Bulletin No. 4 A. November 15, 1945

TRAILER HOUSING

Information Relating to the Use of Trailers, by Private or Public Bodies to Provide Housing for Distressed Veterans and the Families of Servicemen and Veterans.

U.S.

~~Federal~~ Public Housing ~~Authority~~ National Housing Agency

FOREWORD

Trailers provide a special type of housing which can be quickly installed and readily shifted from one location to another. Their mobility gives them a special place in emergency housing programs.

Bulletin No. 4, "Standards for War Trailer Projects" contains standards for the design and development of projects for Federally-owned or privately-owned trailers. These include detailed standards for site selection, site planning, site engineering, mechanical and electrical work, planning for recreational and other community facilities, and construction of community buildings.

This bulletin - an abridgment of Bulletin No. 4 - contains the principal standards and recommendations which experience has shown are essential to livability and to the economical design and development of trailer housing. The standards and recommendations included have been selected to apply to developments where existing recreational and other community facilities are available to the trailer tenants and are adequate for their use. The diagrammatic plans of site plans and of trailer types are identical with some of the plans in Bulletin No. 4 and illustrate some features not included in the text as abridged. They do, however, illustrate all the types of house trailers available for reuse and the basic principles of grouping them into economical patterns of development.

For more detailed information than is included in this bulletin, especially where it is necessary or desirable to provide outdoor recreational areas, indoor community spaces, or toilet and laundry buildings instead of trailers, it is suggested that Bulletin No. 4, unabridged, be used as a reference.

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PART I - SITE SELECTION

Sites for trailer projects should be selected in consultation with local planning agencies, municipal officials, and others concerned or in a position to give information and advice. Special attention should be given to the following points:

Character and Availability of Utilities and City Services

Paved street access should be good. A site permitting the development of two access points on different roads is preferred to facilitate circulation and fire protection.

Municipal services, such as garbage and trash collection and fire protection, should be available if possible.

Utility rates and services should be investigated prior to final determination of site.

Sanitary sewers should be available at elevations which will afford gravity outlets for project sewage. Pumping of sewage should be avoided.

Water and electrical facilities should be available in adequate capacity.

Utility connections should be short, in order to assure reasonable development costs. More than one site is sometimes selected, to secure the advantage of available utilities.

Physical Characteristics of Site

Area required may be calculated from the proposed number of units. The normal range of density in trailer projects is 10 to 18 trailers per acre of usable land.

Sanitary conditions of site should be good. Sites should be well-drained, and free from flood and fire hazards.

Soil conditions should be favorable to minimum grading, low maintenance costs and livability. Development costs rise sharply when site grades exceed 8% or when rock lies close to the surface.

Wooded sites are preferred. The absence of porches or door hoods on trailers makes it important to select such sites, wherever practicable. Shade favors livability.

PART II - SITE PLANNING

General

The site plan sets the visual pattern of development and determines to a large extent the cost of streets and utilities. Only a compact plan correlated with existing streets and utilities can assure low development costs.

Lot Sizes

The following minimum sizes are recommended:

Lots for standard trailers	25 feet* x 50 feet
Lots for expansible trailers	30 feet* x 50 feet

* Increase by about 5 feet, if lot is at street corner.

Spacing

The following minimum spacings between trailers are recommended:

Side-to-side spacing . . . 10 feet End-to-end spacing . . . 14 feet

If adjacent rows of trailers within a block are staggered, privacy and livability are somewhat increased. (See diagrammatic site plans, pages 18-21.)

Set-backs from adjacent buildable property and public streets should be great enough to afford protection from serious loss of livability. In general, set-backs of 50 to 100 feet are recommended.

Relation to Topography

All physical features of the site should be considered in developing the site plan. Existing trees have esthetic and shade value and, insofar as practical, should be incorporated in the design. Locations of trailers should be adjusted, where necessary, to permit trees to remain in place.

For economy and speed of construction the site plan should conform as closely as practicable to the natural contours. Trailers should be so located as not to obstruct swales which may serve as drainage channels. Preliminary layout studies should be correlated with drainage studies to assure adequate drainage and to avoid the necessity for storm drain construction.

Road System

The road system should require the minimum construction of pavement. Access to the project, when possible, should be from secondary streets; more than one point of access is preferred. A main traffic street forming a boundary of a project should be kept a freeway, when possible, by avoiding connections with the project. Roads traversing the project should be planned to reduce their use for through traffic insofar as possible.

Two-lane roads usually will be adequate for project streets.

Cross Sections of Roads

Cross sections should be determined at an early stage of the site plan studies, since they influence the spacing between trailer lots and the location of utility lines. Recommended widths of roads from edge to edge of surfacing are:

Main access roads, excluding parking

Two lane . . . . . 20 feet*

Main access roads, including parking

These are computed on the basis of 10 feet for each traffic lane plus allowance for parking. Normal widths for two traffic lanes plus parking are:

Parallel parking, one side	26 feet
Parallel parking, both sides	32 feet
Diagonal parking, one side	36 feet
Diagonal parking, both sides	52 feet
Perpendicular parking, one side	40 feet
Perpendicular parking, both sides	60 feet

To allow for car overhangs, edge of surfacing of roads or parking areas should be 2'-6" from obstructions, as buildings, walls, poles or trees, unless topographic or other special conditions make a reduced clearance necessary.

Servicing

The site plan should provide adequate facilities for the contemplated scheme of servicing. This should be established at an early stage. Municipal regulations should be ascertained and, where practicable, agreements made with local officials for collection of refuse and garbage.

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* For "hard" surfacing, or for streets with wood curbs, width may be 18 feet.

Access for oil truck service to all toilet and laundry trailers should be provided. Local oil delivery limit from truck to storage tanks should be checked. It is usally between 100 and 200 feet, less 100 feet for handling hose.

Parking

The site plan should provide parking spaces for the anticipated percentage of tenants owning cars. Off-street parking is preferred. Parking space provided by widening project streets at intervals, or by numerous "turn-ins" from streets and drives, should be avoided since irregularities complicate drainage design and add to construction cost.

Parking on public streets should not be included in calculations.

Walks

Emphasis should be on a logical system of main through walks. Walks or other paved ways should be provided as routes to collection stations where tenants deposit garbage and refuse.

Walk Widths

Public walk,	(1) normal standard	4 feet
	(2) serving large area (approximately 100 trailers)	5 feet
	(3) serving small area (approximately 25 trailers)	3 feet
Entrance walks (from public walk to trailer door)		2 feet

Public walks should clear obstructions, as poles and planting, by two feet; entrance walks by one foot.

Sidewalks are sometimes placed on one side only of roads carrying general traffic where (a) pedestrian load on one side of street is very low, as when road is adjacent to project boundary, (b) road is short, and (c) topographic conditions are unfavorable to sidewalks on both sides.

Sidewalks are sometimes omitted on both sides of roads not carrying general traffic, if conditions similar to those stated in the preceding paragraph make it desirable.

Stepping stones are often used for walks to house trailer entrances. Stones 18" square, set 2'-4" on center are recommended. Stepping stones are useful for taking up moderate gradients.

Steps in walks should be avoided. A 10 to 15 per cent gradient is preferred to steps or stepped ramps.

Toilet and Laundry Trailers

Expansible toilet trailers (drawing TPS-1.1, page 22) should be provided in the ratio of one to not more than twenty-five house trailers. One toilet trailer usually includes: for men, 3 water closets, 1 urinal, 4 lavatories, and 2 showers; for women, 3 water closets, 4 lavatories, 1 shower and 1 tub.

Walking distance from house trailers to toilet trailers should preferably not exceed 200 feet.

Expansible laundry trailers (drawing TPS-1.1, page 22) should be provided in the ratio of one to not more than 50 house trailers. One laundry trailer usually includes four sets of tubs and eight ironing boards. Walking distance from house trailers to laundry trailers should preferably not exceed 350 feet.

Outdoor Laundry Drying Yards

Laundry drying yards, preferably fenced, should be provided adjacent to Laundry trailers. Space for 12-15 feet of line per trailer is usually sufficient. If used five days a week, this affords 60-75 feet of line space per family each week.

Collection Stations

Collection Stations (drawing TPS-4.1, page 25) for refuse, gargage, sink waste, and water supply should be provided in the ratio of one to not more than 12 house trailers. (Note: This ratio is normally adequate where waste collections are made daily.)

Walking distance from house trailers to a collection station preferably should not exceed 150 feet. Convenient vehicular access should be provided.

Tenant Fuel Storage

Convenient outdoor storage for fuel used by tenants for cooking and heating should be provided at each trailer. One fuel storage locker (drawing TPS-4.2) should be provided on each trailer lot unless other adequate outdoor storage for fuel is provided. The lockers should be located as conveniently as possible, but approximately 10 feet from trailers (see drawing SP-1 (T), page 18, for preferred location).

Storage cans are usually furnished by tenants.

Lighting

Outdoor lighting is usually necessary to supplement street lighting; it should be effectively related to toilet and laundry trailers, planting, walks, and steps or ramps. Illumination should be of conservative intensity, but sufficiently distributed to eliminate dark areas, especially at steps. Lamps may be attached to toilet and laundry trailers.

Street Signs

All streets should be clearly marked by street name posts. Traffic control and other signs, as required, should be included.

Public Telephones

Public telephone pay stations should be provided in accessible locations for day and night use.

Planting for Soil Conservation

All disturbed land, except sites for trailers (or buildings) or areas to be developed as streets and walks, should be planted with grass or other suitable ground cover. Such planting is essential to protect the site from wind and water erosion.

PART III - TRAILERS: Design, Shipment and Placement

TRAILER DESIGN

Types of Trailers

The various types of trailers, which are currently available, and their approximate weights, are: (1) Standard house trailer, 3800 lbs. (and up to 4500 lbs.); (2) expansible house trailer, 6000 lbs; (3) toilet trailer, 11000 lbs; and (4) laundry trailer, 11000 lbs.

Minor variations in the design and construction of all of these types of trailers occur in early and late models. In expansible house trailers the principal variation is in the method of folding and unfolding; early models are folded and unfolded mechanically, late models manually.

Floor plans of late models of trailers are shown in Part VI of this bulletin.

Ceiling heights of late models at center sections are 6'-9"; at outside edge of expansible wings, 6'-5".

TRAILER SHIPMENT AND PLACEMENT

Shipment

Trailers are usually shipped by trailer truck. Contracts with trailer trucking companies usually require them to:

1. Pack and block all furniture, furnishings, and equipment and dismount all items, except plumbing, from the wings of expansible trailers and pack them in the center section; remove smoke stack hoods and vent stack extensions, as required by clearances along traffic ways.
2. Fold expansible trailers.
3. Jack up trailers and attach undercarriages.
4. Pack and block wood supports, posts, mud sills, outside steps, platforms and railings, trailer skirtings, duck walks and tenant fuel storage lockers inside trailers insofar as available and practicable. Skirting shipped separately should be properly identified.
5. Deliver trailers at locations designated.

Bearings and Supports. (Drawings TPS-2.1 and 2.2, pages 23-24.)

In order to expedite the placement of trailers and the return of undercarriages to the transportation company, solid bearings, mud sills and wood supports should be provided for all standard and expansible trailers.

Solid bearings should be prepared prior to delivery of trailers.

Wood supports for standard and expansible trailers are usually furnished with the trailer; occasionally new wood supports and posts or adjustment of lengths of wood posts may be required.

It is important that trailer foundations be properly prepared. Unequal settlement of trailers has frequently occurred due to improper preparation of the site to receive the mud sills; rain action often aggravates settlement. Unequal settlement has resulted in doors binding, frequently causing broken hardware and the loosening or rupturing of trailer skin materials.

Tamped earth bearings are recommended (Drawings 2.1 and 2.2, revised October 5, 1943, pages 23-24).

Placement

The check list of items which summarize the work to be performed in the placement of trailers, is set forth below:

1. Prepare solid bearings for foundations.

2. Furnish wood supports, posts and mud sills as necessary and provide extra 2 inch planking, where required, under wood supports and posts. (Drawings TPS-2.1 and 2.2, pages 23-24.)

3. Locate and jack up all trailers, and set them on wood supports; (The trailer trucking company then may remove undercarriages and hitch and jack assemblies together with wheels and tires).

4. Adjust wood posts for wings of expansible trailers, as required by grade conditions. Provide "tee" posts (Detail "O", drawing TPS-2.2, page 24) under side doors of toilet and laundry trailers.

5. Unfold and fasten expansible trailer wings. (See "Folding and Unfolding Expansible Trailers", below).

6. Attach heater flue hoods and vent stack extensions; guy extension smoke stacks, where used, and fasten with screws.

7. Attach and hook up all plumbing and electrical fixtures and connections in expansible trailer wings.

   In toilet trailers manually unfolded, the plumbing equipment should be connected as follows:

   a. Remove piping assemblies from their anchored positions in the main body and fasten holder brackets at correct positions (indicated by screw holes) on wing end walls. Union ends of piping extend toward center section of trailer.

   b. Connect sections of waste piping, then water piping sections, between fixed plumbing lines and unions on piping assemblies just installed. (Note: Some of these operations are unnecessary in late model toilet trailers, since the water and soil unions (except at connection with vent stack) are on vertical lines in center section.)

