



FLUID-TITE®
ASBESTOS-CEMENT
NON-PRESSURE PIPE

Code No. 40-31-02H

Effective 10/1/75

Replaces 3/74

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PLAINTIFF'S EXHIBIT

CT-314

SECTION 1 - GENERAL

Sec. 1.1 Scope -

These specifications cover Certain-teed FLUID-TITE asbestos-cement Non-Pressure sewer pipe intended for the conveyance of sanitary sewage in gravity-flow systems.

Sec. 1.2 Conformance - Certain-teed Asbestos-Cement Non-Pressure Sewer Pipe, as manufactured to meet these specifications, meets the requirements of the latest issues of the following specifications.

Fed. Specification SS-P-331
ASTM Specification C428

SECTION 2 - GENERAL REQUIREMENTS

Sec. 2.1 Sizes - Pipe shall be manufactured with nominal inside diameters of 8", 10", 12", 14", 15", 16", 18", 20", 21", and 24".

Sec. 2.2 Classes - Pipe shall be made in four strength classes (Classes 2400, 3300, 4000, 5000) based on their minimum crushing strength in lbs. per lineal foot as designated in Section 3.1.3.

Sec. 2.3 Lengths -

2.3.1 Standard Lengths - The standard nominal length of the sewer pipe shall be 13 feet in all sizes and classes. At least 85% of the total number of pipes of any one class and size, excluding short lengths, shall be of these lengths with a tolerance of ± 1 inch. The remaining 15% or less may be in random lengths of not less than 7 feet.

2.3.2 Short Lengths - Short lengths shall not exceed 6'-6". Short lengths may be ordered as 1/4 lengths (3'-3"), or half lengths (6'-6") in machined ends only (MEO).

Sec. 2.4 Couplings - Couplings shall be of the standard FLUID-TITE design. The coupling shall be of equivalent crushing strength and general soundness as specified for the pipe. One coupling, suitable for the particular size of pipe with which it is used shall be furnished with each standard, random, and short length of pipe. The coupling shall be of the sleeve type and shall be suitable for use with rubber sealing gaskets; and shall be of proper size for effective sealing. The necessary gaskets shall be furnished with each coupling unless ordered otherwise.

2.4.1 **CERTA-SPACER® Band** – Each Factory Pre-Belled Coupling shall be assembled using one CERTA-SPACER to provide positive end separation without employing the sealing gasket for this function.

2.4.2 **Infiltration** – The FLUID-TITE Couplings furnished under these specifications when assembled in accordance with the manufacturers instructions shall be capable of meeting specifications of 50 Gal. per inch of diameter per mile per 24 hrs.

Sec. 2.5 Fittings

2.5.1 **Fittings** – Certain-teed FLUID-TITE Asbestos-Cement wyes, tees, elbows and other fittings shall be manufactured in classes suitable for the class of pipe with which they will be used.

Sec. 2.6 Materials –

2.6.1 **Pipe and Couplings** – Asbestos-Cement Non-Pressure Sewer Pipe and Couplings shall be composed of an intimate mixture of portland cement, asbestos fiber and silica, and shall be free from organic additives.

2.6.2 **Rubber Gaskets** – Rubber sealing gaskets shall conform to the requirements of ASTM D 1869 latest issue and consist of a vulcanized rubber compound as specified by the manufacturer.

2.6.3 **CERTA-SPACER Band** – CERTA-SPACER Band shall consist of a special yielding synthetic compound as specified by the manufacturer.

SECTION 3 – DETAIL REQUIREMENTS

Sec. 3.1 Pipe –

3.1.1 **Description** – Certain-teed FLUID-TITE Asbestos-Cement Sewer Pipe shall be made to the manufacturer's standard dimensions and tolerances. The pipe shall be machined on each end to properly receive the coupling and gasket. All pipe made under this specification shall be Type II as specified in ASTM C428 – latest issue.

