MILITARY SPECIFICATION

WAREHOUSE, REFRIGERATED, PREFABRICATED, METAL

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers clear-span, prefabricated, refrigerated warehouses with gabled roofs, complete with loading dock and wiring; refrigeration equipment is not included in this specification. Spans shall be up to 120 feet, length to 200 feet, and eaves to 20 feet. The warehouse shall be as specified (see 6.2 and 6.3).

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal form a part of this specification to the extent specified herein:

SPECIFICATIONS

Federal

J-C-30	- Cable and Wire, Electrical (Power, Fixed Installation).
L-P-391	- Plastic Sheets, Rods and Tubing, Rigid, Cast, Methacrylate (Multiapplication).
W-B-30	- Ballast, Fluorescent Lamp.
W-C-375	- Circuit Breaker, Molded Case; Branch-Circuit and Service.
W-C-586	- Conduit Outlet Boxes, Bodies, and Entrance Caps, Electrical: Cast Metal - for Shore Use.
W-C-596	- Connector, Plug, Electrical; Connector, Receptacle, Electrical.
W-F-406	- Fittings for Cable, Power, Electrical and Conduit, Metal, Flexible.
W-F-408	- Fittings for Conduit, Metal, Rigid, (Thick-Wall and Thin-Wall (EMT) Type).
W-F-412	- Fixtures, Lighting, Incandescent Lamp, Industrial.

W-F-1234	- Fixture, Lighting (Fluorescent Lamp, Industrial).
W-P-115	- Panel, Power Distribution.
FF-B-575	- Bolts, Hexagon and Square.
FF-H-106	- Hardware, Builders'; Locks and Door Trim: General Specification For.
FF-H-111	- Hardware, Builders'; Shelf and Miscellaneous.
FF-H-116	- Hinges, Hardware, Builders'.
FF-H-121	- Hardware, Builders', Door Closers.
FF-W-92	- Washer, Flat (Plain).
MM-L-751	- Lumber; Softwood.
NN-P-530	- Plywood, Flat Panel.
QQ-P-416	- Plating, Cadmium (Electrodeposited).
QQ-S-781	- Strapping, Steel, and Seals.
QQ-Z-325	- Zinc Coating, Electrodeposited, Requirements For.
RR-D-575	- Door, Metal, Sliding and Swinging: Door Frame, Metal (Flush and Semi-flush).
RR-W-365	- Wire Fabric (Insect Screening).
WW-C-581	- Conduit, Metal, Rigid; and Coupling, Elbow, and Nipple, Electrical Conduit: Zinc-Coated.
WW-P-541	- Plumbing Fixtures, (Land Use) (General Specification).
PPP-B-601	- Boxes, Wood, Cleated-Plywood.
PPP-B-621	- Boxes, Wood, Nailed and Lock-Corner.
PPP-B-636	- Boxes, Shipping, Fiberboard.
PPP-T-60	- Tape: Packaging, Waterproof.

Military

MIL-C-104	- Crates, Wood; Lumber and Plywood Sheathed, Nailed and Bolted.
MIL-P-116	- Preservation-Packaging, Methods of.
MIL-V-173	- Varnish, Moisture-and-Fungus-Resistant (for Treatment of Communications, Electronic, and Associated Equipment).
MIL-P-514	- Plates, Identification, Instruction and Marking, Blank.
MIL-T-704	- Treatment and Painting of Materiel.
MIL-D-1000	- Drawings, Engineering and Associated Lists.
MIL-D-13580	- Door, Walk-In Refrigerator, Infitting, for Refrigerated Warehouse.
MIL-D-13581	- Door, Walk-In Refrigerator, 2-1/2 X 6 Ft., with Two Vestibule Doors, for Refrigerated Warehouse.

MIL-E-17555	- Electronic and Electrical Equipment, Accessories, and Repair Parts; Packaging and Packing of.
MIL-L-19140	- Lumber and Plywood, Fire-Retardant Treated.
MIL-I-24391	- Insulation Tape, Electrical, Plastic, Pressure-Sensitive.

STANDARDS

Military

MIL-STD-105	- Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129	- Marking for Shipment and Storage.
MIL-STD-130	- Identification Marking of US Military Property.
MIL-STD-195	- Marking of Connections for Electric Assemblies.
MIL-STD-1186	- Cushioning, Anchoring, Bracing, Blocking and Waterproofing; with Appropriate Test Methods.

(Copies of specifications and standards required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on the date of invitation for bids or request for proposal shall apply.

AMERICAN CONCRETE INSTITUTE

ACI 318 - Building Code and Requirements for Reinforced Concrete.

(Application for copies should be addressed to American Concrete Institute, P.O. Box 4754, Redford Station, Detroit, MI 48219.)

AMERICAN NATIONAL STANDARDS INSTITUTE

ANSI B18.6.4 - Slotted and Recessed Head Tapping Screws and Metallic Drive Screws.

(Application for copies should be addressed to American National Standards Institute, 1430 Broadway, New York, NY 10018.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

A 153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
A 325 - High Strength Bolts for Structural Steel Joints Including Suitable Nuts and Plain Hardened Washers.
A 446 - Steel Sheet Zinc Coated (Galvanized) by the Hot-Dip Process, Physical (Structural) Quality.
A 490 - Quenched and Tempered Alloy Steel Bolts for Structural Steel Joints.
C 553 - Mineral Fiber Blanket and Felt Insulation (Industrial Type).
D 2103 - Polyethylene Film and Sheeting.
D 2530 - Nonoriented Propylene Plastic Film.
E 84 - Surface Burning Characteristics of Building Materials.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

Boiler and Pressure Vessel Code, Section IX, Welding Qualifications.

(Application for copies should be addressed to the American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017.)

AMERICAN WELDING SOCIETY, INC. (AWS)

D1.1 - Structural Welding Code, Section 5, Qualification.

(Application for copies should be addressed to the American Welding Society, Inc., 2501 Northwest Seventh Street, Miami, FL 33125.)

ARCHITECTURAL ALUMINUM MANUFACTURERS ASSOCIATION

AAMA HSA2 - Specifications for Aluminum Windows.

(Application for copies should be addressed to Architectural Aluminum Manufacturers Association, 1 East Wacker Drive, Chicago, IL 60601.)

ILLUMINATING ENGINEERING SOCIETY

Lighting Handbook.

(Application for copies should be addressed to the Illuminating Engineering Society, 345 East 47th Street, New York, NY 10017.)

METAL BUILDING MANUFACTURERS ASSOCIATION

MBMA - Recommended Design Practices Manual.

(Application for copies should be addressed to the Metal Building Manufacturers Association, 2130 Keith Building, Cleveland, OH 44115.)

NATIONAL FIRE PROTECTION ASSOCIATION

NFPA No. 70 - National Electrical Code.

(Application for copies should be addressed to the National Fire Protection Association, 60 Batterymarch Street, Boston, MA 02110.)

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Associations, Inc., ATTN: Tariff Order Section, 1616 P Street, NW, Washington, DC 20036.)

STEEL STRUCTURES PAINTING COUNCIL

SSPC - SP3 - No. 3 Power Tool Cleaning.

(Application for copies should be addressed to the Steel Structures Painting Council, 4400 Fifth Avenue, Pittsburgh, PA 15213.)

STEEL WINDOW INSTITUTE

Recommended Specifications for Steel Windows.

(Application for copies should be addressed to the Steel Window Institute, c/o Thomas Associates, Inc., Keith Building, Cleveland, OH 44116.)

UNIFORM CLASSIFICATION COMMITTEE, AGENT

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Committee, ATTN: Tariff Publishing Officer, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

COUNTY OF LOS ANGELES - AIR POLLUTION CONTROL DISTRICT

Rule 66 - Organic Solvents

(Application for copies should be addressed to the County of Los Angeles - Air Pollution Control District, 434 S. San Pedro Street, Los Angeles, CA

3. REQUIREMENTS

3.1 Description. The refrigerated warehouse shall be as specified herein (see 1.1 and 6.3), and shall be furnished unassembled. The warehouse shall consist of all structural, electrical, and mechanical equipment and materials as specified herein. The building shall be erectable by unskilled personnel using handtools and lifting equipment (see 6.4).

