to insert the provisions of this clause, including this paragraph (b), in all subcontracts as required by Section 104 of the Renegotiation Act of 1951: provided, that the contractor shall not be required to insert the provisions of this clause in any subcontract of a class or type described in Section 106(a) of the Renegotiation Act of 1951.

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#### 1. TIME FOR COMPLETION

a. The work shall be commenced at the start of business on the date
stipulated in the Notice to Proceed to the Contractor and shall be fully
completed within consecutive calendar days thereafter, exclusive of
Landscaping. An additional consecutive calendar days will be
allowed in which to complete the Landscaping, exclusive of maintenance and
replacement.

b. Groups of dwelling units shall be progressively completed, suitable and ready for occupancy, including utilities, sidewalks and driveways servicing such units exclusive of Landscaping, within the number of consecutive calendar days from the established starting date as follows:

(1)	Not less than	dwelling units within	days;
(2)	An accumulated total of	dwelling units within	days;
(3)	An accumulated total of (continue	dwelling units within as desired)	days;

and all the balance of the entire work shall be fully completed within the number of consecutive calendar days first set forth in la.above.

#### 2. LIQUIDATED DAMAGES

- a. Since actual damages for any delay in completion are impossible of determination, the Contractor and his Sureties shall be liable for and shall pay to the Government the sums hereinafter stipulated as fixed, agreed and liquidated damages for each calendar day of delay until the work is completed or accepted;
  - (1) \$\frac{1}{2} per dwelling unit per calendar day applicable to dwelling units and related work as set forth in Section 1b. above;
  - (2) \$ per calendar day applicable to all the balance of the contract work except Landscaping; and
  - (3) \$ per calendar day applicable to Landscaping.
- b. The Government may accept any part of the work if there has been such a degree of completion as will, in its opinion, make such part reasonably safe, fit and convenient for the use and accommodation for which it was intended.

#### 3. COMMUNICATIONS

a. All notices, demands, requests, instructions, approvals, proposals and claims must be in writing.

- b. Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the Contractor's bid (or at such other office as he may from time to time designate in writing to the Government, or deposited in the United States mail in a sealed, postage-prepaid envelope, or if delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.
- c. All papers required to be delivered to the Government shall, unless otherwise specified in writing to the Contractor, be delivered to the \_\_\_\_\_\_at \_\_\_\_\_, and any notice to or demand upon the Government shall be sufficiently given if so delivered, or deposited in the United States mail in a sealed, postage-prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission to said \_\_\_\_\_\_at such address, or to such other representatives of the Government or to such other address as the Government may subsequently specify in writing to the Contractor for such purpose.
- d. Any such notice shall be deemed to have been given as of the time of actual delivery or (in the case of mailing) when the same should have been received in due course of post, or in the case of telegrams, at the time of actual receipt, as the case may be.

#### 4. SIGNS

- a. The Contractor shall construct on the site of the Project at locations to be designated by the Contracting Officer signs, as follows:
  - (1) These signs shall be built of concrete and wood. The sign-board shall be of 3/4" Marine plywood, 6\*-0" long, 4\*-0" high, securely fastened to 4" x 4" wood posts 10 feet long, set in concrete bases 10" square. Bottom of sign shall be 3\*-6" above grade. Bottom of posts shall extend into concrete bases to a point 2\*-6" below grade. Concrete bases shall extend 3\*-0" below grade and 0\*-4" above grade, with tops beveled down 1" away from posts on all sides. Posts shall be of No. 1 Y.P. or equal -S4S. Protect all edges of plywood with a band and moulding.
  - (2) The entire woodwork shall be given a lead-in-oil priming coat on all surfaces before assembly and two such coats after assembly. The field of the sign shall be white and all lettering shall be black. The sign shall be lettered in accordance with the following, and the sizes and the character of lettering shall be as per detail furnished by the Contracting Officer.

(PROJECT NAME) (Project Number) DEFENSE HOUSING PROJECT These dwellings are constructed for occupancy national defense effort Public Housing administration
ING AND HOME FINANCE AGENCY
by the (name of Local Authority)

(See Trans. + 2)
2-18-52 by those engaged in the

HOUSING AND HOME FINANCE AGENCY

\*Assisted by the (name of Local Authority)

\*NOTE: Omit this line if no Local Authority is assisting under an Agency Development Agreement and substitute five small stars.

- b. The Contractor shall maintain these Project signs in good condition satisfactory to the Contracting Officer during the construction period. and upon completion of the Contract work or when directed, shall turn them over to the Government cleaned, (freshly painted and lettered, if required) and in acceptable condition.
- c. Subject to prior approval of the Contracting Officer as to size, design, type and location, and to local regulations. the Contractor and his subcontractors may erect temporary signs for purposes of identification and controlling traffic. The Contractor shall furnish, erect and maintain such signs as may be required by Safety Regulations or as necessary to safeguard life and property.

(NOTE: For most projects, one sign should be sufficient.)

#### 5. JOB OFFICES

The Contractor shall furnish and maintain, during construction of the Project, adequate facilities at the site for the use of the Government Representatives as follows:

> (Here should be specified in some detail the facilities and services required, such as adequate office space, light, heat, hot and cold water, toilet facilities, janitor service, local telephone, closets, sample room, plan tables, plan racks, etc. These facilities and services should be held to a practicable minimum, consistent with the project size, time for contract construction, and the nature of this Defense operation.)

The Contractor and his subcontractors may maintain such office and storage facilities on the site as may be necessary in the proper conduct of the work. These shall be located so as to cause no interference to any work to be performed on the site. The Contracting Officer shall be consulted with regard to locations.

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c. Upon completion of the Project, or as directed by the Contracting Officer, the Contractor shall remove all such temporary structures and facilities from the site, same to become his property, and leave the premises in the condition required by the Contract.

#### 6. MINIMUM RATES OF PAY

In accordance with the provisions of the contract, not less than the rates listed herein shall be paid to the following trades and occupations:

Classification		Rate per hour
Air Compressor Operators		
Air Hammer Operators		
Asbestor Workers		
Asbestos Workers Helpers		
Asbestos Workers' Improvers		
Asphalt Rakers		
Asphalt Tampers and Smoothers		
Blacksmiths		
Blacksmiths Helper		
Boilermakers		
Boilermakers' Helper		
Bricklayers		
Bricklayers Apprentices 1)		
2) year		
3)		
Brick Tenders		
Carpenters		
Carpenters Apprentices 1)		
2) year		
3)		The second secon
Cement Finishers		
Electricians		
Electricians' Helpers (Apprentices) Elevator Constructors		
	Jan Barrell	
Elevator Constructors Helpers Engineers		
Engineers Apprentices		
Firemen		
Glaziers		***************************************
Granite Cutters		*** *** ******************************
Hod Carriers		
Ironworkers - Ornamental and Bronze		
Ironworkers - Structural		
Ironworkers - Reinforcing		
Ironworkers' Apprentices - Structural		

## SPECIAL CONDITIONS Classification Rate per hour Laborers - Common Laborers - Building Lathers Linoleum Layers Marble Masons Marble Masons' Helpers Mosaic and Terrazzo Workers Mosaic and Terrazzo Workers' Helpers Oilers and Greasers Operators - Cement & Concrete Mixer (Under 21E) Operators - Cement & Concrete Mixer (21E & Over) Operators - Crane, Clamshell, Drag Line Operators - Derrick Operators - Trenching Machine Operators - Backfilling Machine Operators - Bulldozer Operators - Hoist - One Drum Operators - Hoist - Two Drum Operators - Machine Road Grader Operators - Power Shovel (Enginemen) Operators - Pile Drivers Operators - Road Roller Operators - Pumps Operators - Tractor 50 H.P. and under Operators - Tractor over 50 H.P. Painters Painters - Steel Painting Plasterers Plasterers' Apprentice 1) 2) years 3) Plasterers' Laborers and Tenders Plumbers Plumbers Apprentices Roofers - Composition Roofers - Composition - Kettlemen Roofers - Composition - Apprentices Roofers - Slate and Tile Sheet Metal Workers Sheet Metal Workers' Apprentices 1) 2) years 3) Sheet Metal Wrokers' Helpers Sprinkler Fitters Sprinkler Fitters' Helpers

		SPE	CIAL CONDITIONS
Classification			Rate per hour
Steam Fitters Steam Fitters Apprentices	1) 2) years 3)		
Steam Fitters Helpers Stone Masons	37		
Stone Masons' Helpers Truck Drivers Tile Layers' Helpers			

#### 7. UNIT PRICES

- a. The unit prices set forth in this Section become a part of the Contract and shall be used, where applicable, to determine the equitable adjustment of the Contract price in connection with changes or extra work ordered under the Contract, and the "Rules of Measurement" herein contained shall govern.
- b. It is mutually understood and agreed that such unit prices represent, in each case, the cost to the Contractor without profit, and without overhead as the same is defined in Section 9e of the General Conditions.

#### c. Rules of Measurement:

- (1) General excavation shall be assumed to extend 2 feet outside of wall lines.
- (2) Hand excavation shall be computed from the level at which hand excavation actually starts.
- (3) Footing excavation shall be computed from the actual size of the cut.
- (4) Trenches for walls shall be assumed to be 2 feet wider than wall thickness but in no case less than 3 feet in width.
- (5) Trenches for pipes shall be assumed to be 2 feet wider than the outside diameter of the pipe barrel.
- (6) Backfill shall be the volume of excavation computed under the foregoing rules less the volume of displacement by walls and footings.
- (7) Where rock excavation replaces earth excavation required under the Contract such earth excavation shall be credited.

(8)	The quantities	of sheet p	iling for	banks	and of	all:	form	work
	shall be based	upon contra	act area.					

(9) Concrete quantities shall be computed from plan size, or if there are no drawings, from actual measurements of the work ordered and placed.

		ordered and placed.	J (LL Ç.	110110	0 01	offe work
d.	Unit	Prices:				
	(1)	General excavation (machine) left on site as directed	per	cu.	yd.	\$
	(2)	General excavation (machine) removed from site	per	eu.	yd.	\$
	(3)	Hand excavation to 5 ft. depth left on site as directed	per	<b>c</b> u.	yđ.	\$
	(4)	Hand excavation to 5 ft. depth removed from site	per	cu.	yd.	\$
	(5)	Hand excavation per 1 ft. depth extra (added to Items #3 and #4 for each additional foot below 5 ft.	•			
		depth)	per	cu.	yd.	\$
	(6)	Removal from site of stacked excavated material other than rock	per	cu.	yd.	\$
	(7)	Backfill due to extra excavation	per	cu.	yd.	\$
	(8)	Rock excavation other than in trenches using explosives, left on site	per	cu.	yd.	\$
		Rock excavation other than in trenches where explosives are prohibited, left on site	per	cu.	yd.	\$
	(10)	Rock excavation in trenches using explosives, left on site	per	cu.	yd.	\$
	(11)	Rock excavation in trenches where explosives are prohibited, left on site	per	cu.	yd.	\$
•	(12)	Removal from site of excavated rock	per.			

-		金属性 医乳球 电电子 医麻黄 医皮肤 医结核 医糖糖 医皮肤 医皮肤 医皮肤 医皮肤 医皮肤 医皮肤 医皮肤		
	(13)	Piles, of contract length, type as specified, driven in place and cut off	per pile	\$
	(14)	Furnishing and driving piles of longer or shorter lengths, type as specified	per lin.ft.	\$ <u></u>
	(15)	Furnishing, driving and cutting off piles of type other than as specific (describe) multiples of 5 ft., measured below cutoff:	ed	
		a. ft. long b. ft. long c. ft. long	per pile per pile per pile	\$ \$
	(16)	Slab forms, including stripping	per sq. ft.	\$
	(17)	Beam forms, including stripping	per sq. ft.	\$
	(18)	Column forms, including stripping	per sq. ft.	\$
	(19)	Wall Forms, including stripping	per sq. ft.	\$
	(20)	Footing forms, when actually used, including stripping	per sq. ft.	\$
	(21)	Reinforcing steel in place including accessories	per 1b.	\$
	(22)	Concrete in place, not including forms or reinforcing steel:		
		(b) 2500 lbs. \$per (c) 3000 lbs. \$per	cu. yd. cu. yd. cu. yd. cu. yd.	
	(23)	Concrete units for foundation walls:		
		(b) 10" \$ per (c) 12" \$ per	sq. ft. sq. ft. sq. ft. sq. ft.	
			sq. ft.	
	(24)	Membrane waterproofing on foundation walls	per sa. ft.	<b>\$</b>

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		SPEC	CIAL CONDITIONS
(25)	Sheet piling of banks, left in place	per sq. i	?t. \$
(26)	Sheet piling of banks, including removal	per sq. f	?t. \$
(27)	Cement plaster on foundation walls	per sq. i	?t. \$
(28)	Concrete fill in place	per cu. 3	/d. \$
(29)	Planks under wood trestle supports (for trailers only), in place	per FBM	\$
8. LIST OF	OPTIONS		one make a
the list fol:	issible options with respect to the ite lowing and shall be at the option of the work included in his bid, whether such work.	ne bidder w	herever appli-
selected and the respective entire Contra ing Officer in the Work", an	permissible options listed in this Sect the Contracting Officer notified, shall we contracts or subcontracts, and must act work subject to change only by write in the manner provided in the General ( and if such change be made at the Contra attract time and no increase in the Cont	l become f be used th ten order conditions actor's req	Pixed parts of aroughout the of the Contract-for "Changes in quest, with no
optional mate list following to utilize the	e, on the Drawings or in the Specificaterials or methods is indicated for item of its shall be the privilege of a control of the privilege of a control of the purpose in the options there must be uniformity within	ns <u>not</u> incl cractor or performan	uded in the subcontractor ace of his work.
tractor or su tions which h materials and respect to se adequacy of m tion to adjoi	decreising the options chosen from the labcontractor shall assume all the response otherwise assumes under his Contract methods prescribed thereunder without ecuring timely deliveries, the passing methods for the purposes for which intending work so as to fit and coordinate at extra cost.	nsibilitie or subcon options, of require nded, and	s for his selec- tract for particularly with d tests, the the proper adap-
e. List	of Options:		
	cified Under Op Division	tion	
1		***	
2	**********		

#### 9. PARTIAL OCCUPANCY

The Government, at its election, may from time to time occupy any of the dwelling units, buildings, or other portions of the Project as the work in connection therewith is completed to such a degree as will, in the opinion of the Contracting Officer, permit the use of the dwelling units buildings, or other portions of the Project for the purpose for which intended. The Contracting Officer will, prior to any such partial occupancy, give notice to the Contractor thereof, and such occupancy shall be upon the following terms.

- a. The one year guarantee period called for in the General Conditions shall not begin to run until the final acceptance of all work under the Contract.
- b. The occupancy or use of any space in the Project shall not constitute an acceptance of work not performed in accordance with the Contract or relieve the Contractor of liability to perform any work required by the Contract but not completed at the time of said occupancy.
- c. The Contractor shall be relieved of all maintenance costs on the buildings occupied under this agreement.
- d. The Contractor shall not be responsible for wear and tear or damage resulting from said occupancy.
- e. The Government shall assume risk of loss with respect to any building occupied by it under the terms of this agreement; Provided, the Contractor shall assume full responsibility for loss or damage traceable to his fault or negligence in the performance of his Contract.
- f. The Contractor shall not be required to furnish heat, light, power and water used in the buildings occupied without proper remuneration therefor.

#### 10. PARTIAL OCCUPANCY FENCING

The Contractor shall fence off from construction operations those portions of the Project taken over by the Government for occupancy. This fencing shall be not less than five feet high, substantial, firmly installed, continuous and without gates, placed where directed by the Contracting Officer, and moved from time to time as additional portions of the Project are taken over. It shall be maintained in effective condition by the Contractor at all times. It shall be steel, with driven posts and 2" mesh, of the "Cyclone" type or similar; new or used; or it may be other types of fencing if, in the opinion of the Contracting Officer, it proves suitable for the purpose of preventing trespass upon the area under construction.

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SPECIAL CONDITIONS

Upon completion of the Project it shall become the property of the Contractor and be entirely removed by him from the premises. Upon any change in location, and upon final removal, any damaged, disturbed, or uncompleted work shall be brought by the Contractor to the condition required by the Contract. This temporary fencing shall be in addition to any required permanent fencing. None will be placed along Project boundaries fronting upon a public street or public way except as may be otherwise expressly provided elsewhere in the Contract.

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#### 11. DISCRIMINATION

#### 12. DRAWINGS AND SPECIFICATIONS

The Government will furnish the Contractor without charge \_\_\_\_\_\_ copies of the Drawings and Specifications. Additional copies requested by the Contractor will be furnished at cost.

	GENERAL SCOPE OF WORK
L. APPLICATION	
This "General Scope of Work" Division of the	ne Specifications is applicable
to all work contemplated.	
PROJECT SITE	
The Project site of Defense Housing Projec	t No. consists of that
area within the property limits bounded in	general (on the)
area within the property limits bounded	
within the (City), (County)	, (State), all as
shown on the(title of drawing or draw	ings) designated as 224
No.(s)	
3. RESPONSIBILITIES OF CONTRACTOR	
Except as otherwise specifically stated in provide and pay for all materials, labor, heat, power, transportation, superintended nature, taxes legally collectible because and facilities of every nature whatsoever done under the Contract and deliver it conspecified time.	of the work, and all other services
4. WORK BY OTHERS	
The following work will be done by others	•
a. At no expense to the Contractor:	
(1) On site: (a)	
(b)	
etc.	
(2) Off site:	
(2) Off site: (a)	
(b)	

etc.

Upon completion of the Project it shall become the property of the Contractor and be entirely removed by him from the premises. Upon any change in location, and upon final removal, any damaged, disturbed, or uncompleted work shall be brought by the Contractor to the condition required by the Contract. This temporary fencing shall be in addition to any required permanent fencing. None will be placed along Project boundaries fronting upon a public street or public way except as may be otherwise expressly provided elsewhere in the Contract.

#### 11. DISCRIMINATION

For the purpose of determining whether there has been discrimination in regard to Negro labor in violation of the provision contained in the General Conditions, titled "Qualifications for Employment", it is hereby provided that if the Contractor pays to the Negro skilled labor at least \_\_\_\_\_ % of the total amount paid in any period of four weeks for all skilled labor under the Contract (irrespective of individual trades), and pays Negro unskilled labor at \_% of the total amount paid in any period of four weeks for all unskilled labor under the Contract, it shall be considered as prima facie evidence that the Contractor has not discriminated against Negro labor.

#### 12. DRAWINGS AND SPECIFICATIONS

The Government will furnish the Contractor without charge\_\_ of the Drawings and Specifications. Additional copies requested by the Contractor will be furnished at cost.

#### 13. PROJECT PHOTOGRAPHS

The Contractor shall employ a commercial photographer to take six views of the work and shall deliver the negatives and three prints of each to the Project Engineer within five days after exposure. Two shall be taken at about the halfway point in progress, and four upon completion, when directed by the Project Engineer and from camera positions chosen by him. Negatives shall be not less than 4" x 5", each permanently numbered and identified by means of a transparent title panel attachment securely cemented thereon in the lower right-hand corner, showing (1) date of exposure, (2) serial number, (3) project number, (4) project location, (5) brief description of view. For example:

> 3" maximum on print : May 10, 1952 No. 3:

> : VA-3-D-1 Anytown, Va:

: Looking N.W. from S.E.:

: Corner of Froject

1-1/4" maximum on print

Frints shall be 8" x 10", black and white, medium weight, glossy finish, unmounted, each stamped on back with the photographer's name and address. They shall be clear views, with good detail and contrast.

NOTE: These pages supersede pages 67 and 68, dated 1-25-52, of Bulletin No. DH-1. A new Section 13 has been added on page 67. No changes have been made on page 68.

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This "General Scope of Work" Division of the Specifications is applicable to all work contemplated.

#### 2. PROJECT SITE

The Project s	site of Defer	se Hous	sing Project No	<u> </u>	consists	of that
area within t	the property	limits	bounded in general	(on the)	abputtlescon things amini, an an imput since where	
Contract of the contract of th			na Prima di Naja Military provincia di Strancia di April a del anche di April di April del anche del appropria	Martin and College States and Locate (1) Called A		Partie Williams Market San (October 59) August branch
within the	(City)		(County),	(Stat	<u>e)</u> ,	all as
shown on the	(title c	f drawi	ng or drawings)	designa	ted as Dr	rawing(s)
No.(s)			*			,

## RESPONSIBILITIES OF CONTRACTOR

Except as otherwise specifically stated in the Contract, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, heat, power, transportation, superintendence, temporary construction of every nature, taxes legally collectible because of the work, and all other services and facilities of every nature whatsoever necessary to execute the work to be done under the Contract and deliver it complete in every respect within the specified time.

#### 4. WORK BY OTHERS

The following work will be done by others:

- a. At no expense to the Contractor:

Bulletin No. DH-1

GENERAL SCOPE OF WORK

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<b>N</b>	. n +-	Tho	03200000	$\sim$	700	**************************************
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- (1) On site:
   (a) ......
   (b) .....
   etc.
- (2) Off site:
   (a) .......
   (b) ........

# 5. WORK NOT INCLUDED IN CONTRACT

a. Work noted on the Drawings or mentioned in the Specifications, or both, as not being a part of the Contract.

SCHEDULE OF DRAWINGS

Drg.

Date

Title

SITE

ARCHITECTURAL

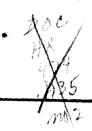
STRUCTURAL

PLUMBING

HEATING

ELECTRICAL

etc.



# SPECIFICATIONS

for

TRAILER PROJECTS

and for

TEMPORARY PROJECTS

USING DHT SERIES I STANDARD PLANS

DEFENSE HOUSING BULLETIN

For Permanent Defense Housing Projects See Guide Specifications, Bulletin LR-13

以与, PUBLIC HOUSING ADMINISTRATION,

HOUSING AND HOME FINANCE AGENCY

WASHINGTON 25. D. C.

FEBRUARY 1952

#### TEMPORARY PROJECTS - TRAILER PROJECTS

# FOREWORD

These specifications have been prepared for use as a guide in writing specifications for Defense Housing, and is applicable to Trailer Projects or to Temporary Projects using DHT Series 1 Standard Plans. It is not intended for use in connection with Permanent Defense Housing Projects, for which the regular PHA Guide Specifications for Low-Rent Housing are to be used. (See Bulletin No. LR-13.)

These specifications, if properly used, are timesaving and should produce uniform and satisfactory results but, like all such material, must be used with extreme care so as to be adapted to each specific case. Many items will not be pertinent to every project and must, therefore, be deleted; some new items to fit special conditions may be required; and occasionally it will be found that retained items need to be modified, though it is urged that changes be made only under absolute necessity. Specification writers should read carefully the "NOTES TO THE ARCHITECT" preceding each division of the Specification and be governed accordingly. They should also exercise great care to see that the specifications are fully co-ordinated with the drawings.

(Specifications for trailers are not included herein, since all trailers will be purchased under separate contracts.)

Bulletin No. DH-2

# CONTENTS

# Division No.

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		TIGHTOI WOMINTING ON PRIATOTING

# CLEARING, EXCAVATING, FILLING AND GRADING

# NOTES TO THE ARCHITECT:

THIS SHEET IS FOR THE INFORMATION OF THE ARCHITECT ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

SECTION 4. TREES. WHEN THE SITE CONTAINS VALUABLE TREES, THE SPECIFICATION MAY BE WRITTEN TO REQUIRE THE STAKING OF BUILDINGS (OR TRAILERS) IN ADVANCE OF STARTING WORK ON CLEARING. THIS WILL PERMIT A CHECK OF TREE LOCATIONS

ACCURATE ADJUSTMENT OF BUILDING (OR TRAILER) LOCATIONS TO CONSERVE DESIRABLE TREES.

SECTION 5. DESCRICTION, THIS SECTION, IF INCLUDED, MAY BE DRAWN TO PERMIT

CERTAIN BUILDINGS IN COLUMN REPAIR TO BE REMOVED AS A WHOLE. INCLUDE A

REQUIREMENT FOR RODENT EXTENSIONATION IF THE LOCAL HEALTH AUTHORITY SO ADVISES.

SECTION 6. EXCAVATING. IF IT IS ANOTHER THAT NO ROCK WILL BE ENCOUNTERED IN EXCAVATIONS, OR IF FOR OTHER REASON NO CLASSIFICATION OF EXCAVATED MATERIALS IS DESIRED, THE FOLLOWING SHOULD BE SUBSTITUTED FOR PARAGRAPH b:

b. Material to be excavated shall be non-classified and shall include all earth or other materials encountered in excavating and grading operations hereunder. The contract price is understood to cover the removal of all such materials to the depth and extent indicated on the drawings and herein specified.

SECTION 7. GRADING. UNDER PARAGRAPH c, SPECIFY THE METHOD OF COMPACTION TO BE EMPLOYED, ADAPTED TO SOIL CONDITIONS, DEPTH OF FILLS, ETC. FOR TRAILER PROJECTS DELETE ALL INAPPLICABLE REQUIREMENTS IN PARAGRAPHS b AND c, AND CHANGE THE TITLE OF PARAGRAPH d TO "GRADING UNDER TRAILERS."

STRIPPING TOPSOIL. SITE CONDITIONS IN SOME INSTANCES MAY WARRANT STRIPPING AND STORING TOPSOIL FOR RE-USE ON THE SITE. IN SUCH CASE, A PARAGRAPH SHOULD BE ADDED TO THIS DIVISION TO FIT THE SPECIAL CONDITION.

THIS SPECIFICATION MUST BE ADAPTED TO SITE CONDITIONS. CHANGE AS NECESSARY
TO MEET THE PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND ADD
AS NECESSARY.

Bulletin No. DH-2 DIVISION DHS 1

# DIVISION DHS 1

CLEARING, EXCAVATING, FILLING AND GRADING

# NOTES TO THE ARCHITECT:

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AS NECESSARY.

# CLEARING, EXCAVATING, FILLING AND GRADING

#### 1. SCOPE

Include demolition, clearing, excavating, filling and grading required to complete the project, except the work specified in other divisions. See the drawings and General Scope of Work for extent of work.

# 2. BENCH MARKS AND MONUMENTS

Maintain carefully all bench marks, monuments and other reference points; if disturbed or destroyed, replace as directed.

#### 3. FINISHED GRADES

Finished grades are the required final grade elevations indicated on the drawings. Should finished grades shown by spot elevations conflict with those shown by contours, the spot elevations shall govern. Where not otherwise indicated, areas shall be sloped uniformly between points for which finished grades are shown, or between such points and existing grades which are not to be changed, except that roundings shall be provided at abrupt changes in slope.

## 4. TREES

- a. <u>Protection</u>. Protect trees which are designated to remain by fencing to the limits of branch spread. Do not use areas so fenced for materials storage or other purpose likely to injure tree roots or branches, and perform excavation and grading within such areas only as directed by the Contracting Officer.
- b. Removal. Cut down and remove all trees and shrubs within the limits of the construction work under this contract, except as otherwise indicated or directed. Remove all stumps and major roots from areas to be paved or surfaced and from areas on which building foundations and/or slab-on-ground floors are to be constructed; elsewhere, remove completely stumps of 3-inch and smaller trees and cut off stumps of other trees to be removed, at or below existing grade or finished grade (whichever is lower).

#### 5. DEMOLITION

Demolish existing buildings and remove masonry walls, cisterns, abandoned manholes, and other existing structures to levels at least one foot below finished grade. Remove from cellars all partitions, stairways, piping, apparatus and debris. Break up floors of cellars and other underground

structures to permit drainage. Remove curbs, paving, and similar improvements within the site, not shown to be retained in the project. Remove from the project site all materials and debris resulting from the demolition work, except as otherwise provided. Seal sewers leading from buildings, cut off water and gas piping, and disconnect electric and telephone wires, all in accordance with the regulations of the utility concerned. Execute all work so as to avoid hazards to persons or property. Materials resulting from demolition shall be the property of the Contractor.

#### 6. EXCAVATING

- a. <u>Dimensions</u>. Excavate to elevations and dimensions indicated, plus ample space for construction operations and inspection of foundation. Excavation for footings may be made to accurate sizes and side forms omitted if concrete is poured without cavings.
- b. Rock Excavation. Material to be excavated is assumed to be earth and other materials that can be removed by power shovel. If "rock" is encountered within the limits of excavation, the "Contract Price" will be adjusted. (See GENERAL CONDITIONS.) "Rock" is defined as rock, stone, hard shale, boulders over 1/2 cubic yard in volume, masonry or concrete, that cannot be removed by power shovel without the use of explosives or drills. Excavate rock, if and when encountered, only to the extent directed by the Contracting Officer.
- c. Should latent soil or other conditions require changes, the "Contract Price" shall be adjusted. (See GENERAL CONDITIONS.)
- d. Shore, sheet and/or brace excavations as required to maintain them secure; remove shoring as the backfilling progresses, but only when banks are safe against caving.
- e. <u>Drainage</u>. Keep excavations free from water. Do not discharge water from excavations onto privately owned property.
- f. Excess Depth of Excavation. Place footings and foundations upon undisturbed and firm bottoms; fill with concrete any excess cut under footings and foundations. Fill excess cut under slabs with well tamped gravel.
  - g. Frost Protection. Protect bottoms of excavations from frost.
- h. <u>Insanitary conditions</u> encountered shall be corrected or removed entirely.

# 7. GRADING

- a. Grades. Do all cutting, filling, backfilling and grading required to bring the entire project area, outside of buildings, to the following levels:
  - (1) For surfaced areas, to the underside of the respective surfacing.

(2) For unsurfaced areas, to finished grade, allowing for settlement and the thickness of any ground cover sod to be laid.

On areas where the drawings indicate no general grading is required, provide, spread smoothly, and lightly compact sufficient approved topsoil to fill any depressions in which water could collect. Such topsoil may be taken from site areas on which excavation is required.

- b. <u>Deficiency or Excess of Fill Material</u>. Provide suitable earth for requisite additional fill if a sufficient quantity of such material is not available from the required excavation on the site. Remove and dispose of all excess excavated material and material not suitable for fills.
- c. <u>Fills</u>. Remove all debris subject to termite attack, rot or corrosion, and all other deleterious materials from areas to be filled or backfilled. Deposit fill and backfill in layers not more than 8 inches thick under surfaced areas or 12 inches under unsurfaced areas; compact each layer thoroughly by approved methods. Rocks, blocks of concrete and masonry materials, but no debris, may be used for fills if well distributed in the earth and provided that such materials shall not be placed in the top 12 inches of fill below finished grade of unsurfaced areas. Fill to grade any areas where settlement occurs.
- d. <u>Crawl Space Grading</u>. Excavate and/or fill if and as necessary to: (1) provide the required clearance between the floor system and the ground surface, and (2) to provide adequate slope for drainage to the exterior and eliminate depressions in which water could collect.

# 8. DISPOSITION OF UTILITIES

- a. Rules and regulations governing the respective utilities shall be observed in executing all work under this heading.
- b. Active utilities shown on the drawings shall be adequately protected from damage and removed or relocated only as indicated or specified.
- c. Active utilities not shown on the drawings shall be protected or relocated in accordance with written instructions of the Contracting Officer, and the Contract Price will be adjusted for such additional work. (See GENERAL CONDITIONS.)
- d. Inactive and abandoned utilities encountered in excavating and grading operations shall be removed, plugged or capped. In absence of specific requirements, plug or cap such utility lines at least 3 feet outside of new building walls or as required by the local regulations.

#### 9. GENERAL

Complete the grading operations after buildings have been finished, utilities installed, site improvements constructed, and all materials, rubbish and debris removed from the site.

#### CONGRETE AND MASONRY

# NOTES TO THE ARCHITECT:

THIS SHEET IS FOR THE USE OF THE ARCHITECT ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

ON SANDY OR CRAVELLY SOIL WHERE DRAINAGE IS EXCEPTIONALLY GOOD, CONCRETE FOUNDATION PADS MAY BE SET ON SUITABLY LEVELED AND COMPACTED CROUND.

ON STEEPLY SLOPING SITES, ADD BRACING TO FOUNDATION POSTS OR PIERS AS NECESSARY.

THIS SPECIFICATION MUST BE ADAPTED TO SITE CONDITIONS. CHANGE AS NECESSARY
TO MEET THE PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND ADD
AS NECESSARY. DO NOT, HOWEVER, MAKE CHANGES WHICH AFFECT THE FUNDAMENTAL
DESIGN.



# CONCRETE AND MASONRY

#### 1. SCOPE

Include concrete and masonry work required to complete the project. See the drawings and General Scope of Work for extent and location of the work.

a. Piers shown to be concrete or masonry may be wood as specified in the division CARPENTRY when so indicated on the drawings.

## 2. MATERIALS

Materials shall conform to the following Standard Specifications or requirements noted below:

Portland cement

Aggregate for concrete
Aggregate for mortar

Astm C33-49, 1 inch maximum size
Aggregate for mortar

Astm C31-49

Astm C91-49

Brick clay or shale

Concrete masonry units

Astm C62-49

Astm C90 or C145

Water shall be clean

a. Handle and store materials in a manner to prevent deterioration and mixing with foreign matters.

#### 3. CONCRETE FOUNDATIONS

- a. Job mixed concrete shall consist of 1 part cement, 3 parts sand, and 5 parts of coarse aggregate. Mix for a minimum of 1 minute in a mechanical mixer with only water enough to permit satisfactory placing.
- b. Ready mixed concrete shall be certified by the mixing plant to be 2000 pound concrete when tested according to ASTM Standard C 39-44.
- c. Forms shall conform to shape, lines and dimensions of the drawings. They shall be substantial and tight enough to retain the concrete without displacement and without leakage of mortas. Footing forms may be omitted when soil is stable and excavation is accurate to dimensions.
- d. Soil at bottom of footings shall be approved by the Contracting Officer before placing concrete.

- e. Remove mud and water from excavations and wet down dry soil before placing concrete.
- f. Deposit concrete as close as practicable to its final position before any initial set occurs. Retempering concrete will not be permitted. Avoid unnecessary construction joints.
  - g. Tamp and spade concrete in place sufficiently to eliminate voids.

## 4. CONCRETE FLOORS

Concrete floors on ground shall be constructed as follows:

- a. Make earth fills in 6 inch layers sprinkled and rolled with a 5-ton or heavier roller making 4 passes over each layer or roll with a loaded dual tired truck to an equivalent amount. Grade surface to subgrade for concrete.
- b. Place 1-3-5 or 2000 pound concrete to thickness indicated on the drawings. Screed to grade. Pitch to drains.
- c. Finish floor to a hard trowelled surface using a 1 to 2 mix of cement and sand to dry up any moisture. Finish trowelling shall be delayed until concrete is set and surface dry. Surface shall be hard, smooth and true to line within a tolerance of 1/8 inch in 6 feet.

#### 5. CURING

All concrete shall be kept damp for seven days by sprinkling and a cover of paper or burlap or soil. Clean and wash floors at completion.

# 6. MASONRY PIERS

Foundation piers shall be constructed of brick, 8 inches square; or load, bearing concrete masonry units, 8 inches x 12 inches; or concrete, 8 inches diameter or square; unless indicated otherwise on the drawings. The top block of masonry unit piers shall be filled with concrete. Provide anchors for wood beams and panels.

- a. Mortar for masonry piers shall be a 1 to 3 mixture of masonry cement and sand.
- b. Construct piers plumb and accurately located. Tops of piers shall finish at a level to maintain floor levels as indicated.
- c. Coat top of piers with coal tar (not asphalt) plastic cement or hot coal tar roofing pitch or place a sheet of 26 gage galvanized steel overlapping the masonry 2 inches on top of the pier.

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# 7. COLD WEATHER REQUIREMENTS

Do not place any concrete or masonry on frozen ground. Concrete masonry materials shall be adequately heated before placing and shall be maintained at a temperature of not less than 50°F for not less than 72 hours after placing.

# CARPENTRY AND MILLWORK

# NOTES TO THE ARCHITECT:

THIS SHEET IS FOR THE INFORMATION OF THE ARCHITECT ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

INDICATE ON THE DRAWING WHERE WOOD FOUNDATION POSTS ARE PERMISSIBLE AND ADD BRACING TO WOOD FOUNDATION POSTS WHERE NECESSARY.

SINCE THESE DEMOUNTABLE BUILDINGS ARE LIABLE TO BE MOVED TO OTHER AREAS
WHERE THE CLIMATE MAY BE RICOROUS IT IS INADVISABLE TO CHANGE THE VENTING
REQUIREMENT INDICATED ON THE DRAWINGS AND REQUIRED BY THESE SPECIFICATIONS.

THE GENERAL SCOPE OF WORK SHOULD SHOW REQUIREMENTS FOR STORM WINDOWS AND COMBINATION DOORS COMBINATION DOORS SHOULD BE INCLUDED FOR DESIGN TEMPERATURES LOWER THAN -LOOF. WEATHEF—STRIPS SHOULD BE INCLUDED FOR DESIGN TEMPERATURES BETWEEN +10°F. AND -10°F. DO NOT USE WEATHERSTRIPS WITH STORM SASH OR COMBINATION DOORS.

PLANS FOR MANAGEMENT AND MAINTENANCE BUILDINGS ARE DIAGRAMMATIC ONLY.

THE ARCHITECT MUST COMPLETE STRUCTURAL PLANS FOR THESE BUILDINGS FOR USE
IN BIDDING AND CONSTRUCTION. THE SIZING OF MEMBERS SHOULD BE ECONOMICAL
SINCE THESE BUILDINGS ARE TEMPORARY. ROOF CONSTRUCTION OF BUILDINGS A AND
B SHOULD BE SIMILAR TO SERIES 1 DWELLINGS. BUILDINGS C, D, E AND F SHOULD
HAVE ROOF TRUSSES OF THE PATTERN INDICATED ON THE DRAWINGS WITH CONNECTIONS

LIKE THE CONNECTIONS SHOWN IN BULLETIN LR-5, PART IV AND CHORDS OF 2 X 3

OR 2 X 4, OR THE TRUSS SHOWN IN THE ABOVE MENTIONED BULLETIN MAY BE USED AS
SHOWN. WALL CONSTRUCTION OF BUILDINGS A AND B SHOULD BE SIMILAR TO SERIES 1

DWELLINGS USING 2 X 2 STUDS AND CASEMENT WINDOWS. WALL CONSTRUCTION OF

LARGER SERVICE BUILDINGS SHOULD BE CONVENTIONAL WITH 2 X 1 STUDS, STANDARD

DOOR FRAMES AND DOUBLE HUNG STOCK WINDOWS.

WHEN TENANT ACTIVITIES BUILDINGS ARE INCLUDED IN ANY PROJECT, THE SPECIFICATIONS SHOULD BE MODIFIED AS NECESSARY.

WHEN LAUNDRY BUILDINGS ARE USED WITH TRAILERS, THE PLAN SHOULD FOLLOW THE LAYOUT ON SHEET 9 OF PLANS FOR SERIES 1 BUILDINGS. THE CONTRACTOR SHOULD BE PERMITTED TO CONSTRUCT THE LAUNDRY BUILDINGS IN PANELS AS INDICATED OR OPTIONALLY OF CONVENTIONAL CONSTRUCTION, AND THE SPECIFICATIONS SHOULD BE MODIFIED ACCORDINGLY.

THIS SPECIFICATION MUST BE ADAPTED TO SITE CONDITIONS. CHANGE AS NECESSARY
TO MEET THE PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND ADD
AS NECESSARY. DO NOT, HOWEVER, MAKE CHANGES WHICH AFFECT THE FUNDAMENTAL
DESIGN.

#### CARPENTRY AND MILLWORK

#### 1. SCOPE

Include in this division carpentry and millwork, flooring, siding, wallboard, rough hardware and all other work and material, except as specified in other divisions of this specification, of every nature required to complete the work under this contract. See the drawing and General Scope of Work for extent and location of work.

- a. Storm sash, combination doors and weatherstrips for window sash and for sides and head of exterior doors shall be furnished only when specifically required in the General Scope of Work.
- b. Metal thresholds and hook strips shall be provided for all entrance doors except when combination doors are required.
- c. <u>Demountability and Salvage</u>. This specification and the drawings contemplate the construction of temporary buildings prefabricated in panels and arranged for a maximum of salvage when demounted and moved.
- (1) Sizes of panels are generally indicated for all buildings. The contractor shall establish the size of panels not so indicated and may, at his option, make panels larger than as indicated but only at his own responsibility to furnish and deliver a completed building substantially identical with the building indicated on the drawings. Details of panel connections shall be as shown on the plans. When panels are increased in size anchorage to other parts of the structure equivalent to the anchorage indicated on the plans shall be provided. Shop drawings shall be furnished to the Contracting Officer for approval before commencing fabrication.
- (2) Roof trusses shall be assembled as units. Roof sheathing over trusses shall be boards assembled as panels on  $l \times 6$  cleats approximately 4 feet on center of l/2 inch plywood panels. Ceilings under trusses shall be panels of l/2 inch gypsum wallboard, as specified herein, not less than  $4 \times 8$  feet in size.

#### 2. MATERIALS

Except for exterior stair treads and stringers, and interior and exterior flooring, any species of soft wood lumber or hard or soft millwork material substantially equal to the species and grades listed hereafter may be used in lieu of the lumber herein specified. Lumber resawed from larger sizes shall meet grading requirements after resawing. Lumber shall be straight. Warped panels developing shall be replaced at the contractor's expense. Soft wood lumber shall conform to Federal Specification MM-L-75lc. Douglas fir plywood shall conform to Commercial Standard CS-45-48. Lumber shall be sized to standard dimensions in conformance with American Lumber Standards Simplified Practice Recommendation R-16-39.

The contractor shall coordinate the width, thickness and details of frames, trim and other items to conform to the material used when a choice of materials is the contractor's option.

Moisture content of structural lumber 2 inches in thickness and under shall not exceed 19%. Millwork and flooring shall be dried to from 8% to 12% moisture content.

a. Structural lumber for framing light roof trusses not over 2 feet on center, joists, rafters, lintels, beams, studs and plates shall be common dimension or better of any of the following:

Fir Douglas, West Coast 1/W. C. L. Rules No.2
Pine Southern No.2

b. Roof sheathing for buildings with trusses shall be any of the following:

Fir Douglas W. C. L. Rules No.2
Pine Southern No.2
Plywood Douglas fir Interior type Grade C-D

Sheathing boards shall be 1 x 6 shiplap or center matched in panels nailed to  $1 \times 6$  cleats approximately 4 feet on center with two 6d nails clinched.