8. Unpack and place all equipment, as furniture, furnishings, including curtain rods and curtains, and tenant fuel storage lockers. Adjust outside steps and platforms as required.

9. Provide or adjust swing loop and water service connection in toilet and laundry trailers (Drawing TPS-5.1, page 26).

10. Connect utility lines. Where trailer foundations may be subject to frost action or settlement, the water connections shall permit 6 inch trailer settlement and about 2 inch heaving. The soil line drop shall extend into tile sewer connections at least 6 inches to form slip joints; caulk connections with oakum and mastic (it may be necessary to place the soil line drops in the tile sewer connections before trailers are lowered on to the wood supports).

    Open all sink, lavatory and shower valves before turning water on at trailers to allow all the air to escape while tanks and pipes are being filled.

    Check and repair leaks.

    Caution: do not connect a trailer to a water main with a maximum pressure of over sixty pounds.

11. Level stoves and heaters; check for and repair leaks in fuel lines; verify extension of fuel over-flow lines through trailer floors.

12. Oil roof ventilator control mechanism, space heater blower motors, door locks, and other parts, as necessary.

13. Erect insulation box protection around soil and water drops, where required. Insulation shall extend to below frost line.

14. Build or place skirting around trailers located in cold climates to reduce heat losses in winter months. In some instances skirting may be furnished with the trailers. When skirting is used, drainage openings should be provided under the skirting. Sub-floor ventilation should also be provided during the summer months.

FOLDING AND UNFOLDING EXPANSIBLE TRAILERS

Early Model Trailers (Mechanical Operation)

Early model trailers are folded and unfolded by mechanical means, consisting of a counterbalance arrangement and winch.

The unfolding procedure for each wing is as follows:

1. Remove shipping blocks at lower edge of roof section and disconnect locking hasp or remove nuts from integral bolts holding the roof section in place. Replace nuts after partially lifting roof.

2. Check (1) canvas strip along roof hinge which should fold down, and (2) canvas flap at the floor hinge which should fold into the roof and floor hinged joints. Lift roof. The counterbalance and spring simultaneously lower the floor and raise the wing side wall hinged to its outer edge. When the roof is partially lifted, release catches holding metal jacks to underside of the wing floor.

3. Step up on partially lowered floor and push out the wing sidewall the last few inches, to a vertical position.

4. Remove screws holding wing ends to center section and swing out wing end (front and rear) walls; push out canvas at bottom to overlap wing floor (if canvas flap is used). Caution: hinges may be ripped off if end walls are swung out too far.

5. Check all flashing and weatherstripping at hinged joints for proper installation.

6. Level the wing floor, adjust metal jacks or wood posts, and provide additional posts if required.

7. Check roof position and fasten the various wing sections together with clamps and wing nuts, bolts or screws.

8. Disconnect cable from floor ring in center section of trailer. Turn winch (removable crank handle provided) in center roof of trailer, to wind up loose cable.

The folding procedure for each wing is as follows:

1. Attach cable hook to metal floor ring.

2. Unfasten clamps and wing nuts and remove bolts or screws connecting the wing roof, side and end walls, and floor.

3. Swing in wing end walls, apply 1/2 inch thick pads of wall board between and fasten with screws to bottom of center section partitions.

4. Turn winch (removable crank handle provided) in center section ceiling to fold wing floor, roof and side wall. Caution: avoid too quick folding. When wing floor is partially lifted, fold metal jacks under wing floor and engage catches.

5. Fasten wing roof in closed position with device provided.

Late Model Trailers (Manual Operation)

Late model trailers are folded and unfolded manually, the operation usually requiring the services of four men.

The unfolding procedure for each wing follows:

1. Remove shipping blocks at lower edge of each end of wing roof and disconnect or remove locking devices fastening down the roof.

2. Check canvas flap at roof hinge, which should fold into position inside hinges; raise wing roof to horizontal position and prop up temporarily. (2-2" x 4", about 10'-0" long props, spread slightly away from trailer side.)

3. Remove screws holding bottom of wing ends to center section and swing out wing end walls to slightly beyond the roof edge. Prevent wings from spreading too far; the outside wall edge should swing out not over 2 inches beyond roof edge.

4. Check canvas flap at floor hinge which should fold up inside the hinge; remove wedges at wing floor and side wall; release bolt holding floor in vertical position, and carefully lower floor onto wood posts or metal jacks which must be in place ready to receive the floor. Caution: injury to workmen or damage to the unit may result unless care is exercised in lowering floors. Hinges may be damaged if floors are lowered too far or if roofs are raised too high.

5. Raise wing side wall (hinged to wing floor) to nearly vertical position. Caution: two men, preferably, should hold this wall.

6. Push wing end walls in against the floor and remove props, letting roof down on end and side walls.

7. Push out wing side wall to vertical position and attach to roof.

8. Check flashings and weatherstripping at hinged joints for proper installation.

9. Level wing floor until all wing members are in proper adjustment and fasten the various sections together with bolts, screws or wing nuts supplied for this purpose.

10. Apply metal corner strips to wing wall.

Folding procedure for wings for all manual operation trailers is, in general, the reverse of the unfolding procedure set forth above.

Storage of Hardware

Miscellaneous hardware, such as winch handles and nuts, bolts, screws, and clamps, required to fasten wing sections when trailers are unfolded, are usually packed in the trailer during transportation.

PART IV - SITE ENGINEERING

Grading and Surface Drainage

Site grading should be limited generally to the shaping of roads and roadside ditches, to levelling under trailers and around collection stations, and to other changes essential to proper drainage. Where feasible, yard areas around trailers should be left at existing grades.

Surface drainage should be carried off in roadside ditches, existing water courses or swales, thus obviating the need for storm sewers.

Roads and Parking Areas

Surfacing for roads and parking areas should consist generally of a single course of dense-graded aggregate, with dust preventive or light bituminous surface treatment. The choice of material, as bank-run gravel, crusher-run stone, sand-clay, or slag, and the requisite thickness of surfacing will depend on materials locally available, and on soil and climatic conditions.

Surfacing should usually drain to roadside ditches. When the surfacing is of durable material, however, such as crushed rock, storm water may be allowed to flow along the edges of the surfacing, if it is confined by low plank curbs or low earth banks.

Walks

Walks should be of the least expensive type that will be reasonably satisfactory in service, such as gravel, cinders, plank or boards (where available) or concrete-block stepping stones. Concrete walks are generally unnecessary except along public streets.

Sewerage

Sewage should be disposed of by a gravity connection to an existing sewer system. No trailer project site should be selected where this is not possible, without prior consultation with a competent sanitary engineer.

Sanitary sewers are required for connections to collection stations and to toilet and laundry trailers. In addition, sewer connections to house trailer sinks are usually advisable. Dry wells should be used for disposal of sink drainage only where the soil is very pervious (percolation of 1 inch is not more than 5 minutes); and even then the wells may become clogged with grease and new wells required within a few months.

Slide joints are necessary on sewer connections to trailers to prevent damage to the connections from settlement, or heaving by frost, of the trailer sills.

Water Distribution

Water must be supplied to toilet and laundry trailers and to collection stations. Additional yard hydrants may also be provided (to reduce the length of carry to house trailers) or 1/2-inch connections may be provided to all house trailer sinks. Soil conditions and depth of frost are factors affecting pipe laying costs, hence affecting the decision regarding the extent of the water installation. Figure SE-1 (T), page 28, may be utilized in pipe sizing.

Yard hydrants, installed at collection stations and elsewhere, should be of the frost-proof type or should consist simply of a pipe riser in a frost-proof casing (a stop cock with extension key may be set within the insulation). The ordinary type of frost-proof hydrant, without special device to prevent back-flow into the hydrant waste, should not be used unless the soil is porous and the ground water level is always well below the waste opening. There should be no sewer connection to the hydrant waste.

Water mains adequate to provide standard fire streams are seldom provided in trailer sites, although fire hydrants for protection are set on existing mains where the latter are available.

PART V - ELECTRICAL WORK

Codes - Regulations

The latest issues of the National Electrical Code and the National Electrical Safety Code, should govern design.

Standard practice relative to arrangement of service equipment and distribution of electrical energy on the trailer site, promulgated by the local utility companies, should be followed except where such practice is contrary to the National Codes.

System

Primary voltage preferably should be 4.5 KV, using four wire, Y connected, three phase service, permitting use of nominal 2400 volt circuits and apparatus, or 2400 volt two wire for single phase service.

Overhead distribution system should be of the radial type. Distribution should be accomplished by stringing primary and secondary conductors on poles, with service drops to trailers.

Pole Line

Needless changes in direction of lines should be avoided. Where apparatus requiring periodic servicing is installed on poles, wood steps should be provided.

Poles should be spaced not more than 150 feet apart. Guys should be placed so as not to obstruct walks, play areas, or parking areas, and should be marked with painted wood guards.

Transformers should be placed in center of loads; limit sizes to 37-1/2 KVA maximum per pole.

Guying

Where loads imposed on poles are greater than can safely be supported, additional strength should be provided by guys. Where conductor stresses are unbalanced, at angles and dead ends, guys should be provided where the pole strength is not sufficient.

Stresses due to line angles between 10 and 60 degrees should be supported by a single guy placed to split line angle or resultant load. Angles greater than 60 degrees should be guyed in both directions.

Conductors

Steel primary conductors may be used except where the voltage spread would exceed 105 to 125 volts, in which case copper is allowable.

Use weatherproof copper conductors for secondary and service drops.

Allowable KVA Loadings for Primary Conductors:

	Steel (BW) Gage		
	#8	#6	#4
Single phase:			
2400 V	33	50	60
4160 V	60	83	104
Three Phase:			
2400/4160 V	100	133	180
4160/7200 V	183	250	312

Allowable loadings for Secondary Conductors:

From 5, 7.5, 10 and 15 KVA transformers	#8
From 25 and 37.5 KVA transformers	#6

Service Drops

Medium hard drawn weatherproof copper conductors should be used as follows:

Two #12 for all trailers.

If portable service drops to trailers are used, they should be polarized and provided with automatic overload protection. Such drops should be controlled by a main line switch (or switches).

Grounds

Each transformer should be provided with a pole ground not more than one span distant from transformers. One pole ground should also be provided for each 300 feet of secondary run. Pole grounds should be No. 6 bare copper, covered with creosoted wood molding and connected by means of ground clamp to 3/4" pipe or rod driven eight feet in ground.

If the electrical system in any trailer does not include ground, provide individual grounds to service equipment. Grounds should consist of 3/4" pipe or rod driven eight feet in ground and connected by means of ground clamp and No. 8, stranded, bare copper conductor to service neutral and service equipment enclosure, or 3/4" cold water piping.

Clearances

Clearances should be maintained in accordance with rules of the National Electrical Safety Code and the National Electrical Code rules.

Wiring of Collection Station

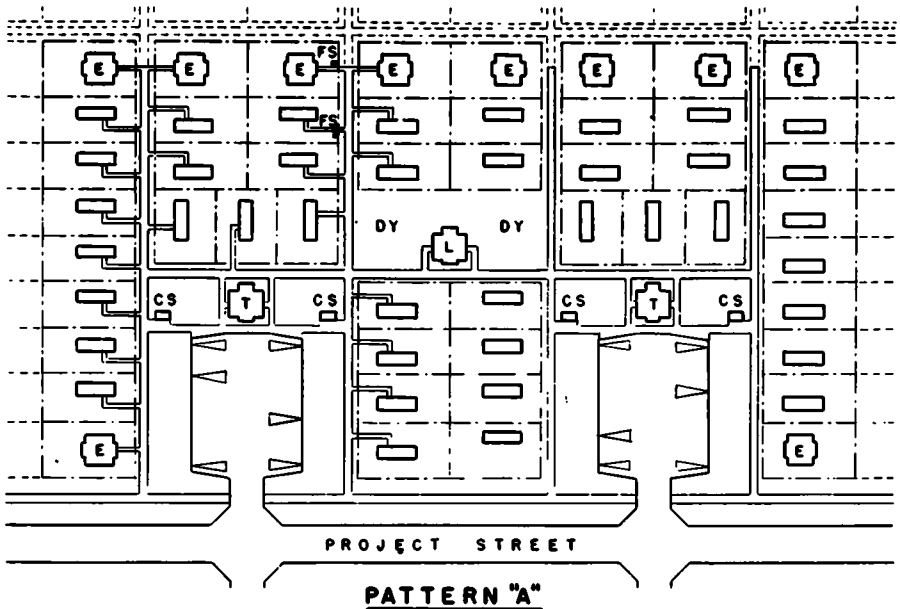
The wiring design should be governed by the National Electrical Code. The wiring system should consist of pull chain fixtures, single circuit and service equipment comprising a single pull switch and 15 ampere protection of non-weatherproof type enclosed in a wood box.

