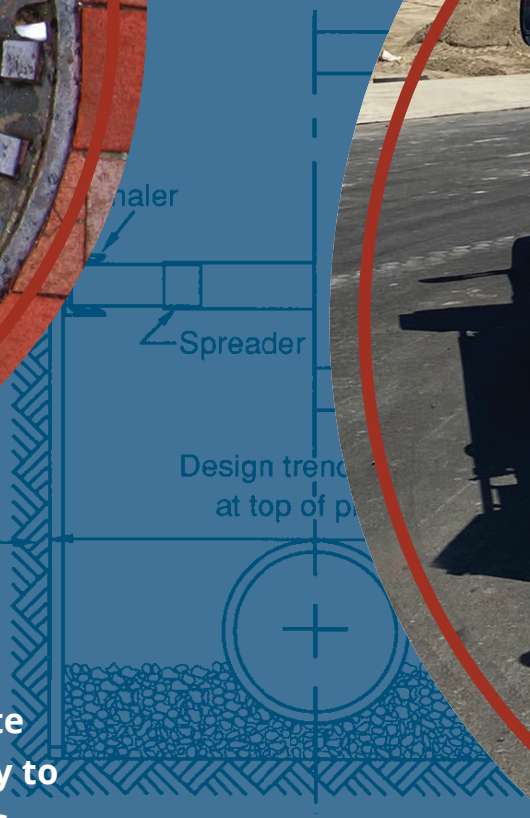

The National Clay Pipe Institute represents the clay pipe industry to sewer system decision makers. We offer the unique perspective, history and knowledge of the longest-serving and longest-lasting pipe product available.

Low-Pressure Air Test

for Vitrified Clay Pipe Sewers

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The VCP Authority Since 1917

This Guide

The low-pressure air test is the preferred and most commonly used post-installation testing method for line acceptance of a gravity flow conduit. With the low-pressure air test, there is no room for interpretation. It is not subjective. A line either clearly passes or fails the test.

The guidance presented in this handbook is accurate, but no guarantee is made or liability assumed. Direction from this handbook should not be substituted for the judgment of a professional engineer or system owner experienced in conducting low-pressure air tests in Vitrified Clay Pipelines.

Quick Tips

- The Mainline Only test table with testing times by pipe diameter is on page 7.
- The tables for a mainline with lateral(s) start on page 8.
- **Use the log on page 23 to track tests and results.**

Low-Pressure Air Test for Sanitary Sewers

Procedures and Tables Based on ASTM C828:

Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines

Printed in the United States of America.

Table of Contents

Note: For larger mainlines with laterals, consult ASTM C828.

Introduction

The low-pressure air test is the preferred method of testing pipe joints and sewer line installations. This test is commonly used for line acceptance, isolation testing or to evaluate the severity of issues identified via CCTV inspection.

The principle of low-pressure air testing is easily understood. The equipment is readily available, and the outcome is not subject to interpretation. It is an economical and simple test to run.

A specific drop in air pressure within a pipe system over a specified length of time, based on pipe internal diameter and length tested (volume), determines the acceptance or failure of the line in question.

The test timetables and procedures are based on the ASTM C828 *Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines.* All acceptance tests should be performed with authorized personnel present to observe the results.

Minimum Test Time for Various Pipe Sizes	
Nominal Pipe Size, in.	**T (time), min/100 ft**
4	0.3
6	0.7
8	1.2
10	1.5
12	1.8
15	2.1
18	2.4
21	3.0
24	3.6
27	4.2
30	4.8
33	5.4
36	6.0
39	6.6
42	7.3
48	8.5

Table 1 from ASTM C828

Acceptance Testing

When the low-pressure air test is used for pipeline acceptance, the pipe should be fully installed, completely backfilled, and compacted. When conducted with the backfill load applied, all aspects of the installation are tested, including:

- The structural integrity of EACH individual pipe section
- The integrity of EACH assembled compression joint, resisting possible shear loading
- Foundation (trench bottom) support (the foundation MUST support the bedding, pipe, backfill and any compactive effort applied)
- Trench design and appropriate trench width
- The bedding class and bedding material utilized
- Circumferential haunch support
- Compactive effort on the pipeline
- Installation practices including movement of trench boxes in the pipe zone, handling of the pipe

Safety

The air test can be dangerous if a line is improperly prepared due to a lack of understanding or carelessness. Some users have erroneously attempted to conduct a more stringent test by using higher test pressure. This can create a workplace hazard and reveals nothing more about the soundness of the installation.

Before attempting to plug any sewer pipe, calculate the amount of force the test plug must withstand and be certain the plug being used is designed to withstand this pressure.

Under-inflated test plugs will not be able to withstand the required back pressure. Over-inflated test plugs can rupture causing possible damage and injury. As a safety precaution, the pressurizing equipment should include a regulator and each test plug should be equipped with a relief valve to avoid over pressurizing and damaging an otherwise acceptable line.

It is extremely important that the various plugs be installed and braced in such a way as to prevent blowouts. A force of 2,250 lbf is exerted on a 24-inch plug by an internal pipe pressure of 5 psi. Operators should be aware that sudden expulsion of a poorly installed plug, or of a plug that is partially deflated before the pipe pressure is released, can be dangerous.

Always stand clear of any opening that contains a pneumatic plug.

No one shall be allowed in the manholes when the line is being pressurized.

Do not, under any circumstances, deflate the plugs before allowing the air from the test line to escape.

This handbook does not cover all of the safety concerns associated with its use. A user must establish the appropriate safety, health, and environmental practices in accordance with Federal, State, and Local regulations.

Preparation of the Sewer Line

Flush and clean the sewer line, if necessary, prior to testing. Cleaning should be conducted in accordance with ASTM C1920 *Standard Practice for Cleaning of Vitrified Clay Sanitary Sewer Pipelines.* This leaves a wet pipe surface and cleanses any debris or obstructions. If a pipeline does not need to be cleaned prior to testing, it should be thoroughly wetted.

A wetted interior pipe surface will produce more consistent test results. Air may pass through the walls of dry pipe. Usually, moisture absorbed from the backfill is sufficient to cope with this situation. Plug and brace all outlets to resist the test pressure and achieve accurate results. Give special attention to stoppers and laterals.

