



2025

**Albert S. Paxton
48th Edition**

NATIONAL REPAIR & REMODELING ESTIMATOR



**2025 Labor and Material Prices for All
Repair & Remodeling Work**



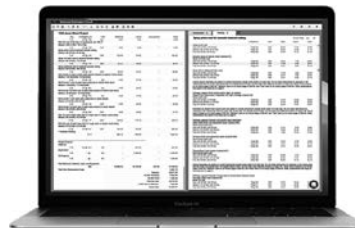
2025 NATIONAL REPAIR & REMODELING ESTIMATOR

Albert S. Paxton & Joshua K.J. Paxton

48th Edition



**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.

Generate professional estimates from your internet browser. Includes 10 Craftsman cost databases. It's never been easier. No disk and no download needed!



- Turn your estimate into a bid.
- Turn your bid into a contract.
- ConstructionContractWriter.com



Craftsman Book Company
6058 Corte del Cedro, Carlsbad, CA 92011

Preface

The authors have corresponded with manufacturers and wholesalers of building material supplies and surveyed retail pricing services. From these sources, they have developed Average Material Unit Costs which should apply in most parts of the country.

Wherever possible, the authors have listed Average Labor Unit Costs which are derived from the Average Manhours per Unit, the Crew Size, and the Wage Rates used in this book. Please read How to Use This Book for a more in-depth explanation of the arithmetic.

If you prefer, you can develop your own local labor unit costs. You can do this by simply multiplying the Average Manhours per Unit by your local crew wage rates per hour. Using your actual local labor wage rates for the trades will make your estimate more accurate.

What is a realistic labor unit cost to one reader may well be low or high to another reader, because of variations in labor efficiency. The Average Manhours per Unit figures were developed by time studies at job sites around the country. To determine the daily production rate for the crew, divide the total crew manhours per day by the Average Manhours per Unit.

The subject topics in this book are arranged in alphabetical order, A to Z. To help you find specific construction items, there is a complete alphabetical index at the end of the book, and a main subject index at the beginning of the book.

About the Authors

Albert Paxton (AlbertSPaxton@gmail.com) has been a California licensed General Contractor (B1-425946) and a Certified Professional Estimator with the *American Society of Professional Estimators*. He served as the National Project Director at *Unified Building Sciences, Inc. (UBS)* (www.UnifiedGroup.com) in Dallas, Texas, from 2012, to his *UBS* retirement in December 2022. Mr. Paxton is active as an Insurance Policy Appraiser and Umpire, and as an Arbitration Neutral.

Joshua Paxton (JoshuaP@UnifiedGroup.com) serves as Senior Consultant at *Unified Building Sciences, Inc. (UBS)* (www.UnifiedGroup.com) since 2017 and is located in Los Angeles, California.

This manual shows crew, manhours, material, labor and equipment cost estimates based on Large or Small Volume work, then a total cost and a total including overhead and profit. No single price fits all repair and remodeling jobs. Generally, work done on smaller jobs costs more per unit installed and work on larger jobs costs less. The estimates in this book reflect that simple fact. The two estimates you find for each work item show the authors' opinion of the likely range of costs for most contractors and for most jobs. So, which cost do you use, High Volume or Low Volume?

The only right price is the one that gets the job and earns a reasonable profit. Finding that price always requires estimating judgment. Use Small Volume cost estimates when some or most of the following conditions are likely:

- The crews won't work more than a few days on site.
- Better quality work is required.
- Productivity will probably be below average.
- Volume discounts on materials aren't available.
- Bidding is less competitive.
- Your overhead is higher than most contractors.

When few or none of those conditions apply, use Large Volume cost estimates.

The *UBS* staff is comprised of estimators, engineers and project managers who are also building appraisers, expert witnesses and arbitrators in residential and commercial construction, both new and repair and remodeling work. *UBS* operates nationwide, with clients including property insurance carriers, financial institutions, self-insureds, and private individuals.

In addition to Daily Claims involving commercial and industrial structures, Joshua Paxton's *UBS* assignments have included Catastrophe Claims related to fire, hurricane, flood, etc.

Main Subject Index

Abbreviations	20	Insulation	258
Acoustical treatment	21	Batt or roll / Loose fill / Rigid	
Adhesives	24	Lighting fixtures	268
Air conditioning and ventilating systems ...	28	Indoor / Outdoor	
Bath accessories	37	Mantels, fireplace	271
Bathtubs (includes whirlpool)	44	Marlite paneling	271
Cabinets	52	Masonry	272
Kitchen / Vanity		Brick / Concrete block / Glass block	
Canopies	67	Glazed tile / Quarry tile / Veneer	
Carpet	70	Molding and trim	287
Caulking	72	Pine / Hardwood / MDF / Resin	
Ceramic tile	75	Painting and cleaning	300
Countertop / Floors / Walls		Interior / Exterior	
Closet door systems	78	Paneling	314
Bi-folding / Mirror / Sliding		Plaster and stucco	318
Columns	87	Range hoods	322
Concrete, cast-in-place	89	Resilient flooring	324
Footings / Forms / Foundations / Reinforcing		Linoleum / Vinyl	
Countertops	98	Roofing	329
Ceramic tile / Concrete / Engineered stone /		Aluminum / Built-up / Clay tile / Composition	
Formica / Granite / Quartz / Wood		Mineral surface / Wood shakes or shingles	
Cupolas	104	Sheet metal	345
Demolition	105	Flashing / Gravel stop / Roof edging / Vents	
Concrete / Masonry / Rough carpentry		Shower and tub doors	349
Dishwashers	121	Shower bases or receptors	354
Door frames	122	Shower stalls	356
Door hardware	124	Shower tub units	358
Doors	126	Shutters	359
Exterior / Interior		Siding	362
Drywall	145	Aluminum / Hardboard / Vinyl / Wood	
Electrical	147	Sinks	380
Entrances	154	Bathroom / Kitchen / Utility	
Excavation	155	Skylights	386
Fences	156	Spas	389
Board / Chain link / Gates / Split rail		Stairs	390
Fiberglass panels	162	Stair parts / Shop fabricated stairs	
Fireplaces	164	Suspended ceilings	398
Food centers	165	Toilets, bidets, urinals	401
Framing (rough carpentry)	166	Trash compactors	403
Beams / Joists / Rafters / Trusses		Ventilation	404
Garage doors	214	Flue piping / Chimney vent	
Garage door operators	217	Wallpaper	407
Garbage disposers	218	Water heaters	409
Glass and glazing	220	Electric / Gas / Solar	
Glu-lam products	223	Water softeners filtration system	416
Beams / Purlins / Sub-purlins / Ledgers		Windows	417
Gutters and downspouts	248	Aluminum / Horizontal slide / Wood / Garden	
Hardwood flooring	250	Index	434
Block / Parquetry / Strip			
Heating	253		
Boilers / Forced air / Space heaters			

How to Use This Book

1	2	3	4	5	6	7	8	9	10	11	12
Description	Oper	Unit	Vol	Crew Size	Man- hours per Unit	Crew Output per Day	Avg Mat'l Unit Cost	Avg Labor Unit Cost	Avg Equip Unit Cost	Avg Total Unit Cost	Avg Price Incl O&P

The descriptions and cost data in this book are arranged in a series of columns, which are described below. The cost data is divided into two categories: Costs Based On Large Volume and Costs Based On Small Volume. These two categories provide the estimator with a pricing range for each construction topic.

The Description column (1) contains the pertinent, specific information necessary to make the pricing information relevant and accurate.

The Operation column (2) contains a description of the construction repair or remodeling operation being performed. Generally the operations are Demolition, Install, and Reset.

The Unit column (3) contains the unit of measurement or quantity which applies to the item described.

The Volume column (4) breaks jobs into Large and Small categories. Based on the information given regarding volume (on page 2), select your job size.

The Crew Size column (5) contains a description of the trade that usually installs or labors on the specified item. It includes information on the labor trade that installs the material and the typical crew size. Letters and numbers are used in the abbreviations in the crew size column. Full descriptions of these abbreviations are in the Crew Compositions and Wage Rates table, beginning on page 15.

The Manhours per Unit column (6) is for the listed operation and listed crew.

The units per day in this book don't take into consideration unusually large or small quantities. But items such as travel, accessibility to work, experience of workers, and protection of undamaged property, which can favorably or adversely affect productivity, have been considered in developing Average Manhours per Unit. For further information about labor, see "Notes — Labor" in the Notes Section of some specific items.

Crew Output per Day (7) is based on how many units, on average, a crew can install or demo in one 8-hour day.

Crew Output per Day and Average Material Unit (8) Cost should assist the estimator in:

1. Checking prices quoted by others.
2. Developing local prices.

The Average Material Unit Cost column contains an average material cost for products (including, in many cases, the by-products used in installing the products) for both large and small volume. It doesn't include an allowance for sales tax, delivery charges, overhead and profit. Percentages for waste, shrinkage, or coverage have been taken into consideration unless indicated. For other information, see "Dimensions" or "Installation" in the Notes Section.

If the item described has many or very unusual by-products which are essential to determining the Average Material Unit Cost, the author has provided examples of material pricing. These examples are placed throughout the book in the Notes Section.

You should verify labor rates and material prices locally. Though the prices in this book are average material prices, prices vary from locality to locality. A local hourly wage rate should normally include taxes, benefits, and insurance. Some contractors may also include overhead and profit in the hourly rate.

The Average Labor Unit Cost column (9) contains an average labor cost based on the Average Manhours per Unit and the Crew Compositions and Wage Rates table. The average labor unit cost equals the Average Manhours per Unit multiplied by the Average Crew Rate per hour. The rates include fringe benefits, taxes, and insurance. Examples that show how to determine the average labor unit cost are provided in the Notes Section.

The Average Equipment Unit Cost column (10) contains an average equipment cost, based on both the average daily rental and the cost per day if owned and depreciated. The costs of daily maintenance and the operator are included.

The Average Total Unit Cost column (11) includes the sum of the Material, Equipment, and Labor Cost columns. It doesn't include an allowance for overhead and profit.

The Average (Total) Price Including Overhead and Profit column (12) results from adding an overhead and profit allowance to Total Cost. This allowance reflects the author's interpretation of average fixed and variable overhead expenses and the labor intensiveness of the operation vs. the costs of materials for the operation. This allowance factor varies throughout the book, depending on the operation. Each contractor interprets O&P differently. The range can be from 15 percent to 80 percent of the Average Total Unit Cost.

Estimating Techniques

Estimating Repair/Remodeling Jobs: The unforeseen, unpredictable, or unexpected can ruin you.

Each year, the residential repair and remodeling industry grows. It's currently outpacing residential new construction due to increases in land costs, labor wage rates, interest rates, material costs, and economic uncertainty. When people can't afford a new home, they tend to remodel their old one. And there are always houses that need repair, from natural disasters or accidents like fire. The professional repair and remodeling contractor is moving to the forefront of the industry.

Repair and remodeling spawns three occupations: the contractor and his workers, the insurance company property claims adjuster, and the property damage appraiser. Each of these professionals shares common functions, including estimating the cost of the repair or remodeling work.

Estimating isn't an exact science. Yet the estimate determines the profit or loss for the contractor, the fairness of the claim payout by the adjuster, and the amount of grant or loan by the appraiser. Quality estimating must be uppermost in the mind of each of these professionals. And accurate estimates are possible only when you know exactly what materials are needed and the number of manhours required for demolition, removal, and installation. Remember, profits follow the professional. To be profitable you must control costs — and cost control is directly related to accurate, professional estimates.

There are four general types of estimates, each with a different purpose and a corresponding degree of accuracy:

- The guess method: "All bathrooms cost \$5,000." or "It looks like an \$8,000 job to me."
- The per measure method: (I like to call it the surprise package.) "Remodeling costs \$60 per SF, the job is 500 SF, so the price is \$30,000."

These two methods are the least accurate and accomplish little for the adjuster or the appraiser. The contractor might use the methods for qualifying customers (e.g., "I thought a bathroom would only cost \$2,000."), but never as the basis for bidding or negotiating a price.

- The piece estimate or stick-by-stick method.
- The unit cost estimate method.

These two methods yield a detailed estimate itemizing all of the material quantities and costs, the labor manhours and wage rates, the subcontract costs, and the allowance for overhead and profit.

Though time-consuming, the detailed estimate is the most accurate and predictable. It's a very satisfactory

tool for negotiating either the contract price or the adjustment of a building loss. The piece estimate and the unit cost estimate rely on historical data, such as manhours per specific job operation and recent material costs. The successful repair and remodeling contractor, or insurance/appraisal company, maintains records of previous jobs detailing allocation of crew manhours per day and materials expended.

While new estimators don't have historical data records, they can rely on reference books, magazines, and newsletters to estimate manhours and material costs. It is important to remember that **the reference must pertain to repair and remodeling**. This book is designed *specifically* to meet this requirement.

The reference material must specialize in repair and remodeling work because there's a large cost difference between new construction and repair and remodeling. Material and labor construction costs vary radically with the size of the job or project. Economies of scale come into play. The larger the quantity of materials, the better the purchase price should be. The larger the number of units to be installed, the greater the labor efficiency.

Repair and remodeling work, compared to new construction, is more expensive due to a normally smaller volume of work. Typical repair work involves only two or three rooms of a house, or one roof. In new construction, the job size may be three to five complete homes or an entire development. And there's another factor: a lot of repair and remodeling is done with the house occupied, forcing the crew to work around the normal, daily activities of the occupants. In new construction, the approach is systematic and logical — work proceeds from the ground up to the roof and to the inside of the structure.

Since the jobs are small, the repair and remodeling contractor doesn't employ trade specialists. Repairers employ the "jack-of-all-trades" who is less specialized and therefore less efficient. This isn't to say the repairer is less professional than the trade specialist. On the contrary, the repairer must know about many more facets of construction: not just framing, but painting, finish carpentry, roofing, and electrical as well. But because the repairer has to spread his expertise over a greater area, he will be less efficient than the specialist who repeats the same operation all day long.

Another factor reducing worker efficiency is poor access to the work area. With new construction, where building is an orderly "from the ground up" approach, workers have easy access to the work area for any given operation. The workers can spread out as much as needed, which facilitates efficiency and minimizes the manhours required to perform a given operation.

The opposite situation exists with repair and remodeling construction. Consider an example where the work area involves fire damage on the second floor. Materials either go up through the interior stairs or through a second

story window. Neither is easy when the exterior and interior walls have a finished covering such as siding and drywall. That results in greater labor costs with repair and remodeling because it takes more manhours to perform many of the same tasks.

If, as a professional estimator, you want to start collecting historical data, the place to begin is with daily worker time sheets that detail:

1. total hours worked by each worker per day
2. what specific operations each worker performed that day
3. how many hours (to the nearest tenth) each worker used in each operation performed that day.

Second, you must catalog all material invoices daily, being sure that quantities and unit costs per item are clearly indicated.

Third, maintain a record of overhead expenses attributable to the particular project. Then, after a number of jobs, you'll be able to calculate an average percentage of the job's gross amount that's attributable to overhead. Many contractors add 45% for overhead and profit to their total direct costs (direct labor, direct material, and direct subcontract costs). But that figure may not be right for your jobs.

Finally, each week you should reconcile in a job summary file the actual costs versus the estimated costs, and determine why there is any difference. This information can't immediately help you on this job since the contract has been signed, but it will be invaluable to you on your next job.

Up to now I've been talking about general estimating theory. Now let's be more specific. On page 8 is a Building Repair Estimate form. Each line is keyed to an explanation. A filled-out copy of the form is also provided, and on page 10, a blank, full-size copy that you can reproduce for your own use.

You can adapt the Building Repair Estimate form, whether you're a contractor, adjuster, or appraiser. Use of the form will yield a detailed estimate that will identify:

- The room or area involved, including sizes, dimensions and measurements.
- The kind and quality of material to be used.
- The quantities of materials to be used and verification of their prices.
- The type of work to be performed (demolish, remove, install, remove and reset) by what type of crew.
- The crew manhours per job operation and verification of the hourly wage scale.
- All arithmetical calculations that can be verified.
- Areas of difference between your estimate and others.

- Areas that will be a basis for negotiation and discussion of details.

Each job estimate begins with a visual inspection of the work site. If it's a repair job, you've got to see the damage. Without a visual inspection, you can't select a method of repair and you can't properly evaluate the opinions of others regarding repair or replacement. With either repair or remodeling work, the visual inspection is essential to uncover the "hiders" — the unpredictable, unforeseen, and unexpected problems that can turn profit into loss, or simplicity into nightmare. You're looking for the many variables and unknowns that exist behind an exterior or interior wall covering.

Along with the Building Repair Estimate form, use this checklist to make sure you're not forgetting anything.

Checklist

- Site accessibility: Will you store materials and tools in the garage? Is it secure? You can save a half hour to an hour each day by storing tools in the garage. Will the landscaping prevent trucks from reaching the work site? Are wheelbarrows or concrete pumpers going to be required?
- Soil: What type and how much water content? Will the soil change your excavation estimate?
- Utility lines: What's under the soil and where? Should you schedule the utilities to stake their lines?
- Soundness of the structure: If you're going to remodel, repair or add on, how sound is that portion of the house that you're going to have to work around? Where are the load-bearing walls? Are you going to remove and reset any walls? Do the floor joists sag?
- Roof strength: Can the roof support the weight of another layer of shingles. (Is four layers of composition shingles already too much?)
- Electrical: Is another breaker box required for the additional load?

This checklist is by no means complete, but it is a start. Take pictures! A digital camera will quickly pay for itself. When you're back at the office, the picture helps reconstruct the scene. Before and after pictures are also a sales tool representing your professional expertise.

During the visual inspection always be asking yourself "what if" this or that happened. Be looking for potential problem areas that would be extremely labor intensive or expensive in material to repair or replace.

Also spend some time getting to know your clients and their attitudes. Most of repair and remodeling work occurs while the house is occupied. If the work will be messy, let the homeowners know in advance. Their satisfaction is your ultimate goal — and their satisfaction will provide you a pleasant working atmosphere. You're there to communicate with them. At the end of an estimate and visual inspection, the homeowner should have a clear idea of what you can or can't do, how it will be

done, and approximately how long it will take. Don't discuss costs now! Save the estimating for your quiet office with a print-out calculator and your cost files or reference books.

What you create on your estimate form during a visual inspection is a set of rough notes and diagrams that make the estimate speak. To avoid duplications and omissions, estimate in a *systematic sequence of inspection*. There are two questions to consider. First, where do you start the estimate? Second, in what order will you list the damaged or replaced items? It's customary to start in the room having either the most damage or requiring the most extensive remodeling. The sequence of listing is important. Start with either the floor or the ceiling. When starting with the floor, you might list items in the following sequence: Joists, subfloor, finish floor, base — listing from bottom to top. When starting with the ceiling, you reverse, and list from top to bottom. The important thing is to be consistent as you go from room to room! It's a good idea to figure the roof and foundation separately, instead of by the room.

After completing your visual inspection, go back to your office to cost out the items. Talk to your material supply houses and get unit costs for the quantity involved. Consult your job files or reference books and assign crew manhours to the different job operations.

There's one more reason for creating detailed estimates. Besides an estimate, what else have your notes given you? A material take-off sheet, a lumber list, a plan and specification sheet — the basis for writing a job summary for comparing estimated costs and profit versus actual costs and profit — and a project schedule that minimizes down time.

Here's the last step: Enter an amount for overhead and profit. No matter how small or large your work volume is, be realistic — everyone has overhead and every business entity works to make a fair and reasonable profit. An office, even in your home, costs money to operate. If family members help out, pay them. Everyone's time is valuable!

If you expect there will be a supervising general contractor on the job, and the overhead and profit is computed as a percentage of the job, then overhead and profit dollars automatically adjust to the job size and the job complexity.

Don't forget to charge for performing your estimate. A professional expects to be paid. You'll render a better product if you know you're being paid for your time. If you want to soften the blow to the owner, say the first hour is free or that the cost of the estimate will be deducted from the job price if you get the job.

In conclusion, whether you're a contractor, adjuster, or appraiser, you're selling your personal service, your ideas, and your reputation. To be successful you must:

- Know yourself and your capabilities.
- Know what the job will require by ferreting out the "hiders."
- Know your products and your work crew.
- Know your productivity and be able to deliver in a reasonable manner and within a reasonable time frame.
- Know your client and make it clear that all change orders, no matter how large or small, will cost money.

National Estimator Cloud

This manual is also available by subscription on the Web. *National Estimator Cloud* includes all ten of Craftsman's 2025 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.
- 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.

Keyed Explanations of the Building Repair Estimate Form

1. Insert name of insured(s).
2. Insert claim number or, if claim number is not available, insert policy number or binder number.
3. Insert the page number and the total number of pages.
4. Insert street address, city and state where loss or damage occurred.
5. Insert type of loss (wind, hail, fire, water, etc.)
6. Check YES if there is other insurance, whether collectible or not. Check NO if there's only one insurer.
7. Insert the present replacement cost of the building. What would it cost to build the structure today?
8. Insert present actual cash value of the building.
9. Insert the amount of insurance applicable. If there is more than one insurer, insert the total amount of applicable insurance provided by all insurers.
10. If the amount of insurance required is based on replacement cost value, circle RCV and insert the percent required by the policy, if any.
Note: (regarding 10 and 11) if there is a non-concurrency, i.e., one insurer requires insurance to 90% of value while another requires insurance to 80% of value, make a note here. Comment on the non-concurrency in the settlement report.
11. If the amount of insurance required is based on actual cash value, circle ACV and insert the percent required by the policy, if any.
Note: (regarding 10 and 11) if there is a non-concurrency, i.e., one insurer requires insurance to 90% of value while another requires insurance to 80% of value, make a note here. Comment on the non-concurrency in the settlement report.
12. The installed price and/or material price only, as expressed in columns 13 through 15, may include any of the following (expressed in units and unit prices):
 - Material only (no labor)
 - Material and labor to replace
 - Material and labor to remove and replace

Unit Cost is determined by dividing dollar cost by quantity. The term cost, as used in unit cost, is not intended to include any allowance, percentage or otherwise, for overhead or profit. Usually, overhead and profit are expressed as a percentage of cost. Cost must be determined first. Insert a line or dash in a space(s) in columns 13, 14, 15, 17, 18 or 19 if the space is not to be used.
13. The *units* column includes both the quantity and the unit of measure, i.e., 100 SF, 100 BF, 200 CF, 100 CY, 20 ea., etc.
14. The *unit price* may be expressed in dollars, cents or both. If the units column has 100 SF and if the unit price column has \$.10, this would indicate the price to be 100 per SF.
15. The *total* column is merely the dollar product of the quantity (in column 13) times the price per unit measure (in column 14).
16. 16-19. These columns are normally used to express labor as follows: hours times rate per hour. However, it is possible to express labor as a unit price, i.e., 100 SF in column 13, a dash in column 17, \$.05 in column 18 and \$5.00 in column 19.
20. Under *description of item*, the following may be included:
 - Description of item to be repaired or replaced (studs 2" x 4" 8'0" #2 Fir, Sheetrock 1/2", etc.)
 - Quantities or dimensions (20 pcs., 8'0" x 14'0", etc.)
 - Location within a room or area (north wall, ceiling, etc.)
 - Method of correcting damage (paint - 1 coat; sand, fill and finish; R&R; remove only; replace; resize; etc.)
- 21-22. Dollar totals of columns A and B respectively.
- 23-27. Spaces provided for items not included in the body of the estimate (subtotals, overhead, profit, sales tax, etc.)
28. Total cost of repair.
29. Insert the agreed amount here. The agreement may be between the claim representative and the insured or between the claim rep and the repairer. If the agreed price is different from the grand total, the reason(s) for the difference should be itemized on the estimate sheet. If there is no room, attach an additional estimate sheet.
30. PRINT the name of the insured or the repairer so that it is legible.
31. PRINT the address of the insured or repairer legibly. Include phone number.
32. The insured or a representative of the repairer should sign here indicating agreement with the claim rep's estimate.
33. Insured or representative of the repairer should insert date here.
34. Claim rep should sign here.
35. Claim rep should insert date here.
36. Insert name of service office here.

Building Repair Estimate

Building Repair Estimate						
Date _____						
Insured			Claim or Policy No.		Page of _____	
Loss Address			Home Ph.		Cause of Loss	
City			Bus. Ph.		Other Ins. Y N	
Building R.C.V.		Bldg. A.C.V.		Insurance Amount		
Insurance Required R.C.V.(%) A.C.V.(%)			Unit Cost or Material Price Only		Labor Price Only	
Description of Item			Unit	Unit Price	Total (Col. A)	Total Col. B
			Hours	Rate		
THIS IS NOT AN ORDER TO REPAIR						
TOTALS						
The undersigned agrees to complete and guarantee repairs at a total of \$					Total Column A	
Repairer						
Street						
City			Phone			
By						
Adjuster			Date of A/P			
Adj. License No. (If Any)			Grand Total			
Service Office Name						

Note: This form does not replace the need for field notes, sketches and measurements.

Wage Rates Used in This Book

Wage rates listed here and used in this book were compiled in the fall of 2024 and projected to mid-2025. Wage rates are in dollars per hour.

“Base Wage Per Hour” (Col. 1) includes items such as vacation pay and sick leave which are normally taxed as wages. Nationally, these benefits average 5.53% of the Base Wage Per Hour. This amount is paid by the Employer in addition to the Base Wage Per Hour.

“Liability Insurance and Employer Taxes” (Cols. 3 & 4) include national averages for state unemployment insurance (4.00%), federal unemployment insurance (0.60%), Social Security and Medicare tax (7.65%), li-

bility insurance (2.29%), and Workers’ Compensation Insurance which varies by trade. This total percentage (Col. 3) is applied to the sum of Base Wage Per Hour and Taxable Fringe Benefits (Col. 1 + Col. 2) and is listed in Dollars (Col. 4). This amount is paid by the Employer in addition to the Base Wage Per Hour and the Taxable Fringe Benefits.

“Non-Taxable Fringe Benefits” (Col. 5) include employer-sponsored medical insurance and other benefits, which nationally average 4.88% of the Base Wage Per Hour.

“Total Hourly Cost Used In This Book” is the sum of Columns 1, 2, 4, & 5.

