

## THE IMPACT OF WALL CONSTRUCTION AND COLUMN PROTECTION ON INSURANCE RATES

*“Two fire-resistance rated wall assemblies were successfully developed and tested at Underwriters Laboratories, Inc. (UL) by MBMA. These two assemblies, known as UL W404 and UL W413, contain several prominent attributes. Both designs preserve the most common and efficient metal building system construction practices of the industry and provide for 1-hour and 2-hour non-loadbearing wall systems.”*

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MBMA Director of Research and Engineering*

Be sure you understand building classifications. They impact insurance rates.

The Specific Commercial Property Evaluation Schedule (SCOPEs) categorizes buildings into six classifications:

Construction Class	Type	Description
6	Fire-Resistive	2-hour fire-resistive walls, floors and roof
5	Modified Fire-Resistive	1-hour fire-resistive walls, floors and roof
4	Masonry Noncombustible	1-hour fire-resistive walls: noncombustible or slow burning floors and roof
3	Noncombustible	Noncombustible or slow burning walls, floors and roof
2	Joisted Masonry	1-hour fire-resistive walls: combustible floors and roof
1	Frame	Combustible walls, floors and roof or noncombustible or slow burning walls with combustible floors and roof



The fire insurance rates produced by SCOPES usually decrease as you go from Class 1 to Class 6. As you see, exterior walls and roof systems play a big part in the classification of a building.

In general, a metal building system would be expected to be in Construction Class 3 - Non-combustible, but various treatments or construction methods used for the exterior walls can be categorized as combustible. In that case, the building may be classified as Construction Class 1. All of the following exterior metal walls would be classified as combustible:

- Metal walls sheathed on interior or exterior with wood
- Composite assemblies of metal wall panels with a combustible core (having a flame spread higher than 25)
- Composite assemblies of metal wall panels with unprotected and unlisted Special Damage
- Materials such as cellular or foam plastic cores (regardless of flame spread)

It is possible to erect exterior walls with one- or two- hour fire-resistive rating, as described in Bulletin No. 5. With a rated exterior wall (either 1 or 2 hours) the building can be classified Construction Class 4 provided you have a noncombustible or slow burning roof or Construction Class 5 if you have a one-hour rated roof system described in MBMA Insurance Bulletin No. 3.

To illustrate, here are loss costs produced for the same building with varying exterior wall construction:

Exterior Wall	CFRS Class	Building Loss Cost	Contents Loss Cost
Frame	1	1.67	1.73
Concrete Block (wood roof)	2	1.11	1.60
Metal Building system (glass fiber insulation 3 or composite foam core assemblies meeting slow burning requirements)	3	1.08	1.40
Concrete block (metal roof)	4	0.36	0.67
Metal Building system (1- or 2-hour fire-resistive wall construction)	4	0.39	0.69
Metal Building system (1- or 2-hour fire-resistive wall construction and 1-hour fire resistive roof construction)	5	0.21	0.48
Reinforced concrete (walls and roof)	6	0.10	0.38
Metal Building system (unprotected or unlisted 1.55 1.605 composite foam core assemblies)	1	1.55	1.61

This example, of course, uses one particular schedule method, one set of conditions and one loss cost jurisdiction. However, similar comparisons should apply using other rating methods and in other jurisdictions. Several points are brought out by the example:

- A metal fire-resistance rated wall can obtain a competitive rating or loss cost with a concrete block wall provided both have a noncombustible or slow burning roof and can achieve a superior rating if the roof is also fire-resistance rated.
- Unprotected or unlisted foam cores in metal panels produce rates or loss costs at the same relative level as frame walls.
- Protected or listed foam cores in metal panels produce rates or loss costs at the same relative levels as metal walls with glass fiber insulation.

The effect of interior walls and finish on classifications is explained in detail in Insurance Bulletin No. 6.

**NOTE:** Special Damage Materials may be rated as slow burning if they have a flame spread of 25 or less and are either covered with an acceptable thermal barrier (such as 1/2-inch gypsum board) or if the composite assembly passed either the full scale corner fire test or the enclosed room fire test, thereby rated construction Class 3.



Learn more about  
UL W404 and UL  
W413 in MBMA's  
*Fire Resistance  
Design Guide.*



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