Brick fireplace and chimney stand after fire fully engulfs a residence built with wood frame construction.

Photo courtesy of Van Wyk Risk & Financial Management

STICKS vs STONES

Why using masonry reduces insurance costs up to 61%

BY ERIC VAN WYK

Learning Objectives

After reading this article, you will have learned:

1. The three basic property classifications used by the insurance industry and how they directly affect insurance costs.
2. Who determines where a building falls on the Public Protection Class scale of 1-10 and why it matters to you.
3. The six property classifications and construction definitions and how each relates to base insurance rates.

See page 50 for test and answer form.

Consider this: fireproof buildings do not exist. With sufficient heat, all can be lost. Still, the more a building can withstand perils such as fire, the less likely it is to incur damage, collapse or injure occupants. Insurance companies have understood this concept for hundreds of years: the history of property insurance starts with basic fire protection. Today, three different classifications are factored in to determine the cost of insuring commercial property. Understanding how stones stack up vs. sticks in the classifications can make a big difference in how much you'll pay in insurance costs.

Public Protection and Occupancy Classifications

Construction, public protection and occupancy are the three property classifications used by the insurance industry. The Public Protection Classification (PPC) for a particular location is established by the state and local municipalities to gauge the capacity of the local fire department to respond if the property is engulfed in flames. The PPC rates the community's ability to suppress fire on a 1-10 scale, with 1 representing the best protection. The physical location of the building dictates its protection class.

Occupancy classification considers how the building will be occupied. This class is generally split into three categories: mercantile, office or manufacturing. Under this classification system, a building that is occupied by a plastics manufacturer will cost more to insure than one that is occupied by a legal firm. The thought process is that a manufacturer is more likely to experience costlier property damage (e.g., explosion or

hazardous material spill) than a business of a clerical nature. Therefore, the cost to insure the manufacturer's property will be higher.

Construction Classification Definitions

Since the PPC is predetermined by location and the occupant of the building may or may not be known in advance of the build, you may have the most control over insurance costs in how the building is constructed. The American Association of Insurance Services (AAIS) is a national insurance advisory organization that develops policy forms, manual rules and rating information used by property and casualty insurance companies. The AAIS specifies the following construction definitions:

- **FRAME** Exterior walls consist of wood or other combustible materials and includes construction where such combustible materials are combined with other materials that are not combustible, such as brick veneer, stone veneer or iron clad.
- **JOISTED MASONRY** Exterior load-bearing walls are of some form of solid masonry materials and the roof and floors (other than the floor resting on the ground) are combustible. Masonry wall materials include brick, stone and concrete block. Other fire resistive materials that surround a flammable frame support, such as adobe, gypsum and tile, may also be considered in this classification.
- **NONCOMBUSTIBLE** Exterior walls, floors and roof are built of and supported by noncombustible materials (as in joisted masonry above) and floors and roof are constructed of noncombustible materials.
- **MASONRY NONCOMBUSTIBLE** Exterior walls are constructed of masonry materials such as brick, stone and concrete block or similar materials, with the floors and roof constructed of metal or other noncombustible materials.
- **MODIFIED FIRE RESISTIVE** Exterior walls, floors and roof are constructed of masonry or fire resistive materials having a fire resistance rating of more than one hour but less than two.
- **FIRE RESISTIVE** Exterior walls, floors and roof are constructed of masonry or fire resistive materials having a fire rating of two hours or more.

Property Insurance Construction Classifications

Construction Class	Type	Definition	Mixed Construction
6	Fire Resistive	2-hour fire resistive walls, floors and roof	If 2/3 or more of the total floor(s) and roof areas are of masonry or fire resistive materials
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	If 2/3 or more of the total floor(s) and roof areas are of noncombustible materials
3	Noncombustible	Noncombustible or slow burning walls, floors and roof	If 2/3 or more of both the total exterior wall area and 2/3 or more of the floor(s) and roof areas are of noncombustible materials
2	Joisted Masonry	1-hour fire resistive walls, combustible floors and roof	If more than 1/3 of the total floor(s) and roof areas are of combustible materials
1	Frame	Combustible walls, floors and roof or combustible or slow burning walls with combustible floors and roof	If more than 1/3 of the total exterior wall area is made of combustible materials

*Generally, the higher the construction class, the lower the insurance rate applied to the building. Lower rates can have a great impact on reducing total insurance premiums.