3.1.2 **Flexural Strength** – Each length of pipe in 8" size shall have sufficient flexural strength to withstand without failure the total load prescribed below when tested in accordance with section 4, paragraph 4.2.1.

<u>Pipe Size</u>	<u>Total Applied Load Lbs.</u>	
	<u>Class 2400</u>	<u>Class 3300</u>
8"	2250	2925

3.1.3 Crushing Strength – Each pipe shall have sufficient strength, when submitted to the ASTM three-edge bearing test as specified in Section 4.2.2, to support not less than the loads indicated in the following tabulation:

<u>Class</u>	<u>Minimum Total Applied Load (Lbs. per Lineal Foot)</u>			
	<u>2400</u>	<u>3300</u>	<u>4000</u>	<u>5000</u>
Size 8"	2400	3300	-----	-----
10"	2400	3300	4000	5000
12"	2400	3300	4000	5000
14"	2400	3300	4000	5000
15"	2400	3300	4000	5000
16"	2400	3300	4000	5000
18"	2400	3300	4000	5000
20"	2400	3300	4000	5000
21"	2400	3300	4000	5000
24"	2400	3300	4000	5000

3.1.4 Workmanship –

3.1.4.1 Inside Surface – Each pipe shall be free from bulges, dents, and tears on the inside surface which result in a variation in diameter greater than 3/16 inch from that obtained on adjacent unaffected portions of the surface.

3.1.4.2 Ends – The machined ends of the pipe shall be free from dents and gouges that will affect the tightness of the joint.

3.1.4.3 Straightness – Each length of pipe shall not vary in straightness by more than 0.05" per foot of length when the variation is measured in accordance with Section 13 of ASTM C500.

3.1.4.4 Dimensions – Nominal Dimensions and Tolerances not specifically covered under other sections of this specification, shall be in accordance with the manufacturer's specifications for all sizes and classes of pipe. The average inside diameter may be less than the nominal by not more than 1/4 inch, or 1½ per cent, whichever is the greater.

Sec. 3.2 Couplings – The FLUID-TITE Couplings shall be machined on the inside surface so that the gaskets are retained in the proper position to make a tight seal.

Sec. 3.3 Rubber Gaskets – The FLUID-TITE gaskets shall conform to the manufacturers standards.

Sec. 3.4 CERTA-SPACER Band – Shall conform to the manufacturer's standards.

Sec. 3.5 Chemical Requirements – The Uncombined Calcium Hydroxide in Certain-teed FLUID-TITE Asbestos-Cement Sewer Pipe and couplings shall not be greater than one per cent when tested by the method described in Section 4.2.3.

SECTION 4 – INSPECTION TESTS AND REJECTIONS

Sec. 4.1 General – All material furnished under this specification shall be inspected and tested in accordance with this specification. All material shall be in a normal processed condition prior to test for conformance to the requirements stated in previous sections. When requested on his order, the purchaser may witness inspection and test procedures at his own expense. In lieu of this witnessing, he may request the manufacturer to submit a certificate certifying the product meets the requirements of this specification. To insure the purchaser that all pipe purchased under this specification conforms to the standards herein required and for the convenience of the purchaser or his representative, all tests must be conducted in the Continental U. S.

Sec. 4.2 Tests –

4.2.1 Flexure Test – Each standard length of 8" pipe shall be tested in flexure. The test shall be performed by supporting the pipe over the specified clear span in a rigidly supported flexure testing machine. Apply the load at a uniform rate as specified in ASTM C500 latest revision. Distribute the load equally and apply at the third points of the clear span.

4.2.2 Crushing – For crushing tests, one full length of pipe shall be selected from each 200 lengths from which shall be cut an unmachined portion one foot long for testing in crushing by the ASTM three edge bearing method. The one-foot section shall not fail, when tested as below, until the total load exceeds the applicable value shown in Section 3.1.3 with a rate of loading of 2,000 lbs. $\pm$ 500 lbs. per minute per lineal foot.

