50th Edition
Edited by Ben Moselle

2026 NATIONAL BUILDING COST ESTIMATOR

Total in-place costs for residential, commerical, agricultural, and military structures

$98.00

2026 NATIONAL BUILDING COST MANUAL

Edited by Ben Moselle

50th Edition

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Contents of This Manual

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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-2026.

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

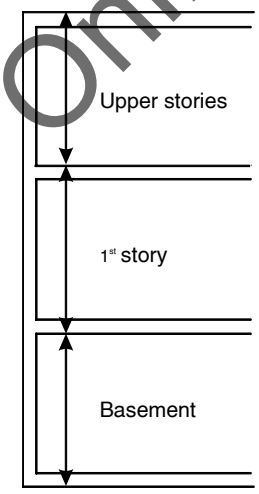
The basic building cost tables reflect the fact that larger buildings generally cost less per square foot than smaller buildings. The cost tables are based on square foot areas which include the following:

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 mid-way 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 floor slab 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:

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.

Alabama Average		**-3%**
Anniston	362	-3%
Auburn	368	-3%
Bellamy	369	-6%
Birmingham	350-352	6%
Dothan	363	-5%
Evergreen	364	-10%
Gadsden	359	-5%
Huntsville	358	3%
Jasper	355	-9%
Mobile	365-366	-1%
Montgomery	360-361	-1%
Scottsboro	357	0%
Selma	367	-2%
Sheffield	356	-1%
Tuscaloosa	354	-4%

Alaska Average		**16%**
Anchorage	995	21%
Fairbanks	997	23%
Juneau	998	12%
Ketchikan	999	8%
King Salmon	996	18%

Arizona Average		**-5%**
Chambers	865	-14%
Douglas	855	-10%
Flagstaff	860	-8%
Kingman	864	-9%
Mesa	852	5%
Phoenix	850	5%
Prescott	863	-4%
Show Low	859	-10%
Tucson	856-857	-5%
Yuma	853	4%

Arkansas Average		**-7%**
Batesville	725	-10%
Camden	717	-5%
Fayetteville	727	-4%
Fort Smith	729	-7%
Harrison	726	-15%
Hope	718	-11%
Hot Springs	719	-13%
Jonesboro	724	-3%
Little Rock	720-722	-2%
Pine Bluff	716	12%
Russellville	728	-7%
West Memphis	723	3%

California Average		**8%**
Alhambra	917-918	8%
Bakersfield	932-933	-2%
El Centro	922	-1%
Eureka	955	1%
Fresno	936-938	0%
Herlong	961	2%
Inglewood	902-905	8%
Irvine	926-927	13%
Lompoc	934	3%
Long Beach	907-908	9%
Los Angeles	900-901	8%
Marysville	959	1%
Modesto	953	0%
Mojave	935	5%
Novato	949	12%
Oakland	945-947	17%
Orange	928	12%
Oxnard	930	2%
Pasadena	910-912	9%
Rancho Cordova	956-957	7%
Redding	960	0%
Richmond	948	17%
Riverside	925	3%
Sacramento	958	6%
Salinas	939	2%
San Bernardino	923-924	2%
San Diego	919-921	6%
San Francisco	941	26%
San Jose	950-951	29%
San Mateo	943-944	19%
Santa Barbara	931	3%
Santa Rosa	954	6%
Stockton	952	3%
Sunnyvale	940	26%
Van Nuys	913-916	8%
Whittier	906	8%

Colorado Average		**0%**
Aurora	800-801	8%
Boulder	803-804	5%
Colorado Springs	808-809	0%
Denver	802	9%
Durango	813	-7%
Fort Morgan	807	-3%
Glenwood Springs	816	3%
Grand Junction	814-815	-5%
Greeley	806	5%
Longmont	805	2%
Pagosa Springs	811	-8%
Pueblo	810	-5%
Salida	812	-4%

Connecticut Average		**5%**
Bridgeport	66	6%
Bristol	60	7%
Fairfield	64	7%
Hartford	61	5%
New Haven	65	4%
Norwich	63	0%
Stamford	068-069	11%
Waterbury	67	4%
West Hartford	62	0%

Delaware Average		**1%**
Dover	199	-3%
Newark	197	4%
Wilmington	198	3%

District of Columbia Average		
Washington	200-205	12%

Florida Average		**-5%**
Altamonte Springs	327	-2%
Bradenton	342	-5%
Brooksville	346	-7%
Daytona Beach	321	-10%
Fort Lauderdale	333	2%
Fort Myers	339	-6%
Fort Pierce	349	-10%
Gainesville	326	-7%
Jacksonville	322	0%
Lakeland	338	-7%
Melbourne	329	-6%
Miami	330-332	-2%
Naples	341	-3%
Ocala	344	-12%
Orlando	328	0%
Panama City	324	-9%
Pensacola	325	-7%
Saint Augustine	320	-2%
Saint Cloud	347	-1%
St Petersburg	337	-5%
Tallahassee	323	-7%
Tampa	335-336	0%
West Palm Beach	334	1%

Georgia Average		**0%**
Albany	317	-8%
Athens	306	0%
Atlanta	303	17%
Augusta	308-309	-6%
Buford	305	0%
Calhoun	307	-1%
Columbus	318-319	-4%
Dublin/Fort Valley	310	-7%
Hinesville	313	4%
Kings Bay	315	-9%
Macon	312	4%
Marietta	300-302	7%
Savannah	314	-1%
Statesboro	304	4%
Valdosta	316	-5%

Hawaii Average		**18%**
Aliamanu	968	20%
Ewa	967	17%
Halawa Heights	967	17%
Hilo	967	17%
Honolulu	968	20%
Kailua	968	20%
Lualualei	967	17%
Mililani Town	967	17%
Pearl City	967	17%
Wahiawa	967	17%
Waianae	967	17%
Wailuku (Maui)	967	17%

Idaho Average		**-7%**
Boise	837	1%
Coeur d'Alene	838	-7%
Idaho Falls	834	-8%
Lewiston	835	-11%
Meridian	836	-6%
Pocatello	832	-11%
Sun Valley	833	-8%

Illinois Average		**6%**
Arlington Heights	600	17%
Aurora	605	17%
Belleville	622	2%
Bloomington	617	1%
Carbondale	629	-8%
Carol Stream	601	18%
Centralia	628	-8%
Champaign	618	-1%
Chicago	606-608	21%
Decatur	623	-3%
Galesburg	614	-2%
Granite City	620	0%
Green River	612	0%
Joliet	604	17%
Kankakee	609	2%
Lawrenceville	624	-5%
Oak Park	603	24%
Peoria	615-616	8%
Peru	613	6%
Quincy	602	22%
Rockford	610-611	4%
Springfield	625-627	-2%
Urbana	619	-2%

Indiana Average		**-2%**
Aurora	470	1%
Bloomington	474	-3%
Columbus	472	-4%
Elkhart	465	-3%
Evansville	476-477	-2%
Fort Wayne	467-468	1%
Gary	463-464	4%
Indianapolis	460-462	5%
Jasper	475	-4%
Jeffersonville	471	-6%
Kokomo	469	-4%
Lafayette	479	-3%
Muncie	473	-9%
South Bend	466	-2%
Terre Haute	478	-2%

Iowa Average		**-3%**
Burlington	526	-5%
Carroll	514	-4%
Cedar Falls	506	-3%
Cedar Rapids	522-524	0%
Cherokee	510	1%
Council Bluffs	515	-1%
Creston	508	-8%
Davenport	527-528	5%
Decorah	521	-5%
Des Moines	500-503	2%
Dubuque	520	-1%
Fort Dodge	505	-2%
Mason City	504	-1%
Ottumwa	525	-8%
Sheldon	512	5%
Shenandoah	516	-16%
Sioux City	511	-1%
Spencer	513	-6%
Waterloo	507	-4%

Kansas Average		**-7%**
Colby	677	-4%
Concordia	669	-16%
Dodge City	678	-8%
Emporia	668	-9%
Fort Scott	667	-4%
Hays	676	-12%
Hutchinson	675	-9%
Independence	673	-5%
Kansas City	660-662	6%
Liberal	679	-13%
Salina	674	-5%
Topeka	664-666	-4%
Wichita	670-672	-5%

Kentucky Average		**-6%**
Ashland	411-412	-8%
Bowling Green	421	-3%
Campton	413-414	-12%
Covington	410	2%
Elizabethtown	427	-6%
Frankfort	406	-7%
Hazard	417-418	-15%
Hopkinsville	422	-4%
Lexington	403-405	3%
London	407-409	-6%
Louisville	400-402	1%
Owensboro	423	-4%
Paducah	420	-6%
Pikeville	415-416	-14%
Somerset	425-426	-12%
White Plains	424	-4%

Louisiana Average		**1%**
Alexandria	713-714	-7%
Baton Rouge	707-708	15%
Houma	703	6%
Lafayette	705	4%
Lake Charles	706	-4%
Mandeville	704	5%
Minden	710	-8%
Monroe	712	-7%
New Orleans	700-701	9%
Shreveport	711	-6%

Maine Average		**-3%**
Auburn	42	-3%
Augusta	43	-1%
Bangor	44	-2%
Bath	45	-5%
Brunswick	039-040	1%
Camden	48	-7%
Cutler	46	-9%
Dexter	49	-3%
Northern Area	47	-9%
Portland	41	4%

Maryland Average		**1%**
Annapolis	214	7%
Baltimore	210-212	4%
Bethesda	208-209	10%
Church Hill	216	-4%
Cumberland	215	-9%
Elkton	219	-1%
Frederick	217	3%
Laurel	206-207	7%
Salisbury	218	-7%

Massachusetts Average		**12%**
Ayer	015-016	10%
Bedford	17	19%
Boston	021-022	29%
Brockton	023-024	20%
Cape Cod	26	6%
Chicopee	10	7%
Dedham	19	15%
Fitchburg	14	15%
Hingham	20	20%
Lawrence	18	16%
Nantucket	25	12%
New Bedford	27	8%
Northfield	13	-5%
Pittsfield	12	1%
Springfield	11	6%

Michigan Average		**2%**
Battle Creek	490-491	0%
Detroit	481-482	8%
Flint	484-485	0%
Grand Rapids	493-495	5%
Grayling	497	-2%
Jackson	492	-1%
Lansing	488-489	3%
Marquette	498-499	-5%
Pontiac	483	8%
Royal Oak	480	6%
Saginaw	486-487	-1%
Traverse City	496	-3%

Minnesota Average		**1%**
Bemidji	566	-3%
Brainerd	564	-2%
Duluth	556-558	1%
Fergus Falls	565	-4%
Magnolia	561	-7%
Mankato	560	0%
Minneapolis	553-555	12%
Rochester	559	0%
St Cloud	563	4%
St Paul	550-551	13%
Thief River Falls	567	0%
Willmar	562	2%

Mississippi Average		**0%**
Clarksdale	386	0%
Columbus	397	5%
Greenville	387	-5%
Greenwood	389	0%
Gulfport	395	2%
Jackson	390-392	4%
Laurel	394	3%
McComb	396	-2%
Meridian	393	-2%
Tupelo	388	-4%

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 1959. Multiply the figure listed below for the building type and year of construction by the known cost. The result is the estimated 2026 construction cost.