- (1) Roof sheathing for Series 1 buildings shall be 1-inch thick fiber-board conforming to Federal Specification LLL-F-321B and the following requirement; A 4 x 8 foot sheet applied and nailed to the roof framing as specified hereafter shall not fail under a test load of 300 pounds applied on a block 4 inches square at the center of any joist space.
- c. Exterior and interior frames, trim, cabinets and millwork shall be fabricated from any of the following:

Fir Douglas W. C. L. Rules D finish
Pine Ponderosa D select

d. Doors shall meet requirements of the Commercial Standards and grades listed below:

Exterior doors and CS 120-48 grade No. 1 or Combination doors CS 91-41 Interior doors CS 120-48 grade No. 1 or CS 73-48 grade A

Doors shall be any stock pattern except one panel doors and exterior doors shall have at least 3 square feet of glass in the upper part of the door.

Door thickness shall be as follows:

Exterior and interior doors 1-3/8 inches Combination and screen doors 1-1/8 inches unless otherwise indicated on the drawings.

1/ West Coast Lumber Association Rules

(1) Doors, screen doors and combination doors shall be fabricated from any of the following:

Fir Pine Douglas
Southern longleaf, northern white,
Idaho white, sugar or ponderosa
Tidewater red

Cypress Redwood

- e. <u>Windows</u>. Frames shall be as detailed on the drawings. Frames for double hung windows shall have counter balancing equipment for sash complying with Federal Specification FF-H-111a, Type F 1240 or F 1245. Capacity of counterbalance shall be as required for weight of glazed sash. Hardware for casement sash is specified in the division HARDWARE.
- (1) Wood window sash, storm sash and window screens shall conform to Commercial Standard CS 163-49, except as otherwise indicated on the drawings (double hung windows shall be check rail windows) and be fabricated of any of the following:

Fir Pine

Cypress Redwood Douglas all heart clear V.G. Clear of northern white, Idaho white, sugar, ponderosa or southern Tidewater red

- (2) Window screens for wood double hung windows shall be not less than 3/4 inches thick and conform to Commercial Standard CS 163-49 for half window screens except that widths and lengths shall be as required. Stiles shall be grooved to slide on wood or corrosion resisting metal guides attached to blind stops. One groove shall be provided with 2 compression springs to hold the screen in place. Half window screens shall be removable by sliding upward off the guides and be replaced by the reverse procedure. At completion remove any paint from screen grooves and edge of guide and apply parafin lubricant to guide and groove. Attach 2 screen lifts Federal Specification FF-14-111a, Type F 1223, to top of bottom rail. Half length wood screens shall be installed and removed from the inside or outside.
- (3) Attach hardware and fit screens and storm sash (when sterm sash are a part of the contract) for easement windows to template so that screens and storm sash are interchangeable with each other and with any other window of the same nominal dimension.
- (4) Prefitted wood double hung window units, consisting of frames, sash, hardware and means of operation, may be furnished subject to the following conditions: both sash must be capable of being easily raised and lowered and maintain their position at any point of travel; adjustable means to control lifting tension and holding friction shall be provided; the

specific unit proposed for use shall have been in use for not less than three years and shall have demonstrated equality with the windows specified and indicated on the drawing to the satisfaction of the contracting officer.

Sash shall be prime coated before glazing (see Specification for painting and glazing).

- f. Screen cloth shall be  $14 \times 18$  mesh and conform to Federal Specification I-S-139, or be galvanized wire cloth.
- g. Flooring shall be strips not less than 25/32 inch thick and not over 3-1/4 inches wide, side matched, of any of the following:

Oak	No. 2 common
Pecan, maple, birch and beech	Third grade
Douglas fir WPA Rules, and western larch	C select
Douglas fir WCL Rules, and western hemlock	C
Southern pine	В

Only one species shall be used in one building. Hardwood flooring shall be end matched. Filler strips shall be the same species and equal to the flooring. Factory finished flooring meeting requirements specified above may be used. Flooring shall be kiln dried to and maintained at a moisture content of 8 to 12 per cent.

- (1) Flooring in bathrooms shall be fir plywood 5/8 inch thick, interior type grade C-D, covered with asphalt tile (see division ASPHALT TILE).
- (2) Porch floaring and exterior steps and stringers shall be 100 per cent heart of Douglas fir, western larch, southern pine, cypress, or redwood.
  - h. Exterior wall covering shall be any of the following:

Fir	Douglas, W.C.L. Rules	
Pine Southern	Southern	C
Plywood	Douglas fir exterior type	Grade B-C, 3/8" thick
Hard pressed fiberboard	Fed. Spec. LLL-F-311	Grade B, 3/16" thick

Only one kind shall be used on one building. Wood siding shall be 5/8" x 5-7/16" drop siding. Wood drop siding 3/4 inch thick may be used if the contractor furnishes at his own expense, thicker trim and battens, as required to maintain the same relation of members as indicated on the drawings for 5/8 inch siding.

# i. <u>Interior Wall Board</u>

(1) Interior board for walls shall be any of the following:

Hard pressed fiberboard Fed.

Fed. Spec. LLL-F-311 Class A

1/4 inch thick or

Class B 3/16 inch thick

Douglas fir plywood CS-45-48 interior type Grade B-D

1/4 inch thick

Composition wallboard conforming to Federal Specification UU-W-10la, .340 inch thick, prefinished with an ivory colored synthetic coating at the factory or sized ready for paint, and meeting the following limitations:

Linear expansion crosswise of panel .1% maximum
Linear expansion lengthwise of panel .05% maximum
Moisture content 6% to 12%
Water absorption after 24 hours in water 15% maximum
Only one kind shall be used in one building.

- (2) Interior board for ceilings shall be gypsum wallboard (3/8 inch thick for 16 inch spacing and 1/2 inch thick for 24 inch spacing of framing members) conforming to Federal Specification SS-W-5la and finished on the exposed surface with a layer of aluminum foil not less than .00035 inches thick, factory applied by the manufacturer of the wallboard.
- j. Asphalt building board shall be 1/8 inch thick, composed of 2 or more sheets of paper or felt impregnated with bitumen and filled to the required thickness of bituminous mastic. The board shall not be brittle at -60°F. or bleed at +160°F.
  - k. Calking compound shall conform to Federal Specification TT-C-598.
- 1. Medicine cabinets shall be stock type surface mounted or recessed as indicated on the drawings, wood or metal with mirror not less than 12 x 14 inches and 3 round edge glass shelves. Finish shall be oven dried white enamel.

# 3. WOOD PRESERVATIVE TREATMENT

Door frames and doors in exterior walls, wood porch posts, window frames and sash shall be preservative treated and bear the Seal of Approval of the National Woodwork Association or be accompanied by an affidavit from the manufacturer certifying that they have been fabricated from all heart lumber or have been treated in accordance with the Minimum Standards established by the National Woodwork Association. Brush coat cut surfaces with a 5 per cent solution of the same preservative.

# 4. STORAGE AND PROTECTION

- a. Pile lumber clear of ground to insure proper ventilation and drainage.
- b. Protect millwork and flooring against dampness during and after delivery. Store in well ventilated buildings and where not exposed to extreme changes of temperature and humidity.

#### 5. WOOD FOUNDATIONS

When so indicated on the drawings wood posts may be used in lieu of masonry piers. Rough sawed lumber may be used for foundation girders and posts.

- a. <u>Wood posts</u> shall be 75% heart of oak, cedar, chestnut, locust, redwood, fir, black walnut or black cherry, untreated, or any other wood which has been air dried to 19% moisture content and dipped in a 5% solution of pentachlorophenol or equivalent for 5 minutes. They shall be round or square, free of bark, not less than 6 inches diameter or 5 inches square.
- b. <u>Erect wood posts</u> plumb and true to line with ends square and solidly bedded on footing pads. Anchor posts to beams as shown and to footing pads with equivalent anchors. Pack earth tightly around posts. Cover tops of posts with coal tar or sheet metal as specified for masonry piers.
- c. <u>Wood girders</u> shall be set accurately to line and level on foundations. Rough lumber shall be sized at ends to provide a straight level top surface. Securely nail anchors to girders.

# 6. FABRICATION

- a. Shop and Erection Drawings. No drawings other than as enumerated in the Schedule of Drawings forming a part of this contract will be furnished by the Government. Any shop drawings needed shall be furnished by the contractor and submitted to the Contracting Officer for approval.
- (1) Mark panels and other parts, including equipment and loose items such as battens and trim with waterproof ink or paint on edges with indentification as indicated on the drawings. Mark locations of reinforcement added for support of plumbing on bottom and sides of panels.
- b. <u>Milling and Cutting</u>. Lumber, wallboard and millwork shall be accurately cut and milled to required dimensions by mechanical wood working equipment. Surfaces of lumber exposed in ceilings shall be sanded clean and smooth for paint. Surfaces of millwork shall be machine sanded.
- c. Assembly. Materials for panels and trusses shall be assembled in jigs consisting of metal angles bolted to tables covered with steel plate not less than 1/8 inch thick or plywood not less than 3/4 inch thick in the largest practicable size. Panels shall be interchangeable with other panels of the same

indicated dimensions. Fasten members together as indicated or as specified. Use common wire nails for connections of framing and finish nails for millwork items.

- (1) Finished panels shall measure 1/16 inch over all scant of indicated dimensions except thickness.
- (2) Check jigs periodically as necessary to maintain accurate dimensions.
- d. Door and window frames shall be dadoed and securely nailed together with 8d coated nails. Set frames in panels parallel and square with panel sides. Panels containing doors shall have temporary struts across bottom of panels.
- e. <u>Cut siding material</u> accurately to dimensions with edges and ends square. Remove burrs with sand paper. Hard pressed fiber board siding shall be sprinkled on the rear face and stacked back to back overnight to expand. Plywood and hard pressed fiberboard shall be full size of panel without joints.
- (1) Line ends of siding board perfectly true accurately in position and nail boards to each stud with two 8d siding nails driven flush with surface.
- (2) Plywood and hard pressed fiberboard siding shall be accurately set in place and nailed with 4d casing nails, 6 inches on center on intermediate studs and 4 inches on center at edges. Begin nailing at center and finish at edges. Drive nails flush with surface.
- f. Ventilation of wall panels. When wood drop siding is used for exterior wall covering no ventilation of wall panels is required. When plywood or hard pressed fiberboard is used for siding each stud space in exterior wall panels shall be vented top and bottom as indicated on the drawings, or a l inch diameter midget louver as made by the Midget Louver Company, Norwalk, Conn., or an approved equal, placed in the exterior shell near the top and bottom of each stud space shall be used in lieu of the venting indicated on the drawings. Barrels of louvers shall not penetrate inward past the siding more than 1/4 inch.
- (1) Ventilating slots shall be screened with plastic screening or galvanized wire cloth  $14 \times 18$  mesh as indicated on the drawings.
- (2) Ventilating slots at bottoms of panels shall be protected from rain with sheet metal strips of 28 gage galvanized steel, tin, or terme plate painted with red lead paint.
- g. Interior wall board shall be accurately cut to size. Panels 4 feet wide or less shall be without joints. Hard pressed fiberboard shall be sprinkled on the rear face and stacked back to back overnight to expand. Corners shall be sanded. Nail panels to intermediate supports 6 inches on center and at edges 4 inches on center with 4d casing nails for unfinished boards and with 3d or 4d

flat head colored nails furnished by the manufacturer for prefinished boards. Begin nailing at center and finish at edges. Drive nails flush. Plywood shall be sanded smooth before painting.

- h. <u>Ceiling board</u> in Series 1 buildings shall be applied with aluminum face exposed without exposed joints and nailed only enough to maintain its positions while the roof deck is applied.
- i. Apply fiberboard roof sheathing in the largest practicable size over the ceiling board. Make joints only over solid backing. Nail with 10d nails 6 inches on center on intermediate framing and 4 inches on center at edges. Nail center first and edges last. Locate nails accurately by means of a line or straight edge. Drive nails flush.
- j. Flooring shall be sorted or cut before laying to exclude any of the following defects: voids on finished edges, rot, knotholes over 3/8 inch in diameter, unsound knots, shakes, heart checks, split ends that cannot be drawn tight, torn grain and defects which will not sand smooth. After application of floor insulation, lay flooring perpendicular to joists with joints close. Provide for expansion by inserting 18 gage metal strip in every 3d joint. Stagger ends. Strips of flooring shall bear on at least 1 joist. Blind nail with 8d flooring nails to each joist. Joints in flooring with plain ends shall occur over joists only.
  - (1) Sand floors parallel to grain until smooth, finishing with fine paper.
  - (2) Provide oak thresholds where shown.
- k. Apply asphalt building board to under side of floor panels in the largest practicable size of sheets. Make joints only over solid blocking. Nail to floor joists with 1 inch galvanized roofing nails 6 inches on center on intermediate joists and 4 inches on center at edges. Nail from the center out toward the edge.
- 1. Doors, sash, screens and storm sash shall be fitted and applied to frames complete with hardware attached. Clearances at top and sides of doors shall be 1/8 inch and 3/16 inch at bottoms. Clearances of swing screens, storm sash and casement sash shall be 1/8 inch all around. Apply 2 dumnage strips 1-1/4 inches high full length of panel to panels containing doors and windows. Remove door knobs and any other hardware projecting more than 1 inch from the surface, tag for identification and ship boxed with similar items separately from panels.

Movable items shall operate without binding, shall close evenly against stops and double hung windows shall balance. Hardware shall be so applied as to perform its intended functions perfectly.

m. <u>Gabinets</u>, closets, shelving, ironing boards, counters and miscellaneous millwork items shall be fabricated from sound kiln dried lumber with members not less than 3/4 inch thick and wide enough to insure sturdy rigid construction.

- (1) Work tops of kitchen work tables and sink cabinets shall be 3/4 inch thick maple, ash or birch, tongued and grooved strips not over 3-1/4 inches wide glued together. Bread boards shall be 3/4 inch thick of similar material.
- (2) Shelves shall be 5 ply plywood or solid stock not less than 3/4 inch thick. Support shelves on cleats securely fastened to adjacent construction.
- (3) Doors shall be 5 ply plywood or hard pressed fiberboard not less than 1/2 inch thick, edges lap type, or paneled with solid stiles and rails with plywood panels.
- (4) Drawer fronts shall be straight grained stock 3/4 inch thick. Partition 1 drawer for table silver.
- (5) Laundry work table tops shall be sheathing boards covered with 3/16 inch hard pressed fiberboard Class B or 1/4 plywood interior type grade B-D.
- n. Loose strips, trim and miscellaneous items required for completion shall be milled to required dimensions and supplied ready for installation. All door and window trim and all standing trim shall be in 1 length. Running trim shall be in long lengths. Pack and wrap strips and trim in suitable coverings to prevent damage and loss.
- o. <u>Include metal flashing</u> at heads and sills of windows when indicated on the drawings of 26 gage galvanized steel painted both sides with red lead paint.

#### 7. SHIPMENT

Shipment from factory to site shall be made by truck with dunnage, wrapping and precautions required to provide delivery in perfect condition or a new item provided.

# 8. ERECTION

Erect the structures in accordance with the drawings placing all parts in true straight even planes with floors level. Adjust parts to correct any deficiencies in panel dimensions whether due to errors or shrinkage or swelling due to change in moisture content. Provide temporary bracing as required.

- a. Adjust sheet metal protection of ventilating slot at bottom of panels to positions indicated on drawings and clean ventilating slot of any excess insulation.
- b. Apply battens, filler strips and aligner strips required and as indicated on the drawings. Nails which will be withdrawn during future demounting shall be casing nails. Provide all nails, screws and rough hardware of every sort required for the buildings.

- c. <u>Calk joints</u> indicated on the drawings to be calked filling joints completely and clean adjacent surfaces of excess compound.
  - d. Set trusses on with centers as indicated and square with the walls.
- e. <u>Erect roof panels</u> over trusses with edges in close contact and end joints over trusses. Nail to roof trusses approximately 6 inches on center with nails penetrating the trusses not less than 1-1/8 inches.
- f. <u>Erect ceiling panels</u> of gypsum wall board in buildings with roof trusses with aluminum face exposed and edges in close contact with long dimension perpendicular to roof trusses. Make end joints on trusses. Nail to intermediate supports 8 inches on center and 6 inches on center at edges with 4d galvanized or cadmium coated shingle nails or aluminum nails of equivalent size. Drive nails flush.
- g. <u>Install a medicine cabinet</u> in the bathroom centered 5'0" above floor level.
- h. <u>Bathroom accessories</u> consisting of 1 paper holder with roller bar and wire supports, two 24 inch towel bars of enamel finished hardwood, 1 toothbrush holder and 2 soap dishes of porcelain or plastic or chrome plated brass shall be furnished and set on wood rail in bathroom with soap dish in the shower where directed.
- i. <u>Install equipment</u> such as cabinets, tables, ironing boards, curtain rods, shelving and miscellaneous items in place as indicated on the drawings. Fasten with screws to facilitate demounting.
- j. Loose finish hardware not attached in the shop shall be applied, but after completion of painting when practicable.
- k. Any doors, sash or screens which have been shipped separately shall be uttached and hardware adjusted.
- 1. Exterior items such as steps and platforms shall be provided as indicated on the drawings.
- m. Remove rubbish, leave building broom clean and doors, windows and equipment in perfect working order.
- n. Office counters shall be constructed in accordance with the specifications for cabinets and as follows:
- (1) Counter tops shall be 5/8 inch plywood covered with 1/8" thick hard pressed fiberboard Class B.
  - (2) Gates shall be 1/2" plywood or 3/4" paneled doors.
- (3) A drawer with 5 change pockets and 5 compartments for paper money shall be included.

- (4) Guard screens of 1/4" plywood set in wood frames not less than 20 inches high, unless otherwise shown, shall be provided for top of counters. Provide 2 panels 16 inches wide of plate glass with a 2 inch space at bottoms and a 3 inch circular opening 4-6" from the floor. Provide 1 hinged wicket for packages and cabinet doors and drawers as indicated.
- c. Work bench shall have 2 x 4 frames 4 feet on center x braced with 1 x 4 boards. Top of work bench shall be 2 inch oak or maple planks. Provide a skirt board 12 inches deep on front of bench and longitudinal x bracing in 1 panel.
- p. Three galvanized or cast iron clothes line hooks 3/8 inch in diameter shall be provided on building studs approximately opposite clothes poles and 616" above grade.
- q. Fire protection guards between heaters, and stoves and building walls shall be 26 gage galvanized steel supported 1 inch from walls by galvanized 26 gage sheet metal Z bars not over 18 inches apart. Z bars shall be secured to walls by 5/16 inch stove bolts 12 inches apart.
- r. Metal threshold for entrance doors shall be brass, aluminum or cast iron not less than .1 inch thick of pattern similar to indication on the drawings. The hook strip shall be spring bronze or stainless steel not less than .02 inches thick and engage the metal threshold closely when doors are closed.
- s. Weatherstrips for casement and double hung windows and for entrance doors shall be brass, bronze, zinc or stainless steel strips not less than .017 inches thick, one or two member, manufacturer's standard type, providing a weather tight seal on all 4 edges of doors and casement and double hung sash. They shall adjust themselves to the swelling and shrinking of the sash and frames without impairing their efficiency or the easy operation of the sash and doors. For attaching zinc or stainless steel strips use cadmium or zinc coated nails or screws and copper nails or brass screws for brass or bronze strips.

# THERMAL INSULATION

# NOTES TO THE ARCHITECT:

SINCE THESE DEMOUNTABLE BUILDINGS ARE APT TO BE MOVED TO OTHER AREAS WHERE THE CLIMATE MAY BE RIGOROUS IT IS INADVISABLE TO CHANGE THE INSULATION REQUIREMENTS REQUIRED BY THESE SPECIFICATIONS.

VAPOR RESISTANCE IN CEILINGS IS PROVIDED FOR BY THE USE OF ALUMINUM FOIL ON GYPSUM WALL BOARD.

THE USE OF REFLECTIVE INSULATION AND ASPHALT BACKER BOARD IN FLOOR
PANELS MAKES THE USE OF SKIRTING UNNECESSARY EVEN IN COLD CLIMATES.

THE THICKNESS OF FIBER BOARD ROOF SHEATHING MAY BE INCREASED WHEN CLIMATE IS COLDER THAN -10°F. DESIGN TEMPERATURE. (SEE DIVISION DHS 3.)

CHANGE AS NECESSARY TO MEET THE PROJECT REQUIREMENTS. STRIKE OUT ITEMS

NOT APPLICABLE AND ADD AS NECESSARY. DO NOT, HOWEVER, MAKE CHANGES WHICH

AFFECT THE FUNDAMENTAL DESIGN.

#### THERMAL INSULATION

## 1. SCOPE

Provide reflective insulation in paneled wood floors of Series 1 buildings and blanket insulation in walls of Series 1 buildings and walls and ceilings of buildings with pitched roofs. Insulation of ceilings of Series 1 buildings is provided by the fiberboard roof deck.

#### 2. MATERIALS

- a. Reflective insulation shall be sheets of aluminum foil mounted on both sides of an 80 pound Kraft paper. Reflective insulation shall be 25 inches wide for 24 inch joist spacing and 36 inches for 16 inch or less spacing.
- b. <u>Blanket insulation</u> shall be 1 inch thick in walls and 2 inches thick in ceilings of the following types and conform to the Federal Specifications listed therewith as follows:

Mineral Wool
Cotton
HH-I-521c
HH-I-528
Vegetable or wood fiber
HH-I-571a

(1) Blanket insulation in ceilings shall be enclosed on both sides in a paper envelope or be a type not needing a cover, permitting the insulation to be salvaged and rolled up for transportation when the house is demounted. Blanket insulation in walls shall be enclosed on both sides in a paper envelope or be a type not needing a cover. A vapor barrier consisting of an asphalt coated tough strong paper conforming to Federal Specification UU-P-147, Class B (this equals a vapor permeability of .86 grains of water vapor per square foot per hour per inch of mercury) shall be included on the warm face of the insulation as a part of the insulation or as a separate vapor barrier. The vapur barrier shall be wide enough to lap 1/2 inch on the framing with flanges of the same material as the barrier. (Untreated or parafin treated edges are not permitted.)

# 3. INSTALLATION

a. Apply reflective insulation to the top of floor joists before laying flooring. Staple the foil covered paper to the floor framing approximately 12 inches on centers and with sufficient slack so that the insulation will sag below the flooring providing an air space of 3/4 inch or more. Perforate low points of the foil with 8d nail holes 24 inches on center for drainage.

- b. Apply blanket insulation to wall panels as follows: Cut blankets into lengths 1 inch longer than the space to be filled and trim the insulation 1/2 inch back from end of vapor barrier. Staple front and rear envelopes together through the insulation at ends with clinch type stapler to prevent interference with ventilation in ventilated panels. Apply the blanket to the wall panels with the vapor barrier lapped 1/2 inch or more on the arm face of the framing and the insulation in the interior of the panel. Staple edges 12 inches on center.
- c. Apply insulation without integral vapor barrier as follows: Cut blanket 2 inches longer than the space between framing to allow for stapling. Staple blanket between framing on sides, top and bottom. Apply vapor barrier over blanket to inside face of framing and staple to framing 12 inches on center.
- d. Apply insulation in ceilings by laying in place between the trusses after ceiling board is in place. Avoid interference with ceiling ventilation and avoid any omissions or uninsulated areas.

# ROOFING: COMPOSITION

#### 1. SCOPE

Include composition roofing on Series 1 buildings required to complete the project as indicated on the drawings or specified. See the drawings and General Scope of Work for location and extent of work.

a. Composition roofing shall be 3 ply asphalt or coal tar pitch roofing, both with gravel surfacing.

# 2. MATERIALS

Materials shall conform to the standard specifications or special requirements listed therewith as follows:

a. Asphalt roofing felt

HH-F-19la, 36 inches wide

b. Coal tar pitch roofing felt

HH-F-201, 36 inches wide

c. Asphalt

SS-A-666 Type 1

d. Coal tar pitch

R-P-381 Type 1

- e. Asphalt primer shall be an asphalt base thinned with a volatile solvent.
- f. <u>Bituminous plastic</u> cement shall be an asbestos fibrated asphalt cement mixed to proper consistency at the factory and delivered in sealed containers.
- g. Slag or gravel surfacing material shall be hard durable clean particles evenly graded in size from 1/4 inch to 5/8 inch and be dry when applied.
- h. Sheathing paper shall be an unsaturated paper weighing not less than 5 pounds per 100 sq. ft.

# 3. GENERAL REQUIREMENTS

Roof surfaces shall be smooth, even, firm, sound, dry, free from high spots and depressions and broom clean before any roofing is applied. Application of the roofing will be considered as evidence of acceptance of the roof deck and approval by the roofing contractor as an acceptable base for roofing. Use coal tar pitch with coal tar pitch saturated felts and asphalt with asphalt saturated felts.

- a. <u>Heat bitumen</u> to not more than 400°F. Use heating apparatus which is capable of providing controlled temperatures. Apply hot bitumen at temperatures from 350°F. to 375°F. Bitumen which has been burned shall be discarded.
- b. Roll or broom asphalt saturated felts firmly in place without wrinkles or blisters.
- c. Lower 2 plies of coal-tar-pitch roofing felts shall extend 6 inches beyond the open edges of roofs, be turned back over the top of upper felt, and be cemented down with hot coal-tar-pitch.
- d. Provide strips of felt in place with cement between plies at starting edges of all courses of felt so that the total number of felts at starting edges and all points shall be equal to the number of plies specified for the roof.
- e. Flashings and all other connections of roofing with other work shall be completed before application of final coating of bitumen.
- f. Coordinate work with sheet metal work. Apply final coat of bitumen on any area as rapidly as practicable after completion of sheet metal work. Incomplete roofing shall be protected from dampness by a light coat of bitumen when final coating is delayed.
- g. Bed metal base flashings, gravel stops, and similar items in bitumen after all roofing felts are laid and strip such items with not less than two strips of felt 10 and 12 inches wide over the metal and embedded in bitumen.
- h. Weathertightness. Composition roofing shall be weathertight and watertight.
  - i. Avoid defacement of any other work and material.
- j. Protect fiberboard roof deck with boards against damage from foot and other traffic as necessary.
- 4. APPLICATION OF COMPOSITION ROOFING
- a. Coal tar pitch or asphalt composition roofing shall be 3 ply applied as follows: (See GENERAL REQUIREMENTS in this division.)
- b. Lay strips of sheathing paper 12 inches wide over panel joints in fiberboard roof sheathing and nail in place with roofing nails through metal or fiber discs 12 inches on center and staggered.
- c. Coat the fiberboard roof deck with a mop coat of hot bitumen using 25 pounds per square.

- d. <u>Lay 3 plies</u> of 15 pound saturated roofing felts lapping each felt 25 inches over the preceding felt, mopping the full 25 inch lap with hot bitumen so that in no place shall felt touch felt.
- e. Coat the surface with a uniform poured coat of 75 pounds per square of bitumen into which while hot embed 300 pounds of slag or 400 pounds of gravel per square.

#### DIVISION DHS 5a

ROOFING: SHINGLES

# NOTES TO THE ARCHITECT:

THIS SHEET IS FOR THE USE OF THE ATCHITECT ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

USE SELF SPACING INTERLOCKING SHINGLES FOR AREAS WHERE WIND RESISTANCE IS OF PRIME IMPORTANCE.

USE 210 LB. STRIP SHINGLES FOR AREAS WHERE WIND IS NOT TOO SEVERE AND THE APPEARANCE OF STRIP SHINGLES IS PREFERRED.

CHANGE AS NECESSARY TO MEET PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND ADD AS NECESSARY. DO NOT, HOWEVER, MAKE CHANGES WHICH AFFECT THE FUNDAMENTAL DESIGN.

PARAGRAPHS MARKED ( ) COVER VARYING TYPES OF CONSTRUCTIONS AND MAY NOT BE REQUIRED IN THE PROJECT. SELECT THE TYPE OR TYPES SUITABLE FOR THE PROJECT AND OMIT THOSE NOT SUITABLE.

#### DIVISION DHS 5a

#### ROOFING; SHINGLES

#### 1. SCOPE

Include asphalt shingle roofing on buildings with pitched roofs required to complete the project as indicated on the drawings or specified.

#### 2. MATERIALS

Materials shall conform to the standard specification or special requirements listed therewith as follows:

# a. Asphalt roofing felt

#### HH-F-191a

- b. Asphalt shingles shall conform to type and weight in place as specified herein. Colors shall be manufacturers' standard as selected by the Contracting Officer but not more than 4 colors will be selected and only 1 color used on one building. Asphalt shingles shall bear Underwriter's Laboratories Class C label.
- ( ) Asphalt shingles shall be rectangular strips, 3 tab  $12 \times 36$  inch, thick butt, or 4 tab  $10 \times 36$  inch standard type, weighing not less than 210 pounds per square.
- () Asphalt shingles shill be self spacing individual interlocking shingles of from 18 to 24 inches width and length, having locking tabs or projections, providing complete double coverage and weighing not less than 220 pounds per square.
- c. Bituminous plastic cement shall be an asbestos fibrated asphalt cement, mixed to proper consistency at the factory and delivered in sealed containers.
- d. Roll roofing shall be a slate surfaced ready roofing weighing not less than 80 pounds per square.
- e. Nails for fastening felt and asphalt shingles shall be large head roofers zinc coated nails long enough to penetrate roof deck 1 inch.

#### 3. GENERAL REQUIREMENTS

- a. Roofing shall not be laid until all sheet metal, crickets or work which extends under roofing material have been satisfactorily installed.
- b. Flashing. Coordinate roofing work with flashing of openings in roof surfaces and other sheet metal work.

c. Roof shall be weathertight, free from leaks and other defects.

#### 4. APPLICATION

- a. General. Cover roof surfaces with 15 pound bituminous saturated roofing felt before laying asphalt shingles. Double felt not less than 18 inches wide at ridges. Lap horizontal joints 3 inches, vertical joints 6 inches. Nail to sheathing 12 inches on center in both directions through metal or fiber discs.
  - b. Asphalt shingles shall be applied as follows:
- (1) After application of sheetmetal edge strips as specified in the division SHEETMETAL apply starting courses and field courses in true horizontal and vertical lines in exact accordance with the instructions of the manufacturer except as otherwise specified. Strip shingles shall have a 5 inch exposure.
- (2) Nail shingles using 6 nails for 3 tab strip shingles, 8 nails for 4 tab shingles and not less than 4 nails for interlocking shingles.
- (3) Hips and ridges shall be applied by bending individual rectangular shingles so as to have equal exposures, not less than 5 inches on each side. Lay with not over 5 inch exposure or less than 2 inch headlap, nailing 5-1/2 inches from exposed end and 1 inch from each edge. Cover nails in last shingle with plastic cement. Warm shingles in cold weather before bending.
- (4) Bed shingles laid over metal flashing of pipes and chimneys in bituminous plastic cement.

#### DIVISION DHS 5b

#### SHEET METAL WORK

#### 1. SCOPE

Include sheet metal work required to complete the project as indicated on the drawings or specified. See the drawings and General Scope of Work for extent of work.

#### 2. MATERIAL

- a. Sheet metal shall be 28 gage, best commercial quality galvanized copper bearing steel, primes only, unless otherwise indicated on the drawings or specified herein.
- b. <u>Plastic cement</u> shall be asbestos-fibrated asphalt cement mixed to proper consistency at the factory and delivered in sealed containers.
- c. Asphalt coating for paint shall be asphalt dissolved in a volatile solvent.
- d. Sheathing paper shall be an unsaturated felt weighing not less than 5 pounds per 100 square feet.
- e. <u>Nails</u>, screws and bolts for fastening galvanized steel shall be ferrous metal galvanized or cadmium coated. Nails shall be long enough to penetrate wood 1 inch.

#### 3. GENERAL REQUIREMENTS

- a. <u>Surfaces</u> to be covered with sheet metal shall be **smooth** and free from holes and shall be cleaned of dirt, rubbish and other foreign materials before sheet metal work is started. Projecting nails shall be driven flush with the roof boarding.
- b. <u>Joints and seams</u> shall be avoided as much as possible. Overlap seams in direction of flow of water. Make ample provision for expansion.
- c. <u>Flanges</u> (not exposed to weather) of gravel stops, edging strips, vents and flashings or other work used in conjunction with composition roofing shall be painted with asphalt coating, embedded in hot bitumen, set on top of all felts and nailed 3 inches on centers.
- d. <u>Clean sheet metal</u> as each section is completed. Neutralize excess flux by washing metal with a solution of washing soda. After cleaning, wash with clear water. Avoid staining or discoloring adjacent work.

- e. Sheet metal work shall be water and weathertight with lines, arrises and angles sharp and true and plain surfaces free from waves and buckles.
- f. Coordinate work with roofing. Apply sheet metal work so as not to delay completion of roofing.

#### A. INSTALLATION

- a. Gravel stop shall be formed in lengths of not to exceed 10 feet with flanges extending 4 inches on the roof and nailed 3 inches on center. Stop shall be 3/4 inch high with profile as indicated on the drawings. Lap ends of sections 6 inches and bed in plastic cement.
- b. Chimney flashing shall consist of base and counter flashing extending 4 inches on the roof over composition roofing. Lap and solder corners and extend flashing over the top of the wood curbs surrounding the chimney. Solder seams while in a flat position. Nail edges 3 inches on center over composition roofing. Nail top to wooden curb under chimney flanges.
- c. Cricket flashing when shown, shall extend under shingles 8 inches. Joints shall be lapped or locked and soldered. Nail in place under shingles and cover nails with plastic cement.
- d. Metal edging not less than 5 inches wide shall be applied to eaves and rakes of pitched roof buildings as indicated on the drawings. Lap sections 2 inches at eaves and 1 inch at rakes. Nail 8 inches on center.

# BUILDERS HARDWARE

# NOTES TO THE ARCHITECT:

THIS SHEET IS FOR THE USE OF THE ARCHITECT ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

ADD SPECIFICATIONS FOR KEY CONTROL FROM THE GUIDE SPECIFICATIONS WHEN PROJECT IS LARGER THAN 25 DWELLINGS.

CHANGE AS NECESSARY TO MEET PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND ADD AS NECESSARY. DO NOT, HOWEVER, MAKE CHANGES WHICH AFFECT THE FUNDAMENTAL DESIGN.

#### BUILDERS HARDWARE

#### 1. SCOPE

Include builders finish hardware and items specified in this division and accessories required to complete the project. See the drawings and General Scope of Work for location and extent of work.

- a. Balances for double hung windows are specified in the division CARPENTRY AND MILLWORK.
- b. Items of hardware not definitely specified herein and necessary for completion of the work shall be provided of suitable types having as nearly as practicable the same operation and quality as the types specified. Sizes shall be adequate for the service required.

#### 2. MATERIALS

a. <u>Hardware</u> shall conform to the following Federal Specifications and the type numbers specified.

Locks and door trim FF-H-106a Shelf and miscellaneous FF-H-111a Hinges FF-H-116b

b. Finish for hardware, except as otherwise specified, shall be:

US 9 or US 10 for hardware generally (one finish to a building)
US 26 for toilet and bathroom hardware
USF for hinges primed for painting

#### 3. SAMPLES AND SCHEDULE

- a. Samples of builders hardware proposed for use in the work shall be submitted to the Contracting Officer for approval before delivery of the hardware. Provide one sample each of every type specified or required. Hardware samples shall be properly identified as to type, number, and where it is proposed to be used. Hardware so identified may be installed in the buildings before completion provided the identification remains attached until acceptance of the buildings.
- b. Schedule of hardware indicating type, number, location and finish of each item required shall be submitted by contractor for approval with the samples. The hardware schedule shall assign serial numbers to items which will be used to identify the packages of hardware items. Approval of hardware schedule shall be for type, operation and finish. The contractor shall be responsible for furnishing all necessary hardware items. After approval

supply 6 copies of the hardware schedule to the Contracting Officer for use and record.

#### L. KEYENG KEYING

- a. Locks shall be keyed differently unless otherwise specified. Cylinder locks of different changes shall be furnished with three keys each. Locks specified to be keyed alike in any system or set shall be furnished with one key for each lock, with a total of at least three keys for each set.
  - b. Die stamp each key with the number of lock change.
  - c. Bit key locks shall be provided with two keys each.
- d. Six mester keys shall be furnished for cylinder locks on the project. (No grand master key system will be required). Master keys shall be delivered to the Contracting Officer by the contractor upon completion and occupancy or acceptance of any of the dwellings in the project.

#### 5. PACKING AND MARKING

Each lock set and item of hardware shall be packaged separately and shall be complete with necessary screws, key instructions and required templates. Each individual container shall be marked with corresponding item number from the hardware schedule identifying the contents and defining its location in the finished work.

# 6. BUTTS (HINGES)

Butts for doors 1-3/8 inch thick shall be 3-1/2 x 3-1/2 and for doors 1-1/8 inch thick they shall be 3 x 3. Exterior doors shall have 1-1/2 pairs of butts and interior doors 1 pair. Door butts shall be type  $2014-1/2P_e$ 

#### 7. LOCKS

Cylinder locks supplied under this division shall be the product of one manufacturer and the same restriction shall apply to bit key locks.

- a. Muls of cylinder knob locks for exterior doors shall be brass or bronze.
- b. Cylinder rings of wrought bronze of proper size to fit door thickness shall be supplied.
- c. Bit key mortise locks and mortise latches may have lock cases, fronts and strikes of the same external measurements to suit a standardized mortise for all dwelling unit doors.
- d. Mortise, tubular or cylindrical locks and latches may be used. Lock sets shall be complete with escutcheons, knobs, roses and similar items as required and herein specified. Where two numbers are given under any one type

of lock, both pieces shall be provided. In lieu of locks specified, locks of manufacturers' stock design, similar in quality and function may be used subject to the approval of the Contracting Officer.

e. Lock Schedule

general contraction on the contraction of the contr	<u>Mortise</u>	Tubular		
Front and rear doors (keyed alike) Bedroom Doors Bathroom doors	194 <b>–</b> 185 3D 3B	182A - 2B 2B 2A		
Storage doors and other doors not otherwise specified	194-185	182A - 2B		

Series 160 cylindrical case lock and latch sets may be furnished in lieu of other lock and latch sets described herein where they provide substantially the same performance in operation and control and have substantially the same quality of construction and wrought trim as the lock and latch sets for which they are substituted.

Bathroom locks shall have an emergency access device and the locking mechanism shall release automatically.

- f. Roses for locks and latches shall be Type 335 or 336 except as otherwise necessary for the operation of the lock or latch furnished.
- (1) Cylindrical case lock and latch sets shall have roses that are standard for the manufacturer of the lock.
- 8. SHELF AND MISCELLANEOUS.

Hardware attached to flush hollow core doors, where blocking is not provided, shall be attached to the door by through bolts with sleeve nuts.

- a. Door stops, Type F1323 or Type F1331, as required, shall be provided for all exterior and interior doors where the swing of the door will permit the door knob to strike the wall surface.
- b. Six coat hooks, Type F1173 commercial finish, shall be provided for all closets except linen closets.
- (1) One robe hook, Type F1173, shall be provided in each bathroom and toilet room.
- c. Scuttle in ceiling to attic space shall be secured in place with two hook and eyes similar to Type 1601 with 2 inch hook length.
- d. Cabinet C 5 in Series 1 buildings shall have 2 pair of 3 x 3 loose pin butts with the screws in the bottom leaf reversed.
  - e. Wood cabinets, and cabinet type doors of closets, shall be provided

with one pair of 2 inch wrought steel plated semi-concealed cabinet hinges for lipped doors and one pair of 2 inch full surface plated butts for panel doors. Doors over 4 feet high shall have 3 hinges. Friction catches for holding doors shall be Type F1073 or other types to suit conditions. Pulls for doors and drawers shall be Type F1307, one for each door and one for each drawer 20 inches or less wide; two for each drawer over 20 inches wide.

- f. Double hung wood windows shall have sash fasteners, one to each pair of sash, crescent Type F1140 or as standard with a prefitted window manufacturer.
- g. Screen and combination screen and storm doors shall have one pair off 3 x 3 butts, one chain door stop F1317, one No. 4 coil spring F1845 except gelvanized, one 3 inch rust proofed steel hook and eye and one door pull F1274.
- h. Letter drop shall be provided for each front door to each house. Letter drops shall have an opening of not less than  $l_2^1 \times 7$  inches with front and back plates of heavy gage wrought brass or steel primed for paint. Overall dimension shall be approximately  $3 \times 10$  inches. Opening on outside plate shall be closed by a gravity hinged leaf providing weather protection. Door slots shall be installed not less than 30 inches from finished floor.
- i. Cabinets and counters of wood (other than kitchen). Doors shall have one pair of 22 inch butts 2018A. Locks for doors shall be brass or bronze wardrobe locks with 2 flat keys. Drawer locks shall be brass or bronze cabinet locks with 2 flat keys. Drawer pulls F1310, one for drawers less than 20 inches wide, 2 for other drawers. Doors shall have pulls Type F1307.
- J. Casement sash shall have one friction type adjuster similar to Corbin 55, 10 inches long, one pull F1307, one casement window fastener similar to H. R. Ives Company, New Haven, Connecticut, Series 19, with not to exceed 3/4 inch projection, and one pair of butts 2014-1/2P, 3 x 3 inches.
- k. Screens and storm sash for casement windows shall have two hangars each Stanley 1713 and one fastener each Stanley 1763. Screens and storm sash shall be interchangeable. Provide a wood block on window sill for mounting fastener for storm sash.
- () Storm sash for double hung windows shall have one pair of storm sash hangers F1825; one storm sash in each room shall have a fastener set F1653 with a pull. Other storm windows shall have a pull and a pair of hooks and eyes as long as will fit between sash and storm sash.

# DIVISION DHS 7 ASPHALT TILE

#### 1. SCOPE.

Include asphalt tile flooring, composition base and items specified in this division required to provide asphalt tile floors in bathrooms.

#### 2. MATERIALS.

Asphalt tile shall conform to Federal Specification SS-T-306a, 1/8 inch thick. Tile shall be 9 x 9 inches. Colors will be selected from color group B of Simplified Practice Recommendation R 225-47 issued by the Department of Commerce.

- a. Colors shall be limited to two colors in one room with the darker color used for the border. The number of such color combinations will be limited to four selections.
- b. Composition base shall be black, coved, set-on type, 4 inches high and 1/8 inch thick.
- c. Adhesive for tile shall be a bituminous plastic cement, cut-back type or emulsion type; adhesive for base shall be a waterproof synthetic rubber cement or a waterproof resin base cement, as recommended by the manufacturer of the tile.
- d. Edging strips to protect free edges of the tile shall be plastic or hardwood.