3.2 First article (first-produced building). The supplier shall furnish one or more refrigerated warehouses including foundations, insulated floor, and loading dock for examination and testing within the time frame specified (see 6.2), to prove that his production methods and choice of design detail will produce refrigerated warehouses that comply with the requirements of this specification. Examination and tests shall be as specified in Section 4, and unless otherwise specified herein, all examination and tests shall be conducted by the supplier subject to surveillance and approval by the Government (see 6.5). When specified (see 6.2), the Government will conduct any or all of the first-produced building examination and tests, as specified (see 6.2).

3.2.1 Building for erection test. The refrigerated warehouse for the erection test shall be complete, weatherproof, and like or similar to each warehouse being furnished as specified herein. The test building shall consist of two end bays and one interior bay; the end walls shall be complete with all doors and windows. Side walls and interior walls shall be furnished with sliding doors and refrigerator doors. The test building shall be erected in accordance with instructions contained in the supplier's erection manual for the warehouse.

3.2.2 Engineering design data and drawings. In addition to the first-produced model, the following engineering design data and drawings shall be furnished by the supplier prior to the time the first-produced model is furnished (see 6.5.1) within the time frame specified (see 6.2). Engineering design data including, but not limited to, stress analysis computations and sketches may be supplier's format. Drawings shall conform to MIL-D-1000, Category E, Form I.

(a) Structural analysis:

(1) Structural analysis computations and moment and shear diagrams for load carrying members of the structural framework including bracing.
(2) Magnitude and location of reactions for all loading conditions.
(3) Location, magnitude, and direction of maximum deflection of primary and secondary structural members due to live load.
(4) Design and details of reinforced concrete footings and floor slabs based on criteria specified in 3.4.4.4.

(b) Mechanical design: Method of attachment of the machinery specified herein to the structural portion of the building.

(c) Drawings:

(1) Details of each connection of primary and secondary members and primary to secondary members, including loading dock.
(2) Details of the structural framing, location, length, and marking of component parts.
(3) Schematic of the mechanical equipment and location of the equipment in relation to the structural framework of the building.
(4) Schematic of electrical system and location of the conduit, distribution and junction boxes.
(5) Drawings showing critical interface details between mechanical, electrical, and structural systems.

3.3 Initial production inspection. When specified (see 6.2), the supplier shall furnish to the Government one or more warehouses for inspection as specified in 4.4.

3.4 Design criteria.

3.4.1 Warehouse configuration. Configuration of the warehouse, complete with office space, personnel doors, windows, and refrigerated spaces, shall be as shown on the Government sketches (see 1.1 and 6.3).

3.4.2 Warehouse dimensions.

3.4.2.1 Warehouse dimensions. The width of the warehouse shall be the distance between the inside faces of the insulated panels, and the building length shall be the distance between centerlines of the end wall columns. The eave height shall be the distance between the finished floor elevation and the intersection of the structural and roofline. The stacking height is the clear distance between the structural members and the finished floor elevation. Slope of the roof shall be 1:12. Other details shall be as shown on the sketches (see 6.3).

3.4.2.2 Loading dock and roof dimensions. The finished grade of the loading dock shall be 4 feet 2 inches above finished grade of the loading area. The roof covering the dock shall be an extension of the main roof panels and shall have the same slope as the roof panels. The clear height between finished grade of the dock and the roof shall be not less than 10 feet. The roof covering the dock shall extend not less than 13 feet 9 inches from the face of the building and shall not be insulated. The width of the loading dock over the guard apron and bumpers shall be 12'- 0".

3.4.3 Operational characteristics.

3.4.3.1 Shelf life. The refrigerated warehouse and all of its component parts shall be capable of being in storage for a 10-year period without any maintenance. The K factor for insulation and building dimensions shall remain stable during this period.

3.4.4 Structural design. Except as specified herein, the warehouse shall be designed in accordance with the Metal Building Manufacturers Association's "Recommended Design Practices Manual".

3.4.4.1 Design loads. Unless otherwise specified (see 6.2), each warehouse shall be designed to withstand the dead load and the following live loads (see 6.6):

(a) Warehouse and dock roof live load: 30 pounds per square foot on the horizontal roof projection.
(b) Wind load: 20 pounds/square foot.
(c) Floor load: 400 pounds per square foot.
(d) Dock load: 250 pounds per square foot.

3.4.4.2 Framed openings. Framed openings for refrigeration units and other mechanical equipment shall be designed to support the live and dead loads transmitted to the structure. Refrigeration and other mechanical equipment shall be mounted on vibration isolators to limit vibration transmission to the structure.

3.4.4.3 Deflections. The maximum deflection of primary and secondary structural members, frames, girts, and purlins shall not exceed 1/180 of the span. Maximum live load deflection of side wall, end wall, and roof panels shall not exceed 1/180 of the span.

3.4.4.4 Foundation design. The supplier shall furnish a design for footings and an insulated floor system. Concrete reinforcing bars and wire fabric required for a floor system and footings shall not be furnished. When applicable, footings and floor slabs shall be designed in accordance with American Concrete Institute Standard ACI 318. The allowable soil bearing value shall be taken as 3,000 pounds per square foot, and the minimum compressive strength of concrete in 28 days shall be 2,500 pounds per square inch.

3.4.4.4.1 Footings. Footings for primary structural frames shall be reinforced concrete and shall be designed utilizing reinforcing bars and wire fabric.

3.4.4.4.2 Insulated floor system. The warehouse shall be furnished with an insulated floor system. The floor system may be beam and girder type supported by piers or may be a floor slab type. Each floor system shall be provided with vents, vapor barriers, and foam insulation. Piers shall be plain concrete. The "U" factor for the floor system shall not exceed 0.035 Btu/hour/square foot/°F.

3.4.4.5 Loading dock. The loading dock shall be structural steel beam, girder, and post construction with a timber deck, guard apron, and bumper. Decking guard apron and bumper shall be fabricated from softwood conforming to MM-L-751, grade optional, 1350 psi bending stress minimum, Douglas Fir or Southern Pine. The deck shall be bolted to the steel beams. The dock shall include a stairway on each end. The guard apron and bumper shall be continuous around the dock perimeter and shall be designed in such a manner that shock loads shall not be transmitted into the structural members or the insulated wall covering the building. Loading docks shall be provided as specified in the sketches (see 6.3).

3.4.5 Electrical and lighting system.

3.4.5.1 Electrical system. The electrical system furnished for each building shall be designed in accordance with the National Fire Protection

Association, National Electrical Code, NFPA 70. The system shall distribute power for lighting, unit heaters, refrigeration equipment, and other electrical equipment required to support the warehouse operation (see 6.8). The system shall operate from a supply rated three phase, four wire, 208Y/120 volts, 60 Hertz, and shall also be rated for and supplied with the necessary alternate circuit breakers, relay coils, overload heaters and parts for adapting the system to a supply rated three phase, four wire, 50 Hertz and voltage within the range of 380Y/220 to 416Y/240 volts. The panel shall be provided with instructions on the interior cover for restarting the units. The instruction plate shall conform to MIL-P-514, Type III, Composition C and shall be attached with mechanical fasteners.

3.4.5.2 Interior and exterior lighting. The interior and exterior lighting system shall be designed in accordance with the Illuminating Engineering Society Lighting Handbook. Lighting fixtures shall furnish not less than the following average illumination quantities at the floor level of the space indicated. The refrigerated spaces shall be furnished with incandescent lighting in vapor-tight fixtures. Lighting for other spaces shall be fluorescent, incandescent or mercury vapor, as specified (see 6.2).