Year	Masonry Buildings	Concrete Buildings	Steel Buildings	Wood-Frame Buildings	Agricultural Buildings	Year of Construction
1959	17.65	18.04	15.02	13.18	13.65	1959
1960	17.24	17.70	14.78	12.99	13.38	1960
1961	16.89	17.64	14.53	12.75	13.33	1961
1962	16.51	17.12	14.18	12.60	13.14	1962
1963	16.26	16.67	14.01	12.36	11.92	1963
1964	15.79	16.48	13.82	11.93	12.52	1964
1965	15.29	16.05	13.34	11.68	12.18	1965
1966	14.59	15.59	12.83	11.17	11.84	1966
1967	14.26	14.84	12.00	10.62	11.37	1967
1968	13.67	14.02	11.45	10.05	10.86	1968
1969	12.91	13.40	11.06	9.67	10.25	1969
1970	12.40	12.82	10.51	9.20	9.74	1970
1971	11.62	11.73	9.76	7.92	9.08	1971
1972	10.81	10.86	9.12	7.94	8.44	1972
1973	9.87	10.29	8.10	7.33	7.93	1973
1974	8.78	9.44	7.61	6.85	7.35	1974
1975	7.98	8.34	6.83	6.44	6.56	1975
1976	7.48	7.94	6.48	6.20	6.21	1976
1977	6.96	7.45	6.16	5.76	5.85	1977
1978	6.49	6.96	5.67	5.29	5.29	1978
1979	5.96	6.20	5.08	4.85	5.00	1979
1980	5.40	5.63	4.53	4.35	4.53	1980
1981	5.08	5.31	4.15	4.15	4.23	1981
1982	4.93	5.08	4.03	4.01	4.09	1982
1983	4.70	4.93	3.95	3.83	3.85	1983
1984	4.39	4.62	3.76	3.54	3.74	1984
1985	4.26	4.39	3.66	3.43	3.68	1985
1986	4.15	4.36	3.59	3.38	3.60	1986
1987	4.14	4.26	3.56	3.32	3.57	1987
1988	4.06	4.10	3.49	3.28	3.51	1988
1989	3.96	4.03	3.32	3.22	3.40	1989
1990	3.73	3.87	3.15	2.99	3.24	1990
1991	4.03	3.81	3.00	2.83	3.07	1991
1992	3.61	3.77	2.96	2.82	3.05	1992
1993	3.52	3.73	2.85	2.78	3.00	1993
1994	3.43	3.49	2.75	2.67	2.78	1994
1995	3.26	3.18	2.55	2.51	2.63	1995
1996	3.15	3.12	2.48	2.46	2.58	1996
1997	3.04	3.04	2.38	2.40	2.52	1997
1998	2.89	2.89	2.29	2.30	2.48	1998
1999	2.80	2.80	2.23	2.28	2.45	1999
2000	2.72	2.72	2.14	2.20	2.36	2000
2001	2.63	2.63	2.10	2.11	2.30	2001
2002	2.57	2.57	2.05	2.09	2.25	2002
2003	2.53	2.53	2.00	2.07	2.21	2003
2004	2.42	2.42	1.94	2.02	2.15	2004
2005	2.24	2.24	1.74	1.81	2.10	2005
2006	2.12	2.12	1.60	1.62	1.88	2006
2007	2.05	2.05	1.54	1.50	1.75	2007
2008	1.91	1.91	1.46	1.44	1.65	2008
2009	1.90	1.90	1.40	1.44	1.65	2009
2010	1.86	1.86	1.32	1.43	1.64	2010
2011	1.89	1.89	1.36	1.45	1.69	2011
2012	1.86	1.86	1.22	1.40	1.65	2012
2013	1.78	1.78	1.30	1.33	1.54	2013
2014	1.76	1.76	1.28	1.31	1.53	2014
2015	1.74	1.74	1.27	1.30	1.52	2015
2016	1.72	1.72	1.40	1.31	1.48	2016
2017	1.67	1.67	1.42	1.32	1.48	2017
2018	1.59	1.59	1.23	1.20	1.38	2018
2019	1.49	1.49	1.28	1.15	1.32	2019
2020	1.47	1.47	1.23	1.17	1.31	2020
2021	1.43	1.43	1.30	1.16	1.31	2021
2022	1.36	1.36	1.14	1.07	1.22	2022
2023	1.19	1.19	0.92	0.98	1.09	2023
2024	1.11	1.11	1.03	1.06	1.08	2024
2025	1.06	1.06	1.12	1.01	1.03	2025
2026	1.00	1.00	1.00	1.00	1.00	2026

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.

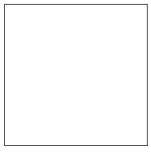
The shape of the outside perimeter also has a significant influence on cost. The more complex the shape, the more expensive the structure per square foot of floor. The shape classification of multiple story or split-level homes should be based on the outline formed by the outer-most exterior walls, including 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.

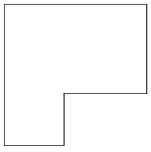
Residences on larger lots often include a separate housekeeping unit, either remote from the main structure (as illustrated below at the right) or joined to the main structure by a hallway (no common wall). Evaluate any separate housekeeping unit as a separate residence. The quality class of separate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

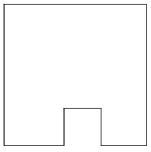
These figures can be applied to nearly all single-family residences built using conventional methods and readily available materials, including the relatively small number of highly decorative, starkly original or exceptionally well-appointed residences.



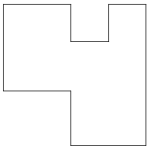
4 corners



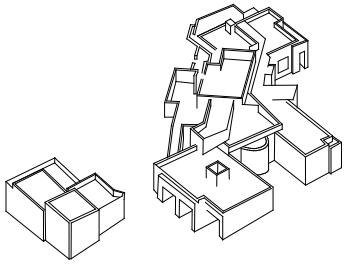
6 corners



8 corners



10 corners



2 building masses and one separate unit

Quality Classification

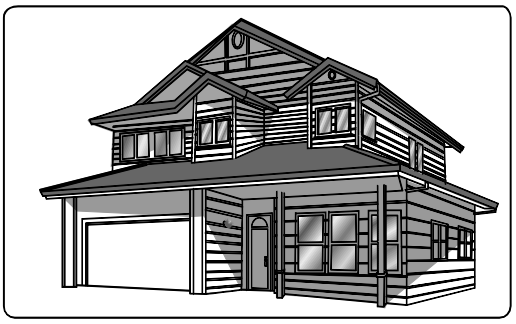
	Class 1 Luxury	Class 2 Semi-Luxury	Class 3 Best Std.	Class 4 Good Std.	Class 5 Average Std.	Class 6 Minimum Std.
Foundation (9% of total cost)	Reinforced concrete.	Reinforced concrete.	Reinforced concrete.	Reinforced concrete or concrete block.	Reinforced concrete or concrete block.	Reinforced concrete.
Floor Structure (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.
Wall Framing and Exterior Finish (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.
Roof (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.
Floor Finish (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.
Interior Wall and Ceiling Finish (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.
Interior Detail (5% of total cost)	Exposed beams or decorative ceiling, 12' to 16' ceiling in great room, many sky widows, 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.
Bath Detail (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.
Kitchen Detail (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.
Plumbing (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.
Special Features (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.
Electrical System (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.
If Exterior Walls are Masonry	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.

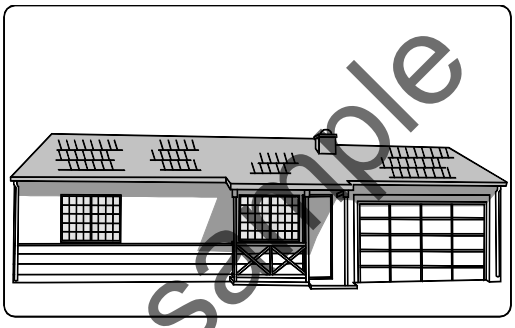
4 Corners (Classes 3, 4, 5 and 6) or One Building Mass (Classes 1 and 2 Only)

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	657.62	630.12	607.37	587.73	572.42	558.82	546.70	535.81	527.71	519.73	512.43	506.27	494.75
1, & 2	571.87	547.93	528.17	511.10	497.80	485.84	475.40	465.93	458.84	451.97	445.52	440.15	430.19
2, Semi-Luxury	399.67	382.96	369.13	357.17	347.90	339.62	332.29	325.69	320.71	315.73	311.43	307.72	300.58
2 & 3	293.35	281.14	270.95	262.24	255.43	249.27	243.89	239.05	235.38	231.82	228.53	225.90	220.71
3, Best Std.	256.01	245.37	236.45	228.85	222.79	217.53	212.86	208.64	205.41	202.30	199.49	197.06	192.59
3 & 4	218.95	209.65	202.14	195.69	190.47	185.97	181.98	178.30	175.64	172.81	170.58	168.47	164.70
4, Good Std.	188.62	180.60	174.17	168.58	164.19	160.29	156.76	153.62	151.22	148.99	146.92	145.00	141.89
4 & 5	169.92	162.77	156.95	151.85	147.86	144.27	141.12	138.46	136.29	134.19	132.37	130.77	127.69
5 Avg. Std.	152.91	146.60	141.29	136.75	133.26	130.01	127.17	124.56	122.67	120.82	119.13	117.73	115.02
5 & 6	132.78	127.23	122.65	118.71	115.58	112.82	110.34	108.08	106.50	104.84	103.58	102.17	99.86
6, Min. Std.	120.71	115.62	111.47	107.89	105.07	102.53	100.34	98.33	96.83	95.30	94.07	92.84	90.71

Square Foot Area

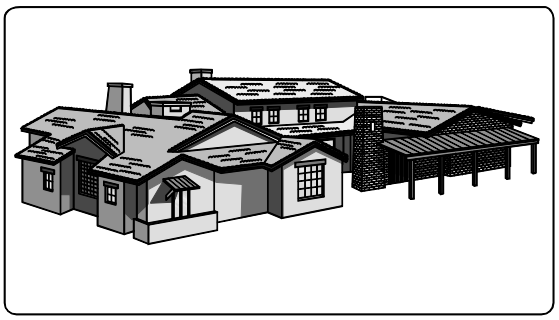
Quality Class	2,200	2,400	2,600	2,800	3,000	3,200	3,400	3,600	4,000	4,200	4,400	4,600	5,000+
1, Luxury	486.11	477.96	471.40	465.53	461.38	457.52	453.31	450.29	443.93	439.89	436.39	433.36	429.00
1, & 2	422.83	415.64	409.90	404.79	401.17	397.84	394.18	391.52	386.06	382.53	379.47	376.83	373.06
2, Semi-Luxury	295.61	290.48	286.54	282.93	280.36	277.98	275.44	273.62	269.78	267.34	265.18	263.37	260.73
2 & 3	216.90	213.25	210.33	207.72	205.76	203.99	202.26	200.86	198.06	196.28	194.68	193.33	191.40
3, Best Std.	189.28	186.06	183.46	181.26	179.64	178.11	176.46	175.22	172.79	172.81	171.45	170.24	168.55
3 & 4	161.84	159.11	156.94	155.03	153.55	152.20	150.97	149.91	147.81	146.48	145.29	144.28	142.83
4, Good Std.	139.45	137.04	135.23	133.47	132.37	131.16	130.05	129.04	127.31	126.15	125.10	124.24	123.00
4 & 5	125.57	123.54	121.63	120.26	119.12	118.19	117.00	116.31	114.70	113.65	112.81	111.98	110.87
5 Avg. Std.	113.08	111.21	109.68	108.19	107.33	106.39	105.41	104.70	103.26	101.78	101.52	100.84	99.86
5 & 6	98.17	96.53	95.17	93.96	93.19	92.27	91.44	90.78	89.66	88.72	88.16	87.47	86.67
6, Min. Std.	89.12	87.69	86.53	85.50	84.71	83.92	83.18	82.56	81.47	80.65	80.09	79.51	78.76

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.

8 Corners (Classes 3, 4, 5, and 6) or Three Building Masses (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 1

Single Family Residence, Class 2 & 3

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	683.92	655.69	631.42	611.52	595.31	581.90	569.92	559.19	549.59	542.24	535.19	529.03	518.03
1, & 2	594.65	570.29	549.02	531.83	517.62	506.02	495.50	486.30	477.93	471.49	465.38	460.01	450.51
2, Semi-Luxury	414.11	397.22	383.15	371.39	361.77	353.62	346.30	339.82	334.01	329.50	325.29	321.44	314.83
2 & 3	303.98	291.56	281.20	272.58	265.59	259.58	254.17	249.45	245.18	241.91	238.69	236.00	231.12
3, Best Std.	265.27	254.44	245.45	237.92	231.71	226.53	221.84	217.63	213.96	211.11	208.31	206.01	201.68
3 & 4	226.75	217.52	209.73	203.30	198.09	193.71	189.59	186.13	182.86	180.51	178.11	176.11	172.42
4, Good Std.	195.39	187.36	180.74	175.28	170.58	166.88	163.40	160.41	157.55	155.57	153.43	151.69	148.53
4 & 5	176.02	168.86	162.78	157.90	153.62	150.25	147.13	144.54	141.94	140.07	138.22	136.62	133.75
5 Avg. Std.	158.54	152.05	146.62	142.20	138.39	135.37	132.50	130.14	127.71	126.18	124.42	123.15	120.47
5 & 6	137.58	131.96	127.24	123.35	120.12	117.52	114.92	112.93	110.94	109.47	108.03	106.76	104.59
6, Min. Std.	125.04	119.95	115.66	112.14	109.16	106.76	104.59	102.71	100.83	99.51	98.24	94.70	92.97

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	509.30	508.23	494.75	489.62	485.03	480.97	476.16	473.45	467.55	463.32	459.59	456.39	451.83
1, & 2	442.89	433.26	430.19	425.72	421.77	418.27	414.02	411.74	406.66	402.98	399.75	396.94	392.98
2, Semi-Luxury	309.47	302.90	300.58	297.53	294.93	292.31	289.29	287.63	284.18	281.65	279.39	277.48	274.64
2 & 3	227.17	222.26	220.71	218.43	216.36	214.59	212.40	211.22	208.64	206.76	205.10	203.69	201.66
3, Best Std.	198.19	193.92	192.59	190.57	188.80	187.23	185.37	184.33	183.60	181.98	180.58	179.32	177.50
3 & 4	169.31	165.80	164.70	162.90	161.43	160.11	158.54	157.55	155.66	154.25	153.05	151.98	150.42
4, Good Std.	146.00	142.85	141.89	140.42	139.11	138.06	136.62	135.74	134.13	132.87	131.85	130.87	129.60
4 & 5	131.55	128.71	127.69	126.43	125.39	124.27	122.89	122.30	120.82	119.04	118.06	117.23	116.06
5 Avg. Std.	118.45	115.83	115.02	113.92	112.81	111.89	110.80	110.21	108.79	107.84	106.97	106.19	105.15
5 & 6	102.86	100.54	99.86	98.82	97.96	97.11	96.09	95.55	94.46	93.63	92.85	92.20	91.30
6, Min. Std.	91.42	89.50	88.88	88.05	87.24	86.51	85.72	85.15	84.21	83.48	82.82	83.65	81.41

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.

