

Building Evaluations Using MSB's BVS Software

Fact Sheet

The following information provides a brief insight into the use of Marshall and Swift / Boeckh's Building Valuation Software. It is only intended to provide an overview of the system and some of the features of the BVS system as well as the results. Some of the information here has been taken from documentation provided by MSB.

Building Underinsurance and the BVS System:

In today's building construction market the cost of erecting a new building has increased dramatically. Reconstructing a building after a loss is even more expensive. To properly protect the building owner, Insurance to Value has become a major issue. How do we keep up with the quick rise in costs to rebuild? How can building owners be sure that they have enough coverage to get back into business without suffering a major financial loss and co-insurance penalty due to the increased construction costs over the past few renewals or even within one renewal period?

Value Basis vs. Replacement Cost vs. Reconstruction Cost

MS/B believes that the more comprehensive Reconstruction Cost value basis is a better representation of what a carrier may expect to pay following a loss, and therefore the most reliable valuation method for determining Insurance to Value at policy inception or renewal. Because only Reconstruction Cost captures all of the additive costs associated with rebuilding after a fire or other natural disaster, it is the preferred value basis option.

The BVS system allows for calculation of the value in three different ways. The differences between these are:

1. **Actual Cash Value:** This is the cost to repair or replace the damaged property with materials of like kind and quality, *less depreciation*. Depreciation is a lessening in value or worth of a building caused by wear and tear from use, structural defects, building service deficiencies and exposure to elements. Two items are taken into account when determining normal depreciation: Effective Age and Condition.
2. **Replacement Cost:** This is the cost to construct or replace, at one time, an entire building of equal quality and utility. Modern materials and current methods, designs, and layouts are used for replacement. Replacement cost does not take into consideration improvements necessary to conform to current building codes, demolition, debris removal, site accessibility or site work, reuse of building components or services, overtime, bonuses for labour, soft costs, extraordinary fees, premiums for materials, or other contingencies. For insurance purposes, the prices used for labour, materials, overhead, profit, and fees are those in effect immediately prior to the loss.
3. **Reconstruction Cost:** Is the cost to replicate, at current prices, using the like kind and quality materials, construction standards, design/layout, and quality of workmanship. Reconstruction costs also include a number of site-specific and process-related costs that are experienced when rebuilding after a loss. These additional expenses are related to repair/restoration contractors, construction process, time urgency, limited site mobility, adjoining non-construction areas, insured's property, economies of scale, demolition, debris removal, dangerous/hazardous materials and mould concerns.

Information Necessary to Complete an Evaluation:

There is certain mandatory information which must be available to calculate the value of a building, including:

- Policy or Record (Identification) Number
- Gross Floor Area
- Postal Code
- Occupancy Type
- Number of Storeys
- ISO Construction Class (see definitions below)

This information will allow the user to calculate an approximate value for the building, however as you may expect, the more information a user can input into the system, the more accurate a calculated value will be. If the following information is not provided, the BVS system will make assumptions based on the above detail and assign average costs for items such as wall finishes, heating, roof, construction quality, etc.

To improve the accuracy of the calculated value, it is recommended that additional information be provided when evaluating a building. This includes, but is not limited to:

- Gross Perimeter of Building
- Basement
- Exterior Wall Material
- Roof
- Heating
- Elevators
- Average Storey Height
- Fire Detection/Alarms/ Sprinkler System
- Additional Fixed Equipment (cranes, etc)

While there are several other details which will also allow for greater accuracy (such as interior wall finish, number of plumbing fixtures, etc), there are three items which will have the greatest impact on the calculated value. These are:

- Depreciation (When using the Actual Cash Value calculation method)
- Construction Quality
- Hillside Construction

We can therefore deduct that the more information available, the more accurate the calculation will be. In order to accomplish this, a site visit to the insured's premises by a trained evaluator is recommended to ensure that sufficient information is available.

Construction Classes:

Confusion exists concerning the ISO construction classification method that is used by the BVS system. The following is a comparison of the ISO classification method to that which is used by the majority of the insurance industry in Canada.

