DUFF & PHELPS

INSURANCE VALUATION TODAY

Providing insights into current trends and issues affecting insurance valuation of real and personal property.

APRIL 2017

In this issue of Insurance Valuation Today we discuss the benefits of performing a fixed asset inventory and reconciliation at the same time as a property insurance appraisal. We also review the commonly used methods to determine insurance replacement cost for buildings and equipment. Finally, we provide construction and equipment cost indices which can be applied to capital equipment book values to determine average indicators of replacement cost.

Duff & Phelps, which acquired American Appraisal in 2015, is a leader in insurance appraisal. We provide fixed asset management and insurance services across virtually every asset class. We hope you find this newsletter to be a helpful resource.

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UPCOMING EVENTS

APRIL 23 - 26:
RIMS, Philadelphia, PA
Visit us at Booth 1606.

MAY 18:
NARIM (Dutch Association of Risk & Insurance Managers) Conference. Join us as we sponsor this year's conference in The Hague.

JUNE 4 - 6:
PRIMA, Phoenix, AZ
Visit us at Booth 317.

JUNE 12 - 14:
AIRMIC, Birmingham, England. Visit us at Stand 21and take time to attend Managing Director Joe Coltson's session on Cyber Security: "Penetration Testing and Scenario Exercising."

OCTOBER 15 - 18:
FERMA Forum, Monte Carlo. Join us as we sponsor this year's prestigious European Risk Management Association conference in Monaco and visit us at Booth 27.

Fixed Asset Management and Property Insurance Appraisal: Benefits of Combined Services

by Mark Bobber and Nigel P. Wilson, ASA, CEng, MIMMM

Typically, the biggest questions for an organization's finance and insurance teams, respectively, are:

- Are you confident that your fixed assets are accurately represented in the year-end financial statements?
- Where do your property's reported insurable values come from?

Fixed asset management and property insurance appraisal are essential for meeting audit requirements, capital budgeting, financial management and informed decision-making in the risk management process. Fixed assets can represent the largest items on an organization's balance sheet as well as in its property insurance budget– especially in capital-intensive industries such as manufacturing, telecommunications, power generation, oil & gas and healthcare. Thus, finance and risk management teams rely on accurate fixed asset accounting records. This reliance raises additional questions: when the risk management team considers a property insurance appraisal, should it coordinate with the finance team to determine the need for fixed asset management services, and vice versa?

The cost of inaccurate records

Inaccuracies in fixed assets can arise over time for a number of reasons:

- Acquisitions, mergers, consolidation and rationalization of operations
- Inadequate asset descriptions including missing manufacturer, model and serial number data
- Little or no use of property identification tags
- Bulk purchases and inconsistent application of the accounting capitalization threshold
- Construction-in-progress projects not properly segregated into building and/or equipment accounts
- Poor documentation of asset movement including disposal activity and transfers
- Infrequent or no periodic physical inventory/reconciliation process

Poor fixed asset accounting records can lead to inaccurate financial reporting, and inaccurate financial reporting can lead to audit issues and possibly a qualified audit opinion which can damage management's credibility with shareholders, lenders and suppliers.

From an insurance perspective, underwriters are demanding increased data integrity – precise building and equipment values as well as building construction, occupancy, protection and exposure (COPE) data in catastrophe-prone regions. In addition, fixed asset accounting records are used to determine the replacement cost of personal property for insurance placement purposes. When it comes to insurable values, accuracy is vital – no one wants to be paying higher rates or excess premiums because of poor data or insuring ghost assets.

Similarly, depending on jurisdiction, an organization may be subject to personal property tax and the tax assessments are typically based on the fixed asset accounting records, with rates being applied to the assessed value. Unfortunately, organizations can end up overpaying taxes by 20% to 30% due to ghost assets.

The benefits of combining services

Our clients often ask, "While you're completing a fixed asset inventory, can you also do an insurance appraisal?" We find that there are many similarities between fixed asset management and property insurance appraisal services. Primarily, both require a physical inspection and inventory of the fixed assets - this alone makes it a worthwhile joint exercise.