Type of Space	Foot Candles
Dock	10
Five feet from outside edge of dock.	5
Office	50
Storage and Vestibule.	20

3.4.6 Refrigeration units. The refrigeration units shall be as specified on the sketches (see 6.3).

3.4.7 Insulated panels. Insulated panels assembled into walls and roofs, shall satisfy the design temperatures of plus 110°F outside the building and 0°F within the refrigerated storage space. Insulated panels assembled into interior partitions shall insulate the temperatures of plus 35°F on one side 0°F on another side. The U factor of roof wall and partition panels shall be not more than 0.035 Btu/hour/square foot/°F.

3.4.8 Gutter and downspout. The supplier shall design and furnish a gutter and downspout drainage system. Unless otherwise specified (see 6.2), the gutter and downspouts shall be capable of transporting the flow of water produced by a storm whose rainfall intensity during the time of concentration is 6 inches per hour (see 6.7).

3.4.9 Mechanical equipment. When specified (see 6.2), mechanical equipment other than refrigerating equipment shall be furnished and shall operate as designed when tested as specified in 4.6.3.2 (see 6.9).

3.4.10 Refrigeration performance. When tested as specified in 4.6.3.4, the walls, roofs, and interior partitions shall show no evidence of frost build-up within the insulated panels or built-up sections.

3.5 Material. Material shall be as specified herein. Materials not specified shall be selected by the supplier and shall be subject to all provisions of this specification.

3.5.1 Aluminum. All aluminum structural shapes, sheet, and extensions shall conform to applicable American Society for Testing and Materials specifications.

3.5.2 Structural steel. High strength steel, high strength low-alloy steel, low-carbon steel, and zinc-coated steel sheet shall conform to applicable American Society for Testing and Materials specifications.

3.5.3 Sealant. Sealant for roof and wall covering, side laps, end laps, flashing, and trim shall be a pressure-sensitive compound. The sealant shall be nonasphaltic, nondrying, nontoxic, shrink not more than 15 percent, and shall adhere to metals and painted surfaces at temperatures ranging from minus 40°F to plus 200°F. The material shall have a flash point of not less than 300°F and shall not flow at 200°F. The sealant shall be supplied in easily separated coil stock. The quantity provided shall produce a weathertight seal of all roof and wall joints, flashing, and trim when applied in accordance with the supplier's erection manual.

3.6 Components.

3.6.1 Structural framing. All structural framing, including frames of framed openings for the refrigeration units, shall be accurately prepunched or predrilled for bolted field assembly. Purlins, girts, and outside covering need not be prepunched.

3.6.2 Curb, guard rail, and interior wall guards. Lumber for curb, railing, and wall guards shall conform to MM-L-751, Southern Pine or Douglas Fir, Grade No. 1, with a moisture content of not more than 19 percent. The interior wall guard and curbs shall be given a fire-retardant treatment in accordance with MIL-L-19140.

3.6.2.1 Curb. A timber curb 8 inches high and 6 inches thick shall be provided around the inside walls and columns of the building and along the dock

next to the building wall. The curb shall be attached to the steel framing of the building and dock with galvanized bolts.

3.6.2.2 Guard railing. Timber guard railing shall be placed along the dock next to the building behind the curb. The guard rail shall be not less than 36 inches in height and shall have 6X6-inch vertical posts spaced on 6-foot centers. Two 2X6-inch horizontal members shall be placed on the vertical posts: One half-way up and one whose upper edge is 2 inches from the top of the post.

3.6.2.3 Interior wall guards. Interior wall guards shall be bolted to the top of the curb and bolted to the structural framing near the roof line. Vertical studs shall be 2X6 and spaced 2 feet on centers along the top of the curb. Horizontal ventilating slats shall be 1X4 and placed 1 foot on centers from the bottom to the top of the wall guard. The studs and slats shall be preassembled in panels and shall weigh not more than 200 pounds per panel. The panels shall be bolted to the curb and the main structural members, method optional. The panels shall be attached to the structural members in such a manner that, in the event of application of an external force, no shock shall be transmitted to the building walls.

3.6.3 Outside covering; insulated roof, walls, and interior partitions. The insulated roof, walls, and interior partitions may be a built-up section or a composite sandwich panel, at the option of the supplier. The built-up section and sandwich panel shall be capable of withstanding the design load and deflection limits. The "U" factor for exterior walls and roof panels shall be not more than 0.035 Btu/hour/square foot/°F, and the "U" factor for interior partition panels shall be not more than 0.065 Btu/hour/square foot/°F. The flame spread rating of built-up insulated sections and composite panels shall be not less than 25 when tested in accordance with ASTM E84.

3.6.3.1 Built-up insulated section. When applicable (see 3.6.3), built-up sections of insulated walls shall consist of a steel panel, a vapor barrier, foam insulation, a layer of adhesive, foam insulation, and an interior finish covering as specified herein. Retainers and hardware to secure the section shall be provided. Expansion joints shall be provided where necessary.

3.6.3.1.1 Steel roof and wall panels. Steel roof and wall panels shall be fabricated from 26 gage zinc-coated steel sheet which has been given a colored finish coating of silicone polyester paint. Treatment and painting shall be at the supplier's option, color as specified (see 6.2).

3.6.3.1.2 Vapor barrier. The vapor barrier shall be 10-mil plastic film conforming to ASTM D 2103 or ASTM D 2530.

3.6.3.1.3 Foam insulation. The foam insulation shall be foam sheets of semi-rigid polyurethane; foam density shall be not less than 2 pounds per cubic foot, and shall satisfy the design temperatures (see 3.4.7). The "U" factor for exterior walls and roof shall be not more than 0.035 Btu/hour/square. foot/°F, and for interior partitions not more than 0.065 Btu/hour/square foot/°F.

3.6.3.1.4 Interior finish coat. Interior finish coat shall be white.

3.6.3.2 Composite insulated panels.

3.6.3.2.1 Steel-faced foam-insulated panels. Steel-faced foam-insulated panels shall consist of two steel faces and a core of polyurethane foam. The steel faces shall be 26-gage zinc-coated steel sheet which has been given a colored finish coating of silicone polyester paint. Treatment and painting shall be suppliers option, color as specified (see 6.2). The hollow core shall be filled with foam-in-place polyurethane foam, and the flame-spread classification of the completed panel shall be not more than 25.

3.6.3.2.2 Aluminum-faced plywood fiber glass-filled panels. When applicable (see 3.6.3), insulated panels shall consist of two aluminum outer faces, which have been given a reflective acrylic finish, two plywood faces, and wood framing; and the interior cavity shall be filled with fiber glass insulation. Aluminum faces shall be not less than 0.032 inch thick. Plywood shall conform to NN-P-530, Group B, Structural I, interior type, bonded with exterior glue. Fiber glass insulation shall conform to ASTM C553. Panel framing shall be wood conforming to MM-L-751, grade optional, Douglas Fir or Southern Pine.

3.6.4 Flashing and trim. Each building shall be furnished with the flashing and trim necessary to prevent penetration of dust and water and to provide a weathertight seal. Flashing and trim shall be preformed and shaped not less than 26 gage thickness, galvanized steel sheet and shall be provided at the rake, corners, eaves, framed openings, and wherever necessary to insure weathertightness and a neat finished appearance.

3.6.5 Closure strips. Closure strips required for weathertightness shall be solid rubber, neoprene, open or closed cell, polyfoam or styrofoam.

3.6.6 Screening. Unless otherwise specified herein, insect screening shall conform to RR-W-365, Type IV, Class 1, 18X16 mesh. When specified (see 6.2), the insect screening shall be aluminum conforming to RR-W-365, Type VII, 18X16 mesh.

3.6.7 Doors. Each building shall be furnished with single or double personnel doors, screen doors, refrigerator doors, horizontal sliding doors,

overhead sliding doors or framed openings, as specified (see 6.2). The number, size, and locations of the doors shall be as specified (see 6.2). When tested as specified in 4.6.3.2.1, the doors shall operate easily. All doors, except screen doors, shall be furnished with flashing and weatherstripping to insure weathertightness, and, when tested as specified in 4.6.3.3, shall show no evidence of leakage around the sills, jambs, or frames.