Fixtures should be sturdy, of simple design and of standard type and finish. No provision should be made for check metering.

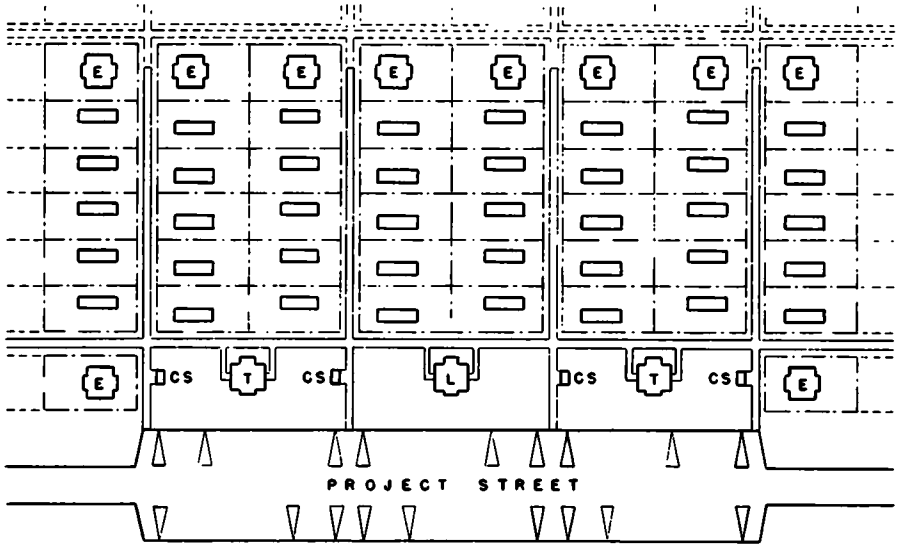
Clearance for service drop attachments must have a support provided to obtain the clearance required in the National Electrical Code.

Street Lighting

Only the minimum effective street lighting should be provided. This normally requires that at any point on any public thoroughfare, two street lights should be visible.



PATTERN "A"



PATTERN "B"

LEGEND:

- E EXPANSIBLE HOUSE TRAILER
- S STANDARD HOUSE TRAILER (ALL UNMARKED TRAILERS)
- L LAUNDRY TRAILER
- T TOILET TRAILER
- CS COLLECTION STATION
- DY DRYING YARD
- FS TYPICAL LOCATIONS OF TENANT FUEL STORAGE LOCKERS (TEN FEET MINIMUM SPACING PREFERRED BETWEEN LOCKERS AND TRAILERS.)

TRAILER SCHEDULE

(PATTERNS "A" AND "B")

TYPE	NO.	PERCENT
E	10	20.0 %
S	40	80.0 %
TOTAL	50	100.0 %

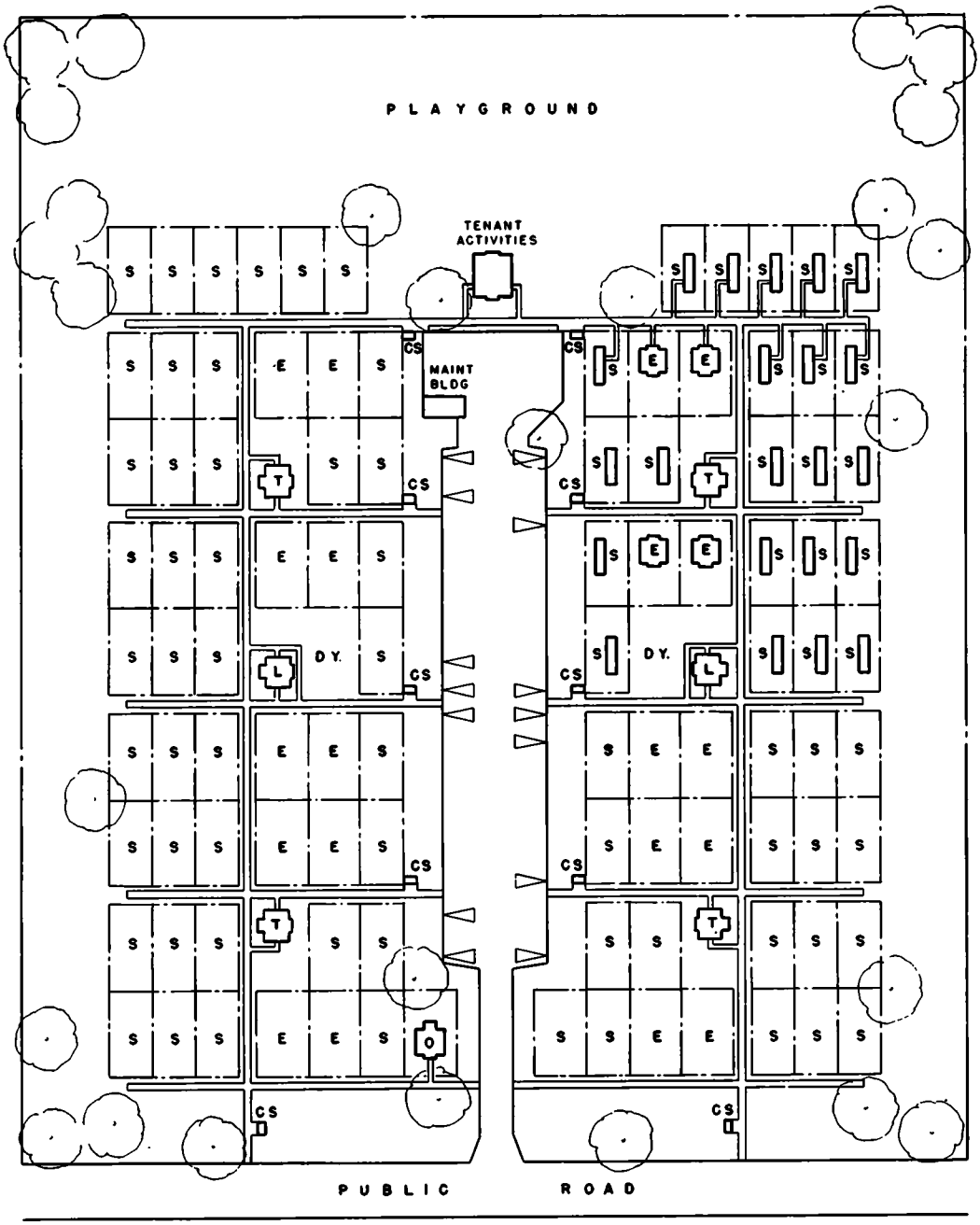
PARKING FOR 36 CARS-72 %

NOTE: ALL TRAILERS FEDERALLY OWNED.
WHERE PRACTICAL, ADJUST PATTERN "A" TO TOPOGRAPHY SO PARKING AREAS DRAIN TO STREETS

0 20 40 60 80 100 120 140
SCALE OF FEET

REVISED 6 1 43

PREPARED BY FPHA NHA	SITE PLAN PATTERNS	SP-1 (T)
	WAR TRAILER PROJECTS	1-7-43



LEGEND:

- E EXPANSIBLE HOUSE TRAILER
- S STANDARD HOUSE TRAILER
- LAUNDRY TRAILER
- TOILET TRAILER
- OFFICE TRAILER
- CS COLLECTION STATION
- DY DRYING YARD

NOTE: THIS STUDY IS BASED ON A VARIATION OF SITE PLAN PATTERN "B." TOILET AND LAUNDRY TRAILERS ARE CENTRALLY LOCATED FOR THE CONVENIENCE OF ALL TRAILERS. DISTANCE FROM PROJECT STREET SHOULD ALWAYS BE CHECKED LOCALLY FOR OIL DELIVERY.
ALL TRAILERS FEDERALLY OWNED.

SCHEDULE:

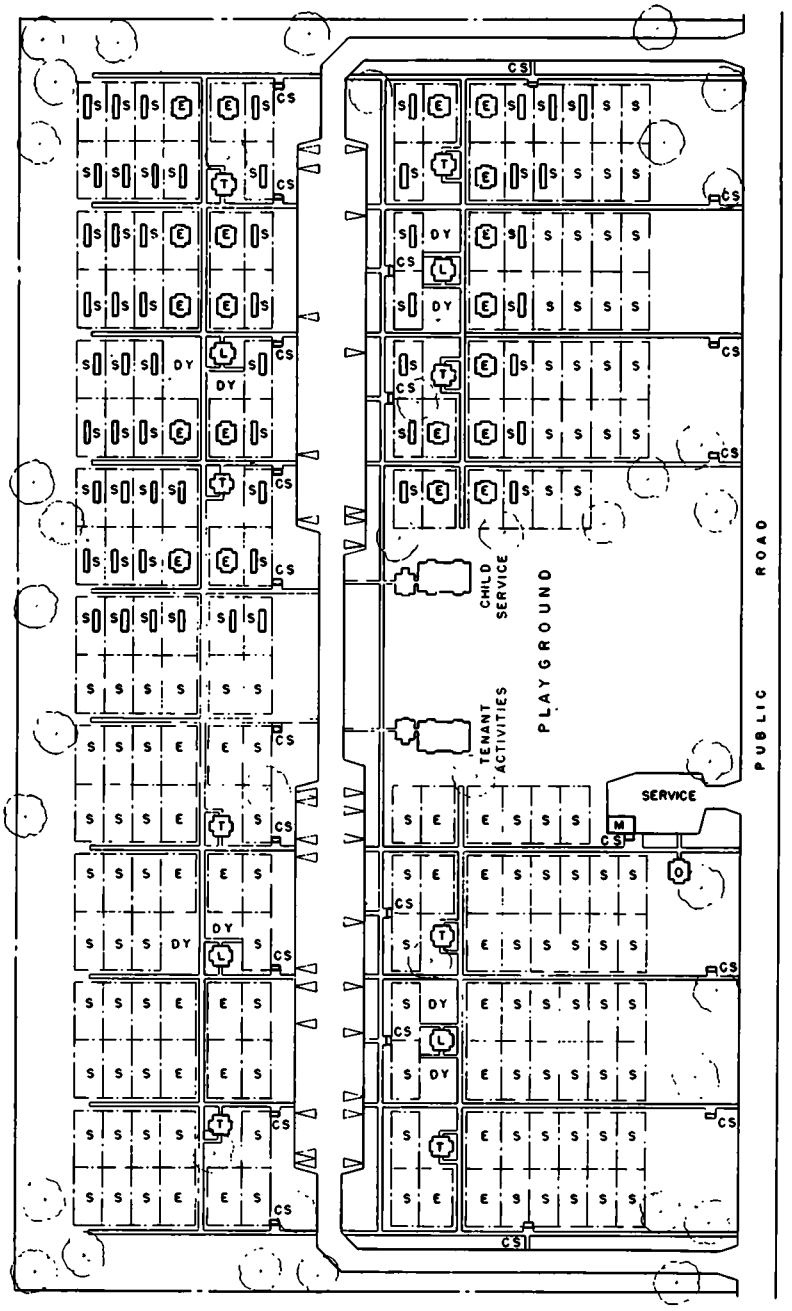
TYPE	NO.	PERCENT
E	20	20.0%
S	80	80.0%
TOTAL	100	100.0%

PARKING FOR 74 CARS — 74%

0 20 40 60 80 100 120 140
SCALE OF FEET

REVISED 6 1 43

PREPARED BY FPHA NHA	DIAGRAMMATIC SITE PLAN — 100 TRAILERS	SP-2(T)
	WAR TRAILER PROJECTS	1-7-43



LEGEND:

E	EXPANSIBLE HOUSE TRAILER
S	STANDARD HOUSE TRAILER
L	LAUNDRY TRAILER
T	TOILET TRAILER
O	OFFICE TRAILER
CS	COLLECTION STATION
DY	DRYING YARD
M	MAINTENANCE BUILDING

NOTE:

THIS STUDY IS BASED ON A VARIATION OF SITE PLAN PATTERN "B" TOILET AND LAUNDRY TRAILERS ARE CENTRALLY LOCATED FOR THE CONVENIENCE OF ALL TRAILERS DISTANCE FROM PROJECT STREET SHOULD ALWAYS BE CHECKED LOCALLY FOR OIL DELIVERY.

ALL TRAILERS FEDERALLY OWNED.

