2027

75th Edition
Richard Pray

NATIONAL CONSTRUCTION ESTIMATOR



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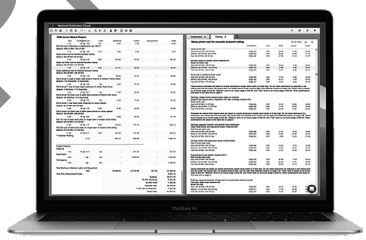
2027 NATIONAL CONSTRUCTION ESTIMATOR

Edited by Richard Pray

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The National Estimator Cloud



This manual is also available as a Web app, *National Estimator Cloud,* that makes it easy to compile and print estimates, bids and invoices for nearly any type of construction project.

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This Book Is an Encyclopedia of 2027 Building Costs

The 2027 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 2027 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-2027. 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.

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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.

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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 2026 and projected to early 2027 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.

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Abbreviations

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

Symbols

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

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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 $42.53. That's the average for a residential laborer (listed at $38.01 per hour on page 10) and a residential carpenter (listed at $47.05 per hour): $38.01 plus $47.05 is $85.06. Divide by 2 to get $42.53, 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.

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Residential Division

Craft Code	Cost Per Manhour	Crew Composition
B1	$42.53	1 laborer and 1 carpenter
B2	$44.04	1 laborer, 2 carpenters
B3	$41.02	2 laborers, 1 carpenter
B4	$46.66	1 laborer 1 operating engineer 1 reinforcing iron worker
B5	$46.26	1 laborer, 1 carpenter 1 cement mason 1 operating engineer 1 reinforcing iron worker
B6	$41.13	1 laborer, 1 cement mason
B7	$38.91	1 laborer, 1 truck driver
B8	$45.03	1 laborer 1 operating engineer
B9	$40.05	1 bricklayer 1 bricklayer's helper
BB	$46.24	1 bricklayer
BC	$47.05	1 carpenter
BE	$49.75	1 electrician
BF	$43.12	1 floor layer
BG	$43.51	1 glazier
BH	$34.66	1 bricklayer's helper
BL	$38.01	1 laborer
BR	$44.83	1 lather
BS	$38.77	1 marble setter
CF	$44.25	1 cement mason
CT	$54.41	1 mosaic & terrazzo worker
D1	$45.52	1 drywall installer 1 drywall taper
DI	$44.74	1 drywall installer
DT	$46.30	1 drywall taper
HC	$35.75	1 plasterer helper
OE	$52.05	1 operating engineer
P1	$45.62	1 laborer, 1 plumber
PM	$53.23	1 plumber
PP	$42.46	1 painter, 1 laborer
PR	$46.30	1 plasterer
PT	$46.91	1 painter
R1	$44.12	1 roofer, 1 laborer
RI	$49.92	1 reinforcing iron worker
RR	$50.22	1 roofer
SW	$51.03	1 sheet metal worker
T1	$39.77	1 tile layer, 1 laborer
TL	$41.52	1 tile layer
TR	$39.81	1 truck driver

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Commercial and Industrial Division

Craft Code	Cost Per Manhour	Crew Composition
A1	$63.10	1 asbestos worker 1 laborer
AT	$53.72	1 air tool operator
AW	$73.93	1 asbestos worker
BM	$78.71	1 boilermaker
BT	$51.17	1 bricklayer tender
C1	$53.67	4 laborers, 1 truck driver
C2	$62.10	1 laborer, 2 truck drivers 2 tractor operators
C3	$60.46	1 laborer, 1 truck driver 1 tractor operator
C4	$54.62	2 laborers, 1 truck driver
C5	$58.41	2 laborers, 1 truck driver 1 tractor operator
C6	$57.18	6 laborers, 2 truck drivers 2 tractor operators
C7	$60.32	2 laborers , 3 truck drivers 1 crane operator 1 tractor operator
C8	$59.84	1 laborer, 1 carpenter
C9	$61.12	1 laborer, 1 crane operator
CB	$66.06	1 bricklayer
CC	$67.42	1 carpenter
CD	$64.42	1 drywall installer
CE	$74.05	1 electrician
CG	$67.20	1 glazier
CL	$52.26	1 laborer
CM	$63.93	1 cement mason
CO	$69.97	1 crane operator
CV	$75.07	1 elevator constructor
D2	$58.34	1 drywall installer 1 laborer
D3	$66.66	1 laborer, 1 iron worker (structural), 1 millwright
D4	$60.40	1 laborer, 1 millwright
D5	$65.49	1 boilermaker, 1 laborer
D6	$68.95	2 millwrights 1 tractor operator
D7	$58.93	1 painter, 1 laborer
D9	$63.11	2 millwrights, 1 laborer
E1	$64.48	2 electricians, 2 laborers 1 tractor operator
E2	$63.16	2 electricians, 2 laborers
E3	$64.58	2 electricians, 2 laborers 2 carpenters
E4	$63.16	1 electrician, 1 laborer
F5	$61.36	3 carpenters, 2 laborers
F6	$61.83	2 carpenters, 2 laborers 1 tractor operator
F7	$64.22	2 carpenters, 1 laborer 1 tractor operator
F8	$63.98	2 plasterers 1 plasterer's helper
F9	$58.45	1 laborer, 1 floor layer
FL	$64.63	1 floor layer
G1	$59.73	1 glazier, 1 laborer
H1	$67.16	1 carpenter, 1 laborer 1 iron worker (structural) 1 tractor operator
H2	$64.65	1 crane operator 1 truck driver
H3	$58.92	1 carpenter, 3 laborers 1 crane operator 1 truck driver
H4	$75.56	1 crane operator 6 iron workers (structural) 1 truck driver
H5	$66.57	1 crane operator 2 iron workers (structural) 2 laborers
H6	$65.73	1 iron worker (structural) 1 laborer
H7	$76.12	1 crane operator 2 iron workers (structural)
H8	$74.34	1 crane operator 4 iron workers (structural) 1 truck driver
H9	$73.95	1 electrician 1 sheet metal worker
IW	$79.19	1 iron worker (structural)
LA	$59.79	1 lather
M1	$58.62	1 bricklayer 1 bricklayer's tender
M2	$57.31	1 carpenter, 2 laborers
M3	$61.83	1 plasterer 1 plasterer's helper
M4	$57.69	1 laborer, 1 marble setter
M5	$64.48	1 pipefitter, 1 laborer
M6	$67.63	1 asbestos worker 1 laborer, 1 pipefitter
M8	$70.59	3 pipefitters, 1 laborer
M9	$75.38	1 electrician, 1 pipefitter
MI	$68.55	2 pipefitters, 1 laborer
MS	$63.12	1 marble setter
MT	$78.69	1 mosaic & terrazzo worker
MW	$68.53	1 millwright

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Commercial and Industrial Division

Craft Code	Cost Per Manhour	Crew Composition
P5	$57.18	3 laborers 1 tractor operator 1 truck driver
P6	$65.14	1 laborer, 1 plumber
P8	$58.10	1 laborer, 1 cement mason
P9	$61.20	1 carpenter, 1 laborer 1 cement mason
PA	$65.59	1 painter
PX	$67.09	1 pile driver
PF	$76.70	1 pipefitter
PH	$55.37	1 plasterer's helper
PL	$78.02	1 plumber
PS	$68.29	1 plasterer
R3	$57.81	2 roofers, 1 laborer
RB	$82.78	1 reinforcing iron worker
RF	$60.58	1 roofer
S1	$61.02	1 laborer 1 tractor operator
S3	$64.56	1 truck driver 1 tractor operator
S4	$52.26	3 laborers
S5	$55.80	5 laborers 1 crane operator 1 truck driver
S6	$58.10	2 laborers 1 tractor operator
S7	$61.02	3 laborers 3 tractor operators
S8	$62.54	2 pile drivers, 2 laborers 1 truck driver 1 crane operator 1 tractor operator
S9	$60.14	1 pile driver, 2 laborers 1 tractor operator 1 truck driver
SM	$73.85	1 sheet metal worker
SP	$79.69	1 sprinkler fitter
SS	$63.94	1 laborer 2 tractor operators
T2	$65.99	3 laborers, 3 carpenters 3 iron workers (structural) 1 crane operator 1 truck driver
T3	$67.52	1 laborer 1 reinforcing iron worker
T4	$65.48	1 laborer, 1 mosaic worker
T5	$63.06	1 sheet metal worker 1 laborer
T6	$66.65	2 sheet metal workers 1 laborer
TD	$59.33	1 truck driver
TO	$69.78	1 tractor operator
U1	$63.08	1 plumber, 2 laborers 1 tractor operator
U2	$60.85	1 plumber, 2 laborers

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Residential Division

	1	2	3	4	5	6
Craft	Base wage per hour	Taxable fringe benefits (@6.57% of base wage)	Insurance and employer taxes (%)	Insurance and employer taxes ($)	Non-taxable fringe benefits (@5.80% of base wage)	Total hourly cost used in this book
Bricklayer	$33.61	$2.21	23.64%	$8.47	$1.95	$46.24
Bricklayer's Helper	25.20	1.65	23.64	6.35	1.46	34.66
Building Laborer	26.34	1.73	29.95	8.41	1.53	38.01
Carpenter	32.87	2.16	28.85	10.11	1.91	47.05
Cement Mason	32.57	2.14	22.05	7.65	1.89	44.25
Drywall installer	32.91	2.16	22.12	7.76	1.91	44.74
Drywall Taper	34.05	2.24	22.12	8.03	1.98	46.30
Electrician	37.50	2.46	19.05	7.61	2.18	49.75
Floor Layer	31.62	2.08	22.53	7.59	1.83	43.12
Glazier	31.56	2.07	23.94	8.05	1.83	43.51
Lather	33.45	2.20	20.32	7.24	1.94	44.83
Marble Setter	28.91	1.90	20.37	6.28	1.68	38.77
Millwright	33.45	2.20	20.29	7.23	1.94	44.82
Mosiac & Terrazzo Worker	40.58	2.67	20.37	8.81	2.35	54.41
Operating Engineer	37.84	2.49	23.60	9.52	2.20	52.05
Painter	34.14	2.24	23.50	8.55	1.98	46.91
Plasterer	32.98	2.17	26.30	9.24	1.91	46.30
Plasterer Helper	25.46	1.67	26.30	7.14	1.48	35.75
Plumber	38.84	2.55	23.16	9.59	2.25	53.23
Reinforcing Ironworker	35.49	2.33	26.56	10.04	2.06	49.92
Roofer	32.54	2.14	39.36	13.65	1.89	50.22
Sheet Metal Worker	36.89	2.42	24.38	9.58	2.14	51.03
Sprinkler Fitter	38.17	2.51	23.72	9.65	2.21	52.54
Tile Layer	30.97	2.03	20.37	6.72	1.80	41.52
Truck Driver	28.72	1.89	24.60	7.53	1.67	39.81

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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 2027.

Column 2, taxable fringe benefits, includes vacation pay, sick leave and other taxable benefits. These fringe benefits average 6.57% 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

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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 5.80% 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:

```
  40 vacation hours
+ 40 sick leave hours
  80 taxable leave hours
```

Then add the regular work hours for the year:

```
  2,000 regular hours
+ 80 taxable benefit hours
  2,080 total hours
```

Multiply these hours by the base wage per hour. If you pay carpenters $23.00 per hour, the calculation would be:

```
  2,080 hours
x $23.00 per hour
  $47,840 per year
```

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:

```
  $47,840 per year
x 1.2917 tax & insurance rate
  $61,795.00 annual cost
```

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 $777.08 per month or $9,325 per year.

```
  $9,325.00 medical plan
+ 61,795.00 annual cost
  $71,120.00 total annual cost
```

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:

$$\frac{\$71,120.00}{2,000} = \$35.56 \text{ per hour}$$

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 $35.69.

$$\frac{\$35.56}{\$45.88} = .775$$

Your modification factor is 77.5%. Multiply any building carpenter (Craft Code BC) labor costs in the Residential Division of this book by .775 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 $23.00 per hour, your estimated cost would be 77.5% of $12.80 or $9.92. 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.

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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.