3.6.7.1 Personnel doors and frames. All personnel doors shall be hinged to swing outside the building.

3.6.7.1.1 Single personnel doors and frames. Single personnel doors and frames shall conform to RR-D-575, Type I, Style 1, 1-3/4 inch thick opening size 3 feet by 6 feet 8 inches, with continuous honeycomb core.

3.6.7.1.2 Double personnel doors and frames. Frames and double personnel doors shall be as specified in 3.6.7.1.1. Opening for double doors shall be two openings of 3 feet by 6 feet 8 inches each. The frame shall be reinforced for door closer mounting.

3.6.7.1.3 Screen doors. Screen doors shall be compatible with the personnel door frames specified herein. Insect screen shall be as specified in 3.6.6.

3.6.7.1.4 Glazing. When specified (see 6.2), personnel doors shall be furnished with glazing conforming to L-P-391, Item A, Type I, Grade A, thickness 3/16 inch, tinted gray.

3.6.7.2 Horizontal sliding. All structural elements, such as door framing, slide track, and other framing shall be fabricated from galvanized steel and completely prefabricated for installation in the specified opening. Structural members of metal doors shall be fabricated from 12 gage galvanized steel sheet and designed to meet all loading requirements.

3.6.7.2.1 Horizontal sliding doors. Each half of double-unit and each single-unit horizontal sliding door shall have at least two self-alining, self-cleaning hangers. Slide track hangers shall be spaced not more than 2 feet on centers. Track hood flashing shall be 26 gage galvanized steel sheet. The doors shall also be guided at the bottom with a self-cleaning door guide. Design and configuration of bottom door guides shall be the option of the supplier and shall be compatible with the doors being furnished.

3.6.7.2.2 Pilot doors. When specified (see 6.2), pilot doors shall be placed in horizontal sliding doors and shall be as specified in 3.6.7.1.1.

3.6.7.3 Refrigerator doors. Refrigerator doors shall be provided with frames for installation into a built-up insulated wall or a panelized wall as applicable. The doors shall conform to MIL-D-13580, type optional, or MIL-D-13581, at the option of the supplier.

3.6.7.4 Door hardware. All hardware for personnel doors shall be given U.S. dull bronze finish in accordance with FF-H-106.

3.6.7.4.1 Hinges. Hinges for personnel and pilot doors shall conform to FF-H-116, Type 2115, ball bearing, size 4-1/2 inches by 4-1/2 inches.

3.6.7.4.2 Door closer. Door closer shall conform to FF-H-121, Type 3225, Style J (modified to be exposed rectangular) Size II.

3.6.7.4.3 Locks. Locks for personnel doors shall conform to FF-H-106, Type 810K. Panic bolts for double doors shall be Type 822H and for single doors Type 820H.

3.6.7.4.4 Door stops. Door stops shall conform to FF-H-111, Type 1320E or 1328E.

3.6.7.4.5 Chain bolts. Bolts shall be provided on all double personnel doors and shall conform to FF-H-111, Type 1021A or 1021B, length optional. Bottom strikes shall be provided for the inactive leaf of personnel double doors.

3.6.8 Windows. When specified (see 6.2), each building shall be furnished with horizontal slide windows. The windows shall conform to Architectural Aluminum Manufacturers Association Specification HS A2 or to the Steel Window Institute, Recommended Specifications for Steel Windows, at the supplier's option. Metal thickness for principal members of solid-section windows shall be not less than 1/8 inch. The windows shall be complete with frames, sash, flashing, hardware, operating devices, screen frames, shutters and other appurtenances necessary for complete installation and proper operation.

3.6.8.1 Window framing. Jambs, lintels, and sills for windows shall be at the supplier's option and shall support the design load. Jambs, lintels, and sills may be fabricated from aluminum or structural steel; sills shall be contoured to serve as a combination of framing and flashing.

3.6.8.2 Operation of windows. The operable sashes shall be fitted with self-lubricating rollers, providing easy movement of the panel without binding or sticking when tested as specified in 4.6.3.2.1.

3.6.8.3 Window screens and frames. Window screens and frames shall be provided on all operable sash. Window screens shall be readily removable from the exterior of the building. Insect screen shall conform to 3.6.6.

3.6.8.4 Window shutters. Metal shutters which slide or hinge on both sides shall be designed to withstand 70-mph winds. Hardware suitable to close shutters and to hold shutters against the building shall be provided. When tested as specified in 4.6.3.2.1, the shutters shall operate without binding or sticking.

3.6.8.5 Glazing. All windows shall be furnished with glazing conforming to L-P-391, Item A, Type I, Grade A, thickness 3/16 inch, tinted gray.

3.6.9 Fasteners. All threaded fasteners shall conform to the requirements specified herein. The quantity of fasteners furnished shall exceed the actual quantity needed to erect the building as follows:

(a) Size 1/2 inch or larger . . . . . 5 percent extra.
(b) Less than 1/2 inch size . . . . . 10 percent extra.

All fasteners, except anchor bolts, shall be either cadmium or zinc-coated steel. Cadmium coating shall conform to QQ-P-416, Type II, Class 3. Zinc coating shall conform to QQ-Z-325, Type II, Class 3, for all fasteners 1/2 inch and under. Zinc coating for fasteners larger than 1/2 inch in diameter shall be hot-dip process conforming to ASTM A153.

3.6.9.1 Steel bolts.

3.6.9.1.1 High strength structural bolts. High strength structural bolts shall conform to FF-B-575, Type IV, ASTM A 325 or A 490, size and strength as required by design criteria.

3.6.9.1.2 Commercial bolts and anchor bolts. Commercial bolts and anchor bolts shall conform to FF-B-575, Type II or III, Grade 5.

3.6.9.2 Plain steel washers. Washers, except those used on the anchor bolts, shall conform to FF-W-92, Type A, Grade I, Class A, cadmium or zinc-plated. Washers for anchor bolts shall conform to FF-W-92, Type A or B, Grade I, Class A.

3.6.9.3 Wall and roof fasteners. All sheet metal screws and self-tapping screws shall be cadmium or zinc coated steel or stainless steel, slotted hexagon head, as shown in ANSI B18.6.4, Table 50.

3.6.9.3.1 Exterior exposed roof fasteners. Each roof fastener shall be furnished with an attached combination washer. Washers shall be dish type, cadmium or zinc-coated steel or stainless steel and shall have synthetic rubber not less than 1/16 inch in thickness bonded to the concave side by a heat- and pressure-type adhesive. The washers shall be attached to sheet metal screws and self-tapping screws with the synthetic rubber face of the washer toward the point of the fastener. The washer shall be of such size that it will fit snugly over the fastener and will not drop off during normal handling by personnel.

3.6.10 Gutters and downspouts. Each building shall be furnished with gutters and downspouts. Gutters shall be furnished with trash screens. Downspouts shall conduct water to a height of 8 inches above finished grade and shall be equipped with a 45-degree elbow splash deflector. Spacing of gutter strap supports shall be not less than 10 and not more than 20 inches on centers as dictated by structural requirements (see 3.4.8).

3.6.11 Ceilings. Office spaces of the warehouses shall be furnished with a ceiling. The ceiling shall be furnished with hangers, ceiling panels, and associated components. Structural members, both primary and secondary, shall be fabricated with holes for support hangers.

3.6.12 Termite shields. When specified (see 6.2), the building shall be furnished with termite shields fabricated from zinc-coated steel sheet conforming to ASTM A 446, 1.25 ounces per square foot, and .0170 inch thick.

3.6.13 Thermometers. Thermometers shall be furnished for each warehouse storage room. The thermometer shall be not less than 12 inches long with a face guard and a mounting bracket and shall be accurate to within 1°F between 0° and 35°F.