SCHEDULE:

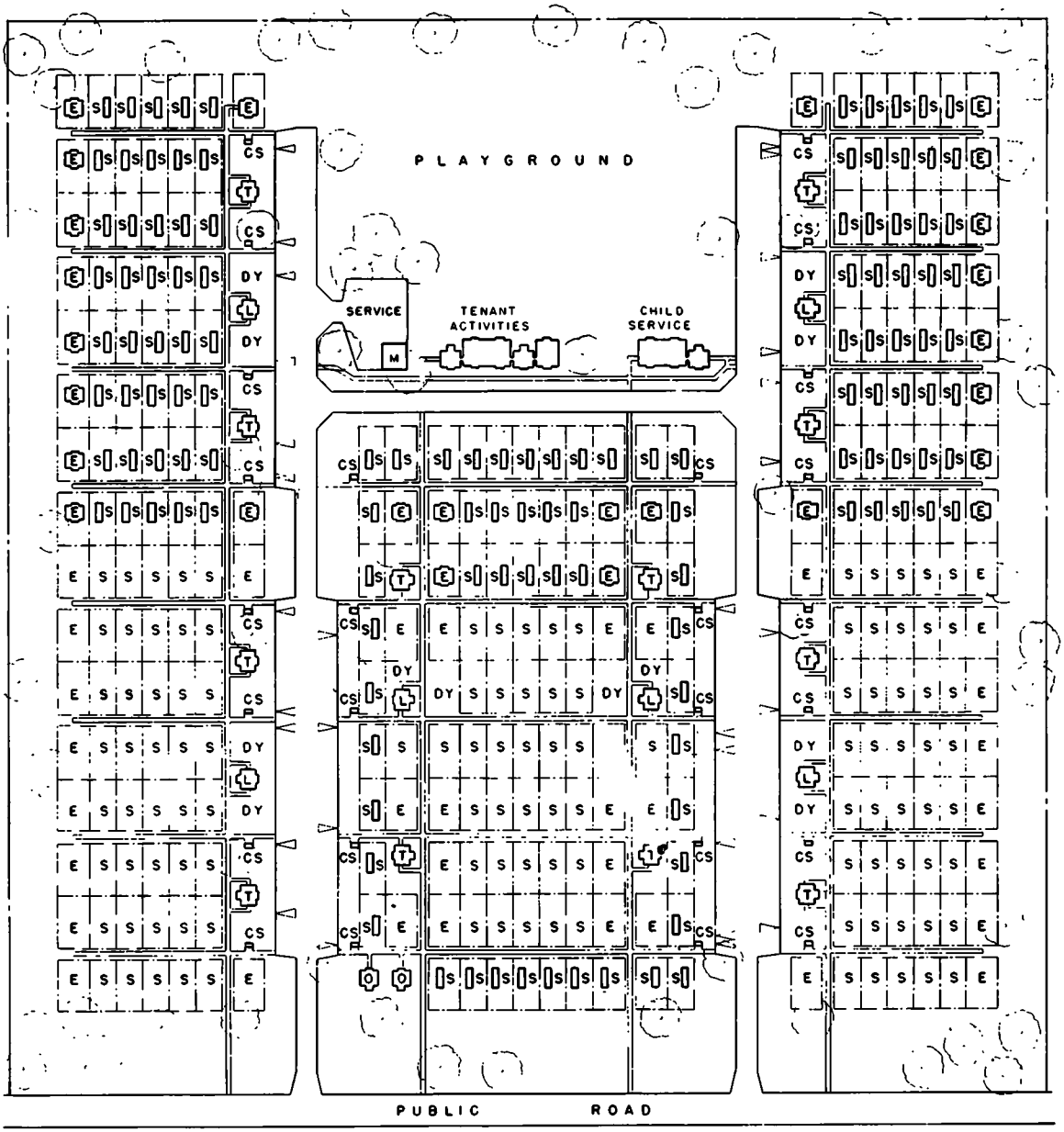
TYPE	NO	PERCENT
E	40	20.0%
S	160	80.0%
TOTAL	200	100.0%

PARKING FOR 152 CARS - 76%

0 25 50 100 150 200
SCALE OF FEET

REVISED 6 1 43

PREPARED BY FPHA NHA	DIAGRAMMATIC SITE PLAN - 200 TRAILERS	SP-3(T)
	WAR TRAILER PROJECTS	1-7-43



LEGEND:

E	EXPANSIBLE HOUSE TRAILER
S	STANDARD HOUSE TRAILER
L	LAUNDRY TRAILER
T	TOILET TRAILER
O	OFFICE TRAILER
CS	COLLECTION STATION
DY	DRYING YARD
M	MAINTENANCE BUILDING

NOTE:

THIS STUDY IS BASED ON THE USE AND ADAPTATION OF PATTERN "B" TOILET AND LAUNDRY TRAILERS ARE CENTRALLY LOCATED FOR THE CONVENIENCE OF ALL TRAILERS DISTANCE FROM PROJECT STREET SHOULD ALWAYS BE CHECKED LOCALLY FOR OIL DELIVERY

ALL TRAILERS FEDERALLY OWNED.

SCHEDULE:

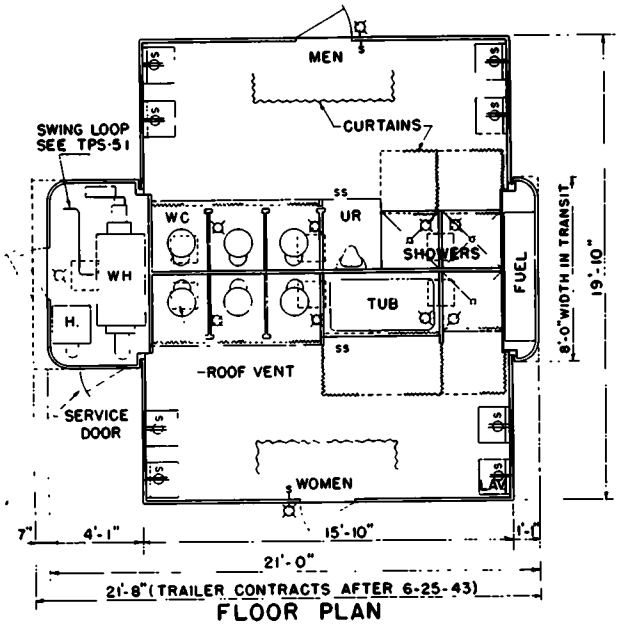
TYPE	NO	PERCENT
E	60	20 0%
S	240	80 0%
TOTAL	300	100 0%

PARKING FOR 234 CARS- 78%

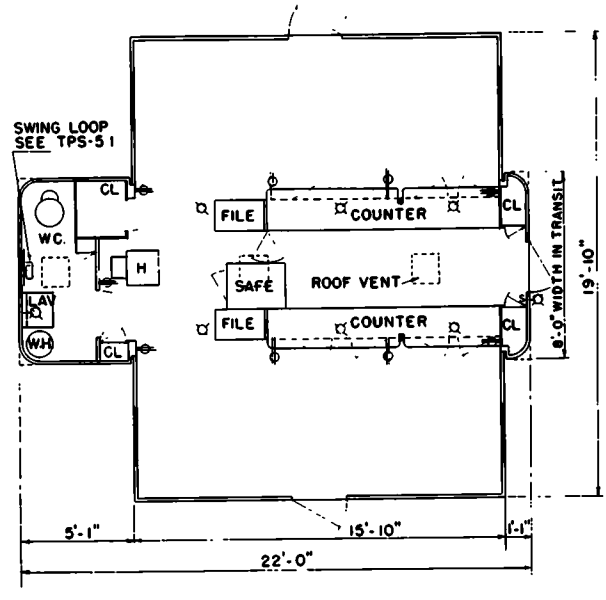
0 25 50 100 150 200
SCALE OF FEET

REVISED 6 1 43

PREPARED BY FPHA NHA	DIAGRAMMATIC SITE PLAN- 300 TRAILERS	SP- 4(T)
	WAR TRAILER PROJECTS	1-7-43



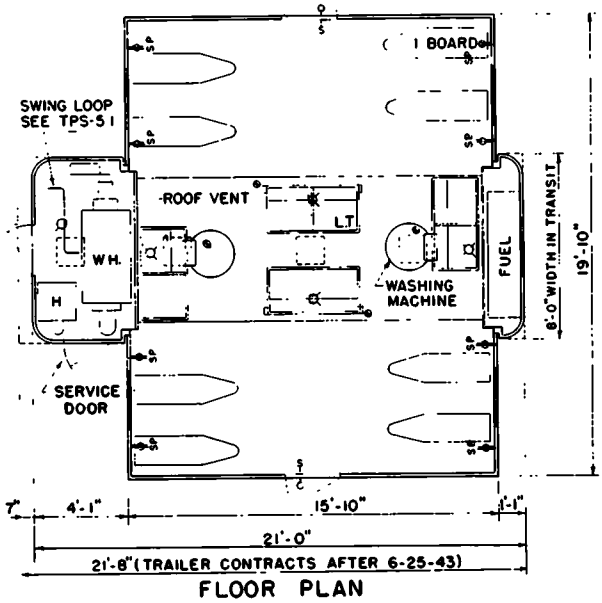
FLOOR PLAN
EXPANSIBLE TOILET TRAILER



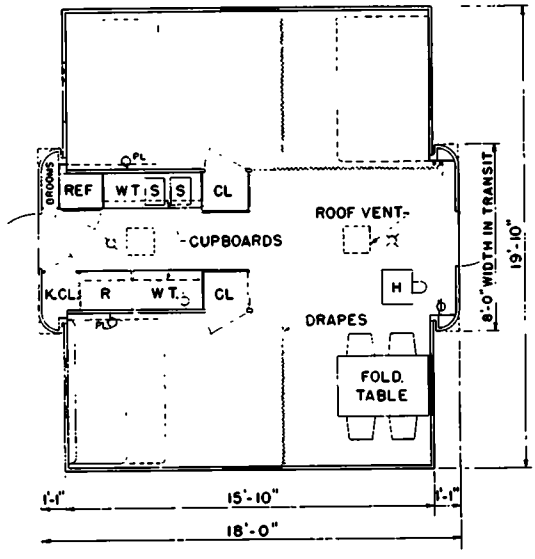
FLOOR PLAN
EXPANSIBLE OFFICE TRAILER

0' 5' 10'

SEE SHEET TPS-2.1 & 2.2 FOR FOUNDATION PLANS & DETAILS OF SUPPORTS

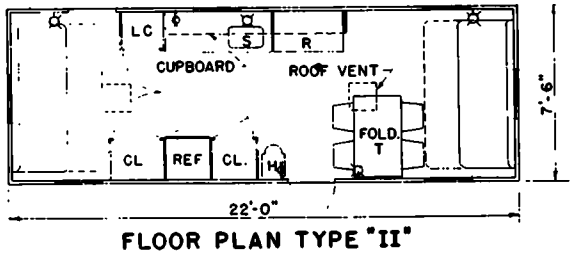


FLOOR PLAN
EXPANSIBLE LAUNDRY TRAILER
(LOCATION OF LAUNDRY TRAYS VARIES)



FLOOR PLAN
EXPANSIBLE HOUSE TRAILER

STANDARD HOUSE TRAILER



FLOOR PLAN TYPE "II"

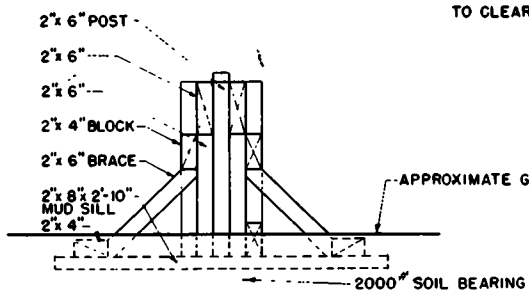
-NOTES-

TYPE "II" TRAILERS ARE BEING PROVIDED BY ALL TRAILER CONTRACTS EXECUTED AFTER APRIL 1, 1943.

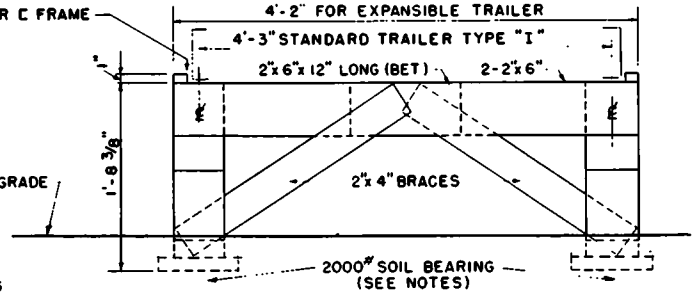
EARLIER TYPE "I" TRAILERS (PLAN NOT SHOWN) VARY FROM TYPE "II" TRAILERS AS FOLLOWS
LENGTH, WIDTH & FOUNDATIONS VARY-SEE SHEET TPS 2.1
SOME TRAILERS HAVE ONLY ONE ENTRANCE DOOR.
RANGES ARE GENERALLY GASOLINE TYPE (TYPE "II" TRAILERS HAVE KEROSENE RANGES).

