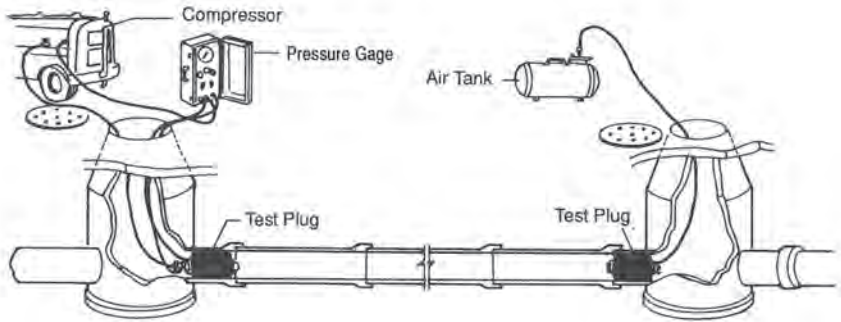


Low-Pressure Air Test for Sanitary Sewers



NATIONAL CLAY PIPE INSTITUTE

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*



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Low-Pressure Air Test for Sanitary Sewers

Introduction

The low pressure air test is the preferred method of testing pipe joints and sewer line installation. This test is used for line acceptance or leak location.

A specific drop in air pressure within a pipe system over a specified length of time determines acceptance or failure of the line in question.

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

Summary of 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 is used to determine the acceptability of the section being tested.

Preparation of the Sewer Line

Flush and clean the sewer line prior to testing, thus, wetting the pipe surface as well as cleaning out any debris. A wetted interior pipe surface will produce more accurate results. Plug and brace all outlets to resist the test pressure. Give special attention to stoppers and laterals.

Procedures

Determine the test duration by computation from the applicable table in ASTM C828, or from prepared air test tables (starting on page 5). The pressure-holding time is based on an average holding pressure of 3 psi gage or a drop from 3.5 psi to 2.5 psi gage.

Add air until the internal air pressure of the sewer line is raised to approximately 4.0 psi gage. After the internal pressure is obtained, allow time for the air pressure to stabilize.

The pressure gage 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 is presumed to have failed the test. If the line fails the test, segmented testing may establish the location of any leaks.

The test procedure may be used as a presumptive test which enables the installer to determine the acceptability of the line prior to backfill and subsequent construction activities.

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 should be used. (See ASTM C1091 *Standard Test Method for Hydrostatic Infiltration Testing of Vitrified Clay Pipe Lines*)

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 back pressure the plug must withstand and be certain the plug being used is designed to withstand this pressure. Always use a pressure gage and regulator when inflating a test plug.

Under-inflated plugs will not be able to withstand the required back pressure. Over-inflated plugs can rupture causing possible damage and injury.

It is extremely important that the various plugs be installed and braced in such a way as to prevent blowouts. Inasmuch as a force of 2250 lbf is exerted on a 24-inch plug by an internal pipe pressure of 5 psi, it should be realized 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.

As a safety precaution, pressurizing equipment should include a regulator or relief valve set at 5 psi to avoid over pressurizing and damaging an otherwise acceptable line.

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.

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 not necessary 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.

Testing Single Diameter, Mainline Pipe Only

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

Air Test Table Derived from ASTM C828, Table 1

		Pipe Diameter (Inches)														
		4	6	8	10	12	15	18	21	24	27	30	33	36	39	42
Length of Line (Ft.)	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

Mainline Testing with a Lateral Connection

6"
Mainline

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig
Air Test Table Derived from ASTM C828, Table 1

4" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	

Mainline Testing with a Lateral Connection

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig
Air Test Table Derived from ASTM C828, Table 1

8"
Mainline

4" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	

Mainline Testing with a Lateral Connection

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig
Air Test Table Derived from ASTM C828, Table 1

8"
Mainline

6" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	

Mainline Testing with a Lateral Connection

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig
Air Test Table Derived from ASTM C828, Table 1

10"
Mainline

4" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	

Mainline Testing with a Lateral Connection

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

Air Test Table Derived from ASTM C828, Table 1

10"
Mainline

6" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	

Mainline Testing with a Lateral Connection

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

Air Test Table Derived from ASTM C828, Table 1

12"
Mainline

4" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	

Mainline Testing with a Lateral Connection

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig
Air Test Table Derived from ASTM C828, Table 1

12"
Mainline

6" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	

Mainline Testing with a Lateral Connection

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

Air Test Table Derived from ASTM C828, Table 1

15"
Mainline

4" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	

Mainline Testing with a Lateral Connection

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

Air Test Table Derived from ASTM C828, Table 1

15"
Mainline

6" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	

Mainline Testing with a Lateral Connection

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

Air Test Table Derived from ASTM C828, Table 1

18"
Mainline

4" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	

Mainline Testing with a Lateral Connection

18"
Mainline

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig
Air Test Table Derived from ASTM C828, Table 1

6" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	

Mainline Testing with a Lateral Connection

Specification Time (Min:Sec) Required for Pressure Drop from 3½ to 2½ psig
Air Test Table Derived from ASTM C828, Table 1

21"
Mainline

4" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	6:54	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	

Mainline Testing with a Lateral Connection

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

Air Test Table Derived from ASTM C828, Table 1

21"
Mainline

6" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	

Mainline Testing with a Lateral Connection

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

Air Test Table Derived from ASTM C828, Table 1

24"
Mainline

4" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	

Mainline Testing with a Lateral Connection

24"
Mainline

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

Air Test Table Derived from ASTM C828, Table 1

6" Lateral		Length of Mainline (Ft.)													
		25	50	75	100	125	150	175	200	225	250	275	300	400	500
Length of Lateral (Ft.)	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	

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.



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