W. H. Young - Houston

To All Transite Pipe Managers

Division Headquarters, Box 91
June 19, 1952

Standard Specification
for

"Century" Asbestos-Cement Pressure Pipe
Keasbey and Mattison Co.
Ambler, Pa.

Attached is a copy of subject specification which was obtained by one of our representatives in the field. It is the first such specification which has come to our attention and is of interest since it spells out the requirements K&M have established for their standard product.

This specification is not dated nor is there any indication that they do not have other specifications where the requirements are more severe.

Since this specification has every appearance of being copied in part from the proposed AWWA Specification for Asbestos-Cement Water Pipe, I believe it was issued sometime in the year 1951.

So that you may compare this K&M specification with the proposed AWWA specification, I am enclosing a copy of the latest draft of AWWA specification.

Major differences are: -

1. Class 200 is included in the AWWA.
2. K&M include sizes through 12 inches and the AWWA sizes through 36 inches.
3. K&M allows variation in nominal pipe diameter of 2.5 per cent in sizes 4, 6 and 8 inches and 4.0 per cent in sizes 10 and 12. The AWWA allows variation in nominal pipe diameter of 5.0 per cent in sizes through 12 inches.
4. AWWA flexural strength requirements are higher than K&M and require testing of each length. K&M test only one in a 100.
5. AWWA crushing strength requirements are generally higher than K&M.
6. AWWA hydrostatic strength is 3-1/2 times the working pressure for the class of pipe while K&M is 2-1/2 times.

The AWWA calls for a 5 second dwell and K&M does not. (J-M also does not call for a 5 second dwell and do not plan on adopting this requirement in the near future.)

I again wish to repeat that it is known that K&M will furnish pipe which will meet the hydrostatic requirements of the proposed AWWA specification when, in their opinion, it is necessary to do so in order to meet competition.

AJM:AG

A. J. Maahs

File

*Standard Specification

for

"Century" ASBESTOS - CEMENT PRESSURE PIPE

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

Section 1 - General

Sec. 1.1 - Scope

These specifications cover the sampling and testing of asbestos-cement pipe intended for the conveyance of water, in sizes up to and including 12 inches in diameter, and for working pressures of 100 and 150 psi.

Sec. 1.2 - Supplementary Details to be Provided by Purchaser

When purchasing pipe under these specifications, it will be necessary for the purchaser to make supplementary specific statements for each size and class of pipe, regarding the following:

1.2.1 Nominal inside diameter

1.2.2 Class of pipe

1.2.3 Total laying length of pipe

1.2.4 Total number and lengths of short lengths for making connections to valves, fittings, or structures, or for making closures.

1.2.5 Specifications for acceptable couplings, if couplings other than the standard of the pipe manufacturer are required.

Sec. 1.3 - Definitions

Under these specifications, the following definitions will apply.

1.3.1 Purchaser: The person, firm, corporation, or governmental subdivision entering into a contract or agreement to purchase pipe according to these specifications.

*NOTE: Pipe manufactured to this Specification meets all of the requirements of "FEDERAL SPECIFICATION FOR ASBESTOS CEMENT PIPE", SS-P-351, dated August 28, 1940 and AMENDMENTS - 1 and 2 dated November 26, 1940 and January 14, 1942 respectively.

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

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

1.3.4 Working Pressure: The maximum hydrostatic pressure to which the pipe will be subjected after installation, exclusive of allowance for water hammer.

Sec. 1.4 - Inspection

1.4.1. All materials furnished under these specifications shall conform to the requirements stated therein and shall be subjected to the following factory inspection and tests. When requested by the Purchaser on his order, the Manufacturer shall notify the Purchaser when the inspection and testing will be done so that the Purchaser may arrange for witnessing such tests and inspections, at his expense. In lieu of such inspection, when requested, the Manufacturer shall be prepared to certify that his product conforms to the requirements of these specifications.

1.4.2 The inspector shall have free access to those parts of the manufacturer's plant which are concerned with the inspection and testing of the pipe in accordance with these specifications. The manufacturer shall afford the inspector, without charge, all reasonable facilities for determining whether the pipe meets the inspection and test requirements of these specifications.

Section 2 - General Requirements - Pipe

Sec. 2.1 - Materials

Asbestos-cement pressure pipe shall be composed of an intimate mixture of portland cement and asbestos fiber, with or without the addition of curing agents, and shall be free from organic substances.

Sec. 2.2 - Classes of Pipe

Pipe shall be made in two classes, for working pressures of 100 and 150 psi, designated as Class 100 and Class 150, respectively.

Sec. 2.3 - Pipe Diameters

Pipe shall be made in the following nominal inside diameters: 4, 6, 8, 10 and 12 inches. For the 4, 6 and 8 inch sizes, the actual diameters may be less than the nominal by not more than 2.5 per cent and on the 10 and 12 inch sizes not more than 4.0 per cent.

Sec. 2.4 - Pipe Lengths

2.4.1 Standard Lengths - The standard nominal length of pipe shall be 13 feet. At least 90 per cent of the total number of pipes of any one class and size, excluding short lengths, shall be of this length, with a plus or minus tolerance of 1 inch. The remaining 10 per cent or less may be in random lengths of not less than 9 feet.