For this test, the two lower bearings shall consist of two straight wooden strips with vertical sides, each strip having its interior top corners rounded to a radius of approximately 1/2 inch. The strips shall be securely fastened to a rigid block, with the interior vertical faces parallel and a distance apart of 1/2 inch for 6" through 12" and 1" for 14" through 24". The upper bearing shall be a rigid wooden block, straight and true from end to end. The upper and lower bearings shall extend the full length of the test section. The specimen shall be placed symmetrically between the two bearings and the center of application of the load shall be so placed that the vertical deformation at the two ends of the specimen will be equal.

- 4.2.3 Chemical Requirements** – The Uncombined Calcium Hydroxide in asbestos-cement sewer pipe and couplings shall not be greater than one per cent. The manufacturer will, upon request and proper notification by the purchaser, furnish certifications that the material meets this requirement and conforms to ASTM Specification C428 Type II.

- Sec. 4.3 Rejection** – Failure of the specimen tested for crushing strength to withstand 75 per cent of the load specified shall be cause for rejection of the entire lot represented by the test specimen. When the specimen tested for crush strength withstands over 75 per cent but under 100 per cent of the load specified one specimen shall be cut from each of two additional pipes of the same lot as the original specimen. Failure of one of these additional specimens to meet the strength requirements of Sec. 3.1.3 shall be cause for rejection of the entire lot represented by the test specimen.

SECTION 5 – MARKING

- Sec. 5.1 Pipe** – Each standard, random and half length of pipe shall be clearly marked on the outside surface with the trade name, pipe size, class, type and date of manufacture.
- Sec. 5.2 Coupling** – Each Certain-teed FLUID-TITE Coupling shall be clearly marked with the class and size of pipe for which they are intended.
- Sec. 5.3 Gaskets** – Each rubber gasket shall be marked with the manufacturers identification, the size, and date of manufacture.
- Sec. 5.4 Fittings** – Each fitting shall be marked with the manufacturers identification, the size and class.
- Sec. 5.5 Additional Marking** – When factory inspection is made by the purchaser, each pipe and each coupling may receive an additional special marking of no more than three letters, as required by the purchaser.

SECTION 6 – PREPARATION FOR SHIPMENT

- Sec. 6.1 General** – All pipe, couplings and gaskets shall, unless otherwise specified, be prepared for standard commercial shipment, so as to insure acceptance by common or other carriers. Special packaging will require additional lead time and details must be clarified on original order.

SECTION 7 – SUPPLEMENTARY DETAILS TO BE PROVIDED BY PURCHASER

- Sec. 7.1 General** – When purchasing Certain-teed FLUID-TITE Non-Pressure Sewer Pipe under these specifications, it will be necessary for the purchaser to make specific statements for each lot of pipe.
- Sec. 7.1.1 Size** – The purchaser shall state the pipe size or sizes required.

Sec. 7.1.2 Class – The purchaser shall state the class or classes of pipe required.

Sec. 7.1.3 Total Laying Length – The purchaser shall state the total footage required.

Sec. 7.1.4 Short Lengths – The purchaser shall state the total footage of 6'-6" and/or 3'-3" lengths required.

Sec. 7.1.5 Certificate of Tests – The purchaser shall state on his order when a certificate of tests in lieu of inspection is required.

Sec. 7.1.6 Joint Tightness Test – The purchaser shall state on his order when joint tightness tests are required. The expense of such tests are to be charged to customers account.