REVISED 7-10-43
REVISED 1-10-43

PREPARED BY FPHA NHA	TRAILER FLOOR PLANS	TPS-1.1
	WAR TRAILER PROJECTS	12-18-42

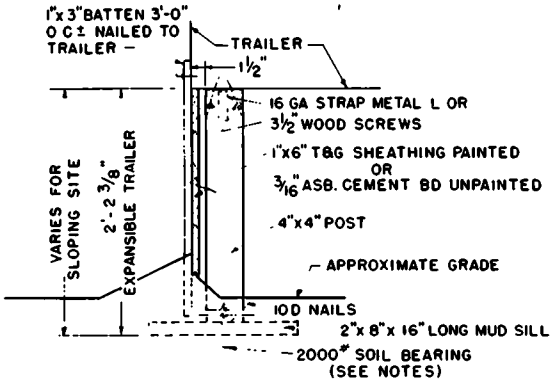


ELEVATION "X"



ELEVATION "Y"

WOOD SUPPORT (DETAIL "A")



WOOD POST (DETAIL "B")
SHOWING SKIRTING DETAIL

NOTE USE HEIGHTS SHOWN WHEREVER POSSIBLE, TO PERMIT REUSE OF POSTS

— NOTES —

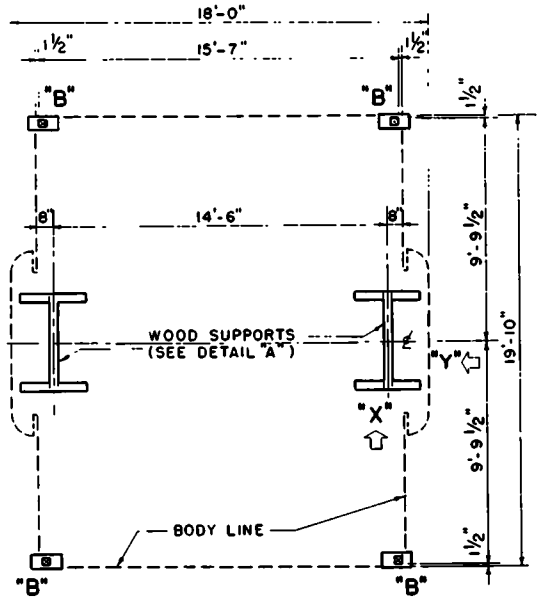
2"X8" MUD SILLS ARE DESIGNED FOR SOIL BEARING VALUE OF 2000#/SF EXCAVATE TO FIRM SOLID BEARING BELOW TOP SOIL. WHERE SOIL IS CONSIDERED TO HAVE LESS THAN 2000# SAFE BEARING VALUE, OR WHERE RAIN ACTION MAY CAUSE UNEQUAL SETTLEMENT, ADD 2" PLANKING UNDER & AT RIGHT ANGLES TO 2"X8" MUD SILLS TO PROVIDE THE EXTRA AREA REQUIRED.

PAINT WOOD POSTS & SILLS BELOW GRADE WITH TAR OR OTHER ROT RESISTANT MATERIAL.

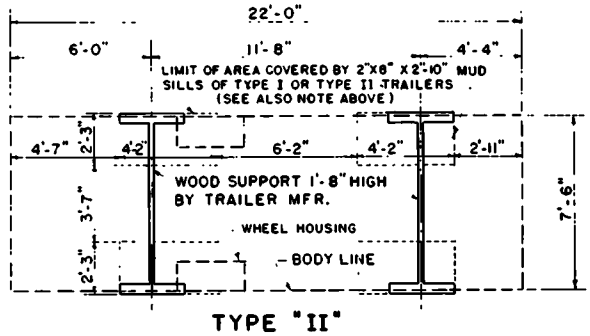
SURFACE WATER MUST BE DRAINED AWAY FROM FOOTINGS.

FOR COLD CLIMATES PROVIDE REMOVABLE SKIRTING PROVIDE DRAINAGE OPENINGS AS NECESSARY TO PREVENT ACCUMULATION OF SURFACE WATER UNDER TRAILER

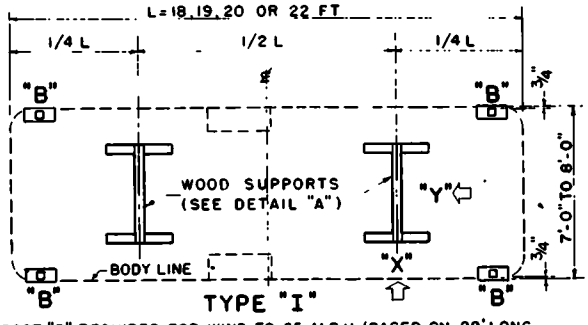
PLANS 0' 5' 10' DETAILS 0' 1' 2'



FOUNDATION PLAN FOR EXPANSIBLE HOUSE TRAILER



TYPE "II"
TRAILER CONTRACTS AFTER APRIL 1, 1943



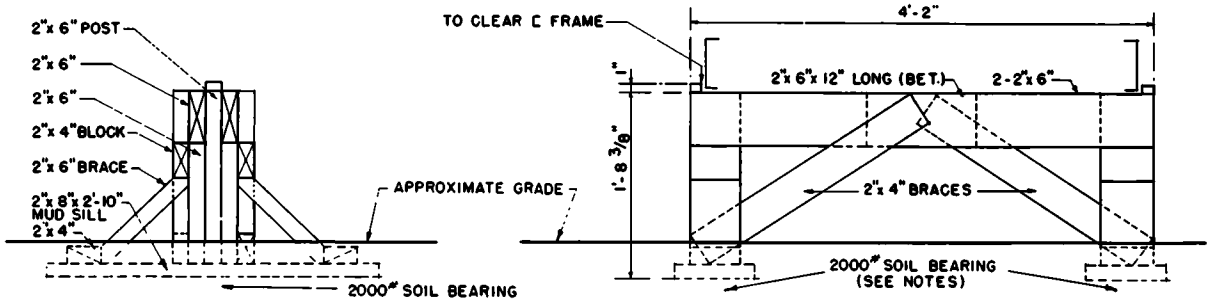
TYPE "I"

POST "B" REQUIRED FOR WIND TO 65 M P H (BASED ON 22' LONG 4000# ± TRAILERS) SPECIAL DESIGN FOR HIGHER VELOCITIES

FOUNDATION PLAN FOR STANDARD HOUSE TRAILER

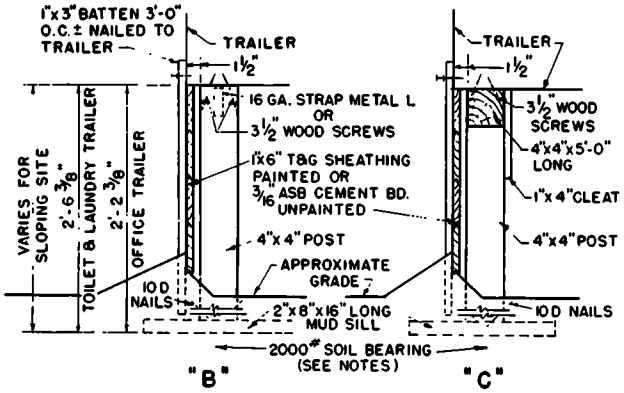
REVISED 10-5-43 REVISED 7-10-43 REVISED 1-18-43

PREPARED BY FPHA NHA	FOUNDATIONS FOR HOUSE TRAILERS	TPS-2.1
	WAR TRAILER PROJECTS	12-18-42



ELEVATION "X" ELEVATION "Y"

WOOD SUPPORT (DETAIL "A")



WOOD POST DETAILS
(SHOWING SKIRTING DETAIL)

— NOTES —

2"x 8" MUD SILLS ARE DESIGNED FOR SOIL BEARING VALUE OF 2000#/S.F. EXCAVATE TO FIRM SOLID BEARING BELOW TOP SOIL. WHERE SOIL IS CONSIDERED TO HAVE LESS THAN 2000# SAFE BEARING VALUE, OR WHERE RAIN ACTION MAY CAUSE UNEQUAL SETTLEMENT, ADD 2" PLANKING UNDER & AT RIGHT ANGLES TO 2"x8" MUD SILLS TO PROVIDE THE EXTRA AREA REQUIRED.

PAINT WOOD POSTS & SILLS BELOW GRADE WITH TAR OR OTHER ROT RESISTANT MATERIAL.

UTILITY SERVICE LINES BELOW AND ADJACENT TO TRAILER TO BE IN PLACE, AND BACKFILL (WELL PUDDLED & TAMPED) TO BE COMPLETED BEFORE PLACEMENT OF TRAILERS

SURFACE WATER MUST BE DRAINED AWAY FROM FOOTINGS.

SOIL LINE TO DROP INTO TILE SEWER CONNECTION AT LEAST 6", JOINT TO BE CALKED WITH OAKUM & MASTIC.

SWING LOOP FOR WATER SUPPLY, UNION ABOVE FLOOR AND PIPE EXTENSION FOR SITE WATER CONNECTION 6" BELOW TRAILER FLOOR ARE PROVIDED BY TRAILER CONTRACTS AFTER 6-25-43.

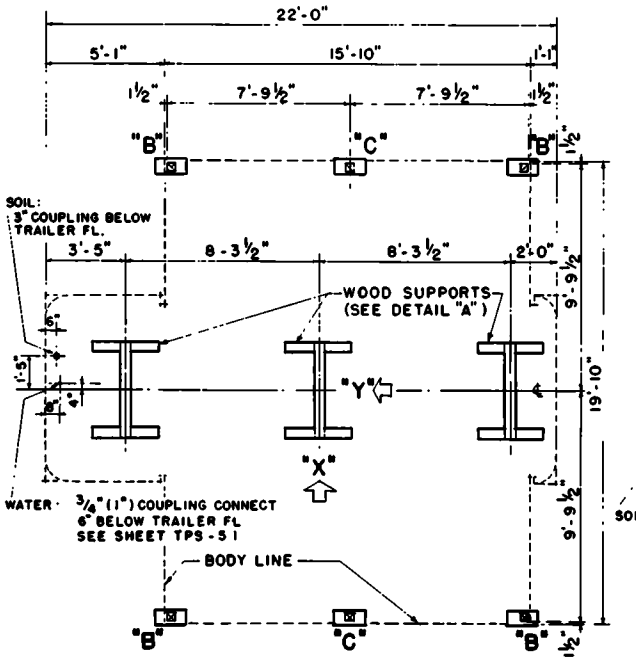
PROTECT WATER & SOIL LINES SUBJECT TO FREEZING WITH INSULATION & COVERING TO BELOW FROST LINE.

FOR COLD CLIMATES PROVIDE REMOVABLE SKIRTING PROVIDE DRAINAGE OPENINGS AS NECESSARY TO PREVENT ACCUMULATION OF SURFACE WATER UNDER TRAILERS.

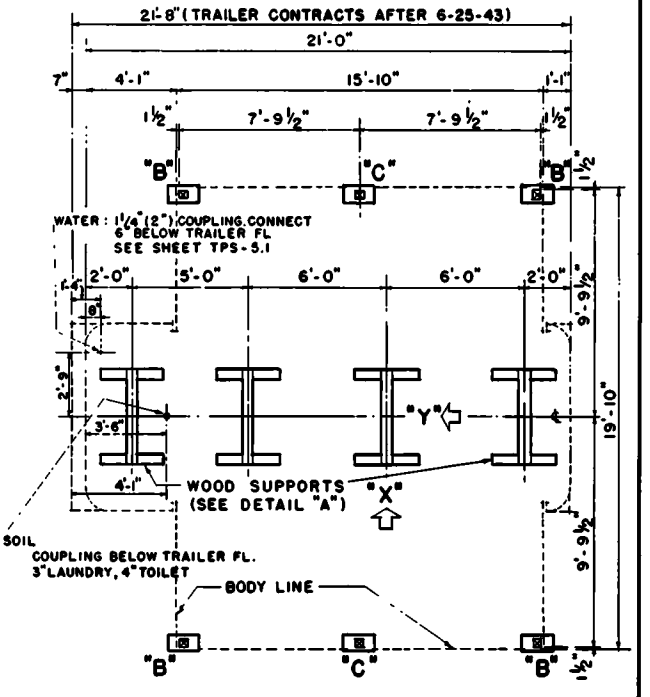
PLANS 0' 5' 10'

DETAILS 0' 1' 2'

