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Technical Bulletin

August 15, 1974

TO: VF P&PG MARKETING & SALES PERSONNEL
DISTRICT MANAGERS
TERRITORY MANAGERS
ADMINISTRATIVE ASSISTANTS
A-C PRODUCT MANAGERS
A-C FIELD SERVICE MANAGERS
SALES ENGINEERS

FM: T. SWITALSKI *T. Switalski*

RE: AIR TEST COMPARISON OF VITRIFIED CLAY SEWER PIPE AND ASBESTOS-CEMENT SEWER PIPE

Low pressure air testing of sewer pipe is becoming increasingly common. It is an inexpensive, easy and very reliable method of checking tightness of sewer lines. Most specifications today which specify air testing rely on the air testing procedure and standards as defined by the American Society of Civil Engineers, Low Pressure Air Test for Sanitary Services, 1964. This is the basis for our air test procedure as printed in our A-C Sewer Pipe Installation Guide.

Exfiltration air tests were run at our North Wales Facility on 8" Extra Strength Vitrified Clay Sewer Pipe with Type 3 joints (polyester groove with rubber gasket usually O ring) and on 8" Class 2400 Asbestos-Cement Sewer Pipe. The air tests were conducted to determine the loss of air through the pipe wall and to determine the loss of air through the gasketed joint.

Joint requirements for Clay Sewer Pipe are covered in ASTM C425-72a and for A-C Sewer Pipe are covered in ASTM C428-73d. In addition, our Standard Product Specifications include Joint Specifications. None of these specifications include air testing; hydrostatic testing is only considered.

The Type 3 clay pipe joints which were tested consisted of bell and spigot pipe with polyester lining the outside of the spigot and the inside of the bell. The polyester lining inside the bell seemed to be machined since the I.D. of the bell was almost perfectly round. Clay pipe as we all know, is usually oval to some degree, therefore we must conclude that the polyester in the bell is machined.

The spigot end with the polyester lining was somewhat oval. Also the spigot end had a groove in the polyester for a round rubber gasket. This is not true for all clay joints. Many clay sewer joints are used without rubber gaskets.

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BULLETIN NO. A-C 13 DATE: 8-16-74

Page 2

August 15, 1974

Air Test Comparison of Vitrified Clay Sewer
Pipe and Asbestos-Cement Sewer Pipe

The clay pipe tests were performed in the concentric position, the angular offset position, and the lateral offset position using internal air pressures of 3 psi and 10 psi. Each of these pressures were held for 10 minutes. Although the clay sewer pipe showed a pressure drop in all tests, it did however pass the test as specified in our installation manual. In all tests, the air loss was through the pipe wall and no air leakage was evident at the joint. This was apparent when the entire pipe surface and joint was covered with a soapy solution. Bubbling was evident on the entire surface.

The moisture content in the clay pipe wall was varied from bone dry to saturated. The air loss through the pipe wall varied in each test depending on the moisture in the pipe wall. Only when the clay pipe was 100 percent saturated was there no air loss.

Similar tests were run on 8" Asbestos-Cement Sewer Pipe Class 2400 using similar conditions; that is, internal air pressures of 3 psi and 10 psi. These tests were also run in the concentric position, the angular offset position, and the lateral offset position. Each of these pressures were held for 10 minutes.

Tests were run on the A-C pipe while the pipe wall was bone dry and saturated wet. In either case, there was no drop in air pressure.

Our tests have confirmed that although our installation catalog specifies that "Wetting is necessary to minimize any loss of air through the pipe wall as a result of permeability in the dry condition", this is true only for clay sewer pipe. A-C sewer pipe, if properly installed, will have no drop in air pressure when air tested.

Many specifications state that if the ground water table is above the installed sewer line, the pressure on the outside joint due to the ground water should be added to the internal air pressure of 3.5 psi to air test the installation. This difference will have little affect on A-C sewer pipe, but may have a great affect on clay sewer pipe.

This technical bulletin is for general information and does not eliminate or supersede the policies presented in our previous Technical Bulletin Gen. 6 - Low Pressure Air Testing for Sewer Line.

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