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Building Replacement Cost
Are You Reporting A Realistic Value?

Have you ever been faced with the task of determining the replacement cost of a building? If so, where on earth would you begin? If you are responsible for the reporting of your building value and have not given the process much thought, then you may be in store for a shock if your building experiences a loss. While there is no possible way to know the exact dollar amount to replace your building on any particular day in the future, there is a method to help you estimate the replacement cost value.

It is important to be reasonably accurate when reporting the replacement value of your building for property insurance or self-insurance purposes. From a property insurance standpoint, many insurance policies include what is called a *co-insurance clause*. If you have a property claim, you must have reported the replacement value of your building within 80% of the real replacement value at the time of the loss in order to be paid the full amount of the claim (less a deductable). The co-insurance clause is not limited to a total loss of the building. The co-insurance clause is in force for any property claim. The clause introduces a penalty that will be deducted from your claim; therefore you become somewhat of an insurance company too (hence the term "co-insurance") by having to participate in financing the reconstruction. For self-insurers, you need to know how much money to set aside for a property claim, which should be as realistic as possible.

You probably know the construction cost of your home if you had it custom built, but commercial buildings are very different in size and value in that it becomes quite difficult to even begin an estimate. For example, what's the difference between a 7 million dollar-fire resistive-four story building and a 12 million dollar-masonry noncombustible-six story building? The easy answer is 5 million dollars! When you are subjected to huge numbers it is quite difficult to get perspective of what is realistic and what is outrageous. It may prove useful to break the value down to a more manageable number. We do this by dividing the building replacement cost by the gross building area usually expressed in square feet (e.g. $125 per square foot versus $7 million). We are then able to introduce some parameters to avoid outrageous values. In Texas, standard building replacement cost should rarely be less than $50 per square foot and only occasionally exceed $300 per square foot. Exceptions to the upper end are those buildings with exceptional equipment, construction, and performance systems. One example may be a LEED (Leadership in Energy and Environmental Design) building with its high construction management costs and redundancy requirements, just to name a few. Buildings with unique features or buildings that are exquisitely ornamented may easily exceed $300 per square feet. On the lower end, a wood frame shed with limited power and no plumbing, would generally cost no less than $50 per square foot.

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The best method to determine the replacement cost of a building is to keep the original construction records, as well as subsequent building modifications, and then adjust the costs for inflation line by line. Labor costs would also need to be included. This method would require a significant time investment, but would result in a reasonable estimate. Your next best option is to hire a professional appraiser to provide an estimate. Be cautious though, even though you are hiring an "appraiser," be sure you obtain a replacement cost valuation. An appraiser can provide three types of reports: Appraisal Value, Actual Cash Value, or Replacement Cost Valuation. The "appraisal value" of your building is the estimated sales price of the building and the land. The Actual Cash Value of a building includes depreciation. You want a Replacement Cost Valuation to determine an up-to-date estimate of what it would cost to construct your building with like-kind materials in today's dollars.

What if you don't have the time for updating the original building cost or budget for a professional valuation? Following, is a ballpark method that saves time and budget at the expense of losing accuracy. The International Codes Council (ICC) is the governing board for the more familiar entity, the International Building Code (IBC). Many jurisdictions adopt all or part of the IBC and issue a permit for construction. The cost of a permit is generally based on the expected construction cost of the building. The ICC helps a permit department establish the permit price by semiannually publishing the Building Valuation Data (BVD) which can be found at http://www.iccsafe.org/cs/Pages/BVD.aspx. This publication provides an average replacement cost based on the building's projected occupancy and its type or class of construction materials. By including two very important aspects of estimating construction cost, occupancy, and class of construction, a researched and up-to-date value per area is published by a respected entity. Obviously, unless you are a building permit issuer, you are using a document in a way that it is not intended for, but is a resource that can help confirm an estimate of the building reconstruction cost. Keep in mind that the BVD is a national average, and does not include the specifics of your building. So, very high and very low values are included in the published average resulting in less accuracy.

