

ATRIUMS



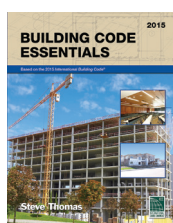
FIGURE 6-10 Three-story atrium within a covered mall building

Requirements for atriums were introduced into the codes in the early 1980s. Building designers wanted to have floors open to each other over several stories. An atrium is typically an opening between three or more stories of a building, although it can be open to two stories in some instances. Atriums create challenges similar to high rises in that it is difficult for fire fighters to control fires within them. Atriums are essentially chimneys within the building that people pass through, sometimes during an emergency situation. Therefore, smoke control is an important aspect of an atrium design (Figure 6-10). [Ref. 404]

The first part of controlling smoke is to limit the amount of smoke developed in a fire. Therefore, buildings that contain an atrium are required to be provided with fire sprinklers throughout. By suppressing the fire with sprinklers, the amount of smoke is limited.

The next step is to provide a smoke-control system that provides a safe path of egress for the occupants to egress the building. Unlike the smoke-removal provisions in a high-rise building, this system is not intended to be used for post-fire operations. A typical atrium smoke-control system creates a negative pressure within the atrium and exhausts the smoke out through openings, providing a safer atmosphere for people to egress. [Ref. 404.5 and 909]

Areas of the building that are not included in the design of the smoke-control system must be separated from the atrium with a minimum of 1-hour fire-resistance-rated walls designated as fire barriers. These assemblies are discussed later. This separation also assists in controlling the smoke in a fire situation. To maintain the operation of the smoke-control service, a standby power system is required to be provided when an atrium is included in a building design. [Ref. 404.6]



This excerpt is taken from ICC's *Building Code Essentials: Based on the 2015 International Building Code*®.

The I-Code Essentials series uses a straightforward, focused approach to explore code requirements with non-code language, allowing readers to gain confidence in their understanding of the material. Each book is an invaluable companion guide to the 2015 IBC, IRC, IFC or IECC for both new and experienced code users.