



74th Edition
Richard Pray

2026 NATIONAL CONSTRUCTION ESTIMATOR

Labor and material costs, manhours
and city cost modifiers for all residential,
commercial and industrial construction





2026

\$117.50

NATIONAL CONSTRUCTION ESTIMATOR

Edited by Richard Pray

74th Edition



**The National
Estimator Cloud**



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This Book Is an Encyclopedia of 2026 Building Costs

The **2026 National Construction Estimator** lists estimated construction costs to general contractors performing work with their own crews. Overhead and profit are not included.

National Estimator Cloud

This manual is also available by subscription on the Web. *National Estimator Cloud* includes all ten of Craftsman's 2026 construction cost estimating references. Each of these manuals has about 400 pages of current labor and material costs for construction – all neatly organized and indexed. Use these costs to build estimates and bids for nearly any type of project. Your work is kept secure on the Web. *National Estimator Cloud*:

- Prints estimates, bids and invoices as Word, Excel or PDF documents.
- Supports progress invoices. *National Estimator Cloud* remembers what been billed so far and what's yet to be billed.
- Runs as a secure app on the Web so you can write estimates anywhere you have a Web connection.
- Exports invoices to QuickBooks, either desktop or the online.
- Bids and invoices can show as much or as little detail as you want.
- Material costs are updated regularly as prices change.
- Costs only a few dollars a month. Cancel any time you want.

This Manual Has Two Parts; the Residential Construction Division begins on page 17. Use the figures in this division when estimating the cost of homes and apartments with a wood, steel or masonry frame. The Industrial and Commercial Division begins on page 308 and can be used to estimate costs for nearly all construction not covered by the Residential Division.

The Residential Construction Division is arranged in alphabetical order by construction trade and type of material. The Industrial and Commercial Division follows MasterFormat™ 2004. A complete index begins on page 640.

Material Costs

Material Costs for each item are listed in the column headed "Material." These are neither retail nor wholesale prices. They are estimates of what most

contractors who buy in moderate volume will pay suppliers as of early-2026. Discounts may be available for purchases in larger volume.

Material costs can change rapidly. Material prices in *National Estimator Cloud* are revised as material prices change.

Add Delivery Expense to the material cost for other than local delivery of reasonably large quantities. Cost of delivery varies with the distance from source of supply, method of transportation, and quantity to be delivered. But most material dealers absorb the delivery cost on local delivery (5 to 15 miles) of larger quantities to good customers. Add the expense of job site delivery when it is a significant part of the material cost.

Add Sales Tax when sales tax will be charged to the contractor buying the materials. *National Estimator Cloud* makes it easy to add sales tax to your estimates, bids and invoices.

Waste and Coverage loss is included in the installed material cost. The cost of many materials per unit after installation is greater than the purchase price for the same unit because of waste, shrinkage or coverage loss during installation. For example, about 120 square feet of nominal 1" x 4" square edge boards will be needed to cover 100 square feet of floor or wall. There is no coverage loss with plywood sheathing, but waste due to cutting and fitting will average about 6%.

Costs in the "Material" column of this book assume normal waste and coverage loss. Small and irregular jobs may require a greater waste allowance. Materials priced without installation (with no labor cost) do not include an allowance for waste and coverage except as noted.

Labor Costs

Labor Costs for installing the material or doing the work described are listed in the column headed "Labor." The labor cost per unit is the labor cost per hour multiplied by the manhours per unit shown after the @ sign in the "Craft@Hours" column. Labor cost includes the basic wage, the employer's contribution to welfare, pension, vacation and apprentice funds and all tax and insurance charges based on wages. Hourly labor costs for the various crafts are listed on page 10 (for the Residential Division) and page 309 (for the Industrial and Commercial Division).

Hourly labor costs used in the Industrial and Commercial Division are higher than those used in the Residential Division, reflecting the fact that craftsmen on industrial and commercial jobs are often paid more than craftsmen on residential jobs.

Supervision Expense to the general contractor is not included in the labor cost. The cost of supervision and non-productive labor varies widely from job to job. Calculate the cost of supervision and non-productive labor and add this to the estimate.

Payroll Taxes and Insurance included in the labor cost are itemized in the sections beginning on pages 185 and 285.

Manhours per Unit and the Craft performing the work are listed in the "Craft@Hrs" column. Pages 7 through 9 explain the "Craft@Hrs" column. To find the units of work done per man in an 8-hour day, divide 8 by the manhours per unit. To find the units done by a crew in an 8-hour day, multiply the units per man per 8-hour day by the number of crew members.

Manhours Include all productive labor normally associated with installing the materials described. This will usually include tasks such as:

- Unloading and storing construction materials, tools and equipment on site.
- Moving tools and equipment from a storage area or truck on site at the beginning of the day.
- Returning tools and equipment to a storage area or truck on site at the end of the day.
- Normal time lost for work breaks.
- Planning and discussing the work to be performed.
- Normal handling, measuring, cutting and fitting.
- Keeping a record of the time spent and work done.
- Regular cleanup of construction debris.
- Infrequent correction or repairs required because of faulty installation.

Adjust the Labor Cost to the job you are figuring when your actual hourly labor cost is known or can be estimated. The labor costs listed on pages 10 and 309 will apply within a few percent on many jobs. But labor costs may be much higher or much lower on the job you are estimating.

If the hourly wage rates listed on page 10 or page 309 are not accurate, divide your known or estimated cost per hour by the listed cost per hour. The result is your adjustment for any figure in the "Labor" column for that craft. See page 11 for more information on adjusting labor costs.

National Estimator Cloud makes it easy to compile estimates using your own labor rates.

Adjust for Unusual Labor Productivity. Costs in the labor column are for normal conditions: experienced craftsmen working on reasonably well planned and managed new construction with fair to good productivity. Labor estimates assume that materials are standard grade, appropriate tools are on hand, work done by other crafts is adequate, layout and installation are relatively uncomplicated, and working conditions don't slow progress.

Working conditions at the job site have a major effect on labor cost. Estimating experience and careful analysis can help you predict the effect of most changes in working conditions. Obviously, no single adjustment will apply on all jobs. But the adjustments that follow should help you produce more accurate labor estimates. More than one condition may apply on a job.

- Add 10% to 15% when working temperatures are below 40 degrees or above 95 degrees.
- Add 15% to 25% for work on a ladder or a scaffold, in a crawl space, in a congested area or remote from the material storage point.
- Deduct 10% when the work is in a large open area with excellent access and good light.
- Add 1% for each 10 feet that materials must be lifted above ground level.
- Add 5% to 50% for tradesmen with below average skills. Deduct 5% to 25% for highly motivated, highly skilled tradesmen.
- Deduct 10% to 20% when an identical task is repeated many times for several days at the same site.
- Add 30% to 50% on small jobs where fitting and matching of materials is required, adjacent surfaces have to be protected and the job site is occupied during construction.
- Add 25% to 50% for work done following a major flood, fire, earthquake, hurricane or tornado while skilled tradesmen are not readily available. Material costs may also be higher after a major disaster.
- Add 10% to 35% for demanding specs, rigid inspections, unreliable suppliers, a difficult owner or an inexperienced architect.

National Estimator Cloud makes it easy to adjust estimates for unusual labor productivity.

Use an Area Modification Factor from pages 12 through 15 if your material, hourly labor or equipment costs are unknown and can't be estimated.

Here's how: Use the labor and material costs in this manual without modification. Then add or deduct the percentage shown on pages 12 through 15 to estimated costs to find your local estimated cost.

Area cost modifications in *National Estimator Cloud* will adjust all costs in this manual to any US zip or Canadian postal code you select.

Equipment Costs

Equipment Costs for major equipment (such as cranes and tractors) are listed in the column headed "Equipment." Costs for small tools and expendable supplies (such as saws and tape) are usually considered overhead expense and do not appear in the Equipment cost column.

Equipment costs are based on rental rates listed in the section beginning on page 320 and assume that the equipment can be used productively for an entire 8-hour day. Add the cost of moving equipment on and off the site. Allow for unproductive time when equipment can't be used for the full rental period. For example, the equipment costs per unit of work completed will be higher when a tractor is used for 4 hours during a day and sits idle for the remaining 4 hours. Generally, an 8-hour day is the minimum rental period for most heavy equipment. Many sections describe the equipment being used, the cost per hour and a suggested minimum job charge.

Subcontracted Work

Subcontractors do most of the work on construction projects. That's because specialty contractors can often get the work done at competitive cost, even after adding overhead and profit.

Many sections of this book cover work usually done by subcontractors. If you see the word "subcontract" in a section description, assume that costs are based on quotes by subcontractors and include typical subcontractor markup (about 30% on labor and 15% on material). Usually no material or labor costs will appear in these sections. The only costs shown will be in the "Total" column and will include all material, labor and equipment expense.

If you don't see the word "subcontract" in a section description, assume that costs are based on work done by a general contractor's crew. No markup is included in these costs. If the work is done by a subcontractor, the specialty contractor may be able to perform the work for the cost shown, even after adding overhead and profit.

Markup

The General Contractor's Markup is not included in any costs in this book. On page 208 we suggest a 20% markup on the contract price for general contractors handling residential construction. Apply this markup or some figure you select to all costs, including both subcontract items and work done by your own crews.

To realize a gross profit of 20% on the contract price, you'll have to mark up costs by 25%. See page 208 for an example of how markup is calculated. Markup includes overhead and profit and may be the most difficult item to estimate.

National Estimator Cloud will add to the estimate any percentage you select for overhead, contingency and profit.

Keep In Mind

Labor and Material Costs Change. Costs in this manual were compiled in the fall of 2025 and projected to early 2026 based on recent price trends. These projections will be accurate for some materials but inaccurate for others. No one can predict material price changes accurately. Costs in *National Estimator Cloud*

are revised as prices change and are likely to be different from the cost in this manual.

How Accurate Are These Figures? As accurate as possible considering that the estimators who compiled this manual don't know your subcontractors or material suppliers, haven't seen the plans or specifications, don't know what building code applies or where the job is, tried to project material costs several months into the future, and had no record of how much work your crews can handle.

You wouldn't bid a job under those conditions. And we don't claim that all construction is done at these prices.

Estimating Is an Art, not a science. On many jobs, the range between high and low bid will be 20% or more. There's room for legitimate disagreement on cost estimates for any project, even when complete plans and specifications are available, the date and site are established, and labor and material costs are identical for all bidders.

No cost fits all jobs. Good estimates are custom-made for a particular project and a single contractor through judgment, analysis and experience.

This book is not a substitute for judgment, analysis and sound estimating practice. It's an aid in developing an informed opinion of cost. If you're using this book as a sole cost authority for contract bids, you're reading more into these pages than the editors intend.

Use These Figures to compile preliminary estimates, to check your costs and subcontract bids and when no actual costs are available. This book will reduce the chance of error or omission on bid estimates, speed "ball park" estimates, and be a good guide when there's no time to get a quote.

Where Do We Get These Figures? From the same sources all professional estimators use: contractors and subcontractors, architectural and engineering firms, material suppliers, material price services, analysis of plans, specifications, estimates and completed project costs, and both published and unpublished cost studies. In addition, we conduct nationwide mail and phone surveys and have the use of several major national estimating databases.

For more on using *National Estimator Cloud*, go to: <https://craftsman-book.com/support/tutorials/>



We'll Answer Your Questions about any part of this book and explain how to apply these costs.

Free telephone assistance is available from 8 a.m. until 5 p.m. California time Monday through Friday except holidays. Phone 760-438-7828.

We don't accept collect calls and won't estimate the job for you. But if you need clarification on something in this manual, we can help.

Abbreviations

AASHO	American Assn. of State Highway Officials	FAA	Federal Aviation Administration	OC	spacing from center to center
ABS	acrylonitrile butadiene styrene	FICA	Federal Insurance Contributions Act (Social Security, Medicare tax)	OD	outside diameter
AC	alternating current	FOB	freight on board	OS & Y	outside screw & yoke
AISC	American Institute of Steel Construction Inc.	FPM	feet per minute	oz	ounce
APP	attactic polypropylene	FRP	fiberglass reinforced plastic	perf	perforated
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers	FS	Federal Specification	Pr	pair
ASME	American Society of Mechanical Engineers	ft-lbs	foot pounds	PSF	pounds per square foot
ASTM	American Society for Testing Materials	FUTA	Federal Unemployment Compensation Act Tax	PSI	pounds per square inch
AWPA	American Wood Products Association	Gal	gallon	PV	photovoltaic
AWWA	American Water Works Association	GFCI	ground fault circuit interruptor	PVC	polyvinyl chloride
Ba	bay	GPH	gallon(s) per hour	Qt	quart
Bdle	bundle	GPM	gallon(s) per minute	R	thermal resistance
BF	board foot	H	height	R/L	random length(s)
BHP	boiler horsepower	HP	horsepower	R/W/L	random widths and lengths
Btr	better	Hr(s)	hour(s)	RPM	revolutions per minute
Btu	British thermal unit	IMC	intermediate metal conduit	RSC	rigid steel conduit
B & W	black & white	ID	Inside diameter	S1S2E	surfaced 1 side, 2 edges
C	thermal conductance	KD	kiln dried or knocked down	S2S	surfaced 2 sides
C	one hundred	KSI	kips per square inch	S4S	surfaced 4 sides
CF	cubic foot	KV	kilovolt(s)	Sa	sack
CFM	cubic feet per minute	KVA	1,000 volt amps	SBS	styrene butyl styrene
CLF	100 linear feet	kw	kilowatt(s)	SDR	size to diameter ratio
cm	centimeter	kwh	kilowatt hour	SF	square foot
CPE	chlorinated polyethylene	L	length	SFCA	square feet of form in contact with concrete
CPM	cycles per minute	Lb(s)	pound(s)	Sq	100 square feet
CPVC	chlorinated polyvinyl chloride	LF	linear foot	SSB	single strength B quality glass
CSPE	chloro sulphinated polyethylene	LP	liquified propane	STC	sound transmission class
CSF	100 square feet	LS	lump sum	Std	standard
CSY	100 square yards	M	one thousand	SY	square yard
CY	cubic yard	Mb	million bytes (characters)	T	thick
d	penny	MBF	1,000 board feet	T&G	tongue & groove edge
D	depth	MBtu	1,000 British thermal units	TV	television
DC	direct current	MCM	1,000 circular mils	UBC	Uniform Building Code
dia	diameter	MDO	medium density overlaid	UL	Underwriter's Laboratory
DSB	double strength B quality glass	MH	manhour	USDA	United States Dept. of Agriculture
DWV	drain, waste, vent piping	Mi	mile	VLF	vertical linear foot
Ea	each	MLF	1,000 linear feet	W	width
EMT	electric metallic tube	MPH	miles per hour	Wk	week
EPDM	ethylene propylene diene monomer	mm	millimeter(s)	W/	with
equip.	equipment	Mo	month	x	by or times
exp.	exposure	MSF	1,000 square feet		
F	Fahrenheit	NEMA	National Electrical Manufacturer's Association		
		NFPA	National Fire Protection Association		
		No.	number		
		NRC	noise reduction coefficient		

Symbols

/	per
—	through or to
@	at
%	per 100 or percent
\$	U.S. dollars
'	feet
"	inches
#	pound or number

Craft Codes, Hourly Costs and Crew Compositions

Both the Residential Division and Commercial and Industrial Division of this book include a column titled Craft@Hrs. Letters and numbers in this column show our estimates of:

- Who will do the work (the craft code)
- An @ symbol which means "at"
- How long the work will take (manhours).

For example, on page 51 you'll find estimates for installing BC plywood wall sheathing by the square foot. The Craft@Hrs column opposite ½" plywood wall sheathing shows:

B1@.016

That means we estimate the installation rate for crew B1 at .016 manhours per square foot. That's the same as 16 manhours per 1,000 square feet.