3.6.14 Plumbing. Plumbing fixtures for the buildings shall conform to WW-P-541.

3.6.15 Spare components. When specified (see 6.2), the supplier shall furnish spare components to support the three dismounting and reassembly operations (see 3.4.3.1). The total value of the spare components shall not exceed 10 percent of the value of an individual structure. The contracting officer will review the recommended list and approve the spare parts to be included in the building purchase.

3.7 Electrical and lighting system. The electrical wiring shall consist of conductors rated 75° C moisture resistant, not less than 20 amperes in size, and 600 volts. The wiring shall be placed in heavy wall steel conduit and shall be vapor-tight. Conduit outlets shall be threaded-hub vapor-tight.

Where normal vibration requires flexibility, liquid-tight flexible metal conduit shall be used. The system shall be complete with fasteners and anchorages necessary to attach the conduit and wiring to the structure. When tested as specified in 4.6.3.2.3, the electrical system shall provide the necessary amperage and voltage to the receptacles, wall switches, luminaires, and electrical equipment. Electric assemblies shall be marked in accordance with MIL-STD-195. When tested as specified in 4.6.3.2.4, the lighting system shall produce the amount of light at the floor level specified in 3.4.5.2.

3.7.1 Service entrance. Conductors shall be placed inside zinc-coated conduit conforming to WW-C-581, size as required, with entrance cap conforming to W-C-586, type, design, form, style and size optional.

3.7.2 Service entrance conductor. Service entrance conductors shall be one of the 75°C rated rubber or thermoplastic insulated conductors listed in Article 310 of the National Electric Code and shall conform to J-C-30, type as applicable, 600-volt single conductor.

3.7.3 Conduit and fittings. Conduit and fittings shall conform to WW-C-581 and W-F-406 or W-F-408, size and number optional.

3.7.4 Power distribution panels. Power distribution panels shall conform to W-P-115, Type I, Class 1, and shall be equipped with aluminum or copper conductors. The panelboard shall contain pressure-type terminals.

3.7.4.1 Circuit breakers. Circuit breakers shall conform to W-C-375, class as specified in the Government-furnished sketches (see 6.3).

3.7.5 Conductors.

3.7.5.1 Control wiring. Size of control wiring shall be suitable for the the intended purpose and shall not cause malfunction of the control.

3.7.5.2 Wiring conductors. All wiring conductors shall be not less than No. 12 AWG (copper equivalent).

3.7.5.3 Feeder and branch circuit conductors. Conductors for branch circuits shall be 600-volt capacity conforming to J-C-30, type optional, as applicable, plus a grounding conductor. Conductors to ballast shall be in conduit. Feeder conductors which are required to be larger than available conductors of the above types may be interlocked armored cable.

3.7.6 Clamps, straps, and fasteners. Clamps and straps holding conduit or cable shall be designed for easy attachment to wood or steel. Fasteners shall also be suitable for securing the clamps and straps to either wood or steel.

3.7.7 Fluorescent light fixtures. When applicable, fluorescent fixtures shall conform to W-F-1234, Style B, Kind A, Size 1, with mounted ballasts. Ballasts shall conform to W-B-30, 110/125-volt, rapid start.

3.7.8 Mercury vapor light fixtures. When applicable, mercury vapor fixtures shall be high bay open aluminum for 400-watt or 700-watt lamps. They may have integral ballasts or separate lamp ballasts; power factor shall be not less than 90 percent. Integral-ballast fixtures shall be completely assembled, without lamps.

3.7.9 Incandescent light fixtures. Incandescent light fixtures for the refrigerated spaces shall conform to W-F-412, Type V or VI, size as applicable to provide the illumination specified in 3.4.5.3. Incandescent light fixtures utilized in other spaces shall conform to W-F-412, type and size as applicable.

3.7.10 Fluorescent, mercury vapor, and incandescent lamps. Unless otherwise specified (see 6.2), fluorescent mercury vapor, and incandescent lamps shall not be furnished with the building.

3.7.11 Receptacles. Receptacles shall conform to W-C-596, Series X, 125 volts, 20 amperes. Unless otherwise specified (see 6.2), receptacles shall be placed at 10-foot intervals on all outside walls and not less than 18 inches above the floor. Cover plates shall be surface mounted, weatherproof type, gasketed, spring loaded, cast aluminum.

3.7.12 Junction boxes. All junction and outlet boxes shall be 4-inch, round-base with threaded hubs conforming to W-C-586, Type III, Design 16.

3.7.13 Conductor splices. Conductor splices, not on pressure terminals or screwless receptacles, involving Size AWG 10 or 12 shall be spliced by insulated twist-on threaded connectors. Splices of AWG 8 and larger shall be spliced by bolt pressure connectors.

3.7.14 Insulating tape. Insulating tape for conductor splices shall conform to MIL-I-24391, 3/4 inch wide.

3.8 Fungus and moisture resistance. The electrical circuitry, including all components and connections except as specified below, shall be protected from the effects of fungus growth and moisture by an overall treatment with a varnish conforming to MIL-V-173, Composition as specified in 3.8.1, with 1 percent copper 8-quinolinolate (by weight) based on the nonvolatile content of the varnish:

(a) Components or circuit elements that are inherently fungus and moisture resistant or which are hermetically sealed need not be treated.

(b) Components or circuit elements whose functions will be adversely affected by the varnish coating shall not be treated.

When used, the varnish shall be applied by spray, brush, or a combination of both to give a dry-film thickness of not less than 1 mil to component or element surfaces previously cleaned and prepared so that the surfaces are free from all foreign matter which would interfere with the adherence or function of the varnish.

3.8.1 Composition. Composition I shall be used unless Composition II must be used in order to comply with local air pollution regulations in the application of the varnish. When Composition II is used, the supplier shall provide evidence to the Government that the use of Composition II is required, and shall certify that the Composition II material complies with Rule 66 - Air Pollution Control District, County of Los Angeles, CA.

3.9 Weatherproof siding, flashing doors, and windows. The siding, flashing doors, and windows shall show no evidence of leakage when tested as specified in 4.6.3.3.

3.10 Cleaning, treatment, and painting.

3.10.1 Cleaning.

3.10.1.1 Steel. All steel surfaces, except for outside covering, shall be cleaned in accordance with Structural Steel Painting Council Specification SSPC-SP3.

3.10.1.2 Aluminum. All aluminum surfaces, except for outside covering, shall be cleaned in accordance with MIL-T-704.

3.10.2 Treatment and painting. Structural building components shall be treated and painted in accordance with MIL-T-704, Type C, color optional.

3.10.3 Erection markings. Each framing component shall be clearly stenciled with erection marking in accordance with MIL-T-704. The marking shall be Gothic capital letters and Arabic numbers not less than 1 inch high. Components too small for stenciling shall be marked with an attached metal tag. Erection markings shall conform to the identification numbers indicated in the erection drawings and the erection manual.

3.11 Erection manuals. Three erection manuals shall be furnished with each building. The manuals shall consist of isometric or perspective line drawings and pertinent details showing each successive step in field erection. Included in the manuals shall be a complete bill of material, erection diagrams, a packing list and one set of reduced-size prints of applicable drawings showing the following:

(a) Typical foundation details and anchor bolt layout.
(b) Insulated floor details and layout.
(c) Insulated wall and roof details and layout.
(d) Details and typical sections of doors, refrigerator doors, and windows.
(e) Details of typical mounting of refrigerating units.
(f) Layout and details for erection, including, but not limited to, flashing, weathertight trim, vapor barrier, sealing of walls, and details of installation of the electrical, lighting, and refrigeration unit warning system.

3.11.1 Disassembly manual. One disassembly manual shall be furnished with each building. The manual shall consist of isometric or perspective line drawings and pertinent details showing each successive step in field dismantling. Included in the manual shall be bills of materials for packaging and crating needed for disassembled parts, dimension diagrams of packages and crates, list of hardware which should be replaced before re-erection occurs, instructions for packaging, and crating of disassembled parts.