Trade	1 Base Wage Per Hour	2 Taxable Fringe Benefits (5.53% of Base Wage)	3 Liability Insurance & Employer Taxes %	4 \$	5 Non-Taxable Fringe Benefits (4.88% of Base Wage)	6 Total Hourly Cost Used in This Book
Air Tool Operator	\$36.36	\$2.07	24.82%	\$9.54	\$1.83	\$49.80
Bricklayer or Stone Mason	\$31.23	\$1.77	23.87%	\$7.88	\$1.57	\$42.45
Bricktender	\$23.50	\$1.34	23.87%	\$5.93	\$1.18	\$31.95
Carpenter	\$30.54	\$1.74	29.23%	\$9.44	\$1.53	\$43.25
Cement Mason	\$31.14	\$1.77	22.21%	\$7.31	\$1.56	\$41.78
Drywall Installer	\$31.81	\$1.81	22.32%	\$7.50	\$1.60	\$42.72
Drywall Taper	\$32.45	\$1.84	22.32%	\$7.65	\$1.63	\$43.57
Electrician, Journeyman Wireman	\$35.57	\$2.02	19.15%	\$7.20	\$1.79	\$46.58
Equipment Operator	\$35.49	\$2.02	23.82%	\$8.93	\$1.78	\$48.22
Fence Erector	\$32.14	\$1.83	24.59%	\$8.35	\$1.61	\$43.93
Floor Layer: Carpet, Linoleum, Soft Tile	\$29.02	\$1.65	22.71%	\$6.97	\$1.46	\$39.10
Floor Layer: Hardwood	\$30.47	\$1.73	22.71%	\$7.31	\$1.53	\$41.04
Glazier	\$30.83	\$1.75	24.19%	\$7.88	\$1.55	\$42.01
Laborer, General Construction	\$24.94	\$1.42	30.33%	\$7.99	\$1.25	\$35.60
Lather	\$31.84	\$1.81	20.45%	\$6.88	\$1.60	\$42.13
Marble Setter	\$27.35	\$1.55	20.51%	\$5.93	\$1.37	\$36.20
Millwright / Finish Carpenter	\$31.07	\$1.77	20.42%	\$6.71	\$1.56	\$41.11
Mosaic & Terrazzo Setter	\$25.91	\$1.47	20.51%	\$5.62	\$1.30	\$34.30
Mosaic & Terrazzo Setter Helper	\$24.19	\$1.37	20.51%	\$5.24	\$1.21	\$32.01
Painter, Brush	\$32.10	\$1.82	23.69%	\$8.04	\$1.61	\$43.57
Painter, Spray-Gun	\$33.06	\$1.88	23.69%	\$8.28	\$1.66	\$44.88
Paperhanger	\$33.71	\$1.91	23.69%	\$8.44	\$1.69	\$45.75
Plasterer	\$31.39	\$1.78	26.62%	\$8.83	\$1.58	\$43.58
Plasterer Helper	\$23.25	\$1.32	26.62%	\$6.54	\$1.17	\$32.28
Plumber	\$36.51	\$2.07	23.32%	\$9.00	\$1.83	\$49.41
Reinforcing Ironworker	\$32.40	\$1.84	26.84%	\$9.19	\$1.63	\$45.06
Roofer, Foreman	\$34.39	\$1.95	40.01%	\$14.54	\$1.73	\$52.61
Roofer, Journeyman	\$31.26	\$1.78	40.01%	\$13.22	\$1.57	\$47.83
Roofer, Hot Mop Pitch	\$32.20	\$1.83	40.01%	\$13.61	\$1.62	\$49.26
Roofer, Wood Shingles	\$32.82	\$1.86	40.01%	\$13.88	\$1.65	\$50.21
Sheet Metal Worker	\$34.94	\$1.99	24.59%	\$9.08	\$1.75	\$47.76
Tile Setter	\$29.30	\$1.66	20.51%	\$6.35	\$1.47	\$38.78
Tile Setter's Helper	\$24.19	\$1.37	20.51%	\$5.24	\$1.21	\$32.01
Truck Driver	\$26.93	\$1.53	24.82%	\$7.06	\$1.35	\$36.87

Area Modification Factors

Construction costs are higher in some areas than in other areas. Add or deduct the percentages shown on the following pages to adapt the costs in this book to your job site. Adjust your cost estimate by the appropriate 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 by the first three digits of the postal zip code. 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.

Alabama Average	-3%	Herlong	961.....1%
Anniston	362.....-5%	Inglewood	902-905 .....10%
Auburn	368.....-5%	Irvine	926-927 .....14%
Bellamy	369.....1%	Lompoc	934.....1%
Birmingham	350-352 .....3%	Long Beach	907-908 .....11%
Dothan	363.....-6%	Los Angeles	900-901 .....8%
Evergreen	364.....-9%	Marysville	959.....1%
Gadsden	359.....-8%	Modesto	953.....0%
Huntsville	358.....2%	Mojave	935.....6%
Jasper	355.....-7%	Novato	949.....11%
Mobile	365-366 .....-2%	Oakland	945-947 .....19%
Montgomery	360-361 .....-1%	Orange	928.....14%
Scottsboro	357.....-1%	Oxnard	930.....2%
Selma	367.....-6%	Pasadena	910-912 .....10%
Sheffield	356.....-1%	Rancho	
Tuscaloosa	354.....-5%	Cordova	956-957 .....6%
Alaska Average	14%	Redding	960.....-4%
Anchorage	995.....17%	Richmond	948.....19%
Fairbanks	997.....20%	Riverside	925.....4%
Juneau	998.....13%	Sacramento	958.....6%
Ketchikan	999.....7%	Salinas	939.....2%
King Salmon	996.....13%	San Bernardino	923-924 .....2%
Arizona Average	-5%	San Diego	919-921 .....8%
Chambers	865.....-17%	San Francisco	941.....28%
Douglas	855.....-10%	San Jose	950-951 .....24%
Flagstaff	860.....-9%	San Mateo	943-944 .....20%
Kingman	864.....-10%	Santa Barbara	931.....3%
Mesa	852.....6%	Santa Rosa	954.....5%
Phoenix	850.....6%	Stockton	952.....4%
Prescott	863.....-6%	Sunnyvale	940.....24%
Show Low	859.....-10%	Van Nuys	913-916 .....8%
Tucson	856-857 .....6%	Whittier	906.....9%
Yuma	853.....5%	Colorado Average	1%
Arkansas Average	-8%	Aurora	800-801 .....10%
Batesville	725.....-11%	Boulder	803-804 .....6%
Camden	717.....-4%	Colorado	
Fayetteville	727.....-2%	Springs	808-809 .....0%
Fort Smith	729.....-8%	Denver	802.....11%
Harrison	726.....-14%	Durango	813.....-6%
Hope	718.....-10%	Fort Morgan	807.....-4%
Hot Springs	719.....-13%	Glenwood	
Jonesboro	724.....-6%	Springs	816.....3%
Little Rock	720-722 .....-4%	Grand Junction	814-815 .....-1%
Pine Bluff	716.....-11%	Greeley	806.....6%
Russellville	728.....-7%	Longmont	805.....3%
West Memphis	723.....-1%	Pagosa Springs	811.....-4%
California Average	8%	Pueblo	810.....-3%
Alhambra	917-918 .....10%	Salida	812.....-3%
Bakersfield	932-933 .....0%	Connecticut Average	11%
El Centro	922.....0%	Bridgeport	66.....12%
Eureka	955.....-2%	Bristol	60.....13%
Fresno	936-938 .....0%	Fairfield	64.....13%
		Hartford	61.....12%

Figures for three-digit zips are the average of all five-digit zips in that area, and are the weighted average of factors for labor, material and equipment.

The *National Estimator Cloud* program at <https://craftsman-book.com/national-estimator-cloud> will apply an area modification factor for any five-digit zip you select. Click the Area Cost Modification icon on the program tool bar. Area modifications in *National Estimator Cloud* are updated regularly and may differ from figures on the following pages.

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

New Haven	65.....11%	Hawaii Average	19%
Norwich	63.....6%	Aliamanu	968.....21%
Stamford	068-069 .....17%	Ewa	967.....18%
Waterbury	67.....11%	Halawa Heights	967.....18%
West Hartford	62.....6%	Hilo	967.....18%
Delaware Average	3%	Honolulu	968.....21%
Dover	199.....-3%	Kailua	968.....21%
Newark	197.....7%	Lualualei	967.....18%
Wilmington	198.....5%	Mililani Town	967.....18%
District of Columbia		Pearl City	967.....18%
Washington	200-205 .....12%	Wahiawa	967.....18%
Florida Average	-2%	Waianae	967.....18%
Altamonte		Wailuku (Maui)	967.....18%
Springs	327.....-1%	Idaho Average	-7%
Bradenton	342.....-3%	Boise	837.....0%
Brooksville	346.....-6%	Coeur d'Alene	838.....-8%
Daytona Beach	321.....-8%	Idaho Falls	834.....-8%
Fort Lauderdale	333.....5%	Lewiston	835.....-9%
Fort Myers	339.....-3%	Meridian	836.....-6%
Fort Pierce	349.....-8%	Pocatello	832.....-10%
Gainesville	326.....-7%	Sun Valley	833.....-8%
Jacksonville	322.....2%	Illinois Average	3%
Lakeland	338.....-6%	Arlington Heights	600.....12%
Melbourne	329.....-3%	Aurora	605.....14%
Miami	330-332 .....3%	Belleville	622.....-1%
Naples	341.....0%	Bloomington	617.....-1%
Ocala	344.....-8%	Carbondale	629.....-7%
Orlando	328.....3%	Carol Stream	601.....13%
Panama City	324.....-8%	Centralia	628.....-8%
Pensacola	325.....-6%	Champaign	618.....-2%
Saint Augustine	320.....-1%	Chicago	606-608 .....14%
Saint Cloud	347.....0%	Decatur	623.....-10%
St Petersburg	337.....-4%	Galesburg	614.....-4%
Tallahassee	323.....-6%	Granite City	620.....0%
Tampa	335-336 .....2%	Green River	612.....0%
W. Palm Beach	334.....3%	Joliet	604.....12%
Georgia Average	-1%	Kankakee	609.....-1%
Albany	317.....-5%	Lawrenceville	624.....-6%
Athens	306.....0%	Oak Park	603.....16%
Atlanta	303.....21%	Peoria	615-616 .....4%
Augusta	308-309 .....-7%	Peru	613.....1%
Buford	305.....1%	Quincy	602.....14%
Calhoun	307.....-2%	Rockford	610-611 .....3%
Columbus	318-319 .....-6%	Springfield	625-627 .....-2%
Dublin/		Urbana	619.....-5%
Fort Valley	310.....-7%	Indiana Average	-2%
Hinesville	313.....-2%	Aurora	470.....0%
Kings Bay	315.....-8%	Bloomington	474.....-3%
Macon	312.....2%	Columbus	472.....-6%
Marietta	300-302 .....8%	Elkhart	465.....-4%
Savannah	314.....-1%	Evansville	476-477 .....-2%
Statesboro	304.....-8%		
Valdosta	316.....-6%		

Fort Wayne	467-468	.....3%	Maine Average	-4%	Meridian	393	.....4%	New Mexico Average	-8%		
Gary	463-464	.....2%	Auburn	42	.....-3%	Tupelo	388	.....-1%	Alamogordo	883	.....-13%
Indianapolis	460-4627%	Augusta	43-2%	Missouri Average			-4%	Albuquerque	870-871-2%
Jasper	475	.....-7%	Bangor	44	.....-5%	Cape Girardeau	637	.....-7%	Clovis	881	.....-14%
Jeffersonville	471	.....-7%	Bath	45	.....-3%	Caruthersville	638	.....-6%	Farmington	874	.....-1%
Kokomo	469	.....-2%	Brunswick	039-040	.....1%	Chillicothe	646	.....-5%	Fort Sumner	882	.....1%
Lafayette	479	.....-2%	Camden	48	.....-10%	Columbia	652	.....-4%	Gallup	873	.....-10%
Muncie	473	.....-9%	Cutler	46	.....-9%	East Lynne	647	.....-7%	Holman	877	.....-9%
South Bend	466	.....-3%	Dexter	49	.....-3%	Farmington	636	.....-9%	Las Cruces	880	.....-9%
Terre Haute	478	.....2%	Northern Area	47	.....-9%	Hannibal	634	.....-10%	Santa Fe	875	.....-7%
Iowa Average			-5%	Portland	414%	Independence	6407%	Socorro	878-19%
Burlington	526-5%	Maryland Average			2%	Jefferson City	650-651-4%	Truth or Consequences	879-6%
Carroll	514	.....-8%	Annapolis	214	.....9%	Joplin	648	.....-7%	Tucumcari	884	.....-11%
Cedar Falls	506-4%	Baltimore	210-2125%	Kansas City	6418%	New York Average			5%
Cedar Rapids	522-524	.....0%	Bethesda	208-209	.....11%	Kirksville	635	.....-9%	Albany	120-123	.....9%
Cherokee	510	.....-3%	Church Hill	216	.....-4%	Knob Noster	653	.....-9%	Amityville	117	.....8%
Council Bluffs	515	.....-5%	Cumberland	215	.....-10%	Lebanon	654-655	.....-13%	Batavia	140	.....0%
Creston	508	.....-8%	Elkton	219	.....3%	Poplar Bluff	639	.....-11%	Binghamton	137-139	.....-1%
Davenport	527-528	.....0%	Frederick	217	.....4%	Saint Charles	633	.....0%	Bronx	104	.....9%
Decorah	521	.....-7%	Laurel	206-207	.....8%	Saint Joseph	644-645	.....0%	Brooklyn	112	.....4%
Des Moines	500-503	.....3%	Salisbury	218	.....-8%	Springfield	656-658	.....8%	Buffalo	142	.....0%
Dubuque	520-3%	Massachusetts Average			13%	St Louis	630-6318%	Elmira	149-2%
Fort Dodge	505-5%	Ayer	015-0169%	Montana Average			-4%	Flushing	11311%
Mason City	504	.....-3%	Bedford	17	.....16%	Billings	590-591	.....2%	Garden City	115	.....12%
Ottumwa	525	.....-9%	Boston	021-022	.....42%	Butte	597	.....4%	Hicksville	118	.....11%
Sheldon	512	.....-5%	Brockton	023-024	.....21%	Fairview	592	.....2%	Ithaca	148	.....-5%
Shenandoah	516	.....-16%	Cape Cod	26	.....5%	Great Falls	594	.....-4%	Jamaica	114	.....9%
Sioux City	511	.....-2%	Chicopee	10	.....7%	Havre	595	.....-7%	Jamestown	147	.....-7%
Spencer	513	.....-8%	Dedham	19	.....16%	Helena	596	.....-5%	Kingston	124	.....-2%
Waterloo	507	.....-5%	Fitchburg	14	.....13%	Kalispell	599	.....-7%	Long Island	111	.....31%
Kansas Average			-8%	Hingham	2020%	Miles City	593-12%	Montauk	1198%
Colby	677	.....-10%	Lawrence	18	.....13%	Missoula	598	.....-5%	New York (Manhattan)	100-102	.....32%
Concordia	669-15%	Nantucket	259%	Nebraska Average			-6%	New York City	100-10232%
Dodge City	678	.....-9%	New Bedford	27	.....8%	Alliance	693	.....-2%	Newcomb	128	.....4%
Emporia	668	.....-12%	Northfield	13	.....8%	Columbus	686	.....-6%	Niagara Falls	143	.....-9%
Fort Scott	667	.....-7%	Pittsfield	12	.....2%	Grand Island	688	.....-6%	Plattsburgh	129	.....1%
Hays	676	.....-12%	Springfield	11	.....5%	Hastings	689	.....-7%	Poughkeepsie	125-126	.....1%
Hutchinson	675-9%	Michigan Average			1%	Lincoln	683-685-3%	Queens	11013%
Independence	673	.....-6%	Battle Creek	490-491	.....0%	McCook	690	.....-9%	Rochester	144-146	.....3%
Kansas City	660-662	.....6%	Detroit	481-482	.....7%	Norfolk	687	.....-9%	Rockaway	116	.....6%
Liberal	679	.....-10%	Flint	484-485	.....0%	North Platte	691	.....-2%	Rome	133-134	.....-6%
Salina	674	.....-9%	Grand Rapids	493-495	.....1%	Omaha	680-681	.....1%	Staten Island	103	.....7%
Topeka	664-666	.....-3%	Grayling	497	.....-5%	Valentine	692	.....-16%	Stewart	127	.....3%
Wichita	670-672-4%	Jackson	4920%	Nevada Average			2%	Syracuse	130-1324%
Kentucky Average			-5%	Lansing	488-4890%	Carson City	8970%	Tonawanda	141-2%
Ashland	411-412	.....8%	Marquette	498-499	.....-4%	Elko	898	.....2%	Utica	135	.....-7%
Bowling Green	421	.....-2%	Pontiac	483	.....11%	Ely	893	.....-2%	Watertown	136	.....-4%
Campton	413-414	.....-10%	Royal Oak	480	.....7%	Fallon	894	.....3%	West Point	109	.....2%
Covington	410	.....1%	Saginaw	486-487	.....-4%	Las Vegas	889-891	.....4%	White Plains	105-108	.....10%
Elizabethtown	4275%	Traverse City	496-4%	Reno	8952%	North Carolina Average			-1%
Frankfort	406	.....-4%	Minnesota Average			2%	Charlestown			36	.....-4%
Hazard	417-418	.....13%	Bemidji	566	.....0%	Concord	34	.....6%	Concord	34	.....6%
Hopkinsville	422	.....-4%	Brainerd	564	.....-2%	Dover	38	.....6%	Dover	38	.....6%
Lexington	403-405	.....2%	Duluth	556-558	.....2%	Lebanon	37	.....-5%	Lebanon	37	.....-5%
London	407-409	.....-9%	Fergus Falls	565	.....-6%	Littleton	35	.....6%	Littleton	35	.....6%
Louisville	400-402	.....6%	Magnolia	561	.....-9%	Manchester	032-033	.....1%	Manchester	032-033	.....1%
Owensboro	423	.....-6%	Mankato	560	.....-1%	New Boston	030-031	.....6%	New Boston	030-031	.....6%
Paducah	420-1%	Minneapolis	553-55517%	New Hampshire Average			2%	Charlestown	36-4%
Pikeville	415-416	.....-12%	Rochester	559	.....1%	Atlantic City	080-084	.....2%	Concord	34	.....6%
Somerset	425-426	.....-12%	St Cloud	563	.....11%	Brick	87	.....2%	Dover	38	.....6%
White Plains	424	.....-8%	St Paul	550-551	.....16%	Dover	78	.....10%	Lebanon	37	.....-5%
Louisiana Average			2%	Thief River Falls	567-3%	Edison	088-08911%	Littleton	356%
Alexandria	713-714	.....-7%	Willmar	562	.....-4%	Edison	088-089	.....11%	Manchester	032-033	.....1%
Baton Rouge	707-70818%	Mississippi Average			0%	Hackensack	769%	New Boston	030-0316%
Houma	703	.....10%	Clarksdale	386	.....-2%	Atlantic City	080-084	.....2%	Newark	071-073	.....8%
Lafayette	705	.....5%	Columbus	397	.....5%	Brick	87	.....2%	Passaic	70	.....9%
Lake Charles	706	.....-1%	Greenville	387	.....-6%	Dover	78	.....10%	Paterson	074-075	.....7%
Mandeville	704	.....4%	Greenwood	389	.....-3%	Edison	088-089	.....11%	Princeton	85	.....11%
Minden	710	.....-6%	Gulfport	395	.....2%	Monmouth	77	.....9%	Summit	79	.....14%
Monroe	712	.....-9%	Jackson	390-392	.....3%	Newark	071-073	.....8%	Trenton	86	.....10%
New Orleans	700-70113%	Laurel	3942%	Paterson	074-0757%	New Jersey Average			9%
Shreveport	711	.....-6%	McComb	396	.....-1%	Princeton	85	.....11%	Atlantic City	080-084	.....2%

Jamestown	584.....-4%	Philadelphia	190-191 .....8%	Houston	770-772 .....11%	Huntington	255-257 .....-5%
Minot	587.....-2%	Pittsburgh	152.....5%	Huntsville	773.....9%	Lewisburg	249.....-9%
Nekoma	583.....-14%	Pottsville	179.....-6%	Longview	756.....-7%	Martinsburg	254.....-6%
Williston	588.....14%	Punxsutawney	157.....-11%	Lubbock	793-794 .....-5%	Morgantown	265.....-6%
Ohio Average	-1%	Reading	195-196 .....0%	Lufkin	759.....-8%	New Martinsville	262.....-10%
Akron	442-443 .....3%	Scranton	184-185 .....-3%	McAllen	785.....-12%	Parkersburg	261.....-8%
Canton	446-447 .....-3%	Somerset	155.....-9%	Midland	797.....7%	Romney	267.....-9%
Chillicothe	456.....-6%	Southeastern	193.....8%	Palestine	758.....-6%	Sugar Grove	268.....-12%
Cincinnati	450-452 .....3%	Uniontown	154.....-8%	Plano	750.....9%	Wheeling	260.....0%
Cleveland	440-441 .....1%	Valley Forge	194.....10%	San Angelo	769.....-7%	Wisconsin Average	0%
Columbus	432.....6%	Warminster	189.....6%	San Antonio	780-782 .....1%	Amery	540.....0%
Dayton	453-455 .....0%	Warrendale	150-151 .....5%	Texarkana	755.....-9%	Beloit	535.....4%
Lima	458.....-6%	Washington	153.....2%	Tyler	757.....-7%	Clam Lake	545.....-7%
Marietta	457.....-7%	Wilkes Barre	186-187 .....-4%	Victoria	779.....-1%	Eau Claire	547.....-3%
Marion	433.....-5%	Williamsport	177.....-8%	Waco	765-767 .....-3%	Green Bay	541-543 .....3%
Newark	430-431 .....6%	York	173-174 .....1%	Wichita Falls	763.....-9%	La Crosse	546.....-2%
Sandusky	448-449 .....-4%	Rhode Island Average	5%	Woodson	764.....-5%	Ladysmith	548.....-4%
Steubenville	439.....-6%	Bristol	28.....5%	Utah Average	-2%	Madison	537.....6%
Toledo	434-436 .....7%	Coventry	28.....5%	Clearfield	840.....2%	Milwaukee	530-534 .....5%
Warren	444.....-5%	Cranston	29.....6%	Green River	845.....-6%	Oshkosh	549.....5%
Youngstown	445.....-4%	Davisville	28.....5%	Ogden	843-844 .....-6%	Portage	539.....0%
Zanesville	437-438 .....-4%	Narragansett	28.....5%	Provo	846-847 .....-4%	Prairie du Chien	538.....-7%
Oklahoma Average	-8%	Newport	28.....5%	Salt Lake City	841.....-3%	Wausau	544.....-5%
Adams	739.....-8%	Providence	29.....6%	Vermont Average	-4%	Wyoming Average	-4%
Ardmore	734.....-8%	Warwick	28.....5%	Albany	58.....-7%	Casper	826.....0%
Clinton	736.....-8%	South Carolina Average	0%	Battleboro	53.....-3%	Cheyenne/ Laramie	820.....-2%
Durant	747.....-6%	Aiken	298.....4%	Beecher Falls	59.....-7%	Gillette	827.....-4%
Enid	737.....-9%	Beaufort	299.....-2%	Bennington	52.....-8%	Powell	824.....-11%
Lawton	735.....-10%	Charleston	294.....5%	Burlington	54.....2%	Rawlins	823.....-4%
McAlester	745.....-10%	Columbia	290-292 .....-1%	Montpelier	56.....0%	Riverton	825.....-8%
Muskogee	744.....-8%	Greenville	296.....6%	Rutland	57.....-5%	Rock Springs	829-831 .....-1%
Norman	730.....-4%	Myrtle Beach	295.....-6%	Springfield	51.....-5%	Sheridan	828.....-5%
Oklahoma City	731.....-2%	Rock Hill	297.....2%	White River Junction	50.....-3%	Wheatland	822.....-3%
Ponca City	746.....-7%	Spartanburg	293.....-4%	Virginia Average	-2%	CANADIAN AREA MODIFIERS	
Poteau	749.....-13%	South Dakota Average	-7%	Abingdon	242.....-8%	These figures assume an exchange rate of \$1.00 Canadian to \$0.76 U.S.	
Pryor	743.....-7%	Aberdeen	574.....-8%	Alexandria	220-223 .....15%	Alberta	13%
Shawnee	748.....-9%	Mitchell	573.....-8%	Charlottesville	229.....-2%	Calgary	.....14%
Tulsa	740-741 .....-2%	Mobridge	576.....-11%	Chesapeake	233.....-1%	Edmonton	.....14%
Woodward	738.....-12%	Pierre	575.....-10%	Culpeper	227.....-5%	Fort McMurray	.....12%
Oregon Average	-2%	Rapid City	577.....-5%	Farmville	239.....-8%	British Columbia	7%
Adrian	979.....-14%	Sioux Falls	570-571 .....2%	Fredericksburg	224-225 .....-6%	Fraser Valley	.....6%
Bend	977.....1%	Watertown	572.....-7%	Galax	243.....-11%	Okanagan	.....6%
Eugene	974.....-3%	Tennessee Average	-1%	Harrisonburg	228.....-4%	Vancouver	.....9%
Grants Pass	975.....-3%	Chattanooga	374.....3%	Lynchburg	245.....-5%	Manitoba	0%
Klamath Falls	976.....-7%	Clarksville	370.....5%	Norfolk	235-237 .....0%	North Manitoba	.....0%
Pendleton	978.....-1%	Cleveland	373.....1%	Petersburg	238.....0%	South Manitoba	.....0%
Portland	970-972 .....13%	Columbia	384.....-6%	Radford	241.....2%	Selkirk	.....0%
Salem	973.....-1%	Cookeville	385.....-8%	Reston	201.....12%	Winnipeg	.....0%
Pennsylvania Average	-3%	Jackson	383.....1%	Richmond	232.....5%	New Brunswick	-13%
Allentown	181.....3%	Kingsport	376.....-4%	Roanoke	240.....0%	Moncton	.....-13%
Altoona	166.....-7%	Knoxville	377-379 .....-1%	Staunton	244.....-6%	Nova Scotia	-8%
Beaver Springs	178.....-8%	McKenzie	382.....-11%	Tazewell	246.....-11%	Amherst	.....-8%
Bethlehem	180.....4%	Memphis	380-381 .....4%	Virginia Beach	234.....-1%	Nova Scotia	.....-7%
Bradford	167.....-12%	Nashville	371-372 .....6%	Williamsburg	230-231 .....-1%	Sydney	.....-8%
Butler	160.....-3%	Texas Average	0%	Winchester	226.....-5%	Newfoundland/ Labrador	-3%
Chambersburg	172.....-6%	Abilene	795-796 .....-6%	Washington Average	2%	Ontario	7%
Clearfield	168.....-1%	Amarillo	790-791 .....-6%	Clarkston	994.....0%	London	.....7%
DuBois	158.....-10%	Arlington	760.....5%	Everett	982.....4%	Thunder Bay	.....6%
East Stroudsburg	183.....-9%	Austin	786-787 .....9%	Olympia	985.....2%	Toronto	.....7%
Erie	164-165 .....-8%	Bay City	774.....17%	Pasco	993.....4%	Quebec	-1%
Genesee	169.....-8%	Beaumont	776-777 .....6%	Seattle	980-981 .....14%	Montreal	.....-1%
Greensburg	156.....-5%	Brownwood	768.....-5%	Spokane	990-992 .....-3%	Quebec City	.....-1%
Harrisburg	170-171 .....3%	Bryan	778.....-3%	Tacoma	983-984 .....4%	Saskatchewan	4%
Hazleton	182.....-5%	Childress	792.....-5%	Vancouver	986.....4%	La Ronge	.....3%
Johnstown	159.....-6%	Corpus Christi	783-784 .....6%	Wenatchee	988.....1%	Prince Albert	.....2%
Kittanning	162.....-8%	Dallas	751-753 .....9%	Yakima	989.....-7%	Saskatoon	.....5%
Lancaster	175-176 .....0%	Del Rio	788.....-10%	West Virginia Average	-6%		
Meadville	163.....-12%	El Paso	798-799 .....-10%	Beckley	258-259 .....-9%		
Montrose	188.....-7%	Fort Worth	761-762 .....5%	Bluefield	247-248 .....-11%		
New Castle	161.....-4%	Galveston	775.....9%	Charleston	250-253 .....1%		
		Giddings	789.....3%	Clarksburg	263-264 .....2%		
		Greenville	754.....3%	Fairmont	266.....-3%		

