

Comparative-Unit Method

The comparative-unit method is used to derive a cost estimate in terms of dollars per unit of area. The method employs the known costs of similar structures adjusted for market conditions and physical differences. Indirect costs may be included in the unit cost or computed separately. If the comparable properties and the subject property are in different markets, the appraiser may need to make an adjustment for location.

Unit costs vary with size. All else being equal, unit costs decrease as buildings increase in area. This reflects the fact that plumbing, heating units, elevators, doors, windows, and similar building components do not usually cost proportionately more in a larger building than in a smaller one.

The comparative-unit method is relatively uncomplicated, practical, and widely used. Unit cost figures are usually expressed in terms of gross building dimensions converted into square or cubic feet. Total cost is estimated by comparing the subject building with similar, recently constructed buildings for which contract prices are available. The trend in costs between the date of the contract (or construction) and the effective appraisal date must be factored into the comparison.

In the absence of contract prices, an indication of the total cost of a building can be extracted from sales of similar, newly constructed buildings as long as the following tests are met:

1. The improvements reflect the highest and best use of the site.
2. The property has reached stabilization.
3. Supply and demand are in balance.
4. Site value can be reasonably ascertained.

The value of the site is subtracted from the sale price of each comparable property, and the residual indicates the cost of the improvements.

Most appraisers using the comparative-unit method apply unit cost figures developed using data from a recognized cost service. Unit costs for the benchmark buildings found in cost-estimating manuals usually start with a base building of a specified size. Adjustments or refinements are then made to the base cost for any differences between the subject building and the benchmark building. If the subject building is larger than the benchmark building, the unit cost is usually lower. If the subject building is smaller, its unit cost will probably be higher.

Because few buildings are identical in terms of size, design, and quality of construction, the benchmark building is often different from the subject building. Different roof designs, interior design characteristics, and irregular perimeters and building shapes can affect comparative-

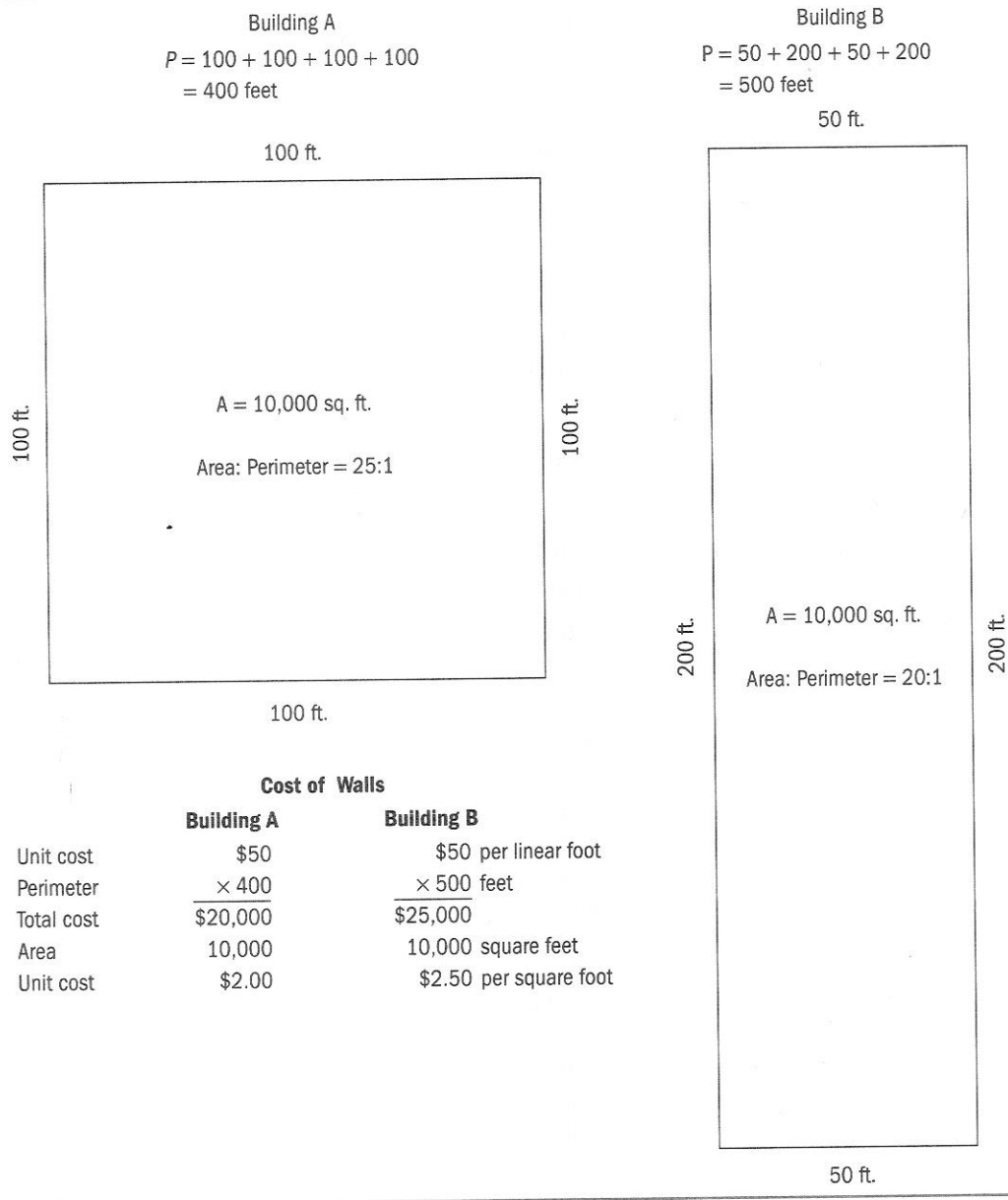
Building costs may be estimated using one of three methods: the comparative-unit method, the unit-in-place method, or the quantity survey method.

