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L-P-320B
MARCH 8, 1973

FEDERAL SPECIFICATION

PIPE AND FITTINGS, PLASTIC (POLYVINYL CHLORIDE, PVC, DRAIN, WASTE, AND VENT, DWV)

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers polyvinyl chloride (PVC) drain, waste, and vent (DWV) pipe and fittings.

1.2 Classification.

1.2.1 Pipe. PVC pipe shall be in straight lengths with plain ends.

1.2.2 Fittings. Type, size and end connection of fittings shall be as specified (see 6.2 and 6.4).

1.2.3 Size, pipe. Size and length of pipe shall be as follows and as specified (see 6.2):

Pipe lengths	-	10 and 20 feet (3.1 and 6.1 m).
Sizes	-	1-1/4, 1-1/2, 2, 3, and 4 inches. 32, 38, 51, 76 and 100 mm.

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:

Federal Specifications:

PPP-B-585 - Boxes, Wood, Wirebound.
PPP-B-591 - Boxes, Shipping, Fiberboard, Wood-Cleated.
PPP-B-601 - Boxes, Wood, Cleated-Plywood.
PPP-B-636 - Box, Shipping, Fiberboard.
PPP-B-640 - Boxes, Fiberboard, Corrugated, Triple-Wall.
PPP-C-650 - Crates, Wood, Open and Covered.

Federal Standard:

Fed. Std. No. 123 - Marking for Domestic Shipment (Civil Agencies).

(Activities outside the Federal Government may obtain copies of Federal specifications Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

(Single copies of this specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes are

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available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, WA.

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(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129 - Marking For Shipment and Storage.

(Copies of Military 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 a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

American Society for Testing and Materials (ASTM) Standards:

D 2564 - Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Pipe and Fittings.
D 2665 - Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste and Vent Pipe and Fittings.

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

Uniform Classification Committee, Agent:

Uniform Freight Classification.

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

National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Association, Inc., Tariff Order Section, 1616 P Street, N.W., Washington, DC 20036.)

3. REQUIREMENTS

3.1 Pipe and fittings. Pipe and fittings shall meet the requirements of ASTM D 2665 and the following (see 4.3.1):

(a) PVC pipe (DWV) may include, in addition to clean rework material, clean rejected or damaged pipe that has not been in service.
(b) Solvent cement. When specified (see 6.2), solvent cement conforming to the requirement of ASTM D 2564 shall be provided for joint connections (see 4.3.2).

3.2 Workmanship. Pipe and fittings shall be homogeneous throughout, free of cracks, sharp burrs, slivers, or other harmful defects that would contribute to failure of the pipe and fittings or would materially reduce their usability and performance.

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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, the supplier may utilize his own facilities or any commercial laboratory acceptable to the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

4.2 Sampling and inspection. Inspection levels and Acceptable Quality Levels (AQL's) shall be in accordance with MIL-STD-105.

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4.2.1 Lot. Unless otherwise specified (see 6.2), a lot shall consist of all pipe and fittings of the same type, kind of fitting, and size submitted for inspection at the same time.

4.2.2 Dimensional and visual examination. PVC pipe and fittings shall be examined for those characteristics, set forth in table I in accordance with level S-3, and an AQL of 2.5 percent defective for major defects and 4.0 percent defective for minor defects listed in table I.

TABLE I. Classification of defects, end item

Defects	Major	Minor
Type and length of pipe, and size not as specified.	X	
Type and size of fittings not as specified.	X	
Sharp burrs, holes, or slivers present.	X	
Damage or defect affecting function or serviceability.	X	
Damage or defect not affecting function or serviceability.		X

4.2.3 Inspection of preparation for delivery. An inspection shall be made to determine that the packaging, packing and marking comply with the requirements in section 5 of this specification. Defects shall be scored in accordance with table II. For examination of interior packaging the sample unit shall be one shipping container fully prepared for delivery, selected at random just prior to the closing operations. Sampling shall be in accordance with MIL-STD-105. Defects of closure listed shall be examined on shipping containers fully prepared for delivery. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level be S-2 with an AQL of 4.0 defects per hundred units.

TABLE II. Classification of preparation for delivery defects

Examine	Defects
Markings (exterior and interior)	Omitted; incorrect; illegible; or improper size, location, sequence, or method of application.
Materials	Any component missing, or damaged.
Workmanship	Inadequate application of components such as incomplete closure of container flaps, loose strapping, inadequate stapling. Bulging or distortion of container.

4.3 Test methods.

4.3.1 Pipe and fittings. Test pipe and fittings in accordance with ASTM D 2665 (see 3.1).

4.3.2 Solvent cement. Test solvent cement in accordance with ASTM D 2564 (see 3.1).

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A, B, or C, as specified (see 6.2).

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5.1.1 Level A.

5.1.1.1 Unit packaging.

5.1.1.1.1 Fittings. Fittings of like description, in quantities as specified (see 6.2), shall be packaged in a close-fitting box conforming to PPP-B-636, class weather-resistant. Closure of boxes shall be in accordance with the appendix to PPP-B-636.

5.1.1.1.2 Pipe. All pipe shall have openings sealed with caps or plugs.

5.1.2 Level B. (See 6.4.1).

5.1.2.1 Unit packaging.

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5.1.2.1.1 Fittings. Fittings of like description in quantities as specified (see 6.2), shall be packaged in a close-fitting box conforming to PPP-B-636, class domestic. Closure of boxes shall be in accordance with the appendix to PPP-B-636.