The table that follows defines each of the craft codes used in this book. Notice that crew B1 is composed of two craftsmen: one laborer and one carpenter.

Notice also in the table below that the cost per manhour for crew B1 is listed as \$41.64. That's the average for a residential laborer (listed at \$37.40 per hour on page 10) and a residential carpenter (listed at \$45.88 per hour): \$37.40 plus \$45.88 is \$83.28. Divide by 2 to get \$41.64, the average cost per manhour for crew B1.

In the table below, the cost per manhour is the sum of hourly costs of all crew members divided by the number of crew members. That's the average cost per manhour.

Costs in the Labor column in this book are the product of the installation time (in manhours) multiplied by the average cost per manhour for the designated crew.

Residential Division

Craft Code	Cost Per Manhour	Crew Composition	Craft Code	Cost Per Manhour	Crew Composition
B1	\$41.64	1 laborer and 1 carpenter	BR	\$43.99	1 lather
B2	\$43.05	1 laborer, 2 carpenters	BS	\$37.59	1 marble setter
B3	\$40.23	2 laborers, 1 carpenter	CF	\$43.66	1 cement mason
B4	\$45.25	1 laborer 1 operating engineer 1 reinforcing iron worker	CT	\$39.86	1 mosaic & terrazzo worker
B5	\$45.06	1 laborer, 1 carpenter 1 cement mason 1 operating engineer 1 reinforcing iron worker	D1	\$44.42	1 drywall installer 1 drywall taper
B6	\$40.53	1 laborer, 1 cement mason	DI	\$44.11	1 drywall installer
B7	\$38.14	1 laborer, 1 truck driver	DT	\$44.72	1 drywall taper
B8	\$44.25	1 laborer 1 operating engineer	HC	\$34.39	1 plasterer helper
B9	\$39.01	1 bricklayer 1 bricklayer's helper	OE	\$51.09	1 operating engineer
BB	\$44.21	1 bricklayer	P1	\$44.45	1 laborer, 1 plumber
BC	\$45.88	1 carpenter	PM	\$51.49	1 plumber
BE	\$48.35	1 electrician	PP	\$41.40	1 painter, 1 laborer
BF	\$42.19	1 floor layer	PR	\$45.50	1 plasterer
BG	\$43.85	1 glazier	PT	\$45.39	1 painter
BH	\$33.80	1 bricklayer's helper	R1	\$43.39	1 roofer, 1 laborer
BL	\$37.40	1 laborer	RI	\$47.27	1 reinforcing iron worker
			RR	\$49.37	1 roofer
			SW	\$49.64	1 sheet metal worker
			T1	\$38.84	1 tile layer, 1 laborer
			TL	\$40.27	1 tile layer
			TR	\$38.87	1 truck driver

Commercial and Industrial Division

Craft Code	Cost Per Manhour	Crew Composition	Craft Code	Cost Per Manhour	Crew Composition
A1	\$62.14	1 asbestos worker 1 laborer	F6	\$60.50	2 carpenters, 2 laborers 1 tractor operator
AT	\$52.75	1 air tool operator	F7	\$62.79	2 carpenters, 1 laborer 1 tractor operator
AW	\$72.94	1 asbestos worker	F8	\$62.44	2 plasterers 1 plasterer's helper
BM	\$75.46	1 boilermaker	F9	\$57.29	1 laborer, 1 floor layer
BT	\$49.89	1 bricklayer tender	FL	\$63.24	1 floor layer
C1	\$52.66	4 laborers, 1 truck driver	G1	\$59.50	1 glazier, 1 laborer
C2	\$60.85	1 laborer, 2 truck drivers 2 tractor operators	H1	\$65.89	1 carpenter, 1 laborer 1 iron worker (structural) 1 tractor operator
C3	\$59.26	1 laborer, 1 truck driver 1 tractor operator	H2	\$63.34	1 crane operator 1 truck driver
C4	\$53.54	2 laborers, 1 truck driver	H3	\$57.73	1 carpenter, 3 laborers 1 crane operator 1 truck driver
C5	\$57.28	2 laborers, 1 truck driver 1 tractor operator	H4	\$74.37	1 crane operator 6 iron workers (structural) 1 truck driver
C6	\$56.09	6 laborers, 2 truck drivers 2 tractor operators	H5	\$65.50	1 crane operator 2 iron workers (structural) 2 laborers
C7	\$59.11	2 laborers, 3 truck drivers 1 crane operator 1 tractor operator	H6	\$64.70	1 iron worker (structural) 1 laborer
C8	\$58.50	1 laborer, 1 carpenter	H7	\$74.94	1 crane operator 2 iron workers (structural)
C9	\$60.03	1 laborer, 1 crane operator	H8	\$73.15	1 crane operator 4 iron workers (structural) 1 truck driver
CB	\$63.14	1 bricklayer	H9	\$71.85	1 electrician 1 sheet metal worker
CC	\$65.66	1 carpenter	IW	\$78.05	1 iron worker (structural)
CD	\$63.47	1 drywall installer	LA	\$58.65	1 lather
CE	\$71.93	1 electrician	M1	\$56.52	1 bricklayer 1 bricklayer's tender
CG	\$67.66	1 glazier	M2	\$56.11	1 carpenter, 2 laborers
CL	\$51.34	1 laborer	M3	\$60.14	1 plasterer 1 plasterer's helper
CM	\$63.07	1 cement mason	M4	\$56.28	1 laborer, 1 marble setter
CO	\$68.72	1 crane operator	M5	\$62.75	1 pipefitter, 1 laborer
CV	\$71.48	1 elevator constructor	M6	\$66.14	1 asbestos worker 1 laborer, 1 pipefitter
D2	\$57.41	1 drywall installer 1 laborer	M8	\$68.45	3 pipefitters, 1 laborer
D3	\$65.37	1 laborer, 1 iron worker (structural), 1 millwright	M9	\$73.04	1 electrician, 1 pipefitter
D4	\$59.04	1 laborer, 1 millwright	MI	\$66.55	2 pipefitters, 1 laborer
D5	\$63.40	1 boilermaker, 1 laborer	MS	\$61.22	1 marble setter
D6	\$67.32	2 millwrights 1 tractor operator	MT	\$57.63	1 mosaic & terrazzo worker
D7	\$57.39	1 painter, 1 laborer	MW	\$66.73	1 millwright
D9	\$61.60	2 millwrights, 1 laborer			
E1	\$63.01	2 electricians, 2 laborers 1 tractor operator			
E2	\$61.64	2 electricians, 2 laborers			
E3	\$62.98	2 electricians, 2 laborers 2 carpenters			
E4	\$61.64	1 electrician, 1 laborer			
F5	\$59.93	3 carpenters, 2 laborers			

Commercial and Industrial Division

Craft Code	Cost Per Manhour	Crew Composition	Craft Code	Cost Per Manhour	Crew Composition
P5	\$56.09	3 laborers 1 tractor operator 1 truck driver	S8	\$61.27	2 pile drivers, 2 laborers 1 truck driver 1 crane operator 1 tractor operator
P6	\$63.39	1 laborer, 1 plumber	S9	\$58.93	1 pile driver, 2 laborers 1 tractor operator 1 truck driver
P8	\$57.21	1 laborer, 1 cement mason	SM	\$71.77	1 sheet metal worker
P9	\$60.02	1 carpenter, 1 laborer 1 cement mason	SP	\$77.03	1 sprinkler fitter
PA	\$63.43	1 painter	SS	\$62.78	1 laborer
PX	\$65.53	1 pile driver	T2	\$64.71	2 tractor operators 3 laborers, 3 carpenters 3 iron workers (structural) 1 crane operator 1 truck driver
PF	\$74.15	1 pipefitter	T3	\$64.86	1 laborer 1 reinforcing iron worker
PH	\$53.25	1 plasterer's helper	T4	\$54.49	1 laborer, 1 mosaic worker
PL	\$75.43	1 plumber	T5	\$61.56	1 sheet metal worker 1 laborer
PS	\$67.03	1 plasterer	T6	\$64.96	2 sheet metal workers 1 laborer
R3	\$56.72	2 roofers, 1 laborer	TD	\$57.95	1 truck driver
RB	\$78.38	1 reinforcing iron worker	TO	\$68.50	1 tractor operator
RF	\$59.41	1 roofer	U1	\$61.65	1 plumber, 2 laborers 1 tractor operator
S1	\$59.92	1 laborer 1 tractor operator	U2	\$59.37	1 plumber, 2 laborers
S3	\$63.23	1 truck driver 1 tractor operator			
S4	\$51.34	3 laborers			
S5	\$54.77	5 laborers 1 crane operator 1 truck driver			
S6	\$57.06	2 laborers 1 tractor operator			
S7	\$59.92	3 laborers 3 tractor operators			

Residential Division

	1	2	3	4	5	6
Craft	Base wage per hour	Taxable fringe benefits (@6.37% of base wage)	Insurance and employer taxes (%)	Insurance and employer taxes (\$)	Non-taxable fringe benefits (@5.63% of base wage)	Total hourly cost used in this book
Bricklayer	\$32.19	\$2.05	23.84%	\$8.16	\$1.81	\$44.21
Bricklayer's Helper	24.61	1.57	23.84	6.24	1.38	33.80
Building Laborer	25.94	1.65	30.27	8.35	1.46	37.40
Carpenter	32.08	2.04	29.17	9.95	1.81	45.88
Cement Mason	32.20	2.05	22.18	7.60	1.81	43.66
Drywall installer	32.50	2.07	22.29	7.71	1.83	44.11
Drywall Taper	32.96	2.10	22.29	7.81	1.85	44.72
Electrician	36.52	2.33	19.14	7.44	2.06	48.35
Floor Layer	31.00	1.97	22.68	7.48	1.74	42.19
Glazier	31.85	2.03	24.15	8.18	1.79	43.85
Lather	32.89	2.10	20.43	7.15	1.85	43.99
Marble Setter	28.10	1.79	20.49	6.12	1.58	37.59
Millwright	32.64	2.08	20.40	7.08	1.84	43.64
Mosaic & Terrazzo Worker	29.79	1.90	20.49	6.49	1.68	39.86
Operating Engineer	37.21	2.37	23.79	9.42	2.09	51.09
Painter	33.09	2.11	23.66	8.33	1.86	45.39
Plasterer	32.43	2.07	26.57	9.17	1.83	45.50
Plasterer Helper	24.52	1.56	26.57	6.93	1.38	34.39
Plumber	37.64	2.40	23.29	9.33	2.12	51.49
Reinforcing Ironworker	33.65	2.14	26.80	9.59	1.89	47.27
Roofer	31.96	2.04	39.91	13.57	1.80	49.37
Sheet Metal Worker	35.94	2.29	24.57	9.39	2.02	49.64
Sprinkler Fitter	36.99	2.36	23.88	9.40	2.08	50.83
Tile Layer	30.10	1.92	20.49	6.56	1.69	40.27
Truck Driver	28.09	1.79	24.79	7.41	1.58	38.87

Hourly Labor Cost

The labor costs shown in Column 6 were used to compute the manhour costs for crews on page 7 and the figures in the "Labor" column of the Residential Division of this manual. Figures in the "Labor" column of the Industrial and Commercial Division of this book were computed using the hourly costs shown on page 309. All labor costs are in U.S. dollars per manhour.

It's important that you understand what's included in the figures in each of the six columns above. Here's an explanation:

Column 1, the base wage per hour, is the craftsman's hourly wage. These figures are representative of

what many contractors will be paying craftsmen working on residential construction in 2026.

Column 2, taxable fringe benefits, includes vacation pay, sick leave and other taxable benefits. These fringe benefits average 6.37% of the base wage for many construction contractors. This benefit is in addition to the base wage.

Column 3, insurance and employer taxes in percent, shows the insurance and tax rate for construction trades. The cost of insurance in this column includes workers' compensation and contractor's casualty and liability coverage. Insurance rates vary widely from state to state and depend on a contractor's loss experience. Typical rates are shown in the Insurance section

of this manual beginning on page 185. Taxes are itemized in the section on page 285. Note that taxes and insurance increase the hourly labor cost by 30 to 35% for most trades. There is no legal way to avoid these costs.

Column 4, insurance and employer taxes in dollars, shows the hourly cost of taxes and insurance for each construction trade. Insurance and taxes are paid on the costs in both columns 1 and 2.

Column 5, non-taxable fringe benefits, includes employer paid non-taxable benefits such as medical coverage and tax-deferred pension and profit sharing plans. These fringe benefits average 5.63% of the base wage for many construction contractors. The employer pays no taxes or insurance on these benefits.

Column 6, the total hourly cost in dollars, is the sum of columns 1, 2, 4, and 5.

These hourly labor costs will apply within a few percent on many jobs. But wage rates may be much higher or lower in some areas. If the hourly costs shown in column 6 are not accurate for your work, develop modification factors that you can apply to the labor costs in this book. The following paragraphs explain the procedure.

Adjusting Labor Costs

Here's how to customize the labor costs in this book if your wage rates are different from the wage rates shown on page 10 or 309.

Start with the taxable benefits you offer. Assume craftsmen on your payroll get one week of vacation each year and one week of sick leave each year. Convert these benefits into hours. Your computation might look like this:

$$\begin{array}{r} 40 \text{ vacation hours} \\ + 40 \text{ sick leave hours} \\ \hline 80 \text{ taxable leave hours} \end{array}$$

Then add the regular work hours for the year:

$$\begin{array}{r} 2,000 \text{ regular hours} \\ + 80 \text{ taxable benefit hours} \\ \hline 2,080 \text{ total hours} \end{array}$$

Multiply these hours by the base wage per hour. If you pay carpenters \$22.50 per hour, the calculation would be:

$$\begin{array}{r} 2,080 \text{ hours} \\ \times \$22.50 \text{ per hour} \\ \hline \$46,800 \text{ per year} \end{array}$$

Next, determine the tax and insurance rate for each trade. If you know the rates that apply to your jobs, use those rates. If not, use the rates in column 3 on page 10.

Continuing with our example, we'll use 29.17%, the rate for carpenters in column 3 on page 10. To increase the annual taxable wage by 29.17%, we'll multiply by 1.2917:

$$\begin{array}{r} \$46,800 \text{ per year} \\ \times 1.2917 \text{ tax \& insurance rate} \\ \hline \$60,452.00 \text{ annual cost} \end{array}$$

Then add the cost of non-taxable benefits. Suppose your company has no pension or profit sharing plan but does provide medical insurance for employees. Assume that the cost for your carpenter is \$966.67 per month or \$11,600 per year.

$$\begin{array}{r} \$11,600 \text{ medical plan} \\ + 60,452.00 \text{ annual cost} \\ \hline \$72,052.00 \text{ total annual cost} \end{array}$$

Divide this total annual cost by the actual hours worked in a year. This gives the contractor's total hourly labor cost including all benefits, taxes and insurance. Assume your carpenter will work 2,000 hours a year:

$$\frac{\$72,052.00}{2,000} = \$36.03 \text{ per hour}$$

Finally, find your modification factor for the labor costs in this book. Divide your total hourly labor cost by the total hourly labor cost shown on page 10. For the carpenter in our example, the figure in column 6 is \$41.06.

$$\frac{\$36.03}{\$45.88} = .785$$

Your modification factor is 78.5%. Multiply any building carpenter (Craft Code BC) labor costs in the Residential Division of this book by .785 to find your estimated cost. For example, on page 24 the labor cost for installing an 18" long towel bar is \$12.80 per each bar. If installed by your carpenter working at \$22.50 per hour, your estimated cost would be 78.5% of \$12.80 or \$10.05. The manhours would remain the same @ .280, assuming normal productivity.

If the Labor Rate Is Unknown

On some estimates you may not know what labor rates will apply. In that case, use both labor and material figures in this book without making any adjustment. When all labor, equipment and material costs have been compiled, add or deduct the percentage shown in the area modification table on pages 12 through 15.