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Location	Zip	Mat.	Lab.	Equip.	Total Wtd. Avg.
Alabama Average		**-1**	**-5**	**0**	**-3%**
Anniston	362	-3	-6	-1	-4%
Auburn	368	-1	-18	0	-9%
Bellamy	369	-2	6	-1	2%
Birmingham	350-352	-3	18	-1	7%
Dothan	363	-1	-13	0	-7%
Evergreen	364	-2	-21	-1	-11%
Gadsden	359	-4	-10	-1	-7%
Huntsville	358	1	9	0	5%
Jasper	355	-2	-15	-1	-8%
Mobile	365-366	-1	-2	0	-1%
Montgomery	360-361	-1	-4	0	-2%
Scottsboro	357	0	2	0	1%
Selma	367	-1	-6	0	-3%
Sheffield	356	-1	-3	0	-2%
Tuscaloosa	354	0	-7	0	-3%
Alaska Average		**14**	**22**	**4**	**17%**
Anchorage	995	16	31	5	23%
Fairbanks	997	16	35	5	25%
Juneau	998	18	17	6	17%
Ketchikan	999	3	3	1	3%
King Salmon	996	16	22	5	19%
Arizona Average		**1**	**-12**	**0**	**-5%**
Chambers	865	1	-33	0	-15%
Douglas	855	0	-20	0	-9%
Flagstaff	860	2	-21	1	-9%
Kingman	864	1	-24	0	-11%
Mesa	852	1	7	0	4%
Phoenix	850	1	8	0	4%
Prescott	863	3	-14	1	-5%
Show Low	859	1	-23	0	-10%
Tucson	856-857	0	-10	0	-5%
Yuma	853	0	7	0	3%
Arkansas Average		**-2**	**-18**	**0**	**-9%**
Batesville	725	0	-29	0	-13%
Camden	717	-4	-9	-1	-6%
Fayetteville	727	0	-9	0	-4%
Fort Smith	729	-1	-16	0	-8%
Harrison	726	-1	-29	0	-14%
Hope	718	-3	-23	-1	-12%
Hot Springs	719	-2	-25	-1	-13%
Jonesboro	724	-1	-14	0	-7%
Little Rock	720-722	-1	-5	0	-3%
Pine Bluff	716	-4	-24	-1	-13%
Russellville	728	0	-14	0	-6%
West Memphis	723	-3	-15	-1	-8%
California Average		**2**	**14**	**1**	**8%**
Alhambra	917-918	3	15	1	8%
Bakersfield	932-933	0	-2	0	-1%
El Centro	922	1	-4	0	-1%
Eureka	955	1	1	0	1%
Fresno	936-938	0	0	0	0%
Herlong	961	2	6	1	4%
Inglewood	902-905	3	16	1	9%
Irvine	926-927	3	25	1	13%
Lompoc	934	3	4	1	3%
Long Beach	907-908	3	18	1	10%
Los Angeles	900-901	3	13	1	8%
Marysville	959	1	2	0	1%
Modesto	953	1	-2	0	0%
Mojave	935	0	10	0	5%
Novato	949	3	21	1	11%
Oakland	945-947	3	34	1	17%
Orange	928	3	23	1	12%
Oxnard	930	3	1	1	2%
Pasadena	910-912	4	16	1	9%
Rancho Cordova	956-957	2	12	1	7%
Redding	960	1	0	0	1%
Richmond	948	2	37	1	18%
Riverside	925	1	5	0	3%
Sacramento	958	1	12	0	6%
Salinas	939	3	1	1	2%
San Bernardino	923-924	0	4	0	2%
San Diego	919-921	3	9	1	6%
San Francisco	941	3	57	1	28%
San Jose	950-951	3	50	1	25%
San Mateo	943-944	4	35	1	18%
Santa Barbara	931	3	0	1	2%
Santa Rosa	954	3	9	1	6%
Stockton	952	2	7	1	4%
Sunnyvale	940	3	48	1	24%
Van Nuys	913-916	3	14	1	8%
Whittier	906	3	15	1	8%
Colorado Average		**2**	**-1**	**1**	**0%**
Aurora	800-801	3	14	1	8%
Boulder	803-804	3	8	1	5%
Colorado Springs	808-809	2	-2	1	0%
Denver	802	3	17	1	9%
Durango	813	1	-16	0	-7%
Fort Morgan	807	2	-7	1	-2%
Glenwood Springs	816	2	6	1	%
Grand Junction	814-815	1	-8	0	-3%
Greeley	806	3	6	1	4%
Longmont	805	3	2	1	3%
Pagosa Springs	811	0	-19	0	-9%
Pueblo	810	-1	-8	0	-4%
Salida	812	2	-10	1	-4%
Connecticut Average		**1**	**5**	**0**	**3%**
Bridgeport	66	0	7	0	3%
Bristol	60	1	10	0	5%
Fairfield	64	2	8	1	5%
Hartford	61	0	6	0	3%
New Haven	65	1	4	0	2%
Norwich	63	0	-4	0	-2%
Stamford	68-69	4	14	1	9%
Waterbury	67	1	4	0	2%
West Hartford	62	1	-6	0	-2%
Delaware Average		**1**	**-1**	**0**	**0%**
Dover	199	1	-11	0	-5%
Newark	197	2	5	1	3%
Wilmington	198	0	4	0	2%
District of Columbia Average					
Washington	200-205	2	27	1	13%
Florida Average		**-1**	**-9**	**0**	**-4%**
Altamonte Springs	327	-1	-4	0	-2%
Bradenton	342	0	-12	0	-6%
Brooksville	346	0	-15	0	-7%
Daytona Beach	321	-2	-18	-1	-9%
Fort Lauderdale	333	3	3	1	3%
Fort Myers	339	0	-14	0	-6%
Fort Pierce	349	-2	-18	-1	-9%
Gainesville	326	-1	-15	0	-7%
Jacksonville	322	-1	3	0	1%
Lakeland	338	-3	-13	-1	-8%
Melbourne	329	-2	-11	-1	-6%
Miami	330-332	2	-3	1	0%
Naples	341	3	-11	1	-3%
Ocala	344	-3	-21	-1	-11%
Orlando	328	0	-1	0	0%
Panama City	324	-2	-15	-1	-8%
Pensacola	325	-1	-13	0	-7%
Saint Augustine	320	-1	-2	0	-1%
Saint Cloud	347	-1	-3	0	-2%
St Petersburg	337	0	-10	0	-5%
Tallahassee	323	0	-12	0	-6%
Tampa	335-336	-1	1	0	0%
West Palm Beach	334	1	4	0	2%
Georgia Average		**-1**	**-4**	**0**	**-2%**
Albany	317	-2	-10	-1	-6%
Athens	306	0	-6	0	-3%
Atlanta	303	3	34	1	17%
Augusta	308-309	-2	-9	-1	-5%
Buford	305	0	4	0	2%
Calhoun	307	-1	-19	0	-9%
Columbus	318-319	-1	-25	0	-12%
Dublin/Fort Valley	310	-3	-13	-1	-8%
Hinesville	313	-2	4	-1	1%
Kings Bay	315	-2	-16	-1	-8%
Macon	312	-2	-3	-1	-2%
Marietta	300-302	1	15	0	7%
Savannah	314	-1	0	0	-1%
Statesboro	304	-2	13	-1	5%
Valdosta	316	-1	-27	0	-13%
Hawaii Average		**17**	**19**	**6**	**18%**
Aliamanu	968	17	24	6	20%
Ewa	967	17	17	6	17%
Halawa Heights	967	17	17	6	17%
Hilo	967	17	17	6	17%
Honolulu	968	17	24	6	20%
Kailua	968	17	24	6	20%
Lualualei	967	17	17	6	17%
Mililani Town	967	17	17	6	17%
Pearl City	967	17	17	6	17%
Wahiawa	967	17	17	6	17%
Waianae	967	17	17	6	17%
Wailuku (Maui)	967	17	17	6	17%

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Area Modification Factors

Location	Zip	Mat.	Lab.	Equip.	Total Wtd. Avg.
Columbia	384	-1	-12	0	-6%
Cookeville	385	0	-15	0	-7%
Jackson	383	-1	9	0	4%
Kingsport	376	0	-3	0	-1%
Knoxville	377-379	-1	9	0	4%
McKenzie	382	-1	-15	0	-7%
Memphis	380-381	-1	17	0	7%
Nashville	371-372	1	21	0	10%
Texas Average		**-2**	**1**	**-1**	**-1%**
Abilene	795-796	-4	-2	-1	-3%
Amarillo	790-791	-2	-6	-1	-4%
Arlington	760	-1	12	0	5%
Austin	786-787	1	13	0	7%
Bay City	774	-1	17	0	7%
Beaumont	776-777	-3	13	-1	4%
Brownwood	768	-3	-9	-1	-6%
Bryan	778	0	-2	0	-1%
Childress	792	-3	-4	-1	-3%
Corpus Christi	783-784	-2	7	-1	2%
Dallas	751-753	-1	19	0	8%
Del Rio	788	-3	-18	-1	-10%
El Paso	798-799	-3	-19	-1	-10%
Fort Worth	761-762	-2	12	-1	4%
Galveston	775	-3	17	-1	6%
Giddings	789	0	9	0	4%
Greenville	754	-3	7	-1	2%
Houston	770-772	-1	18	0	8%
Huntsville	773	-2	14	-1	5%
Longview	756	-3	-10	-1	-6%
Lubbock	793-794	-3	-5	-1	-4%
Lufkin	759	-3	-13	-1	-8%
McAllen	785	-3	-24	-1	-13%
Midland	797	-3	13	-1	4%
Palestine	758	-2	-8	-1	-5%
Plano	750	0	17	0	8%
San Angelo	769	-3	-3	-1	-3%
San Antonio	780-782	-2	1	-1	-1%
Texarkana	755	-3	-15	-1	-8%
Tyler	757	-1	-14	0	-7%
Victoria	779	-3	-6	-1	-4%
Waco	765-767	-3	-2	-1	-3%
Wichita Falls	763	-3	-11	-1	-7%
Woodson	764	-3	-1	-1	-2%
Utah Average		**1**	**-9**	**1**	**-3%**
Clearfield	840	2	1	1	2%
Green River	845	1	-22	0	-10%
Ogden	843-844	0	-14	0	-6%
Provo	846-847	2	-15	1	-6%
Salt Lake City	841	2	5	1	3%
Vermont Average		**1**	**-6**	**0**	**-3%**
Albany	58	1	-7	0	-3%
Battleboro	53	1	-9	0	-4%
Beecher Falls	59	1	-7	0	-3%
Bennington	52	-1	-17	0	-8%
Burlington	54	2	-10	1	-4%
Montpelier	56	2	-6	1	-2%
Rutland	57	-1	-7	0	-4%
Springfield	51	-1	-8	0	-4%
White River Junction	50	1	13	0	7%
Virginia Average		**0**	**-5**	**0**	**-2%**
Abingdon	242	-2	-13	-1	-7%
Alexandria	220-223	3	21	1	11%
Charlottesville	229	1	-6	0	-2%
Chesapeake	233	-1	0	0	-1%
Culpeper	227	1	-15	0	-6%
Farmville	239	-2	-16	-1	-8%
Fredericksburg	224-225	1	-15	0	-6%
Galax	243	-2	-18	-1	-9%
Harrisonburg	228	1	-13	0	-5%
Lynchburg	245	-2	-5	-1	-3%
Norfolk	235-237	0	7	0	3%
Petersburg	238	-2	0	-1	-1%
Radford	241	-2	-14	-1	-8%
Reston	201	3	26	1	14%
Richmond	232	-1	9	0	4%
Roanoke	240	-1	-6	0	-3%
Staunton	244	0	-12	0	-6%
Tazewell	246	-3	-22	-1	-12%
Virginia Beach	234	0	-1	0	0%
Williamsburg	230-231	0	7	0	3%
Winchester	226	0	-13	0	-6%
Washington Average		**1**	**2**	**1**	**1%**
Clarkston	994	0	3	0	1%
Everett	982	2	3	1	2%
Olympia	985	2	2	1	2%
Pasco	993	0	4	0	2%
Seattle	980-981	3	23	1	12%
Spokane	990-992	0	-5	0	-2%
Tacoma	983-984	2	6	1	4%
Vancouver	986	2	0	1	1%
Wenatchee	988	1	-5	0	-2%
Yakima	989	0	-14	0	-6%
West Virginia Average		**-2**	**-12**	**-1**	**-7%**
Beckley	258-259	0	-20	0	-9%
Bluefield	247-248	-1	-22	0	-11%
Charleston	250-253	1	7	0	4%
Clarksburg	263-264	-3	-3	-1	-3%
Fairmont	266	0	-22	0	-10%
Huntington	255-257	-1	-4	0	-2%
Lewisburg	249	-2	-35	-1	-17%
Martinsburg	254	-1	-5	0	-3%
Morgantown	265	-3	-8	-1	-5%
New Martinsville	262	-3	-24	-1	-13%
Parkersburg	261	-3	-1	-1	-2%
Romney	267	-4	-18	-1	-10%
Sugar Grove	268	-3	-13	-1	-8%
Wheeling	260	-3	-6	-1	-4%
Wisconsin Average		**-1**	**2**	**0**	**0%**
Amery	540	0	-3	0	-1%
Beloit	535	0	6	0	3%
Clam Lake	545	-1	-11	0	-6%
Eau Claire	547	-1	-3	0	-2%
Green Bay	541-543	0	0	0	0%
La Crosse	546	-2	-4	-1	-3%
Ladysmith	548	-2	-5	-1	-3%
Madison	537	2	10	1	6%
Milwaukee	530-534	0	15	0	7%
Oshkosh	549	-1	16	0	7%
Portage	539	0	8	0	4%
Prairie du Chien	538	-2	-5	-1	-3%
Wausau	544	-1	-2	0	-1%
Wyoming Average		**0**	**-7**	**0**	**-3%**
Casper	826	-2	-2	-1	-2%
Cheyenne/ Laramie	820	1	-2	0	0%
Gillette	827	-1	-19	0	-9%
Powell	824	0	-19	0	-9%
Rawlins	823	0	-7	0	-3%
Riverton	825	-1	-17	0	-8%
Rock Springs	829-831	0	-1	0	0%
Sheridan	828	1	2	0	1%
Wheatland	822	0	4	0	2%
UNITED STATES TERRITORIES					
Guam	53	-21	-5		18%
Puerto Rico	2	-47	-5		-21%
VIRGIN ISLANDS					
St. Croix	18	-15	-4		2%
St. John	52	-15	-4		20%
St. Thomas	23	-15	-4		5%
CANADIAN AREA MODIFIERS					
These figures assume an exchange rate of $1.00 Canadian to $0.76 U.S.					
Alberta Average	**26**	**-1**	**7**		**13%**
Calgary	26	1	7		14%
Edmonton	25	2	7		14%
Fort McMurray	28	-7	7		12%
British Columbia Average	**26**	**-15**	**7**		**7%**
Fraser Valley	26	-16	7		6%
Okanagan	27	-18	7		6%
Vancouver	26	-11	7		9%
Manitoba Average	**20**	**-22**	**5**		**0%**
North Manitoba	20	-22	5		0%
Selkirk	20	-22	5		0%
South Manitoba	20	-22	5		0%
Winnipeg	20	-22	5		0%
New Brunswick	**16**	**-47**	**3**		**-13%**
Moncton	16	-47	3		-13%
Newfoundland/ Labrador	**19**	**-29**	**4**		**-3%**
Nova Scotia Average	**17**	**-36**	**4**		**-8%**
Amherst	16	-36	3		-8%
Nova Scotia	17	-35	4		-7%
Sydney	17	-37	4		-8%
Ontario Average	**22**	**-11**	**5**		**7%**
London	22	-10	5		7%
Thunder Bay	24	-14	6		6%
Toronto	21	-9	5		7%
Quebec Average	**19**	**-24**	**4**		**-1%**
Montreal	19	-24	4		-1%
Quebec City	19	-24	4		-1%
Saskatchewan Average	**23**	**-18**	**5**		**4%**
La Ronge	24	-21	6		3%
Prince Albert	22	-20	5		2%
Saskatoon	22	-14	5		5%

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Credits and Acknowledgments

This book has over 30,000 cost estimates for 2027. To develop these estimates, the editors relied on information supplied by hundreds of construction cost authorities. We offer our sincere thanks to the contractors, engineers, design professionals, construction estimators, material suppliers and manufacturers who, in the spirit of cooperation, have assisted in the preparation of this Seventy-Fifth Edition of the National Construction Estimator. Many of the cost authorities who supplied information for this volume are listed below.

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On Time Appraisal, Ralph Kinney
Prof. Photographic Service, Larry Hoagland
RCP Block & Brick Co., Gina Adams
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Weyerhauser Company, Doug Barkee
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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.