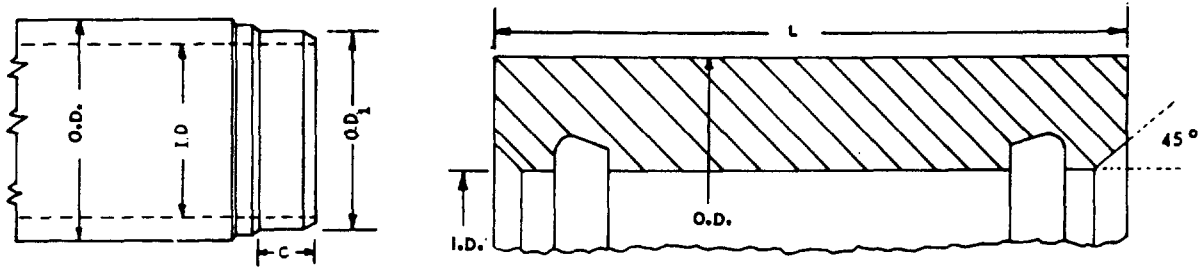
Sec. 7.2 Definitions – Under these specifications the following definitions will apply:

7.2.1 Purchaser: The person, firm, corporation or governmental sub-division entering into a contract or agreement to purchase pipe according to these specifications.

7.2.2 Manufacturer: The person, firm or corporation who manufactures the pipe.

7.2.3 Inspector: The representative of the purchaser, properly authorized and limited by the duties entrusted to him.

DIMENSIONS & TOLERANCES ASBESTOS-CEMENT FLUID-TITE® NON-PRESSURE SEWER PIPE & COUPLINGS



TOLERANCES

PIPE OD ±
8" - 16" ± 0.020"
18" - 24" ± 0.030"

COUPLING ID ±
8" - 16" ± .025"
18" - 24" ± .040"

PIPE					COUPLINGS		
PIPE SIZE	O.D. INCHES NOM.	I.D. INCHES NOMINAL	O.D. 1 INCHES	C ±1/16 INCHES	I.D. INCHES	L + .25 INCHES	O.D. INCHES NOM.
CLASS 2400							
8"	9.06	8.00	8.80	2-7/16	8.89	5.75	10.50
10"	11.14	10.00	10.89	2-13/16	11.00	6.50	12.75
12"	13.24	12.00	12.99	2-13/16	13.10	6.50	15.00
14"	15.32	14.00	15.07	3-1/16	15.19	7.00	17.15
15"	16.36	15.00	16.11	3-1/4	16.24	8.90	18.26
16"	17.42	16.00	17.15	3-1/16	17.27	7.00	19.31
18"	19.60	18.00	19.23	3-13/16	19.36	8.25	21.63
20"	21.66	20.00	21.29	3-13/16	21.42	8.25	23.81
21"	22.74	21.00	22.37	3-3/4	22.50	9.90	24.96
24"	25.88	24.00	25.51	3-13/16	25.64	8.25	28.22
CLASS 3300							
8"	9.24	8.00	8.80	2-7/16	8.89	5.75	10.59
10"	11.30	10.00	10.89	2-13/16	11.00	6.50	12.75
12"	13.46	12.00	12.99	2-13/16	13.10	6.50	15.00
14"	15.50	14.00	15.07	3-1/16	15.19	7.00	17.15
15"	16.56	15.00	16.11	3-1/4	16.24	8.90	18.26
16"	17.60	16.00	17.15	3-1/16	17.27	7.00	19.31
18"	19.80	18.00	19.23	2-13/16	19.36	8.25	21.63
20"	21.88	20.00	21.29	3-13/16	21.42	8.25	23.81
21"	23.03	21.00	22.37	3-3/4	22.50	9.90	24.96
24"	26.12	24.00	25.51	3-13/16	25.64	8.25	28.22
CLASS 4000							
10"	11.45	10.00	10.89	2-13/16	11.00	6.50	13.00
12"	13.54	12.00	12.99	2-13/16	13.10	6.50	15.24
14"	15.64	14.00	15.07	3-1/16	15.19	7.00	17.48
15"	16.72	15.00	16.11	3-1/4	16.24	8.90	18.61
16"	17.74	16.00	17.15	3-1/16	17.27	7.00	19.68
18"	20.00	18.00	19.23	3-13/16	19.36	8.25	22.09
20"	22.10	20.00	21.29	3-13/16	21.42	8.25	24.15
21"	23.29	21.00	22.37	3-3/4	22.50	9.90	25.26
24"	26.36	24.00	25.51	3-13/16	25.64	8.25	28.69
CLASS 5000							
10"	11.58	10.00	10.89	2-13/16	11.00	6.50	13.00
12"	13.70	12.00	12.99	2-13/16	13.10	6.50	15.24
14"	15.84	14.00	15.07	3-1/16	15.19	7.00	17.48
15"	16.94	15.00	16.11	3-1/4	16.24	8.90	18.61
16"	17.98	16.00	17.15	3-1/16	17.27	7.00	19.68
18"	20.20	18.00	19.23	3-13/16	19.36	8.25	22.09
20"	22.32	20.00	21.29	3-13/16	21.42	8.25	24.15
21"	23.66	21.00	22.37	3-3/4	22.50	9.90	25.26
24"	26.60	24.00	25.51	3-13/16	25.64	8.25	28.69