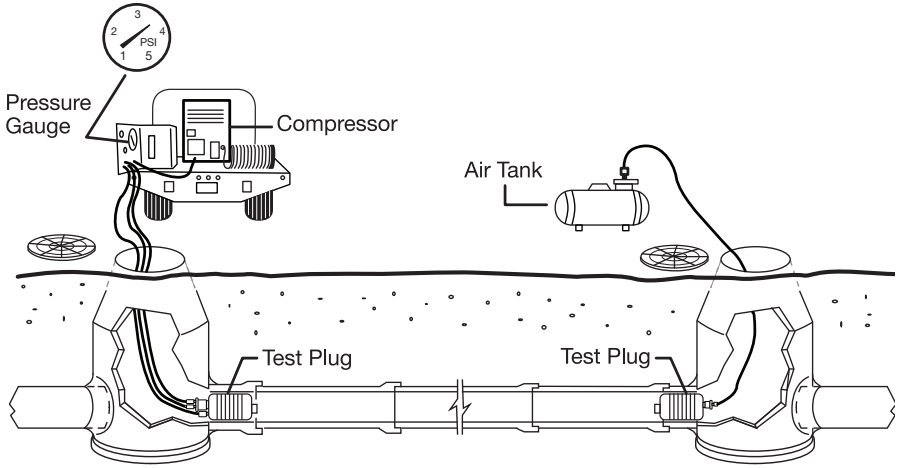

Fig. 1: Low-pressure air test set up

Procedures

Determine the test duration by computation from the Minimum Test Time table on page 1, (from ASTM C828), or from the prepared air test tables (starting on page 7). The pressure-holding time is based on an average holding pressure of 3 psi gauge or a drop from 3.5 psi to 2.5 psi gauge.

Add air until the internal air pressure of the sewer line is raised to approximately 4.0 psi gauge. The air pressure inside the line should never exceed 5 psi. After the internal pressure is obtained, allow time for the air pressure to stabilize.

The pressure gauge will normally show some drop until the temperature of the air in the test section stabilizes. This usually takes 2 to 5 minutes, depending on the pipe size. The pressure must be reduced to 3.5 psi before starting the test.

The Test

Start the test when the pressure is at 3.5 psi. If a 1 psi drop does not occur within the test time, the line has passed. If the pressure drop is more than 1 psi during the test time, the line has failed the test. If the line fails the initial test, testing equipment should be checked to be in sound working order (hose fitting connections, manifolds, gauges, valves, test plugs, etc.). If the testing equipment is found to be in sound working order, isolation testing may be used to determine the location of a leak.

This procedure may be used as an initial test to determine the condition of the line prior to backfill and subsequent construction activities. Testing at this stage will determine if the joints have been assembled correctly. This can not be considered the final acceptance test without the backfill load.

When the measured water table is 5 ft. or greater above the pipe barrel at the midpoint of the test section, a water infiltration test may be used. (See ASTM C1091 *Standard Test Method for Hydrostatic Infiltration Testing of Vitrified Clay Pipe Lines.*)

In Case of Failure

If a tested line does not pass the initial low-pressure air test, test plugs may be pulled through the line to isolate the problematic segment. This isolation testing can locate the issue within a 2 – 5 ft. segment, making it easy for the installer to locate and take targeted corrective action. After the repair has been made, a re-test of the entire line is recommended to confirm the integrity of the complete installation.

Summary of Test Method

- The section of the sewer line to be tested is plugged.
- Low-pressure air is introduced into the plugged line.
- The amount and rate of air loss are used to determine the acceptability of the section being tested.

Tables

The first table applies when testing mainline pipes only.

The remaining tables apply when lateral sewers are tested in conjunction with the mainline sewer.

NOTE: It is unnecessary to hold the test for the whole time period when it is clearly evident that the rate of air loss is less than the allowable.

Low-Pressure Air Test[1] for Single Diameter, Mainline Pipe Only

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

LENGTH OF MAINLINE (Feet)	VCP DIAMETER (Inches)														
	4	6	8	10	12	15	18	21	24	27	30	33	36	39	42
25	0:04	0:10	0:18	0:22	0:27	0:32	0:36	0:45	0:54	1:03	1:12	1:21	1:30	1:39	1:50
50	0:09	0:21	0:36	0:45	0:54	1:03	1:12	1:30	1:48	2:06	2:24	2:42	3:00	3:18	3:39
75	0:14	0:32	0:54	1:08	1:21	1:34	1:48	2:15	2:42	3:09	3:36	4:03	4:30	4:57	5:29
100	0:18	0:42	1:12	1:30	1:48	2:06	2:24	3:00	3:36	4:12	4:48	5:24	6:00	6:36	7:18
125	0:22	0:52	1:30	1:52	2:15	2:38	3:00	3:45	4:30	5:15	6:00	6:45	7:30	8:15	9:08
150	0:27	1:03	1:48	2:15	2:42	3:09	3:36	4:30	5:24	6:18	7:12	8:06	9:00	9:54	10:57
175	0:32	1:14	2:06	2:38	3:09	3:40	4:12	5:15	6:18	7:21	8:24	9:27	10:30	11:33	12:47
200	0:36	1:24	2:24	3:00	3:36	4:12	4:48	6:00	7:12	8:24	9:36	10:48	12:00	13:12	14:36
225	0:40	1:34	2:42	3:22	4:03	4:44	5:24	6:45	8:06	9:27	10:48	12:09	13:30	14:51	16:26
250	0:45	1:45	3:00	3:45	4:30	5:15	6:00	7:30	9:00	10:30	12:00	13:30	15:00	16:30	18:16
275	0:50	1:56	3:18	4:08	4:57	5:46	6:36	8:15	9:54	11:33	13:12	14:51	16:30	18:09	20:06
300	0:54	2:06	3:36	4:30	5:24	6:18	7:12	9:00	10:48	12:36	14:24	16:12	18:00	19:48	21:54
350	1:03	2:27	4:12	5:15	6:18	7:21	8:24	10:30	12:36	14:42	16:48	18:54	21:00	23:06	25:33
400	1:12	2:48	4:48	6:00	7:12	8:24	9:36	12:00	14:24	16:48	19:12	21:36	24:00	26:24	29:12
450	1:21	3:09	5:24	6:45	8:06	9:27	10:48	13:30	16:12	18:54	21:36	24:18	27:00	29:42	32:51
500	1:30	3:30	6:00	7:30	9:00	10:30	12:00	15:00	18:00	21:00	24:00	27:00	30:00	33:00	36:30