comparative-unit method

A method used to derive a cost estimate in terms of dollars per unit of area or volume based on known costs of similar structures that are adjusted for time and physical differences; usually applied to total building area.

unit costs substantially. Figure 18.1 illustrates this situation. Most cost services include adjustment criteria to alter or adjust the base cost to the specific characteristics of the subject structure. However, all elements may not be addressed by the cost service and a more “building-specific” cost analysis developed by the unit-in-place method may be needed.

Figure 18.1 Units Costs of Buildings with Different Shapes



To develop a reliable estimate with the comparative-unit method, an appraiser calculates the unit cost from similar improvements or adjusts the unit cost figure to reflect variations in size, shape, finish, and other characteristics. The unit cost applied should also reflect any changes in cost levels between the date of the benchmark unit cost and the effective appraisal date. The ratio between the costs of mechanical equipment and the basic building shell has increased consistently through the years. Equipment tends to increase unit building costs and depreciate more rapidly than other building components.

To use area cost estimates, an appraiser assembles, analyzes, and catalogs data on actual building costs. These costs should be divided into general construction categories, and separate figures should be used to account for special finishes or equipment. The overall area unit cost can then be broken down into its components, which may help the appraiser adjust a known cost for the presence or absence of items in later comparisons.

The apparent simplicity of the comparative-unit method can be misleading. To develop dependable unit cost figures, an appraiser must exercise judgment and carefully compare the subject building with similar or standard structures for which actual costs are known. Errors can result if an appraiser selects a unit cost that is not comparable to the building being appraised. When it is correctly applied, however, the method produces reasonably accurate estimates of cost.

The warehouse shown in Figure 18.2 will be used to illustrate the comparative-unit method (and later the unit-in-place, or segregated-cost, method and the quantity survey method).

Table 18.1 shows how comparative-unit costs from a published cost manual can be applied to the warehouse building. Calculations such as those shown can be used to confirm a cost indication obtained from construction contracts for similar properties in the same market as the property being appraised on or about the effective appraisal date. Published data can be used independently when no local cost data is available.

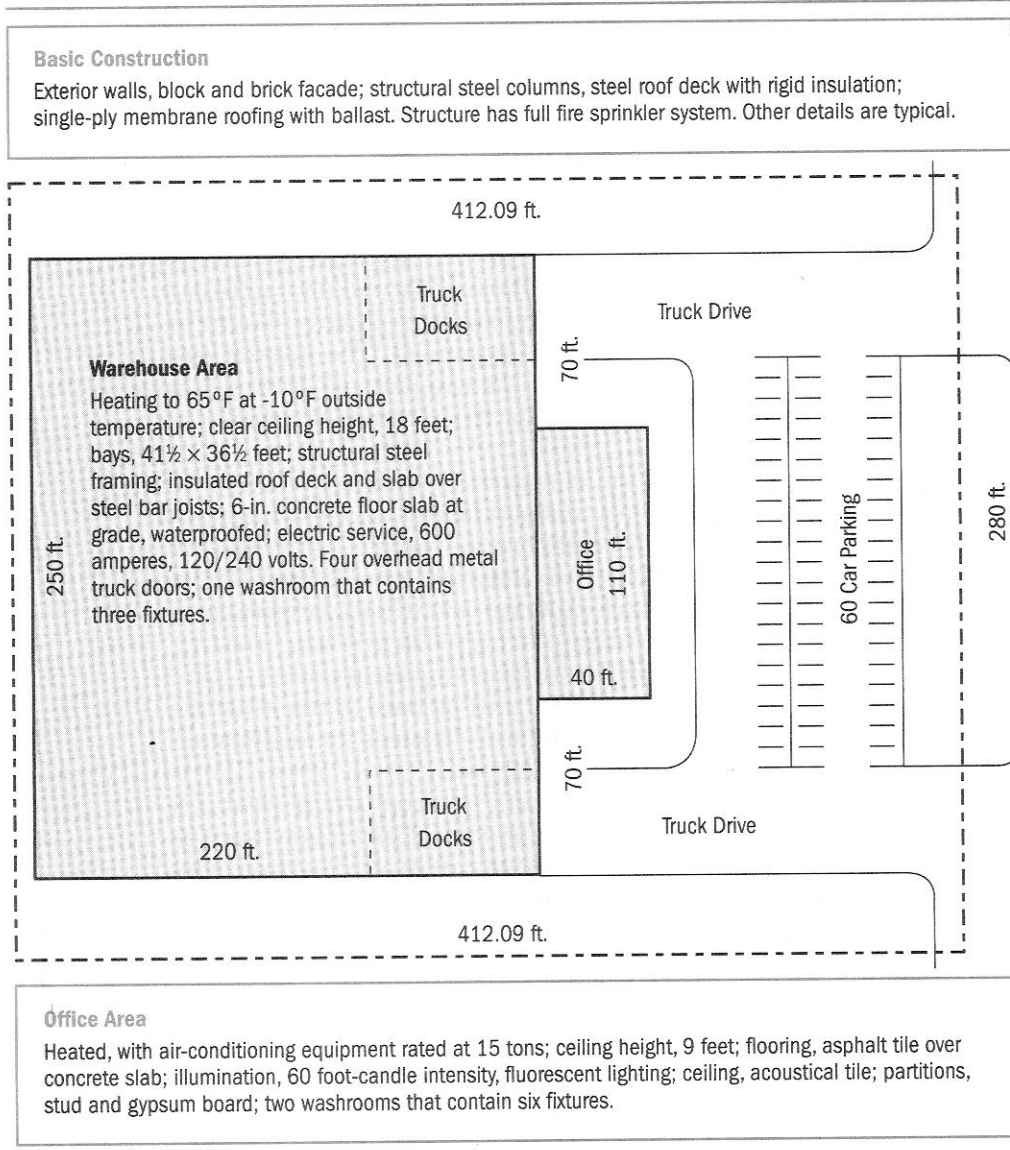
In Table 18.1 an adjustment for the warehouse's sprinkler system was made using a square-foot unit cost. In other cases similar adjustments may be appropriate for observed physical differences in the amount of office area, construction features, or specific equipment.