Adjusting the labor costs in this book will make your estimates much more accurate.

Area Modification Factors

Construction costs are higher in some areas than in other areas. Add or deduct the percentage shown on the following pages to adapt the costs in this book to your job site. Adjust your cost estimate up or down by the percentages in this table to find the estimated cost for the site selected. Where 0% is shown, it means no modification is required.

Modification factors are listed alphabetically by state and province. Areas within each state are listed alphabetically. For convenience, one representative city is identified in each three-digit zip or range of zips. Percentages are based on the average of all data points in the table. Factors listed for each state and province are the average of all data points in that

state or province. Figures for three-digit zips are the average of all five-digit zips in that area. Figures in the Total column are the weighted average of factors for Labor, Material and Equipment.

National Estimator Cloud will apply an area modification factor for any five-digit zip or Canadian postal code you select.

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, these area cost modifiers should improve the accuracy of your estimates.

Location	Zip	Mat.	Lab.	Equip.	Total Wtd. Avg.	Location	Zip	Mat.	Lab.	Equip.	Total Wtd. Avg.	Location	Zip	Mat.	Lab.	Equip.	Total Wtd. Avg.
Alabama Average		-1	-4	0	-3%	Long Beach	907-908	3	17	1	9%	District of Columbia Average					
Anniston	362	-3	-4	-1	-3%	Los Angeles	900-901	3	13	1	8%	Washington	200-205	2	23	1	12%
Auburn	368	-1	-6	0	-3%	Marysville	959	1	0	0	1%	Florida Average		-1	-10	0	-5%
Bellamy	369	-2	-10	-1	-6%	Modesto	953	1	-2	0	0%	Altamonte Springs	327	-1	-4	0	-2%
Birmingham	350-352	-3	16	-1	6%	Mojave	935	0	10	0	5%	Bradenton	342	0	-10	0	-5%
Dothan	363	-1	-10	0	-5%	Novato	949	3	23	1	12%	Brooksville	346	0	-16	0	-7%
Evergreen	364	-2	-19	-1	-10%	Oakland	945-947	3	33	1	17%	Daytona Beach	321	-2	-20	-1	-10%
Gadsden	359	-4	-7	-1	-5%	Orange	928	3	22	1	12%	Fort Lauderdale	333	3	1	1	2%
Huntsville	358	1	6	0	3%	Oxnard	930	3	1	1	2%	Fort Myers	339	0	-14	0	-6%
Jasper	355	-2	-17	-1	-9%	Pasadena	910-912	4	15	1	9%	Fort Pierce	349	-2	-20	-1	-10%
Mobile	365-366	-1	0	0	-1%	Rancho Cordova	956-957	2	12	1	7%	Gainesville	326	-1	-15	0	-7%
Montgomery	360-361	-1	0	0	-1%	Redding	960	1	-1	0	0%	Jacksonville	322	-1	1	0	0%
Scottsboro	357	0	-1	0	0%	Richmond	948	2	35	1	17%	Lakeland	338	-3	-12	-1	-7%
Selma	367	-1	-4	0	-2%	Riverside	925	1	5	0	3%	Melbourne	329	-2	-10	-1	-6%
Sheffield	356	-1	-2	0	-1%	Sacramento	958	1	12	0	6%	Miami	330-332	2	-7	1	-2%
Tuscaloosa	354	0	-8	0	-4%	Salinas	939	3	1	1	2%	Naples	341	3	-10	1	-3%
Alaska Average		14	20	4	16%	San Bernardino	923-924	0	4	0	2%	Ocala	344	-3	-22	-1	-12%
Anchorage	995	16	28	5	21%	San Diego	919-921	3	9	1	6%	Orlando	328	0	-1	0	0%
Fairbanks	997	16	31	5	23%	San Francisco	941	3	54	1	26%	Panama City	324	-2	-17	-1	-9%
Juneau	998	18	6	6	12%	San Jose	950-951	3	59	1	29%	Pensacola	325	-1	-15	0	-7%
Ketchikan	999	3	14	1	8%	San Mateo	943-944	4	37	1	19%	Saint Augustine	320	-1	-4	0	-2%
King Salmon	996	16	20	5	18%	Santa Barbara	931	3	4	1	3%	Saint Cloud	347	-1	-2	0	-1%
Arizona Average		1	-12	0	-5%	Santa Rosa	954	3	10	1	6%	St Petersburg	337	0	-11	0	-5%
Chambers	865	1	-32	0	-14%	Stockton	952	2	5	1	3%	Tallahassee	323	0	-15	0	-7%
Douglas	855	0	-22	0	-10%	Sunnyvale	940	3	54	1	26%	Tampa	335-336	-1	2	0	0%
Flagstaff	860	2	-20	1	-8%	Van Nuys	913-916	3	13	1	8%	West Palm Beach	334	1	1	0	1%
Kingman	864	1	-20	0	-9%	Whittier	906	3	14	1	8%	Georgia Average		-1	1	0	0%
Mesa	852	1	9	0	5%	Colorado Average		2	-2	1	0%	Albany	317	-2	-14	-1	-8%
Phoenix	850	1	9	0	5%	Aurora	800-801	3	14	1	8%	Athens	306	0	1	0	0%
Prescott	863	3	-13	1	-4%	Boulder	803-804	3	8	1	5%	Atlanta	303	3	34	1	17%
Show Low	859	1	-23	0	-10%	Colorado Springs	808-809	2	-3	1	0%	Augusta	308-309	-2	-10	-1	-6%
Tucson	856-857	0	-11	0	-5%	Denver	802	3	17	1	9%	Buford	305	0	1	0	0%
Yuma	853	0	8	0	4%	Durango	813	1	-16	0	-7%	Calhoun	307	-1	-1	0	-1%
Arkansas Average		-2	-14	0	-7%	Fort Morgan	807	2	-8	1	-3%	Columbus	318-319	-1	-8	0	-4%
Batesville	725	0	-21	0	-10%	Glenwood Springs	816	2	4	1	3%	Dublin/Fort Valley	310	-3	-11	-1	-7%
Camden	717	-4	-7	-1	-5%	Grand Junction	814-815	1	-11	0	-5%	Hinesville	313	-2	11	-1	4%
Fayetteville	727	0	-9	0	-4%	Greeley	806	3	8	1	5%	Kings Bay	315	-2	-17	-1	-9%
Fort Smith	729	-1	-14	0	-7%	Longmont	805	3	1	1	2%	Macon	312	-2	10	-1	4%
Harrison	726	-1	-31	0	-15%	Pagosa Springs	811	0	-18	0	-8%	Marietta	300-302	1	14	0	7%
Hope	718	-3	-21	-1	-11%	Pueblo	810	-1	-9	0	-5%	Savannah	314	-1	-1	0	-1%
Hot Springs	719	-2	-25	-1	-13%	Salida	812	2	-12	1	-4%	Statesboro	304	-2	11	-1	4%
Jonesboro	724	-1	-5	0	-3%	Connecticut Average		1	9	0	5%	Valdosta	316	-1	-10	0	-5%
Little Rock	720-722	-1	-4	0	-2%	Bridgeport	66	0	12	0	6%	Hawaii Average		17	20	6	18%
Pine Bluff	716	-4	-22	-1	-12%	Bristol	60	1	14	0	7%	Aliamanu	968	17	24	6	20%
Russellville	728	0	-15	0	-7%	Fairfield	64	2	13	1	7%	Ewa	967	17	18	6	17%
West Memphis	723	-3	9	-1	3%	Hartford	61	0	11	0	5%	Halawa Heights	967	17	18	6	17%
California Average		2	14	1	8%	New Haven	65	1	8	0	4%	Hilo	967	17	18	6	17%
Alhambra	917-918	3	15	1	8%	Norwich	63	0	0	0	0%	Honolulu	968	17	24	6	20%
Bakersfield	932-933	0	-4	0	-2%	Stamford	68-69	4	19	1	11%	Kailua	968	17	24	6	20%
El Centro	922	1	-4	0	-1%	Waterbury	67	1	8	0	4%	Lualualei	967	17	18	6	17%
Eureka	955	1	2	0	1%	West Hartford	62	1	-2	0	0%	Mililani Town	967	17	18	6	17%
Fresno	936-938	0	-1	0	0%	Delaware Average		1	2	0	1%	Pearl City	967	17	18	6	17%
Herlong	961	2	2	1	2%	Dover	199	1	-7	0	-3%	Wahiawa	967	17	18	6	17%
Inglewood	902-905	3	15	1	8%	Newark	197	2	7	1	4%	Waianae	967	17	18	6	17%
Irvine	926-927	3	24	1	13%	Wilmington	198	0	6	0	3%	Wailuku (Maui)	967	17	18	6	17%
Lompoc	934	3	4	1	3%												

Area Modification Factors

Location	Zip	Mat.	Lab.	Equip.	Total Wtd. Avg.	Location	Zip	Mat.	Lab.	Equip.	Total Wtd. Avg.	Location	Zip	Mat.	Lab.	Equip.	Total Wtd. Avg.
Columbia	384	-1	-11	0	-6%	Charlottesville	229	1	-6	0	-2%	Gillette	827	-1	-1	0	-1%
Cookeville	385	0	-16	0	-7%	Chesapeake	233	-1	1	0	0%	Powell	824	0	-19	0	-9%
Jackson	383	-1	11	0	5%	Culpeper	227	1	-15	0	-6%	Rawlins	823	0	-5	0	-2%
Kingsport	376	0	-3	0	-1%	Farmville	239	-2	-14	-1	-8%	Riverton	825	-1	-16	0	-8%
Knoxville	377-379	-1	7	0	3%	Fredericksburg	224-225	1	-12	0	-5%	Rock Springs	829-831	0	-3	0	-1%
McKenzie	382	-1	-17	0	-8%	Galax	243	-2	-19	-1	-10%	Sheridan	828	1	-11	0	-5%
Memphis	380-381	-1	20	0	9%	Harrisonburg	228	1	-14	0	-6%	Wheatland	822	0	0	0	0%
Nashville	371-372	1	18	0	9%	Lynchburg	245	-2	-3	-1	-2%	UNITED STATES TERRITORIES					
Texas Average						Norfolk						Guam					
Abilene						Petersburg						Puerto Rico					
Amarillo						Radford											
Arlington						Reston											
Austin						Richmond											
Bay City						Roanoke											
Beaumont						Staunton											
Brownwood						Tazewell											
Bryan						Virginia Beach											
Childress						Williamsburg											
Corpus Christi						Winchester											
Dallas						Washington Average											
Del Rio						Clarkston											
El Paso						Everett											
Fort Worth						Olympia											
Galveston						Pasco											
Giddings						Seattle											
Greenville						Spokane											
Houston						Tacoma											
Huntsville						Vancouver											
Longview						Wenatchee											
Lubbock						Yakima											
Lufkin						West Virginia Average											
McAllen						Beckley											
Midland						Bluefield											
Palestine						Charleston											
Plano						Clarksburg											
San Angelo						Fairmont											
San Antonio						Huntington											
Texarkana						Lewisburg											
Tyler						Martinsburg											
Victoria						Morgantown											
Waco						New Martinsville											
Wichita Falls						Parkersburg											
Woodson						Romney											
Utah Average						Sugar Grove											
Clearfield						Wheeling											
Green River						Wisconsin Average											
Ogden						Amery											
Provo						Beloit											
Salt Lake City						Clam Lake											
Vermont Average						Eau Claire											
Albany						Green Bay											
Battleboro						La Crosse											
Beecher Falls						Ladysmith											
Bennington						Madison											
Burlington						Milwaukee											
Montpelier						Oshkosh											
Rutland						Portage											
Springfield						Prairie du Chien											
White River Junction						Wausau											
Virginia Average						Wyoming Average											
Abingdon						Casper											
Alexandria						Cheyenne/											
						Laramie											

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Adhesives

Adhesives See also, Caulking, Flooring, Roofing and Tile in the Residential Division

Panel adhesives Better quality, gun applied in continuous bead to wood or metal framing or furring members, material only, add labor below. Per 100 SF of wall, floor, or ceiling including 6% waste.

	Unit	Bead diameter			
		1/8"	1/4"	3/8"	1/2"
Subfloor adhesive, on floors					
12" OC members	CSF	3.32	13.30	29.90	53.20
16" OC members	CSF	2.49	9.97	22.40	39.90
20" OC members	CSF	1.99	7.97	17.90	31.90
24" OC members	CSF	1.66	6.65	15.00	26.60
Wall sheathing or shear panel adhesive, on walls					
12" OC members	CSF	4.97	19.90	44.70	79.50
16" OC members	CSF	3.73	14.90	33.50	59.60
20" OC members	CSF	2.98	11.90	26.80	47.70
24" OC members	CSF	2.49	9.94	22.40	39.80
Polystyrene or polyurethane foam panel adhesive, on walls					
12" OC members	CSF	3.33	13.30	29.90	53.20
16" OC members	CSF	2.50	9.98	22.50	39.90
20" OC members	CSF	2.00	7.99	18.00	31.90
24" OC members	CSF	1.66	6.65	15.00	26.60
Gypsum drywall adhesive					
12" OC members	CSF	1.82	7.27	16.40	29.10
16" OC members	CSF	1.36	5.45	12.30	21.80
20" OC members	CSF	1.09	4.36	9.81	17.40
24" OC members	CSF	.91	3.63	8.18	14.50
Hardboard or plastic panel adhesive, on walls					
12" OC members	CSF	4.25	17.00	38.30	68.10
16" OC members	CSF	3.19	12.80	28.70	51.10
20" OC members	CSF	2.55	10.20	23.00	40.80
24" OC members	CSF	2.13	8.51	19.10	34.00

	Craft@Hrs	Unit	Material	Labor	Total
Labor to apply adhesive to framing members, 1/8" to 1/2" bead diameter, no material included					
Floor or ceiling joists					
12" OC members	BC@.075	CSF	—	3.44	3.44
16" OC members	BC@.056	CSF	—	2.57	2.57
20" OC members	BC@.052	CSF	—	2.39	2.39
24" OC members	BC@.042	CSF	—	1.93	1.93
Interior and exterior wall members					
12" OC members	BC@.100	CSF	—	4.59	4.59
16" OC members	BC@.090	CSF	—	4.13	4.13
20" OC members	BC@.084	CSF	—	3.85	3.85
24" OC members	BC@.068	CSF	—	3.12	3.12

Special purpose adhesives

Construction adhesive, for counters, cabinets, paneling, brick veneer, ceramic fixtures, shelving, sets in 10 minutes, 10.5 oz. cartridge	—	Ea	2.85	—	2.85
Epoxy-tie adhesive, bonds concrete, fills cracks to 3/4", seals doors and windows, anchor grouting, non-shrink, 22 oz. cartridge	—	Ea	41.50	—	41.50
Gypsum drywall adhesive, waterproof, bonds to wood, metal, masonry, concrete, 29 oz. cartridge	—	Ea	5.95	—	5.95

Aggregate

	Craft@Hrs	Unit	Material	Labor	Total
Latex FRP adhesive, indoor, bonds wood, concrete, drywall, foamboard, trowel grade, gallon	—	Ea	23.30	—	23.30
Panel insulation adhesive, waterproof, for polyurethane & polystyrene panels, bonds to wood, metal, masonry, concrete, 4.5 lbs.	—	Ea	45.60	—	45.60
Marine adhesive/sealant, 10 oz.	—	Ea	30.70	—	30.70
Project adhesive, rubber-based, bonds plywood, hardboard fiberglass, drywall, foam board, shelving, ceramic fixtures, 10 minute work time, 10.5 oz. cartridge	—	Ea	5.10	—	5.10
		Unit	1 quart can	1 gallon can	
General purpose adhesives					
Acoustic tile adhesive, solvent base, waterproof, sound deadening type		Ea	—	16.40	
Aliphatic resin woodworking glue		Ea	9.32	28.40	
Carpet cement, outdoor		Ea	32.70	—	
Professional carpenter's glue, multi-purpose		Ea	16.70	33.40	
Contact cement, rubber based, waterproof, bonds veneers to plywood, particleboard, wallboard		Ea	21.20	56.50	
Gel contact cement		Ea	16.50	—	
Resilient flooring adhesive, latex base, adheres to concrete, plywood, felt, sheet flooring		Ea	12.20	19.20	
Tile cement, solvent base, ceramic/stone, interior		Ea	11.70	37.40	

	Craft@Hrs	Unit	Material	Labor	Total
Aggregate Typical prices, 5 mile haul, 24 ton minimum. See also Roofing, Built-up					
Crushed stone (1.4 tons per CY)					
3/8" stone	—	Ton	32.20	—	32.20
3/4" (Number 3)	—	Ton	29.70	—	29.70
1-1/2" (Number 2)	—	Ton	27.80	—	27.80
Crushed slag, typical prices where available					
3/4" slag	—	Ton	30.80	—	30.80
1-1/2"	—	Ton	31.50	—	31.50
Washed gravel (1.4 tons per CY)					
3/4" gravel	—	Ton	55.70	—	55.70
1-1/2"	—	Ton	60.20	—	60.20
Pea gravel, (1.4 tons per CY), typical prices where available					
3/8" or 1/2"	—	Ton	65.60	—	65.60
Sand, (1.35 tons per CY), typical prices where available					
Fill sand	—	Ton	37.70	—	37.70
Mason sand	—	Ton	50.10	—	50.10
Concrete sand	—	Ton	41.80	—	41.80
Add per ton less than 24 tons	—	Ton	11.10	—	11.10
Add for delivery over 5 miles, one way	—	Mile	13.80	—	13.80

Appraisal Fees Costs for determining the value of existing buildings, land, and equipment. Actual fee charged is based on the level of difficulty and the time spent on appraisal plus travel to location and cost of support services, if any. Costs include research and report by a professional state licensed appraiser. Client may request an appraisal on a "fee not to exceed" basis. Fees shown are averages and are not quoted as a percentage of value or contingent on value. The fee for cancelling an appraisal after the inspection is equal to the original appraisal fee.