		Bead diameter			
	Unit	1/8"	1/4"	3/8"	1/2"
Subfloor adhesive, on floors					
12" OC members	CSF	3.67	14.70	33.00	58.70
16" OC members	CSF	2.75	11.00	24.80	44.00
20" OC members	CSF	2.20	8.81	19.80	35.20
24" OC members	CSF	1.84	7.34	16.50	29.40
Wall sheathing or shear panel adhesive, on walls					
12" OC members	CSF	5.44	21.70	48.90	87.00
16" OC members	CSF	4.08	16.30	36.70	65.20
20" OC members	CSF	3.26	13.00	29.40	52.20
24" OC members	CSF	2.72	10.90	24.50	43.50
Polystyrene or polyurethane foam panel adhesive, on walls					
12" OC members	CSF	3.58	14.30	32.20	57.20
16" OC members	CSF	2.68	10.70	24.10	42.90
20" OC members	CSF	2.15	8.58	19.30	34.30
24" OC members	CSF	1.79	7.15	16.10	28.60
Gypsum drywall adhesive					
12" OC members	CSF	1.96	7.83	17.60	31.30
16" OC members	CSF	1.47	5.88	13.20	23.50
20" OC members	CSF	1.18	4.70	10.60	18.80
24" OC members	CSF	.98	3.92	8.81	15.70
Hardboard or plastic panel adhesive, on walls					
12" OC members	CSF	6.55	26.20	59.00	105.00
16" OC members	CSF	4.91	19.70	44.20	78.60
20" OC members	CSF	3.93	15.70	35.40	62.90
24" OC members	CSF	3.28	13.10	29.50	52.40

	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	—	3.53	3.53
16" OC members	BC@.056	CSF	—	2.63	2.63
20" OC members	BC@.052	CSF	—	2.45	2.45
24" OC members	BC@.042	CSF	—	1.98	1.98
Interior and exterior wall members					
12" OC members	BC@.100	CSF	—	4.71	4.71
16" OC members	BC@.090	CSF	—	4.23	4.23
20" OC members	BC@.084	CSF	—	3.95	3.95
24" OC members	BC@.068	CSF	—	3.20	3.20
Special purpose adhesives					
Construction adhesive, for counters, cabinets, paneling, brick veneer, ceramic fixtures, shelving, sets in 10 minutes, 10.5 oz. cartridge	—	Ea	3.10	—	3.10
Epoxy-tie adhesive, bonds concrete, fills cracks to 3/4", seals doors and windows, anchor grouting, non-shrink, 22 oz. cartridge	—	Ea	43.90	—	43.90
Gypsum drywall adhesive, waterproof, bonds to wood, metal, masonry, concrete, 29 oz. cartridge	—	Ea	5.53	—	5.53

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	Craft@Hrs	Unit	Material	Labor	Total
Latex FRP adhesive, indoor, bonds wood, concrete, drywall, foamboard, trowel grade, gallon	—	Ea	23.60	—	23.60
Panel insulation adhesive, waterproof, for polyurethane & polystyrene panels, bonds to wood, metal, masonry, concrete, 4.5 lbs.	—	Ea	47.50	—	47.50
Marine adhesive/sealant, 10 oz.	—	Ea	31.90	—	31.90
Project adhesive, rubber-based, bonds plywood, hardboard fiberglass, drywall, foam board, shelving, ceramic fixtures, 10 minute work time, 10.5 oz. cartridge	—	Ea	5.49	—	5.49

	Unit	1 quart can	1 gallon can
General purpose adhesives			
Acoustic tile adhesive, solvent base, waterproof, sound deadening type	Ea	—	16.60
Aliphatic resin woodworking glue	Ea	9.50	23.90
Carpet cement, outdoor	Ea	33.20	—
Professional carpenter's glue, multi-purpose	Ea	11.90	57.20
Contact cement, rubber based, waterproof, bonds veneers to plywood, particleboard, wallboard	Ea	27.00	62.40
Gel contact cement	Ea	26.00	—
Resilient flooring adhesive, latex base, adheres to concrete, plywood, felt, sheet flooring	Ea	15.60	19.60
Tile cement, solvent base, ceramic/stone, interior	Ea	18.40	55.30

	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	34.40	—	34.40
3/4" (Number 3)	—	Ton	31.70	—	31.70
1-1/2" (Number 2)	—	Ton	29.70	—	29.70
Crushed slag, typical prices where available					
3/4" slag	—	Ton	32.90	—	32.90
1-1/2"	—	Ton	33.60	—	33.60
Washed gravel (1.4 tons per CY)					
3/4" gravel	—	Ton	59.50	—	59.50
1-1/2"	—	Ton	64.20	—	64.20
Pea gravel, (1.4 tons per CY), typical prices where available					
3/8" or 1/2"	—	Ton	70.10	—	70.10
Sand, (1.35 tons per CY), typical prices where available					
Fill sand	—	Ton	40.30	—	40.30
Mason sand	—	Ton	53.50	—	53.50
Concrete sand	—	Ton	44.60	—	44.60
Add per ton less than 24 tons	—	Ton	11.80	—	11.80
Add for delivery over 5 miles, one way	—	Mile	14.80	—	14.80

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.

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	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	—	—	383.00
Over 2,500 SF to 3,500 SF	—	LS	—	—	434.00
Over 3,500 SF to 5,000 SF	—	LS	—	—	536.00
Over 5,000 SF	—	LS	—	—	792.00
Small residential income properties (duplex, triplex, quadriplex)					
2 to 4 units	—	LS	—	—	690.00
Apartment houses, commercial and industrial buildings					
To $300,000 valuation	—	LS	—	—	3,320.00
Over $300,000 to $1,000,000 valuation	—	LS	—	—	4,340.00
Over $1,000,000 to $3,000,000 valuation	—	LS	—	—	4,850.00
Over $3,000,000 to $5,000,000 valuation	—	LS	—	—	6,130.00
Other services					
Additional photograph (each)	—	LS	—	—	28.10
Outlying area fee	—	LS	—	—	56.20
Satisfactory Completion (old Form 442 / new Form 1004d)	—	LS	—	—	153.00
Appraisal update, same comps (Form 1004d)	—	LS	—	—	306.00
Operating Income Statement (FNMA 216)	—	LS	—	—	81.70
SFR Rental Survey (FNMA 1007)	—	LS	—	—	81.70
Appraisal review (desk)	—	LS	—	—	179.00
Appraisal review (field)	—	LS	—	—	383.00
Drive-by appraisal (Form 2055) starting at	—	LS	—	—	281.00
Drive-by appraisal (Form 2070/2075)	—	LS	—	—	230.00
Machinery (Fee is based on total value of equipment appraised) Additional charges for travel and lodging may be required					
To $30,000 valuation	—	LS	—	—	633.00
Over $30,000 to $100,000 valuation	—	LS	—	—	848.00
Over $100,000 to $500,000 valuation	—	LS	—	—	1,430.00
Over $500,000 to $1,000,000 valuation	—	LS	—	—	1,940.00
Over $1,000,000 to $5,000,000 valuation	—	LS	—	—	3,320.00
Court testimony (excluding preparation)	—	Day	—	—	1,530.00
Consulting fees billed at an hourly rate	—	Hour	—	—	194.00

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 $10,000 plus a $3,750 case service fee.

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Arbitration and Mediation Fees

	Unit	Initial Filing Fee	Case Service Fee
Claims to $75,000	LS	1,450.00	1,150.00
Claims over $75,000 to $150,000	LS	2,380.00	1,830.00
Claims over $150,000 to $300,000	LS	3,680.00	3,330.00
Claims over $300,000 to $500,000	LS	4,830.00	4,180.00
Claims over $500,000 to $1,000,000	LS	6,650.00	7,530.00
Claims over $1,000,000 to $10,000,000	LS	8,930.00	9,680.00
Claims over $10,000,000 *	LS	*	19,300.00
No Amount Stated **	LS	8,930.00	9,680.00

* $10 million and above – Base fee is $10,000 plus .01% of the amount of claim above $10 million. Filing fees are capped at $65,000.

**This fee is applicable when a claim or counterclaim is not for a monetary amount. Where a monetary claim is not known, parties will be required to state a range of claims or be subject to the highest possible filing fee.

*** Fees above based upon a 'Standard Fee Schedule' For 'Flexible Fee Schedule' costs, add 10% to the total of Initial and Case Service Fees.

	Craft@Hrs	Unit	Material	Labor	Total
Mediation, mobile Generally will meet at the offices of the attorneys involved in the dispute. Does not replace legal counsel but is used to maintain equity between the mediating parties. Typical fees.					
Nonrefundable retainer (half from each party)	—	Ea	—	—	458.00
Weekday sessions after the initial consultation	—	Hr	—	—	230.00
Nonrefundable retainer for weekend mediation	—	Ea	—	—	554.00
Weekend mediation sessions	—	Hr	—	—	346.00
Architectural Illustrations Full color painting on watercolor board with matted frame with title and credit on matte. Glass and elaborate framing are extra. Costs for pen and ink illustrations with color Mylar overlay are similar to cost for watercolor illustrations. Typical fees.					
Custom home, eye level view					
Simple rendering	—	LS	—	—	1,070.00
Complex rendering	—	LS	—	—	1,570.00
Custom home, bird's eye view					
Simple rendering	—	LS	—	—	1,290.00
Complex rendering	—	LS	—	—	1,840.00
Tract homes in groups of five or more (single floor plans, multiple elevations), eye level view					
Simple rendering	—	LS	—	—	632.00
Complex rendering	—	LS	—	—	870.00
Tract homes in groups of five or more (single floor plans, multiple elevations), bird's eye view					
Simple rendering	—	LS	—	—	813.00
Complex rendering	—	LS	—	—	1,310.00
Tract homes or condominium project, overall bird's eye view					
10-25 homes or living units	—	LS	—	—	4,020.00
Typical commercial structure					
Eye level view	—	LS	—	—	1,870.00
Bird's eye view	—	LS	—	—	2,090.00
Complex commercial structure					
Eye level view	—	LS	—	—	2,750.00
Bird's eye view	—	LS	—	—	3,550.00



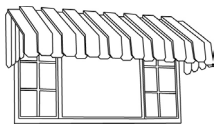
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	Craft@Hrs	Unit	Material	Labor	Total
Deduct for pen and ink drawings (no color)	—	%	—	—	–33.0
Computer generated perspective drawings using CAD system for design studies					
Custom home	—	LS	—	—	692.00
Large condo or apartment projects	—	LS	—	—	1,740.00
Tract homes	—	LS	—	—	435.00
Commercial structure, line drawing	—	LS	—	—	1,310.00

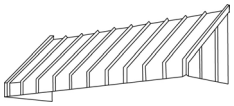
Awnings and Canopies for Doors and Windows All hardware included. For commercial grade awnings, see the Industrial and Commercial Division section 12, Furnishings.



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	779.00	111.00	890.00
60" wide x 30" projection, 20" drop	SW@2.79	Ea	1,250.00	142.00	1,392.00
78" wide x 36" projection, 24" drop	SW@3.11	Ea	1,910.00	159.00	2,069.00
88" wide x 42" projection, 26" drop	SW@3.41	Ea	2,200.00	174.00	2,374.00
Polycarbonate door awnings, clear or tinted curved poly sheet in aluminum frame, 29" projection, 11" drop					
61" wide	SW@2.18	Ea	696.00	111.00	807.00
119" wide	SW@6.21	Ea	1,120.00	317.00	1,437.00
178" wide	SW@8.72	Ea	1,130.00	445.00	1,575.00
Roll-up aluminum awnings with hinged support arms and pull cord assembly					
36" wide x 18" projection, 27" drop	SW@2.28	Ea	401.00	116.00	517.00
48" wide x 24" projection, 34" drop	SW@2.91	Ea	447.00	148.00	595.00
54" wide x 30" projection, 39" drop	SW@3.29	Ea	474.00	168.00	642.00
60" wide x 35" projection, 44" drop	SW@3.50	Ea	503.00	179.00	682.00
72" wide x 42" projection, 51" drop	SW@4.20	Ea	589.00	214.00	803.00



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	1,480.00	160.00	1,640.00
84" wide x 46" projection, 16" drop	BC@5.10	Ea	1,630.00	240.00	1,870.00
120" wide x 57" projection, 16" drop	BC@6.80	Ea	3,140.00	320.00	3,460.00



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	3,370.00	160.00	3,530.00
72" wide x 36" projection, 36" drop	BC@4.50	Ea	4,500.00	212.00	4,712.00
90" wide x 36" projection, 36" drop	BC@5.60	Ea	5,050.00	263.00	5,313.00
108" wide x 48" projection, 48" drop	BC@6.70	Ea	6,190.00	315.00	6,505.00
Fabric door awning, with waterproof, acrylic duck, colorfast fabric, double stitched seams, tubular aluminum frame					
36" wide x 26" projection	SW@1.45	Ea	322.00	74.00	396.00
40" wide x 36" projection	SW@1.86	Ea	353.00	94.90	447.90
48" wide x 40" projection	SW@2.07	Ea	380.00	106.00	486.00
72" wide x 46" projection	SW@2.27	Ea	503.00	116.00	619.00
Cloth retractable patio awning, folding spring loaded aluminum arm, dual cable manual operation.					
16' wide x 12' projection	BC@3.05	Ea	6,490.00	144.00	6,634.00
20' wide x 12' projection	BC@3.40	Ea	7,440.00	160.00	7,600.00

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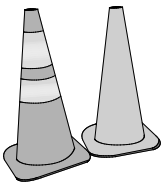
Barricades, Construction Safety

	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	119.00	—	119.00
"Construction Zone", 4' x 4' high intensity grade	—	Ea	325.00	—	325.00
High-rise tripod with 3 orange flags	—	Ea	266.00	—	266.00
Flags	—	Ea	5.04	—	5.04
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	26.90	—	26.90
Lane delineator, 42" orange plastic cylinder with 2 reflectors on a 12 pound rubber base	—	Ea	28.10	—	28.10
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











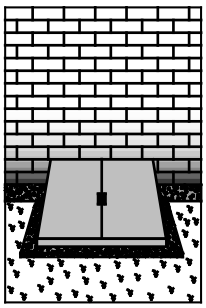
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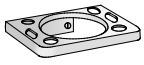
	Craft@Hrs	Unit	Material	Labor	Total
Orange plastic safety fencing					
Budget, 4' x 50' roll, mesh opening 3" x 1.25"	—	Ea	32.40	—	32.40
Square mesh, 4' x 50' roll, opening 1.5" x 1.25"	—	Ea	39.30	—	39.30
Heavy Duty, 4' x 50' roll, opening 1.25" x 1.25"	—	Ea	67.00	—	67.00
Medium Weight 4' x 100', opening 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	13.00	—	13.00
Various colors, 3" x 200', "Danger"	—	Ea	7.97	—	7.97
Utility Highway Barricade Rental					
Lighted units, rental, per day	—	Ea	13.40	—	13.40
Unlighted units, rental per day	—	Ea	8.77	—	8.77
Add for pickup and delivery, per trip	—	Ea	51.60	—	51.60
Typical labor cost, place and remove any barricade					
Per use	BL@.160	Ea	—	6.08	6.08

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.

