

# Playground Equipment Specifications

## for

# War Housing Projects

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PLAYGROUND EQUIPMENT SPECIFICATIONS  
FOR  
WAR HOUSING PROJECTS

GENERAL SCOPE

This bulletin contains the specifications and quantities of playground equipment which may be provided for temporary war housing projects. The tables at the end of the bulletin stipulate the type and quantity of equipment which should be provided for projects within the designated sizes. Playground apparatus may be provided only for projects with specific playground areas.

Whenever in any of the contract documents, including this specification, an article, material, or equipment is defined by describing a proprietary product or by using the name of manufacturer or vendor, the term "or equal", if not inserted shall be implied. The specific article, material, or equipment mentioned shall be understood as indicating the type, function, minimum standard of design, efficiency, and quality desired and shall not be construed in such a manner as to exclude the manufacturers' products of comparable quality, design, and efficiency. The decision of the contracting officer that an article, material, or equipment is equal or is not equal to the item specified shall be final.

Playground equipment shall be delivered to and installed at the project site on areas and in positions as determined by the FPHA regional office. The playground equipment contractor shall furnish as a part of this contract the continuous services of a capable superintendent to aid in the installation of this apparatus. Installation blue prints shall also be provided for each piece of equipment, giving complete and detailed instructions for the proper assembling and installation of equipment furnished.

GENERAL SPECIFICATIONS

The general specifications given below pertain to the various items included under the heading "Detailed Specifications."

1. PIPE - All pipe used in the playground equipment shall be new standard weight, carbon steel galvanized pipe, welded and seamless, factory tested, and in strict accordance with the following specifications:

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<u>Pipe Size</u> <u>Inches</u>	<u>Outside Diameter</u> <u>Inches</u>	<u>Thickness</u> <u>Inches</u>
3/4	1.050	.113
1	1.315	.133
1-1/4	1.660	.140
1-1/2	1.900	.145
2	2.375	.154
2-1/2	2.875	.203
3	3.500	.216
3-1/2	4.000	.226

Pipe shall be straight and free from buckles, kinks, bends, cracks, blisters, laminations, imperfect welds, rust, injurious sand marks or any other defects which might affect its strength and serviceability. All burrs at the ends of pipe shall be removed. (These dimensions and requirements are identical with those set forth in Federal Specification WW-P-403a, Type 1, Class A pipe.)

2. FITTINGS - Fittings shall be made of high-grade certified malleable iron, strong, tough and of even grain. They shall be smooth, sound, smoothly cored, true to form, free from cold shuts, blow holds, porosity, embrittlement, or any other defects which may affect their serviceability, and shall be thoroughly cleaned of sand and scale. (Dimensions and requirements herein specified are identical with those set forth in Federal Specifications WW-P-521a.) Fittings shall be zinc-coated (galvanized) by the hot-dip process and so treated as to be thoroughly coated with a smooth, bright, solid surface of zinc, free from blisters, dross, dirt, bare spots, rust, and other defects in coating. They shall be galvanized inside and outside. Fittings shall conform to dimensions specified in the following table:

<u>Pipe Size</u> <u>Inches</u>	<u>Metal Thickness</u>	
	<u>Nominal</u>	<u>Minimum</u>
3/4	.120	.11
1	.134	.12
1-1/4	.145	.13
1-1/2	.155	.14
2	.173	.16
2-1/2	.210	.19
3	.231	.21
3-1/2	.248	.22

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3. **HARDWARE** - Miscellaneous, all nuts, bolts, washers, etc. shall be cadmium plated or hot galvanized.
4. **ANCHORING** - Each piece of pipe which is to be set in a concrete footing shall be drilled 6 inches from its base to receive a 3/8" x 10" steel anchor pin, furnished by the playground equipment contractor. A malleable iron base flange will be accepted as a substitute for the anchor pin.
5. **FOOTINGS** - All concrete footings shall be poured to within two inches of the ground level and after the concrete sets, excavation shall be filled with tamped earth until level. The mixture shall be 1:2:4 composed of standard Portland cement, clean concrete sand, and well-graded coarse aggregate, all of which will pass a one inch ring. Footings shall be constructed on solid ground, with the bottom below the frost line in each locality. Rocks, logs, or other debris encountered in excavating for footings shall be removed and the hole filled with concrete. Footings shall be excavated and poured in the designated sizes by the playground equipment contractor.