Appraisal and Arbitration Fees

	Craft@Hrs	Unit	Material	Labor	Total
Single family residences, condominiums, planned unit developments (PUDs). Fees for complex, expensive (over \$1 million) or atypical properties or those that require higher licensure than a state license are usually negotiated. Based on square feet of gross living area (excluding the garage).					
To 2,500 square feet	—	LS	—	—	372.00
Over 2,500 SF to 3,500 SF	—	LS	—	—	421.00
Over 3,500 SF to 5,000 SF	—	LS	—	—	520.00
Over 5,000 SF	—	LS	—	—	768.00
Small residential income properties (duplex, triplex, quadriplex)					
2 to 4 units	—	LS	—	—	669.00
Apartment houses, commercial and industrial buildings					
To \$300,000 valuation	—	LS	—	—	3,220.00
Over \$300,000 to \$1,000,000 valuation	—	LS	—	—	4,210.00
Over \$1,000,000 to \$3,000,000 valuation	—	LS	—	—	4,710.00
Over \$3,000,000 to \$5,000,000 valuation	—	LS	—	—	5,950.00
Other services					
Additional photograph (each)	—	LS	—	—	27.30
Outlying area fee	—	LS	—	—	54.50
Satisfactory Completion (old Form 442 / new Form 1004d)	—	LS	—	—	149.00
Appraisal update, same comps (Form 1004d)	—	LS	—	—	297.00
Operating Income Statement (FNMA 216)	—	LS	—	—	79.30
SFR Rental Survey (FNMA 1007)	—	LS	—	—	79.30
Appraisal review (desk)	—	LS	—	—	173.00
Appraisal review (field)	—	LS	—	—	372.00
Drive-by appraisal (Form 2055) starting at	—	LS	—	—	273.00
Drive-by appraisal (Form 2070/2075)	—	LS	—	—	223.00
Machinery (Fee is based on total value of equipment appraised) Additional charges for travel and lodging may be required					
To \$30,000 valuation	—	LS	—	—	614.00
Over \$30,000 to \$100,000 valuation	—	LS	—	—	823.00
Over \$100,000 to \$500,000 valuation	—	LS	—	—	1,390.00
Over \$500,000 to \$1,000,000 valuation	—	LS	—	—	1,880.00
Over \$1,000,000 to \$5,000,000 valuation	—	LS	—	—	3,220.00
Court testimony (excluding preparation)	—	Day	—	—	1,490.00
Consulting fees billed at an hourly rate	—	Hour	—	—	188.00
Outside of office meetings or court appearance are billed including travel time and expenses round trip, minimum 4 hours.					

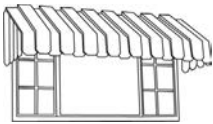
Arbitration and Mediation Fees These are administrative fees paid to the American Arbitration Association (AAA). Rules and fees are subject to change. The AAA's web site at www.adr.org has current rules and fee information. Fees charged by Construction Dispute Resolution Services (<http://www.constructiondisputes-cdrs.com>) will usually be less. Arbitrators are chosen from the National Roster of Construction Arbitrators and are paid a fee by the parties. Legal representation, if desired (although not necessary), is at the expense of each party. These fees do not include rental of a hearing room. An initial filing fee is payable in full by a filing party when a claim, counterclaim or additional claim is filed. A case service fee is payable at the time the first hearing is scheduled. This fee will be refunded at the conclusion of the case if no hearings have occurred so long as the Association was notified of cancellation at least 24 hours before the first scheduled hearing. The minimum AAA filing fee for any case having three or more arbitrators is \$8,100 plus a \$2,940 case service fee.

Awnings and Canopies

	Craft@Hrs	Unit	Material	Labor	Total
Deduct for pen and ink drawings (no color)	—	%	—	—	—33.0
Computer generated perspective drawings using CAD system for design studies					
Custom home	—	LS	—	—	684.00
Large condo or apartment projects	—	LS	—	—	1,720.00
Tract homes	—	LS	—	—	430.00
Commercial structure, line drawing	—	LS	—	—	1,290.00

Awnings and Canopies for Doors and Windows All hardware included. For commercial grade awnings, see the Industrial and Commercial Division section 12, Furnishings.

Aluminum pan-type window or door awnings, .025 gauge roof and pans, .040 gauge supports



42" wide x 24" projection, 18" drop	SW@2.17	Ea	546.00	108.00	654.00
60" wide x 30" projection, 20" drop	SW@2.79	Ea	856.00	138.00	994.00
78" wide x 36" projection, 24" drop	SW@3.11	Ea	1,300.00	154.00	1,454.00
88" wide x 42" projection, 26" drop	SW@3.41	Ea	1,590.00	169.00	1,759.00

Polycarbonate door awnings, clear or tinted curved poly sheet in aluminum frame, 29" projection, 11" drop

61" wide	SW@2.18	Ea	530.00	108.00	638.00
119" wide	SW@6.21	Ea	888.00	308.00	1,196.00
178" wide	SW@8.72	Ea	894.00	433.00	1,327.00

Roll-up aluminum awnings with hinged support arms and pull cord assembly

36" wide x 18" projection, 27" drop	SW@2.28	Ea	357.00	113.00	470.00
48" wide x 24" projection, 34" drop	SW@2.91	Ea	398.00	144.00	542.00
54" wide x 30" projection, 39" drop	SW@3.29	Ea	422.00	163.00	585.00
60" wide x 35" projection, 44" drop	SW@3.50	Ea	448.00	174.00	622.00
72" wide x 42" projection, 51" drop	SW@4.20	Ea	524.00	208.00	732.00

Curved top door or window canopy, rigid aluminum frame with tinted or clear polycarbonate inserts.



59" wide x 46" projection, 16" drop	BC@3.40	Ea	1,280.00	156.00	1,436.00
84" wide x 46" projection, 16" drop	BC@5.10	Ea	1,400.00	234.00	1,634.00
120" wide x 57" projection, 16" drop	BC@6.80	Ea	2,710.00	312.00	3,022.00

Mansard window or door awnings, 24 gauge 18"-wide standing seam steel panels, aluminum frame



54" wide x 36" projection, 36" drop	BC@3.40	Ea	4,060.00	156.00	4,216.00
72" wide x 36" projection, 36" drop	BC@4.50	Ea	4,000.00	206.00	4,206.00
90" wide x 36" projection, 36" drop	BC@5.60	Ea	4,500.00	257.00	4,757.00
108" wide x 48" projection, 48" drop	BC@6.70	Ea	4,990.00	307.00	5,297.00

Fabric door awning, with waterproof, acrylic duck, colorfast fabric, double stitched seams, tubular aluminum frame

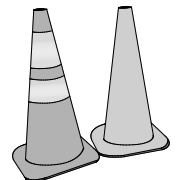
36" wide x 26" projection	SW@1.45	Ea	321.00	72.00	393.00
40" wide x 36" projection	SW@1.86	Ea	352.00	92.30	444.30
48" wide x 40" projection	SW@2.07	Ea	378.00	103.00	481.00
72" wide x 46" projection	SW@2.27	Ea	500.00	113.00	613.00

Cloth retractable patio awning, folding spring loaded aluminum arm, dual cable manual operation.

16' wide x 12' projection	BC@3.05	Ea	6,460.00	140.00	6,600.00
20' wide x 12' projection	BC@3.40	Ea	7,390.00	156.00	7,546.00

Barricades, Construction Safety

	Craft@Hrs	Unit	Material	Labor	Total
Barricades, Construction Safety Purchase prices except as noted. See also Equipment Rental in the index.					
Heavy Duty Plastic Type I barricade, Engineer Grade Reflectivity, 8" height Top Panel					
Quantities from 1 - 15 units	—	Ea	63.70	—	63.70
Quantities from 16 - 31 units	—	Ea	61.60	—	61.60
Pallet quantities, multiples of 32 units	—	Ea	59.50	—	59.50
Reflectorized injected plastic barricade, NCHRP-350 certified meets M.U.T.C.D. specifications 8" to 12" wide rail, 4" to 6" wide stripes, 40" legs, no light					
Type I, 2' wide, 3' high, Top panel 12" height, 1 reflectorized rail each side					
Quantities from 1 - 15 units	—	Ea	57.00	—	57.00
Quantities from 16 - 31 units	—	Ea	55.10	—	55.10
Pallet quantities, multiples of 32 units	—	Ea	53.20	—	53.20
Type II, 2' wide, 3' high, Top panel 8" height, 1 reflectorized rail each side					
Quantities from 1 - 15 units	—	Ea	64.10	—	64.10
Quantities from 16 - 31 units	—	Ea	62.00	—	62.00
Pallet quantities, multiples of 32 units	—	Ea	59.90	—	59.90
Type III, 4' wide, 5' high, 3 reflectorized rails each side, wood & steel legs					
Quantities from 1 - 15 units	—	Ea	288.00	—	288.00
Quantities from 16 - 31 units	—	Ea	282.00	—	282.00
Pallet quantities, multiples of 32 units	—	Ea	276.00	—	276.00
Add for lighted units without batteries (batteries last 2 months)					
Amber lens	—	Ea	19.30	—	19.30
Red lens	—	Ea	19.30	—	19.30
Batteries, 6 volt (2 needed)	—	Ea	13.90	—	13.90
Utility barricade lights, solar powered Utility barricade solar powered lights, compliant with M.U.T.C.D. Specification 6E-5 and ITE Specifications for Flashing / Steady Burn warning light, 180 degree swivel base axis.					
Utility barricade solar powered lights	—	Ea	46.00	—	46.00
Miscellaneous signage/traffic control					
"Road Closed", reflectorized, 30" x 48", Engineer Grade					
	—	Ea	118.00	—	118.00
"Construction Zone", 4' x 4' high intensity grade					
	—	Ea	322.00	—	322.00
High-rise tripod with 3 orange flags					
	—	Ea	263.00	—	263.00
Flags					
	—	Ea	4.99	—	4.99
Traffic cones, PVC					
Non-reflectorized type					
18" high	—	Ea	9.11	—	9.11
28" high	—	Ea	12.40	—	12.40
Reflectorized type					
18" high	—	Ea	12.70	—	12.70
28" high	—	Ea	17.80	—	17.80
36" high	—	Ea	23.60	—	23.60
Lane delineator, 42" orange plastic cylinder with 2 reflectors on a 12 pound rubber base					
	—	Ea	27.70	—	27.70
Mesh signs, orange, 48" x 48", includes brace and clamp					
	—	Ea	60.40	—	60.40
Hand-held traffic paddles, "Stop" and "Slow"					
	—	Ea	24.70	—	24.70



Basement Doors

	Craft@Hrs	Unit	Material	Labor	Total
Orange plastic safety fencing					
Budget, 4' x 50' roll, mesh opening 3" x 1.25"	—	Ea	32.40	—	32.40
Square mesh, 4' x 50' roll, opening 1.5" x 1.25"	—	Ea	39.30	—	39.30
Heavy Duty, 4' x 50' roll, opening 1.25" x 1.25"	—	Ea	67.00	—	67.00
Medium Weight 4' x 100', opening 2" x 2.5"	—	Ea	57.70	—	57.70
Barricade tape for marking construction sites, landscaping, wet paint					
Yellow plastic 3" x 1,000', "Caution"	—	Ea	11.00	—	11.00
Various colors, 3" x 200', "Danger"	—	Ea	9.97	—	9.97
Utility Highway Barricade Rental					
Lighted units, rental, per day	—	Ea	13.10	—	13.10
Unlighted units, rental per day	—	Ea	8.57	—	8.57
Add for pickup and delivery, per trip	—	Ea	50.40	—	50.40
Typical labor cost, place and remove any barricade					
Per use	BL@.160	Ea	—	5.98	5.98

Basement Doors Good quality 12 gauge primed steel, center opening basement doors. Costs include assembly and installation hardware. No concrete, masonry, anchor placement or finish painting included.

Doors (overall dimensions)

Classic Series standard, all sizes	BC@3.41	Ea	869.00	156.00	1,025.00
SLW Series standard, all sizes	BC@3.41	Ea	1,020.00	156.00	1,176.00
Add for powder coating	—	%	52.2	—	—
Ultra Series, polyethylene, all sizes	BC@3.41	Ea	1,560.00	156.00	1,716.00
Add for keyed lock	BC@.160	Ea	89.80	7.34	97.14

Door extensions (available for 19-1/2"H, 55"W, 72"L door only)

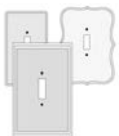
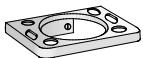
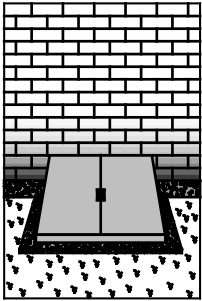
6" deep	BC@1.71	Ea	263.00	78.50	341.50
12" deep	BC@1.71	Ea	329.00	78.50	407.50
18" deep	BC@1.71	Ea	386.00	78.50	464.50

Stair stringers, steel, pre-cut for 2" x 10" wood treads (without treads). Price is for a pair, or set of two stringers with hardware.