The BVD publication includes a table listing various construction costs per square foot. The first column is a list of 27 occupancies recognized by the IBC. If you experience difficulty in identifying your occupancy, a quick search of definitions and examples on the IBC's website may prove useful. The top row of the Table lists the class of construction of which the IBC has nine ranging from Class IA-Fire Resistive to Class VB-Wood Frame. Most people have trouble determining their building's construction class. To help your efforts, the attached document has construction class descriptions and equivalencies to the ISO (Insurance Services Office) construction class system, which should prove very useful in determining your building's construction class. Your building's BVD published cost per area estimate is located at the intersection of the occupancy row and construction column. It is now a simple matter of multiplying this value by your building's gross area to acquire the estimated construction cost of your building.

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Determining a building replacement cost can be a daunting task. The ideal method to determine the cost is through keeping meticulous records or paying for a replacement cost valuation. But if both of those methods are not an option, and you choose to assume the risk of under reporting your building replacement value, you now have a resource to make a ballpark estimate. Remember, you should update your estimate each year since construction material and labor cost will change. So, measure your buildings gross area (not net usable space), and identify the occupancy and construction class to begin your quest for estimating your building's reconstruction cost.

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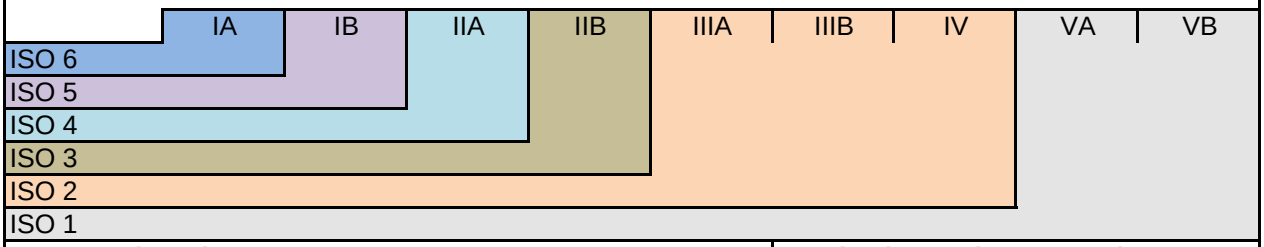
Construction Classification



Construction Class Name	Hourly Fire-Resistance Ratings
Fire Resistive (ISO Class 6, IBC Type IA)	• I-A: 3 hours
Modified Fire Resistive (ISO Class 5, IBC Type IB)	• I-B: 2 hours
Masonry Noncombustible (ISO Class 4, IBC Type IIA)	• II-A: 1 hour
Light Noncombustible (ISO Class 3, IBC Type IIB)	• II-B: no hourly rating required
Joisted Masonry (ISO Class 2, IBC Type IIIA, IIIB, & IV)	
Frame Construction (ISO Class I, IBC Type VA & VB)	

TYPE IA (ISO 6): The main structural elements are noncombustible. Examples of these materials would be masonry and concrete. Basically, all concrete construction.

TYPE IB (ISO 5): The main structural elements are noncombustible. Examples of these materials are heavy steel with spray-on insulation or enclosed in double layers of sheetrock. Basically, protected steel construction.

TYPE IIA (ISO 4): The main structural elements of the walls are masonry or concrete. The roof support is unprotected metal beams or bar joists.

TYPE IIB (ISO 3): The main structural elements of the walls and roof are unprotected steel. These are light-weight metal buildings like “Butler Buildings” and Quonset Huts. Caution - if metal siding is affixed to wood members, construction is TYPE VB.

TYPE IIIA (ISO 2): A combination of building construction comprised of exterior walls of masonry or concrete and roof/floors of combustible material that has been treated to have at least a 1-hr fire resistance rating.

TYPE IIIB (ISO 2): Same as TYPE IIIA, except that the roof/floors of combustible materials have no fire resistance rating. This is the most common of ISO 2 construction where the underside of the roof is seen with wood construction but the walls are masonry or concrete.