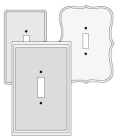


Doors (overall dimensions)					
Classic Series standard, all sizes	BC@3.41	Ea	1,030.00	160.00	1,190.00
SLW Series standard, all sizes	BC@3.41	Ea	1,160.00	160.00	1,320.00
Add for powder coating	—	%	39.3	—	—
Ultra Series, polyethylene, all sizes	BC@3.41	Ea	1,880.00	160.00	2,040.00
Add for keyed lock	BC@.160	Ea	93.00	7.53	100.53
Door extensions (available for 19-1/2"H, 55"W, 72"L door only)					
6" deep	BC@1.71	Ea	311.00	80.50	391.50
12" deep	BC@1.71	Ea	399.00	80.50	479.50
18" deep	BC@1.71	Ea	467.00	80.50	547.50
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	222.00	80.50	302.50
48" to 55" stair height	BC@1.71	Pr	328.00	80.50	408.50
56" to 64" stair height	BC@1.71	Pr	412.00	80.50	492.50
65" to 72" stair height	BC@1.71	Pr	437.00	80.50	517.50
73" to 78" stair height	BC@1.71	Pr	584.00	80.50	664.50
81" to 88" stair height	BC@1.71	Pr	631.00	80.50	711.50
89" to 97" stair height	BC@1.71	Pr	676.00	80.50	756.50

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	15.70	12.10	27.80
Cup holder, porcelain, surface mounted	BC@.258	Ea	11.00	12.10	23.10
Cup, toothbrush & soap holder, recessed	BC@.258	Ea	41.60	12.10	53.70
Cup, toothbrush holder, polished brass	BC@.258	Ea	22.20	12.10	34.30



Electrical plates, chrome plated					
Switch plate, single	BE@.154	Ea	5.83	7.66	13.49
Switch plate, double	BE@.154	Ea	7.69	7.66	15.35
Duplex receptacle plate	BE@.154	Ea	5.83	7.66	13.49
Duplex receptacle and switch	BE@.154	Ea	7.67	7.66	15.33

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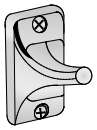
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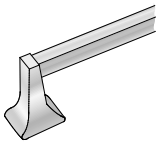
Bathroom Accessories

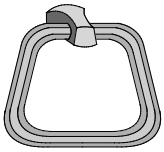
	Craft@Hrs	Unit	Material	Labor	Total
Grab bars					
Tubular chrome plated, with anchor plates					
Straight bar, 16"	BC@.414	Ea	34.20	19.50	53.70
Straight bar, 24"	BC@.414	Ea	41.60	19.50	61.10
Straight bar, 32"	BC@.414	Ea	45.00	19.50	64.50
"L"- shaped bar, 16" x 32"	BC@.620	Ea	105.00	29.20	134.20
Stainless steel, with anchor plates					
Straight bar, 16"	BC@.414	Ea	51.70	19.50	71.20
Straight bar, 24"	BC@.414	Ea	62.20	19.50	81.70
Straight bar, 32"	BC@.414	Ea	67.70	19.50	87.20
"L"- shaped bar, 16" x 32"	BC@.620	Ea	145.00	29.20	174.20
Mirrors, stainless steel framed, surface mount, no light or cabinet					
16" high x 20" wide	BG@.420	Ea	120.00	18.30	138.30
18" high x 24" wide	BG@.420	Ea	139.00	18.30	157.30
18" high x 36" wide	BG@.420	Ea	212.00	18.30	230.30
24" high x 36" wide	BG@.420	Ea	248.00	18.30	266.30
48" high x 24" wide	BG@.420	Ea	308.00	18.30	326.30
Mirrors, wood framed, surface mount, better quality					
18" x 29" rectangular	BG@.420	Ea	148.00	18.30	166.30
20" x 27" oval, oak	BG@.420	Ea	210.00	18.30	228.30
Robe hook					
Chrome	BC@.258	Ea	30.70	12.10	42.80
Double, solid brass	BC@.258	Ea	29.60	12.10	41.70
Shower curtain rods, chrome plated					
60", recessed	BC@.730	Ea	35.90	34.30	70.20
66", recessed	BC@.730	Ea	39.50	34.30	73.80
Soap holder, surface mounted, with drain holes					
Williamsburg, satin chrome	BC@.258	Ea	73.10	12.10	85.20
Polished brass	BC@.258	Ea	23.90	12.10	36.00
Facial tissue holder, stainless steel, recessed	BC@.258	Ea	49.20	12.10	61.30
Toilet tissue roll holder, chrome, recessed	BC@.258	Ea	22.90	12.10	35.00
Toothbrush holder, chrome, surface mount	BC@.258	Ea	8.49	12.10	20.59
Towel bars, 3/4" bar					
18" long, chrome	BC@.280	Ea	18.80	13.20	32.00
24" long, chrome	BC@.280	Ea	22.30	13.20	35.50
30" long, chrome	BC@.280	Ea	26.40	13.20	39.60
36" long, chrome	BC@.280	Ea	30.10	13.20	43.30
18" long, solid brass	BC@.280	Ea	61.20	13.20	74.40
24" long, solid brass	BC@.280	Ea	64.30	13.20	77.50
Towel rack, swing-arm, chrome, 3 bars, 12" L	BC@.280	Ea	21.40	13.20	34.60
Towel rings					
Williamsburg chrome and brass	BC@.280	Ea	57.90	13.20	71.10
Williamsburg chrome and porcelain	BC@.280	Ea	55.40	13.20	68.60
Towel shelf, chrome, 24" L with bar below	BC@.280	Ea	54.20	13.20	67.40
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	926.00	42.30	968.30
26" high, 24" wide, standard colors	BE@.850	Ea	989.00	42.30	1,031.30
26" high, 24" wide, chrome finish	BE@.850	Ea	3,050.00	42.30	3,092.30







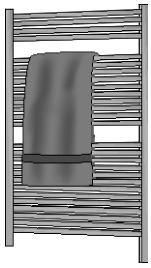




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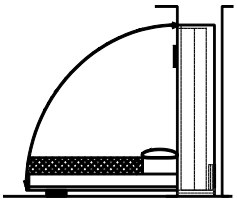
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	Craft@Hrs	Unit	Material	Labor	Total
35" high, 16" wide, standard colors	BE@1.00	Ea	1,160.00	49.80	1,209.80
35" high, 24" wide, standard colors	BE@1.00	Ea	1,100.00	49.80	1,149.80
35" high, 24" wide, chrome finish	BE@1.00	Ea	3,690.00	49.80	3,739.80
44" high, 16" wide, standard colors	BE@1.10	Ea	1,160.00	54.70	1,214.70
44" high, 24" wide, standard colors	BE@1.10	Ea	1,220.00	54.70	1,274.70
44" high, 24" wide, chrome finish	BE@1.10	Ea	4,030.00	54.70	4,084.70
Add for direct wire w/ control panel	BE@.100	Ea	255.00	4.98	259.98
Add for wall plug in	BE@.100	Ea	341.00	4.98	345.98
Heated towel rack accessories					
Programmable control panel	BE@.250	Ea	331.00	12.40	343.40
Pull out drying racks	BE@.250	Ea	93.00	12.40	105.40
Robe knobs	BE@.150	Ea	59.80	7.46	67.26
Towel bar accents with standard colors	BE@.150	Ea	119.00	7.46	126.46
Towel bar accents with chrome finish	BE@.150	Ea	160.00	7.46	167.46
Robe knob accents (all styles)	BE@.150	Ea	278.00	7.46	285.46
Tub or shower chairs					
Wall-hung elevated fixed seat	BE@.750	Ea	44.40	37.30	81.70
White adjustable seat	BE@.750	Ea	82.80	37.30	120.10

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	986.00	230.00	1,216.00
Double, frames and mechanisms	B1@5.41	Ea	1,030.00	230.00	1,260.00
Queen, frames and mechanisms	B1@5.41	Ea	1,080.00	230.00	1,310.00
King, frames and mechanisms	B1@5.41	Ea	1,190.00	230.00	1,420.00
Add for wood-tone melamine cabinet	—	LS	1,750.00	—	1,750.00
Add for white melamine cabinet	—	LS	1,560.00	—	1,560.00

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.

Blueline 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	—	—	.61
Sepia		SF	—	—	.90
Mylar	—	SF	—	—	3.01
Xerographic prints					
Vellum	—	SF	—	—	1.20
Erasable vellum	—	SF	—	—	1.51
Mylar	—	SF	—	—	3.01
Enlargements (bond)	—	SF	—	—	.72
Reductions (bond, per sheet)	—	Ea	—	—	3.00

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	Craft@Hrs	Unit	Material	Labor	Total
Plotting prints					
Translucent bond	—	SF	—	—	1.81
Vellum	—	SF	—	—	2.10
Erasable vellum	—	SF	—	—	2.98
Mylar	—	SF	—	—	3.01
Photo prints					
Mylar	—	SF	—	—	6.73
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	—	—	370.00
Add for additional 1,000 SF or fraction	—	LS	—	—	113.00
Add for out buildings (each)	—	LS	—	—	56.80
Add for houses over 50 years old	—	LS	—	—	85.20
Add per room for houses with over 10 rooms	—	Ea	—	—	68.10
Add per room for houses with over 15 rooms	—	Ea	—	—	73.90
Add for swimming pool, spa or sauna	—	LS	—	—	225.00
Add for soil testing (expansive soil only)	—	LS	—	—	227.00
Add for water testing (coliform only)	—	LS	—	—	79.60
Add for warranty protection					
Houses to 10 rooms & 50 years old	—	LS	—	—	284.00
Houses over 50 years old	—	LS	—	—	305.00
Houses over 10 rooms	—	LS	—	—	307.00
Multi-family structures					
Two family residence base fee	—	LS	—	—	513.00
Apartment or condominium base fee	—	LS	—	—	284.00
Warranty protection (base cost)	—	LS	—	—	284.00
Add for each additional unit	—	LS	—	—	56.90
Add for each family living unit					
Standard inspection	—	LS	—	—	56.80
Detailed inspection	—	LS	—	—	84.50
Add for swimming pool, spa, sauna	—	LS	—	—	85.20
Add for potable water quality testing	—	LS	—	—	256.00
Add for water quantity test, per well	—	LS	—	—	171.00
Add for soil testing (EPA toxic)	—	LS	—	—	1,710.00
Add for soil testing (lead)	—	LS	—	—	51.30
Add for lead paint testing, full analysis, per room	—	LS	—	—	45.40
Hazards testing for single and multi-family dwellings					
Urea-formaldehyde insulation testing	—	LS	—	—	198.00
Asbestos testing	—	LS	—	—	200.00
Radon gas testing	—	LS	—	—	143.00
Geotechnical site examination, typical price	—	LS	—	—	456.00

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.

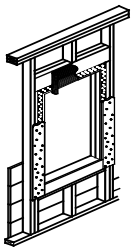
Asphalt felt, 36" wide					
15 lb., ASTM F45 (432 SF roll)	—	SF	.11	—	.11
15 lb., F40 (432 SF roll)	—	SF	.10	—	.10
30 lb. (216 SF roll)	—	SF	.21	—	.21
Asphalt shake felt, 18" x 72"					
30 lb. (108 SF roll)	—	SF	.35	—	.35

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	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	.11	—	.11
Aquabar™, two layer, laminated with asphalt, Fortifiber™ products					
Class A, 36" wide, 30-50-30 (1,000 SF roll)	—	SF	.07	—	.07
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	1.53	—	1.53
High temperature, 225 SF roll	—	SF	1.68	—	1.68
"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	.22	—	.22
Red rosin sized sheathing (duplex sheathing) 36" wide (501 SF roll)	—	SF	.04	—	.04
Bruce rosin paper, floor underlay (500 SF roll)	—	SF	.06	—	.06
Moistop flashing paper, Fortifiber™, 12" wide x 300' long (300 SF roll)	—	SF	.26	—	.26
Vycor window and door flashing, self adhesive, Grace 6" x 75' roll, 25 mil thickness	—	SF	2.90	—	2.90
Vycor deck protector, self adhesive joist flashing, Grace 4" x 75' roll, Roll covers 66 LF of joist	—	LF	3.29	—	3.29
Plasterkraft grade D weather-resistive sheathing paper, 40" wide					
Super 60 minute (500 SF roll)	—	SF	.07	—	.07
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	.89	—	.89
Roof underlay, for use under shingles, granular surface					
Weatherlock® 200 SF roll	—	SF	.88	—	.88
Tri-Flex roof underlay, for use under shingles, tile, slate or metal roofing					
48" x 250', 1,000 SF roll	—	SF	.24	—	.24
Below grade vapor barrier, Fortifiber™ Moistop (fiberglass reinforced Kraft between 2 layers of polyethylene)					
8' x 250' roll (2,000 SF roll)	—	SF	.26	—	.26
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	.48	—	.48
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	.13	—	.13



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Building Permit Fees

	Craft@Hrs	Unit	Material	Labor	Total
Protective paper, Fortifiber™ Seekure (fiberglass reinforcing strands and nonstaining adhesive between 2 layers of Kraft)					
8" x 300' roll, (2,400 SF)	—	SF	.15	—	.15
House wrap membrane, aka Tyvek™ HomeWrap by DuPont					
Air/moisture infiltration barrier (high-density polyethylene fibers in sheet form)					
3' x 100' rolls or					
9' x 150' rolls	—	SF	.21	—	.21
House wrap tape, 2" x 165'	—	LF	.12	—	.12
Labor to install building papers					
Felts, vapor barriers, infiltration barriers, building papers on walls					
Tack stapled, typical	BC@.002	SF	—	.09	.09
Heavy stapled, typical	BC@.003	SF	—	.14	.14
Felts, vapor barriers, infiltration barriers, building papers on ceilings and roofs					
Tack stapled, typical	BC@.004	SF	—	.19	.19
Heavy stapled, typical	BC@.006	SF	—	.28	.28
Self-adhesive, typical	BC@.006	SF	—	.28	.28
Curing papers, protective papers and vapor barriers, minimal fasteners	BC@.001	SF	—	.05	.05
Flashing papers, 6" to 8" wide	BC@.010	LF	—	.47	.47
Flooring or surface protection paper, for temporary use to protect finished surfaces. Popularly known as Ram Board™					
12 mil thick, 50' to 100' roll	—	SF	.20	—	.20
20 mil thick, 100' to 150' roll	—	SF	.13	—	.13
40mil thick, 50' to 100' roll	—	SF	.26	—	.26
46 mil thick, 100' roll	—	SF	.30	—	.30
64 mil thick, 4' x 8' sheet	—	SF	.62	—	.62
Seam tape, 3"w x 180' roll	—	LF	.07	—	.07
Labor to place and secure protection paper. Material cost is seam tape only.					
Tape one side, per SF area (500 SF)	BL@.001	SF	.03	.04	.07
Tape one side, per CLF (500 SF)	BL@.400	CLF	6.51	15.20	21.71
Tape one side, per SF area (500 SF)	BL@.500	CLF	13.00	19.00	32.00
Door jamb protector, incl 10' seam tape.					
Heavy duty, fiberboard, 60"L	BL@.166	SF	14.40	6.31	20.71

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Building Permit Fees Fees are set by each jurisdiction and are based on the type of construction and the square foot area. Most building departments either publish a fee schedule or offer a Web-based fee calculator. The permit fee will usually be doubled when work is started without a permit. When the valuation of the proposed construction exceeds $1,000, plans are usually required. For most residential construction, building permit will be about 1% of the construction cost (with a $200 minimum) based on a table of values published by the International Code Council and available to ICC members at: https://www.iccsafe.org/products-and-services/i-codes/code-development-process/building-valuation-data/ Most wood-frame residences are Group R3 and Type VB. This estimate of 1% includes the plan check fee, building, plumbing, HVAC and electrical permits, GIS mapping and issuance of a certificate of occupancy. Permits required by planning authorities will be extra. Estimate the fee for reinspection at $145 per hour. Inspections outside normal business hours are about $145 per hour with a two-hour minimum. Estimate the fee for additional plan review required by changes, additions or revisions to approved plans at $155 per hour with a one-half hour minimum.