32" to 39" stair height	BC@1.71	Pr	221.00	78.50	299.50
48" to 55" stair height	BC@1.71	Pr	273.00	78.50	351.50
56" to 64" stair height	BC@1.71	Pr	319.00	78.50	397.50
65" to 72" stair height	BC@1.71	Pr	350.00	78.50	428.50
73" to 78" stair height	BC@1.71	Pr	492.00	78.50	570.50
81" to 88" stair height	BC@1.71	Pr	532.00	78.50	610.50
89" to 97" stair height	BC@1.71	Pr	569.00	78.50	647.50

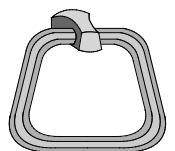
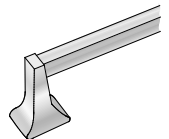
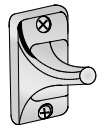
Bathroom Accessories Average quality. Better quality brass accessories cost 75% to 100% more. See also Medicine Cabinets and Vanities

Cup and toothbrush holder, chrome	BC@.258	Ea	15.00	11.80	26.80
Cup holder, porcelain, surface mounted	BC@.258	Ea	10.50	11.80	22.30
Cup, toothbrush & soap holder, recessed	BC@.258	Ea	39.70	11.80	51.50
Cup, toothbrush holder, polished brass	BC@.258	Ea	21.20	11.80	33.00
Electrical plates, chrome plated					
Switch plate, single	BE@.154	Ea	5.56	7.45	13.01
Switch plate, double	BE@.154	Ea	7.33	7.45	14.78
Duplex receptacle plate	BE@.154	Ea	5.56	7.45	13.01
Duplex receptacle and switch	BE@.154	Ea	7.31	7.45	14.76

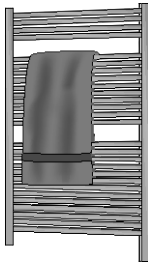


Bathroom Accessories

	Craft@Hrs	Unit	Material	Labor	Total
Grab bars					
Tubular chrome plated, with anchor plates					
Straight bar, 16"	BC@.414	Ea	32.60	19.00	51.60
Straight bar, 24"	BC@.414	Ea	39.70	19.00	58.70
Straight bar, 32"	BC@.414	Ea	42.90	19.00	61.90
"L"- shaped bar, 16" x 32"	BC@.620	Ea	99.80	28.40	128.20
Stainless steel, with anchor plates					
Straight bar, 16"	BC@.414	Ea	49.20	19.00	68.20
Straight bar, 24"	BC@.414	Ea	59.30	19.00	78.30
Straight bar, 32"	BC@.414	Ea	64.50	19.00	83.50
"L"- shaped bar, 16" x 32"	BC@.620	Ea	138.00	28.40	166.40
Mirrors, stainless steel framed, surface mount, no light or cabinet					
16" high x 20" wide	BG@.420	Ea	114.00	18.40	132.40
18" high x 24" wide	BG@.420	Ea	132.00	18.40	150.40
18" high x 36" wide	BG@.420	Ea	201.00	18.40	219.40
24" high x 36" wide	BG@.420	Ea	236.00	18.40	254.40
48" high x 24" wide	BG@.420	Ea	292.00	18.40	310.40
Mirrors, wood framed, surface mount, better quality					
18" x 29" rectangular	BG@.420	Ea	141.00	18.40	159.40
20" x 27" oval, oak	BG@.420	Ea	199.00	18.40	217.40
Robe hook					
Chrome	BC@.258	Ea	29.20	11.80	41.00
Double, solid brass	BC@.258	Ea	28.20	11.80	40.00
Shower curtain rods, chrome plated					
60", recessed	BC@.730	Ea	34.20	33.50	67.70
66", recessed	BC@.730	Ea	37.60	33.50	71.10
Soap holder, surface mounted, with drain holes					
Williamsburg, satin chrome	BC@.258	Ea	69.70	11.80	81.50
Polished brass	BC@.258	Ea	22.80	11.80	34.60
Facial tissue holder, stainless steel, recessed	BC@.258	Ea	46.90	11.80	58.70
Toilet tissue roll holder, chrome, recessed	BC@.258	Ea	21.90	11.80	33.70
Toothbrush holder, chrome, surface mount	BC@.258	Ea	8.09	11.80	19.89
Towel bars, 3/4" bar					
18" long, chrome	BC@.280	Ea	17.90	12.80	30.70
24" long, chrome	BC@.280	Ea	21.30	12.80	34.10
30" long, chrome	BC@.280	Ea	25.20	12.80	38.00
36" long, chrome	BC@.280	Ea	28.60	12.80	41.40
18" long, solid brass	BC@.280	Ea	58.30	12.80	71.10
24" long, solid brass	BC@.280	Ea	61.30	12.80	74.10
Towel rack, swing-arm, chrome, 3 bars, 12" L	BC@.280	Ea	20.40	12.80	33.20
Towel rings					
Williamsburg chrome and brass	BC@.280	Ea	55.20	12.80	68.00
Williamsburg chrome and porcelain	BC@.280	Ea	52.80	12.80	65.60
Towel shelf, chrome, 24" L with bar below	BC@.280	Ea	51.70	12.80	64.50
Heated towel racks, 16" and 24" width, mounted on wall with brackets. Direct wire connection, 700 watt output. Add for electrical work					
26" high, 16" wide, standard colors	BE@.850	Ea	909.00	41.10	950.10
26" high, 24" wide, standard colors	BE@.850	Ea	970.00	41.10	1,011.10
26" high, 24" wide, chrome finish	BE@.850	Ea	3,000.00	41.10	3,041.10

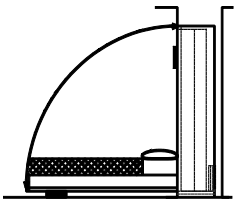


Blueprinting



	Craft@Hrs	Unit	Material	Labor	Total
35" high, 16" wide, standard colors	BE@1.00	Ea	1,140.00	48.40	1,188.40
35" high, 24" wide, standard colors	BE@1.00	Ea	1,080.00	48.40	1,128.40
35" high, 24" wide, chrome finish	BE@1.00	Ea	3,620.00	48.40	3,668.40
44" high, 16" wide, standard colors	BE@1.10	Ea	1,140.00	53.20	1,193.20
44" high, 24" wide, standard colors	BE@1.10	Ea	1,200.00	53.20	1,253.20
44" high, 24" wide, chrome finish	BE@1.10	Ea	3,960.00	53.20	4,013.20
Add for direct wire w/ control panel	BE@.100	Ea	250.00	4.84	254.84
Add for wall plug in	BE@.100	Ea	335.00	4.84	339.84
Heated towel rack accessories					
Programmable control panel	BE@.250	Ea	325.00	12.10	337.10
Pull out drying racks	BE@.250	Ea	91.30	12.10	103.40
Robe knobs	BE@.150	Ea	58.70	7.25	65.95
Towel bar accents with standard colors	BE@.150	Ea	117.00	7.25	124.25
Towel bar accents with chrome finish	BE@.150	Ea	157.00	7.25	164.25
Robe knob accents (all styles)	BE@.150	Ea	273.00	7.25	280.25
Tub or shower chairs					
Wall-hung elevated fixed seat	BE@.750	Ea	42.30	36.30	78.60
White adjustable seat	BE@.750	Ea	78.90	36.30	115.20

Beds, Folding Concealed-in-wall type. Steel framed, folding wall bed system. Bed requires 18-5/8" or 22" deep recess. Includes frame, lift mechanism, all hardware. Installed in framed opening. Padded vinyl headboard. Bed face panel accepts paint, wallpaper, vinyl or laminate up to 1/4" thick. Box spring and mattress not included. Murphy Wall Beds



Twin, frames and mechanisms	B1@5.41	Ea	940.00	225.00	1,165.00
Double, frames and mechanisms	B1@5.41	Ea	985.00	225.00	1,210.00
Queen, frames and mechanisms	B1@5.41	Ea	1,030.00	225.00	1,255.00
King, frames and mechanisms	B1@5.41	Ea	1,130.00	225.00	1,355.00
Add for wood-tone melamine cabinet	—	LS	1,670.00	—	1,670.00
Add for white melamine cabinet	—	LS	1,480.00	—	1,480.00

Blueprinting (Reproduction only) Assumes original is on semi-transparent drafting paper or film. See also Architectural Illustration and Drafting. Cost per square foot reproduced except as noted. Stapled edge and binder included.

Blue-line or blackline prints

1-100 SF	—	SF	—	—	.23
101-1,000 SF	—	SF	—	—	.21
1,001-2,000 SF	—	SF	—	—	.20
2,001-to 3,000 SF	—	SF	—	—	.18
3,001-4,000 SF	—	SF	—	—	.10
4,001 SF and higher	—	SF	—	—	.09
Presentation blackline (heavy paper)	—	SF	—	—	.60
Sepia	—	SF	—	—	.89
Mylar	—	SF	—	—	2.97
Xerographic prints					
Vellum	—	SF	—	—	1.18
Erasable vellum	—	SF	—	—	1.49
Mylar	—	SF	—	—	2.97
Enlargements (bond)	—	SF	—	—	.71
Reductions (bond, per sheet)	—	Ea	—	—	2.96

Building Inspection Service

	Craft@Hrs	Unit	Material	Labor	Total
Plotting prints					
Translucent bond	—	SF	—	—	1.79
Vellum	—	SF	—	—	2.07
Erasable vellum	—	SF	—	—	2.95
Mylar	—	SF	—	—	2.97
Photo prints					
Mylar	—	SF	—	—	6.65
Add for local pickup and delivery, round trip	—	LS	—	—	25.00

Building Inspection Service (Home inspection service) Inspection of all parts of building by qualified engineer or certified building inspection technician. Includes written report covering all doors and windows, electrical system, foundation, heating and cooling system, insulation, interior and exterior surface conditions, landscaping, plumbing system, roofing, and structural integrity.

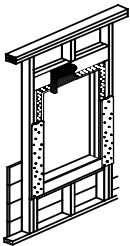
Single-family residence					
Base fee (up to 2,500 SF)	—	LS	—	—	367.00
Add for additional 1,000 SF or fraction	—	LS	—	—	112.00
Add for out buildings (each)	—	LS	—	—	56.40
Add for houses over 50 years old	—	LS	—	—	84.50
Add per room for houses with over 10 rooms	—	Ea	—	—	67.60
Add per room for houses with over 15 rooms	—	Ea	—	—	73.30
Add for swimming pool, spa or sauna	—	LS	—	—	223.00
Add for soil testing (expansive soil only)	—	LS	—	—	225.00
Add for water testing (coliform only)	—	LS	—	—	79.00
Add for warranty protection					
Houses to 10 rooms & 50 years old	—	LS	—	—	281.00
Houses over 50 years old	—	LS	—	—	303.00
Houses over 10 rooms	—	LS	—	—	305.00
Multi-family structures					
Two family residence base fee	—	LS	—	—	509.00
Apartment or condominium base fee	—	LS	—	—	281.00
Warranty protection (base cost)	—	LS	—	—	281.00
Add for each additional unit	—	LS	—	—	56.50
Add for each family living unit					
Standard inspection	—	LS	—	—	56.40
Detailed inspection	—	LS	—	—	83.90
Add for swimming pool, spa, sauna	—	LS	—	—	84.50
Add for potable water quality testing	—	LS	—	—	254.00
Add for water quantity test, per well	—	LS	—	—	169.00
Add for soil testing (EPA toxic)	—	LS	—	—	1,690.00
Add for soil testing (lead)	—	LS	—	—	50.90
Add for lead paint testing, full analysis, per room	—	LS	—	—	45.10
Hazards testing for single and multi-family dwellings					
Urea-formaldehyde insulation testing	—	LS	—	—	197.00
Asbestos testing	—	LS	—	—	199.00
Radon gas testing	—	LS	—	—	142.00
Geotechnical site examination, typical price	—	LS	—	—	453.00

Building Paper See also Roofing for roof applications and Polyethylene Film. Costs include 7% coverage allowance for 2" lap and 5% waste allowance. See installation costs at the end of this section.

Asphalt felt, 36" wide					
15 lb., ASTM F45 (432 SF roll)	—	SF	.10	—	.10
15 lb., F40 (432 SF roll)	—	SF	.09	—	.09
30 lb. (216 SF roll)	—	SF	.20	—	.20
Asphalt shake felt, 18" x 72"					
30 lb. (108 SF roll)	—	SF	.32	—	.32

Building Paper

	Craft@Hrs	Unit	Material	Labor	Total
Building paper, 40" wide					
Single ply, black (1,078 SF roll)	—	SF	.08	—	.08
Two ply (539 SF roll)	—	SF	.10	—	.10
Aquabar™, two layer, laminated with asphalt, Fortifiber™ products					
Class A, 36" wide, 30-50-30 (1,000 SF roll)	—	SF	.06	—	.06
Class B, 36" wide, 30-30-30 (500 SF roll)	—	SF	.08	—	.08
Ice and water shield, self-adhesive rubberized asphalt and poly					
225 SF roll	—	SF	1.26	—	1.26
High temperature, 225 SF roll	—	SF	1.38	—	1.38
"Jumbo Tex" gun grade sheathing paper, 40" wide, asphalt saturated (324 SF roll)	—	SF	.06	—	.06
"Jumbo Tex" black building paper, 36", 40" wide, asphalt saturated (500 SF roll)	—	SF	.13	—	.13
"Super Jumbo Tex" two-ply, 60 minute, asphalt saturated Kraft (162 SF roll)	—	SF	.18	—	.18
Red rosin sized sheathing (duplex sheathing) 36" wide (501 SF roll)	—	SF	.03	—	.03
Bruce rosin paper, floor underlay (500 SF roll)	—	SF	.06	—	.06
Moistop flashing paper, Fortifiber™, 12" wide x 300' long (300 SF roll)	—	SF	.22	—	.22
Vycor window and door flashing, self adhesive, Grace 6" x 75' roll, 25 mil thickness	—	SF	3.05	—	3.05
Vycor deck protector, self adhesive joist flashing, Grace 4" x 75' roll, Roll covers 66 LF of joist	—	LF	2.38	—	2.38
Plasterkraft grade D weather-resistive sheathing paper, 40" wide					
Super 60 minute (500 SF roll)	—	SF	.06	—	.06
Ten minute 2-ply (500 SF roll)	—	SF	.05	—	.05
Roof flashing paper, seals around skylights, dormers, vents, valleys and eaves, rubberized, fiberglass reinforced, self-adhesive					
GAF StormGuard™ Roll covers 200 SF	—	SF	.80	—	.80
Roof underlay, for use under shingles, granular surface					
Weatherlock® 200 SF roll	—	SF	.83	—	.83
Tri-Flex roof underlay, for use under shingles, tile, slate or metal roofing 48" x 250', 1,000 SF roll	—	SF	.22	—	.22
Below grade vapor barrier, Fortifiber™ Moistop (fiberglass reinforced Kraft between 2 layers of polyethylene) 8' x 250' roll (2,000 SF roll)	—	SF	.29	—	.29
Concrete curing papers, Fortifiber™					
Orange Label Sisalkraft (fiberglass and adhesive between 2 layers of Kraft), 4.8 lbs. per CSF 48" x 125' roll, (500 SF roll)	—	SF	.37	—	.37
Sisalkraft SK-10, economy papers, fiberglass and adhesive between 2 layers of Kraft, 4.2 lbs. per CSF 48" x 300' roll (1,200 SF roll)	—	SF	.11	—	.11



Cabinets, Kitchen

Craft@Hrs Unit Material Labor Total

Cabinets, Kitchen See also Vanities. Good quality mill-made modular units with solid hardwood face frames, hardwood door frames and drawer fronts, hardwood veneer on raised door panels (front and back), glued mortise, dowel, and dado joint construction, full backs (1/8" vinyl laminated plywood), vinyl laminated cabinet interiors, vinyl laminated composition drawer bodies with nylon and metal guides. Includes self-closing hinges, door and drawer pulls, mounting hardware and adjustable shelves. See illustrations for unit types. See the price adjustments below for pricing of other units. No countertops included. See Countertops, page 96.

Kitchen cabinet costs vary widely. The prices listed in this section are for standard grade residential cabinets. Add 65% to material costs for premium grade cabinets with solid hardwood fronts and frames, mitered corners and solid wood drawer bodies with steel guides and ball bearings. Deduct 45% from material costs for economy grade cabinets, laminated plastic on particleboard.