TYPE IV (ISO 2): Known as heavy timber or mill construction in which the exterior walls are of noncombustible materials. Interior building elements utilize wood structural members and heavy wood decking. Building elements do not contain concealed spaces and contain systems that prevent a fire from the exterior into unprotected openings.

TYPE VA (ISO 1): A wood-framed building. Protected construction having all major building elements with at least a 1-hour fire-resistance rating. Exception: non-load bearing interior walls and partitions have no rating.

TYPE VB (ISO 1): A wood-framed building having no fire-resistance ratings. This is the most commonly seen ISO 1 construction.

Occupancy Classification

Assembly Group A: uses intended for the gathering together of persons for the purposes such as civic, social or religious functions, recreation, food or drink consumption or awaiting transportation. A room of less than 50 persons used for assembly but is accessory to a different occupancy shall be considered that different occupancy. Assembly area less than 750 s.f. which is accessory to a different occupancy is not considered assembly. Assembly rooms which are accessory to Group E are not considered as Group A. Religious educational rooms and auditoriums with occupant loads less than 100 persons which are accessory to churches are considered A-3. Group A is divided into five sub groups, **A-1** usually with fixed seating, intended for production and viewing of the performing arts or motion pictures, **A-2** uses intended for food and/or drink consumption, **A-3** uses intended for worship, recreation or amusement and other assembly uses not otherwise classified, **A-4** uses intended for viewing of indoor sporting events and activities with spectator seating, **A-5** uses intended for participation in or viewing outdoor activities

Business Group B: Assembly occupancies less than 50 persons and/or uses intended for office, college classrooms, professional or service- type transactions, including storage of records and accounts.

Educational Group E: uses intended by 6 or more persons at any one time for educational purposes through the 12th grade. Daycare uses for educational, supervision or personal care services for more than 5 children older than 2 1/2yrs

Factory Industrial Group F: uses intended for assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair or processing operations that are not classified Group H hazardous or Group S storage. Group is divided into two sub groups, **F-1 Moderate Hazard** and **F-2 Low Hazard**

High-Hazard Group H: uses intended for manufacturing, processing, generation or storage of materials that constitute a physical or health hazard in quantities in excess of those allowed by code. Group H is divided into five sub groups, **H-1** detonation hazard, **H-2** accelerated burning, **H-3** materials that readily support combustion or pose a physical hazard, **H-4** materials are health hazards, **H-5** semiconductor fabrication facilities and comparable R&D areas which HPM's are used.

Institutional Group I: uses intended in which people are cared for or live in a supervised environment, having physical limitations because of health or age are harbored for medical treatment or other care or treatment or in which the liberty of the occupants is restricted. Group I is divided into four sub groups, **I-1** houses more than 16 persons, on a 24 hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment that provides personal care services. The occupants are capable of responding to an emergency situation without physical assistance from staff, **I-2** used for medical, surgical, psychiatric, nursing or custodial care on a 24 hr basis of more than five persons who are not capable of self-preservation. Less than five people shall be considered an R-3, **I-3** is inhabited by more than five persons who are under restraint or security and is occupied by persons who are generally incapable of self-preservation due to security measures not under the occupant's control.

Mercantile Group M: uses intended for the display and sale of merchandise, and involve stocks of goods, wares or merchandise incidental to such purposes and accessible to the public.

Residential Group R: uses intended for sleeping purposes. Group R is divided into four sub groups, **R-1** occupants are transient in nature, **R-2** occupancies containing sleeping units or more than two dwelling units where the occupants are more permanent in nature, **R-3** one and two family dwelling, or adult and child care facilities that provide accommodation for five or fewer persons of any age for less than 24 hrs, **R-4** are intended for occupancy as residential care/assisted living facilities including more than five but not more than sixteen occupants, excluding staff.

Storage Group S: uses intended for storage that is not classified as a hazardous occupancy. Group S is divided into two sub groups, **S-1 Moderate-Hazard storage** and **S-2 Low-Hazard storage**

Utility and Miscellaneous Group U: uses intended for structures of an accessory character and not classified in any specific occupancy.