Crew Compositions & Wage Rates

Crew Code		Manhours per day	Total costs \$/Hr.	\$/Day	Average Crew Rate (ACR) per Hour	Average Crew Rate (ACROP) per Hour w/O&P
AB	1 Air tool operator	8.00	\$49.80	\$398.40		
	1 Laborer	8.00	\$35.60	\$284.80		
	TOTAL	16.00		\$683.20	\$42.70	\$59.78
AD	2 Air tool operators	16.00	\$49.80	\$796.80		
	1 Laborer	8.00	\$35.60	\$284.80		
	TOTAL	24.00		\$1,081.60	\$45.07	\$63.09
BD	3 Bricklayers	24.00	\$42.45	\$1,018.80		
	2 Bricktenders	16.00	\$31.95	\$511.20		
	TOTAL	40.00		\$1,530.00	\$38.25	\$54.32
BK	1 Bricklayer	8.00	\$42.45	\$339.60		
	1 Bricktender	8.00	\$31.95	\$255.60		
	TOTAL	16.00		\$595.20	\$37.20	\$52.82
BO	2 Bricklayers	16.00	\$42.45	\$679.20		
	2 Bricktenders	16.00	\$31.95	\$511.20		
	TOTAL	32.00		\$1,190.40	\$37.20	\$52.82
2C	2 Carpenters	16.00	\$43.25	\$692.00	\$43.25	\$60.55
CA	1 Carpenter	8.00	\$43.25	\$346.00	\$43.25	\$60.55
CH	1 Carpenter	8.00	\$43.25	\$346.00		
	1/2 Laborer	4.00	\$35.60	\$142.40		
	TOTAL	12.00		\$488.40	\$40.70	\$56.98
CJ	1 Carpenter	8.00	\$43.25	\$346.00		
	1 Laborer	8.00	\$35.60	\$284.80		
	TOTAL	16.00		\$630.80	\$39.43	\$55.20
CN	2 Carpenters	16.00	\$43.25	\$692.00		
	1/2 Laborer	4.00	\$35.60	\$142.40		
	TOTAL	20.00		\$834.40	\$41.72	\$58.41
CS	2 Carpenters	16.00	\$43.25	\$692.00		
	1 Laborer	8.00	\$35.60	\$284.80		
	TOTAL	24.00		\$976.80	\$40.70	\$56.98
CT	1 Mosaic & terrazzo setter	8.00	\$34.30	\$274.40	\$34.30	\$48.71
CU	4 Carpenters	32.00	\$43.25	\$1,384.00		
	1 Laborer	8.00	\$35.60	\$284.80		
	TOTAL	40.00		\$1,668.80	\$41.72	\$58.41
CW	2 Carpenters	16.00	\$43.25	\$692.00		
	2 Laborers	16.00	\$35.60	\$569.60		
	TOTAL	32.00		\$1,261.60	\$39.43	\$55.20
CX	4 Carpenters	32.00	\$43.25	\$1,384.00	\$43.25	\$60.55

Crew Code		Manhours per day	Total costs \$/Hr.	\$/Day	Average Crew Rate (ACR) per Hour	Average Crew Rate (ACROP) per Hour w/O&P
CY	3 Carpenters	24.00	\$43.25	\$1,038.00		
	2 Laborers	16.00	\$35.60	\$569.60		
	1 Equipment operator	8.00	\$48.22	\$385.76		
	1 Laborer	8.00	\$35.60	\$284.80		
TOTAL		56.00		\$2,278.16	\$40.68	\$56.95
CZ	4 Carpenters	32.00	\$43.25	\$1,384.00		
	3 Laborers	24.00	\$35.60	\$854.40		
	1 Equipment operator	8.00	\$48.22	\$385.76		
	1 Laborer	8.00	\$35.60	\$284.80		
TOTAL		72.00		\$2,908.96	\$40.40	\$56.56
DD	2 Cement masons	16.00	\$41.78	\$668.48		
	1 Laborer	8.00	\$35.60	\$284.80		
TOTAL		24.00		\$953.28	\$39.72	\$56.40
DF	3 Cement masons	24.00	\$41.78	\$1,002.72		
	5 Laborers	40.00	\$35.60	\$1,424.00		
TOTAL		64.00		\$2,426.72	\$37.92	\$53.84
DI	1 Drywall installer	8.00	\$42.72	\$341.76	\$42.72	\$59.81
DJ	1 Drywall installer	8.00	\$42.72	\$341.76		
	1 Laborer	8.00	\$35.60	\$284.80		
TOTAL		16.00		\$626.56	\$39.16	\$54.82
DK	1 Drywall installer	8.00	\$42.72	\$341.76		
	1 Drywall taper	8.00	\$43.57	\$348.56		
TOTAL		16.00		\$690.32	\$43.15	\$60.40
DL	2 Drywall installers	16.00	\$42.72	\$683.52		
	1 Drywall taper	8.00	\$43.57	\$348.56		
TOTAL		24.00		\$1,032.08	\$43.00	\$60.20
DM	2 Drywall installers	16.00	\$42.72	\$683.52	\$42.72	\$59.81
DT	1 Drywall taper	8.00	\$43.57	\$348.56	\$43.57	\$61.00
DU	2 Drywall tapers	16.00	\$43.57	\$697.12	\$43.57	\$61.00
EA	1 Electrician	8.00	\$46.58	\$372.64	\$46.58	\$67.54
EB	2 Electricians	16.00	\$46.58	\$745.28	\$46.58	\$67.54
ED	1 Electrician	8.00	\$46.58	\$372.64		
	1 Carpenter	8.00	\$43.25	\$346.00		
TOTAL		16.00		\$718.64	\$44.92	\$65.13
FA	1 Floorlayer	8.00	\$39.10	\$312.80	\$39.10	\$54.74
FB	2 Floorlayers	16.00	\$39.10	\$625.60		
	1/4 Laborer	2.00	\$35.60	\$71.20		
TOTAL		18.00		\$696.80	\$38.71	\$54.20
FC	1 Floorlayer (hardwood)	8.00	\$41.04	\$328.33	\$41.04	\$58.28

Crew Code		Manhours per day	Total costs \$/Hr.	\$/Day	Average Crew Rate (ACR) per Hour	Average Crew Rate (ACROP) per Hour w/O&P
FD	2 Floorlayers (hardwood)	16.00	\$41.04	\$656.66		
	1/4 Laborer	2.00	\$35.60	\$71.20		
TOTAL		18.00		\$727.86	\$40.44	\$57.42
GA	1 Glazier	8.00	\$42.01	\$336.08	\$42.01	\$59.65
GB	2 Glaziers	16.00	\$42.01	\$672.16	\$42.01	\$59.65
GC	3 Glaziers	24.00	\$42.01	\$1,008.24	\$42.01	\$59.65
HA	1 Fence erector	8.00	\$43.93	\$351.48	\$43.93	\$62.39
HB	1 Fence erector	8.00	\$43.93	\$351.48		
	1 Laborer	8.00	\$35.60	\$284.80		
TOTAL		16.00		\$636.28	\$39.77	\$56.47
HD	2 Fence erectors	16.00	\$43.93	\$702.96		
	1 Laborer	8.00	\$35.60	\$284.80		
TOTAL		24.00		\$987.76	\$41.16	\$58.44
1L	1 Laborer	8.00	\$35.60	\$284.80	\$35.60	\$49.84
LB	2 Laborers	16.00	\$35.60	\$569.60	\$35.60	\$49.84
LC	2 Laborers	16.00	\$35.60	\$569.60		
	1 Carpenter	8.00	\$43.25	\$346.00		
TOTAL		24.00		\$915.60	\$38.15	\$53.41
LD	2 Laborers	16.00	\$35.60	\$569.60		
	2 Carpenters	16.00	\$43.25	\$692.00		
TOTAL		32.00		\$1,261.60	\$39.43	\$55.20
LG	5 Laborers	40.00	\$35.60	\$1,424.00		
	1 Carpenter	8.00	\$43.25	\$346.00		
TOTAL		48.00		\$1,770.00	\$36.88	\$51.63
LH	3 Laborers	24.00	\$35.60	\$854.40	\$35.60	\$49.84
LJ	4 Laborers	32.00	\$35.60	\$1,139.20	\$35.60	\$49.84
LK	2 Laborers	16.00	\$35.60	\$569.60		
	2 Carpenters	16.00	\$43.25	\$692.00		
	1 Equipment operator	8.00	\$48.22	\$385.76		
	1 Laborer	8.00	\$35.60	\$284.80		
TOTAL		48.00		\$1,932.16	\$40.25	\$56.35
LL	3 Laborers	24.00	\$35.60	\$854.40		
	1 Carpenter	8.00	\$43.25	\$346.00		
	1 Equipment operator	8.00	\$48.22	\$385.76		
	1 Laborer	8.00	\$35.60	\$284.80		
TOTAL		48.00		\$1,870.96	\$38.98	\$54.57
LR	1 Lather	8.00	\$42.13	\$337.04	\$42.13	\$59.82
MB	1 Millwright finish carpenter	8.00	\$41.11	\$328.88	\$41.11	\$58.38
	1 Laborer	8.00	\$35.60	\$284.80		
TOTAL		16.00		\$613.68	\$38.36	\$54.46

Crew Code		Manhours per day	Total costs \$/Hr.	\$/Day	Average Crew Rate (ACR) per Hour	Average Crew Rate (ACROP) per Hour w/O&P
ML	2 Bricklayers	16.00	\$42.45	\$679.20		
	1 Bricktender	8.00	\$31.95	\$255.60		
TOTAL		24.00		\$934.80	\$38.95	\$55.31
MR	1 Millwright finish carpenter	8.00	\$41.11	\$328.88	\$41.11	\$58.38
NA	1 Painter (brush)	8.00	\$43.57	\$348.56	\$43.57	\$61.00
NC	1 Painter (spray)	8.00	\$44.88	\$359.06	\$44.88	\$62.84
PD	2 Plasterers	16.00	\$43.58	\$697.28		
	1 Plasterer helper	8.00	\$32.28	\$258.24		
TOTAL		24.00		\$955.52	\$39.81	\$56.53
PE	3 Plasterers	24.00	\$43.58	\$1,045.92		
	2 Plasterer helpers	16.00	\$32.28	\$516.48		
TOTAL		40.00		\$1,562.40	\$39.06	\$55.47
QA	1 Paperhanger	8.00	\$45.75	\$365.96	\$45.75	\$66.33
2R	2 Roofers (journeyman)	16.00	\$47.83	\$765.28	\$47.83	\$70.31
RG	2 Roofers (journeyman)	16.00	\$47.83	\$765.28		
	1 Laborer	8.00	\$35.60	\$284.80		
TOTAL		24.00		\$1,050.08	\$43.75	\$64.32
RJ	2 Roofers (wood shingles)	16.00	\$50.21	\$803.41	\$50.21	\$73.81
RL	2 Roofers (journeyman)	16.00	\$47.83	\$765.28		
	1/2 Laborer	4.00	\$35.60	\$142.40		
TOTAL		20.00		\$907.68	\$45.38	\$66.71
RM	2 Roofers (wood shingles)	16.00	\$50.21	\$803.41		
	1/2 Laborer	4.00	\$35.60	\$142.40		
TOTAL		20.00		\$945.81	\$47.29	\$69.52
RQ	2 Roofers (wood shingles)	16.00	\$50.21	\$803.41		
	7/8 Laborer	7.00	\$35.60	\$249.20		
TOTAL		23.00		\$1,052.61	\$45.77	\$67.28
RS	1 Roofer (foreman)	8.00	\$52.61	\$420.85		
	3 Roofers (pitch)	24.00	\$49.26	\$1,182.19		
	2 Laborers	16.00	\$35.60	\$569.60		
TOTAL		48.00		\$2,172.64	\$45.26	\$66.54
RT	2 Roofers (pitch)	16.00	\$49.26	\$788.12		
	1 Laborer	8.00	\$35.60	\$284.80		
TOTAL		24.00		\$1,072.92	\$44.71	\$65.72
SA	1 Plumber	8.00	\$49.41	\$395.28	\$49.41	\$71.64
SB	1 Plumber	8.00	\$49.41	\$395.28		
	1 Laborer	8.00	\$35.60	\$284.80		
TOTAL		16.00		\$680.08	\$42.51	\$61.63

Crew Code		Manhours per day	Total costs \$/Hr.	\$/Day	Average Crew Rate (ACR) per Hour	Average Crew Rate (ACROP) per Hour w/O&P
SC	1 Plumber	8.00	\$49.41	\$395.28		
	1 Electrician	8.00	\$46.58	\$372.64		
	TOTAL	16.00		\$767.92	\$48.00	\$69.59
SD	1 Plumber	8.00	\$49.41	\$395.28		
	1 Laborer	8.00	\$35.60	\$284.80		
	1 Electrician	8.00	\$46.58	\$372.64		
TOTAL	24.00		\$1,052.72	\$43.86	\$63.60	
SE	2 Plumbers	16.00	\$49.41	\$790.56		
	1 Laborer	8.00	\$35.60	\$284.80		
	1 Electrician	8.00	\$46.58	\$372.64		
TOTAL	32.00		\$1,448.00	\$45.25	\$65.61	
SF	2 Plumbers	16.00	\$49.41	\$790.56		
	1 Laborer	8.00	\$35.60	\$284.80		
	TOTAL	24.00		\$1,075.36	\$44.81	\$64.97
SG	3 Plumbers	24.00	\$49.41	\$1,185.84		
	1 Laborer	8.00	\$35.60	\$284.80		
	TOTAL	32.00		\$1,470.64	\$45.96	\$66.64
TB	1 Tile setter (ceramic)	8.00	\$38.78	\$310.24		
	1 Tile setter helper (ceramic)	8.00	\$32.01	\$256.09		
	TOTAL	16.00		\$566.33	\$35.40	\$50.26
UA	1 Sheet metal worker	8.00	\$47.76	\$382.08	\$47.76	\$67.82
UB	2 Sheet metal workers	16.00	\$47.76	\$764.16	\$47.76	\$67.82
UC	2 Sheet metal workers	16.00	\$47.76	\$764.16		
	2 Laborers	16.00	\$35.60	\$569.60		
	TOTAL	32.00		\$1,333.76	\$41.68	\$59.19
UD	1 Sheet metal worker	8.00	\$47.76	\$382.08		
	1 Laborer	8.00	\$35.60	\$284.80		
	TOTAL	16.00		\$666.88	\$41.68	\$59.19
UE	1 Sheet metal worker	8.00	\$47.76	\$382.08		
	1 Laborer	8.00	\$35.60	\$284.80		
	1/2 Electrician	4.00	\$46.58	\$186.32		
TOTAL	20.00		\$853.20	\$42.66	\$60.58	
UF	2 Sheet metal workers	16.00	\$47.76	\$764.16		
	1 Laborer	8.00	\$35.60	\$284.80		
	TOTAL	24.00		\$1,048.96	\$43.71	\$62.06
VB	1 Equipment operator	8.00	\$48.22	\$385.76		
	1 Laborer	8.00	\$35.60	\$284.80		
	TOTAL	16.00		\$670.56	\$41.91	\$58.67

Abbreviations Used in This Book

ABS	acrylonitrile butadiene styrene	F.H.A.	Federal Housing Administration	PSI	per square inch
ACR	average crew rate	fl. oz.	fluid ounce	PVC	polyvinyl chloride
AGA	American Gas Association	flt	flight	Qt.	quart
AMP	ampere	ft.	foot	R.E.	rounded edge
Approx.	approximately	ga.	gauge	R/L	random length
ASME	American Society of Mechanical Engineers	gal	gallon	RS	rapid start (lamps)
auto.	automatic	galv.	galvanized	R/W/L	random width and length
Avg.	average	GFI	ground fault interrupter	S4S	surfaced-four-sides
Bdle.	bundle	GPH	gallons per hour	SF	square foot
BTU	British thermal unit	GPM	gallons per minute	SL	slimline (lamps)
BTUH	British thermal unit per hour	H	height or high	Sq.	1 square or 100 square feet
C	100	HP, hp	horsepower	S.S.B.	single strength, B quality
cc	center to center or cubic centimeter	Hr.	hour	std.	standard
CF	cubic foot	HVAC	heating, ventilating, air conditioning	SY	square yard
CFM	cubic foot per minute	i.d.	inside diameter	T	thick
CLF	100 linear feet	i.e.	that is	T&G	tongue and groove
Const.	construction	Inst	install	U	thermal conductivity
Corr.	corrugated	I.P.S.	iron pipe size	U.I.	united inches
CSF	100 square feet	KD	knocked down	UL	Underwriters Laboratories
CSY	100 square yards	KW, kw	kilowatts	U.S.G.	United States Gypsum
Ctn	carton	L	length or long	VLF	vertical linear feet
CWT	100 pounds	lb, lbs.	pound(s)	W	width or wide
CY	cubic yard	LF	linear feet	yr.	year
Cu.	cubic	LS	lump sum		
d	penny	M	1000		
D	deep or depth	Mat'l	material		
Demo	demolish	Max.	maximum		
dia.	diameter	MBF	1000 board feet		
D.S.A.	double strength, A grade	MBHP	1000 boiler horsepower		
D.S.B.	double strength, B grade	Mi	miles		
Ea	each	Min.	minimum		
e.g.	for example	MSF	1000 square feet		
etc.	et cetera	O.B.	opposed blade		
exp.	exposure	oc	on center		
FAS	First and Select grade	o.d.	outside dimension		
		oz.	ounce		
		pcs.	pieces		
		pkg.	package		

Symbols

/	per
%	percent
"	inches
'	foot or feet
x	by
o	degree
#	number or pounds
\$	dollar
+/-	plus or minus

For crew abbreviations, please see Crew Compositions & Wage Rates chart, pages 15 to 19.

Acoustical and insulating tile

1. Dimensions

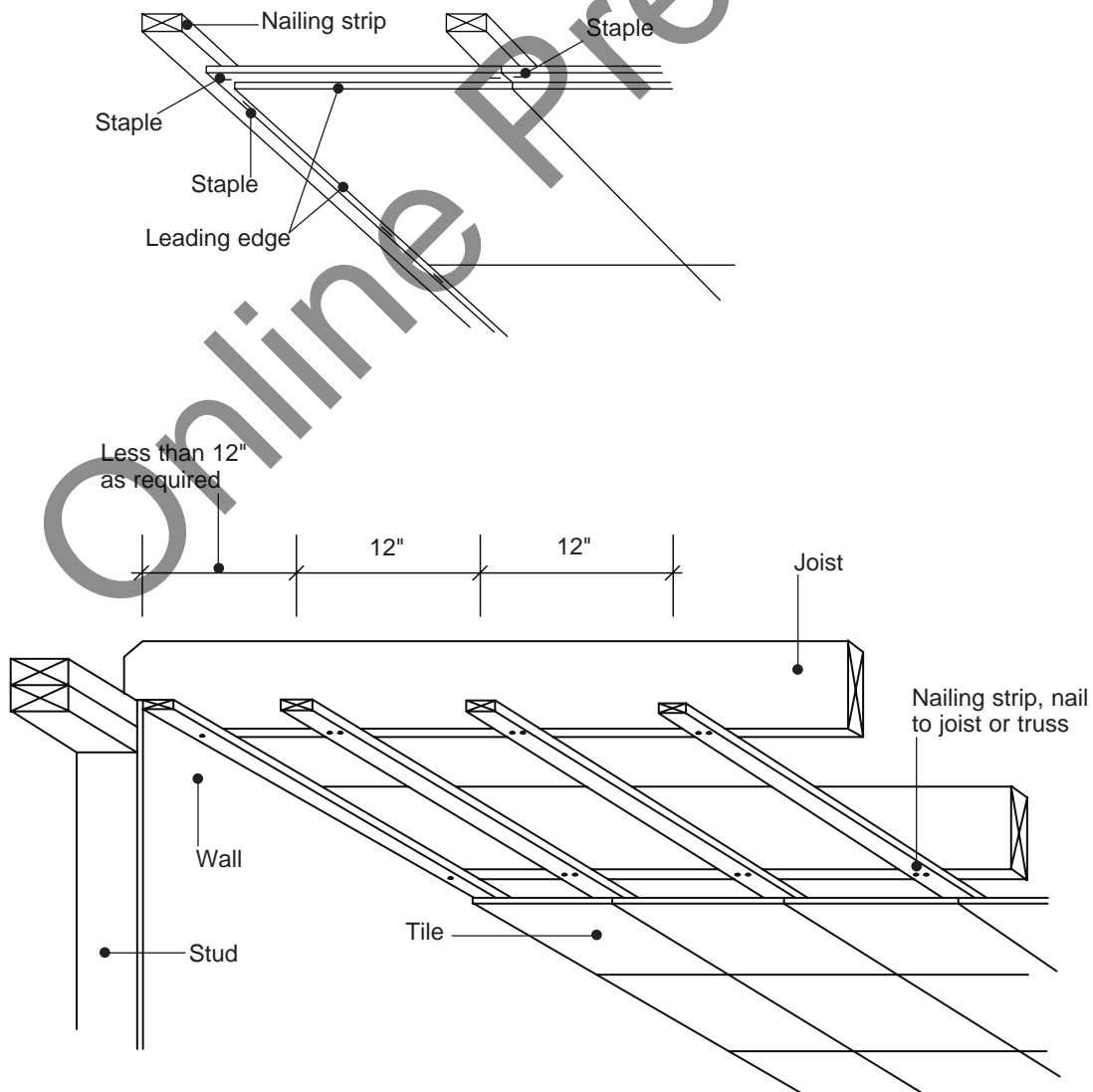
- a. Acoustical tile. $\frac{1}{2}$ " thick x 12" x 12", 24".
- b. Insulating tile, decorative. $\frac{1}{2}$ " thick x 12" x 12", 24"; $\frac{1}{2}$ " thick x 16" x 16", 32".

2. **Installation.** Tile may be applied to existing plaster (if joist spacing is suitable) or to wood furring strips. Tile may have a square edge or flange. Depending on the type and shape of the tile, you can use adhesive, staples, nails or clips to attach the tile.

3. **Estimating Technique.** Determine area and add 5 percent to 10 percent for waste.