3.12 Identification marking. Each building shall be identified in accordance with MIL-STD-130.

3.13 Workmanship. All parts, components, and assemblies of each building shall be fabricated to assure ease of assembly, operation, and interchangeability. Components of each building of the same type, class, style, or eave height furnished by the supplier under one procurement shall be interchangeable between buildings.

3.13.1 Metal fabrication. Metal used in fabrication shall be free from kinks and sharp bends. The straightening of material shall be done by methods that will not cause injury to the material. Corners shall be square and true. Flame cutting, using tips suitable for the thickness of the steel, may be employed instead of shearing and sawing. All bends shall be made with controlled means to insure uniformity of size and shape. Precaution shall be taken to avoid overheating. Heated steel shall be allowed to cool slowly. External surfaces shall be free of burrs, sharp edges and corners, except when sharp edges or corners are required or where they are not detrimental to safety.

3.13.2 Welders and welding.

3.13.2.1 Welders. Before assigning any welder to manual welding work covered by this specification, the supplier shall provide the contracting officer with certification that the welder has passed qualification tests as prescribed by either of the following listed codes for the type of welding operations to be performed and that such qualification is effective as defined by the particular code:

AWS D1.1, Structural Welding Code, Section 5, Qualification.
ASME Boiler and Pressure Vessel Code, Section IX, Welding Qualifications.

Suppliers who only make horizontal welds need not qualify welders for "all position welding". Subject to approval by the Government, supplier's standard welder qualification may be substituted in lieu of the above codes provided that the supplier's procedure is equivalent to the above codes. The supplier shall be responsible for determining that automatic welder equipment operators are capable of producing quality welds. Operators of any automatic, semiautomatic or manual arc-welding machines shall be considered welders for the purpose of this specification.

3.13.2.2 Welding.

3.13.2.2.1 Aluminum. The aluminum surfaces of parts to be welded shall be free from scale, paint, grease, oxide film and other foreign matter. The welding shall be done by inert gas shielded-arc method. Welds may be ground, filed, buffed or chipped but not hammered, and shall be free from defects such as base metal cracks adjacent to or behind welds, cracks in weld metal, undercutting of base metal, lack of fusion with parent metal or between parts, porosity, lack of penetration, lack of prescribed fit, slag inclusion, or spatter.

3.13.2.2.2 Steel. Surfaces of steel parts to be welded shall be free from rust, scale, paint, grease, mill scale that can be removed by chipping and wire brushing, and other foreign matter. Welds shall transmit stress without permanent deformation or failure when parts connected by welds are subjected to proof and service loading. Parent materials, weld filler metals, and fabrication techniques shall be as required to enable the building to conform to the examination and test requirements specified in Section 4. Parts to be joined by fillet welds shall be brought into as close contact as possible and in no event shall be separated by more than 1/16 inch. The welding process shall be at the option of the supplier and shall conform to the provisions of AWS D1.1.

3.13.3 Bolted connections. Boltholes shall be accurately formed and shall have the burrs removed. Boltholes in structural members subject to variable loads shall be punched or drilled. Washers shall be provided where necessary.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other

facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specifification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Component and material inspection. The supplier is responsible for insuring that components and materials used are manufactured, examined, and tested in accordance with referenced specifications and standards.

4.2 Classification of inspections. Inspections shall be classified as follows:

(a) First-produced building inspection (see 4.3).
(b) Initial production inspection (see 4.4).
(c) Quality conformance inspection (see 4.5).
(d) Inspection comparison (see 4.7).
(e) Inspection of preparation for delivery (see 4.8).

4.3 First-produced building inspection.

4.3.1 Sampling. Prefabricated components, accessories, fasteners, anchor bolts, and all material necessary to construct a modified building (see 3.2.1) shall be selected at random from lots of like items. Supplier's standard commercial items may be furnished when these items meet the requirements of this specification.

4.3.2 Examination.

4.3.2.1 Test building. The test building shall be examined as specified in 4.6.1. Presence of one or more defects shall be cause for rejection.

4.3.3 Tests.

4.3.3.1 Test building. The test building shall be subjected to the tests marked "X" in Column 1 of Table I. Failure of any test shall be cause for rejection.

4.4 Initial production inspection. When specified (see 3.3), one or more initial production warehouses will be selected at random by the Government from the warehouses being produced by production tooling and will be examined as specified in 4.6.1 and subjected to the tests marked "X" in Column 2 of Table I to determine conformance to the requirements of this specification. The inspection will be performed by the Government at a site selected by the

Government. Acceptance of an initial production warehouse shall not exclude the remaining warehouses from the quality conformance inspection and acceptance provisions specified in Section 4. In addition to any test specified as part of the initial production test, the Government reserves the right to conduct any and all other tests contained in this specification as part of the initial production test, and failure of such additional tests shall have the same effect as failure of those tests specified as initial production tests.

4.4.1 Inspection failure. Failure of an initial production warehouse to meet any requirement specified herein during and as a result of the examination and tests specified in 4.4 shall be cause for rejection of the initial production warehouses and shall be cause for refusal by the Government to continue acceptance of production warehouses until evidence has been provided by the supplier that corrective action has been taken to eliminate the deficiencies. Correction of such deficiencies shall be accomplished by the supplier at no cost to the Government on warehouses previously accepted and produced under the contract. Any deficiencies found as a result of the initial production inspection will be considered prima facie evidence that all warehouses accepted prior to the completion of initial production inspection are similarly deficient unless evidence to the contrary is furnished by the supplier and such evidence is acceptable to the contracting officer.

4.5 Quality conformance inspection.

4.5.1 Building components, less refrigeration units.

4.5.1.1 Sampling. Sampling for examination shall be in accordance with MIL-STD-105.

4.5.1.2 Examination. Samples of like components selected in accordance with 4.5.1.1 shall be examined as specified in 4.6.1. AQL shall be 4.0 percent defective.

4.6 Inspection procedure.

4.6.1 Examination. Buildings shall be examined as specified herein for the following defects:

101. Design and fabrication not as specified.
102. Erection manual not as specified.
103. Materials not as specified.
104. Components missing or not as specified.
105. Treatment and painting not as specified.

106. Stenciling not as specified.
107. Disassembly manual not as specified.
108. Identification marking not as specified.
109. Workmanship not as specified.

4.6.2 Test schedule. The test schedule is contained in Table I.

Table I. Test Schedule

First-produced Building	Initial Production	Quality Conformance	Test	Test Paragraph	Requirement Paragraph
1	2	3	4	5	6
X	X	-	Building erection.	4.6.3.1	3.2
X	X	-	Doors and windows.	4.6.3.2.1	3.6.7, 3.6.8
X	X	-	Mechanical equipment.	4.6.3.2.2	3.4.9
X	X	-	Electrical system.	4.6.3.2.3	3.7
X	X	-	Lighting system.	4.6.3.2.4	3.7
X	X	-	Weathertightness.	4.6.3.3	3.9

4.6.3 Tests.

4.6.3.1 Erection. The supplier shall furnish all labor and materials required for the erection of one complete modified building. The modified building shall be made up of randomly selected structural elements and components necessary to erect a complete, weathertight test building. After the modified test building has been erected and tested, the supplier shall completely disassemble the test building and replace all damaged parts and fasteners, retouch damaged protective coatings, and furnish new high strength steel bolts. When all of the above are replaced and repaired, the building from which the components were selected may be accepted for delivery. The outside covering used on the first-produced item test building shall not be furnished as a part of the contract or order. The test building shall be erected in accordance with procedures and instructions described in the erection manual furnished by the supplier. Failure of any component to assemble properly, deformation of components, or inadequate erection or dismantling manuals shall constitute failure of the test.

