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# 2018 NATIONAL BUILDING COST MANUAL

**42nd Edition**

Edited by  
**Ben Moselle**



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## Explanation of the Cost Tables

This manual shows construction or replacement costs for a wide variety of residential, commercial, industrial, public, agricultural and military buildings. For your convenience and to minimize the chance of an error, all the cost and reference information you need for each building type is brought together on two or three pages. After reading pages 4 to 6, you should be able to turn directly to any building type and create an error-free estimate or appraisal of the construction or replacement cost.

The costs are per square foot of floor area for the basic building and additional costs for optional or extra components that differ from building to building. Building shape, floor area, design elements, materials used, and overall quality influence the basic structure cost. These and other cost variables are isolated for the building types. Components included in the basic square foot cost are listed with each building type. Instructions for using the basic building costs are included above the cost tables. These instructions include a list of components that may have to be added to the basic cost to find the total cost for your structure.

The figures in this manual are intended to reflect the amount that would be paid by the first user of a building completed in mid 2018.

Costs in the tables include all construction costs: labor, material, equipment, plans, building permit, supervision, overhead and profit. Cost tables do not include land value, site development costs, government mandated fees (other than the building permit) or the cost of modifying unusual soil conditions or grades. Construction expense may represent as much as 60% or as little as 40% of the cost to the first building owner. Site preparation, utility lines, government fees and mandates, finance cost and marketing are not part of the construction cost and may be as much as 20% of the cost to the first building owner.

### Building Quality

---

Structures vary widely in quality and the quality of construction is the most significant variable in the finished cost. For estimating purposes the structure should be placed in one or more quality classes. These classes are numbered from 1 which is the highest quality generally encountered. Each section of this manual has a page describing typical specifications which define the quality class.

Each number class has been assigned a word description (such as best, good, average or low) for convenience and to help avoid possible errors.

The quality specifications do not reflect some design features and construction details that can make a building both more desirable and more costly. When substantially more than basic design elements are present, and when these elements add significantly to the cost, it is appropriate to classify the quality of the building as higher than would be warranted by the materials used in construction.

Many structures do not fall into a single class and have features of two quality classes. The tables have "half classes" which apply to structures which have some features of one class and some features of a higher or lower class. Classify a building into a "half class" when the quality elements are fairly evenly divided between two classes. Generally, quality elements do not vary widely in a single building. For example, it would be unusual to find a top quality single family residence with minimum quality roof cover. The most weight should be given to quality elements that have the greatest cost. For example, the type of wall and roof framing or the quality of interior finish are more significant than the roof cover or bathroom wall finish. Careful evaluation may determine that certain structures fall into two distinct classes. In this case, the cost of each part of the building should be evaluated separately.

### Building Shapes

---

Shape classification considers any cost differences that arise from variations in building outline. Shape classification considerations vary somewhat with different building types. Where the building shape often varies widely between buildings and shape has a significant effect on the building cost, basic building costs are given for several shapes. Use the table that most closely matches the shape of the building you are evaluating. If the shape falls near the division between two basic building cost tables, it is appropriate to average the square foot cost from those two tables.

# Explanation of the Cost Tables

## Area of Buildings

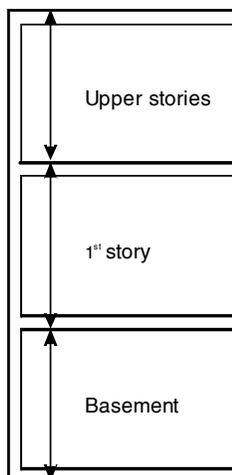
The basic building cost tables reflect the fact that larger buildings generally cost less per square foot than smaller buildings. The cost tables are based on square foot areas which include the following:

1. All floor area within and including the exterior walls of the main building.
2. Inset areas such as vestibules, entrances or porches outside of the exterior wall but under the main roof.
3. Any enclosed additions, annexes or lean-tos with a square foot cost greater than three-fourths of the square foot cost of the main building.

Select the basic building cost listed below the area which falls closest to the actual area of your building. If the area of your building falls nearly midway between two listed building areas, it is appropriate to average the square foot costs for the listed areas.

## Wall Heights

Building costs are based on the wall heights given in the instructions for each building cost table. Wall height for the various floors of a building are computed as follows: The basement is measured from the bottom of the first floor slab or joist to the bottom of the first floor slab or joist. The main or first floor extends from the bottom of the first floor slab or joist to the top of the roof slab or ceiling joist. Upper floors are measured from the top of the floor slab or floor joist to the top of the roof slab or ceiling joist. These measurements may be illustrated as follows:



Square foot costs of most building design types must be adjusted if the actual wall height differs from the listed wall height. Wall height adjustment tables are included for buildings requiring this adjustment. Wall height adjustment tables list square foot costs for a foot of difference in perimeter wall height of buildings of various areas. The amount applicable to the actual building area is added or deducted for each foot of difference from the basic wall height.

Buildings such as residences, medical-dental buildings, funeral homes and convalescent hospitals usually have a standard 8-foot ceiling height except in chapels or day room areas. If a significant cost difference exists due to a wall height variation, this factor should be considered in establishing the quality class.

## Other Adjustments

A common wall exists when two buildings share one wall. Common wall adjustments are made by deducting the in-place cost of the exterior wall finish plus one-half of the in-place cost of the structural portion of the common wall area.

If an owner has no ownership in a wall, the in-place cost of the exterior wall finish plus the in-place cost of the structural portion of the wall should be deducted from the total building costs. Suggested common wall and no wall ownership costs are included for many of the building types.

Some square foot costs include the cost of expensive veneer finishes on the entire perimeter wall. When these buildings butt against other buildings, adjustments should be made for the lack of this finish. Where applicable, linear foot cost deductions are provided.

The square foot costs in this manual are based on composite costs of total buildings including usual work room or storage areas. They are intended to be applied on a 100% basis to the total building area even though certain areas may or may not have interior finish. Only in rare instances will it be necessary to modify the square foot cost of a portion of a building.

Multiple story buildings usually share a common roof structure and cover, a common foundation and common floor or ceiling structures. The costs of these components are included in the various floor levels as follows:

## Explanation of the Cost Tables

The first or main floor includes the cost of a floor structure built at ground level, foundation costs for a one-story building, a complete ceiling and roof structure, and a roof cover. The basement includes the basement floor structure and the difference between the cost of the first floor structure built at ground level and its cost built over a basement. The second floor includes the difference between the cost of a foundation for a one-story building and the cost of a foundation for a two-story building and the cost of the second story floor structure.

### Location Adjustments

The figures in this manual are intended as national averages for metropolitan areas of the United States. Use the information on page 7 to adapt the basic building costs to any area listed. Frequently building costs outside metropolitan areas are 2% to 6% lower if skilled, productive, lower cost labor is available in the area. The factors on page 7 can be applied to nearly all the square foot costs and some of the "additional" costs in this book.

Temporary working conditions in any community can affect construction and replacement costs. Construction which must be done under deadline pressure or in adverse weather conditions or after a major fire, flood, or hurricane or in a thin labor market can temporarily inflate costs 25% to 50%. Conditions such as these are usually temporary and affect only a limited area. But the higher costs are real and must be considered, no matter how limited the area and how transient the condition.

### Depreciation

Depreciation is the loss in value of a structure from all causes and is caused primarily by three forms of obsolescence: (1) physical (2) functional, and (3) economic.

Physical obsolescence is the deterioration of building components such as paint, carpets or roofing. Much of this deterioration is totally curable. The physical life tables on pages 43, 235 and 269 assume normal physical obsolescence. Good judgment is required to evaluate how deferred maintenance or rehabilitation will reduce or extend the anticipated physical life of a building.

Functional obsolescence is due to some deficiency or flaw in the building. For example, too few bathrooms for the number of bedrooms or an

exceptionally high ceiling can reduce the life expectancy of a residence. Some functional obsolescence can be cured. The physical life tables do not consider functional obsolescence.

Economic obsolescence is caused by conditions that occur off site and are beyond control of the owner. Examples of economic obsolescence include a store in an area of declining economic activity or obsolescence caused by governmental regulation (such as a change in zoning). Because this kind of obsolescence is particularly difficult to measure, it is not considered in the physical life tables.

"Effective age" considers all forms of depreciation. It may be less than chronological age, if recently remodeled or improved, or more than the actual age, if deterioration is particularly bad. Though effective age is not considered in the physical life tables, it may yield a better picture of a structure's life than the actual physical age. Once the effective age is determined, considering physical, functional and economic deterioration, use the percent good tables on pages 43, 235 or 269 to determine the present value of a depreciated building. Present value is the result of multiplying the replacement cost (found by using the cost tables) by the appropriate percent good.

### Limitations

This manual will be a useful reference for anyone who has to develop budget estimates or replacement costs for buildings. Anyone familiar with construction estimating understands that even very competent estimators with complete working drawings, full specifications and precise labor and material costs can disagree on the cost of a building. Frequently exhaustive estimates for even relatively simple structures can vary 10% or more. The range of competitive bids on some building projects is as much as 20%. Estimating costs is not an exact science and there's room for legitimate disagreement on what the "right" cost is. This manual can not help you do in a few minutes what skilled estimators may not be able to do in many hours. This manual will help you determine a reasonable replacement or construction cost for most buildings. It is not intended as a substitute for judgment or as a replacement for sound professional practice, but should prove a valuable aid to developing an informed opinion of value.

## Area Modification Factors

Construction costs are higher in some cities than in other cities. Add or deduct the percentage shown on this page or page 8 to adapt the costs in this book to your job site. Adjust your estimated total project cost by the percentage shown for the appropriate city in this table to find your total estimated cost. Where 0% is shown it means no modification is required. Factors for Canada adjust to Canadian dollars.

These percentages were compiled by comparing the construction cost of buildings in nearly 600 communities throughout North America. Because these percentages are based on completed projects, they consider all

construction cost variables, including labor, equipment and material cost, labor productivity, climate, job conditions and markup.

Modification factors are listed alphabetically by state and city, followed by the first three digits of the postal zip code.

These percentages are composites of many costs and will not necessarily be accurate when estimating the cost of any particular part of a building. But when used to modify costs for an entire structure, they should improve the accuracy of your estimates.

<b>Alabama Average</b> -4%	Salinas 939 1%	Atlanta 303 12%	Muncie 473 -8%	Camden 048 -10%
Anniston 362 -8%	San Bernardino 923-924 2%	Augusta 308-309 -2%	South Bend 466 -2%	Cutler 046 -7%
Auburn 368 -4%	San Diego 919-921 8%	Buford 305 -2%	Terre Haute 478 -3%	Dexter 049 -4%
Bellamy 369 5%	San Francisco 941 27%	Calhoun 307 -9%		Northern Area 047 -8%
Birmingham 350-352 2%	San Jose 950-951 17%	Columbus 318-319 -3%	<b>Iowa Average</b> -3%	Portland 041 2%
Dothan 363 -6%	San Mateo 943-944 21%	Dublin/Fort Valley 310 -8%	Burlington 526 1%	
Evergreen 364 -10%	Santa Barbara 931 7%	Hinesville 313 -6%	Carroll 514 -11%	<b>Maryland Average</b> 2%
Gadsden 359 -9%	Santa Rosa 954 5%	Kings Bay 315 -10%	Cedar Falls 506 -4%	Annapolis 214 8%
Huntsville 358 -1%	Stockton 952 4%	Macon 312 -4%	522-524 2%	Baltimore 210-212 7%
Jasper 355 -8%	Sunnyvale 940 20%	Marietta 300-302 4%	Cherokee 510 1%	Bethesda 208-209 13%
Mobile 365-366 -2%	Van Nuys 913-916 8%	Savannah 314 -4%	Council Bluffs 515 -1%	Church Hill 216 -4%
Montgomery 360-361 -2%	Whittier 906 8%	Statesboro 304 -11%	Davenport 527-528 1%	Cumberland 215 -8%
Scottsboro 357 -4%		Valdosta 316 -1%	Decorah 521 -8%	Elkton 219 -5%
Selma 367 -5%	<b>Colorado Average</b> 1%		Des Moines 500-503 5%	Frederick 217 7%
Sheffield 356 0%	Aurora 800-801 7%	<b>Hawaii Average</b> 20%	Dubuque 520 -4%	Laurel 206-207 8%
Tuscaloosa 354 -4%	Boulder 803-804 4%	Aliamanu 968 22%	Fort Dodge 505 -3%	Salisbury 218 -6%
	Colorado Springs 808-809 0%	Ewa 967 20%	Mason City 504 -3%	
<b>Alaska Average</b> 22%	Denver 802 8%	Halawa Heights 967 20%	Ottumwa 525 -6%	<b>Massachusetts Average</b> 12%
Anchorage 995 27%	Durango 813 -1%	Hilo 967 20%	Sheldon 512 -7%	Ayer 015-016 6%
Fairbanks 997 27%	Fort Morgan 807 -2%	Honolulu 968 22%	Shenandoah 516 -14%	Bedford 017 15%
Juneau 998 20%	Glenwood Springs 816 4%	Kailua 968 22%	Stout City 511 5%	Boston 021-022 37%
Ketchikan 999 15%	Grand Junction 814-815 0%	Lualualei 967 20%	Spencer 513 -7%	Brockton 023-024 20%
King Salmon 996 23%	Greeley 806 5%	Mililani Town 967 20%	Waterloo 507 -3%	Cape Cod 026 4%
	Longmont 805 3%	Pearl City 967 20%		Chicopee 010 7%
<b>Arizona Average</b> -4%	Pagosa Springs 811 -4%	Wahiawa 967 20%	<b>Kansas Average</b> -2%	Dedham 019 18%
Chambers 865 -8%	Pueblo 810 0%	Waianae 967 20%	Colby 677 -8%	Fitchburg 014 11%
Douglas 855 -7%	Salida 812 -6%	Waiuku (Maui) 967 20%	Concordia 669 -12%	Hingham 020 19%
Flagstaff 860 -7%			Dodge City 678 -4%	Lawrence 018 14%
Kingman 864 -5%	<b>Connecticut Average</b> 8%	<b>Idaho Average</b> -9%	Emporia 668 8%	Nantucket 025 9%
Mesa 852 3%	Bridgeport 066 6%	Boise 837 -5%	Fort Scott 667 -6%	New Bedford 027 6%
Phoenix 850 3%	Bristol 060 12%	Coeur d'Alene 838 -10%	Hays 676 -13%	Northfield 013 2%
Prescott 863 -6%	Fairfield 064 9%	Idaho Falls 834 -9%	Hutchinson 675 -6%	Pittsfield 012 1%
Show Low 859 -8%	Hartford 061 11%	Lewisston 835 -11%	Independence 673 16%	Springfield 011 8%
Tucson 856-857 -5%	New Haven 065 7%	Meridian 836 -9%	Kansas City 660-662 5%	
Yuma 853 2%	Norwich 063 3%	Pocatello 832 -10%	Liberal 679 10%	
	Stamford 068-069 12%	Sun Valley 833 -8%	Salina 674 -7%	<b>Michigan Average</b> 1%
	Waterbury 067 6%		Topeka 664-666 -1%	Battle Creek 490-491 -1%
	West Hartford 062 5%	<b>Illinois Average</b> 4%	Wichita 670-672 -4%	Batesville 481-482 7%
<b>Arkansas Average</b> -7%		Arlington Heights 600 14%		Detroit 484-485 -4%
Batesville 725 -9%	<b>Delaware Average</b> 2%	Aurora 605 14%	<b>Kentucky Average</b> -4%	Grand Rapids 493-495 1%
Camden 717 -1%	Dover 199 -4%	Belleville 622 0%	Ashland 411-412 -4%	Grayling 497 -7%
Fayetteville 727 -4%	Newark 197 6%	Bloomington 617 -1%	Bowling Green 421 -5%	Jackson 492 -1%
Fort Smith 729 -7%	Wilmington 198 4%	Carbondale 629 -4%	Campton 413-414 -11%	Lansing 488-489 0%
Harrison 726 -12%		Carol Stream 601 14%	Covington 410 2%	Marquette 498-499 3%
Hope 718 -8%	<b>District of Columbia Average</b> 12%	Centralia 628 -3%	Elizabethtown 427 -10%	Pontiac 483 12%
Hot Springs 719 -13%	Washington 200-205 12%	Champaign 618 -2%	Frankfort 406 7%	Royal Oak 480 7%
Jonesboro 724 -9%		Chicago 606-608 15%	Hazard 417-418 -10%	Saginaw 486-487 -5%
Little Rock 720-722 -3%	<b>Florida Average</b> -5%	Decatur 623 -7%	Hopkinsville 422 -5%	Traverse City 496 -2%
Pine Bluff 716 -11%	Altamonte Springs 327 -3%	Galesburg 614 -4%	Lexington 403-405 1%	
Russellville 728 -4%	Bradenton 342 -6%	Granite City 620 3%	London 407-409 -7%	<b>Minnesota Average</b> -1%
West Memphis 723 -2%	Brooksville 346 -7%	Green River 612 5%	Louisville 400-402 2%	Bemidji 566 -6%
	Daytona Beach 321 -9%	Joliet 604 13%	Owensboro 423 -4%	Brainerd 564 -3%
<b>California Average</b> 7%	Fort Lauderdale 333 2%	Kankakee 609 -3%	Paducah 420 0%	Duluth 556-558 2%
Alhambra 917-918 8%	Fort Myers 339 -6%	Lawrenceville 624 -6%	Pikeville 415-416 -8%	Fergus Falls 565 -10%
Bakersfield 932-933 2%	Fort Pierce 349 -10%	Oak Park 603 18%	Somerseset 425-426 -11%	Magnolia 561 -8%
El Centro 922 0%	Gainesville 326 -9%	Peoria 615-616 6%	White Plains 424 -4%	Mankato 560 -4%
Eureka 955 -5%	Jacksonville 322 -2%	Peru 613 2%		Minneapolis 553-555 13%
Fresno 936-938 -2%	Lakeland 338 -8%	Quincy 602 16%	<b>Louisiana Average</b> 0%	Rochester 559 -1%
Herlong 961 -3%	Melbourne 329 -8%	Rockford 610-611 3%	Alexandria 713-714 -3%	St Cloud 563 2%
Inglewood 902-905 9%	Miami 330-332 1%	Springfield 625-627 0%	Baton Rouge 707-708 10%	St Paul 550-551 12%
Irvine 926-927 13%	Naples 341 -2%	Urbana 619 -4%	Houma 703 4%	Thief River Falls 567 -2%
Lompoc 934 3%	Ocala 344 -12%		Lafayette 705 1%	Wilmar 562 -6%
Long Beach 907-908 9%	Orlando 328 1%	<b>Indiana Average</b> -3%	Lake Charles 706 6%	
Los Angeles 900-901 8%	Panama City 324 -11%	Aurora 470 -5%	Mandeville 704 -3%	<b>Mississippi Average</b> -6%
Marysville 959 -3%	Pensacola 325 -8%	Bloomington 474 -2%	Minden 710 -5%	Clarksdale 386 -9%
Modesto 953 1%	Saint Augustine 320 -2%	Columbus 472 -4%	Monroe 712 -8%	Columbus 397 0%
Mojave 935 5%	Saint Cloud 347 -2%	Elkhart 465 -4%	New Orleans 700-701 2%	Greenville 387 -14%
Novato 949 11%	St Petersburg 337 -6%	Evansville 476-477 4%	Shreveport 711 -4%	Greenwood 389 -10%
Oakland 945-947 17%	Tallahassee 323 -6%	Fort Wayne 467-468 -1%		Gulfport 395 -6%
Orange 928 12%	Tampa 335-336 -1%	Gary 463-464 8%	<b>Maine Average</b> -5%	Jackson 390-392 -3%
Oxnard 930 2%	West Palm Beach 334 -2%	Jasper 460-462 4%	Auburn 042 -4%	Laurel 394 -7%
Pasadena 910-912 9%		Jeffersonville 471 -6%	Augusta 043 -5%	McComb 396 -11%
Rancho Cordova 956-957 4%	<b>Georgia Average</b> -4%	Kokomo 469 -8%	Bangor 044 -6%	Meridian 393 3%
Redding 960 -3%	Albany 317 -6%	Lafayette 479 -5%	Brunswick 039-040 -1%	Tupelo 388 -7%
Richmond 948 17%	Athens 306 -5%			
Riverside 925 4%				
Sacramento 958 3%				

# Area Modification Factors

<b>Missouri Average</b>	<b>-3%</b>
Cape Girardeau	637 -5%
Caruthersville	638 -7%
Chillicothe	646 -4%
Columbia	652 -4%
East Lynne	647 4%
Farmington	636 -8%
Hannibal	634 -2%
Independence	640 5%
Jefferson City	650-651 -5%
Joplin	648 -6%
Kansas City	641 6%
Kirksville	635 -15%
Knob Noster	653 3%
Lebanon	654-655-12%
Poplar Bluff	639 -10%
Saint Charles	633 1%
Saint Joseph	644-645 -1%
Springfield	656-658 -8%
St Louis	630-631 8%

<b>Montana Average</b>	<b>-3%</b>
Billings	590-591 -2%
Butte	597 -3%
Fairview	592 12%
Great Falls	594 -6%
Havre	595 -9%
Helena	596 -2%
Kalispell	599 -6%
Miles City	593 -7%
Missoula	598 -6%

<b>Nebraska Average</b>	<b>-8%</b>
Alliance	693 -10%
Columbus	686 -7%
Grand Island	688 -8%
Hastings	689 -9%
Lincoln	683-685 -4%
McCook	690 -9%
Norfolk	687 -10%
North Platte	691 -6%
Omaha	680-681 0%
Valentine	692 -15%

<b>Nevada Average</b>	<b>1%</b>
Carson City	897 -4%
Elko	898 9%
Ely	893 -3%
Fallon	894 0%
Las Vegas	889-891 3%
Reno	895 -1%

<b>New Hampshire Average</b>	<b>-1%</b>
Charlestown	036 -5%
Concord	034 -3%
Dover	038 1%
Lebanon	037 -3%
Littleton	035 -6%
Manchester	032-033 2%
New Boston	030-031 3%

<b>New Jersey Average</b>	<b>9%</b>
Atlantic City	080-084 4%
Brick	087 2%
Dover	078 9%
Edison	088-089 13%
Hackensack	076 10%
Monmouth	077 12%
Newark	071-073 11%
Passaic	070 12%
Paterson	074-075 7%
Princeton	085 10%
Summit	079 16%
Trenton	086 7%

<b>New Mexico Average</b>	<b>-8%</b>
Alamogordo	883 -11%
Albuquerque	870-871 -3%
Clovis	881 -11%
Farmington	874 -1%
Fort Sumner	882 -2%
Gallup	873 -7%
Holman	877 -10%
Las Cruces	880 -8%
Santa Fe	875 -8%
Socorro	878 -14%
Truth or Consequences	879 -8%
Tucumcari	884 -8%

<b>New York Average</b>	<b>6%</b>
Albany	120-123 7%
Amityville	117 9%
Batavia	140 1%

Binghamton	137-139 -2%
Bronx	104 10%
Brooklyn	112 7%
Buffalo	142 1%
Elmira	149 -3%
Flushing	113 15%
Garden City	115 15%
Hicksville	118 14%
Ithaca	148 -5%
Jamaica	114 14%
Jamestown	147 -7%
Kingston	124 -4%
Long Island	111 30%
Montauk	119 7%
New York (Manhattan)	100-102 31%
New York City	100-102 31%
Newcomb	128 0%
Niagara Falls	143 -6%
Plattsburgh	129 -1%
Poughkeepsie	125-126 1%
Queens	110 17%
Rochester	144-146 2%
Rockaway	116 10%
Rome	133-134 -4%
Staten Island	103 8%
Stewart	127 -5%
Syracuse	130-132 2%
Tonawanda	141 -1%
Utica	135 -6%
Watertown	136 -1%
West Point	109 6%
White Plains	105-108 14%

<b>North Carolina Average</b>	<b>-4%</b>
Asheville	287-289 -7%
Charlotte	280-282 2%
Durham	277 0%
Elizabeth City	279 -8%
Fayetteville	283 -6%
Goldensboro	275 0%
Greensboro	274 -3%
Hickory	286 -8%
Kinston	285 -9%
Raleigh	276 3%
Rocky Mount	278 -6%
Wilmington	284 -6%
Winston-Salem	270-273 -5%

<b>North Dakota Average</b>	<b>4%</b>
Bismarck	585 3%
Dickinson	586 15%
Fargo	580-581 0%
Grand Forks	582 -1%
Jamestown	584 -4%
Minot	587 9%
Nekoma	583 -10%
Williston	588 21%

<b>Ohio Average</b>	<b>-1%</b>
Akron	442-443 1%
Canton	446-447 -3%
Chillicothe	456 -2%
Cincinnati	450-452 3%
Cleveland	440-441 3%
Columbus	432 5%
Dayton	453-455 1%
Lima	458 -5%
Marietta	457 -5%
Marion	433 -6%
Newark	430-431 3%
Sandusky	448-449 -3%
Steubenville	439 1%
Toledo	434-436 7%
Warren	444 -5%
Youngstown	445 -3%
Zanesville	437-438 -1%

<b>Oklahoma Average</b>	<b>-5%</b>
Adams	739 -10%
Ardmore	734 -1%
Clinton	736 -3%
Durant	747 -11%
Enid	737 -4%
Lawton	735 -8%
McAlester	745 -7%
Kingsport	744 -8%
Muskogee	730 -4%
Norman	731 -3%
Oklahoma City	730 -3%
Ponca City	746 -1%
Poteau	749 -7%
Pryor	743 -6%
Shawnee	748 -8%
Tulsa	740-741 0%
Woodward	738 5%

<b>Oregon Average</b>	<b>-3%</b>
Adrian	979 -12%
Bend	977 -5%
Eugene	974 -3%
Grams Pass	975 -5%
Klamath Falls	976 -8%
Pendleton	978 -3%
Portland	970-972 10%
Salem	973 -2%

<b>Pennsylvania Average</b>	<b>-1%</b>
Allentown	181 3%
Altoona	166 -8%
Beaver Springs	178 -5%
Bethlehem	180 4%
Bradford	167 -8%
Butler	160 -2%
Chambersburg	172 -7%
Clearfield	168 -3%
DuBois	158 -10%
East Stroudsburg	183 -5%
Erie	164-165 -6%
Genesee	169 -4%
Greensburg	156 -4%
Harrisburg	170-171 3%
Hazleton	182 -3%
Johnstown	159 -9%
Kittanning	162 -6%
Lancaster	175-176 -1%
Meadville	163 -9%
Montrose	188 -4%
New Castle	161 -3%
Philadelphia	190-191 11%
Pittsburgh	152 6%
Pottsville	179 -8%
Punxsutawney	157 -3%
Reading	195-196 2%
Scranton	184-185 1%
Somerset	155 -9%
Southeastern	193 8%
Uniontown	154 -6%
Valley Forge	194 11%
Warminster	189 11%
Warrendale	150-151 5%
Washington	153 8%
Wilkes Barre	186-187 -1%
Williamsport	177 -2%
York	173-174 -1%

<b>Rhode Island Average</b>	<b>5%</b>
Bristol	028 5%
Coventry	028 5%
Cranston	029 6%
Davisville	028 5%
Narragansett	028 5%
Newport	028 5%
Providence	029 6%
Warwick	028 5%

<b>South Carolina Average</b>	<b>-1%</b>
Aiken	298 4%
Beaufort	299 -2%
Charleston	294 -1%
Columbia	290-292 -2%
Greenville	296 8%
Myrtle Beach	295 -8%
Rock Hill	297 -6%
Spartanburg	293 -3%

<b>South Dakota Average</b>	<b>-6%</b>
Aberdeen	574 -7%
Mitchell	573 -6%
Mobridge	576 -9%
Pierre	575 -10%
Rapid City	577 -8%
Sioux Falls	570-571 -1%
Watertown	572 -4%

<b>Tennessee Average</b>	<b>-2%</b>
Chattanooga	374 2%
Clarksville	370 1%
Cleveland	373 -1%
Columbia	384 -7%
Cookeville	385 -8%
Jackson	383 -2%
Kingsport	376 -5%
Knoxville	377-379 -2%
McKenzie	382 -8%
Memphis	380-381 1%
Nashville	371-372 2%

<b>Texas Average</b>	<b>5%</b>
Abilene	795-796 -2%
Amarillo	790-791 -2%

Arlington	760 1%
Austin	786-787 13%
Bay City	774 41%
Beaumont	776-777 20%
Brownwood	768 -8%
Bryan	778 10%
Childress	792 -14%
Corpus Christi	783-784 19%
Dallas	751-753 6%
Del Rio	788 0%
El Paso	798-799 1%
Fort Worth	761-762 2%
Galveston	775 25%
Giddings	789 -1%
Greenville	754 3%
Houston	770-772 28%
Huntsville	773 28%
Longview	756 1%
Lubbock	793-794 -7%
Lufkin	759 9%
McAllen	785 -5%
Midland	797 10%
Palestine	758 2%
Plano	750 7%
San Angelo	769 -6%
San Antonio	780-782 9%
Texarkana	755 -8%
Tyler	757 -7%
Victoria	779 14%
Waco	765-767 -3%
Wichita Falls	763 -9%
Woodson	764 -3%

<b>Utah Average</b>	<b>-3%</b>
Clearfield	840 0%
Green River	845 -3%
Ogden	843-844 -9%
Provo	846-847 -6%
Salt Lake City	841 1%

<b>Vermont Average</b>	<b>-5%</b>
Albany	058 -7%
Battleboro	053 -4%
Beecher Falls	059 -8%
Bennington	052 -6%
Burlington	054 3%
Montpelier	056 -4%
Rutland	057 -7%
Springfield	051 -6%
White River Junction	050 -5%

<b>Virginia Average</b>	<b>-4%</b>
Abingdon	242 -9%
Alexandria	220-223 10%
Charlottesville	229 -6%
Chesapeake	233 -4%
Culpeper	227 -5%
Farmville	239 -12%
Fredericksburg	224-225 -5%
Galax	243 -10%
Harrisonburg	228 -6%
Lynchburg	245 -9%
Norfolk	235-237 -2%
Petersburg	238 -3%
Radford	241 -9%
Reston	201 7%
Richmond	232 2%
Roanoke	240 -9%
Staunton	244 -7%
Tazewell	246 -6%
Virginia Beach	234 -3%
Williamsburg	230-231 -3%
Winchester	226 4%

<b>Washington Average</b>	<b>0%</b>
Clarkston	994 -8%
Everett	982 2%
Olympia	985 -2%
Pasco	993 1%
Seattle	980-981 11%
Spokane	990-992 -3%
Tacoma	983-984 2%
Vancouver	986 3%
Wenatchee	988 -6%
Yakima	989 -5%

<b>West Virginia Average</b>	<b>-5%</b>
Beckley	258-259 -5%
Bluefield	247-248 0%
Charleston	250-253 4%
Clarksburg	263-264 -7%
Fairmont	266 -11%
Huntington	255-257 -4%

Lewisburg	249 -14%
Martinsburg	254 -5%
Morgantown	265 -4%
New Martinsville	262 -9%
Parkersburg	261 1%
Romney	267 -7%
Sugar Grove	268 -8%
Wheeling	260 5%

<b>Wisconsin Average</b>	<b>0%</b>
Amery	540 -1%
Beloit	535 5%
Ciam Lake	545 -8%
Eau Claire	547 -2%
Green Bay	541-543 3%
La Crosse	546 0%
Ladysmith	548 -2%
Madison	537 8%
Milwaukee	530-534 6%
Oshkosh	549 4%
Portage	539 0%
Prairie du Chien	538 -7%
Wausau	544 -3%

<b>Wyoming Average</b>	<b>-1%</b>
Casper	826 1%
Cheyenne/	
Laramie	820 -2%
Gillette	827 3%
Powell	824 -3%
Rawlins	823 8%
Riverton	825 -6%
Rock Springs	829-831 1%
Sheridan	828 -3%
Wheatland	822 -3%

<b>UNITED STATES TERRITORIES</b>	
Guam	18%
Puerto Rico	-21%

<b>VIRGIN ISLANDS (U.S.)</b>	
St. Croix	2%
St. John	20%
St. Thomas	5%

<b>CANADIAN AREA MODIFIERS</b>	
These figures assume an exchange rate of \$1.00 Canadian to \$.76 U.S.	