4. **Notes on Material Pricing.** A material price of \$27.70 a gallon for adhesive was used to compile the Average Material Cost/Unit on the following pages. Here are the coverage rates:

12" x 12"	1.25 Gal/CSF
12" x 24"	0.95 Gal/CSF
16" x 16"	0.75 Gal/CSF
16" x 32"	0.55 Gal/CSF



Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg	Avg	Avg	Avg	Avg
					hours	Output	Mat'l	Labor	Equip	Total	Price
					per	per	Unit	Unit	Unit	Unit	Incl
					Unit	Day	Cost	Cost	Cost	Cost	O&P

Acoustical treatment

See also *Suspended ceiling systems*, page 398

Ceiling and wall tile

Adhesive set

Tile only, no grid system; includes dumpster

Demo	SF	Lg	LB	.012	1300	---	.43	.07	.50	.68
Demo	SF	Sm	LB	.018	910.0	---	.64	.08	.72	.99

Tile on furring strips; includes dumpster

Demo	SF	Lg	LB	.009	1710	---	.32	.09	.41	.55
Demo	SF	Sm	LB	.013	1197	---	.46	.10	.56	.76

Mineral fiber, vinyl coated, tile only

Applied in square pattern by adhesive to solid backing; 5% tile waste

1/2" thick, 12" x 12" or 12" x 24"

Economy, mini perforated	Inst	SF	Lg	2C	.018	880.0	2.20	.78	---	2.98	3.62
	Inst	SF	Sm	2C	.026	616.0	2.42	1.12	---	3.54	4.36
Standard, random perforated	Inst	SF	Lg	2C	.018	880.0	3.00	.78	---	3.78	4.54
	Inst	SF	Sm	2C	.026	616.0	3.30	1.12	---	4.42	5.37
Designer, swirl perforation	Inst	SF	Lg	2C	.018	880.0	3.24	.78	---	4.02	4.82
	Inst	SF	Sm	2C	.026	616.0	3.57	1.12	---	4.69	5.68
Deluxe, sculptured face	Inst	SF	Lg	2C	.018	880.0	3.48	.78	---	4.26	5.09
	Inst	SF	Sm	2C	.026	616.0	3.83	1.12	---	4.95	5.98

5/8" thick, 12" x 12" or 12" x 24"

Economy, mini perforated	Inst	SF	Lg	2C	.018	880.0	2.61	.78	---	3.39	4.09
	Inst	SF	Sm	2C	.026	616.0	2.87	1.12	---	3.99	4.87
Standard, random perforated	Inst	SF	Lg	2C	.018	880.0	3.62	.78	---	4.40	5.25
	Inst	SF	Sm	2C	.026	616.0	3.99	1.12	---	5.11	6.16
Designer, swirl perforation	Inst	SF	Lg	2C	.018	880.0	3.92	.78	---	4.70	5.60
	Inst	SF	Sm	2C	.026	616.0	4.32	1.12	---	5.44	6.54
Deluxe, sculptured face	Inst	SF	Lg	2C	.018	880.0	4.21	.78	---	4.99	5.93
	Inst	SF	Sm	2C	.026	616.0	4.64	1.12	---	5.76	6.91

3/4" thick, 12" x 12" or 12" x 24"

Economy, mini perforated	Inst	SF	Lg	2C	.018	880.0	2.86	.78	---	3.64	4.38
	Inst	SF	Sm	2C	.026	616.0	3.15	1.12	---	4.27	5.20
Standard, random perforated	Inst	SF	Lg	2C	.018	880.0	3.98	.78	---	4.76	5.67
	Inst	SF	Sm	2C	.026	616.0	4.38	1.12	---	5.50	6.61
Designer, swirl perforation	Inst	SF	Lg	2C	.018	880.0	4.32	.78	---	5.10	6.06
	Inst	SF	Sm	2C	.026	616.0	4.76	1.12	---	5.88	7.05
Deluxe, sculptured face	Inst	SF	Lg	2C	.018	880.0	4.66	.78	---	5.44	6.45
	Inst	SF	Sm	2C	.026	616.0	5.13	1.12	---	6.25	7.47

Applied by adhesive to furring strips ADD

	Inst	SF	Lg	2C	.002	---	---	.09	---	.09	.12
	Inst	SF	Sm	2C	.002	---	---	.09	---	.09	.12

Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg	Avg	Avg	Avg	Avg
					hours	Output						Unit	Day	Mat'l	Labor	Equip	Total	Price
					per	per	Unit	Unit	Unit	Unit	Unit
					Unit	Day	Cost	Cost	Cost	Cost	Incl O&P

Stapled

Tile only, no grid system	Demo	SF	Lg	LB	.014	1170	---	.50	.07	.57	.78
	Demo	SF	Sm	LB	.020	819	---	.71	.08	.79	1.09
Tile on furring strips	Demo	SF	Lg	LB	.010	1540	---	.36	.09	.45	.60
	Demo	SF	Sm	LB	.015	1078	---	.53	.10	.63	.86

Mineral fiber, vinyl coated, tile only

Applied in square pattern by staples, nails, or clips to solid backing; 5% tile waste
1/2" thick, 12" x 12" or 12" x 24"

Economy, mini perforated	Inst	SF	Lg	2C	.017	960.0	1.69	.74	---	2.43	2.97
	Inst	SF	Sm	2C	.024	672.0	1.86	1.04	---	2.90	3.59
Standard, random perforated	Inst	SF	Lg	2C	.017	960.0	2.49	.74	---	3.23	3.89
	Inst	SF	Sm	2C	.024	672.0	2.74	1.04	---	3.78	4.60
Designer, swirl perforation	Inst	SF	Lg	2C	.017	960.0	2.73	.74	---	3.47	4.17
	Inst	SF	Sm	2C	.024	672.0	3.01	1.04	---	4.05	4.91
Deluxe, sculptured face	Inst	SF	Lg	2C	.017	960.0	2.97	.74	---	3.71	4.44
	Inst	SF	Sm	2C	.024	672.0	3.27	1.04	---	4.31	5.21

5/8" thick, 12" x 12" or 12" x 24"

Economy, mini perforated	Inst	SF	Lg	2C	.017	960.0	2.10	.74	---	2.84	3.44
	Inst	SF	Sm	2C	.024	672.0	2.31	1.04	---	3.35	4.11
Standard, random perforated	Inst	SF	Lg	2C	.017	960.0	3.11	.74	---	3.85	4.61
	Inst	SF	Sm	2C	.024	672.0	3.42	1.04	---	4.46	5.39
Designer, swirl perforation	Inst	SF	Lg	2C	.017	960.0	3.41	.74	---	4.15	4.95
	Inst	SF	Sm	2C	.024	672.0	3.76	1.04	---	4.80	5.78
Deluxe, sculptured face	Inst	SF	Lg	2C	.017	960.0	3.70	.74	---	4.44	5.28
	Inst	SF	Sm	2C	.024	672.0	4.08	1.04	---	5.12	6.15

3/4" thick, 12" x 12" or 12" x 24"

Economy, mini perforated	Inst	SF	Lg	2C	.017	960.0	2.35	.74	---	3.09	3.73
	Inst	SF	Sm	2C	.024	672.0	2.59	1.04	---	3.63	4.43
Standard, random perforated	Inst	SF	Lg	2C	.017	960.0	3.47	.74	---	4.21	5.02
	Inst	SF	Sm	2C	.024	672.0	3.82	1.04	---	4.86	5.85
Designer, swirl perforation	Inst	SF	Lg	2C	.017	960.0	3.81	.74	---	4.55	5.41
	Inst	SF	Sm	2C	.024	672.0	4.20	1.04	---	5.24	6.28
Deluxe, sculptured face	Inst	SF	Lg	2C	.017	960.0	4.15	.74	---	4.89	5.80
	Inst	SF	Sm	2C	.024	672.0	4.57	1.04	---	5.61	6.71

Applied by staples, nails or clips to furring strips ADD

	Inst	SF	Lg	2C	.017	960.0	---	.74	---	.74	1.03
	Inst	SF	Sm	2C	.024	672.0	---	1.04	---	1.04	1.45

Tile patterns, effect on labor

Herringbone, Increase manhours

	Inst	%	Lg	2C	25.0	---	---	---	---	---	---
	Inst	%	Sm	2C	25.0	---	---	---	---	---	---
Diagonal, Increase manhours	Inst	%	Lg	2C	20.0	---	---	---	---	---	---
	Inst	%	Sm	2C	20.0	---	---	---	---	---	---
Ashlar, Increase manhours	Inst	%	Lg	2C	30.0	---	---	---	---	---	---
	Inst	%	Sm	2C	30.0	---	---	---	---	---	---

Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg	Avg	Avg	Avg	Avg
					hours	Output	Mat'l	Labor	Equip	Total	Price
					per	per	Unit	Unit	Unit	Unit	Incl
					Unit	Day	Cost	Cost	Cost	Cost	O&P

Furring strips, 8% waste included

Over wood

1" x 3", 12" oc	Inst	SF	Lg	2C	.010	1600	.43	.43	---	.86	1.10
	Inst	SF	Sm	2C	.014	1120	.48	.61	---	1.09	1.40
1" x 3", 16" oc	Inst	SF	Lg	2C	.008	1920	.33	.35	---	.68	.86
	Inst	SF	Sm	2C	.012	1344	.37	.52	---	.89	1.15
1" x 4", 12" oc	Inst	SF	Lg	2C	.010	1600	.51	.43	---	.94	1.19
	Inst	SF	Sm	2C	.014	1120	.56	.61	---	1.17	1.49
1" x 4", 16" oc	Inst	SF	Lg	2C	.008	1920	.39	.35	---	.74	.93
	Inst	SF	Sm	2C	.012	1344	.43	.52	---	.95	1.22

Over plaster

1" x 3", 12" oc	Inst	SF	Lg	2C	.013	1280	.43	.56	---	.99	1.28
	Inst	SF	Sm	2C	.018	896	.48	.78	---	1.26	1.64
1" x 3", 16" oc	Inst	SF	Lg	2C	.010	1600	.33	.43	---	.76	.99
	Inst	SF	Sm	2C	.014	1120	.37	.61	---	.98	1.27
1" x 4", 12" oc	Inst	SF	Lg	2C	.013	1280	.51	.56	---	1.07	1.37
	Inst	SF	Sm	2C	.018	896	.56	.78	---	1.34	1.73
1" x 4", 16" oc	Inst	SF	Lg	2C	.010	1600	.39	.43	---	.82	1.05
	Inst	SF	Sm	2C	.014	1120	.43	.61	---	1.04	1.34

Adhesives

*Better quality, gun-applied in continuous bead to wood or metal framing or furring members.
Per 100 SF of surface area including 8% waste.*

Panel adhesives

Subfloor adhesives, on floors

12" oc members

1/8" diameter (11 fl.oz./CSF)	Inst	CSF	Lg	CA	.075	106.0	3.80	3.24	---	7.04	8.91
	Inst	CSF	Sm	CA	.101	79.50	4.19	4.37	---	8.56	10.90
1/4" diameter (43 fl.oz./CSF)	Inst	CSF	Lg	CA	.075	106.0	15.20	3.24	---	18.44	22.00
	Inst	CSF	Sm	CA	.101	79.50	16.70	4.37	---	21.07	25.30
3/8" diameter (97 fl.oz./CSF)	Inst	CSF	Lg	CA	.075	106.0	34.20	3.24	---	37.44	43.90
	Inst	CSF	Sm	CA	.101	79.50	37.70	4.37	---	42.07	49.40
1/2" diameter (172 fl.oz./CSF)	Inst	CSF	Lg	CA	.075	106.0	60.50	3.24	---	63.74	74.10
	Inst	CSF	Sm	CA	.101	79.50	66.70	4.37	---	71.07	82.80

16" oc members

1/8" diameter (9 fl.oz./CSF)	Inst	CSF	Lg	CA	.056	143.0	3.04	2.42	---	5.46	6.89
	Inst	CSF	Sm	CA	.075	107.3	3.35	3.24	---	6.59	8.39
1/4" diameter (34 fl.oz./CSF)	Inst	CSF	Lg	CA	.056	143.0	12.10	2.42	---	14.52	17.30
	Inst	CSF	Sm	CA	.075	107.3	13.40	3.24	---	16.64	19.90
3/8" diameter (78 fl.oz./CSF)	Inst	CSF	Lg	CA	.056	143.0	27.40	2.42	---	29.82	34.80
	Inst	CSF	Sm	CA	.075	107.3	30.10	3.24	---	33.34	39.20
1/2" diameter (137 fl.oz./CSF)	Inst	CSF	Lg	CA	.056	143.0	48.40	2.42	---	50.82	59.00
	Inst	CSF	Sm	CA	.075	107.3	53.30	3.24	---	56.54	65.90

Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg	Avg	Avg	Avg	Avg
					hours	Output					
					per	per	Mat'l	Labor	Equip	Total	Price
					Unit	Day	Cost	Cost	Cost	Cost	Incl
											O&P
24" oc members											
1/8" diameter (7 fl.oz./CSF)	Inst	CSF	Lg	CA	.052	154.0	2.28	2.25	---	4.53	5.77
	Inst	CSF	Sm	CA	.069	115.5	2.52	2.98	---	5.50	7.08
1/4" diameter (26 fl.oz./CSF)	Inst	CSF	Lg	CA	.052	154.0	9.09	2.25	---	11.34	13.60
	Inst	CSF	Sm	CA	.069	115.5	10.00	2.98	---	12.98	15.70
3/8" diameter (58 fl.oz./CSF)	Inst	CSF	Lg	CA	.052	154.0	20.50	2.25	---	22.75	26.70
	Inst	CSF	Sm	CA	.069	115.5	22.60	2.98	---	25.58	30.20
1/2" diameter (103 fl.oz./CSF)	Inst	CSF	Lg	CA	.052	154.0	36.30	2.25	---	38.55	44.90
	Inst	CSF	Sm	CA	.069	115.5	40.00	2.98	---	42.98	50.20
Wall sheathing or shear panel wall adhesive on walls, floors or ceilings											
12" oc members											
1/8" diameter (11 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	7.71	4.33	---	12.04	14.90
	Inst	CSF	Sm	CA	.133	60.00	8.50	5.75	---	14.25	17.80
1/4" diameter (43 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	30.70	4.33	---	35.03	41.40
	Inst	CSF	Sm	CA	.133	60.00	33.90	5.75	---	39.65	47.00
3/8" diameter (97 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	69.30	4.33	---	73.63	85.80
	Inst	CSF	Sm	CA	.133	60.00	76.40	5.75	---	82.15	95.90
1/2" diameter (172 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	123.00	4.33	---	127.33	147.00
	Inst	CSF	Sm	CA	.133	60.00	135.00	5.75	---	140.75	164.00
16" oc members											
1/8" diameter (9 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	6.16	3.94	---	10.10	12.60
	Inst	CSF	Sm	CA	.121	66.00	6.79	5.23	---	12.02	15.10
1/4" diameter (34 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	24.60	3.94	---	28.54	33.80
	Inst	CSF	Sm	CA	.121	66.00	27.10	5.23	---	32.33	38.50
3/8" diameter (78 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	55.50	3.94	---	59.44	69.30
	Inst	CSF	Sm	CA	.121	66.00	61.10	5.23	---	66.33	77.60
1/2" diameter (137 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	98.10	3.94	---	102.04	118.00
	Inst	CSF	Sm	CA	.121	66.00	108.00	5.23	---	113.23	132.00
24" oc members											
1/8" diameter (7 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	4.63	3.63	---	8.26	10.40
	Inst	CSF	Sm	CA	.112	71.25	5.10	4.84	---	9.94	12.70
1/4" diameter (26 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	18.40	3.63	---	22.03	26.30
	Inst	CSF	Sm	CA	.112	71.25	20.30	4.84	---	25.14	30.10
3/8" diameter (58 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	41.60	3.63	---	45.23	52.90
	Inst	CSF	Sm	CA	.112	71.25	45.80	4.84	---	50.64	59.50
1/2" diameter (103 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	73.60	3.63	---	77.23	89.70
	Inst	CSF	Sm	CA	.112	71.25	81.10	4.84	---	85.94	100.00
Polystyrene or polyurethane foam panel adhesive, on walls											
12" oc members											
1/8" diameter (11 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	5.92	4.33	---	10.25	12.90
	Inst	CSF	Sm	CA	.133	60.00	6.52	5.75	---	12.27	15.60
1/4" diameter (43 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	23.60	4.33	---	27.93	33.20
	Inst	CSF	Sm	CA	.133	60.00	26.00	5.75	---	31.75	37.90
3/8" diameter (97 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	53.20	4.33	---	57.53	67.20
	Inst	CSF	Sm	CA	.133	60.00	58.60	5.75	---	64.35	75.40
1/2" diameter (172 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	94.10	4.33	---	98.43	114.00
	Inst	CSF	Sm	CA	.133	60.00	104.00	5.75	---	109.75	127.00

Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg	Avg	Avg	Avg	Avg
					hours	Output	Mat'l	Labor	Equip	Total	Price
					per	per	Unit	Unit	Unit	Unit	Incl
					Unit	Day	Cost	Cost	Cost	Cost	O&P
16" oc members											
1/8" diameter (9 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	4.73	3.94	---	8.67	11.00
	Inst	CSF	Sm	CA	.121	66.00	5.22	5.23	---	10.45	13.30
1/4" diameter (34 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	18.90	3.94	---	22.84	27.20
	Inst	CSF	Sm	CA	.121	66.00	20.80	5.23	---	26.03	31.20
3/8" diameter (78 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	42.50	3.94	---	46.44	54.40
	Inst	CSF	Sm	CA	.121	66.00	46.90	5.23	---	52.13	61.20
1/2" diameter (137 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	75.30	3.94	---	79.24	92.10
	Inst	CSF	Sm	CA	.121	66.00	83.00	5.23	---	88.23	103.00
24" oc members											
1/8" diameter (7 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	3.55	3.63	---	7.18	9.17
	Inst	CSF	Sm	CA	.129	62.00	3.91	5.58	---	9.49	12.30
1/4" diameter (26 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	14.10	3.63	---	17.73	21.40
	Inst	CSF	Sm	CA	.129	62.00	15.60	5.58	---	21.18	25.70
3/8" diameter (58 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	31.90	3.63	---	35.53	41.80
	Inst	CSF	Sm	CA	.129	62.00	35.20	5.58	---	40.78	48.20
1/2" diameter (103 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	56.50	3.63	---	60.13	70.00
	Inst	CSF	Sm	CA	.129	62.00	62.20	5.58	---	67.78	79.40
Gypsum drywall adhesive, on ceilings											
12" oc members											
1/8" diameter (11 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	2.12	4.33	---	6.45	8.49
	Inst	CSF	Sm	CA	.133	60.00	2.33	5.75	---	8.08	10.70
1/4" diameter (43 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	8.42	4.33	---	12.75	15.70
	Inst	CSF	Sm	CA	.133	60.00	9.28	5.75	---	15.03	18.70
3/8" diameter (97 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	19.00	4.33	---	23.33	27.90
	Inst	CSF	Sm	CA	.133	60.00	20.90	5.75	---	26.65	32.10
1/2" diameter (172 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	33.60	4.33	---	37.93	44.70
	Inst	CSF	Sm	CA	.133	60.00	37.00	5.75	---	42.75	50.60
16" oc members											
1/8" diameter (9 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	1.69	3.94	---	5.63	7.45
	Inst	CSF	Sm	CA	.121	66.00	1.86	5.23	---	7.09	9.47
1/4" diameter (34 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	6.73	3.94	---	10.67	13.30
	Inst	CSF	Sm	CA	.121	66.00	7.42	5.23	---	12.65	15.90
3/8" diameter (78 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	15.20	3.94	---	19.14	23.00
	Inst	CSF	Sm	CA	.121	66.00	16.70	5.23	---	21.93	26.60
1/2" diameter (137 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	26.90	3.94	---	30.84	36.40
	Inst	CSF	Sm	CA	.121	66.00	29.60	5.23	---	34.83	41.40
24" oc members											
1/8" diameter (7 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	1.26	3.63	---	4.89	6.54
	Inst	CSF	Sm	CA	.112	71.25	1.39	4.84	---	6.23	8.38
1/4" diameter (26 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	5.05	3.63	---	8.68	10.90
	Inst	CSF	Sm	CA	.112	71.25	5.56	4.84	---	10.40	13.20
3/8" diameter (58 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	11.40	3.63	---	15.03	18.20
	Inst	CSF	Sm	CA	.112	71.25	12.60	4.84	---	17.44	21.20
1/2" diameter (103 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	20.20	3.63	---	23.83	28.30
	Inst	CSF	Sm	CA	.112	71.25	22.20	4.84	---	27.04	32.40

Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg	Avg	Avg	Avg	Avg
					hours	Output	Mat'l	Labor	Equip	Total	Price
					per	per	Unit	Unit	Unit	Unit	Incl
					Unit	Day	Cost	Cost	Cost	Cost	O&P
Gypsum drywall adhesive, on walls											
12" oc members											
1/8" diameter (11 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	2.12	4.33	---	6.45	8.49
	Inst	CSF	Sm	CA	.133	60.00	2.33	5.75	---	8.08	10.70
1/4" diameter (43 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	8.42	4.33	---	12.75	15.70
	Inst	CSF	Sm	CA	.133	60.00	9.28	5.75	---	15.03	18.70
3/8" diameter (97 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	19.00	4.33	---	23.33	27.90
	Inst	CSF	Sm	CA	.133	60.00	20.90	5.75	---	26.65	32.10
1/2" diameter (172 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	33.60	4.33	---	37.93	44.70
	Inst	CSF	Sm	CA	.133	60.00	37.00	5.75	---	42.75	50.60
16" oc members											
1/8" diameter (9 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	1.69	3.94	---	5.63	7.45
	Inst	CSF	Sm	CA	.121	66.00	1.86	5.23	---	7.09	9.47
1/4" diameter (34 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	6.73	3.94	---	10.67	13.30
	Inst	CSF	Sm	CA	.121	66.00	7.42	5.23	---	12.65	15.90
3/8" diameter (78 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	15.20	3.94	---	19.14	23.00
	Inst	CSF	Sm	CA	.121	66.00	16.70	5.23	---	21.93	26.60
1/2" diameter (137 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	26.90	3.94	---	30.84	36.40
	Inst	CSF	Sm	CA	.121	66.00	29.60	5.23	---	34.83	41.40
24" oc members											
1/8" diameter (7 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	1.26	3.63	---	4.89	6.54
	Inst	CSF	Sm	CA	.112	71.25	1.39	4.84	---	6.23	8.38
1/4" diameter (26 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	5.05	3.63	---	8.68	10.90
	Inst	CSF	Sm	CA	.112	71.25	5.56	4.84	---	10.40	13.20
3/8" diameter (58 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	11.40	3.63	---	15.03	18.20
	Inst	CSF	Sm	CA	.112	71.25	12.60	4.84	---	17.44	21.20
1/2" diameter (103 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	20.20	3.63	---	23.83	28.30
	Inst	CSF	Sm	CA	.112	71.25	22.20	4.84	---	27.04	32.40
Hardboard or plastic panel adhesive, on walls											
12" oc members											
1/8" diameter (11 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	5.28	4.33	---	9.61	12.10
	Inst	CSF	Sm	CA	.133	60.00	5.82	5.75	---	11.57	14.80
1/4" diameter (43 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	21.10	4.33	---	25.43	30.30
	Inst	CSF	Sm	CA	.133	60.00	23.20	5.75	---	28.95	34.70
3/8" diameter (97 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	47.50	4.33	---	51.83	60.70
	Inst	CSF	Sm	CA	.133	60.00	52.30	5.75	---	58.05	68.20
1/2" diameter (172 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	84.00	4.33	---	88.33	103.00
	Inst	CSF	Sm	CA	.133	60.00	92.60	5.75	---	98.35	115.00
16" oc members											
1/8" diameter (9 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	4.22	3.94	---	8.16	10.40
	Inst	CSF	Sm	CA	.121	66.00	4.65	5.23	---	9.88	12.70
1/4" diameter (34 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	16.80	3.94	---	20.74	24.90
	Inst	CSF	Sm	CA	.121	66.00	18.60	5.23	---	23.83	28.70
3/8" diameter (78 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	38.00	3.94	---	41.94	49.20
	Inst	CSF	Sm	CA	.121	66.00	41.90	5.23	---	47.13	55.50
1/2" diameter (137 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	67.20	3.94	---	71.14	82.80
	Inst	CSF	Sm	CA	.121	66.00	74.10	5.23	---	79.33	92.50

Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg	Avg	Avg	Avg	Avg
					hours	Output	Mat'l	Labor	Equip	Total	Price
					per	per	Unit	Unit	Unit	Unit	Incl
					Unit	Day	Cost	Cost	Cost	Cost	O&P
24" oc members											
1/8" diameter (7 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	3.18	3.63	---	6.81	8.74
	Inst	CSF	Sm	CA	.112	71.25	3.50	4.84	---	8.34	10.80
1/4" diameter (26 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	12.60	3.63	---	16.23	19.60
	Inst	CSF	Sm	CA	.112	71.25	13.90	4.84	---	18.74	22.80
3/8" diameter (58 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	28.50	3.63	---	32.13	37.90
	Inst	CSF	Sm	CA	.112	71.25	31.40	4.84	---	36.24	42.90
1/2" diameter (103 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	50.40	3.63	---	54.03	63.10
	Inst	CSF	Sm	CA	.112	71.25	55.60	4.84	---	60.44	70.70

Air conditioning and ventilating systems

System components separate.

See below for complete systems (exterior, roof, wall/window packages).