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

6" MAIN

4" LATERAL / LENGTH OF LATERAL (Feet)	LENGTH OF VCP MAINLINE (Feet)													
	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	0:15	0:26	0:36	0:46	0:57	1:08	1:18	1:28	1:39	1:48	2:00	2:10	2:52	3:34
50	0:20	0:30	0:40	0:51	1:02	1:12	1:22	1:33	1:44	1:54	2:04	2:15	2:57	3:37
75	0:24	0:34	0:45	0:56	1:06	1:16	1:27	1:38	1:48	1:58	2:09	2:20	3:02	3:44
100	0:28	0:37	0:50	1:00	1:10	1:21	1:32	1:42	1:52	2:03	2:14	2:24	3:06	3:48
125	0:33	0:44	0:54	1:04	1:15	1:26	1:36	1:46	1:57	2:08	2:18	2:28	3:10	3:52
150	0:38	0:48	0:58	1:09	1:20	1:30	1:40	1:51	2:02	2:12	2:22	2:33	3:15	3:57
175	0:42	0:52	1:03	1:14	1:24	1:34	1:45	1:56	2:06	2:16	2:27	2:38	3:20	4:02
200	0:46	0:57	1:08	1:18	1:28	1:39	1:50	2:00	2:10	2:21	2:32	2:42	3:24	4:06
225	0:51	1:02	1:12	1:22	1:33	1:44	1:54	2:04	2:15	2:26	2:36	2:46	3:22	4:10
250	0:56	1:06	1:16	1:27	1:38	1:48	1:58	2:09	2:20	2:30	2:40	2:51	3:33	4:15
275	1:00	1:10	1:21	1:32	1:42	1:52	2:03	2:14	2:24	2:34	2:45	2:56	3:38	4:20
300	1:04	1:15	1:26	1:36	1:46	1:57	2:08	2:18	2:28	2:39	2:48	3:00	3:42	4:24
350	1:14	1:24	1:34	1:45	1:56	2:06	2:16	2:27	2:38	2:48	2:58	3:09	3:51	4:33
400	1:22	1:33	1:44	1:54	2:04	2:15	2:26	2:36	2:46	2:57	3:08	3:18	4:00	4:42
450	1:32	1:42	1:52	2:03	2:14	2:24	2:34	2:45	2:56	3:06	3:16	3:27	4:09	4:51
500	1:40	1:51	2:02	2:12	2:22	2:33	2:44	2:54	3:04	3:15	3:26	3:36	4:18	5:00

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

8″ MAIN

4″ LATERAL	LENGTH OF VCP MAINLINE (Feet)													
LENGTH OF LATERAL (Feet)	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	0:22	0:40	0:58	1:16	1:34	1:52	2:10	2:28	2:46	3:04	3:22	3:40	4:52	6:04
50	0:27	0:45	1:03	1:21	1:39	1:57	2:15	2:33	2:51	3:09	3:27	3:45	4:57	6:09
75	0:32	0:50	1:08	1:26	1:44	2:02	2:20	2:38	2:56	3:14	3:32	3:50	5:02	6:14
100	0:36	0:54	1:12	1:30	1:48	2:06	2:24	2:42	3:00	3:18	3:36	3:54	5:06	6:18
125	0:40	0:58	1:16	1:34	1:52	2:10	2:28	2:46	3:04	3:22	3:40	3:58	5:10	6:22
150	0:45	1:03	1:21	1:39	1:57	2:15	2:33	2:51	3:09	3:27	3:45	4:03	5:15	6:27
175	0:50	1:08	1:26	1:44	2:02	2:20	2:38	2:56	3:14	3:32	3:50	4:08	5:20	6:32
200	0:54	1:12	1:30	1:48	2:06	2:24	2:42	3:00	3:18	3:36	3:54	4:12	5:24	6:36
225	0:58	1:16	1:34	1:52	2:10	2:28	2:46	3:04	3:22	3:40	3:58	4:16	5:28	6:40
250	1:03	1:21	1:39	1:57	2:15	2:33	2:51	3:09	3:27	3:45	4:03	4:21	5:33	6:45
275	1:08	1:26	1:44	2:02	2:20	2:38	2:56	3:14	3:32	3:50	4:08	4:26	5:38	6:50
300	1:12	1:30	1:48	2:06	2:24	2:42	3:00	3:18	3:36	3:54	4:12	4:30	5:42	6:54
350	1:21	1:39	1:57	2:15	2:33	2:51	3:09	3:27	3:45	4:03	4:21	4:39	5:51	7:03
400	1:30	1:48	2:06	2:24	2:42	3:00	3:18	3:36	3:54	4:12	4:30	4:48	6:00	7:12
450	1:39	1:57	2:15	2:33	2:51	3:09	3:27	3:45	4:03	4:21	4:39	4:57	6:09	7:21
500	1:48	2:06	2:24	2:42	3:00	3:18	3:36	3:54	4:12	4:30	4:48	5:06	6:18	7:30

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

8″ MAIN

6″ LATERAL	LENGTH OF VCP MAINLINE (Feet)													
LENGTH OF LATERAL (Feet)	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	0:28	0:46	1:04	1:22	1:40	1:58	2:16	2:34	2:52	3:10	3:28	3:46	4:58	6:10
50	0:39	0:57	1:15	1:33	1:51	2:09	2:27	2:45	3:03	3:21	3:39	3:57	5:09	6:21
75	0:50	1:08	1:26	1:44	2:02	2:20	2:38	2:56	3:14	3:32	3:50	4:08	5:20	6:32
100	1:00	1:18	1:36	1:54	2:12	2:30	2:48	3:06	3:24	3:42	4:00	4:18	5:30	6:42
125	1:10	1:28	1:46	2:04	2:22	2:40	2:58	3:16	3:34	3:52	4:10	4:28	5:40	6:52
150	1:21	1:39	1:57	2:15	2:33	2:51	3:09	3:27	3:45	4:03	4:21	4:39	5:51	7:03
175	1:32	1:50	2:08	2:26	2:44	3:02	3:20	3:38	3:56	4:14	4:32	4:50	6:02	7:14
200	1:42	2:00	2:18	2:36	2:54	3:12	3:30	3:48	4:06	4:24	4:42	5:00	6:12	7:24
225	1:52	2:10	2:28	2:46	3:04	3:22	3:40	3:58	4:16	4:34	4:52	5:10	6:22	7:34
250	2:03	2:21	2:39	2:57	3:15	3:33	3:51	4:09	4:27	4:45	5:03	5:21	6:33	7:45
275	2:14	2:32	2:50	3:08	3:26	3:44	4:02	4:20	4:38	4:56	5:14	5:32	6:44	7:56
300	2:24	2:42	3:00	3:18	3:36	3:54	4:12	4:30	4:48	5:06	5:24	5:42	6:54	8:06
350	2:45	3:03	3:21	3:39	3:57	4:15	4:33	4:51	5:09	5:27	5:45	6:03	7:15	8:27
400	3:06	3:24	3:42	4:00	4:18	4:36	4:54	5:12	5:30	5:48	6:06	6:24	7:36	8:48
450	3:27	3:45	4:03	4:21	4:39	4:57	5:15	5:33	5:51	6:09	6:27	6:45	7:57	9:09
500	3:48	4:06	4:24	4:42	5:00	5:18	5:36	5:54	6:12	6:30	6:48	7:06	8:18	9:30