#### DETAILED SPECIFICATIONS

Item No. 1 - Swings (High). Swings shall be furnished in batteries of 2, 4, or 6 as required, with not more than 2 swings between uprights. In batteries of 2 there shall be 6 uprights, 3 at each end. In batteries of 4 there shall be 8 uprights, 3 at each end and 2 in the middle. In batteries of 6, there shall be 10 uprights, 3 at each end and 2 between each 2 swings.

(a) Top rail - 2" I.D. pipe placed 10' above the ground surface and sufficiently long to allow at least 4½' for each swing.

(b) Uprights - 1½" I.D. pipe, long enough to allow 24" of pipe to extend into concrete footings.

(c) Fittings - clamping dog or split clamp type. Either heavy bolts clamping through each fitting and extending through both the top rail and each upright, or interlocking knobs extending into holes drilled into the top rail and uprights shall be provided. Pipe shall be drilled to receive such bolts or knobs.

(d) Suspensions - 8-0 hot galvanized lock weave steel chain with a tensile strength of not less than 2090 pounds. Sufficient chain shall be furnished to suspend swing seats 18" from the ground. Hot galvanized 3/8" malleable iron or drop forged steel "S" hooks shall be furnished to attach chains to hanger pendants and swing seats.

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(e) Swing seats - clear vertical grain Douglas Fir, maple or birch, smoothly finished with all edges rounded and sanded smooth. Seat finished with not less than two coats of durable outdoor enamel. Overall finished dimensions shall not exceed 1-1/2" x 8" x 22-1/2" or be less than 1-1/8" x 7-1/2" x 20".

(f) Swing hangers - either double race ball-bearing type complete with alemite fittings for greasing or the oilless Nigrum bearing type.

(g) Footings - concrete for uprights shall be not less than 1'-8" square by 2'-6" deep.

Item No. 2 - Swings (low). Except for the following, this item shall conform to the specifications set forth for item 1:

(a) Top rail - 2" I.D. pipe placed at a point not more than 8' or less than 7' above the ground surface. At least 4' of top rail shall be allowed for each swing.

(b) Uprights - 1 1/2" I.D. pipe.

(c) Suspensions - 6-0 hot galvanized lock weave steel chain with a tensile strength of not less than 2090 pounds. Sufficient chain shall be furnished to suspend seats 12" from ground. Hot galvanized 3/8" malleable iron or drop forged steel "S" hooks shall be furnished to attach chains to hanger pendants and swing seats.

(d) Swing seats - the swing seats shall be the same as specified for high swings with the exception that the overall finished dimensions shall be not less than 17" or more than 20" long by 7 1/2" by 1-1/8".

(e) Footings - concrete, not less than 1'-6" square by 2'-0" deep.

Item No. 3 - Pipe Rail Fence for Swings.

(a) Top rail - 1 1/2" I.D. pipe 6'-6" long. Furnish 2 lengths for each battery of 2 swings. Top rail shall be supported 2'-4" above ground surface, attached to uprights with malleable iron elbow fittings.

(b) Uprights - 1 1/2" I.D. pipe 3'-4" long to be placed at each end of the top rail.

(c) Footings - concrete, not less than 10" square by 1'-6" deep.

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Item No. 4 - Slide (High). The high slide shall consist of a ladder and chute with braces and fittings designed for permanent erection in concrete footings to a depth of 1'-6". It shall be 8'-0" high with a 16' bedway.

(a) Bedway - 18 gauge hot galvanized steel not less than 1'-6" overall width. Construction shall be such as to permit replacement of bedway. It shall be attached to underside of side rails by extra heavy roofing nails or counter-sunk water-proofed wood screws at intervals of not more than 3" on center. Reinforcing battens not less than 1" x 3" x 1'-6" shall be placed every 1'-2". Top and bottom battens shall be not less than 1-3/4" x 6" x 1'-6". The bedway shall be bent at the lower end on a radius of not less than 5' and not more than 5'-2", so that when it is completely assembled and resting on the foot buck, the end of the bedway will be parallel with the ground.

(b) Ladder - 1 1/2" I.D. pipe or structural steel of equal strength, approximately the width of the bedway and at an angle with the ground of not more than 62°. Ladder steps shall be perforated malleable iron not less than 3-1/2" in width and weighing not less than 3-1/2 pounds. Steps shall be properly pitched to present a flat climbing surface.