Quality Classification

	Class 1 Best Quality	Class 2 Good Quality	Class 3 Average Quality	Class 4 Low Quality	Class 5 Lowest Quality
Design	Indistinguishable from site-built construction, good floor plan and sight lines, superior fit and finish	Comparable to site-built construction, good floor plan, shelves and alcoves, good fit and finish	Clearly manufactured housing but with good design and materials, adequate fit and finish	Mobile home design, utilitarian floor plan, commodity-grade materials	Poor design, often sold unfinished, common only in Sun Belt states
Roof (12% of total cost)	Complex roof line, 30-year architectural shingles, roof pitch at least 4" in 12", good overhang on all sides, R-38 insulation	Decorative roof line, gable accents, 25-year shingles, 4" in 12" pitch, 12" overhang on all sides, R-33 insulation	Gable accents, 25-year shingles, 4" in 12" pitch, 8" to 12" overhang front and back, R-21 insulation	Simple roof line, less than 4" in 12" pitch, small overhang front and back, R-19 insulation	Straight roof line, minimum pitch, little or no overhang, minimum roof cover, R-7 insulation
Exterior Walls (18% of total cost)	Good fiber-cement siding, 9' to 10' high, decorative trim, 6" exterior walls, R-19 insulation, 7/16" plywood sheathing	Painted fiber cement siding, 9' high, some trim, 6" exterior walls, R-15 insulation, 7/16" OSB sheathing	Good foam-backed vinyl siding, 8' to 9' high, 4" exterior walls, R-13 insulation, 7/16" OSB sheathing	Vinyl siding, 8' high, 4" exterior walls, R-11 insulation, 3/8" plywood sheathing	Hardboard or economy siding, 7' high, 4" exterior walls, R-7 insulation
Doors and Windows (9% of total cost)	Two 36" wide insulated steel panel exterior doors, solid core wood panel interior doors, good hardware, large insulated low-E vinyl sash windows, recessed entry	Two 36" wide insulated steel exterior doors, hollow core wood interior doors, good hardware, good insulated low-E vinyl sash windows, recessed entry	36" wide steel front door with deadbolt, hollow core wood interior doors, average hardware, insulated vinyl windows, recessed entry	36" wide steel front door, hollow core wood interior doors, economy hardware, smaller dual glazed vinyl windows, 6' sliding bedroom door	34" or 32" wide aluminum exterior doors, hollow core wood interior doors, economy hardware, aluminum windows with storm sash
Interior (5% of total cost)	Hardwood paneling or ½" gypsum board with good workmanship and trim throughout, coffered/ vaulted/beamed ceilings, plank-type acoustical tile, mirrored walls, built-in buffet cabinets, custom drapes, skylights, window sills, good drapes with sheers throughout	Pre-finished hardwood paneling and trim or ½" gypsum board in all rooms, vaulted/beamed, ceiling in main rooms, good floor to ceiling drapes over sheer underlays in living room and dining room, several wall mirrors, some acoustic treatments	Pre-finished and grooved hardwood, plywood paneling or ½" gypsum board, no exposed fasteners, coordinated drapes in all rooms except kitchen and baths, one vaulted ceiling, acoustic tile, pre-finished wood trim	Pre-finished fire rated plywood paneling or 3/8" gypsum board, some exposed fasteners, acoustical tile ceiling, economy drapes in living room, dining room, and bedrooms, vinyl on composition molding.	Stapled 3/8" vinyl-covered wallboard with battens at seams and corners, exposed fasteners or holding strips, unit may have been sold with interior finishing incomplete.
Floors (8% of total cost)	Hardwood or ceramic tile entry, 30-50 oz. carpet, good vinyl in utility and guest bath. Good vinyl or hardwood in kitchen.	26-30 oz. carpet with 1/2" pad in all rooms except guest bath and utility, vinyl in kitchen, utility, and guest bath	22-26 oz. carpet with 1/2" rebond pad in all rooms except baths and kitchen, vinyl in kitchen and baths	16- 22 oz. carpet with 5 lb. pad in living, dining and bedrooms, economy vinyl sheet or tile in other areas	Glued or stapled foam-backed carpet in living room and bedroom, economy vinyl elsewhere
Heating (7% of total cost)	110,000 BTU upflow air-condition-ready forced air furnace with exterior access door, metal ducting to all rooms, fireplace, dual-zone heating	80,000 to 110,000 BTU upflow or downflow air-condition-ready furnace with exterior access door, metal ducting to all rooms, fireplace	80,000 BTU upflow or downflow forced air condition-ready furnace, ducting to all rooms, simulated fireplace	Forced air furnace, fiberglass attic ducting to all rooms, under-door return vents, ready for air conditioning unit.	Forced air furnace, minimum taped fiberglass duct, registers at the room center, return vents under doors
Kitchen (23% of total cost)	18± LF of 25" wide stone or ceramic counter, 4" splash, luxury cabinets, roller drawers, dropped luminous ceiling, island work space, walk-in pantry, name-brand fixtures, cast iron sink, wet bar	16± LF of tile or Corian counter, 4" splash, quality wood cabinets, dropped luminous ceiling, island work space, walk-in pantry, good quality fixtures, stainless or integrated 8" deep sink	14± LF of Corian counter, 2" splash, average quality wood-face cabinets and hardware, built-in range and oven with hood and fan, pantry cabinet, 7" deep stainless or porcelain sink	12± LF laminate counter, smaller commodity-grade cabinets with wood raised panel doors, no lining, built-in range and oven, hood and fan, add for dishwasher if present	10± LF of 24" wide laminate counter, plastic-faced MDF cabinets, stapled and glued, economy range and oven, minimum grade sink and fixtures, add for dishwasher if present
Baths and Plumbing (14% of total cost)	2 to 2¾ baths, 8 fixtures, master bath with two basins, sunken 60" tub, fiberglass shower with glass door, quality medicine cabinets, 6± feet of mirror over 8± feet of cultured marble or ceramic tile lavatory top, decorative faucets, 40-gal. water heater, separate commode closet	2 baths, vent fans, master bath will have two basins, sunken 60" tub and stall shower, quality medicine cabinets and fixtures, cultured marble vanities, good cabinets, 60" one-piece shower in guest bath, 30- to 40-gallon water heater, separate commode closet	2 baths, vent fans, fiberglass shower with glass or plastic door, fiberglass 60" tub, acrylic round toilets, 6 to 8 LF cultured marble vanity in each bath, twin basin master bath with 4± foot mirror, good cabinets, 30- to 40-gallon water heater	1¾ baths, fiberglass shower with plastic door, fiberglass one-piece 54" tub, acrylic round toilets, 4 to 5 linear foot cultured marble vanity with single basin, average quality cabinets and hardware, 30-gallon water heater	1¾ baths, fiberglass 54" one-piece tub and shower with curtain, acrylic round toilets, small 4' plastic marble vanity, minimum quality cabinets and hardware, 20-gallon electric water heater, plastic supply and drain pipe
Bedrooms (4% of total cost)	9 to 14 linear foot floor-to-ceiling sliding mirrored wardrobe doors, or large walk-in closets, phone and cable TV jacks	9 to 14 linear foot floor-to-ceiling mirrored sliding wardrobe doors in master bedroom or walk-in closets, phone and cable TV jacks	10± linear foot wardrobe, floor-to-ceiling mirrored sliding doors in master bedroom, cable TV jacks	8± linear foot wardrobe, pre-finished and grooved plywood doors, mirrored wardrobe door in master bedroom	Five to six linear foot wardrobe, plain plywood sliding doors

Manufactured Housing

A manufactured home is a structure in one or more sections intended to be delivered for erection as a unit on a construction site. No wheels, axles or towbars are included in these costs. Units can be from 8 to 36 feet wide and up to 80 feet long. Manufactured homes assembled from two or three sections are referred to as double wide or triple wide units. The cost FOB the manufacturer is usually about 2/3 of the installed cost. These figures include all costs: typical delivery to the site, setting on piers, finishing ("button up"), connection to utility lines, permits and inspections. Tip-out, expando, or tag-a-long units have one or more telescoping or attached rooms to the side. Include this floor area in your calculations. Do not use area modification factors for manufactured housing.

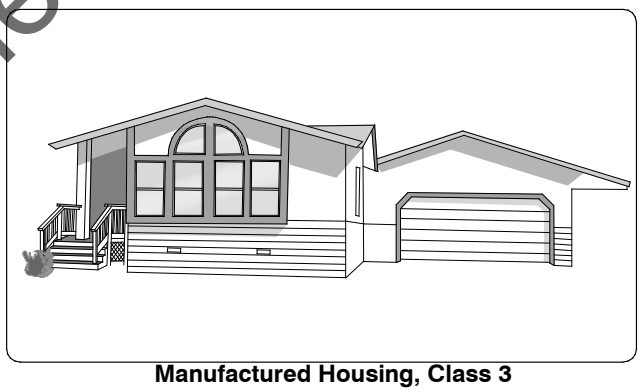
Estimating Procedure

1. Establish the structure quality class by applying the information on page 16.
2. Multiply the structure floor area (excluding any garage or storage area) by the appropriate square foot cost below.
3. Add, when appropriate, the cost of a permanent foundation, air conditioning, built-ins, porch, skirting, tie-downs, carport, garage or storage building, screen walls and roof snow load rating. See the following page.