4.6.3.2 Operational tests.

4.6.3.2.1 Doors, windows, and shutters. All doors, windows, and shutters shall be opened and closed not less than 10 times to demonstrate that they are easily operable. Nonconformance to 3.6.7, 3.6.8.2, or 3.6.8.4 shall constitute failure of this test.

4.6.3.2.2 Mechanical equipment. When applicable, all mechanical equipment other than refrigeration equipment shall be installed in accordance with the erection manual and cycled not less than five times to prove that the equipment is capable of performing the designed function. Inability to cycle properly or to perform the intended function shall constitute failure of the test.

4.6.3.2.3 Electrical system. Install the electrical system in accordance with the erection manual and check for continuity of circuits. Nonconformance to 3.4.5.1 and 3.7 shall constitute failure of the test.

4.6.3.2.4 Lighting system. Install the lighting system in accordance with the erection manual and energize the system. Measure the quantity of light produced by the luminaires at the distance above the floor specified herein at various locations within the building. Nonconformance to 3.7 shall constitute failure of the test.

4.6.3.3 Weathertightness. After the test building has been erected complete with the required doors, windows, and appurtenances, spray the building exterior with a low pressure stream of water. While the building is being sprayed with water, examine the interior of the building for integrity against leakage. Sliding doors shall also be sprayed with a low pressure stream of water. Any evidence of leakage, dripping, or running flow of water in the interior of the building or nonconformance to 3.6.7 or 3.9 shall constitute failure of the test.

4.6.3.4 Refrigeration. After the test building has been erected and subjected to the weathertightness test, start up the refrigeration units and lower the temperature of the building to not more than minus 10°F and hold that temperature for a period of not less than 5 days. If the walls are made up of a built-up insulated wall section and a separate vapor barrier, hold the temperature of minus 10°F for 10 days. Inspect the building after the building has been cooled for the specified time period, any build up of frost at the joints after the time period shall constitute failure of the test.

4.7 Inspection comparison. The Government may select warehouses at any time during the contract production period and subject these warehouses to

the examination specified in 4.6.1 and subjected to the tests marked "X" in Column 2 of Table I to determine conformance to the requirements of this specification. The inspection will be performed by the Government, at a site selected by the Government, on units selected at random from those which have been accepted by the Government and will not include the previously inspected preproduction model and initial production warehouses. In addition to any test specified as part of the inspection comparison, the Government reserves the right to conduct any and all other tests contained in this specification as part of the inspection comparison and failure of such additional tests shall have the same effect as failure of those tests specified as inspection comparison.

4.7.1 Inspection failure. Failure of an inspection comparison warehouse to meet any requirement specified herein during and as a result of the examination and tests specified in 4.7 shall be cause for rejection of the inspection comparison warehouse and shall be cause for refusal by the Government to continue acceptance of production warehouses until evidence has been provided by the supplier that corrective action has been taken to eliminate the deficiencies. Correction of such deficiencies shall be accomplished by the supplier at no cost to the Government on warehouses previously accepted and produced under the contract. Any deficiencies found as a result of the inspection comparison will be considered prima facie evidence that all warehouses accepted prior to the completion of inspection comparison are similarly deficient unless evidence to the contrary is furnished by the supplier and such evidence is acceptable to the contracting officer.

4.8 Inspection of preparation for delivery.

4.8.1 Preproduction pack inspection.

4.8.1.1 Examination. The preproduction pack shall be examined for the defects specified in 4.8.2.3. Presence of one or more defects shall be cause for rejection.

4.8.1.2 Test. The preproduction pack of crated components for Level A shall be subjected to the railroad car test as specified for guided-impact tests in accordance MIL-STD-1186, Appendix A. The car shall strike a string of five empty cars with draft gear extended and the brakes set, at a speed of not less than 10 miles nor more than 11 miles per hour. At the conclusion of the preproduction pack test, the pack shall be examined. Any shifting of contents, loosening or breaking of holddowns, ties, stays, blocking or bracing, or any visual damage to the components shall constitute failure of the preproduction pack and shall be cause for rejection.

4.8.2 Quality conformance inspection of pack.

4.8.2.1 Unit of product. For the purpose of inspection, a completed pack prepared for shipment shall be considered a unit of product.

4.8.2.2 Sampling. Sampling for examination shall be in accordance with MIL-STD-105.

4.8.2.3 Examination. Samples selected in accordance with 4.8.2.2 shall be examined for the following defects. AQL shall be 2.5 percent defective.

110. Materials, methods, and containers not as specified for Level A. Each incorrect material, method, or container shall be considered one defect.
111. Unprotected metal surfaces not coated with preservative as specified for Level A.
112. Loose electrical components not preserved and packaged as specified.
113. Openings into electrical components not sealed as specified for Level A.
114. Glass of instruments not protected as specified for Level A.
115. Small loose components not packaged and box sealed as specified for Level A.
116. Large components not bundled and secured as specified for Level A.
117. Other components not packaged as specified for Level A.
118. Repair parts not preserved as specified for Level A.
119. Consolidated packaging not as specified for Level A.
120. Packing not as specified for Level A.
121. Marking missing, illegible, incorrect, or incomplete for Level A or C.

5. PREPARATION FOR DELIVERY

5.1 Preproduction pack. The supplier shall furnish a preproduction pack for examination and test within the time frame specified (see 6.2) to prove prior to starting production packaging and packing that the applied preservation, packaging, packing and marking comply with the preparation for delivery requirements of this specification. Examination and test shall be those specified in Section 4 and shall be subject to surveillance and approval by the Government (see 6.10). The preproduction pack may be accomplished utilizing either the first-produced warehouse or a production warehouse. If the first-produced model warehouse is utilized, any preservation, packaging, and packing shall be removed by the supplier at no expense to the Government, when requested by the Government, to facilitate comparison between the first-produced model warehouse and the production warehouse.

5.2 Preservation and packaging. Preservation and packaging shall be Level A or C as specified (see 6.2).

5.2.1 Level A.

5.2.1.1 Preservatives. Preservatives shall conform to MIL-P-116.

5.2.1.2 Unprotected metal surfaces. Unpainted exterior metal surfaces of components of the warehouse requiring the application of a contact preservative in accordance with MIL-P-116 shall be coated with Type P-1 preservative.

5.2.1.3 Electrical components. Loose electrical components shall be preserved and packaged in accordance with the Level A requirements of MIL-E-17555. Openings into the control panels, switches, junction boxes, and similar items shall be sealed with tape conforming to PPP-T-60, Type IV. The glass of instruments shall be covered with a fitted piece of hardboard or 1/4-inch thick plywood secured in place with tape specified herein.

5.2.1.4 Small loose components. Small loose components of like size and description, such as bolts, nuts, washers, anchor bolts, capscrews, and turnbuckles, shall be packed in close-fitting boxes conforming to PPP-B-636, Type CF, Class Weather Resistant, Variety SW, grade as applicable to the weight of contents. The box shall be waterproof-sealed with tape as specified in the appendix to the box specification for slotted style boxes.

5.2.1.5 Large components. Large components, such as structural components, roof, wall and floor panels, lumber and flooring and similar components, shall be strapped together in uniform bundles. The grouping of components within the same bundle shall be limited to those of similar shapes. Gross weight of each bundle shall be limited to 2,500 pounds. Each bundle shall be secured with not less than three flat steel straps conforming to QQ-S-781, Class 1, Type I or IV, Size 1-1/4 inch by 0.035 inch, and, unless otherwise specified herein, shall be Finish B. When specified (see 6.2), Finish A strapping shall be used. Components subject to damage from the strapping shall be protected by the use of 1-inch by 4-inch wood battens placed under the straps and staples applied over the banding into the battens. Galvanized metal or pressed fiberboard edge protectors shall be used where strapping bears on edges of metal.