5.1.2.1.2 Pipe. All pipe shall have openings sealed with caps or plugs.

5.1.3 Level C. Pipe and fittings shall be packaged in accordance with the manufacturer's standard practice, providing that this insures protection for the pipe and fittings during shipment and provides for safe delivery to their destination.

5.2 Packing. Packing shall be level A, B, or C, as specified (see 6.2).

5.2.1 Level A.

5.2.1.1 Fittings. Fittings of like description, in quantities as specified (see 6.2), shall be packed in a close-fitting box conforming to PPP-B-585, class 3, or PPP-B-601), overseas type.

5.2.1.2 Pipe. Pipe of like description shall be packed in created conforming to PPP-C-650, style B, type III.

5.2.2 Level B.

5.2.2.1 Fittings. Fittings of like description, in quantities as specified (see 6.2), shall be packed in a close-fitting box conforming to PPP-B-585, class 1; PPP-B-591, class 1; PPP-B-601, domestic type; PPP-B-636, class domestic; or PPP-B-640, class 2. The boxes shall be closed in accordance with the applicable specification or appendix thereto. The gross weight of the triple wall box or the wood boxes shall not exceed 150 pounds (68kg). The gross weight of the PPP-B-636 box shall not exceed the weight limitations of the box specification. closure of boxes shall be in accordance with the applicable box specification.

5.2.2.2 Pipe. Pipe of like description shall be packed in a close-fitting box conforming to PPP-B-636, class domestic; PPP-B-640, class 2, or in a crate conforming to PPP-C-650, style B, type III. The boxes and crates shall be closed in accordance with the appendix to the applicable specification. The gross weight of the PPP-B-636 box shall not exceed the weight limitations of the box specification. The gross weight of the triple-wall box shall not exceed 150 pounds.

5.2.3 Level C. Pipe and fittings, packaged as specified in 5.1.3, shall be packed in containers that will assure carrier acceptance and safe arrival at destination in compliance with the Uniform Freight Classification rules and the National Motor Freight Classification rules.

5.3 Marking. Marking shall be in accordance with 5.3.1 or 5.3.2, as specified (see 6.2).

5.3.1 Civil agencies. In addition to any special markings required by the containers shall be marked in accordance with Fed. Std. No. 123.

5.3.2 Military agencies. In addition to any special markings required by the contract or order, all interior packages and shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

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6.1 Intended use. PVC pipe and fittings covered by this specification are intended in drainage waste and vent piping systems for the drainage of sewage and certain other liquid wastes.

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6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

(a) Title, number, and date of this specification.
(b) Type, size and connection for fittings (see 1.2.1 and 6.4).
(c) Pipe, size and length (see 1.2.3).
(d) Recycled plastic material (see 3.1).
(e) Solvent cement, when required (see 3.1).
(f) Size of lot, if different from 4.2.1.
(g) Packaging and packing required (see 5.1 and 5.2).
(h) Quantities of fittings in unit packages (see 5.1.1.1.1 and 5.1.2.1.1).
(i) Quantities of unit packages of fittings in shipping container (see 5.2.1.1 and 5.2.2.1).

6.3 Pipe ends. PVC pipe covered by this specification is not threaded because of its relatively thin wall thickness. When threaded connections are required, use transition adapter fittings.

6.4 Fittings. Refer to ASTM D 2665 for details on fittings which includes sketches along with dimensions.

6.5 Solvent cement. Solvent cement will provide sufficient open time for making good joints and connections but joints should be completed immediately after applying solvent cement. Should any delay develop in assembly, an additional coat of solvent cement should be applied immediately prior to joining.

Caution: If longer open time is required for particular types of installation special instructions and specifications should be requested from the cement manufacturer. Any solvent cement of this "longer-open-time" type should be evaluated for possible deleterious effects on the pipe and fittings. The use of slower drying solvent cement should be avoided if at all possible.

6.6 Metric equivalents. The metric equivalents to dimensional requirements are for information only and are not intended to be used for determining acceptance or rejection of items otherwise conforming to the requirements of this specification.

MILITARY CUSTODIANS:

Army - ME

User Interest: CE, SH, CG

Military Coordinating Activity:

Army - ME

Preparing activity:

GSA-FASS

Orders for this publication are to be placed with the General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein. Price 10 cents each.

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L-P-320B
AMENDMENT-1
March 30,1977

FEDERAL SPECIFICATION

PIPE AND FITTINGS, PLASTIC
(POLYVINYL CHLORIDE, PVC, DRAIN,
WASTE, AND VENT, DWV)

This amendment, which forms a part of Federal Specification L-P-320B dated March 8, 1973, was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

PAGE 2

Under paragraph 3.1, delete subparagraph (a).

PAGE 3

Paragraph 4.2.1, delete in its entirety.

PAGE 4

Paragraph 5.2.2.1 line 3 and 5.2.2.2 line 2, delete "class domestic" and substitute "class weather-resistant."

PAGE 5

Under paragraph 6.2, delete subparagraphs (d) and (f) in their entirety.

PREPARING ACTIVITY:

GSA-FSS

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L-P-320B
NOTICE-1
May 14, 1973

FEDERAL SPECIFICATION

PIPE AND FITTINGS, PLASTIC
(POLYVINYL CHLORIDE, PVC, DRAIN,
WASTE, AND VENT, DWV)

This notice was issued by General Services Administration, Federal Supply Service, Standardization Division, Washington, DC 20406.

In the upper right-hand corner of page 1 insert the following:

L-P-320B
March 8, 1973
SUPERSEDING
Fed. Spec. L-P-320A
November 25, 1966

FSC 4710, 4730