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

10″ MAIN

4″ LATERAL	LENGTH OF VCP MAINLINE (Feet)													
LENGTH OF LATERAL (Feet)	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	0:27	0:50	1:12	1:34	1:57	2:20	2:42	3:04	3:27	3:50	4:12	4:34	6:04	7:34
50	0:32	0:54	1:16	1:39	2:02	2:24	2:46	3:09	3:32	3:54	4:16	4:39	6:09	7:39
75	0:36	0:58	1:21	1:44	2:06	2:28	2:51	3:14	3:36	3:58	4:21	4:44	6:14	7:44
100	0:40	1:03	1:26	1:48	2:10	2:33	2:56	3:18	3:40	4:03	4:26	4:48	6:18	7:48
125	0:45	1:08	1:30	1:52	2:15	2:38	3:00	3:22	3:45	4:08	4:30	4:52	6:22	7:52
150	0:50	1:12	1:34	1:57	2:20	2:42	3:04	3:27	3:50	4:12	4:34	4:57	6:27	7:57
175	0:54	1:16	1:39	2:02	2:24	2:46	3:09	3:32	3:54	4:16	4:39	5:02	6:32	8:02
200	0:58	1:21	1:44	2:06	2:28	2:51	3:14	3:36	3:58	4:21	4:44	5:06	6:36	8:06
225	1:03	1:26	1:48	2:10	2:33	2:56	3:18	3:40	4:03	4:26	4:48	5:10	6:40	8:10
250	1:08	1:30	1:52	2:15	2:38	3:00	3:22	3:45	4:08	4:30	4:52	5:15	6:45	8:15
275	1:12	1:34	1:57	2:20	2:42	3:04	3:27	3:50	4:12	4:34	4:57	5:20	6:50	8:20
300	1:16	1:39	2:02	2:24	2:46	3:09	3:32	3:54	4:16	4:39	5:02	5:24	6:54	8:24
350	1:26	1:48	2:10	2:33	2:56	3:18	3:40	4:03	4:26	4:48	5:10	5:33	7:03	8:33
400	1:34	1:57	2:20	2:42	3:04	3:27	3:50	4:12	4:34	4:57	5:20	5:42	7:12	8:42
450	1:44	2:06	2:28	2:54	3:14	3:36	3:58	4:21	4:44	5:06	5:28	5:51	7:21	8:51
500	1:52	2:15	2:38	3:00	3:22	3:45	4:08	4:30	4:52	5:15	5:38	6:00	7:30	9:00

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Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

10″ MAIN

6″ LATERAL	LENGTH OF VCP MAINLINE (Feet)													
LENGTH OF LATERAL (Feet)	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	0:33	0:56	1:18	1:40	2:03	2:26	2:48	3:10	3:33	3:56	4:18	4:40	6:10	7:40
50	0:44	1:06	1:28	1:51	2:14	2:36	2:58	3:21	3:44	4:06	4:28	4:51	6:21	7:51
75	0:54	1:16	1:39	2:02	2:24	2:46	3:09	3:32	3:54	4:16	4:39	5:02	6:32	8:02
100	1:04	1:27	1:50	2:12	2:34	2:57	3:20	3:42	4:04	4:27	4:50	5:12	6:42	8:12
125	1:15	1:38	2:00	2:22	2:45	3:08	3:30	3:52	4:15	4:38	5:00	5:22	6:52	8:22
150	1:26	1:48	2:10	2:33	2:56	3:18	3:40	4:03	4:26	4:48	5:10	5:33	7:03	8:33
175	1:36	1:58	2:21	2:44	3:06	3:28	3:51	4:14	4:36	4:58	5:21	5:44	7:14	8:44
200	1:46	2:09	2:32	2:54	3:16	3:39	4:02	4:24	4:46	5:09	5:32	5:54	7:24	8:54
225	1:57	2:20	2:42	3:04	3:27	3:50	4:12	4:34	4:57	5:20	5:42	6:04	7:34	9:04
250	2:08	2:30	2:52	3:15	3:38	4:00	4:22	4:45	5:08	5:30	5:52	6:15	7:45	9:15
275	2:18	2:40	3:03	3:26	3:48	4:10	4:33	4:56	5:18	5:40	6:03	6:26	7:56	9:22
300	2:28	2:51	3:14	3:36	3:58	4:21	4:44	5:06	5:28	5:51	6:14	6:36	8:06	9:36
350	2:50	3:12	3:34	3:57	4:20	4:42	5:04	5:27	5:50	6:12	6:34	6:57	8:27	9:57
400	3:10	3:33	3:56	4:18	4:40	5:03	5:26	5:48	6:10	6:33	6:56	7:18	8:48	10:18
450	3:32	3:54	4:16	4:39	5:02	5:24	5:46	6:09	6:32	6:54	7:16	7:39	9:09	10:39
500	3:52	4:15	4:38	5:00	5:22	5:45	6:08	6:30	6:52	7:15	7:38	8:00	9:30	11:00