Duff & Phelps starts by gaining a thorough understanding of the finance and insurance teams' needs and how they might be met effectively. A diagnostic review of the current Statement of Insurable Values and fixed asset accounting records helps determine the scope of each service. Typically, an insurance appraisal will consider a total replacement cost of all the entity's assets (except land), buildings, property in the open and personal property. This would also include expensed assets below the capitalization threshold, whereas a fixed asset inventory for financial reporting is typically restricted to fixed assets that have been capitalized.

Other scope differences for an insurance appraisal might include:

- COPE data elements for buildings.
- A personal property inventory listing cut-off significantly higher than the accounting capitalization threshold. Assets below this threshold are still valued; however, they are grouped with like-kind assets, not individually listed. The goal is to track additions and retirements of major assets only.
- The locations of personal property assets are identified, typically by building and floor to facilitate underwriting analysis, whereas fixed asset inventories tend to record additional information, such as room and cost center.
- The conclusion of insurable value/cost of reproduction new versus historical cost.

On the other hand, a fixed asset inventory for accounting and financial reporting purposes will include an inventory of the personal property at the accounting capitalization threshold, which includes:

- Reconciliation or comparison of the inventory file to current fixed asset accounting records (in brief, the reconciliation process will identify matched assets, unrecorded additions and unrecorded retirements). Varying levels of diligence can be applied to this process, from simple tag number matching to a line-by-line reconciliation.
- Bulk entries and grouped purchases allocated to the individual assets.
- Conclusion of historic cost where necessary.

The benefits of the combined services include:

- Eliminating ghost assets: why insure or pay property tax on something that's long gone?
- Identifying individual assets in bulk entries for maintenance of future disposals
- Truing up transferred assets
- Eliminating negative management letter comments from external and internal auditors and meeting GAAP and IFRS expectations
- Accounting for, managing and controlling assets
- Eliminating the possibility of excess premiums/insufficient coverage
- Negotiating better insurance rates and underwriting terms and conditions

Once the services have been completed, committing to annual updating will maintain the integrity of the fixed asset accounting records and insurable values.

Can we do this ourselves?

Many organizations attempt to perform fixed asset inventory services in-house, which poses challenges - lack of experience, inadequate descriptions on the fixed asset accounting records, lack of a reconciliation process of experience, and not being able to allocate enough time, among others. This type of inventory is conducted by the actual custodians of the equipment, who may be reluctant to report discrepancies – especially if they are concerned that their department may be the reason for ghost assets and a personal property tax overstatement. Independence and objectivity can be lost during an in-house inventory and reconciliation.

In addition, a structured property insurance appraisal program provides the following benefits:

- An independent third-party opinion of value that will be readily accepted by underwriters, due to a lack of self-interest influencing value or cost.
- The same consistent approach and methodology, as well as pricing sources, will be used for all insured locations.
- Site inspections and value analyses are efficient and cost effective, with minimal involvement and disruption of local staff, and conclusions will be delivered by the contracted date.
- The report will be recognized and approved by brokers and insurance companies.

Duff & Phelps provides insurance valuation and fixed asset inventory solutions for clients on a global basis. We serve clients in virtually every industry, with particular expertise in serving capital-intensive industries, technology companies, higher education, healthcare, government, among others. Our use of leading-edge technology benefits our clients through data collection, software conversions and web-based reporting.

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Good Practice in Valuation for Insurance

by Evžen Körner, Dipl.-Ing., MBA, ASA

All institutions - private, public, small, or large - have the same basic property and casualty insurance needs. In most cases, insurance is based on what it would cost at the time of a loss to replace new or reproduce the assets affected. This amount can vary greatly from the assets' original cost.

An insured is responsible for carrying the appropriate amount of insurance and, if requested, providing an inventory and other asset data in support of a loss. Thus, an insured should maintain a record of all assets, as well as a current valuation that provides current replacement cost and/or actual cash value.

In most countries, an up-to-date asset listing is a legal or accounting requirement; however, keeping the replacement value current is more challenging. Often, companies rely on their own judgment and data, using gross book value or even net book value, which are barely related to current replacement cost. Utilizing original acquisition costs may seem appropriate, but unless assets are brand new, historical cost does not reflect current replacement cost.

The commonly used appraisal terms "cost of replacement new" and "cost of reproduction new" are interpreted differently within the insurance industry.