#### 3. SAMPLES.

Samples of the following listed materials proposed for use in the work shall be submitted to the Local Authority for approval:

#### 4. GENERAL REQUIREMENTS

a. General. Inspect the subfloor and do not lay any asphalt tile until wood underfloors are well nailed and free from holes, cracks, squeaks and springiness under foot traffic. Subfloors shall be scraped free from foreign material and cleaned. Any subfloors too rough for direct application of the asphalt tile shall have projections removed and depressions primed with emulsified asphalt thinned to a brushing consistency and filled with a mixture of I part of high early strength portland cement, 2 parts sand and I part of emulsified asphalt tempered with water to a plastic mortar as dry as can be placed. Allow filler to set hard.

- b. <u>Maintain temperature</u> at least 70 degrees F. in place of storage prior to laying. In rooms where tile is to be laid, maintain temperature at least 70 degrees F. for 48 hours before and after tile is laid.
- c. <u>Installation</u> shall not begin until the work of other trades in the area, including painting, has been completed.
- d. Omit asphalt tile under showers and omit composition base against showers.
  - e. Apply asphalt tile over plywood subfloors without felt underlayment.

#### 5. INSTALLATION

- a. Spread adhesive with a trowel having triangular notches 1/16 inch deep and wide on 3/16 inch centers. Apply only enough adhesive to hold the tile without rising through joints between tile.
- b. <u>Lay tile</u> when adhesive has set tacky, starting at the center of the room and working toward walls. Embed each tile in adhesive with closely fitted, straight, inconspicuous joints. Lay field tile with grain alternately reversed in a checkerboard pattern. Do not cut except at walls or obstructions. Beveled edging strips shall be installed where edges of tile are exposed.
- c. <u>Finished floors</u> shall be smooth and free from buckles, cracks, breaks, waves, and projecting edges, and shall fit neatly at pipes and other installations and obstructions.
- d. <u>Install base</u> on top of asphalt tile flooring with corners neatly fitted. Attach base to finish walls with adhesive spread evenly.

# 6. CLEANING AND WAXING

Clean tile and base with a neutral cleaner when tile has become well seated. Coat floors with a water emulsion and buff with a floor polishing machine.

# DIVISION DHS 8 PAINTING AND GLAZING

# NOTES TO THE ARCHITECT:

THIS SHEET IS FOR THE USE OF THE ARCHITECT ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

INCLUDE ON THE DRAWINGS COMPLETE INSTRUCTIONS FOR STREET AND BUILDING SIGNS AND HOUSE NUMBERS.

THE RANGE OF COLOR SELECTION SHOULD BE NARROWED FOR SMALL PROJECTS.

CHANGE AS NECESSARY TO MEET THE PROJECT REQUIREMENTS. STRIKE OUT ITEMS

NOT APPLICABLE AND ADD AS NECESSARY. DO NOT, HOWEVER, MAKE CHANGES WHICH

AFFECT THE FUNDAMENTAL DESIGN.

#### PAINTING AND GLAZING

#### 1. SCOPE

Include painting and glazing required to complete the project as indicated on the drawings and as specified. See General Scope of Work for extent of work.

a. <u>Prefinished wall board</u> shall not be painted if surface is maintained clean and in good condition.

#### 2. GENERAL

The term paint, as used herein, includes emulsions, enamels, oil paints, sealers, stains, varnishes and similar coatings.

#### 3. MATERIALS

Paint shall be well ground, shall not settle badly, cake or thicken in the container, be readily broken up with a paddle to a smooth consistency and have easy brushing properties. Paint shall be ready mixed except that thinning and tinting may be done on the job. The paint shall be suitable for spraying when thinned with not more than 12 per cent by volume of mineral spirits. Paint materials shall be delivered in the manufacturer's unopened containers with labels and tags intact. The use of specification symbols in this specification shall be understood to require a material conforming to the specification listed therewith.

#### 4. GENERAL REQUIREMENTS

- a. <u>Maintain temperature</u> of rooms where varnish or enamel is being applied at 70°F. or more and at 50°F. or more during other interior painting. Exterior painting shall be performed when the air temperature is 50°F. or higher and in drying weather.
- b. <u>Colors</u> shall be as selected by the Contracting Officer but not over two colors for exterior for any building or six for the project; two colors for interior trim and two colors for interior walls for any building but not over six for the project. When prefinished wall board is manufactured in only one color, the color selection for walls shall be waived.
- c. <u>Doors and windows</u> and trim in a room shall be painted one color not the same color as the walls unless specifically required.
- d. Prime coated butts shall be painted to match the door to which they are attached.

- e. Allow paint to dry hard between coats.
- f. Wood sash shall have prime coat of TT-P-25 applied both sides before glazing.
- g. <u>Protoct all work</u> from damage by the use of drop cloths. Remove paint stains completely from finished work.
- h. Paint unfinished exposed surfaces of plumbing fixtures 2 coats of paint as specified for interior woodwork.
- i. Covering shall be complete. When color, stain, dirt, or undercoats show through the final coat of paint, the work shall be covered by additional coats until the paint is of uniform color and appearance and coverage is complete.
- j. Hardware and accessories, fixtures and similar items placed prior to painting shall be removed or protected during painting and replaced on completion of painting.
- k. Shelving shall be treated on the bottom and exposed edges as specified for interior wood trim.
  - 1. Sand interior surfaces lightly between coats.
- m. Furnish affidavits from manufacturers certifying that materials delivered to the project conform to the requirements of these specifications.

#### 5. PREPARATION OF SURFACES

- E. Surfaces to be painted shall be clean, dry and free from dirt and frost.
- b. Gover knots and pitch streaks with orange shellac, aluminum paint or a resin sealer approved by the Contracting Officer.
- c. Galvenized metal to be painted shall be cleaned with commercial pretreating solution or a solution consisting of 4 ounces of copper sulphate in one gallon of water. Permit copper sulphate to dry on surface not less than 12 hours, and dust off with a stiff brush. Follow manufacturer's direction for pre-treating solutions.

# 6. EXTERIOR PAINTING

a. Exterior woodwork and exterior covering, including both sides of sash, storm sash for double hung windows, and combination and screen doors, shall be painted as follows:

lst coat Exterior primer 2nd coat Exterior oil paint

TT-P-25

TT-P-102, Class A for white paint and Class B for tinted paint

Both first and second coats shall be manufactured especially for 2 coat work. Spread at a rate of not to exceed 450 square feet per gallon for the first coat and 550 square feet per gallon for the second coat.

b. Exterior metal shall be painted as follows:

First coat on ferrous metal, red lead TT-P-86a
First coat on galvanized metal, zinc dust
zinc oxide TT-P-641
Second coat exterior oil paint TT-P-102

#### 7. INTERIOR PAINTING

a. <u>Interior doors</u>, screens and storm sash for casement windows, trim and cabinets, exposed ceiling framing and bathroom walls shall be painted as follows:

First coat (not wood sash) primersealer TT-P-56a
Second coat enamel undercoat TT-E-543
Third coat semigloss enamel TT-E-508

b. Walls, except for prefinished wallboard and except bathrooms shall be painted as follows:

One coat resin emulsion

TT-P-88a

Prefinished wallboard which has become soiled shall be cleaned or painted as for unfinished wallboard.

c. Floors, except prefinished flooring, shall be finished as follows:

Oak floors shall have a coat of wood filler TT-F-336a, tinted with stain as approved by the Contracting Officer, applied freely and wiped off across the grain. Finish with two coats of wood sealer TT-S-176a, Class 1 for softwood and Class 2 for hardwood, tinted as directed, applied freely and wiped off before sealer has set. Recoat any dull spots until floors have a uniform matt finish.

d. Upperside of shelving shall be treated the same as soft-wood flooring.

# 8. APPLICATION

Any required thinning of paint shall be done in compliance with the printed instructions of the manufacturer of the paint. A shop coat will be accepted in lieu of any priming coat required by these specifications. Work shall be done by skilled mechanics and shall be uniform in appearance, of approved color, smooth and free from runs, sags, skips and defective brushing. Make edges of paint adjoining other materials or colors, sharp and clean without overlapping except that paint shall overlap glass slightly. Should workmanship of finish be found defective proper preparatory work shall be done and additional coats applied as necessary to give a finish in accordance with specifications and color samples.

At completion, touch up and restore finish where damaged or defaced and leave in first class condition. Painted or finished surfaces cut in fitting or erection shall be restored.

#### 9. PAINTED SIGNS AND NUMBERS

Provide house numbers of up to three 2 inch black letters stenciled on painted wood or metal plaques attached to houses near front door as directed or provide ceramic or metal house numbers of comparable visibility in place.

a. Street signs and signs on service buildings shall be provided of size, type and number as indicated on the drawings. They shall be of wood or metal with painted, stenciled, ceramic or metal letters.

# 10. GLAZING

- a. Glaze windows and doors with SS-B clear glass except that lights over 240 sq. inches shall be DS-B clear glass.
- b. Glaze windows in toilets and bathrooms with obscure glass 1/8 inch thick.
- c. Putty for wood sash shall be white lead-whiting putting containing not less than 10 per cent white lead.
- d. Affidavits from the manufacturers certifying that putty complies with the requirements of this specification shall be submitted to the Contracting Officer.
- e. <u>Glazing</u>. Surfaces shall be dry and free from dust or ice before glazing. Dirty surfaces shall be cleaned with a cloth saturated with turpentine or mineral spirits before glazing. Putty shall not be applied in temperatures below 40°F or during damp or rainy weather. Do not glaze wood windows or doors until they have received a priming cost of paint as specified. Do not handle windows after glazing until the putty has set. Obscure glass shall be set with smooth side out.
- (1) Bed glass completely in putty. Set with not less than 8 glaziers points. Apply face putty with sufficient pressure on the knife to insure complete adhesion to glass and rabbet. Out off excess immediately after glass is bedded. Face putty shall be full, smooth, and with accurately formed bevels having clean cut miters.
- (2) <u>Firty</u> shall be used as it comes from container without adulteration and only after thorough remixing. If thinning is required, use only white gasoline and not more than one tablespoon per gallon of putty.
- (3) Doors shall have glass completely bedded in putty and set with glazing beads.

- (4) <u>Ventilate</u> building after glazing by opening windows slightly top and bottom sufficient to prevent condensation of water on the glass and bed putty. Maintain such ventilation until glazing compound or putty has set.
- f. Clean glass on both sides after painting is complete and dry. Do not disturb putty with scrapers. Do not use acid solutions or water containing caustic scaps. Broken, cracked and glass not complying with these specifications shall be replaced. At completion of work, glass, putty and other glazing materials shall be clean, whole, and in perfect condition.

#### SHADES

#### 1. SCOPE

Include window and door shades and items included in this division with accessories required to complete the project. See the drawings and General Scope of Work for location and extent of work.

- a. <u>Furnish and install shades</u> for windows and glazed doors in dwelling units and for windows of any administration buildings. Where multiple windows are shown, provide each unit with a separate shade. Provide one shade for each pair of casement windows. None for bathroom.
  - b. Furnish and install curtain rods at windows of dwelling units.

#### 2. MATERIALS

- a. Shade cloth shall be holland shade cloth or pyroxylin-impregnated shade cloth of color as selected by the Local Authority from the manufacturer's standard colors.
- b. Shades, rollers, slats, cords and accessories shall conform to Federal Specification DDD-S-25la and be equipped with ring pull. Shades shall be installed on face of window trim and on face of doors and overlap glass not less than one inch on all edges.
- (1) Shade brackets for doors and windows shall be first quality manufacturer's standard.
- e. Curtain rods shall be manufacturer's standard telescoping type not less than 3/4 inch deep, made up of not less than .014 inch thick steel painted with an ivory or near white enamel. Casement windows shall have one rod for each pair of sash and a center support. Double hung windows shall have one rod for each window. Curtain rods without center support shall lap at least 10 inches in center.

#### 3. SAMPLES

Samples of materials proposed for use in the work as listed below shall be submitted to the Local Authority for approval:

Shades 2 Curtain rods 2

# 4. INSTALLATION

- a. Shade and curtain rod brackets shall be securely fastened with suitable screws.
- b. Shades and curtain rods shall be placed square and level, and in accordance with best trade practices.
- c. Leave shades and curtain rods in perfect working order, free from defects.

#### SUSPENDED CHIMNEYS

#### 1. SCOPE

Include suspended chimneys and related items for family dwellings and service buildings included in the contract. See General Scope of Work for location and extent of work.

# 2. MATERIALS AND ASSEMBLY.

Chimneys shall be listed under the reexamination service of the Underwriters' Laboratories, Inc., for coal, oil and gas fuels, and shall be installed in accordance with their recommendations. Chimney shall bear Underwriters Laboratories label.

The chimney shall be suited to the space conditions indicated on the drawings, and shall be fitted with an approved means of flashing to the roof.

Flue pipe shall be 7 inches diameter and shall extend to a point 4 feet above roof line, exclusive of cap. The flue pipe shall be adapted to suit the connections from the necessary equipment.

Submit drawings for approval before proceeding.

#### FLUMBING

# NOTES TO THE ARCHITECT OR ENGINEER:

THESE NOTES ARE FOR THE INFORMATION OF THE ARCHITECT OR ENGINEER ONLY.

DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

THE DRAINAGE AND VENT SYSTEMS ARE WRITTEN TO INCORPORATE THE REQUIREMENTS SET FORTH IN THE "REPORT OF THE COORDINATING COMMITTEE FOR A NATIONAL PLUMBING CODE" ISSUED JOINTLY BY THE U. S. DEPARTMENT OF COMMERCE AND THE HOUSING AND HOME FINANCE AGENCY. THIS REPORT IS FOR SALE (PRICE 50 CENTS) BY THE SUPERINTENDENT OF DOCUMENTS, U. S. GOVERNMENT PRINTING OFFICE, WASHINGTON 25, D. C.

HOWEVER, ATTENTION IS DIRECTED TO THE STANDARDS FOR TEMPORARY DEFENSE HOUSING IN WHICH IT IS NOTED THAT STATE AND LOCAL LAWS AND REGULATIONS RELATIVE
TO HEALTH AND SANITATION MUST BE MET UNLESS WAIVERS TO UNDULY RESTRICTIVE
REQUIREMENTS ARE OBTAINED. HENCE, THE DRAWINGS AND THESE SPECIFICATIONS
FOR THE SANITARY PLUMBING SYSTEM MAY NEED MODIFICATION IN ORDER TO COMPLY
WITH THESE REQUIREMENTS.

THE SPECIFICATIONS ARE WRITTEN ALSO TO INCLUDE THE USE OF GAS PURCHASED FROM THE LOCAL UTILITY COMPANY FOR ONE OR MORE OF THE UTILITY SERVICES.

SECTION 17, SUBPARAGRAPH a, IS BASED ON THE WHOLESALE PURCHASE OF GAS.

SHOULD THERE BE RETAIL PURCHASE, IT MAY BE NECESSARY TO DELETE THE SUBPARAGRAPH ENTIRELY AND REWRITE IT TO SUIT INSTALLATION OF GAS PIPING UP
TO A METER (BOTH PIPING AND METER FURNISHED AND ERECTED BY THE GAS COMPANY).

THERE MAY BE CASES WHERE LIQUEFIED PETROLEUM GAS SUCH AS COMMERCIAL PROPANE OR COMMERCIAL BUTANE MAY BE PURCHASED FOR USE IN ONE OR MORE OF THE UTILITY SERVICES. UNDER THESE CIRCUMSTANCES, IT WILL BE NECESSARY TO DELETE THE APPLICABLE SECTIONS HEREIN, AND PREPARE A SPECIFICATION FOR AN INDIVIDUAL CILINDER SYSTEM (ONE OF TWO 100 LB. TANKS FOR EACH FAMILY UNIT) OR BULK SYSTEM FOR THE ENTIRE PROJECT. IN EITHER CASE THE SPECIFICATION REQUIREMENTS SHOULD BE WRITTEN TO INCORPORATE THE "STANDARDS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS FOR THE DESIGN, INSTALLATION AND CONSTRUCTION OF CONTAINERS AND PERTINENT EQUIPMENT FOR THE STORAGE AND HANDLING OF LIQUEFIED PETROLEUM GASES" (NBFU PAMPHLET NO. 58). THE NATIONAL BOARD OF FIRE UNDERWRITERS HAVE OFFICES AT 85 JOHN STREET, NEW YORK, NEW YORK, 222 WEST ADAMS STREET, CHICAGO 6,

THIS SPECIFICATION MUST BE ADAPTED TO SITE, SOIL AND CLIMATE CONDITIONS.

CHANGE THE TEXT AS NECESSARY TO MEET THE PROJECT REQUIREMENTS. STRIKE OUT

ITEMS NOT APPLICABLE AND ADD AS NECESSARY.

FOR EXAMPLE, THE SPECIFICATIONS INCLUDE ITEMS FOR GAS AND ELECTRIC DOMESTIC WATER HEATERS, NECESSARY DELETIONS MUST BE MADE. DO NOT, HOWEVER, MAKE CHANGES WHICH AFFECT THE FUNDAMENTAL DESIGN AS INDICATED ON THE DRAWINGS.

#### PLUMBING

#### 1. SCOPE

Include all plumbing work and related items for dwelling units and for service buildings. All plumbing work shall conform to the requirements in the Report of the Coordinating Committee for a National Plumbing Code issued jointly by the U. S. Department of Commerce and the Housing and Home Finance Agency. 1/Work shall include but is not limited to the following:

- a. <u>Drainage systems</u> within the buildings and to five feet outside the buildings, including connections to the outside sewerage lines.
- b. Hot and cold water systems within the buildings and cold water supply to five feet outside the buildings, including connections to the cold water distribution system.
- c. Plumbing fixtures and trim including the setting of fixtures and their connection to the drainage and water supply systems.
- d. <u>Gas piping systems</u> within the buildings and to five feet outside the buildings, including connections to outside gas distribution lines and to all gas appliances and equipment. Gas piping shall conform to the regulations of the local utility company.

#### 2. MATERIALS

Materials shall be new and shall conform to the Federal Specification or other standard listed with each item, as follows:

- a. Pipe and fittings shall conform to the following:
  - (1) Cast-iron soil pipe and fittings Federal Specification WW-P-401
  - (2) Cast-iron screwed fittings Federal Specification WW-P-50lb
  - (3) Cast-iron drainage fittings Federal Specification WW-P-49la
  - (4) Malleable-iron screwed fittings Federal Specification WW-P-52lb
  - (5) Copper tubing Federal Specification WW-T-797 or WW-T-799a

<sup>1/</sup> For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., price 50 cents.

- (6) Soldered joint fittings American Standard # 40.3
- (7) Lead pipe Federal Specification WW-P-325
- (8) Wrought-iron pipe Federal Specification WW-P-44la
- (9) Steel pipe Federal Specification WW-P-406
- b. <u>Underground soil</u>, waste and drainage piping within the buildings and to five feet outside the buildings shall be cast-iron soil pipe and fittings, extra heavy or service weight.
  - c. Above ground soil, waste and vent piping shall be:
- (1) Service weight cast-iron soil pipe and fittings, for piping two inches and larger except as otherwise noted on drawings.
- (2) Standard weight galvanized steel pipe with cast-iron drainage fittings (standard galvanized cast-iron or malleable-iron steam pattern fittings for vent piping only), for piping smaller than 2 inches.
  - (3) Lead traps and bends for waste only,
  - d. Water piping shall be any of the following:
- (1) Copper tubing, Type L exterior and Type M interior with wrought-copper solder-joint fittings.
- (2) Standard weight galvanized wrought-iron pipe with standard galvanized cast-iron or galvanized malleable-iron beaded screwed fittings.
- (3) Standard weight galvanized steel pipe with standard galvanized cast-iron or galvanized malleable-iron beaded screwed fittings.
- (4) Standard weight galvanized wrought-iron pipe with standard galvanized cast-iron or malleable screwed fittings.
- (5) Standard weight coated cement lined steel pipe with coated cement lined malleable-iron beaded screwed fittings.
- e. <u>Valves</u> 3/4 inch and smaller shall be globe or gate valves; larger sizes shall be solid wedge type gate valves. Valves shall be brass or bronze with screwed ends except those used in connection with copper tubing which may have soldered (sweat) type ends or appropriate adapters. Check valves shall be the horizontal swing type with hinged check and ground seat. All valves shall be the 125-1b. type that can be repacked under pressure when wide open. Bronze check and globe valves shall conform to Federal Specification WW-V-5la; bronze gate valves shall conform to Federal Specification WW-V-5

# f. Unions

- (1) For iron and steel piping. Unions shall be 150-lb. malleable-iron unions with brass seats.
- (2) For copper tubing. Unions shall be 125-1b. brass ground joint type.

# g. Gaskets

(1) For fixture outlets to floor flanges. Gaskets shall be soft asbestos with graphited finish conforming to Federal Specification HH-G-ll6.

# h. Jointing Compounds

- (1) Threaded and flanged jointing compound shall be made up of pipe cement and oil or graphite and oil.
- (2) <u>Fixture setting compound</u> shall conform to Federal Specification HH-C-536.
- (3) Hot poured jointing compound shall be of a type that will not soften sufficiently to destroy the effectiveness of the joint at 160°F, nor be soluble in any of the wastes normally carried by the drainage system, and shall conform to Federal Specification SS-C-608.

#### i. Lead

- (1) Calking lead shall conform to Federal Specification QQ-L-156.
- (2) <u>Lead traps</u> shall conform to Federal Specification WW-P-325.
- j. <u>Packing</u> for hub and spigot joints shall be twisted jute conforming to Federal Specification HH-P-117, or hemp conforming to Federal Specification HH-P-106b.
- k. <u>Cleanouts</u> shall have bodies that conform in thickness to that required for the pipe with which they are installed. They shall extend not less than 1/4 inch above the hub if installed with soil pipe. The cleanout plug shall be of brass or iron not less than 1/8 inch thick and shall be provided with raised nut or recessed socket for removal. Cleanouts shall conform to Federal Specification WW-P-401.
- 1. <u>Nipples</u> shall be the same material as the pipe or tubing with which they are installed. Ferrous nipples shall be extra strong when the unthreaded portion is less than one inch long, and nipples shall conform to Federal Specification WW-N-351.

- m. Floor flanges for plumbing fixtures shall be not less than 3/16 inch thick cast-iron or galvanized malleable-iron, or not less than 1/8 inch thick brass or hard lead. Floor flanges shall conform to Federal Specification WW-P-54la.
- n. <u>Plumbing fixtures</u>, trimmings and related items, such as sillcocks, supplies, escutcheons, traps, and floor drains shall conform to Federal Specification WW-P-541a.
- (1) <u>Sillcocks</u> shall be brass with hose end, and wall flange or shoulder shank at exposed connections.
- o. Formed-metal plumbing fixtures shall comply with Federal Specification WW-P-542a.

# p. Pipe covering and insulation

- (1) Wool felt for cold water pipe insulation shall be 3/4 inch preshrunk with asphalt-saturated felt liner and cotton sheeting jacket, and shall conform to Federal Specification HH-I-567.
- (2) <u>Asbestos air-cell</u> for hot water pipe insulation shall be 3 ply preshrunk with cotton sheeting jacket, fabricated in corrugated plies, each ply being approximately 1/4 inch thick and shall conform to Federal Specification HH-I-561b.
- (3) <u>Asbestos cement</u> shall consist of ground asbestos fibre and other fireproof insulating materials which shall be mixed with water to consistency of mortar and applied with a trowel.
- (4) <u>Hair felt</u> shall be the insulating type, conforming to Federal Specification C-F-202. Mineral wool shall conform to Federal Specification HH-I-52lc, Type II.
- q. <u>Calking ferrules</u> shall be of red-brass pipe conforming to Federal Specification WW-P-351, or cast iron pipe.
- r. Soldering nipples and bushing shall be standard red-brass pipe conforming to Federal Specification WW-P-351.
- s. <u>Soft solder</u> shall be composition Sn50 or Sn35 conforming to Federal Specification QQ-S-571b. Flux shall be the non-corrosive type conforming to Federal Specification 0-F-506.
- t. Coal-tar enamel shall conform to American Water Works Association Standard 7A.6.
- u. <u>Hangers</u> for horizontal piping such as water or gas shall be solid or split type, black ferrous for steel or wrought iron piping and copperized

steel or copper for copper tubing. Hangers shall be fastened to building construction with steel or iron rods for ferrous piping and copperized rods for copper tubing.

v. Gas pipe and fittings shall be standard weight black steel or wrought iron pipe with standard malleable-iron fittings.

# 3. EXCAVATION AND BACKFILL

Excavate trenches to required depths for underground pipes. Where rock is encountered, excavate to a grade 3 inches below the lower most part of pipe. Brace and pump trench, if necessary. After test, backfill trench to grade, tamp or puddle earth compactly in place. Install piping below frost line, with drainage piping under level of adjoining water piping.

#### 4. DRAINAGE LINES

- a. <u>Horizontal drainage piping</u> shall have a uniform grade not less than 1/4 inch per foot. Pipes passing through or under corrosive material such as cinders or cinder concrete shall be protected with a heavy coat of coal tar enamel.
- b. Changes in direction in drainage piping shall be made by 45° wyes, half wyes, or long sweep quarter, sixth, eighth, or sixteenth bends. Sanitary tees or short quarter bends may be used on vertical stacks or drainage lines where the change in the direction of flow is from the horizontal to the vertical; except that long-turn TYs shall be used when two fixtures are installed back to back and have a common drain. Straight tees, elbows, and crosses may be used on vent lines.
  - c. Floor drains shall be cast-iron with grating cover and P-trap.

# 5. JOINTS AND CONNECTIONS

- a. <u>Calked joints</u> for cast-iron soil pipe shall be firmly packed with oakum or hemp, and filled in one pouring with molten lead not less than 1 inch deep.
- b. Threaded joints shall be made with a lubricant on the male thread only. Remove all burrs and cuttings.
- c. Floor connections for water closets and other fixtures shall be made with a hard lead, or iron flange, calked, soldered or screwed into the drainage pipe. The connection shall be bolted, with a gasket or setting compound between the fixture base and the connections.
- d. Soldered joints shall have the tube and fitting cleaned bright and fluxed. The joint shall be heated sufficiently to make a tight connection.

- e. Hot poured joints shall be made between cast-iron soil pipe and vitrified clay or concrete sewer pipe. The joint shall be made by calking the joint opening with jute or hemp packing and then filling it with hot jointing compound at one pouring.
- f. <u>Wiped joints</u> for lead pipe and fittings or between lead piping and brass or copper pipes, ferrules, solder nipples or traps shall be full-wiped joints. Such joints shall have an exposed surface on each side of the joint not less than 3/4 inch wide and at least as thick as the material being jointed. Wall or floor flange wiped joints shall be made by using a lead ring or flange placed behind the joint at the wall or floor. Joints between lead and castiron, wrought-iron or steel pipe shall be made by means of wiped joints to the calking ferrule, soldering nipple, or bushing.
- g. Lead burned (welded) joints shall be lapped and the lead shall be fused together to form a uniform weld at least as thick as the pipe being joined.
- h. Slip joints and unions shall be used only in the waste pipe between a trap seal and a fixture.

#### 6. TRAPS AND CLEANOUTS

- a. <u>Fixture traps</u> shall be installed on every plumbing fixture except those having integral traps. A combination fixture need have only one trap, if one compartment is not more than six inches deeper than the other and the waste outlets are not more than 30 inches apart.
- b. Type of fixture trap shall be water-seal, self-cleaning P or drum trap as herein specified. Each trap, except integral traps or those that are readily removable shall have an accessible brass cleanout of ample size, protected by the water seal.
- c. The nominal size of each fixture trap shall be the same as the fixture drain to which it is connected. The size of the fixture drain for fixtures with integral traps shall not be smaller than the fixture outlet. In any case, the minimum size of the trap and fixture drain shall be not less than the following:

Water closet	3 inches	
Lavatory	1-1/4 "	
Kitchen sink	1-1/2 "	
Laundry tray	1-1/2 "	
Stall shower	2 "	
Floor drain	3 "	

d. <u>Cleanouts</u> shall be installed where shown and be of same size as pipe to which connected.

#### 7. SLEEVES AND ESCUTCHEONS

- a. <u>Sleeves</u> shall be installed around all piping passing through walls, slabs, partitions, or other building construction. Sleeves placed horizontally shall be standard weight pipe one size larger than the pipe; those placed vertically shall be 26 gage galvanized sheet steel. Sleeves passing through exterior walls shall be made water-tight with calking compound.
- b. Escutcheons shall be installed around all exposed pipe passing through a finished floor, wall or ceiling. Escutcheons shall be of sufficient outside diameter to cover the sleeve opening and shall fit snugly around the pipe.

# 8. HANGERS

a. Hangers shall support the piping in place and provide for expansion and contraction.

# b. Hanger Spacing

- (1) Steel pipe supports shall be spaced at not more than 10-foot intervals.
- (2) Copper tubing supports shall be spaced at not more than 6-foot intervals.
- (3) Soil stack at base and water closet connection to stack, 3 feet or over in length, shall be supported.

#### 9. FLASHINGS

Pipes extending through roof shall be flashed watertight with hard sheet lead 2.5 lbs. per square foot, or soft lead 3 lbs. per square foot or galvanized sheet metal not less than No. 26 U. S. Standard Gauge. Extend flashing not less than six inches around pipe and terminate as shown.

#### 10. WATER SUPPLY

a. Size of fixture supplies shall be as indicated on the drawings, but shall in no case be less than the following:

	Cold Water	Hot Water
Water closet (tank type)	3/8 inch	
Lavatory	3/8 inch	3/8 inch
Kitchen sink	1/2 inch	1/2 inch
Laundry tray	1/2 inch	1/2 inch
Hose bibb or sillcock	1/2 inch	GEN GEN 444 500 414

- b. Stop valve shall be installed in accessible location within each dwelling or as otherwise indicated. Stop valve shall be in tile box located approximately two feet from outside wall; extend box to grade and fit with cap set in mastic.
  - c. Unions shall be installed at the connections to water heaters.
- d. Sillcocks shall be installed approximately 18 inches above grade, flush with the building wall at locations shown on the drawings.
- e. <u>Insulating connections</u> shall be installed between copper tubing and steel water storage tanks.
- f. Sprinkler head shall be Underwriters' Laboratories, Inc. approved type, shall open at the prescribed temperature and be installed where shown.

#### 11. INSULATION

a.	Hot	and	cold	water	piping	shall	be	insulated	when	located	in	the
following	ng sp	pace	<b>5:</b>									

(1)	Laundry
(2)	
(3)	

- b. <u>Fittings</u> of insulated piping shall be covered with asbestos cement to the same thickness as adjacent pipe covering and be jacketed with cotton sheeting.
- c. Pipe covering shall be pasted in place and have metal bands spaced not more than 18 inches on centers and at each fitting. One tablespoon of bluestone shall be added to each gallon of paste.
- d. Tile bex outside building wall shall be packed with hair felt or rock wool.
  - e. Wood box under bathroom shall be packed with mineral wodl.

#### 12. PLUMBING FIXTURES

The best quality of plumbing fixtures and trim shall be provided, fabricated by a manufacturer of established reputation.

a. Fixture trim, traps, faucets, escutcheons and waste pipes that are exposed to view in finished spaces shall be brass with polished chromium plating over nickel finish, unless otherwise noted. Exposed supplies shall be brass pipe or copper tubing plated in the same manner, unless otherwise

noted. All faucets shall have metal indices, be of one pattern or design, be compression type with replaceable seats, and be the same size as the supply pipes to the fixtures.

- b. Faucet locations shall be uniform, with cold water faucet on the right side of the fixture and hot water faucet on the left side.
- c. Air gaps shall be provided between the level of each supply opening (except for outlets protected by vacuum breakers) and the flood rim of the fixture receptacle. The minimum required air gap shall be at least twice the diameter of the effective opening of the supply fitting but in no case less than the air gaps specified in the Plumbing Code mentioned herein.
- d. <u>Supports</u> for wall-hung fixtures shall be metal brackets secured to walls or partitions with bolts or screws (4 for each lavatory and 8 for each sink-tray combination fixture.)
- e. Water closets shall be white vitreous china with integral flush rim, regular front, seat post holes, pedestal base, and floor outlet, all moulded in the ware. A floor flange, brass bolts and chromium-plated nuts with china caps shall be provided. Closet shall be set on a gasket or on fixture setting compound.
- (1) Each water closet shall have a low wall-hung tank of white vitreous china with a capacity of not less than six gallons. The tank cover shall have a flat top surface with slightly raised bead at the edges. The supply and flush valve shall be first quality brass, equipped with a vacuum breaker, and operated by a trip lever. Water closet bowls shall be reverse trip with jet or washdown with jet and shall flush and refill properly with not more than 3-1/2 gallons of water. The flushing action of the bowl shall be continuous with no break in the siphoning, and the trapway shall pass a solid ball 1-1/2 inch in diameter.
- f. Water closet seats for dwelling units shall be white closed-front type with cover, with two rubber bumpers on the seat and on the cover. Hinges shall be chromium plated brass; seats shall be any of the following:
- (1) Sheet covered type consisting of a hardwood or molded plastic core covered with an adherent covering of polished sheet pyroxylin not less than 0.012 inches thick and without openings, crevices, or evident joints. Wood seats shall be reinforced with wood or steel dowels.
- (2) Solid plastic type molded from acid and alkali resistant plastic material, solidly built and sufficiently strong at the hinges. Finish shall be uniform without visible joints, cracks or seams.
- (3) Sprayed-finish type consisting of a hardwood or molded plastic core finished with pyroxylin lacquer or pyroxylin enamel not less than 0.008 inches thick. Hardwood seats shall be reinforced front and back with wood or steel dowels.

- g. Water closet seats for public toilets shall be black open front type without cover, of molded hard rubber with or without a core. The molded rubber shall be homogenous without seams, joints or crevices. There shall be two rubber bumpers on the front of the seat.
- h. <u>Lavatories</u> shall be white, wall hung type, nominal dimensions 18 inches by 15 inches, with oval, rectangular or D-shaped bowl, and apron and back. The fittings shall consist of a combination center-set supply, a drain with crossbars, 1-1/4 inch tail piece, beaded chain and chain stay with rubber stopper, P-trap, supplies and escutcheons. The combination supply shall include a short mixing spout and faucets with lever handles. The supply pipes and trap when roughed in 22 inches or more above the floor need not be chromium plated. Lavatories shall be made of cast iron, acid resisting porcelain-enameled, or formed steel, acid resisting porcelain-enameled.
- i. <u>Kitchen sink</u> shall be the type suited for installation in cabinet, 24 inches by 18 inches and not less than 6 inches deep, with end outlets. The finish shall be acid-resisting porcelain enamel. The fittings shall include a combination center-set faucet with swing spout set on sink cabinet top, strainer and tail piece with P-trap. The sink shall be cast-iron porcelain enameled or formed steel, porcelain enameled.
- j. Shower compartments shall have nominal dimensions of 36 x 30 inches, constructed of bonderized metal not less than 20 gage (.0359 inches) finished with manufacturers' standard color as selected by the Contracting Officer. Receptor shall be manufacturers' standard, metal, terrazzo or concrete. Entire assembly shall be guaranteed watertight for one year from completion.
- (1) Calking compound shall be provided and placed at all joints to make a water tight assembly.
- (2) Curtain rod at entrance shall be type furnished as standard with compartment. Rod at rear shall be corner type fitted with flanges and be secured as indicated. Curtain at entrance and at rear shall be of white duck, preshrunk (8 ounce double filled), bleached, and finished. Curtain at entrance shall be 6" longer and wider than opening and at rear shall extend 6" below window frame. Furnish necessary hooks.
- (3) Drain and strainer shall be galvanized ferrous metal and shall be fitted to receptor at factory. Drain shall be 2" IPS inside calked connection. Strainer shall be removable type and secured with not less than two screws.
  - (4) Combination supply fitting with union connection.
- (5) Valve fitting may be arranged for exposed or concealed connections of supplies and riser, and shall be tapped for top connection.

- (6) Riser shall be 1/2" iron pipe size and terminate to form a 60 degree bend arm onto which shower head shall be screwed. Shower head shall point to corner of shower forming a 60 degree angle, and shall be of the water saving type.
- k. Laundry trays shall be concrete, soapstone, or alberene stone, double compartment type, 48 inches by 24 inches nominal dimensions, supported on galvanized steel angle frame. The supply fittings shall consist of faucets with metal lever handles, soap dish, swing spout with hose end, and bracket and clamps for attaching the fittings to the tray. The drain fittings shall be drain plugs with cross-bars, twin drains, brass coupling nuts, tail piece and P-trap. A chain, chain stay and a rubber stopper shall be provided for each compartment. All trim shall have a rough plated finish.

# 13. PROTECTION DURING CONSTRUCTION

- a. Plumbing fixtures and trim shall be protected against damage or injury. All fixtures damaged by any cause, and any trim with marred or scratched finish, shall be replaced at no additional cost to the Government.
- b. All pipe openings shall be closed with wood plugs or caps during construction. The plugs or caps shall be installed when the pipe is roughed in and shall not be removed until final connection is made.

#### 14. DOMESTIC WATER HEATING

- a. Tanks for individual water heaters shall have a nominal capacity of 20 gallons for one-bedroom dwellings and 30 gallons for two or three bedroom dwellings and 45 gallons for laundry building (DHT Series 1). Sizes for other buildings, where required, are shown on drawings. The tanks shall be designed for 127-1/2 pounds per square inch working pressure and shall have been tested to 300 pounds per square inch hydrostatic pressure without visible change of shape or distortion. The tank shall be insulated with the specified thickness of mineral wool, or equivalent insulation, applied around the tank and encased in an enamel-finished steel jacket. Tappings shall be 3/4 inch IPS minimum. The tank shall have a drain valve at its lowest point.
- (1) A pressure and temperature relief valve shall be provided at the highest point of the tank or not more than 3 inches from the top of the tank, and there shall be no check valve or shut-off valve between the relief valve and the tank. The relief valve shall be brass or bronze and shall conform to the requirements of the American Gas Association (as specified in American Standard ASA Z21.22 1935). The valve shall open at 125 pounds per square inch or at any temperature between 200° and 210° F, and close and reseat itself at a lower pressure or at a temperature of approximately 160°F. The rate of discharge of the valve at any heat input into the tank shall be sufficient to limit the water pressure rise to 137½ pounds per square inch and to prevent any rise in water temperature above 210° F. A discharge pipe equal in cross-sectional area to that of the relief valve discharge outlet shall extend from the valve outlet as shown on drawings.

- (2) Tank shell shall be constructed of either of the following:
- (a) <u>Galvanized steel</u>, hot dipped inside and out in molten zinc fabrication. A magnesium anode rod, extending approximately the full length of the tank, shall be installed in each tank, and be of the type easily removable from the top of tank.
- (b) <u>Porcelain enamel lined (glass lined) steel</u>. The construction and finish shall be in accordance with Commercial Standard CSl15-44, "Porcelain Enamel Tanks for Domestic Use," issued by the National Bureau of Standards.
- b. Individual automatic gas-fired water heaters, combined with individual storage tanks of specified size and construction, shall be the automatically controlled type, arranged for venting, in which a vertical hot water storage tank and gas burner are combined in one unit and encased in a metal jacket. The unit shall be listed by the American Gas Association and shall bear the AGA label. The unit shall be provided with draft hood, gas valve, pilot light, orifices and all necessary automatic controls, including fixed or adjustable locking type thermostat to operate burner on and off between 130° and not over 145° F. The gas valve and pilot shall be provided with means for manual shut-off. On heaters using natural or manufactured gas, the pilot shall shut off the supply of gas to main burner on flame failure. On heaters using liquefied petroleum, propane-air or butane-air gas, the pilot shall shut off the supply of gas to main burner and pilot burner on flame failure. Tank insulation shall be not less than one inch thick.
- (1) The AGA input per hour of automatic gas-fired water heaters for dwelling units shall be not less than the following: For a water heater with a 20 gallon tank, 20,000 Btu; for a water heater with a 30 gallon tank, 24,000 Btu. For laundry building (Series 1) the AGA input per hour shall be not less than 40,000 Btu. Inputs for other tanks are shown on drawings (where required).
- (2) Smoke pipe shall be No. 24 gage (thickness 0.0239 inches) black steel with gas-tight joints. Size shall be same as outlet on heaters; extend pipe and connect to chimneys; allow for expansion in vertical run. Where pipe passes through combustible construction, a metal ventilated thimble, not less than four inches larger than the smoke pipe, and constructed of No. 26 gauge steel, shall be installed around the pipe.
- c. <u>Individual automatic electric water heaters</u>, combined with individual storage tanks of specified size and construction shall be the automatically controlled type in which a vertical hot water storage tank and two readily removable heating elements are combined in one unit and encased in a metal jacket. The unit shall be listed by Underwriters' Laboratories, Inc., shall bear their label, and shall conform to the National Electrical Manufacturers Association standard as specified in NEMA Publication No. 45-104. Current characteristics shall be 120 volts, 2 wire, 60 cycle. The

unit shall be provided with thermostat and other electric controls so wired that only one heater element will function at one time. The thermostat shall be the fixed or locking type operating between 130° and not over 145°F. Wiring and controls shall be installed behind easily removable panels in the outer jacket and be completely protected from accidental contact. There shall be a heat trap in the hot water connection to the tank. Tank insulation shall be not less than 2-1/2 inches thick. Wiring and electrical connections from electrical source to tank are included in the Division "Interior Electrical Wiring."

(1) Heater element shall be the immersion or band type and shall have the following wattages: for 20 or 30 gallon tanks, the top element shall have 1000 watt rating and the bottom element 600 watt rating. Elements for larger tanks (where required) are shown on drawings.

#### 15. CLEANING UP

All piping, hangers, fixtures and trimmings and all equipment shall be thoroughly cleaned. All parts of the plumbing system and all equipment shall be adjusted and put in operating condition.

#### 16. TESTS

The Contractor shall notify the Contracting Officer (in writing) three working days before the tests are to be made. Concealed work shall remain uncovered until required tests have been completed, but if necessary tests on portions of the work may be made and those portions of the work may be concealed after being proved satisfactory. All tests shall be made in the presence of the Contracting Officer. Repairs of defects shall be made with new materials. Calking of screwed joints, cracks, or holes will not be accepted. Tests shall be repeated after defects have been eliminated.