<b>Alberta Average</b>	<b>13%</b>
Calgary	14%
Edmonton	14%
Fort McMurray	12%

<b>British Columbia Average</b>	<b>7%</b>
Fraser Valley	6%
Okanagan	6%
Vancouver	9%

<b>Manitoba Average</b>	<b>0%</b>
North Manitoba	0%
Saskik	0%
South Manitoba	0%
Winnipeg	0%

<b>New Brunswick Average</b>	<b>-13%</b>
Moncton	-13%
Newfoundland/Labrador Average	-3%

<b>Nova Scotia Average</b>	<b>-8%</b>
Amherst	-8%
Nova Scotia	-7%
Sydney	-8%

<b>Ontario Average</b>	<b>7%</b>
London	7%
Thunder Bay	6%
Toronto	7%

<b>Quebec Average</b>	<b>-1%</b>
Montreal	-1%
Quebec City	-1%

<b>Saskatchewan Average</b>	<b>4%</b>
La Ronge	3%
Prince Albert	2%
Saskatoon	5%

## Building Cost Historical Index

Use this table to find the approximate current dollar building cost when the actual cost is known for any year since 1951. Multiply the figure listed below for the building type and year of construction by the known cost. The result is the estimated 2018 construction cost.

Year	Masonry Buildings	Concrete Buildings	Steel Buildings	Wood-Frame Buildings	Agricultural Buildings	Year of Construction
1951	14.32	15.28	16.81	13.27	11.87	1951
1952	13.81	14.90	16.45	13.04	11.76	1952
1953	13.63	14.41	15.70	12.72	11.50	1953
1954	13.37	13.90	15.70	12.72	11.50	1954
1955	12.82	13.26	14.88	12.05	11.00	1955
1956	12.16	12.67	13.70	11.54	10.54	1956
1957	11.81	12.19	13.15	11.46	10.29	1957
1958	11.48	11.73	12.51	11.43	12.27	1958
1959	11.12	11.36	12.22	10.94	9.83	1959
1960	10.86	11.15	12.02	10.78	9.64	1960
1961	10.64	11.11	11.82	10.58	9.61	1961
1962	10.40	10.78	11.53	10.46	9.46	1962
1963	10.25	10.50	11.40	10.26	8.58	1963
1964	9.94	10.38	11.24	9.90	9.02	1964
1965	9.63	10.11	10.85	9.69	8.77	1965
1966	9.19	9.82	10.44	9.27	8.53	1966
1967	8.98	9.35	9.76	8.82	8.18	1967
1968	8.61	8.83	9.32	8.34	7.83	1968
1969	8.13	8.44	9.00	8.03	7.38	1969
1970	7.80	8.07	8.55	7.63	7.01	1970
1971	7.32	7.39	7.93	6.57	6.54	1971
1972	6.81	6.84	7.42	6.59	6.08	1972
1973	6.21	6.48	6.58	6.08	5.71	1973
1974	5.53	5.95	6.18	5.69	5.30	1974
1975	5.03	5.25	5.56	5.34	4.72	1975
1976	4.71	5.00	5.23	5.15	4.48	1976
1977	4.39	4.69	5.01	4.78	4.21	1977
1978	4.09	4.39	4.61	4.39	3.81	1978
1979	3.75	3.91	4.14	4.03	3.61	1979
1980	3.40	3.55	3.68	3.61	3.26	1980
1981	3.20	3.35	3.38	3.44	3.05	1981
1982	3.10	3.20	3.27	3.33	2.94	1982
1983	2.96	3.10	3.21	3.18	2.77	1983
1984	2.77	2.91	3.06	2.94	2.69	1984
1985	2.69	2.77	2.98	2.85	2.65	1985
1986	2.62	2.74	2.92	2.80	2.59	1986
1987	2.61	2.69	2.89	2.75	2.57	1987
1988	2.55	2.59	2.84	2.73	2.53	1988
1989	2.50	2.54	2.70	2.67	2.45	1989
1990	2.35	2.44	2.56	2.48	2.34	1990
1991	2.54	2.41	2.44	2.35	2.22	1991
1992	2.27	2.37	2.41	2.34	2.19	1992
1993	2.22	2.35	2.32	2.31	2.16	1993
1994	2.16	2.19	2.24	2.22	2.00	1994
1995	2.05	2.00	2.07	2.09	1.89	1995
1996	1.98	1.97	2.02	2.04	1.86	1996
1997	1.91	1.91	1.93	2.00	1.81	1997
1998	1.83	1.83	1.86	1.91	1.79	1998
1999	1.76	1.76	1.81	1.89	1.76	1999
2000	1.71	1.71	1.74	1.82	1.70	2000
2001	1.66	1.66	1.71	1.76	1.66	2001
2002	1.61	1.61	1.67	1.73	1.63	2002
2003	1.59	1.59	1.62	1.72	1.59	2003
2004	1.52	1.52	1.58	1.68	1.55	2004
2005	1.41	1.41	1.41	1.50	1.51	2005
2006	1.33	1.33	1.31	1.35	1.36	2006
2007	1.29	1.29	1.25	1.25	1.26	2007
2008	1.21	1.21	1.18	1.19	1.19	2008
2009	1.20	1.20	1.14	1.19	1.19	2009
2010	1.18	1.18	1.08	1.18	1.18	2010
2011	1.19	1.19	1.11	1.20	1.21	2011
2012	1.18	1.18	0.99	1.16	1.19	2012
2013	1.12	1.12	1.06	1.10	1.11	2013
2014	1.11	1.11	1.04	1.09	1.10	2014
2015	1.10	1.10	1.03	1.08	1.09	2015
2016	1.09	1.09	1.14	1.09	1.07	2016
2017	1.05	1.05	1.15	1.10	1.07	2017
2018	1.00	1.00	1.00	1.00	1.00	2018

## Residential Structures Section

The figures in this section include all costs associated with normal construction:

Foundations as required for normal soil conditions. Excavation for foundations, piers, and other foundation components given a fairly level construction site. Floor, wall, and roof structures. Interior floor, wall, and ceiling finishes. Exterior wall finish and roof cover. Interior partitions as described in the quality class. Finish carpentry, doors, windows, trim, etc. Electric wiring and fixtures. Rough and finish plumbing as described in applicable building specifications. Built-in appliances as described in applicable building specifications. All labor

and materials including supervision. All design and engineering fees, if necessary. Permits and fees. Utility hook-ups. Contractors' contingency, overhead and profit.

The square foot costs do not include heating and cooling equipment or the items listed in the section "Additional Costs for Residential Structures" which appear on pages 27 to 31. The costs of the following should be figured separately and added to the basic structure cost: porches, basements, balconies, exterior stairways, built-in equipment beyond that listed in the quality classifications, garages and carports.

### Single Family Residences

Single family residences vary widely in quality and the quality of construction is the most significant factor influencing cost. Residences are listed in six quality classes. Class 1 is the most expensive commonly encountered and Class 6 is the minimum required under most building codes. Nearly all homes built from stock plans or offered to the public by residential tract developers will fall into Class 3, 4, 5, or 6. For convenience, these classes are labeled *Best Standard*, *Good Standard*, *Average Standard* or *Minimum Standard*. Class 1 residences are labeled *Luxury*. Class 2 residences are labeled *Semi-Luxury*. Class 1 and 2 residences are designed by professional architects, usually to meet preferences of the first owner.

The shape of the outside perimeter also has a significant influence on cost. The more complex the shape, the more expensive the structure per square foot of floor. The shape classification of multiple story or split-level homes should be based on the outline formed by the outer-most exterior walls, including the garage area, regardless of the story level. Most residences that fall into Classes 3, 4, 5 or 6 have 4, 6, 8 or 10 corners, as illustrated below. Small insets that do not require a change in the roof line can be ignored when evaluating the outside perimeter.

Class 1 and 2 (*Luxury* and *Semi-Luxury*) residences have more than ten corners and are best evaluated by counting the "building masses." A building mass is a group of contiguous rooms on one or more levels with access at varying angles from a common point or

hallway. The illustration at the right below represents a residence with two building masses. Most Class 1 and Class 2 residences have from one to four building masses, ignoring any attached garage. For convenience, cost tables for Class 1 and 2 single family residences with one, two, three or four building masses have been appended to cost tables for Class 3, 4, 5 and 6 residences with 4, 6, 8 and 10 building corners.

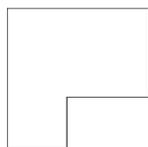
Residences on larger lots often include a separate housekeeping unit, either remote from the main structure (as illustrated below at the right) or joined to the main structure by a hallway (no common wall). Evaluate any separate housekeeping unit as a separate residence. The quality class of separate housekeeping units will usually be the same as the main residence if designed and built at the same time as the main residence.

Residences which have features of two or more quality classes can be placed between two of the six labeled classes. The tables have five half-classes (1 & 2, 2 & 3, etc.) which can be applied to residences with some characteristics of two or more quality classes. If a portion of a residence differs significantly in quality from other portions, evaluate the square footage of each portion separately.

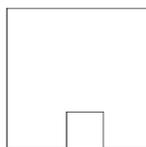
These figures can be applied to nearly all single-family residences built using conventional methods and readily available materials, including the relatively small number of highly decorative, starkly original or exceptionally well-appointed residences.



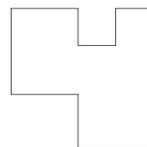
4 corners



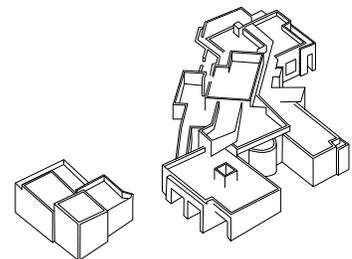
6 corners



8 corners



10 corners



2 building masses and one separate unit

## Single Family Residences

### Quality Classification

	<b>Class 1 Luxury</b>	<b>Class 2 Semi-Luxury</b>	<b>Class 3 Best Std.</b>	<b>Class 4 Good Std.</b>	<b>Class 5 Average Std.</b>	<b>Class 6 Minimum Std.</b>
<b>Foundation</b> (9% of total cost)	Reinforced concrete.	Reinforced concrete.	Reinforced concrete.	Reinforced concrete or concrete block.	Reinforced concrete or concrete block.	Reinforced concrete.
<b>Floor Structure</b> (12% of total cost)	Engineered wood or steel exceeding code minimums.	Engineered wood or steel or reinforced concrete slab.	Engineered wood or steel or reinforced concrete slab.	Wood frame or slab on grade, changes in shape and elevation.	Standard wood frame or slab on grade with elevation changes.	Slab on grade. No changes in elevation.
<b>Wall Framing and Exterior Finish</b> (14% of total cost)	Wood or steel, very irregular walls, stone veneer, many architectural doors and windows.	Wood or steel, irregular shape, masonry veneer, better grade doors and windows.	Wood or steel, several wall offsets, wood or masonry accents, good grade doors and windows.	Wood or steel, stucco or wood siding, some trim or veneer, average doors and windows.	Wood or steel, stucco or wood siding, few offsets, commodity grade doors and windows.	Wood or steel, stucco or hardboard siding, minimum grade doors and windows.
<b>Roof</b> (10% of total cost)	Complex plan, tile, slate or metal, highly detailed.	Multi-level, slate, tile or flat surface, decorative details.	Multi-pitch, shake, tile or flat surface, large closed soffit.	Wood trusses, tile or good shingles, closed soffit.	Wood frame, shingle or built-up cover, open 24" soffit.	Wood frame, composition shingle cover, open soffit.
<b>Floor Finish</b> (5% of total cost)	Terrazzo, marble, granite, or inlaid hardwood or best carpet throughout.	Marble or granite entry, hardwood, good carpet or sheet vinyl elsewhere.	Simulated marble tile entry, good carpet, hardwood or vinyl elsewhere.	Better sheet vinyl and average carpet, some areas with masonry or tile.	Good sheet vinyl and standard carpet, small area with tile or hardwood.	Composition tile or minimum grade sheet vinyl.
<b>Interior Wall and Ceiling Finish</b> (8% of total cost)	Plaster or gypsum wallboard with artistic finish, many offsets and wall openings, decorative details in nearly all rooms.	Plaster on gypsum or metal lath or 2 layers of 5/8" gypsum wallboard, decorative details, many irregular wall openings.	Gypsum wallboard with putty or texture coat finish, some irregular walls, decorative details in living room, entry and kitchen.	1/2" gypsum wallboard with textured finish, several irregular walls and wall openings, some decorative details.	1/2" gypsum wallboard with textured finish, most walls are rectangular, doors and windows are the only openings.	1/2" gypsum wallboard, smooth or orange peel finish. Nearly all walls are regular, no decorative details.
<b>Interior Detail</b> (5% of total cost)	Exposed beams or decorative ceiling, 12' to 16' ceiling in great room, many sky windows, built-in shelving and alcoves for art.	Great room has 12' to 16' ceiling, most rooms have windows on two sides, formal dining area, several framed openings.	Cathedral ceiling at entry, one or more floor level changes, several wall openings or pass-throughs, formal dining area.	8' or 9' ceiling throughout, walk-in closet in master bedroom, separate dining area, some decorative wood trim.	8' or 9' ceiling throughout, sliding mirrored closet doors, standard grade molding and trim, breakfast bar or nook.	Drop ceiling in kitchen, other rooms have 7'6" to 8' ceiling, minimum grade molding and trim.
<b>Bath Detail</b> (4% of total cost)	Custom large tile showers, separate elevated spa in master bathroom.	Large tile showers, at least one bathtub, glass block or large window by each bath.	Tile or fiberglass shower, at least one built-in bathtub, window in bathroom.	Good plastic tub and shower in at least one bathroom, one small window in each bath.	Average plastic tub and shower in at least one bathroom.	Minimum plastic tub and shower in one bathroom.
<b>Kitchen Detail</b> (8% of total cost)	Over 30 LF of deluxe wall and base cabinets, stone counter top, island work area, breakfast bar.	Over 25 LF of good custom base and wall cabinets, synthetic stone counter top, desk and breakfast bar.	Over 20 LF of good stock wall and base cabinets, tile or acrylic counter top, desk and breakfast bar or nook.	Over 15 LF of stock standard grade wall and base cabinets, low-cost tile or acrylic counter top, breakfast nook.	Over 10 LF of stock standard grade wall and base cabinets, low-cost acrylic or laminated plastic counter top.	Less than 10 LF of low-cost wall and base cabinets, laminated plastic counter top, space for table.
<b>Plumbing</b> (12% of total cost)	4 deluxe fixtures per bathroom, more bathrooms than bedrooms.	4 good fixtures per bathroom, more bathrooms than bedrooms.	3 good fixtures per bathroom, as many bathrooms as bedrooms.	3 standard fixtures per bathroom, less bathrooms than bedrooms.	3 standard fixtures per bathroom, less bathrooms than bedrooms.	3 minimum fixtures per bathroom, 2 bathrooms.
<b>Special Features</b> (3% of total cost)	10 luxury built-in appliances, wet bar, home theater, pantry, wine cellar.	8 good built-in appliances, wet bar, walk-in pantry, central vacuum.	6 good built-in appliances, walk-in pantry, wet bar, central vacuum.	5 standard built-in appliances, sliding glass or French doors, laundry room.	4 standard grade kitchen appliances.	4 minimum grade kitchen appliances.
<b>Electrical System</b> (10% of total cost)	Over 100 recessed or track lights, security system, computer network.	80 to 100 recessed lighting fixtures, security system, computer network.	Ample recessed lighting on dimmers, computer network, multiple TV outlets.	Limited recessed lighting on dimmers, multiple TV outlets.	12 lighting fixtures, switch-operated duplex plug outlets in bedrooms.	10 or less lighting fixtures, switch-operated plug outlets in most rooms.
<b>If Exterior Walls are Masonry</b>	Reinforced split face concrete block or brick with face brick veneer.	Reinforced block or brick with masonry veneer or stucco coat.	Textured or coated concrete block or good quality detailed brick.	Colored or coated concrete block or good quality brick.	Colored concrete block or painted common brick.	Painted concrete block or common brick.

**Note:** Use the percent of total cost to help identify the correct quality classification.

# Single Family Residences

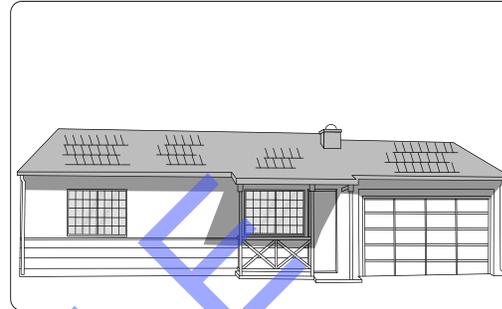
## 4 Corners (Classes 3, 4, 5 and 6) or One Building Mass (Classes 1 and 2 Only)

### Estimating Procedure

1. Establish the structure quality class by applying the information on page 11.
2. Multiply the structure floor area (excluding the garage) by the appropriate square foot cost below.
3. Multiply the total from step 2 by the correct location factor listed on page 7 or 8.
4. Add, when appropriate, the cost of a porch, garage, heating and cooling equipment, basement, fireplace, carport, appliances and plumbing fixtures beyond that listed in the quality classification. See the cost of these items on pages 27 to 31.



Single Family Residence, Class 4



Single Family Residence, Class 6

### Square Foot Area

Quality Class	700	800	900	1,000	1,100	1,200	1,300	1,400	1,500	1,600	1,700	1,800	2,000
1, Luxury	503.23	482.17	464.77	449.74	438.04	427.59	418.34	410.01	403.80	397.69	392.12	387.40	378.58
1, & 2	437.60	419.28	404.15	391.08	380.92	371.76	363.79	356.53	351.13	345.84	340.91	336.81	329.18
2, Semi-Luxury	305.83	293.04	282.46	273.32	266.22	259.88	254.27	249.22	245.41	241.58	238.30	235.46	230.02
2 & 3	224.49	215.13	207.34	200.68	195.45	190.76	186.63	182.92	180.11	177.39	174.87	172.85	168.88
3, Best Std.	195.89	187.75	180.92	175.13	170.48	166.45	162.87	159.65	157.19	154.82	152.65	150.79	147.36
3 & 4	167.53	160.43	154.67	149.75	145.76	142.30	139.26	136.44	134.40	132.24	130.52	128.91	126.03
4, Good Std.	144.35	138.19	133.28	128.99	125.64	122.65	119.95	117.55	115.72	114.00	112.42	110.95	108.56
4 & 5	130.01	124.54	120.11	116.20	113.15	110.40	108.00	105.95	104.28	102.68	101.28	100.07	97.72
5 Avg. Std.	117.01	112.17	108.11	104.65	101.96	99.49	97.32	95.32	93.87	92.45	91.16	90.09	88.02
5 & 6	101.60	97.35	93.85	90.84	88.44	86.32	84.44	82.71	81.50	80.22	79.25	78.18	76.41
6, Min. Std.	92.37	88.48	85.29	82.55	80.40	78.46	76.78	75.23	74.08	72.92	71.99	71.05	69.42

### Square Foot Area

Quality Class	2,200	2,400	2,600	2,800	3,000	3,200	3,400	3,600	4,000	4,200	4,400	4,600	5,000+
1, Luxury	371.98	365.75	360.72	356.22	353.05	350.09	346.88	344.55	339.70	336.62	333.93	331.61	328.28
1, & 2	323.55	318.05	313.66	309.76	306.98	304.43	301.64	299.60	295.41	292.71	290.38	288.35	285.47
2, Semi-Luxury	226.21	222.27	219.24	216.50	214.53	212.71	210.78	209.39	206.45	204.57	202.92	201.53	199.51
2 & 3	165.96	163.18	160.94	158.95	157.46	156.09	154.76	153.69	151.56	150.19	148.97	147.93	146.46
3, Best Std.	144.84	142.37	140.39	138.71	137.46	136.29	135.03	134.10	132.23	132.24	131.18	130.26	128.97
3 & 4	123.84	121.75	120.10	118.63	117.50	116.46	115.51	114.71	113.10	112.09	111.17	110.41	109.29
4, Good Std.	106.70	104.86	103.49	102.14	101.28	100.37	99.51	98.74	97.41	96.54	95.73	95.08	94.13
4 & 5	96.08	94.52	93.08	92.02	91.15	90.45	89.52	89.00	87.78	86.98	86.31	85.69	84.84
5 Avg. Std.	86.53	85.11	83.94	82.79	82.13	81.41	80.66	80.12	79.02	77.88	77.69	77.16	76.41
5 & 6	75.12	73.87	72.83	71.90	71.32	70.61	69.97	69.47	68.60	67.89	67.45	66.93	66.32
6, Min. Std.	68.19	67.11	66.21	65.43	64.81	64.22	63.66	63.19	62.34	61.70	61.30	60.84	60.26

**Note:** Tract work and highly repetitive jobs may reduce the cost 8 to 12%. Add 4% to the square foot cost of floors above the second floor level. Work outside metropolitan areas may cost 2 to 6% less. When the exterior walls are masonry, add 9 to 10% for class 2 and 1 structures and 5 to 8% for class 3, 4, 5 and 6 structures. The building area includes all full story (7'6" to 9' high) areas within and including the exterior walls of all floor areas of the building, including small inset areas such as entrances outside the exterior wall but under the main roof. For areas with a ceiling height of less than 80", see the section on half-story areas on page 30.

# Life in Years and Depreciation for Residences

Quality Class	1	2	3	4	5	6
Single family residences	70	70	70	60	60	55
Manufactured housing	45	40	40	30	30	
Multi-family residences	60	60	55	55	50	
Motels	60	55	55	50		
Conventional recreational dwellings	70	60	60	55	55	50
A-frame cabins	60	55	55	50		

This table shows typical physical lives in years in the absence of unusual physical, functional or economic obsolescence. Raise half classes to the next higher whole class.

## To Find the Present Value of an Existing Residence

Present value is the replacement cost less depreciation (inverse of the “% Good” column below). Multiply the appropriate figure in the “% good” column by the current replacement cost developed using this manual to find the present value. For newer residences, the chronological age (“Age” column) is usually the best indicator of percent good. The present value of older residences may be influenced more by physical, functional or economic obsolescence than by age. When physical, functional or economic conditions limit or extend the remaining useful life of a residence, estimate that life in years and use the “Rem. Life” column (rather than the “Age” column) to find the percent good.

	20 Years		25 Years		30 Years		40 Years		45 Years		50 Years		55 Years		60 Years		70 Years		
	Age	% Good																	
0	20	100	25	100	30	100	40	100	0	45	100	50	100	55	100	60	100	70	100
1	19	94	24	95	29	96	39	98	2	43	97	48	97	53	98	58	98	68	99
2	18	88	23	90	28	93	38	96	4	41	93	46	94	51	96	56	96	66	98
3	17	81	22	86	27	89	37	94	6	39	89	44	91	49	94	54	95	64	98
4	16	75	21	81	26	86	36	92	8	37	85	42	88	47	91	52	92	62	96
5	15	69	20	77	25	82	35	90	10	35	81	39	85	45	88	50	90	60	94
6	14	63	19	72	24	79	34	87	12	33	77	38	82	43	85	48	87	58	92
7	13	59	18	68	23	75	33	84	14	32	73	36	78	41	82	46	85	56	91
8	12	57	17	63	22	71	32	82	16	30	69	35	74	40	79	45	83	54	89
9	11	55	16	60	21	67	31	80	18	28	65	33	70	38	76	43	80	52	87
10	11	53	16	58	20	64	30	77	20	26	60	31	67	36	73	41	77	50	84
11	10	50	15	56	19	60	29	74	22	24	58	29	63	34	70	39	74	48	82
12	9	48	14	54	19	59	28	72	24	23	56	28	60	32	67	37	71	46	80
13	8	46	13	53	18	57	27	70	26	22	54	26	58	31	64	35	68	44	77
14	7	44	12	51	17	56	27	67	28	20	52	24	56	29	61	34	65	42	74
15	7	42	11	49	16	54	26	65	30	18	50	23	54	27	58	32	63	40	73
16	6	40	11	48	15	53	25	62	32	17	48	21	53	26	56	30	61	38	71
17	5	38	10	46	14	52	24	60	34	15	47	20	51	24	55	29	60	36	70
18	5	36	9	44	13	50	23	59	36	14	45	18	49	23	53	27	58	34	68
19	4	33	8	43	13	49	22	58	38	12	43	17	47	21	51	26	56	32	66
20	4	31	7	41	12	47	21	58	40	11	41	16	45	20	50	24	55	30	65
21	3	29	7	39	11	46	21	55	42	10	39	14	44	19	48	23	53	28	63
22	3	27	6	37	11	44	20	54	44	9	37	13	42	17	46	21	51	26	61
23	3	25	6	35	10	43	19	53	46	8	35	12	40	16	45	20	50	25	60
24	3	23	5	34	9	42	18	52	48	7	33	11	38	15	43	19	48	23	58
25	2	21	5	32	9	40	17	51	50	6	31	10	37	14	41	18	46	21	56
26	2	19	4	30	8	39	17	50	52	5	29	9	35	12	40	16	45	19	55
27	2	16	4	29	7	37	16	49	54	5	28	8	33	11	38	15	43	18	53
28	2	14	4	27	7	36	15	48	56	4	26	7	31	10	36	14	41	16	51
29	2	12	3	25	6	34	14	47	58	4	24	6	30	9	35	13	40	15	50
30	1	10	3	24	6	33	14	46	60	3	22	5	28	8	33	12	38	14	47
31	–	–	3	22	5	31	13	45	62	3	20	4	26	7	31	11	36	12	45
32	–	–	3	20	5	30	12	44	64	3	17	4	24	6	30	10	35	11	44
33	–	–	2	18	5	29	12	43	66	2	16	3	22	5	28	9	33	10	42
34	–	–	2	17	4	27	11	42	68	2	14	3	21	5	27	8	32	9	41
35	–	–	2	15	4	26	11	41	70	2	12	3	19	4	25	7	30	9	38
36	–	–	2	13	4	24	10	40	72	1	10	2	17	4	23	6	28	8	36
38	–	–	1	10	3	21	9	38	74	–	–	2	15	4	21	5	26	7	34
40	–	–	–	–	2	19	7	35	76	–	–	2	14	3	19	5	24	7	32
42	–	–	–	–	2	16	6	33	80	–	–	1	10	2	17	4	22	7	28
46	–	–	–	–	1	10	5	29	82	–	–	–	–	2	15	3	18	6	25
50	–	–	–	–	–	–	4	25	84	–	–	–	–	1	13	2	16	5	22
55	–	–	–	–	–	–	3	20	96	–	–	–	–	–	11	1	10	3	14
60	–	–	–	–	–	–	2	14	98	–	–	–	–	–	10	–	–	2	13
64	–	–	–	–	–	–	1	10	100	–	–	–	–	–	–	–	–	1	11

## Elementary Schools – Masonry or Concrete

### Quality Classification

	<b>Class 1 Best Quality</b>	<b>Class 2 Good Quality</b>	<b>Class 3 Average Quality</b>	<b>Class 4 Low Quality</b>
<b>Foundation</b> (7% of total cost)	Reinforced concrete, depth to 8'	Reinforced concrete, depth 6' to 8'.	Reinforced concrete, depth 4' to 6'.	Reinforced concrete, depth 4' or less.
<b>Floor Structure</b> (4% of total cost)	Concrete on steel beams and deck.	Lightweight concrete on steel beams.	6" thickened edge concrete slab on 6" rock base.	4" reinforced slab on rock base.
<b>Exterior Walls</b> (14% of total cost)	Decorative brick veneer with concrete block backup. Ornate brick or stone trim.	Decorative or colored concrete block. Some brick or stone veneer.	Colored concrete block with some brick or wood trim.	Painted tilt-up concrete wall panels. Few decorative details.
<b>Roof Structure &amp; Cover</b> (29% of total cost)	Glu-lams or steel trusses on steel intermediate columns. Panelized roof system with elastomeric concrete tile or metal roof cover. Engineered for earthquake or high wind zones.	Glu-lams or steel beams on steel intermediate columns. Panelized roof system with 5-ply, built-up or concrete tile roof cover. Good insulation.	Wood or metal trusses on intermediate columns. Panelized roof system with built-up or good composition shingle roofing. Insulated.	Beams or trusses on steel supports. OSB sheathing. Built-up or low cost membrane roofing. Foil insulation. Not designed for high wind or seismic zones.
<b>Floor Finish</b> (5% of total cost)	Hardwood with good sheet vinyl or carpet in offices. Ceramic tile in restrooms.	Hardwood or sheet vinyl in classrooms. Carpet in offices.	Standard grade sheet vinyl or good composition tile in most areas.	Minimum grade tile.
<b>Windows &amp; Doors</b> (4% of total cost)	Large vinyl-clad or metal insulated low-E windows. Metal doors with glass panels. Institutional grade hardware. LEED certified.	Vinyl-clad insulated windows. Metal exterior doors with glass panels. Solid core interior doors. Commercial grade hardware.	Standard grade insulated windows. Metal exterior doors. Wood interior doors. Standard grade hardware.	Few standard grade metal windows. Low cost metal exterior doors. Low grade hardware.
<b>Interior Wall Finish</b> (13% of total cost)	Gypsum wallboard or lath and plaster finished with good paper or vinyl. Good metal or hardwood veneer wainscot and trim.	Textured gypsum wallboard covered with vinyl or good wallpaper. Good hardwood-veneer wainscot and wood trim in high traffic areas.	Textured and painted interior stucco or gypsum wallboard. Wood trim in high traffic areas.	Painted gypsum wallboard.
<b>Ceiling Finish</b> (2% of total cost)	Suspended good grade acoustical tile with gypsum wallboard backing.	Suspended acoustical tile with concealed grid system.	Suspended acoustical tile with exposed grid system.	Painted gypsum wallboard with acoustic texture.
<b>Specialties</b> (5% of total cost)	Central station alarm. Large chalkboards, cabinets, shelves and cases. Network connection.	Fire alarm and bell system. Network connection. Good chalkboards, map rail & shelving.	Fire alarm, bell and network connections. Some cabinets and shelves.	Minimum alarm system. Few cabinets and shelves.
<b>Plumbing</b> (7% of total cost)	6 good commercial fixtures per classroom. Copper supply & drain pipe. Metal toilet partitions.	5 standard fixtures per classroom. Copper supply & drain pipe. Metal toilet partitions.	4 standard fixtures per classroom. Plastic supply and drain pipe. Composition toilet partitions.	3 minimum fixtures per classroom. Plastic supply and drain pipe. Wood toilet partitions.
<b>Lighting and Power</b> (10% of total cost)	Recessed fluorescent lighting in modular plastic panels. Many task lights or indirect lighting fixtures.	Continuous recessed 4 tube fluorescent strips with egg crate diffusers, 8' O.C. Some task lighting or indirect light fixtures.	Continuous 4 tube fluorescent strips with egg crate diffusers, 8' O.C. Some ceiling downlights.	Continuous exposed 2 tube fluorescent strips, 8' O.C.