Construction Type	Canadian Class	ISO Class	ISO Description
Frame Construction	6 or 5 (if masonry Veneer)	1	A building where the exterior walls, bearing walls and partitions, and the structural floors and roof, and their supports, are wood or light-gauge metal. This includes buildings where the wood or light-gauge metal has been combined with other materials to form composite components such as wood or metal studs with brick or stone veneer, stucco or metal siding.
Masonry/Joisted Masonry	4	2	A building that has the exterior walls constructed of a material such as brick, hollow or solid concrete block, concrete, gypsum block, clay tile, stone, or similar materials. The structural floors and roof are of wood or light-gauge metal.
Pre-Engineered Metal/Non Combustible	3	3	A building that employs a system of pre-engineered rigid steel framing members. The exterior walls are of metal siding, sandwich panels, or masonry, and the roof is clad with metal roofing or sandwich panels.
Steel Frame / Masonry Non-Combustible	3 or 2 (if masonry walls)	4	A building where the structural floors and roof are of unprotected non-combustible materials such as metal decking or concrete on metal decking, and are supported by an unprotected structural steel frame, fire resistive exterior walls, or a combination of both
Protected Steel Frame / Modified Fire Resistive	2	5	A building where the structural floors and roof, and their supports are of non-combustible construction with a fire rating of not less than one hour. A building very similar to Construction Type D - Steel Frame; however, in Type E the non-combustible floor, roof, and framing components are protected with sprayed-fiber fireproofing.
Reinforced Concrete Frame /Fire Resistive	1	6	A building where the structural floors and roof, and their supports are of materials such as precast or poured-in-place reinforced concrete, with a fire resistive rating of not less than two hours.

The ISO construction classification system refers to the structural construction method supporting the building. For example, when using the ISO classification method, a steel frame building with exterior walls constructed of Hollow Concrete Block (HCB) would be a class 4 building and would be described as a *Steel Frame Building*. In Canada we would classify this type of building as a Class 2 building and describe it as an *HCB building*. It is important that we understand the differences between to two classification methods.

Construction Quality:

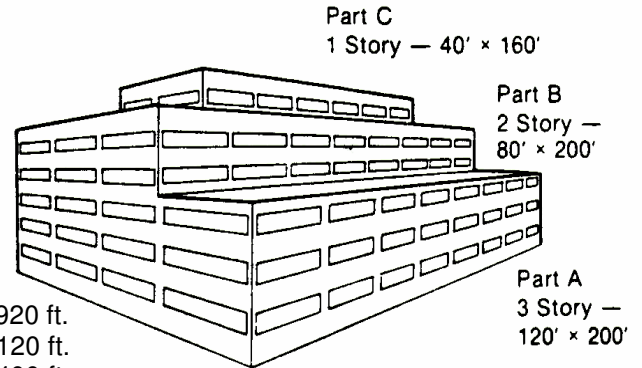
Models have been constructed based on average characteristics for the occupancy, with average defined as the common characteristics of a majority of buildings within that occupancy. The quality adjustment to be made is not one of an office quality versus a factory quality, but rather the quality of the office being valued versus the average quality of offices. The construction quality adjustments are meant to be guidelines only. Economy is not the lowest cost for which the structure could be built and superior is not the highest cost for buildings of a particular type. Rather, they are typical for buildings of superior or economy construction quality.

Gross Perimeter of a Building:

While not a mandatory piece of information, providing the *Gross Perimeter* of a building will allow for greater accuracy in the system calculations.

In this example, Consider a 6-storey Building that has floor levels of varying sizes.

Part A: 120 ft. x 200 ft. = (120+120+200+200) = 640 x 3 = 1,920 ft.
Part B: 80 ft. x 200 ft. = (80+80+200+200) = 560 x 2 = 1,120 ft.
Part C: 40 ft. x 160 ft. = (40+40+160+160) = 400 x 1 = 400 ft.
TOTAL PERIMETER = 3,440 ft.



When multiplied by the average story height, a total wall surface (in sq. ft.) is determinable allowing for accurate calculations for the cost of rebuilding the walls of the building. Not providing this information will result in the BVS system making assumptions based on the gross square footage of the building which will not be as accurate.

Contractor Overhead & Profit, Architect's Fees and Demolition & Debris Removal:

General Contractor Overhead & Profit: The BVS Commercial System will include 20% to cover the additional charges that the General Contractor may need for office rent, supplies, equipment, utilities, sales and marketing, surveys, site security and temporary facilities. In certain markets, this amount may not be representative of the current conditions and may require adjusting. An increase in this amount to 30 – 35% is not uncommon.