2.4.2 Short Lengths - Short lengths ordered for use in making rigid connections to fittings or structures shall not exceed 3 feet 3 inches in sizes 4 and 6 inches, and 6 feet 6 inches, in larger sizes. These lengths shall be furnished as specified by the Purchaser as included either in the total footage or as extras.

Section 3 - General Requirements - Couplings

Couplings shall be of the standard design of the pipe manufacturer, unless otherwise specified. They shall provide tight joints when subjected to 2-1/2 times the working pressure designated for the pipe.

One coupling, suitable for the particular size and class of pipe with

which it is used shall be furnished with each standard and each random length of pipe.

Section 4 - Detail Requirements

Sec. 4.1 - Imperfections

Each pipe shall be free from bulges, dents, and tears on the inside surface which result in a variation in diameter of more than 0.187 inch from the diameter of adjacent unaffected portions of the surface.

Section 5 - Strength Requirements

Sec. 5.1 - Bursting Strength

Each standard, random and short length of pipe, and each coupling sleeve, when manufactured from the same material as the pipe shall have sufficient strength to withstand an internal hydrostatic pressure of 2-1/2 times the working pressure for the class of pipe.

Sec. 5.2 - Flexural Strength

From each 100 lengths of pipe or fraction thereof, of each size and class, when specifically requested by the purchaser on his order, one length shall be selected by the inspector to be tested in flexure at the purchaser's expense, as specified in Sec. 6.3 and support the load indicated in the following tabulation:

Nominal Diameter Inches	Total Applied Load - Lbs. Class 100	Class 150
4	840	1,050
6	1,900	2,600
8	3,700	5,300

Sec. 5.3 - Crushing Strength

Each pipe shall have sufficient strength, if submitted to the three-edge bearing test as specified in Sec. 6.4, to support not less than the load indicated in the following tabulation:

Nominal Diameter Inches	Applied Load - Lbs. Per Foot of Length Class 100	Class 150
4	4,100	5,900
6	3,200	5,600
8	3,000	5,600
10	3,200	6,300
12	3,500	7,200

Section 6 - Methods of Sampling and Testing

Sec. 6.1 - Test Specimens

All pipe and couplings tested under this specification shall be in a normal air-dried condition.

Sec. 6.2 - Hydrostatic Tests

Each pipe and each asbestos-cement coupling sleeve shall be tested under a hydrostatic pressure of two and one-half times the working pressure for the class of pipe. The water-pressure shall be applied gradually. Any pipe or coupling sleeve showing any leakage, or other defect shall be rejected.

Sec. 6.3 - Flexure Tests

The pipe selected in Section 5.2 - Flexural Strength, shall be tested in flexure. The supports shall be 12 feet apart and the total load shall be applied equally at the third points. Each pipe so tested shall support, without evidence of cracks or other defects, the applicable total load shown in Sec. 5.2. The load shall be applied at a uniform rate of approximately 2,000 lbs. per minute.

Sec. 6.4 - Three-edge Bearing Test

From each 300 lengths of pipe, or fraction thereof, of each size and class, when specifically requested by the purchaser on his order, one length shall be selected by the inspector for a three-edge bearing test before shipment, at the purchaser's expense. From each selected length, there shall be cut one unmachined section of pipe one foot long. This section shall be tested by the three-edge bearing method and shall not fail until the total applied load exceeds the applicable value shown in Sec. 5.3. The load shall be applied at a uniform rate of approximately 2,000 lbs. per minute.

For this test, the two lower bearings shall consist of two straight wooden strips with vertical sides, each strip having its interior top corner 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 not less than 1/2 inch nor more than 1 inch per foot of diameter of pipe. The upper bearing shall be a rigid wooden block, at least 6 inches by 6 inches in cross section, straight and true from end to end. The upper and lower bearings shall extend the full length of the test section.

Sec. 6.5 - Machines for Testing

The machine used for the hydrostatic and bursting tests shall be a standard hydrostatic pressure testing machine with internal gaskets which seal the ends of the pipe.

The machines used for the flexural and three-edge bearing tests shall be substantial and rigid throughout, so that the distribution of the load will not be appreciably affected by the deformation or yielding of any part of the machine.

Sec. 6.6 - Retests, Rejection

Failure of the specimen tested for crushing strength to attain 75 per cent of the crushing load required in Sec. 5.3 shall be caused for rejection of the entire lot of that size and class manufactured during the same shift as the test specimen.

When the specimen tested for crushing strength attains greater than 75 per cent but less than 100 per cent of the crushing load required in Sec. 5.3, one specimen shall be cut from each of five additional pipe of the same size and class manufactured during the same shift. Failure of two of these additional specimens to meet the crushing strength requirements of Sec. 5.3 shall be cause for rejection of the entire lot of that size and class manufactured during the same shift as the test specimen.

Section 7 - Marking and Preparation for Shipment

Sec. 7.1 - Marking

Each length of pipe shall be marked on the outside surface with the trade name, nominal inside diameter, class, date and shift of manufacture.

All component parts of each coupling shall be marked with the make and the size and class of pipe for which they were intended.

Sec. 7.2 - Preparation for Shipment

All pipe and couplings shall, unless otherwise specified, be prepared for standard commercial shipment, so as to insure acceptance by common or other carriers.

COPY FORM	INITIALS	DATE

BOX NUMBER	SEGMENT NO.	REQUESTING PARTY
04-1950		

NOTES

Australian Blue

1964