**Note:** Use the percent of total cost to help identify the correct quality classification.

**Square foot costs include the following components:** Foundations as required for normal soil conditions. Floor, wall and roof structures. Interior ceiling, wall and floor finishes (including carpet). Exterior wall finish and roof cover. Interior partitions. Basic lighting and electrical systems. Rough and finish plumbing. Design and engineering fees. Typical permit and hook-up fees. Contractor's mark-up.

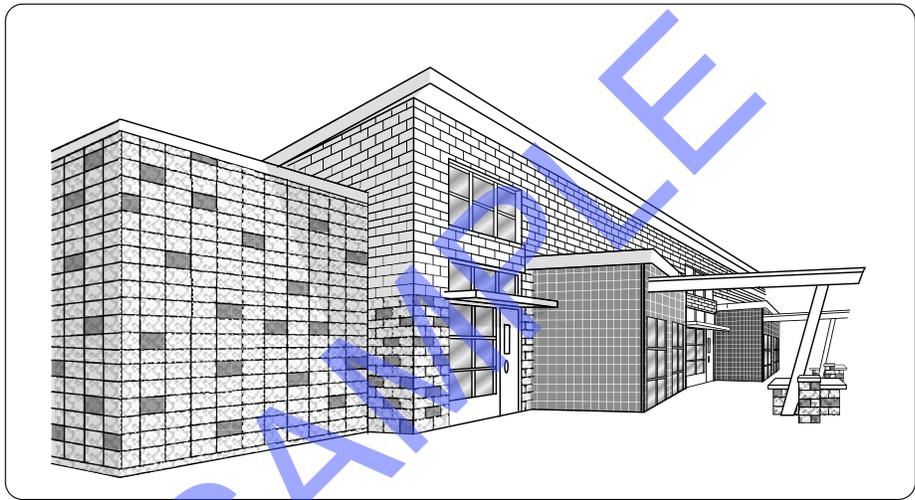
**Add the cost of:** Canopies and canopy lighting. Public address, intercom and security systems. Docks and ramps. Elevators. Draperies. Fire extinguishers and fire sprinklers. Heating and cooling systems. Exterior signs. Walks, paving and curbing. Yard improvements. See the section "Additional Costs for Commercial, Industrial and Public Structures" beginning on page 236.

# Elementary Schools – Masonry or Concrete

## First Floor

### Estimating Procedure

1. Use the tables in this section to estimate the cost of elementary schools (K-6) which are primarily classrooms and lack the extra office space, assembly, library, food service and recreational facilities common in secondary schools.
2. Establish the structure quality class by applying the information on page 44.
3. Calculate the area of the first floor. This should include all area within the building exterior walls and all inset areas outside the main walls but under the main building roof.
4. Find in the table below the square foot cost for the appropriate quality class and the nearest building area.
5. Use figures in the Wall Height Adjustment row to adjust that square foot cost for wall heights more or less than 10 feet.
6. Multiply the adjusted square foot cost by the area of the first floor.
7. Multiply that total by the location factor on page 7 or 8.
8. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
9. Using figures on the next page, add the cost of any second or higher floors or a basement.



**Elementary School, Class 2 & 3**

### First Floor – Square Foot Area

Quality Class	5,000	6,000	7,500	10,000	12,500	15,000	17,500	20,000	25,000	30,000	40,000
1, Best	353.25	337.61	325.17	315.12	306.56	299.23	292.93	282.47	273.91	266.99	256.06
1 & 2	316.76	302.79	291.68	282.57	274.86	268.29	262.70	253.22	245.68	239.52	229.56
2, Good	285.09	272.58	262.62	254.44	247.43	241.56	236.44	228.04	221.19	215.48	206.78
2 & 3	246.40	235.56	226.82	219.69	213.84	208.74	204.32	196.98	191.14	186.26	178.65
3, Average	228.67	218.61	210.64	204.09	198.44	193.83	189.68	182.87	177.41	172.90	165.84
3 & 4	199.58	190.80	183.79	178.10	173.23	169.19	165.59	159.60	154.76	150.93	144.74
4, Low	170.30	162.74	156.78	151.97	147.84	144.28	141.21	136.16	132.02	128.77	123.42
Wall Height Adjustment*	1.92	1.48	1.34	1.29	1.21	1.18	1.07	1.06	1.03	1.03	1.03

**\*Wall Height Adjustment:** Add or subtract the amount listed in this row to or from the square foot of floor cost for each foot of wall height more or less than 10 feet.

# Elementary Schools – Masonry or Concrete

## Upper Floors and Basements

### Estimating Procedure

1. Establish the quality class for second and higher floors and the basement. The quality class will usually be the same as the first floor of the building. Square foot costs for unfinished basements will be nearly the same regardless of the structure quality class.
2. Calculate the area of any second or higher floor or a basement.
3. Find in the tables below the square foot cost for the appropriate quality class and the nearest area.
4. Use figures in the Wall Height Adjustment row to adjust the square foot cost for wall heights more or less than 10 feet.
5. Multiply the adjusted square foot cost by the area.
6. Multiply that total by the location factor on page 7 or 8.
7. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
8. Add totals from this page to the cost for the first floor to find the total building cost.

### Second and Higher Floors – Square Foot Area

Quality Class	5,000	6,000	7,500	10,000	12,500	15,000	17,500	20,000	25,000	30,000	40,000
1, Best	324.96	310.58	299.16	289.91	282.03	275.30	269.48	259.89	252.00	245.64	235.59
1 & 2	291.46	278.57	268.34	259.95	252.87	246.83	241.69	232.94	226.02	220.36	211.20
2, Good	262.28	250.76	241.59	234.07	227.64	222.24	217.55	209.79	203.47	198.26	190.23
2 & 3	234.63	224.29	215.99	209.21	203.63	198.75	194.54	187.54	182.01	177.36	170.11
3, Average	210.41	201.13	193.78	187.77	182.55	178.30	174.50	168.23	163.22	159.06	152.55
3 & 4	183.61	175.52	169.11	163.85	159.35	155.63	152.36	146.82	142.38	138.88	133.17
4, Low	156.67	149.71	144.24	139.81	136.01	132.73	129.91	125.24	121.46	118.43	113.56
Wall Height Adjustment*	1.80	1.35	1.24	1.19	1.12	1.07	1.00	.98	.96	.96	.96

**\*Wall Height Adjustment:** Add or subtract the amount listed in this row to or from the square foot of floor cost for each foot of wall height more or less than 10 feet.

### Finished Basement – Square Foot Area

Quality Class	5,000	6,000	7,500	10,000	12,500	15,000	17,500	20,000	25,000	30,000	40,000
1, Best	198.58	189.78	182.81	177.11	172.32	168.22	164.67	158.79	153.96	150.09	143.94
2, Good	160.26	153.22	147.63	143.01	139.08	135.80	132.91	128.19	124.32	121.13	116.25
3, Average	128.54	122.88	118.38	114.72	111.54	108.95	106.62	102.80	99.73	97.20	93.22
4, Low	95.72	91.48	88.12	85.43	83.11	81.11	79.38	76.57	74.24	72.36	69.38

### Unfinished Basements

Area	5,000	6,000	7,500	10,000	12,500	15,000	17,500	20,000	25,000	30,000	40,000
Cost	48.32	46.38	44.89	43.66	42.51	41.63	40.91	39.53	38.49	37.60	36.18

**Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of basement wall height more or less than 10 feet.

Area	5,000	6,000	7,500	10,000	12,500	15,000	17,500	20,000	25,000	30,000	40,000
Finished	1.14	1.04	1.02	1.00	.99	.96	.95	.88	.86	.86	.84
Unfinished	1.04	1.02	.99	.96	.95	.88	.88	.86	.84	.83	.80

## Elementary Schools – Wood or Steel Frame

### Quality Classification

	Class 1 Best Quality	Class 2 Good Quality	Class 3 Average Quality	Class 4 Low Quality
<b>Foundation</b> (7% of total cost)	Reinforced concrete, depth to 8'	Reinforced concrete, depth 6' to 8'.	Reinforced concrete, depth 4' to 6'.	Reinforced concrete, depth 4' or less.
<b>Floor Structure</b> (4% of total cost)	Concrete on steel beams and deck.	Sheathing on wood or steel floor trusses.	6" thickened edge concrete slab on 6" rock base.	4" reinforced slab on rock base.
<b>Exterior Walls</b> (14% of total cost)	Braced wood or steel studs. Decorative brick or stone veneer with ornate details.	Wood or steel studs. Good wood or composition siding. Some masonry veneer.	Wood studs. Stucco with integral color. Some brick trim.	Wood studs. Painted stucco or inexpensive wood panel siding.
<b>Roof Structure &amp; Cover</b> (29% of total cost)	Glu-lams or steel trusses on steel intermediate columns. Panelized roof system with elastomeric concrete tile or metal roof cover. Engineered for seismic or high wind zones.	Glu-lams or steel beams on steel intermediate columns. Panelized roof system with 5-ply, built-up or concrete tile roof cover. Good insulation.	Glu-lams on steel intermediate columns. Panelized roof system with built-up or good composition shingle roofing. Insulated. Adequate Insulation.	Beams or trusses on steel supports. OSB sheathing. Built-up or composition shingle roofing. Foil insulation. Not designed for high wind or seismic zones.
<b>Floor Finish</b> (5% of total cost)	Hardwood with good sheet vinyl or carpet in offices. Ceramic tile in restrooms.	Hardwood or sheet vinyl in classrooms. Carpet in offices.	Standard grade sheet vinyl or good composition tile in most areas.	Minimum grade tile.
<b>Windows &amp; Doors</b> (4% of total cost)	Large vinyl-clad or metal insulated low-E windows. Metal doors with glass panels. Institutional grade hardware. LEED certified.	Vinyl-clad insulated windows. Metal exterior doors with glass panels. Solid core interior doors. Commercial grade hardware.	Standard grade insulated windows. Metal exterior doors. Wood interior doors. Standard grade hardware.	Few standard grade metal windows. Low cost metal exterior doors. Low grade hardware.
<b>Interior Wall Finish</b> (13% of total cost)	Gypsum wallboard or lath and plaster finished with good paper or vinyl. Good metal or hardwood veneer wainscot and trim.	Textured gypsum wallboard covered with vinyl or good wallpaper. Good hardwood-veneer wainscot and wood trim in high traffic areas.	Textured and painted interior stucco or gypsum wallboard. Wood trim in high traffic areas.	Painted gypsum wallboard.
<b>Ceiling Finish</b> (2% of total cost)	Suspended good grade acoustical tile with gypsum wallboard backing.	Suspended acoustical tile with concealed grid system.	Suspended acoustical tile with exposed grid system.	Painted gypsum wallboard with acoustic texture.
<b>Specialties</b> (5% of total cost)	Central station alarm. Large chalkboards, cabinets, shelves and cases. Network connection.	Fire alarm and bell system. Network connection. Good chalkboards, map rail & shelving.	Fire alarm, bell and network connections. Some cabinets and shelves.	Minimum alarm system. Few cabinets and shelves.
<b>Plumbing</b> (7% of total cost)	6 good commercial fixtures per classroom. Copper supply & drain pipe. Metal toilet partitions.	5 standard fixtures per classroom. Copper supply & drain pipe. Metal toilet partitions.	4 standard fixtures per classroom. Plastic supply and drain pipe. Composition toilet partitions.	3 minimum fixtures per classroom. Plastic supply and drain pipe. Wood toilet partitions.
<b>Lighting and Power</b> (10% of total cost)	Recessed fluorescent lighting in modular plastic panels. Many task lights or indirect lighting fixtures.	Continuous recessed 4 tube fluorescent strips with egg crate diffusers, 8' O.C. Some task lighting or indirect light fixtures.	Continuous 4 tube fluorescent strips with egg crate diffusers, 8' O.C. Some ceiling downlights.	Continuous exposed 2 tube fluorescent strips, 8' O.C.

**Note:** Use the percent of total cost to help identify the correct quality classification.

**Square foot costs include the following components:** Foundations as required for normal soil conditions. Floor, wall and roof structures. Interior ceiling, wall and floor finishes (including carpet). Exterior wall finish and roof cover. Interior partitions. Basic lighting and electrical systems. Rough and finish plumbing. Design and engineering fees. Typical permit and hook-up fees. Contractor's mark-up.

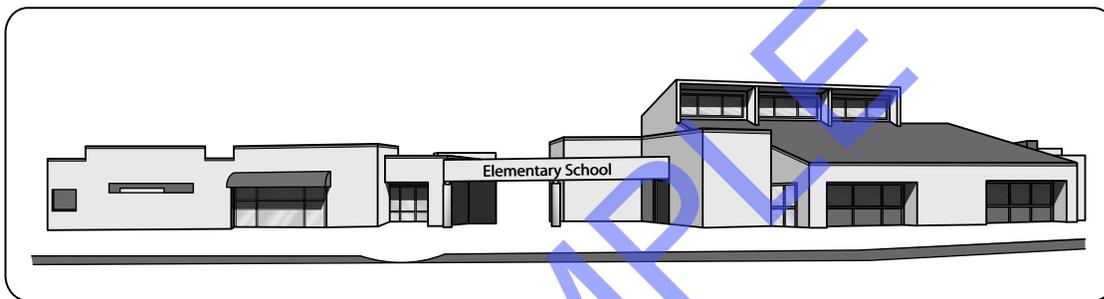
**Add the cost of:** Canopies and canopy lighting. Public address, intercom and security systems. Docks and ramps. Elevators. Draperies. Fire extinguishers and fire sprinklers. Heating and cooling systems. Exterior signs. Walks, paving and curbing. Yard improvements. See the section "Additional Costs for Commercial, Industrial and Public Structures" beginning on page 236.

# Elementary Schools – Wood or Steel Frame

## First Floor

### Estimating Procedure

1. Use the tables in this section to estimate the cost of elementary schools (K-6) which are primarily classrooms and lack the extra office space, assembly, library, food service and recreational facilities common in secondary schools.
2. Establish the structure quality class by applying the information on page 47.
3. Calculate the area of the first floor. This should include all area within the building exterior walls and all inset areas outside the main walls but under the main building roof.
4. Find in the table below the square foot cost for the appropriate quality class and the nearest building area.
5. Use figures in the Wall Height Adjustment row to adjust that square foot cost for wall heights more or less than 10 feet.
6. Multiply the adjusted square foot cost by the area of the first floor.
7. Multiply that total by the location factor on page 7 or 8.
8. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
9. Using figures on the next page, add the cost of any second or higher floors or a basement.



**Elementary School, Class 3**

### Square Foot Area

Quality Class	5,000	6,000	7,500	10,000	12,500	15,000	17,500	20,000	25,000	30,000	40,000
1, Best	309.34	295.67	284.79	275.97	268.47	262.06	256.54	247.39	239.88	233.81	224.24
1 & 2	277.43	265.17	255.45	247.47	240.72	234.97	230.08	221.76	215.16	209.75	201.07
2, Good	249.68	238.71	230.00	222.82	216.71	211.55	207.09	199.71	193.71	188.72	181.09
2 & 3	223.33	213.52	205.60	199.12	193.83	189.21	185.20	178.53	173.25	168.83	161.92
3, Average	200.28	191.44	184.45	178.73	173.78	169.74	166.11	160.12	155.36	151.40	145.21
3 & 4	149.14	142.54	137.31	133.10	129.46	126.36	123.65	119.24	115.64	112.76	108.10
4, Low	174.80	167.10	160.97	155.97	151.69	148.16	145.01	139.77	135.54	132.19	126.74
Wall Height Adjustment*	1.69	1.30	1.18	1.12	1.06	1.01	.94	.92	.90	.90	.90

**\*Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of wall height more or less than 10 feet.

# Elementary Schools – Wood or Steel Frame

## Upper Floor and Basement

### Estimating Procedure

1. Establish the quality class for second floor and the basement. The quality class will usually be the same as the first floor of the building. Square foot costs for unfinished basements will be nearly the same regardless of the structure quality class.
2. Calculate the area of any second floor or basement.
3. Find in the tables below the square foot cost for the appropriate quality class and the nearest area.
4. Use figures in the Wall Height Adjustment row to adjust the square foot cost for wall heights more or less than 10 feet.
5. Multiply the adjusted square foot cost by the area.
6. Multiply that total by the location factor on page 7 or 8.
7. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
8. Add totals from this page to the cost for the first floor to find the total building cost.

### Second Floor – Square Foot Area

Quality Class	5,000	6,000	7,500	10,000	12,500	15,000	17,500	20,000	25,000	30,000	40,000
1, Best	262.48	250.87	241.63	234.16	227.80	222.37	217.68	209.89	203.54	198.41	190.27
1 & 2	235.38	224.98	216.76	209.97	204.26	199.38	195.23	188.14	182.55	177.99	170.61
2, Good	211.85	202.55	195.15	189.05	183.85	179.52	175.70	169.44	164.35	160.11	153.65
2 & 3	189.51	181.18	174.44	168.96	164.45	160.56	157.15	151.48	147.00	143.24	137.40
3, Average	169.93	162.45	156.50	151.64	147.46	144.01	140.94	135.89	131.84	128.47	123.22
3 & 4	148.30	141.78	136.58	132.34	128.72	125.72	123.02	118.58	115.01	112.16	107.54
4, Low	126.54	120.95	116.49	112.92	109.84	107.21	104.93	101.17	98.10	95.66	91.71
Wall height Adjustment*	1.44	1.11	.99	.95	.89	.88	.81	.79	.78	.78	.78

**\*Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of second and higher floor wall height more or less than 10 feet.

### Finished Basements – Square Foot Area

Quality Class	5,000	6,000	7,500	10,000	12,500	15,000	17,500	20,000	25,000	30,000	40,000
1, Best	197.63	188.88	181.93	176.28	171.49	167.40	163.90	158.03	153.23	149.35	143.25
2, Good	159.50	152.49	146.91	142.32	138.42	135.14	132.29	127.58	123.72	120.56	115.70
3, Average	127.93	122.31	117.82	114.17	111.02	108.42	106.12	102.30	99.25	96.71	92.77
4, Low	95.27	91.05	87.71	85.02	82.70	80.72	79.00	76.18	73.87	72.01	69.06

### Unfinished Basements

Area	5,000	6,000	7,500	10,000	12,500	15,000	17,500	20,000	25,000	30,000	40,000
Cost	48.07	46.18	44.67	43.43	42.31	41.44	40.71	39.36	38.31	37.41	36.01

**Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of basement wall height more or less than 10 feet.

Area	5,000	6,000	7,500	10,000	12,500	15,000	17,500	20,000	25,000	30,000	40,000
Finished	1.14	1.02	1.00	.98	.97	.94	.92	.89	.87	.87	.85
Unfinished	1.02	1.00	.97	.94	.92	.89	.89	.87	.85	.83	.79

**Temporary “bungalow” classrooms:** One or two-story 24' x 40' prefabricated classrooms, including foundation and utility hookup will cost about \$90,000 per classroom for units with standard grade lighting, doors, windows, exterior finish and electric space heating. Prefabricated 24' x 40' classrooms with better grade lighting, doors, windows, exterior finish and packaged A/C will cost about \$130,000 each.

## Secondary Schools – Masonry or Concrete

### Quality Classification

	Class 1 Best Quality	Class 2 Good Quality	Class 3 Average Quality	Class 4 Low Quality
<b>Foundation</b> (7% of total cost)	Reinforced concrete, depth to 8'	Reinforced concrete, depth 6' to 8'.	Reinforced concrete, depth 4' to 6'.	Reinforced concrete, depth 4' or less.
<b>Floor Structure</b> (4% of total cost)	Concrete on steel beams and deck.	Lightweight concrete on steel beams.	6" thickened edge concrete slab on 6" rock base.	4" reinforced slab on rock base.
<b>Exterior Walls</b> (14% of total cost)	Decorative brick veneer with concrete block backup. Ornate brick or stone trim.	Decorative or colored concrete block. Some brick or stone veneer.	Colored concrete block with some brick or wood trim.	Painted tilt-up concrete wall panels. Few decorative details.
<b>Roof Structure &amp; Cover</b> (29% of total cost)	Glu-lams or steel trusses on steel intermediate columns. Panelized roof system with elastomeric, concrete tile or metal roof cover. Engineered for earthquake or high wind zones.	Glu-lams or steel beams on steel intermediate columns. Panelized roof system with 5-ply, built-up or concrete tile roof cover. Good insulation.	Wood or metal trusses on intermediate columns. Panelized roof system with built-up or good composition shingle roofing. Insulated.	Beams or trusses on steel supports. OSB sheathing. Built-up or low cost membrane roofing. Foil insulation. Not designed for high wind or seismic zones.
<b>Floor Finish</b> (5% of total cost)	Hardwood with good sheet vinyl or carpet in offices. Ceramic tile in restrooms.	Hardwood or sheet vinyl in classrooms. Carpet in offices.	Standard grade sheet vinyl or good composition tile in most areas.	Minimum grade tile.
<b>Windows &amp; Doors</b> (4% of total cost)	Large vinyl-clad or metal insulated low-E windows. Metal doors with glass panels. Institutional grade hardware.	Vinyl-clad insulated windows. Metal exterior doors with glass panels. Solid core interior doors. Commercial grade hardware.	Standard grade insulated windows. Metal exterior doors. Wood interior doors. Standard grade hardware.	Few standard grade metal windows. Low cost metal exterior doors. Low grade hardware.
<b>Interior Wall Finish</b> (13% of total cost)	Gypsum wallboard or lath and plaster finished with good paper or vinyl. Good metal or hardwood veneer wainscot and trim.	Textured gypsum wallboard covered with vinyl or good wallpaper. Good hardwood-veneer wainscot and wood trim in high traffic areas.	Textured and painted interior stucco or gypsum wallboard. Wood trim in high traffic areas.	Painted gypsum wallboard.
<b>Ceiling Finish</b> (2% of total cost)	Suspended good grade acoustical tile with gypsum wallboard backing.	Suspended acoustical tile with concealed grid system.	Suspended acoustical tile with exposed grid system.	Painted gypsum wallboard with acoustic texture.
<b>Specialties</b> (5% of total cost)	Central station alarm. Large chalkboards, cabinets, shelves and cases. Network connection.	Fire alarm and bell system. Network connection. Good chalkboards, map rail & shelving.	Fire alarm, bell and network connections. Some cabinets and shelves.	Minimum alarm system. Few cabinets and shelves.
<b>Plumbing</b> (7% of total cost)	6 good commercial fixtures per classroom. Copper supply & drain pipe. Metal toilet partitions.	5 standard fixtures per classroom. Copper supply & drain pipe. Metal toilet partitions.	4 standard fixtures per classroom. Plastic supply and drain pipe. Composition toilet partitions.	3 minimum fixtures per classroom. Plastic supply and drain pipe. Wood toilet partitions.
<b>Lighting and Power</b> (10% of total cost)	Recessed fluorescent lighting in modular plastic panels. Many task lights or indirect lighting fixtures.	Continuous recessed 4 tube fluorescent strips with egg crate diffusers, 8' O.C. Some task lighting or indirect light fixtures.	Continuous 4 tube fluorescent strips with egg crate diffusers, 8' O.C. Some ceiling downlights.	Continuous exposed 2 tube fluorescent strips, 8' O.C.

**Note:** Use the percent of total cost to help identify the correct quality classification.

**Square foot costs include the following components:** Foundations as required for normal soil conditions. Floor, wall and roof structures. Interior ceiling, wall and floor finishes (including carpet). Exterior wall finish and roof cover. Interior partitions. Basic lighting and electrical systems. Rough and finish plumbing. Design and engineering fees. Typical permit and hook-up fees. Contractor's mark-up.

**Add the cost of:** Canopies and canopy lighting. Public address, intercom and security systems. Docks and ramps. Draperies. Fire extinguishers and fire sprinklers. Heating and cooling systems. Exterior signs. Walks, paving and curbing. Elevators. Kitchen equipment. Yard improvements. See the section "Additional Costs for Commercial, Industrial and Public Structures" beginning on page 236.

## Secondary Schools – Masonry or Concrete

### First Floor

#### Estimating Procedure

1. Use the tables in this section to estimate the cost of secondary schools and junior colleges which include classrooms, faculty and staff office space, assembly, library-media center, food service and recreational facilities.
2. Establish the structure quality class by applying the information on page 50.
3. Calculate the area of the first floor. This should include all area within the building exterior walls and all inset areas outside the main walls but under the main building roof.
4. Find in the table below the square foot cost for the appropriate quality class and the nearest building area.
5. Use figures in the Wall Height Adjustment row to adjust that square foot cost for wall heights more or less than 12 feet.
6. Multiply the adjusted square foot cost by the area of the first floor.
7. Multiply that total by the location factor on page 7 or 8.
8. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
9. Using figures on the next page, add the cost of any second or higher floors or a basement.



Secondary School, Class 2

#### First Floor – Square Foot Area

Quality Class	20,000	25,000	30,000	35,000	40,000	45,000	50,000	60,000	70,000	80,000	100,000
1, Best	344.75	329.48	317.38	307.53	299.20	292.05	285.89	275.70	267.34	260.58	249.92
1 & 2	309.17	295.51	284.70	275.79	268.26	261.86	256.40	247.14	239.77	233.77	224.07
2, Good	278.23	266.03	256.33	248.31	241.51	235.77	230.78	222.56	215.86	210.30	201.82
2 & 3	248.91	237.95	229.14	221.93	216.01	210.86	206.39	198.96	193.07	188.15	180.45
3, Average	223.20	213.35	205.56	199.17	193.66	189.15	185.12	178.48	173.13	168.72	161.84
3 & 4	194.76	186.23	179.39	173.83	169.09	165.10	161.60	155.75	151.03	147.30	141.27
4, Low	166.18	158.84	153.02	148.33	144.27	140.81	137.81	132.89	128.86	125.66	120.47
Wall Height Adjustment*	1.65	1.26	1.14	1.09	1.03	1.00	.93	.90	.88	.88	.88

**\*Wall Height Adjustment:** Add or subtract the amount listed in this row to or from the square foot of floor cost for each foot of wall height more or less than 12 feet.

## Secondary Schools – Masonry or Concrete

### Upper Floors and Basements

#### Estimating Procedure

1. Establish the quality class for second and higher floors and the basement. The quality class will usually be the same as the first floor of the building. Square foot costs for unfinished basements will be nearly the same regardless of the structure quality class.
2. Calculate the area of any second or higher floor or a basement.
3. Find in the tables below the square foot cost for the appropriate quality class and the nearest area.
4. Use figures in the Wall Height Adjustment row to adjust the square foot cost for wall heights more or less than 10 feet.
5. Multiply the adjusted square foot cost by the area.
6. Multiply that total by the location factor on page 7 or 8.
7. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
8. Add totals from this page to the cost for the first floor to find the total building cost.

#### Second and Higher Floors – Square Foot Area

Quality Class	20,000	25,000	30,000	35,000	40,000	45,000	50,000	60,000	70,000	80,000	100,000
1, Best	310.29	296.54	285.63	276.79	269.28	262.85	257.31	248.13	240.60	234.52	224.91
1 & 2	278.25	265.95	256.23	248.19	241.44	235.68	230.76	222.42	215.81	210.41	201.66
2, Good	250.40	239.42	230.67	223.49	217.35	212.18	207.69	200.29	194.27	189.28	181.62
2 & 3	224.01	214.16	206.22	199.74	194.40	189.78	185.75	179.06	173.76	169.33	162.42
3, Average	200.88	192.00	185.00	179.27	174.29	170.24	166.61	160.62	155.83	151.86	145.67
3 & 4	175.32	167.60	161.45	156.45	152.15	148.59	145.46	140.20	135.94	132.59	127.12
4, Low	149.58	142.95	137.72	133.50	129.85	126.74	124.03	119.61	115.98	113.10	108.43
Wall Height Adjustment*	1.72	1.30	1.19	1.12	1.06	1.03	.96	.93	.92	.92	.92

**\*Wall Height Adjustment:** Add or subtract the amount listed in this row to or from the square foot of floor cost for each foot of wall height more or less than 10 feet.