NOTE: All above dimensions are subject to manufacturing tolerances.
The 15" and 21" coupling is of different design than shown above.

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**SHORT FORM
SPECIFICATION FOR ASBESTOS-CEMENT
NON-PRESSURE SEWER PIPE**

SECTION 1 - GENERAL

- Sec. 1.1 Scope** – These specifications cover the sampling and testing of asbestos-cement Non-Pressure sewer pipe intended for conveyance of sanitary sewage in gravity flow systems.
- Sec. 1.2 Conformance** – Asbestos-Cement Non-Pressure Pipe, as manufactured to meet these specifications, meets the requirements of the latest issues of the following specifications.

Fed. Specification SS-P-331
ASTM Specification C428

SECTION 2 - GENERAL REQUIREMENTS

- Sec. 2.1 Material** – Asbestos-cement sewer pipe and couplings shall be composed of an intimate mixture of portland cement, asbestos fiber and silica and shall be free from organic additives. All pipe and couplings shall be manufactured to comply with Type II requirements designated in ASTM C428 of latest issue.
- Sec. 2.2 Classes** – The asbestos-cement Non-Pressure sewer pipe shall be manufactured in four strength classes which shall be as follows:

Class 2400	Class 4000
Class 3300	Class 5000

Sec. 2.3 Lengths –

2.3.1 Standard Lengths: The standard nominal length of sewer pipe shall be 13 feet in all sizes and classes. At least 85% of the total number of pipes of any one class and size excluding short lengths with a plus or minus tolerance of 1". The remaining 15% or less may be in random lengths of not less than 7 feet.

Short Lengths: Short lengths shall not exceed 6'-6". Short lengths are available in either 3'-3", or 6'-6" in machined ends only (MEO).

- Sec. 2.4 Sizes** – Asbestos-cement sewer pipe shall be manufactured with nominal inside diameters of 8", 10", 12", 14", 15", 16", 18", 20", 21", 24" in Classes 2400 and 3300, and 10", 12", 14", 15", 16", 18", 20", 21", 24" in Classes 4000 and 5000.

- Sec. 2.5 Couplings** – One coupling of the same manufacture as the pipe shall be furnished with each standard, random and short length of pipe. It should consist of an asbestos-cement sleeve and two rubber gaskets suitable for use with the particular size and class of pipe with which it is supplied.

SECTION 3 - DETAILED REQUIREMENTS

Sec. 3.1 Pipe – All asbestos-cement sewer pipe furnished under these specifications with regard to lengths, diameters of machined and unmachined portions, variations from straightness, wall thicknesses, weights and all tolerances on these values shall be in accordance with the manufacturer's specifications. Each pipe supplied shall be machined by the manufacturer so as to facilitate the correct and proper assembly of the pipe with those couplings which he proposes to supply with the pipe.