NOTE: USE HEIGHTS SHOWN WHEREVER POSSIBLE, TO PERMIT REUSE OF POSTS



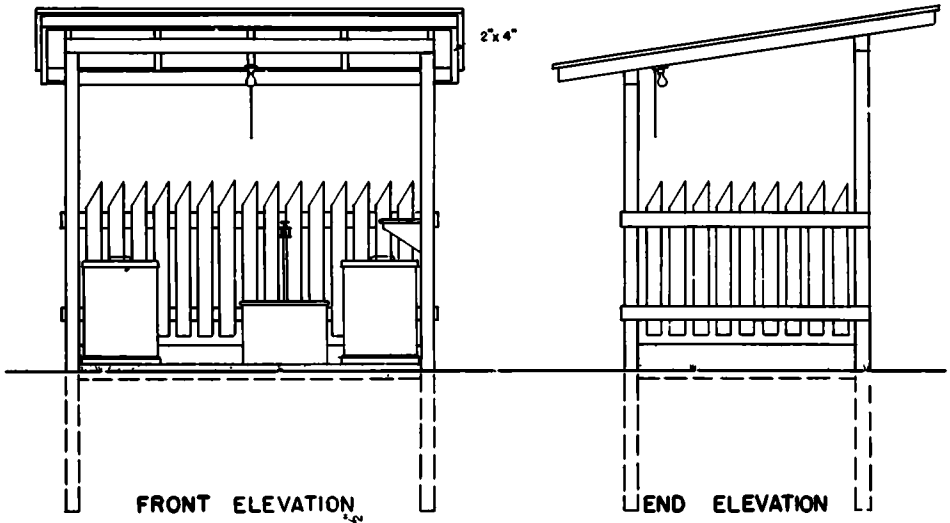
FOUNDATION PLAN FOR EXPANSIBLE OFFICE TRAILER



FOUNDATION PLAN FOR EXPANSIBLE TOILET & LAUNDRY TRAILER

REVISED 10-5-43 REVISED 3-17-43
REVISED 7-10-43 REVISED 1-18-43

PREPARED BY FPHA NHA	FOUNDATIONS FOR OFFICE, LAUNDRY & TOILET TRAILERS	TPS-2.2
	WAR TRAILER PROJECTS	12-18-42

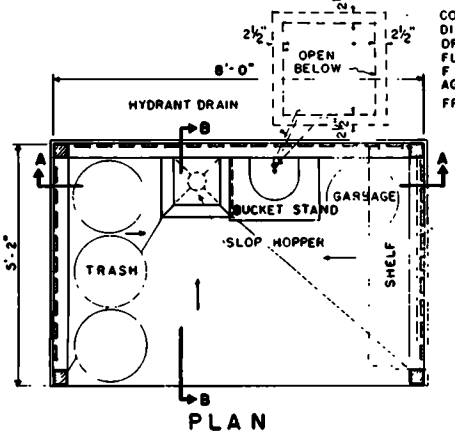


FRONT ELEVATION

END ELEVATION

PLAN & ELEVATIONS
0' 1' 2' 3' 4'

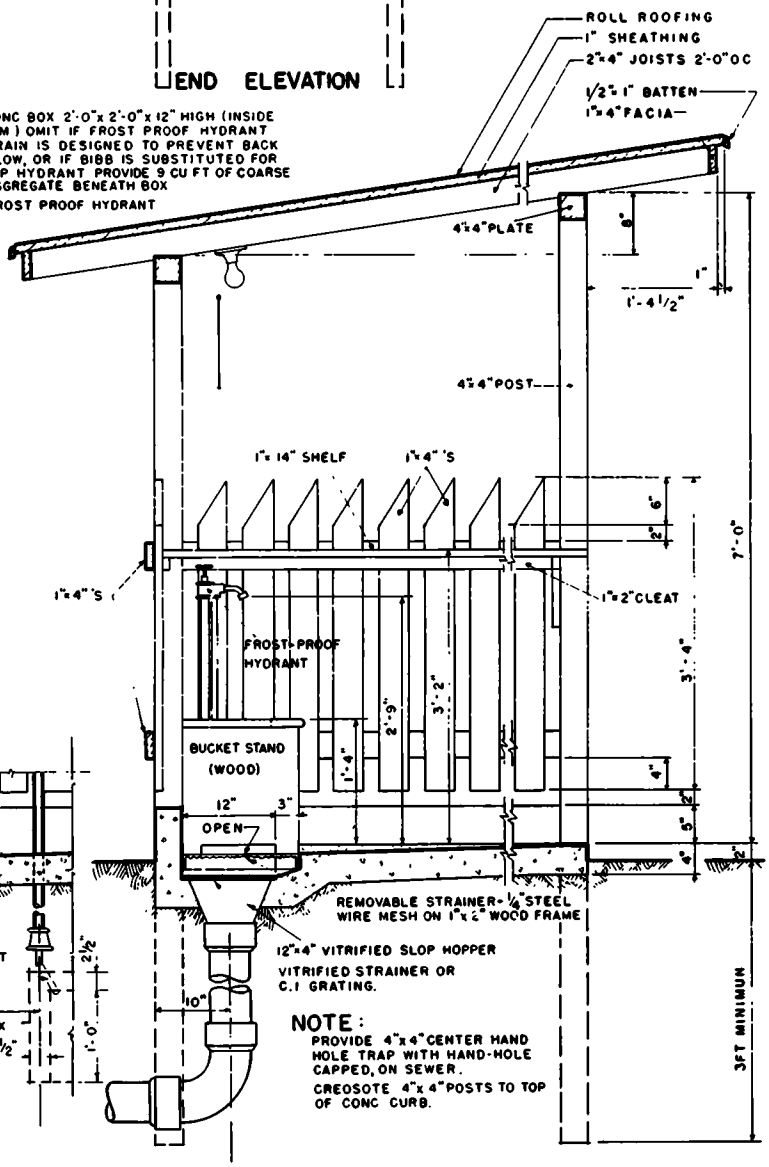
SECTIONS
0' 1' 2'

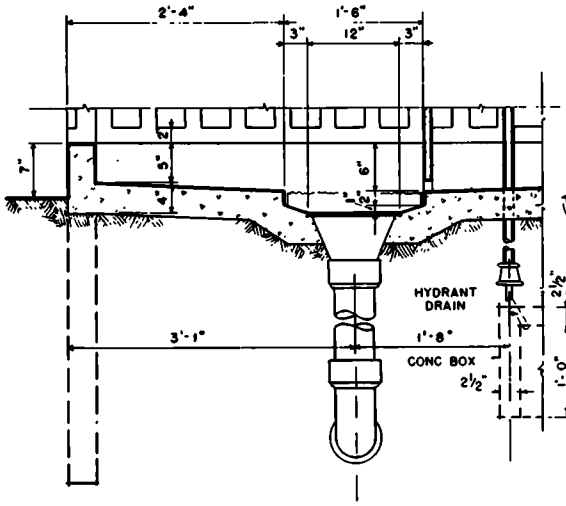


PLAN

CONC BOX 2'-0"x 2'-0"x 12" HIGH (INSIDE DIM.) OMIT IF FROST PROOF HYDRANT DRAIN IS DESIGNED TO PREVENT BACK FLOW, OR IF BIBB IS SUBSTITUTED FOR F.P. HYDRANT. PROVIDE 9 CU FT OF COARSE AGGREGATE BENEATH BOX

FROST PROOF HYDRANT





SECTION "A"

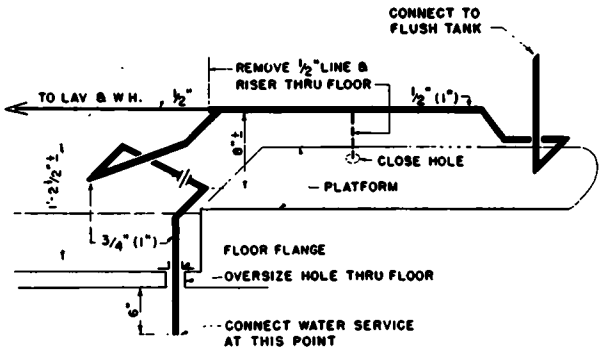
SECTION "B"

NOTE:
PROVIDE 4"x4" CENTER HAND HOLE TRAP WITH HAND-HOLE CAPPED, ON SEWER.
CREOSOTE 4"x 4" POSTS TO TOP OF CONC CURB.

BUILDING NO. 316

REVISED 7-15-43
REVISED 5-26-43
PROJECT FACILITIES
SERIES T.P.S

PREPARED BY FPHA NHA	COLLECTION STATION	TPS-4.1
	WAR TRAILER PROJECTS	1-18-43



ISOMETRIC

NOTES:

LAUNDRY, TOILET AND OFFICE TRAILERS HEREAFTER SUPPORTED ON FOUNDATIONS SUBJECT TO FROST OR SETTLEMENT MUST BE PROVIDED WITH SWING LOOPS AS SHOWN, UNLESS SUCH LOOPS HAVE PREVIOUSLY BEEN PROVIDED

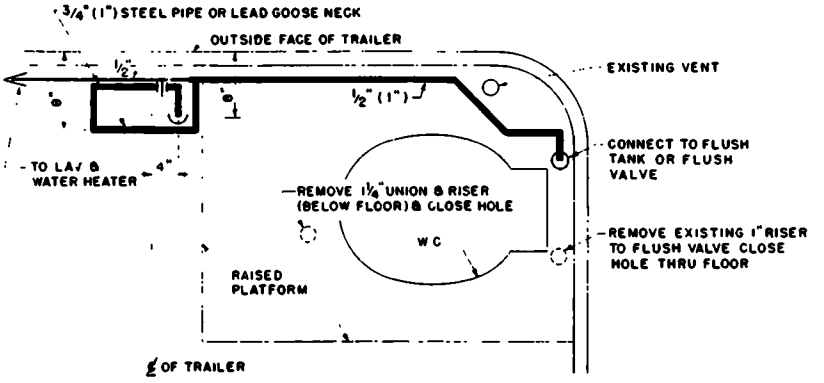
UTILITY SERVICE LINES BELOW AND ADJACENT TO TRAILERS TO BE IN PLACE & BACKFILL (WELL PUDDLED & TAMPED) TO BE COMPLETED BEFORE PLACEMENT OF TRAILERS.

TOILET & OFFICE TRAILERS GENERALLY HAVE FLUSH VALVES SEE BULLETIN NO 4 "FLUSH VALVES & CHECK VALVES" FOR SUBSTITUTION OF FLUSH TANKS

SEE SHEET TPS-1.1 & 2.2 FOR TRAILER PLANS AND FOUNDATIONS

SYMBOLS:

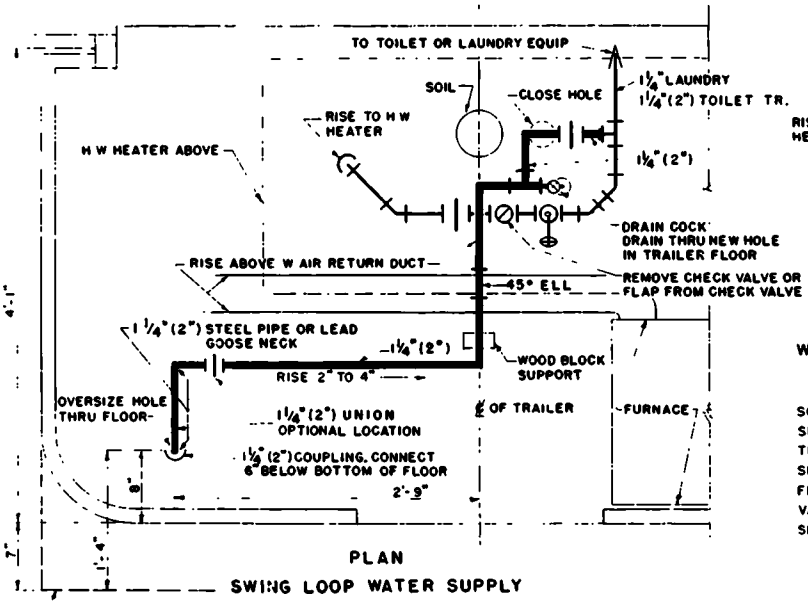
- EXISTING WATER LINE TO REMAIN
- EXISTING WATER LINE TO BE REMOVED
- NEW WATER LINE
- CHECK VALVE
- GATE VALVE
- UNION
- DROP OR RISE
- (1") SIZES SHOWN THUS ARE FOR FLUSH VALVES OTHER SIZES ARE FOR FLUSH TANKS



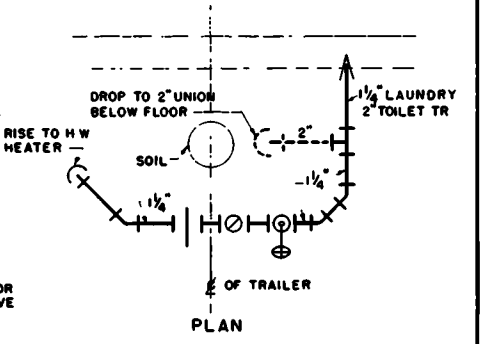
PLAN
SWING LOOP WATER SUPPLY

SCALE
0' 1' 2' 3'

OFFICE TRAILERS



PLAN
SWING LOOP WATER SUPPLY



PLAN

WATER SUPPLY - EARLY MODEL TRAILERS. (WITHOUT SWING LOOP)