#### Finished Basement – Square Foot Area

Quality Class	20,000	25,000	30,000	35,000	40,000	45,000	50,000	60,000	70,000	80,000	100,000
1, Best	189.62	181.23	174.54	169.17	164.57	160.63	157.25	151.62	147.04	143.34	137.46
2, Good	153.04	146.31	140.98	136.58	132.83	129.66	126.92	122.41	118.71	115.67	111.00
3, Average	122.76	117.34	113.06	109.56	106.51	104.04	101.82	98.14	95.22	92.82	89.01
4, Low	91.40	87.37	84.16	81.57	79.36	77.45	75.81	73.08	70.88	69.11	66.26

#### Unfinished Basements

Area	20,000	25,000	30,000	35,000	40,000	45,000	50,000	60,000	70,000	80,000	100,000
Cost	39.60	38.04	36.80	35.78	34.84	34.11	33.54	32.40	31.57	30.82	29.67

**Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of basement wall height more or less than 10 feet.

Area	20,000	25,000	30,000	35,000	40,000	45,000	50,000	60,000	70,000	80,000	100,000
Finished	.98	.88	.86	.84	.83	.81	.80	.76	.74	.74	.72
Unfinished	.81	.79	.76	.74	.72	.69	.69	.67	.65	.64	.62

## Secondary Schools – Wood or Steel Frame

### Quality Classification

	<b>Class 1 Best Quality</b>	<b>Class 2 Good Quality</b>	<b>Class 3 Average Quality</b>	<b>Class 4 Low Quality</b>
<b>Foundation</b> (7% of total cost)	Reinforced concrete, depth to 8'	Reinforced concrete, depth 6' to 8'.	Reinforced concrete, depth 4' to 6'.	Reinforced concrete, depth 4' or less.
<b>Floor Structure</b> (4% of total cost)	Concrete on steel beams and deck.	Sheathing on wood or steel floor trusses.	6" thickened edge concrete slab on 6" rock base.	4" reinforced slab on rock base.
<b>Exterior Walls</b> (14% of total cost)	Braced wood or steel studs. Decorative brick or stone veneer with ornate details.	Wood or steel studs. Good wood or composition siding. Some masonry veneer.	Wood studs. Stucco with integral color. Some brick trim.	Wood studs. Painted stucco or inexpensive wood panel siding.
<b>Roof Structure &amp; Cover</b> (29% of total cost)	Glu-lams or steel trusses on steel intermediate columns. Panelized roof system with elastomeric, concrete tile or metal roof cover. Engineered for seismic or high wind zones.	Glu-lams or steel beams on steel intermediate columns. Panelized roof system with 5-ply, built-up or concrete tile roof cover. Good insulation.	Glu-lams on steel intermediate columns. Panelized roof system with built-up or good composition shingle roofing. Insulated. Adequate Insulation.	Beams or trusses on steel supports. OSB sheathing. Built-up or composition shingle roofing. Foil insulation. Not designed for high wind or seismic zones.
<b>Floor Finish</b> (5% of total cost)	Hardwood with good sheet vinyl or carpet in offices. Ceramic tile in restrooms.	Hardwood or sheet vinyl in classrooms. Carpet in offices.	Standard grade sheet vinyl or good composition tile in most areas.	Minimum grade tile.
<b>Windows &amp; Doors</b> (4% of total cost)	Large vinyl-clad or metal insulated low-E windows. Metal doors with glass panels. Institutional grade hardware. LEED certified.	Vinyl-clad insulated windows. Metal exterior doors with glass panels. Solid core interior doors. Commercial grade hardware.	Standard grade insulated windows. Metal exterior doors. Wood interior doors. Standard grade hardware.	Few standard grade metal windows. Low cost metal exterior doors. Low grade hardware.
<b>Interior Wall Finish</b> (13% of total cost)	Gypsum wallboard or lath and plaster finished with good paper or vinyl. Good metal or hardwood veneer wainscot and trim.	Textured gypsum wallboard covered with vinyl or good wallpaper. Good hardwood-veneer wainscot and wood trim in high traffic areas.	Textured and painted interior stucco or gypsum wallboard. Wood trim in high traffic areas.	Painted gypsum wallboard.
<b>Ceiling Finish</b> (2% of total cost)	Suspended good grade acoustical tile with gypsum wallboard backing.	Suspended acoustical tile with concealed grid system.	Suspended acoustical tile with exposed grid system.	Painted gypsum wallboard with acoustic texture.
<b>Specialties</b> (5% of total cost)	Central station alarm. Large chalkboards, cabinets, shelves and cases. Network connection.	Fire alarm and bell system. Network connection. Good chalkboards, map rail & shelving.	Fire alarm, bell and network connections. Some cabinets and shelves.	Minimum alarm system. Few cabinets and shelves.
<b>Plumbing</b> (7% of total cost)	6 good commercial fixtures per classroom. Copper supply & drain pipe. Metal toilet partitions.	5 standard fixtures per classroom. Copper supply & drain pipe. Metal toilet partitions.	4 standard fixtures per classroom. Plastic supply and drain pipe. Composition toilet partitions.	3 minimum fixtures per classroom. Plastic supply and drain pipe. Wood toilet partitions.
<b>Lighting and Power</b> (10% of total cost)	Recessed fluorescent lighting in modular plastic panels. Many task lights or indirect lighting fixtures.	Continuous recessed 4 tube fluorescent strips with egg crate diffusers, 8' O.C. Some task lighting or indirect light fixtures.	Continuous 4 tube fluorescent strips with egg crate diffusers, 8' O.C. Some ceiling downlights.	Continuous exposed 2 tube fluorescent strips, 8' O.C.

**Note:** Use the percent of total cost to help identify the correct quality classification.

**Square foot costs include the following components:** Foundations as required for normal soil conditions. Floor, wall and roof structures. Interior ceiling, wall and floor finishes (including carpet). Exterior wall finish and roof cover. Interior partitions. Basic lighting and electrical systems. Rough and finish plumbing. Design and engineering fees. Typical permit and hook-up fees. Contractor's mark-up.

**Add the cost of:** Canopies and canopy lighting. Public address, intercom and security systems. Docks and ramps. Elevators. Draperies. Fire extinguishers and fire sprinklers. Heating and cooling systems. Exterior signs. Walks, paving and curbing. Kitchen equipment. Yard improvements. See the section "Additional Costs for Commercial, Industrial and Public Structures" beginning on page 236.

## Secondary Schools – Wood or Steel Frame

### First Floor

#### Estimating Procedure

1. Use the tables in this section to estimate the cost of secondary schools and junior colleges which include classrooms, faculty and staff office space, assembly, library-media center, food service and recreational facilities.
2. Establish the structure quality class by applying the information on page 53.
3. Calculate the area of the first floor. This should include all area within the building exterior walls and all inset areas outside the main walls but under the main building roof.
4. Find in the table below the square foot cost for the appropriate quality class and the nearest building area.
5. Use figures in the Wall Height Adjustment row to adjust that square foot cost for wall heights more or less than 12 feet.
6. Multiply the adjusted square foot cost by the area of the first floor.
7. Multiply that total by the location factor on page 7 or 8.
8. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
9. Using figures on the next page, add the cost of any second or higher floors or a basement.



**Secondary School, Class 3**



**Secondary School, Class 2**

#### Square Foot Area

Quality Class	20,000	25,000	30,000	35,000	40,000	45,000	50,000	60,000	70,000	80,000	100,000
1, Best	301.92	288.54	277.94	269.31	262.02	255.76	250.37	241.45	234.11	228.21	218.87
1 & 2	270.74	258.80	249.32	241.52	234.94	229.32	224.54	216.41	209.97	204.72	196.23
2, Good	243.67	232.97	224.46	217.46	211.50	206.46	202.10	194.91	189.04	184.18	176.73
2 & 3	217.98	208.40	200.65	194.34	189.18	184.67	180.74	174.24	169.07	164.78	158.04
3, Average	195.48	186.85	180.02	174.43	169.61	165.65	162.14	156.28	151.62	147.76	141.75
3 & 4	170.59	163.08	157.10	152.23	148.06	144.60	141.52	136.40	132.29	129.01	123.70
4, Low	145.55	139.10	134.01	129.91	126.35	123.33	120.68	116.39	112.85	110.04	105.51
Wall Height Adjustment*	1.64	1.27	1.16	1.10	1.02	.99	.91	.90	.89	.89	.88

**\*Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of wall height more or less than 12 feet.

## Secondary Schools – Wood or Steel Frame

### Upper Floor and Basement

#### Estimating Procedure

1. Establish the quality class for second floor and the basement. The quality class will usually be the same as the first floor of the building. Square foot costs for unfinished basements will be nearly the same regardless of the structure quality class.
2. Calculate the area of any second floor or basement.
3. Find in the tables below the square foot cost for the appropriate quality class and the nearest area.
4. Use figures in the Wall Height Adjustment row to adjust the square foot cost for wall heights more or less than 10 feet.
5. Multiply the adjusted square foot cost by the area.
6. Multiply that total by the location factor on page 7 or 8.
7. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
8. Add totals from this page to the cost for the first floor to find the total building cost.

#### Second Floor – Square Foot Area

Quality Class	20,000	25,000	30,000	35,000	40,000	45,000	50,000	60,000	70,000	80,000	100,000
1, Best	250.39	239.31	230.51	223.38	217.29	212.11	207.64	200.24	194.16	189.26	181.51
1 & 2	224.54	214.62	206.78	200.30	194.85	190.19	186.21	179.51	174.14	169.79	162.75
2, Good	202.09	193.23	186.15	180.35	175.41	171.24	167.62	161.66	156.78	152.76	146.58
2 & 3	180.77	172.83	166.42	161.18	156.88	153.14	149.91	144.50	140.24	136.64	131.08
3, Average	162.11	154.96	149.29	144.67	140.66	137.39	134.45	129.62	125.77	122.54	117.56
3 & 4	141.47	135.28	130.27	126.26	122.79	119.92	117.38	113.11	109.70	107.02	102.60
4, Low	120.70	115.36	111.13	107.72	104.79	102.28	100.09	96.50	93.59	91.27	87.51
Wall height Adjustment*	1.39	1.03	.95	.90	.87	.83	.77	.76	.73	.73	.73

**\*Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of second and higher floor wall height more or less than 10 feet.

#### Finished Basements – Square Foot Area

Quality Class	20,000	25,000	30,000	35,000	40,000	45,000	50,000	60,000	70,000	80,000	100,000
1, Best	188.90	180.53	173.88	168.50	163.93	160.02	156.65	151.06	146.48	142.78	136.93
2, Good	152.44	145.76	140.44	136.04	132.32	129.16	126.43	121.94	118.26	115.24	110.57
3, Average	122.29	116.91	112.63	109.14	106.12	103.62	101.43	97.78	94.86	92.43	88.67
4, Low	91.07	87.01	83.83	81.27	79.05	77.14	75.50	72.80	70.61	68.85	66.00

#### Unfinished Basements

Area	20,000	25,000	30,000	35,000	40,000	45,000	50,000	60,000	70,000	80,000	100,000
Cost	39.40	37.85	36.62	35.61	34.67	33.96	33.36	32.25	31.41	30.68	29.51

**Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of basement wall height more or less than 10 feet.

Area	20,000	25,000	30,000	35,000	40,000	45,000	50,000	60,000	70,000	80,000	100,000
Finished	.89	.80	.78	.77	.76	.73	.72	.68	.66	.66	.65
Unfinished	.80	.78	.76	.73	.72	.68	.68	.66	.65	.64	.62

**Temporary “bungalow” classrooms:** One or two-story 24' x 40' prefabricated classrooms, including foundation and utility hookup will cost about \$90,000 per classroom for units with standard grade lighting, doors, windows, exterior finish and electric space heating. Prefabricated 24' x 40' classrooms with better grade lighting, doors, windows, exterior finish and packaged A/C will cost about \$130,000 each.

# Government Offices – Masonry or Concrete

## Quality Classification

	<b>Class 1 Best Quality</b>	<b>Class 2 Good Quality</b>	<b>Class 3 Average Quality</b>	<b>Class 4 Low Quality</b>
<b>Foundation</b> (7% of total cost)	Reinforced concrete, depth to 12'	Reinforced concrete, depth 8' to 10'.	Reinforced concrete, depth 6' to 8'.	Reinforced concrete, depth 6' or less.
<b>Floor Structure</b> (5% of total cost)	Concrete on steel beams and deck.	Lightweight concrete on steel beams.	6" thickened edge concrete slab on 6" rock base.	4" reinforced slab on rock base.
<b>Exterior Walls</b> (12% of total cost)	Marble or polished granite, spandrel glass. Metal trim. Decorative atrium entrance.	Glass curtain wall. Textured-block, good brick or stone veneer. Atrium entrance.	Colored concrete block with some brick or wood trim. Decorative entrance.	Tilt-up concrete, brick or concrete block. Few decorative details.
<b>Roof Structure &amp; Cover</b> (16% of total cost)	Glu-lams or steel trusses on steel intermediate columns. Panelized roof system with elastomeric concrete tile or metal roof cover. Engineered for earthquake or high wind zones.	Glu-lams or steel beams on steel intermediate columns. Panelized roof system with 5-ply, built-up or concrete tile roof cover. Good insulation.	Wood or metal trusses on intermediate columns. Panelized roof system with built-up or good composition shingle roofing. Insulated.	Beams or trusses on steel supports. OSB sheathing. Built-up or low cost membrane roofing. Foil insulation. Not designed for high wind or seismic zones.
<b>Floor Finish</b> (8% of total cost)	Marble or good terrazzo in public rooms. Carpeted offices. Ceramic tile in restrooms.	Terrazzo or marble tile in public rooms. Carpet in offices. Vinyl in restrooms.	Good sheet vinyl in meeting rooms. Carpet in offices. Composition tile in restrooms.	Low cost sheet vinyl in public rooms. Floor Tile elsewhere.
<b>Windows &amp; Doors</b> (6% of total cost)	Low-E glass in metal sash. Metal-frame laminated glass entrance doors. Metal interior doors. Institutional grade hardware. LEED certified.	Colored low-E glass. Decorative metal exterior doors. Solid core 8' high wood interior doors. Commercial grade hardware.	Insulated store front or glazed curtain wall. Metal exterior doors. Wood interior doors. Standard grade hardware.	Few standard grade metal windows. Low cost metal exterior doors. Low grade hardware.
<b>Interior Wall Finish</b> (14% of total cost)	Decorative plaster in public rooms. Plaster or vinyl covered wallboard in private offices. Decorative metal or hardwood veneer wainscot and trim.	Plaster or good paneling in public rooms. Vinyl-covered wallboard in hallways. Textured or vinyl-covered wallboard with good trim elsewhere.	Textured and painted interior stucco or gypsum wallboard. Wood trim in public meeting rooms.	Painted gypsum wallboard.
<b>Ceiling Finish</b> (6% of total cost)	Suspended decorative textured plaster in meeting rooms. Acoustic ceiling tile elsewhere.	Suspended acoustical tile in with concealed grid in meeting rooms. Acoustical tile elsewhere.	Suspended acoustical tile with exposed grid system.	Painted gypsum wallboard with acoustic texture.
<b>Specialties</b> (4% of total cost)	Security, alarm, PA and surveillance systems. Video and network connections.	Alarm and security systems. Network connections. Directory boards and built-in cabinetry.	Fire alarm, bell and network connections. Some cabinets and shelves.	Minimum alarm system. Few cabinets and shelves.
<b>Plumbing</b> (6% of total cost)	Institutional grade fixtures. Copper supply, vent & drain pipe. Metal or synthetic stone toilet partitions.	Good commercial grade fixtures. Copper supply & drain pipe drain pipe. Metal toilet partitions.	Standard grade fixtures. PEX or PVC supply, vent and drain pipe. Composition toilet partitions.	Minimum fixtures. Plastic supply, vent & drain pipe. Plastic-faced toilet partitions.
<b>Lighting and Power</b> (16% of total cost)	Decorative indirect fixtures in public rooms. Many recessed task lights on separate controls. Recessed fluorescent fixtures in offices and hallways.	Indirect lighting fixtures in public rooms. Track lighting or recessed fluorescent fixtures with some task lighting in offices and hallways.	Continuous 4 tube fluorescent strips with decorative diffusers, 8' O.C. Some recessed ceiling fixtures.	Continuous exposed 2 tube fluorescent strip, fixtures 8' O.C.

**Notes:** Use the percent of total cost to help identify the correct quality classification. State and federal office buildings are usually Class 1 or Class 2 and rarely Class 3 or Class 4. Municipal office buildings are usually Class 3 or Class 4 and rarely Class 1 or Class 2. The figures in this section apply to government offices designed for public assembly (with committee hearing rooms or council chambers). For government offices serving walk-in clientele (motor vehicle department offices, post offices) use figures from either the section Urban Stores or the section Suburban Stores. For government offices used primarily by administrative staff (police stations, hall of records), use figures from the section General Office Buildings.

**Square foot costs include the following components:** Foundations as required for normal soil conditions. Floor, wall and roof structures. Interior ceiling, wall and floor finishes (including carpet). Exterior wall finish and roof cover. Interior partitions. Basic lighting and electrical systems. Rough and finish plumbing. Specialties as listed. Design and engineering fees. Typical utility hook-up. Contractor's mark-up.

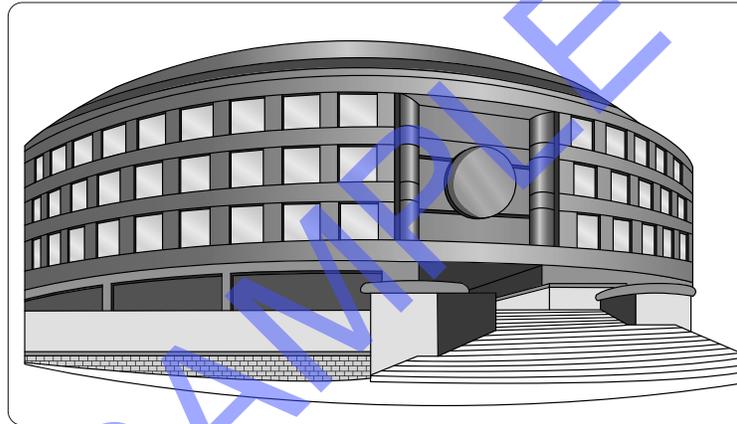
**Add the cost of:** Canopies and canopy lighting. Public address, intercom and security systems beyond what appears in the quality classification above. Docks and ramps. Elevators. Draperies. Fire extinguishers and fire sprinklers. Heating and cooling systems. Exterior signs. Walks, paving and curbing. Yard improvements. See the section "Additional Costs for Commercial, Industrial and Public Structures" beginning on page 236.

# Government Offices – Masonry or Concrete

## First Floor

### Estimating Procedure

1. Use the tables in this section to estimate the cost of buildings designed for occupancy by state, federal, or municipal agencies. Many government agencies occupy office space designed for use by commercial tenants rather than built for use by government officials. Use figures from the sections on Urban Stores, Suburban Stores or General Office Buildings when the structure was designed for commercial occupancy.
2. Establish the structure quality class by applying the information on page 56.
3. Calculate the area of the first floor. This should include all area within the building exterior walls and all inset areas outside the main walls but under the main building roof.
4. Find in the table below the square foot cost for the appropriate quality class and the nearest building area.
5. Use figures in the Wall Height Adjustment row to adjust that square foot cost for wall heights more or less than 12 feet.
6. Multiply the adjusted square foot cost by the area of the first floor.
7. Multiply that total by the location factor on page 7 or 8.
8. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
9. Using figures on the next page, add the cost of any second or higher floors or a basement.



**Government Office, Class 1**

### First Floor – Square Foot Area

Quality Class	5,000	7,500	10,000	12,500	15,000	20,000	25,000	30,000	35,000	40,000	50,000
1, Best	352.23	327.54	312.73	302.63	295.10	284.60	277.37	271.99	267.88	264.53	259.29
1 & 2	326.59	303.58	290.00	280.52	273.54	263.73	257.09	252.15	248.22	245.15	240.50
2, Good	302.37	281.17	268.52	259.83	253.37	244.41	238.11	233.55	230.01	227.14	222.73
2 & 3	282.12	262.28	250.53	242.42	236.29	227.97	222.15	217.79	214.45	211.83	207.69
3, Average	265.17	246.66	235.46	227.80	222.15	214.35	208.69	204.72	201.63	199.09	195.18
3 & 4	240.53	223.56	213.51	206.65	201.52	194.36	189.40	185.69	182.85	180.63	177.11
4, Low	214.77	199.67	190.66	184.53	179.91	173.48	169.03	165.83	163.30	161.23	158.06
Wall Height Adjustment*	4.01	3.18	2.81	2.56	2.37	1.93	1.73	1.55	1.51	1.45	1.22

**\*Wall Height Adjustment:** Add or subtract the amount listed in this row to or from the square foot of floor cost for each foot of wall height more or less than 10 feet.

# Government Offices – Masonry or Concrete

## Upper Floors and Basements

### Estimating Procedure

1. Establish the quality class for second and higher floors and the basement. The quality class will usually be the same as the first floor of the building. Square foot costs for unfinished basements will be nearly the same regardless of the structure quality class.
2. Calculate the area of any second or higher floor or a basement.
3. Find in the tables below the square foot cost for the appropriate quality class and the nearest area.
4. Use figures in the Wall Height Adjustment row to adjust the square foot cost for wall heights more or less than 10 feet.
5. Multiply the adjusted square foot cost by the area.
6. Multiply that total by the location factor on page 7 or 8.
7. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
8. Add totals from this page to the cost for the first floor to find the total building cost.

### Second and Higher Floors – Square Foot Area

Quality Class	5,000	7,500	10,000	12,500	15,000	20,000	25,000	30,000	35,000	40,000	50,000
1, Best	309.24	287.57	274.55	265.71	259.07	249.89	243.52	238.80	235.16	232.25	227.64
1 & 2	286.70	266.52	254.59	246.27	240.14	231.55	225.70	221.36	217.94	215.24	211.16
2, Good	265.47	246.86	235.74	228.12	222.43	214.59	209.03	205.04	201.92	199.41	195.55
2 & 3	247.70	230.28	219.94	212.86	207.47	200.13	195.05	191.21	188.29	185.98	182.34
3, Average	232.80	216.53	206.71	199.98	195.05	188.19	183.23	179.73	177.02	174.79	171.36
3 & 4	211.17	196.28	187.43	181.42	176.90	170.65	166.26	163.03	160.52	158.57	155.51
4, Low	188.54	175.31	167.37	162.00	157.96	152.32	148.39	145.57	143.38	141.54	138.77
Wall Height Adjustment*	3.52	2.81	2.46	2.27	2.08	1.72	1.50	1.35	1.31	1.27	1.07

**\*Wall Height Adjustment:** Add or subtract the amount listed in this row to or from the square foot of floor cost for each foot of wall height more or less than 10 feet.

### Finished Basement – Square Foot Area

Quality Class	5,000	7,500	10,000	12,500	15,000	20,000	25,000	30,000	35,000	40,000	50,000
1, Best	191.85	178.41	170.33	164.82	160.71	154.99	151.06	148.13	145.89	144.05	141.21
2, Good	164.68	153.13	146.21	141.50	137.97	133.11	129.66	127.21	125.25	123.69	121.32
3, Average	144.42	134.33	128.24	124.06	120.98	116.73	113.66	111.49	109.80	108.44	106.30
4, Low	116.96	108.74	103.81	100.49	98.00	94.47	92.07	90.30	88.92	87.81	86.09

### Unfinished Basements

Area	5,000	7,500	10,000	12,500	15,000	20,000	25,000	30,000	35,000	40,000	50,000
Cost	48.77	45.35	43.32	41.91	40.87	39.41	38.41	37.66	37.09	36.63	35.91

**Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of basement wall height more or less than 10 feet.

Area	5,000	7,500	10,000	12,500	15,000	20,000	25,000	30,000	35,000	40,000	50,000
Finished	1.05	.84	.75	.69	.63	.51	.45	.40	.39	.37	.32
Unfinished	.96	.76	.67	.62	.58	.45	.40	.36	.35	.34	.27

## Government Offices – Wood Frame

### Quality Classification

	<b>Class 1 Best Quality</b>	<b>Class 2 Good Quality</b>	<b>Class 3 Average Quality</b>	<b>Class 4 Low Quality</b>
<b>Foundation</b> (7% of total cost)	Reinforced concrete, depth to 8'	Reinforced concrete, depth 6' to 8'.	Reinforced concrete, depth 4' to 6'.	Reinforced concrete, depth 4' or less.
<b>Floor Structure</b> (5% of total cost)	Concrete on steel beams and deck.	Sheathing on wood or steel floor trusses.	6" thickened edge concrete slab on 6" rock base.	4" reinforced slab on rock base.
<b>Exterior Walls</b> (12% of total cost)	Braced wood or steel studs. Decorative brick or stone veneer with ornate details.	Wood or steel studs. Good wood or composition siding. Some masonry veneer.	Wood studs. Stucco with integral color. Some brick trim.	Wood studs. Painted stucco or inexpensive wood panel siding.
<b>Roof Structure &amp; Cover</b> (16% of total cost)	Glu-lams or steel trusses on steel intermediate columns. Panelized roof system with elastomeric concrete tile or metal roof cover. Engineered for earthquake or high wind zones.	Glu-lams or steel beams on steel intermediate columns. Panelized roof system with 5-ply, built-up or concrete tile roof cover. Good insulation.	Wood or metal trusses on intermediate columns. Panelized roof system with built-up or good composition shingle roofing. Insulated.	Beams or trusses on steel supports. OSB sheathing. Built-up or low cost membrane roofing. Foil insulation. Not designed for high wind or seismic zones.
<b>Floor Finish</b> (8% of total cost)	Marble or good terrazzo in public rooms. Carpeted offices. Ceramic tile in restrooms.	Terrazzo or marble tile in public rooms. Carpet in offices. Vinyl in restrooms.	Good sheet vinyl in meeting rooms. Carpet in offices. Composition tile in restrooms.	Low cost sheet vinyl in public rooms. Floor Tile elsewhere.
<b>Windows &amp; Doors</b> (6% of total cost)	Low-E glass in metal sash. Metal-frame laminated glass entrance doors. Metal interior doors. Institutional grade hardware. LEED certified.	Colored low-E glass. Decorative metal exterior doors. Solid core 8' high wood interior doors. Commercial grade hardware.	Insulated store front or glazed curtain wall. Metal exterior doors. Wood interior doors. Standard grade hardware.	Few standard grade metal windows. Low cost metal exterior doors. Low grade hardware.
<b>Interior Wall Finish</b> (14% of total cost)	Decorative plaster in public rooms. Plaster or vinyl covered wallboard in private offices. Decorative metal or hardwood veneer wainscot and trim.	Plaster or good paneling in public rooms. Vinyl-covered wallboard in hallways. Textured or vinyl-covered wallboard with good trim elsewhere.	Textured and painted interior stucco or gypsum wallboard. Wood trim in public meeting rooms.	Painted gypsum wallboard.
<b>Ceiling Finish</b> (6% of total cost)	Suspended decorative textured plaster in meeting rooms. Acoustic ceiling tile elsewhere.	Suspended acoustical tile in with concealed grid in meeting rooms. Acoustical tile elsewhere.	Suspended acoustical tile with exposed grid system.	Painted gypsum wallboard with acoustic texture.
<b>Specialties</b> (4% of total cost)	Security, alarm, PA and surveillance systems. Video and network connections.	Alarm and security systems. Network connections. Directory boards and built-in cabinetry.	Fire alarm, bell and network connections. Some cabinets and shelves.	Minimum alarm system. Few cabinets and shelves
<b>Plumbing</b> (6% of total cost)	Institutional grade fixtures. Copper supply, vent & drain pipe. Metal or synthetic stone toilet partitions.	Good commercial grade fixtures. Copper supply & drain pipe. Metal toilet partitions.	Standard grade fixtures. PEX or PVC supply, vent and drain pipe. Composition toilet partitions.	Minimum fixtures. Plastic supply, vent & drain pipe. Plastic-faced toilet partitions.
<b>Lighting and Power</b> (16% of total cost)	Decorative indirect fixtures in public rooms. Many recessed task lights on separate controls. Recessed fluorescent fixtures in offices and hallways.	Indirect lighting fixtures in public rooms. Track lighting or recessed fluorescent fixtures with some task lighting in offices and hallways.	Continuous 4 tube fluorescent strips with decorative diffusers, 8' O.C. Some recessed ceiling fixtures.	Continuous exposed 2 tube fluorescent strip, fixtures 8' O.C.

**Notes:** Use the percent of total cost to help identify the correct quality classification. State and federal office buildings are usually Class 1 or Class 2 and rarely Class 3 or Class 4. Municipal office buildings are usually Class 3 or Class 4 and rarely Class 1 or Class 2. The figures in this section apply to government offices designed for public assembly (with committee hearing rooms or council chambers). For government offices serving walk-in clientele (motor vehicle department offices, post offices) use figures from either the section Urban Stores or the section Suburban Stores. For government offices used primarily by administrative staff (police stations, hall of records), use figures from the section General Office Buildings.

**Square foot costs include the following components:** Foundations as required for normal soil conditions. Floor, wall and roof structures. Interior ceiling, wall and floor finishes (including carpet). Exterior wall finish and roof cover. Interior partitions. Basic lighting and electrical systems. Rough and finish plumbing. Specialties as listed. Design and engineering fees. Typical utility hook-up. Contractor's mark-up.

**Add the cost of:** Canopies and canopy lighting. Public address, intercom and security systems beyond what appears in the quality classification above. Docks and ramps. Elevators. Draperies. Fire extinguishers and fire sprinklers. Heating and cooling systems. Exterior signs. Walks, paving and curbing. Yard improvements. See the section "Additional Costs for Commercial, Industrial and Public Structures" beginning on page 236.

## Government Offices – Wood Frame

### First Floor

#### Estimating Procedure

1. Use the tables in this section to estimate the cost of buildings designed for occupancy by state, federal, or municipal agencies. Many government agencies occupy office space designed for use by commercial tenants rather than built for use by government officials. Use figures from the sections on Urban Stores, Suburban Stores or General Office Buildings when the structure was designed for commercial occupancy.
2. Establish the structure quality class by applying the information on page 59.
3. Calculate the area of the first floor. This should include all area within the building exterior walls and all inset areas outside the main walls but under the main building roof.
4. Find in the table below the square foot cost for the appropriate quality class and the nearest building area.
5. Use figures in the Wall Height Adjustment row to adjust that square foot cost for wall heights more or less than 10 feet.
6. Multiply the adjusted square foot cost by the area of the first floor.
7. Multiply that total by the location factor on page 7 or 8.
8. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
9. Using figures on the next page, add the cost of any second or higher floors or a basement.