# a. Drainage system tests

- (1) A water test shall be applied to all parts of the drainage systems before the pipes are concealed or fixtures are set in place. The test may be applied in sections. All openings of each system to be tested shall be tightly closed except the highest opening above the roof, and the entire system shall be filled with water up to the overflow point of this highest opening. All parts of the system shall be subject to not less than 10 feet of hydrostatic head. The water shall remain in the system for not less than 15 minutes after which time no leaks at any joint or lowering of the water level at the overflow shall be visible.
- (2) In lieu of a water test, an air pressure test shall be applied to all parts of the drainage systems before the pipes are concealed or fixtures set in place. With all openings tightly closed, air shall be pumped into each system until the pressure within the system is not less than 10 inches of mercury or 5 pounds per square inch above atmospheric pressure. The air pressure shall remain constant for not less than 15 minutes with no further pumping of air into the system.

- (3) A smoke test shall be applied to all parts of the drainage systems after all fixtures have been permanently connected and all traps filled with water. A thick penetrating smoke produced by one or more smoke machines (not by a chemical mixture) shall be introduced into each system through a suitable opening. As smoke appears at each stack opening on the roof, the opening shall be closed off and introduction of smoke continued until a pressure of one inch of water has been built up and maintained for 15 minutes within the system. Under this pressure smoke shall not be visible at any joint, connection or fixture.
- (4) In lieu of smoke test, a peppermint test shall be applied to all parts of the drainage systems after all fixtures have been permanently connected and all trap seals filled with water. A mixture of two ounces of oil of pappermint to one gallon of bot water shall be poured into each roof opening of each system and these openings shall then be tightly closed. There shall be no odor of pappermint within the building or at any joint, connection or fixture opening as a result of the pappermint mixture having been introduced into the system.

# b. Water supply system tests

- (1) A water pressure test shall be applied to all parts of the water supply systems before the piping is concealed or before the fixtures are connected. A hydrostatic pressure of not less than 100 pounds per square inch shall be applied to the system, and there shall be no leaks at any point in the system at this pressure.
- (2) In lieu of water pressure test, an air pressure test shall be applied to all parts of the water supply systems before the piping is concealed or before the fixtures are connected. With all openings tightly closed, air shall be pusped into the system until the pressure within the system is not less than 35 pounds per square inch above atmospheric pressure. With no further pumping of air into the system, the air pressure shall not drop more than two pounds per square inch in 15 minutes.
- c. Cas piping system tests shall be made in accordance with the rules and regulations of the utility serving the project. However, if no such rules exist or if the test pressure to be used is less than 10 pounds per square inch, the entire gas piping system shall be tested as follows: Air shall be pumped into the system until the pressure reaches 10 pounds per square inch or 20 inches of mercury above atmospheric pressure as read on a mercury column gage. This pressure shall remain constant for not less than 15 minutes with no further pumping of air into the system.

## 17. GAS SYSTEM

a. Service entrance installations to buildings with enclosed under floor spaces (from underground gas distribution) of gas piping shall be constructed as follows: A gravel pit containing coarse gravel not less than 3/4 inch

in size shall be provided at the outer building walls at the depth of each gas service entrance. Each gravel pit shall be 3 feet wide and 16 inches thick, and shall extend out from the building wall a distance of two feet. The gravel shall be placed so that there is four inches of gravel below the gas piping and twelve inches above, and the bottom of the pit shall slope away from the building wall. Before entering building, each gas line shall make a two foot long swing joint at the building and then shall rise above grade. The gas piping above grade (only where manufactured or mixed natural manufactured gases are used), shall be frost-proofed with hair felt, wired in place and protected by a No. 24 gage sheet metal box with louvred sides. A sleeve and pipe guide shall be installed where the piping passes through the building wall and both ends of the sleeve opening shall be calked with calking compound. A vent pipe shall be installed for each gravel pit at the building wall. The vent shall be a coated 1-1/2 inch black steel pipe extending from six inches below the top of the gravel to one foot above grade. The vent pipe shall be fastened to the building with metal pipe straps and the top of the vent shall terminate in an open, down turned gooseneck placed parallel to the building and closely adjacent to it.

- b. <u>Gas fired equipment</u> will be delivered and placed within 3 feet of its final position when specified in other Divisions. Such equipment and equipment furnished under this Division shall be placed in final position and connected up to the gas piping. A shut-off cock, wing lock or ground key type, shall be installed in the gas line at each piece of gas equipment. Between each shut-off cock and the equipment, a union, or nipple and coupling shall be installed to permit disconnection of the gas appliance.
- c. <u>Insulating fittings</u> shall be placed in the gas piping at each service entrance. Paint gas service pipe up to point where pipe enters into building with a heavy brush coat of coal tar enamel.

SPACE HEATERS - GAS

## NOTES TO THE ARCHITECT:

THIS SHEET IS FOR THE INFORMATION OF THE ARCHITECT ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

THIS SPECIFICATION INCLUDES THE REQUIREMENTS FOR GAS-FIRED SPACE HEATERS AND MAY BE USED AS PART OF THE GENERAL CONTRACT SPECIFICATIONS OR IN A SEPARATE CONTRACT FOR THE DIRECT PURCHASE OF THE HEATERS.

THE SPACE HEATER CAPACITIES HAVE BEEN FIGURED ON THE BASIS OF A -10°F.

DESIGN TEMPERATURE (NO STORM SASH OR DOORS) WITH ADEQUATE ALLOWANCES

FOR PICK-UP. BY THIS METHOD, THE RELOCATION OF THE DWELLING UNIT FROM

WARMER TO COLDER ZONES IS PRACTICABLE WITHOUT CHANGING THE HEATER TO A

LARGER SIZE.

CHIMNEYS ARE OF SUSPENDED TYPE AND ARE SPECIFIED UNDER ANOTHER DIVISION.

THIS SPECIFICATION MUST BE ADAPTED TO SITE AND CLIMATE CONDITIONS.

CHANGE THE TEXT AS NECESSARY TO MEET THE PROJECT REQUIREMENTS. STRIKE

OUT ITEMS NOT APPLICABLE AND ADD AS NECESSARY. DO NOT, HOWEVER, MAKE

CHANGES WHICH AFFECT THE FUNDAMENTAL DESIGN.

#### SPACE HEATERS - GAS

## 1. SCOPE

Include gas-fired space heaters and related items for family dwellings and for any service buildings included in the contract. See the drawings and General Scope of Work for extent of work.

### 2. DETAILED REQUIREMENTS

Space heaters in complete assembly shall have the current listing of the American Gas Association and shall bear its label. Rating shall be on the basis of input and shall be not less than the amount indicated on the drawings. Heaters shall be circulating, vented, cabinet style equipped with burner adaptable and fitted to burn type of gas available. The outside casing shall have a baked enameled finish. Connection to gas piping is provided for under the Division. "PLUMBING".

- a. A manually operated gas valve shall be provided for main burner and an automatic pilot fitted with means for manual shut off. On heaters for use with natural and manufactured gases, pilot shall shut gas supply to main burner upon flame failure; on heaters for use with liquefied petroleum, propane-air or butane-air gases, pilot shall shut gas supply to main burner and pilot burner upon flame failure.
- b. Smoke pipe shall be constructed of black steel, not less than No. 24 gauge (thickness 0.0239 inches); size shall be as indicated, or if not indicated, shall be same as outlet on the heater. Joints shall be gas tight. Allow for expansion. Extend and connect smoke pipe to suspended chimney. Where smoke pipe passes through combustible construction a metal ventilated thimble, not less than four inches larger than the smoke pipe, and constructed of No. 26 gauge steel, shall be installed around the pipe.
- (1) Insulate smoke pipe when in proximity to range, from point directly over draft hood to point 18 inches above top of range. Insulation shall be of laminated asbestos structure capable of withstanding sustained temperature up to 1000 degrees F. without disintegration and be furnished in the form of sleeves. Sleeves shall have wall thickness of not less than one inch and have a minimum of 16 plies per inch. Material, including surfacing, shall contain not over 3% of combustible material by weight evenly distributed; proportion of combustible material shall be based upon carbon content assuming that cellulose will be 2-1/4 times the carbon content as determined in combustion furnace. Secure insulation neatly around pipe.
- c. Fire and test each heater. Make all adjustments in accordance with manufacturer's or local utility company's instructions. Fuel for tests will be furnished by the Government. Operating instructions shall be permanently affixed near heater in each dwelling unit.

#### DIVISION DHS 12a

#### SPACE HEATERS - OIL

### NOTES TO THE ARCHITECT:

THIS SHEET IS FOR THE INFORMATION OF THE ARCHITECT ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

THE SPECIFICATIONS INCLUDE THE REQUIREMENTS FOR OIL FIRED SPACE HEATERS AND MAY BE USED AS PART OF THE GENERAL CONTRACT SPECIFICATIONS, OR IN A SEPARATE CONTRACT FOR THE DIRECT PURCHASE OF THE HEATERS.

THE SPACE HEATER CAPACITIES HAVE BEEN FIGURED ON THE BASIS OF A -10°F.

DESIGN TEMPERATURE (NO STORM SASH OR DOORS) WITH ADEQUATE ALLOWANCES FOR PICK-UP. BY THIS METHOD, THE RELOCATION OF THE DWELLING FROM WARMER TO COLDER ZONES IS PRACTICABLE WITHOUT CHANGING THE HEATER TO A LARGER SIZE.

CHIMNEYS ARE OF SUSPENDED TYPE AND ARE SPECIFIED UNDER ANOTHER DIVISION.

THIS SPECIFICATION MUST BE ADAPTED TO SITE AND CLIMATE CONDITIONS.

CHANGE THE TEXT AS NECESSARY TO MEET THE PROJECT REQUIREMENTS. STRIKE

OUT ITEMS NOT APPLICABLE AND ADD AS NECESSARY. DO NOT, HOWEVER, MAKE

CHANGES WHICH AFFECT THE FUNDAMENTAL DESIGN.

DIVISION DHS 12a

SPACE HEATERS - OIL

# 1. SCOPE

Include oil-fired space heaters and related items for dwellings and for any service buildings included in the contract. See drawings and "General Scope of Work" for extent of work.

# 2. DETAILED REQUIREMENTS

Space heaters in complete assembly shall comply with Commercial Standard CS 101-43, "Flue-Connected Oil-Burning Space Heaters Equipped with Vaporizing Pot-Type Burners," issued through the National Bureau of Standards, and shall be so labeled. Out put capacity shall be not less than the amount indicated on the drawings. Heater shall be circulating type, flue-connected. The casing may be supplemented with provisions for radiant heat, such as a door or doors rigidly constructed and accurately fitted in casing or with adjustable louvres; casing shall have a baked enamel finish, and be without extensive perforations between bottom and top level of combustion chamber. Servicing of burner shall be through front or sides of heater without removing casing or any part thereof.

- a. Even supply of fuel to burner shall be maintained by a constant level valve and include means to prevent further supply of oil to burner when the oil reaches a predetermined level therein.
- b. Heaters shall have oil control valve to regulate the oil flow, and (except where feed is from an outside tank) shall be equipped with fuel tank, in integral assembly, having a minimum storage capacity of four gallons. Between the tank and the constant level valve, provide a shut-off valve and a cleanout plug or sludge trap. Include integral means to assure a level burner.
- c. Oil storage tank for service buildings (except for dwelling units) shall be ferrous metal, not less than No. 18 U. S. Standard Gauge. Paint tank with heavy coat of rust and oil resistant paint after all surfaces are cleaned. See drawings for size, installation and piping details.
- d. Set heater on a non-combustible stove board of sufficient size to extend a minimum of six inches on all sides of completely assembled heater. Board shall be not less than 3/8 inches thick. Board shall be considered non-combustible when it contains not over three per cent of combustible material by weight, evenly distributed.

e. Smoke pipe shall be constructed of black steel, not less than No. 24 gauge (thickness 0.0239 inches). Size shall be as indicated, or if not indicated, shall be same as outlet of the heater. Joints shall be gas tight; allow for expansion. Connect draft regulator in accordance with manufacturer's instructions.

Extend and connect smoke pipe to suspended chimney. Where smoke pipe passes through combustible construction, a metal ventilated thimble, not less than four inches larger than the smoke pipe, and constructed of No. 26 gauge steel, shall be installed around the pipe.

f. Fire and test three heaters of each size, selected by Government. Test shall be in accordance with manufacturer's instructions. Furnish fuel oil (No. 1), as defined in Commercial Standards CS 12-48, "Fuel Oils," required for the test. Make adjustments on all other heaters as a result of these tests. Operating instructions shall be permanently affixed near heater in each dwelling unit.

## DIVISION DHS 12a

#### SPACE HEATERS - OIL

### 1. SCOPE

Include oil-fired space heaters and related items for dwellings and for any service buildings included in the contract. See drawings and "General Scope of Work" for extent of work.

# 2. DETAILED REQUIREMENTS

Space heaters in complete assembly shall comply with Commercial Standard CS 101-43, "Flue-Connected Oil-Burning Space Heaters Equipped with Vaporizing Pot-Type Burners," issued through the Commodity Standards Division, Office of Industry and Commerce, Department of Commerce, Washington 25, D. C., and shall be so labeled. Output capacity shall be not less than the amount indicated on the drawings. Heater shall be circulating type, flue-connected. The casing may be supplemented with provisions for radiant heat, such as a door or doors rigidly constructed and accurately fitted in casing or with adjustable louvres; casing shall have a baked enamel finish and be without extensive perforations between bottom and top level of combustion chamber. Servicing of burner shall be through front or sides of heater without removing casing or any part thereof.

- \* a. Even supply of fuel to burner shall be maintained by an Underwriters Laboratories' approved constant level valve, which shall regulate the flow of oil. The valve shall include means to prevent further supply of oil to burner when the oil reaches a predetermined level therein, and have a manual reset.
- b. <u>Heaters</u> shall be equipped with fuel tank, in integral assembly, having a minimum storage capacity of four gallons. Between the tank and the constant level valve, provide a cleanout plug or sludge trap. Include integral means to ensure a level burner.
- c. Oil storage drum shall be ICC standard of not less than 18 gauge steel, nominal capacity 55 gallons. Fit drum with threaded oil-fill and supply connections and with standard vent cap. Mount drum horizontally on carriage herein specified so that supply connection from drum is not less than 6 inches nor more than 12 inches above oil level in constant level valve at heater and side of drum is within 8 inches to 12 inches from outside wall.
- (1) Carriage for oil drum shall consist of two 2-inch x 4-inch X frames with two 1-inch x 4-inch crossbraces and two 1-inch x 6-inch longitudinal braces, all No. 2 yellow pine or fir or equivalent and all securely nailed together and set on two concrete pads two inches thick. A metal carriage

NOTE: These pages 12a-1 and 12a-2 supersede pages 12a-1 and 12a-2 of Division DHS 12a dated 2-1-52. Material \* between asterisks\* is new or revised.

capable of supporting three times the weight of the oil drum and contents may be used in lieu of the wood support described above. The height of the carriage shall be such as to permit installation of the oil piping as specified herein.

- (2) Piping shall be black, standard weight, steel or wrought iron, 3/8 inch IPS with malleable iron fittings or steel tubing not less than 1/4 inch ID with flared joints; allow for flexibility. Make connections to oil heater and drum, ready for operation. Provide a three-way valve at constant level valve and install so that oil may be supplied either from outside storage drum or tank on heater and arrange so that oil cannot flow into tank on heater when it is being drawn from drum. Run piping in dwelling units through the floor near the heater, extend under floor, properly supported, to outside then to oil drum. Run piping in laundry above the floor. (See drawings.) Fit piping at drum with gate or globe valve, Underwriters Laboratories approved oil filter and dirt leg at bottom of vertical drop. Fit metal escutcheon around pipe where it passes through the floor.
- (3) Locate oil drum for dwelling units in rear between living room and bathroom windows.
- (4) Prime wood tank carriage with one coat exterior oil paint. Prime black pipe, tank and metal tank carriage with red lead paint TT-P-86a and apply a finish coat of aluminum paint to piping, tank and tank supports. \*
- d. Set heater on a non-combustible stove board of sufficient size to extend a minimum of six inches on all sides of completely assembled heater. Board shall be not less than 3/8 inches thick. Board shall be considered non-combustible when it contains not over 3% of combustible material by weight, evenly distributed.
- e. Smoke pipe shall be constructed of black steel not less than No. 24 gauge (thickness 0.0239 inches). Size shall be as indicated, or if not indicated, shall be same as outlet of the heater. Joints shall be gas tight; allow for expansion. Connect draft regulator in accordance with manufacturer's instructions.

Extend and connect smoke pipe to suspended chimney. Where smoke pipe passes through combustible construction, a metal ventilated thimble, not less than four inches larger than the smoke pipe and constructed of No. 26 gauge steel, shall be installed around the pipe.

f. Fire and test three heaters of each size, selected by Government. Test shall be in accordance with manufacturer's instructions. Furnish fuel cil (No. 1), as defined in Commercial Standards CS 12-48, "Fuel Oils," required for the test. Make adjustments on all other heaters as a result of these tests. Operating instructions shall be permanently affixed near heater in each dwelling unit.

#### DIVISION DHS 12b

## HEATING-FORCED WARM AIR

# NOTES TO THE ARCHITECT OR ENGINEER:

THIS SHEET IS FOR THE INFORMATION OF THE ARCHITECT OR ENGINEER ONLY.

DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

USE THIS SPECIFICATION ONLY WHERE DUCT LAYOUT IS SHOWN ON STANDARD DRAWING. SHOW DUCT SIZES, FURNACE AND BLOWER MOTOR SIZE AND RESISTANCE PRESSURE IN INCHES OF WATER COLUMN.

THE SPECIFICATIONS INCLUDES ITEMS ON GAS AND OIL FIRED FURNACES. STRIKE OUT ITEMS NOT APPLICABLE AND ADD AS NECESSARY. FOR EXAMPLE, IF GAS FIRED FURNACES ARE REQUIRED, DELETE ENTIRE SECTION 5 AND PARAGRAPH 5 OF SECTION 7, WHICH APPLY TO OIL FIRED FURNACES. CHANGE THE TEXT AS NECESSARY TO MEET PROJECT REQUIREMENTS AND FILL IN BLANK SPACES.

#### DIVISION DHS 12b

#### HEATING-FORCED WARM AIR

#### 1. SCOPE

Include	forced wa	arm air	system	for_	 bı	ildí	ng incl	uded	in	the	contract.
	drawings										

a. System shall be of the blow-through type. Air shall be heated by a furnace, \_\_\_\_\_fired.

#### 2. MATERIALS

- a. <u>Ducts</u> unless otherwise noted, shall be constructed of galvanized sheet steel not lighter than No. 26 U. S. Standard gage. Dampers shall be constructed of the same material as the duct and shall be not less than two gages heavier than the ducts.
  - b. Flexible connection shall be standard thickness asbestos canvas.
- c. Hangers for supporting ducts to building construction shall be of the same material as the ducts.
- d. Supply registers shall be of the sizes indicated on the drawings of steel not lighter than No. 18 U. S. Standard gage, and with rubber gasket. Registers shall have means for adjustment of air flow both vertically and in the left and right directions. Registers shall be painted with a prime coat at the factory.
- e. Return grilles shall be steel not lighter than No. 16 U. S. Standard gage, with rubber gasket, painted with a prime coat at the factory.
- f. Smoke pipe shall be constructed of not less than No. 24 U. S. Standard gage (.0239 inches) black steel.

#### 3. FURNACE

# a. General

(1) Furnace and blower-motor unit shall be enclosed within one casing or be separately enclosed. Casings shall be baked enamel steel not lighter than No. 22 U. S. Standard gage. Casing shall have smooth or wrinkle finish and shall be rigidly secured from the inside. The portion of the casing enclosing the furnace shall be equipped with a galvanized or black steel liner not lighter than No. 26 U. S. Standard gage. The liner shall be secured to the casing to provide not less than one inch clearance between casing and liner permitting positive air flow therein. In lieu of an inner liner, insulating material may be provided.

- (2) The blower-motor unit shall be mounted on a single base set on sound-absorbing media. The blower shall be a standard catalog product of a reputable manufacturer, and shall deliver the cubic feet of air per minute against the external pressure indicated on the drawings. The blower shall be constructed and rated in accordance with the standards of the National Association of Fan Manufacturers and the Standard Test Code for Centrifugal and Axial Fans of the American Society of Heating and Ventilating Engineers.
- (3) Fan motors shall be of a type suitable for this use, and be free from objectionable radio interference. Motors shall be constant speed with adjustable pulley, connected to blower with "V" belt drive. Motor shall be in accordance with AIEE and NEMA Standards. Provide thermal overload protection of the automatic reset type.
- (4) Filters shall be of the replaceable type, arranged and located for any removal through access door in the casing. Average velocity through the filter shall not exceed 300 fpm based on the nominal, external dimensions of the filter.
- (5) Air temperature controls shall consist of a high limit control, blower control and room thermostat. Controls shall have the current listing of the Underwriters' Laboratories, Inc. Wiring connections and material shall be furnished and installed under the Division "Interior Electrical Wiring".
- (a) An immersion type bonnet thermostat shall operate the blower "on and off" over a scale range of approximately 90 to 180°F, with an adjustable differential of approximately 25°F. The bonnet thermostat shall have an adjustable high limit control which shall not permit the delivery of air heated above 250°F. The high limit control may be furnished as an integral part of the bonnet thermostat, or as a separate unit.
- (b) The room thermostat shall operate the firing equipment on and off when the room temperature is below or above the predetermined setting. Thermostat shall be equipped with a thermometer, having a scale range of 55 to 85°F and shall operate on a differential of 2°F.

#### 4. GAS FIRED FURNACE

Furnaces shall conform to the latest approved requirements for "Central Gas Appliances" as sponsored by the American Gas Association and approved by the American Standards Association, and shall bear the AGA label. Burner shall be adaptable to the type of gas available. Gas controls including shut-off cock for main burner and pilot burner shall be installed complete at the factory.

a. <u>Gas piping</u> and gas connection to furnace will be provided for under the Division \*Plumbing\*.

## 5. OIL FIRED FURNACE

Furnace shall be constructed of heavy steel plate, and be the standard catalogue product of a reputable manufacturer. Flue gas temperature and CO2 as measured in smoke pipe not over 12 inches from furnace and on the furnace side of draft regulator, shall not exceed 700°F with a CO2 of 8 per cent. Bonnet air temperature shall not exceed 160°F with air inlet temperature approximately 60°F. Readings shall be taken at full load capacity of the furnace and only after steady conditions have been sustained for a one hour period.

- a. <u>Combustion chamber</u> shall be constructed of intermediate heat duty fire brick laid in fire clay batter suitable to the brick, or shall be a prefabricated type of refractory of equivalent heat resistant quality as the fire brick.
- b. Oil burner unit shall be mechanical draft, direct-connected electric motor driven, self-contained, equipped with electric ignition and safety devices; be adaptable for burning No. 2 oil as defined in Commercial Standard CS 12-48 "Fuel Oils" issued by the National Bureau of Standards. Burner and auxiliary devices shall have, as a completely integral unit, the current listing of the Underwriters' Laboratories Inc. and bear their label. Protect oil delivered to burner with an Underwriters' approved filter. Safety control device shall stop burner upon flame failure; restart shall be manual. Burner output capacity shall be 125 per cent of the furnace output capacity.
- c. Oil storage tank shall be a nominal capacity of 275 gallons. Tank and complete oil burning installation shall conform to the "Standards of the National Board of Oil Burning Equipments" (NBFU Pamphlet 31). Equip tank with oil gauge of float type, and set tank one foot from wall.
- d. Oil, vent and fill piping shall be standard weight steel or wrought iron; fittings shall be 125 pound malleable iron. Vent hood shall be black or galvanized. Provide shut-off valve at burner.
- e. <u>Fire extinguisher</u> shall be Underwriters' Laboratories' approved carbon-tetrachloride type 1-1/2 quart minimum capacity. Mount extinguisher in furnace room, supported from wall by bracket.
- f. <u>Draft regulator</u> shall be installed in smoke pipe and shall operate to maintain any predetermined draft without regard to weather conditions. Counterbalancing shall be adjustable.
  - g. Paint tank and piping with a heavy brush coat of coal tar enamel.

#### 6. INSTALLATION

a. <u>Install and connect</u> the complete heating system ready for operation to give proper and continuous service.

- b. Erect ducts to insure minimum of friction with all joints air tight. Install dampers where shown or necessary to balance system properly. Ducts shall be sized as indicated on the drawings, firmly fastened to adjacent construction and installed in accordance with Pamphlet No. 90, issued by the National Board of Fire Underwriters.
  - c. <u>Install flexible</u> connections between the furnace and ducts.
- d. All electrical controls, relays, etc. shall be furnished as part of this division of the specifications. All wiring is included in the Division INTERIOR ELECTRICAL WIRING.
- e. <u>Erect smoke pipe</u> with all joints accurately fitted, smoke tight and with all required draft controls.

## 7. TESTS AND ADJUSTMENTS

- a. <u>Fire</u>, test and adjust gas-fired furnaces in accordance with manufacturer's or local utility company's instructions. Fuel and electric energy for test will be supplied by Government.
- b. <u>Fire</u>, test and adjust oil-fired furnaces to meet the requirements specified herein. Make tests with No. 2 fuel oil as defined in **Commercial Standard CS 12-48**, "Fuel Oil" issued by the National Bureau of Standards. Furnish fuel for tests. Electric energy will be furnished by Government.
- c. After completion of each heating system place each blower in operation and make required adjustments to provide quiet performance. Adjust all balancing dampers so that the amount of air delivered to each room complies with the requirements as noted on the plans.
- d. <u>Instruct project personnel</u> in the care and maintenance of the equipment and permanently affix in a glazed frame, adjacent to heater and where directed by the Contracting Officer, instructions for the operation of the furnace.

#### INTERIOR ELECTRIC WIRING

# NOTES TO THE ARCHITECT OR ENGINEER:

THESE NOTES ARE FOR THE INFORMATION OF THE ARCHITECT OR ENGINEER ONLY.

DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

MATERIALS OR METHODS LISTED HEREIN ARE SUITABLE FOR ANY TEMPORARY BUILDING,

EXCEPT LIGHTING FIXTURES AND SIZE OF LAMP BULBS FOR LAUNDRY AND OTHER

PROJECT BUILDINGS. DRAWINGS INDICATE TYPE OF LIGHTING FIXTURES AND LAMP

BULB SIZES FOR LAUNDRY BUILDING. FOR OTHER PROJECT BUILDING THE TYPE OF

FIXTURE AND LAMP BULB SIZE SHALL ADEQUATELY SERVE AREA NOTED: OFFICE SPACE

- CEILING CANOPY AND FITTER WITH ENCLOSED GLASS GLOBE - 150-200 WATT,

MAINTENANCE SPACE - CEILING OR SUSPENDED TYPE WITH METAL REFLECTOR 
100-150 WATT, OTHER SPACES - CEILING BEAM TYPE - 60 WATT.

DRAWINGS INDICATE DETAILS NOT INCLUDED IN THE SPECIFICATION, SUCH AS MINIMUM SIZE OF CONDUCTORS AND NUMBER OF CIRCUITS REQUIRED PER DWELLING UNIT, TYPICAL CIRCUITING DIAGRAM, AND MINIMUM SIZE OF SERVICE ENTRANCE CONDUCTORS.

THIS SPECIFICATION MUST BE ADAPTED TO SITE CONDITIONS, CHANGE AS NECESSARY
TO MEET PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND ADD AS
NECESSARY. FILL IN BLANK SPACES. DO NOT, HOWEVER, MAKE CHANGES WHICH
AFFECT THE FUNDAMENTAL DESIGN.

PARAGRAPHS MARKED THUS () COVER VARYING TYPES OF MATERIALS AND INSTALLATION METHODS WHICH WILL BE REQUIRED FOR CONNECTING (a) ELECTRIC REFRIGERATOR,

(b) ELECTRIC RANGE, (c) ELECTRIC WATER HEATERS, (d) MOTORIZED EQUIPMENT,

AND (e) WHOLESALE PURCHASE OF ELECTRIC SERVICE, WHEN SPECIFIED AS A PART

OF THE PROJECT REQUIREMENTS. SELECT THE TYPE OR TYPES SUITED TO THE

PROJECT AND OMIT THOSE NOT SUITABLE.

#### INTERIOR ELECTRIC WIRING

#### 1. SCOPE

Include interior electrical wiring, fixture installations and items included in this Division required to complete the project. See the drawings and General Scope of Work for extent of work.

- a. The work under this Division shall commence at the point of attachment of the overhead service drop.
- (1) From point of service pickup at each building, extend service entrance conductors to dwelling unit metering equipment, using service entrance cable.
  - (2) For all wiring inside of building:
- (a) Use non-metallic sheathed cable for Series 1 dwellings and laundry buildings.
- (b) Use knob and tube wiring, non-metallic sheathed cable or armored cable for project buildings.

ъ.	Light and	Powe	r Syst	en.	Electrical	service	supplied	to	each	building
will be		_volt	8		phase	cycle		wire	s. Se	ervice
to each	dwelling	unit	shall	be	vo	lts,	ph	ase,		
cycle,_		_wire	•							

# 2. CODES

The contractor shall base his bid upon the plans and specifications, but such installation shall comply with the latest applicable rules and regulations of the National Electrical Code bearing on the installation of the work. The contractor's attention is directed to article, PERMITS AND CODES, of the General Conditions.

# 3. GENERAL REQUIREMENTS

- a. <u>Electrical system layouts</u> indicated on drawings are generally diagrammatic and locations of outlets and equipment are approximate; exact routing of cables, locations of outlets and equipment shall be governed by structural conditions and obstructions. This is not to be construed to permit redesigning systems; all outlets should be interconnected as shown on drawings. Locate and install equipment requiring maintenance and operation so it will be readily accessible.
- b. The right is reserved to make any reasonable change in location of outlets and equipment prior to roughing-in, without involving additional expense.

# 4. MATERIALS AND APPLIANCES

Materials and appliances of the types for which there are Underwriters' Laboratories standard requirements, listings and labels, shall have listing of Underwriters' Laboratories and be so labeled, or shall conform to their requirements, in which case certified statements to the effect shall be furnished, if requested. Use new materials and appliances.

Materials other than those listed herein shall be the size, type and capacity indicated by the drawings and the specifications. In so far as possible, use one type and quality. Materials and appliances shall conform to the Standard listed with each item in the following paragraphs:

# a. Boxes and Covers

- (1) Metal or non-metallic Underwriters' Laboratories approved.
- b. <u>Wires and Cables</u>. Conductors (building) shall be soft-annealed tinned copper or medium hard drawn aluminum. Conductors (fixtures) shall be flexible stranded wires having approved heat resisting insulation. Wires and cables as listed below shall be Underwriters' Laboratories approved.
  - (1) Heat resistant fixture wire
  - (2) Code grade types R and RL
  - (3) Moisture resistant type RW
  - (4) Heat resistant type RH
  - (5) Armored bushed type cable (type R insulation)
  - (6) Non-metallic sheathed cable (type R insulation)
  - (7) Thermoplastic types I and TW
  - (8) Service entrance cable, type SE
  - (9) All rubber cord, heavy duty type S (range connection)
- c. Wiring devices shall conform to Federal Specifications WR-151a, Type II, Style 102, WS-893, and/or WS-896, respectively. Plaster ears are optional.
- (1) Single or duplex receptacles (flush or surface) shall be 15 ampere, 125 volt.
- (2) Tumbler switches (flush or surface) shall be  $^{\rm N}$  T rated not less than 10 ampere, 125 volt.
- (3) Combination of devices shall be single gang mounting wherever practicable.

- (4) Polarized receptacles shall be 2 wire, 3 pole, 15 ampere, 125 volt.
- d. <u>Plates and finishes</u> for switches, receptacles and other outlets (in connection with concealed wiring), requiring plates, shall be non-metallic.
- e. Service and motor disconnects shall be fused safety switch (Type C), fused safety switch ("pull out" type), or circuit breakers.

Service equipment shall comply with regulations of the local utility company. Universal meter socket receptacle, if furnished, shall be provided with cover plate and sealing ring; meter pans or encasing cabinets shall be provided with covers and seals. METERS SHALL NOT BE FURNISHED UNDER THIS CONTRACT.

- f. Branch circuit panels shall consist of the required number of protective devices and required disconnects. Where panels are located outside of area served, provide a typewritten circuit directory protected by a durable transparent covering, mounted in a suitable frame on panel door.
- g. Cabinets shall consist of sheet steel, code gauge, for surface or flush mounting as indicated.
- (1) Interior flush mounted cabinets shall be unpainted galvanized steel, bonderized or otherwise treated to resist corrosion, and painted a prime shop coat. Surface mounted cabinets, covers, trims, and doors shall be bonderized or otherwise treated to resist corrosion, painted a prime shop coat, and finished with one coat of baked enamel, standard finish.
- (2) Exterior cabinets shall be of weather proof construction. Exposed cabinets, covers, trims and doors shall be bonderized or otherwise treated to resist corrosion. Apply prime shop coat and finish with one coat of baked enamel, standard finish. Provide pin tumbler lock or padlock for "protective section," arranged for masterkeying. (Provide 6 master keys.)
- h. <u>Protective equipment</u> shall be fused or circuit breaker type at the option of the contractor. Whichever is elected shall be used consistently throughout the entire installation.
  - (1) Circuit breaker panel Underwriters Laboratories approved.
- (2) Fuse panels dead front type, with interchangeable, non-combustible, insulated base fuse section Underwriters Laboratories approved.

# i. Fuses

- (1) Cartridge, renewable (0 to 100A) = Underwriters' Laboratories approved.
- (2) Cartridge, non-renewable (over 100A) Underwriters' Laboratories approved.
- (3) Plug fuse (type "S", non-tamperable with adapters for screw base) Underwriters' Laboratories approved.
  - j. Tapes (electrical) Underwriters' Laboratories approved.

# k. Dwelling Unit Lighting Fixtures and Lamp Bulbs

- (1) Lighting fixtures for exposed surface wiring shall be of the standard lamp holder surface type device Federal Specification W-L-142, Type VI, Style 5 & 6, which shall permit ready interchange and replacement. Finish shall be standard.
- (a) Pull control fixtures shall have a snubber or stop at the hole where the chain emerges, to relieve the strain of excessive pull on the switch mechanism. Provide 30 inch extension cord for each pull control fixture.
- (2) Lighting fixtures for concealed wiring shall be simple and sturdy in design, nonmetallic of standard types which will permit ready interchange and replacement.
- (a) Ceiling fixture shall be beam type, with flared ring opening, and provided with a canopy type toggle switch with short chain and 30 inch extension cord, pull chain sockets not permitted.
- (b) Two piece type receptacles which are dependent entirely upon the screw ring to prevent the body of the receptacle from rotating in the holder, will not be permitted.
- (c) Bracket fixtures shall include a toggle type switch and a single receptacle.
- (3) Before purchase, submit sample fixtures to the contracting officer for approval.
  - (4) Lamp bulbs Federal Specification W-L-10le.
- 5. INSTALLATION OF OUTLET BOXES, COVER, DEVICES AND PLATES
- a. Boxes shall be of sizes and types to accommodate (1) structural conditions, (2) size and number of conductors or cables entering, and (3) device or fixture for which required. Boxes for exterior fixture outlets shall be provided with a gasket.

- b. Mount outlets flush. Provide plaster rings or covers on boxes where required.
- c. Support fixtures at boxes as determined by the type of fixture, that is, whether stude or straps are required, furnish necessary fixture supports.
- d. <u>Center outlets</u> in paneling or in other architectural features; clear trims and corners by four inches. Locate switch outlets adjacent to door openings on strike side of doors, except where shown otherwise. Brackets and switch outlets shall clear doors by six inches.
- e. Height of outlets from center to finish floor, unless otherwise noted, shall be as follows:

	<b>S</b> eries 1 Dwellings	Laundry and Froject Buildings
Switches (public space)		5 feet
Switches (general) Combination switch and	dia de Mili an	4 feet
receptacle	CON SOM COMP DAD	4 feet
Insertion receptacle	4 feet, 6 inches	l foot or 4 feet, 6 inches (whichever results in the least amount of material)
Bracket fixture Refrigerator receptacle	6 feet, 6 inches	5 feet, 6 inches
approx.	3 feet	es em
Range outlet	6 inches below top and on center line	
Transfer switch	4 feet, 6 inches	age con date date can can can can

Locate refrigerator receptacle 1 foot, 8 inches from center line of refrigerator to the side which will permit serving work space and table appliances. The kitchen equipment layout governs exact height; check kitchen details before installation.

Locate bathroom fixture on wall, centered above the medicine cabinet and/or mirror.

f. If wiring devices without plaster ears are used, care should be exercised in pulling "wiring devices" up for alignment on plates.

## 6. INSTALLATION OF WIRES AND CABLES

a. Conceal wiring from view. In non-fireproof floor and roof construction run parallel to and between joists wherever practical. Cutting of vertical studs not permitted in outside walls. Interior partition studs may be drilled, cut or notched where absolutely necessary and then only to a minimum.

- b. Keep raceways clear of partitions at ends of bathtub permitting future cutting of partitions to remove tub without disturbing electrical system.
- c. Where conductors of "knob and tube" system are installed in the hollow spaces of walls and ceilings in which thermal insulation is used, each conductor shall be separately encased in a continuous length of flexible tubing extending from one support to the next or to an outlet box. When practicable conductors shall be run single on separate framing members, conductors not encased in flexible tubing shall be kept at least one inch away from thermal insulation material.
- d. Where it is impractical to conceal portions of wiring due to structural conditions, wiring may be exposed. All wiring in Series 1 dwellings shall be installed exposed on the surface of walls and ceiling. In such cases, the wiring systems and devices shall be of a type designed for exposed work-conductors to be two or three conductor non-metallic sheathed cable; switch and outlet devices of non-metallic material of type not requiring outlet boxes.
- (1) Securely fasten cables in place by means of straps spaced not more than two feet apart, attached to structure by screws. In passing through floors, protect cables against mechanical injury.
- (2) Securely fasten devices to structure; make splices and taps within wiring devices or terminal block; do not damage or remove cable sheath outside of wiring devices.
- (3) Where practical, connect single cable runs to devices. To accomplish this, provide junction boxes in attic or closet space.
- (4) Cover all exposed non-metallic sheathed cable runs in rooms with suitable wood moulding securely fastened in place.
- e. <u>Use lead covering</u> over rubber insulation in underground locations, in moist locations use lead or moisture resisting rubber covering.
- f. Eliminate splices wherever possible; where necessary, splice in readily accessible pull, junction or outlet box.
- g. Make taps and splices in wire #8 and smaller mechanically tight by using "Western Union" or pigtail splice, properly cleaned, soldered for copper wire and aluminum welded or mechanically bonded for aluminum wire, and insulated with rubber and friction tapes, flashover or insulation value of joints being at least 100 per cent in excess of wire insulation. Mechanical wire splicers and joints, except those using set screws bearing directly on conductor, may be used.
- h. <u>Make taps and splices in wire #6</u> and larger by means of brass or copper pressure connectors applied after wire has been cleaned; make tight and fully insulate as specified in preceding paragraph. Use parallel taps where necessary to conserve working space.

# 7. WIRING CONNECTIONS (GENERAL)

- a. <u>Provide required number of branch circuits</u>, with one circuit for receptacle outlets in kitchens and dining space and additional circuits for remainder of general lighting and receptacle outlets.
- b. Where terminals permit, connections for wire #8 and larger to switches, panelboards, etc., shall be with soldered copper lugs or terminals of style to fit terminal and size to handle full wire capacity; mechanical lugs, except that those using set screws bearing directly on conductors, may be used.
- c. Balance load as nearly as possible where three wire panels are provided.

# 8. SERVICE CONNECTIONS

- a. The electrical system covered by this division shall commence at the "overhead" point of service contact on exterior of building. From this point of contact extend wiring to service equipment and panels thence to outlets. At service contact leave slack cable or conductors for connecting to service loop; provide and install adequate anchorage at building to receive service loop. Connection to service drop to be made by contractor for the overhead distribution.
- b. Generally, locate branch circuit protective devices on the interior of dwelling units at, or near, the point of service entrance. From this cabinet, extend circuit home runs to nearest outlets served by the respective circuits. Provide suitable cover fitting where service conductor enters dwelling unit, and suitable service head fitting at point of service contact.

# 9. INSTALLATION OF LIGHTING FIXTURES AND LAMP BULBS

- a. Install a lighting fixture on each fixture outlet of the type specified under "Materials,"
- b. Provide lamp bulbs for all fixtures or lamp holder wiring devices. Install lamp bulbs in all fixtures, except those in dwelling units. Bulbs for use within dwelling units shall be delivered in original cartons to Government's representative.
  - (1) Size of lamp bulbs for dwelling units shall be:

Living room and kitchen 75 watts
Bedrooms 60 watts
Bathrooms 40 watts
Halls, closets, etc. 25 watts

# 10. FUSES AND CIRCUIT BREAKERS

- a. Select overcurrent protective devices (fuse or circuit breakers) for branch lighting and appliance circuits rated (or set) at not more than 15 amperes, except that the overcurrent devices for water heater circuit shall not be more than 20 ampere rating.
- b. If contractor elects to use circuit breakers, such equipment shall also be used in feeder protection; likewise, with respect to fuses. Protective devices in a circuit shall be so coordinated as to cause the protective device nearest the load to open first in case of overload, short circuit or ground.
- c. <u>At completion</u>, after all testing has been done, install one complete set of fuses for all switches and panels requiring same. In addition, furnish 15 per cent of one complete duplicate set of each size in original cartons.

## 11. GROUNDING

- a. Where knob and tube wiring and/or non-metallic sheathed cable is used in conjunction with armored cable, the ground requirements are of special importance.
- b. Where metal boxes are used in conjunction with non-metallic sheathed cable, each such box and the non-current carrying parts of other fixed equipment shall be grounded in accordance with Art. 2557(a) of the National Electrical Gode, 1951 Edition.
- c. Ground each service entrance to cold water piping in a manner prescribed by the National Electrical Code. Ground clamps shall be approved type and installed accessible. Provide such other system and/or equipment grounds as may be required by the National Electrical Code.

#### 12. FINAL INSPECTION AND TESTS

Prior to test, feeders and branch circuits shall be continuous from service contact point to each cutlet; all panels, feeders and devices connected and fuses in place. Test system free from short circuits and grounds with insulation resistances, not less than outlined in Section 1119, 1951 National Electrical Code. Provide testing equipment necessary and conduct test in presence of the Government's authorized representative. Submit three (3) certified copies of test reports to the project engineer for record.