(c) Side rails - clear maple construction to rise at least 3" above bedway. Tops of side rails to be rounded and smooth and shaped to give user a continuous and firm grip. Bolts and screws shall be countersunk and wood plugged to present a smooth flush surface.

(d) The top platform shall be not less than 8" wide, with edges flanged and free of obstructions. The top platform shall be 10 gauge hot galvanized steel, or certified malleable iron. A malleable iron platform shall weigh at least 20 pounds. There shall be no open space between platform and top of chute.

(e) Hand guard rails - ladders shall be provided with continuous rigid hand guard rails of 1/2" I.D. pipe designed for secure attachment to concrete footings. Guard rails shall be continued above the top platform in a curve of sufficient radius to give absolute protection to slide user while on platform, and shall be securely attached to the top platform. Additional hand guard rails of 1/2" I.D. pipe shall be attached to top platform or ladder guard rail and extended down bedway not more than 2'-0" or less than 1'-6". These rails shall be securely attached to the bedway at their lower ends, and shall rise at least 7" above the bedway. Hand guard rails will not be required where top 18" of bedway side rail rises at least 7" above bedway.

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(f) Footings - concrete footings for ladder and hand rail shall be not less than 1'-6" deep. Top dimensions of footing shall be not less than 2'-6" by 2'-0", tapering with angle of ladder, with bottom dimension not less than 1'-0" by 2'-6". Side brace footings shall be not less than 1'-6" x 1'-6" x 1'-6". End footing shall be 2'-6" x 1'-3".

Item No. 5 - Slide (Low). Heavy duty straight slide 6' high and 12' chute. Construction features same as item 4.

Item No. 6 - Horizontal Bar (Triple Type). To be built in three sections with four upright posts. Between each post shall be fastened a cross bar. A malleable iron galvanized cap shall be fastened to the top of each post.

(a) Uprights - Four posts, 2" I.D. pipe shall be set in line 5' apart on center and shall be long enough to allow 2'-6" of pipe to be imbedded in concrete footings.

(b) Cross bars - three cross bars, 1-1/16" I.D. cold rolled, hot galvanized steel 5' in length, placed 4½', 6', and 7' above ground, shall be securely fastened to the upright pipes with a malleable iron fitting. A 3/8" bolt shall be extended through each fitting and upright at right angles to the cross bars, and securely fastened.

(c) Footings - concrete not less than 1'-6" square by 2'-0" deep.

Item No. 7 - Horizontal Ladder. The horizontal ladder shall be not more than 5'-6" high, 12'-0" long and 1'-7½" wide.

(a) Uprights - Four vertical posts, 2" I.D. pipe, shall be designed for installation in concrete footings to a depth of at least 1'-6". There shall be three rungs on the uprights so that smaller children can reach the ladder.

(b) Ladder - Ladder rail shall be 2" I.D. pipe. Before galvanizing, the rungs of the horizontal ladder shall be welded or riveted through the side of the ladder. Vertical and horizontal members shall be joined by malleable iron corners or malleable iron elbow fittings using through bolts.

(c) Ladder rungs - Horizontal rungs shall be 3/4" I.D. galvanized steel pipe placed 12" on center with first and last rungs 6" from vertical uprights. Four vertical rungs shall be provided with the bottom rung 10" from ground level and the remaining three rungs 10" on center.

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(d) Footings - Concrete footings shall be 2'-6" x 1'-0" and at least 2'-6" deep.

Item No. 8 - Outdoor Basketball Backstops. Outdoor backstops shall be the fan shaped steel type.

(a) Upright standard - 3" I.D. pipe not less than 16'-0" in length. Attachment of bank to upright shall be by means of a malleable iron cap bracket at the top of upright and a malleable iron cap bracket at bottom of bank.

(b) Bank - Face of bank shall be of not less than 12 gauge in drawn pan design and of size designated by the National Basketball Rules Committee. Reinforcement of bank shall be by means of not less than 1-1/4" bars, properly welded on edge to the rear of the bank. Vertical and cross members to reinforce scoring zone shall be supplied in similar manner to that specified for reinforcements.

(c) Frame - The frame of the backstop shall be finished with one coat of undercoater and two coats of outside enamel.

(d) Goal - Official size, galvanized and complete with a net of galvanized chain. Hoop shall be of tempered steel riveted or electric welded to an extra strong bracket. Attachment to bank shall be by means of not less than 4 bolts to a steel plate at rear. Top of goal to be 10'-0" from ground level.

(e) Footings - Concrete 2'-0" square by not less than 3'-0" deep.