**Government Office, Class 3**



**Government Office, Class 3 & 4**

#### Square Foot Area

Quality Class	5,000	7,500	10,000	12,500	15,000	20,000	25,000	30,000	35,000	40,000	50,000
1, Best	308.40	286.80	273.82	264.98	258.39	249.19	242.86	238.16	234.53	231.62	227.05
1 & 2	285.95	265.82	253.90	245.60	239.49	230.93	225.08	220.77	217.34	214.63	210.60
2, Good	264.76	246.19	235.08	227.50	221.83	214.01	208.48	204.49	201.37	198.87	195.02
2 & 3	247.02	229.66	219.36	212.27	206.90	199.61	194.52	190.71	187.78	185.46	181.85
3, Average	232.17	215.97	206.15	199.44	194.52	187.70	182.73	179.25	176.54	174.32	170.89
3 & 4	188.05	174.83	166.93	161.57	157.53	151.92	148.01	145.18	142.97	141.17	138.39
4, Low	210.62	195.73	186.92	180.94	176.43	170.18	165.83	162.58	160.09	158.16	155.10
Wall Height Adjustment*	3.51	2.78	2.45	2.24	2.08	1.68	1.50	1.38	1.32	1.28	1.07

**\*Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of wall height more or less than 10 feet.

# Government Offices – Wood Frame

## Upper Floor and Basement

### Estimating Procedure

1. Establish the quality class for second floor and the basement. The quality class will usually be the same as the first floor of the building. Square foot costs for unfinished basements will be nearly the same regardless of the structure quality class.
2. Calculate the area of any second floor or basement.
3. Find in the tables below the square foot cost for the appropriate quality class and the nearest area.
4. Use figures in the Wall Height Adjustment row to adjust the square foot cost for wall heights more or less than 10 feet.
5. Multiply the adjusted square foot cost by the area.
6. Multiply that total by the location factor on page 7 or 8.
7. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
8. Add totals from this page to the cost for the first floor to find the total building cost.

### Second Floor – Square Foot Area

Quality Class	5,000	7,500	10,000	12,500	15,000	20,000	25,000	30,000	35,000	40,000	50,000
1, Best	270.88	251.89	240.50	232.74	226.94	218.90	213.30	209.18	206.02	203.43	199.41
1 & 2	251.15	233.46	223.01	215.73	210.36	202.82	197.71	193.91	190.91	188.53	184.95
2, Good	232.55	216.24	206.49	199.84	194.85	187.97	183.13	179.61	176.89	174.68	171.30
2 & 3	216.96	201.71	192.65	186.44	181.73	175.32	170.85	167.51	164.91	162.93	159.74
3, Average	203.93	189.68	181.08	175.19	170.85	164.85	160.50	157.43	155.06	153.12	150.11
3 & 4	184.98	171.92	164.20	158.93	154.96	149.48	145.65	142.81	140.61	138.91	136.22
4, Low	165.17	153.56	146.61	141.91	138.36	133.41	129.99	127.53	125.58	123.98	121.55
Wall height Adjustment*	3.08	2.45	2.16	1.99	1.83	1.49	1.31	1.20	1.16	1.12	.94

**\*Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of second and higher floor wall height more or less than 10 feet.

### Finished Basement – Square Foot Area

Quality Class	5,000	7,500	10,000	12,500	15,000	20,000	25,000	30,000	35,000	40,000	50,000
1, Best	190.91	177.52	169.50	164.02	159.94	154.26	150.35	147.42	145.18	143.37	140.54
2, Good	163.90	152.41	145.53	140.82	137.31	132.45	129.05	126.58	124.66	123.09	120.71
3, Average	143.72	133.66	127.62	123.46	120.40	116.17	113.10	110.96	109.29	107.93	105.80
4, Low	116.41	108.22	103.32	100.00	97.52	94.04	91.62	89.88	88.50	87.37	85.68

### Unfinished Basements

Area	5,000	7,500	10,000	12,500	15,000	20,000	25,000	30,000	35,000	40,000	50,000
Cost	48.55	45.13	43.11	41.71	40.68	39.23	38.24	37.48	36.93	36.45	35.73

**Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of basement wall height more or less than 10 feet.

Area	5,000	7,500	10,000	12,500	15,000	20,000	25,000	30,000	35,000	40,000	50,000
Finished	1.03	.85	.74	.68	.63	.52	.45	.41	.39	.37	.31
Unfinished	.94	.76	.66	.62	.55	.45	.41	.35	.34	.33	.29

# Public Libraries – Masonry or Concrete

## Quality Classification

	<b>Class 1 Best Quality</b>	<b>Class 2 Good Quality</b>	<b>Class 3 Average Quality</b>	<b>Class 4 Low Quality</b>
<b>Foundation</b> (6% of total cost)	Reinforced concrete, depth to 12'.	Reinforced concrete, depth 8' to 10'.	Reinforced concrete, depth 6 to 8'.	Reinforced concrete, depth 6' or less.
<b>Floor Structure</b> (5% of total cost)	Concrete on steel beams and deck.	Lightweight concrete on steel beams.	6" thickened edge concrete slab on 6" rock base.	4" reinforced slab on rock base.
<b>Exterior Walls</b> (15% of total cost)	Marble or polished granite, spandrel glass. Metal trim. Decorative atrium entrance.	Glass curtain wall. Textured-block, good brick or stone veneer. Atrium entrance.	Colored concrete block with some brick or wood trim. Decorative entrance.	Tilt-up concrete, brick or concrete block. Few decorative details.
<b>Roof Structure &amp; Cover</b> (18% of total cost)	Glu-lams or steel trusses on steel intermediate columns. Panelized roof system with elastomeric concrete tile or metal roof cover. Engineered for earthquake or high wind zones.	Glu-lams or steel beams on steel intermediate columns. Panelized roof system with 5-ply, built-up or concrete tile roof cover. Good insulation.	Wood or metal trusses on intermediate columns. Panelized roof system with built-up or good composition shingle roofing. Insulated.	Beams or trusses on steel supports. OSB sheathing. Built-up or low cost membrane roofing. Foil insulation. Not designed for high wind or seismic zones.
<b>Floor Finish</b> (5% of total cost)	Marble or good terrazzo in public rooms. Carpeted offices. Ceramic tile in restrooms.	Terrazzo or marble tile in public rooms. Carpet in offices. Vinyl in restrooms.	Good sheet vinyl in meeting rooms. Carpet in offices. Composition tile in restrooms.	Low cost sheet vinyl in public rooms. Floor tile elsewhere.
<b>Windows &amp; Doors</b> (6% of total cost)	Low-E glass in metal sash. Metal-frame laminated glass entrance doors. Metal interior doors. Institutional grade hardware. LEED certified.	Colored low-E glass. Decorative metal exterior doors. Solid core 8' high wood interior doors. Commercial grade hardware.	Insulated store front or glazed curtain wall. Metal exterior doors. Wood interior doors. Standard grade hardware.	Few standard grade metal windows. Low cost metal exterior doors. Low grade hardware.
<b>Interior Wall Finish</b> (13% of total cost)	Decorative plaster in public rooms. Plaster- or vinyl-covered wallboard in collection area. Decorative metal or hardwood veneer wainscot and trim.	Plaster or good paneling in public rooms. Vinyl-covered wallboard in hallways. Textured or vinyl-covered wallboard with good trim elsewhere.	Textured and painted interior stucco or gypsum wallboard. Wood trim in public meeting rooms.	Painted gypsum wallboard.
<b>Ceiling Finish</b> (2% of total cost)	Suspended decorative textured plaster in meeting rooms. Acoustic ceiling tile elsewhere.	Suspended acoustical tile in with concealed grid in meeting rooms. Acoustical tile elsewhere.	Suspended acoustical tile with exposed grid system.	Painted gypsum wallboard with acoustic texture.
<b>Specialties</b> (13% of total cost)	Wired or wireless security and surveillance systems, video and network connections, large circulation desk area.	Surveillance and security system. Network connections throughout. Dedicated information and circulation stations.	Data network and AV connections throughout. Some cabinets and shelves.	Minimum alarm system. Few cabinets and shelves.
<b>Plumbing</b> (7% of total cost)	Institutional grade fixtures. Copper supply, vent & drain pipe. Metal or synthetic stone toilet partitions.	Good commercial grade fixtures. Copper supply & drain pipe. Metal toilet partitions.	Standard grade fixtures. PEX or PVC supply, vent and drain pipe. Composition toilet partitions.	Minimum fixtures. Plastic supply, vent & drain pipe. Plastic-faced toilet partitions.
<b>Lighting and Power</b> (10% of total cost)	Decorative indirect fixtures in public rooms. Many recessed task lights on separate controls. Recessed fluorescent fixtures in offices and hallways.	Indirect lighting fixtures in public rooms. Track lighting or recessed fluorescent fixtures with some task lighting in offices and hallways.	Continuous 4 tube fluorescent strips with decorative diffusers, 8' O.C. Some recessed ceiling fixtures.	Continuous exposed 2 tube fluorescent strip, fixtures 8' O.C.

**Notes:** Use the percent of total cost to help identify the correct quality classification. Includes space for the library collection, seating, public access computer stations, staff work area, meeting rooms, circulation and information desks.

**Square foot costs include the following components:** Foundations as required for normal soil conditions. Floor, wall and roof structures. Interior ceiling, wall and floor finishes (including carpet). Exterior wall finish and roof cover. Interior partitions. Basic lighting and electrical systems. Rough and finish plumbing. Specialties as listed. Design and engineering fees. Typical utility hook-up. Contractor's mark-up.

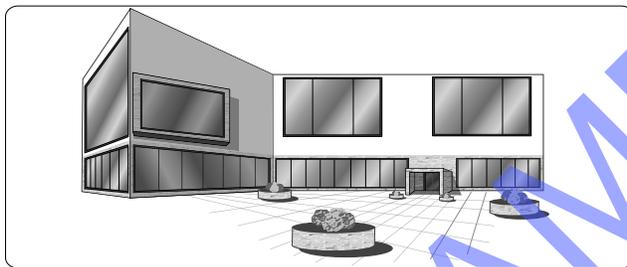
**Add the cost of:** Book and media shelving and storage. Canopies and canopy lighting. Desks, tables and study carrels. Installed AV equipment, computer network and computers. Intercom and security systems beyond what appears in the quality classification above. Docks and ramps. Elevators. Draperies. Fire extinguishers and fire sprinklers. Heating and cooling systems. Exterior signs. Walks, paving and curbing. Yard improvements. See the section "Additional Costs for Commercial, Industrial and Public Structures" beginning on page 236.

## Public Libraries – Masonry or Concrete

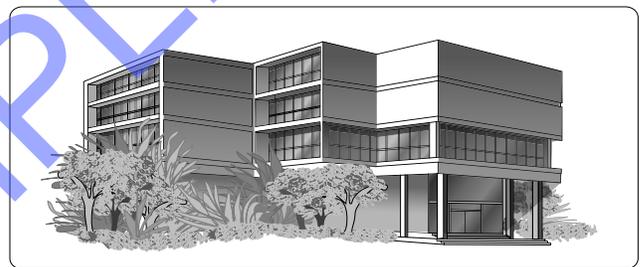
### First Floor

#### Estimating Procedure

1. Use the tables in this section to estimate the cost of buildings designed for use as a public, academic or school library. Many community libraries occupy space designed for use by commercial tenants rather than built for use as a public library. Use figures from the sections on Urban Stores, Suburban Stores or General Office Buildings when the structure was designed for commercial occupancy.
2. Establish the structure quality class by applying the information on page 62.
3. Calculate the area of the first floor. This should include all area within the building exterior walls and all inset areas outside the main walls but under the main building roof.
4. Find in the table below the square foot cost for the appropriate quality class and the nearest building area.
5. Use figures in the Wall Height Adjustment row to adjust that square foot cost for wall heights more or less than 14 feet.
6. Multiply the adjusted square foot cost by the area of the first floor.
7. Multiply that total by the location factor on page 7.
8. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
9. Using figures on the next page, add the cost of any second or higher floors or a basement.



**Public Library, Class 2**



**Public Library, Class 1**

#### First Floor – Square Foot Area

Quality Class	4,000	6,000	8,000	10,000	12,000	16,000	20,000	24,000	28,000	32,000	40,000
1, Best	357.96	342.10	329.51	319.28	310.63	303.24	296.82	286.26	277.54	270.52	259.48
1 & 2	320.99	306.83	295.58	286.34	278.54	271.87	266.21	256.57	248.96	242.72	232.64
2, Good	288.88	276.22	266.10	257.82	250.72	244.79	239.60	231.07	224.11	218.35	209.54
2 & 3	258.42	247.04	237.89	230.41	224.27	218.91	214.29	206.58	200.47	195.34	187.35
3, Average	231.74	221.51	213.41	206.80	201.09	196.41	192.20	185.30	179.77	175.20	168.03
3 & 4	202.24	193.34	186.25	180.46	175.52	171.42	167.78	161.70	156.81	152.96	146.65
4, Low	172.58	164.90	158.88	154.00	149.77	146.19	143.08	137.96	133.78	130.46	125.08
Wall Height Adjustment*	1.96	1.50	1.35	1.29	1.23	1.19	1.09	1.06	1.04	1.04	1.04

**\*Wall Height Adjustment:** Add or subtract the amount listed in this row to or from the square foot of floor cost for each foot of wall height more or less than 14 feet.

# Public Libraries – Masonry or Concrete

## Upper Floors and Basements

### Estimating Procedure

1. Establish the quality class for second and higher floors and the basement. The quality class will usually be the same as the first floor of the building. Square foot costs for unfinished basements will be nearly the same regardless of the structure quality class.
2. Calculate the area of any second or higher floor or a basement.
3. Find in the tables below the square foot cost for the appropriate quality class and the nearest area.
4. Use figures in the Wall Height Adjustment row to adjust the square foot cost for wall heights more or less than 10 feet.
5. Multiply the adjusted square foot cost by the area.
6. Multiply that total by the location factor on page 7.
7. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
8. Add totals from this page to the cost for the first floor to find the total building cost.

### Second and Higher Floors – Square Foot Area

Quality Class	4,000	6,000	8,000	10,000	12,000	16,000	20,000	24,000	28,000	32,000	40,000
1, Best	324.88	310.50	299.07	289.81	281.96	275.22	269.41	259.81	251.93	245.57	235.50
1 & 2	291.33	278.49	268.28	259.90	252.80	246.77	241.63	232.88	225.95	220.31	211.16
2, Good	262.20	250.69	241.53	234.00	227.59	222.18	217.47	209.72	203.42	198.19	190.16
2 & 3	234.55	224.24	215.91	209.14	203.56	198.71	194.48	187.50	181.97	177.31	170.05
3, Average	210.32	201.06	193.69	187.69	182.50	178.25	174.45	168.19	163.18	159.01	152.51
3 & 4	183.56	175.48	169.05	163.80	159.32	155.59	152.28	146.79	142.34	138.82	133.12
4, Low	156.62	149.67	144.19	139.77	135.96	132.70	129.87	125.22	121.43	118.40	113.53
Wall Height Adjustment*	1.77	1.35	1.24	1.18	1.11	1.06	.99	.98	.96	.96	.96

**\*Wall Height Adjustment:** Add or subtract the amount listed in this row to or from the square foot of floor cost for each foot of wall height more or less than 10 feet.

### Finished Basement – Square Foot Area

Quality Class	4,000	6,000	8,000	10,000	12,000	16,000	20,000	24,000	28,000	32,000	40,000
1, Best	194.87	186.23	179.38	173.83	169.11	165.06	161.58	155.81	151.10	147.26	141.27
2, Good	157.26	150.37	144.88	140.34	136.50	133.25	130.42	125.79	122.01	118.87	114.06
3, Average	126.14	120.58	116.18	112.59	109.46	106.90	104.62	100.87	97.86	95.38	91.47
4, Low	93.94	89.78	86.49	83.83	81.55	79.59	77.90	75.11	72.83	71.02	68.09

### Unfinished Basements

Area	4,000	6,000	8,000	10,000	12,000	16,000	20,000	24,000	28,000	32,000	40,000
Cost	48.09	45.96	44.26	42.90	41.73	40.73	39.88	38.43	37.28	36.34	34.85

**Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of basement wall height more or less than 10 feet.

Area	4,000	6,000	8,000	10,000	12,000	16,000	20,000	24,000	28,000	32,000	40,000
Finished	1.03	.80	.72	.69	.65	.63	.59	.58	.56	.56	.56
Unfinished	.93	.72	.65	.62	.61	.58	.51	.50	.49	.49	.49

## Public Libraries – Wood or Steel Frame

### Quality Classification

	Class 1 Best Quality	Class 2 Good Quality	Class 3 Average Quality	Class 4 Low Quality
<b>Foundation</b> (6% of total cost)	Reinforced concrete, depth to 8'.	Reinforced concrete, depth 6' to 8'.	Reinforced concrete, depth 4' to 6'.	Reinforced concrete, depth 4' or less.
<b>Floor Structure</b> (5% of total cost)	Concrete on steel beams and deck.	Sheathing on wood or steel floor trusses.	6" thickened edge concrete slab on 6" rock base.	4" reinforced slab on rock base.
<b>Exterior Walls</b> (15% of total cost)	Braced wood or steel studs. Decorative brick or stone veneer with ornate details.	Wood or steel studs. Good wood or composition siding. Some masonry veneer.	Wood studs. Stucco with integral color. Some brick trim.	Wood studs. Painted stucco or inexpensive wood panel siding.
<b>Roof Structure &amp; Cover</b> (18% of total cost)	Glu-lams or steel trusses on steel intermediate columns. Panelized roof system with elastomeric concrete tile or metal roof cover. Engineered for earthquake or high wind zones.	Glu-lams or steel beams on steel intermediate columns. Panelized roof system with 5-ply, built-up or concrete tile roof cover. Good insulation.	Wood or metal trusses on intermediate columns. Panelized roof system with built-up or good composition shingle roofing. Insulated.	Beams or trusses on steel supports. OSB sheathing. Built-up or low cost membrane roofing. Foil insulation. Not designed for high wind or seismic zones.
<b>Floor Finish</b> (5% of total cost)	Marble or good terrazzo in public rooms. Carpeted offices. Ceramic tile in restrooms.	Terrazzo or marble tile in public rooms. Carpet in offices. Vinyl in restrooms.	Good sheet vinyl in meeting rooms. Carpet in offices. Composition tile in restrooms.	Low cost sheet vinyl in public rooms. Floor Tile elsewhere.
<b>Windows &amp; Doors</b> (6% of total cost)	Low-E glass in metal sash. Metal-frame laminated glass entrance doors. Metal interior doors. Institutional grade hardware. LEED certified.	Colored low-E glass. Decorative metal exterior doors. Solid core 8' high wood interior doors. Commercial grade hardware.	Insulated store front or glazed curtain wall. Metal exterior doors. Wood interior doors. Standard grade hardware.	Few standard grade metal windows. Low cost metal exterior doors. Low grade hardware.
<b>Interior Wall Finish</b> (13% of total cost)	Decorative plaster in public rooms. Plaster- or vinyl-covered wallboard in private offices. Decorative metal or hardwood veneer wainscot and trim.	Plaster or good paneling in public rooms. Vinyl-covered wallboard in hallways. Textured or vinyl-covered wallboard with good trim elsewhere.	Textured and painted interior stucco or gypsum wallboard. Wood trim in public meeting rooms.	Painted gypsum wallboard.
<b>Ceiling Finish</b> (2% of total cost)	Suspended decorative textured plaster in meeting rooms. Acoustic ceiling tile elsewhere.	Suspended acoustical tile in with concealed grid in meeting rooms. Acoustical tile elsewhere.	Suspended acoustical tile with exposed grid system.	Painted gypsum wallboard with acoustic texture.
<b>Specialties</b> (13% of total cost)	Wired or wireless security and surveillance systems, video and network connections, large circulation desk area.	Surveillance and security system. Network connections throughout. Dedicated information and circulation stations.	Data network and AV connections throughout. Some cabinets and shelves.	Minimum alarm system. Few cabinets and shelves.
<b>Plumbing</b> (7% of total cost)	Institutional grade fixtures. Copper supply, vent & drain pipe. Metal or synthetic stone toilet partitions.	Good commercial grade fixtures. Copper supply & drain pipe. Metal toilet partitions.	Standard grade fixtures. PEX or PVC supply, vent and drain pipe. Composition toilet partitions.	Minimum fixtures. Plastic supply, vent & drain pipe. Plastic-faced toilet partitions.
<b>Lighting and Power</b> (10% of total cost)	Decorative indirect fixtures in public rooms. Many recessed task lights on separate controls. Recessed fluorescent fixtures in offices and hallways.	Indirect lighting fixtures in public rooms. Track lighting or recessed fluorescent fixtures with some task lighting in offices and hallways.	Continuous 4 tube fluorescent strips with decorative diffusers, 8' O.C. Some recessed ceiling fixtures.	Continuous exposed 2 tube fluorescent strip, fixtures 8' O.C.

**Notes:** Use the percent of total cost to help identify the correct quality classification. Includes space for the library collection, seating, public access computer stations, staff work area, meeting rooms, circulation and information desks.

**Square foot costs include the following components:** Foundations as required for normal soil conditions. Floor, wall and roof structures. Interior ceiling, wall and floor finishes (including carpet). Exterior wall finish and roof cover. Interior partitions. Basic lighting and electrical systems. Rough and finish plumbing. Specialties as listed. Design and engineering fees. Typical utility hook-up. Contractor's mark-up.

**Add the cost of:** Book and media shelving and storage. Canopies and canopy lighting. Desks, tables and study carrels. Installed AV equipment, computer network and computers. Public address, intercom and security systems beyond what appears in the quality classification above. Docks and ramps. Elevators. Draperies. Fire extinguishers and fire sprinklers. Heating and cooling systems. Exterior signs. Walks, paving and curbing. Yard improvements. See the section "Additional Costs for Commercial, Industrial and Public Structures" beginning on page 236.

## Public Libraries – Wood or Steel Frame

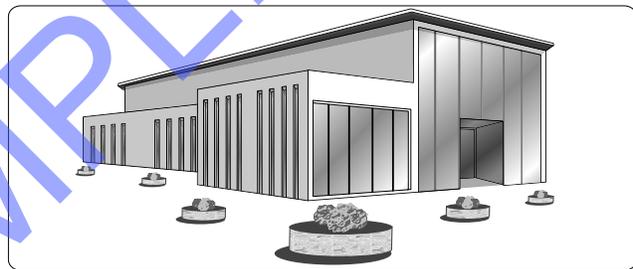
### First Floor

#### Estimating Procedure

1. Use the tables in this section to estimate the cost of buildings designed for use as public libraries. Many community libraries occupy space designed for use by commercial tenants rather than built for use as public libraries. Use figures from the sections on Urban Stores, Suburban Stores or General Office Buildings when the structure was designed for commercial occupancy.
2. Establish the structure quality class by applying the information on page 65.
3. Calculate the area of the first floor. This should include all area within the building exterior walls and all inset areas outside the main walls but under the main building roof.
4. Find in the table below the square foot cost for the appropriate quality class and the nearest building area.
5. Use figures in the Wall Height Adjustment row to adjust that square foot cost for wall heights more or less than 14 feet.
6. Multiply the adjusted square foot cost by the area of the first floor.
7. Multiply that total by the location factor on page 7.
8. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
9. Using figures on the next page, add the cost of any second or higher floors or a basement.



**Public Library, Class 4**



**Public Library, Class 1 & 2**

#### Square Foot Area

Quality Class	4,000	6,000	8,000	10,000	12,000	16,000	20,000	24,000	28,000	32,000	40,000
1, Best	316.49	302.48	291.36	282.33	274.66	268.10	262.47	253.10	245.42	239.21	229.44
1 & 2	283.82	271.29	261.37	253.20	246.29	240.38	235.38	226.89	220.13	214.60	205.70
2, Good	255.44	244.23	235.30	227.98	221.71	216.44	211.86	204.33	198.17	193.08	185.28
2 & 3	228.51	218.45	210.35	203.73	198.31	193.57	189.48	182.67	177.25	172.72	165.66
3, Average	204.91	195.86	188.71	182.86	177.79	173.65	169.96	163.85	158.95	154.90	148.57
3 & 4	178.83	170.95	164.68	159.57	155.22	151.57	148.34	142.98	138.67	135.27	129.68
4, Low	152.57	145.84	140.48	136.18	132.44	129.27	126.52	121.99	118.29	115.36	110.59
Wall Height Adjustment*	1.73	1.34	1.21	1.14	1.09	1.03	.96	.94	.91	.91	.91

**\*Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of wall height more or less than 14 feet.

# Public Libraries – Wood or Steel Frame

## Upper Floor and Basement

### Estimating Procedure

1. Establish the quality class for the second floor and the basement. The quality class will usually be the same as the first floor of the building. Square foot costs for unfinished basements will be nearly the same regardless of the structure quality class.
2. Calculate the area of any second floor or basement.
3. Find in the tables below the square foot cost for the appropriate quality class and the nearest area.
4. Use figures in the Wall Height Adjustment row to adjust the square foot cost for wall heights more or less than 10 feet.
5. Multiply the adjusted square foot cost by the area.
6. Multiply that total by the location factor on page 7.
7. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
8. Add totals from this page to the cost for the first floor to find the total building cost.

### Second Floor – Square Foot Area

Quality Class	4,000	6,000	8,000	10,000	12,000	16,000	20,000	24,000	28,000	32,000	40,000
1, Best	277.89	265.60	255.82	247.89	241.16	235.41	230.44	222.23	215.48	210.03	201.44
1 & 2	249.19	238.21	229.48	222.30	216.23	211.08	206.67	199.20	193.27	188.42	180.60
2, Good	224.26	214.45	206.60	200.15	194.67	190.05	186.01	179.39	174.00	169.52	162.67
2 & 3	200.63	191.81	184.69	178.89	174.12	169.97	166.36	160.37	155.63	151.65	145.44
3, Average	179.89	171.96	165.68	160.57	156.10	152.46	149.23	143.86	139.57	136.00	130.45
3 & 4	157.00	150.10	144.60	140.11	136.28	133.08	130.25	125.54	121.75	118.77	113.84
4, Low	133.97	128.03	123.34	119.56	116.29	113.51	111.09	107.11	103.87	101.28	97.11
Wall height Adjustment*	1.52	1.17	1.06	.99	.95	.91	.86	.83	.81	.81	.81

**\*Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of second and higher floor wall height more or less than 10 feet.

### Finished Basements – Square Foot Area

Quality Class	4,000	6,000	8,000	10,000	12,000	16,000	20,000	24,000	28,000	32,000	40,000
1, Best	195.25	186.60	179.74	174.16	169.46	165.42	161.91	156.13	151.39	147.58	141.53
2, Good	157.59	150.67	145.15	140.62	136.76	133.53	130.69	126.04	122.24	119.11	114.29
3, Average	126.40	120.84	116.42	112.81	109.68	107.12	104.84	101.07	98.05	95.56	91.66
4, Low	94.12	89.96	86.66	84.01	81.71	79.75	78.06	75.24	72.99	71.16	68.23

### Unfinished Basements

Area	4,000	6,000	8,000	10,000	12,000	16,000	20,000	24,000	28,000	32,000	40,000
Cost	48.83	46.66	44.92	43.57	42.38	41.36	40.48	39.03	37.85	36.92	35.40

**Wall Height Adjustment:** Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of basement wall height more or less than 10 feet.

Area	4,000	6,000	8,000	10,000	12,000	16,000	20,000	24,000	28,000	32,000	40,000
Finished	1.03	.79	.72	.68	.65	.63	.58	.57	.56	.56	.56
Unfinished	.94	.72	.65	.62	.59	.57	.54	.53	.52	.52	.52

# Fire Stations – Masonry or Concrete

## Quality Classification

	<b>Class 1 Best Quality</b>	<b>Class 2 Good Quality</b>	<b>Class 3 Average Quality</b>	<b>Class 4 Low Quality</b>
<b>Foundation</b> (6% of total cost)	Reinforced concrete, depth to 12'.	Reinforced concrete, depth 8' to 10'.	Reinforced concrete, depth 6 to 8'.	Reinforced concrete, depth 6' or less.
<b>Floor Structure</b> (5% of total cost)	Concrete on steel beams and deck.	Lightweight concrete on steel beams.	6" thickened edge concrete slab on 6" rock base.	4" reinforced slab on rock base.
<b>Exterior Walls</b> (15% of total cost)	Decorative brick with store-front glazing. Metal trim. Decorative public entrance.	Insulated glass with textured-block, good brick or stone veneer. Public entrance.	Colored concrete block with some brick or wood trim. Plain entrance.	Tilt-up concrete, brick or concrete block. Few decorative details.
<b>Roof Structure &amp; Cover</b> (18% of total cost)	Glu-lams or steel trusses on steel intermediate columns. Panelized roof system with elastomeric or metal roof cover. Patio or roof deck. Engineered for earthquake or high wind zones.	Glu-lams or steel beams on steel intermediate columns. Panelized roof system with 5-ply, built-up or elastomeric roof cover. Good insulation.	Wood or metal trusses on intermediate columns. Panelized roof system with built-up or good composition roofing. Adequate insulation.	Beams or trusses on steel supports. OSB sheathing. Built-up or low cost membrane roofing. Foil insulation. Not designed for high wind or seismic zones.
<b>Floor Finish</b> (5% of total cost)	Stone or good terrazzo in public rooms. Carpeted leisure-time rooms. Tile in restrooms.	Terrazzo or hardwood in public rooms. Carpet in offices. Vinyl in restrooms.	Good sheet vinyl in meeting rooms. Carpet in offices. Composition tile in restrooms.	Low cost sheet vinyl in public rooms. Floor tile elsewhere.
<b>Windows &amp; Doors</b> (6% of total cost)	Low-E glass in metal sash. Metal-frame laminated glass entrance doors. Metal interior doors. Institutional grade hardware. LEED certified.	Colored low-E glass. Decorative metal exterior doors. Solid core 8' high wood interior doors. Commercial grade hardware.	Insulated store front or glazed curtain wall. Metal exterior doors. Wood interior doors. Standard grade hardware.	Few standard grade metal windows. Low cost metal exterior doors. Low grade hardware.
<b>Interior Wall Finish</b> (13% of total cost)	Decorative plaster in public rooms. Plaster- or vinyl-covered wallboard in leisure time areas. Decorative metal or hardwood veneer wainscot and trim.	Plaster or good paneling in public rooms. Vinyl-covered wallboard in hallways. Textured or vinyl-covered wallboard with good trim elsewhere.	Textured and painted interior stucco or gypsum wallboard. Wood trim in public meeting rooms.	Painted gypsum wallboard.
<b>Ceiling Finish</b> (2% of total cost)	Suspended decorative textured plaster in administrative rooms. Acoustic ceiling tile elsewhere.	Suspended acoustical tile with concealed grid in meeting rooms. Ceiling tile elsewhere.	Suspended acoustical tile with exposed grid. Wallboard in vehicle bays.	Painted gypsum wallboard with trowel texture.
<b>Specialties</b> (13% of total cost)	Wired security, PA and surveillance systems. Video and network connections. Good day room and dispatch areas.	Surveillance and security system. Network connections throughout. Recreation facilities and good vehicle maintenance area.	Data network and AV connections throughout. Some cabinets and shelves. Plain day room and storage.	Minimum alarm system. Few cabinets and shelves. Few built-ins.
<b>Plumbing</b> (7% of total cost)	Top grade commercial fixtures. Copper supply, vent & drain pipe. Metal or synthetic stone toilet partitions.	Good commercial grade fixtures. Copper supply & drain pipe. Metal toilet partitions.	Standard grade fixtures. PEX or PVC supply, vent and drain pipe. Composition toilet partitions.	Minimum fixtures. Plastic supply, vent & drain pipe. Plastic-faced toilet partitions.
<b>Lighting and Power</b> (10% of total cost)	Decorative indirect fixtures in public rooms. Many recessed task lights on separate controls. Recessed fluorescent fixtures in offices and hallways.	Indirect lighting fixtures in public rooms. Track lighting or recessed fluorescent fixtures with some task lighting in offices and hallways.	Continuous 4 tube fluorescent strips with decorative diffusers, 8' O.C. Some recessed ceiling fixtures.	Continuous exposed 2 tube fluorescent strip, fixtures 8' O.C.