# (\_) ELECTRICAL CONNECTIONS (EQUIPMENT)

a. Overcurrent protection and disconnecting means as required by the NEC shall be provided for motors. Motor driven equipment specified under PLUMBING and HEATING divisions may be factory wired complete with controllers and motor disconnects, therefore, this contractor should check equipment purchased under those divisions so as to avoid duplication of protective and disconnecting means.

b. <u>Motor and control apparatus</u> specified under other divisions unless specifically mentioned as being connected under such divisions shall be connected ready for operation under this division.

# (\_) WIRING CONNECTIONS TO ELECTRIC REFRIGERATOR

Electric refrigerators will be furnished, uncrated, delivered in kitchens by others. This contractor shall insert the cord connection in receptacle provided at each refrigerator location.

# (\_) WIRING CONNECTIONS TO ELECTRIC WATER HEATER

- a. <u>Electric water heaters</u> specified under the PLUMBING division shall be electrically connected ready for operation under this division.
- b. The electric water heater circuit shall be connected to one load side of the double-throw manually operated disconnect switch located on the wall near the electric cooking equipment, when electric energy is supplied for cooking and water heating. The other load side of the switch is to be connected to the electric cooking equipment; the line side of the switch to be connected to the Dwelling Unit Panel. During operation of the electric cooking equipment no current will flow to the electric water heater; during operation of the electric water heater, the electric cooking equipment will be inoperative.
- c. When another fuel is supplied for cooking, the electric heater circuit shall be connected directly to Dwelling Unit Panel.
- d. <u>Provide overcurrent protection</u> at the electric water heater (when connected to double throw switch) based on size of the electric elements in the water heater and principle of operation.
- e. Locate heater outlet on wall, back of heater. Connection between wall outlet and heater shall consist of armored cable, or wire and flexible steel conduit.
- f. Ground heater frame to main ground as prescribed by National Electric Code.

# () WIRING CONNECTIONS TO ELECTRIC RANGE

- a. <u>Electric ranges</u> will be furnished, uncrated, delivered in kitchen by others. This contractor shall furnish and install cable connection as specified hereinafter.
- b. Furnish and install on wall near range, a suitable 60 amp. double-throw transfer switch, so that when the range is in use the water heater will not be in service, and/or when the water heater is in use the range will not be in service. Switch shall have legible indication on outside of cover, "Heater-Off-Range."

- c. Range circuit shall consist of 3 or 4 conductor all rubber cord from range to outlet box (back of range) and splice to one load side of transfer (double-throw) switch. Provide cable support or grip on all rubber cord to avoid mechanical strain on splice in outlet box and on terminals on range.
- d. Ground range frame to main ground as prescribed by National Electrical Code.
- e. <u>Provide slack</u> in connecting cable permitting range being moved three (3) feet from wall without disconnecting. Provide conductors with lugs (if necessary) to accommodate range terminal block.

SITE IMPROVEMENTS (ROADS, WALKS, ETC.)

# NOTES TO THE ARCHITECT:

THIS SHEET IS FOR THE INFORMATION OF THE ARCHITECT ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

SECTION 1. SCOPE. THE DRAWINGS SHOULD SHOW CLEARLY THE EXTENT OF OFF-SITE WORK. IF SITE BOUNDARIES ARE SHOWN, A NOTE SHOULD STATE THAT THEY ARE FOR THE PURPOSE OF IDENTIFICATION AND NOT ALL CONTRACT WORK IS NECESSARILY CONFINED WITHIN THEM.

SECTION 3. CONCRETE WORK. IN CASE THE PROJECT SPECIFICATIONS WILL NOT CONTAIN A DIVISION, "CONCRETE AND MASONRY", INSERT HERE AN ADEQUATE SPECIFICATION FOR THE CONCRETE WORK INVOLVED IN THE SITE IMPROVEMENTS PLANNED.

WALKS. DRAWINGS SHOULD SHOW TYPE OR TYPES OF WALK TO BE CONSTRUCTED IN
ALL LOCATIONS. CHOICE OF TYPE AND SPECIFICATION REQUIREMENTS ARE GOVERNED
BY LOCAL CONDITIONS. (SEE NOTES RE: ROADWAY AND PARKING AREA SURFACING.)

SECTION 6, CONCRETE BLOCK WALKS. DRAWINGS SHOULD SHOW DETAILS OF BLOCKS AND LAYING.

SECTION 7. AGGREGATE WALKS. IN CASE THERE IS NO SUITABLE STATE SPECIFICATION FOR AGGREGATE FOR WALKS. THE FOLLOWING MAY BE USED:

Fraction passing 3/4 inch square sieve Fraction passing No. 4 square sieve Fraction passing No. 200 square sieve

Loam or clay content
For fraction passing No. 40 sieve:
Liquid limit
Plasticity index

100%
75% Maximum
5 to 15%
(Not over 50% of fraction passing No. 40)
15% Minimum

HOWEVER, IT IS PREFERABLE TO USE A STATE SPECIFICATION, IF AVAILABLE.

BITUMINOUS SURFACE TREATMENT SUCH AS COVERED BY TEXT IS DESIRABLE BUT NOT

ALWAYS ESSENTIAL.

SECTION 9. CONCRETE CURB. IF CURB OR COMBINED CURB AND GUTTER IS REQUIRED IN CITY STREETS, SPECIFY CONSTRUCTION ACCORDING TO CITY STANDARDS. IT IS EXPECTED THAT CONCRETE CURBING WILL NOT OFTEN BE NECESSARY WITHIN TEMPORARY HOUSING PROJECTS AND BARELY WITHIN TRAILER PROJECTS.

SECTION 10. ROADWAY AND PARKING AREA SURFACING. NO SPECIFICATION IS GIVEN FOR THIS ITEM AS REQUIREMENTS IN EACH CASE MUST BE ADAPTED TO MATERIALS LOCALLY AVAILABLE AND LOCAL CONSTRUCTION PRACTICE. ALSO TO CLIMATIC CONDITIONS AND TO SITE CONDITIONS AS REGARDS SOIL, DRAINAGE AND TOPOGRAPHY. A LOW-COST SURFACING SUCH AS STABILIZED GRAVEL, STONE OR SLAG, CALCIUM-CHLORIDE TREATED, OR PREFERABLY WITH BITUMINOUS SURFACE TREATMENT, SHOULD MOST OFTEN BE APPROPRIATE. IF PRACTICABLE, STIPULATE CONSTRUCTION IN ACCORDANCE WITH SOME SUITABLE CITY OR STATE SPECIFICATION, BUT TAKING EXCEPTION TO REQUIREMENTS NOT APPLICABLE TO PROJECT WORK. CONSULTATION WITH LOCAL ROAD BUILDING AUTHORITIES AND CONTRACTORS IS ALWAYS ADVISABLE.

SECTION 11. SURFACING FOR SPECIAL AREAS. IT IS ANTICIPATED THAT AS A RULE NO SURFACING, OTHER THAN TURF, WILL BE REQUIRED FOR RECREATION AREAS, LAUNDRY DRYING YARDS OR OTHER SPECIAL AREAS. IF AND WHEN DEEMED NECESSARY, HOWEVER, A SURFACING SIMILAR TO THAT SPECIFIED FOR WALKS (BUT WITH HEAVIER BITUMINOUS TREATMENT IN THE CASE OF RECREATION AREAS) MAY BE SUITABLE. IN ANY EVENT THE SPECIFICATION MUST BE FITTED TO LOCAL CONDITIONS. (SEE PRECEDING NOTES RE: ROADWAY AND PARKING AREA SURFACING.)

SECTION 12, LOG POSTS AND/OR GUARD RAILS. SHOW DETAILS ON THE DRAWINGS.

Mark the the

SECTION 13, CLOTHESLINE SUPPORTS. SHOW DETAILS ON THE DRAWINGS. LINES SHOULD BE 6' 2" ABOVE FINISHED GRADE. PROVIDE 2" x 8" x 2' 0" CROSS PIECE CN "BEARING" SIDE OF POST, CENTERED 12" BELOW FINISHED GRADE. FOR TRAILER PROJECTS, PAINTING MAY BE OMITTED.

THIS SPECIFICATION MUST BE ADAPTED TO SITE CONDITIONS. CHANGE AS NECESSARY
TO MEET THE PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND
ADD AS NECESSARY.

SECTION 12, LCG POSTS AND/OR GUARD RAILS. SHOW DETAILS ON THE DRAWINGS.

SECTION 13, CLOTHESLINE SUPPORTS. SHOW DETAILS ON THE DRAWINGS. LINES

SHOULD BE 6' 2" ABOVE FINISHED GRADE. PROVIDE 2" x 8" x 2' O" CROSS

PIECE ON "BEARING" SIDE OF POST, CENTERED 12" BELOW FINISHED GRADE.

FOR TRAILER PROJECTS, PAINTING MAY BE OMITTED.

\*PARAGRAPHS MARKED THUS ( ) COVER VARYING TYPES OF INSTALLATION AND MUST BE DELETED WHEN NOT NEEDED.\*

THIS SPECIFICATION MUST BE ADAPTED TO SITE CONDITIONS. CHANGE AS NECESSARY TO MEET THE PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND ADD AS NECESSARY.

NOTE: This page 14-iii supersedes page 14-iii of Division DHS 14 dated 2-1-52. Material \* between asterisks \* is new or revised.

SITE IMPROVEMENTS (ROADS, WALKS, ETC.)

#### 1. SCOPE

Include pacing, surfacing, curbs, walks, clothesline supports,
\_\_\_\_\_\_\_\_, and other site improvements required to complete the project, except work specified in other divisions. See the drawings and General Scope of Work for extent of work.

# 2. SUBGRADE FOR SITE IMPROVEMENTS

Provide a firm, uniformly compacted subgrade at the required levels. Loosen exceptionally hard spots and recompact. Remove spongy and otherwise unsuitable material and replace with stable material. Fill and tamp all traces of utility trenches. Adjust tops of utility structures to finished grade.

### 3. CONCRETE WORK

Except as otherwise shown or specified, concrete work for site improvements shall comply with all applicable provisions of the Division, CONCRETE AND MASONRY.

#### 4. STREET SIDEWALKS

Construct sidewalks in city streets in accordance with the standard specifications or requirements therefor of the City of

#### 5. CONCRETE WALKS

Concrete walks, except street sidewalks and concrete block walks, shall be of one-course construction, three inches thick and with 1/4 inch per foot cross slope. Give the concrete surface a wood-or carpet-float finish and round all edges to a 1/4-inch radius. Provide 1/2-inch transverse expansion joints with premolded filler at intervals of 50 feet, at walk intersections, and at junctions with concrete steps. Between expansion joints cut grooves 1/8 to 1/4 inch wide and at least one inch deep in the walk surface at intervals of five feet or otherwise as shown on drawings. Permit no pedestrian traffic on concrete walks for three days after pouring.

### 6. CONCRETE BLOCK WALKS

Cast the concrete blocks in flat position and give the wearing surface a wood-float finish. Keep the blocks in forms and wetted until they can be handled without damage. Minor imperfections on edges will not be considered objectionable. Bed the blocks firmly on a one inch sand cushion with tops 1/2 inch above finished grade.

# 7. AGGREGATE WALKS

Aggregate walks shall consist of a 3-inch (compacted-thickness) course of gravel, crush stone or slag, meeting the \_\_\_\_\_\_\_ State Highway Department Specification No. \_\_\_\_\_ or No. \_\_\_\_. Spread the aggregate evenly in a trench of the required walk width, moisten thoroughly and compact to an even surface at finished grade by a power roller or mechanical tamping. To the moistened, compacted surface apply slow-breaking emulsified asphalt at a rate of at least 0.20 gal. per sq.yd. After the emulsion has broken, sweep over the surface enough stone dust, fine sand or other fine aggregate to fill surface voids and coat the bituminous application. Remove excess loose material before completion of the work.

#### 8. CONCRETE STEPS

Extend footings for concrete steps to undisturbed subsoil; if deeper than required by the drawings, the Contract Price will be adjusted (see GENERAL CONDITIONS). Finish treads with a wood float. Fill surface voids in formed surfaces with 1:2 mortar, and rub down formed surfaces which will be exposed.

### 9. CONCRETE CURB

Construct concrete curb in sections 6 to 10 feet long by using 1/8-inch division plates. Provide 1/2-inch expansion joints with premolded filler at 50 foot intervals and at ends of all returns. Finish smoothly with a wood float, without plastering. Round all edges to a 1/4-inch radius except as otherwise shown. Concrete curb shall be constructed of 3000-lb. concrete.

10. ROADWAY AND PARKING AREA SURFACING

(See Notes to the Architect)

11. SURFACING FOR SPECIAL AREAS

(See Notes to the Architect)

12. LOG POSTS AND/OR GUARDRAILS

Posts and/or guardrails at parking areas shall be reasonably straight, sound, and free from injurious defects and shall have been cut from live trees between one and twelve months before use. They shall be 7 inches minimum diameter. Immediately before the logs are used in the work, all bark shall be peeled and all knots and projections trimmed smooth. Logs of only one species shall be used at any one parking area.

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#### 13. CLOTHESLINE SUPPORTS

Clothesline posts and cross arms shall be No. 1 timbers, sized 4 sides, of cedar, cypress, fir, or redwood, posts to be cut from nominal 6-inch stock. At the Contractor's option, however, posts may be 6-inch butt, live cedar, cypress, redwood, fir or locust poles, sound and free from shakes, loose or hollow knots, and season checks more than 1/4 inch wide. Such poles shall be peeled for their entire length, removing all outer and inner bark by shaving the surface. Bottom of posts shall be sawed square and top rounded to conical shape. Paint above-ground work as specified in the division, PAINTING AND GLAZING.

# 14. WOOD FENCES, SCREENS AND HANDRAILS

Wood fences, screens and handrails shall be No. 1 cedar, cypress, redwood, Southern pine, Douglas fir or other approved species, provided that, at the Contractor's option, posts may be poles as above specified for clothesline supports, but with 5-inch butts. Fabricate and erect fences, screens and/or handrails as detailed, and paint as specified in the division, PAINTING AND GLAZING.

# 15. OIL STORAGE DRUMS AT DWELLING UNITS

Drums at dwelling units shall be made of 18 gauge steel and shall meet applicable requirements of ICC Specification 17E. They shall have 55 gallons capacity with one 2-inch and one 3/4-inch regular opening without spigots but supplied with cast iron plugs for openings. Drums shall be arranged for horizontal mounting and shall receive a heavy coat of rust resistant paint. Each drum shall be equipped with a faucet Sette Lock Type No. G-261, self-closing 3/4 inch I.P.S. Carriage for oil drum shall be No. 2 Yellow Pine, Fir or the equivalent and receive two coats of exterior oil paint. Faucet must be in proper working order and adjustment.

## 13. CLOTHESLINE SUPPORTS

Clothesline posts and crossarms shall be No. 1 timbers, sized 4 sides, of cedar, cypress, fir or redwood; posts to be cut from nominal 6-inch stock. At the contractor's option, however, posts may be 6-inch butt, live cedar, cypress, redwood, fir or locust poles, sound and free from shakes, loose or hollow knots, and season checks more than 1/4 inch wide. Such poles shall be peeled for their entire length, removing all outer and inner bark by shaving the surface. Bottom of posts shall be sawed square and top rounded to conical shape. Paint above-ground work as specified in the division, PAINTING AND GLAZING.

# 14. WOOD FENCES, SCREENS AND HANDRAILS

Wood fences, screens and handrails shall be No. 1 cedar, cypress, redwood, Southern pine, Douglas fir or other approved species, provided that, at the contractor's option, posts may be poles as above specified for clothesline supports but with 5-inch butts. Fabricate and erect fences, screens and/or handrails as detailed and paint as specified in the division, PAINTING AND GLAZING.

# \*( ) OIL STORAGE DRUMS AND CONNECTIONS AT TRAILERS

Oil storage drum shall be ICC standard of not less than 18 gauge steel, nominal capacity 55 gallons. Fit drum with threaded oil-fill and supply connections and with standard vent cap. Mount drum horizontally on carriage herein specified so that supply connection from drum is not less than 6 inches nor more than 12 inches above oil level in constant level valve at heater and side of drum is within \$\frac{3}{2}\$ inches to 12 inches from outside wall.

- a. Carriage for oil drum shall consist of two 2-inch x 4-inch X frames with two 1-inch x 4-inch crossbraces and two 1-inch x 6-inch longitudinal braces, all No. 2 yellow pine or fir or equivalent and all securely nailed together and set on two concrete pads two inches thick. A metal carriage capable of supporting three times the weight of the oil drum and contents may be used in lieu of the wood support described above. The height of the carriage shall be such as to permit installation of the oil piping as specified herein.
- b. Piping shall be black, standard weight, steel or wrought iron, 3/8 inch IPS with malleable iron fittings or steel tubing not less than 1/4 inch ID with flared joints. Run supply piping from drum to oil supply pipe terminus at trailer and connect thereto. Install gate or globe valve at drum, an Underwriters approved oil filter and provide dirt leg and cap at bettom of drop. Install coil between drum and trailer to provide flexibility.
  - c. Locate oil drum on opposite side of trailer from entrance door.
- d. Paint wood tank carriage with one coat exterior oil paint. Prime black pipe, tank and metal tank carriage with red lead paint TT-P86a and apply a finish coat of aluminum paint to piping, tank and tank carriage. \*

NOTE: This page 14-3 supersedes page 14-3 of Division DHS 14, dated 2-1-52. Material \* between asterisks \* is new or revised.

UTILITIES (SEWERS, WATER AND GAS)

# NOTES TO THE ARCHITECT:

THIS SHEET IS FOR THE INFORMATION OF THE ARCHITECT ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

NO SPECIFICATION IS GIVEN HEREIN FOR SEWAGE DISPOSAL FACILITIES OTHER THAN CONNECTION TO EXISTING SEWERS, NOR FOR WATER SUPPLY OTHER THAN FROM PUBLIC WATER WORKS. SHOULD SUBSURFACE SEWAGE DISPOSAL, SUCH AS SEPTIC TANKS AND TILE BEDS, BE PROPOSED OR SHOULD THE PROJECT WATER SUPPLY BE FROM WELLS, THE SPECIFICATIONS SHOULD COVER REQUIREMENTS FOR SUCH WORK.

FOR TRAILER PROJECTS, OBTAIN FROM THE CONTRACTING OFFICER, THE DETAILS OF THE WATER AND SEWER TERMINATIONS ON THE TRAILERS.

SECTION 1. SCOPE. THIS SECTION AS WRITTEN APPLIES TO TEMPORARY HOUSING PROJECTS. FOR TRAILER PROJECTS, SUBSTITUTE THE FOLLOWING:

"Include all sewers, drains, underground water lines, appurtenances, connecting of water lines and sewers to trailers and buildings (if any) and related items, required to complete the project."

SECTION 2. TRENCHING AND BACKFILLING. IF IT IS KNOWN THAT NO ROCK WILL BE ENCOUNTERED IN TRENCH EXCACATION, OR IF FOR OTHER REASON NO CLASSIFICATION OF EXCAVATED MATERIALS IS DESIRED, REVISE PARAGRAPH c AS FOLLOWS:

"Material to be excavated hereunder in trenches for utilities shall be non-classified and shall include all earth or other materials encountered. The Contract Price is understood to cover the removal of all such materials to the depth and extent indicated on the drawings and herein specified."

SECTION 4. SEWER CONSTRUCTION. FOR TRAILER PROJECTS ADD A PARAGRAPH f
COVERING ANY REQUIREMENTS, IN ADDITION TO THOSE WHICH MAY BE SHOWN ON THE
DRAWINGS, FOR CONNECTING TRAILER DRAINS TO SEWERS. CONNECTION SHOULD BE
MADE BY SLIP JOINT OR BY FLEXIBLE OR SEMI-RIGID CONDUIT. IN COLD CLIMATES
INSULATE EXPOSED DRAINAGE PIPING.

SECTION 5. WATER DISTRIBUTION SYSTEM MATERIALS. WITH A VERY SCANT WATER
SUPPLY, PARTICULARLY IN THE CASE OF TRAILER PROJECTS, 1-1/2 or 2-INCH COMPRESSION HYDRANTS MAY BE SPECIFIED IN LIEU OF THE STANDARD FIRE HYDRANTS COVERED BY PARAGRAPH 1.

SECTION 6. WATER DISTRIBUTION SYSTEM INSTALLATION. FOR TRAILER PROJECTS,

DESIGNATE PARAGRAPHS j AND k AS k AND 1, RESPECTIVELY, AND INSERT THE FOLLOWING (OR SHOW REQUIREMENT FULLY ON THE DRAWINGS):

j. Water Connections to Trailers. Center the water supply pipe riser to each trailer in 6-inch sewer pipe with bell end of sewer pipe extended to 6 inches above ground level. Pack the sewer pipe with hair felt or mineral wool and provide tight plug around the water pipe riser, which shall terminate in a hose nipple with a 5/8-inch garden house connection to the trailer water supply piping. The exposed piping and the hose shall be enclosed completely in a -inch thick wrapping of hair felt, jacketed with waterproof fibre or paper tightly wired in place.

SECTION 7. GAS DISTRIBUTION SYSTEM MATERIALS. THIS SPECIFICATION CALLS FOR UNCOATED PIPE, INASMUCH AS RARELY IF EVER SHOULD THE EXPENSE OF WRAPPING OR COATING GAS LINES BE WARRANTED FOR TEMPORARY PROJECTS.

SECTION 8. GAS DISTRIBUTION SYSTEM INSTALLATIONS. UNLESS SOIL AT THE PROJECT SITE IS QUITE CORROSIVE, DELETE THE LAST SENTENCE OF PARAGRAPH a AND THE LAST SENTENCE OF PARAGRAPH c(3). THESE PROVISIONS ARE INTENDED TO FACILITATE THE INSTALLATION OF CATHODIC PROTECTION OF THE LINES IF SUCH SHOULD LATER BE FOUND NECESSARY.

THIS SPECIFICATION MUST BE ADAPTED TO SITE CONDITIONS. CHANGE AS NECESSARY

TO MEET PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND ADD AS

NECESSARY.

## UTILITIES (SEWERS, WATER AND GAS)

#### 1. SCOPE

Include all sewers, drains, underground water and gas distribution lines, appurtenances, and related items, required to complete the project, except (1) house sewers, (2) water services, and (3) gas services, each from buildings to points 5 feet outside of building walls, which items are specified in the division, PLUMBING. The ends of sanitary sewers and water and gas service lines shall be tightly plugged or capped at such points 5 feet from building walls, pending the connecting thereto of the building piping as specified in the division PLUMBING.

#### 2. TRENCHING AND BACKFILLING

- a. General. Unless otherwise shown, provide separate trenches for each utility -- sewer, water and gas. Excavate trenches of sufficient width for proper installation of the work.
- b. Sheeting, Bracing, Water Removal. Sheet and brace trenches, and remove water, as necessary to fully protect workmen and adjacent structures and permit proper installation of the work. Under no circumstances lay pipe or install appurtenances in water; keep the trench free from water until pipe joint material has hardened. The presence of ground water in the soil or the necessity of sheeting or bracing trenches shall not constitute a condition for which any increase may be made in the Contract Price, except that when sheeting is left in place, on the written order of the Contracting Officer, the Contract Price shall be adjusted (see GENERAL CONDITIONS). Sheeting left in place shall be cut off not less than 2 feet below finished grade. Sheeting shall not be removed until the trench is substantially backfilled.
- c. <u>Rock Excavation</u>. If "rock" is encountered within the limits of trench excavation for utilities, the Contract Price will be adjusted (see GENERAL CONDITIONS). "Rock" is defined as rock, stone, hard shale, boulders, masonry or rock fragments over 9 cubic feet in volume, that cannot be removed by an ordinary trenching machine without the use of explosives or drills.
- d. <u>Blasting</u>. Obtain written consent and approval of method from the Contracting Officer before proceeding with blasting. Cover blasts with heavy timbers or mats. Protect pipe already laid.

- e. Grading Trench Bottom. Grade the bottom of trenches evenly to insure uniform bearing for the full length of all pipes. Cut holes as necessary for joints and joint making. Excavate all rock or other hard material to at least 4 inches below the pipe. Refill such space and all other cuts below grade with sand or fine gravel firmly compacted.
- f. Special Supports. Should latent soil conditions, other than hard material as referred to above, necessitate special supports for piping and/or appurtenances, including the removing of unsuitable material and refilling with other material, the Contract Price will be adjusted (see GENERAL CONDITIONS). Perform any such work as directed by the Contracting Officer.
- g. Tree Protection. Exercise care to protect the roots of trees to remain. Within the branch spread of such trees perform all trenching by hand. Open the trench only when the utility can be installed immediately; prune injured roots cleanly; and backfill as soon as possible. Perform all this work under direction of the Contracting Officer.
- h. Backfilling, Backfill trenches only after piping has been inspected, tested (if water or gas), and locations of pipe and appurtenances have been recorded. Backfill by hand around pipe and for a depth of one foot above the pipe; use earth without rock fragments or large stones and tamp firmly in layers not exceeding 6 inches in thickness, taking care not to disturb the pipe. Compact the remainder of the backfill thoroughly with a rammer of suitable weight or with an approved mechanical tamper, or if the soil is granular, by flooding, provided that under pavements, walks and other surfacing, the backfill shall be tamped solidly in layers not thicker than 6 inches. Exclude all cinders and rubbish from trenches in which metal pipes are laid.

#### 3. SEWER MATERIALS

- a. <u>Sewer Pipe</u>. Except as otherwise shown, pipe for sewers shall be standard strength clay sewer pipe meeting A.S.T.M. Specification C-13-44T, concrete sewer pipe meeting A.S.T.M. Specification C-14-41, or asbestos cement pipe meeting Federal Specification SS-P-351 or the manufacturer's standard for non-pressure pipe. Provide proper fittings for the installation and connection of all lines.
- b. <u>Joint Material</u>. Joints in sewers shall be made with hot-poured bituminous compound or with 1:2 cement-sand mortar. Gasket material shall be dry twisted jute packing or other material approved by the Contracting Officer.
- c. Brick for manholes and other sewer structures shall be sewer brick of a grade standard for that use. Mortar for bricklaying shall be 1:3 cement-sand mix.

- d. Concrete shall meet the applicable requirements therefor given in the division SITE IMPROVEMENTS (ROADS, WALKS, ETC.).
- e. <u>Castings</u> shall be of tough, even-grained, soft grey iron, free from injurious defects, and shall be given two coats of coal tar pitch varnish. Tops and gratings weighing less than 100 pounds shall have an approved locking device.

#### 4. SEVER CONSTRUCTION

- a. Existing Sewers: Connections. Make or have made all required connections to existing sewers. Carry out such work in accordance with local requirements. Check carefully the invert elevations of existing sewers to which connections are to be made. Raise or lower existing manholes, street inlets, and catch basins as necessary to conform to finished grades.
- b. <u>Sewer Pipe Laying</u>. Test pipe for soundness and clean interior and joint surfaces before lowering into the trench. Lay the pipe with bell-end upgrade and in straight lines and on uniform grades between points where changes in alignment or grade are shown. Check the line and grade of each pipe from a top line carried on batter boards not over 25 feet apart. Bed the pipe uniformly and fit to form a smooth invert. Keep a stopper in the pipe mouth when laying is not in progress.
- c. Sewer Pipe Jointing. In making bituminous joints, comply fully with the directions of the manufacturer of the compound. In making mortar joints, spread mortar in the bottom one-third of the circumference of the bell and force into the mortar a gasket thick enough to center the spigot in the bell and long enough to lap at the top; after the pipe has been shoved "home", calk the gasket into place and ram mortar into the remainder of the joint space, bevelling off the mortar at a 45-degree angle; drag as close-fitting swab past the joint within the pipe. As soon as the joint material has set, pack fine earth carefully around the joints and place and tamp earth around and over the pipe.
- d. Sever Structures. Lay brick with shove joints completely filled with mortar. Horizontal joints shall not exceed ½ inch, vertical joints 1/4 inch on their interior face. In circular structures, lay all bricks as headers, breaking joints between courses. Strike interior joint smooth with the face of the wall. Provide drop inlets into manholes on sanitary sewers for incoming lines having inverts 2 feet or more above the inverts of the manhole outlet lines. Unless otherwise shown, set castings for manholes and cleanouts at exact finished grade and depress the grates of drainage openings to 3 inches below finished grade.

e. <u>Flushing Sewers</u>. Flush all sanitary sewers, except dwelling connections, with water in sufficient volume to obtain free flow through each line. Remove all obstructions and correct all defects discovered. Remove all silt and trash from catch basins and inlets just prior to final acceptance of the work.

#### 5. WATER DISTRIBUTION SYSTEM MATERIALS

- a. Pipe 3-inch and larger for underground water distribution shall be either:
- (1) <u>cast iron pipe</u>, standard, Class 150, with either bell and spigot or standardized mechanical joints, Federal Specification WW-P-421 or A.S.A. A 21.2-1939; fittings standard Class D or Class 250 short-body; pipe and fittings coated inside and out with coal-tar pitch varnish; or
- (2) <u>cement asbestos pipe</u>, standard, Class 150, Federal Specification SS-P-351; fittings standard cast iron with all-bell connections of special dimensions as required, or with adaptors for proper jointing.
- b. Pipe smaller than 3-inch for underground water distribution shall be either:
- (1) wrought-iron pips, galvanized, standard weight, Federal Specification WW-P-44la; fittings galvanized malleable iron, screwed, Class B; or
- (2) <u>steel pipe</u>, galvanized, standard weight, Federal Specification WW-P-406; fittings galvanized, malleable iron, screwed, Class B; or
- (3) <u>cast iron pipe</u>, manufacturer's standard for 250 pounds water working pressure, each cast length to be at least 5 feet long and have 2 tapping collars; fittings Class 250; pipe and fittings coated inside and out with coal-tar pitch varnish.
- c. <u>Pipe Jointing Material</u>. Yarning material shall be braided hemp, sterilized by a method approved by the Contracting Officer, or rubber rings, asbestos rope, or treated paper rope free from oil, tar and grease. Joint compound shall be lead, or sulfur joint compound approved by the Contracting Officer. Gaskets for standardized mechanical joints shall be lead-tipped.
- d. <u>Valves</u>. Valves and stops shall have ends suited, or adaptors shall be provided, for proper installation in the limes in which they are located. Valves 2-inch and larger shall be iron-body, bronze or brass-mounted double gate valves meeting local standards; valve stems shall terminate in wrench nuts. Valves 1-1/2 inch and smaller shall be standard, brass, body, round-way, ground-key stops, with T-heads and checks. Furnish suitable keys for both the gate valves and the stops.

- e. <u>Valve boxes</u> for 2-inch and larger valves shall be approved standard cast iron, adjustable-shaft boxes; boxes over smaller valves (stops) shall be approved standard, cast iron, extension service boxes, having lid held in place by a brass bolt. Each box shall be of the size required for the size of valve and depth of line. The lids of all boxes shall bear the word "Water" or the letter "W".
- f. <u>Fire hydrants</u> shall be an approved standard make meeting local standards. Each hydrant shall have a valve opening not less than 5-inch, and two 2-1/2 inch hose nozzles and one pumper nozzle. The length of hydrant barrel shall be determined by the specified pipe bury.
- g. Water meters shall be of recognized make, meeting the approval of the local water department (company).

## 6. WATER DISTRIBUTION SYSTEM INSTALLATION

- a. <u>Connections to Existing Mains</u>. Make or have made all required connections to existing water mains, arranging therefor with the local water department (company) carrying out the work to its satisfaction.
- b. <u>Handling and Storing Materials</u>. Handle all materials so as to avoid shock or damage. Store pipe and fittings on sills above surface drainage level and deliver for laying after the trench is excavated.
- c. <u>Pipe-Laying General</u>. The pipe interior shall be clean and joint surfaces wiped clean and dry when the pipe is lowered into trench. Hammertest cast iron pipe for soundness before lowering. Lay pipe true to line and without objectionable breaks in grade. The depth of cover below finished grade shall be not less than \_\_\_\_\_ feet. Give all pipes a uniform bearing on the trench bottom. Allow no trench water or dirt to enter the pipe after laying. Insert a watertight plug in the open end of the piping when laying is not in progress.

# d. Pipe Laying and Jointing

(1) Jointing Bell and Spigot Cast Iron Pipe. Enter the spigot fully in the bell and center with tightly driven yarning material, leaving a uniform depth of at least 2 inches for lead or 2-1/2 inches for sulfur jointing compound. Limit the deflection at each joint so as to leave 1/4 inch minimum thickness of joint space at the face. Place lead joints at one pouring and calk watertight without straining the pipe. Make sulfur compound joints in accordance with the instructions of the manufacturer of the compound. Calk factory-made lead joints and field joints in cast iron pipe smaller than 3-inch to conform to the pipe manufacturer's directions.

- (2) Standardized mechanical joint cast iron pipe shall be jointed in full accordance with the pipe manufacturer's directions.
- (3) <u>Cement-asbestos pipe</u> shall be handled and laid in compliance with the manufacturer's published directions.
- (4) Wrought iron and steel pipe shall be jointed with lubricant on the male thread only. Remove burrs and cuttings and ream or file pipe ends to size of bore.
- e. <u>Fittings and Branch Connections</u>. Install suitable fittings at all changes in direction, dead ends and branch connections, provided that taps, in lieu of fittings, may be used as follows:
- (1) On 3-inch and larger cast iron pipe, taps shall be not larger than 3/4-inch, 1-inch, 1-1/4-inch, and 1-1/2-inch, or 3-inch, 4-inch, 6-inch, and 8-inch and larger mains, respectively; lead goossnecks shall be used on all connections for ferrous branches, if fittings are not employed.
- (2) On castiron pipe smaller than 3-inch, taps shall be made only at tapping collars and in accordance with the manufacturer's recommendations.
- (3) On cement-asbestos pipe, taps directly into the wall of the pipe shall be not larger than 3/4-inch on 4-inch and 6-inch mains, respectively, or larger than 1-inch on 8-inch and larger mains, and lead goosenecks shall be used on all connections for ferrous branches, if fittings are not employed; flat, double-strap clamps or special tapped couplings shall be used for larger taps which in no case shall be larger than 1-1/2-inch nor larger than 1/4 of the diameter of the main; all such work shall be performed in accordance with the pipe manufacturer's recommendations.
- f. <u>Setting Valves</u>. Test valves and stops for opening and closing, and set with stems plumb. Center boxes over valves and stops; set plumb and with tops at finished grade.
- g. Setting Fire Hydrants. Before setting, clean interior and check for proper operation. Set hydrants plumb and at correct elevation for finished grade. Set each hydrant on a concrete or stone slab not less than 2 square feet in area and place at least 4 cubic feet of coarse gravel or crushed stone, mixed with coarse sand, around and under the slab, extending the fill to at least 6 inches above the hydrant waste opening.
- h. <u>Blocking</u>. Pour concrete blocks between the undisturbed trench face and plugged ends, bends, and hydrant barrels to prevent pipe movement at calked joints; where the soil is not firm, provide, in lieu of concrete, approved tie rods and collars, painted with coal tar pitch varnish after placing.

- i. Tests. Before joints are covered, test the piping, under the supervision of the Contracting Officer, for at least 2 hours at a water pressure of \_\_\_\_\_ lbs. per sq. in. Remedy to the satisfaction of the Contracting Officer any defects discovered. Continue the tests until all visible leaks, except as hereinafter specified, have been eliminated.
- (1) <u>Sulfur Compound Joints</u>. Seepage or slow leakage from sulfur compound joints at the time of the above-specified test shall not be considered objectionable and only such joints shall be cut out and replaced as directed by the Contracting Officer. After lines containing sulfur compound joints have remained filled with water for 30 days, retest and determine the quantity of leakage; if it exceeds 100 gallons per inch of pipe diameter per mile of piping per 24 hours, make the necessary repairs to bring the leakage within such limitation.
- j. Flushing Mains. Upon completion of the water distribution system, test valves to insure their full opening and flush out the lines progressively by opening hydrents and service outlets and permitting the flow to continue from each until the water runs clear.
- k. Sterilization of Water Distribution System. After flushing as just specified, sterilize the system by the following or other method satisfactory to the Contracting Officer. Introduce chlorine or a solution of calcium or sodium hypochlorite, filling the lines slowly and applying the sterilizing agent at a rate of 50 parts per million of chlorine, as determined by residual chlorine tests at the ends of the lines. After the sterilizing agent has been applied for 24 hours, test for residual chlorine at the ends of the lines; if less than 5 p.p.m. is indicated, repeat the sterilization process. When tests show at least 5 p.p.m. of residual chlorine, flush out the system until all traces of the chemical used are removed.

### 7. GAS DISTRIBUTION SYSTEM MATERIALS

- a. <u>Pipe</u> shall be standard weight black steel. Pipe 2-inch and larger shall have bevelled ends for welded joints. Pipe 1-1/2-inch and smaller may have threaded ends. Fittings for welded piping shall be standard-weight, approved welding fittings; fittings for screw pipe shall be threaded black malleable-iron. Mechanical-type couplings shall be of a make approved by the Contracting Officer and equipped with rubber gaskets for gas service.
- b. Valves 2-inch and larger shall be standard, 125-pound, iron body, bronze mounted, double disc gate valves, or 125-pound, lubricated plug valves equipped with a grease connection readily accessible from the ground surface, and an indicator clearly visible showing whether the valve is open or closed; 3-inch and larger valves shall be flanged, smaller-sizes screwed. Valves 1-1/2-inch and smaller shall be straight way, iron body, brass plug, lockwing, T-head gas stops. Furnish keys suitable for the valves and stops.

- c. Valve boxes for 2-inch and larger valves shall be standard, castiron, adjustable shaft boxes; over gas stops, they shall be standard, castiron extension service boxes, having lid held in place by a brass bolt. The lids of all boxes shall be cast with the word "Gas". The castings shall be coated with two coats of coal-tar pitch varnish.
- d. <u>Drip pots</u> shall be A.G.A. standard, cast iron pots of at least \_\_\_\_\_\_ quarts capacity each, or they may be formed of sections of steel pipe, coated after fabrication in the manner specified for joints in line piping. Each drip pot shall be fitted with a valve, and a 1-inch suction pipe extending from near the bottom of the drip pot to the surface and terminating in a sleeve and brass plug, enclosed in a service box.
- e. Regulators shall be of the spring-loaded type, cast iron or semisteel body, brass or bronze mounted, and designed for outside setting.

  Each regulator shall have a 1/2-inch relief valve, set to discharge at a pressure of \_\_\_\_\_\_ oz. per sq. in. and a went with a downward screened opening. Regulators shall have working capacities (not exceeding 2/3 of the manufacturer's rated capacities) of at least \_\_\_\_\_\_ and \_\_\_\_\_ cubic feet per hour, respectively, where shown. With an inlet pressure variation of from 2 to \_\_\_\_\_ lbs. per sq. in., they shall maintain a constant outlet pressure of \_\_\_\_\_\_ oz. per sq. in.

## 8. GAS DISTRIBUTION SYSTEM INSTALLATION

- a. Scope of Work. Connection to the gas company mains, and piping and appurtenances therefrom to \_\_\_\_\_\_\_\_, will be provided without cost to the Contractor who, beginning at that point, shall install the complete distribution system for the project. The Contractor shall provide an approved insulating coupling in the project gas supply main at or near the point where his work starts.
- b. <u>Handling and Storing Materials</u>. Handle and store materials with care and in such manner as to minimize damage to pipe coating. Deliver for laying after the trench is excavated.

## c. Pipe Jointing

(1) Welded Joints. Cutting and welding, including materials used in the welding operation, shall conform to the current "Specifications and Standards Covering the Welding of Steel and Wrought-Iron Pipe", adopted by the Heating and Piping Contractor's National Association. No water nor moisture shall be permitted to contact any weld until it had cooled to atmospheric temperature. Only competent, qualified welders shall be employed and the Contracting Officer may require the Contractor, at his expense, to cut test coupons to determine whether the welding is satisfactory, and to reweld such test pieces in the lines.

- (2) <u>Threaded Joints</u> shall be made with lubricant on the male thread only.
- (3) Mechanical type couplings shall be installed on one side of and adjacent to, elbows in welded lines and on welded branch lines adjacent to tees. Such couplings may be used also in tie-ins of lines jointed over the trench. At all mechanical joint couplings provide a jumper of No. 4 soft iron wire spot-welded to the pipe at each side of the coupling.
- d. Testing. After each section of the piping is laid, test under an air-pressure of 50 lbs. per sq. inch for at least two hours and, if the pressure gage indicates any leak, make all necessary repairs. Furnish the requisite equipment and services for these tests.
- e. Pipe Laying. Lay piping with continuous bearing on the trench bottom, sloping service lines to mains, and mains to drip pots at low points, the minimum slope to be 0.10%. Depth of cover below finished grade shall be at least \_\_\_\_\_\_inches. Wherever a gas line crosses, within 4 inches from, another underground metallic conduit, place an approved insulating block between the two lines. Prevent the entrance of dirt and water into the piping. Blow out all lines before final connections are made. Backfill around pipe and for a depth of 6 inches above the pipe with earth free from stones or hard clods.
- f. Fittings and Service Connections. Install proper fittings at all changes in directions, dead ends, and branch connections. Provide suitable adaptors where needed. Use standard welding outlets for service connections to 3 inch and larger lines.
- g. Setting Valves. Check valves and stops for opening and closing, and set with stems plumb. Center boxes over valves and stops; set plumb and with tops at exact finished grade.
- h. <u>Purging</u>. Purge with gas to remove all air from the distribution system, which shall be ready for service at the time of acceptance of the work.

#### 9. CERTIFICATES

Furnish to the Contracting Officer affidavits from the manufacturers of pipe, fittings, valves, meters and fire hydrants furnished and installed under this division, certifying that such materials delivered to the project conform to the requirements of this specification.

#### 10. AS-BUILT DRAWINGS

At completion of the work, deliver to the Contracting Officer one set of white prints of the utility drawings, showing in drawing ink all deviations from the contract drawings in size, line or grade, and recording the exact final location of sewer, water and gas lines, including bends, valves, ends of sewers, etc., by offset distances to surface improvements such as buildings or curbs.

#### PLANTING

## NOTES TO THE ARCHITECT-ENGINEER:

THESE NOTES ARE FOR THE USE OF THE ARCHITECT-ENGINEER ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

ALL DISTURBED LAND, NOT OCCUPIED BY TRAILERS, BUILDINGS OR OTHERWISE SURFACED, SHALL BE FINISH GRADED AND PLANTED WITH GRASS OR OTHER SUITABLE GROUND COVER TO PREVENT EROSION, MUDDY OR DUSTY CONDITIONS. WHEN THE COMPLETION DATE FOR THE PROJECT IS AT A SEASON UNSUITABLE FOR ESTABLISHMENT OF GROUND COVER AND OTHER PLANTING, EXCEPTING AT EXCESSIVE COST, THE PLANTING SPECIFIED SHALL OMIT TREES, SHRUBS AND VINES: AND WHERE GRASS OR OTHER SUITABLE GROUND COVER IS NORMALLY USED, TEMPORARY MEANS OF EROSION CONTROL SHALL BE SPECIFIED IN ACCORDANCE WITH LOCAL PRACTICE.