The American Society of Appraisers (ASA) defines *cost of reproduction new* (CRN) as "the amount required to reproduce a duplicate or a replica of an entire property at one time in like kind and materials in accordance with current market prices for materials, labor and manufactured equipment, contractors' overhead and profit, and fees, but without provision for overtime, bonuses for labor, or premiums for material or equipment."

The ASA defines *cost of replacement* (COR) as "the amount required to reproduce a duplicate or a replica of an entire property at one time with a modern property that will duplicate the current utility of the current property in accordance with current market prices for materials, labor and manufactured equipment, contractors' overhead and profit, and fees, but without provision for overtime, bonuses for labor, or premiums for material or equipment."

The Insurance and Risk Management Institute (IRMI) defines *replacement cost value* as "the cost to replace a property today with a property of like kind and quality without deduction for depreciation."

Generally, CRN is synonymous with the insurance-industry term "replacement cost" because of its focus on like kind and materials, thus CRN is typically used to determine the insurable value for buildings. If like-kind materials and quality are no longer available or can no longer be technologically reproduced, the "cost of replacement new" premise of value would be appropriate because of its focus on utility. In addition, cost of replacement new is usually used to determine the insurable value for equipment.

Whether developed internally or by external valuation professionals, the following methods can be utilized to determine assets' cost of reproduction new or cost of replacement new:

- Direct pricing
- Trending
- Benchmarking
- Modeling

Direct Pricing

Direct pricing is generally considered the best method for replacement cost development. As the name suggests, it is the process of applying current new unit prices to the subject assets.

The prices are typically acquired from manufacturers of the subject assets; current manufacturers' price lists, price quotations, and price catalogs provide good information about the current price of a subject asset. For a valuation made under the in-use premise, these prices must be increased by any necessary installation costs.

The major, and possibly only, disadvantage of the direct pricing method is data availability. For some assets, prices may not be available (for example, an item of equipment that is no longer manufactured and/or the manufacturer no longer exists). For

others, the original manufacturer may not be willing to disclose the current prices to a third party. In these cases, direct pricing is not applicable, and the appraiser must seek an alternative method.

One such alternative method, related to direct pricing, is direct cost estimating, in which the appraiser utilizes the total cost of material, labor, engineering and other costs needed to reproduce the subject property. This method is practical for the valuation of individual buildings but not for equipment.

Trending

The application of the trending method presumes that, in general, the valuation of the subject assets is based on the original acquisition cost of the property (what the owner of the property paid at the time of first purchase). This historical acquisition cost is typically recorded in the company asset register. It is then adjusted (multiplied) by a respective price index, an inflation trending factor respective to the time of the original purchase.

The price index is typically available from the statistical office of the respective country. The index represents a statistical sample of average changes in historical price development as recorded from domestic manufacturers and producers of commodities of all sizes operating in the same industry field in all stages of processing. Such indices are neither a buyer's index nor an input price index, that is, they do not measure the cost of producing an item. The producer price index is available at different levels of aggregation and detail for various industries depending on the statistical reporting standards in a particular country.

Other sources of indices may include original manufacturers, the engineering community, professional organizations, or insurance companies, which may rely on their own data when estimating cost new for insurance purposes.

The trending method is generally applicable and provides a reliable result when the subject property:

- Is relatively new,
- Is located in a stable economy,
- Has stable pricing,
- Has historical acquisition data available, and
- Was purchased new.

With all aforementioned conditions present, trending is especially suitable for equipment assets, when direct pricing is not practical.

Benchmarking

For benchmarking methods, including the capacity and battery limits approaches, the cost is estimated from known prices of property with similar physical characteristics, functionality, and utility.

The capacity method is utilized for plant and equipment assets for which the direct price is not known but prices are available for units with the same functionality but different capacity, and a cost-to-capacity relationship can be developed. The relationship between cost and capacity is given by the following equation[1]:

$$\frac{\text{Cost 2}}{\text{Cost 1}} = \frac{(\text{Capacity 2})^{\exp}}{(\text{Capacity 1})}$$

The value of the exponent factor is typically 0.6 (consequently, this method is also called the "six tenths rule") but may vary depending on the type of property.

The battery limits approach is especially practical for chemical plants, refineries, and other complex properties involving multiple processes. In the battery limits method, the subject property is benchmarked with the total investment needed to construct a production plant producing specific products at a given capacity. The IHS Chemical Process Economics Program (PEP) Yearbook International is a good resource of such investment data.