Cabinets, Rule of Thumb Cabinet cost per running foot of cabinet installed. These figures are based on a set of semi-custom, mill-fabricated and assembled kitchen cabinets including a sink base cabinet, one 3-drawer base cabinet and six door base cabinets. Per linear foot of front or back edge, whichever is longer.

Base cabinets, 34-1/2" high, 24" deep	BC@.521	LF	197.00	23.90	220.90
Wall cabinets, 30" high, 12" deep	BC@.340	LF	103.00	15.60	118.60

Cabinets, Kitchen (See the note above on cabinet costs.)

One door base cabinets, 34-1/2" high, 24" deep

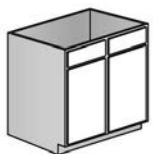
9" wide, tray divider	BC@.461	Ea	186.00	21.20	207.20
12" wide, 1 door, 1 drawer	BC@.461	Ea	248.00	21.20	269.20
15" wide, 1 door, 1 drawer	BC@.638	Ea	266.00	29.30	295.30
18" wide, 1 door, 1 drawer	BC@.766	Ea	279.00	35.10	314.10
21" wide, 1 door, 1 drawer	BC@.766	Ea	304.00	35.10	339.10
24" wide, 1 door, 1 drawer	BC@.911	Ea	311.00	41.80	352.80



DRAWER BASE

Drawer base cabinets, 34-1/2" high, 24" deep

15" wide, 4 drawers	BC@.638	Ea	272.00	29.30	301.30
18" wide, 4 drawers	BC@.766	Ea	290.00	35.10	325.10
24" wide, 4 drawers	BC@.911	Ea	336.00	41.80	377.80



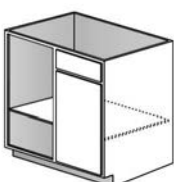
SINK BASE

Sink base cabinets, 34-1/2" high, 24" deep

24" wide, 1 door, 1 drawer front	BC@.740	Ea	266.00	34.00	300.00
30" wide, 2 doors, 2 drawer fronts	BC@.766	Ea	319.00	35.10	354.10
33" wide, 2 doors, 2 drawer fronts	BC@.766	Ea	336.00	35.10	371.10
36" wide, 2 doors, 2 drawer fronts	BC@.766	Ea	344.00	35.10	379.10
42" wide, 2 doors, 2 drawer fronts	BC@.911	Ea	380.00	41.80	421.80
48" wide, 2 doors, 2 drawer fronts	BC@.911	Ea	417.00	41.80	458.80

Two door base cabinets, 34-1/2" high, 24" deep

27" wide, 2 door, 2 drawer front	BC@1.25	Ea	410.00	57.40	467.40
30" wide, 2 doors, 2 drawer fronts	BC@1.25	Ea	433.00	57.40	490.40
33" wide, 2 doors, 2 drawer fronts	BC@1.25	Ea	454.00	57.40	511.40
36" wide, 2 doors, 2 drawer fronts	BC@1.35	Ea	478.00	61.90	539.90
42" wide, 2 doors, 2 drawer fronts	BC@1.50	Ea	497.00	68.80	565.80
48" wide, 2 doors, 2 drawer fronts	BC@1.71	Ea	553.00	78.50	631.50



BLIND CORNER BASE

Blind corner base cabinets, 34-1/2" high

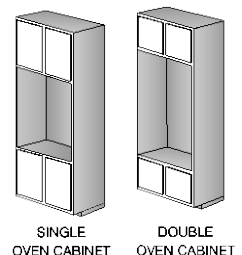
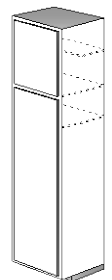
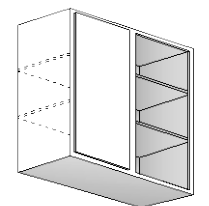
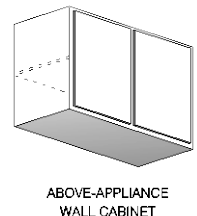
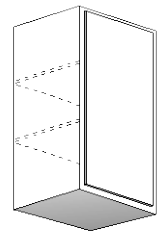
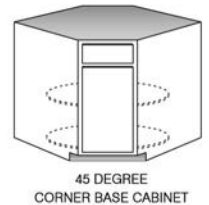
Minimum 36", maximum 39" at wall	BC@1.39	Ea	304.00	63.80	367.80
Minimum 39", maximum 42" at wall	BC@1.50	Ea	327.00	68.80	395.80

Corner base cabinet, revolving shelves

34-1/2" high x 36" wide at walls	BC@2.12	Ea	471.00	97.30	568.30
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Cabinets, Kitchen

	Craft@Hrs	Unit	Material	Labor	Total
Corner sink front, 34-1/2" high 40" wide at walls	BC@2.63	Ea	266.00	121.00	387.00
Wall cabinets, adjustable shelves, 30" high, 12" deep					
9" wide, 1 door	BC@.461	Ea	168.00	21.20	189.20
12" wide or 15" wide, 1 door	BC@.461	Ea	182.00	21.20	203.20
18" wide, 1 door	BC@.638	Ea	215.00	29.30	244.30
21" wide, 1 door	BC@.638	Ea	222.00	29.30	251.30
24" wide, 1 door	BC@.766	Ea	238.00	35.10	273.10
27" wide, 2 doors	BC@.766	Ea	279.00	35.10	314.10
30" wide, 2 doors	BC@.911	Ea	279.00	41.80	320.80
33" wide, 2 doors	BC@.911	Ea	304.00	41.80	345.80
36" wide, 2 doors	BC@1.03	Ea	320.00	47.30	367.30
42" wide, 2 doors	BC@1.03	Ea	344.00	47.30	391.30
48" wide, 2 doors	BC@1.16	Ea	372.00	53.20	425.20
Above-appliance wall cabinets, 12" deep					
12" high, 30" wide, 2 doors	BC@.461	Ea	177.00	21.20	198.20
15" high, 30" wide, 2 doors	BC@.461	Ea	202.00	21.20	223.20
15" high, 33" wide, 2 doors	BC@.537	Ea	217.00	24.60	241.60
15" high, 36" wide, 2 doors	BC@.638	Ea	222.00	29.30	251.30
18" high, 18" wide, 2 doors	BC@.537	Ea	168.00	24.60	192.60
18" high, 30" wide, 2 doors	BC@.766	Ea	222.00	35.10	257.10
18" high, 36" wide, 2 doors	BC@.911	Ea	245.00	41.80	286.80
Corner wall cabinets, 30" high, 12" deep					
24" at each wall, fixed shelves	BC@1.03	Ea	304.00	47.30	351.30
24" at each wall, revolving shelves	BC@1.03	Ea	408.00	47.30	455.30
Blind corner wall cabinets, 30" high					
24" minimum, 1 door	BC@1.03	Ea	230.00	47.30	277.30
36" minimum, 1 door	BC@1.32	Ea	279.00	60.60	339.60
42" minimum, 2 doors	BC@1.20	Ea	351.00	55.10	406.10
Utility cabinets, 66" high, 12" deep, no shelves					
18" wide	BC@1.32	Ea	351.00	60.60	411.60
24" wide	BC@1.71	Ea	401.00	78.50	479.50
Utility cabinets, 66" high, 24" deep, add shelf cost below					
18" wide	BC@1.24	Ea	372.00	56.90	428.90
24" wide	BC@1.71	Ea	441.00	78.50	519.50
Add for utility cabinet revolving shelves, includes mounting hardware					
18" wide x 24" deep	BC@.360	Ea	319.00	16.50	335.50
24" wide x 24" deep	BC@.360	Ea	374.00	16.50	390.50
Add for utility cabinet plain shelves					
18" wide x 24" deep	BC@.541	Ea	108.00	24.80	132.80
24" wide x 24" deep	BC@.541	Ea	113.00	24.80	137.80
Oven cabinets, 66" high, 24" deep					
27" wide, single oven	BC@2.19	Ea	446.00	100.00	546.00
27" wide, double oven	BC@2.19	Ea	337.00	100.00	437.00



Carpentry

Craft@Hrs Unit Material Labor Total

Carpentry See also carpentry items in other sections: Carpentry Steel Framing, Cabinets, Ceilings, Closet Door Systems, Countertops, Cupolas, Doors, Entrances, Flooring, Framing Connectors, Hardboard, Hardware, Lumber, Molding, Paneling, Shutters, Siding, Skylights, Soffits, Stairs, Thresholds, and Weatherstripping.

Carpentry Rule of Thumb Typical rough carpentry (framing) cost per square foot of floor in living area. These figures will apply on many residential jobs where joists, studs and rafters are 16" on center. Unconventional designs and complex framing plans will cost more. See detailed cost breakdowns in the next section.

Using framing lumber at	—	MBF	1,020.00	—	1,020.00
Using 1/2" OSB sheathing at	—	MSF	503.00	—	503.00
Using 7/16" OSB sheathing at	—	MSF	352.00	—	352.00
Using 5/8" OSB sheathing at	—	MSF	484.00	—	484.00
Using 1/2" RTD sheathing at	—	MSF	802.00	—	802.00
Using 5/8" RTD sheathing at	—	MSF	976.00	—	976.00
Single story, conventional foundation	B1@.237	SF	7.35	9.87	17.22
Single story, concrete slab foundation	B1@.180	SF	5.13	7.49	12.62
First of two floors, conventional foundation	B1@.203	SF	5.82	8.45	14.27
First of two floors, concrete slab foundation	B1@.146	SF	3.60	6.07	9.67
Second floor of a two-story residence	B1@.191	SF	5.69	7.95	13.64
Add for plywood sheathing	—	%	14.7	—	—

Framing a single story residence, conventional crawl-space foundation

Sills, pier blocks, floor beams (145 BF per 1,000 SF)	B1@.018	SF	.15	.75	.90
Floor joists, doublers, blocking, bridging (1,480 BF per 1,000 SF)	B1@.028	SF	1.51	1.17	2.68
Subflooring, 5/8" OSB (1,150 SF per 1,000 SF)	B1@.011	SF	.56	.46	1.02
Layout, studs, sole plates, top plates, header and end joists, backing, blocking, bracing and framing for openings (2,250 BF per 1,000 SF)	B1@.093	SF	2.29	3.87	6.16
Ceiling joists, header and end joists, backing, blocking and bracing (1,060 BF per 1,000 SF)	B1@.045	SF	1.08	1.87	2.95
Rafters, braces, collar beams, ridge boards, 2" x 8" rafters 16" OC, (1,340 BF per 1,000 SF)	B1@.032	SF	1.36	1.33	2.69
Roof sheathing, 7/16" OSB (1,150 SF per 1,000 SF)	B1@.010	SF	.40	.42	.82

Total framing, single story, conventional foundation

B1@.237 SF 7.35 9.87 17.22

Add for plywood sheathing

— % 14.7 — —

Framing a single story residence, concrete slab foundation

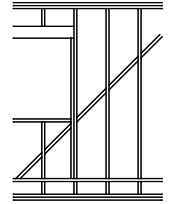
Layout, sole plates, anchors, studs, top plates, header and end joists, backing, blocking, bracing and framing for openings (2,250 BF per 1,000 SF)	B1@.093	SF	2.29	3.87	6.16
Ceiling joists, header and end joists, backing, blocking and bracing (1,060 BF per 1,000 SF)	B1@.045	SF	1.08	1.87	2.95
Rafters, braces, collar beams, ridge boards, 2" x 8" rafters 16" OC, (1,340 BF per 1,000 SF)	B1@.032	SF	1.36	1.33	2.69
Roof sheathing, 7/16" OSB (1,150 SF per 1,000 SF)	B1@.010	SF	.40	.42	.82

Total framing, single story, concrete slab foundation

B1@.180 SF 5.13 7.49 12.62

Add for plywood sheathing

— % 10.1 — —



Carpentry, Assemblies

	Craft@Hrs	Unit	Material	Labor	Total
Framing the first of two floors, conventional crawl-space foundation					
Sills, pier blocks, floor beams (145 BF per 1,000 SF)	B1@.018	SF	.15	.75	.90
Floor joists, doublers, blocking, bridging (1,480 BF per 1,000 SF)	B1@.028	SF	1.51	1.17	2.68
Subflooring, 5/8" OSB (1,150 SF per 1,000 SF)	B1@.011	SF	.56	.46	1.02
Layout, studs, sole plates, top plates, header and end joists, backing, blocking, bracing and framing for openings (2,250 BF per 1,000 SF)	B1@.093	SF	2.29	3.87	6.16
Rough stairway, 15 risers and landing (96 BF of dimension lumber and 128 SF of plywood per 1,000 SF)	B1@.008	SF	.23	.33	.56
Ceiling joists, header and end joists, backing, blocking and bracing (1,060 BF per 1,000 SF)	B1@.045	SF	1.08	1.87	2.95
Total framing, 1st of 2 floors, crawl-space foundation	B1@.203	SF	5.82	8.45	14.27
Add for plywood sheathing	—	%	9.7	—	—
Framing the first of two floors, concrete slab foundation					
Layout, sole plates, anchors, studs, top plates, header and end joists, backing, blocking, bracing and framing for openings (2,250 BF per 1,000 SF)	B1@.093	SF	2.29	3.87	6.16
Rough stairway, 15 risers and landing (96 BF of dimension lumber and 128 SF of plywood per 1,000 SF)	B1@.008	SF	.23	.33	.56
Ceiling joists, header and end joists, backing, blocking and bracing (1,060 BF per 1,000 SF)	B1@.045	SF	1.08	1.87	2.95
Total framing, first of two floors, concrete foundation	B1@.146	SF	3.60	6.07	9.67
Framing the second story of a residence					
Subflooring, 5/8" OSB (1,150 SF per 1,000 SF)	B1@.011	SF	.56	.46	1.02
Layout, studs, sole plates, top plates, header and end joists, backing, blocking, bracing and framing for openings (2,250 BF per 1,000 SF)	B1@.093	SF	2.29	3.87	6.16
Ceiling joists, header and end joists, backing, blocking and bracing (1,060 BF per 1,000 SF)	B1@.045	SF	1.08	1.87	2.95
Rafters, braces, collar beams, ridge boards, 2" x 8" rafters 16" OC (1,340 BF per 1,000 SF)	B1@.032	SF	1.36	1.33	2.69
Roof sheathing, 7/16" OSB (1,150 SF per 1,000 SF)	B1@.010	SF	.40	.42	.82
Total framing, second floor of a two-story residence	B1@.191	SF	5.69	7.95	13.64
Add for plywood sheathing	—	%	19.0	—	—
Floor Assemblies Costs for wood framed floor joists with subflooring and R-19 insulation. These costs include the floor joists, subflooring as described, blocking, nails and 6-1/4" thick R-1.9 fiberglass insulation between the floor joists. Figures include box or band joists and typical double joists. No beams included. Planked subflooring is based on 1.24 BF per square foot of floor. Costs shown are per square foot of area covered and include normal waste. Deduct for openings over 25 SF.					
Using framing lumber at	—	MBF	1,020.00	—	1,020.00
Using 5/8" RTD plywood subfloor at	—	MSF	976.00	—	976.00
Using 3/4" RTD plywood subfloor at	—	MSF	1,100.00	—	1,100.00
Using 7/16" OSB subfloor at	—	MSF	352.00	—	352.00
Using 5/8" OSB subfloor at	—	MSF	484.00	—	484.00
Using 3/4" OSB T&G subfloor at	—	MSF	710.00	—	710.00

Carpentry, Assemblies

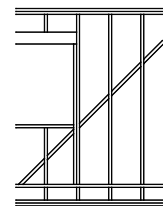
	Craft@Hrs	Unit	Material	Labor	Total
Floor joists 16" OC, R-19 insulation and OSB subflooring					
7/16" OSB subfloor					
2" x 6" joists	B1@.040	SF	2.84	1.67	4.51
2" x 8" joists	B1@.041	SF	3.26	1.71	4.97
2" x 10" joists	B1@.043	SF	3.76	1.79	5.55
2" x 12" joists	B1@.044	SF	4.79	1.83	6.62
Floor joists 16" OC, R-19 insulation and OSB subflooring					
5/8" OSB subfloor					
2" x 6" joists	B1@.040	SF	2.98	1.67	4.65
2" x 8" joists	B1@.041	SF	3.39	1.71	5.10
2" x 10" joists	B1@.043	SF	3.90	1.79	5.69
2" x 12" joists	B1@.044	SF	4.93	1.83	6.76
3/4" OSB subfloor					
2" x 6" joists	B1@.042	SF	3.20	1.75	4.95
2" x 8" joists	B1@.043	SF	3.61	1.79	5.40
2" x 10" joists	B1@.045	SF	4.12	1.87	5.99
2" x 12" joists	B1@.046	SF	5.15	1.92	7.07
Floor joists 16" OC, R-19 insulation and plywood subflooring					
5/8" plywood subfloor					
2" x 6" joists	B1@.040	SF	3.37	1.67	5.04
2" x 8" joists	B1@.041	SF	3.78	1.71	5.49
2" x 10" joists	B1@.043	SF	4.29	1.79	6.08
2" x 12" joists	B1@.044	SF	5.32	1.83	7.15
3/4" plywood subfloor					
2" x 6" joists	B1@.042	SF	3.59	1.75	5.34
2" x 8" joists	B1@.043	SF	4.00	1.79	5.79
2" x 10" joists	B1@.045	SF	4.51	1.87	6.38
2" x 12" joists	B1@.046	SF	5.54	1.92	7.46
For different type insulation					
Fiberglass batts					
10" thick R-30, add	—	SF	.45	—	.45
12" thick R-38, add	—	SF	.94	—	.94

Wall Assemblies Costs for wood framed stud walls with wall finish treatment on both sides. These costs include wall studs at 16" center to center, double top plates, single bottom plates, fire blocking, nails and wall finish treatment as described. No headers or posts included. All lumber is Std & Btr. 2" x 4" walls have 1.12 BF per SF of wall and 2" x 6" walls have 1.68 BF per SF of wall. Costs shown are per SF or LF of wall measured on one face and include normal waste.