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

12″ MAIN

4″ LATERAL	LENGTH OF VCP MAINLINE (Feet)													
LENGTH OF LATERAL (Feet)	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	0:32	0:58	1:26	1:52	2:20	2:46	3:14	3:40	4:08	4:34	5:02	5:28	7:16	9:04
50	0:36	1:03	1:30	1:57	2:24	2:51	3:18	3:45	4:12	4:39	5:06	5:33	7:21	9:09
75	0:40	1:08	1:34	2:02	2:28	2:56	3:22	3:50	4:16	4:44	5:10	5:38	7:26	9:14
100	0:45	1:12	1:39	2:06	2:33	3:00	3:27	3:54	4:21	4:48	5:15	5:42	7:30	9:18
125	0:50	1:16	1:44	2:10	2:38	3:04	3:32	3:58	4:26	4:52	5:20	5:46	7:34	9:22
150	0:54	1:21	1:48	2:15	2:42	3:09	3:36	4:03	4:30	4:57	5:24	5:51	7:39	9:27
175	0:58	1:26	1:52	2:20	2:46	3:14	3:40	4:08	4:34	5:02	5:28	5:56	7:44	9:32
200	1:03	1:30	1:57	2:24	2:51	3:18	3:45	4:12	4:39	5:06	5:33	6:00	7:48	9:36
225	1:08	1:34	2:02	2:28	2:56	3:22	3:50	4:16	4:44	5:10	5:38	6:04	7:52	9:40
250	1:12	1:39	2:06	2:33	3:00	3:27	3:54	4:21	4:48	5:15	5:42	6:09	7:57	9:45
275	1:16	1:44	2:10	2:38	3:04	3:32	3:58	4:26	4:52	5:20	5:46	6:14	8:02	9:50
300	1:21	1:48	2:15	2:42	3:09	3:36	4:03	4:30	4:57	5:24	5:51	6:18	8:06	9:54
350	1:30	1:57	2:24	2:51	3:18	3:45	4:12	4:39	5:06	5:33	6:00	6:27	8:15	10:03
400	1:39	2:06	2:33	3:00	3:27	3:54	4:21	4:48	5:15	5:42	6:09	6:36	8:24	10:12
450	1:48	2:15	2:42	3:09	3:36	4:03	4:30	4:57	5:24	5:51	6:18	6:45	8:33	10:21
500	1:57	2:24	2:51	3:18	3:45	4:12	4:39	5:06	5:33	6:00	6:27	6:54	8:42	10:30

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

12″ MAIN

6″ LATERAL	LENGTH OF VCP MAINLINE (Feet)													
LENGTH OF LATERAL (Feet)	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	0:38	1:04	1:32	1:58	2:26	2:52	3:20	3:46	4:15	4:40	5:08	5:34	7:22	9:10
50	0:48	1:15	1:42	2:09	2:36	3:03	3:30	3:57	4:24	4:51	5:18	5:45	7:33	9:21
75	0:58	1:26	1:52	2:20	2:46	3:14	3:40	4:08	4:34	5:02	5:28	5:56	7:44	9:32
100	1:09	1:36	2:03	2:30	2:57	3:24	3:51	4:18	4:45	5:12	5:39	6:06	7:54	9:42
125	1:20	1:46	2:14	2:40	3:08	3:34	4:02	4:28	4:56	5:22	5:50	6:16	8:04	9:52
150	1:30	1:57	2:24	2:51	3:18	3:45	4:12	4:39	5:06	5:33	6:00	6:27	8:15	10:03
175	1:40	2:08	2:34	3:02	3:28	3:56	4:22	4:50	5:16	5:44	6:10	6:38	8:26	10:14
200	1:51	2:18	2:45	3:12	3:39	4:06	4:33	5:00	5:27	5:54	6:21	6:48	8:36	10:24
225	2:02	2:28	2:56	3:22	3:50	4:16	4:44	5:10	5:38	6:04	6:32	6:58	8:46	10:34
250	2:12	2:39	3:06	3:33	4:00	4:27	4:54	5:21	5:48	6:15	6:42	7:09	8:57	10:45
275	2:22	2:50	3:16	3:44	4:10	4:38	5:04	5:32	5:58	6:26	6:52	7:20	9:08	10:56
300	2:33	3:00	3:27	3:54	4:21	4:48	5:15	5:42	6:09	6:36	7:03	7:30	9:18	11:06
350	2:54	3:21	3:48	4:15	4:42	5:09	5:36	6:03	6:30	6:57	7:24	7:51	9:39	11:27
400	3:15	3:42	4:09	4:36	5:03	5:30	5:57	6:24	6:51	7:18	7:45	8:12	10:00	11:48
450	3:36	4:03	4:30	4:57	5:24	5:51	6:18	6:45	7:12	7:39	8:06	8:33	10:21	12:09
500	3:57	4:24	4:51	5:18	5:45	6:12	6:37	7:06	7:33	8:00	8:27	8:54	10:42	12:30

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

15″ MAIN

4″ LATERAL	LENGTH OF VCP MAINLINE (Feet)													
LENGTH OF LATERAL (Feet)	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	0:36	1:08	1:39	2:10	2:42	3:14	3:45	4:16	4:48	5:20	5:51	6:22	8:28	10:34
50	0:40	1:12	1:44	2:15	2:46	3:18	3:50	4:21	4:52	5:24	5:56	6:27	8:33	10:39
75	0:45	1:16	1:48	2:20	2:51	3:22	3:54	4:26	4:57	5:29	6:00	6:32	8:38	10:44
100	0:50	1:21	2:52	2:24	2:56	3:27	3:58	4:30	5:02	5:33	6:04	6:36	8:42	10:48
125	0:54	1:26	1:57	2:28	3:00	3:32	4:03	4:34	5:06	5:38	6:09	6:40	8:46	10:52
150	0:58	1:30	2:02	2:33	3:04	3:36	4:08	4:39	5:10	5:42	6:14	6:45	8:51	10:57
175	1:03	1:34	2:06	2:38	3:09	3:40	4:12	4:44	5:15	5:46	6:18	6:50	8:56	11:02
200	1:08	1:39	2:10	2:42	3:14	3:45	4:16	4:48	5:20	5:51	6:22	6:54	9:00	11:06
225	1:12	1:44	2:15	2:46	3:18	3:50	4:21	4:52	5:24	5:56	6:27	6:58	9:04	11:10
250	1:16	1:48	2:20	2:51	3:22	3:54	4:26	4:56	5:28	6:00	6:32	7:03	9:09	11:15
275	1:21	1:52	2:24	2:56	3:27	3:58	4:30	5:02	5:33	6:04	6:36	7:08	9:14	11:20
300	1:26	1:57	2:28	3:00	3:32	4:03	4:34	5:06	5:38	6:09	6:40	7:12	9:18	11:24
350	1:34	2:06	2:38	3:09	3:40	4:12	4:44	5:15	5:46	6:18	6:50	7:21	9:27	11:33
400	1:44	2:15	2:46	3:18	3:50	4:21	4:52	5:24	5:56	6:27	6:58	7:30	9:36	11:42
450	1:52	2:24	2:56	3:27	3:58	4:30	5:02	5:33	6:04	6:36	7:08	7:39	9:45	11:51
500	2:02	2:33	3:04	3:36	4:08	4:39	5:10	5:42	6:14	6:45	7:16	7:48	9:54	12:00