Air Handler units

Heat element only

2 ton	Inst	Ea	Lg	SB	21.3	0.75	866.00	905.00	---	1771.00	2310.00
	Inst	Ea	Sm	SB	26.7	0.60	955.00	1140.00	---	2095.00	2740.00
3 ton	Inst	Ea	Lg	SB	22.9	0.70	1070.00	973.00	---	2043.00	2640.00
	Inst	Ea	Sm	SB	28.6	0.56	1180.00	1220.00	---	2400.00	3120.00
4 ton	Inst	Ea	Lg	SB	24.6	0.65	1340.00	1050.00	---	2390.00	3050.00
	Inst	Ea	Sm	SB	30.8	0.52	1470.00	1310.00	---	2780.00	3590.00
5 ton	Inst	Ea	Lg	SB	26.7	0.60	1710.00	1140.00	---	2850.00	3610.00
	Inst	Ea	Sm	SB	33.3	0.48	1880.00	1420.00	---	3300.00	4220.00

A/C Coil only

2 ton	Inst	Ea	Lg	SB	21.3	0.75	902.00	905.00	---	1807.00	2350.00
	Inst	Ea	Sm	SB	26.7	0.60	994.00	1140.00	---	2134.00	2790.00
3 ton	Inst	Ea	Lg	SB	22.9	0.70	1130.00	973.00	---	2103.00	2710.00
	Inst	Ea	Sm	SB	28.6	0.56	1240.00	1220.00	---	2460.00	3190.00
4 ton	Inst	Ea	Lg	SB	24.6	0.65	1480.00	1050.00	---	2530.00	3210.00
	Inst	Ea	Sm	SB	30.8	0.52	1630.00	1310.00	---	2940.00	3770.00
5 ton	Inst	Ea	Lg	SB	26.7	0.60	1700.00	1140.00	---	2840.00	3600.00
	Inst	Ea	Sm	SB	33.3	0.48	1880.00	1420.00	---	3300.00	4210.00

Heat and A/C Coil

2 ton	Inst	Ea	Lg	SB	21.3	0.75	1060.00	905.00	---	1965.00	2530.00
	Inst	Ea	Sm	SB	26.7	0.60	1170.00	1140.00	---	2310.00	2990.00
3 ton	Inst	Ea	Lg	SB	22.9	0.70	1290.00	973.00	---	2263.00	2890.00
	Inst	Ea	Sm	SB	28.6	0.56	1420.00	1220.00	---	2640.00	3400.00
4 ton	Inst	Ea	Lg	SB	24.6	0.65	1640.00	1050.00	---	2690.00	3400.00
	Inst	Ea	Sm	SB	30.8	0.52	1800.00	1310.00	---	3110.00	3970.00
5 ton	Inst	Ea	Lg	SB	26.7	0.60	1860.00	1140.00	---	3000.00	3790.00
	Inst	Ea	Sm	SB	33.3	0.48	2050.00	1420.00	---	3470.00	4410.00

Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg	Avg	Avg	Avg	Avg
					hours	Output	Mat'l	Labor	Equip	Total	Price
					per	per	Unit	Unit	Unit	Unit	Incl
					Unit	Day	Cost	Cost	Cost	Cost	O&P

Condensing units

Air cooled, compressor, standard controls

1.0 ton	Inst	Ea	Lg	SB	8.00	2.00	1400.00	340.00	---	1740.00	2110.00
	Inst	Ea	Sm	SB	10.0	1.60	1550.00	425.00	---	1975.00	2390.00
1.5 ton	Inst	Ea	Lg	SB	9.14	1.75	1580.00	389.00	---	1969.00	2380.00
	Inst	Ea	Sm	SB	11.4	1.40	1740.00	485.00	---	2225.00	2700.00
2.0 ton	Inst	Ea	Lg	SB	10.7	1.50	1750.00	455.00	---	2205.00	2670.00
	Inst	Ea	Sm	SB	13.3	1.20	1930.00	565.00	---	2495.00	3040.00
2.5 ton	Inst	Ea	Lg	SB	12.8	1.25	1790.00	544.00	---	2334.00	2840.00
	Inst	Ea	Sm	SB	16.0	1.00	1970.00	680.00	---	2650.00	3250.00
3.0 ton	Inst	Ea	Lg	SB	16.0	1.00	2210.00	680.00	---	2890.00	3530.00
	Inst	Ea	Sm	SB	20.0	0.80	2430.00	850.00	---	3280.00	4030.00
4.0 ton	Inst	Ea	Lg	SB	21.3	0.75	2300.00	905.00	---	3205.00	3950.00
	Inst	Ea	Sm	SB	26.7	0.60	2530.00	1140.00	---	3670.00	4550.00
5.0 ton	Inst	Ea	Lg	SB	32.0	0.50	2760.00	1360.00	---	4120.00	5150.00
	Inst	Ea	Sm	SB	40.0	0.40	3050.00	1700.00	---	4750.00	5970.00

Condenser pad

24" x 24"	Inst	Ea	Lg	SB	0.8	20.00	36.10	34.00	---	70.10	90.90
	Inst	Ea	Sm	SB	1.0	16.00	39.80	42.50	---	82.30	107.00
36" x 36"	Inst	Ea	Lg	SB	0.8	20.00	53.90	34.00	---	87.90	111.00
	Inst	Ea	Sm	SB	1.0	16.00	59.40	42.50	---	101.90	130.00

Minimum Job Charge

Inst	Job	Lg	SB	5.33	3.00	---	227.00	---	227.00	328.00
Inst	Job	Sm	SB	6.67	2.40	---	284.00	---	284.00	411.00

Dampers, motorized

Motorized, variable volume modulating

8" diameter or less	Inst	Ea	Lg	UA	0.80	10.00	133.00	38.20	---	171.20	207.00
	Inst	Ea	Sm	UA	1.00	8.00	146.00	47.80	---	193.80	236.00
9" - 14" diameter	Inst	Ea	Lg	UA	1.33	6.00	184.00	63.50	---	247.50	302.00
	Inst	Ea	Sm	UA	1.67	4.80	203.00	79.80	---	282.80	347.00
15" - 18" diameter	Inst	Ea	Lg	UA	2.00	4.00	212.00	95.50	---	307.50	380.00
	Inst	Ea	Sm	UA	2.50	3.20	234.00	119.00	---	353.00	438.00
Thermostat, ADD	Inst	Ea	Lg	UA	1.33	6.00	50.40	63.50	---	113.90	148.00
	Inst	Ea	Sm	UA	1.67	4.80	55.60	79.80	---	135.40	177.00

Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg	Avg	Avg	Avg	Avg
					hours	Output	Mat'l	Labor	Equip	Total	Price
					per	per	Unit	Unit	Unit	Unit	Incl
					Unit	Day	Cost	Cost	Cost	Cost	O&P

Diffusers / Grills

Circular

6" diameter	Inst	LF	Lg	UA	.267	30.00	16.00	12.80	---	28.80	36.50
	Inst	LF	Sm	UA	.333	24.00	17.60	15.90	---	33.50	42.90
8-10" diameter	Inst	LF	Lg	UA	.296	27.00	25.40	14.10	---	39.50	49.30
	Inst	LF	Sm	UA	.370	21.60	28.00	17.70	---	45.70	57.30
12-15" diameter	Inst	LF	Lg	UA	.333	24.00	42.40	15.90	---	58.30	71.30
	Inst	LF	Sm	UA	.417	19.20	46.70	19.90	---	66.60	82.00
18" diameter	Inst	LF	Lg	UA	.400	20.00	83.80	19.10	---	102.90	123.00
	Inst	LF	Sm	UA	.500	16.00	92.30	23.90	---	116.20	140.00

Perforated, 24" x 24" panel size

6" x 6"	Inst	Ea	Lg	UA	.500	16.00	24.00	23.90	---	47.90	61.50
	Inst	Ea	Sm	UA	.625	12.80	26.40	29.90	---	56.30	72.80
8" x 8"	Inst	Ea	Lg	UA	.571	14.00	38.10	27.30	---	65.40	82.50
	Inst	Ea	Sm	UA	.714	11.20	42.00	34.10	---	76.10	96.70
10" x 10"	Inst	Ea	Lg	UA	.667	12.00	63.50	31.90	---	95.40	118.00
	Inst	Ea	Sm	UA	.833	9.60	70.00	39.80	---	109.80	137.00
12" x 12"	Inst	Ea	Lg	UA	.800	10.00	126.00	38.20	---	164.20	199.00
	Inst	Ea	Sm	UA	1.00	8.00	138.00	47.80	---	185.80	227.00
18" x 18"	Inst	Ea	Lg	UA	1.00	8.00	151.00	47.80	---	198.80	241.00
	Inst	Ea	Sm	UA	1.25	6.40	166.00	59.70	---	225.70	276.00

Rectangular, one- to four-way blow

6" x 6"	Inst	Ea	Lg	UA	.500	16.00	20.00	23.90	---	43.90	56.90
	Inst	Ea	Sm	UA	.625	12.80	22.00	29.90	---	51.90	67.70
12" x 6"	Inst	Ea	Lg	UA	.571	14.00	31.80	27.30	---	59.10	75.20
	Inst	Ea	Sm	UA	.714	11.20	35.00	34.10	---	69.10	88.70
12" x 9"	Inst	Ea	Lg	UA	.667	12.00	53.00	31.90	---	84.90	106.00
	Inst	Ea	Sm	UA	.833	9.60	58.40	39.80	---	98.20	124.00
12" x 12"	Inst	Ea	Lg	UA	.800	10.00	105.00	38.20	---	143.20	175.00
	Inst	Ea	Sm	UA	1.00	8.00	115.00	47.80	---	162.80	201.00
24" x 12"	Inst	Ea	Lg	UA	1.00	8.00	117.00	47.80	---	164.80	203.00
	Inst	Ea	Sm	UA	1.25	6.40	129.00	59.70	---	188.70	233.00

T-bar mounting, 24" x 24" lay in frame

6" x 6"	Inst	Ea	Lg	UA	.500	16.00	68.80	23.90	---	92.70	113.00
	Inst	Ea	Sm	UA	.625	12.80	75.80	29.90	---	105.70	130.00
9" x 9"	Inst	Ea	Lg	UA	.571	14.00	75.70	27.30	---	103.00	126.00
	Inst	Ea	Sm	UA	.714	11.20	83.40	34.10	---	117.50	144.00
12" x 12"	Inst	Ea	Lg	UA	.667	12.00	79.10	31.90	---	111.00	136.00
	Inst	Ea	Sm	UA	.833	9.60	87.20	39.80	---	127.00	157.00
15" x 15"	Inst	Ea	Lg	UA	.800	10.00	82.50	38.20	---	120.70	149.00
	Inst	Ea	Sm	UA	1.00	8.00	91.00	47.80	---	138.80	172.00
18" x 18"	Inst	Ea	Lg	UA	1.00	8.00	86.00	47.80	---	133.80	167.00
	Inst	Ea	Sm	UA	1.25	6.40	94.80	59.70	---	154.50	194.00

Minimum Job Charge

Inst	Job	Lg	UA	2.29	3.50	---	109.00	---	109.00	155.00
Inst	Job	Sm	UA	2.86	2.80	---	137.00	---	137.00	194.00

Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg Mat'l Unit Cost	Avg Labor Unit Cost	Avg Equip Unit Cost	Avg Total Unit Cost	Avg Price Incl O&P
					hours	Output						per Unit	per Day

Registers, air supply

One- or two-way deflection, adjustable curved face bars, enameled metal

10" x 6"	Inst	Ea	Lg	UA	.333	24.00	12.00	15.90	---	27.90	36.40
	Inst	Ea	Sm	UA	.417	19.20	13.30	19.90	---	33.20	43.50
12" x 5"	Inst	Ea	Lg	UA	.364	22.00	13.20	17.40	---	30.60	39.90
	Inst	Ea	Sm	UA	.455	17.60	14.60	21.70	---	36.30	47.60
12" x 6"	Inst	Ea	Lg	UA	.364	22.00	12.60	17.40	---	30.00	39.20
	Inst	Ea	Sm	UA	.455	17.60	13.90	21.70	---	35.60	46.90
12" x 8"	Inst	Ea	Lg	UA	.400	20.00	15.00	19.10	---	34.10	44.40
	Inst	Ea	Sm	UA	.500	16.00	16.60	23.90	---	40.50	53.00
14" x 6"	Inst	Ea	Lg	UA	.444	18.00	13.80	21.20	---	35.00	46.00
	Inst	Ea	Sm	UA	.556	14.40	15.20	26.60	---	41.80	55.20

Minimum Job Charge

	Inst	Job	Lg	UA	2.29	3.50	---	109.00	---	109.00	155.00
	Inst	Job	Sm	UA	2.86	2.80	---	137.00	---	137.00	194.00

Cold Air Return, enameled metal

14" x 6"	Inst	Ea	Lg	UA	.400	20.00	11.10	19.10	---	30.20	39.90
	Inst	Ea	Sm	UA	.500	16.00	12.20	23.90	---	36.10	47.90
16" x 8"	Inst	Ea	Lg	UA	.444	18.00	17.20	21.20	---	38.40	49.80
	Inst	Ea	Sm	UA	.556	14.40	18.90	26.60	---	45.50	59.40
24" x 8"	Inst	Ea	Lg	UA	.444	18.00	22.40	21.20	---	43.60	55.90
	Inst	Ea	Sm	UA	.556	14.40	24.70	26.60	---	51.30	66.10
24" x 14"	Inst	Ea	Lg	UA	.500	16.00	32.20	23.90	---	56.10	70.90
	Inst	Ea	Sm	UA	.625	12.80	35.50	29.90	---	65.40	83.20

Ductwork

Fabricated rectangular, includes fittings, joints, supports

Aluminum alloy

Under 100 lbs	Inst	Lb	Lg	UF	.343	70.00	3.19	15.00	---	18.19	25.00
	Inst	Lb	Sm	UF	.429	56.00	3.51	18.80	---	22.31	30.70
100 to 500 lbs	Inst	Lb	Lg	UF	.267	90.00	2.55	11.70	---	14.25	19.50
	Inst	Lb	Sm	UF	.333	72.00	2.81	14.60	---	17.41	23.90
500 to 1,000 lbs	Inst	Lb	Lg	UF	.218	110.0	1.91	9.53	---	11.44	15.70
	Inst	Lb	Sm	UF	.273	88.00	2.11	11.90	---	14.01	19.40
Over 1,000 lbs	Inst	Lb	Lg	UF	.185	130.0	1.27	8.09	---	9.36	12.90
	Inst	Lb	Sm	UF	.231	104.0	1.40	10.10	---	11.50	16.00

Galvanized steel

Under 400 lbs	Inst	Lb	Lg	UF	.120	200.0	3.49	5.25	---	8.74	11.50
	Inst	Lb	Sm	UF	.150	160.0	3.84	6.56	---	10.40	13.70
400 to 1,000 lbs	Inst	Lb	Lg	UF	.112	215.0	2.79	4.90	---	7.69	10.20
	Inst	Lb	Sm	UF	.140	172.0	3.08	6.12	---	9.20	12.20
1,000 to 2,000 lbs	Inst	Lb	Lg	UF	.104	230.0	2.10	4.55	---	6.65	8.87
	Inst	Lb	Sm	UF	.130	184.0	2.31	5.68	---	7.99	10.70
2,000 to 5,000 lbs	Inst	Lb	Lg	UF	.100	240.0	1.39	4.37	---	5.76	7.80
	Inst	Lb	Sm	UF	.125	192.0	1.53	5.46	---	6.99	9.52
Over 10,000 lbs	Inst	Lb	Lg	UF	.096	250.0	.70	4.20	---	4.90	6.76
	Inst	Lb	Sm	UF	.120	200.0	.77	5.25	---	6.02	8.33

Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg	Avg	Avg	Avg	Avg
					hours	Output	Mat'l	Labor	Equip	Total	Price
					per	per	Unit	Unit	Unit	Unit	Incl
					Unit	Day	Cost	Cost	Cost	Cost	O&P

Flexible, coated fabric on spring steel, aluminum, or corrosion-resistant metal

Non-insulated

3" diameter	Inst	LF	Lg	UD	.058	275.0	1.02	2.42	---	3.44	4.61
	Inst	LF	Sm	UD	.073	220.0	1.12	3.04	---	4.16	5.61
4" diameter	Inst	LF	Lg	UD	.071	225.0	1.67	2.96	---	4.63	6.12
	Inst	LF	Sm	UD	.089	180.0	1.84	3.71	---	5.55	7.38
6" diameter	Inst	LF	Lg	UD	.080	200.0	2.22	3.33	---	5.55	7.29
	Inst	LF	Sm	UD	.100	160.0	2.45	4.17	---	6.62	8.74
7" diameter	Inst	LF	Lg	UD	.091	175.0	2.33	3.79	---	6.12	8.07
	Inst	LF	Sm	UD	.114	140.0	2.57	4.75	---	7.32	9.70
8" diameter	Inst	LF	Lg	UD	.107	150.0	2.45	4.46	---	6.91	9.15
	Inst	LF	Sm	UD	.133	120.0	2.70	5.54	---	8.24	11.00
10" diameter	Inst	LF	Lg	UD	.128	125.0	2.58	5.34	---	7.92	10.50
	Inst	LF	Sm	UD	.160	100.0	2.84	6.67	---	9.51	12.70
12" diameter	Inst	LF	Lg	UD	.160	100.0	2.70	6.67	---	9.37	12.60
	Inst	LF	Sm	UD	.200	80.0	2.98	8.34	---	11.32	15.30

Insulated

3" diameter	Inst	LF	Lg	UD	.064	250.0	3.30	2.67	---	5.97	7.58
	Inst	LF	Sm	UD	.080	200.0	3.64	3.33	---	6.97	8.92
4" diameter	Inst	LF	Lg	UD	.071	225.0	3.48	2.96	---	6.44	8.20
	Inst	LF	Sm	UD	.089	180.0	3.83	3.71	---	7.54	9.67
5" diameter	Inst	LF	Lg	UD	.080	200.0	3.66	3.33	---	6.99	8.94
	Inst	LF	Sm	UD	.100	160.0	4.03	4.17	---	8.20	10.60
6" diameter	Inst	LF	Lg	UD	.091	175.0	4.13	3.79	---	7.92	10.10
	Inst	LF	Sm	UD	.114	140.0	4.55	4.75	---	9.30	12.00
7" diameter	Inst	LF	Lg	UD	.107	150.0	4.45	4.46	---	8.91	11.50
	Inst	LF	Sm	UD	.133	120.0	4.90	5.54	---	10.44	13.50
8" diameter	Inst	LF	Lg	UD	.128	125.0	5.12	5.34	---	10.46	13.50
	Inst	LF	Sm	UD	.160	100.0	5.64	6.67	---	12.31	16.00
10" diameter	Inst	LF	Lg	UD	.160	100.0	7.73	6.67	---	14.40	18.40
	Inst	LF	Sm	UD	.200	80.00	8.52	8.34	---	16.86	21.60
12" diameter	Inst	LF	Lg	UD	.213	75.00	8.40	8.88	---	17.28	22.30
	Inst	LF	Sm	UD	.267	60.00	9.26	11.10	---	20.36	26.50
14" diameter	Inst	LF	Lg	UD	.320	50.00	8.82	13.30	---	22.12	29.10
	Inst	LF	Sm	UD	.400	40.00	9.72	16.70	---	26.42	34.90

Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg	Avg	Avg	Avg	Avg
					hours	Output	Mat'l	Labor	Equip	Total	Price
					per	per	Unit	Unit	Unit	Unit	Incl
					Unit	Day	Cost	Cost	Cost	Cost	O&P

Fans and Ventilators

Roof-type ventilators

Aluminum, dome

6" diameter, 300 CFM	Inst	Ea	Lg	EA	.667	12.00	145.00	31.10	---	176.10	211.00
	Inst	Ea	Sm	EA	.833	9.60	159.00	38.80	---	197.80	240.00
7" diameter, 450 CFM	Inst	Ea	Lg	EA	.727	11.00	152.00	33.90	---	185.90	224.00
	Inst	Ea	Sm	EA	.909	8.80	168.00	42.30	---	210.30	254.00
9" diameter, 900 CFM	Inst	Ea	Lg	EA	.800	10.00	160.00	37.30	---	197.30	238.00
	Inst	Ea	Sm	EA	1.00	8.00	177.00	46.60	---	223.60	271.00
12" diameter, 1,000 CFM	Inst	Ea	Lg	EA	1.00	8.00	169.00	46.60	---	215.60	262.00
	Inst	Ea	Sm	EA	1.25	6.40	186.00	58.20	---	244.20	298.00
16" diameter, 1,500 CFM	Inst	Ea	Lg	EA	1.14	7.00	223.00	53.10	---	276.10	333.00
	Inst	Ea	Sm	EA	1.43	5.60	245.00	66.60	---	311.60	379.00
20" diameter, 2,500 CFM	Inst	Ea	Lg	EA	1.33	6.00	267.00	62.00	---	329.00	397.00
	Inst	Ea	Sm	EA	1.67	4.80	294.00	77.80	---	371.80	451.00
26" diameter, 4,000 CFM	Inst	Ea	Lg	EA	1.60	5.00	321.00	74.50	---	395.50	477.00
	Inst	Ea	Sm	EA	2.00	4.00	353.00	93.20	---	446.20	541.00
32" diameter, 6,500 CFM	Inst	Ea	Lg	EA	2.00	4.00	385.00	93.20	---	478.20	577.00
	Inst	Ea	Sm	EA	2.50	3.20	424.00	116.00	---	540.00	656.00
38" diameter, 8,000 CFM	Inst	Ea	Lg	EA	2.67	3.00	462.00	124.00	---	586.00	711.00
	Inst	Ea	Sm	EA	3.33	2.40	509.00	155.00	---	664.00	810.00
50" diameter, 13,000 CFM	Inst	Ea	Lg	EA	4.00	2.00	554.00	186.00	---	740.00	907.00
	Inst	Ea	Sm	EA	5.00	1.60	610.00	233.00	---	843.00	1040.00

Plastic ABS dome

900 CFM	Inst	Ea	Lg	EA	.667	12.00	112.00	31.10	---	143.10	174.00
	Inst	Ea	Sm	EA	.833	9.60	124.00	38.80	---	162.80	198.00
1,600 CFM	Inst	Ea	Lg	EA	.800	10.00	156.00	37.30	---	193.30	233.00
	Inst	Ea	Sm	EA	1.00	8.00	172.00	46.60	---	218.60	265.00

Wall-type ventilators, one speed, with shutter

12" diameter, 1,000 CFM	Inst	Ea	Lg	EA	.667	12.00	169.00	31.10	---	200.10	239.00
	Inst	Ea	Sm	EA	.833	9.60	186.00	38.80	---	224.80	270.00
14" diameter, 1,500 CFM	Inst	Ea	Lg	EA	.800	10.00	223.00	37.30	---	260.30	310.00
	Inst	Ea	Sm	EA	1.00	8.00	245.00	46.60	---	291.60	350.00
16" diameter, 2,000 CFM	Inst	Ea	Lg	EA	1.00	8.00	267.00	46.60	---	313.60	375.00
	Inst	Ea	Sm	EA	1.25	6.40	294.00	58.20	---	352.20	423.00

Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg	Avg	Avg	Avg	Avg
					hours	Output	Mat'l	Labor	Equip	Total	Price
					per	per	Unit	Unit	Unit	Unit	Incl
					Unit	Day	Cost	Cost	Cost	Cost	O&P

Entire structure, exhaust, wall-type, one speed, with shutter

30" diameter, 10,00 CFM	Inst	Ea	Lg	EA	1.60	5.00	736.00	74.50	---	810.50	954.00
	Inst	Ea	Sm	EA	2.00	4.00	811.00	93.20	---	904.20	1070.00
36" diameter, 12,100 CFM	Inst	Ea	Lg	EA	2.00	4.00	774.00	93.20	---	867.20	1030.00
	Inst	Ea	Sm	EA	2.50	3.20	853.00	116.00	---	969.00	1150.00
42" diameter, 15,900 CFM	Inst	Ea	Lg	EA	2.67	3.00	797.00	124.00	---	921.00	1100.00
	Inst	Ea	Sm	EA	3.33	2.40	878.00	155.00	---	1033.00	1230.00
48" diameter, 21,100 CFM	Inst	Ea	Lg	EA	4.00	2.00	1290.00	186.00	---	1476.00	1750.00
	Inst	Ea	Sm	EA	5.00	1.60	1420.00	233.00	---	1653.00	1970.00
Two speeds, ADD	Inst	Ea	Lg	EA	---	---	49.00	---	---	49.00	56.40
	Inst	Ea	Sm	EA	---	---	54.00	---	---	54.00	62.10
12-hour timer, ADD	Inst	Ea	Lg	EA	.500	16.00	24.50	23.30	---	47.80	62.00
	Inst	Ea	Sm	EA	.625	12.80	27.00	29.10	---	56.10	73.30

Entire structure, lay-down type, one speed, with shutter

30" diameter, 5,100 CFM	Inst	Ea	Lg	EA	1.33	6.00	370.00	62.00	---	432.00	516.00
	Inst	Ea	Sm	EA	1.67	4.80	408.00	77.80	---	485.80	582.00
36" diameter, 6,500 CFM	Inst	Ea	Lg	EA	1.60	5.00	715.00	74.50	---	789.50	930.00
	Inst	Ea	Sm	EA	2.00	4.00	788.00	93.20	---	881.20	1040.00
42" diameter, 9,000 CFM	Inst	Ea	Lg	EA	2.00	4.00	736.00	93.20	---	829.20	982.00
	Inst	Ea	Sm	EA	2.50	3.20	812.00	116.00	---	928.00	1100.00
48" diameter, 12,000 CFM	Inst	Ea	Lg	EA	2.67	3.00	758.00	124.00	---	882.00	1050.00
	Inst	Ea	Sm	EA	3.33	2.40	835.00	155.00	---	990.00	1190.00
Two speeds, ADD	Inst	Ea	Lg	EA	---	---	49.00	---	---	49.00	56.40
	Inst	Ea	Sm	EA	---	---	54.00	---	---	54.00	62.10
12-hour timer, ADD	Inst	Ea	Lg	EA	.500	16.00	24.50	23.30	---	47.80	62.00
	Inst	Ea	Sm	EA	.625	12.80	27.00	29.10	---	56.10	73.30

Minimum Job Charge

	Inst	Job	Lg	EA	2.29	3.50	---	107.00	---	107.00	155.00
	Inst	Job	Sm	EA	2.86	2.80	---	133.00	---	133.00	193.00

Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg	Avg	Avg	Avg	Avg
					hours	Output	Mat'l	Labor	Equip	Total	Price
					per	per	Unit	Unit	Unit	Unit	Incl
					Unit	Day	Cost	Cost	Cost	Cost	O&P

System units complete

Fan coil air conditioning

Residential / Light Commercial

0.5 ton cooling	Inst	Ea	Lg	SB	4.00	4.00	1880.00	170.00	---	2050.00	2410.00
	Inst	Ea	Sm	SB	5.00	3.20	2070.00	213.00	---	2283.00	2690.00
1 ton cooling	Inst	Ea	Lg	SB	5.33	3.00	2090.00	227.00	---	2317.00	2730.00
	Inst	Ea	Sm	SB	6.67	2.40	2300.00	284.00	---	2584.00	3060.00
2.5 ton cooling	Inst	Ea	Lg	SB	8.00	2.00	2320.00	340.00	---	2660.00	3160.00
	Inst	Ea	Sm	SB	10.0	1.60	2560.00	425.00	---	2985.00	3560.00
3 ton cooling	Inst	Ea	Lg	SB	16.0	1.00	2820.00	680.00	---	3500.00	4230.00
	Inst	Ea	Sm	SB	20.0	0.80	3110.00	850.00	---	3960.00	4810.00
4 ton cooling	Inst	Ea	Lg	SF	12.0	2.00	3080.00	538.00	---	3618.00	4320.00
	Inst	Ea	Sm	SF	15.0	1.60	3390.00	672.00	---	4062.00	4880.00
5 ton cooling	Inst	Ea	Lg	SF	16.0	1.50	3660.00	717.00	---	4377.00	5250.00
	Inst	Ea	Sm	SF	20.0	1.20	4030.00	896.00	---	4926.00	5940.00

Commercial

2 ton cooling	Inst	Ea	Lg	SB	12.80	1.25	2400.00	544.00	---	2944.00	3550.00
	Inst	Ea	Sm	SB	16.00	1.00	2640.00	680.00	---	3320.00	4030.00
5 ton cooling	Inst	Ea	Lg	SF	16.00	1.00	4160.00	680.00	---	4840.00	5830.00
	Inst	Ea	Sm	SF	20.00	0.80	4590.00	850.00	---	5440.00	6570.00
8 ton cooling	Inst	Ea	Lg	SF	21.33	0.75	5270.00	907.00	---	6177.00	7440.00
	Inst	Ea	Sm	SF	26.7	0.60	5800.00	1140.00	---	6940.00	8410.00
10 ton cooling	Inst	Ea	Lg	SF	32.0	0.50	5500.00	1360.00	---	6860.00	8400.00
	Inst	Ea	Sm	SF	40.0	0.40	6060.00	1700.00	---	7760.00	9570.00
15 ton cooling	Inst	Ea	Lg	SF	72.7	0.33	11500.00	3260.00	---	14760.00	17900.00
	Inst	Ea	Sm	SF	92.3	0.26	12600.00	4140.00	---	16740.00	20500.00

Minimum Job Charge

	Inst	Job	Lg	SB	5.33	3.00	---	227.00	---	227.00	328.00
	Inst	Job	Sm	SB	6.67	2.40	---	284.00	---	284.00	411.00

Description	Oper	Unit	Vol	Crew Size	Man-	Crew	Avg	Avg	Avg	Avg	Avg
					hours	Output	Mat'l	Labor	Equip	Total	Price
					per	per	Unit	Unit	Unit	Unit	Incl
					Unit	Day	Cost	Cost	Cost	Cost	O&P

Heat Pump

Exterior coil unit, not including curbs or pads

2 ton cool	Inst	Ea	Lg	SB	16.0	1.00	1810.00	680.00	---	2490.00	3070.00
	Inst	Ea	Sm	SB	20.0	0.80	1990.00	850.00	---	2840.00	3520.00
3 ton cool	Inst	Ea	Lg	SB	32.0	0.50	1990.00	1360.00	---	3350.00	4260.00
	Inst	Ea	Sm	SB	40.0	0.40	2200.00	1700.00	---	3900.00	4990.00
4 ton cool	Inst	Ea	Lg	SF	48.5	0.33	2470.00	2060.00	---	4530.00	5990.00
	Inst	Ea	Sm	SF	61.5	0.26	2720.00	2610.00	---	5330.00	7120.00
5 ton cool	Inst	Ea	Lg	SF	64.0	0.25	2520.00	2720.00	---	5240.00	7060.00
	Inst	Ea	Sm	SF	80.0	0.20	2780.00	3400.00	---	6180.00	8400.00

Roof mounted with crane, coil unit, not including curbs or pads

8 ton cool	Inst	Ea	Lg	SF	32.0	0.50	6780.00	1360.00	737.00	8877.00	10700.00
	Inst	Ea	Sm	SF	40.0	0.40	7470.00	1700.00	812.00	9982.00	12100.00
10 ton cool	Inst	Ea	Lg	SF	48.5	0.33	8590.00	2060.00	737.00	11387.00	13900.00
	Inst	Ea	Sm	SF	61.5	0.26	9470.00	2610.00	812.00	12892.00	15800.00
15 ton cool	Inst	Ea	Lg	SF	64.0	0.25	12300.00	2720.00	737.00	15757.00	19200.00
	Inst	Ea	Sm	SF	80.0	0.20	13600.00	3400.00	812.00	17812.00	21800.00
20 ton cool	Inst	Ea	Lg	SF	80.0	0.20	16300.00	3400.00	737.00	20437.00	24800.00
	Inst	Ea	Sm	SF	100.0	0.16	17900.00	4250.00	812.00	22962.00	28000.00

Minimum Job Charge

	Inst	Job	Lg	SB	8.00	2.00	---	340.00	---	340.00	493.00
	Inst	Job	Sm	SB	10.0	1.60	---	425.00	---	425.00	616.00

PTAC Wall / Window unit air conditioners.

