

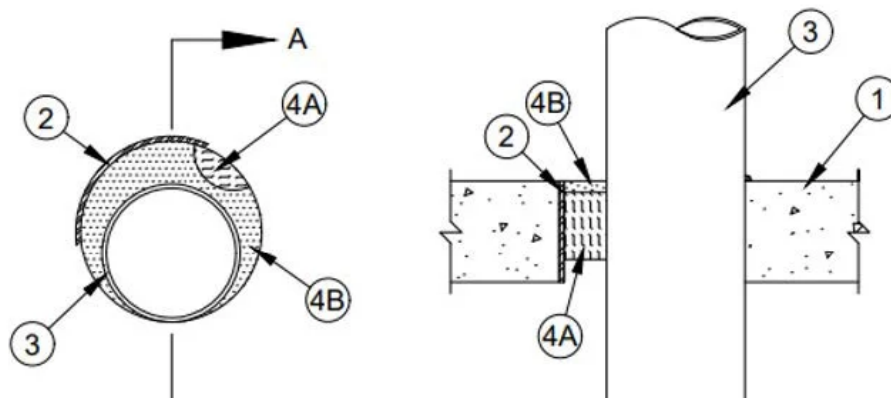
Sleeve Requirements for Firestop Systems

The topic on the use or requirement of sleeves for through penetration firestop systems is a common inquiry to Engineering Services at STI. In most cases the contractor is being told they must install sleeves for all penetrations and want to know where in the building code this is stated. The fact is the use of sleeves is typically project and specification driven. The reasons for the requirement of sleeves can include restricting water passage with extended sleeves, architect or engineer preference, type of facility and other various project conditions.

Common sleeve materials can be heavy gauge steel, sheet metal, non-metallic materials and cast-in-devices that have the firestop system already built into the sleeve. Frequently sleeves are used in concrete floors. The sleeve forms an opening in the floor that prevents the need of coring or drilling after the concrete floor is poured which can be costly.

Understanding the requirements of the project when it comes to sleeves is important. If the project requires sleeves and a system that does not allow for a sleeve is submitted it could be rejected and affect the planned cost of installation and labor to then go back and add a sleeve and utilize another system.

The use of a sleeve can add an additional critical factor to the firestop system. Metallic sleeves transfer additional heat which can require additional firestop material thickness or the addition of backing material such as mineral wool. The UL Systems will always list the requirements of a sleeve and also indicate that it is required or optional. When a sleeve is optional it is typically shown and called out similar to the below system:

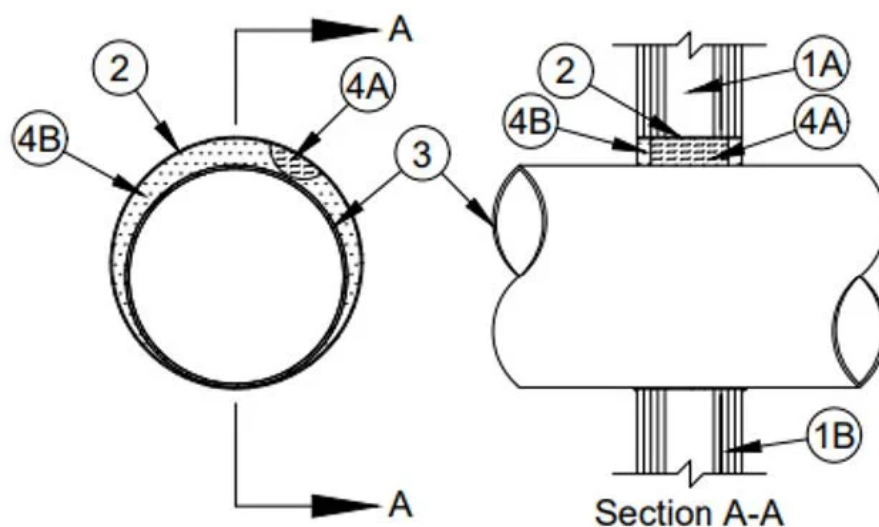




Section A-A

2. Steel Sleeve – (Optional) – Nom 14 in. (356 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe or No. 26 ga (0.022 in. or 0.56 mm thick) sheet steel sleeve with square anchor flange spot welded to the sleeve at approx mid-height. Sleeve cast or grouted in place flush with floor or wall surfaces. Steel pipe sleeve may project a max of 2 in. (51 mm) beyond the floor or wall surfaces.

The system below has a requirement for a sleeve as the word optional is not listed:



2. Steel Sleeve – Cylindrical sleeve fabricated from min 0.031 in. thick (No. 22 MSG) galv sheet steel and having a min 2 in. lap along the longitudinal seam. Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the openings and releasing the coil to let it uncoil against the circular cutouts in the gypsum wallboard layers. The ends of the steel sleeve shall be installed flush with each face of the wall or extend a max 1/4 in. beyond each surface of the wall.

It is important to remember that systems that do not have an optional sleeve call out or a call out for a required sleeve are not approved for conditions that have a sleeve present. These systems will not show a sleeve in the diagram and will not have a call out in the body of the system that gives a description of the sleeve.