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

15″ MAIN

6″ LATERAL	LENGTH OF VCP MAINLINE (Feet)													
LENGTH OF LATERAL (Feet)	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	0:42	1:14	1:45	2:16	2:48	3:20	3:51	4:22	4:54	5:26	5:57	6:28	8:34	10:40
50	0:52	1:24	1:56	2:27	2:58	3:30	4:02	4:33	5:04	5:36	6:08	6:39	8:45	10:51
75	1:03	1:34	2:06	2:38	3:09	3:40	4:12	4:44	5:15	5:46	6:18	6:50	8:56	11:02
100	1:14	1:45	2:16	2:48	3:20	3:51	4:22	4:54	5:26	5:57	6:28	7:00	9:06	11:12
125	1:24	1:56	2:27	2:58	3:30	4:02	4:33	5:04	5:36	6:08	6:39	7:10	9:16	11:22
150	1:34	2:06	2:38	3:09	3:40	4:12	4:44	5:15	5:46	6:18	6:50	7:21	9:27	11:33
175	1:45	2:16	2:48	3:20	3:51	4:22	4:54	5:26	5:57	6:28	7:00	7:32	9:38	11:44
200	1:56	2:27	2:58	3:30	4:02	4:33	5:04	5:36	6:08	6:39	7:10	7:42	9:48	11:54
225	2:06	2:38	3:09	3:40	4:12	4:44	5:15	5:46	6:18	6:50	7:21	7:52	9:58	12:04
250	2:16	2:48	3:20	3:51	4:22	4:54	5:26	5:57	6:28	7:00	7:32	8:03	10:09	12:15
275	2:27	2:58	3:30	4:02	4:33	5:04	5:36	6:08	6:39	7:10	7:42	8:14	10:20	12:26
300	2:38	3:09	3:40	4:12	4:44	5:15	5:46	6:18	6:50	7:21	7:52	8:24	10:30	12:36
350	2:58	3:30	4:02	4:33	5:04	5:36	6:08	6:39	7:10	7:42	8:14	8:45	10:51	12:57
400	3:20	3:51	4:22	4:54	5:26	5:57	6:28	7:00	7:32	8:03	8:34	9:06	11:12	13:18
450	3:40	4:12	4:44	5:15	5:46	6:18	6:50	7:21	7:52	8:24	8:56	9:27	11:33	13:39
500	4:02	4:33	5:04	5:36	6:08	6:39	7:10	7:42	8:14	8:45	9:16	9:48	11:54	14:00

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

18″ MAIN

4″ LATERAL	LENGTH OF VCP MAINLINE (Feet)													
LENGTH OF LATERAL (Feet)	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	0:40	1:16	1:52	2:28	3:04	3:40	4:16	4:52	5:28	6:04	6:40	7:16	9:40	12:04
50	0:45	1:21	1:57	2:33	3:09	3:45	4:21	4:57	5:33	6:09	6:45	7:21	9:45	12:09
75	0:50	1:26	2:02	2:38	3:14	3:50	4:26	5:02	5:38	6:14	6:50	7:26	9:50	12:14
100	0:54	1:30	2:06	2:42	3:18	3:54	4:30	5:06	5:42	6:18	6:54	7:30	9:54	12:18
125	0:58	1:34	2:10	2:46	3:22	3:58	4:34	5:10	5:46	6:22	6:58	7:34	9:58	12:22
150	1:03	1:39	2:15	2:51	3:27	4:03	4:39	5:15	5:51	6:27	7:03	7:39	10:03	12:27
175	1:08	1:44	2:20	2:56	3:32	4:08	4:44	5:20	5:56	6:32	7:08	7:44	10:08	12:32
200	1:12	1:48	2:24	3:00	3:36	4:12	4:48	5:24	6:00	6:36	7:12	7:48	10:12	12:36
225	1:16	1:52	2:28	3:04	3:40	4:16	4:52	5:28	6:04	6:40	7:16	7:52	10:16	12:40
250	1:21	1:57	2:33	3:09	3:45	4:21	4:57	5:33	6:09	6:45	7:21	7:57	10:21	12:45
275	1:26	2:02	2:38	3:14	3:50	4:26	5:02	5:38	6:14	6:50	7:26	8:02	10:26	12:50
300	1:30	2:06	2:42	3:18	3:54	4:30	5:06	5:42	6:18	6:54	7:30	8:06	10:30	12:54
350	1:39	2:15	2:51	3:27	4:03	4:39	5:15	5:51	6:27	7:03	7:39	8:15	10:39	13:03
400	1:48	2:24	3:00	3:36	4:12	4:48	5:24	6:00	6:36	7:12	7:48	8:24	10:48	13:12
450	1:57	2:33	3:09	3:45	4:21	4:57	5:33	6:09	6:45	7:21	7:57	8:33	10:57	13:21
500	2:06	2:42	3:18	3:54	4:30	5:06	5:46	6:18	6:54	7:30	8:06	8:42	11:06	13:30

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

18″ MAIN

6″ LATERAL	LENGTH OF VCP MAINLINE (Feet)													
LENGTH OF LATERAL (Feet)	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	0:46	1:22	1:58	2:34	3:10	3:46	4:22	4:58	5:34	6:10	6:46	7:22	9:46	12:10
50	0:57	1:33	2:09	2:45	3:21	3:57	4:33	5:09	5:45	6:21	6:57	7:33	9:57	12:21
75	1:08	1:44	2:20	2:56	3:32	4:08	4:14	5:20	5:56	6:32	7:08	7:44	10:08	12:32
100	1:18	1:54	2:30	3:06	3:42	4:18	4:54	5:30	6:06	6:42	7:18	7:54	10:18	12:42
125	1:28	2:04	2:40	3:16	3:52	4:28	5:04	5:40	6:16	6:52	7:28	8:04	10:28	12:52
150	1:39	2:15	2:51	3:27	4:03	4:39	5:15	5:51	6:27	7:03	7:39	8:15	10:39	13:03
175	1:50	2:56	3:02	3:38	4:14	4:50	5:26	6:02	6:38	7:14	7:50	8:26	10:50	13:24
200	2:00	2:36	3:12	3:48	4:24	5:00	5:36	6:12	6:48	7:24	8:00	8:36	11:00	13:44
225	2:10	2:46	3:22	3:58	4:34	5:10	5:46	6:22	6:58	7:34	8:10	8:46	11:10	13:34
250	2:21	2:57	3:33	4:09	4:45	5:21	5:57	6:33	7:09	7:45	8:21	8:57	11:21	13:45
275	2:32	3:08	3:44	4:20	4:56	5:32	6:08	6:44	7:20	7:56	8:32	9:08	11:32	13:56
300	2:42	3:18	3:54	4:30	5:06	5:42	6:18	6:54	7:30	8:06	8:42	9:18	11:42	14:06
350	3:03	3:39	4:15	4:51	5:27	6:03	6:39	7:15	7:51	8:27	9:03	9:39	12:03	14:27
400	3:24	4:00	4:36	5:12	5:48	6:24	7:00	7:36	8:12	8:48	9:24	10:00	12:24	14:48
450	3:45	4:21	4:57	5:33	6:09	6:45	7:21	7:57	8:33	9:09	9:45	10:21	12:45	15:09
500	4:06	4:42	5:18	5:54	6:30	7:06	7:42	8:18	8:54	9:30	10:06	10:42	13:06	15:30