**Notes:** Use the percent of total cost to help identify the correct quality classification. Includes vehicle and equipment bays, equipment storage and maintenance area, living accommodations, leisure time, administration and training facilities.

**Square foot costs include the following components:** Foundations as required for normal soil conditions. Floor, wall and roof structures. Interior ceiling, wall and floor finishes (including carpet). Exterior wall finish and roof cover. Interior partitions. Basic lighting and electrical systems. Rough and finish plumbing. Specialties as listed. Design and engineering fees. Typical utility hook-up. Contractor's mark-up.

**Add the cost of:** Canopies and canopy lighting. Installed PA and security systems beyond what appears in the quality classification above. Docks and ramps. Elevators. Draperies. Fire extinguishers and fire sprinklers. Heating and cooling systems. Exterior signs. Walks, paving and curbing. Yard improvements. See the section "Additional Costs for Commercial, Industrial and Public Structures" beginning on page 236.

# Fire Stations – Masonry or Concrete

## First Floor

### Estimating Procedure

1. Use the tables in this section to estimate the cost of staffed fire stations including vehicle and equipment bays, equipment storage and maintenance areas, living accommodations, leisure time, administration and training facilities. Use the cost tables for Service Garages for volunteer fire stations with fire-fighting equipment bays but without living accommodations or administration facilities.
2. Establish the structure quality class by applying the information on page 68.
3. Calculate the area of the first floor. This should include all area within the building exterior walls and all inset areas outside the main walls but under the main building roof.
4. Find in the table below the square foot cost for the appropriate quality class and the nearest building area.
5. Use figures in the Wall Height Adjustment row to adjust that square foot cost for wall heights more or less than 14 feet in vehicle bays and 8 feet in other areas.
6. Multiply the adjusted square foot cost by the area of the first floor.
7. Multiply that total by the location factor on page 7.
8. Add costs from the section Additional Costs for Commercial, Industrial and Public Buildings beginning on page 236.
9. Using figures on the next page, add the cost of any second or higher floors or a basement.



**Fire Station, Class 2**



**Fire Station, Class 3**

### First Floor – Square Foot Area

Quality Class	4,000	6,000	8,000	10,000	12,000	16,000	20,000	24,000	28,000	32,000	40,000
1, Best	264.68	252.97	243.67	236.11	229.72	224.22	219.50	211.66	205.25	200.06	191.88
1 & 2	237.35	226.88	218.58	211.75	205.96	201.03	196.85	189.75	184.10	179.49	172.04
2, Good	213.62	204.26	196.79	190.66	185.41	181.01	177.18	170.88	165.73	161.48	154.94
2 & 3	191.09	182.70	175.94	170.38	165.85	161.87	158.43	152.76	148.24	144.46	138.55
3, Average	171.36	163.82	157.84	152.93	148.68	145.23	142.15	137.01	132.92	129.54	124.26
3 & 4	149.55	142.96	137.74	133.47	129.80	126.76	124.07	119.58	115.96	113.10	108.45
4, Low	127.60	121.96	117.47	113.87	110.79	108.10	105.81	102.03	98.93	96.47	92.48
Wall Height Adjustment*	1.45	1.11	1.01	.96	.91	.88	.82	.80	.79	.79	.79

**\*Wall Height Adjustment:** Add or subtract the amount listed in this row to or from the square foot of floor cost for each foot of wall height more or less than 14 feet in equipment bays and 8 feet in other areas.

## Theaters – Wood Frame

### Quality Classification

	<b>Class 1 Best Quality</b>	<b>Class 2 Good Quality</b>	<b>Class 3 Average Quality</b>	<b>Class 4 Low Quality</b>
<b>Foundation</b> (12% of total cost)	Reinforced concrete.	Reinforced concrete.	Reinforced concrete.	Reinforced concrete.
<b>Floor Structure</b> (7% of total cost)	4" reinforced concrete on 6" rock fill or 2" x 10" joists, 16" o.c.	4" reinforced concrete on 6" rock fill or 2" x 8" joists, 16" o.c.	4" reinforced concrete on 6" rock fill or 2" x 6" joists, 16" o.c.	4" reinforced concrete on 4" rock fill or 2" x 6" joists, 16" o.c.
<b>Wall Structure</b> (15% of total cost)	2" x 6", 16" o.c.	2" x 4" or 2" x 6", 16" o.c.	2" x 4", 16" o.c. up to 14' high, 2" x 6", 16" o.c. over 14' high.	2" x 4", 16" o.c. up to 14' high, 2" x 6", 16" o.c. over 14' high.
<b>Roof Framing</b> (7% of total cost)	2" x 10" joists, 16" o.c. Trusses on heavy pilasters, 20' o.c. 2" x 12" rafters or purlins, 16" o.c.	2" x 10" joists, 16" o.c. Trusses on heavy pilasters, 20' o.c. 2" x 10" rafters or purlins.	2" x 10" joists, 16" o.c. Steel trusses on pilasters, 20' o.c. 2" x 10" rafters or purlins, 16" o.c.	2" x 10" joists, 16" o.c. Wood trusses, 2" x 8" purlins, 16" o.c.
<b>Roof Covering</b> (5% of total cost)	5 ply composition roof on 1" x 6" sheathing with insulation.	5 ply composition roof on 1" x 6" sheathing with insulation.	4 ply composition roof on 1" x 6" sheathing.	4 ply composition roof on 1" x 6" sheathing.
<b>Front</b> (3% of total cost)	Highly ornamental stucco or custom brick or natural stone or terra cotta veneers.	Ornamental stucco or select brick veneers or partial terra cotta veneers.	Plain or colored stucco or common brick or ornamental wood.	Plain stucco.
<b>Floors, Entry &amp; Lobby</b> (3% of total cost)	Custom designed terrazzo with ornamental designs with portions natural stone veneers, marble or good carpet.	Colored terrazzo with designs or average carpet.	Colored concrete and portions terrazzo, plain colored.	Plain or colored concrete.
<b>Floors, Interior</b> (5% of total cost)	Concrete with carpet throughout.	Concrete with carpet throughout.	Concrete with carpet runners at aisles.	Plain or colored concrete.
<b>Restrooms</b> (8% of total cost)	As per code requirement capacity. Ceramic tile on floors and walls or terrazzo floors and walls.	As per code requirement capacity. Ceramic tile on walls and floors or terrazzo on floors.	As per code requirement capacity. Ceramic or vinyl tile on floors.	As per code requirement capacity. Plain concrete floors and walls, painted.
<b>Walls, Interior</b> (11% of total cost)	Painted and finished with custom backed wallpapers or molded tapestry finished wallpapers or select wood veneer, matched full height at lobby.	Painted and finished with durable canvas or wood veneers, select quality on gypsum wallboard or plaster.	Painted and papered with durable canvas materials with portion wood veneers on gypsum wallboard or plaster.	Painted with or without stencil type painted molded designs on gypsum wallboard taped and textured.
<b>Ceilings</b> (6% of total cost)	Suspended acoustical, ornate cove moldings and trim with acoustical baffles.	Suspended acoustical with plaster moldings and sound baffles.	Suspended acoustical tile.	Gypsum wallboard taped, textured and painted.
<b>Lighting</b> (10% of total cost)	Incandescent fixtures with chandelier fixtures, recessed at theater area, dimmer controlled.	Incandescent fixtures in lobby with fluorescent or chandelier type fixtures in theater area, recessed lighting, dimmer controlled.	Incandescent recessed fixtures, dimmer controlled.	Plain incandescent fixtures, with dimmers.
<b>Seating</b> (8% of total cost)	Main floor and balcony seating.	Main floor and balcony seating.	May or may not have balcony.	May or may not have balcony.

**Note:** Use the percent of total cost to help identify the correct quality classification.

**Square foot costs include the following components:** Foundations as required for normal soil conditions. Floor, wall, and roof structures. Interior floor, wall and ceiling finishes. Exterior wall finish and roof cover. Display fronts. Interior partitions. All doors. Ticket booth. Basic lighting and electrical systems. Rough and finish plumbing. A mezzanine floor projection booth. A frame-work for mounting a picture screen. A balcony in auditorium type theaters. Permits and fees. Contractor's mark-up.

## Theaters – Wood Frame

### Length Less Than Twice Width

#### Estimating Procedure

1. Establish the structure quality class by applying the information on page 191.
2. Compute the building floor area. This should include everything within the main walls and all insets outside the main walls but under the main roof.
3. Add to or subtract from the square foot cost below the appropriate amount from the Wall Height Adjustment Table on page 195 if the wall height is more or less than 20 feet.
4. Multiply the adjusted square foot cost by the building floor area.
5. Deduct, if appropriate, for common walls, using the figures on page 195.
6. Multiply the total cost by the location factor listed on page 7 or 8.
7. Add the cost of heating and air conditioning systems, fire extinguishers, exterior signs, paving and curbing. See the section beginning on page 236.



Theater, Class 4 Front, Class 3 Rear

#### Square Foot Area

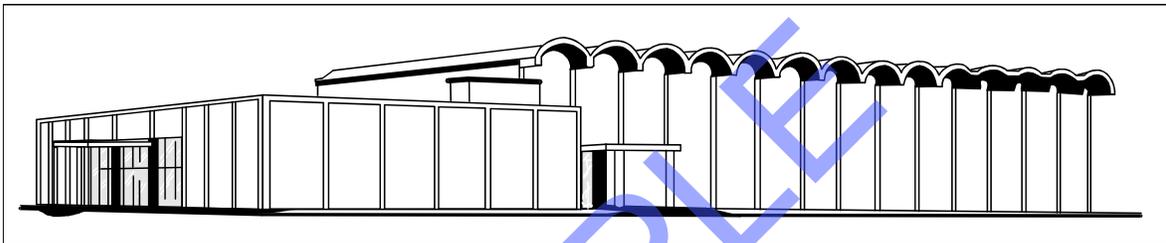
Quality Class	3,000	3,500	4,000	5,000	6,000	7,000	8,000	10,000	12,000	15,000	20,000
1, Best	133.06	128.83	125.54	120.70	117.43	114.85	112.90	109.98	107.98	105.77	103.36
1 & 2	128.90	124.80	121.58	116.97	113.71	111.23	109.31	106.51	104.54	102.41	100.07
2, Good	127.17	123.13	120.00	115.42	112.16	109.77	107.91	105.13	103.11	101.06	98.78
2 & 3	123.12	119.19	116.12	111.79	108.57	106.27	104.46	101.73	99.80	97.80	95.57
3, Average	120.59	116.82	113.81	109.48	106.37	104.12	102.34	99.72	97.82	95.87	93.70
3 & 4	116.99	113.31	110.39	106.24	103.21	101.01	99.25	96.73	94.89	92.96	90.86
4, Low	113.63	110.03	107.25	103.07	100.22	98.08	96.39	93.89	92.15	90.29	88.26

## Theaters – Wood Frame

### Length Between 2 and 4 Times Width

#### Estimating Procedure

1. Establish the structure quality class by applying the information on page 191.
2. Compute the building floor area. This should include everything within the main walls and all insets outside the main walls but under the main roof.
3. Add to or subtract from the square foot cost below the appropriate amount from the Wall Height Adjustment Table on page 195 if the wall height is more or less than 20 feet.
4. Multiply the adjusted square foot cost by the building floor area.
5. Deduct, if appropriate, for common walls, using the figures on page 195.
6. Multiply the total cost by the location factor listed on page 7 or 8.
7. Add the cost of heating and air conditioning systems, fire extinguishers, exterior signs, paving and curbing. See the section beginning on page 236.



**Theater, Class 3**

#### Square Foot Area

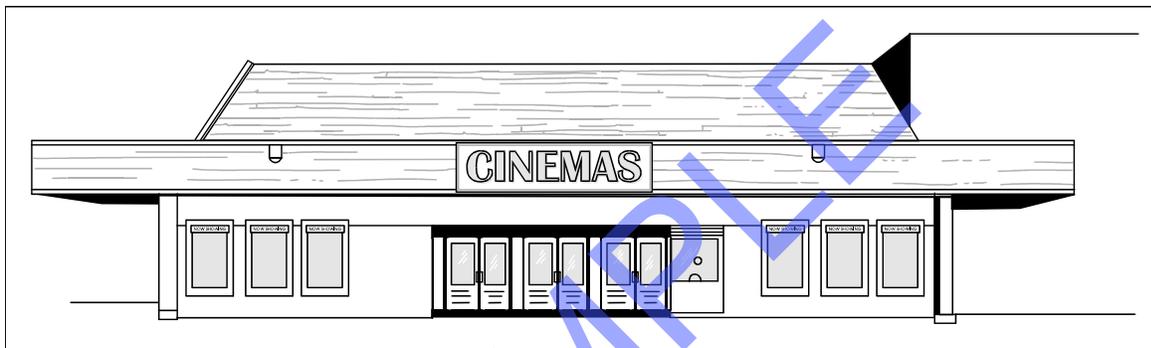
Quality Class	3,000	3,500	4,000	5,000	6,000	7,000	8,000	10,000	12,000	15,000	20,000
1, Best	141.79	137.34	133.80	128.66	125.10	122.38	120.29	117.16	114.96	112.63	110.07
1 & 2	137.25	132.91	129.55	124.60	121.09	118.47	116.42	113.39	111.28	109.01	106.52
2, Good	135.39	131.09	127.71	122.87	119.41	116.83	114.82	111.84	109.74	107.49	105.09
2 & 3	131.00	126.82	123.57	118.86	115.50	113.06	111.11	108.23	106.18	103.98	101.64
3, Average	128.51	124.43	121.28	116.63	113.34	110.91	109.02	106.24	104.18	102.04	99.75
3 & 4	124.61	120.62	116.48	112.89	109.89	107.54	105.66	102.94	101.06	98.88	96.73
4, Low	120.77	116.97	113.99	109.59	106.51	104.23	102.45	99.78	97.87	95.92	93.74

## Theaters – Wood Frame

### Length More Than 4 Times Width

#### Estimating Procedure

1. Establish the structure quality class by applying the information on page 191.
2. Compute the building floor area. This should include everything within the main walls and all insets outside the main walls but under the main roof.
3. Add to or subtract from the square foot cost below the appropriate amount from the Wall Height Adjustment Table on page 195 if the wall height is more or less than 20 feet.
4. Multiply the adjusted square foot cost by the building floor area.
5. Deduct, if appropriate, for common walls, using the figures on page 195.
6. Multiply the total cost by the location factor listed on page 7 or 8.
7. Add the cost of heating and air conditioning systems, fire extinguishers, exterior signs, paving and curbing. See the section beginning on page 236.



Theater, Class 3

#### Square Foot Area

Quality Class	3,000	3,500	4,000	5,000	6,000	7,000	8,000	10,000	12,000	15,000	20,000
1, Best	150.83	145.99	142.30	136.88	133.03	130.14	127.86	124.65	122.28	119.81	117.02
1 & 2	146.03	141.44	137.81	132.51	128.84	126.10	123.90	120.70	118.46	116.03	113.39
2, Good	144.13	139.55	135.98	130.81	127.12	124.42	122.28	119.12	116.85	114.54	111.95
2 & 3	139.52	135.08	131.69	126.61	123.08	120.45	118.34	115.28	113.20	110.88	108.36
3, Average	136.93	132.51	129.17	124.23	120.80	118.16	116.11	113.20	111.05	108.75	106.30
3 & 4	132.67	128.46	125.18	120.40	117.02	114.54	112.55	109.59	107.58	105.35	103.00
4, Low	129.59	125.46	122.28	117.65	114.36	111.85	109.93	107.17	105.13	102.96	100.62

## Theaters – Wood Frame

### Wall Height Adjustment

Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of wall height more or less than 20 feet.

#### Square Foot Area

Quality Class	3,000	3,500	4,000	5,000	6,000	7,000	8,000	10,000	12,000	15,000	20,000
1, Best	3.53	3.44	3.38	3.22	3.18	3.09	3.04	2.98	2.88	2.82	2.73
2, Good	3.41	3.32	3.27	3.07	2.98	2.93	2.88	2.82	2.78	2.71	2.67
3, Average	3.25	3.15	3.08	2.93	2.88	2.82	2.78	2.71	2.68	2.64	2.52
4, Low	2.99	2.88	2.82	2.73	2.70	2.67	2.64	2.51	2.45	2.43	2.31

### Perimeter (Common) Wall Adjustment

A common wall exists when two buildings share one wall. Adjust for common walls by deducting the linear foot costs below from the total structure cost. In some structures one or more walls are not owned at all. In this case, deduct the "No Ownership" cost per linear foot of wall not owned.

For common wall, deduct \$179 per linear foot. For no wall ownership, deduct \$357 per linear foot.

## Mobile Home Parks

### Quality Classification

	Class 1 Best Quality	Class 2 Good Quality	Class 3 Average Quality	Class 4 Low Quality
<b>Engineering, Plans, Permits, Surveying</b> (10% of total cost)	Good planning, necessary permits, good engineering; designed by architect.	Good planning, necessary permits, good engineering; designed by architect.	Average planning, necessary permits, engineered and designed.	Fair planning, necessary permits, minimum surveying.
<b>Grading</b> (10% of total cost)	Fully graded.	Fully graded.	Fully graded.	Minimum site leveling; grades not engineered; road grading.
<b>Street Paving</b> (10% of total cost)	2" thick asphalt surface on good base, concrete curbs, 30' width.	2" thick asphalt surface on good base, concrete curbs, 25' width.	20' roads, 2" asphalt on rock base; concrete or wood edging.	Narrow streets, 2" asphalt on ground; no curbs or edging.
<b>Patios &amp; Walks</b> (5% of total cost)	Patios, 300 to 500 S.F. of good concrete. Walks to utility rooms, pools and recreation areas.	Patios, 200 to 300 S.F. of good concrete. Walks to utility rooms, pools and recreation areas.	Patios, approximately 150 S.F. average concrete or average grade asphalt. Walks to utility buildings.	Some patios, concrete or asphalt paving. No walks.
<b>Trailer Pad &amp; Parking</b> (3% of total cost)	Concrete or good asphalt pad and driveway.	Asphalt under trailer and extended to one side for driveway.	Gravel under trailer and small asphalt driveway.	Gravel under trailer.
<b>Sewer</b> (10% of total cost)	8" lines, 10" mains. Meets all code requirements. Storm drain system.	8" lines, 10" mains. Meets all code requirements.	4" to 6" and 8" lines. Meets code requirements in most areas.	3" to 6" lines, inadequate. Below good code requirements.
<b>Water</b> (10% of total cost)	Engineered system for equalized pressure throughout park. Sprinkler system in common areas.	Adequate line size, designed and properly sized for equalized pressure.	Adequate line size; has required valves at each space.	Small lines; has required valves at each space.
<b>Gas</b> (10% of total cost)	Supplied to each space, sized to code requirements.	Supplied to each space, sized to code requirements.	None except in utility buildings and recreation buildings	None except in utility buildings.

## Mobile Home Parks

### Quality Classification continued

	<b>Class 1 Best Quality</b>	<b>Class 2 Good Quality</b>	<b>Class 3 Average Quality</b>	<b>Class 4 Low Quality</b>
<b>Electric</b> (10% of total cost)	Underground service, designed for larger modern trailers with adequate size to enlarge to take care of future needs. Approximately 100 amp or more. Speaker system, underground television system to each space.	Underground service, designed for larger modern trailers with facilities to enlarge capacity to 100 amp. Approximately 70 amp service or more. Speaker system, underground television system to each space.	Underground services, not designed for more capacity. Approximately 30 amp service or more. Speaker system.	Overhead system wired for 15 amp service at each space.
<b>Outdoor Lighting</b> (4% of total cost)	Lamp post each five spaces, ornate type.	Lamp post each five spaces, inexpensive type.	Overhead street lights at each corner.	Few overhead street lights.
<b>Telephone</b> (8% of total cost)	Underground to each space.	Underground to each space.	None.	None.
<b>Sign</b> (1% of total cost)	Large expensive sign.	Good sign.	Average sign.	Inexpensive sign.
<b>Garbage</b> (1% of total cost)	Built-in ground.	Built-in ground.	None.	None.
<b>Mail Boxes</b> (1% of total cost)	Good mail box and post each space.	Inexpensive mail box and post each space.	None.	None.
<b>Fences and Gates</b> (3% of total cost)	Good wood or cyclone. Ornamental fence or wall in front.	Good wood or cyclone. Block wall in front.	Inexpensive wood or wire.	None or inexpensive wire.
<b>Pools</b> (4% of total cost)	Good quality.	Good quality, adequate size for park.	Small with few extras.	None or inexpensive.
<b>Utility Building</b> (See page 185)	Wood frame and good stucco. Board batt redwood siding or concrete block exterior. Best composition shingle or tar and rock roofing. Good interior plaster or gypsum wallboard. Well finished concrete floors with vinyl tile. Good lighting. Good heating. Showers ceramic tile or fiberglass walls with ceramic tile floor. Glass shower doors. Good quality plumbing fixtures. Good workmanship throughout.	Wood frame and good stucco or concrete block exterior. Thick butt composition shingles or tar and gravel roof. Good exterior or plaster or gypsum wallboard. Well finished concrete floors. Good lighting. Good heating. Showers ceramic tile walls with ceramic tile base. Good quality plumbing fixtures. Good workmanship throughout.	Wood frame, average stucco exterior. Composition shingle or roll roofing. Gypsum wallboard taped and textured or plaster interior. Average concrete floors. Average lighting. Fair heating. Metal stall with showers or showers with enameled cement plaster walls and tile floor with tile base. Average plumbing fixtures. Average workmanship throughout.	Wood frame, fair stucco or fair siding exterior. Plastic interior. Composition roll roofing. Fair concrete finish. Fair lighting. Inexpensive heating. Showers enameled cement plaster walls and tile floors. Fair plumbing fixtures and fair workmanship throughout.
<b>Recreation Building</b> (See page 185)	Wood frame and stucco. Board and batt redwood siding or concrete block exterior. Best composition shingles or tar and rock roofing. Good interior plaster or gypsum wallboard taped, textured and painted. Well finished concrete floors with vinyl tile. Good heating. Good lighting. Rest room for each sex containing at least one each of the following fixtures: Shower, water closet & lavatory. Showers ceramic tile floors and walls or fiberglass walls and tile floor with glass shower doors. Good quality plumbing fixtures. Kitchen sink, range, refrigerator, cabinets and drainboard of formica or equal material. Large glass area in community room.	Wood frame and good stucco or concrete block exterior. Thick butt composition shingles or tar and gravel roof. Good exterior or plaster or gypsum wallboard. Well finished concrete floors. Good heating. Good lighting. Ceramic tile stall showers with ceramic tile base. Good quality plumbing fixtures. Kitchen with tile drain board and some hardwood cabinets. Small office area. Large glass windows in community room.	Wood frame, average stucco or siding exterior. Composition shingle or roll roofing. Gypsum wallboard taped and textured or plaster interior. Average concrete floors. Average lighting. Average heating. Showers with enameled cement plaster walls and ceramic tile base. Water closets and lavatories. One rest room for each sex with at least 1 each shower, water closet and lavatory. Average grade of plumbing fixtures. Ceiling of gypsum wallboard. Average workmanship throughout.	None.

**Note:** Use the percent of total cost to help identify the correct quality classification.

## Mobile Home Parks

### Estimating Procedure

1. Establish the park quality class by applying the information on pages 195 and 196.
2. Compute the square foot area per home space. This should include the mobile home space, streets, recreation and other community use areas but exclude excess land not improved or not in use as a part of the park operation. Divide this total area by the number of home spaces. The result is the average area per home space.
3. Multiply the appropriate cost below by the number of home spaces.
4. Determine the quality class and area of recreation and utility buildings. Compute the total cost of these buildings and add this amount to or subtract it from the total from step 3 to adjust for more or fewer buildings than included in the quality specification.
5. Multiply the total building costs by the location factor listed on page 7 or 8.
6. Add the cost of septic tank systems, wells, and covered areas built at the individual spaces.

**Space costs with community facilities include the cost of the following components:** Grading associated with a level site under normal soil conditions. Street paving and curbs. Patios and walks. Pads and parking paving. Sewer, electrical, gas and water systems including normal hook-up costs. Outdoor lighting. Signs. Mail boxes. Fences and gates. Contractor's mark-up.

**Space costs with community facilities and buildings include the cost of all the above components plus these components in amounts proportionate to the size of the park:** Recreation, administrative and utility buildings adequate for the size of the park. Recreation facilities such as pools, shuffle board courts, playground equipment, fire pits, etc. Telephones. Restrooms.

**The cost of the following components are not included in the basic building cost:** Septic tank systems. Wells. Structures or covered areas on individual spaces. The cost of grading beyond that associated with a level site.

### Parks Without Community Facilities or Buildings – Square Foot Area

Quality Class	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500
1, Best	—	—	—	—	—	14,485	14,753	15,323	16,053	16,227	16,227
1 & 2	—	—	—	13,113	13,779	14,065	14,327	14,669	14,928	14,928	14,928
2, Good	—	—	9,921	10,786	10,519	11,767	12,005	12,005	12,005	12,005	—
2 & 3	6,047	6,652	7,279	7,746	8,168	8,526	8,526	8,526	8,526	—	—

### Parks With Community Facilities and Buildings – Square Foot Area

Quality Class	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500
1, Best	—	—	—	—	—	21,197	22,216	22,889	23,537	24,189	24,577
2, Good	—	—	—	20,064	20,519	20,989	21,392	21,761	22,585	22,585	22,585
3, Average	—	—	16,146	16,145	16,939	17,213	17,411	17,411	17,411	17,411	—
4, Low	10,970	11,122	11,438	11,936	12,356	12,608	12,582	12,582	12,582	—	—

### Square Foot Costs for Building Alone

	Recreational Buildings	Utility Buildings
1, Best	\$70.86 to \$102.70	\$68.25 to \$81.90
2, Good	63.10 to 79.81	50.65 to 68.69
3, Average	51.24 to 72.97	47.94 to 51.43
4, Low	—	43.86 to 50.03

## Service Stations – Wood, Masonry or Painted Steel

### Quality Classification

	Wood Frame	Masonry or Concrete	Painted Steel, Good	Painted Steel, Average	Painted Steel, Low
<b>Foundation &amp; Floor</b> (25% of total cost)	Reinforced concrete.	Reinforced concrete.	Reinforced concrete.	Reinforced concrete.	Reinforced concrete.
<b>Walls</b> (15% of total cost)	Wood frame 2 x 4, 16" o.c.	8" concrete block.	Steel frame.	Steel frame.	Steel frame.
<b>Roof Structure</b> (6% of total cost)	Light wood frame, flat or shed type.	Light wood frame, flat or shed type.	Steel frame, flat or shed type.	Steel frame, flat or shed type.	Steel frame, flat or shed type.
<b>Exterior Finish</b> (10% of total cost)	Painted wood siding or stucco.	Painted concrete block.	Painted steel.	Painted steel.	Painted steel.
<b>Roof Cover</b> (5% of total cost)	Composition.	Composition.	Steel deck.	Steel deck.	Steel deck.
<b>Glass Area</b> (5% of total cost)	Small area, painted wood frames.	Small area, painted steel frames.	Large area, painted steel frames.	Average area, painted steel frames.	Small area, painted steel frames.
<b>Lube Room Doors</b> (5% of total cost)	Folding steel gate.	Folding steel gate.	Painted steel sectional roll up.	Painted steel sectional roll up.	Folding steel gate.
<b>Floor Finish</b> (5% of total cost)	Concrete.	Concrete.	Concrete, colored concrete in office.	Concrete.	Concrete.
<b>Interior Wall Finish</b> (5% of total cost)	Exposed studs, painted.	Concrete block, painted.	Exposed structure painted. Painted steel panels in office.	Exposed structure painted. Painted steel panels in office.	Exposed structure painted. Painted steel panels in office.
<b>Ceiling Finish</b> (3% of total cost)	Exposed structure painted.	Exposed structure painted.	Exposed structure painted. Painted steel panels in office.	Exposed structure painted. Painted steel panels in office.	Exposed structure painted.
<b>Rest Room Finish</b> (5% of total cost)	Wallboard and paint walls and ceilings.	Concrete block and paint walls, wallboard and paint ceilings.	Ceramic tile floors, 4' ceramic tile wainscot, painted steel ceilings.	Ceramic tile floors, 4' ceramic tile wainscot, painted steel ceilings.	Concrete floors, painted steel walls, painted steel ceilings.
<b>Rest Room Fixtures</b> (8% of total cost)	4 low cost fixtures.	4 low cost fixtures.	5 average cost fixtures.	5 average cost fixtures.	4 low cost fixtures.
<b>Exterior Appointments</b> (3% of total cost)	None.	None.	2' overhang on 3 sides, 3' raised walk on 3 sides, fluorescent soffit lights on 3 sides.	1' overhang on 2 sides, 3' raised walk on 2 sides.	None.

**Note:** Use the percent of total cost to help identify the correct quality classification.

**Square foot costs include the cost of the following components:** Foundations as required for normal soil conditions. Floor, wall and roof structure. Interior floor, wall and ceiling finishes as described above. Interior partitions. Exterior finish and roof cover. A built-in work bench, tire rack and shelving. Electrical services and fixtures contained within the building. Air and water lines within the building. That portion of rough plumbing serving the building and plumbing fixtures within the building. Roof overhangs and raised walks as described above. Lube room doors. Permits and fees. Contractor's mark-up.