SOME LATER MODEL TRAILERS HAVE SWING LOOP, BUT WATER SERVICE ENTRANCE LOCATION IS SAME AS ABOVE OTHER TRAILERS HAVE WATER SERVICE ENTRANCE LOCATION AS SHOWN ON PLANS AT LEFT, BUT UNION IS BELOW TRAILER FLOOR, OR SIZE OF WATER CONNECTION VARIES ALL SUCH VARIATIONS ARE TO BE CHANGED TO ATTAIN UNIFORM WATER SERVICE CONNECTION AS INDICATED ON PLAN AT LEFT

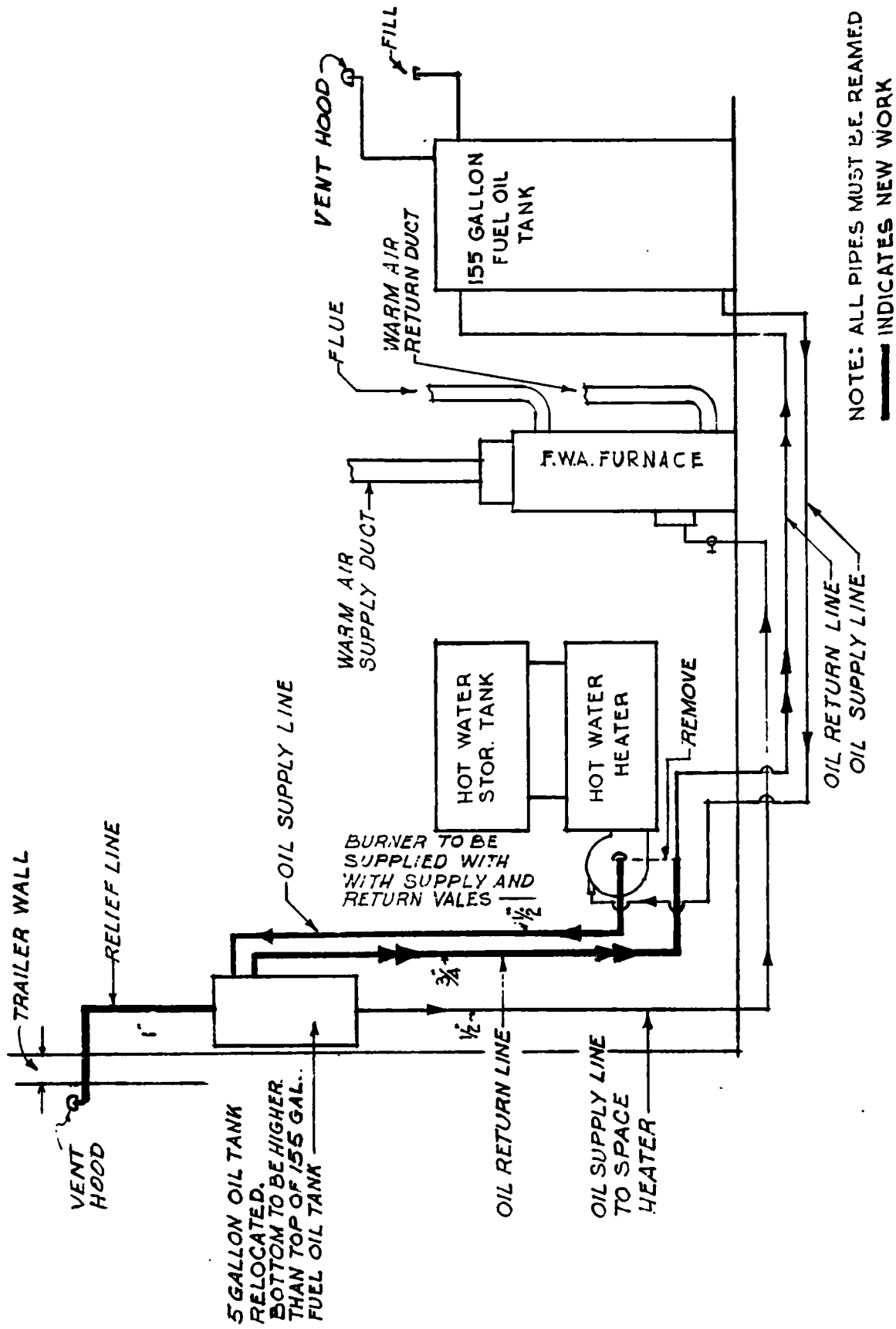
TRAILER CONTRACTS AFTER 6-25-43

LAUNDRY TRAILERS

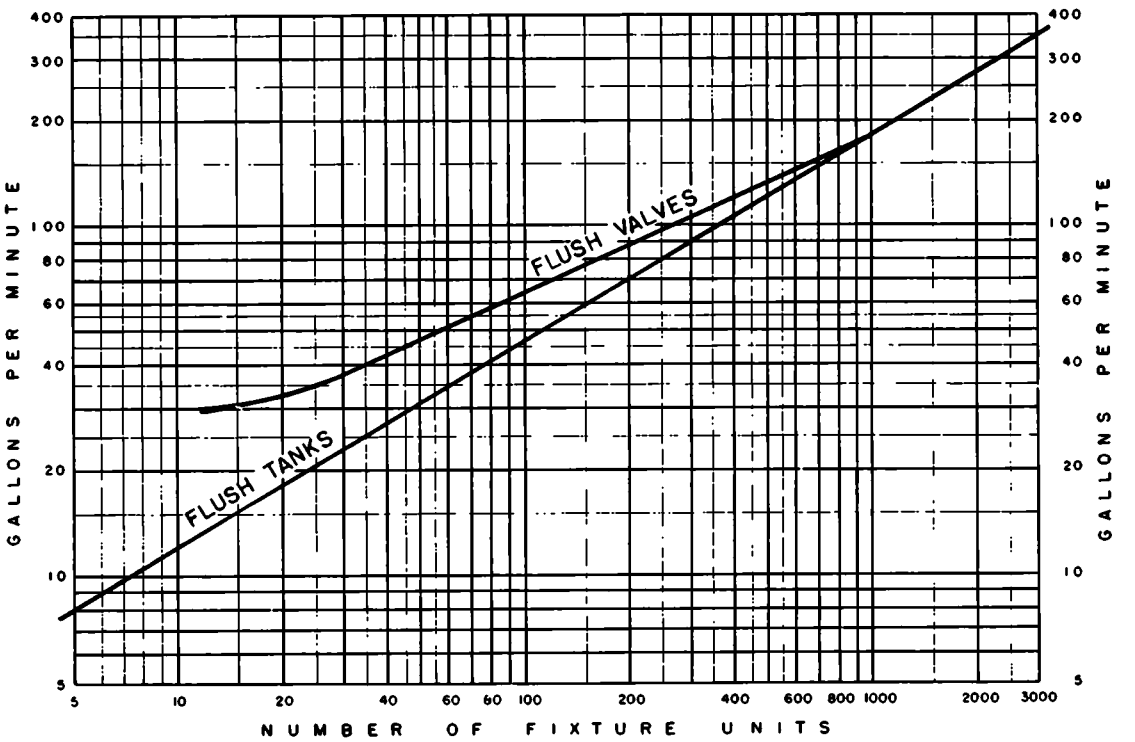
TOILET TRAILER SIMILAR EXCEPT AS SHOWN

REVISED 10-5-43
REVISED 3-17-43

PREPARED BY FPHA NHA	SWING LOOP WATER SUPPLY FOR TOILET, LAUNDRY & OFFICE	TPS-5.1
	WAR TRAILER PROJECTS	2-16-43



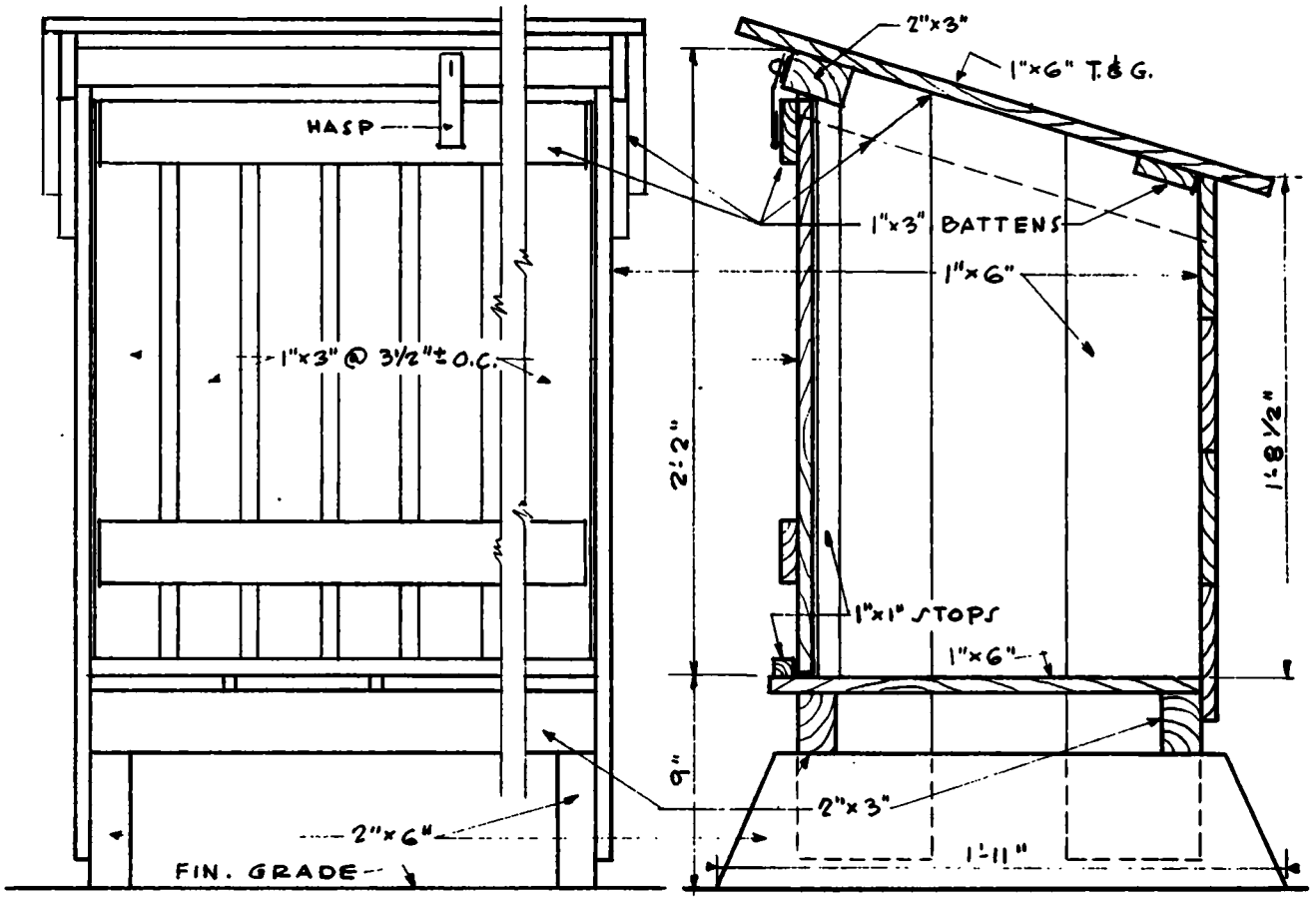
PREPARED BY F.P.H.A. N.H.A.	FUEL SUPPLY FOR FURNACES—TOILET AND LAUNDRY TRAILERS WAR TRAILER PROJECTS	T.P.S.-5.2 7-13-43



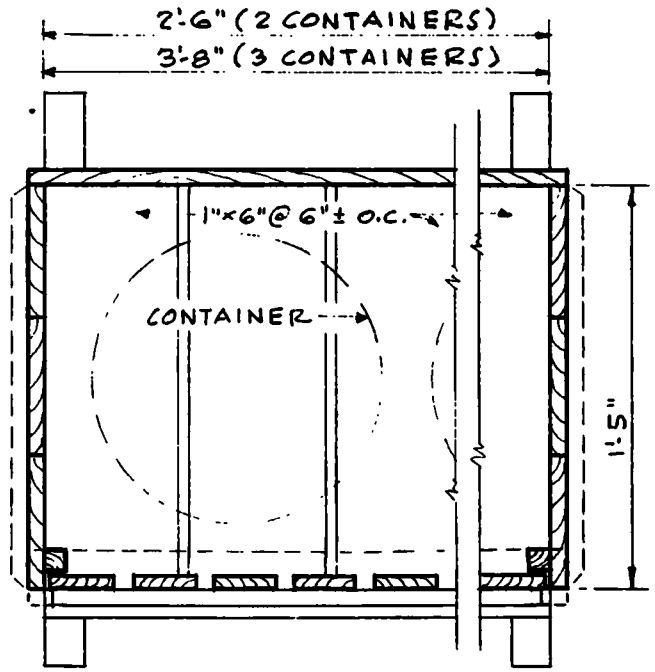
FIXTURE UNIT RATING
FOR ESTIMATING
MAXIMUM WATER SUPPLY DEMAND

FIXTURE TYPE	NUMBER OF FIXTURE UNITS
LAVATORY	2
WATER CLOSET - FLUSH VALVE	12
WATER CLOSET - FLUSH TANK	5
URINAL - FLUSH VALVE	8
URINAL - FLUSH TANK	3
BATHTUB OR SHOWER	4
SERVICE SINK	3
LAUNDRY TRAY	3
YARD HYDRANT	6

REVISED 1-1-'43



ELEVATION 1½" = 1'-0" SECTION



PLAN

NOTES

FUEL STORAGE LOCKERS ARE DESIGNED TO HOLD 2 OR 3, 5 GALLON OIL OR GASOLINE CONTAINERS.