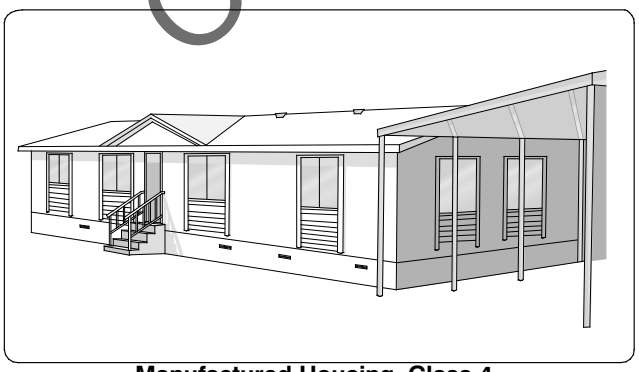
Square Foot Area

Quality Class	500	700	900	1100	1300	1500	1700	1900	2100	2300	2500
1, Best	172.32	170.14	168.07	165.87	163.76	161.64	159.55	157.33	155.28	153.16	151.01
1, & 2	162.19	160.07	157.96	155.93	153.70	151.52	149.33	147.34	145.14	143.07	140.89
2, Good	152.03	149.92	147.85	141.62	139.66	137.64	135.44	138.43	131.27	129.28	127.25
2 & 3	142.02	139.80	137.77	129.40	127.34	125.35	123.30	121.33	119.26	117.19	115.24
3, Average	132.39	130.36	128.05	120.29	114.90	112.84	110.97	109.00	107.01	105.07	103.10
3 & 4	123.89	121.73	119.71	112.23	107.01	105.07	103.10	101.09	99.11	97.14	95.13
4, Low Average	115.35	113.32	111.12	104.07	99.11	97.14	95.13	93.14	91.25	89.25	87.28
4 & 5	108.47	106.23	104.21	97.40	92.69	90.73	88.78	86.79	84.86	82.89	80.82
5 Lowest	102.05	99.97	97.84	88.78	86.79	84.86	82.89	80.82	78.84	76.95	74.97

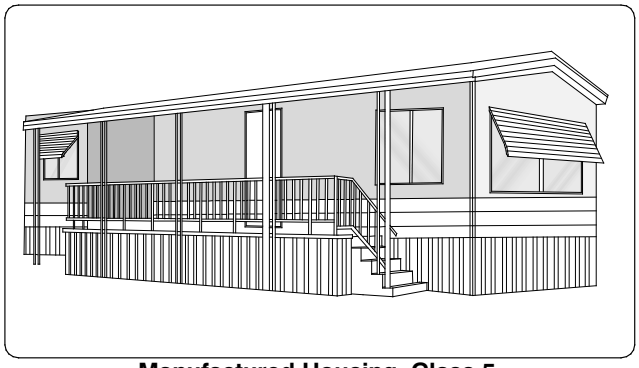
Manufactured Housing, Class 1



Manufactured Housing, Class 3



Manufactured Housing, Class 4



Manufactured Housing, Class 5

Quality Classification

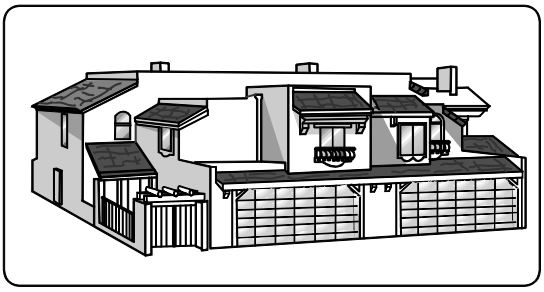
	Class 1 Best Quality	Class 2 Good Quality	Class 3 High Average Quality	Class 4 Low Average Quality	Class 5 Minimum Quality
Foundation (9% of total cost)	Conventional crawl space built on a sloping site.	Conventional crawl space built on a sloping site.	Conventional crawl space, footing over 40" deep.	Concrete slab or crawl space with 30" footing.	Concrete slab.
Floor Structure (12% of total cost)	Engineered wood, steel or concrete exceeding code requirements, complex plan, changes in elevation.	Engineered wood or steel built to meet code requirements, changes in shape and elevation.	Standard wood frame with irregular shape and changes in elevation.	Standard wood frame or concrete slab, simple floor plan.	Simple slab on grade with no changes in elevation.
Walls and Exterior Finish (12% of total cost)	Complex wood or light steel frame, stone or masonry veneer, 10' average wall height.	Wood or light steel frame, masonry veneer at entrance, good wood or stucco siding.	Wood or light steel frame, decorative trim at entrance, plywood or stucco siding, simple framing plan.	Wood frame, some ornamental details at entrance, plywood or hardboard siding.	Wood frame, little or no ornamentation, inexpensive stucco or hardboard siding.
Roof & Cover (10% of total cost)	Complex roof plan, good insulation, tile or good shake cover.	Good insulation, good shake, tile or 5-ply built-up roof.	4-ply built-up roof, some portions heavy shake or tile.	4-ply built-up roof, some portions shake or composition shingles.	4-ply built-up roof or minimum grade composition single.
Windows and Doors (5% of total cost)	Many large, good quality vinyl or metal windows, architectural grade doors.	Large, good-quality vinyl or metal windows, commercial grade doors.	Good quality vinyl or metal windows, residential grade doors.	Standard residential-grade doors and windows.	Minimum grade doors and windows.
Interior Finish (8% of total cost)	Gypsum board with heavy texture or plaster, some paneled walls, cathedral ceiling at entry, built-in cases, several wall offsets and level changes.	Textured gypsum board, some paneled walls, decorative or stain grade trim at entrance or living room, several irregular walls and wall openings.	Textured 1/2" gypsum board, several irregular walls or wall openings, few ornamental details, standard grade trim and wall molding.	Textured 1/2" gypsum board, some wall-cover or hardboard paneling, most walls are rectangular, standard grade trim and wall molding.	1/2" gypsum board with smooth finish, no ornamental details, doors and windows are the only wall openings.
Floor Finish (5% of total cost)	Masonry or stone tile entry, good hardwood or deluxe carpet in most rooms, good sheet vinyl in other rooms.	Masonry or tile at entry, hardwood or good carpet in most rooms, sheet vinyl in other rooms.	Hardwood or tile at entry, standard carpet in most rooms, sheet vinyl in kitchen and bath.	Average quality carpet or hardwood in most rooms, sheet vinyl or resilient tile in kitchen.	Minimum carpet or resilient tile throughout.
Interior Features (5% of total cost)	Breakfast bar or nook, formal dining room, one walk-in closet, linen closet utility room or pantry.	Formal dining room ample closet space linen closet and utility closet, extra shelving.	Separate dining area, good closet space, linen closet and small utility closet.	Dining area is in the kitchen, small closet in each bedroom, linen closet.	Dining area is part of kitchen, minimum closet space, minimum shelving.
Bath Detail (4% of total cost)	Good tile shower, 8' simulated marble top.	Tile shower, 6' vanity cabinet and top.	Better vanity cabinet and good wall cabinet.	Good vanity cabinet, good medicine cabinet.	Vanity and one small medicine cabinet.
Kitchen (8% of total cost)	16 LF of better hardwood wall and base cabinets, synthetic stone top, 6 very good built-in appliances.	12 LF of good hardwood wall and base cabinets, tile or acrylic top, 5 good built-in appliances.	8 LF of standard hardwood wall and base cabinets, acrylic top, 4 standard grade built-in appliances.	6 LF of low-cost wall and base cabinets, laminate counter top, 4 standard grade appliances.	5 LF of low-cost. wall & base cabinets, laminate counter top, low cost appliances.
Electrical (10% of total cost)	Ample recessed lighting, task lighting in kitchen and bath, security & computer, networks, good chandelier.	Recessed lighting in most rooms, good task lighting in kitchen & bath, security & computer networks.	Recessed lighting in kitchen and living room, switched receptacles in bedrooms, wired for cable TV.	Low-cost recessed lighting in kitchen and living room, switched receptacles in other rooms, cable TV.	Fluorescent ceiling fixture in kitchen, switched receptacles in other rooms.
Plumbing (12% of total cost)	Four excellent fixtures per bathroom, copper supply and drain lines.	Three good fixtures per bathroom, copper supply and drain lines.	Three standard fixtures per bathroom, copper supply and plastic drain lines.	Three low cost fixtures per bathroom, plastic supply and drain lines.	Three minimum-grade fixtures per bathroom, plastic supply & drains.
Plumbing costs assume 1 bathroom per unit. See page 30 for the costs of additional bathrooms.					
For Masonry Walls	Good textured block, tile or decorative brick.	Colored or detailed block tile or decorative brick.	Colored concrete block, tile or decorative brick.	Colored concrete block or brick.	Concrete block or common brick.
When masonry walls are used in lieu of wood or light steel frame walls, add 9% to the appropriate S.F. cost.					

Note: Use the percent of total cost to help identify the correct quality classification. Exceptional class multi-family residences have architectural details and features uncommon in conventional apartment buildings. Many exceptional class multi-family structures are designed for sale or conversion to condominium ownership.

2 or 3 Units

Estimating Procedure

1. Establish the structure quality class by applying the information on page 19.
2. Multiply the average unit area by the appropriate square foot cost below. The average unit area is found by dividing the building area on all floors by the number of units in the building. The building area should include office and utility rooms, interior hallways and interior stairways.
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 balconies, porches, garages, heating and cooling equipment, basements, fireplaces, carports, appliances and plumbing fixtures beyond that listed in the quality classification. See the cost of these items on pages 27 to 31.
5. Costs assume one bathroom per unit. Add the cost of additional bathrooms from page 30.



Multi-Family, Class 2

Multi-Family, Class 4

Average Unit Area in Square Feet

Quality Class	400	450	500	550	600	650	700	750	800	900	1,000
Exceptional	289.54	276.84	269.93	263.79	259.10	254.83	251.62	247.95	245.80	241.57	237.62
1, Best	254.30	243.06	237.03	231.66	227.41	223.84	220.99	217.74	215.88	212.03	208.73
1, & 2	223.01	213.19	207.84	203.07	199.51	196.31	193.75	191.08	189.30	185.86	182.96
2, Good	195.12	186.62	181.89	177.82	174.60	171.70	169.60	167.17	165.65	162.68	160.14
2 & 3	178.45	170.58	166.42	162.52	159.65	157.19	155.07	152.97	151.52	148.91	146.48
3, Hi Average	163.31	156.01	152.18	148.85	146.13	143.79	141.81	140.00	138.61	136.11	134.01
3 & 4	150.76	144.11	140.58	137.30	134.85	132.82	131.07	129.18	128.05	125.73	123.75
4, Lo Average	139.30	133.09	129.77	126.79	124.56	122.57	120.90	119.26	118.24	116.14	114.22
4 & 5	128.63	122.89	119.84	117.13	114.95	113.12	111.74	110.13	109.19	107.14	105.41
5 Minimum	118.69	113.56	110.66	108.14	106.29	104.51	103.09	101.83	100.83	98.87	97.41

Average Unit Area in Square Feet

Quality Class	1,100	1,200	1,300	1,400	1,500	1,600	1,700	1,800	1,900	2,000	2,200
Exceptional	234.82	232.29	230.24	228.51	227.04	225.69	224.54	223.52	222.57	221.84	221.15
1, Best	206.10	204.18	202.16	200.73	199.37	198.19	197.20	196.48	195.52	194.82	194.29
1, & 2	180.81	178.95	177.32	175.94	174.97	173.84	172.92	172.24	171.48	171.01	170.43
2, Good	158.15	156.63	155.23	154.05	153.09	152.11	151.39	150.68	150.06	149.49	149.09
2 & 3	144.82	143.14	142.09	140.86	140.01	139.14	138.46	137.97	137.28	136.86	136.40
3, Hi Average	132.43	131.07	129.90	128.83	128.06	127.31	126.62	126.25	125.51	125.15	124.78
3 & 4	122.30	120.92	119.88	118.94	118.29	117.49	117.06	116.39	115.91	115.60	115.21
4, Lo Average	112.93	111.74	110.68	109.86	109.21	108.55	107.95	107.48	107.04	106.70	106.38
4 & 5	104.26	103.20	102.34	101.41	100.87	100.21	99.67	99.34	98.82	98.54	98.24
5 Minimum	96.19	95.30	94.42	93.73	93.08	92.49	92.08	91.61	91.32	90.91	90.71

Note: Work outside metropolitan areas may cost 2 to 6% less. Add 2% to the costs for second floor areas and 4% for third floor areas. Add 9% when the exterior walls are masonry.