WHEN PROJECTS ARE LOCATED IN AREAS WHERE VEGETATIVE GROUND COVER CANNOT BE READILY ESTABLISHED, AN APPROPRIATE SPECIFICATION FOR USE OF OTHER MATERIALS AND METHODS TO PREVENT EROSION MUST BE WRITTEN TO CONFORM WITH ACCEPTABLE LOCAL PRACTICE.

A LIST OF PLANT MATERIALS, SHOWING SCIENTIFIC NAME, COMMON NAME, SIZE AND QUANTITY SHALL BE SHOWN ON THE PLANTING PLAN OR OTHER DRAWING INDICATING PLANTING.

THIS SPECIFICATION MUST BE ADAPTED TO SITE CONDITIONS. CHANGE AS NECESSARY

TO MEET THE PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND

ADD AS NECESSARY.

#### PLANTING

### 1. SCOPE

Include furnishing all materials, equipment and labor necessary for preparation of areas to be planted, applying fertilizer, planting, protection, and maintenance of planting required to complete the work shown on the drawings and specified. Grading shall have been completed under Division, CLEARING, EXCAVATING, FILLING AND GRADING.

#### 2. MATERIALS

a. Water used in this work will be furnished by \_\_\_\_\_\_.

Hose and other watering equipment required for the work shall be furnished by this contractor.

#### b. Ground Cover

() Grass seed shall be mixed and guaranteed by the dealer to be as follows:

Common Proportion Purity Germination
Name by Weight 1 1

- () Sprigs shall be grass. They shall be healthy, vigorous, freshly dug, free of pernicious weeds and shall be protected until planted.
- () <u>Sod</u> shall be at least 60 per cent \_\_\_\_\_ grass; freshly cut, living, strongly rooted and free of pernicious weeds. It shall be mowed to a height not to exceed three inches immediately before lifting and shall be of uniform thickness with not over 1-1/2 or less than one inch of soil.
- () Collected ground cover may be obtained from designated areas on the site or from approved sources off the site. Collected ground cover shall consist of suitable vegetation and its roots growing in topsoil. It shall be low growing or capable of maintenance at suitable height for the location in which it is to be used and shall be free of objectionable plant growth.
- () <u>Hav mulch</u> containing seed shall be mature hay containing a maximum quantity of viable seed of native grasses or other desirable species approved by the Contracting Officer.

## ( ) Trees, Shrubs, and Vines

- (1) Nomenclature The name of plants required under this contract conform to those given in <u>Standardized Plant Names</u>, 1942 Edition, revised, as prepared by the American Joint Committee on Horticultural Nomenclature.
- (2) <u>Standards</u>, <u>Quality and Size</u> Plants shall have a habit of growth that is natural for the species, and shall be sound, healthy, vigorous, and free from insect pests, plant diseases and injuries. All plants, before pruning, shall equal or exceed the measurements specified in the Plant List.
- c. Approval of Materials. Within 10 days following acceptance of the bid, the Contracting Officer shall be notified of the sources of the materials required or desired to be inspected or tested.

### 3. CONSTRUCTION METHODS

- a. Time of Planting. The contractor shall be notified in writing, when other divisions of the work have progressed sufficiently, to commence work of finish grading and planting. Thereafter, planting shall be conducted under favorable growing conditions. No soil shall be worked in a frozen or muddy condition.
- b. Applying Fertilizer. A 10-6-4 commercial fertilizer shall be applied uniformly to all areas to be planted at the rate of 25 pounds to 1000 square feet. Fertilizer may be applied with seed. Fertilizer for sod shall be applied after the sod is established and when the surface is dry, then immediately and thoroughly watered in.

## c. Planting Ground Cover

- () <u>Seeding</u> shall be done evenly with a mechanical spreader at the rate of 2 1/2 pounds to 1000 square feet on freshly scarified surface and lightly raked. If the seeded area is watered, watering shall be continued to maintain the soil moisture until the grass is established.
- () <u>Sprigging</u>. Sprigs shall be planted three inches deep with ends overlapping in furrows 18 inches apart, preferably parallel with the contours. Sprigs shall be covered before soil is dried out, the surface levelled to established grade, compacted, and thoroughly soaked by watering with a fine spray.
- () <u>Sodding</u>. Sod shall be laid with no voids on freshly scarified, smoothly compacted surface, tamped or rolled and thoroughly watered.
- () Sod on Slopes steeper than 2 to 1 shall be held in place by wooden pins about one inch square and about six inches long driven flush with the surface of the sod.

- ( ) <u>Collected ground cover</u> shall be planted to cover the surface. The soil shall be firmly compacted about the roots by tamping and watering.
- () Hay mulch containing seed shall be spread evenly to cover the area and lightly cut in to the soil to prevent displacement by wind.
- () <u>Planting Trees, Shrubs and Vines</u>. Planting methods and protection shall conform to acceptable local practice. Soil shall be as found on the site.
- d. <u>Clean-up</u>. Upon completion of ground cover and other planting work all excess soil, stones, and debris shall be removed.

### 4. MAINTENANCE

Beginning immediately after planting, ground cover and other planting shall be protected and maintained by watering, mowing, and replanting, as necessary, for at least 30 days or until all planting and ground cover is established in good growing condition.

### 5. INSPECTION AND ACCEPTANCE

- a. <u>Inspection</u> for acceptance of all or a substantial part of the work will be made by the Contracting Officer upon completion of the planting and upon written notice requesting such inspection submitted by the Contractor at least 10 days prior to the anticipated date. The condition of ground cover and other planting will be noted and the contractor advised whether maintenance shall continue in any part.
- b. <u>Acceptance</u>. After inspection, the contractor will be notified in writing of acceptance of the work in whole or in part or of the requirements for completion. Planting shall be alive and in good condition at the time of acceptance.

#### ELECTRICAL DISTRIBUTION

#### NOTES TO THE ARCHITECT OR ENGINEER:

THESE NOTES ARE FOR THE INFORMATION OF THE ENGINEER ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

THIS DIVISION IS TO BE INCLUDED IN THE PROJECT SPECIFICATIONS WHEN ELECTRICAL ENERGY IS PURCHASED WHOLESALE.

MATERIALS AND METHODS ENUMERATED HEREIN ARE BASED ON PRIMARY SERVICE NOT EXCEEDING 6600 VOLTS, AND SECONDARY SERVICE NOT EXCEEDING 750 VOLTS.

WHENEVER THE PRIMARY VOLTAGE EXCEEDS 6600, CONSULT WITH THE LOCAL UTILITY COMPANY AS TO PROPER STANDARDS.

INDICATE ON DRAWINGS ALL NECESSARY DETAILS NOT INCLUDED IN THE SPECIFICATIONS TO PROPERLY ILLUSTRATE THE WORK TO BE PERFORMED.

THIS SPECIFICATION MUST BE ADAPTED TO SITE CONDITIONS. CHANGE AS NECESSARY
TO MEET PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND ADD AS
NECESSARY. FILL IN BLANK SPACES. DO NOT, HOWEVER, MAKE CHANGES WHICH
AFFECT THE FUNDAMENTAL DESIGN.

PARAGRAPHS MARKED THUS () COVER VARYING TYPES OF MATERIALS AND INSTALLATION METHODS FOR USE IN CONNECTION WITH PRIMARY SERVICE AND PROJECT YARD LIGHTING WHICH MAY NOT BE REQUIRED IN THE PROJECT SPECIFICATION. SELECT THE TYPE OR TYPES SUITED TO YOUR PROJECT AND OMIT THOSE NOT SUITABLE.

ADD A NUMBER OR LETTER TO PARAGRAPHS MARKED THUS \_\_\_\_, AND REVISE PARAGRAPH IDENTIFICATION AS NECESSARY.

#### ELECTRICAL DISTRIBUTION

#### 1. SCOPE

Include the overhead electrical distribution system and items included in this division required to complete the project. See the drawings and General Scope of Work for extent of work.

- a. Systems. The overhead electrical distribution system for light and power shall commence at the \_\_\_\_\_\_ located \_\_\_\_\_ at a delivery voltage of \_\_\_\_\_ volts, \_\_\_\_ phase, \_\_\_\_ wire, \_\_\_\_ cycle.
- (1) Secondary distribution shall be 120/240 volts, single phase, 3 wire, 60 cycle.
- (2) The project master meter and final connections will be furnished and installed by the utility company. This contractor shall furnish and install such equipment as may be required by the utility company in accordance with its requirements, and shall pay all required fees, meter, service, and connection charges (at no added cost to the Government), as a part of this work.
- (3) The final connections to all buildings and/or trailers including the installation of cable supports is a part of this work.
- (4) The telephone system shall consist of wire and/or cable furnished and installed by others, on project poles.
- (5) Project area lighting shall consist of a multiple lighting circuit, 120 volt, single wire, controlled from time clock to actuate contactors located on project poles. Lighting fixtures are included as a part of this Division of the Specifications.

## 2. GENERAL REQUIREMENTS

- a. The contractor shall base his bid upon the plans and specifications, but such installations shall comply with the latest applicable rules and regulations of the National Electrical Code, National Electrical Safety Code and local utility company practice bearing on the installation of the work. The contractor's attention is directed to article "Permits and Codes" of the General Conditions.
- b. On completion of work, furnish a one-line feeder diagram showing (1) point of service contact, (2) routing of primary feeders and sizes,

and sizes, (5) service loops and sizes and (6) any other pertinent information of value to an operating engineer and for permanent record. This diagram shall be not less than 18 inches by 24 inches, in ink on tracing cloth and submitted to the contracting officer for approval and retention.

## 3. MATERIALS AND APPLIANCES

Materials and appliances of types for which there are Underwriters' Laboratories standard requirements, listing or labels, shall have listing of Underwriters' Laboratories and be so labeled, or shall conform to their requirements, in which case certified statements to that effect shall be furnished, if requested. Use new materials and appliances throughout.

Materials other than those listed herein shall be the size, type, and capacity indicated by the drawings and the specifications. Insofar as possible, use one type and quality. Materials and appliances shall conform to the standard listed with each item in the following paragraphs.

- a. Poles shall be southern yellow pine, western red cedar, or northern white cedar, ASA Specification 05.1 1948. They shall be reasonably free of knots or knot holes and reasonably straight grained.
- (1) Brand poles 12 feet from butt with the following information: month and year of treatment, manufacturer's trade mark or initial, class (ASA) and height.
- (2) All angle and transformer poles shall be at least class 4 and all line poles shall be at least class 5.
- (3) Pine poles shall be treated full length by a preservative in accordance with American Wood Preservers Association Standard Specification T4-49 (full or empty cell process) after poles have been roofed, drilled, and grained. If additional gains are required, use metal gains. After treatment, exercise care in handling to prevent scarring and splintering of surface.
- (4) <u>Cedar poles</u> shall be butt treated with creosote by any process which will produce inpregnation of not less than 1/2 inch depth or full sapwood penetration where sapwood is less than 1/2 inch in depth. Impregnation shall extend from at least 2 feet below grade to at least 1 foot above grade.
- b. <u>Insulators</u> shall be wet process porcelain or other equally suitable process as regards electrical and mechanical properties; true to shape, free from flaws, with grooves of proper size to accommodate conductors. Provide brown glaze on ungrounded conductors and white glaze on grounded conductors. All insulators shall be treated for radio interference.

- c. Hardware shall be ferrous metal, protected by hot dip galvanizing.
- d. <u>Secondary conductors</u> shall be medium hard drawn copper with triple braided weatherproof covering, No. 3 AWG and smaller shall be solid, larger sizes shall be stranded.
- e. <u>Service drop cable</u> shall consist of parallel insulated conductors with concentric uninsulated neutral. Insulation (ASTM Specification D353-41), conductors, (ASTM Specification B2-40), with weather resisting outer covering, or single conductors as noted under paragraph d. "Secondary Conductors."
  - f. Guy wire shall be copper clad steel or double galvanized steel.
- g. <u>Guy anchors</u> shall be log (pressure creosote treated), screw, cone, or wedge (expending type), of the size and type as required or as indicated on the drawings.
- h. Guy guards shall be 14 gauge steel, hot dip galvanized, 8 feet long. In lieu of steel, guards may be wood, pine, or fir, one piece or sectional, not less than 8 feet long. Apply two coats of white paint.
- i. Anchor rods shall be copper clad steel, or galvanized steel. They shall have an integral eye or double eye as required; minimum size 5/8 inch diemeter. 6 feet long. 18,500 pounds guaranteed minimum strength.
- j. Ground rods shall be copper clad steel, or galvanized (stiff high carbon) steel.

Under ordinary conditions, use 5/8 inch by 8 feet minimum rods. They shall have stamped into the surface, near top end, the name of manufacturer and a figure denoting length of the rod.

- k. Ground clamps shall be bronze, copper, or copper clad steel.
- 1. Ground wire shall be soft-drawn copper at least the size of the primary and not less than #6 AWG.
  - m. Tape (friction) ASTM Specifications D 69-48T.
- () Cross arms shall be yellow pine (to be treated as specified for pine poles), or fir (may be stained but not painted). They shall be selected, straight grained, well seasoned, surfaced, roofed, and drilled.
  - ( ) Cross arm pins shall be clamp type forged steel, or locust.
- () <u>Primary conductors</u> shall be bare, (1) medium hard drawn, solid copper, (2) copper-clad steel, (3) medium hard drawn aluminum, (4) aluminum reinforced with steel, or (5) high strength low resistance steel heavily galvanized, sizes as indicated.

(	)	Transformers	shall	be:
	,			~~~

- (1) Voltage rating, primary \_\_\_\_\_\_, secondary 120/240.
- (2) Voltage taps as per Table IV Federal Specification W-T-631.
- (3) Type of mounting as indicated on drawings.
- () Conventional type. Federal Specification, W-T-631, Type I.
- ( ) Complete self-protected type Federal Specification W-T-613, Type III.
- () <u>Lightning arrestors</u> for conventional type transformers shall be of type which will prevent flow of dynamic current after surge has been discharged and shall limit rise in surge voltage to a value well within impulse strength of windings. Test requirements to be in accordance with AIEE Standards and ASA Specification 62.1 1944.
- () <u>Transformer fuses</u>, for conventional type transformers shall be of the expulsion, porcelain houses, indicating type with clamp hangers and fuses (NEMA Specification 38-53).
- () Yard lighting fixtures shall consist of 16-inch porcelain enameled steel flat cone reflector and suitable porcelain medium screw base socket for 2500 lumen lamp, with waterproof hood or cap, tapped for 1-1/4 inch conduit, suspended from pole by gooseneck or suitable bracket of 1-1/4 inch galvanized conduit securely fastened to pole by cast flange with tapped hub. Center of light source shall be approximately 4 feet from near side of pole. Wiring to lamp socket shall be concealed.
- () Street lighting relay or contactor shall be of the pole mounted weatherproof type of capacity as indicated on drawings.
- () <u>Time switch</u> shall be of the self-starting synchronous motor type with astronomical dial, single pole, 125 volt, 60 cycle, of capacity indicated on drawings with circuit protection consisting of 30 ampere fused cut-out.

## 4. GENERAL INSTALLATION REQUIREMENTS

- a. <u>Supporting structures</u>, wires, and other equipment shall conform as to strength, clearances, sags and other items with National Electrical Safety Code. Use Grade B construction, using safety factor of 2.
- b. Stake out pole and guy locations as soon as field conditions permit and obtain project engineer's approval. Indicate finished grade and pole number on stakes. The right is reserved to make any reasonable change in locations up to time of approval of staked locations without involving additional costs.

- c. String wires from pay out reels and protect weatherproof wire braiding against injury in pulling. Give all conductors and initial stretch equivalent to maximum loading tension for five minutes, then sag to normal tension corresponding to stringing temperatures.
- d. <u>Tensions and sags</u> shall be according to National Electrical Safety Code, Sec. 26, Par. 261, F-4.
- e. Splice copper and aluminum conductors with sleeves twisted at least 3-1/2 complete turns. Splice steel conductors with at least 2 mechanical connectors spaced not more than 4 inches apart and turn free end of conductor 180° or splice in accordance with manufacturer's instructions. Use solder-less connectors in making taps. Tape joints and taps with four layers of friction tape, painted with weathproof insulating compound. No span shall contain more than two splices per conductor; locate splicing sleeves at least 3 feet from conductor supports.
- () <u>Place conductors</u> of highest voltage on upper cross arm positions; wire of same circuit shall occupy same relative pin positions on successive poles throughout project.

#### 5. POLE INSTALLATION

- a. Length of poles shall be sufficient to provide required clearance above ground, foreign wires and other obstructions, and of strength to support load placed upon them. Wire shall not pass over buildings.
- b. For trailer projects use pole lengths not less than 25 feet for guy stubs, 30 feet for standard construction, and 40 feet for joint construction and/or transformer pole, except that poles carrying secondary rack only, or secondary rack and telephone cable, shall not be less than 30 feet. For temporary projects use pole lengths not less than 30 feet for guy stubs, 35 feet for standard construction, secondary only, or secondary and telephone cable installation.
- c. <u>Frame and fit poles</u>, wherever practical before setting, with cross arms, braces, pins, racks, etc; arrange framing and placing of equipment to permit ready climbing. Roof poles one way, at angle of 15 degrees to horizontal.
- d. Set poles along streets and alleys, 8 inches from inside edge of curb to nearest pole surface, unless local ordinances require greater distance. Protect poles, in alleys and on corner of alleys, with metal guards or butt plates to prevent injury from vehicle hubs.
- e. Determine depth of setting by holding power of earth and length of pole. In loose and swampy ground, provide additional reinforcement to assure stability, such as increased depth, guying, concrete and rock. Setting of poles shall be such as to withstand loads placed upon them. See National Electrical Safety Code, Sec. 25, Par. 252, A, B, and C.

- f. Poles, subject to loads which can not be supported by anchors and guys and when strain is sufficient to distort the line, shall be reinforced by creosoted planks not less than 3 inches to 4 inches by 4 feet long or concrete (1-2-4 mix) for full depth and extended above ground line with tapered finish.
- g. Dig holes as small in diameter as practical, uniform at top and bottom, only large enough to admit tamping bar around pole. Set poles in alignment and plumb except at corners, dead ends, angles and other points of strain where a slight rake against direction of strain shall be given. After pole is in position, tamp dirt firmly in place around pole and bank excess dirt around pole.
- h. Avoid abrupt changes in line level; where ground contour is irregular, provide poles of varying lengths to maintain as even a conductor line as practical. Where considerable change in grade elevation occurs, poles should be of heights and spacing that will not create steps greater than 5 feet per span.
- i. <u>Provide pole steps</u> perpendicular to the line on poles carrying transformer or lighting fixtures; lowest step to be 8 feet from ground and on the field side.
- j. <u>Set poles</u> so that alternate cross arm gains face in same direction, except at dead ends where gains of last two poles shall face dead end; use double arm construction at dead ends and line angles 30° or greater.

## (\_\_) CROSS ARM INSTALLATION

- a. <u>Cross arms</u> shall be of size and strength to accommodate conductors and equipment. Use single cross arms except in line terminals, line angles of 30 degrees and greater, highway crossings, or other points where there is an excessive strain, use double arms.
- b. <u>Buck-arms</u> shall be installed where required, approximately midway between and at right angles to line arms, allowing for climbing space.
- c. If locust pins are used, dip in hot creosote, fit in pin holes and fasten in place with 4d nails driven through side of arm into pin; place pins in all pin holes.
- d. Fasten cross arms, except transformer arms, with standard flat braces, using double sets for double arms. Fasten transformer cross arms with angle braces having 48 inch spread for 8 foot arm and 60 inch spread for 10 foot arm. Use machine bolt in fastening arms to pole and double arming spacer bolts at ends on double arm construction. Use machine or carriage bolts in fastening braces to arms and lag screws in fastening braces to poles.

e. <u>Provide washers</u> where bolts or screws bear on wood surfaces. Bolt ends shall not extend more than 1/2 inch beyond nut.

## ( ) PRIMARY LINE CONDUCTOR INSTALLATION

- a. <u>Use top groove of insulators</u> for (1) conductors No. 2 AWG and larger, and (2) line voltage 5000 and over. Attach conductor to top groove on straight portions of lines; at angles or corners, attach wire to side of insulator and always on such side that strain will come on insulator and not on the tie wire.
- b. Use side groove of insulators for (1) conductors smaller than No. 2 AWG and (2) line voltages less than 5,000. On straight portions of line, attach conductors on insulator side nearest pole, except on pole pins where conductor shall be away from pole. At angles or corners, attach wire to such side of insulator that strain will come on insulator and not on the tie wire.
- c. Securely tie conductors to pin insulators with tie wires. Give one complete turn around insulator and at least four complete turns around conductor.
- d. In dead-ending primary conductor for cross arm installation use standard pin type insulators on double arms. Wrap conductor once around rear insulator, then diagonal to front insulator wrap once around this insulator, then clamp free conductor end to conductor with two wire rope guying clips; tighten U bolts until they make complete exterior surface contact with conductor.
- e. In dead-ending primary conductors for pole top installation, use suspension type insulator in strain position. Form conductors around dead-end thimble clevis and clamp free end to conductor with mechanical connectors.
- f. <u>Pole top steel insulator pins</u> may be installed for single phase (single potential) primary conductor installation, in lieu of cross arms with standard insulator pins.

### SECONDARY LINE CONDUCTOR INSTALLATION

- a. <u>Carry secondary</u> circuits 250v and less on secondary racks. On straight line construction, tie conductors to spools on side toward pole; at angles or corners, tie to spools on side away from strain.
- b. Locate secondary neutral conductor in top spool of rack when using white insulator. When no secondary phase conductor is installed on a pole, the neutral conductor shall occupy the same position throughout, supported by neutral wire brackets and insulators.

- c. Along streets and alleys, secondaries shall be on field side of pole.
- d. On straight lines, attach racks by through bolt at top and lag screws at bottom. At angles, transformer poles, dead end poles, heavy service take-offs, and other points of unusual strain use two through bolts.
- e. In dead-ending No. 3 conductors and smaller, wrap once around spool insulator and give one long turn and six short turns around conductor. In dead-ending conductors of larger size, wrap once around spool insulator and clamp free end to conductor with "wire rope guying clips" or "guy clamps" of size to fit over insulation. In using "wire rope guying clips," tighten U bolt until it cuts through insulation making contact with conductor.

#### \_\_\_ SERVICE LOOP INSTALLATION

a. Extend service drop from secondary line on pole to trailers and/or building and connect to trailer and/or building service conductors installed under "INTERIOR ELECTRICAL WIRING" division (for Trailers and Temporary Projects).

## . GUY INSTALLATIONS

- a. Provide guys wherever necessary to hold cross arms and pole structure in proper position and to provide additional strength to support loads greater than structure alone will safely support. At unbalanced tensions, such as corners, angles, and dead\_ends, attach guys at center of load and in line with resultant loading.
- b. Strength of guys shall be sufficient to withstand National Electrical Safety Code loadings and tensions based on supporting the entire load in direction in which it acts.
- c. Place guy anchors, wherever practical, a distance (lead) from pole equal to height of guy attachment, to limit stresses on anchor and guy. Anchor may be placed closer to pole but not less than 3/8 the height of guy attachment. Multiply the following factors by the total horizontal conductor load for different ratios of "lead" divided by "height" to obtain actual guy tension.

Ratio "Lead" to "Height"	Multiplier
1	1.41
3/4	1.67
1/2	2.24
3/8	2.86

d. Side guy line angles 10 degrees and over. Angles up to 60 degrees shall have single guy, placed to split line angle. Angles greater than 60 degrees shall have guys in both directions.

- e. <u>Install guy stub poles</u> to provide clearance for guy wires which cross streets or obstructions.
- f. Arm guys should be approximately horizontal. Fasten guy to double arming bolts by eye bolt, eye nut, or clevis. Install guy in position before line conductors are placed under tension. Where guy is attached to pole, serve twice around pole, hold in position by two guy hooks, protecting pole by three strain plates. Use molding strain plate where pole grounds occur. For light guying, use lag screws in fastening guy hook; for dead ends, use machine bolts.
- g. Provide two strain insulators in all down guys, one 4 feet from pole and the other at least 8 feet from ground, or ground guys, as required by Sec. 283, B.4, National Electrical Safety Code.
- h. For average loading conditions, use patent anchors, with rod and thimble eye; provide twin eye rods where telephone messenger cable may be attached to poles; anchor eye shall not extend more than 12 inches above ground.
- i. For heavy loading conditions, use log anchors, (fully pressure creosoted) 12 inches by 12 inches by 4 feet minimum. Log anchors may be used in lieu of patent anchors for average loading conditions.
  - j. Securely attach pole guy at poles by means of "guy attachment hook."
  - k. In make-up of guys, wire strands shall be fastened as follows:
    - (1) 1/4 inch strands served at least 4 wrappings per strand.
    - (2) 5/16 inch and 3/8 inch strand one 3-bolt standard clamp.
    - (3) 7/16 inch and larger two 3-bolt standard clamps.

Place clamps 3 inches from strain insulators and a distance from pole equal to twice pole diameter. Cut strand 12 inches beyond the end of outer clamp and hold in place by wire wrapping or metallic clip.

- 1. Guys shall be placed and pulled up before conductors are strung. In placing guys, the tops of poles shall be "pulled over" so that when load is applied and guys and anchors have settled, pole tops will come back in line.
  - m. Install guy guards on all anchor guys.
- ( ) TRANSFORMER INSTALLATION
- a. Stencil the KVA rating in 3 inch white numerals on tank in location visible from grade.

- b. Place transformers in lowest practical position.
- c. <u>Mount single transformer</u> of 25 KVA or under, directly on pole by use of standard supporting lugs. For larger size transformers, or where two or more transformers are required, mount on cross arm with conventional hanger iron.
- () <u>Cutouts</u> for conventional type transformers shall be installed with clamp hangers and fuses in all phase wires at transformers of 4 KV rating of following sizes.

Transformer	Cutout	Fuse Size (amperes)					
KVA	Amps	1ø 2300 V	30 2300 T				
Charles in the contract of the	Ohiota Cittle Company	36 4000 V wye	Delta				
5	50	5	10				
7.5	50	10	15				
10	50	10	20				
15	50	20	30				
25	50	30	50				
37.5	50-100	40	75				
50	100	60	100				

The above sizes are based on 250 percent transformer rating; fuse transformers equipped with integral fuses, 1-1/2 times ampere sizes given above.

- () <u>Install cutouts</u> for conventional type transformers in an accessible location on transformer cross arm and on the side away from transformer, connected so that the fuse holder is dead in an open position.
- () <u>Connect primary leads</u> for self-protected type transformers to primary lines by means of hot line clamps to facilitate placing the transformer in and out of service.

### (\_\_) LIGHTING ARRESTOR INSTALLATION

For conventional type transformers install on each primary phase wire an arrestor at transformer lead between cutout and overhead line.

#### \_\_. GROUNDING

- a. Grounds shall be provided for (1) secondary lines, one side of 2 wire system, neutral of 3 and 4 wire systems; (2) ground terminal of each lighting arrestor, (3) operating rods of mechanically operated disconnecting switches, and (4) transformer tanks.
- b. Secondary neutral conductor shall be grounded at each 300 to 350 feet of secondary line and at each end of line. Tie the secondary and lighting arrestor grounds together at transformer poles by the most direct connection and connect to a common driven pole ground or water main.

- c. <u>Driven ground</u> shall be of length to reach below permanent moisture level and insure low ground resistance, except that where rock is encountered, grounds are to be made by (1) connections to water mains, (2) connections to adjacent well-grounded secondary neutral, or (3) installing counterpoise which is well grounded at both ends.
- d. Pole ground connections shall be at least as large as primary conductor and not less than No. 6 AMG wire; covered with hot creosote dipped moulding and fastened to pole with staples. Place moulding over entire length of ground wire including cross connections on underside of cross arms to ground rod connections at base of pole. Provide connections to ground rod with ground wire clamp.

### \_\_. FINAL TEST

At the time of final inspection, all connections from utility company's supply to transformers and equipment shall be completed, together with all pole ground connections; transformer fuses shall be in place and circuits continuous to point of secondary contact on buildings. Prior to energizing the overhead distribution system, building service switches shall be placed in open position. Voltage tests on the line side of all building service switches shall be made. Correct voltage errors and phase relations before placing building electrical system in service. Provide all testing equipment necessary to conduct tests. Notify the project engineer at least two days before conducting tests.

#### . TELEPHONE CABLE AND WIRE INSTALLATION

No labor or material shall be furnished in connection with the telephone installation unless specifically called for. The contractor shall place and space conductors, protective devices, transformers, lighting fixtures, etc., on poles so as to give clearances, in accordance with National Electric Safety Code, for the future installation of project telephone cables or wires.

### (\_\_) YARD AREA LIGHTING INSTALLATION

A multiple lighting system shall be employed, connecting the project area lighting units to a secondary system. Provide a pilot circuit controlled by a time clock. The time clock shall actuate a number of relays which in turn shall control the power lines supplying the lighting units. Provide a manually operated switch for use when the time clock becomes inoperative. Center line of lamps to be 16 feet above grade.

## (\_\_) TRAILER (ground connection)

- a. Furnish and install a bonding jumper between the underground incoming water service pipe and the water pipe connection on the trailer.
- (1). Bonding jumper shall be #6 copper wire securely fastened to approved type ground clamps at each end to provide continuity of ground (around garden hose connection) from trailer to underground water service pipe.

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## REFRIGERATORS, ELECTRIC

## NOTES TO THE ARCHITECT OR ENGINEER:

THIS SHEET IS FOR THE USE OF THE ARCHITECT OR ENGINEER ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

THIS SPECIFICATION MAY BE USED AS A PART OF THE GENERAL CONTRACT SPECIFICATIONS OR IN CONNECTION WITH A SEPARATE CONTRACT FOR PURCHASE OF ELECTRIC REFRIGERATORS.

IN SELECTING TYPE OF DOOR SWING FOR THE PROJECT, PROVIDE LEFT HAND DOOR SWING FOR SERIES 1 DWELLINGS.

CHANGE AS NECESSARY TO MEET PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND ADD AS NECESSARY. FILL IN BLANK SPACES DEFINING NUMBER OF REFRIGERATORS AND DOOR SWING REQUIRED. DO NOT, HOWEVER, MAKE CHANGES WHICH AFFECT THE FUNDAMENTAL DESIGN.

## REFRIGERATORS, ELECTRIC

1		SCOPE	
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Include the furnishing and delivering of \_\_\_\_\_electric refrigerators as hereinafter specified.

### 2. DESCRIPTION

- a. Capacity. 6 cubic feet, NEMA rating.
- b. Operating Service. 115 volts, single phase, 60 cycle.
- c. Overall Dimensions. Not more than 25 inches wide, 29 inches deep, 56 inches high.
- d. Federal Restrictions. Amount of critical material used in construction shall not exceed limits established by Federal agencies having control over such limitations.
- e. <u>Applicable Specifications</u>. Refrigerators shall conform to the Federal Specification AA-R-211b, dated December 4, 1950, Type I, except that inner liner of door may be a laminated thermosetting material, with white facing incorporated in the laminate or finished with a white organic finish over baked-on primer.
  - (1) All refrigerators to be \_\_\_\_\_ hand door swing.
- 3. DELIVERY. The electric refrigerator shall be delivered to the project, free from damage and blemishes. After connections are made as required under the Division INTERIOR ELECTRICAL WIRING, place in operation and check for proper performance, certifying to the contracting officer that the equipment has been tested in place and found satisfactory. Energy required for testing shall be supplied at Government's expense.

#### A. INSTRUCTIONS.

- a. Furnish the following replacement lists and operating instructions to the contracting officer.
- (1) Operating -- Furnish printed sets of operating and maintenance instructions in or attached to each refrigerator and spare sets amounting to 10% of the total number of refrigerators.
  - (2) Replacement parts list minimum number of five printed sets.

(3) Service manuals including complete wiring diagram - minimum number of three printed sets.

#### 5. GUARANTEE

- a. Contractor shall guarantee that if equipment becomes inoperative, as defined in the following paragraph, he will, within 12 hours after being notified of such condition, repair, replace and install any part free of charge (except enamel, porcelain and lacquer) necessary to make it operative. The guarantee shall continue for one year, beginning on the day following the "Final Installation Test." This guarantee does not apply to damage due to abuse or misuse.
- b. A refrigerator shall be considered inoperative within the meaning of the preceding paragraph when the interior cabinet temperature rises above 50 degrees F. and is maintained at such temperature for 6 or more consecutive hours after the usual normal adjustments have been made, or other mechanical and electrical trouble affecting normal operations has been corrected.

## 6. COOLING UNIT REPLACEMENT

- a. The contractor shall furnish new or reconditioned cooling system units, replacing in refrigerator furnished under this contract any units which become defective (excluding damage due to visible abuse), during a four-year period, commencing at the expiration of theone-year guarantee period. The contractor shall provide the labor and materials required to make the exchanges. Defective units become the property of the contractor.
- b. The contractor shall submit to the contracting officer THE NAME AND ADDRESS OF THE AGENT WHO WILL FURNISH SERVICE in connection with the guarantee and unit replacement as herein specified.
- 7. AFFIDAVIT. An affidavit shall be submitted to the contracting officer certifying that the electric refrigerators furnished under the contract conform to the requirements stated in this specification.

#### DIVISION DHS 18a

### REFRIGERATORS, GAS

## NOTES TO THE ARCHITECT OR ENGINEER:

THIS SHEET IS FOR USE OF THE ARCHITECT OR ENGINEER ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

THIS SPECIFICATION MAY BE USED AS A PART OF THE GENERAL CONTRACT SPECIFICATION OR IN CONNECTION WITH A SEPARATE CONTRACT FOR PURCHASE OF GAS REFRIGERATORS.

IN SELECTING THE TYPE OF DOOR SWING FOR THE PROJECT, PROVIDE LEFT HAND DOOR SWING FOR SERIES 1 DWELLINGS.

CHANGE AS NECESSARY TO MEET THE PROJECT REQUIREMENTS. STRIKE OUT ITEMS

NOT APPLICABLE AND ADD AS NECESSARY. FILL IN BLANK SPACES DEFINING NUMBER

OF REFRIGERATORS, AND DOOR SWING REQUIRED, AND TYPE OF GAS TO BE AVAILABLE

AT THE PROJECT. DO NOT, HOWEVER, MAKE CHANGES WHICH AFFECT THE FUNDAMENTAL

DESIGN.

(2)

## DIVISION DHS 18a

# REFRIGERATORS, GAS

1. SCOPE.
Includes the furnishing and delivering of gas refrigerators as hereinafter specified.
2. DESCRIPTION
a. Capacity. 6 cubic feet, NEMA rating.
b. Operating Service. gas,Btu per Cu. Ft.
c. Overall Dimensions. Not more than 25 inches wide, 30 inches deep, 56 inches high.
d. <u>Federal Restrictions</u> . Amount of critical material used in constrution shall not exceed limits established by Federal agencies having control over such limitations.
e. <u>Applicable Specifications</u> . Refrigerators shall conform to the American Standard Approval Requirements for Refrigerators Using Gas Fuel (ASA Z 21.19 - 1942, reaffirmed 1950).
(1) All refrigerators to be hand door swing.
3. DELIVERY. The gas refrigerator shall be delivered to the project, free from damage and blemishes. After connections are made as required under the division PLUMBING, place in operation and check for proper performance, certifying to the contracting officer that the equipment has been tested in place and found satisfactory. Fuel required for testing shall be supplied at Government's expense.
4. INSTRUCTIONS
a. Furnish the following replacement lists and operating instructions to the contracting officer.
(1) Operating - Furnish printed sets of operating and maintenance instructions in or attached to each refrigerator and spare sets amounting to 10% of the total number of refrigerators.

Replacement parts list - minimum number of five printed sets.

#### 5. GUARANTEE

- as defined in the following paragraph, he will, within 12 hours after being notified of such condition, repair, replace and install any part free of charge (except enamel, porcelain and lacquer) necessary to make it operative. The guarantee shall continue for one year, beginning on the day following the "Final Installation Test." This guarantee does not apply to damage due to abuse or misuse.
- b. A refrigerator shall be considered inoperative within the meaning of above paragraph when interior cabinet temperature rises above 55 degrees. F. and is maintained at such temperature for 6 or more consecutive hours after the usual normal adjustments have been made, or other mechanical trouble affecting normal operations has been corrected.

## 6. COOLING UNIT REPLACEMENT

- a. The contractor shall furnish new or reconditioned cooling system units, replacing in refrigerators furnished under this contract any units which become defective (excluding damage due to visible abuse), during a four-year period, commencing at the expiration of the one-year guarantee period. The contractor shall provide the laborand materials required to make the exchanges. Defective units become the property of the contractor.
- b. The contractor shall submit to the Contracting Officer THE NAME AND ADDRESS OF THE AGENT WHO WILL FURNISH SERVICE in connection with the guarantee and unit replacement as herein specified.
- 7. AFFIDAVIT. An affidavit shall be sumitted to the Contracting Officer certifying that the gas refrigerators furnished under the contract conform to the requirements stated in this specification.

RANGES, ELECTRIC

## NOTES TO THE ARCHITECT OR ENGINEER:

THIS SHEET IS FOR USE OF THE ARCHITECT OR ENGINEER ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

THIS SPECIFICATION MAY BE USED AS A PART OF THE GENERAL CONTRACT SPECIFITION OR IN CONNECTION WITH A SEPARATE CONTRACT FOR PURCHASE OF ELECTRIC RANGES.

CHANGE AS NECESSARY TO MEET PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND ADD AS NECESSARY. FILL IN BLANK SPACES DEFINING NUMBER OF RANGES REQUIRED. DO NOT, HOWEVER, MAKE CHANGES WHICH AFFECT THE FUNDAMENTAL DESIGN.

### RANGES, ELECTRIC

## 1. SCOPE

Includes the furnishing and delivering of \_\_\_\_\_ electric ranges as hereinafter specified.

#### 2. DESCRIPTION

- a. Type. Three surface units (open cooking top) with oven and broiler below fitted with one burner.
  - b. Capacity. Not more than 9 KW.
  - c. Operating Service. 120/240 volts, 60 cycle, 3 wire.
- d. Overall dimensions not more than 23 inches wide, 28 inches deep, 36 inches from floor to cooking top and 42 inches from floor to top of back splasher.
- e. Federal Restrictions. Amount of critical material used in construction shall not exceed limits established by Federal Agencies having control over such limitations.
- f. Applicable Specifications. Ranges shall conform to Federal Specifications W-R-101 dated March 26, 1942, Style C.
- (1) Range shall be suitable for operation when placed within I inch of adjacent walls and cabinets.

#### 3. DELIVERY

The electric ranges shall be delivered to the project, free from damage and blemishes. After connections are made as required under the division IN-TERIOR ELECTRICAL WIRING, place in operation and check for proper performance, certifying to the contracting officer that the equipment has been tested in place and found satisfactory. Energy required for testing shall be supplied at Government's expense.

#### 4. INSTRUCTIONS

- a. Furnish the following replacement lists and operating instructions to the contracting officer.
- (1) Operating Furnish printed sets of operating and maintenance instructions in or attached to each range and spare sets amounting to 10% of the total number of ranges.

(2) Replacement parts list - minimum number of five printed sets.

### 5. GUARANTEE

The contractor shall guarantee the electric ranges to be free from defects in design, workmanship and materials and agree to repair, replace and install, free of charge, any part, except vitreous enamel, proving defective within one year from day of acceptance by the Government. THE NAME AND ADDRESS OF AGENT WHO WILL FURNISH SERVICE under the guarantee shall be submitted to the contracting officer.

## 6. AFFIDAVIT

An affidavit shall be submitted to the contracting officer certifying that the electric ranges furnished under the contract conform to the requirements stated in this specification.

### DIVISION DHS 19a

RANGES, GAS

## NOTES TO THE ARCHITECT OR ENGINEER:

THIS SHEET IS FOR THE USE OF THE ARCHITECT OR ENGINEER ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

THIS SPECIFICATION MAY BE USED AS A PART OF THE GENERAL CONTRACT SPECIFI-CATION OR IN CONNECTION WITH A SEPARATE CONTRACT FOR PURCHASE OF GAS RANGES.

CHANGE AS NECESSARY TO MEET PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND ADD AS NECESSARY. FILL IN BLANK SPACES DEFINING THE NUMBER OF RANGES REQUIRED, AND THE TYPE OF GAS TO BE AVAILABLE AT THE PROJECT. DO NOT, HOWEVER, MAKE CHANGES WHICH AFFECT THE FUNDAMENTAL DESIGN.

### DIVISION DHS 19a

## RANGES, GAS

1.	SCO	PE.					AL	
Inc	lude	furnishing	and					
2.	DES	CRIPTION						

- a. Type. Four surface units (open cooking top) with oven and broiler below, insulated, AGA Type "B".
  - b. Operating Service. gas, \_\_\_\_\_ Btu per Cu. Ft.
- c. Overall Dimensions. Not more than 22 inches wide, 25 inches deep (excluding handles and flue collar) and 36 inches from floor to cooking top.
- d. <u>Federal Restrictions</u>. Amount of critical material used in construction shall not exceed limits established by Federal agencies having control over such limitations.
- e. <u>Applicable Specifications</u>. Ranges shall conform to the American Standard Approval Requirements for Domestic Gas Ranges, (ASA Z21.1 1948 and addenda ASA Z21.1a = 1949 dated effective January 1, 1950), and meet the following requirements:
  - (1) Oven burner adjustments shall be made from front or side.
  - (2) Removable drip tray and broiler pan shall be included.
- (3) Back splasher shall be approximately 4 inches high, full width of range.
- (4) Oven size shall be approximately 16 inches wide, 12 inches high, 18 inches deep (tolerance plus or minus 5%).
  - (5) Oven vent shall discharge away from rear wall.
- (6) Metal finishes exposed faces of splasher back, manifold shield, front panel frame, door panel or panels and sides: white or ivory vitreous enamel. Cooking top vitreous enamel. Drip tray vitreous enamel or synthetic baked-on enamel. (except top), broiler interior, and broiler pan vitreous enamel. Exposed faces of legs vitreous enamel or synthetic baked-on enamel. Range back black synthetic baked-on enamel.