Minimum building permit fee	—	LS	—	—	200.00
Typical fee based on estimated total construction cost	—	%	1.0	—	—

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	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.

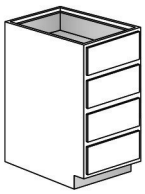
Kitchen cabinet costs vary widely. The prices listed in this section are for standard grade residential cabinets. Add 65% to material costs for premium grade cabinets with solid hardwood fronts and frames, mitered corners and solid wood drawer bodies with steel guides and ball bearings. Deduct 45% from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

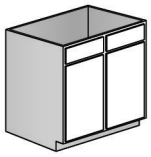
Base cabinets, 34-1/2" high, 24" deep	BC@.521	LF	206.00	24.50	230.50
Wall cabinets, 30" high, 12" deep	BC@.340	LF	108.00	16.00	124.00

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

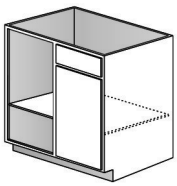
One door base cabinets, 34-1/2" high, 24" deep					
9" wide, tray divider	BC@.461	Ea	194.00	21.70	215.70
12" wide, 1 door, 1 drawer	BC@.461	Ea	259.00	21.70	280.70
15" wide, 1 door, 1 drawer	BC@.638	Ea	277.00	30.00	307.00
18" wide, 1 door, 1 drawer	BC@.766	Ea	291.00	36.00	327.00
21" wide, 1 door, 1 drawer	BC@.766	Ea	318.00	36.00	354.00
24" wide, 1 door, 1 drawer	BC@.911	Ea	325.00	42.90	367.90


DRAWER BASE

Drawer base cabinets, 34-1/2" high, 24" deep					
15" wide, 4 drawers	BC@.638	Ea	284.00	30.00	314.00
18" wide, 4 drawers	BC@.766	Ea	302.00	36.00	338.00
24" wide, 4 drawers	BC@.911	Ea	351.00	42.90	393.90


SINK BASE

Sink base cabinets, 34-1/2" high, 24" deep					
24" wide, 1 door, 1 drawer front	BC@.740	Ea	277.00	34.80	311.80
30" wide, 2 doors, 2 drawer fronts	BC@.766	Ea	333.00	36.00	369.00
33" wide, 2 doors, 2 drawer fronts	BC@.766	Ea	351.00	36.00	387.00
36" wide, 2 doors, 2 drawer fronts	BC@.766	Ea	359.00	36.00	395.00
42" wide, 2 doors, 2 drawer fronts	BC@.911	Ea	396.00	42.90	438.90
48" wide, 2 doors, 2 drawer fronts	BC@.911	Ea	435.00	42.90	477.90
Two door base cabinets, 34-1/2" high, 24" deep					
27" wide, 2 door, 2 drawer front	BC@1.25	Ea	428.00	58.80	486.80
30" wide, 2 doors, 2 drawer fronts	BC@1.25	Ea	452.00	58.80	510.80
33" wide, 2 doors, 2 drawer fronts	BC@1.25	Ea	473.00	58.80	531.80
36" wide, 2 doors, 2 drawer fronts	BC@1.35	Ea	498.00	63.50	561.50
42" wide, 2 doors, 2 drawer fronts	BC@1.50	Ea	519.00	70.60	589.60
48" wide, 2 doors, 2 drawer fronts	BC@1.71	Ea	577.00	80.50	657.50


BLIND CORNER BASE

Blind corner base cabinets, 34-1/2" high					
Minimum 36", maximum 39" at wall	BC@1.39	Ea	318.00	65.40	383.40
Minimum 39", maximum 42" at wall	BC@1.50	Ea	341.00	70.60	411.60
Corner base cabinet, revolving shelves					
34-1/2" high x 36" wide at walls	BC@2.12	Ea	491.00	99.70	590.70

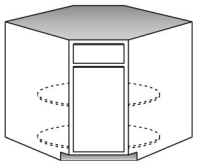
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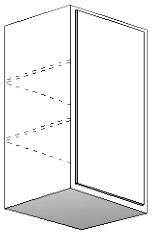
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Cabinets, Kitchen

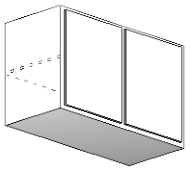
	Craft@Hrs	Unit	Material	Labor	Total
Corner sink front, 34-1/2" high					
40" wide at walls	BC@2.63	Ea	277.00	124.00	401.00
Wall cabinets, adjustable shelves, 30" high, 12" deep					
9" wide, 1 door	BC@.461	Ea	175.00	21.70	196.70
12" wide or 15" wide, 1 door	BC@.461	Ea	190.00	21.70	211.70
18" wide, 1 door	BC@.638	Ea	225.00	30.00	255.00
21" wide, 1 door	BC@.638	Ea	232.00	30.00	262.00
24" wide, 1 door	BC@.766	Ea	249.00	36.00	285.00
27" wide, 2 doors	BC@.766	Ea	291.00	36.00	327.00
30" wide, 2 doors	BC@.911	Ea	291.00	42.90	333.90
33" wide, 2 doors	BC@.911	Ea	318.00	42.90	360.90
36" wide, 2 doors	BC@1.03	Ea	334.00	48.50	382.50
42" wide, 2 doors	BC@1.03	Ea	359.00	48.50	407.50
48" wide, 2 doors	BC@1.16	Ea	388.00	54.60	442.60
Above-appliance wall cabinets, 12" deep					
12" high, 30" wide, 2 doors	BC@.461	Ea	184.00	21.70	205.70
15" high, 30" wide, 2 doors	BC@.461	Ea	211.00	21.70	232.70
15" high, 33" wide, 2 doors	BC@.537	Ea	226.00	25.30	251.30
15" high, 36" wide, 2 doors	BC@.638	Ea	232.00	30.00	262.00
18" high, 18" wide, 2 doors	BC@.537	Ea	175.00	25.30	200.30
18" high, 30" wide, 2 doors	BC@.766	Ea	232.00	36.00	268.00
18" high, 36" wide, 2 doors	BC@.911	Ea	256.00	42.90	298.90
Corner wall cabinets, 30" high, 12" deep					
24" at each wall, fixed shelves	BC@1.03	Ea	318.00	48.50	366.50
24" at each wall, revolving shelves	BC@1.03	Ea	426.00	48.50	474.50
Blind corner wall cabinets, 30" high					
24" minimum, 1 door	BC@1.03	Ea	240.00	48.50	288.50
36" minimum, 1 door	BC@1.32	Ea	291.00	62.10	353.10
42" minimum, 2 doors	BC@1.20	Ea	366.00	56.50	422.50
Utility cabinets, 66" high, 12" deep, no shelves					
18" wide	BC@1.32	Ea	366.00	62.10	428.10
24" wide	BC@1.71	Ea	419.00	80.50	499.50
Utility cabinets, 66" high, 24" deep, add shelf cost below					
18" wide	BC@1.24	Ea	388.00	58.30	446.30
24" wide	BC@1.71	Ea	460.00	80.50	540.50
Add for utility cabinet revolving shelves, includes mounting hardware					
18" wide x 24" deep	BC@.360	Ea	333.00	16.90	349.90
24" wide x 24" deep	BC@.360	Ea	390.00	16.90	406.90
Add for utility cabinet plain shelves					
18" wide x 24" deep	BC@.541	Ea	113.00	25.50	138.50
24" wide x 24" deep	BC@.541	Ea	118.00	25.50	143.50
Oven cabinets, 66" high, 24" deep					
27" wide, single oven	BC@2.19	Ea	465.00	103.00	568.00
27" wide, double oven	BC@2.19	Ea	352.00	103.00	455.00



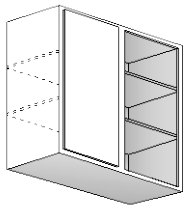
45 DEGREE CORNER BASE CABINET



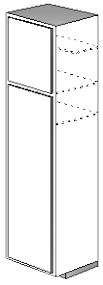
1 DOOR WALL CABINET



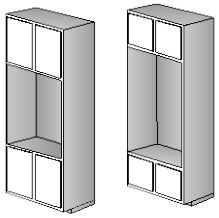
ABOVE-APPLIANCE WALL CABINET



BLIND CORNER WALL CABINET



UTILITY



SINGLE OVEN CABINET

DOUBLE OVEN CABINET

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	Craft@Hrs	Unit	Material	Labor	Total
Microwave cabinet, with trim,					
21" high, 20" deep, 30" wide	BC@.986	Ea	280.00	46.40	326.40
Additional labor costs for cabinets					
Tall utility, pantry, or oven cabinets	BC@2.00	Ea	—	94.10	94.10
Tall wall cabinet to counter level	BC@1.50	Ea	—	70.60	70.60
Hood cabinet over a range with vent cutout	BC@1.50	Ea	—	70.60	70.60
3/4" raised end panels applied to cabinet ends	BC@.250	Ea	—	11.80	11.80
Refrigerator end panels, cut, fit, install	BC@.500	Ea	—	23.50	23.50
Cabinet end panels, most sizes, per panel					
Refrigerator end panels	BC@.557	Ea	—	26.20	26.20
Refrigerator end panels with return	BC@1.00	Ea	—	47.10	47.10
Applied decorative end panels	BC@.334	Ea	—	15.70	15.70
Mitered island end or back panels	BC@.667	Ea	—	31.40	31.40
Dishwasher return panels	BC@.667	Ea	—	31.40	31.40
Precut filler panels installed between cabinets, per panel					
Most base or wall fillers	BC@.200	Ea	—	9.41	9.41
Most base or wall fillers with overlays	BC@.400	Ea	—	18.80	18.80
Tall filler panels over 36"	BC@.268	Ea	—	12.60	12.60
Tall filler panels over 36" with overlays	BC@.535	Ea	—	25.20	25.20
Corner filler panels	BC@.224	Ea	—	10.50	10.50
Corner fillers panels with overlays	BC@.448	Ea	—	21.10	21.10
Angled corner filler panels	BC@.268	Ea	—	12.60	12.60
Angled corner filler panels with overlays	BC@.536	Ea	—	25.20	25.20
Moldings and trim for cabinet work					
Scribe molding, per 8' length	BC@.224	Ea	—	10.50	10.50
Scribe molding, per linear foot	BC@.028	LF	—	1.32	1.32
Crown molding, per 8' length, miter cut	BC@.448	Ea	—	21.10	21.10
Crown molding, per 8' length, butt joint	BC@.180	Ea	—	8.47	8.47
Crown plate and riser, per miter cut	BC@.180	Ea	—	8.47	8.47
Crown plate and riser, per straight cut	BC@.112	Ea	—	5.27	5.27
Applied molding, per miter cut	BC@.112	Ea	—	5.27	5.27
Applied molding, per straight cut	BC@.067	Ea	—	3.15	3.15
Light rail molding, per miter cut	BC@.224	Ea	—	10.50	10.50
Light rail molding, per straight cut	BC@.067	Ea	—	3.15	3.15
Furniture toe kick, per 8' length	BC@.334	Ea	—	15.70	15.70
Furniture toe kick, per linear foot	BC@.042	LF	—	1.98	1.98
Valance, straight, per 8' length	BC@.334	Ea	—	15.70	15.70
Valance, with side returns or cap, 8' length	BC@.667	Ea	—	31.40	31.40
Mantle or hood molding, length to 8'	BC@.800	Ea	—	37.60	37.60
Corbels, plain	BC@.224	Ea	—	10.50	10.50
Corbels, on uprights	BC@.334	Ea	—	15.70	15.70
Enkeboll molding, miter cut, 8' length	BC@.667	Ea	—	31.40	31.40
Enkeboll molding, straight cut, 8' length	BC@.180	Ea	—	8.47	8.47
Posts, to 8' length	BC@.500	Ea	—	23.50	23.50
Pilasters	BC@.334	Ea	—	15.70	15.70
Cabinet feet, per cabinet	BC@.334	Ea	—	15.70	15.70
Cabinet extras					
Scribing in wood tops	BC@.133	LF	—	6.26	6.26
Job built 2 x 4 support wall to 42" high	BC@.334	LF	—	15.70	15.70
Framing for range support or sink cutout	BC@.667	Ea	—	31.40	31.40

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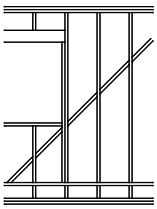
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Carpentry

	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	1,160.00	—	1,160.00
Using 1/2" OSB sheathing at	—	MSF	714.00	—	714.00
Using 7/16" OSB sheathing at	—	MSF	426.00	—	426.00
Using 5/8" OSB sheathing at	—	MSF	689.00	—	689.00
Using 1/2" RTD sheathing at	—	MSF	1,080.00	—	1,080.00
Using 5/8" RTD sheathing at	—	MSF	1,180.00	—	1,180.00
Single story, conventional foundation	B1@.237	SF	8.57	10.09	18.66
Single story, concrete slab foundation	B1@.180	SF	5.89	7.66	13.55
First of two floors, conventional foundation	B1@.203	SF	6.79	8.64	15.43
First of two floors, concrete slab foundation	B1@.146	SF	4.11	6.21	10.32
Second floor of a two-story residence	B1@.191	SF	6.68	8.13	14.81
Add for plywood sheathing	—	%	15.3	—	—