Motels

Quality Classification

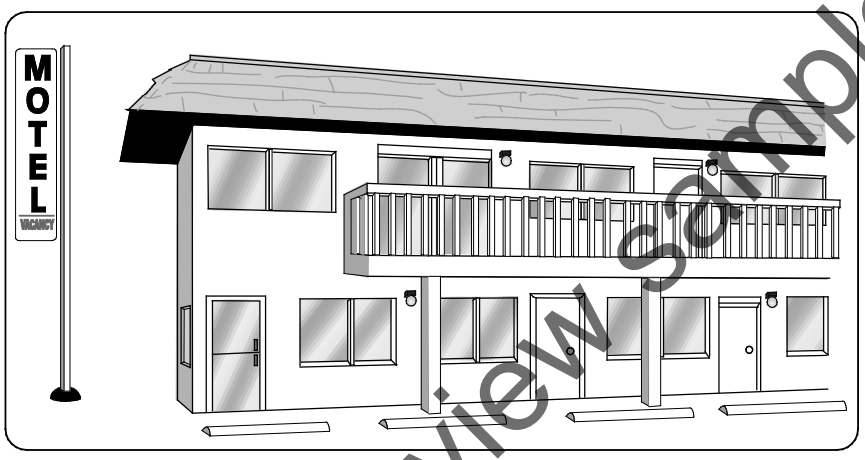
	Class 1 Best Quality	Class 2 Good Quality	Class 3 Average Quality	Class 4 Low Quality
Foundation (4%) Foundation costs will vary greatly with substrate, type, and location.	Concrete slab	Concrete slab	Concrete slab	Concrete slab
Framing* (20% of total Cost)	Wood frame.	Wood frame.	Wood frame.	Wood frame.
Windows (2% of total Cost)	Large, good quality.	Average number and quality.	Average number and quality.	Small, few, low cost.
Roofing (8% of total Cost)	Heavy, shake, tile or slate.	Medium shake or good built-up with large rock, inexpensive tile.	Wood or good composition shingle, light shake, or good built-up with rock.	Inexpensive shingles or built-up with rock.
Overhang (2% of total Cost)	36" open or 24" closed.	30" open or small closed.	16" open.	12" to 16" open.
Exterior Walls (10% of total Cost)	Good wood or stucco, masonry veneer on front.	Good wood siding or stucco with some veneer.	Hardboard, wood shingle, plywood or stucco.	Low cost stucco, hardboard or plywood.
Flooring (5% of total Cost)	Good carpet, good sheet vinyl.	Good carpet, sheet vinyl or inlaid resilient.	Average carpet, average resilient tile in bath.	Minimum tile or low cost carpet.
Interior Finish (23% of total cost including finish carpentry, wiring, lighting, etc.)	Gypsum board with heavy texture or plaster with putty coat. Some good sheet wall cover or paneling.	Gypsum board, taped, textured and painted or plaster. Some wall-paper.	Gypsum board taped and textured or colored interior stucco.	Minimum gyp-sum board.
Baths (15% of total Cost)	Vinyl or foil wall cover, ceramic tile over tub with glass shower door, ample mirrors.	Ceramic tile over tub with glass shower door.	Plastic coated hard-board with low cost glass shower door.	Plastic coated hardboard with one small mirror.
Plumbing** (9% of total Cost)	Copper tube, good quality fixtures.	Galvanized pipe, good fixtures.	Average cost fixtures.	Plastic pipe, low cost fixtures.
Special Features (2% of total Cost)	8' sliding glass door, 8' to 10' tile pullman in bath.	8' sliding glass door, good tile or plastic top pullman in bath.	Small tile or plastic pullman in bath.	None.
***For Masonry Walls**	8" textured face reinforced masonry.	8" colored or detailed reinforced masonry.	8" colored block or common brick, reinforced.	8" painted concrete block.
Note: When masonry walls are used in lieu of wood frame walls add 8% to the appropriate cost				
****Add the Following Amounts per Kitchen Unit**				
Kitchens	Good sink, 8' to 10' of good cabinets and drainboard - $4,300	Average sink and 6' to 8' average cabinet and drainboard - $3,940	Low cost sink, and 5' of cabinets and drainboard - $2,840	Minimum sink, cabinets and drainboard - $2,410
Add the cost of built-in kitchen fixtures from the table of costs for built-in appliances on page 29.				

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

9 Units or Less

Estimating Procedure

1. Establish the structure quality class by applying the information on page 23.
2. Multiply the average unit area by the appropriate cost below. The average unit area is found by dividing the total building area on all floors (including office and manager's area, utility rooms, interior hallways and stairway area) by the number of units in the building.
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 heating and cooling equipment, porches, balconies, exterior stairs, garages, kitchens, built-in kitchen appliances and fireplaces. See pages 23 and 27 to 31.



Motel, Class 3 & 4

Average Unit Area in Square Feet

Quality Class	200	225	250	275	300	330	375	425	500	600	720
1, Best	230.91	222.62	216.15	210.66	206.13	201.66	196.28	191.52	186.20	181.12	176.94
1 & 2	212.12	204.49	198.55	193.54	189.41	185.20	180.19	175.87	171.00	166.43	162.48
2, Good	196.82	189.84	184.24	179.64	175.77	171.96	167.29	163.32	158.72	154.41	150.84
2 & 3	180.86	174.47	169.29	165.04	161.52	157.98	153.66	150.03	145.84	141.94	138.68
3, Average	167.85	161.85	157.15	153.16	149.85	146.56	142.63	139.14	135.32	131.66	128.67
3 & 4	154.06	148.57	144.22	140.56	137.58	134.53	130.86	127.80	124.17	120.87	118.03
4, Low	140.83	135.74	131.74	128.50	125.68	122.99	119.63	116.80	113.49	110.41	107.84

Note: Add 2% for work above the first floor. Work outside metropolitan areas may cost 2 to 6% less. Add 8% when the exterior walls are masonry. Deduct 2% for area built on a concrete slab.

Additional Costs for Residential Structures

Covered Porches

Estimate covered porches by applying a fraction of the main building square foot cost.

Porch Description	Suggested Fraction
Ground level floor (usually concrete) without banister, with no ceiling and shed-type roof.	1/4 to 1/3
High (house floor level) floor (concrete or wood) with light banister, no ceiling and shed-type roof.	1/3 to 1/2
Same as above with a finished ceiling and roof like the residence (most typical).	1/2
Same as above but partially enclosed with screen or glass.	1/2 to 2/3
Enclosed lean-to (sleeping porch, etc.) with lighter foundation, wall structure, interior finish or roof than that of house to which it is attached.	1/2 to 3/4
Roofed, enclosed, recessed porch, under the same roof as the main building and with the same type and quality foundation (includes shape costs).	3/4
Roofed, enclosed, recessed porch with the same type roof and foundation as the main building (includes shape costs).	4/4
Good arbor or pergola with floor.	1/4 to 1/3

Uncovered Concrete Decks, cost per square foot, 4" thick concrete

	On Grade	1' High	2' High	3' High	4' High
Less than 100 square feet	$11.71	$16.37	$26.34	$37.01	$53.82
100 to 200 square feet	10.77	14.77	21.35	30.04	40.01
200 to 400 square feet	9.05	11.71	18.32	26.62	34.45
Over 400 square feet	8.78	10.77	16.09	21.37	27.76

Uncovered Wood Decks, cost per square foot, 2" thick deck with typical steps and railing

1' to 4' above ground.	$26.57 to $28.51
Over 4' to 6' above ground	31.24 to 40.32
Over 6' to 9' above ground	32.55 to 42.11
Over 9' to 12' above ground	33.87 to 44.75
Over 12' above ground	35.49 to 46.40

Porch Roofs, cost per square foot based on wood shingle cover

Type	Cost per Square Foot	Alternate Roof Covers	Cost Difference per S.F.
Unceiled shed roof	$10.20 to $12.10	Corrugated aluminum	Deduct $.88 to $1.10
Ceiled shed roof	17.13 to 19.31	Roll asphalt	Deduct .87 to .97
Unceiled gable roof	11.40 to 14.85	Fiberglass shingles	Deduct 1.08 to 1.19
Ceiled gable roof	19.30 to 21.50	Wood shakes	Add 1.18 to 1.83
(See the figures at the right for other roof cover)		Clay or concrete tile	Add 6.83 to 8.36
		Slate	Add 7.60 to 10.50

Residential Basements, cost per square foot, including stairs

Size	Unfinished Basements	Finished Basements
Less than 400 square feet	$33 to $54	$50 to $75
400 - 1,000 square feet	25 to 36	41 to 46
Over 1,000 square feet	22 to 26	38 to 44

These basement costs assume normal soil conditions, 7' headroom, no plumbing, partitions or windows. Unfinished basements have reinforced concrete floors and concrete or concrete block walls, a floor drain, stairway with a landing and handrail, open ceilings and one switched light fixture. Finished residential basements have a tile ceiling, resilient flooring, wood panel walls and lighting similar to Class 5 residences. Residential basements are common in climates where footing depths must be 4' or more to prevent frost heaving. These figures assume the residence is in an area where minimum footing depth is 4 feet. Where climate doesn't influence footing depth, unfinished basement costs will be 20% to 50% higher.

Additional Costs for Residential Structures

Balconies, Standard Wood Frame, cost per square foot, including foundations

Supported by 4" x 4" posts, 2" wood floor, open on underside, open 2" x 4" railing.	$24.40 to $26.30
Supported by 4" x 4" posts, 2" wood floor, sealed on underside, solid stucco or wood siding on railing.	29.60 to 31.30
Supported by steel columns, lightweight concrete floor, sealed on underside, solid stucco or open grillwork railing.	43.90 to 48.50

Heating and Cooling Equipment

Prices include wiring and minimum duct work.
Use the higher figures for smaller residences and in more extreme climates where greater heating and cooling density is required. Cost per square foot of heated or cooled area.

Type	Perimeter Outlets	Overhead Outlets
Central Ducted Air Systems, Single Family		
Forced air heating	$5.93 to $6.60	$4.65 to $5.33
Forced air heating and cooling	6.72 to 8.00	6.29 to 6.77
Gravity heat	4.31 to 5.80	—
Central Ducted Air Systems, Multi-Family		
Forced air heating	5.24 to 5.66	4.92 to 5.65
Forced air heating and cooling	7.12 to 7.83	6.23 to 6.70
Motel Units		
Forced air heating	6.04 to 6.51	5.88 to 6.42
Forced air heating and cooling	7.25 to 7.83	7.01 to 7.26
Circulating hot and cold water system	13.86 to 16.78	14.07 to 16.78

Floor and Wall Furnaces, cost each

Single floor unit	$1,140 to $1,320
Dual floor unit	1,980 to 2,160
Single wall unit	765 to 900
Dual wall unit	1,395 to 1,650
Thermostat control, add	126 to 151

Electric Baseboard Units, cost each

500 watts, 3'	$215 to $252
1,000 watts, 4'	331 to 380
1,500 watts, 6'	363 to 410
2,000 watts, 8'	460 to 530
2,500 watts, 10'	540 to 606
3,000 watts, 12'	660 to 720

Outside Stairways, cost per square foot of horizontal step area

Standard wood frame, wood steps with open risers, open on underside, open 2" x 4" railing, unpainted.	$19.19 to $21.12
Standard wood frame, solid wood risers, sealed on underside, solid stucco or wood siding on railing.	23.11 to 27.30
Precast concrete steps with open risers, steel frame, pipe rail with ornamental grillwork.	50.38 to 56.18

Electric vehicle (EV) charging station hookup. 220 volt Level 2 wall mounted NEMA 14-50 receptacle, 60amp breaker and 10' of 6-gauge 3 conductor cable.

32 amp	$270
40 amp	305
50 amp	365
Add for Level 2 charging station, hard wired	870

Ductless mini-split heating and cooling unit. Includes pad-mounted compressor-condenser, 8' of insulated copper refrigerant lines, PVC condensate drain, control wiring, PVC wall chase, clamps, brackets, interior wall-mounted evaporator and wireless control.

9,500 BTU (3/4 ton, 110 volt)	$1,130
18,000 BTU (1-1/2 ton, 230 volt)	1,420
24,000 BTU (2 ton, 230 volt)	1,780
42,000 BTU (3-1/2 ton, 230 volt, 5-zone)	5,730

Window Type or Thru-the-Wall Refrigerated Room Coolers, cost each

1/3 ton	$165 to $205
1/2	590 to 720
3/4	297 to 357
1	363 to 430
1-1/2	515 to 610
2	880 to 1,050

Ton = 12,000 Btu

Electric Wall Heaters, cost each

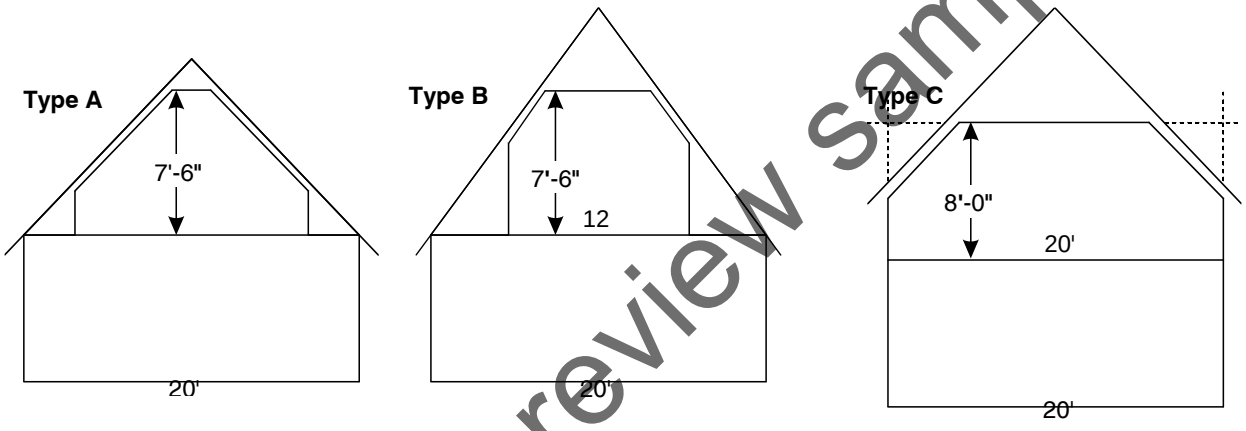
500 watts	$154 to $186
1,000	156 to 190
2,000	180 to 216
3,000	203 to 244
Add for circulating fan	86 to 126
Add for thermostat	57 to 126

Additional Costs for Residential Structures

Costs for Multi-Family Residential Bathrooms beyond 1 per unit

	Class 1 Best Quality	Class 2 Good Quality	Class 3 High Average	Class 4 Low Average	Class 5 Minimum Quality
2 or 3 units					
2 fixture bath	$9,846	$7,924	$6,702	$5,584	$4,726
3 fixture bath	14,293	12,185	10,109	8,701	6,966
4 fixture bath	18,187	15,720	14,034	11,498	9,844
4 to 9 units					
2 fixture bath	9,088	7,534	6,297	5,262	4,338
3 fixture bath	12,860	11,170	9,614	7,993	6,431
4 fixture bath	17,796	15,068	12,457	10,380	8,575
10 or more units					
2 fixture bath	8,183	6,966	5,912	4,598	3,793
3 fixture bath	12,602	10,523	8,836	6,963	5,717
4 fixture bath	16,627	14,293	11,431	9,354	7,145

Half Story Areas



Use a fraction of the basic square foot cost for figuring the reduced headroom floor area. Type "C" includes typical dormers.