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

21″ MAIN

4″ LATERAL	LENGTH OF VCP MAINLINE (Feet)													
LENGTH OF LATERAL (Feet)	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	0:50	1:34	2:20	3:04	3:50	4:34	5:20	6:04	6:50	7:34	8:20	9:04	12:04	15:04
50	0:54	1:39	2:24	3:09	3:54	4:39	5:24	6:09	6:54	7:39	8:24	9:09	12:09	15:09
75	0:58	1:44	2:28	3:14	3:58	4:44	5:28	6:14	6:58	7:44	8:28	9:14	12:14	15:14
100	1:03	1:48	2:33	3:18	4:03	4:48	5:33	6:18	7:03	7:48	8:33	9:18	12:18	15:18
125	1:08	1:52	2:38	3:22	4:08	4:52	5:38	6:22	7:08	7:52	8:38	9:22	12:22	15:22
150	1:12	1:57	2:42	3:27	4:12	4:57	5:42	6:27	7:12	7:57	8:42	9:27	12:27	15:27
175	1:16	2:02	2:46	3:32	4:16	5:02	5:46	6:32	7:16	8:02	8:46	9:32	12:32	15:32
200	1:21	2:06	2:51	3:36	4:21	5:06	5:51	6:36	7:21	8:06	8:51	9:36	12:36	15:36
225	1:26	2:10	2:56	3:40	4:26	5:10	5:56	6:40	7:26	8:10	8:56	9:40	12:40	15:40
250	1:30	2:15	3:00	3:45	4:30	5:15	6:00	6:45	7:30	8:15	9:00	9:45	12:45	15:45
275	1:34	2:20	3:04	3:50	4:34	5:20	6:04	6:50	7:34	8:20	9:04	9:50	12:50	15:50
300	1:39	2:24	3:09	3:54	4:39	5:24	6:09	654	7:39	8:24	9:09	9:54	12:54	15:54
350	1:48	2:33	3:18	4:03	4:48	5:33	6:18	7:03	7:48	8:33	9:18	10:03	13:03	16:03
400	1:57	2:42	3:27	4:12	4:57	5:42	6:27	7:12	7:57	8:42	9:27	10:12	13:12	16:12
450	2:06	2:51	3:36	4:21	5:06	5:51	6:36	7:21	8:06	8:51	9:36	10:21	13:21	16:21
500	2:15	3:00	3:45	4:30	5:15	6:00	6:45	7:30	8:15	9:00	9:45	10:30	13:30	16:30

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

21″ MAIN

6″ LATERAL	LENGTH OF VCP MAINLINE (Feet)													
LENGTH OF LATERAL (Feet)	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	0:56	1:40	2:26	3:10	3:56	4:40	5:26	6:10	6:56	7:40	8:26	9:10	12:10	15:10
50	1:06	1:51	2:36	3:21	4:06	4:51	5:36	6:21	7:06	7:51	8:36	9:21	12:21	15:21
75	1:16	2:02	2:46	3:32	4:16	5:02	5:46	6:32	7:16	8:02	8:46	9:32	12:32	15:32
100	1:27	2:12	2:57	3:42	4:27	5:12	5:57	6:42	7:27	8:12	8:57	9:42	12:42	15:42
125	1:38	2:22	3:08	3:52	4:38	5:22	6:08	6:52	7:38	8:22	9:08	9:52	12:52	15:52
150	1:48	2:33	3:18	4:03	4:48	5:33	6:18	7:03	7:48	8:33	9:18	10:03	13:03	16:03
175	1:58	2:44	3:28	4:14	4:58	5:44	6:28	7:14	7:58	8:44	9:28	10:14	13:14	16:14
200	2:09	2:54	3:39	4:24	5:09	5:54	6:39	7:24	8:09	8:54	9:39	10:24	13:24	16:24
225	2:20	3:04	3:50	4:34	5:20	6:04	6:50	7:34	8:20	9:04	9:50	10:34	13:34	16:34
250	2:30	3:15	4:00	4:45	5:30	6:15	7:00	7:45	8:30	9:15	10:00	10:45	13:45	16:45
275	2:40	3:26	4:10	4:56	5:40	6:26	7:10	7:56	8:40	9:26	10:10	10:56	13:56	16:56
300	2:51	3:36	4:21	5:06	5:51	6:36	7:21	8:06	8:51	9:36	10:21	11:06	14:06	17:06
350	3:12	3:57	4:42	5:27	6:12	6:57	7:42	8:27	9:12	9:57	10:42	11:27	14:27	17:27
400	3:33	4:18	5:03	5:48	6:33	7:18	8:03	8:48	9:33	10:18	11:03	11:48	14:48	17:48
450	3:54	4:39	5:24	6:09	6:54	7:39	8:24	9:09	9:54	10:39	11:24	12:09	15:09	18:09
500	4:15	5:00	5:45	6:30	7:15	8:00	8:45	9:30	10:15	11:00	11:45	12:30	15:30	18:30