Using 2 x 4 lumber at	—	MBF	947.00	—	947.00
Using 2 x 6 lumber at	—	MBF	1,000.00	—	1,000.00
Using 1/2" gypsum wallboard at	—	SF	.58	—	.58
Using 5/8" gypsum wallboard at	—	SF	.60	—	.60

Interior wall assemblies

2" x 4" stud walls with 1/2" gypsum drywall both sides, ready for painting					
Cost per square foot of wall	B1@.064	SF	1.95	2.66	4.61
Cost per running foot, for 8' high walls	B1@.512	LF	15.60	21.30	36.90
2" x 4" stud walls with 1/2" gypsum drywall one side, ready for painting					
Cost per square foot of wall	B1@.046	SF	1.37	1.92	3.29
Cost per running foot, for 8' high walls	B1@.368	LF	11.00	15.30	26.30
2" x 4" stud walls with 5/8" gypsum fire rated drywall both sides, ready for painting					
Cost per square foot of wall	B1@.068	SF	1.99	2.83	4.82
Cost per running foot, for 8' high walls	B1@.544	LF	15.90	22.70	38.60



Carpentry, Assemblies

	Craft@Hrs	Unit	Material	Labor	Total
2" x 4" stud walls with 5/8" gypsum fire rated drywall one side, ready for painting					
Cost per square foot of wall	B1@.048	SF	1.39	2.00	3.39
Cost per running foot, for 8' high walls	B1@.384	LF	11.10	16.00	27.10
2" x 6" stud walls with 1/2" gypsum drywall both sides, ready for painting					
Cost per square foot of wall	B1@.072	SF	2.44	3.00	5.44
Cost per running foot, for 8' high walls	B1@.576	LF	19.50	24.00	43.50
2" x 6" stud walls with 1/2" gypsum drywall one side, ready for painting					
Cost per square foot of wall	B1@.054	SF	1.86	2.25	4.11
Cost per running foot, for 8' high walls	B1@.432	LF	14.90	18.00	32.90
2" x 6" stud walls with 5/8" gypsum fire rated drywall both sides, ready for painting					
Cost per square foot of wall	B1@.076	SF	2.48	3.16	5.64
Cost per running foot, for 8' high walls	B1@.608	LF	19.80	25.30	45.10
2" x 6" stud walls with 5/8" gypsum fire rated drywall one side, ready for painting					
Cost per square foot of wall	B1@.056	SF	1.89	2.33	4.22
Cost per running foot, for 8' high walls	B1@.448	LF	15.10	18.70	33.80

Exterior wall assemblies

2" x 4" stud walls with drywall interior, wood siding exterior, 1/2" gypsum drywall inside face ready for painting, over 3-1/2" R-13 insulation with 5/8" thick rough sawn T-1-11 exterior grade plywood siding on the outside face.					
Using 5/8" rough sawn T-1-11 siding at	—	MSF	1,430.00	—	1,430.00
Cost per square foot of wall	B1@.068	SF	3.52	2.83	6.35
Cost per running foot, for 8' high walls	B1@.544	LF	28.10	22.70	50.80
2" x 6" stud walls with drywall interior, wood siding exterior, same construction as above, except with 6-1/4" R-19 insulation					
Cost per square foot of wall	B1@.077	SF	4.28	3.21	7.49
Cost per running foot, for 8' high walls	B1@.616	LF	34.20	25.70	59.90
2" x 4" stud walls with drywall interior, 1/2" gypsum drywall on inside face ready for painting, over 3-1/2" R-11 insulation with 1" x 6" southern yellow pine drop siding, D grade, 1.19 BF per SF at 5-1/4" exposure on the outside face.					
Using D grade yellow pine drop siding at	—	MSF	3,340.00	—	3,340.00
Cost per square foot of wall	B1@.074	SF	5.42	3.08	8.50
Cost per running foot, for 8' high wall	B1@.592	LF	43.40	24.70	68.10
2" x 6" stud walls with drywall interior, 1" x 6" drop siding exterior, same construction as above, except with 6-1/4" R-19 insulation					
Cost per square foot of wall	B1@.083	SF	6.18	3.46	9.64
Cost per running foot, for 8' high wall	B1@.664	LF	49.40	27.60	77.00
2" x 4" stud walls with drywall interior, stucco exterior, 1/2" gypsum drywall on inside face ready for painting, over 3-1/2" R-11 insulation and a three-coat exterior plaster (stucco) finish with integral color on the outside face					
Cost per square foot of wall	B1@.050	SF	6.07	2.08	8.15
Cost per running foot, for 8' high wall	B1@.400	LF	48.50	16.70	65.20
2" x 6" stud walls with drywall interior, stucco exterior, same construction as above, except with 6-1/4" R-19 insulation					
Cost per square foot of wall	B1@.059	SF	6.83	2.46	9.29
Cost per running foot, for 8' high wall	B1@.472	LF	54.60	19.70	74.30
Add for different type gypsum board					
1/2" or 5/8" moisture resistant greenboard					
Cost per SF, greenboard per side, add	—	SF	.16	—	.16
1/2" or 5/8" moisture resistant greenboard					
Cost per running foot per side 8' high	—	LF	1.27	—	1.27
5/8" thick fire rated type X gypsum drywall					
Cost per SF, per side, add	—	SF	.12	—	.12
5/8" thick fire rated type X gypsum drywall					
Cost per running foot per side 8' high	—	LF	.96	—	.96

Carpentry, Assemblies

Craft@Hrs Unit Material Labor Total

Ceiling Assemblies Costs for wood framed ceiling joists with ceiling finish and fiberglass insulation, based on performing the work at the construction site. These costs include the ceiling joists, ceiling finish as described, blocking, nails and 3-1/2" thick R-13 fiberglass insulation batts between the ceiling joists. Figures in parentheses indicate board feet per square foot of ceiling framing including end joists and typical header joists. No beams included. Ceiling joists and blocking are based on standard and better grade lumber. Costs shown are per square foot of area covered and include normal waste. Deduct for openings over 25 SF.

Ceiling joists with 5/8" regular gypsum drywall taped and sanded smooth finish, ready for paint

Using 2" x 4" at	—	MBF	947.00	—	947.00
Using 2" x 6" at	—	MBF	1,000.00	—	1,000.00
Using 2" x 8" at	—	MBF	959.00	—	959.00
2" x 4" ceiling joists at 16" on center (.59 BF per SF), with insulation and 1/2" gypsum drywall	B1@.053	SF	2.17	2.21	4.38
2" x 6" ceiling joists at 16" on center (.88 BF per SF), with insulation and 1/2" gypsum drywall	B1@.055	SF	2.68	2.29	4.97
2" x 8" ceiling joists at 16" on center (1.17 BF per SF), with insulation and 1/2" gypsum drywall	B1@.057	SF	3.05	2.37	5.42
For spray applied plaster finish (sometimes called "popcorn" or "cottage cheese" texture)					
Add for ceiling texture	DT@.011	SF	.04	.49	.53
For different type gypsum drywall with taped and sanded smooth finish, ready for paint					
5/8" moisture resistant greenboard, add	—	SF	.12	—	.12
5/8" ultralight, add	—	SF	.01	—	.01
5/8" fire rated "C", add	—	SF	.02	—	.02
For different ceiling joist center to center dimensions					
2" x 4" ceiling joists					
12" on center, add	B1@.004	SF	.18	.17	.35
20" on center, deduct	—	SF	-.10	-.08	-.18
24" on center, deduct	—	SF	-.16	-.12	-.28
2" x 6" ceiling joists					
12" on center, add	B1@.006	SF	.27	.25	.52
20" on center, deduct	—	SF	-.16	-.08	-.24
24" on center, deduct	—	SF	-.25	-.12	-.37
2" x 8" ceiling joists					
12" on center, add	B1@.006	SF	.35	.25	.60
20" on center, deduct	—	SF	-.20	-.08	-.28
24" on center, deduct	—	SF	-.32	-.12	-.44
For different type insulation					
Fiberglass batts					
6-1/4" thick R-19, add	—	SF	.19	—	.19
10" thick R-30, add	—	SF	.83	—	.83
Blown-in fiberglass, subcontract					
8" thick R-19, add	—	SF	—	—	.56

Roofing Assemblies Costs for wood framed roof assemblies with roof finish material as shown based on performing the work at the construction site. Costs shown include all material and labor required above the top plate or ledger on the supporting walls. These costs assume the supporting wall structure is in-place and suitable for the assembly described.

Carpentry, Assemblies

	Craft@Hrs	Unit	Material	Labor	Total
Flat roof assembly Based on using 2" x 12" joists Std & Btr grade at 16" on center including blocking, ripped strips and normal waste. The roof surface is built-up 3 ply asphalt consisting of 2 plies of 15 lb. felt hot mopped with a 90 lb. mineral-coated cap sheet.					
Using 2" x 12" joists at	—	MBF	1,150.00	—	1,150.00
Using 2" x 8" joists at	—	MBF	959.00	—	959.00
Using 1/2" RTD plywood at	—	MSF	802.00	—	802.00
Using 7/16" OSB at	—	MSF	352.00	—	352.00
Flat roof assembly as described above					
Framing, with plywood sheathing	B1@5.00	Sq	367.00	208.00	575.00
Framing, with OSB sheathing	B1@5.00	Sq	320.00	208.00	528.00
Built-up roofing, 3-ply and gravel	R1@2.15	Sq	143.00	93.30	236.30

Conventionally framed roof assemblies Based on straight gable type roof (no hips, valleys, or dormers) with 6" in 12" rise or less. Cost per 100 square feet of plan area under the roof, not actual roof surface area. Framing includes 2" x 8" common rafters Std & Btr grade at 24" on center. Cost includes blocking, ridge and normal bracing. Roof sheathing is either 7/16" OSB (oriented strand board) or 1/2" RTD plywood.

Conventionally framed roof assembly. Select roof finish from below

Framing, with plywood sheathing	B1@4.10	Sq	195.00	171.00	366.00
Framing, with OSB sheathing	B1@4.10	Sq	148.00	171.00	319.00
Add for built-up 3-ply finish roofing	R1@1.25	Sq	128.00	54.20	182.20
Add for composition shingle (Class C) roofing	R1@1.83	Sq	588.00	79.40	667.40
Add for asphalt shingle (Class A) roofing	R1@1.83	Sq	248.00	79.40	327.40
Framing, with no sheathing	B1@2.80	Sq	111.00	117.00	228.00
Add for 26 gauge steel roofing	R1@2.70	Sq	280.00	117.00	397.00

Add for gable studs

2" x 4" spaced 16" OC (.54 BF per SF)	B1@.023	SF	.51	.96	1.47
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Add for purlins (purling), Std & Btr, installed below roof rafters. Figures in parentheses indicate board feet per LF including 5% waste

Using 2" x 8" joists at	—	MBF	959.00	—	959.00
2" x 8" (1.40 BF per LF)	B1@.023	LF	1.34	.96	2.30

Piecework, Rough Carpentry Rough carpentry on residential tracts is usually done by framing subcontractors who bid at piecework rates (such as per square foot of floor). The figures below list typical piecework rates for repetitive framing work and assume all materials are supplied to the framing subcontractor. No figures appear in the Craft@Hrs column because the work is done for a fixed price per square foot and the labor productivity can be expected to vary widely.

Layout and plating Piecework rates

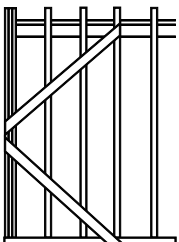
Lay out wall plates according to the plans (snap chalk lines for wall plates, mark location for studs, windows, doors and framing details), cut top and bottom plates and install bottom plates. Costs per square foot of floor (excluding garage).

Custom or more complex jobs	—	SF	—	.33	.33
Larger job, longer runs	—	SF	—	.22	.22

Wall framing Piecework rates

Measure, cut, fit, assemble, and tip up walls, including studs, plates, cripples, let-in braces, trimmers and blocking. Costs per square foot of floor.

Complex job, radius walls, rake walls	—	SF	—	.91	.91
Larger job, 8' high walls, fewer partitions	—	SF	—	.33	.33



Carpentry, Detailed Breakdown

Craft@Hrs Unit Material Labor Total

Conventional roof framing Piecework rates

Calculate lengths, lay out, cut and install 2" x 10" or 2" x 12" common, hip, valley and jack rafters on parallel and horizontal plates. Costs per square foot of plan area under the roof.

Small job, cut-up roof, few common rafters

Rafters 12" OC	—	SF	—	1.65	1.65
Rafters 16" OC	—	SF	—	1.39	1.39
Rafters 20" OC	—	SF	—	1.09	1.09
Rafters 24" OC	—	SF	—	.80	.80

Larger job, longer runs, nearly all common rafters

Rafters 12" OC	—	SF	—	.80	.80
Rafters 16" OC	—	SF	—	.71	.71
Rafters 20" OC	—	SF	—	.55	.55
Rafters 24" OC	—	SF	—	.45	.45
Add for slope over 6 in 12	—	SF	—	.27	.27
Deduct for 2" x 6" or 2" x 8" rafters	—	SF	—	-.10	-.10

Fascia Piecework rates

Applied to rafter tails and as a barge rafter on gable ends. Includes trimming the rafter tails to the correct length and installing outlookers at gable ends. Costs per linear foot of 2" x 8" fascia installed.

Small job, short runs, with molding	—	LF	—	3.55	3.55
Larger job, longer runs	—	LF	—	2.04	2.04

Roof sheathing Piecework rates

Lay out, cut, fit and install 1/2" or 5/8" OSB or plywood roof sheathing, including blocking and 1" x 8" starter board on overhangs as required. Based on nailing done with a pneumatic nailer and nails supplied by the general contractor. Costs per square foot of sheathing installed.