#### 3. DELIVERY

The gas ranges shall be delivered to the project, free from damage and blemishes. After connections are made as required under division PLUMBING, place in operation and check for proper performance, certifying to the contracting officer that the equipment has been tested in place and found satisfactory. Fuel required for testing shall be supplied at the Government's expense.

# 4. INSTRUCTIONS

- a. Furnish the following replacement lists and operating instructions to the contracting officer.
- (1) Operating Furnish printed sets of operating and maintenance instructions in or attached to each range and spare sets amounting to 10% of the total number of ranges.
  - (2) Replacement parts list minimum number of five printed sets.

## 5. GUARANTEE

The contractor shall guarantee the gas range to be free from defects in design, workmanship and materials and agree to repair, replace and install, free of charge, any part, except vitreous enamel, proving defective within one year from day of acceptance by the Government. THE NAME AND ADDRESS OF AGENT WHO WILL FURNISH SERVICE under the guarantee shall be submitted to the contracting officer.

# 6. AFFIDAVIT

An affidavit shall be submitted to the contracting officer certifying that the gas ranges furnished under the contract conform to the requirements stated in this specification.

## DIVISION DHS 20

#### TRAILER MOUNTING AND SERVICING

# NOTES TO THE ARCHITECT:

THIS SHEET IS FOR THE INFORMATION OF THE ARCHITECT ONLY. DO NOT INCLUDE IN PROJECT SPECIFICATIONS.

# SECTION 2. GENERAL

a. THE TRANSPORTATION CONTRACTOR WILL BE REQUIRED TO DELIVER THE TRAILERS
TO THE SITE. IT IS INTENDED THAT THE SITE CONTRACTOR ARRANGE WITH THE
TRANSPORTATION CONTRACTOR EITHER THAT, UPON DELIVERY AT THE SITE, THE
TRAILERS BE "SPOTTED" AT DESTINED LOCATIONS ON THE SITE OR THAT THEY BE
DELIVERED TO A STORAGE LOCATION, DEPENDING UPON THE PROGRESS OF THE SITE
PREPARATION WORK OR ON SITE CONDITIONS.

SECTION 3. WOOD TRESTLES. OBTAIN FROM THE CONTRACTING OFFICER INFORMATION FOR DESIGN OF THE TRESTLES TO BE FABRICATED BY THE SITE CONTRACTOR IN EVENT THEY ARE NOT DELIVERED WITH THE TRAILERS. THE TRESTLE DESIGN IS ALSO MEEDED FOR MOUNTING THE TRAILERS AND SHOULD BE SHOWN ON THE DRAWINGS.

SECTION 4. TRAILER MOUNTING. OBTAIN FROM THE CONTRACTING OFFICER INFORMATION ON TRAILER WEIGHTS. IF THE BEARING CAPACITY OF THE EARTH BELOW THE TOPSOIL IS LESS THAN 2000 POUNDS PER SQUARE FOOT, THE DESIGN SHOULD PROVIDE TWO INCH PLANKING LAID FLAT, UNDER AND AT RIGHT ANGLES TO THE TRESTLE PLATE. SHOW CLEARLY ON THE DRAWINGS THE ADDITIONAL WORK REQUIRED.

THIS SPECIFICATION MUST BE ADAPTED TO SITE CONDITIONS. CHANGE AS NECESSARY TO MEET PROJECT REQUIREMENTS. STRIKE OUT ITEMS NOT APPLICABLE AND ADD AS NECESSARY.

This is a way

Bulletin No. DH-2 DIVISION DHS 20

## DIVISION DHS 20

# TRAILER MOUNTING AND SERVICING

#### 1. SCOPE

- a. Receive, receipt for, and be responsible for trailers upon delivery and after delivery until the contract is completed.
  - b. Position, mount on trestles and service trailers as specified herein.
- c. <u>Connecting the water and sewer</u> and the electrical services to the trailer interior systems is specified in the divisions UTILITIES and ELECTRICAL DISTRIBUTION, respectively.

# 2. GENERAL

- a. Trailers will be delivered to the site or in the vicinity thereof. The contractor shall receive the trailers and shall arrange with the transporting contractor for their disposition.
- b. A list of interior furnishings, furniture, fittings and equipment will be furnished to the contractor who shall check each trailer for the inclusion of these items and report in writing to the Contracting Officer the results of the check. In general, equipment will include the following major items:
  - (1) Liquefied petroleum gas range
  - (2) Electric refrigerator
  - (3) Oil-fired space heater
  - (4) Electric water heater
- (5) Wood trestles to support trailer above ground. If not included in the trailer, the contractor may be required by the Contracting Officer to furnish them as provided hereinafter.

# 3. WOOD TRESTLES

a. <u>Furnish and fabricate</u> two wood trestles for each trailer when required by the Contracting Officer. When trestles are furnished the Contract Price will be adjusted.

- b. Lumber shall be 100% heart fir, redwood, oak, cedar, chestnut, locust, untreated, or any wood equivalent to number 2 common fir which has been dipped after the parts are cut, for 5 minutes in a 5% solution of pentachlorophenol or equivalent.
  - c. Rigidly nail together as shown on the drawings.

# 4. TRAILER MOUNTING

- a. Excavate below topsoil evenly to grades as directed by the Contracting Officer to obtain firm soil bearing for trailer supports. Level up and thoroughly compact bottom of excavation. Install wood planking where and as shown or specified. If additional wood planking is required, the Contract Price will be adjusted.
- b. <u>Install trestles</u> in proper position levelling and blocking as necessary to level up the trailer. Mount trailer on trestles and secure in position, wedging and blocking as necessary. Backfill around trestles to eliminate drainage "pocket".
- c. Remove wheels as directed in accordance with manufacturer's recommendations and transport same to storage as directed.

# 5. TRAILER SERVICING

- a. Unpack all loose items within the trailer.
- b. <u>Inspect. test and service</u> the equipment furnished as part of the trailer and submit written report in triplicate to the Contracting Officer of any deficiencies noted. Demonstrate in presence of the Contracting Officer's representative the proper functioning of the equipment as follows:
- (1) Drainage System: Test for tightness by subjecting to air or chemical test of at least one inch of water column.
- (2) Liquefied Petroleum (as Range: Furnish L.P. gas necessary for this operation, inspect for leakage, tighten connections where necessary, operate the burners and adjust to proper operation.
- (3) Electric Refrigerator: Operate sufficiently to satisfy the Contracting Officer as to its proper functioning.
- (4) Oil-fired Space Heaters: Provide oil necessary for test, inspect for leakage, tighten connections where necessary; light and adjust to proper operation, check electrical equipment for operation and test for short circuits and grounds.

#### DIVISION DHS 20

# TRAILER MOUNTING AND SERVICING

#### 1. SCOPE

- a. Receive, receipt for, and be responsible for trailers upon delivery and after delivery until the contract is completed.
  - b. Position, mount on trestles and service trailers as specified herein.
- c. Connecting the water and sewer and the electrical services to the trailer interior systems is specified in the divisions UTILITIES and ELECTRICAL DISTRIBUTION, respectively.

# 2. GENERAL

- a. Trailers will be delivered to the site or in the vicinity thereof. The contractor shall receive the trailers and shall arrange with the transporting contractor for their disposition.
- b. A list of interior furnishings, furniture, fittings and equipment will be furnished to the contractor who shall check each trailer for the inclusion of these items and report in writing to the Contracting Officer the results of the check. In general, equipment will include the following major items:
  - (1) Liquefied petroleum gas range
  - (2) Electric refrigerator
  - (3) Oil-fired space heater
  - (4) Electric water heater
  - (5) Wood trestles to support trailer above ground. If not included in the trailer, the contractor may be required by the Contracting Officer to furnish them as provided hereinafter.

# 3. WOOD TRESTLES

a. Furnish and fabricate two wood trestles for each trailer when required by the Contracting Officer. When trestles are furnished the Contract Price will be adjusted.

NOTE: These pages 20-1 and 20-2 supersede pages 20-1 and 20-2 of Division DHS 20 dated 2-1-52. Material \* between asterisks \* is new or revised. Page 20-1 has been rerun without change.

- b. <u>Lumber</u> shall be 100% heart fir, redwood, oak, cedar, chestrut locust, untreated, or any wood equivalent to No. 2 common fir which has been dipped after the parts are cut for five minutes in a 5% solution of pentachlorophenol or equivalent.
  - c. Rigidly nail together as shown on the drawings.

# 4. TRAILER MOUNTING

- a. Excavate below topsoil evenly to grades as directed by the contracting officer to obtain firm soil bearing for trailer supports. Level up and thoroughly compact bottom of excavation. Install wood planking where and as shown or specified. If additional wood planking is required, the contract price will be adjusted.
- b. <u>Install trestles</u> in proper position levelling and blocking as necessary to level up the trailer. Mount trailer on trestles and secure in position, wedging and blocking as necessary. Backfill around trestles to eliminate drainage "pocket".
- \*c. Remove wheels as directed in accordance with manufacturer's recommendations and store them under trailers in racks provided by the trailer manufacturer.

# 5. TRAILER SERVICING

- a. Unpack all loose items within the trailer.
- b. <u>Inspect, test and service</u> the equipment furnished as part of the trailer and submit written report in triplicate to the contracting officer of any deficiences noted. Demonstrate in presence of the contracting officer's representative the proper functioning of the equipment as follows:
  - (1) Drainage System: Test for tightness by subjecting to air or chemical test of at least one inch of water column.
  - (2) Liquefied Petroleum Gas Range: Furnish liquefied petroleum gas necessary for this operation, inspect for leakage, tighten connections where necessary, operate the burners and adjust to proper operation.
    - (3) Electric Refrigerator: Operate sufficiently to satisfy the contracting officer as to its proper functioning.
    - (4) Oil-fired Space Heaters: Provide oil necessary for test, inspect for leakage, tighten connections where necessary; light and adjust to proper operation, check electrical equipment for operation and test for short circuits and grounds.

- (5) Electric Water Heater: Inspect for water leakage and test for electrical short circuits and grounds; operate sufficiently to satisfy the Contracting Officer of its proper functioning.
- (6) Electrical Equipment not in above items: Inspect for proper operation and test for short circuits and grounds.
  - c. Remove all rubbish and leave trailer clean.
  - d. Deliver keys to Contracting Officer after locking doors.

# PUBLIC HOUSING ADMINISTRATION Housing and Home Finance Agency

2-4-52

Defense Housing Bulletin

Transmittal No. 1

Insert in Defense Housing Bulletin No. DH-1, Construction Contract Documents for Trailer, Temporary or Permanent Defense Housing Projects:

1. Page iii, Correction of Standard Form No. 25, Contract (Construction), dated 2-4-52, to follow page i. (There is no page ii at this time.)

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# PUBLIC HOUSING ADMINISTRATION

HOUSING AND HOME FINANCE AGENCY

WASHINGTON 25, D. C.

2-18-52

Defense Housing Bulletin

Transmittal No. 2

CORRECTIONS: Make the following corrections in Defense Housing Bulletin No. DH-1, Construction Contract Documents:

- 1. On page i, Introduction, dated 1-25-52, last paragraph, second line, next to the last word, insert the letter "f" to change the last three words from "and or Temporary" to read "and for Temporary".
- 2. At top of page 59, dated 1-25-52, Section 4a(2), insert a new line reading "PUBLIC HOUSING ADMINISTRATION" between the lines "national defense effort" and "HOUSING AND HOME FINANCE AGENCY" so that the wording of the project sign will read as follows:

(PROJECT NAME)
(Project Number)
DEFENSE HOUSING PROJECT
These dwellings are
constructed for occupancy
by those engaged in the
national defense effort
PUBLIC HOUSING ADMINISTRATION
HOUSING AND HOME FINANCE AGENCY
\*Assisted by the (name of Local Authority)

\*NOTE: Omit this line if no Local Authority is assisting under an Agency Development Agreement and substitute five small stars.

✓ 3. On page 52, dated 1-25-52, Section 32 d, in the first, fifth and tenth lines, change the word "Rish" to "Risk".

# PUBLIC HOUSING ADMINISTRATION

HOUSING AND HOME FINANCE AGENCY

WASHINGTON 25, D. C.

25-52

Defense Housing Bulletins

Transmittal No. 3

Remove from Defense Housing Bulletin No. DH-2, SPECIFICATIONS FOR TRAILER PROJECTS:

- √ 1. Pages 12a-1 and 12a-2 of Division DHS 12a, dated 2-1-52.
- 2. Page 14-iii of Division DHS 14, dated 2-1-52.
- √ 3. Page 14-3 of Division DHS 14, dated 2-1-52.
- 4. Pages 20-1 and 29-2 of Division DHS 20, dated 2-1-52.

Insert in Defense Housing Bulletin No. DH-2, SPECIFICATIONS FOR TRAILER PROJECTS:

- √ 1. Pages 12a-1 and 12a-2 of Division DHS 12a, dated 2-25-52.
- 2. Page 14-iii of Division DHS 14. dated 2-25-52.
- / 3. Page 14-3 of Division DHS 14, dated 2-25-52.
- √ 4. Pages 20-1 and 20-2 of Division DHS 20, dated 2-25-52.

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# PUBLIC HOUSING ADMINISTRATION Housing and Home Finance Agency

4-1-52

Defense Housing Bulletins

Transmittal No. 4

Remove from Defense Housing Bulletin No. DH-1, CONSTRUCTION CONTRACT DOCUMENTS FOR TRAILER, TEMPORARY, OR PERMANENT DEFENSE HOUSING PROJECTS:

- ✓ 1. Page iii, Correction of Standard Form No. 23, Contract (Construction), dated 2-4-52.
- ✓ 2. Page 25 (page 6a of S.F. 23 (overprinted for Defense Housing)), dated 1-25-52.

Insert in Defense Housing Bulletin No. DH-1, CONSTRUCTION CONTRACT DOCUMENTS FOR TRAILER, TEMPORARY, OR PERMANENT DEFENSE HOUSING PROJECTS:

1. Page 25 (page 6a of S.F. 23 (overprinted for Defense Housing)), dated 4-1-52.

# PUBLIC HOUSING ADMINISTRATION Housing and Home Finance Agency Washington 25, D. C.

5-29-52

Defense Housing Bulletins

Transmittal No. 5

1. REMOVE: Pages 67 and 68 of Bulletin No. DH-1, CONSTRUCTION CONTRACT DOCUMENTS FOR TRAILER, TEMPORARY, OR PERMANENT DEFENSE HOUSING PROJECTS, dated 1-25-52.

INSERT: Pages 67 and 68 of Bulletin No. DH-1, CONSTRUCTION CONTRACT DOCUMENTS FOR TRAILER, TEMPORARY, OR PERMANENT DEFENSE HOUSING PROJECTS, dated 5-29-52.

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# PUBLIC HOUSING ADMINISTRATION Housing and Home Finance Agency

11-24-54

DEFENSE HOUSING BULLETINS

Transmittal No. 8

REMOVE From Defense Housing Bulletin No. DH-1, CONSTRUCTION CONTRACT DOCUMENTS FOR TRAILER, TEMPORARY, OR PERMANENT DEFENSE HOUSING PROJECTS:

1. Pages 17-18 and 25-26 dated 3-1-54.

INSERT in Defense Housing Bulletin No. DH-1, CONSTRUCTION CONTRACT DOCUMENTS FOR TRAILER, TEMPORARY, OR PERMANENT DEFENSE HOUSING PROJECTS:

1. Pages 17-18 and 25-26 dated 11-24-54.

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# PUBLIC HOUSING ADMINISTRATION Housing and Home Finance Agency

12-6-54

DEFENSE HOUSING BULLETINS

Transmittal No. 9

REMOVE From Defense Housing Bulletin No. DH-1, CONSTRUCTION CONTRACT DOCUMENTS FOR TRAILER, TEMPORARY, OR PERMANENT DEFENSE HOUSING PROJECTS:

1. Pages 17-18 dated 11-24-54.

INSERT in Defense Housing Bulletin No. DH-1, CONSTRUCTION CONTRACT DOCUMENTS FOR TRAILER, TEMPORARY, OR PERMANENT DEFENSE HOUSING PROJECTS:

1 Pages 17-18 dated 12-6-5h.

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# SPECIFICATIONS

TRAILER PROJECTS

and for

TEMPORARY PROJECTS

SECOND EDITION
REVISED AUGUST 1952



DEFENSE HOUSING BULLETIN LIBRARY 692 6, 7, 12, 15, 15, 16

To Be Attached to Specifications For Trailer And Temporary Projects
Second Edition, Revised August 1952

PUBLIC HOUSING ADMINISTRATION

HOUSING AND HOME FINANCE AGENCY

WASHINGTON 25, D. C.

OCTOBER 1952

# TEMPORARY PROJECTS - DHT SERIES 1 REVISED

This Supplement No. 1 to Specifications for Trailer Projects and for Temporary Projects, Second Edition, as Revised August 1952, covers changes in the plans for DHT Series 1 Rev. dated 7/28/52 as indicated on drawings entitled DHT-Series 1 Rev. dated 10/2/52 and revised 10/20/52; some changes in materials; the addition of some materials, and some further corrections to the original issue of Bulletin No. DH=2 dated February 1952, which were not covered in the issue of August 1952.

Changes in materials are summarized briefly below:

- 1. Alternate for wood foundation posts omitted.
- 2. Skirting to be 3/16" tempered hardboard and skirting to be mandatory.
- 3. Requirements for flooring to be raised.
- 4. Kitchen cabinets to be factory made, wood or metal.
- 5. Bathroom and kitchen walls to have enameled wallboard overlay in part.
- 6. Windows to be residential type metal casements.
- 7. Gutter added over entrance.
- 8. Paint chimney above roof and oil drum same as exterior walls.
- 9. Add toilet fixtures in laundry buildings.
- 10. Some changes in water heater capacities in the laundry and addition of connections for automatic washers and dryers.
- 11. Walks to be concrete.
- 12. Better door hardware.
- 13. Kitchen fan to be mandatory.
- 14. Noncombustible partition back of space heater.
- 15. Curtain track between bedroom No. 3 and the living room.

The following pages show necessary changes in the detail specifications and the pink NOTES TO THE ARCHITECT to amend Bulletin No. DH-2 Second Edition, Revised August 1952, to cover the changes heretofore mentioned.

DIVISION DHS-1, CLEARING, EXCAVATING, FILLING AND GRADING No change.

DIVISION DHS-2, CONCRETE AND MASONRY Section 1, SCOPE

1. Omit reference to wood piers.

DIVISION DES-3, CARPENTRY AND MILLWORK Pages 3-1 and 3-11, NOTES TO THE ARCHITECT

- 1. Omit references to wood foundation posts and double hung stock windows. It is economical to use one kind of window throughout. Specifications for metal casement windows are included hereinafter.
- 2. Omit reference to weatherstrips.

Section 1, SCOPE

1. To omit reference to weatherstrips for windows, change subsection a to read as follows:

a. Storm sash combination doors and weatherstrips for sides and heads of exterior doors shall be furnished only when specifically required in the General Scope of Work.

Section 2, MATERIALS
1. Since cabinets are to be factory made and will be specified as hardwood, change subsection c, to read as follows:

c. Exterior and interior frames, trim and millwork (not cabinets) shall be fabricated from any of the following:

Fir Douglas WCL Rules D Finish
Pine Ponderosa D Select

- 2. Since windows are to be metal, subsection e, referring to wood windows, shall be omitted and a new subsection e covering metal windows substituted as follows:
- e. Windows shall be metal windows of sizes and types indicated on the drawings. The contractor shall have the option of furnishing aluminum or galvanized steel windows unpainted or steel windows prime painted at the factory and finish painted as specified in Division 8, PAINTING AND GLAZING. Stock commercial windows and screens will be accepted including hardware and standard sections providing they conform to requirements specified herein and substantially to details indicated on the drawings. Transom windows shall be manufacturer's standard basement windows opening in at the top. Side hinged windows shall be residence casement windows.
- (1) Steel casements. The principal members of frames and ventilators shall be not rolled new billet steel Z bars not less than one inch deep and 1/8 inch thick. Screws, bolts and clips shall be rustproofed steel.
- (a) Corners of frames and ventilators shall be welded and welds smoothed. Muntins shall be continuous with flush interior surfaces, shall be mortised and tenoned to frames and securely peened. Side hinged ventilators shall open out. Members shall be arranged for outside glasing and punched for glasing clips.
- (b) Drip molds projecting not less than 5/8 inch, of not less than 18 gage metal, shall be provided at heads of ventilators.
- (c) Hinges of side hinged ventilators shall be the cleaning type riveted or welded to frames. Hinge pins shall be rustproofed steel or high strength bronze.
- (d) Operation of side hinged ventilators shall be by rote type under screen operators.

- (e) Weathering contacts shall be double and continuous around ventilators. When ventilators are adjusted and locked, contact shall be such that a 1/32 inch gage cannot be inserted between frames and ventilators at any point without forcing.
- (f) Hardware. Side hinged ventilators shall be equipped with die cast, solid bronze, malleable iron or rustproofed pressed steel locking handles to effect secure closing of the windows. Transom windows shall have manufacturer's standard push bar hardware. Hardware shall be installed at the site or the panels so crated as to prevent damage to the hardware.
- (g) Screens. Unless otherwise specified, all ventilators shall be screened. Screens shall effectively bar the passage of insects through the openings screened, be easily removable and interchangeable with screens of the same nominal size and with storm windows and include necessary hardware for secure attachment.

Frame members of screens shall be of not less than .032 inches thick, galvanized steel with mitred corners and not less than 5/32 inch splines. Edges shall be rounded so as not to cut the screen cloth. Screens shall be easily rewirable.

- (h) Shop coat. Steel windows and screen frames shall receive a hot dip phosphate or a cold phosphate chromate treatment. Immediately after drying, apply a shop coat of a rust inhibitive paint which will produce a hard tough film of good appearance, flexibility, adhesion and rust resistance. Shop coat shall be oven dried.
- (1) Galvanized windows. Windows shall be cleaned free of dirt, oil, rust, paint and oxide, pickled in an acid bath, rinsed free of acid, dried and then immersed in a bath of melted zinc at a temperature of 850°F. to 875°F. The windows shall remain immersed until the temperature of the steel equals the temperature of the bath and then slowly withdrawn. The zinc coating shall be uniform, free from cracks, pinholes and bare spots and shall adhere firmly to the steel. Inspection shall be visual but when visual inspection is not conclusive, a window or a part thereof shall withstand five one minute dips of the Preece test (ASTM A-239). Treat windows after galvanizing with a hot phosphate or a cold phosphate chromate treatment to provide a bond for putty.
- (j) Install windows accurately in frames without distortion. Install hardware and adjust ventilators to operate freely and to close within the limits specified.
- (2) Aluminum windows shall be residential type casement windows with roto type operators and shall conform to the current edition of the specifications of the Aluminum Window Manufacturers Association, 74 Trinity Place, New York 6, New York. Ventilators shall be provided with screens conforming to the above referenced specifications.

- 5. When storm sash are specified, the following specification should be added:
- (3) Storm windows consisting of metal frames and rubber compression gaskets, manufacturer's standard type, attached to metal windows with screws, glazed with double strength B glass, shall be provided for all metal windows. Metal frames shall be aluminum or galvanized steel unpainted or black steel treated and painted as specified for black steel windows. Storm sash shall have ventilating panels at least one in each bedroom and two in the living room unless otherwise indicated on the drawings.
- 4. To improve the quality of the flooring, replace subsection g with the following:
- g. Flooring shall be strips not less than 25/32 inch thick and not over 3-1/4 inches wide, side matched, of any of the following:

Oak
Pecan, maple, birch and beech
Douglas fir WPA Rules
Douglas fir WCL Rules
C VG
Southern pine
No. 1 Common
Third Grade
C Select VG
C VG

Better grades to avoid waste of short lengths are optional with the contractor. Only one species shall be used in one building. Hardwood flooring shall be end matched. Filler strips shall be the same species and equal to the flooring. Factory finished flooring meeting requirements specified above may be used. Flooring shall be kiln dried to and maintained at a moisture content of 8 to 12 percent. Flooring shall be sorted before laying as specified hereinafter.

- (1) Flooring in bathrooms shall be Douglas fir plywood 3/4 inch thick, interior type, Grade C-D, covered with asphalt tile. (See Division ASPHALT TILE.)
- (2) Porch flooring and exterior steps and stringers shall be 100 percent heart of Douglas fir, western larch, southern pine, cypress or redwood.
- 5. Subsection h, Exterior Wall Covering. In the fourth line, change Grade B-C to Grade A-C.
- 6. Subsection i, Interior Wall and Ceiling Board calls for a hardboard with a lower modulus of rupture than Federal Specification LLL-F-311, Class A, hardboard. The modulus of rupture for 1/4 inch board should be 4100 psi instead of 4700 psi as shown in subsection i, and compares with 6000 psi for Class A hard pressed fiberboard.

To provide for the use of amenameled wallboard on part of bathroom and kitchen walls and correction as above, change subsection i to read as follows:

i. Interior wall and ceiling board, except as hereinafter specified for bathroom walls, shall be one of the following:

Hard pressed fiberboard conforming to Federal Specification LLL-F-311. Glass A, 1/4 inch thick, except that the requirement for modulus of rupture shall be 4100 psi, or composition wallboard conforming to Federal Specification UU-W-101a, .340 inches thick minimum, waterproofed, prefinished with an ivory colored synthetic coating at the factory or sized ready for paint and meeting the following limitations:

Linear expansion when tested in accordance with the method described in Federal Specification LLL-F-321b shall be

Crosswise of Panel Lengthwise of Panel .1% maximum .05% maximum

The moisture content shall be 6% to 12% by weight and the water absorption after 24 hours in water at 70° F. shall be 15% maximum by weight.

When composition wallboard, as above specified, is used the bathroom walls shall be covered with the same material. When hard pressed fiberboard, as specified above, is used generally, the bathroom walls shall be covered with Class B (tempered) hard pressed fiberboard 1/4 inch thick.

Only one kind of wallboard shall be used in a building except as hereinafter specified for kitchen and bathroom walls.

Kitchen walls and bathroom walls, where indicated on the drawings, shall have an overlay of enameled hardboard, manufacturer's standard color as selected by the Contracting Officer, applied over the wallboard. Enamelled hardboard shall be hard pressed fiberboard 1/8 inch thick, conforming to Federal Specification LLL-F-311, Class B, finished at the factory with a synthetic urea alkyd finish permanently integrated to the base material by baking. The finish shall be a uniform semi-gloss. Enameled hardboard shall be furnished in the largest practicable sizes with smooth uniform surfaces (not grooved to imitate tile).

Edges and joints of enameled hardboard shall be protected by moldings of the type and pattern indicated on the drawings. Moldings over panel junctions shall be enameled strips 5/16 inch thick of the same material, color and finish as the enameled hardboard. Other moldings shall be manufacturers standard aluminum molding, colored to match the enameled wallboard. Provide curved sections to fit the edges of bathtub. Adhesive for attaching enameled hardboard shall be a waterproof, rubber base adhesive recommended by the manufacturer of the hardboard. Attach moldings over panel joints with chrome plated oval head screws 3 inches on center.

Section 3. WOOD PRESERVATIVE TREATMENT

1. To prolong the life of sills of laundry buildings and to omit references to wood sash, the section should read as follows:

Door frames and doors in exterior walls, wood porch posts and wood window frames shall be preservative treated and bear the Seal of Approval of the National Woodwork Association or be accompanied by an affidavit from the manufacturer certifying that they have been fabricated from all heart lumber or have been treated in accordance with the Minimum Standards established by the National Woodwork Association. Brush coat cut surfaces with a 5 percent solution of the same preservative.

Lumber for plates, aligners, blocking and any other woodwork in contact with concrete floor in laundry buildings shall be all heart lumber or shall be submerged for ten minutes in a 5 percent solution of the same preservative.

# Section 5, WOOD FOUNDATIONS

1. In order that buildings may be provided with better anchorage, concrete foundations shall be installed on all projects and all reference to wood foundations deleted; consequently, omit Section 5 entirely.

# Section 6, FABRICATION

1. To clarify the specifications, omit the last sentence of subsection b and substitute the following:

Millwork and trim shall be sanded smooth on surfaces and edges with the sharp edges of corners sanded off. Surfaces shall be true and straight, free from torn grain and other defects that impair their appearance and serviceability.

- 2. The wood molding formerly specified at the top and ends of the bathtub has been replaced by a metal molding and the interior finish of the bathroom has been revised; therefore, subsection c.(3) shall read as follows:
- (3) Provide solid blocking around three sides of the bathtub at the level of the top of the tub and down to the floor at the ends of the tub to provide support for the wallboard finish and the metal molding at the top and ends of the bathtub.
- 5. Because the width of windows has been reduced, horizontal joints in the exterior siding and interior wallboard will be difficult to avoid; therefore, Section 6, subsection c, shall contain an additional paragraph stating the following:
- (3) Avoid horizontal joints in siding and interior wallboard except at window sills and heads. All horizontal joints shall be made over solid blocking and a Z shaped metal flashing inserted in the horizontal joints in siding to shed rain water.

4. To provide for the erection of the enameled wallboard in kitchen and bath-room, the following paragraphs should be added to subsection g.

Enameled wallboard shall be unpacked, seasoned and sprinkled as recommended by the manufacturer of the board. Wallboard to which the enameled wallboard is to be applied shall be straight, true, plumb, clean, wall fastened to stude and dry.

Adhesive shall be evenly applied to the back of the enameled wallboard with a toothed trewel at the rate of 60 square feet per gallon. Moldings and wall-board shall be applied to the walls in strict accordance with the printed instructions of the manufacturer of the wallboard. Calk between edges of moldings and bathtub and under moldings at interior corners with a white waterproof cement. At completion, the enameled wallboard shall be flat, true, solidly glued to the backing at all points and free from defects in material and workmanship. Joints in work above the tub shall be watertight.

- 5. To improve the quality of the flooring, Section 6, subsection i, shall read as follows:
- i. Flooring shall be sorted or cut before laying to exclude any of the following defects: voids on finished edges, rot, knotholes over 3/8" in diameter, unsound knots, shakes, heart checks, split ends that cannot be drawn tight, torn grain and defects which will not sand smooth. After application of floor insulation, lay flooring perpendicular to joists with joints close. Strips of flooring shall bear on at least two joists. Blind nail with 8d flooring nails to each joist. Joints in soft wood flooring shall occur over joists only. Stagger ends of hardwood flooring so that ends in any joist space are separated by at least one through strip. Stagger ends of soft wood flooring on alternate joists.
- (1) Sand floors parallel to grain until smooth, finishing with fine paper.
  - (2) Provide oak thresholds where shown.
- 6. To delete all references to wood sash, screens and storm sash from this specification and to correct clearances for doors omit subsection k beginning with "Doors sash, screens and storm sash" and substitute the following:
- k. Doors shall be fitted to frames at the factory complete with hard-ware attached. Clearances at top and sides of doors shall be 1/8 inch, 3/16 inch at bottom over threshold and 3/4 inch at bottom from floors. Remove door knobs and any other hardware projecting more than one inch from the surface, tag for identification and ship boxed with similar items. Apply dunnage strips to panels as necessary to protect frames, trim, wallboard and hardware from damage in handling and shipment.

- 7. To eliminate reference to cabinets from subsection 1, omit subsection 1 entirely and substitute the following:
- 1. Closets, shelving, storage racks, counters, ironing boards and miscellaneous millwork items shall be fabricated from sound dry lumber with members not less than 3/4" thick, except as otherwise shown or specified, and wide enough to insure sturdy rigid construction.
- (1) Details of construction shall be as indicated on the drawings. Closets shall be nailed and glued.
- (2) Shelves shall be solid stock not less than 3/4 inch thick. Support shelves on cleats securely fastened to adjacent construction.
- (3) Doors shall be 5-ply plywood or hard pressed fiberboard not less than 1/2 inch thick, edge lap type, or paneled with solid stiles and rails with plywood panels.
- (4) Drawer fronts shall be straight grained stock 3/4 inch thick. Partition one drawer for cash pockets.
- (5) Laundry work tables shall be made of 1 x 6 inch boards on 2 x 4 supports. Cover tops of tables with 3/16 inch hard pressed tempered fiberboard or 1/4 inch plywood, interior type, Grade B-D.
- (6) Ironing boards shall be one piece wood or stock expanded metal boards of size indicated on the drawings, fastened securely to the laundry table with screws or stove bolts.
- 8. To provide for factory built kitchen cabinets, include the following subsection o:
- c. Kitchen base and wall cabinets shall be factory made cabinets of wood or metal, meeting good practice standards of the trade and substantially meeting these specifications. Dimensions shall be approximately as indicated on the drawings but minor adjustments to meet manufacturer's standards will be accepted provided such changed dimensions do not interfere with other furniture or equipment. Shop drawings shall be furnished for kitchen cabinets and approval of the Contracting Officer obtained before fabrication.
- (1) Wood cabinets shall be constructed of hardwood unless otherwise specified of a minimum thickness of 5/8" for primary members and 3/8" for drawer backs and bottoms. Base cabinet tops and splash boards shall be 1/16" thick Consoweld or Micarta or approved equal manufacturer's standard color as selected by the Contracting Officer, factory bonded to 3/4" waterproof fir plywood with a backing layer of similar plastic bonded to the underside of the plywood. The sinks shall be mounted flush with the top. All edges of base

cabinet tops and splash boards shall be protected with stainless steel moldings set in waterproof cement. Completed cabinet top and sink assembly shall be watertight. Doors shall be 1/2" plywood or hard pressed fiber-board with lapped edges. 1/4" plywood may be used for tops and backs of wall cabinets and backs of base cabinets. Vertical members shall be rabbeted to receive horizontal members. All joints shall be nailed and glued.

- (a) Hardware consisting of hinges, catches and door and drawer pulls of matching pattern, chrome plated, shall be provided and attached at the factory.
- (b) Wood cabinet work shall be sanded smooth and finished with a prime coat and manufacturer's standard white enamel.
- (2) Metal cabinets shall be of furniture steel not less than 22 gage except that backs and door backs may be 24 gage primed with rust inhibitive paint finished on interior and exterior with two coats of enamel separately baked on. Cabinets shall be factory assembled, complete with hardware. Color shall be white. Hardware shall be similar to that specified for wood cabinets.
- (a) Base cabinet tops and splash boards shall be as specified above for wood cabinets.
- (b) Doors shall be hollow and filled with sound deadening fiberboard.
- (c) Assembly shall be by means of spot or projection welding. Exterior surfaces shall be smooth.

## Section 8. ERECTION

- 1. Since cabinets will be factory made, subsection n should read as follows:
- n. Office counters shall be constructed in accordance with the specifications for closets and shelving and as follows: (including existing subsections (1), (2), (3) and (4).)
- 2. Since the application of weatherstrip to metal casement sash is not necessary, change subsection s to read as follows:
- s. Weatherstrips for entrance doors shall be spring bronze or stainless steel strips not less than .01 inch thick, manufacturer's standard type providing a weathertight seal on all edges of the doors. They shall adjust themselves to the swelling and shrinking of the doors without impairing their efficiency. Use copper or brass nails or screws for attaching bronze strips and cadmium plated or stainless steel for attaching stainless steel strips.

- 3. To provide for the mandatory use of skirting and to change the skirting to 3/16" tempered hardboard, change subsection t to read as follows:
- t. Skirting shall be 3/16" hard pressed fiberboard conforming to Federal Specification LLL-F-311, Class B. Nail to framing with galvanized 3d or 4d nails, four inches on center.
- 4. To eliminate the wood molding around the bathtub and to provide a curtain track on ceiling between the 3rd bedroom and the living room, change subsection u to read as follows, and add a new subsection v, as follows:
- u. Curtain track on ceiling shall be a stock metal molding similar to Kirsch No. 9035, finished with chrome, or bronze plate, or baked enamel. Curtain carriers shall be brass or nylon similar to Kirsch No. 9405 or No. 9406, spaced not over six inches apart. Attach track to ceiling where indicated on the drawings not over one foot apart with wood screws penetrating joists not less than one inch. Avoid joints between panels.
- v. Non-combustible partition shall be composed of three layers of 1/2" gypsum wallboard conforming to Federal Specification SS-W-5la, Type A, secured together to form a partition 1-1/2 inches thick by means of stove bolts and washers not over 18 inches apart or more than 3" from edges. Exterior layers shall be in one piece.

DIVISION DHS-4, THERMAL INSULATION No change.

DIVISION DHS-5, ROOFING, COMPOSITION

1. To correct the roofing specifications to provide for the change of roof

deck from fiberboard to wood, change subsection 3, j and section 4 to read as follows:

- j. Roofing felt shall turn up not less than 4" against any curbs around chimneys or other vertical surfaces.
- 4. APPLICATION OF COMPOSITION ROOFING
- a. Coal tar pitch or asphalt composition roofing shall be 3-ply applied as follows: (See GENERAL REQUIREMENTS in this Division.)
- b. Lay strips of sheathing paper 12 inches wide over panel joints and nail in place with roofing nails through metal discs 12 inches on center along each edge.
- c. Sheathing paper shall be laid over entire area of sheathing board (not plywood) roof decks under coal tar pitch roofs. Lap joints two inches and nail sufficiently to hold in place.

- d. Apply one layer of 30 pound felt over the entire area lapping each ply four inches over the preceding ply and nail at laps sufficiently to hold in place.
- e. Two plys of 15 pound felt shall then be laid over the base felt lapping each ply 19 inches over the preceding ply, mopping with 25 pounds of bitumen per square over the base felt and between plys so that in no place shall felt touch felt. Nail each ply at from two to four inches from the upper edge with roofing nails through metal discs not over 12 inches apart.
- f. Coat the surface with a uniform poured coat of 75 pounds of bitumen into which, while hot, embed 300 pounds of slag or 400 pounds of gravel per square.

DIVISION DES-5a, ROOFING, SHINGLES No change.

DIVISION DES-5b, SHEET METAL WORK.

- 1. To provide gutter and downspout at front door as indicated on the drawings, add the following subsection e to Section 4, INSTALLATION:
- e. Gutters and downspouts shall be not less than 28 gage galvanized steel of sizes and details as indicated on the drawings. Provide elbow at bottom of downspout.

DIVISION DHS-6, BUILDERS HARDWARE

- 1. The references to balances for double hung windows in subsection a of SCOPE should be removed since double hung windows are not used.
- 2. Section 7, LOCKS
  It is intended to omit tubular locks from the specifications and to prohibit the use of die cast parts. To accomplish this end, subsections d and e should read as follows:
- d. Mortise or cylindrical locks and latches shall be used. Lock sets shall be complete with escutcheons, knobs, roses and similar items as required and specified. Where two numbers are given under any one type of lock both items shall be provided.

e. Lock Schedule	Mortise Locks		
Front and rear doors keyed alike	. 194 - 185		
Bedroom doors	3 D		
Bathroom doors	3 B		
Storage doors and other doors not otherwise specified	194 - 185		

Series 160 cylindrical case locks and latch sets may be furnished in lieu of mortise lock and latch sets described herein when they provide substantially the same performance in operation and control and have substantially the same quality of construction and wrought trim as the mortise lock and latch sets for which they are substitutes.

Bathroom locks shall have an emergency access device and the locking mechanism shall release when the knob is turned or when the door is closed. The emergency lock shall be operable by an emergency key or by straight tools such as a knife blade, a small file or a nail.

The use of die cast parts in any lock is not permitted.

Section 8. SHELF AND MISCELLANEOUS

1. Since cabinets C=5, C=6, C=7 and C=8 are not included and all other cabinets will be factory made and include necessary hardware, and since wood sash, wood screens and wood storm sash are no longer part of the work, reference to hardware for those items should be omitted. Specifically, the following subsections should be omitted: d, e, f, j, k and l.

DIVISION DHS-7 ASPHALT TILE No change.

DIVISION DHS 8, PAINTING AND GLAZING

1. To provide for the elimination of wood sash, wood screens and wood storm sash, and for painting of chimneys and interior metal and piping, the following changes should be made in the specifications:

Section 4, GENERAL REQUIREMENTS Omit subsection f.

Section 6, EXTERIOR PAINTING Change subsection a to read as follows:

a. Exterior woodwork and exterior covering, including both sides of combination and screen doors, shall be painted as follows:

First coat exterior primer TT-P-25
Second coat exterior oil paint TT-P-102, Class A for white paint and Class B for tinted paint.

Both first and second coats shall be manufactured especially for two coat work. Spread at a rate of not to exceed 450 square feet per gallon for the first coat and 550 square feet per gallon for the second coat.

- 2. Change subsection b to read as follows:
- b. Exterior metal including metal chimney and oil drum shall be painted as follows:

First coat on ferrous metal, red lead

First coat on galvanized metal, zinc dust-zinc oxide

First coat on aluminum

First coat on asphaltic shop coats

Second coat exterior oil paint

TT-P-86a

TT-P-641

Zinc chromate paint

Aluminum paint

TT-P-102

Section 7, INTERIOR PAINTING

- 1. Change subsection a to read as follows:
- a. Interior doors, interior of exterior doors, trim not otherwise specified, and bathroom walls and ceilings, not covered with enameled wall-board, shall be painted as follows:

First coat (not wood sash) primer-sealer	TT-P-56a
Second coat enamel undercoat	TT-E-543
Third coat semi-gloss enamel	TT-E-508

- 2. Change subsection b to read as follows:
- b. Walls and ceilings, except for prefinished wallboard on walls and except bathrooms and walls covered with enameled wallboard shall be painted as follows:

One coat resin emulsion

TT-P-88a

Prefinished wallboard which has become soiled shall be cleaned or painted as for unfinished wallboard.

- 3. To provide for painting of interior metal add the following new subsection f.
- f. Interior metal including sash, (except aluminum or galvanized sash) fire protection guards, piping and pipe covering shall be painted as follows:

First coat on galvanized steel, zinc dust-zinc oxide

First coat on piping, zinc dust-zinc oxide

TT-P-641

First coat on pipe covering

TT-P-56a

Second coat on all items - same as finish coat on adjoining surfaces.