3.1.1 Diameters – All pipe supplied shall be of the stated nominal diameters specified in Section 2.4 and the average diameter may be less than nominal by not more than 1/4 inch or 1-1/2% of the stated nominal diameter, whichever is the greater.

3.1.2 Flexural Strength – Each length of 8" pipe shall have sufficient flexural strength to withstand without failure the total load prescribed below when tested in accordance with Section 4, Paragraph 4.2.1.

Total Applied Load Lbs.

<u>Pipe Size</u>	<u>Class 2400</u>	<u>Class 3300</u>
8"	2250	2925

3.1.3 Crushing – Each pipe shall have sufficient strength, when submitted to the ASTM three edge bearing test as specified in Section 4.2.2 to support not less than the loads indicated in the following tabulation.

CRUSHING STRENGTH

Minimum Total Applied Load (Lbs. per Lineal Foot)

<u>Class</u>	<u>2400</u>	<u>3300</u>	<u>4000</u>	<u>5000</u>
<u>Size 8"</u>	<u>2400</u>	<u>3300</u>	<u>4000</u>	<u>5000</u>
10"	2400	3300	4000	5000
12"	2400	3300	4000	5000
14"	2400	3300	4000	5000
15"	2400	3300	4000	5000
16"	2400	3300	4000	5000
18"	2400	3300	4000	5000
20"	2400	3300	4000	5000
21"	2400	3300	4000	5000
24"	2400	3300	4000	5000

Sec. 3.2 Couplings –

3.2.1 The word coupling in these specifications shall be understood to mean a coupling that is manufactured so that, when applied with the proper accessories in accordance with the manufacturer's installation specifications, the lengths

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of pipe may be assembled and form a tight seal against infiltration. All dimensions and tolerances shall be in accordance with the manufacturer's standard specifications.

3.2.2 Infiltration – The couplings furnished under these specifications, when assembled in accordance with the manufacturer's instructions, shall be capable of meeting specifications of 50 gal. per inch of diameter per mile per 24 hours.

Sec. 3.3 Gaskets – The manufacturer shall furnish gaskets of the proper dimensions and tolerances which when used with the pipe and couplings furnished will provide the proper sealing function and conform to the requirements of ASTM D1869 latest issue.

Sec. 3.4 Chemical Requirements – The Uncombined Calcium Hydroxide in asbestos-cement sewer pipe and couplings shall not be greater than one per cent. The manufacturer will, upon request and proper notification by the purchaser, furnish certifications that the material meets this requirement and conforms to ASTM Specification C428 Type II.

SECTION 4 – INSPECTION – TESTS – REJECTIONS

Sec. 4.1 General – All pipe and couplings when tested under this specification shall be in a normal processed condition. The purchaser may witness these inspections and tests at his own expense when requested on the order. However, in lieu of this personal inspection the manufacturer will certify, upon request, that all products supplied under these specifications have been tested and meet the requirements of the specification. To insure the purchaser that all pipe purchased under this specification conform to the standards herein required and for the convenience of the purchaser or his representative, all tests shall be conducted in the continental U. S.

Sec. 4.2 Pipe Before being shipped each length of pipe supplied by the manufacturer shall be inspected for compliance with the applicable dimensions and tolerances.

4.2.1 Flexure Test – Each standard length of 8" pipe shall be tested in flexure. The test shall be performed by supporting the pipe over the specified clear span in a rigidly supported flexure testing machine. Apply the load at a uniform rate as specified in ASTM C500 latest revision. Distribute the load equally and apply at the third points of the clear span.

4.2.2 Crushing – For crushing tests one full length of 8" pipe shall be selected from each 200 lengths from which shall be cut an unmachined portion one-foot long for testing and crushing by the ASTM 3-edge bearing method. The one-foot section shall not fail when tested until the total load exceeds the applicable value shown in Section 3.1.3 with a rate of loading of 2000 pounds $\pm$ 500 lbs. per minute per lineal foot.