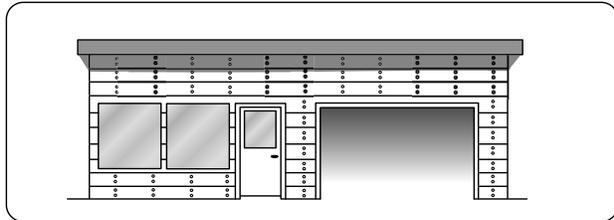
**The in-place cost of these extra components should be added to the basic building cost to arrive at the total structure cost. See the section "Additional Costs for Service Stations" beginning on Page 204.** Canopies. Pumps, dispensers and turbines. Air and water services outside the building. Island lighters. Gasoline storage tanks. Hoists. Compressors. Yard lights. Signs. Paving. Curbs and fences. Miscellaneous equipment and accessories. Island office and storage buildings. Site improvements. Heating and cooling systems

**Land improvement costs:** Most service stations sites require an expenditure of \$10,000 or more for items such as leveling, excavation, curbs, driveways, relocation of power poles, replacement of sidewalks with reinforced walks and street paving.

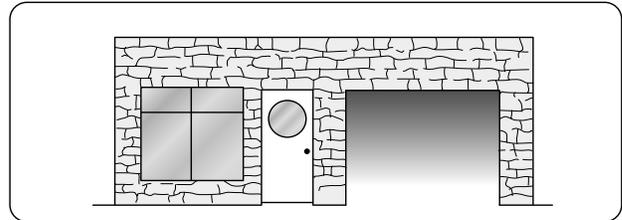
# Service Stations – Wood, Masonry or Painted Steel

## Estimating Procedure

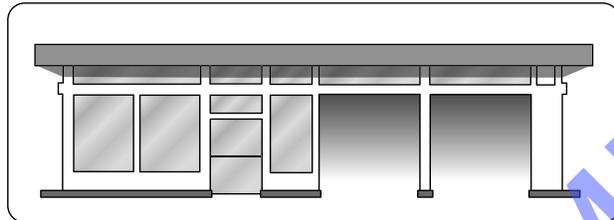
1. Establish the structure quality class by applying the information on page 198.
2. Compute the building floor area.
3. Multiply the square foot cost by the building floor area.
4. Multiply the total cost by the location factor listed on page 7 or 8.
5. Add the cost of appropriate equipment and fixtures from the section “Additional Costs for Service Stations” beginning on page 204.



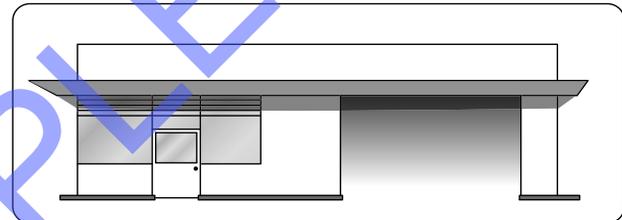
**Wood Frame**



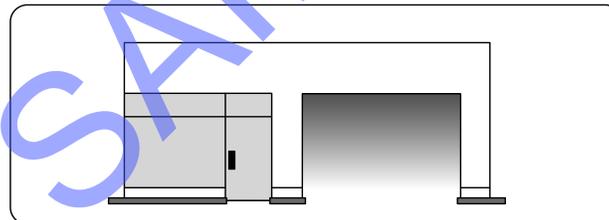
**Masonry**



**Painted Steel, Good**



**Painted Steel, Average**



**Painted Steel, Low**

### Square Foot Area

Quality Class	500	600	700	800	900	1,000	1,100	1,200	1,300	1,400	1,800
Wood Frame	132.79	121.98	114.08	108.34	103.82	100.19	97.21	94.79	92.65	90.85	85.68
Masonry or Concrete	149.45	136.92	128.16	121.63	116.52	112.52	109.22	106.43	104.09	102.04	96.23
Painted Steel, Good	209.94	192.67	180.42	171.21	164.06	158.39	153.63	149.75	146.45	143.68	135.46
Painted Steel, Avg.	188.09	173.90	163.61	154.51	148.03	142.06	137.07	131.59	128.28	125.06	122.25
Painted Steel, Low	164.75	151.25	141.60	134.41	128.78	124.28	120.61	117.56	114.97	112.09	106.35

## Service Stations – Porcelain Finished Steel

### Quality Classification

	Good Quality	Average Quality	Low Quality
<b>Foundation &amp; Floor</b> (20% of total cost)	Reinforced concrete.	Reinforced concrete.	Reinforced concrete.
<b>Walls</b> (15% of total cost)	Steel frame.	Steel frame.	Steel frame.
<b>Roof Structure</b> (8% of total cost)	Steel frame, flat or shed type.	Steel frame, flat or shed type.	Steel frame, flat or shed type.
<b>Exterior Finish</b> (10% of total cost)	Porcelain and steel.	Porcelain and steel.	Porcelain and steel.
<b>Roof Cover</b> (6% of total cost)	Steel deck.	Steel deck.	Steel deck.
<b>Glass Area</b> (7% of total cost)	Large area, aluminum frames.	Large area, aluminum frames.	Average area, painted steel frames.
<b>Lube Room Doors</b> (3% of total cost)	Aluminum and glass sectional roll up.	Aluminum and glass sectional roll up.	Painted steel and glass sectional roll up.
<b>Floor Finish</b> (5% of total cost)	Concrete floors, ceramic tile in office.	Concrete floors, colored concrete in office.	Concrete floors, colored concrete in office.
<b>Interior Wall Finish</b> (5% of total cost)	Porcelain steel panels. Painted steel panels in office.	Exposed structure painted. Painted steel panels in office.	Exposed structure painted.
<b>Ceiling Finish</b> (3% of total cost)	Exposed structure painted. Porcelain steel panels in office.	Exposed structure painted. Painted steel panels in office.	Exposed structure painted. Painted steel panels in office.
<b>Rest Room Finish</b> (5% of total cost)	Ceramic tile floors, 8' ceramic tile or porcelain panel. Painted steel ceiling.	Ceramic tile floors, 5' ceramic tile wainscot. Painted steel ceiling.	Ceramic tile floors, 5' ceramic tile wainscot. Painted steel ceiling.
<b>Rest Room Fixtures</b> (10% of total cost)	5 good fixtures.	5 good fixtures.	5 good fixtures.
<b>Exterior Appointments</b> (3% of total cost)	3' to 4' overhang on 3 sides, 6' x 8' sign pylon, 3' raised walk on 3 sides, fluorescent soffit lights on 3 sides.	3' to 4' overhang on 3 sides, 6' x 8' sign pylon, 3' raised walk on 3 sides, fluorescent soffit lights on 3 sides.	3' raised walk on 3 sides, fluorescent soffit lights on 3 sides.

**Note:** Use the percent of total cost to help identify the correct quality classification.

**Square foot costs include the cost of the following components:** Foundations as required for normal soil conditions. Floor, wall and roof structure. Interior floor, wall and ceiling finishes as described above. Interior partitions. Exterior finish and roof cover. A built-in work bench, tire rack and shelving. Electrical services and fixtures contained within the building. Air and water lines within the building. That portion of rough plumbing serving the building and plumbing fixtures within the building. Roof overhangs and raised walks as described above. Lube room doors. Permits and fees. Contractor's mark-up.

**The in-place cost of these extra components should be added to the basic building cost to arrive at the total structure cost. See the section "Additional Costs for Service Stations" beginning on page 204.** Canopies. Pumps, dispensers and turbines. Air and water services outside the building. Island lighters. Gasoline storage tanks. Hoists. Compressors. Yard lights. Signs. Paving. Curbs and fences. Miscellaneous equipment and accessories. Island office and storage buildings. Site improvements. Heating and cooling systems

**Land improvement costs:** Most service station sites require an expenditure of \$10,000 or more for items such as leveling, excavation, curbs, driveways, relocation of power poles, replacement of sidewalks with reinforced walks and street paving.

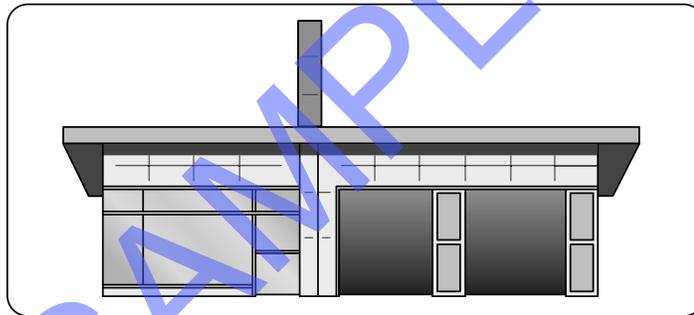
# Service Stations – Porcelain Finished Steel

## Estimating Procedure

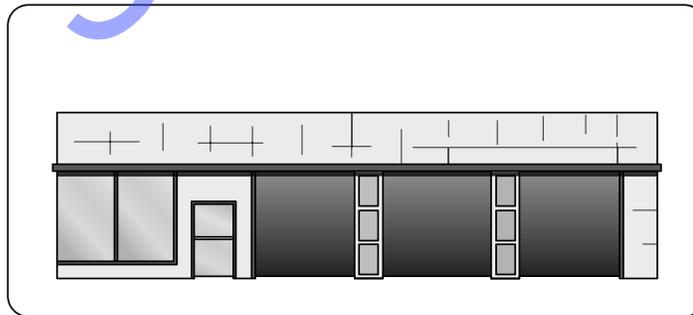
1. Establish the structure quality class by applying the information on page 200.
2. Compute the building floor area.
3. Multiply the square foot cost by the building floor area.
4. Multiply the total cost by the location factor listed on page 7 or 8.
5. Add the cost of appropriate equipment and fixtures from the section “Additional Costs for Service Stations” beginning on page 204.



**Good Quality**



**Average Quality**



**Low Quality**

### Square Foot Area

Quality Class	1,000	1,100	1,200	1,300	1,400	1,500	1,600	1,700	1,800	2,000	2,400
Good	196.89	190.06	184.67	180.25	176.70	173.86	171.37	169.34	167.64	165.00	161.60
Average	188.40	181.84	176.62	172.47	169.08	166.26	163.96	162.00	160.38	157.80	154.62
Low	171.14	165.16	160.41	156.68	153.62	151.02	148.93	147.22	145.67	143.36	140.47

## Service Stations – Ranch or Rustic Type

### Quality Classification

	Best Quality	Good Quality	Average Quality	Low Quality
<b>Foundation &amp; Floor</b> (20% of total cost)	Reinforced concrete.	Reinforced concrete.	Reinforced concrete.	Reinforced concrete.
<b>Walls</b> (12% of total cost)	Steel frame.	Steel frame.	Steel frame, wood frame or masonry.	Steel frame, wood frame or masonry.
<b>Roof Structure</b> (8% of total cost)	Steel frame, hip or gable type.	Steel frame, hip or gable type.	Steel or wood frame, hip or gable type.	Steel or wood frame, hip or gable type.
<b>Exterior Finish</b> (10% of total cost)	Natural stone veneer.	Used brick veneer.	Painted steel and masonry veneer.	Painted steel or wood siding.
<b>Roof Cover</b> (6% of total cost)	Shingle tile or mission tile.	Heavy wood shakes or shingle tile.	Wood shakes or tar and rock.	Composition shingle or tar and gravel.
<b>Glass Area</b> (7% of total cost)	Large area float glass in heavy aluminum frame.	Large area float glass in heavy aluminum frame.	Large area, painted steel frame.	Average area, painted steel frame.
<b>Lube Room Doors</b> (5% of total cost)	Painted steel or aluminum and glass sectional roll up.	Painted steel or aluminum and glass sectional roll up.	Painted steel sectional roll up.	Painted steel sectional roll up.
<b>Floor Finish</b> (5% of total cost)	Concrete floors, ceramic tile in office.	Concrete floors, ceramic tile in office.	Concrete floors.	Concrete floors.
<b>Interior Wall Finish</b> (5% of total cost)	Painted steel panels or gypsum wallboard and paint.	Painted steel panels or gypsum wallboard and paint.	Painted steel panels or gypsum wallboard and paint.	Painted steel panels or gypsum wallboard and paint.
<b>Ceiling Finish</b> (3% of total cost)	Painted steel panels.	Painted steel panels.	Painted steel panels, gypsum wallboard, or "V" rustic and paint.	Painted steel panels, gypsum wallboard or "V" rustic and paint.
<b>Restroom Finish</b> (5% of total cost)	Ceramic tile floors, ceramic tile walls, painted steel ceiling.	Ceramic tile floors, ceramic tile walls, painted steel ceiling.	Ceramic tile floors, 5' ceramic tile wainscot, painted steel ceiling.	Ceramic tile floors, 5' ceramic tile wainscot, painted steel ceiling.
<b>Restroom Fixtures</b> (10% of total cost)	5 good fixtures.	5 good fixtures.	5 good fixtures.	5 good fixtures.
<b>Exterior Appointments</b> (4% of total cost)	3' to 6' overhang on all sides, 3' raised walk on 3 sides, fluorescent soffit lights on all sides.	3' to 6' overhang on all sides, 3' raised walk on 3 sides, fluorescent soffit lights on all sides.	3' to 6' overhang on 3 sides, 6' x 8' sign pylon, 3' raised walk on 3 sides, fluorescent soffit lights on 3 sides.	2' to 3' overhang on 3 sides, 3' raised walk on 3 sides, fluorescent soffit lights on 3 sides.

**Note:** Use the percent of total cost to help identify the correct quality classification.

**Square foot costs include the cost of the following components:** Foundations as required for normal soil conditions. Floor, wall and roof structure. Interior floor, wall and ceiling finishes as described above. Interior partitions. Exterior finish and roof cover. A built-in work bench, tire rack and shelving. Electrical services and fixtures contained within the building. Air and water lines within the building. That portion of rough plumbing serving the building and plumbing fixtures within the building. Roof overhangs and raised walks as described above. Lube room doors. Permits and fees. Contractor's mark-up.

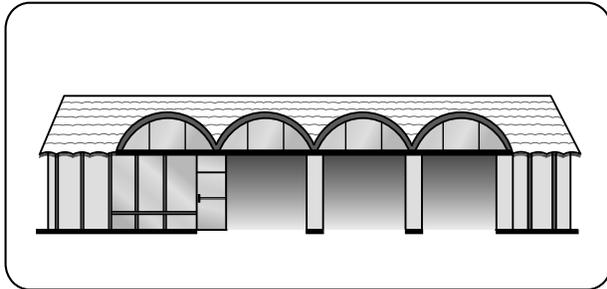
**The in-place cost of these extra components should be added to the basic building cost to arrive at the total structure cost. See the section "Additional Costs for Service Stations" beginning on page 204.** Canopies. Pumps, dispensers and turbines. Air and water services outside the building. Island lighters. Gasoline storage tanks. Hoists. Compressors. Yard lights. Signs. Paving. Curbs and fences. Miscellaneous equipment and accessories. Island office and storage buildings. Site improvements. Heating and cooling systems

**Land improvement costs:** Most service stations sites require an expenditure of \$10,000 or more for items such as leveling, excavation, curbs, driveways, relocation of power poles, replacement of sidewalks with reinforced walks and street paving.

# Service Stations – Ranch or Rustic Type

## Estimating Procedure

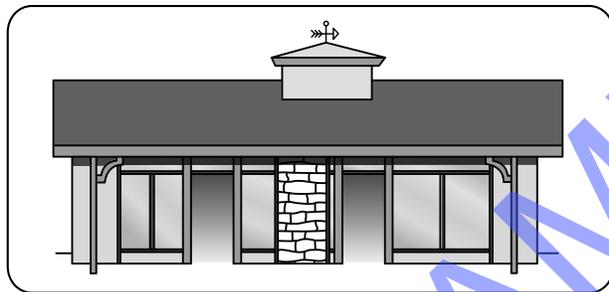
1. Establish the structure quality class by applying the information on page 202.
2. Compute the building floor area.
3. Multiply the square foot cost by the building floor area.
4. Multiply the total cost by the location factor listed on page 7 or 8.
5. Add the cost of appropriate equipment and fixtures from the section “Additional Costs for Service Stations” beginning on page 204.



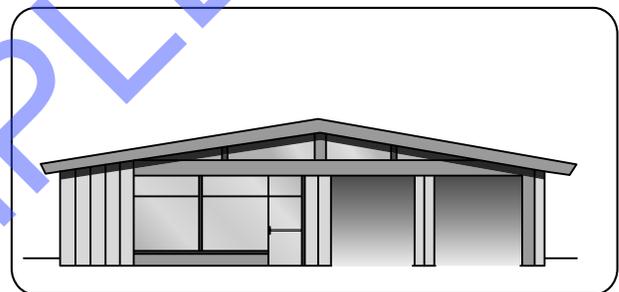
**Best Quality**



**Good Quality**



**Average Quality**



**Low Quality**

### Square Foot Area

Quality Class	1,000	1,100	1,200	1,300	1,400	1,500	1,600	1,700	1,800	2,000	2,400
Best	218.66	210.92	204.78	199.89	195.97	192.66	190.01	187.76	185.89	182.98	179.40
Good	209.78	202.33	196.47	191.79	187.98	184.85	182.25	180.17	178.27	175.58	172.12
Average	201.34	194.15	188.57	184.03	180.37	177.36	174.94	172.83	171.14	168.42	165.16
Low	190.12	183.43	178.11	173.87	170.38	167.61	165.20	163.30	161.62	159.08	155.99

## Additional Costs for Service Stations

A portion of the typical plumbing or electrical cost has been added to each item of equipment requiring these services. It will not be necessary except in rare instances to add extra cost for these items.

### Canopies, cost per square foot

Type	Less than 500 S.F.	500 to 1,000 S.F.	Over 1,000 S.F.
Painted steel	\$36.30 to \$40.70	\$33.30 to \$40.80	\$28.80 to \$32.00
Porcelain and steel	41.60 to 43.30	36.30 to 40.40	33.14 to 36.12
Ranch style or gable roof type	47.05 to 51.40	37.20 to 44.20	33.72 to 37.84

Deluxe steel with illuminated plastic signs on sides or in gables.  
Also includes illuminated plastic island lighters.

Round type, good steel 71.68 to 84.10

Costs include cost of foundation, steel support column or columns, complete canopy, painting or porcelaining, light fixtures, and electrical service. Ranch or gable roof types include the cost of a rock or shake roof cover. Concrete pads under canopies or masonry trim on support columns are not included in these costs.

### Island Office and Storage buildings, cost per square foot

Type	Area						
	Under 30	31 - 40	41 - 50	51 - 60	61 - 80	81 - 100	101 - 120
Steel and glass or concrete block	464.50	445.15	395.65	354.37	317.31	296.26	240.41
Wood frame with stucco and glass	385.25	362.51	301.12	282.29	216.86	201.04	189.14

These buildings are usually found at self-service stations. Add \$1,810 per unit for any plumbing fixtures in these buildings. Steel island offices cost about \$1,865

### Pumps, Dispensers and Turbines, cost each

Type	Installed Cost	Type	Installed Cost
Single pump	\$6,375	Blendomatic pump	\$10,470
Twin pump	8,650	Blendomatic dispenser	8,590
Single dispenser	4,855	Turbine pump, 1/3 HP	1,808
Twin dispenser	8,120	Turbine pump, 3/4 HP	2,504

Installed cost includes the cost of the pump or dispenser, installation cost, electrical hookup cost, a portion of the piping cost and a portion of the island block cost. Concrete islands 4" to 6" thick cost from \$12.40 to \$15.05 per square foot.

All of the above pump and dispenser costs are for the computing type. Add for electronic remote control totalizer, per hose, \$1,970. Add for vapor control system, per hose/dispenser, \$2,055.

Dispenser cost does not include the cost of the pump. Turbine pump costs must be added. 1/3 HP turbines will serve a single product up to four dispensers. 3/4 HP turbines will serve a single product up to eight dispensers.

## Additional Costs for Service Stations

### Air and Water Services

Type	Air Only		Air and Water	
	Equipment Cost	Installed Cost	Equipment Cost	Installed Cost
Underground disappearing hose type	\$ 520	\$ 767	\$ 565	\$1,160
Post type with auto inflator	\$ 820	\$1,212	\$1,035	\$1,640
Post type with auto inflator and disappearing hoses	\$1,370	\$1,860	\$2,090	\$2,550

Costs include cost of installation and a portion of the cost of air and water lines.

### Island Lighters

Width	Length	4 Tubes	6 Tubes
42"	9'-5"	\$2,230 ea.	\$2,690 ea.
42"	11'-5"	2,780 ea.	3,530 ea.
42"	15'-6"	3,610 ea.	3,980 ea.
42"	19'-6"	4,400 ea.	4,750 ea.
36"	30'-0"	—	5,560 ea.

Cost includes foundation, davit poles or steel support columns and electrical service.

**Cash Boxes complete,** with pedestal \$351 each

### Gasoline Storage Tanks (Fiberglass)

Capacity in Gallons	Tank Cost	Installed Cost	Capacity in Gallons	Tank Cost	Installed Cost
110	\$822	\$1,450	5,300	\$8,380	\$10,900
150	1,020	1,734	6,300	8,555	11,230
280	1,226	1,995	7,400	10,880	12,160
550	1,624	2,534	8,400	11,200	12,260
1,000	2,961	5,258	10,500	11,260	14,590
2,000	5,696	6,982	12,600	14,280	18,190
4,000	7,636	11,470	—	—	—

Installed cost includes cost of tank, excavation (4' bury and soil disposal), placing backfill, fill box (concrete slab over tank), tank piping and vent piping.

### Miscellaneous Lube Room Equipment

Air hose reel	\$1,190	Pneumatic tube changer	\$12,800
Water hose reel	1,230	Automatic lube equipment	9,560
Grease pit for trucks	\$480 to \$550 per L.F.	5 hose reel assembly	11,880

### Yard Lights

High pressure sodium luminaires. Costs include electrical connection and mounting on a building soffit. For pole mounted yard lights, add pole mounting costs from page 195. Cost per light fixture.

<b>70 Watt</b>	<b>100 Watt</b>	<b>200 Watt</b>	<b>300 Watt</b>	<b>400 Watt</b>
\$512	\$533	\$553	\$598	\$701

## Additional Costs for Service Stations

### Vehicle Hoist

Type	Equipment Cost	Installed Cost
One post 8,000 lb. semi hydraulic hoist	\$5,225	\$11,305
One post 8,000 lb. fully hydraulic hoist	5,356	11,720
Two post 11,000 lb. semi hydraulic hoist	7,857	18,087
Two post 11,000 fully hydraulic hoist	7,921	18,164
Two post 11,000 lb. pneumatic hoist	10,180	16,600
Two post 24,000 lb. pneumatic hoist	14,269	24,421

### Air Compressors

Horsepower	Equipment Cost	Installed Cost	Horsepower	Equipment Cost	Installed Cost
1/2	\$2,625	\$2,964	2	\$2,824	\$3,160
3/4	2,664	3,018	3	2,976	3,808
1	2,702	3,074	5	3,183	3,893
1-1/2	2,795	3,137	7-1/2	5,420	5,737

Costs include compressor and tank only.

### Paving, cost per S.F.

Asphalt, 2" with 4" base	\$2.86 to \$3.71
Concrete 4", with base	3.52 to 4.93
Concrete 6", with base	4.45 to 5.74
Oil macadam	2.73
Pea gravel	1.39

### Site Improvement

Vertical curb and gutter	\$7.45 to \$24.02 LF
Concrete apron	9.23 to 20.51 SF
6" reinforced concrete sidewalks	5.70 to 7.44 SF
Standard 4" sidewalk	4.63 to 5.12 SF

The above costs are normally included in land value.

### Fencing and Curbing, cost per L.F.

Heavy 2 rail fence, 2" x 6"	\$1.01 to \$11.82
Rails on 4" x 4" posts 6' to 8' o.c.	10.20 to 12.75
Chain link 3' to 4' high	10.15 to 15.03
Solid board 3' to 4' high	10.30 to 12.34
Log barrier	8.98 to 16.32
Metal guard rail on wood posts	37.97 to 69.71
6" x 6" doweled wood bumper strip	9.74 to 12.80
6" x 6" concrete bumper strip	8.34 to 11.87
Cable railing on wood posts	10.54 to 12.73
6" x 12" concrete curb and gutter	19.01 to 21.88
6" concrete block walls, per S.F.	7.74 to 11.07

plus \$9.80/LF for foundation

### Service Station Signs, cost per square foot of sign area measured on one side

Painted sheet metal with floodlights	\$68.39 to \$90.75
Porcelain enamel with floodlights	72.65 to 97.72
Plastic with interior lights	82.92 to 126.20
Simple rectangular neon with painted sheet metal faces and a moderate amount of plain letters	89.89 to 160.36
Round or irregular neon with porcelain enamel faces and more elaborate lettering	126.34 to 192.04

All of the above sign costs are for single faced signs. Add 50% to these costs for double faced signs. Sign costs include costs of installation and normal electrical hookup. They do not include the post cost. See page 195. These costs are intended for use on **service station signs only** and are based on volume production. Costs of custom-built signs will be higher.

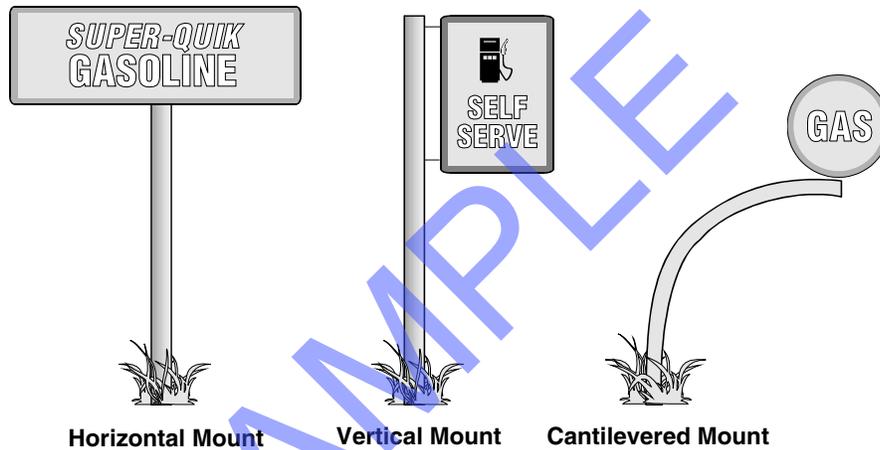
### Rotators, cost per sign for rotating mount

Small signs	Less than 50 S.F.	\$2,760 to \$2,490
Medium signs	50 to 100 S.F.	2,910 to 5,910
Large signs	100 to 200 S.F.	5,830 to 10,700
Extra large signs	Over 200 S.F.	\$61.27 per S.F. of sign area

# Additional Costs for Service Stations

## Post Mounting Costs

Post Height	Pole Diameter at Base					
	4"	6"	8"	10"	12"	14"
15	\$1,304	\$1,550	\$2,284	\$3,078	\$4,790	\$4,790
20	1,546	1,844	2,640	3,192	5,699	6,410
25	1,772	2,084	2,735	3,798	6,340	7,001
30	1,930	2,480	2,837	4,146	6,698	7,750
35	—	2,697	3,192	4,625	7,578	8,276
40	—	2,863	3,898	4,891	7,882	9,284
45	—	—	4,565	5,570	8,603	9,610
50	—	—	4,891	6,350	9,156	10,530
55	—	—	—	6,699	9,605	11,465
60	—	—	—	7,088	10,310	11,990
65	—	—	—	—	12,050	12,743



If signs are mounted on separate posts, post mounting costs must be added. Post mounting costs include the installed cost of a galvanized steel post and foundation. On horizontally mounted signs, post height is the distance from the ground to the bottom of the sign. On vertically mounted signs, post height is the distance to the top of the post.

For cantilevered posts, use one and one-half to two times the conventional post cost.

All of the above post costs are for single posts. Use 90% of the single post costs for each additional post.

If signs are mounted on buildings or canopies and if, because of the extra weight of the sign, extra heavy support posts or foundations are required, 125% of the post mounting cost should be used.

For example, the cost of a 4' x 25' plastic sign mounted on a 15' by 6" post shared by an adjacent canopy might be estimated as follows:

Sign Cost (100 x \$100)	\$10,000
Post Cost (\$1,550 x 1/2)	755
<b>Total Cost</b>	<b>\$10,775</b>

If this sign were mounted on an 8" post 20' above the canopy with extra supports not needed, the cost might be estimated as follows:

Sign Cost (100 x \$100)	\$10,000
Post Cost (\$2,640 x 1)	2,640
<b>Total Cost</b>	<b>\$12,640</b>

## Service Garage – Masonry or Concrete

### Quality Classification

	Class 1 Best Quality	Class 2 Good Quality	Class 3 Average Quality	Class 4 Low Quality
<b>Foundation</b> (25% of total cost)	Reinforced concrete or masonry.	Reinforced concrete or masonry.	Reinforced concrete or masonry.	Unreinforced concrete or masonry.
<b>Floor Structure</b> (15% of total cost)	6" rock fill, 4" concrete with reinforcing mesh.	6" rock fill, 4" concrete with reinforcing mesh.	4" rock fill, 4" concrete with reinforcing mesh.	Unreinforced 4" concrete.
<b>Walls</b> (15% of total cost)	8" reinforced concrete block, 12" common brick.	8" reinforced concrete block, 6" reinforced concrete.	8" reinforced concrete block, 6" reinforced concrete or 8" common brick.	8" unreinforced concrete block or 8" clay tile.
<b>Roof Structure</b> (12% of total cost)	Glu-lams or steel trusses on heavy pilasters 20' o.c. 2" x 10" purlins 16" o.c.	Glu-lams or steel trusses on pilasters 20' o.c., 2" x 10" purlins 16" o.c.	Glu-lams or wood trusses with 2" x 8" purlins 16" o.c.	Glu-lams or light wood trusses, 2" x 8" rafters 24" o.c.
<b>Roof Cover</b> (8% of total cost)	5 ply built-up roof on wood sheathing, with small rock.	4 ply built-up roof on wood sheathing, with small rock.	4 ply built-up roof on wood sheathing.	4 ply built-up roof on wood sheathing.
<b>Restrooms</b> (10% of total cost)	Two rest rooms with three average fixtures each.	Two rest rooms with two average fixtures each.	One rest room with two low cost fixtures.	One rest room with two low cost fixtures.
<b>Lighting</b> (10% of total cost)	One incandescent fixture per 300 square feet of floor area.	One incandescent fixture per 300 square feet of floor area.	One incandescent fixture per 300 square feet of floor area.	One incandescent fixture per 300 square feet of floor area.
<b>Windows</b> (5% of total cost)	3% to 5% of wall area.	3% to 5% of wall area.	3% to 5% of wall area.	3% to 5% of wall area.