Framing a single story residence, conventional crawl-space foundation

Sills, pier blocks, floor beams					
(145 BF per 1,000 SF)	B1@.018	SF	.17	.77	.94
Floor joists, doublers, blocking, bridging					
(1,480 BF per 1,000 SF)	B1@.028	SF	1.72	1.19	2.91
Subflooring, 5/8" OSB					
(1,150 SF per 1,000 SF)	B1@.011	SF	.79	.47	1.26
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	2.61	3.96	6.57
Ceiling joists, header and end joists, backing, blocking and bracing					
(1,060 BF per 1,000 SF)	B1@.045	SF	1.23	1.91	3.14
Rafters, braces, collar beams, ridge boards, 2" x 8" rafters					
16" OC, (1,340 BF per 1000 SF)	B1@.032	SF	1.56	1.36	2.92
Roof sheathing, 7/16" OSB					
(1,150 SF per 1,000 SF)	B1@.010	SF	.49	.43	.92
Total framing, single story, conventional foundation					
	B1@.237	SF	8.57	10.09	18.66
Add for plywood sheathing	—	%	15.3	—	—

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	2.61	3.96	6.57
Ceiling joists, header and end joists, backing, blocking and bracing					
(1,060 BF per 1,000 SF)	B1@.045	SF	1.23	1.91	3.14
Rafters, braces, collar beams, ridge boards, 2" x 8" rafters					
16" OC, (1,340 BF per 1,000 SF)	B1@.032	SF	1.56	1.36	2.92
Roof sheathing, 7/16" OSB					
(1,150 SF per 1,000 SF)	B1@.010	SF	.49	.43	.92
Total framing, single story, concrete slab foundation					
	B1@.180	SF	5.89	7.66	13.55
Add for plywood sheathing	—	%	12.8	—	—

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	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	.17	.77	.94
Floor joists, doublers, blocking, bridging (1,480 BF per 1,000 SF)	B1@.028	SF	1.72	1.19	2.91
Subflooring, 5/8" OSB (1,150 SF per 1,000 SF)	B1@.011	SF	.79	.47	1.26
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	2.61	3.96	6.57
Rough stairway, 15 risers and landing (96 BF of dimension lumber and 128 SF of plywood per 1,000 SF)	B1@.008	SF	.27	.34	.61
Ceiling joists, header and end joists, backing, blocking and bracing (1,060 BF per 1,000 SF)	B1@.045	SF	1.23	1.91	3.14
Total framing, 1st of 2 floors, crawl-space foundation	B1@.203	SF	6.79	8.64	15.43
Add for plywood sheathing	—	%	8.2	—	—
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	2.61	3.96	6.57
Rough stairway, 15 risers and landing (96 BF of dimension lumber and 128 SF of plywood per 1,000 SF)	B1@.008	SF	.27	.34	.61
Ceiling joists, header and end joists, backing, blocking and bracing (1,060 BF per 1,000 SF)	B1@.045	SF	1.23	1.91	3.14
Total framing, first of two floors, concrete foundation	B1@.146	SF	4.11	6.21	10.32
Framing the second story of a residence					
Subflooring, 5/8" OSB (1,150 SF per 1,000 SF)	B1@.011	SF	.79	.47	1.26
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	2.61	3.96	6.57
Ceiling joists, header and end joists, backing, blocking and bracing (1,060 BF per 1,000 SF)	B1@.045	SF	1.23	1.91	3.14
Rafters, braces, collar beams, ridge boards, 2" x 8" rafters 16" OC (1,340 BF per 1,000 SF)	B1@.032	SF	1.56	1.36	2.92
Roof sheathing, 7/16" OSB (1,150 SF per 1,000 SF)	B1@.010	SF	.49	.43	.92
Total framing, second floor of a two-story residence	B1@.191	SF	6.68	8.13	14.81
Add for plywood sheathing	—	%	19.6	—	—

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	1,160.00	—	1,160.00
Using 5/8" RTD plywood subfloor at	—	MSF	1,180.00	—	1,180.00
Using 3/4" RTD plywood subfloor at	—	MSF	1,420.00	—	1,420.00
Using 7/16" OSB subfloor at	—	MSF	426.00	—	426.00
Using 5/8" OSB subfloor at	—	MSF	689.00	—	689.00
Using 3/4" OSB T&G subfloor at	—	MSF	848.00	—	848.00

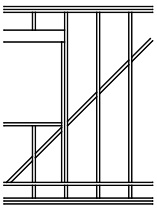
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	Craft@Hrs	Unit	Material	Labor	Total
Floor joists 16" OC, R-19 insulation and OSB subflooring					
7/16" OSB subfloor					
2" x 6" joists	B1@.040	SF	3.17	1.70	4.87
2" x 8" joists	B1@.041	SF	3.64	1.74	5.38
2" x 10" joists	B1@.043	SF	4.24	1.83	6.07
2" x 12" joists	B1@.044	SF	5.26	1.87	7.13
Floor joists 16" OC, R-19 insulation and OSB subflooring					
5/8" OSB subfloor					
2" x 6" joists	B1@.040	SF	3.43	1.70	5.13
2" x 8" joists	B1@.041	SF	3.90	1.74	5.64
2" x 10" joists	B1@.043	SF	4.51	1.83	6.34
2" x 12" joists	B1@.044	SF	5.53	1.87	7.40
3/4" OSB subfloor					
2" x 6" joists	B1@.042	SF	3.59	1.79	5.38
2" x 8" joists	B1@.043	SF	4.06	1.83	5.89
2" x 10" joists	B1@.045	SF	4.67	1.91	6.58
2" x 12" joists	B1@.046	SF	5.68	1.96	7.64
Floor joists 16" OC, R-19 insulation and plywood subflooring					
5/8" plywood subfloor					
2" x 6" joists	B1@.040	SF	3.89	1.70	5.59
2" x 8" joists	B1@.041	SF	4.36	1.74	6.10
2" x 10" joists	B1@.043	SF	4.97	1.83	6.80
2" x 12" joists	B1@.044	SF	5.98	1.87	7.85
3/4" plywood subfloor					
2" x 6" joists	B1@.042	SF	4.16	1.79	5.95
2" x 8" joists	B1@.043	SF	4.63	1.83	6.46
2" x 10" joists	B1@.045	SF	5.24	1.91	7.15
2" x 12" joists	B1@.046	SF	6.25	1.96	8.21
For different type insulation					
Fiberglass batts					
10" thick R-30, add	—	SF	.48	—	.48
12" thick R-38, add	—	SF	.96	—	.96

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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	1,080.00	—	1,080.00
Using 2 x 6 lumber at	—	MBF	1,170.00	—	1,170.00
Using 1/2" gypsum wallboard at	—	SF	.58	—	.58
Using 5/8" gypsum wallboard at	—	SF	.63	—	.63

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	2.08	2.72	4.80
Cost per running foot, for 8' high walls	B1@.512	LF	16.70	21.80	38.50
2" x 4" stud walls with 1/2" gypsum drywall one side, ready for painting					
Cost per square foot of wall	B1@.046	SF	1.50	1.96	3.46
Cost per running foot, for 8' high walls	B1@.368	LF	12.00	15.70	27.70
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	2.16	2.89	5.05
Cost per running foot, for 8' high walls	B1@.544	LF	17.30	23.10	40.40

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	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	1.54	2.04	3.58
Cost per running foot, for 8' high walls	B1@.384	LF	12.30	16.30	28.60
2" x 6" stud walls with 1/2" gypsum drywall both sides, ready for painting					
Cost per square foot of wall	B1@.072	SF	2.67	3.06	5.73
Cost per running foot, for 8' high walls	B1@.576	LF	21.30	24.50	45.80
2" x 6" stud walls with 1/2" gypsum drywall one side, ready for painting					
Cost per square foot of wall	B1@.054	SF	2.08	2.30	4.38
Cost per running foot, for 8' high walls	B1@.432	LF	16.60	18.40	35.00
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	2.75	3.23	5.98
Cost per running foot, for 8' high walls	B1@.608	LF	22.00	25.90	47.90
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	2.12	2.38	4.50
Cost per running foot, for 8' high walls	B1@.448	LF	17.00	19.10	36.10
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	1,620.00	—	1,620.00
Cost per square foot of wall	B1@.068	SF	3.85	2.89	6.74
Cost per running foot, for 8' high walls	B1@.544	LF	30.80	23.10	53.90
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	4.69	3.27	7.96
Cost per running foot, for 8' high walls	B1@.616	LF	37.50	26.20	63.70
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	3,490.00	—	3,490.00
Cost per square foot of wall	B1@.074	SF	5.72	3.15	8.87
Cost per running foot, for 8' high wall	B1@.592	LF	45.80	25.20	71.00
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	6.55	3.53	10.08
Cost per running foot, for 8' high wall	B1@.664	LF	52.40	28.20	80.60
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	6.27	2.13	8.40
Cost per running foot, for 8' high wall	B1@.400	LF	50.10	17.00	67.10
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	7.10	2.51	9.61
Cost per running foot, for 8' high wall	B1@.472	LF	56.80	20.10	76.90
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	1.28	—	1.28
5/8" thick fire rated type X gypsum drywall					
Cost per SF, per side, add	—	SF	.14	—	.14
5/8" thick fire rated type X gypsum drywall					
Cost per running foot per side 8' high	—	LF	1.10	—	1.10

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	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	1,080.00	—	1,080.00
Using 2" x 6" at	—	MBF	1,170.00	—	1,170.00
Using 2" x 8" at	—	MBF	1,110.00	—	1,110.00
2" x 4" ceiling joists at 16" on center (.59 BF per SF), with insulation and 1/2" gypsum drywall	B1@.053	SF	2.35	2.25	4.60
2" x 6" ceiling joists at 16" on center (.88 BF per SF), with insulation and 1/2" gypsum drywall	B1@.055	SF	2.96	2.34	5.30
2" x 8" ceiling joists at 16" on center (1.17 BF per SF), with insulation and 1/2" gypsum drywall	B1@.057	SF	3.38	2.42	5.80
For spray applied plaster finish (sometimes called "popcorn" or "cottage cheese" texture)					
Add for ceiling texture	DT@.011	SF	.05	.51	.56
For different type gypsum drywall with taped and sanded smooth finish, ready for paint					
5/8" moisture resistant greenboard, add	—	SF	.11	—	.11
5/8" ultralight, add	—	SF	.01	—	.01
5/8" fire rated "C", add	—	SF	.03	—	.03
For different ceiling joist center to center dimensions					
2" x 4" ceiling joists					
12" on center, add	B1@.004	SF	.21	.17	.38
20" on center, deduct	—	SF	-.12	-.09	-.21
24" on center, deduct	—	SF	-.18	-.13	-.31
2" x 6" ceiling joists					
12" on center, add	B1@.006	SF	.31	.26	.57
20" on center, deduct	—	SF	-.19	-.09	-.28
24" on center, deduct	—	SF	-.29	-.13	-.42
2" x 8" ceiling joists					
12" on center, add	B1@.006	SF	.40	.26	.66
20" on center, deduct	—	SF	-.23	-.09	-.32
24" on center, deduct	—	SF	-.37	-.13	-.50
For different type insulation					
Fiberglass batts					
6-1/4" thick R-19, add	—	SF	.15	—	.15
10" thick R-30, add	—	SF	.83	—	.83
Blown-in fiberglass, subcontract					
8" thick R-19, add	—	SF	—	—	.59

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.

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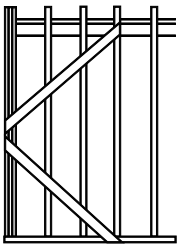
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	Craft@Hrs	Unit	Material	Labor	Total
Flat roof assembly Based on using 2" x 12" joists Std & Btr grade at 16" on center including blocking, ripped strips and normal waste. The roof surface is built-up 3 ply asphalt consisting of 2 plies of 15 lb. felt hot mopped with a 90 lb. mineral-coated cap sheet.					
Using 2" x 12" joists at	—	MBF	1,270.00	—	1,270.00
Using 2" x 8" joists at	—	MBF	1,110.00	—	1,110.00
Using 1/2" RTD plywood at	—	MSF	1,080.00	—	1,080.00
Using 7/16" OSB at	—	MSF	426.00	—	426.00
Flat roof assembly as described above					
Framing, with plywood sheathing	B1@5.00	Sq	430.00	213.00	643.00
Framing, with OSB sheathing	B1@5.00	Sq	361.00	213.00	574.00
Built-up roofing, 3-ply and gravel	R1@2.15	Sq	158.00	94.90	252.90
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	241.00	174.00	415.00
Framing, with OSB sheathing	B1@4.10	Sq	173.00	174.00	347.00
Add for built-up 3-ply finish roofing	R1@1.25	Sq	139.00	55.20	194.20
Add for composition shingle (Class C) roofing	R1@1.83	Sq	702.00	80.70	782.70
Add for asphalt shingle (Class A) roofing	R1@1.83	Sq	301.00	80.70	381.70
Framing, with no sheathing	B1@2.80	Sq	128.00	119.00	247.00
Add for 26 gauge steel roofing	R1@2.70	Sq	292.00	119.00	411.00
Add for gable studs					
2" x 4" spaced 16" OC (.54 BF per SF)	B1@.023	SF	.59	.98	1.57
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	1,110.00	—	1,110.00
2" x 8" (1.40 BF per LF)	B1@.023	LF	1.55	.98	2.53

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	—	.34	.34
Larger job, longer runs	—	SF	—	.23	.23



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	—	.93	.93
Larger job, 8' high walls, fewer partitions	—	SF	—	.34	.34

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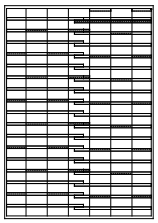
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	Craft@Hrs	Unit	Material	Labor	Total

Plumb and align framed walls Piecework rates
Force walls into alignment. Adjust walls to vertical and install temporary wood braces as needed. Bracing plates includes shooting powder driven fasteners through wall plates. Based on accuracy to 3/16". Includes re-checking plumb and alignment when framing is done. Costs per square foot of floor.

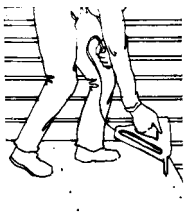
Small or complex job, brace walls and plates	—	SF	—	.30	.30
Larger job, fewer braces, walls only	—	SF	—	.18	.18
Sheathed walls, squared before lifting	—	SF	—	.10	.10

Floor joists or ceiling joists Piecework rates
Lay out, cut and install floor or ceiling joists, including rim joists, doubled joists, straps, joist hangers, blocking at 8' OC and ceiling backing for drywall. Based on larger jobs with simple joist layouts set 16" OC and pre-cut blocking supplied by the general contractor. Add the cost of floor beams, if required. Costs per square foot of horizontal joist area. More complex jobs with shorter runs may cost 50% more.