Semi-permanent installation, 3-speed fan, 125-volt GFI receptacle, energy-efficient models

6,000 BTUH (0.5 ton cool)	Inst	Ea	Lg	EB	4.00	4.00	509.00	186.00	---	695.00	856.00
	Inst	Ea	Sm	EB	5.00	3.20	561.00	233.00	---	794.00	983.00
9,000 BTUH (0.75 ton cool)	Inst	Ea	Lg	EB	4.00	4.00	660.00	186.00	---	846.00	1030.00
	Inst	Ea	Sm	EB	5.00	3.20	728.00	233.00	---	961.00	1170.00
12,000 BTUH (1.0 ton cool)	Inst	Ea	Lg	EB	4.00	4.00	758.00	186.00	---	944.00	1140.00
	Inst	Ea	Sm	EB	5.00	3.20	835.00	233.00	---	1068.00	1300.00
18,000 BTUH (1.5 ton cool)	Inst	Ea	Lg	EB	5.33	3.00	1090.00	248.00	---	1338.00	1610.00
	Inst	Ea	Sm	EB	6.67	2.40	1200.00	311.00	---	1511.00	1830.00
24,000 BTUH (2.0 ton cool)	Inst	Ea	Lg	EB	5.33	3.00	1520.00	248.00	---	1768.00	2100.00
	Inst	Ea	Sm	EB	6.67	2.40	1670.00	311.00	---	1981.00	2370.00
36,000 BTUH (3.0 ton cool)	Inst	Ea	Lg	EB	5.33	3.00	2180.00	248.00	---	2428.00	2860.00
	Inst	Ea	Sm	EB	6.67	2.40	2400.00	311.00	---	2711.00	3210.00

Minimum Job Charge

	Inst	Job	Lg	EA	2.67	3.00	---	124.00	---	124.00	180.00
	Inst	Job	Sm	EA	3.33	2.40	---	155.00	---	155.00	225.00

Awnings. See Canopies, page 67

Backfill. See Excavation, page 155

Index

A

Abbreviations used	20
Access doors	348
Accessibility	
site	6
workplace	5
Accessories	
bath	37-40
boiler	255
fiberglass panels	163
fireplaces	164-165
Accordion doors	86
Accurate estimating methods	5
Acoustical tile/panels	
adhesive cost	21
adhesive set	22
ceiling tile	22-23
demolition	120
dimensions	21
estimating technique	21
furring strips	23-24
installation	21
painting	305
patterns	23
stapled/no grid	23
suspended ceiling systems	397-400
wall tile	22-23
Acrylic	
bathtubs	45, 47-49
dome skylights	386-387
flooring, wood parquet blocks	253
Adhesives	
ceiling panels	22
ceramic tile	98
drywall panels	26-27
floor panels	23
gypsum drywall panels	27
hardboard wall panels	27-28
plastic wall panels	27-28
polystyrene wall panels	25-26
polyurethane foam wall panels	25-26
subfloor	24
wall panels	25-28
Adjustable roof flashing	406
Adjuster, insurance	5
Adobe, brick	279
Aggregate, ready mix concrete	95-96
Air conditioning systems	
diffusers/grilles	30
ductwork	31-32
fans and ventilators	33-34
system components	28-32
system units, complete	35
Air conditioning units	
fan coil	35
heat pumps	36
PTAC wall/window	36
window	36
Air return, cold	31
Air supply registers	31
Air tool operator	
crew rates	15
wages	11
Air tools, demolition	106-107
Aluminum	
carport, freestanding	67
casement windows	417
columns	87-88
ductwork, A/C	31
exterior shutters	359
garage doors	214
gutters and downspouts	248

jalousie windows	418
kickplates	124
patio cover	67
picture windows	418
roofing	332
roofing, demolition	114
sash, window glass	222
shower and tub doors	349-353
sliding glass door	351-353
sliding glass door, demolition	119
sliding, horizontal windows	419-420
sliding, vertical windows	419-420
storm windows	421
thresholds	125
weathervanes	105
windows	417-421
windows, demolition	117-118
Aluminum ductwork, flexible	32
Aluminum siding	
clapboard	365
corrugated	114
demolition	365
dimensions	362
estimating	362
installation	362
panels	114
Angle bar, bathroom	38
Anti-algae caulking	74
Aqua Glass shower surround	356
Arch roof, calculating paint coverage	301
Architectural, cement, white	97
Archway, entrance	154
Area modification factors	
calculating	12
Canada	14
U-S	12
Ash, V-grooved, paneling	315
Ash-ven, paneling	315
Ashlar pattern, tile installation	23
Asphalt shingles	332-336
demolition	115, 332
Assembled package door units	127
Attic, access doors	348
Average costs	4
Average manhours per unit	4
Awning windows	
vinyl	421
wood	427
Awnings	
canopies	68-69
canvas	69
patio	67-68
sunroom/garden room	69
window	68-69
wood, patio	185

B

Backer board, cement	77
Backfilling	155
Backsplash	
butcher block	104
ceramic tile	98
engineered stone	103
Formica	98, 99-100
granite	101-102
marble	101-102
quartz	102
Silestone	103
stainless steel	104
Balusters, stair	394
Balustrade, stair	393
Bar sinks	382-384
Bars, towel	40

Base cabinets, kitchen	54-56
installation procedure	53
Base shoe, solid pine	289
Baseboard	287-290
Bases, shower	354-355
Basketweave fence, redwood	156
Bath accessories	37-41
demolition	113
Bath caulking	
anti-algae	74
mildew resistant	74
Bathroom, sinks	381
Bathroom angle bar	38
Bathroom door locksets	124
Bathroom heaters	
electric, ceiling	253-254
electric, wall	254
Bathroom wallpaper	408
Bathtub wall, ceramic tile	75
Bathtubs	
acrylic	45, 46, 47-49
alcove/recessed/integral apron	46-47
cast iron	44, 47
demolition	358
free-standing	50
free-standing accessories	50
remove & reset	44, 51
rough-in	45
shower fixture	45, 51
shower tub units	358
steel	44, 47, 49-50
whirlpool	44-45, 46-47
Batt insulation	258-263
demolition	114
Batten siding	363
Batts, pine	377-378
Beams	
built-up	169-170
demolition	109
dimension lumber	169-172
glu-lam	223-242
single member	170-172
Bedroom door locksets	124
Benefits, employer paid	11
Bevel siding	
demolition	116
dimensions	362
wood	373-374
Bi-folding closet doors	78-81
Bidets	401-402
Birch	
blinds	360
paneling	316
shutters	360
Blender, kitchen	165
Blinds, exterior	
birch	360
Cellwood	361
door	359
pine	359
western hemlock	360
Block flooring, hardwood	252
Block, concrete	
demolition	279
dimensions	272
exterior walls	281
fences	283-284
foundations	279-280
heavyweight	280
lightweight	280
partitions	282-283
retaining walls	279-280
slump	284-285

walls.....	279-280	painting.....	306	Ceiling/wall tile	
walls, insulating.....	265	quality of.....	52	demolition.....	22
Block, glass.....	286	Cabinets, medicine.....	41-43	stapled.....	23
Blocking, demolition.....	172-173	Cabinets, vanity.....	64-66	Cellwood shutters.....	361
Board and batten siding		Cable, service entrance.....	147	Cement	
aluminum.....	362	Calculating		architectural.....	97
wood.....	377-378	area modification factors.....	12	painting.....	311
Board fence systems.....	156-158	overhead expenses.....	301	Cement masons	
Board sheathing		paint coverage.....	6	crew rates.....	16
demolition.....	208-209	total hourly cost.....	11	wages.....	11
subfloor.....	210	Canada		Ceramic tile	
wall.....	208	adjusting factors.....	12	adhesive.....	98
Board siding.....	377	area modification factors.....	14	bathtub wall installation.....	75
demolition.....	116	Canopies		cement backer board.....	77
Boilers		aluminum.....	67-69	countertops.....	76, 98
accessories.....	255	canvas.....	69	cove/base.....	76
check valve.....	255	carport.....	67	demolition.....	76-77
circulator pump.....	255	door.....	68-69	dimensions.....	75
gas fired.....	254-255	window.....	68-69	estimating techniques.....	75
oil fired.....	254-255	Canvas awnings.....	69	floors.....	76
Bolted ledgers.....	184	Carpenter		installation methods.....	75
Bottom plates.....	185	crew rates.....	15-17	mortar.....	98
Box-type rain gutter.....	248-249	wages.....	11	wainscot cap.....	77
Bracing.....	173	Carpet pad.....	70-71	walls.....	77
demolition.....	109	Carport, freestanding.....	67	Chain link fence.....	158-159
Brass kickplates.....	124	Casement windows		fabric.....	159-160
Brick		aluminum.....	417	galvanized steel.....	158-159
adobe.....	279	vinyl.....	422	vinyl coat.....	158-159
chimneys.....	273-274	wood.....	428	Chain-drive garage door opener.....	217
columns.....	274-277	Cast iron		Change orders.....	7
concrete slump.....	285	bathtubs.....	47, 49	Channel molding, Marlite.....	271
demolition.....	107	boilers, circulator pump.....	255	Checklist, estimating.....	6
dimensions.....	272	kitchen sinks.....	382-384	Chemical additives, concrete.....	97
paint, one coat.....	309	utility.....	384	Chemical feed pumps,	
running bond.....	273-274	Cast-in-place concrete		soft water systems.....	416
standard.....	273-278	footings.....	91-92	Chimes, doorbell.....	150
veneer.....	277-278	forming.....	93	Chimney, vent.....	404-406
walls.....	277-278	foundations.....	92-93	Chimneys	
Bricklayer		interior floor finishing.....	95	brick.....	273-274
crew rates.....	15, 17	reinforcing steel rods.....	94	demolition.....	273-274
wages.....	11	retaining walls.....	92	factory built.....	164
Bricktender		slabs.....	94	flashing.....	345
crew rates.....	15, 17	Caulking		Circline lighting fixtures (LED capable).....	269
wages.....	11	anti-algae.....	74	Circular area, paint coverage.....	301
Bridging		bath/kitchen.....	73-74	Clapboard siding	
demolition.....	109	butyl flex.....	72	aluminum.....	365
solid, between joists.....	174-175	elastomeric.....	74	demolition.....	114
Bronze kickplates.....	124	gun.....	74	Clay tile roofing.....	332-336
Bronze, boilers, circulator pump.....	255	latex.....	72	demolition.....	115
Building Repair Estimate.....	10	mildew resistant.....	74	Clean-up center, kitchen.....	52
Building Repair Estimate form		multi-purpose.....	72	Cleaning.....	302-303
checklist.....	6	oil base.....	73	Cleaning, paint preparation	
example.....	8	silicone.....	73	exteriors.....	308-309
explanation.....	6, 9	Cavity walls, insulating.....	264-265	interiors.....	302-303
Built-in dishwashers.....	121	CDX plywood sheathing.....	208-209	Clients	
Built-in food center.....	165	Cedar		communication with.....	7
Built-up roofing		fencing.....	156-158	evaluating.....	7
demolition.....	115	roofing.....	340-344	Closet door systems	
dimensions.....	330	siding.....	373	accordion.....	86
over concrete deck.....	338	Cedar molding, trim board.....	298-299	bi-folding.....	78-81
over existing roof.....	336-338	Ceiling		bypassing.....	82-85
over wood deck.....	337	joists.....	178	demolition, with track.....	117
Burglary detection systems.....	151-152	panels.....	22-23	hardware.....	87
Butcher block countertops.....	104	tiles.....	22-23	mirrored.....	80-81, 84-85
Button, doorbell.....	150	Ceiling applications		prefinished.....	81
Butyl caulk.....	72	drywall.....	145	sliding.....	82-85
BX cable.....	148	drywall adhesive.....	26	track and hardware.....	87
Bypassing closet doors.....	82-85	paint.....	304-306	unfinished.....	78-80
C		plaster lath.....	319	Closets	
Cabinetry.....	54-66	wallpaper.....	408	kitchen utility.....	56
Cabinets, kitchen		Ceiling hung space heaters.....	256	mirrored.....	80-81, 84-85
demolition.....	113	Ceiling light fixtures		Clothes dryer vent.....	347
description.....	52	indoor.....	268-270	Cold air return.....	31
installation procedure.....	52	outdoor.....	270	enameled metal.....	34-35
natural finish.....	306	Ceiling systems, suspended			
		demolition.....	398		
		grid.....	398-400		
		tile/panels, acoustical.....	22-23		

Colonial style		Copper roofs, cupola	105	Demolition	
entrances	154	Corinthian cap, column	87-88	acoustical ceiling tile	120
shutters	360	Corner boards, siding	364	adobe brick	279
Colonnades, columns	87-88	Corner cabinets		aluminum roofing	114
Coloring, concrete	97	kitchen	55	aluminum siding	365
Column headings, book, explained	4	vanity	66	asphalt shingles	115, 332
Columns		Corner posts, chain link fence	160	awning, wood	185
aluminum	87	Corner studs, applications	168	bath accessories	113
brick, demolition	17	Corrugated aluminum		bathtub	358
demolition	109	demolition, roofing/siding	114	beams	109, 223-242
entrance	87-88	downspouts	248	bevel siding	116
extruded aluminum	87	roofing	332	block, concrete	279
framing	176	Corrugated fiberglass panels	162	blocking	172-173
framing, demolition	176	Cosmetic box	41	board and batten	377-378
wood	88	Cost basis, using to estimate	4	board sheathing	208-209
Common rafters		Cost data, accuracy	2	board siding	116
cut-up roofs	189-191, 193-194	Cost difference		bottom plates	185
gable or hip	186	new construction	5	bracing	109, 173
Communication with clients	7	repair and remodeling	5	brick	107
Compactors, trash	403	Counterspace, rule of thumb	52	brick chimneys	273-274
Composition shingle roofing	332-336	Countertop bathroom sinks		brick columns	274-276
Compressors, air conditioning	29	vitreous china	381	bridging	109, 174-175
Concrete		Countertops		built-up hot roofing	115
architectural	97	butcher block	104	cabinets, kitchen	113
cast-in-place	94	ceramic tile	98	ceiling furring strips	176
chemical additives	97	concrete	98	ceiling joists	110
coloring	97	engineered stone	103	ceiling tile	120
demolition	106-107	Formica	98-101	chimneys	273-274
finish grading	89	granite	101-102	clapboard	114
interior floor finishes	89	imitation granite/marble	103	clay tile roofing	115
labor	89	marble	101-102	closet doors, with track	117
painting	309, 311	quartz	102	columns	109, 176
pour and finish slabs	94	Silestone	103	concrete block	108
ready mix	95-96	stainless steel	104	concrete block fences	283
reinforcing	89	terrazzo	104	concrete block partitions	282-283
screeds	95	Country style Dutch doors	131	concrete footings	106
Concrete block		Cove, ceramic tile	76	concrete foundations	92
demolition	108	Cover, patio	67-68	concrete retaining walls	92
dimensions	272	Coverage calculations, painting	301	concrete slabs	107
exterior walls	281	Crew compositions	4, 15-19	corrugated roofing	332
fences	283-284	Crew rates		deck, roof	112
foundations	279-280	air tool operator	15	deck, wood	185
heavyweight	280	bricklayer	15, 17	decking	112, 196
lightweight	280	bricktender	15, 17	diagonal bracing	109, 173
partitions	282-283	carpenter	15, 16, 17	diagonal let-ins	109, 173
retaining walls	279-280	cement mason	16	dimensional lumber	109-112, 169
slump	284-285	electrician	16, 18	doors	117
Concrete countertops	98	equipment operator	19	downspouts	114
Concrete footings		fence erector	16	drop siding	116
cast-in-place	91-92	floorlayer	16	drywall	119, 146
demolition	106	glazier	16	dumpsters	105
dimensions	89	lather	17	entry doors	117
estimating techniques	89	painter	17	excavation	155
installation techniques	89	paperhanger	18	exterior walls	108
labor	89	plasterer	17	fascia	109, 176
Concrete foundations		plumber	18, 19	fences, concrete block	283
demolition	106-107	roofer	18	fences, masonry	108
dimensions	89	sheet metal worker	19	fiberboard sheathing	208
estimating techniques	89	tile setter	19	finish carpentry	113
installation techniques	89	Crown molding	294-296	finishes	119-120
interior floor finishes	89	Cup holder	37	fire doors	117
labor	89	Cupolas	104-105	firestops	110
pour and finish slabs	94	Curtain rod, shower	38	floor joists	110
Concrete steps, painting	311	Curved stairway	396	floors, ceramic tile	76
Concrete, cast-in-place		Cylinder, surface area, calculating paint coverage	301	floors, quarry tile	109
footings	91-92	D		folding closet doors	117
forming	94	Daily production, average	4	footings	91
foundations	92-93	Dampers, air conditioning, variable volume	29	framing	109-117
interior floor finishes	89	Dampers, motorized	29	furring strips	110
retaining walls	92-93	Dead locks	124	furring strips on ceilings	176
slabs	94	Deck insulation	265-266	gable ends	197-198
Condenser pad	29	Decking		garage doors	117
Condensing units, A/C	29	demolition	185	glass	220-222
Cone, surface area, calculating paint coverage	301	roof	196	glass sliding doors	119
Cooking center, kitchen	52	wood patio	185	glazed block	286
				glazing	118

glu-lam beams.....	223-242	top plates.....	185	Doors	
glu-lam ledgers.....	246-247	trim.....	287	access.....	348
glu-lam products.....	110, 223-247	trusses.....	113	accordion.....	86
glu-lam purlins.....	242-244	underlayment.....	210	bi-folding.....	78-81
glu-lam sub-purlins.....	244-245	vanity cabinets.....	64	bypassing.....	82-85
gutters.....	114	veneer, brick.....	107	closet.....	78-87
gypsum board.....	119	wall furring strips.....	177	Colonial.....	126
gypsum panels.....	119	wall sheathing.....	208	demolition.....	117
hardboard siding.....	115	wallboard.....	119	Dutch.....	131
hardwood flooring.....	113	wallpaper.....	120	entrance.....	128-131
headers.....	110, 177-178	walls.....	112	exterior, metal.....	130
insulating ceiling tile.....	120	walls, ceramic tile.....	77	exterior, wood.....	128-129
insulating glass.....	118	walls, masonry.....	107, 279	fire doors.....	131
insulation.....	114	water softener.....	416	frames, interior.....	123
joists.....	110, 178-184	weather protection.....	114	French, exterior.....	131
kitchen cabinets.....	113	windows.....	117-118, 417	French, interior.....	132
lath.....	110	wood deck.....	185	garden.....	132
ledgers.....	111	wood roofing.....	115	glass, sliding.....	133-138
lintels.....	177-178	wood shakes/shingles.....	340-341	interior systems.....	126
loose fill.....	114	wood siding.....	114-115	interior, wood, passage.....	138-142
lumber.....	109-113, 169	Demolition, with air tools.....	106-107	louver.....	79, 142
Marlite panels.....	113	Description column, book.....	4	mirrored.....	80-81, 84-85
Masonite siding.....	115	Detailed estimate.....	5	package door units.....	127
masonry.....	107	importance of.....	7	pocket.....	143
medicine cabinets.....	113	Detectors		screen.....	143
molding.....	113	carbon monoxide.....	149	shower.....	349-353
paneling.....	113	detach & reset.....	149	sliding.....	82-85
particleboard.....	210	fire.....	151	steel.....	144
partitions, block.....	282-283	motion.....	152	storm.....	143
patio framing.....	185	smoke.....	149	tub.....	349-354
plaster.....	119, 319	Diagonal let-ins.....	173	with sidelights.....	130
plastic tile.....	119	Diamond lath.....	317	Doors, finishing	
plates.....	111, 185	metal.....	319	exterior, paint.....	310
plywood.....	208-210	Diffusers, air conditioning.....	30	interior, paint.....	305-306
plywood sheathing.....	112	Digging.....	155	natural finish.....	306
plywood siding.....	116	Dimension lumber		Dormer louvers.....	347
posts.....	109, 176	beams.....	169-172	Double door entrances.....	154
quarry tile.....	286	blocking.....	172-173	Double hung windows	
rafters.....	111, 186-195	bracing.....	173	vinyl.....	422-423
receptors.....	354	bridging.....	174-175	wood.....	429
resilient flooring.....	120, 325	columns.....	176	Double roll top countertop, Formica.....	99
retaining walls.....	106-107	demolition.....	109-113	Double top plate.....	185
rigid insulation.....	114	diagonal let-ins.....	173	Douglas fir, fencing.....	156-158
roof decking.....	112, 196	fascia.....	176	Downspouts	
roof sheathing.....	209	girders.....	169-172	aluminum.....	248
roofing.....	112, 114-115, 338	headers.....	177-178	copper.....	248
rough carpentry.....	109-113	joists.....	178-184	demolition.....	114
screen block.....	285	ledgers.....	184	painting.....	310, 312
screen doors.....	117	lintels.....	177-178	Drainage, gutters and downspouts.....	248-249
shake roof.....	340	patio decking.....	185	Drawer base, kitchen.....	56
shakes, wood.....	116	plates.....	185	Drip edge flashing.....	347
sheathing.....	112, 208-210	posts.....	176	Drop siding	
sheathing, subfloor.....	210	rafters.....	186-195	demolition.....	116
sheet flooring.....	120, 325	sheathing.....	208-210	dimensions.....	363
sheet metal.....	114	solid roof decking.....	196	installation.....	363
sheetrock.....	146	studs.....	196-208	wood.....	375-376
shingles.....	332	Disconnect switch, entrance.....	147	Drywall	
shingles, wood.....	116, 341	Dish, soap.....	38	adhesive.....	26-27
shower bases.....	354	Dishwashers		ceiling application.....	145
shower stalls.....	356	built-in.....	121	ceiling panels.....	146-147
shower tub units.....	358	installation.....	121	demolition.....	146
siding.....	114-115	Disposers, garbage.....	218-219	dimensions.....	145
slabs.....	94	Domes, skylight.....	386-387	estimating techniques.....	145
sliding closet doors.....	117	Door		fire resistant.....	147
slump block.....	284	blinds, exterior.....	359	installation techniques.....	145
slump brick.....	285	canopies.....	68-69	painting.....	303-304
solid bridging.....	109	chimes.....	150	repair, paint preparation.....	303
spa.....	389	jamb assemblies.....	127	tape joints.....	146
steel garage doors.....	117	sill assembly.....	127	wall application.....	145
stiffeners.....	110	sills, exterior.....	122	wall panels.....	146
storm combination doors.....	117	Door frames		water resistant.....	147
stucco.....	119, 319	assembly.....	126	Dual glazed windows.....	427-428
studs.....	196-208	exterior, metal.....	122	Ductwork	
subfloor.....	113	exterior, wood.....	122	air conditioning.....	31-32
suspended ceilings.....	120	Door openers, garage.....	217	insulated.....	32
tile, clay or concrete.....	338	Door swing, kitchen cabinet.....	52	Dumpsters, rental.....	105
toilets, bidets, urinals.....	401	Doorbell systems.....	150	Duolux	

