

Selecting The Appropriate UL Design

The UL Fire Resistance Directory – Volume 1 provides design professionals with hourly ratings for floor and roof assemblies, beams, columns, and walls and partitions utilizing Spray-Applied Fireproofing, also known as Spray-Applied Fire Resistive Materials (SFRMs), as well as many other passive fire protection products.

Selection of the appropriate UL Fire Resistance Design when specifying Spray-Applied Fireproofing is of paramount importance. Most UL Designs are specific to an SFRM manufacturer, construction assembly, hourly rating and SFRM type.

The UL Fire Resistance Directory utilizes an alphanumeric system in order to designate the type of assembly being protected and the type of SFRM used to protect the construction assembly. Each letter designates a specific type of assembly while the number following the letter indicates the type of fire protection material listed in the design.

Construction groups are separated into the following categories and include their corresponding prefix letter designations:

Construction Group	Prefix Letter
Floor/Ceiling Assembly	D, G
Concrete Slab Assembly	J
Floor Beams & Joists	N
Roof/Ceiling Assembly	P
Roof Beams & Joists	S
Columns	X and Y
Walls & Partitions	U

The various types of passive fire protection products are categorized along with their corresponding number designations: SFRMs – 700 & 800 Series; Intumescent Coatings – 600 Series; and Rigid Board Fire Resistive Materials – 300 Series. Unprotected Assemblies (not requiring fire protection to the underside of the decking) that utilize these various types of fire protection products for the structural steel members are classified in the 900 Series designs.

Determination of the hourly fire resistance ratings and the construction assemblies requiring the hourly ratings is essential. To select the appropriate UL Design for Floor/Ceiling Assemblies, determine, at minimum, the type(s) of fire protection product to be used, hourly rating requirement, depth of the floor decking, minimum thickness and type of concrete (Lightweight or Normal Weight), and minimum structural steel size.

To select the appropriate UL Design for Roof/Ceiling Assemblies, determine, at minimum, the type(s) of fire protection product to be used, hourly rating requirement, depth of the roof decking, type(s) of insulation used, and the minimum structural steel size. The UL Fire Resistance Directory, Volume 1, allows for various thickness calculations for both beams and columns. Typically, the formulas used to calculate SFRM thicknesses for columns are located in the UL Design. If the UL design does not contain a thickness adjustment formula, refer to the front portion of the UL Directory under the section “Adjustment of Sprayed Protection Material Thickness for both beams and columns”.

Hourly ratings are expressed in both Restrained and Unrestrained classifications. The required thickness of fire protection material may vary depending upon the construction assembly’s classification. This determination must be made by the structural engineer, and is one of the most important criteria in selecting the appropriate UL design.

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