The more masonry is used, the higher the construction class, and the lower the insurance rate applied.

Each construction definition is assigned a classification number between 1 and 6. In general, the higher the construction class, the lower the base rate charged for insurance (Class 6 costs less to insure than class 1). There may also be instances in which mixed construction is used. In such cases, the total amount of masonry or noncombustible material used determines which type of construction applies. As evidenced in the table, the more masonry is used, the higher the construction class, and the lower the insurance rate applied.

How Building Materials Stack Up

For combustible materials such as light frame wood, the frame can be covered with layers of wallboard or treated with fire retardants to increase the fire resistance and, thus, change the construction class applied to the building. But, this can also work against you.

A metal building would generally be in construction class 3. Various treatments or construction methods used for the exterior walls can result in the wall being treated as combustible, reducing the building to class 1. According to the Metal Building Manufacturers Association, all of the following exterior metal walls would be classified as combustible: metal walls sheathed on interior and exterior with wood, composite assemblies of metal wall panels with a combustible core and composite assemblies of metal wall panels with unprotected and unlisted foam plastic cores.

Because of a composition that resists burning, twisting, melting and warping, masonry materials are classified as more fire resistive than combustible materials. Case in point: A client of my firm recently had a total loss from a fully engulfing fire on a residence that was built with wood frame construction. Masonry materials were used to construct the all-brick fireplace and chimney. When the insurance adjusters went to assess the damage, only the fireplace and chimney were left standing on the property.

The aggregate type and thickness of the masonry material is used in specific formulas to determine its fire rating.

There is even an equation for the fire resistance rating of multi-wythe masonry walls that takes the air space between each wythe into account.

Comparing Costs

To understand how the construction class directly affects insurance costs, consider a 2000 sf non-governmental office building that has been insured for $150/sf, or a total insurable value of $300,000, not including its contents. According to 2006 data from the Insurance Services Office (ISO), the property/casualty insurance industry's leading supplier of statistical, actuarial, underwriting and claims data, the following base rates would be applied per $100 of the building limit for each construction class:

	Base Rate Applied
Class 1: Frame	0.098
Class 2: Joisted Masonry	0.074
Class 3: Noncombustible	0.057
Class 4: Masonry Noncombustible	0.048
Class 5 or 6: Modified/Fire Resistive	0.037

Therefore, if the office building were clad in class 1 construction, it would incur a base fire rate that is nearly 2.7 times higher than if it had been constructed as a class 5 or class 6 building ($294 vs. $111). Costs for protection class and other property considerations are then added on to the base fire rate by insurance professionals to determine the total annual premium charged for insuring the commercial property.

If the office building were clad in class 1 construction, it would incur a base fire rate that is nearly 2.7 times higher than if it had been constructed as a class 5 or class 6 building ($294 vs. $111).

Stones Win

As evidenced above, the primary consideration in insuring an industrial building is its fire rating. But, there are reasons other than just the noncombustible nature of masonry that makes it more attractive to insure from a property standpoint. In property insurance, the basic peril coverages include damage from windstorm or hail, riot or civil commotion (theft or looting), lightning, fire, vehicles or aircraft, vandalism, volcanic action, smoke, sprinkler leakage and sinkhole collapse. There is also broader coverage available for falling objects, weight of ice, snow or sleet and water damage.

Masonry's wind resistance is especially practical in regions subject to frequent hurricanes, tornadoes and other extreme weather events. Masonry's strength provides superior protection and security for building occupants when faced with many of the aforementioned perils when compared to other materials.

Masonry's durability and inorganic nature also make it less susceptible to dry rot, insect infestation and mold. The potential for mold damage is an important consideration as most basic insurance policies exclude coverage for mold. Out-of-pocket costs for mold remediation range from $2500–$7500 or more.

Remember the public protection class scale mentioned earlier? Beware if you are building in a remote area that has a PPC of 9 or 10. Many insurance companies will not even consider underwriting the risk unless its construction class is masonry noncombustible or better. From an insurance perspective, there is no question: stones beat sticks!

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