E

Eaves, painting.....301
 Economy hardboard, paneling314
 Elastomeric caulking74
 Electric fire
 bathroom ceiling heaters.....253-254
 bathroom, wall heater254
 furnaces256
 Electric water heaters, solar.....414-415
 Electrical work
 burglary detection systems151-152
 carbon monoxide detector149
 doorbell systems.....150
 EMT148
 fire alarm systems.....151
 ground cable148
 ground rod with clamp148
 intercom systems.....151
 meter socket147
 panelboard.....148
 phone jack wiring152
 service entrance cable147
 signal bell.....151
 smoke detector.....149
 television antenna wiring152
 thermostat153
 weathercap147
 wiring.....148
 Electrician
 crew rates16, 18
 wages.....11
 EMT148
 Enameled cast iron sinks
 bar.....382-384
 kitchen382-384
 utility.....384
 End posts, chain link fence.....161
 Engineered stone countertops.....103
 Entrance columns87-88
 Entrance disconnect switch.....147
 Entrance doors.....128-132
 demolition.....117
 Entrances.....154
 Equipment operator
 crew rates19
 wages.....11
 Equipment unit cost, average.....4
 Estimate
 adjusting for area.....12-14
 blank form10
 charging for7
 checklist.....6
 form8-10
 starting7
 Estimating methods.....5
 Estimating techniques.....5, 6
 acoustical tile.....21
 aluminum siding.....362
 batten siding.....363
 brick272
 built-up roofing.....330
 ceramic tile75
 concrete block272
 concrete footings.....89
 drop siding.....363
 drywall.....145
 fiberglass shingles.....329
 finish grading.....89
 forms, screeds and rods89, 94-95
 insulating tile.....21
 mortar.....317
 painting300
 plywood siding.....364
 quarry tile.....272
 roll roofing329

suspended ceilings397
 vertical siding.....363
 wallpaper407
 wood shingle siding.....364
 wood shingles.....329
 Evaluating clients7
 Excavation.....155
 Exterior
 concrete block walls.....281
 corner framing168
 door frames.....122
 finishes, demolition119-120
 french doors.....131
 masonry walls demolition108
 metal doors.....130
 painting300
 shutters359-361
 sills, doors.....122
 wood doors.....128-129
 Exterior key switch, garage door opener...217
 Extruded aluminum columns.....87
 Extruded polystyrene foam insulation.....267
F
 Fabric awning.....69
 Fabricated ductwork, A/C31-32
 Factors, area modification.....12
 Fan coil, A/C system35
 Fans and ventilators, roof type.....33
 Fascia.....176
 demolition.....109
 Federal unemployment insurance.....11
 Felt underlayment, sheet flooring.....324
 Fence erector
 crew rates16
 wages.....11
 Fence estimate, complete.....161
 Fence posts
 chain link.....158-159, 160
 redwood.....156-158
 split rail.....161
 Fences
 chain link.....158-159
 lateral reinforcing284
 lightweight block.....284
 masonry284
 masonry, demolition.....108
 split rail.....161
 Fiber cement366-367
 Fiberboard sheathing.....208
 Fiberglass
 bathtubs, acrylic45, 47-49
 garage doors215
 insulation, Johns-Manville.....258-264
 molding163
 panels162
 screening, door.....143
 shingles.....329
 shower tub units358
 shower units.....358
 Filler strips, chain link.....160
 Filter, water.....416
 Filters, water, soft water systems.....416
 Finger joint pine moldings
 base.....287-289
 casing.....291
 chair rail.....292
 crown molding.....294-295
 Finish carpentry, demolition.....113
 Finish grading91
 Finishes
 concrete floor.....89
 demolition.....119-120
 natural306-307
 paint302-313
 wood floor307

Finishing, concrete floor.....95
 Fir, wood
 decking185
 flooring251
 shutters359
 Fire alarm systems151
 Fire damage.....6
 Fire doors131
 Fire-resistant drywall145-147
 Fire-retardant fiberglass panels.....162
 Fireplaces.....164-165
 accessories.....164-165
 mantels.....271
 trim kit165
 Firestops, demolition110
 Fixed type skylights.....386
 Fixtures, lighting268-270
 Flashing.....345-346
 roof vent406
 Flat panels, fiberglass162
 Flexible coated ductwork, A/C.....32
 Flexible moldings, resin297
 Floor finishes, concrete.....89
 Floor framing
 applications168
 joists178-184
 joists, demolition110
 Floor mounted space heaters257
 Flooring
 ceramic tile75
 demolition.....76, 109
 hardwood.....250-253
 installation, wood250-253
 mastic.....250
 oak251-252
 panel adhesive24
 parquet.....252-253
 quarry tile.....286
 resilient324-328
 Floorlayer
 crew rates16
 wages.....11
 Floors, shower354-355
 Floors, wood
 cleaning302-303
 finishing.....307
 natural finish.....307
 painting, wood307
 sealing.....305
 stainwax307
 waxing307
 Flue piping404-406
 Fluorescent lighting.....268
 Flush face paneling, birch316
 Foam insulation267
 Foil-faced insulation262-263
 Folding closet doors.....78-81
 demolition.....117
 Food centers, small appliance.....165
 Footings
 cast in place91-92
 concrete89-90
 excavation for155
 forced warm air systems.....256
 Formica countertops98-101
 cost adjustments.....100
 Forming, concrete
 footings91
 foundation95
 retaining wall.....93
 slabs.....95
 Foundation vents, galvanized347
 Foundations
 concrete block.....279-280
 demolition.....92
 poured from truck95-96

Framing
 applications 166
 beams 166
 blocking 172-173
 bracing 173
 bridging 174-175
 columns 176
 demolition 109-117
 diagonal let-ins 173
 dimension lumber 166
 fascia 176
 headers 177-178
 joists 178-184
 ledgers 184
 lintels 177-178
 patio decking 185
 plates 185
 posts 176
 rafters 186-195
 rough carpentry 166-213
 sheathing 208-210
 solid roof decking 196
 studs 196-208
 Free-standing bathtubs 50
 Free-standing carport 67
 French doors 131-132
 Fringe benefits 11
 Front end loader, excavation 155
 Fruit juicer 165
 Furnaces
 electric fired 256
 gas 256
 oil fired 256
 Furring strips
 demolition 110
 over plaster 24
 over wood 24

G

Gable
 ends 197-198, 198-205
 rafters 186-188, 192-193
 shakes 340
 shingles 341-343
 Galvanized netting 321
 Galvanized steel
 ductwork, A/C 31
 fence posts 158-159, 160
 Gambrel roof,
 calculating paint coverage 301
 Garage door openers 217
 Garage doors 214-217
 demolition 117
 wood 216-217
 Garbage compactors 403
 Garbage disposers
 Badger 218
 In-Sink-Erator 218
 parts/accessories 219
 remove/reset 218-219
 Garden doors 132
 Garden windows, vinyl 423
 Gas fired
 boilers 254-255
 furnaces 256
 space heaters 256-257
 Gas valve, fireplace 164
 Gate posts, chain link fence 161
 Gates
 chain link fence 159-160
 split-rail 161
 Girders 169-172
 Glass and glazing 220-222
 Glass block 286
 Glass doors
 demolition 117, 119
 shower 351-353

sliding 133-138
 tub 351-354
 Glass shelf, bathroom 37
 Glazed block 286
 Glazed tile 286
 Glazier
 crew rates 16
 wages 11
 Glazing 220-222
 demolition 118-119
 Glu-lam beams
 3-1/8 223-226
 5-1/8 226-231
 6-3/4 232-234
 8-3/4 235-238
 10-3/4 239-242
 Glu-lam products
 beams 223-242
 ledgers 246-247
 purlins 242-244
 sub-purlins 244-245
 Grab bars 37-38
 Grading
 cast in place concrete 94
 footings 91
 slabs 94
 Granite countertops 101-102
 Gravel stop 346
 Grid system, suspended ceiling 412-414
 Grid, ceiling 398-400
 Ground cable 148
 Ground rod 148
 Grout mix 95
 Guide, how to use book 4
 Gun applied adhesives 24-28
 Gun, caulking 74
 Gusset, framing 166
 Gutter accessories 249
 aluminum 248
 cleaning 308
 copper 248
 demolition 114
 painting 301
 painting, 2 coats 312
 steel 249
 vinyl 249
 Gutters and downspouts 248-249
 Gypsum
 adhesive 26-27
 lath 319
 panels, demolition 119
 plaster 320
 plasterboard 146-147

H

Hand excavation 155
 Handlesets, door 124-125
 Hanger applications 166
 Hanging island cabinets 58
 Hardboard
 adhesive 27
 demolition 115
 installation 314
 paneling 314
 plywood paneling 314
 siding 368-369
 underlayment 210, 327
 Hardware
 door 124-125
 sliding door 82-85
 Hardwood flooring
 applications 250-253
 block 252
 demolition 113
 fir 251
 machine sand 251, 253

maple 251
 oak 251-252
 parquet 252-253
 penetrating stainwax 221
 strip 251
 teak 252
 walnut 252
 waxing 307
 yellow pine 251
 Hardwood molding 287-299
 base cap 290
 base shoe 289
 baseboard 287-289
 block, baseboard 290
 block, corner 290
 block, plinth 290
 brick mold 291
 casing 291-292
 chair rail 292-293
 coffered ceiling 293
 corner trim 293
 cove 293
 crown 294-296
 panel cap 296
 quarter round 296
 trim board 298-299
 window seat 299
 window sill 299
 window trim set 299
 Headers 177-178
 demolition 110
 Heat pumps 36
 Heaters
 electric, bath 253-254
 floor mounted 257
 space heater 256-257
 wall 257
 Heating systems
 boilers 254-255
 forced air 256
 furnace 256
 Heavyweight blocks, concrete 280
 Hiders, identifying 6
 Hip
 rafters 186-188, 192-193
 shakes 340
 shingles 341-343
 Historical price data 5
 collecting 6
 Hoods, range 322-323
 Hook, robe 38
 Horizontal blocking 172-173
 Horizontal slide
 aluminum windows 419-420
 vinyl windows 425
 wood windows 431
 Hot air heating 256
 Hot tub, whirlpool 390
 Hot water boilers 254-255
 Hourly cost, total 11
 House wrap, siding 258, 365
 How to use book 4

I

Imitation stone countertops 103
 In-Sink-Erator garbage disposer 218
 Incandescent lighting fixtures 269-270
 Indoor lighting 268-270
 Inspection, visual 7
 Installation techniques
 acoustical tile 21
 aluminum siding 362
 batten siding 363
 bevel siding 362
 brick 272
 built-up roofing 330-331

ceramic tile	75
concrete block	272
concrete footings	89
drop siding	363
drywall	145
fiberglass shingles	329
inside/outside siding corners	364
insulating tile	21
lath	317
mortar	317
painting	300
paneling	364
plaster	317
plywood siding	364
quarry tile	272
roll roofing	329
sheet flooring products	324
stucco	317
suspended ceilings	397
tile products	324, 363
wallpaper	407, 408
wood shingle	329
wood shingle siding	364
Insulated ductwork	32
Insulating	
block walls	265
cavity walls	264-265
glass	221-222
roofs	265-266
walls	265-266
Insulating tile, acoustical	
ceiling	22-23
demolition	120
dimensions	21
wall	22-23
Insulation	
batt or roll	258-263
demolition	114
extruded polystyrene rigid foam	267
foil-faced	260, 262-263
Kraft-faced	259-261
loose fill	264-265
perlite	265
rafters	260-262
rigid	265-266
studs	262-263
unfaced	258-263
Vermiculite	265
Insurance claims adjuster	5
Insurance, liability	11
Intercom systems	151
Interior	
doors	138-143
French doors	132
painting	300
Interior doors	
frames, wood	123
types	126
Interior finishes	
concrete floor	89
demolition	119-120
painting	300
painting, estimating	300
Interlocking tile shingles	332-336, 338
Invoices, cataloguing	6
Ironworker, reinforcing, wages	11
Island cabinets, kitchen	57
J	
Jacuzzi spa	389-390
Jalousie windows	
aluminum	418
vinyl	423
Jamb assembly, door	127
Jamb-type garage doors	
aluminum	214
fiberglass	215

steel	216
wood	216
Job summary file, variance report	6
Jobs, estimating	5
Johns-Manville fiberglass insulation	258-264
Joists	
bridging	174-175
ceiling/floor	178-184
demolition	110, 178-184
framing hanger	166
insulation	258-264
LF of stick	178-181
SF of area	181-184

K

Key switch, exterior, garage door opener	217
Kickplates	124
Kitchen	
counters, rule of thumb	52
food center	165
sinks	382-384
wallpaper	408
work triangle	52
Kitchen cabinets	
base with drawers	54-55
corner base	55-56
demolition	113
description	52
drawer base	56
installation procedure	52
island base	57
island corner base	57
island hanging	58-59
oven	59
range	59-60, 61-62
refrigerator	61
sink	59-60
utility closet	56
wall	62-64
with lazy Susan	56
Kitchen caulking	
anti-algae	74
mildew resistant	74
Kitchen sink	
faucet only	383
hot water dispenser	384
pot filler faucet	384
sprayer only	383
strainer and drain only	383
water filtration	384
Kraft-faced insulation	259-261

L

Labor	
concrete installation	89
masonry installations	272
unit cost	4
Labor costs	
local	4, 12
tile patterns	23
Laborer	
crew rates	17
wages	11
Lacquer	306-307
Lantern post	270
Lateral reinforcing	
concrete block	280, 281
concrete block partitions	284
Latex	
caulking	72
paint, application	304-305
Lath and plaster	319-320
caulking	72
demolition	119-120
installation	317

Lather	
crew rates	17
wages	11
Lattice, molding	296
Lauan, doors	140-141
Laundry sinks	384-385
Lavatories	381
Lay-down type ventilators, entire structure	34
Layout, kitchen	52
Lazy Susan cabinet	56
Leaf guard	249
LED-capable lighting fixtures	268-270
Ledger, demolition	111
Ledgers	
glu-lam	246-247
Let-ins, diagonal bracing	173
Liability insurance	11
Light, medicine cabinet	42
Lighting	
fixtures	268-270
fluorescent	268
incandescent	269-270
indoor	268-270
outdoor	270
porch ceiling	270
porch wall	270
post lantern fixture	270
track lighting	270
wall fixtures	270
with motion sensor	270
Lightweight blocks, concrete	280
Line posts, chain link fence	158-159
Linoleum	
cove	328
installation	324
Lintels	177-178
Loaded wage, total	11
Local labor rates	4, 12
Locksets	124
Log lighter, fireplace	164
Loose fill insulation, demolition	114, 264-265
Louver	
closet doors	79
doors, prehung	142
vents	347
Louvers, painting	
natural finish	306
paint	305
Low profile	
skylights	399-401
Lumber	
beams	169-172
blocking	172-173
bracing	173
bridging	174-175
columns	176
demolition	109-113, 169
diagonal let-ins	173
dimension	169
fascia	176
girders	169-172
headers	177-178
joists	178-184
ledgers	184
lintels	177-178
patio decking	185
plates	185
posts	176
rafters	186-195
sheathing	208-210
solid roof decking	196
studs	196-208
Lumber list	7

M

Machine sand
 hardwood flooring.....251, 253
 parquetry.....252-253
 Manhours per unit, average.....4
 Mantels, fireplace.....271
 Maple flooring.....251
 Marble countertops.....101-102
 Marble setter, wages.....11
 Marble tops, vanity cabinets.....65
 Marlite paneling.....271
 demolition.....113
 Mason, cement, crew rates.....16
 Masonite
 paneling, installation.....315
 Masonite panels, Marlite.....271
 Masonry
 adobe brick walls.....279
 block dimensions.....272
 brick.....279
 brick veneers.....277-278
 chimneys, brick.....273-274
 columns, brick.....274-277
 concrete block.....279-284
 concrete screen block.....285
 concrete slump brick.....285
 demolition.....107
 exterior walls, block.....281
 fences, concrete block.....284
 fences, lightweight block.....284
 floors, quarry tile.....286
 foundations, concrete block.....279-280
 glass block.....286
 glazed block.....286
 painting.....309
 partitions, concrete block.....282-283
 quarry tile.....286
 retaining walls, block.....279-280
 textured screen block.....285
 tile.....286
 walls.....279
 Material pricing, acoustical tile.....21
 Material storage.....6
 Material takeoff.....7
 Material unit cost, average.....4
 MDF molding
 baseboard.....287-288
 block, corner.....290
 block, plinth.....290
 brick mold.....291
 casing.....291-292
 chair rail.....292
 corner trim.....293
 crown.....294-296
 quarter round.....296
 window seat.....299
 Meat grinder.....165
 Medicare tax.....11
 Medicine cabinets.....41-43
 3-way mirror.....41-42
 demolition.....113
 light fixtures.....42
 recessed.....42-43
 sliding door.....41
 surface mounted.....41-42
 swing door.....42
 Membrane roofing
 demolition.....337
 over concrete deck.....338
 over existing roof.....336
 over wood deck.....337
 Metal ductwork, flexible.....32
 Metal joist hanger, application.....166
 Metal lath.....319
 Metal siding.....370
 Meter socket.....147

Methods, estimating.....5
 Mildew resistant caulking.....74
 Milled fence boards, dog-eared.....156
 Millwork and trim, paint.....305, 308
 Mineral fiber ceiling panels.....23
 Mineral surfaced roll roofing.....339
 demolition.....115
 dimensions.....329
 Mirror, medicine cabinet.....41-42
 Mirrored closet door systems.....80-81
 Mirrors.....43
 3-way.....41-42
 tri-view.....41-42
 Mixer, kitchen.....165
 Modification factors, area.....12
 Molding and trim.....287-299
 base cap.....290
 base shoe.....289
 baseboard.....287-290
 baseboard with shoe.....289
 bookcase, build-in.....290
 brick mold.....291
 casing.....291-292
 chair rail.....292-293
 coffered ceiling.....293
 corner trim.....293
 cove.....293
 crown.....294-296
 demolition.....118
 hardwood.....287-296
 lattice.....296
 Marlite.....271
 MDF.....287-288, 290, 292, 294-296
 natural finishes.....306
 painting.....308
 panel cap.....296
 particleboard shelving.....297
 pine.....287-297
 quarter round.....296
 trim board.....298-299
 window seat.....299
 window sill.....299
 window stool and apron.....299
 window trim set.....299
 Moldings, block
 baseboard, corner.....290
 corner, rosette.....290
 plinth.....290
 Moldings, flexible resin.....297
 Mortar
 ceramic tile.....98
 installation.....317
 Mosaic tile, installation.....75
 Motion detectors.....152
 lighting fixtures.....270
 Motorized dampers, A/C duct.....29
 Multi-purpose caulk.....72

N

Nailed ledgers.....184
 National Estimator Cloud.....7
 Natural finishes.....306
 stain.....311
 Natural gas fired, boiler.....254-255
 Netting, galvanized.....321
 Newels, stair.....395
 Non-taxable benefits.....11
 Nosing, roof edge flashing.....345-346
 Notes section.....4
 Nylon carpet.....71

O

Oak
 doors.....141-142
 flooring.....251-252
 paneling.....316
 paneling, flush face.....316

Oil base caulking.....73
 Oil fired
 boilers.....254-255
 furnaces.....256
 One coat paint applications
 cement base paint.....311
 exterior painting.....309-311
 interior painting.....303-306
 latex.....304-305
 latex enamel.....304-305
 natural finishes.....306-307
 sealer.....304
 sizing.....303
 stain.....311
 One-flue chimneys.....273-274
 Openers, garage door.....217
 Operation column.....4
 OSB, underlayment, installation.....327
 OSB strand board sheathing.....209
 Outdoor lighting.....270
 Oven cabinets, kitchen.....59
 Overhead and profit.....4, 6-7
 Overhead expenses.....6

P

Package door units.....127
 Pad, carpet.....70-71
 Paint
 characteristics.....300
 coverage, estimating.....300
 preparation.....302-303
 removal.....303
 Painter
 crew rates.....17
 wages.....11
 Painting and cleaning
 exterior.....308-309
 interior.....300
 Panel
 adhesives.....24-25
 shutters, exterior.....359
 Panel siding
 hardboard.....368, 373
 masonite.....315
 metal.....370
 vinyl.....371
 Panelboard.....148
 Paneling
 demolition.....113, 314
 hardboard.....314
 Marlite.....271
 plywood.....314
 Panels
 acoustic.....22-23, 398-400
 adhesive set.....22-23
 drywall.....146-147
 fiberglass.....162
 mineral fiber.....23
 painting.....305
 Paper, wallcovering.....407
 Paperhanger
 crew rates.....18
 wages.....11
 Parquetry, hardwood flooring.....252-253
 Particleboard
 demolition.....210
 subfloor.....210
 underlayment, installation.....314, 327
 Partition walls
 concrete block.....282-283
 demolition.....112
 framing, stud/plates.....196
 studs.....198-201
 Passage doors, interior, latches.....124
 Paste
 flooring installations.....324
 wallpaper.....407

Patio		Plywood, underlayment, installation.....	327	Railings, stair.....	394
awnings.....	67-68	Plywood paneling.....	314	Rails, split rail fence.....	161
cover.....	67-68	demolition.....	314	Rain diverter.....	345
framing.....	185	installation.....	314	Rain gutters.....	248-249
Patterns, acoustical tile, labor.....	23	Plywood sheathing.....	208-209	Raised panel louver doors.....	126
Pedestal sinks.....	381	demolition.....	112	Range cabinets.....	59-60, 61-62
Pediments.....	154	Plywood siding		Range hoods.....	322-323
Peel-off caulk.....	74	board and batten.....	377-378	designer models.....	323
Pegboard, installation.....	315	board on board.....	377	Rates, wage.....	11
Per measure estimating.....	5	demolition.....	115	Ready mix concrete.....	95-96
Perlite, loose fill insulation.....	265	dimensions.....	364	Receptors, shower.....	354-355
Philippine mahogany paneling.....	317	installation.....	364	demolition.....	354
Phone jack, wiring.....	152	Pocket doors.....	143	Recessed, medicine cabinets.....	42-43
Photographs, before and after.....	6	Polish, hardwood flooring.....	251-253	Rectangular ductwork, A/C.....	31
Picture windows		Polycarbonate dome skylights.....	386-387	Rectangular surface area, calculating paint coverage.....	301
aluminum.....	418	Polystyrene		Red cedar fence, split rail.....	161
vinyl.....	424	foam insulation.....	267	Red cedar roofing	
wood.....	430	molded foam shutters.....	361	shakes.....	340
Pilasters.....	154	panels, adhesive.....	25-26	shingles.....	341-343
Pine moldings.....	287-299	Polyurethane foam panels, adhesive.....	25-26	Red cedar siding	
base.....	289	Ponderosa pine fireplace mantels.....	271	bevel.....	369
base & shoe.....	289	Porch columns.....	87-88	board and batten.....	377-378
base cap.....	290	Porch floors, painting		board on board.....	377
base shoe.....	289	cement.....	311	drop.....	376
baseboard.....	287-289	concrete.....	313	shakes.....	378
baseboard with shoe.....	289	preparation, cleaning.....	308	shingles.....	379
block, baseboard.....	290	wood.....	310	Redwood	
block, corner.....	290	Portland cement, ceramic tile installation.....	75	cupolas.....	104
block, plinth.....	290	Post light fixture, LED capable.....	270	decking.....	185
bookcase, build-in.....	290	Post-formed countertops, Formica.....	98-99	fence posts.....	156-158
brick mold.....	291	Posts.....	176	fencing.....	156-158
casing.....	291	chain link fence.....	158-159, 160	lath.....	319
chair rail.....	292-293	demolition.....	109, 176	siding.....	374
coffered ceiling.....	293	redwood fence.....	156	Redwood frame members.....	157-158
corner trim.....	293	split rail fence.....	161	Redwood molding, trim board.....	298-299
cove.....	293	Prefabricated fireplaces.....	164	Refrigerator cabinets.....	61
crown.....	294-296	Prefinished		Registers, air supply.....	31
panel cap.....	296	closet doors.....	81	Reinforced concrete	
quarter round.....	296	panel shutters.....	361	cast in place.....	91
shelving.....	297	Prehung doors		demolition.....	106-107
trim board.....	298-299	exterior.....	128-132	footing.....	91
window sill.....	299	interior.....	138-143	foundations.....	92-93
window stool and apron.....	299	metal.....	144	slabs.....	94-95
window trim set.....	299	Preparation, painting.....	302-303	Reinforcing	
Pine shutters.....	359	Presdwood		cast in place concrete.....	94-95
Pine siding.....	373-375	paneling.....	314	concrete.....	89
Pits, digging.....	155	pegboard.....	315	concrete block.....	280-284
Plain siding, painting.....	309	Price data.....	5-6	masonry.....	280-284
Plane and specification sheet.....	7	Productivity, your company.....	7	Reinforcing ironworker, wages.....	11
Plank and beam construction, roof decking.....	196	Profit allowance.....	4	Reinforcing steel rods.....	95
Plaster		Project schedule.....	7	Remodeling jobs, estimating.....	5
ceilings.....	320	Propane fired boiler.....	254-255	Repair estimate.....	5
demolition.....	119, 319	Property damage appraiser.....	5	example.....	8-9
installation.....	317	PTAC wall/window unit A/C.....	36	Residential electrical work.....	147-148
painting.....	304-305	Pumps, heat.....	36	Residential jobs, estimating.....	5
sealer application.....	304	Purlins, glu-lam.....	242-244	Resilient flooring	
sizing, paint preparation.....	303	PVC, downspouts.....	249	cove/top-set base.....	328
walls.....	320	Q		demolition.....	120
Plasterboard, gypsum.....	146-147	Quarry tile.....	286	installed over concrete.....	325-327
Plasterer		demolition.....	109, 286	installed over wood subfloor.....	326-327
crew rates.....	17	dimensions.....	272	linoleum cove.....	328
wages.....	11	floors.....	286	metal transition strip.....	328
Plastic		Quartz countertops.....	102	preparation.....	325
laminated countertops.....	98-101	R		related material and operations.....	327
panel adhesives.....	27	Radio controlled garage door opener.....	217	sheet products.....	324
shower stalls.....	356-357	Rafters.....	186-195	tile products.....	324
Plates.....	185	common.....	186-191	underlayment, installation.....	327
gable ends.....	197-198	cut-up roofs.....	189-191, 193-194	vinyl cove.....	328
LF of stick.....	196-197	demolition.....	111, 186-195	Resin flexible molding.....	297
LF of wall.....	205-208	gable or hip.....	186-188, 192-193	Retaining walls.....	279-280
per SF of wall area.....	198-205	insulation.....	260-262	concrete.....	92-93
walls/partitions.....	205-208	LF of stick.....	186-191	demolition.....	92-93
Plumber		SF of area.....	192-195	Riblath.....	317
crew rates.....	18, 19			metal.....	319
wages.....	11				