2" x 8" ceiling or floor joists	—	SF	—	.26	.26
2" x 10" ceiling or floor joists	—	SF	—	.30	.30
2" x 12" ceiling or floor joists	—	SF	—	.33	.33
2" x 14" ceiling or floor joists	—	SF	—	.38	.38
Add for 12" OC spacing	—	SF	—	.11	.11
Deduct for 20" OC spacing	—	SF	—	-.04	-.04
Deduct for 24" OC spacing	—	SF	—	-.08	-.08

Floor sheathing Piecework rates
Lay out, cut, fit and install 5/8" or 3/4" tongue and groove plywood floor sheathing, including blocking 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 job	—	SF	—	.30	.30
Larger job, longer runs	—	SF	—	.23	.23
Add for 1-1/8" sheathing	—	SF	—	.10	.10

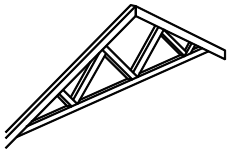
Stair framing Piecework rates
Lay out, cut, fit and install straight, "U"- or "L"-shaped 30" to 36" wide stairs made from plywood and 2" x 12" stringers set 16" OC. These costs include blocking in the adjacent stud wall and a 1" skirt board. Costs per 7-1/2" riser. Framing more complex stairs may cost up to $500 per flight.

Small job, short runs	—	Ea	—	21.80	21.80
Larger job, longer runs	—	Ea	—	16.40	16.40
Add per 3' x 3' landing, including supports	—	Ea	—	56.20	56.20
Add for larger landings, including supports	—	Ea	—	139.00	139.00

Shear panels Piecework rates
Lay out, cut, fit and install structural 3/8" or 1/2" OSB or plywood wall panels. These figures assume shear studs were set correctly by others and that panel nails are driven at 4" OC with a pneumatic nailer. Not including hold-down straps, posts, shear blocking or extra studs. Costs per 4' x 9' panel installed.

Small job, many openings, 2nd floor	—	Ea	—	15.10	15.10
Larger job, few openings, 1st floor	—	Ea	—	9.30	9.30

Roof trusses Piecework rates
Setting and nailing engineered gable and hip roof trusses 24" OC on prepared wall plates. These figures assume that lifting equipment is provided by the general contractor and that the truss supplier provides a fill package, spreader blocks for each plate and the ridge and jack rafters (if required). Includes installation of ceiling backing where required and catwalks at the bottom chord. Costs per square foot of plan area under the truss.



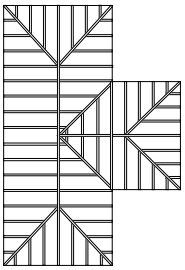
Small job assumes multiple California fill between roof surfaces and understacking

Small job, rake fill above a partition wall	—	SF	—	.82	.82
Larger job, little or no fill or understacking	—	SF	—	.45	.45

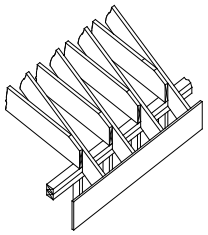
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Conventional roof framing Piecework rates					
Calculate lengths, lay out, cut and install 2" x 10" or 2" x 12" common, hip, valley and jack rafters on parallel and horizontal plates. Costs per square foot of plan area under the roof.					
Small job, cut-up roof, few common rafters					
Rafters 12" OC	—	SF	—	1.68	1.68
Rafters 16" OC	—	SF	—	1.42	1.42
Rafters 20" OC	—	SF	—	1.12	1.12
Rafters 24" OC	—	SF	—	.82	.82
Larger job, longer runs, nearly all common rafters					
Rafters 12" OC	—	SF	—	.82	.82
Rafters 16" OC	—	SF	—	.73	.73
Rafters 20" OC	—	SF	—	.56	.56
Rafters 24" OC	—	SF	—	.46	.46
Add for slope over 6 in 12	—	SF	—	.28	.28
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	—	3.63	3.63
Larger job, longer runs	—	LF	—	2.08	2.08
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	—	.24	.24
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	19.50	194.50
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	9.31	6.31	15.62
Pier pads 2" x 6", treated, #2 & Btr					
Using #2 & Btr treated lumber at	—	MBF	1,470.00	—	1,470.00
1.10 BF per LF	B1@.034	LF	1.62	1.45	3.07
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	1,350.00	—	1,350.00
Fir, rough Std & Btr, K.D. 4" x 4"	—	LF	1.99	—	1.99
Red cedar, rough green constr.	—	MBF	4,390.00	—	4,390.00
Red cedar, rough green constr.	—	LF	6.45	—	6.45
Redwood, S4S construction heart	—	MBF	3,600.00	—	3,600.00

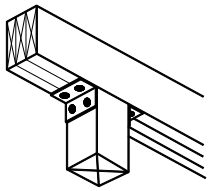
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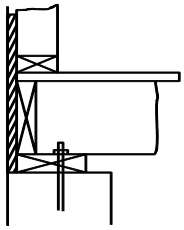
	Craft@Hrs	Unit	Material	Labor	Total
Redwood, S4S construction heart	—	LF	5.29	—	5.29
Southern yellow pine #2, pressure treated	—	MBF	1,760.00	—	1,760.00
Southern yellow pine #2, pressure treated	—	LF	2.59	—	2.59

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	1,330.00	—	1,330.00
4" x 8", 10", 12", per MBF	—	MBF	1,320.00	—	1,320.00
6" x 6", per MBF	—	MBF	2,540.00	—	2,540.00
6" x 8", 10", 12", 8" x 8", per MBF	—	MBF	2,540.00	—	2,540.00
4" x 6" (2.15 BF per LF)	B1@.034	LF	3.06	1.45	4.51
4" x 8" (2.85 BF per LF)	B1@.045	LF	4.04	1.91	5.95
4" x 10" (3.58 BF per LF)	B1@.057	LF	5.07	2.42	7.49
4" x 12" (4.28 BF per LF)	B1@.067	LF	6.06	2.85	8.91
6" x 6" (3.21 BF per LF)	B1@.051	LF	8.71	2.17	10.88
6" x 8" (4.28 BF per LF)	B1@.067	LF	11.60	2.85	14.45
6" x 10" (5.35 BF per LF)	B1@.083	LF	14.50	3.53	18.03
6" x 12" (6.42 BF per LF)	B1@.098	LF	17.40	4.17	21.57
8" x 8" (5.71 BF per LF)	B1@.088	LF	15.50	3.74	19.24

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	1,470.00	—	1,470.00
2" x 3" (.53 BF per LF)	B1@.020	LF	.51	.85	1.36
2" x 4" (.70 BF per LF)	B1@.023	LF	1.09	.98	2.07
2" x 6" (1.05 BF per LF)	B1@.024	LF	1.46	1.02	2.48
2" x 8" (1.40 BF per LF)	B1@.031	LF	2.04	1.32	3.36

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	1,170.00	—	1,170.00
12" centers (1.28 BF per SF)	B1@.021	SF	1.49	.89	2.38
16" centers (1.02 BF per SF)	B1@.017	SF	1.19	.72	1.91
20" centers (.88 BF per SF)	B1@.014	SF	1.03	.60	1.63
24" centers (.73 BF per SF)	B1@.012	SF	.85	.51	1.36
2" x 8" Std & Btr					
2" x 8" floor joists, per MBF	—	MBF	1,110.00	—	1,110.00
12" centers (1.71 BF per SF)	B1@.023	SF	1.90	.98	2.88
16" centers (1.36 BF per SF)	B1@.018	SF	1.51	.77	2.28
20" centers (1.17 BF per SF)	B1@.015	SF	1.30	.64	1.94
24" centers (1.03 BF per SF)	B1@.013	SF	1.14	.55	1.69
2" x 10" Std & Btr					
2" x 10" floor joists, per MBF	—	MBF	1,120.00	—	1,120.00
12" centers (2.14 BF per SF)	B1@.025	SF	2.40	1.06	3.46
16" centers (1.71 BF per SF)	B1@.020	SF	1.92	.85	2.77
20" centers (1.48 BF per SF)	B1@.016	SF	1.66	.68	2.34
24" centers (1.30 BF per SF)	B1@.014	SF	1.46	.60	2.06

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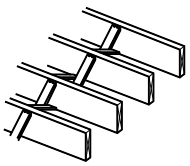
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	Craft@Hrs	Unit	Material	Labor	Total
2" x 12" Std & Btr					
2" x 12" floor joists, per MBF	—	MBF	1,270.00	—	1,270.00
12" centers (2.56 BF per SF)	B1@.026	SF	3.26	1.11	4.37
16" centers (2.05 BF per SF)	B1@.021	SF	2.61	.89	3.50
20" centers (1.77 BF per SF)	B1@.017	SF	2.25	.72	2.97
24" centers (1.56 BF per SF)	B1@.015	SF	1.99	.64	2.63

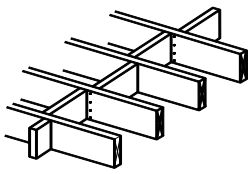
Floor joist wood, TJI truss type Suitable for residential use, 50 PSF floor load design. Costs shown are per square foot (SF) of floor area, based on joists at 16" OC, for a job with 1,000 SF of floor area. Figure 1.22 SF of floor area for each LF of joist. Add the cost of beams, supports and blocking. 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	3.82	.72	4.54
11-7/8" TJI/15	B1@.017	SF	4.19	.72	4.91
14" TJI/35	B1@.018	SF	6.11	.77	6.88
16" TJI/35	B1@.018	SF	6.66	.77	7.43

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	2,050.00	—	2,050.00
Joists on 12" centers	B1@.034	Ea	1.02	1.45	2.47
Joists on 16" centers	B1@.034	Ea	1.40	1.45	2.85
Joists on 20" centers	B1@.034	Ea	1.78	1.45	3.23
Joists on 24" centers	B1@.034	Ea	2.15	1.45	3.60
2" x 6" solid, Std & Btr					
2" x 6" blocking, per MBF	—	MBF	1,170.00	—	1,170.00
Joists on 12" centers	B1@.042	Ea	1.28	1.79	3.07
Joists on 16" centers	B1@.042	Ea	1.71	1.79	3.50
Joists on 20" centers	B1@.042	Ea	2.14	1.79	3.93
Joists on 24" centers	B1@.042	Ea	2.56	1.79	4.35



2" x 8" solid, Std & Btr					
2" x 8" blocking, per MBF	—	MBF	1,110.00	—	1,110.00
Joists on 12" centers	B1@.042	Ea	1.63	1.79	3.42
Joists on 16" centers	B1@.042	Ea	2.17	1.79	3.96
Joists on 20" centers	B1@.042	Ea	2.71	1.79	4.50
Joists on 24" centers	B1@.042	Ea	3.25	1.79	5.04
2" x 10" solid, Std & Btr					
2" x 10" blocking, per MBF	—	MBF	1,120.00	—	1,120.00
Joists on 12" centers	B1@.057	Ea	2.06	2.42	4.48
Joists on 16" centers	B1@.057	Ea	2.74	2.42	5.16
Joists on 20" centers	B1@.057	Ea	3.43	2.42	5.85
Joists on 24" centers	B1@.057	Ea	4.12	2.42	6.54

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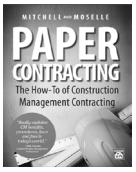
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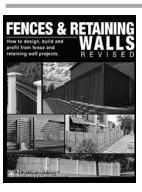
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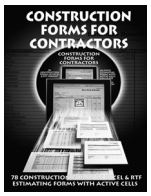


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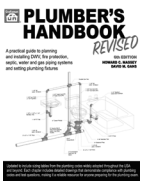
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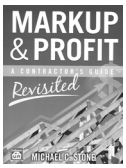
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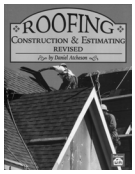
Relying on a "one-size-fits-all" boilerplate construction contract to fit your jobs can be dangerous — almost as dangerous as a handshake agreement. *Construction Contract Writer* lets you draft a contract in minutes that precisely fits your needs and the particular job, and meets both state and federal requirements. You just answer a series of questions — like an interview — to construct a legal contract for each project you take on. Anticipate where disputes could arise and settle them in the contract before they happen. Include the warranty protection you intend, the payment schedule, and create subcontracts from the prime contract by just clicking a box. Includes a feedback button to an attorney on the Craftsman staff to help should you get stumped — *No extra charge*. **$199.95**
Download the *Construction Contract Writer* at:
https://www.constructioncontractwriter.com

Markup & Profit: A Contractor's Guide, Revisited



In order to succeed in a construction business, you have to be able to price your jobs to cover all labor, material and overhead expenses, and make a decent profit. But calculating markup is only part of the picture. If you're going to beat the odds and stay in business — profitably, you also need to know how to write good contracts, manage your crews, work with subcontractors and collect on your work. This book covers the business basics of running a construction company, whether you're a general or specialty contractor working in remodeling, new construction or commercial work. The principles outlined here apply to all construction-related businesses. You'll find tried and tested formulas to guarantee profits, with step-by-step instructions and easy-to-follow examples to help you learn how to operate your business successfully. Includes a link to free downloads of blank forms and checklists used in this book.
336 pages, 8½ x 11, $59.50
***Also available as an eBook (ePub, mobi for Kindle)*, $39.95 at https://craftsman-book.com**

Roofing Construction & Estimating, Revised



Detailed, step-by-step instructions, with photographs and diagrams, for installing, repairing and estimating nearly every type of roof covering available today for residential and commercial structures: asphalt shingles, roll roofing, wood shingles and shakes, clay tile, slate, metal, built-up, elastomeric, TPO and more. Provides guidance on sheathing, synthetic and felt underlayment, as well as tips and tricks from an experienced pro for dealing with those difficult points on a roof that are prone to leaks, such as valleys and roof penetrations. For each roofing type, instructions are provided for estimating material quantities and labor costs, with formulas, easy-to-follow examples and sample estimates for you to test your skill. Use these methods to create reliable estimates that will help insure a profit on every job you take. **448 pages, 8½ x 11, $72.50**
***eBook (PDF) also available,* $36.25 at https://craftsman-book.com**

