THE IMPACT OF WALL CONSTRUCTION AND COLUMN PROTECTION ON INSURANCE RATES[1]

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Insurers classify properties by how they are built: the type of structural system used as well as the materials selected for walls, columns, beams and floor/ceiling assemblies. The insurance industry classification system is very different from the one used for building codes. For example, while Type V is considered combustible construction in the International Building Code (IBC), Class 1 Frame is considered combustible construction by insurers.

The Commercial Lines Manual, compiled by ISO, considers the construction type and the intended use of the building in determining commercial insurance rates. Determination of a building class is based on two factors: building elements (structural walls, columns, floors/ceilings and roof) and fire-resistance rating. Classes include Class 1 Frame (Combustible), Class 2 Joisted Masonry, Class 3 Noncombustible, Class 4 Masonry Noncombustible, Class 5 Modified Fire Resistive and Class 6 Fire Resistive. Fire-resistance ratings are either a minimum of 1 to 2 hours or require the use of slow-burning construction details.

Fire insurance rates usually decrease when moving from Construction Class 1 to Class 6 if all other rating factors are the same (e.g., type of occupancy/use, location relative to a known hazard, etc.). Accordingly, structural (load-bearing) elements (walls, columns and beams) and floor/roof system product selections play critical roles in the classification of a building.

In general, metal building systems are expected to be in Construction Class 3 - Noncombustible. Non-load-bearing exterior walls must also be of noncombustible or slow-burning materials. If combustible materials are used, however, the structure almost certainly will be categorized as combustible and classified as Construction Class 1 even though the roof and structural framing are of noncombustible steel. All of the following exterior metal walls could be classified as combustible:

[1]The Metal Building Manufacturers Association (MBMA) provides these insurance bulletins as informational guides. The information contained in these bulletins is general in nature and is not intended to serve as legal advice. Readers are advised to consult with their own counsel and/or insurance broker on matters specific to them.

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- Metal walls sheathed on interior or exterior with wood (structural wood panels used as part of the exterior wall assembly).
- Composite assemblies of metal wall panels with a combustible core (having a flame spread greater than 25).
- Composite assemblies of metal wall panels with unprotected and unlisted materials such as cellular or foam plastic cores (regardless of flame spread).

A building with a one-hour-rated exterior wall could be classified as Construction Class 4 provided it has a noncombustible or slow-burning roof, or Class 5 if it also has a one-hour-rated roof system. It is possible to design exterior walls with one- or two-hour fire-resistive ratings. A table of exterior wall, roof-ceiling and other fire-resistance-rated assemblies can be found on the Fire Protection page of the MBMA website.

Table 1 illustrates sample Loss Costs (LCs) for the same building (occupancy and location) with various types of exterior wall construction.

Table 1: Representative Loss Costs by Exterior Wall Type

Exterior Wall	Construction Class	Building Loss Cost	Contents Loss Cost
Reinforced Concrete (walls and roof)	6	0.055	0.081
Metal Building System (one- or two-hour fire-resistive wall construction and one-hour fire-resistive roof construction)	5	0.055	0.081
Metal Building System (one- or two-hour fire-resistive wall construction)	4	0.060	0.086
Concrete Block (metal roof)	4	0.060	0.086
Metal Building System (glass fiber insulation or composite foam core assemblies meeting slow-burning requirements)	3	0.074	0.098
Concrete Block (wood roof)	2	0.082	0.104
Metal Building System (unprotected or unlisted composite foam core assemblies)	1	0.092	0.115
Frame (wood)	1	0.092	0.115

The example below uses one particular schedule method, one set of conditions and one LC jurisdiction. However, the comparison method presented above should be applicable to other rating methods and in other jurisdictions. The building and contents LC values may seem small but can have a large impact on the premium.

Example: A $1,750,000 building of Construction Class 1 would have a building LC of $1,610 (0.092*$1,750,000/100) while a Construction Class 3 structure would have a building LC of

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$1,295 (0.074*$1,750,000/100) as illustrated in Figure 1 below. Remember this LC does not include premium price modifications for the location, contents, insurer overhead, condition charges or other applicable rate modifiers.

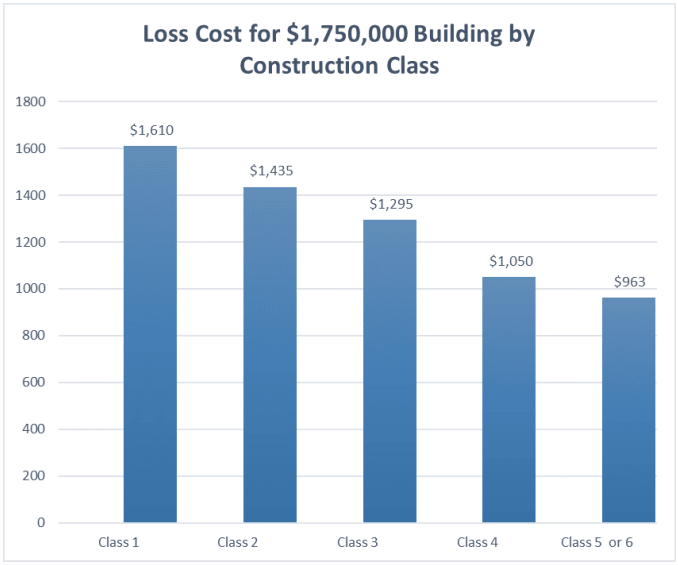

Figure 1: Example of Building LCs by Construction Class

Several points are brought out by the example.

- A metal fire-resistive-rated exterior wall can obtain a competitive rating or LC 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 LCs at the same relative level as wood-frame walls.
- Protected or listed foam cores in metal panels produce rates or LCs at the same relative levels as metal walls with glass fiber insulation.

The effect of interior walls and finishes on classifications is explained in detail in **MBMA INSURANCE BULLETIN NO. 10.** In general, it is always advisable to review the building's Construction Class designation and supporting rationale with an insurance carrier and pursue any design or specification modifications that could reduce the insurance premium.

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