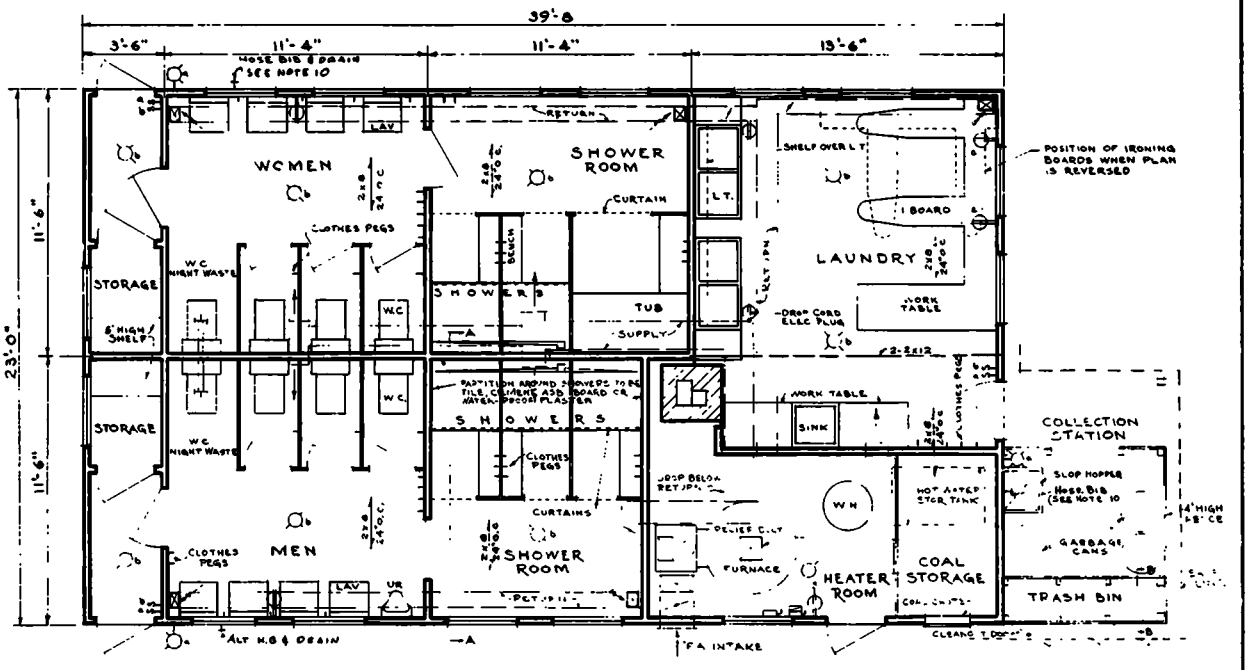
2 CONTAINER LOCKER FOR STANDARD HOUSE TRAILER.

3 CONTAINER LOCKER FOR EXPANSIBLE HOUSE TRAILER.

CHECK LOCKER WIDTH FOR PASSAGE THRU TRAILER DOORS (ON SECONDARY MOVES).

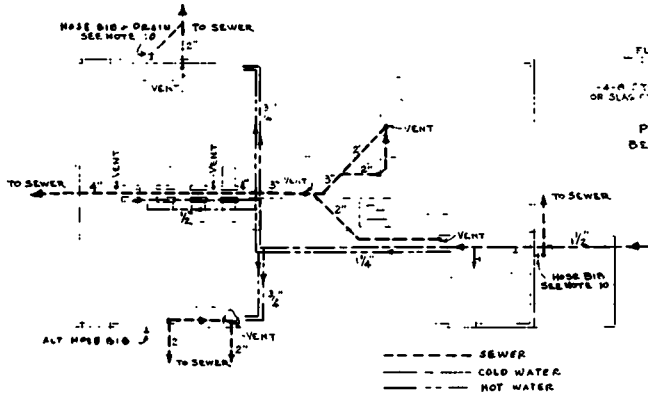
0 1 FT.

PREPARED BY F.P.H.A. N.H.A.	TENANT FUEL STORAGE LOCKERS	TPS-4.2
	WAR TRAILER PROJECTS	6-8-43.



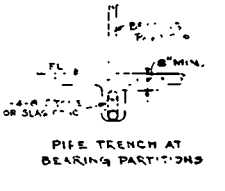
BUILDING - 314

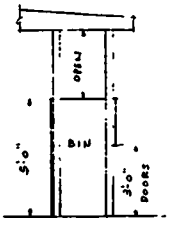
0' 5' 10'



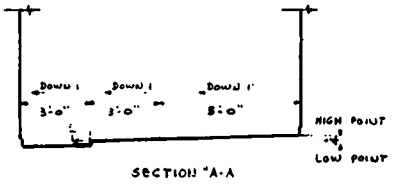
PLUMBING DIAGRAM

0 10' 20'





SECTION "B-B"



SECTION "A-A"

NOTES.

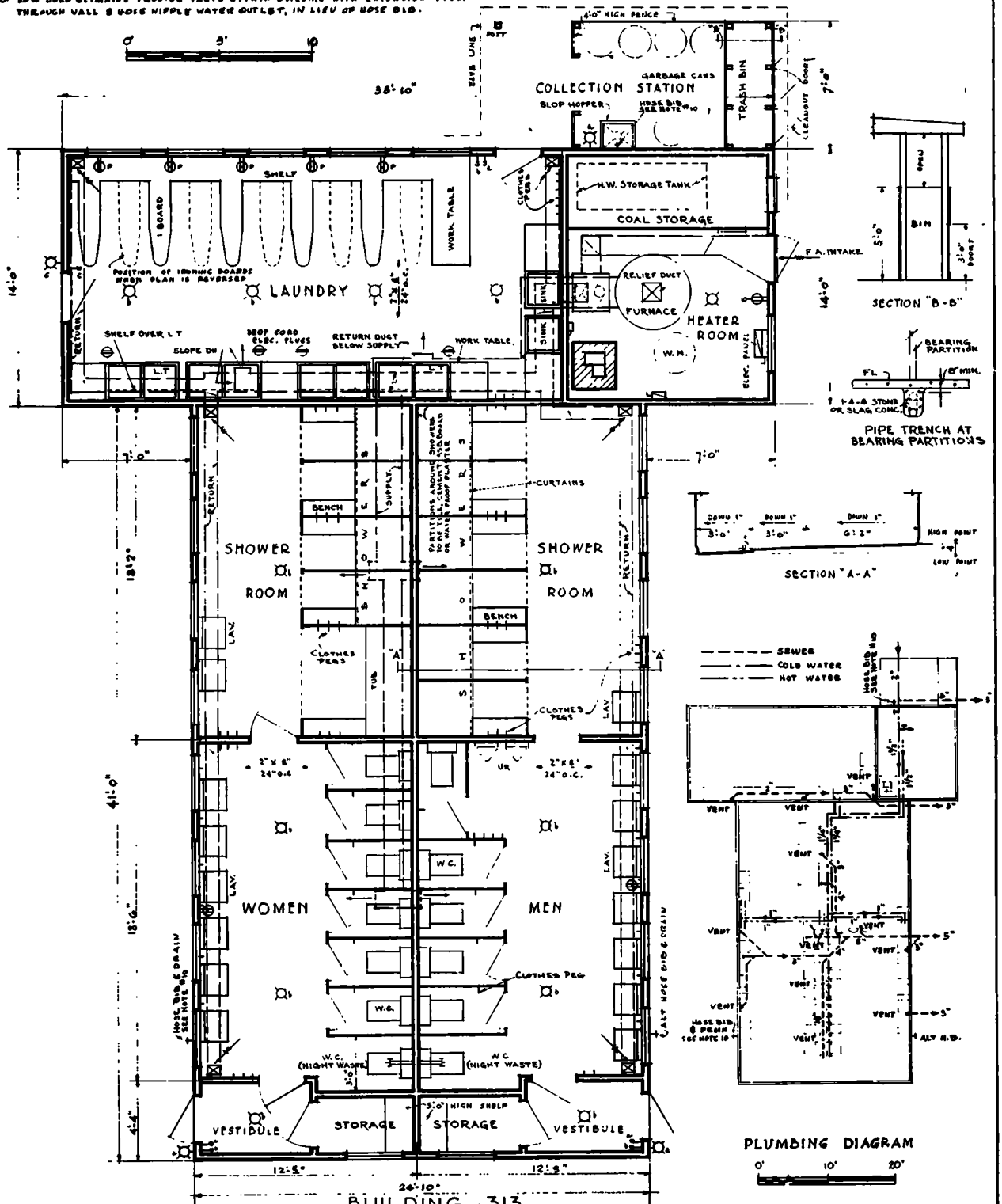
1. FLOOR SLAB CONCRETE OVER GRAVEL FILL.
2. CONCRETE CURB 6" MINIMUM ABOVE FLOOR AT ALL WALLS AND PARTITIONS.
3. FILL ALL PIPE TRENCHES UNDER BEARING PARTITIONS WITH 1-4-8 STONE OR SLAG CONCRETE.
4. W.C. (NIGHT WASTE) SHALL NOT HAVE SEAT OR COVER: TO HAVE COMBINATION HOT AND COLD WATER FAUCET EXTENDING OUT OVER W.C., BRACED FROM WALL.
5. CONNECT 2 OR 3 LAVATORIES TO SINGLE TRAP.
6. SHELVES AND MIRRORS OVER LAVATORIES.
7. WOODEN TOWEL POLE UNDER SHELF AT EACH LAVATORY.
8. HEATING SUPPLY AND RETURN DUCTS AND SUPPLY OUTLETS AT CEILING. RETURN INLETS CLOSE TO FLOOR.
9. IF PLAN IS REVERSED, REVISE LOCATION OF IRONING BOARDS SO AS TO RETAIN RIGHT HAND OPERATION
10. FOR COLD CLIMATES PROVIDE VALVE WITHIN BUILDING WITH EXTENSION STEM THROUGH WALL & HOSE NIPPLE WATER OUTLET, IN LIEU OF HOSE BIB

THIS DRAWING SUPERSEDES TPS-3.1

PREPARED BY FPHA NHA	TOILET, SHOWER & LAUNDRY BLDG., & COLLECTION STATION, 25 UNITS	TPS-3.1-B
	WAR TRAILER & PORTABLE SHELTER UNIT PROJECTS	8-15-43

NOTES:

1. FLOOR SLAB CONCRETE OVER GRAVEL FILL.
2. CONCRETE CURB 6" MIN. ABOVE FLOOR AT ALL WALLS AND PARTITIONS.
3. FILL ALL PIPE TRENCHES UNDER BEARING PARTITIONS WITH 1-4-8 STONE OR SLAG CONCRETE
4. W.C. (NIGHT WASTE) SHALL NOT HAVE SEAT OR COVER: TO HAVE GOOSE NOT & COLD WATER FAUCET EXTENDING OUT OVER W.C. BRACED FROM WALL.
5. CONNECT 2 OR 3 LAVATORIES TO SINGLE TRAP.
6. SHELVES AND MIRRORS OVER LAVATORIES
7. WOODEN TOWEL PEG UNDER SHELF AT EACH LAVATORY.
8. HEATING SUPPLY AND RETURN DUCTS AND SUPPLY OUTLETS AT CEILING. RETURN INLETS CLOSE TO FLOOR.
9. IF PLAN IS REVERSED, REVISE LOCATION OF IRONING BOARDS SO AS TO RETAIN RIGHT HAND OPERATION.
10. FOR COLD CLIMATES PROVIDE VALVE WITHIN BUILDING WITH EXTENSION STEM THROUGH WALL & HOSE NIPPLE WATER OUTLET, IN LIEU OF HOSE BIB.



THIS DRAWING SUPERSEDES TPS-3.1

PREPARED BY FPHA NHA	TOILET, SHOWER & LAUNDRY BLDG., & COLLECTION STATION, 50 UNITS	TPS-3.1-A
	WAR TRAILER PROJECTS	8-15-43