Item No. 9 Climbing Structure (Large). The large climbing structure shall be square in design with all vertical and horizontal bars being straight and forming right angles to each other. The structure shall be formed in a box formation approximately 8'-4" wide x 8'-4" long exclusive of side braces. Height of side walls shall be approximately 8'-6" and center tower 10'-6". The structure shall be so formed that uprights and horizontal members shall be spaced to be approximately 2'-0" on centers, forming cubed spaces of the same dimension. Center tower shall be composed of four 2' cubes spaced 2' higher than the rest of the structure. Clear access spaces shall be provided at the bottom of the structure from two sides.

Vertical bars and corner angle braces shall be formed of not less than 1-5/8" galvanized standard weight new pipe and horizontal members shall be not less than 1-3/8" of the same material. Joinery shall be by means of "U" bolts or a device of equal strength. Ends of pipe shall be closed with pipe plugs firmly secured by the through "U" bolts. Angle braces shall be located at all four corners and set at not less than

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36 degrees with positive attachment to corner uprights by means of special fittings. All fittings and parts shall be galvanized. Structure shall be entirely free of dangerous projects and sharp edges. Full detail drawings to accompany bidders proposal. Footings shall be concrete 8" square and not less than 12" deep, placed below each upright.

Item No. 10 - Climbing Structure (Small). This item shall be similar to the large climbing structure (Item No. 9), except for the following features: The small structure shall be a rectangular formation approximately 6'-3" wide x 8'-4" long, exclusive of side braces.

The center tower shall be composed of two 2' cubes spaced 2' higher than the rest of the structure. The height of side walls and center tower shall be approximately the same as for item No. 9. Dimensions of pipe, method of joinery and other details of design shall be equivalent to those of the large climbing structure.

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SCHEDULE OF PLAYGROUND EQUIPMENT FOR  
FAMILY DWELLING PROJECTS WITHOUT CHILD SERVICE CENTERS

Standard Plan No. (Tenant Activity Building-TDU Series)	111	113	115	116	117	118	119	120	121
Dwelling Units	50-125	126-225	226-325	326-425	426-550	551-700	701-875	876-1200	1201-1600
Climbing Structures									
Small	1	2	1	2	1	2	3	3	4
Large			1	1	2	2	2	3	3
Swings, Set*									
Low	1	1	2	2	3	3	4	4	5
High		1	1	2	2	3	3	4	4
Fence **	2	4	6	8	10	12	14	16	18
Slides									
Low	1	1	2	2	2	2	3	3	3
High		1	1	1	2	2	2	2	3
Basketball Backstops, pair		1	1	1	2	2	2	3	3
Horizontal Bars		1	1	1	1	1	1	2	2
Horizontal Ladders		1	1	1	1	1	1	2	2

\* One set includes two swings. When more than one set is required, furnish in accordance with the following schedule:

Required	Provide
2 sets	- One battery of 4 swings
3 sets	- One battery of 6 swings
4 sets	- Two batteries of 4 swings
5 sets	- One battery of 4 swings and one battery of 6 swings.

\*\* Two lengths of pipe rail fence shall be provided for each battery of two swings.

ALTERNATE SCHEDULE OF PLAYGROUND EQUIPMENT FOR  
FAMILY DWELLING PROJECTS WITH STANDARD CHILD SERVICE CENTERS \*

Standard Plan No. (Tenant Activity Building-TDU Series)	111	112-113	114-115	116	117	118	119	120	121
Standard Child Service Facility	(Special)	1-Room	1-Room	2-Rooms	2-3Rooms	3-Rooms	3-4Rooms	4-5Rooms	5-6Rooms
Climbing Structure									
Small					1	1	2	2	3
Large						1	1	2	2
Swings, Set **									
Low	1	1	1	2	2	2	2	3	3
High		1	1	2	2	3	3	4	4
Fence ***	2	4	4	8	8	10	10	14	14
Slides,									
Low				1	1	1	2	2	3
High		1	1	1	2	2	2	2	3
Basketball Backstop, pair		1	1	1	2	2	2	3	3
Horizontal Bars		1	1	1	1	1	1	2	2
Horizontal Ladders		1	1	1	1	1	1	2	2

\* These quantities of equipment shall be furnished for projects where standard child service centers have been provided.

\*\* One set includes two swings. See schedule on previous page.

\*\*\* Two lengths of pipe rail fence shall be provided for each battery of two swings.