Type	Same Finish As Main Area	Lesser Quality Finish
A	1/3	1/4
B	1/2	1/3
C	2/3	1/2

Elevators, per shaft cost for car and machinery

Hydraulic based on two stops

Capacity	100 F.P.M.	200 F.P.M.
2,000 lbs.	$52,300	$86,200
2,500 lbs.	55,600	88,800
3,000 lbs.	58,300	96,600
3,500 lbs.	—	101,600
4,000 lbs.	—	105,600

Add for deluxe car, $10,500. Add for each additional stop over 2: $3,940, baked enamel doors $10,790, stainless steel doors $11,300.

Electric based on six stops

Capacity	200 F.P.M.	250 F.P.M.	300 F.P.M.
2,000 lbs.	$130,900	$138,600	$143,800
2,500 lbs.	138,800	148,300	155,600
3,000 lbs.	148,800	162,600	168,000
3,500 lbs.	162,600	173,300	181,700
4,000 lbs.	172,300	187,200	195,800

Add $9,000 for a deluxe car. Add $10,500 for each additional stop over 6.

Homes Raised on Piles or Columns

	Add per SF of floor
Concrete columns on driven piles	$28.30 plus $1.18 per foot over 5' high
Concrete columns on grade beams	$12.50 plus $0.86 per foot over 5' high
Braced timber piles or poured concrete columns	$4.00 plus $1.16 per foot over 5' high

Multi-Family and Motel Garages Cost Per Square Foot

Garages built at ground level under a multi-family or motel unit. The costs below include the following components:

1. A reinforced concrete floor in all areas.
2. Exterior walls, on one long side and two short sides, made up of a wood frame and good quality stucco, wood siding or masonry veneer.
3. A finished ceiling in all areas.
4. The difference between the cost of a standard wood frame floor structure at second floor level and one at ground level.
5. An inexpensive light fixture for each 600 square feet.

Where no exterior walls enclose the two short sides, use $^{2}/_{3}$ of the square foot cost.

Garages built as separate structures for multi-family or motel units. The costs below include the following components:

1. Foundations.
2. A reinforced concrete floor in all areas.
3. Exterior walls on one long side and two short sides, made up of a wood frame and good quality stucco, wood siding or masonry veneer.
4. Steel support columns supporting the roof.
5. A wood frame roof structure with composition tar and gravel, wood shingle or light shake cover. No interior ceiling finish.
6. An inexpensive light fixture for each 600 square feet.

Use the location modifiers on page 7 or 8 to adjust garage costs to any area.

Basement Garages

Costs listed below are per square foot of floor, including the horizontal area of stairs and the approach ramp. These costs assume a single-level garage is built on one level, approximately 5 feet below grade, directly below 2 to 4 story multi-family structure with perimeter walls in vertical alignment. These costs include:

1. Excavation to 5' below ground line.
2. Full wall enclosure.
3. Typical storage facilities.
4. Minimum lighting.
5. Concrete floors.

Use the location modifiers on page 7 or 8 to adjust garage costs to the site.

Ground Level Garages

Area	400	800	1,200	2,000	3,000	5,000	10,000	20,000
Cost	49.64	41.48	39.88	35.11	31.65	31.36	30.52	29.10

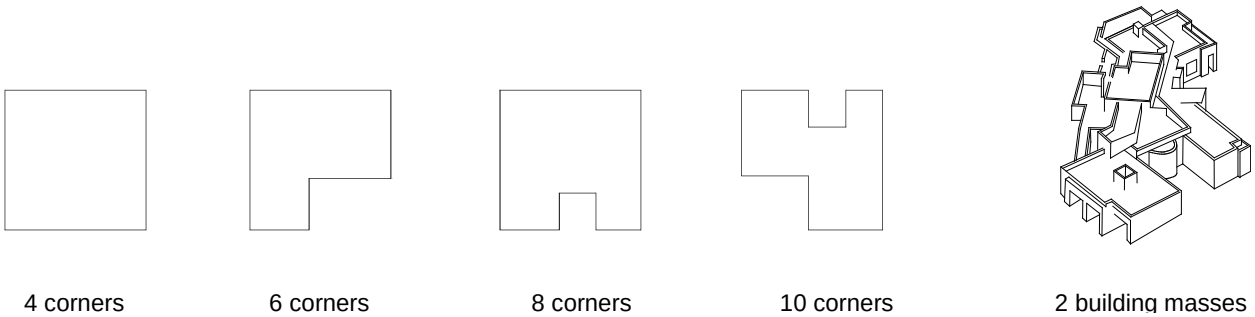
Separate Structure Garages

Area	400	800	1,200	2,000	3,000	5,000	10,000	20,000
Cost	56.72	50.66	41.52	44.12	42.28	40.43	38.65	37.83

Basement Garages

Type	5,000	7,500	10,000	15,000	20,000	30,000	40,000	60,000
Reinforced concrete exterior walls and columns. Flat concrete roof slab.	75.60	69.24	66.35	65.33	63.36	62.53	61.67	61.01
Concrete block exterior walls, reinforced concrete columns. Flat concrete roof slab.	75.08	70.48	66.01	64.25	62.74	62.02	61.05	58.79
Concrete block exterior walls, steel posts and beams, light concrete/metal roof fireproofed with spray plaster.	70.55	64.59	61.49	53.21	50.96	56.97	55.23	54.40
Concrete block exterior walls, wood posts and beams, light concrete/metal roof fireproofed with spray plaster.	63.07	60.11	56.00	52.26	50.66	49.89	9.11	48.24
Add for each security gate	4.58	3.35	2.84	2.09	1.76	1.43	1.24	1.09

Cabins and Recreational Dwellings



Example of Dwelling Shapes

Cabins and recreational dwellings are designed for single family occupancy, usually on an intermittent basis. These structures are characterized by a more rustic interior and exterior finish and often have construction details which would not meet building requirements in metropolitan areas. Classify these structures into either "conventional type" or "A-frame" construction. Conventional dwellings have an exterior wall which is approximately 8 feet high on all sides. A-frame cabins have a sloping roof which reduces the horizontal area 8 feet above the first floor to between 50% and 75% of the first floor area.

Conventional recreational dwellings vary widely in quality and the quality of construction is the most significant factor influencing cost. Conventional recreational dwellings are listed in six quality classes. Class 1 is the most expensive commonly encountered and Class 6 is the minimum commonly encountered. Nearly all conventional recreational dwellings built from stock plans 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 conventional recreational dwellings should be based on the outline formed by the outermost exterior walls, including the garage area, regardless of the story level. Most conventional recreational dwellings fall into Classes 3, 4, 5 or 6 and have 4, 6, 8 or 10 corners, as illustrated above. 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)* conventional recreational dwellings 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 above represents a conventional recreational dwelling with two building masses. Most Class 1 and Class 2 conventional recreational dwellings have from one to four building masses, ignoring any attached garage. For convenience, cost tables for Class 1 and 2 conventional recreational dwellings with one, two, three or four building masses have been appended to cost tables for Class 3, 4, 5 and 6 conventional recreational dwellings with 4, 6, 8 and 10 building corners.

Conventional recreational dwellings 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 conventional recreational dwellings with some characteristics of two or more quality classes. If a portion of a conventional recreational dwelling differs significantly in quality from other portions, evaluate the square footage of each portion separately.

Cabins and recreational dwellings are often built under difficult working conditions and in remote sites. Individual judgments may be necessary in evaluating the cost impact of the dwelling location. The costs assume construction by skilled professional craftsmen. Where non-professional labor or second quality materials are used, use the next lower quality classification that might otherwise apply. If the structure is assembled from prefabricated components, use costs for the next lower half class.

Quality Classification

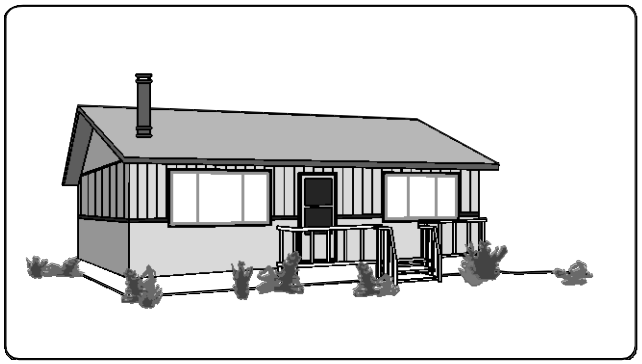
	Class 1 Luxury	Class 2 Semi-Luxury	Class 3 Best Std.	Class 4 Good Std.	Class 5 Average Std.	Class 6 Minimum Std.
Foundation (8% of total cost)	Reinforced concrete on a sloping site.	Reinforced concrete.	Reinforced concrete.	Reinforced concrete or concrete block.	Reinforced concrete or concrete block.	Wood piers, light concrete or block
Floor Structure (11% of total cost)	Engineered wood or steel, complex plan, elevation changes.	Engineered wood or steel trusses, good floor insulation.	Engineered wood or steel trusses, T&G sub-floor, good floor insulation.	Good wood frame with OSB sub-floor, some floor insulation.	Standard wood frame with OSB sub-floor, some floor insulation.	2" floor joists 16" on center with OSB sub-floor.
Wall Framing and Exterior Finish (14% of total cost)	Wood or steel, irregular walls, wood siding, stone, veneer, top-grade doors and windows.	Wood or steel, irregular walls, wood siding, stone veneer, better doors and windows.	Wood or steel, several wall offsets, plywood or lap siding, good grade doors and windows.	Wood or steel, shingle or plywood siding, some trim or veneer, average doors and windows.	Wood or steel, wood panel siding few or no offsets, commodity grade doors and windows.	Wood or steel, panel hardboard siding, minimum grade doors and windows.
Roof (13% of total cost)	Complex, heavy tile or metal cover, highly detailed.	Multi-pitch, shake, metal or good tile surface.	Dual-pitch, wood single or tile surface, gable over entrances.	Wood trusses, wood or good fiberglass shingle surface.	Simple wood frame, fiberglass shingle surface.	Wood frame, fiberglass shingle or roll roofing cover.
Floor Finish (5% of total cost)	Stone or masonry tile entry, inlaid hardwood or best carpet throughout.	Masonry entry, good hardwood or carpet in most rooms, good sheet vinyl elsewhere.	Hardwood or tile entry, carpet in most rooms sheet vinyl in kitchen and bathrooms.	Good sheet vinyl or average carpet in most areas, some hardwood or tile.	Sheet vinyl or tile on most areas, carpet in living room.	Composition tile or minimum grade sheet vinyl.
Interior Wall and Ceiling Finish (8% of total cost)	Top-grade paneling or wallboard with artistic finish, many offsets and wall openings, decorative details in most rooms.	Good wood paneling or textured wallboard with decorative details in most rooms, many wall openings, several racks and shelves.	Good hardwood veneer paneling or gypsum wallboard, some irregular walls, decorative details in living room, entry and kitchen.	1/2" gypsum wallboard with smooth finish, plywood paneling. at entry and living room, some decorative details.	1/2" gypsum wallboard with smooth finish, most walls are rectangular, doors and windows are the only openings.	Taped 1/2" gypsum wallboard, smooth or orange peel finish. Nearly all walls are regular, few decorative details.
Interior Features (5% of total cost)	Exposed beams or decorative details, 10' to 14' ceiling in great room, many sky widows, built-in shelving.	Great room has exposed beams, most rooms have windows on two sides, several framed openings.	Cathedral ceiling at entry or in master bedroom, floor level changes, several wall openings or pass-throughs.	Cathedral ceiling in master bedroom, sliding glass door, decorative wood molding and trim.	Rustic exposed ceiling beams, sliding closet doors, standard grade wood molding and trim.	Minimum grade molding and trim.
Bath Detail (4% of total cost)	At least 1 large tile shower, good tile counter in master bath.	Tile in 1 bathroom, glass block or good window in each bath, good vanity cabinet.	Tile or fiberglass shower, at least one built-in bathtub, good window in each bath.	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, small vanity cabinet.	Minimum plastic tub and shower in one bathroom, minimum vanity.
Kitchen Detail (8% of total cost)	Over 20 LF of good custom wall & base cabinets, synthetic stone counter top, island work area.	15 to 18 LF of good custom base and wall cabinets, acrylic or tile counter top, desk with book shelf above.	12 to 15 LF of good stock wall and base cabinets, tile or acrylic counter top, desk and shelf or breakfast nook.	10 to 12 LF of stock standard grade wall and base cabinets, low-cost tile or laminated plastic counter top.	8 to 10 LF of stock standard grade wall and base cabinets, laminated plastic or resin coated hardboard top.	Less than 8 LF of low-cost wall and base cabinets, resin-coated hardboard counter top.
Plumbing (11% of total cost)	12 good fixtures, 2 water heaters, laundry room, copper piping.	10 good fixtures large water heater, laundry area, copper piping.	9 average grade fixtures, copper supply and plastic drain piping.	8 standard grade, fixtures, plastic supply and plastic drain lines.	7 low-cost fixtures, plastic supply and plastic drain lines.	6 or less minimum grade fixtures, plastic supply and drain lines.
Special Features (4% of total cost)	10 deluxe built-in appliances, good weather-protection throughout.	7 good built-in appliances, good wall and ceiling insulation.	6 good built-in appliances, good wall and ceiling, insulation.	5 average built-in appliances, adequate wall and ceiling insulation.	4 standard grade kitchen appliances, adequate ceiling insulation.	3 minimum grade built-in kitchen appliances, limited insulation.
Electrical System (9% of total cost)	Ample area and track lighting in most rooms, task light in bathrooms.	Good area and track lighting, simple light fixture in each bathroom.	Good light fixtures in kitchen and baths, limited fixtures in other rooms.	Good light fixture in most rooms, switch-operated outlet in bedrooms.	Simple light fixture in most rooms, switch-operated plugs in bedrooms.	5 or less lighting fixtures, switch-operated plug outlet in most rooms.