Sec. 4.3 Rejection – Failure of the specimen tested for crushing strength to withstand 75 per cent of the load specified shall be cause for rejection of the entire lot represented by the test specimen. When the specimen tested for crush strength withstands over 75 per cent but under 100 per cent of the load specified one specimen shall be cut from each of two additional pipes of the same lot as the original specimen. Failure of one of these additional specimens to meet the strength requirements of Sec. 3.1.3 shall be cause for rejection of the entire lot represented by the test specimen.

Sec. 4.4 Couplings –

4.4.1 Each coupling shall be inspected by the manufacturer prior to shipment for compliance with the manufacturer's dimensions and tolerances.

Each coupling shipped shall be of equivalent crushing strength as the class of pipe for which it is intended for use.

Sec. 4.5 Uncombined Calcium Hydroxide – The manufacturer shall conduct periodic uncombined calcium hydroxide tests and will, on request, offer certifications as to the total uncombined calcium hydroxide of the pipe and couplings as specified in Section 3.4.

SECTION 5 – PREPARATION FOR SHIPMENT

Sec. 5.1 General – It shall be the manufacturer's responsibility to prepare the asbestos-cement gravity sewer pipe and couplings so as to assure acceptance by common or other carriers on-standard commercial shipments.

SECTION 6 – MARKING

Sec. 6.1 Pipe – Each standard, random and short length of pipe shall be clearly marked on the outside surface with the trade-name, pipe size, class type and date of manufacture.

Sec. 6.2 Couplings – Each coupling shall be clearly marked with the tradename, size and class of pipe for which they are intended.

SECTION 7 – DETAILS TO BE SUPPLIED BY THE PURCHASER

Sec. 7.1 The purchaser shall state on his order his requirements for the total laying length of each size and class of pipe, the number of short lengths, fittings; and branch information.

He shall state his desire to witness the inspection and tests so as to give the manufacturer ample time to notify the purchaser when these tests will be conducted. If a joint tightness test is required it shall be so stated on the purchase order and the expense for such tests will be charged to the customers account.

Sec. 7.2 Certifications – If the purchaser requires certifications be furnished with the pipe order, the purchaser shall indicate his desire on his initial order advising the name of the person to whom they shall be sent, his title and address, and the number of copies required.

DISTRICT OFFICES

ATLANTA PIPE DISTRICT

4303 Memorial Drive
Suite E
Decatur, Georgia 30032
404/292-5877
TWX: 810/751-8502

COLUMBUS PIPE DISTRICT

6908 Sunbury Road
Westerville, Ohio 43081
614/891-2134
TWX: 810/250-2587

HOUSTON PIPE DISTRICT

Suite 412
250 Dunstan
P. O. Box 25185
Houston, Texas 77005
713/526-3717
TWX: 910/881-1652

LOS ANGELES PIPE DISTRICT

Suite 630
California Federal Savings Bldg.
1695 Crescent Avenue
Anaheim, California 92801
714/774-3900
From Los Angeles: 213-625-1915
TWX: 910/591-1661

Phoenix Branch Office

Suite B-3
532 E. Maryland
Phoenix, Arizona 85012
602/274-3641
TWX: 910/951-1462

NEW ORLEANS PIPE DISTRICT

P. O. Box 66318
Audubon Station
Baton Rouge, Louisiana 70806
504/383-8094
TWX: 510/993-3454

PHILADELPHIA PIPE DISTRICT

676 E. Swedesford Road
Suite 321
Wayne, Pennsylvania 19087
215/265-7282, 7283, 7284
TWX: 510/668-0641

ST. LOUIS PIPE DISTRICT

Suite 110
12015 Manchester Road
St. Louis, Missouri 63131
314/966-3010
TWX: 910/760-1484

SAN FRANCISCO PIPE DISTRICT

325 Village Square
Orinda, California 94563
415/254-1500
TWX: 910/482-8474



**Pipe & Plastics
Group**

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