5.2.1.6 Other components. Other components that are too large to package as specified in 5.2.1.5 and of such configuration or size to be impractical to bundle as specified in 5.2.1.5 shall be packaged in close-fitting boxes conforming to PPP-B-601, Overseas Type, style optional or PPP-B-621, Class 2, style optional; or secured without boxing to the base of the crate specified in 5.3. Boxed components shall be cushioned, blocked, or braced as applicable within the box in a manner to prevent movement or damage. Strapping of boxes shall not be required.

5.2.1.7 Repair parts. The preservative application criteria and applicable method(s) of preservation of MIL-P-116 shall be used to preserve repair parts.

5.2.1.8 Technical manuals. The manuals shall be preserved together in accordance with MIL-P-116, Method IC-1 or IC-3.

5.2.1.9 Miscellaneous preservation and packaging. Components not specifically identified herein requiring protection against corrosion or physical or mechanical damage shall be preserved and packaged as specified for components of similar design or construction.

5.2.1.10 Consolidated packaging. Components packaged in fiberboard boxes and the technical publications shall be consolidated-packaged together in boxes as specified in 5.2.1.6.

5.2.2 Level C. The components comprising the complete refrigerated warehouse shall be preserved and packaged in a manner to assure protection against deterioration and mechanical and physical damage from the supplier to the initial destination.

5.3 Packing. Packing shall be Level A or C as specified (see 6.2).

5.3.1 Level A. The components comprising the complete refrigerated warehouse, preserved and packaged as specified in 5.2, shall be packed in the minimum number of crates conforming to MIL-C-104, Type I, Class 1 or 2, Style a. The components shall be arranged within the crate in a manner to provide maximum compactness, low center of gravity, and in a manner that void spaces are held to a minimum. The contents shall be blocked, braced, and anchored to withstand the test specified in 4.8, in accordance with MIL-STD-1186 and the appendix to the crate specification.

5.3.2 Level C. The components comprising the complete refrigerated warehouse, preserved and packaged as specified in 5.2, shall be packed to assure carrier acceptance and safe delivery to destination at lowest ratings in compliance with Uniform Freight Classification rules or National Motor Freight Classification rules.

5.4 Marking. Marking for shipment and storage shall be in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The prefabricated refrigerated warehouses are intended for use in the theatre of operations and form a part of the Army Facilities

Components System (AFCS). The buildings are intended for use as general refrigerated storage for ports, depots, or support distribution centers. The buildings are capable of erection by unskilled personnel.

6.2 Ordering data. Procurement documents should specify the following:

(a) Title, number, and date of this specification.
(b) Refrigerated warehouse required (see 1.1).
(c) Time frame required for the submission of the first-produced building and number of models required (see 3.2).
(d) When the Government will conduct any or all of the first-produced model examination and tests. When the Government will conduct some but not all of the first-produced model examination and tests, the contracting officer should specify which examination and tests will be conducted by the Government and which examination and tests shall be conducted by the supplier (see 3.2).
(e) Time frame for submission of the engineering design data and drawings (see 3.2.2).
(f) When initial production inspection is required and number of warehouses to be furnished, when applicable (see 3.3).
(g) When design loads are to be other than as specified (see 3.4.4.1).
(h) The type of lighting required (see 3.4.5.2).
(i) When rainfall intensity is to be other than as specified (see 3.4.8).
(j) Mechanical equipment other than refrigeration equipment required (see 3.4.9).
(k) Color required (see 3.6.3.1.1 and 3.6.3.2.1).
(l) When aluminum screen is required (see 3.6.6).
(m) Types, numbers, sizes, and location of doors and framed openings required (see 3.6.7).
(n) When glazing is required in personnel doors (see 3.6.7.1.4).
(o) When pilot doors are required in horizontal sliding doors (see 3.6.7.2.2).
(p) When horizontal windows are required and number and location of windows (see 3.6.8).
(q) When termite shields are required (see 3.6.12).
(r) When spare components of the warehouse are required (see 3.6.15).
(s) When fluorescent, incandescent, or mercury vapor lamps shall be furnished (see 3.7.10).
(t) When receptacles shall be placed other than as specified (see 3.7.11).
(u) Time frame required for submission of the preproduction pack (see 5.1).
(v) Level of preservation and packaging and level of packing required (see 5.2 and 5.3).
(w) When Finish A strapping is required (see 5.2.1.5).

6.3 Refrigerated warehouse sketches. The contracting officer should arrange to receive the sketches of each refrigerated warehouse required from the Headquarters, Department of the Army, ATTN: DAEN-FEE-A, Forrestal Building, Washington, DC 20314.

6.4 Personnel skill level and equipment. The erection of the structural portion of the buildings and the insulated walls will be installed by inexperienced personnel using handtools. Units assigned to erect the building are equipped with lifting equipment which have a capacity of 12-20 tons. The electrical, mechanical, and refrigeration equipment will be installed by experienced personnel with proper equipment.

6.5 First-produced building. Any changes or deviations of production buildings from the approved first-produced building during production will be subject to approval of the contracting officer. Approval of the first-produced building will not relieve the supplier of his obligation to furnish buildings conforming to this specification.

6.5.1 Engineering design data and drawings. The contracting officer should forward to the engineering support activity two copies of the engineering and design data and two complete sets of reproducible drawings.

6.6 Additional loads. The contracting officer should furnish the supplier with design requirements for additional dynamic and static loads when requested by the procuring activity. The additional loads could be in the form of air conditioning equipment or other machinery which attaches to the building (see 3.4.4.1 and 3.4.9).

6.7 Gutter and downspout design capacity. The quantity of water to be transported from the roof of the buildings shall be determined utilizing the rational method of analysis

where $Q = AiR$
Q = Quantity of water in CFS
A = Area in acres
R = Constant for the type of surface
i = Rainfall intensity during time of concentration in inches per hour

The rainfall of 6 inches per hour should not be changed unless definite information is available regarding the building location. The contracting officer should refer questions regarding rainfall intensities to the Commanding Officer, US Army Mobility Equipment Research and Development Center, ATTN: AMXFB-MG, Fort Belvoir, VA 22060.

6.8 Electrical service. The contracting officer should furnish the supplier with requirements for electrical service to the buildings. The information should include the total voltage and amperage service required and the number of electrical outlets required for each of the voltage surfaces (see 3.4.5.1 and 3.7).

6.9 Mechanical equipment for buildings. The contracting officer should provide the supplier with the required openings and connections for attachment of military designed heating or air conditioning equipment. When mechanical equipment is to be designed by the supplier, the contracting officer should furnish the supplier with the engineering data and guidance (see 3.4.9).

6.10 Preproduction pack. Any changes or deviations of production packs from the approved preproduction pack will be subject to the approval of the contracting officer. Approval of the preproduction pack will not relieve the supplier of his obligation to preserve, package, pack, and mark the prefabricated buildings in accordance with this specification.

Custodian:

Army - ME

Review activities:

Army - GL, CE

Preparing activity:

Army - ME

Project No. 5410-A086

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

OMB Approval
No. 22-R255

INSTRUCTIONS: The purpose of this form is to solicit beneficial comments which will help achieve procurement of suitable products at reasonable cost and minimum delay, or will otherwise enhance use of the document. DoD contractors, government activities, or manufacturers/vendors who are prospective suppliers of the product are invited to submit comments to the government. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements. Attach any pertinent data which may be of use in improving this document. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity.

DOCUMENT IDENTIFIER AND TITLE
MIL-W-52850(ME) Warehouse, Refrigerated, Prefabricated, Metal

NAME OF ORGANIZATION AND ADDRESS

CONTRACT NUMBER

MATERIAL PROCURED UNDER A
☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1. HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?
   A. GIVE PARAGRAPH NUMBER AND WORDING.

   B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

2. COMMENTS ON ANY DOCUMENT REQUIREMENT CONSIDERED TOO RIGID

3. IS THE DOCUMENT RESTRICTIVE?
   ☐ YES ☐ NO (If "Yes", in what way?)

4. REMARKS

SUBMITTED BY (Printed or typed name and address - Optional)

TELEPHONE NO.

DATE

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