



**Procedure for Manhole Vacuum Test**

1. Manhole Vacuum Test (Adapted from ASTM C1244-93). The Engineer or designated inspector shall observe all testing and record and submit the results on the District testing forms which can be found in Appendix B.
2. Summary of Practice: Plug all lift holes and pipes entering the manhole. A vacuum will be drawn and the vacuum drop over a specified period of time is used to determine the acceptability of the manhole.
3. Significance and Use: This is not a routine test. The values recorded are applicable only to the manhole being tested and at the time of testing.
4. Preparation of the Manhole:
  - a. Plug all lift holes with an approved non-shrink grout.
  - b. Plug all pipes entering the manhole, taking care to securely brace the pipes and plugs from being drawn into the manhole. The manhole shall be set to finish grade and all paving (if applicable) completed.
  - c. Air testing of Storm Manholes will not be required.
  - d. Air testing of existing manholes that new mainline is being connected will not be required.

5. Procedure

- a. Place the test head at the inside of the top of the frame and the seal inflated in accordance with the manufacturer's recommendations.
- b. Draw a vacuum of 10 inches of mercury, with the valve on the vacuum line of the test head closed, and the vacuum pump shut off. With the valves closed measure the time for the vacuum to drop to 9 inches.
- c. The manhole shall pass if the time for the vacuum reading to drop from 10 inches of mercury to 9 inches meets or exceeds the values indicated in the table.
- d. Utilizing the formulas that follow, the comparable times for a successful vacuum test for different size manholes are:

DEPTH (ft)	TIME (sec)		
	Manhole Diameter (ft)		
Depth of MH (ft)	4-ft	5-ft	6-ft
8	20	26	33
10	25	33	41
12	30	39	49
14	35	46	57
16	40	52	67
18	45	59	73
20	50	65	81
22	55	72	89
24	59	78	97
26	64	85	105
28	69	91	113
30	74	98	121

Manhole Vacuum Failed Test

- a. If the manhole vacuum test fails the initial test, make necessary repairs with a non shrink grout after the vacuum has been released. Proceed with retesting until a satisfactory test is obtained.
- b. Subsequent Failure: Infiltration of groundwater, in any amount, following a successful vacuum or low pressure air test as specified, shall be considered as evidence that the original test was in error or that subsequent failure of the sanitary sewer mainline, manhole or cleanout assembly has occurred. The Contractor will be required to correct such failures should they occur. The portion of sanitary sewer mainline that failed to pass the test(s) shall be repaired and retested for Low Pressure Air and Mandrel/Deflection Tests.