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

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 33.
2. Multiply the structure floor area by the appropriate cost listed 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 deck or porch, paving, fireplace, garage or carport, heating, extra plumbing fixtures, supporting walls, half story areas, construction on hillside lots, and construction in remote areas. See page 42.



Conventional Recreational Dwelling, Class 5

Conventional Recreational Dwelling, Class 3

Square Foot Area

Quality Class	400	500	600	700	800	900	1,000	1,100	1,200	1,300	1,400
1, Luxury	—	—	—	—	515.93	493.53	474.82	459.92	447.16	436.13	426.14
1, & 2	—	—	—	478.06	453.45	433.85	417.34	404.45	392.93	383.56	374.70
2, Semi-Luxury	—	—	448.63	419.60	397.90	380.73	366.26	355.13	344.92	336.62	328.73
2 & 3	—	421.30	389.36	364.11	345.12	330.37	317.66	308.35	299.09	291.92	285.32
3, Best Std.	351.91	315.65	291.76	272.84	258.71	247.51	238.04	230.98	224.22	218.76	213.80
3 & 4	321.62	288.51	266.51	249.24	236.42	226.23	217.72	211.08	205.00	200.00	195.40
4, Good Std.	293.92	263.61	243.71	227.75	216.15	206.73	198.78	192.91	187.24	182.89	178.61
4 & 5	271.24	243.16	224.78	210.27	199.37	190.80	183.40	178.00	172.63	168.61	164.83
5 Avg. Std.	250.13	224.31	207.46	193.88	183.92	175.93	169.21	164.10	159.43	155.63	151.97
5 & 6	230.75	207.03	191.27	178.87	169.61	162.31	156.13	151.35	147.13	143.39	140.21
6, Min. Std.	212.78	190.93	176.55	164.94	156.45	149.83	144.01	139.76	135.53	132.43	129.37

Square Foot Area

Quality Class	1,500	1,600	1,700	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200
1, Luxury	419.86	411.35	405.34	399.46	389.09	379.79	373.46	366.46	362.24	356.25	352.82
1, & 2	367.29	361.74	356.27	351.18	342.14	333.67	328.37	322.09	318.57	313.33	310.08
2, Semi-Luxury	323.65	317.59	312.69	308.25	300.39	292.71	288.27	282.74	279.53	275.03	272.15
2 & 3	280.58	275.57	271.31	267.38	260.49	254.00	250.00	245.32	242.54	238.54	236.07
3, Best Std.	210.42	206.40	203.27	200.42	195.29	190.39	187.51	183.71	181.73	178.82	176.81
3 & 4	192.13	188.67	185.81	183.14	178.30	173.94	171.21	168.05	166.08	163.32	161.72
4, Good Std.	175.62	172.48	169.71	167.41	163.03	158.83	156.48	153.59	151.91	149.29	147.74
4 & 5	161.99	159.00	156.80	154.29	150.28	146.60	144.45	141.60	140.13	137.71	—
5 Avg. Std.	149.48	146.78	144.47	142.47	138.65	135.34	133.30	130.66	129.24	—	—
5 & 6	137.92	135.39	133.31	131.50	128.05	124.84	122.92	120.47	—	—	—
6, Min. Std.	127.30	124.89	122.99	121.19	118.05	115.15	113.29	—	—	—	—

Note: Add 4% to the square foot cost for floors above the second floor level.

Quality Classification

	Class 1 Best Quality	Class 2 Good Quality	Class 3 Average Quality	Class 4 Low Quality
Framing (10% of total cost)	Wood frame.	Wood frame.	Wood frame.	Wood frame.
Floor Framing (5% of total cost)	4" x 8" girders 48" o.c. with 2" T&G subfloor, or 2" x 6" to 2" x 8" joists 16" o.c. with 1" subfloor.	4" x 8" girders 48" o.c. with 1-1/4" plywood or 2" T&G subfloor, or 2" x 6" to 2" x 8" joists 16" o.c. with 1" subfloor.	4" x 6" girders 48" o.c. with 1-1/4" plywood or 2" T&G subfloor, or 2" x 6" joists 16" o.c. with 1" subfloor.	4" x 6" girders 48" o.c. with 1-1/4" plywood or 2" T&G subfloor, or 2" x 6" joists 16" o.c. with 1" subfloor.
Roof Framing (8% of total cost)	4" x 8" at 48" o.c. with 2" or 3" T&G sheathing.	4" x 8" at 48" o.c. with 2" or 3" T&G sheathing.	4" x 8" at 48" o.c. with 2" T&G sheathing.	4" x 8" at 48" o.c. with 1-1/4" plywood or 2" T&G sheathing.
Gable End Finish (5% of total cost)	Good plywood, lap board or board and batt.	Average to good plywood, or boards.	Average plywood, board or wood shingle.	Low cost plywood, shingle or composition siding.
Windows (2% of total cost)	Good quality large insulated wood or metal windows.	Average quality insulated wood or metal windows.	Average quality wood or metal windows.	Small glass area of low cost windows.
Roofing (10% of total cost)	Heavy wood shakes.	Medium wood or aluminum shakes.	Wood or composition shingles.	Low cost composition shingles.
Flooring (5% of total cost)	Good carpet or hardwood with sheet vinyl in kitchen and baths.	Average to good quality carpet with good tile or sheet vinyl in kitchen and baths.	Average quality carpet with resilient tile in kitchen and baths.	Composition tile.
Interior Finish (25% of total cost including finish carpentry, wiring, lighting, fireplace, etc.)	Good quality hardwood veneer paneling.	Good textured gypsum wallboard, good plywood or knotty pine paneling.	Textured gypsum wallboard or plywood paneling.	Low cost paneling or wallboard.
Bathrooms (5% of total cost)	Two 3-fixture baths and one 2-fixture bath, good fixtures.	Two 3-fixture baths, good fixtures.	Two 3-fixture baths, average fixtures.	One 3-fixture bath.
Kitchen (5% of total cost)	15' to 18' good quality hardwood veneer base cabinet with matching wall cabinets. 15' to 18' of good quality plastic or ceramic tile drain board.	12' to 16' of hardwood veneer base cabinet with matching wall cabinets. 12' to 16' of plastic or ceramic tile drainboard.	8' to 12' of average quality veneer or painted base cabinets with matching wall cabinets. 8' to 12' of plastic drainboard.	6' to 8' of minimum base cabinets with matching wall cabinets. 6' to 8' of minimum plastic drainboard.
Plumbing (15% of total cost)	Nine good quality fixtures and one larger or two 30 gallon water heaters. Copper supply piping.	Seven good quality fixtures and one water heater.	Seven average quality fixtures and one water heater.	Four low cost fixtures and one water heater. Plastic supply pipe.
Special Features (5% of total cost)	Built-in oven, range, dishwasher, disposer, range hood with good insulation, good lighting fixtures, insulated sliding glass door and ornate entry door.	Built-in range, oven and range hood, some insulation, 8' sliding glass door, average electric fixtures.	Drop-in range and hood, some insulation, low cost electric fixtures.	Minimum electric fixtures.

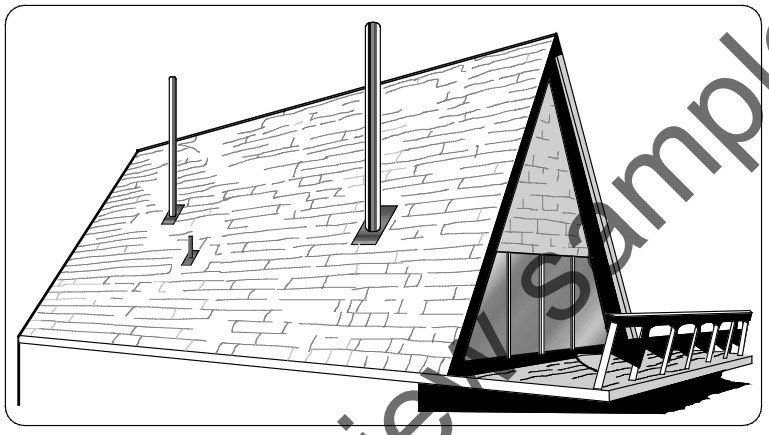
Note: Use the percent of total cost to help identify the correct quality classification.

"A-Frame" Cabins

4 Corners

Estimating Procedure

1. Establish the structure quality class by applying the information on page 38.
2. Multiply the structure floor area by the appropriate cost listed 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 deck or porch, paving, fireplace, garage or carport, heating, extra plumbing fixtures, supporting walls, half story areas, construction on hillside lots, and construction in remote areas. See page 42.