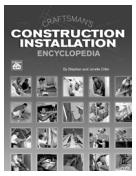
Concrete Construction

Just when you think you know all there is about concrete, many new innovations create faster, more efficient ways to do the work. This comprehensive concrete manual has both the tried-and-tested methods and materials, and more recent innovations. It covers everything you need to know about concrete, along with Styrofoam forming systems, fiber reinforcing adjuncts, and some architectural innovations, like architectural foam elements, that can help you offer more in the jobs you bid on. Every chapter provides detailed, step-by-step instructions for each task, with hundreds of photographs and drawings that show exactly how the work is done. To keep your jobs organized, there are checklists for each stage of the concrete work, from planning, to finishing and protecting your pours. Whether you're doing residential or commercial work, this manual has the instructions, illustrations, charts, estimating data, rules of thumb and examples every contractor can apply on their concrete jobs.
288 pages, 8½ x 11, $28.75
***Also available as an eBook (PDF)*, $14.38 at https://craftsman-book.com**

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Craftsman's Construction Installation Encyclopedia



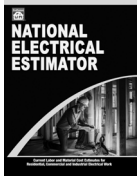
Step-by-step installation instructions for just about any residential construction, remodeling or repair task, arranged alphabetically, from *Acoustic tile to Wood flooring*. Includes hundreds of illustrations that show how to build, install, or remodel each part of the job, as well as manhour tables for each work item so you can estimate and bid with confidence. Also includes a CD-ROM with all the material in the book, handy look-up features, and the ability to capture and print out for your crew the instructions and diagrams for any job. **792 pages, 8½ x 11, $65.00**
***Also available as an eBook (PDF)*, $32.50 at https://craftsman-book.com**

National Building Cost Manual



Square-foot costs for residential, commercial, industrial, military, schools, greenhouses, churches and farm buildings. Includes important variables that can make any building unique from a cost standpoint. Quickly work up a reliable budget estimate based on actual materials and design features, area, shape, wall height, number of floors, and support requirements.
280 pages, 8½ x 11, $98.00. Revised annually
***Also available as an eBook (PDF)*, $49.00 at https://craftsman-book.com**

National Electrical Estimator



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.
552 pages, 8½ x 11, $117.75. Revised annually
***Also available as an eBook (PDF)*, $58.88 at https://craftsman-book.com**

Estimating Home Building Costs, Revised

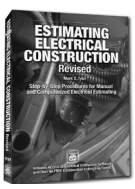


Estimate every phase of residential construction from site costs to the profit margin you include in your bid. Shows how to keep track of manhours and make accurate labor cost estimates for site clearing and excavation, footings, foundations, framing and sheathing finishes, electrical, plumbing, and more. Provides and explains sample cost estimate worksheets with complete instructions for each job phase. This practical guide to estimating home construction costs has been updated with digital *Excel* estimating forms and worksheets that ensure accurate and complete estimates for your residential projects. Enter your project information on the worksheets and *Excel* automatically totals each material and labor cost from every stage of construction to a final cost estimate worksheet. Load the enclosed CD-ROM into your computer and create your own estimate as you follow along with the step-by-step techniques in this book.
336 pages, 8½ x 11, $38.00
***Also available as an eBook (PDF)*, $19.00 at https://craftsman-book.com**

National Appraisal Estimator

An Online Appraisal Estimating Service. Produce credible single-family residence appraisals – in as little as five minutes. A smart resource for appraisers using the cost approach. Reports consider all significant cost variables and both physical and functional depreciation. For more information, visit
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Estimating Electrical Construction Revised



Estimating the cost of electrical work can be a very detailed and exacting discipline. It takes specialized skills and knowledge to create reliable estimates for electrical work. See how an expert estimates materials and labor for residential and commercial electrical construction. Learn how to use labor units, the plan take-off, and the bid summary to make an accurate estimate, how to deal with suppliers, use pricing sheets, and modify labor units. This book provides extensive labor unit tables and blank forms on a CD for estimating your next electrical job.
272 pages, 8½ x 11, $59.00
***Also available as an eBook (PDF)*, $29.50 at https://craftsman-book.com**

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National Home Improvement Estimator



Current labor and material prices for home improvement projects. Provides manhours for each job, recommended crew size, and the labor cost for removal and installation work. Gives step-by-step instructions for the work, with helpful diagrams, and home improvement shortcuts and tips from experts.

548 pages, 8½ x 11, $118.75. Revised annually

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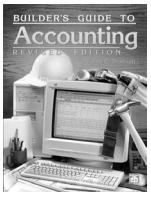
Estimating Excavation Revised eBook



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 includes a chapter on earthwork estimating software. As with any tool, you have to pick the right one. Written by an experienced dirt contractor and instructor of computer estimating software, this chapter covers the program types, explains how they work, gives the basics of how to use them, and discusses what will work best for the type of work you handle. This e-Book is the download version of the book in text searchable, PDF format. Craftsman eBooks are for use in the freely distributed Adobe Reader and are compatible with Reader 6.0 or above.

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Builder's Guide to Accounting Revised



Step-by-step, easy-to-follow guidelines for setting up and maintaining records for your building business. This practical guide to all accounting methods shows how to meet state and federal accounting requirements, explains the new depreciation rules, and describes how the Tax Reform Act can affect the way you keep records. Full of charts, diagrams, simple directions and examples to help you keep track of where your money is going. Recommended reading for many state contractor's exams. Each chapter ends with a set of test questions, and a CD-ROM included FREE has all the questions in interactive self-test software. Use the Study Mode to make studying for the exam much easier, and Exam Mode to practice your skills.

360 pages, 8½ x 11, $71.50

***Also available as an eBook (PDF),* $35.75 at https://craftsman-book.com**

Profits in Buying & Renovating Homes



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 "bargains" to avoid, and how to make simple, profitable, inexpensive upgrades. **304 pages, 8½ x 11, $24.75**

Insurance Restoration Contracting: Startup to Success

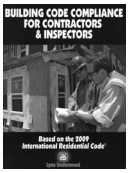


Insurance restoration — the repair of buildings damaged by water, fire, smoke, storms, vandalism and other disasters — is an exciting field of construction that provides lucrative work that's immune to economic downturns. And, with insurance companies funding the repairs, your payment is virtually guaranteed. But this type of work requires special knowledge and equipment, and that's what you'll learn about in this book. It covers fire repairs and smoke damage, water losses and specialized drying methods, mold remediation, content restoration, even damage to mobile and manufactured homes. You'll also find information on equipment needs, training classes, estimating books and software, and how restoration leads to lucrative remodeling jobs. It covers all you need to know to start and succeed as the restoration contractor that both homeowners and insurance companies call on first for the best jobs.

640 pages, 8½ x 11, $69.00

***Also available as an eBook (PDF),* $34.50 at https://craftsman-book.com**

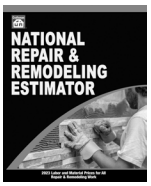
Building Code Compliance for Contractors & Inspectors



An answer book for both contractors and building inspectors, this manual explains what it takes to pass inspections under the 2009 *International Residential Code*. It includes a code checklist for every trade, covering some of the most common reasons why inspectors reject residential work — footings, foundations, slabs, framing, sheathing, plumbing, electrical, HVAC, energy conservation and final inspection. The requirement for each item on the checklist is explained, and the code section cited so you can look it up or show it to the inspector. Knowing in advance what the inspector wants to see gives you an (almost unfair) advantage. To pass inspection, do your own pre-inspection before the inspector arrives. If your work requires getting permits and passing inspections, put this manual to work on your next job. If you're considering a career in code enforcement, this can be your guidebook. **8½ x 11, 232 pages, $32.50**

***Also available as an eBook (PDF),* $16.25 at https://craftsman-book.com**

National Repair & Remodeling Estimator



The complete pricing guide for dwelling reconstruction costs. Reliable, specific data you can apply on every repair and remodeling job. Up-to-date material costs and labor figures based on thousands of jobs across the country. Provides recommended crew sizes; average production rates; exact material, equipment, and labor costs; a total unit cost and a total price including overhead and profit. Separate listings for high- and low-volume builders, so prices shown are specific for any size business. Estimating tips specific to repair and remodeling work to make your bids complete, realistic, and profitable.

456 pages, 8½ x 11, $118.50. Revised annually

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Pipe & Excavation Contracting Revised



This popular manual has been updated and improved to bring it more current with modern earthmoving and trenching equipment, refined excavation techniques, stricter safety rules, and improved materials. Shows how to read plans and compute quantities for both trench and surface excavation, figure crew and equipment productivity rates, estimate unit costs, bid the work, and get the bonds you need. Learn how to choose the right equipment for each job, use GPS, how to lay all types of water and sewer pipe, work on steep slopes or in high groundwater, efficiently remove asphalt and rock, and the various pipe, joints and fittings now available. Explains how to switch your business to excavation work when you don't have pipe contracts, and how to avoid the pitfalls that can wipe out your profits on any job. **328 pages, 8½ x 11, $70.00**

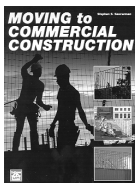
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Construction Estimating Reference Data eBook

Provides the 300 most useful manhour tables for practically every item of construction. Labor requirements are listed for sitework, concrete work, masonry, steel, carpentry, thermal and moisture protection, doors and windows, finishes, mechanical and electrical. Each section details the work being estimated and gives appropriate crew size and equipment needed.

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Moving to Commercial Construction



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

256 pages, 8½ x 11, $42.00

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Commercial Metal Stud Framing

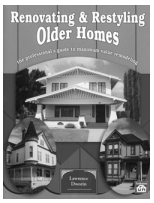


Master the transition from wood to metal stud framing with this comprehensive guide. Written by industry expert Ray Clark, this book offers step-by-step instructions, essential tools, and proven techniques to excel in commercial metal stud framing. Ideal for experienced wood framers, it includes hundreds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

208 pages, 8½ x 11, $65.50

***Also available as eBook PDF,* $32.75 at https://craftsman-book.com**

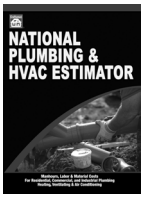
Renovating & Restyling Older Homes



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.

416 pages, 8½ x 11, $33.50

National Plumbing & HVAC Estimator

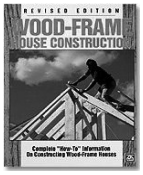


Manhours, labor and material costs for all common plumbing and HVAC work in residential, commercial, and industrial buildings. You can quickly work up a reliable estimate based on the pipe, fittings and equipment required. Every plumbing and HVAC estimator can use the cost estimates in this practical manual. Sample estimating and bidding forms and contracts also included. Explains how to handle change orders, letters of intent, and warranties. Describes the right way to process submittals, deal with suppliers and subcontract specialty work.

480 pages, 8½ x 11, $118.25. Revised annually

***eBook (PDF) also available,* $59.13 at https://craftsman-book.com**

Wood-Frame House Construction



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

320 pages, 8½ x 11, $25.50. Revised edition

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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How to Succeed With Your Own Construction Business

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

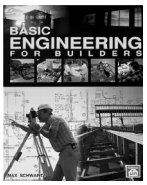
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Contractor's Guide to *QuickBooks* by Online Accounting eBook

This book is designed to help a contractor, bookkeeper and their accountant set up and use *QuickBooks* Desktop specifically for the construction industry. No use re-inventing the wheel, we have used this system with contractors for over 30 years. It works and is now the national standard. By following the steps we outlined in the book you, too, can set up a good system for job costing as well as financial reporting.

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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

***eBook (PDF) also available;* $19.75 at https://craftsman-book.com**

Home Building Mistakes & Fixes

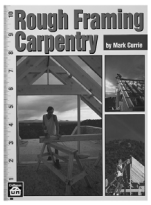


This is an encyclopedia of practical fixes for real-world home building and repair problems. There's never an end to "surprises" when you're in the business of building and fixing homes, yet there's little published on how to deal with construction that went wrong - where out-of-square or non-standard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

384 pages, 8½ x 11, $52.50

***eBook (PDF) also available,* $26.25 at https://craftsman-book.com**

Rough Framing Carpentry



If you'd like to make good money working outdoors as a framer, this is the book for you. Here you'll find shortcuts to laying out studs; speed cutting blocks, trimmers and plates by eye; quickly building and blocking rake walls; installing ceiling backing, ceiling joists, and truss joists; cutting and assembling hip trusses and California fills; arches and drop ceilings — all with production line procedures that save you time and help you make more money. Over 100 on-the-job photos of how to do it right and what can go wrong. **304 pages, 8½ x 11, $26.50**

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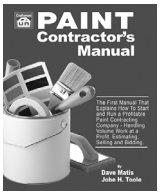
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Building Layout

Shows how to use a transit to locate a building correctly on the lot, plan proper grades with minimum excavation, find utility lines and easements, establish correct elevations, lay out accurate foundations, and set correct floor heights. Explains how to plan sewer connections, level an out-of-level foundation, use a story pole and batterboards, work on steep sites, and minimize excavation costs. **240 pages, 5½ x 8½, $22.00**

Paint Contractor's Manual



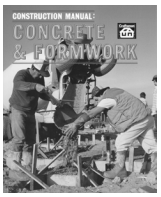
How to start and run a profitable paint contracting company: getting set up and organized to handle volume work, avoiding mistakes, getting maximum production from your crews and the most value from your advertising dollar. Shows how to estimate all prep and painting. Loaded with manhour estimates, sample forms, contracts, charts, tables and examples you can use.

224 pages, 8½ x 11, $46.50
***eBook (PDF) also available;* $23.25 at https://craftsman-book.com**

Build Smarter with Alternative Materials

New building products are coming out almost every week. Some of them may become new standards, as sheetrock replaced lath and plaster some years ago. Others are little more than a gimmick. To write this manual, the author researched hundreds of products that have come on the market in recent years. The ones he describes in this book will do the job better, creating a superior, longer-lasting finished product, and in many cases also save you time and money. Some are made with recycled products — a good selling point with many customers. But most of all, they give you choices, so you can give your customers choices. In this book, you'll find materials for almost all areas of constructing a house, from the ground up. For each product described, you'll learn where you can get it, where to use it, what benefits it provides, any disadvantages, and how to install it — including tips from the author. And to help you price your jobs, each description ends with manhours – for both the first time you install it, and after you've done it a few times. **336 pages, 8½ x 11, $34.75**

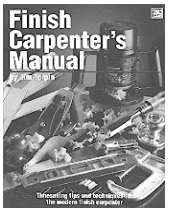
Concrete & Formwork



This practical manual has all the information you need to select and pour the right mix for the job, lay out the structure, choose the right form materials, design and build the forms, and finish and cure the concrete. Nearly 100 pages of step-by-step instructions show how to construct and erect most types of site-fabricated wood forms used in residential construction.

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Finish Carpenter's Manual



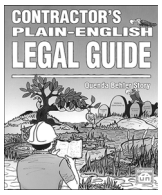
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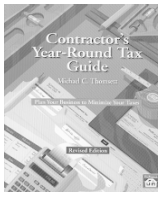
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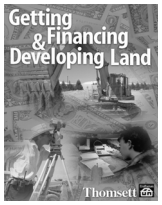
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