Cost new estimation derived from rules of thumb should not be given substantial weight, as this is an approximate method of arriving at cost new. However, this approach is useful when quick "ballpark" estimates are needed for a verification of the cost new derived by other methods, or when doing a sensitivity analysis where a high degree of accuracy is not required.

Modeling

Modeling is based on past fixed asset inventory and valuation experience of similar properties, and the application of an appropriate cost per square meter factor. Successful contents modeling is based on a reasonable sample size of similar properties that have been the subject of on-site inspection and valuations. This technique is best applied to occupancies where the plant and equipment insurable values are relatively low compared to the real property values, and where there is little variation in the makeup or concentration of plant and equipment assets.

Should you require any further information about our valuation services please contact Evžen Körner, Director at +49 69 719184 0 and evzen.korner@duffandphelps.com

1. Frederic C. Jelen and James H. Black, *Cost and Optimization Engineering* (McGraw Hill, 1983)

U.S. Inflation Tracker

Construction Cost Indices

After a decade of dramatic volatility for construction costs, the last four years have been relatively stable, with some indices showing increases of less than 1% for the last 12 months, and negative change in some regions of the country. Steel prices, a leading indicator of construction indices, declined to an average of $640[1] per tonne in 2015 and stabilized at $662 per tonne in 2016.

The continued lower cost of fuel prices has also been a significant contributor to stabilization of construction costs. With labor prices predicted to increase 2.7% to 3.0% in 2017, overall annual construction cost trends are anticipated to be in the range of 1.8% to 2.5% for 2017, though they may end up below that level if material prices continue to decline.

	2013	2014	2015	2016
ENR – Building Cost Index[2]	+2.2%	+2.7%	+1.7%	+2.9%
FM Global – U.S. Industrial Buildings Average[3]	+3.7%	+2.9%	+1.9%	+1.6%
RSMeans – 30-City Average[4]	+3.1%	+0.5%	+0.1%	+0.8%
Marshall & Swift, U.S. Average[5]	+1.7 to +3.2%	+2.1 to +2.4%	+0.2 to +0.9%	+0.0 to 0.9%

Note: The range of change shown by Marshall & Swift represents different classes of construction.

Sources

1. MEPS (International), Ltd, *All carbon steel products composite price and index*
2. Engineering News-Record, *Monthly Construction Economics Report*
3. FM Global, Industrial Cost Trends
4. RSMeans, Construction Cost Indices, 30-City Average

Equipment Cost Indices

Equipment cost indices have not shown the same volatility as construction cost indices. Average equipment cost indices continue to show very moderate year-on-year changes in the 0.0% to 0.9% range.

	2013	2014	2015	2016
Marshall & Swift/Boeckh – Industrial Equipment Avg.[5]	+0.9%	+2.0%	-1.0%	+0.9%
U.S. Bureau of Labor Statistics – Producer Price Index for Finished Goods, Capital Equipment[6]	+1.2%	+1.2%	+0.7%	+0.9%
FM Global – Industrial Equipment Composite[3]	+1.7%	+1.6%	+0.8%	+0.0%

Take care when selecting an index to track the rate of cost change for your company's capital equipment. The three indices in the table above all track average capital equipment cost change percentages, and indicate the differences that have occurred over the past four years. Developers as well as insurance brokers, underwriters and valuation professionals can all recommend appropriate indices for your particular facilities. Select one that represents your capital equipment as closely as possible; there are significant differences between the average indices shown here and specific industrial-sector indices.

Always remember that cost indices are just average indicators of change; they are not absolutes, and there is no average building or average assemblage of equipment. After five to seven years, you should establish a new replacement cost basis by using a qualified valuation professional.

Sources

5. Marshall & Swift/Boeckh, *Marshall Valuation Service*, Quarterly Cost Index
6. U.S. Bureau of Labor Statistics, Producer Price Index for Finished Goods - Capital Equipment

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For more information about our global locations and expertise, visit www.duffandphelps.com

About Duff & Phelps

Duff & Phelps is the premier global valuation and corporate finance advisor with expertise in complex valuation, disputes and investigations, M&A, real estate, restructuring, and compliance and regulatory consulting. The firm's more than 2,000 employees serve a diverse range of clients from offices around the world. For more information, visit www.duffandphelps.com.

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