

**NC Department of Insurance
Office of the State Fire Marshal - Engineering Division
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Pipe Sleeve Size

Code: 2018 Plumbing Code
Sections: 305.3 and 202

Date: April 11, 2024

Question:

What pipe sizes may be used when the code requires the pipe sleeve to be two pipe sizes larger than the drain pipe?

Code Analysis:

305.3 Pipes through or under footings or foundation walls.

Any pipe that passes within 12 inches (305 mm) of the bottom of the footing or through a foundation wall shall be provided with a relieving arch, or a pipe sleeve. Pipe sleeves for foundation walls shall be built into the foundation wall. The sleeve shall be two pipe sizes greater than the pipe passing through the wall. Piping shall not be run under pier footing (refer to Section 307). Annular spaces between sleeves and pipes shall be filled or tightly sealed in an approved manner. Annular spaces between sleeves and pipes in fire-resistance-rated assemblies shall be filled or tightly sealed in accordance with the North Carolina Building Code. Only sleeves through foundation or exterior building walls shall be sealed on both sides.

PIPE SIZES. For the purposes of determining the minimum size of pipe required, cross-sectional areas are the essential characteristic, not the pipe diameter. When the Code instructs to “increase by one pipe size,” some pipe sizes may not be commercially available. The following pipe sizes are presumed to be commercially available: $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, 5, 6, 7, 8, 9, 10.

Answer:

The pipe sizes as defined in Chapter 2 may be used when the sleeve is required to be increased two pipe diameters. For a 3” drainage pipe, 3 ½” is one pipe size larger, therefore; the pipe sleeve through a foundation wall may be 4”.