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

24" MAIN

4" LATERAL	LENGTH OF VCP MAINLINE (Feet)													
LENGTH OF LATERAL (Feet)	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	0:58	1:52	2:46	3:40	4:34	5:58	6:22	7:16	8:10	9:04	9:58	10:52	14:28	18:04
50	1:03	1:57	2:51	3:45	4:39	5:33	6:27	7:21	8:15	9:09	10:03	10:57	14:33	18:09
75	1:08	2:02	2:56	3:50	4:44	5:38	6:32	7:26	8:20	9:14	10:08	11:02	14:38	18:16
100	1:12	2:06	3:00	3:54	4:48	5:52	6:36	7:30	8:24	9:18	10:12	11:06	14:42	18:18
125	1:16	2:10	3:04	3:58	4:52	5:46	6:40	7:34	8:28	9:22	10:16	11:10	14:46	18:22
150	1:21	2:15	3:09	4:03	4:57	5:51	6:45	7:39	8:33	9:27	10:21	11:15	14:51	18:27
175	1:26	2:20	3:14	4:08	5:02	5:56	6:50	7:44	8:38	9:32	10:26	11:20	14:56	18:32
200	1:30	2:24	3:18	4:12	5:06	6:00	6:54	7:48	8:42	9:36	10:30	11:24	15:00	18:36
225	1:34	2:28	3:22	4:16	5:10	6:04	6:58	7:52	8:46	9:40	10:34	11:28	15:04	18:40
250	1:39	2:33	3:27	4:21	5:15	6:09	7:03	7:57	8:51	9:45	10:39	11:33	15:09	18:45
275	1:44	2:38	3:32	4:26	5:20	6:14	7:08	8:02	8:56	9:50	10:44	11:38	15:14	18:50
300	1:48	2:42	3:36	4:30	5:24	6:18	7:12	8:06	9:00	9:54	10:48	11:42	15:18	18:54
350	1:57	3:51	3:45	4:39	5:33	6:27	7:21	8:15	9:09	10:03	10:57	11:51	15:27	19:03
400	2:06	3:00	3:54	4:48	5:42	6:36	7:30	8:24	9:18	10:12	11:06	12:00	15:36	19:12
450	2:15	3:09	4:03	4:57	5:51	6:45	7:39	8:33	9:27	10:21	11:15	12:09	15:45	19:21
500	2:24	3:18	4:12	5:06	6:00	6:54	7:48	8:42	9:36	10:30	11:24	12:18	15:54	19:30

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Low-Pressure Air Test[1] of a Mainline with Lateral Connections

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig

24" MAIN

6" LATERAL	LENGTH OF VCP MAINLINE (Feet)													
LENGTH OF LATERAL (Feet)	25	50	75	100	125	150	175	200	225	250	275	300	400	500
25	1:04	1:58	2:52	3:46	4:40	5:34	6:28	7:22	8:16	9:10	10:04	10:58	14:34	18:10
50	1:15	2:09	3:03	3:57	4:51	5:45	6:39	7:33	8:27	9:21	10:15	11:09	14:45	18:21
75	1:26	2:20	3:14	4:08	5:02	5:56	6:50	7:44	8:38	9:32	10:26	11:20	14:56	18:32
100	1:36	2:30	3:24	4:18	5:12	6:06	7:00	7:54	8:48	9:42	10:36	11:30	15:06	18:42
125	1:46	2:40	3:34	4:28	5:22	6:16	7:10	8:04	8:58	9:52	10:46	11:40	15:16	18:52
150	1:57	2:51	3:45	4:39	5:33	6:27	7:21	8:15	9:09	10:03	10:57	11:51	15:27	19:03
175	2:08	3:02	3:56	4:50	5:44	6:38	7:32	8:26	9:20	10:14	11:08	12:02	15:38	19:14
200	2:18	3:12	4:06	5:00	5:54	6:48	7:42	8:36	9:30	10:24	11:18	12:12	15:48	19:24
225	2:28	3:22	4:16	5:10	6:04	6:58	7:52	8:46	9:40	10:34	11:28	12:22	15:58	19:34
250	2:39	3:33	4:27	5:21	6:15	7:09	8:03	8:56	9:51	10:45	11:39	12:33	16:09	19:45
275	2:50	3:44	4:38	5:32	6:26	7:20	8:14	9:08	10:02	10:56	11:50	12:44	16:20	19:56
300	3:00	3:54	4:48	5:42	6:36	7:30	8:24	9:18	10:12	11:06	12:00	12:54	16:30	20:06
350	3:21	4:15	5:09	6:03	6:57	7:51	8:45	9:39	10:33	11:27	12:21	13:15	16:51	20:27
400	3:42	4:36	5:30	6:24	7:18	8:12	9:06	10:00	10:54	11:48	12:42	13:36	17:12	20:48
450	4:03	4:57	5:51	6:45	7:39	8:33	9:27	10:21	11:15	12:09	13:03	13:57	17:33	21:09
500	4:24	5:18	6:12	7:06	8:00	8:54	9:48	10:42	11:36	12:30	13:24	14:18	17:54	21:30

1 Air Test Table derived from ASTM C828 (*Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines*) Table 1.

Personal Logbook of _____

Sewer Line Low Pressure Air Testing

Date	Street Name/Location Station/MH#'s	Section Tested				TOTAL Required Test Time	Start		End		Pass or Fail
		Pipe Dia. 1	Length	Pipe Dia. 2	Length		Time	Pressure (psi)	Time	Pressure (psi)	

Our Member Companies

For specific questions about your project, please contact your pipe supplier.

GLADDING, McBEAN
Clay Tiles • Terra Cotta • Pottery • Pipe
gladdingmcbean.com
800-776-1133

building products company llc
buildingproductscompany.com
602-269-8314

MISSION
mission clay products LLC
missionclay.com
951-277-4600

NO-DIG
no-dig-pipe.com
740-385-2184

LOGAN
Today's Clay Pipe
loganclaypipe.com
800-848-2141

NCPI
NATIONAL CLAY PIPE INSTITUTE
The VCP Authority Since 1917

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NCPI offers the tools and training to ensure successful design, installation and long-term performance of vitrified clay pipe as part of your sanitary sewer system. Properly designed, installed and maintained, VCP lines will serve the community for hundreds of years.

National Clay Pipe Institute's YouTube Channel

Available videos range from the manufacture of VCP to installation, and from various cleaning methods, and inspections to a recent tradeshow. Visit us at: youtube.com/c/NationalClayPipeInst

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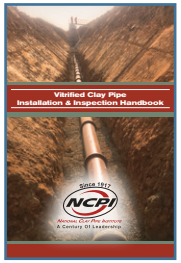
- Installation and Inspection
- Manufacturing and Testing
- Gravity Sanitary Sewer Pipe Material Comparison
- Operations, Maintenance and Field Training
- Trenchless Technologies

Workshops qualify for PDH credits.

For more information, or to schedule your free workshop, contact one of our member-companies or visit the training page of our website.

Popular NCPI Publications

All NCPI publications are available from our member companies or as a free download on ncpi.org.



VCP Installation & Inspection Handbook

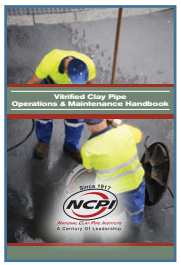
A compact, but thorough guide designed to be used at the jobsite.

Analyzing CCTV Inspection of VCP

This handbook serves the needs of CCTV camera operators and their utilities by providing clarity around common questions when using CCTV to inspect VCP lines.

Tips for Installing VCP

Quick contractors' tips (in English and Spanish) for successful installation of VCP lines.



VCP Operations & Maintenance Handbook

A comprehensive guide to cleaning and maintaining VCP sewer lines.