**Note:** Use the percent of total cost to help identify the correct quality classification.

**Square foot costs include the cost of the following components:** Foundations as required for normal soil conditions. Floor, wall and roof structures. Exterior wall finish and roof cover. Entry doors. Basic lighting and electrical systems. Rough and finish plumbing. Permits and fees. Contractor's mark-up.

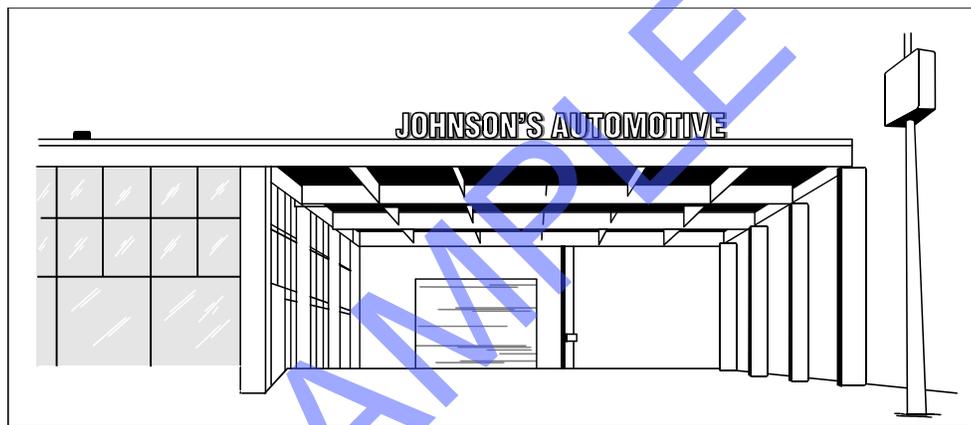
**The in-place cost of these extra components should be added to the basic building cost to arrive at the total structure cost. See page 236 to 248.** Heating and air conditioning systems. Fire sprinklers. Interior finish costs. Interior partitions. Drive-through doors. Canopies and walks. Exterior signs. Paving and curbing. Miscellaneous yard improvements. Hoists, gas pump and compressor costs are listed in the section "Additional Costs for Service Stations" beginning on page 204.

## Service Garage – Masonry or Concrete

### Length Less Than Twice Width

#### Estimating Procedure

1. Use these figures to estimate buildings designed primarily for motor vehicle repair. Sales area should be figured separately. Use the costs for urban stores beginning on page 75.
2. Establish the building quality class by applying the information on page 208.
3. Compute the floor area.
4. If the wall height is more or less than 18 feet, add to or subtract from the square foot costs below the appropriate amount from the Wall Height Adjustment Table on page 212.
5. Multiply the adjusted square foot cost by the floor area.
6. Deduct for common walls or no wall ownership. Use the figures on page 212.
7. Multiply the total cost by the location factor on page 7 or 8.
8. Add the cost of heating and air conditioning systems, fire sprinklers, interior finish and partitions, drive-thru doors, canopies and walks, exterior signs, paving, curbing, and yard improvements. See page 236 to 248. Add the cost of hoists, pumps and compressors beginning on page 204.



Service Garage (rear portion), Class 2

#### Square Foot Area

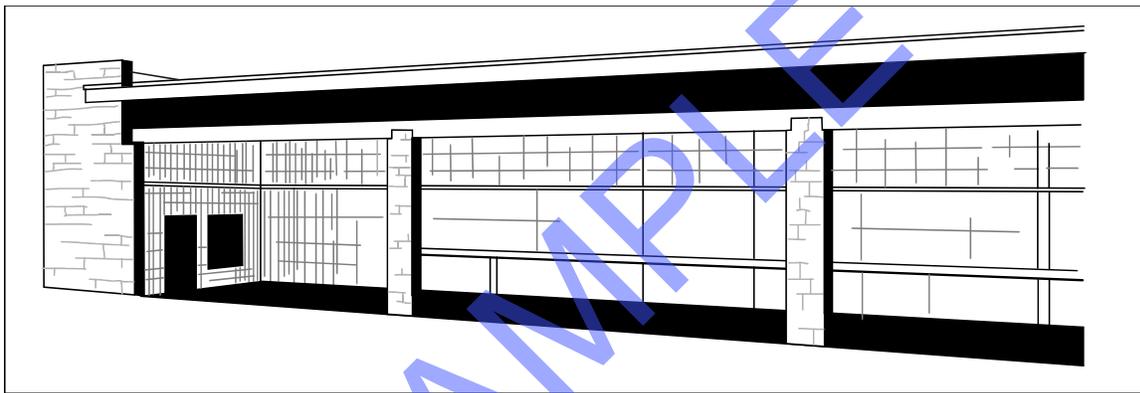
Quality Class	2,000	2,500	3,000	4,000	5,000	6,000	7,500	10,000	15,000	20,000	30,000
1, Best	71.75	65.16	60.49	54.24	50.11	47.20	44.02	40.57	36.69	34.40	31.85
1 & 2	68.88	62.59	58.04	52.06	48.09	45.26	42.27	39.02	35.21	33.05	30.54
2, Good	67.46	61.28	56.87	50.97	47.10	44.32	41.40	38.19	34.44	32.35	29.93
2 & 3	64.17	58.32	54.12	48.52	44.85	42.22	39.42	36.32	32.81	30.84	28.48
3, Average	62.35	56.61	52.53	47.09	43.51	40.96	38.25	35.23	31.84	29.91	27.65
3 & 4	58.98	53.53	49.67	44.54	41.18	38.78	36.19	33.34	30.08	28.23	26.13
4, Low	55.85	50.76	47.11	42.27	39.06	36.73	34.27	31.64	28.57	26.79	24.81

## Service Garage – Masonry or Concrete

### Length Between 2 and 4 Times Width

#### Estimating Procedure

1. Use these figures to estimate buildings designed primarily for motor vehicle repair. Sales area should be figured separately. Use the costs for urban stores beginning on page 75.
2. Establish the building quality class by applying the information on page 208.
3. Compute the floor area.
4. If the wall height is more or less than 18 feet, add to or subtract from the square foot costs below the appropriate amount from the Wall Height Adjustment Table on page 212.
5. Multiply the adjusted square foot cost by the floor area.
6. Deduct for common walls or no wall ownership. Use the figures on page 212.
7. Multiply the total cost by the location factor on page 7 or 8.
8. Add the cost of heating and air conditioning systems, fire sprinklers, interior finish and partitions, drive-thru doors, canopies and walks, exterior signs, paving, curbing, and yard improvements. See page 236 to 248. Add the cost of hoists, pumps and compressors beginning on page 204.



Service Garage, Class 3

#### Square Foot Area

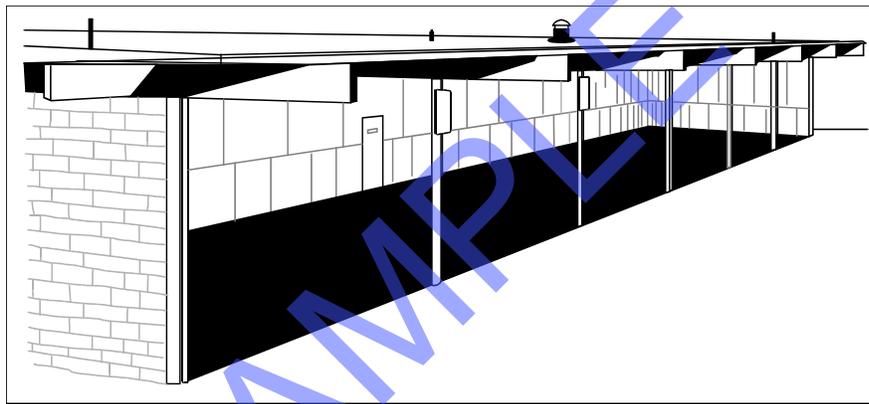
Quality Class	2,000	2,500	3,000	4,000	5,000	6,000	7,500	10,000	15,000	20,000	30,000
1, Best	76.45	69.37	64.44	57.79	53.37	50.26	46.91	43.24	39.08	36.66	33.90
1 & 2	73.22	66.49	61.69	55.26	51.09	48.12	44.93	41.42	37.38	35.09	32.41
2, Good	71.66	65.09	60.46	54.14	50.01	47.12	43.96	40.50	36.60	34.36	31.75
2 & 3	68.18	61.90	57.46	51.49	47.62	44.80	41.77	38.48	34.78	32.66	30.17
3, Average	63.87	59.79	55.52	49.75	46.00	43.38	40.44	37.25	33.62	31.58	29.20
3 & 4	62.53	56.75	52.67	47.20	43.64	41.10	38.36	35.32	31.90	29.25	27.70
4, Low	59.22	53.80	49.88	44.77	41.42	38.94	36.33	33.51	30.26	28.36	26.23

## Service Garage – Masonry or Concrete

### Length More Than 4 Times Width

#### Estimating Procedure

1. Use these figures to estimate buildings designed primarily for motor vehicle repair. Sales area should be figured separately. Use the costs for urban stores beginning on page 75.
2. Establish the building quality class by applying the information on page 208.
3. Compute the floor area.
4. If the wall height is more or less than 18 feet, add to or subtract from the square foot costs below the appropriate amount from the Wall Height Adjustment Table on page 212.
5. Multiply the adjusted square foot cost by the floor area.
6. Deduct for common walls or no wall ownership. Use the figures on page 212.
7. Multiply the total cost by the location factor on page 7 or 8.
8. Add the cost of heating and air conditioning systems, fire sprinklers, interior finish and partitions, drive-thru doors, canopies and walks, exterior signs, paving curbing, and yard improvements. See page 236 to 248. Add the cost of hoists, pumps and compressors beginning on page 204.



Service Garage, Class 3 & 4

#### Square Foot Area

Quality Class	2,000	2,500	3,000	4,000	5,000	6,000	7,500	10,000	15,000	20,000	30,000
1, Best	81.44	73.87	68.63	61.51	56.81	53.51	49.89	46.02	41.57	39.08	36.08
1 & 2	78.38	71.13	66.00	59.17	54.69	51.48	48.05	44.23	39.98	37.55	34.74
2, Good	76.40	69.32	64.31	57.60	53.29	50.11	46.85	43.13	39.00	36.60	33.86
2 & 3	72.77	66.03	61.33	54.88	50.78	47.82	44.60	41.10	37.18	34.89	32.30
3, Average	70.53	64.00	59.40	53.26	49.12	46.31	43.25	39.85	35.98	33.84	31.27
3 & 4	66.62	60.45	56.09	50.26	46.40	43.73	40.81	37.65	33.99	31.90	29.53
4, Low	66.48	57.21	53.10	47.61	43.96	41.43	38.63	35.58	32.17	30.17	27.94

## Service Garage – Masonry or Concrete

### Wall Height Adjustment

Add or subtract the amount listed in this table to or from the square foot of floor cost for each foot of wall height more or less than 18 feet.

Area	2,000	2,500	3,000	4,000	5,000	6,000	7,500	10,000	15,000	20,000	30,000
Cost	.77	.72	.69	.58	.53	.50	.48	.24	.20	.17	.07

### Perimeter (Common) Wall Adjustment

A common wall exists when two buildings share one wall. Adjust for common walls by deducting the linear foot costs below from the total structure cost. In some structures, one or more walls are not owned at all. In this case, deduct the “No Ownership” cost per linear foot of wall not owned.

For common wall, deduct \$214 per linear foot.

For no wall ownership, deduct \$428 per linear foot.

SAMPLE

## Service Garage – Wood Frame

### Quality Classification

	Class 1 Best Quality	Class 2 Good Quality	Class 3 Average Quality	Class 4 Low Quality
<b>Foundation</b> (25% of total cost)	Concrete, heavily reinforced.	Reinforced concrete.	Masonry or reinforced concrete.	Masonry or concrete.
<b>Floor Structure</b> (12% of total cost)	4" reinforced concrete on 6" rock fill.	4" reinforced concrete on 6" rock fill.	4" concrete on 6" rock fill.	4" concrete on 4" rock fill.
<b>Walls</b> (12% of total cost)	2" x 4" studs 16" o.c. in walls 14' high; 2" x 6" studs 16" o.c. in walls over 14' high; 3" sill, double plate, adequate blocking and bracing.	2" x 4" studs 16" o.c. in walls 14' high; 2" x 6" studs 16" o.c. in walls over 14' high; 2" sill, double plate, adequate blocking and bracing.	2" x 4" studs 16" o.c. in walls to 14' high; 2" x 6" studs 16" o.c. in walls over 14' high; 2" sill, double plate, minimum blocking and bracing.	2" x 4" studs 24" o.c.; 2" x 4" sill, double 2" x 4" plate, minimum diagonal bracing.
<b>Exterior</b> (9% of total cost)	Good corrugated iron or board and batt.	Good corrugated iron or board and batt.	Average corrugated iron or board and batt.	Light corrugated iron or board and batt.
<b>Roof Structures</b> (12% of total cost)	Glu-lams, trusses or tapered steel girders on steel intermediate columns; 2" x 10" rafters 16" o.c.	Glu-lams, average wood trusses, tapered steel girders on steel intermediate columns; 2" x 8" purlins or rafters 16" o.c.	Glu-lams or light wood trusses, on wood posts 18" o.c.; 2" x 8" rafters on purlins 24" o.c.	Light trussed rafters, clear span in small buildings, post and beam support in large buildings.
<b>Roof Cover</b> (5% of total cost)	Good quality 4 ply composition roofing on wood sheathing.	Average quality 4 ply composition roofing on wood sheathing.	Average quality 3 ply composition roofing on wood sheathing, or good corrugated aluminum.	Light weight 3 ply composition roofing on wood sheathing, or heavy corrugated iron.
<b>Rest Rooms</b> (10% of total cost)	Two restrooms with three average fixtures each.	Two restrooms with three average fixtures each.	One restroom with two low cost fixtures.	One restroom with two low cost fixtures.
<b>Lighting</b> (10% of total cost)	One incandescent fixture per 300 square feet of floor area.	One incandescent fixture per 300 square feet of floor area.	One incandescent fixture per 300 square feet of floor area.	One incandescent fixture per 300 square feet of floor area.
<b>Windows</b> (5% of total cost)	3% to 5% of wall area.	3% to 5% of wall area.	3% to 5% of wall area.	3% to 5% of wall area.

**Note:** Use the percent of total cost to help identify the correct quality classification.

**Square foot costs include the cost of the following components:** Foundations as required for normal soil conditions. Floor, wall and roof structure. Exterior wall finish and roof cover. Entry doors. Basic lighting and electrical systems. Rough and finish plumbing. Permits and fees. Contractor's mark-up.

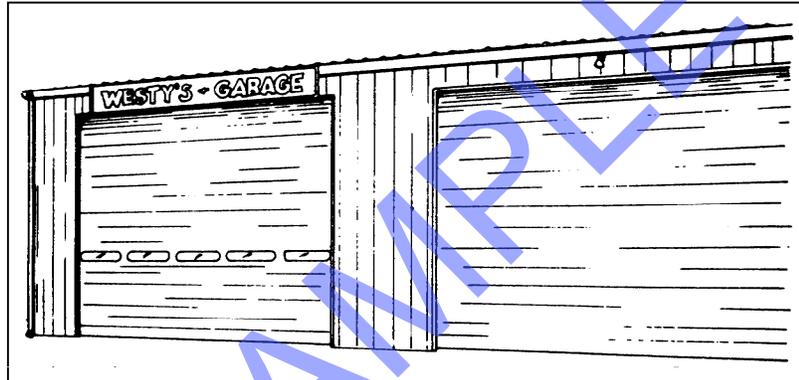
**The in-place cost of these extra components should be added to the basic building cost to arrive at the total structure cost. See page 236 to 248.** Heating and air conditioning systems. Fire sprinklers. Interior finish costs. Interior partitions. Drive-through doors. Canopies and walks. Exterior signs. Paving and curbing. Miscellaneous yard improvements. Hoists, gas pump and compressor costs are listed in the section "Additional Costs for Service Stations" beginning on page 204.

## Service Garage – Wood Frame

### Length Less Than Twice Width

#### Estimating Procedure

1. Use these figures to estimate buildings designed primarily for motor vehicle repair. Sales area should be figured separately. Use the costs for urban stores beginning on page 75.
2. Establish the building quality class by applying the information on page 213.
3. Compute the floor area.
4. If the wall height is more or less than 16 feet, add to or subtract from the square foot costs below the appropriate amount from the Wall Height Adjustment Table on page 217.
5. Multiply the adjusted square foot cost by the floor area.
6. Deduct for common walls or no wall ownership. Use the figures on page 217.
7. Multiply the total cost by the location factor on page 7 or 8.
8. Add the cost of heating and air conditioning systems, fire sprinklers, interior finish and partitions, drive-thru doors, canopies and walks, exterior signs, paving, curbing, and yard improvements. See page 236 to 248. Add the cost of hoists, pumps and compressors beginning on page 204.



Service Garage, Class 3

#### Square Foot Area

Quality Class	2,000	2,500	3,000	4,000	5,000	6,000	7,500	10,000	15,000	20,000	30,000
1, Best	49.20	44.67	41.48	37.18	34.34	32.31	30.18	27.83	25.22	23.67	21.86
1 & 2	46.70	42.38	39.35	35.24	32.55	30.68	28.67	26.39	23.87	22.42	20.71
2, Good	45.08	40.92	37.98	34.03	31.48	29.63	27.65	25.50	23.03	21.66	20.05
2 & 3	42.43	38.46	35.70	32.01	29.61	27.81	26.00	23.94	21.71	20.35	18.83
3, Average	40.29	36.56	33.98	30.43	28.11	26.47	24.68	22.80	20.57	19.34	17.94
3 & 4	37.82	34.33	31.90	28.59	26.44	24.81	23.20	21.37	19.33	18.16	16.84
4, Low	35.57	32.27	30.02	26.84	24.81	23.40	21.86	20.09	18.13	17.09	15.83

# Additional Costs for Commercial, Industrial, and Public Structures

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## Additional Structure Costs

### Basements

Cost includes concrete floor and walls, open ceiling, minimum lighting, no plumbing, and no wall finish. Cost per square foot of floor at 12' wall height.

Area	500	1,000	1,500	2,000	3,000	4,000	5,000	7,500	10,000	15,000	20,000
Cost	57.05	51.10	44.52	40.33	39.29	34.17	33.04	31.92	28.05	26.81	25.21

Add or subtract the amount listed in the table below to or from the square foot of floor cost for each foot of wall height more or less than 12 feet.

#### Wall Height Adjustment Square Foot Area

Area	500	1,000	1,500	2,000	3,000	4,000	5,000	7,500	10,000	15,000	20,000
Cost	3.82	2.80	2.48	2.02	1.66	1.52	1.42	1.10	.90	.70	.66

### Canopies, per S.F. of canopy area

Light frame, flat roof underside, plywood and paint or cheap stucco supported by wood or light steel posts, 4" to 6" wood fascia.	\$20.09 to \$21.62
Average frame, underside of good stucco, flat roof, cantilevered from building or supported by steel posts, 6" to 12" metal fascia.	\$22.43 to \$30.38
Same as above but with sloping shake or tile roof.	\$23.44 to \$32.70
Corrugated metal on steel frame.	\$20.29 to \$30.38

### Canopy Lights, per S.F. based on one row of lights for 5' canopy

Recessed spots (1 each 6 linear feet)	\$3.24
Single tube fluorescent	5.95
Double tube fluorescent	8.34

### Public Address Systems, speakers attached to building. No conduit included.

Base cost, master control	\$904 to \$1,757
Per indoor speaker	188
Per outdoor speaker	376

### Sound Systems, cost per unit

Voice only, per unit	\$101 to \$171
Music (add to above), small units	101 to 131
Music (add to above), large units	131 to 394
Larger installations cost the least per unit.	

### Docks for unloading trucks. Cost per S.F. of dock at 4' height

L x W	10'	20'	30'	50'	100'	200'
5'	35.21	31.29	28.53	25.77	23.87	22.17
10'	31.29	27.15	23.75	21.32	19.73	19.09
15'	27.47	23.02	20.36	17.61	16.33	15.16
20'	24.60	19.73	17.07	15.80	14.74	13.89

Cost includes compacted fill, three concrete walls, concrete floor, and rock base.

### Intercommunication Systems

Master control, base cost	\$1,896 to \$5,708
Cost per station	145 to 217
Nurses call system, per station	217 to 397

### Security Systems

Control panel	\$155 to \$309
Each door or window secured	31 to 69
Heat detectors, each	10 to 51
Smoke detectors, each	20 to 101
Motion detectors, each	20 to 41

### Loading Ramps, cost per S.F. of ramp

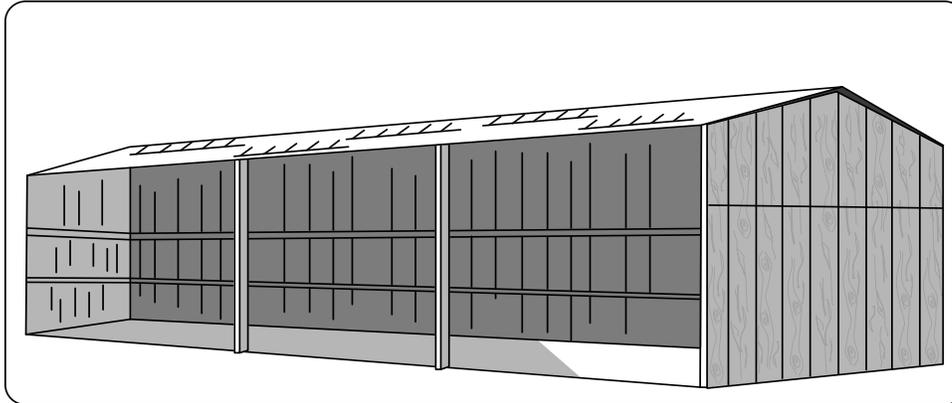
<b>Size</b>	
Under 300 S.F.	\$9.65
Over 300 S.F.	9.25

### Dock Levelers and Lifts, cost each

Dock leveler, manual	\$7,802
Dock leveler, mechanical	3,798
Powered platform dock leveler	
6' x 6' recessed	3,386
6' x 8' recessed	3,829
Electro-hydraulic, pit recessed scissor lift	
5,000 lb. capacity, 6' x 8'	10,144
10,000 lb. capacity, 8' x 10'	17,934
20,000 lb. capacity, 8' x 12'	29,607

# Machinery and Equipment Sheds

## Quality Classification



Equipment Shed, Class 3

Usually elongated, width between 15 and 30 feet, any length

Component	Class 1 Good Quality	Class 2 Average Quality	Class 3 Low Quality
<b>Foundation</b> (22% of total cost)	Continuous concrete.	Concrete or masonry piers.	Redwood or cedar mudsills.
<b>Floor</b> (5% of total cost)	Concrete.	Concrete.	Dirt, leveled & compacted
<b>Wall Structure</b> (25% of total cost)	Good wood frame, 10' eave height.	Average wood frame, 10' eave height.	Light wood frame, 10' eave height.
<b>Exterior Wall Cover</b> (30% of total cost)	Good wood siding, painted.	Standard gauge corrugated iron, aluminum or average wood siding.	Light aluminum or low cost boards.
<b>Roof Construction</b> (10% of total cost)	Low to medium pitch, gable or shed type, good wood framing.	Low to medium pitch, gable or shed type, average wood framing.	Low to medium pitch, shed type, light wood framing.
<b>Roof Cover</b> (5% of total cost)	Wood shingles.	Standard gauge corrugated iron or aluminum.	Light aluminum.
<b>Electrical</b> (3% of total cost)	Four outlets per 1,000 S.F.	Two outlets per 1,000 S.F.	None.

**Note:** Use the percent of total cost to help identify the correct quality classification.

### All Sides Closed – Square Foot Area

Quality Class	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	6,000
1, Good	28.42	25.65	23.85	23.39	22.87	22.88	22.61	22.33	22.15	21.99	21.70
2, Average	21.92	19.13	18.20	17.84	17.41	17.41	16.98	16.85	16.77	16.68	16.51
3, Low	14.95	13.41	12.48	12.05	12.24	12.22	11.67	11.57	11.42	11.29	11.14

### One Side Open – Square Foot Area

Quality Class	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	6,000
1 Good	23.22	21.87	21.10	20.21	19.66	19.40	19.24	19.04	18.96	18.86	18.78
2, Average	20.07	17.21	15.89	15.43	14.97	14.84	14.61	14.51	14.42	14.28	14.17
3, Low	13.12	11.02	10.36	9.99	9.83	9.72	9.62	9.51	9.42	9.34	9.27

## Small Sheds

### Quality Classification

Usually elongated, width between 6 and 12 feet, any length

Component	Class 1 Good Quality	Class 2 Average Quality	Class 3 Low Quality
<b>Foundation</b> (25% of total cost)	Continuous concrete.	Concrete or masonry piers.	Redwood or cedar mudsills.
<b>Floor</b> (5% of total cost)	Concrete.	Boards.	Dirt, leveled & compacted.
<b>Wall Structure</b> (25% of total cost)	Good wood frame, 8' eave height.	Average wood frame, 8' eave height.	Light wood frame, 8' eave height.
<b>Exterior Wall Cover</b> (30% of total cost)	Good wood siding, painted.	Standard gauge corrugated iron, aluminum or average wood siding.	Light aluminum or low cost boards.
<b>Roof Construction</b> (10% of total cost)	Low to medium pitch, gable or shed type, good wood framing.	Low to medium pitch, gable or shed type, average wood framing.	Low to medium pitch, shed type, light wood framing.
<b>Roof Cover</b> (5% of total cost)	Wood shingles.	Standard gauge corrugated iron or aluminum.	Light aluminum.
<b>Electrical</b>	None.	None.	None.

**Note:** Use the percent of total cost to help identify the correct quality classification.

#### All Sides Closed – Square Foot Area

Quality Class	50	60	80	100	120	150	200	250	300	400	500
1, Good	36.51	32.77	31.29	29.32	27.27	25.22	23.71	22.80	21.70	21.24	20.73
2, Average	29.78	26.75	24.22	22.31	21.22	20.21	19.28	18.25	17.16	16.70	16.20
3, Low	21.22	19.19	17.15	14.66	14.09	13.16	12.66	12.14	12.94	11.13	10.59

#### One Side Open – Square Foot Area

Quality Class	50	60	80	100	120	150	200	250	300	400	500
1, Good	27.94	25.09	24.22	22.73	21.22	20.21	19.36	18.08	17.19	16.21	15.72
2, Average	22.33	20.73	19.19	18.08	17.19	16.20	15.13	14.09	13.57	13.17	13.00
3, Low	15.10	14.09	13.17	12.14	11.06	10.59	9.83	9.23	8.81	8.22	8.05

## Pole Barns

These prices are for pole barns with a low pitch corrugated iron or aluminum covered roof supported by light wood trusses and poles 15' to 20' o.c. The gable end is enclosed and the roof overhangs about 2' on two sides. Wall height is 18 feet. Where sides are enclosed, the wall consists of a light wood frame covered with corrugated metal.

### All Sides Open – Side Length

End Width	34	51	68	85	102	119	136	153	170	187
20	9.95	9.59	9.39	9.32	9.24	9.15	9.13	9.13	9.12	9.11
25	9.34	8.98	8.82	8.73	8.70	8.61	8.58	8.57	8.56	8.55
30	8.92	8.57	8.46	8.34	8.30	8.24	8.23	8.20	8.20	8.20
35	8.58	8.30	8.16	8.05	8.00	7.94	7.93	7.92	7.89	7.89
40	8.49	8.16	8.00	7.89	7.86	7.83	7.81	7.74	7.74	7.71
45	8.31	8.00	7.86	7.74	7.69	7.66	7.64	7.62	7.60	7.60
50	8.12	7.82	7.64	7.59	7.51	7.50	7.47	7.46	7.46	7.44
60	8.09	7.76	7.60	7.51	7.48	7.46	7.44	7.43	7.39	7.39
70	8.00	7.66	7.55	7.48	7.44	7.39	7.38	7.35	7.34	7.34
80	7.94	7.64	7.50	7.44	7.38	7.35	7.30	7.30	7.27	7.23

### Ends and One Side Closed, One Side Open – Side Length

End Width	34	51	68	85	102	119	136	153	170	187
20	17.95	15.81	14.74	14.17	13.82	13.56	13.34	13.15	13.04	12.98
25	16.42	14.49	13.56	12.98	12.58	12.36	12.23	12.07	11.94	11.83
30	15.42	13.58	12.68	12.21	11.81	11.61	11.46	11.32	11.20	11.12
35	14.62	12.93	12.07	11.56	11.25	11.02	10.89	10.81	10.66	10.57
40	14.09	12.45	11.63	11.14	10.89	10.61	10.48	10.37	10.25	10.20
45	13.72	12.11	11.27	10.87	10.50	10.35	10.18	10.08	9.96	9.91
50	13.34	11.71	10.97	10.50	10.21	10.02	9.91	9.77	9.67	9.63
60	12.98	11.38	10.68	10.21	9.96	9.77	9.63	9.49	9.43	9.35
70	12.68	11.14	10.39	9.99	9.77	9.58	9.38	9.31	9.23	9.13
80	12.39	10.83	10.18	9.80	9.48	9.32	9.17	9.11	9.01	8.92

### All Sides Closed – Side Length

End Width	34	51	68	85	102	119	136	153	170	187
20	21.52	19.35	18.25	17.59	17.17	16.85	16.66	16.48	16.36	16.23
25	19.23	17.29	16.29	15.73	15.31	15.07	14.84	14.66	14.57	14.49
30	17.60	15.83	14.97	14.40	14.08	13.84	13.66	13.55	13.41	13.32
35	16.57	14.91	14.04	13.57	13.19	12.96	12.79	12.70	12.56	12.49
40	15.73	14.18	13.35	12.89	12.56	12.36	12.21	12.07	11.94	11.84
45	15.11	13.57	12.78	12.35	12.07	11.81	11.66	11.55	11.47	11.35
50	14.50	13.04	12.32	11.83	11.55	11.36	11.24	11.10	11.00	10.94
60	13.86	12.43	11.71	11.33	11.04	10.87	10.73	10.59	10.50	10.42
70	13.44	12.07	11.37	11.00	10.70	10.50	10.37	10.24	10.18	10.12
80	12.96	11.61	11.00	10.59	10.27	10.14	10.02	9.91	9.84	9.78

Side sheds tying into one side of a pole barn are priced as follows. The shed consists of one row of poles 14' to 16' high, spaced 15' to 20' o.c. A light wood truss covered with a low pitch sheet metal roof spans the distance between the poles and the barn side. If the sides are open, the cost will be between \$8.65 and \$11.50 per square foot of area covered. If all sides are enclosed with sheet metal and a light wood frame, the square foot cost will be \$13.84 to \$18.10.

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