Section 10, GLAZING

1. To provide for the change from wood to metal sash, change subsections c and e to read as follows:

# c. Putty and Glazing Compound

- (1) For wood doors shall be a white lead-whiting putty containing not less than 10 percent of white lead by weight.
- (2) Putty for steel windows shall conform to Federal Specification TT-P-781a, Type II. Putty used with galvanized windows shall match the color of the windows.
- (3) Glazing compound for aluminum windows shall conform to Federal Specification 77-P-78la, Type I, shall be specially prepared for this purpose, shall adhere tightly to the surface, remain plastic, shall not require painting and shall match the aluminum for color reasonably well. The compound shall have been in satisfactory use for at least two years. The contractor shall furnish the names of two buildings where it has been used as near as practicable to the project site. Approval of the Contracting Officer shall be obtained before using the compound. The word "putty" when used in the following subsection e, shall apply to either putty or glazing compound, as applicable.
- e. Glazing. Surfaces shall be dry and free from dust or ice before glazing. Dirty surfaces shall be cleaned with a cloth saturated with turpentine or mineral spirits before glazing. Putty shall not be applied in temperatures below 40°F. or during damp or rainy weather. Do not glaze wood doors until they have received a priming coat of paint as specified. Do not handle windows after glazing until the putty has set. Obscure glass shall be set with smooth side out.
- (1) Bed glass completely in putty. Set with glazing clips. Apply face putty with sufficient pressure on the knife to insure complete adhesion to glass and rabbet. Cut off excess immediately after glass is bedded. Face putty shall be full, smooth and with accurately formed bevels having clean cut miters.
- (2) Putty shall be used as it comes from container without adulteration and only after thorough remixing. If thinning is required, use only white gasoline and not more than one tablespoon per gallon of putty.
- (3) Doors shall have glass completely bedded in putty and set with glazing beads.
- (4) Ventilate building after glazing by opening windows slightly top and bottom sufficient to prevent condensation of water on the glass and bed putty. Maintain such ventilation until glazing compound or putty has set.

DIVISION DES-9, SHADES No change.

DIVISION DHS-10, SUSPENDED CHIMNEYS No change.

DIVISION DHS-11, PLUMBING

The following changes in the specifications are required to conform the existing specifications to the revised drawings.

Page 11-i NOTES TO THE ARCHITECT OR ENGINEER. Change the fourth paragraph to read as follows:

DOMESTIC WATER HEATERS SHOULD BE INCLUDED FOR LAUNDRIES AND OTHER SERVICE BUILDINGS. FOR LAUNDRIES, SIZES SHOULD BE NOT LESS THAN 15 GALLONS STORAGE AND 25 GALLONS RECOVERY PER HOUR (100°F. TEMPERATURE RISE) FOR EACH LAUNDRY TRAY AND EACH WASHING MACHINE; SPECIFICATIONS SHOULD BE PATTERNED AFTER THOSE INDICATED HEREIN FOR THE DWELLING UNITS, BUT SEPARATE STORAGE TANK AND HEATER MAY BE NECESSARY. FOR OTHER SERVICE BUILDINGS SIZES SHOULD BE BASED UPON THE NUMBER AND TYPE OF FIXTURES REQUIRING HOT WATER.

# Section 2, MATERIALS

- 1. Change subsection b to read as follows:
- b. Underground drainage piping for dwelling units shall be extra heavy or service weight cast iron soil pipe and fittings or standard weight galvanized steel or wrought iron pipe with cast iron drainage fittings. Turns, when using steel or wrought iron piping shall be made with long turn 90 or 45 degree elbows.
- 2. In subsection r (1) change 3/4 inch preshrunk to 1/2 inch preshrunk.

## Section 4. DRAINAGE LINES

1. Change the second sentence to read as follows:

Underground steel and wrought iron drainage piping and all pipes passing through or under corrosive material, such as cinders or cinder concrete, shall be protected with a heavy coat of coal tar enamel and wrapped as specified in the National Plumbing Code.

## Section 6, TRAPS AND CLEANOUTS

1. Change the schedule under subsection c to read as follows:

Water Closet	3 i:	nches		
Bathtub	1 <del>2</del>	Ħ		
Lavatory	17	11		
Kitchen sink	1 <del>5</del>	Ħ		
Kitchen sink and tray	ı₹	Ħ		
Service sink	~ 3	11	trap	standard
Laundry tray	1=	48	<b>E</b>	
Floor drain	1 <del>2</del> 3	11		

Traps in dwelling units for the kitchen sink and kitchen sink and tray, shall have  $1-1/2^n \times 2^n$  swivel threaded ell outlet.

Section 10, WATER SUPPLY

1. Change the schedule under subsection a to read as follows:

	Cold Water	Hot Water	
Water Closet	3/8 inches	***	
Bathtub	1/2 "	1/2 inches	
Lavatory	3/8 **	3/8 "	
Kitchen Sink	1/2 "	1/2 "	
Kitchen Sink and Tray	1/2 "	$\frac{1}{2}$ "	
Service Sink	1/2 "	1/2 "	
Laundry Tray	1/2 "	1/2 "	
Hose Bibb or Sillcock	1/2 "		

# Section 11, INSULATION

- 1. Change subsection a to read as follows:
- a. Cold water piping in dwelling units exposed to view and located in storage and closet spaces and behind cooking range, except supplies furnished as part of the fixture trim, shall be covered with insulation as herein specified. Hot and cold water piping shall be covered with the respective materials specified herein, when located in the following spaces:
- 2. Change subsection e to read as follows:
- e. Drainage line under floor from water closet to stack and bathtub trap and drainage line from bathtub to stack shall be covered, wrapped, secured in place and painted, same as specified above for the service water line. Nominal thickness of insulation shall be two inches.

Section 12, PLUMBING FIXTURES

- 1. Add a new subsection m as follows:
- m. Service sinks shall be roll rim type, 12 inches deep, with integral back, supported by a 3 inch east iron trap standard with cleanout and grid strainer and a metal wall hanger. The supply fitting shall be 1/2 inch combination rough plated type with lever handles and short mixing spout having a pail hook and hose end. Sinks shall be east iron porcelain enameled with rough plated rim guard, nominal size 22" x 18".

DIVISION DHS-12, SPACE HEATERS - GAS Section 2, DETAILED REQUIREMENTS Omit subsection b (1)

DIVISION DHS-12a, SPACE HEATERS - OIL Section 2, DETAILED REQUIREMENTS Omit subsection c.(4)

DIVISION DHS-12b, HEATING - FORCED WARM AIR No change.

DIVISION DHS-12c, VENTILATING EQUIPMENT Page 12c-i, NOTE TO THE ARCHITECT. Omit the second paragraph and substitute the following:

THIS DIVISION INCLUDES THE FOLLOWING ITEMS: (A) EVAPORATIVE COOLERS FOR USE IN HOT DRY CLIMATES, (B) WALL TYPE ELECTRIC VENTILATORS AND (C) CIRCULATING FANS TO IMPROVE HEAT DISTRIBUTION WHEN THE DESIGN TEMPERATURE IS MINUS 5°F AND LESS. ON THE BASIS OF HIS KNOWLEDGE OF CLIMATIC CONDITIONS FOR A SPECIFIC PROJECT THE ARCHITECT SHALL RECOMMEND TO THE PHA FIELD OFFICE THE INCLUSION OF ITEM A OR C TOGETHER WITH JUSTIFICATION THEREFOR AND SHALL NOT COMPLETE THE PLANS IN THIS RESPECT UNTIL HE HAS RECEIVED INSTRUCTIONS FROM THE PHA FIELD OFFICE. ITEM B IS MANDATORY IN ALL AREAS.

# Section 3, WALL VENTILATORS

- 1. Change subsection d to read as follows:
- d. Installation shall be on wall over cooking range, near ceiling, and in accordance with manufacturer's instructions; opening in wall is provided for that purpose.

Section 4, CIRCULATING FANS
1. Change the first sentence of subsection c to read as follows:

c. Installation shall be in partition separating living room from bedroom No. 3, near rear wall and near ceiling; air inlet side shall face living room; air discharge side shall face bedroom No. 3.

DIVISION DHS-13, INTERIOR ELECTRIC WIRING
Page 13-ii, NOTES TO THE ARCHITECT OR ENGINEER
1. Change the second paragraph to read as follows:

NOTE THAT THIS DIVISION INCLUDES SPECIFICATIONS FOR WIRING FOR EVAPORATIVE COOLERS, WALL TYPE VENTILATORS AND CIRCULATING FANS. WALL TYPE VENTILATORS ARE MANDATORY IN ALL AREAS. INCLUDE CONNECTIONS TO EVAPORATIVE COOLERS AND CIRCULATING FANS WHEN THEY ARE INCLUDED IN THE PROJECT. SEE NOTES TO THE ARCHITECT AND ENGINEER UNDER DIVISION DES-12c.

Section 5, INSTALLATION OF OUTLET BOXES, COVERS, DEVICES AND PLATES

1. In subsection e, last line of schedule, omit the words "transfer switch"

"4 feet 6 inches" and add the following: "water heater outlet" "1 foot"
in the second column.

Section ( ) WIRING CONNECTIONS TO ELECTRIC WATER HEATER 1. Change subsection d to read as follows:

d. Locate 20 amp. wall type toggle switch accessible to and adjacent to heater.

DIVISION DES-14, SITE IMPROVEMENTS (ROADS, WALKS, ETC.)
Page 14-1, NOTES TO THE ARCHITECT.

- 1. Disregard the fourth and fifth paragraphs entirely. Make all walks of concrete.
- 2. Omit Section 6, CONCRETE BLOCK WALKS and Section 7, AGGREGATE WALKS.
- 3. Include a new section as follows:

# Section 16, SPLASH BLOCKS

Provide concrete splash blocks 12 inches wide by 24 inches long and 2-1/2 inches thick at thinnest point under each downspout. Blocks shall have raised lip approximately one to  $1\frac{1}{2}$  inches high on both sides and on one end. Bed splash blocks firmly with discharge flush with finished grade.

DIVISION DHS-15, UTILITIES (SEWERS, WATER AND GAS)
Section 5, WATER DISTRIBUTION SYSTEM MATERIALS

1. To provide for the use of copper tubing, add a new subsection b,(4),
as follows:

(4) Copper tubing, seamless, annealed. Type K, complying with Federal Specification W-W-T-799a; fittings wrought copper or cast bronse of solder-joint or flared-tube type. Solder shall be of a composition recommended by the manufacturer of the fittings.

Section 6, WATER DISTRIBUTION SYSTEM INSTALLATION 1. Add a new subsection d,(5), as follows:

(5) Copper tubing shall be laid by experienced workmen and with jointing performed in accordance with the manufacturer's recommendations. Observe care not to scar or deform the tubing. In fills of cinders, rock or rubbish lay the tubing on and surround tubing with at least six inches of sand or other suitable soil.

DIVISIONS DHS-16 TO DHS-20, INCLUSIVE -- No changes.

# INSPECTION CHECK LIST

FOR

DEFENSE HOUSING PROJECTS,

DEFENSE HOUSING BULLETIN



4.5. PUBLIC HOUSING ADMINISTRATION

HOUSING AND HOME FINANCE AGENCY

WASHINGTON 25, D. C.

MARCH 1953

HHFA
PHA
3-11-53

# INSPECTION CHECK LIST

# FOR DEFENSE HOUSING PROJECTS

This list was developed primarily as a guide to field inspection staffs in so organizing and conducting their work that contract compliance may, with confidence, be expected and obtained. While the list was intended especially to cover PFD housing units, trailers (after delivery to sites), and all site improvement work, its obvious intent may be applied to all classes of work in connection with defense housing projects.

Inspection personnel of experience and excellent reputation for efficiency may feel that close attention to such a list is not necessary in their cases. Less experienced personnel may feel that attention only to the points covered here is all that is required. Both attitudes would be in error.

Such a list could be extended almost indefinitely; this list was drawn in "punch-list" form by men of experience, and in a number of instances derived from observations of faulty or lax work and material on actual defense projects under construction. But no assurance is offered that all or even most of the items to be watched are covered here, or that the items are of equal weight. An old cliche is appropos: there is no substitute for sound knowledge and good judgement; and an industrious devotion to the job is an excellent support for both.

One word of caution is offered: there has been some evidence of an attitude both on the part of contractors and inspection staffs that, because these projects are for simple types of dwelling units providing less than permanent standards of livability, and because the site work is incidental only to temporary projects, the character of materials and workmanship may be indifferent or worse. You cannot demand more than the plans and specifications require; you must accept no less. The very simple nature of this work demands that every requirement be met if valid criticism of the finished product is to be avoided.

# GENERAL

- 1. Dictionary definition: "INSPECT; v.t., to examine with care." All work needs to be watched. In their zeal to show production, contractors' foremen concentrate on speed; their guide is generally the plans and not the specifications.
- 2. Good inspection prevents non-compliances at the start. Inefficient inspection leads to disputes, tearing out and replacing work, and delay.
- 3. Have a working knowledge of the Contract, General and Special Conditions, General Scope of Work, and study carefully and be fully informed on the contract requirements of the plans and Technical Specifications controlling materials, methods, workmanship, sequence of work, and standards of acceptance for those branches of the work for which the inspector is responsible. Study these ahead of the need to know.

- 4. Examine the plans and specifications and the site carefully in advance of start of work; raise questions on anything not clear or indicative of future misunderstandings; and do not hesitate to report at once any discrepancies, deficiencies, or features which may prevent a satisfactory job in all details. Study the approved shop drawings.
- 5. Do not allow prolonged oral arguments to ensue; obtain written settlement and agreement on all matters in question.
- 6. Make written notes of important events. Date and sign them.
- 7. Require that storage on the lot of any material be properly done--out of the mud, protected from weather, and to prevent distortion or other damage.
- 8. Require that work in place be protected from damage by subsequent operations.
- 9. Require temporary heat and weather protection as called for by the contract requirements.
- 10. Be present at all required tests--do not delay the contractor when he calls for them.
- 11. Insist that site and buildings be kept reasonably clear of rubbish and hazardous obstructions. Insist upon sanitary and safety requirements of the contract.
- 12. In all cases where the contract refers to Federal Specifications, to National, State or Local codes, or to other similar material bearing upon contract performance, copies of such documents should be obtained and studied insofar as they affect the work.
- 13. Before work is started, try to visualize all conditions of the site in relation to the work to be done: grades, existing and new; drainage, existing or temporary and new; subsurface conditions which may be apparent and which would affect the work; existing on-site and off-site utilities such as sewer, water and electric, which in any way are affected by or will be tied into the new work; and obstacles or worth-saving trees (nearly all are) which would suggest some readjustment in location of new work.
- 14. Note at the cutset all of the requirements as to provision of office space, telephones, watchman services, lights, etc., etc., and see that these are furnished.
- 15. Determine authority and procedure for:
  - a. Changes in contract work;
  - b. Addition to contract work;

- d. Rejection of materials, samples, sample work, and work in place;
- e. Dismissal of incompetent workmen;
- f. Approval of sub-contractors, including form and substance of approval. and
- g. Obtaining required certificates, bonds, and guarantees.

# 16. The inspection staff must:

- a. Maintain a Daily Diary in the prescribed form, and record complete data to adjudicate:
  - 1. Claims for delays, damages, accidents;
  - 2. Liquidated damages; and
  - 3. Termination of contract, if necessary.
- b. Check Special Conditions to determine:
  - 1. Applicable Schedule of wage rates; and
  - 2. Schedule of unit prices (if required).
- c. Maintain filing system;
- d. Obtain contractor's breakdown of costs (payment prohibited until received);
- e. Obtain construction progress schedule:
- f. Check and approve (with qualifications as necessary) the contractor's requisitions for periodic and final payments; and
- g. Prepare punch-list of incomplete or unsatisfactory work at time of substantial completion, and make final inspection when punch-list items are reported to have been taken care of.

## CLEARING, EXCAVATING, FILLING, AND GRADING

- 1. Check for site clearing within required limits, and for cutting off stumps to grade or lower, disposal of debris, and protection of trees not to be removed.
- 2. See that Surveyor's bench marks and reference points are preserved.
- 3. Check every footing excavation for required depth; if firm bearing is not reached request immediately Field Office authorization for extra depth.
- 4. Observe carefully grading and shaping of subgrade for surfacing; require check by Contractor's surveyor if in doubt. Give close attention to subgrade rolling; guard against soft spots.

- 5. Where a ditch is required along a roadway, see that an ample shoulder is left between the surfacing and the ditch slope.
- 6. Watch filling and backfilling for protection of piping, piers, etc., and for specified compaction.
- 7. Make sure the ground surface under house and trailer floors is graded smoothly to drain, and that any depressions in yard areas are filled with topsoil.
- 8. As construction progresses, check the site during rains for (1) effective drainage (no pockets), (2) adequacy of waterways and drainage structures, and (3) effective erosion control. Report deficiencies to Field Office. (Note: This check may reveal defects in design as well as workmanship).

# SITE IMPROVEMENTS (ROADS, WALKS, UTILITIES, ETC.)

#### 1. Water Lines

- a. See that trenches are not excavated so close to oil-drum or pier locations as to impair soil bearing.
- b. Permit no backfilling over joints until lines are tested under pressure.
- c. Check for tightness the stop cock on each water service.
- d. Check valves and fire hydrants by operating.
- e. Tops of boxes (tile or cast iron) over stop cocks should be at grade; covers on tile boxes should fit tightly.
- f. Permit no sag (trapping) in water connections to trailers.
- g. Examine thermal insulation on every trailer water connection, especially for close fit at trailer floor.

## 2. Sewers

- a. (See la above).
- b. Watch pipe-jointing operations closely.
- c. Look out for breakage of shallow lines; prevent heavy equipment from crossing shallow backfilled trenches.
- d. Use clean-outs (or manholes) at upper end of laterals to insert hose and test lines; obtain assurance of free flow.
- e. Flexible sewer connections to trailers should have positive slope, also a tight seal at junction with sewer riser.

# 3. Bituminous Surfacing

- a. Don't permit placing base material on a muddy or soft subgrade.
- b. Get assurance that base material and other aggregate have required grading.
- c. Don't allow prime or seal coats to be put on a damp base.
- d. Request Public Works Officer (Military Base) to furnish aid in inspection by someone who knows bituminous work.

## 4. Walks

a. See that walks are built to even, sightly profiles and at levels that will (1) be self-draining and (2) not obstruct surface drainage across the site. (Note: This applies to walks for which finished grades are not given on the plans. Some little grading along the sides of the walks may be necessary to obtain the objectives stated.)

## 5. Miscellaneous Site Improvements

- a. Check clothesline supports for rigid setting, and all miscellaneous items such as street signs, house (trailer) numbers, fencing, garbage collection platforms, and fire alarm system, for proper workmanship.
- b. If apparently needed items are not to be provided under the plans and specifications, report same to Field Office.

#### CONCRETE FOOTINGS, MASONRY, PIERS, AND SLABS

- 1. Do not place concrete on soft or frozen soil; check just before pouring;
- 2. Check to see that concrete is mixed and handled as specified;
- 3. Start piers on clean concrete surface; check mortar and masonry material; require full, solid mortar beds; finish neatly where exposed; and be sure that tops are brought to uniform level (instrument check may be needed). Be sure that anchors are in place as required;
- 4. For slab work, do not permit pouring until subgrade is firmly and uniformly compacted; require uniform thickness of concrete, slope as required, and finish and curing as specified.

# CARPENTRY AND MILLWORK

(Note: See Contract requirements and other instructions relative to factory inspection of prefabricated houses. This check list deals with items to be noted and precautions to be taken from the time panels and other parts arrive on the site until the houses are assembled and carpentry and millwork is completed.)

- 1. Study specifications for prefabricated construction and know what to expect under contract requirements. This is definitely a part of the field inspection responsibility.
- 2. When panels and loose parts begin to arrive see that they are immediately protected against damage and deterioration. Use your right under the contract to have a sufficient number of panels—in your best judgment—opened for examination as to contract compliance in all respects: materials, workmanship, and conformity in detail to plans and specifications.
- 3. Note especially, when examining panels, quality of framing lumber, the requirements as to insulation, vapor barriers and venting, and check carefully to note that these requirements have been met, both as to materials and workmanship.
- 4. Po not permit damaged or otherwise unacceptable panels to be erected; have them repaired or removed from the site. Gouged or deeply scratched surfaces cannot be put in acceptable condition for painting by filling and sanding.
- 5. Insist upon the early erection and structural completion of one house to determine that panels and other prefabricated parts fit neatly together with no more than the specified tolerances, and that the field applied members likewise fit properly. But in accepting a pilot house as a standard, do not waive rights as to latent or unnoted defects.
- 6. During erection, note especially these points:
  - a. Start erection of floor girders and panels <u>dead level</u>; unless this is insured, the panels will not fit together tightly and properly; check anchorage of girders to piers;
  - b. Use of specified size, type, number, and spacing of screws and nails;
  - c. Caulking must be applied where and as specified or shown, and be of the kind required. Highly important.
  - d. Metal flashing-same as for caulking;
  - e. Insist upon true and accurate alignment and leveling of all parts.
    Note and be sure that when ends of outside battens are secured to
    floor construction (this secures the wall panels to the floor), the
    wall panels are in close contact with the floor;
  - f. Do not permit other trades to cut er otherwise weaken or damage structural or finish parts;
  - g. See that indicated clearances between flues and flammable materials are preserved;

- h. Metal windows will, ordinarily, be installed in panels when delivered, but may be installed on the job; in either case, check for all specified requirements as to size, type, details, etc., and as to installation. Be certain that caulking, fit, and operation are all as required. At same time, check grade and thickness of glass and particularly puttying as to kind and workmanship. Check type of screening supplied:
- i. Check fitting of interior and exterior doors, and of storm sash and doors where required;
- j. Reject millwork for unsatisfactory sanding, tool marks, splits, gouges, etc., that cannot be repaired so as not to show after painting. Reject any unsound piece;
- k. Painting: See that finish nails are set and filled, and all surfaces sanded as specified;
- Check all items of cabinet work to see if in satisfactory condition, both as to appearance and operation; see that no doors are warped;
- m. If flooring in floor panels is delivered prefinished, make certain it is kept protected; if not prefinished, see that sanding and/or scraping as specified is properly done and thereafter that floors are kept protected; and,
- n. Be sure that outside steps are properly supported, securely tied in to porch floor, and are firmly constructed.
- 7. Hardware, rough and finish must be checked:
  - a. Quality and conformity with specified standards;
  - b. Finish hardware neatly and accurately applied and fitted;
  - c. All operating smoothly and properly; and,
  - d. All keys, in number specified, are tagged and fit as per tags.
- 8. Weather stripping should be carefully inspected for materials, design, attachment, and proper fit.
- 9. Give careful attention to factory-finished board lining over kitchen sink and in bathroom, particularly as to watertightness at tub; also sink work-surface covering. See that materials are as specified, cutting and fitting neatly done, proper adhesives used, and metal edgings carefully cut and fitted.

#### ROOFING-SHEET METAL

- 1. Check materials against specification and approved samples; proper method of storing; insulating materials kept dry. Originial, unbroken packages or drums, label to show manufacturer, grade, etc. Invoices or delivery tickets generally furnish satisfactory evidence as to quality of bitumen and gravel or slag used on the work. Reject overheated bituminous materials evidenced by yellow smoke from heating pot.
- 2. Roof decks firm, even, smooth, properly pitched and clean before application of roofing.
- 3. Watch for skimping on quantity per square of all materials; prevent use of wet gravel; prevent use of material too cold to permit proper application.
- 4. Check type and spacing of nails for material which is to be nailed.
- 5. Improper lap, nailing, tears in paper to be corrected before applying finishing material.
- 6. Check gage, size, prime coat, backpainting of concealed surfaces, smoothness, stability, slope and other required characteristics of sheet metal work. Discover defects before they are covered by other work.

## **PAINTING**

- 1. The bricklayer can cover up errors in concrete, the plasterer can cover up those in the masonry, but the painter has no rescuer. Inspection should be stiff to start off with and maintained so throughout this work.
- 2. See that all required sanding, filling and other preparatory work is done before painting is started; also that puttying and sanding between coats, as may be required by the specification, is done.
- 3. Check all paint and painting materials for compliance with specifications as soon as it arrives. Should be in original containers, sealed, with label showing characteristics and name of manufacturer.
- 4. Surfaces to be painted must be dry and clean. Watch for thinning out of paint. Watch for failure to shellar pitch pockets, shakes and knots first.
- 5. Prevent painting in temperatures lower than the limiting degree specified. If done, however, protest, and make written record for future reference.
- 6. Check especially for omission of specified paint on tops and bottoms of doors.
- 7. And see that paint spatters, smears, and other imperfections are removed promptly and cleanly.

## SUSPENDED CHIMNEYS

- 1. Check to see that these conform to specifications, are erected in proper position, and are rigid and plumb. Watch the very first installations, since chimneys secured out of plumb are exceedingly difficult to readjust.
- 2. Check the chimney flashings at roof line to avoid leaks.

#### PLUMBING

- 1. The plans and specifications for plumbing work should be carefully studied and understood by the inspection staff before work is started. Arrange, if possible, for the installation, inspection, and test of one complete system so that all questions may be resolved before a lot of work is concealed in a large number of houses.
- 2. See that water piping that enters house in same trench with soil line is on shelf at higher level.
- 3. See that cleanouts have the plug located where it can be easily removed.
- 4. See that changes in direction of buried soil lines are made with 45° bends and "Y" connections as each case requires.
- 5. Water lines rising from ground, traps, drainage lines, etc., are to be insulated as specified and shown. This is important. Study the specification and give close attention to materials and workmanship.
- 6. Check soil, waste, vent, and water lines for materials, sizes, and locations. Check for proper caulking of joints. Insist upon a neat layout of any piping which must be exposed. Insist upon all tests required by the specification.
- 7. Check flashing of vent stacks at roof.
- 8. Check all fixtures for compliance with specifications; see that they are properly installed; that they operate satisfactorily and without leaks; and that they are kept clean and protected.
- 9. See that specified pipe covering is neatly done.
- 10. Check for proper support of vertical soil stacks at base and other locations.
- 11. See that bathroom accessories are of type specified and that they are securely fixed in proper locations; check medicine cabinets for compliance.
- 12. Domestic water heaters; check:
  - a. Gas fired heaters should have label of American Gas Association;
  - b. Electric heaters should have label of Underwriters' Laboratories;

- c. Oil fired heaters should have label of Underwriters' Laboratories on burner unit;
- d. Combination pressure temperature relief valve should have AGA label or listing, or label or listing of ASME; and,
- e. Relief valve should be piped through floor of dwelling units, and to within 12" of laundry floors.

#### **HEATING**

- l. For oil fired heaters, there should be indication by label that the heater complies with the Bureau of Standards Commercial Standards (CS 101-43). Compliance with such standards is indicative that the heater is listed under the reexamination service of the Underwriters' Laboratories; a label of the Underwriters' Laboratories should also be on the heater. The Btu rating on the heater should be the CS 101-43 rating, and not the manufacturer's rating; the Underwriters' Laboratories label is the only one required for trailer heaters, but there is no objection if the CS 101-43 label is also affixed.
  - (a) Heater smoke pipe should have damper regulator;
  - (b) A 3-way oil valve should be easily accessible at heater.
- 2. For gas fired heaters, the American Gas Association label should be affixed. Make certain that the heater is rated and adapted for the type of gas available.
- 3. Check for oil filter and shut-off valve at oil storage drum outside the dwelling unit.
- 4. Oil drum and connections; see that drum is securely mounted, at proper elevation, on substantial supports as specified. See that drum has prime coat of red lead and oil. See that connection with heater is tight at all joints. Do not permit use of second-hand tanks or permit the painting of rusty tanks.

#### VENTILATING EQUIPMENT

- 1. Fan for third bedroom. Check for labeling. Fan should have Underwriters' Laboratories label, and label of National Association of Fan Manufacturers (NAFM) or certification that rating complies with the latter association's requirements.
- 2. Wall Ventilators (Nitchen Ventilating Fan). Check for labeling. Fan should have Underwriters' Laboratories label, and label of National Association of Fan Manufacturers (NAFM) or certification that the rating complies with the latter association's requirements.

Bulletin No. DH-3

#### ELECTRICAL

## 1. DHT Series 1 Buildings

- a. Check manner in which electrical wiring is installed.
- b. Check manner in which wood moulding is installed to cover the non-metallic sheathed cable. Do not accept poor workmanship.
- c. Check installation of shade holders for shades to insure a rigid support.
- d. After lamp bulbs have been installed and all equipment properly connected, energize each circuit and check for proper operation, short circuits and grounds.
- e. If necessary to install a portion of the electrical wiring exposed under floor of the unit--in crawl space-- be certain that the insulation of conductors is moisture resistant (Type RW or TW) and properly fastened in place every 4-1/2 feet.
- f. Check all equipment for proper polarity.
- g. Check ground connections at service equipment (neutral conductor, box enclosure and grounding tap), incoming water service, and at other electrical equipment requiring same, to be certain that all grounding has been made in accordance with code requirements. Check ground connection at incoming water service for accessibility and made with proper type clamp to fit the metal used in the cold water line.
- h. Where metal outlet boxes are used in conjunction with non-metallic cable, all metal boxes should be grounded to a common ground at service equipment.
- i. Check installation of service mast to insure its stability.
- j. Check to see that ceiling electric fixture does not interfere with full swing of kitchen cabinet doors.

## 2. Overhead Distribution

- a. Check pole and guy locations in the field. Guys should not be located in streets, walks, drainage ditches, at fire hydrants, or to obstruct pedestrian or vehicular traffic.
- b. Check if guying is adequate.
- c. Check materials to be installed, for contract requirements.
- d. Check system phasing, conductor sizing, insulation and conductor attachment to insulators, particularly at dead ending.

- e. Check conductor sagging.
- f. Check transformer load, capacity and accessories.
- g. Check transformer and neutral grounding.
- h. Check primary contacts and fusing.
- i. Check secondary load balance.
- j. Observe and record secondary voltage at each building service equipment. Have transformer voltage tape adjusted, or correction made if necessary.

#### TRAILER MOUNTING

- 1. At the outset of this operation, study carefully plans and specifications requirements as to trailer floor levels and entrance steps. If folding steps on trailers are to be utilized, ascertain their height. Two or more risers at each trailer should be approximately equal. If this will not be achieved under plans and specifications requirements, report condition to Field Office.
- 2. Check bottom of excavation for every pier. If specified depth will not produce satisfactory bearing, secure immediate authority from Field Office to excavate deeper as necessary.
- 3. Oil-drum carriages should be set firmly, and level, and connection of oil line at trailer should be tight.

# PLANTING

# 1. Landscape Contractor's Acceptance

a. If planting is under separate contract, you should require an inspection and acceptance by the landscape contractor of the grading which shall have been completed under DIVISION--CLEARING, EXCAVATING, FILLING & GRADING before he starts his work.

# 2. Materials

- a. Check all plant materials prior to their installation (for example, grass seed, sprigs, sod, collected ground cover, hay mulch, trees, shrubs and vines) for conformity to the Specifications.
- b. Check materials for conformity with those previously tested or inspected and approved at their source.

#### 3. Construction Methods

- a. Note the circumstances of any planting not conducted under favorable weather conditions or when soil is frozen or muddy.
- b. Check the formula of fertilizer before application and check rate of application with the Specifications.
- c. Check method of planting (seeding, sprigging, sodding, mulch, etc.) with Specifications.
- d. Check trees, shrubs, and vines for conformity with the varieties, sizes, and quality shown on the planting plan (or list).
- e. Check location of planting pits for conformity with planting plan.

# 4. Maintenance

a. Check protection and maintenance of ground cover and other planting at appropriate intervals after planting and until acceptance.

## 5. Inspection and Acceptance

- a. Upon completion and after written notice, the condition of ground cover and other planting shall be noted and the contractor advised whether maintenance shall continue in any part.
- b. After inspection, the contractor will be notified in writing of acceptance of the work in whole or in part or of the requirements for completion. Planting shall be alive and in good condition at the time of acceptance.

#### SITE INSPECTION OF TRAILERS

1. The site inspection of trailers is divided into two parts (1) inspection on receipt of trailers and (2) final inspection. The contract with the trailer company states that "Upon delivery and initial inspection and acceptance of each unit, the consignee will receipt the carrier's delivery ticket on waybill, subject to concealed damages and defects, and the contractor's voucher for each trailer, including transportation, if otherwise found correct, will be approved for payment for 90% of the contract price."

"The contractor's voucher for the final 10%, if otherwise found correct, will be approved for payment 30 days thereafter, or upon connection of utilities and final inspection, whichever occurs first."

Both of the inspections referred to above are outlined in Part I, Section 9, of the Property and Procurement Handbook, dated 9-12-52. The present Defense Housing Manual contains no instructions covering inspection of trailers. It is, therefore, recommended that pending the issuance of

instructions for trailer inspection under the Defense Housing Manual that persons making such inspections be guided by the provisions set forth in Section 216.9A of the Low-Rent Housing Manual.

The following check list is intended to amplify, not to supersede or revise, the information contained in the manual releases referred to above.

## 2. Inspection on Receipt of Trailers

Immediately upon delivery, the PHA representative shall inspect each trailer inside and out for completeness, and for transportation damage, as required by Part I, Section 9, par. 1c of the Property and Procurement Handbook. The items listed below should be covered in this inspection.

- a. Check outside finish for scratches or gouges suffered in transit.
- b. See that there is no broken glass in the doors, windows, or covers of travel (6 volt) lights.
- c. See that a 6-volt waterproof connector is installed on the wire pigtail on the yoke.
- d. See that two L.P. gas containers are provided and anchored on the yoke.
- e. See that a parking jack is provided on the yoke and that the yoke has safety chains.
- f. See that keys and master keys are provided and tagged as required by the specifications.
- g. See that sofa-bed, bed, bunks, table, chairs, and cabinets are provided as specified.
- h. See that gas range, refrigerator, space heater, and kitchen wall cabinets are provided.
- i. Check ceiling for evidence of roof leaks, also leaks at windows, doors, and ventilators.
- j. See that venetian blinds and/or drapes are provided as specified.
- k. See that interior finish is free from scratches or other imperfections caused by application or damaged by loose furniture in transit.
- 1. See that floor is covered with heavy paper as called for in the specifications.
- m. See that screen doors are provided.
- n. See that electric service mast is provided.

- o. See that electric meter socket is provided with suitable cover, when this item is required by the trailer specifications.
- p. See that the required electric fixtures are in place.
- q. Record the serial numbers of the tires.

## 3. Final Inspection of Trailers

When the trailers have been located in their fixed positions on the site and the contractor has connected the utilities, the PHA representative shall make final inspection to insure that the plumbing, wiring, and equipment operate satisfactorily. As required by the specifications, the manufacturer of the trailers is required to perform certain tests and service the trailer equipment; also to demonstrate the proper function of the equipment.

Following this inspection the PHA representative shall prepare a report as called for under Part I, Section 9, of the Property and Procurement Handbook. As suggested above this report should cover items mentioned in Section 216.9A of the Low-Rent Housing Manual. The items listed below should also be covered in this report.

## A. FOUNDATIONS

The foundations should be carefully checked for conformance with the specifications. See that they are level.

#### B. FRAME, YOKE, & JACK

NOTE: From the maintenance standpoint one of the two most important items is the proper coating of the Frame, Yoke, and Jack. This coating should completely cover all steel members - inside flanges of channels, etc.

- (1) See that Frame, Yoke, and Jack are coated as specified.

  NOTE: All trailers purchased under Invitation for Bids issued December 5, 1952, will have running gear (tires, wheels, axles, and springs) furnished by PHA. The project engineer should check the trailer contract for work authorized by change order to the running gear.
- (2) See that bottom of trailer (1/2" fibreboard) is in accordance with the specifications.
- (3) See that Parking Jack complies with the Specifications.
- (4) See that paper floor covering remains in place for removal by tenant.

#### C. CONSTRUCTION-EXTERIOR WALLS

- (1) Check operation of doors and windows.
- (2) See that the glass in doors and windows is not cracked or broken.

- (3) Check ceiling and walls for evidence of leakage.
- (4) If metal moulding is used at edge of roof see that it is applied with screws of the same materials.
- (5) See that exterior walls are ventilated as required by the specifications and the approved shop drawings.

#### D. ROOF

NOTE: The second of the two important maintenance items referred to under item 2 above is the proper sealing of the roof.

(1) See that steel roofs and all nailed seams of aluminum roofs are coated as required by the specifications.

#### E. DOORS

- (1) See that doors are covered both inside and outside with metal as specified.
- (2) See that a suitable hook or other means of fastening the doors back to the outside wall of the trailer are provided as specified and that screen door fasteners are provided as specified.
- (3) See that screen doors are provided.
- (4) See that weather stripping is provided as specified.

# F. WINDOWS

- (1) See that windows comply with the specifications as to number, size, etc. Check operation of doors, windows, screen doors, screens, etc.
- (2) See that screens are provided as specified.

NOTE: Aluminum frames may have aluminum or plastic screen cloth but steel frames may have plastic cloth. This same combination of materials is also applicable to the screen doors.

## G. CALKING

- (1) See that all windows and doors are properly calked.
- (2) See that smoke stack and vent stacks are calked.

## H. CABINETS & FURNITURE

- (1) See that finish on all cabinets is free from scratches or other imperfections.
- (2) See that closets and drawers are provided as called for in the specifications.

- (3) See that kitchen counter top is covered with plastic material and that a backing layer of the same plastic is glued to the underside of the plywood as required by the specifications.
- (4) See that mirror is provided on wardrobe door.
- (5) See that all closets and cabinets have ventilating slots as specified.
- (6) See that bathroom accessories of matching design are provided in accordance with the specifications.
- (7) See that cabinet doors designed to close the bathroom corridor are provided with stops and latches.
- (8) See that kitchen ventilating fan is provided, is removable, and in working condition.

#### I. HARDWARE

(1) See that all required hardware is provided for doors, cabinet doors, and drawers.

## J. SOFA-BEDS & BEDS

- (1) Check sofa-bed upholstery for defects, soiled spots, and for conformance with specifications. Also see that there is ample slack upholstery material between the seat and back sections to prevent tearing.
- (2) See that sofa-bed storage compartment is provided as specified.
- (3) See that box springs and inner spring mattresses are provided.

## K. TABLE & CHAIRS

(1) See that table and chairs conform with specifications and that finish is not marred.

#### L. WINDOW DRAPES OR VENETIAN BLINDS

(1) See that window drapes or venetian blinds are provided as called for in the specifications.

## M. PAINTING

- (1) Check all finishes for scars or other imperfections.
- (2) See that enameled finished wallboard in bathroom extends over the vertical flange of the tub (on rear wall and ends).

- (3) See that walls adjacent to heater are protected by a sheet metal baffle as required by the specifications.
- (4) See that kitchen base cabinet adjacent to the kitchen range is protected as specified.

#### N. MECHANICAL

#### (1) Plumbing

- a. Inspect all plumbing fixtures and check for damage watch for any surface imperfections.
- b. Check for fixture tightness to water and sewer connections. See there are no drips from faucets.
- c. Check for leakage in drainage system. If a peppermint test is made, the one pouring the peppermint in the vent stack should not enter the trailer to examine for leaks; examination should be made by another.
- d. Check for leakage in water system. See that system is tested at available water pressure. It is important to see that system is completely drained of water after test.
- e. Check for rigidity in liquefied petroleum gas container tank arrangement; see that the indicating device on the automatic gas regulator manifold can be conveniently read.
- f. Check for leakage in gas lines. Light all four top burners of cook stove through pilot, and oven burner and check for proper flame adjustment. Flame should be bluish, yellow flame is not acceptable. When burners are being closed, there should be no flare back.

Where gas space heaters are used, make same type of examination as indicated for cook stove. Check for proper functioning of safety pilot; gas to main burners and pilot should close automatically on flame or pilot failure. Check automatic operation of blower-motor unit.

# (2) <u>Oil-Fired Space Heaters</u>

- a. Check to see that kerosene or No. 1 fuel oil is furnished for test. See that all oil connections are tight; pay particular attention to connection at 3-way valve to see if tight. The 3-way cock should be within the casing of the heater.
- b. After heater is lighted, examination should be made for any prolonged smoking from smoke outlet through roof. Smoking should cease after a few minutes of operation; if not, adjustments in oil control (constant level) valve will be necessary.

c. Check operation of blower-motor unit. Delivery of air through grille in rear bedroom should be noticeable. Check grille for specification compliance.

## O. ELECTRICAL

## (1) Trailers at Site

- a. Inspect type of 6-volt connector. Be certain it is a weather-proof type. If similar to Hubbell #9967 or #7413, they should be provided with a seal-tite rubber cover similar to Hubbell #7435.
- b. Inspect method employed for splicing conductors at outlet boxes. If covered with tape, remove tape and check if soldered.
- c. Inspect wiring of water heater. Wiring from water heater to outlet box should contain ground wire for grounding frame of heater and should continue to service equipment ground terminal. Water heater should be on a separate circuit. In lieu of separate ground wire from heater to outlet box, the steel covering of BX can be accepted as the grounding medium, and grounding continued to service equipment as noted above.
- d. Open service equipment and check ground connection, with neutral and box enclosure grounded to grounded tap. Be certain ground connection is tight.
- e. Check ground connection at incoming water service. Ground clamp should be copper-bronze type for connection to copper water pipe and installed under sink. Be certain ground connection is tight.
- f. If noted that metal outlet boxes are installed, be certain that they are grounded to system ground by a separate ground wire run with circuit conductors and fastened to box by a screw.
- g. Be certain that trailer skin has been bonded to the metal frame and connected to ground.
- h. Inspect method for supporting lighting fixture. They should be fastened to fixture stud or strap (fastened to outlet box).
- i. Be certain non-combustible gasket has been installed under fixture if there is exposed combustible material between edge of outlet box and edge of fixture.
- j. Inspect hood fan and motor assembly and be certain it can be removed easily.
- k. Check polarity identification of service conductors to prevent site contractor from making improper connection. Be certain that neutral conductor is noted as white or gray.

- 1. Check that (a) lights, (b) water heater, and (c) equipment including possible toaster, etc., on kitchen cabinet top are 3 separate circuits. Check for receptacle under trailer floor, near cold water inlet.
- m. Check all lighting fixtures to be certain that toggle type switches have been installed.
- n. After all lamp bulbs have been installed by trailer manufacturer, and all equipment properly connected, and service drop has been connected, energize each 110 volt circuit and check all equipment for proper circuiting, operation, short circuits and grounds. Be certain that water has been turned on when testing water heater for proper operation.
- o. Check type of ventilation provided for refrigerator.
- p. Be familiar with trailer purchase contract, to avoid requiring manufacturer to perform duties not a part of his contractual obligation.
- q. Whenever site contract specifications include the installation of electric heater tape and thermostat to prevent freezing of water and/or sewer connections to trailers, be certain tape and thermostat have been properly installed and are Underwriters' Laboratories approved.