Cost manuals rarely include all indirect costs or an allowance for entrepreneurial profit, so adjustments must often be made to obtain an indication of the total cost. In Table 18.1 adjustments are made for

1. Indirect costs not included in the base price quoted in the cost manual
2. Indirect costs after construction needed to achieve typical stabilized occupancy¹

1. The cost to achieve stabilized occupancy may be nominal for a single-tenant building or a typical owner-occupied building. However, large multitenant warehouse, office, or apartment properties can have substantial lease-up costs, promotional expenses, or other costs (or loss in income) that must be considered.

Figure 18.2 Plan of a Warehouse



3. Entrepreneurial profit calculated as a percentage of total direct and indirect costs

The estimate of the value of the site and site improvements was derived through sales comparison.

Table 18.1 indicates the cost of the warehouse building plus the site value, but the result shown is more likely to represent the value of a close substitute than a duplicate structure. Cost services use typical buildings for their base cost, so an appraiser can apply the compara-

Table 18.1

Warehouse Property—Comparative-Unit Method

Base cost per sq. ft.		\$27.22
Add for sprinkler system per sq. ft.		1.14
Subtotal		\$28.36
Adjustment for ceiling height variations	×	1.086
Subtotal		\$30.80
Adjustment for area/perimeter	×	0.895
Subtotal		\$27.57
Current cost multiplier	×	1.120
Subtotal		\$30.88
Local cost multiplier	×	0.980
Total cost per sq. ft.		\$30.26
Indirect costs not included in cost manual*	×	1.050
Subtotal		\$31.77
Indirect costs from completion to stabilized occupancy*	×	1.070
Subtotal		\$33.99
Entrepreneurial profit at 10.0% of total direct and indirect costs		
\$33.99 x 0.10	+	3.39
Subtotal		\$37.38
Total cost for warehouse building:		
59,400 sq. ft. @ \$37.38 per sq. ft.	=	\$2,220,372
	(rounded)	\$2,220,000
Site value and site improvements per sq. ft. of building		
59,400 sq. ft. @ \$10.94 per sq. ft.	(rounded) +	650,000
Total value indicated by the cost approach		\$2,870,000

Source: Marshall Valuation Service

* Note: Contractor's overhead and profit and some other indirect costs are included in these base costs and adjustments. The source of published cost data should be studied for a complete understanding of what is included in quoted costs.

For purposes of simplicity, a percentage was applied to account for indirect costs.

tive-unit method, develop reliable adjustment amounts and factors, and produce a reasonable property value estimate.

Construction contracts normally include other improvements to the land such as auxiliary buildings, driveways, water retention basins, underground drainage facilities, rail sidings, fences, and landscaping. The possible combinations and varied value contributions of these improvements can cause a wide divergence in unit cost if the total contract is related to the size of the major improvement only. Therefore, when actual contract costs from the local market are used in the comparative-unit method, it is imperative that the costs of these other improvements be excluded from the determination of the base price so that these costs are not counted twice—first implicitly in the base unit cost and then again explicitly as an adjustment based on actual costs.