"A-Frame" Cabin, Class 3 & 4

Square Foot Area

Quality Class	400	500	600	700	800	900	1,000	1,100	1,200	1,300	1,400
1, Best	287.71	259.60	240.07	225.73	214.52	205.65	198.33	192.21	187.03	182.45	178.54
1 & 2	264.36	238.54	220.60	207.37	197.17	188.79	182.24	176.59	171.78	167.68	164.05
2, Good	242.54	218.83	202.51	190.27	180.95	173.37	167.26	162.02	157.71	153.88	150.54
2 & 3	228.99	206.62	191.11	179.65	170.77	163.69	157.82	153.02	148.85	145.25	142.10
3, Average	216.92	195.74	181.04	170.16	161.72	155.03	149.48	144.88	141.03	137.58	134.63
3 & 4	196.87	177.66	164.23	154.44	146.83	140.75	135.75	131.53	127.97	124.85	122.24
4, Low	176.59	159.38	147.43	138.61	131.77	126.26	121.79	118.06	114.76	112.04	109.61

Square Foot Area

Quality Class	1,500	1,600	1,700	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200
1, Best	172.20	169.41	166.91	164.59	160.62	157.29	154.51	152.06	149.93	147.99	146.38
1 & 2	158.91	156.35	153.94	151.86	148.24	145.14	142.58	140.32	138.40	136.65	135.13
2, Good	146.62	144.18	142.05	140.08	136.75	133.95	131.54	129.48	127.61	126.04	124.67
2 & 3	139.17	136.88	134.85	133.03	129.79	127.17	124.85	122.90	121.16	119.68	118.30
3, Average	132.20	130.04	128.06	126.41	123.35	120.79	118.59	116.75	115.15	113.68	112.41
3 & 4	121.63	119.66	117.82	116.30	113.50	111.15	109.17	107.43	105.94	104.63	103.41
4, Low	108.83	106.68	105.58	104.08	102.75	100.66	98.83	97.24	95.91	94.70	93.65

Additional Costs

Half-Story Costs

For conventional recreational dwellings, use the suggested fractions found on page 30 in the section "Additional Costs for Residential Structures." For "A-Frame" cabins, use one of the following costs: A simple platform with low cost floor cover, minimum partitions, and minimum lighting costs $69 to $101 per square foot. Average quality half story area with average quality carpet, average number of partitions finished with gypsum wallboard or plywood veneer and average lighting costs $101 to $112 per square foot. A good quality half story area with good carpet, decorative rustic partitions, ceiling beams and good lighting costs $133 to $155 per square foot.

Decks and Porches, per square foot

2" wood deck with steps and railing (300 S.F. base)	
1' to 4' above ground	$26.85 to $31.51
Over 4' to 6' above ground	31.20 to 40.43
Over 6' to 9' above ground	32.66 to 42.81
Over 9' to 12' above ground	33.85 to 44.82
Over 12' above ground	35.68 to 46.36

Fireplaces, 2-story, including foundation

Metal hood with concrete slab	$3,010 to $3,756
Prefabricated, zero clearance	4,320 to 6,300
Simple concrete block	5,190 to 8,670
Concrete block with stone facing	6,920 to 10,500
Simple natural stone	11,900 to 17,200

Extra Plumbing, cost each

Lavatory	$1,840 to $2,685
Water closet or bidet	2,250 to 2,766
Tub and shower	2,370 to 3,160
Stall shower	1,762 to 2,550
Laundry or utility sink	1,285 to 1,520

Heating, cost each

Wall furnace, 35,000 Btu	$1,438
Wall furnace, 65,000 Btu	1,764
Baseboard hot water, per SF*	5.6
Central heating, perimeter ducts, per S.F.*	7.90

*Cost is per SF of floor area heated.

Garages, Carports and Basements

For garage, carport and basement costs for conventional recreational dwellings, see pages 27 and 29.

Flatwork, per square foot

Asphalt paving	$5.95 to $9.00
4" concrete	6.10 to 9.30
6" concrete	6.45 to 9.50

Reinforced concrete walls, per C.F.

Formed one side only	$25.40 to $29.52
Formed both sides	32.30 to 36.20

Supporting Wall Costs

Cabins and recreational dwellings built on sloping lots cost more than if they are built on level lots. The cost of supporting walls of a building that do not enclose any living area should be estimated by using the figures below. These costs include everything above a normal foundation (12" to 18" above ground) up to the bottom of the next floor structure where square foot costs can be applied. In addition to the cost of supporting walls, add the cost of any extra structural members and the higher cost of building on a slope. A good rule of thumb for this is to add $960 for each foot of vertical distance between the highest and the lowest points of intersection of foundation and ground level.

Wood posts, per foot of height

4" x 4"	$2.59 to $4.20
4" x 6"	4.20 to 7.10
6" x 6"	5.40 to 10.10
8" x 8"	12.10 to 19.90
10" x 10"	22.50 to 32.20
12" x 12"	33.80 to 46.80

Brick, per square foot of wall

8" common brick	$43.50 to $53.10
12" common brick	65.70 to 82.60
8" common brick, 1 side face brick	55.00 to 67.90
12" common brick, 1 side face brick	85.05 to 107.00

Reinforced concrete block, per square foot of wall

8" natural	$12.10 to $14.80
8" colored	16.60 to 19.90
8" detailed blocks, natural	13.70 to 18.10
8" detailed blocks, colored	19.00 to 21.50
8" sandblasted	14.60 to 17.34
8" splitface, natural	12.60 to 14.90
8" splitface, colored	18.50 to 22.30
8" slump block, natural	13.50 to 16.90
8" slump block, colored	18.40 to 21.80
12" natural	23.90 to 26.30

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	55	50	45	40	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	
	Rem.	%	Rem.	%	Rem.	%	Rem.	%		Rem.	%	Rem.	%	Rem.	%	Rem.	%	Rem.	%
Age	Life	Good	Life	Good	Life	Good	Life	Good	Age	Life	Good	Life	Good	Life	Good	Life	Good	Life	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
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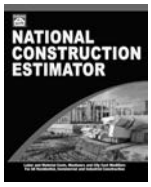

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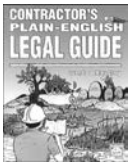

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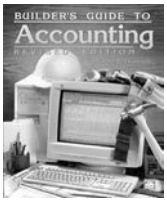

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In commercial work, a single job can keep you and your crews busy for a year or more. The profit percentages are higher, but so is the risk involved. This book takes you step-by-step through the process of setting up a successful commercial business: finding work, estimating and bidding, value engineering, getting through the submittal and shop drawing process, keeping a stable work force, controlling costs, and promoting your business. Explains the design/build and partnering business concepts and their advantage over the competitive bid process. Includes sample letters, contracts, checklists and forms that you can use in your business, plus a CD-ROM with blank copies in several word-processing formats for both Mac™ and PC computers. **256 pages, 8½ x 11, $42.00**
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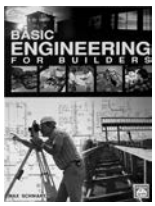
Basic Engineering for Builders



This book is for you if you've ever been stumped by an engineering problem on the job, yet wanted to avoid the expense of hiring a qualified engineer. Here you'll find engineering principles explained in non-technical language and practical methods for applying them on the job. With the help of this book you'll be able to understand engineering functions in the plans and how to meet the requirements, how to get permits issued without the help of an engineer, and anticipate requirements for concrete, steel, wood and masonry. See why you sometimes have to hire an engineer and what you can undertake yourself: surveying, concrete, lumber loads and stresses, steel, masonry, plumbing, and HVAC systems. This book is designed to help you, the builder, save money by understanding engineering principles that you can incorporate into the jobs you bid. **400 pages, 8½ x 11, $39.50**
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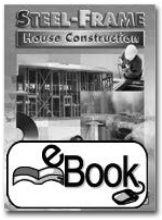
Steel-Frame House Construction eBook



Framing with steel has obvious advantages over wood, yet building with steel requires new skills that can present challenges to the wood builder. This book explains the secrets of steel framing techniques for building homes, whether pre-engineered or built stick by stick. It shows you the techniques, the tools, the materials, and how you can make it happen. Includes hundreds of photos and illustrations.
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National Renovation & Insurance Repair Estimator

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488 pages, 8½ x 11, $119.50. Revised annually
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Blueprint Reading for the Building Trades eBook

How to read and understand construction documents, blueprints, and schedules. Includes layouts of structural, mechanical, HVAC and electrical drawings. Shows how to interpret sectional views, follow diagrams and schematics, and covers common problems with construction specifications.
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Home Building Mistakes & Fixes

This is an encyclopedia of practical fixes for real-world home building and repair problems. There's never an end to "surprises" when you're in the business of building and fixing homes, yet there's little published on how to deal with construction that went wrong - where out-of-square or non-standard or jerry-rigged turns what should be a simple job into a nightmare. This manual describes jaw-dropping building mistakes that actually occurred, from disastrous misunderstandings over property lines, through basement floors leveled with an out-of-level instrument, to a house collapse when a siding crew removed the old siding. You'll learn the pitfalls the painless way, and real-world working solutions for the problems every contractor finds in a home building or repair jobsite. Includes dozens of those "surprises" and the author's step-by-step, clearly illustrated tips, tricks and workarounds for dealing with them.
384 pages, 8½ x 11, $52.50
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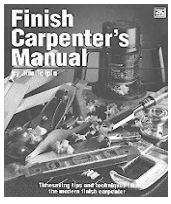
Finish Carpenter's Manual



Everything you need to know to be a finish carpenter: assessing a job before you begin, and tricks of the trade from a master finish carpenter. Easy-to-follow instructions for installing doors and windows, ceiling treatments (including fancy beams, corbels, cornices and moldings), wall treatments (including wainscoting and sheet paneling), and the finishing touches of chair, picture, and plate rails. Specialized interior work includes cabinetry and built-ins, stair finish work, and closets. Also covers exterior trims and porches. Includes manhour tables for finish work, and hundreds of illustrations and photos.
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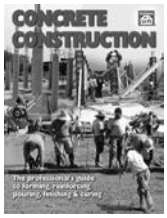
Concrete Construction



Just when you think you know all there is about concrete, many new innovations create faster, more efficient ways to do the work. This comprehensive concrete manual has both the tried-and-tested methods and materials, and more recent innovations. It covers everything you need to know about concrete, along with Styrofoam forming systems, fiber reinforcing adjuncts, and some architectural innovations, like architectural foam elements, that can help you offer more in the jobs you bid on. Every chapter provides detailed, step-by-step instructions for each task, with hundreds of photographs and drawings that show exactly how the work is done. To keep your jobs organized, there are checklists for each stage of the concrete work, from planning, to finishing and protecting your pours. Whether you're doing residential or commercial work, this manual has the instructions, illustrations, charts, estimating data, rules of thumb and examples every contractor can apply on their concrete jobs. **288 pages, 8½ x 11, $28.75**

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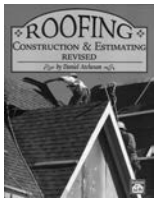

Detailed, step-by-step instructions, with photographs and diagrams, for installing, repairing and estimating nearly every type of roof covering available today for residential and commercial structures: asphalt shingles, roll roofing, wood shingles and shakes, clay tile, slate, metal, built-up, elastomeric, TPO and more. Provides guidance on sheathing, synthetic and felt underlayment, as well as tips and tricks from an experienced pro for dealing with those difficult points on a roof that are prone to leaks, such as valleys and roof penetrations. For each roofing type, instructions are provided for estimating material quantities and labor costs, with formulas, easy-to-follow examples and sample estimates for you to test your skill. Use these methods to create reliable estimates that will help insure a profit on every job you take. **448 pages, 8½ x 11, $62.50**
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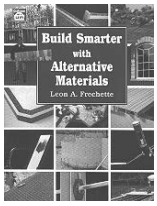

New building products are coming out almost every week. Some of them may become new standards, as sheetrock replaced lath and plaster some years ago. Others are little more than a gimmick. To write this manual, the author researched hundreds of products that have come on the market in recent years. The ones he describes in this book will do the job better, creating a superior, longer-lasting finished product, and in many cases also save you time and money. Some are made with recycled products — a good selling point with many customers. But most of all, they give you choices, so you can give your customers choices. In this book, you'll find materials for almost all areas of constructing a house, from the ground up. For each product described, you'll learn where you can get it, where to use it, what benefits it provides, any disadvantages, and how to install it — including tips from the author. And to help you price your jobs, each description ends with manhours – for both the first time you install it, and after you've done it a few times.
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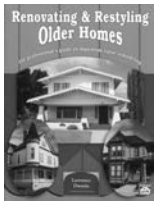
Renovating & Restyling Older Homes



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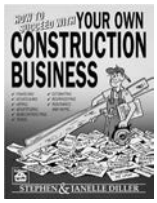

Everything you need to start your own construction business: setting up the paperwork, finding the jobs, advertising, using contracts, dealing with lenders, estimating, scheduling, finding and keeping good employees, keeping the books, and coping with success. If you're considering starting your own construction business, all the knowledge, tips, and blank forms you need are here. **336 pages, 8½ x 11, $28.50**
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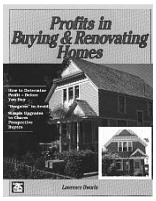

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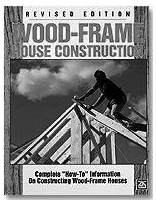
Wood-Frame House Construction



Step-by-step construction details, from the layout of the outer walls, excavation and formwork, to finish carpentry and painting. Packed with clear illustrations and explanations updated for modern construction methods. Everything you need to know about framing, roofing, siding, interior finishings, floor covering and stairs — your complete book of wood-frame homebuilding.
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