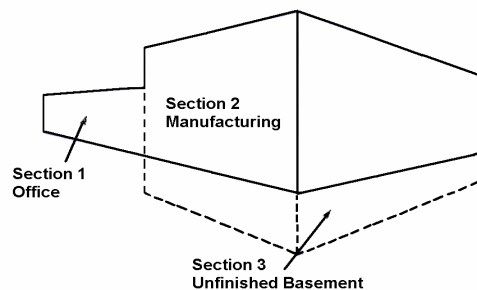
Architect Fees: These are set in the BVS system at 7%. This normally is sufficient however it may need adjustment in extreme situations.

Demolition and Debris Removal: Following a loss, there may be a requirement for demolition of the remaining part of a building as well as the cost associated with the removal of any loss related debris from the property. The cost associated with this varies depending on the location of the building (remote territory, urban area, steep hillside, on an Island, etc), but for most situations it is between 7 & 12% depending on the construction of the building.

Multiple Sections or Buildings:

The BVS system is capable of calculating values of multiple sections of a building or even multiple buildings.

Consider this example: If a Manufacturing Building includes an office area and unfinished basement, the system will calculate separate values for each section and will report them individually and collectively in the report.



The advantage of this is that the BVS system will treat each section independently from the others and therefore make allowances for the different occupancies in each individual section. For example, system based assumptions will vary for items such as plumbing fixtures. The system would allow for the average number of fixtures associated with office occupancies in Section 1, as well as different average numbers of fixtures for the other two sections based on their individual occupancies. If the entire occupancy were simply described as a Manufacturing type occupancy, then the system assumptions for Sections 1 and 3 would be inaccurate.

When to Use the BVS Evaluation Software:

At ING we will be focusing the use of this software program on buildings which fit the following parameters:

- Insured Building Value up to and including \$10,000,000, this is the total building value, not just the ING portion.
- Age of building – Due to various building code changes and updates, ING will focus on buildings that have been built since 1965.
- Non-residential occupancies only. The tool is not intended for use with residential occupancies such as houses that have been converted to offices or are being used for other commercial purposes.
- Although apartment style condominiums and apartments can be evaluated with this program, town house or row style condominiums and apartments can not.

The Evaluation Results:

The report created by the BVS system will provide numerous pieces of information. This includes:

Summary of costs, user specified features, system generated features and reconstruction costs are a few of the items that will be displayed in the BVS valuation report. This allows a user to determine exactly what features the field evaluator inputted into the system as well as which features of the building were assumed by the BVS system.

However, most people are interested in the “bottom line”. At the end of the report there is a section which indicates the following information.

Example:	Total Building Value	Total Area in sq. ft.	Cost per unit area (\$/sq. ft.)
VALUATION GRAND TOTAL	\$15,800,683	152,292	\$103.75

The tendency is to look at the Total Building Value and compare it to the current insured value. Keep in mind that the insured value may be very out of date. It will likely not include adequate annual adjustments to allow for rapidly changing construction costs. Also omitted from the current insured value will be items which are required to ensure that the value is a Reconstruction Value, not Replacement Cost, such as location and debris removal.

Underinsurance amounts can vary widely from risk to risk and must be considered individually. An equally effective way of determining whether the calculated evaluation amount is accurate is to consider the “*Cost Per Unit Area*” to rebuild the risk. In the above example, the cost per unit area is \$103.75. This cost per unit area will vary widely depending on the occupancy, risk location, construction, etc; however this amount will rarely be less than \$100.00 per square foot for most areas and can often be over \$200.00 per square foot.

Reviewing the current Insured Value, the Total Calculated Building Value and the Cost Per Unit Area together can help to provide an indication as to the what the Reconstruction cost should be.

While the MSB evaluation in most cases provides an accurate indication of the reconstruction cost, it sometimes indicates vast differences between the insured value and the calculated reconstruction cost due to remote locations and/or the accelerated increase in costs within the building construction industry. If the MSB calculated reconstruction cost for a location is significantly above or below the current insured value, it is recommended that the building owner obtain a professional reconstruction evaluation (not current market value, actual cash value or replacement cost) from a reputable appraisal company.