



Course FP103 – Fire Rated Assemblies

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Course Description & Outline

Fire rated assemblies are vital to building protection. They prevent spread of fire, limit smoke, heat and toxic gases to their area of origin allowing safe evacuation of building occupants. This course will provide an introduction to these passive fire protection systems. Although codes are very clear on the testing standards and integrity that must be met to achieve a listed assembly, an unclear understanding and an improper design and inspection results in poor fire rated assembly construction leaving the building prone to fire damage. Furthermore, early coordination and location can avoid installation and issues raised during inspection saving both time and money. We will discuss fire rated assemblies, their importance, code requirements, proper design and construction, plan review and inspection.

A multiple-choice quiz must be completed at the end of this course to achieve a certificate. The quiz is provided to make sure the attendee understands the materials and to enhance the understanding of the course materials.

Learning Objective

At the conclusion of this course, the attendee will understand:

- What are fire rated assemblies
- When are fire rated assemblies required
- Construction of assemblies
- Proper planning, coordination and review
- Penetrations through fire rated assemblies
- Examples of improperly constructed assemblies

Intended Audience

This course is intended for AHJ, architects, engineers and contractors.

Course Length

1 hour

Benefit for Attendee

Attendee of this course will be able to appropriately incorporate fire rated assemblies into the design and have a good understanding of their construction and approved penetrations. Furthermore, they will be able to quickly identify rated

assemblies, challenges associated with their construction, review documents/cut sheets for compliance, perform coordination and inspections.

Course Introduction

Building codes such as International Building Code (IBC), NFPA 101: Life Safety Code or NFPA 2000: Building Construction and Safety Code, highlight two methods of fire protection, active and passive. The very commonly known and easily spotted are the active systems such as sprinkler and fire alarm, which need a trigger, such as opening of a sprinkler head or detection via a smoke detector to operate and activate the system. The other, passive systems, require no intervention. These are simply in place acting to segment rather compartmentalize building spaces so that smoke, heat and fire will not spread beyond the area, containing them while protecting adjacent spaces. Examples of these are: fire rated walls, barriers, partitions, fire doors, dampers. There has been little attention given to passive systems and poor understanding and inadequate details result in significant delays and increase cost of projects during inspections and maintenance for the life of the building.

Course Content

Link to [content](#) file

Course Summary

Fire rated assemblies are passive systems that serve an integral part of the building's fire protection feature. They are rated assemblies that limit the spread of fire, smoke heat, containing the fire in the area of origin and limiting its spread to adjacent spaces. When required by code they are independent of other fire protection system such as sprinklers or fire alarm. The proper selection – listed and tested assemblies from approved testing agencies such as Underwriter Laboratories (UL), design – assembly of components, review – ensuring that the assemblies are constructible, coordination with building and MEP elements, construction, and inspection of fire rated assemblies cannot be emphasized enough. Following these basics steps can prevent reworks, save thousands of dollars and time on project completion.

Related Links/References

Striking a balance between passive and active fire protection

<https://www.csemag.com/search/search-single-display/striking-a-balance-between-passive-and-active-fire-protection/496194848aabe260102c849678a6fb89.html>

Restrained vs unrestrained <https://www.ul.com/wp-content/uploads/2016/05/TCA-Final-Restrained-Assemblies-05182015.pdf>

National Gypsum Board - [The Purple book](#)

US gypsum board guide – [Fire Resistant Assemblies](#)

[UL Fire Resistance Ratings](#)

[UL Through-penetration Firestop Systems, XHEZ](#), click “show additional information”