Smaller, cut-up hip and valley job	—	SF	—	.31	.31
Larger job, longer runs	—	SF	—	.23	.23
Add for slope over 6 in 12	—	SF	—	.15	.15

Carpentry Cost, Detailed Breakdown This section is arranged in the order of construction. Material costs shown here can be adjusted to reflect your actual lumber cost: divide your actual lumber cost (per MBF) by the cost listed (per MBF). Then multiply the cost in the material column by this adjustment factor. No waste included

Lally columns (Residential adjustable basement column) 7' 9" to 8' 1", steel tube

Column installation, to 12' high	B1@.458	Ea	175.00	19.10	194.10
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Precast pier blocks Posts set on precast concrete pier block, including pier block with anchor placed on existing grade, temporary reusable 1" x 6" bracing (8 LF) and stakes (2). Cost is for each post set. Add for excavation if required

Heights to 8', cost of post not included	BL@.166	Ea	10.00	6.21	16.21
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Pier pads 2" x 6", treated, #2 & Btr

Using #2 & Btr treated lumber at	—	MBF	1,400.00	—	1,400.00
1.10 BF per LF	B1@.034	LF	1.54	1.42	2.96

Posts 4" x 4", material costs include 10% waste (1.47 BF per LF). See also Lally columns above and Posts in the Lumber section

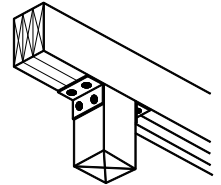
Fir, rough Std & Btr, K.D.	—	MBF	1,000.00	—	1,000.00
Fir, rough Std & Btr, K.D. 4" x 4"	—	LF	1.47	—	1.47
Red cedar, rough green constr.	—	MBF	3,900.00	—	3,900.00
Red cedar, rough green constr.	—	LF	5.73	—	5.73
Redwood, S4S construction heart	—	MBF	3,340.00	—	3,340.00

Carpentry, Detailed Breakdown

	Craft@Hrs	Unit	Material	Labor	Total
Redwood, S4S construction heart	—	LF	4.91	—	4.91
Southern yellow pine #2, pressure treated	—	MBF	1,560.00	—	1,560.00
Southern yellow pine #2, pressure treated	—	LF	2.30	—	2.30

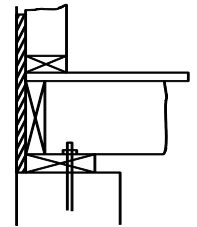
Girders Standard and better lumber, first floor work. Figures in parentheses show board feet per linear foot of girder, including 7% waste

4" x 6", per MBF	—	MBF	971.00	—	971.00
4" x 8", 10", 12", per MBF	—	MBF	1,010.00	—	1,010.00
6" x 6", per MBF	—	MBF	2,290.00	—	2,290.00
6" x 8", 10", 12", 8" x 8", per MBF	—	MBF	2,290.00	—	2,290.00
4" x 6" (2.15 BF per LF)	B1@.034	LF	2.23	1.42	3.65
4" x 8" (2.85 BF per LF)	B1@.045	LF	3.06	1.87	4.93
4" x 10" (3.58 BF per LF)	B1@.057	LF	3.85	2.37	6.22
4" x 12" (4.28 BF per LF)	B1@.067	LF	4.60	2.79	7.39
6" x 6" (3.21 BF per LF)	B1@.051	LF	7.88	2.12	10.00
6" x 8" (4.28 BF per LF)	B1@.067	LF	10.50	2.79	13.29
6" x 10" (5.35 BF per LF)	B1@.083	LF	13.10	3.46	16.56
6" x 12" (6.42 BF per LF)	B1@.098	LF	15.80	4.08	19.88
8" x 8" (5.71 BF per LF)	B1@.088	LF	14.00	3.66	17.66



Sill plates (At foundation) SYP #2 pressure treated lumber, drilled and installed with foundation bolts at 48" OC, no bolts, nuts or washers included. See also plates in this section. Figures in parentheses indicate board feet per LF of foundation, including 5% waste and wolmanized treatment.

Sill plates, per MBF	—	MBF	1,240.00	—	1,240.00
2" x 3" (.53 BF per LF)	B1@.020	LF	.49	.83	1.32
2" x 4" (.70 BF per LF)	B1@.023	LF	.96	.96	1.92
2" x 6" (1.05 BF per LF)	B1@.024	LF	1.25	1.00	2.25
2" x 8" (1.40 BF per LF)	B1@.031	LF	1.64	1.29	2.93



Floor joists Per SF of area covered. Figures in parentheses indicate board feet per square foot of floor including box or band joist, typical double joists, and 6% waste. No beams, blocking or bridging included. Deduct for openings over 25 SF. Costs shown are based on a job with 1,000 SF of area covered. For scheduling purposes, estimate that a two-man crew can complete 750 SF of area per 8-hour day for 12" center to center framing; 925 SF for 16" OC; 1,100 SF for 20" OC; or 1,250 SF for 24" OC.

2" x 6" Std & Btr

2" x 6" floor joists, per MBF	—	MBF	1,000.00	—	1,000.00
12" centers (1.28 BF per SF)	B1@.021	SF	1.29	.87	2.16
16" centers (1.02 BF per SF)	B1@.017	SF	1.02	.71	1.73
20" centers (.88 BF per SF)	B1@.014	SF	.88	.58	1.46
24" centers (.73 BF per SF)	B1@.012	SF	.73	.50	1.23

2" x 8" Std & Btr

2" x 8" floor joists, per MBF	—	MBF	959.00	—	959.00
12" centers (1.71 BF per SF)	B1@.023	SF	1.64	.96	2.60
16" centers (1.36 BF per SF)	B1@.018	SF	1.30	.75	2.05
20" centers (1.17 BF per SF)	B1@.015	SF	1.12	.62	1.74
24" centers (1.03 BF per SF)	B1@.013	SF	.99	.54	1.53

2" x 10" Std & Btr

2" x 10" floor joists, per MBF	—	MBF	965.00	—	965.00
12" centers (2.14 BF per SF)	B1@.025	SF	2.07	1.04	3.11
16" centers (1.71 BF per SF)	B1@.020	SF	1.65	.83	2.48
20" centers (1.48 BF per SF)	B1@.016	SF	1.43	.67	2.10
24" centers (1.30 BF per SF)	B1@.014	SF	1.26	.58	1.84

Carpentry, Detailed Breakdown

	Craft@Hrs	Unit	Material	Labor	Total
2" x 12" Std & Btr					
2" x 12" floor joists, per MBF	—	MBF	1,150.00	—	1,150.00
12" centers (2.56 BF per SF)	B1@.026	SF	2.93	1.08	4.01
16" centers (2.05 BF per SF)	B1@.021	SF	2.35	.87	3.22
20" centers (1.77 BF per SF)	B1@.017	SF	2.03	.71	2.74
24" centers (1.56 BF per SF)	B1@.015	SF	1.79	.62	2.41

Floor joist wood, TJI truss type Suitable for residential use, 50 PSF floor load design. Costs shown are per square foot (SF) of floor area, based on joists at 16" OC, for a job with 1,000 SF of floor area. Figure 1.22 SF of floor area for each LF of joist. Add the cost of beams, supports and blocking. For scheduling purposes, estimate that a two-man crew can install 900 to 950 SF of joists in an 8-hour day.

9-1/2" TJI/15	B1@.017	SF	3.72	.71	4.43
11-7/8" TJI/15	B1@.017	SF	4.08	.71	4.79
14" TJI/35	B1@.018	SF	5.96	.75	6.71
16" TJI/35	B1@.018	SF	6.49	.75	7.24

Bridging or blocking Installed between 2" x 6" thru 2" x 12" joists. Costs shown are per each set of cross bridges or per each block for solid bridging, and include normal waste. The spacing between the bridging or blocking, sometimes called a "bay," depends on job requirements. Labor costs assume bridging is cut to size on site.

1" x 4" cross					
Joist bridging, per MBF	—	MBF	1,960.00	—	1,960.00
Joists on 12" centers	B1@.034	Ea	.98	1.42	2.40
Joists on 16" centers	B1@.034	Ea	1.34	1.42	2.76
Joists on 20" centers	B1@.034	Ea	1.70	1.42	3.12
Joists on 24" centers	B1@.034	Ea	2.06	1.42	3.48

2" x 6" solid, Std & Btr					
2" x 6" blocking, per MBF	—	MBF	1,000.00	—	1,000.00
Joists on 12" centers	B1@.042	Ea	1.11	1.75	2.86
Joists on 16" centers	B1@.042	Ea	1.47	1.75	3.22
Joists on 20" centers	B1@.042	Ea	1.84	1.75	3.59
Joists on 24" centers	B1@.042	Ea	2.21	1.75	3.96

2" x 8" solid, Std & Btr					
2" x 8" blocking, per MBF	—	MBF	959.00	—	959.00
Joists on 12" centers	B1@.042	Ea	1.41	1.75	3.16
Joists on 16" centers	B1@.042	Ea	1.87	1.75	3.62
Joists on 20" centers	B1@.042	Ea	2.34	1.75	4.09
Joists on 24" centers	B1@.042	Ea	2.81	1.75	4.56

2" x 10" solid, Std & Btr					
2" x 10" blocking, per MBF	—	MBF	965.00	—	965.00
Joists on 12" centers	B1@.057	Ea	1.77	2.37	4.14
Joists on 16" centers	B1@.057	Ea	2.36	2.37	4.73
Joists on 20" centers	B1@.057	Ea	2.95	2.37	5.32
Joists on 24" centers	B1@.057	Ea	3.54	2.37	5.91

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Practical References for Builders

National Estimator Cloud



Generate professional construction estimates for all residential and commercial construction from your internet browser. Includes 10 Craftsman construction cost databases, over 40,000 labor and material costs for construction, in an easy-to-use format. Cost estimates are well-organized and thoroughly indexed to speed and simplify writing estimates for nearly any residential or light commercial construction project – new construction, improvement or repair. Convert the bid to an invoice – in either QuickBooks Desktop or QuickBooks Online. Access your estimates from anywhere and on any device with a Web browser. Monthly and one-time billing options available. Visit <https://craftsman-book.com/national-estimator-cloud> for more details.

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448 pages, 8½ x 11, \$118.00. Revised annually
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Risk, and the headaches that go with it, have always been a major part of any construction project — risk of loss, negative cash flow, construction claims, regulations, excessive changes, disputes, slow pay — sometimes you'll make money, and often you won't. But many contractors today are avoiding almost all of that risk by working under a construction management contract, where they are simply a paid consultant to the owner, running the job, but leaving him the risk. This manual is the how-to of construction management contracting. You'll learn how the process works, how to get started as a CM contractor, what the job entails, how to deal with the issues that come up, when to step back, and how to get the job completed on time and on budget. Includes a link to free downloads of CM contracts legal in each state. **272 pages, 8½ x 11, \$55.50**

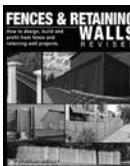
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This practical guide contains 78 practical forms, letters and checklists, guaranteed to help you streamline your office, organize your jobsites, gather and organize records and documents, keep a handle on your subs, reduce estimating errors, administer change orders and lien issues, monitor crew productivity, track your equipment use, and more. Includes accounting forms, change order forms, forms for customers, estimating forms, field work forms, HR forms, lien forms, office forms, bids and proposals, subcontracts, and more. All are also on the CD-ROM included, in Excel spreadsheets, as formatted Rich Text that you can fill out on your computer, and as PDFs. **360 pages, 8½ x 11, \$48.50**

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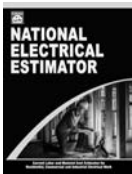


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This year's prices for installation of all common electrical work: conduit, wire, boxes, fixtures, switches, outlets, loadcenters, panelboards, raceway, duct, signal systems, and more. Provides material costs, manhours per unit, and total installed cost. Explains what you should know to estimate each part of an electrical system.

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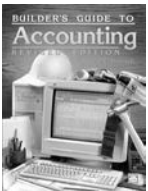


How to calculate the amount of dirt you'll have to move and the cost of owning and operating the machines you'll do it with. Detailed, step-by-step instructions on how to assign bid prices to each part of the job, including labor and equipment costs. Also, the best ways to set up an organized and logical estimating system, take off from contour maps, estimate quantities in irregular areas, and figure your overhead. This revised edition

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Step-by-step instructions for selecting, repairing, improving, and selling highly profitable "fixer-uppers." Shows which price ranges offer the highest profit-to-investment ratios, which neighborhoods offer the best return, practical directions for repairs, and tips on dealing with buyers, sellers, and real estate agents. Shows you how to determine your profit before you buy, what

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Insurance Restoration Contracting: Startup to Success



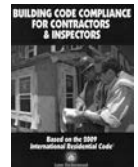
Insurance restoration — the repair of buildings damaged by water, fire, smoke, storms, vandalism and other disasters — is an exciting field of construction that provides lucrative work that's immune to economic downturns. And, with insurance companies funding the repairs, your payment is virtually guaranteed. But this type of work requires special knowledge and equipment, and that's what you'll learn about in this book. It

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Commercial Metal Stud Framing

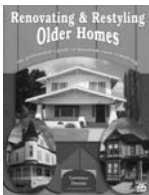


Master the transition from wood to metal stud framing with this comprehensive guide. Written by industry expert Ray Clark, this book offers step-by-step instructions, essential tools, and proven techniques to excel in commercial metal stud framing. Ideal for experienced wood framers, it includes hundreds of job site photos and valuable tips to help you work quickly, accurately, and safely on commercial projects.

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Renovating & Restyling Older Homes

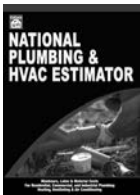


Any builder can turn a run-down old house into a showcase of perfection — if the customer has unlimited funds to spend. Unfortunately, most customers are on a tight budget. They usually want more improvements than they can afford — and they expect you to deliver. This book shows how to add economical improvements that can increase the property value by two, five or even ten times the cost of the remodel.

Sound impossible? Here you'll find the secrets of a builder who has been putting these techniques to work on Victorian and Craftsman-style houses for twenty years. You'll see what to repair, what to replace and what to leave, so you can remodel or restyle older homes for the least amount of money and the greatest increase in value.

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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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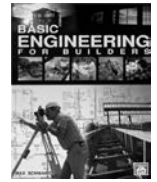
eBook (PDF) also available, \$14.25 at <https://craftsman-book.com>

Contractor's Guide to QuickBooks by Online Accounting eBook

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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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384 pages, 8½ x 11, \$52.50

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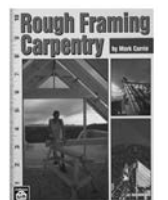
Contractor's Survival Manual Revised



The "real skinny" on the down-and-dirty survival skills that no one likes to talk about — unique, unconventional ways to get through a debt crisis: what to do when the bills can't be paid, finding money and buying time, conserving income, transferring debt, setting payment priorities, cash float techniques, dealing with judgments and liens, and laying the foundation for recovery. Here you'll find out how to survive a downturn and the key things you can do to pave the road to success. Have this book as your insurance policy; when hard times come to your business it will be your guide. **336 pages, 8½ x 11, \$38.00**

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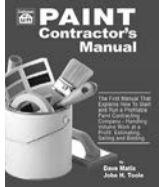
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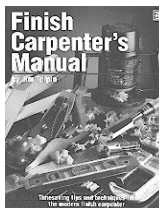
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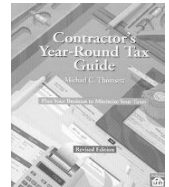
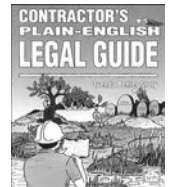
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