Ridge or hip application, roofing 335-336
 Rigid conduit 148
 Rigid foam insulation 267
 Rigid insulating board 265-266
 Risers, stair 396
 Robe hook 38
 Rod, shower curtain 38
 Roll insulation 258-263
 Roll roofing 338
 demolition 115
 Roll valley 341-343
 Romex cable, wiring 148
Roof
 decking 196
 decking, demolition 112
 edge flashing 347
 edging 347
 flashing 345-346
 flashing, adjustable 406
 insulation 265-266
 sheathing 209
 strength 6
 ventilators 33
 vents 347
Roof windows 388
 fixed 388
 low profile 388
 ventilating 388
Roof-type, ventilators 33
Roofer
 crew rates 18
 wages 11
Roofing 329
 aluminum 332
 asphalt composition shingles 332-336
 built-up 336-338
 clay tile 338
 composition shingles 332
 demolition 114-115
 drip edge 347
 flashing 345-346
 gravel stop 346
 membrane 336-338
 mineral surfaced roll 338
 nails, estimating need 329
 parapet walls 330
 roll roofing 338
 sheathing paper 344
 shingles 332-336
 tar usage 330
 tile 338
 top coat 330
 wood shakes 340
 wood shingles 341-343
Roofs, wood shingle 341-343
 staining 311
Rough carpentry, framing 166-213
 beams 169-172
 blocking 172-173
 bracing 173
 bridging 174-175
 columns 176
 demolition 109-117
 diagonal let-ins 173
 dimension 169
 fascia 176
 girders 169-172
 headers 177-178
 joists 178-184
 ledgers 184
 lintels 177-178
 patio decking 185
 plates 185
 posts 176
 rafters 186-195
 sheathing 208-210
 solid roof decking 196
 studs 196-208
Rough fence board, squared ends 156-158
Rough-in, bathtub 45
Running bond
 adobe brick 279
 concrete slump brick 285
 standard brick 274-277
 textured screen block 285
S
 Sample Building Repair Estimate form 8
Sanding
 hardwood flooring 251, 253
 paint preparation 302-303
Schedule, project 7
Sconce, wall lighting 269
Screeds, concrete 95
Screen doors 143
 demolition 117
Screens, painting 310
Screw-worm garage door opener 217
Sealer, application
 acoustical tile or panels 304
 sheetrock or plaster 304
Sectional-type garage doors
 aluminum 215
 fiberglass 215
 wood 217
Security, job site 6
Self-edge countertop, Formica 100
Selvage roll, mineral surfaced roll roofing 338
Service entrance cable 147
Shake roof 340
 demolition 340
Shake siding 378
 demolition 116
Shear panel, adhesives 25
Sheathing
 applications, framing 167
 demolition 112
 paper 344
 roof 209
 subfloor 210
 wall 208
Sheet flooring products, installation 324
Sheet metal
 access doors 348
 clothes dryer vent set 347
 demolition 114
 dormer louvers 347
 flashing 345-346
 foundation vents 347
 gravel stop 346
 roof edging 347
 roof flashing 345-346
 utility louvers 348
 vents 347-348
 vertical chimney flashing 345
 Z bar flashing 345
Sheet metal worker
 crew rates 19
 wages 11
Sheet vinyl flooring 324
 demolition 120
Sheetrock 145-147
 ceilings 146-147
 demolition 146
 repair, paint preparation 303
 sealer application 304
 sizing 303
 tape joints 146
 walls 146-147
Shelf
 glass, bathroom 37
 towel supply 40
Shellac 306-307
Shelving, molding 297
Shingle roofs, wood 341-343
 stain 311
Shingle siding
 stain 311
 wood 379
Shingles
 asphalt/fiberglass 332-336
 demolition 332
 nailed 116, 332-336
 roofing 332-336
 tile 338
 wood, roofing 341-343
Shoe mold trim 289
Shower
 bases/receptors 354-355
 curtain rod 38
 demolition 354
 fixtures 45, 51
Shower doors
 hinged 349-351
 sliding 351-353
 Shower floors, slip resistant 356-357
 Shower modules, space saver 356-357
Shower stalls
 demolition 356
 nonintegral 357
 two-wall models 357
Shower tub units 358
Shutters, exterior
 aluminum, louvered 359
 birch 360
 Cellwood 361
 fir 359
 pine 359
 western hemlock 360
Shutters, painting 312
Sidelites 130
Siding 362-379
 aluminum 365
 battens 364
 bevel 373
 board and batten 377-378
 board on board 378
 clapboard 362
 demolition 114-115
 drop 375-376
 fiber cement 366-367
 furring strips 364
 hardboard 368-369
 house wrap 365
 metal 370
 painting 311
 pine 373, 375
 plywood 378
 shake 378
 shingles 379
 wood 373-379
Silestone countertops 103
Silicone caulking 73
Sill assembly, door 127
Sill plates 185
Single top plate 185
Sink cabinets
 kitchen base 59-60
 vanity 64-66
Sink faucet
 bathroom 381
 kitchen 383
 laundry 385
 utility 385
Sink sprayer
 kitchen 383
Sink strainer and drain
 kitchen 383

Sinks		Techniques, estimating	5, 6
bar	382-384	Telephone, wiring	152
bathroom	381	Television antenna wiring	152
kitchen	382-384	Tempered glass	222
laundry	384-385	doors	133-138
pedestal	381	Terrazzo countertops	104
utility	384-385	Terrazzo setter, wages	11
Site accessibility	6	Thermostat wiring	153
Sizing application, paint preparation	303	Thresholds	
Skirt board, stair	395	aluminum	123, 125
Skylights		rubber	123
low profile	399-401	wood	123, 125
operable	387	Tile	
polycarbonate dome	386-387	acoustical treatment	22-23
ventilating	388	ceramic	75-77, 98
Slabs		clay, roofing	338
concrete	94-95	demolition	338
demolition	94, 107	glazed block	286
Sliding doors		installation	324
closet	82-85	insulating	21
hardware	82-85	mineral fiber	23
shower	351-353	painting	309, 312
tub	351-354	quarry	286
Slip-resistant shower floors	356-357	resilient flooring	325-327
Slump block, concrete walls	284-285	resilient flooring, demolition	120
Slump brick, concrete walls	285	shingles	338
Smoke detectors	149	Vinyl composition tile(VCT)	325-327
Soap dish	38	vinyl flooring	325-327
Soap holder	37-38	vinyl plank	326-327
Social Security	11	Tile setter	
Socket, meter	147	crew rates	19
Softeners, water	416	wages	11
Soil type	6	Tile setter helper, wages	11
Solar block, fiberglass	162	Toilet roll holder	39-40
Solar water heating systems	414-415	Toilets	401-402
Solid bridging	174-175	Tongue & groove roof decking	196
Solid roof decking	196	Toothbrush holder	37
Soundness of structure	6	Top plates	185
Space heaters	256-257	Total hourly cost, calculating	11
Spas, Jacuzzi	389-390	Towel	
Special systems, electrical	149-153	bars	40
Splash guard	249	ladders	40
Split rail fence	161	rings	40
Spotlight, indoor	269	shelves	40
Spring steel ductwork, A/C	32	Track lighting	270
Square surface area, paint coverage	301	Track, sliding door	87
Stain	306	Track-type garage doors	
Stainless steel countertops	104	aluminum	215
Stainless steel sinks		fiberglass	215
kitchen	382-384	steel	216
Stainwax, penetrating, hardwood floors	305	wood	217
Stair parts		Tractor backhoe, excavation	155
balustrade	396	Transmitters, garage door opener	217
handrail	394	Trash compactors	403
newels	394	Treads, stair	396
skirt, apron	394	Trenching	155
stringer	394	Tri-view mirror, medicine cabinet	42
riser	396	Triangular surface area,	
tread	396	calculating paint coverage	301
Stairs	390-396	Trim, painting	305, 307
balusters	394	Trim and molding	287-299
carpeting	71	Truck driver, wages	11
field fabricated	391	Truss	
folding	390	construction, W-type	166
ladder	390	demolition	113
newels	395	shop fabricated, wood	211-213
pre-manufactured	390	Tub caulking	
railings	394	anti-algae	74
risers	396	mildew resistant	74
ships, captain	390	Tub doors	
skirt board	395	hinged	349-351
spiral	390	sliding	354
treads	396	Tub, bath	
Stairs, field fabricated		acrylic	47-49
metal pan	391	cast iron	44-45, 47, 49
wood	392	combination tub/shower	358
Stalls, shower	356-357		
Standard brick	273-278		
Standard drywall	145		
Stapled ceiling/wall tile	23		
Stationary slat blinds	360		
Steel			
bathtubs	44, 47, 49-50		
carport, freestanding	67		
gutters and downspouts	249		
Steel doors	144		
garage doors	216		
Steel posts, chain link fence	158-159		
Steel reinforcing			
concrete	93		
masonry	280-284		
Steel sash, window glass	220-221		
Steps, painting			
cement	311		
concrete	313		
wood	310		
Stick by stick estimating	5		
Stiffeners	173		
demolition	110		
Stone mason, wages	11		
Storm doors	143		
Storm windows			
aluminum	421		
vinyl	427		
wood	433		
Storm windows, painting	310		
Strip flooring, installation	250-251		
Strip lighting	269		
Structural soundness	6		
Stucco	318-321		
demolition	119		
exterior walls	321		
installation	317		
painting	309, 312		
Stud arrangement, framing	168		
Studs			
bracing	173		
demolition	112, 196-208		
gable ends	198-205		
horizontal blocking	172-173		
insulating	262-263		
LF of stick	196-197		
LF of wall	205-208		
SF of wall area	198-205		
Sub-purlins, glu-lam	244-245		
Subfloor			
adhesive	24		
demolition	113		
sheathing	210		
Sunken/built-in bathtubs	44-45		
remove	44, 51		
Supply shelf, towel	40		
Surface repair, paint preparation	302-303		
Surface-mounted light fixtures	268-270		
Suspended ceilings			
demolition	120		
estimating materials	397		
installation procedures	397		
Swing door			
cabinets	42-43		
shower	349-351		
Symbols used in book	20		
System components, A/C	28-32		
System units, A/C	35		
T			
Tape joints, drywall	146		
Taping compounds, drywall	145		
Taxable fringe benefits	11		
Taxes, employer	11		
Teak flooring	252		

demolition.....358
 drop-in/built-in/sunken47-50
 enameled steel44
 fiberglass, acrylic.....45, 47-49
 free-standing.....44, 50, 51
 free-standing accessories50
 recessed46-47
 remove and reset.....44
 rough-in.....45
 steel.....44, 47, 49-50
 sunken/built-in.....44-45
 whirlpool.....44-45, 46-47
 Two coat paint applications...307-309, 311-313
 cement base paint.....313
 enamel311-313
 exterior painting311-313
 interior painting.....307-308
 latex.....307-308
 stain.....313
 Two flue chimneys.....273-274

U

Underlayment, particleboard314
 Unemployment insurance11
 Unfaced insulation258-263
 Unfinished closet doors78-80
 Unfinished hardwood plywood315-317
 Urinals401-402
 Utility closets, kitchen.....56
 Utility louvers, vents348
 Utility sinks384-385

V

V-grooved paneling.....315-317
 Valley roll336-338
 Vanity cabinets.....64-66
 2 door.....65-66
 marble top.....65
 remove and reset.....66
 Variable volume dampers, A/C duct.....29
 Varnish.....306-307
 Veneer, brick277-278
 demolition.....107
 Vent chimney.....404-406
 damper.....404
 Ventilating skylights.....388
 Ventilating systems28-34
 Ventilation.....404-406
 Ventilators
 attic33-34
 exhaust34
 lay-down type34
 roof.....33
 round top406
 wall type.....33-34
 Ventilators and fans, roof type33
 Vents.....347-348
 access doors348
 attic access.....348
 clothes dryer.....347
 dormer louvers.....347
 foundation347
 louver347-348
 utility louver.....348
 Vermiculite loose fill insulation265
 Vertical
 chimney flashing.....345
 reinforcing, concrete block.....281
 siding, dimensions.....363
 Vertical crown molding, fiberglass.....163
 Vertical slide
 aluminum windows419-420
 vinyl windows.....426
 wood windows432
 Vibrating plate compaction.....155

Vinyl
 awning windows421
 casement windows422
 composition tile(VCT).....325-326
 cove328
 double hung windows422-423
 garden windows423
 gutters and downspouts.....249
 jalousie windows.....423
 picture windows.....424
 plank flooring326-327
 sheet flooring326-327
 siding371-373
 sliding, horizontal windows.....425
 sliding, vertical windows.....426
 storm windows.....427
 tile flooring325-327
 wallpaper407, 408
 wallpaper, demolition.....120
 windows421-427
 Vinyl coated mineral fiber tile.....22-23
 Visual inspection7
 Vitreous china sinks
 bathroom.....381
 Volume control dampers, A/C duct.....29

W

W-truss
 construction methods166
 shop fabricated, wood.....211-213
 Wage rates11
 all trades11
 craft compositions15-19
 Wainscot, ceramic tile.....77
 installation75
 Wall cabinets, kitchen.....61-64
 installation procedure52
 Wall furnace, self-contained thermostat257
 Wall insulation265-267
 demolition.....114
 Wall lighting fixtures.....269-270
 Wall outlets, wiring148
 Wall sheathing.....208
 adhesives.....25-28
 Wall-type ventilators.....33-34
 Wallboard
 demolition.....119
 drywall application.....145
 Wallpaper.....407-408
 demolition.....120
 Walls
 acoustical tile22-23
 adobe brick.....279
 brick veneer277-278
 cavity, insulating264-265
 cement, painting.....313
 ceramic tile77
 ceramic tile demolition.....77
 concrete block279-280
 framing.....198-201
 furring strips.....177
 insulating.....265-267
 masonry, demolition.....107
 partition198-201
 plaster320
 retaining279-280
 screen block285
 shower.....356-357
 slump block285
 slump brick285
 stucco321
 studs173
 studs/plates.....198-201
 Wash cloth towel ring.....41
 Walnut flooring252
 Water filters416
 soft water systems.....416

Water heaters409-415
 accessories.....413-414
 cabinets/stands413
 commercial409
 electric409-410
 gas409-410
 residential.....409-410
 solar414-415
 tanks/cylinders.....410-413
 Water softeners416
 chemical feed pumps.....416
 remove416
 water filters.....416
 Water-resistant drywall.....145-147
 Wax, flooring251-253
 Weather protection, demolition114
 Weathercap147
 Weathervanes.....105
 Western hemlock, shutters.....360
 Whirlpool bath.....44-45, 46-47
 spa.....390
 White cement97
 Window
 molding, seat299
 molding, sill.....299
 molding, stool and apron.....299
 molding, trim set299
 painting312
 painting, finishing.....306-307
 repair/reputty.....309
 Window units, air conditioners36
 Windows.....417-433
 aluminum.....417-421
 aluminum sliding, horizontal419-420
 aluminum sliding, vertical419-420
 awning, vinyl421
 awning, wood.....427
 casement, aluminum.....417
 casement, vinyl.....422
 casement, wood428
 demolition.....117-118, 417
 double glazed, casement.....422
 double hung, vinyl422-423
 double hung, wood.....429
 double pane.....417-421
 garden, vinyl423
 jalousie, aluminum418
 jalousie, vinyl.....423
 picture, aluminum418
 picture, vinyl.....424
 picture, wood430
 roof.....388
 storm, aluminum421
 storm, vinyl.....427
 storm, wood433
 vinyl.....421-427
 vinyl sliding, horizontal425
 vinyl sliding, vertical.....426
 wood427-428
 wood sliding, horizontal.....431
 wood sliding, vertical.....432
 Wire lath321
 Wiring
 burglary detection systems151-152
 doorbell systems.....150
 electrical service.....148
 fire alarm systems.....151
 food centers.....165
 intercom systems.....151
 outlets148
 range hoods.....322-323
 switches148
 telephone jacks.....152
 television antennas152
 thermostat153

Wood			
awning windows	427	natural finish.....	307
casement windows	428	oak	251-252
columns	87, 176	painting, wood	308
countertops, butcher block	104	parquet.....	252-253
cupolas	104	sealing.....	305
decks	185	stainwax	305
double hung windows	429	strip	250
fences	156-158	teak	252
lath	319	walnut.....	252
patios	185	waxing.....	307
picture windows.....	430	yellow pine	251
sash, window glass.....	220-221	Wood framing	
shutters	359-360	beams	169-172
sliding, horizontal windows.....	431	blocking	172-173
sliding, vertical windows.....	432	bracing.....	173
storm windows	433	bridging.....	174-175
thresholds	125	columns	176
windows	427-428	demolition.....	169
Wood doors.....	128-143	diagonal let ins	173
Dutch	131	dimension.....	109-117
exterior	128-138	fascia	176
fire	131	girders.....	169-172
frames, exterior.....	122	hanger, joist	166
French.....	131-132	headers.....	177-178
garage doors	216-217	joists.....	178-184
garden.....	132	ledgers.....	184
interior	138-143	lintels	177-178
louver	142	patio decking	185
metal, insulated.....	130	plates	185
paneled.....	128-129	posts	176
pocket	143	rafters	186-195
sidelites	130	sheathing	208-210
threshold	123	solid roof decking	196
Wood flooring		studs	196-208
applications	250-253	Wood lath	317
block	250	Wood molding	287-289
cleaning	302-303	Wood paneling	
finishing.....	307	demolition.....	113, 314
fir	251	hardboard.....	314-317
maple.....	251	particleboard.....	314
		plywood.....	315-317
		Wood roofing	
		accessories.....	344
		demolition.....	112, 115
		dimensions.....	329
		shakes.....	341-343
		shingles.....	341-343
		Wood sheathing	
		applications	167
		board.....	208-209
		fiberboard	208
		hardboard.....	210
		particleboard.....	210
		plywood.....	208-209
		roof.....	209
		subfloor	210
		underlayment.....	210
		wall	208
		Wood siding	
		bevel	362
		board and batten.....	377-378
		board on board.....	378
		demolition.....	116
		dimensions.....	364
		drop.....	375-376
		estimating.....	362
		installation	362
		plywood.....	378
		shakes.....	378
		shingle siding.....	364, 379
		vertical.....	377-378
		Wood steps, painting	310
		Woodburning fireplaces.....	164
		Work triangle, kitchen.....	52
		Workers compensation	11
		Workplace accessibility	5
		X, Y, Z	
		X-type bridging	174
		XPS rigid foam insulation	267
		Yellow pine flooring.....	251
		Z bar flashing	345

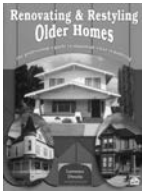
Practical References for Builders

National Estimator Cloud



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

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 Renovation & Insurance Repair Estimator



Current prices in dollars and cents for hard-to-find items needed on most insurance, repair, remodeling, and renovation jobs. All price items include labor, material, and equipment breakouts, plus special charts that tell you exactly how these costs are calculated.

488 pages, 8½ x 11, \$119.50. Revised annually

Also available as an eBook (PDF), \$59.75 at

www.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

www.craftsman-book.com/national-appraisal-estimator-online-software

Markup & Profit: A Contractor's Guide, Revised



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

www.craftsman-book.com

Construction Forms for Contractors

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

360 pages, 8½ x 11, \$48.50

eBook (PDF) also available; \$24.25 at www.craftsman-book.com

Paper Contracting: The How-To of Construction Management Contracting

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

272 pages, 8½ x 11, \$55.50

eBook (PDF) also available; \$27.75 at www.craftsman-book.com

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. Material prices are current. 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

Also available as an eBook (PDF), \$59.38 at

www.craftsman-book.com

Construction Contract Writer

Relying on a "one-size-fits-all" 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 state and federal requirements. You 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 need it — *No extra charge.*

\$199.95. Download *Construction Contract Writer* at

<http://www.constructioncontractwriter.com>



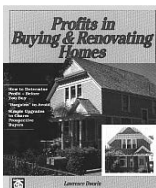
Contractor's Guide to QuickBooks by Online Accounting

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.

156 pages, 8½ x 11, \$68.50

eBook (PDF) also available; \$34.50 at www.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

eBook (PDF) also available; \$34.50 at www.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 www.craftsman-book.com

Home Inspection Handbook

Every area you need to check in a home inspection — especially in older homes. Twenty complete inspection checklists: building site, foundation and basement, structural, bathrooms, chimneys and flues, ceilings, interior & exterior finishes, electrical, plumbing, HVAC, insects, vermin and decay, and more. Also includes information on starting and running your own home inspection business.

324 pages, 5½ x 8½, \$39.95

eBook (PDF) also available; \$19.98 at www.craftsman-book.com

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

eBook (PDF) also available; \$19.00 at www.craftsman-book.com



National Construction Estimator

Current building costs for residential, commercial, and industrial construction. Estimated prices for every common building material. Provides manhours, recommended crew, and gives the labor cost for installation.

672 pages, 8½ x 11, \$117.50. Revised annually

Also available as an eBook (PDF), \$58.75 at www.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

eBook (PDF) also available; \$16.25 at www.craftsman-book.com



Builder's Guide to Room Additions

How to tackle problems that are unique to additions, such as requirements for basement conversions, reinforcing ceiling joists for second-story conversions, handling problems in attic conversions, what's required for footings, foundations, and slabs, how to design the best bathroom for the space, and much more. Besides actual construction, you'll even find help in designing, planning, and estimating your room addition jobs.

352 pages, 8½ x 11, \$34.95



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

eBook (PDF) also available; \$19.00 at www.craftsman-book.com

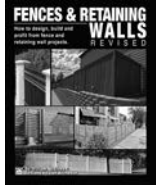


Drafting House Plans eBook

Here you'll find step-by-step instructions for drawing a complete set of house plans for a one-story house, an addition to an existing house, or a remodeling project. This book shows how to visualize spatial relationships, use architectural scales and symbols, sketch preliminary drawings, develop detailed floor plans and exterior elevations, and prepare a final plot plan. It even includes code-approved joist and rafter spans and how to make sure that drawings meet code requirements. **188 pages**

Only available as an eBook (PDF), \$17.48 at www.craftsman-book.com

Fences & Retaining Walls Revised

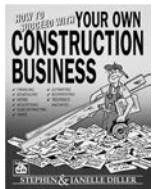


Everything you need to know to run a profitable business in fence and retaining wall contracting. Takes you through layout and design, construction techniques for wood, masonry, and chain link fences, gates and entries, including finishing and electrical details. How to build retaining and rock walls. How to get your business off to the right start, keep the books, and estimate accurately. The book even includes a chapter on contractor's math.

416 pages, 8½ x 11, \$98.75

eBook (PDF) also available \$49.38 at www.craftsman-book.com

How to Succeed With Your Own Construction Business



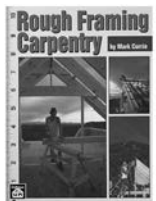
Everything you need to start your own construction business: setting up the paperwork, finding the jobs, advertising, using contracts, dealing with lenders, estimating, scheduling, finding and keeping good employees, keeping the books, and coping with success. If you're considering starting your own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

need are here.

336 pages, 8½ x 11, \$28.50

eBook (PDF) also available, \$14.25 at www.craftsman-book.com

Rough Framing Carpentry

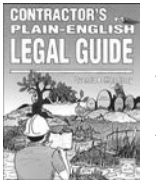


If you'd like to make good money working outdoors as a framer, this is the book for you. Here you'll find shortcuts to laying out studs; speed cutting blocks, trimmers and plates by eye; quickly building and blocking rake walls; installing ceiling backing, ceiling joists, and truss joists; cutting and 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

Contractor's Plain-English Legal Guide

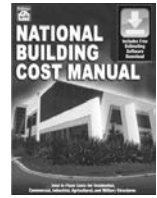


For today's contractors, legal problems are like snakes in the swamp — you might not see them, but you know they're there. This book tells you where the snakes are hiding and directs you to the safe path. With the directions in this easy-to-read handbook you're less likely to need a \$250-an-hour lawyer. Includes simple directions for starting your business, writing contracts that cover just about any eventuality, collecting what's owed you, filing liens, protecting yourself from unethical subcontractors, and more. For about the price of 15 minutes in a lawyer's office, you'll have a guide that will make many of those visits unnecessary. Includes a CD-ROM with blank copies of all the forms and contracts in the book.

272 pages, 8½ x 11, \$49.50

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. Includes free download of Craftsman's easy-to-use software that calculates total in-place cost estimates or appraisals. Use the regional cost adjustment factors provided to tailor the estimate to any jobsite in the U.S. Then view, print, email or save the detailed PDF report as needed.



280 pages, 8½ x 11, \$98.00. Revised annually

eBook (PDF) also available, \$49.00 at www.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

eBook (PDF) also available, \$58.88 at www.craftsman-book.com

National Painting Cost Estimator

A complete guide to estimating painting costs for just about any type of residential, commercial, or industrial painting, whether by brush, spray, or roller. Shows typical costs and bid prices for fast, medium, and slow work, including material costs per gallon, square feet covered per gallon, square feet covered per manhour, labor, material, overhead, and taxes per 100 square feet, and how much to add for profit.



448 pages, 8½ x 11, \$118.00. Revised annually

eBook (PDF) also available, \$59.00 at www.craftsman-book.com

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.

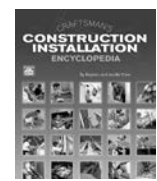


480 pages, 8½ x 11, \$118.25. Revised annually

eBook (PDF) also available, \$59.13 at www.craftsman-book.com

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 www.craftsman-book.com

Basic Engineering for Builders



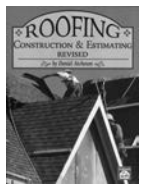
This book is for you if you've ever been stumped by an engineering problem on the job, yet wanted to avoid the expense of hiring a qualified engineer. Here you'll find engineering principles explained in non-technical language and practical methods for applying them on the job. With the help of this 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 www.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, \$62.50

eBook (PDF) also available, \$31.25 at www.craftsman-book.com

Finish Carpenter's Manual



Everything you need to know to be a finish carpenter: assessing a job before you begin, and tricks of the trade from a master finish carpenter. Easy-to-follow instructions for installing doors and windows, ceiling treatments (including fancy beams, corbels, cornices and moldings), wall treatments (including wainscoting and sheet paneling), and the finishing touches of chair, picture, and plate rails. Specialized interior work includes

cabinetry and built-ins, stair finish work, and closets. Also covers exterior trims and porches. Includes manhour tables for finish work, and hundreds of illustrations and photos.

208 pages, 8½ x 11, \$32.50

Plumber's Handbook Revised, 6th Edition



This new edition explains simply and clearly, in non-technical, everyday language, how to install all components of a plumbing system to comply not only with recent changes in the 2021 *International Plumbing Code* and the 2021 *Uniform Plumbing Code*, but with the requirements of the Americans with Disabilities Act. Originally written for working plumbers to assure safe, reliable, code-compliant plumbing installations that pass inspection the

first time, *Plumber's Handbook*, because of its readability, accuracy and clear, simple diagrams, has become the textbook of choice for numerous schools preparing plumbing students for the plumber's exams. Now, with a set of questions for each chapter, full explanations for the answers, and with a 200-question sample exam in the back, this handbook is one of the best tools available for preparing for almost any plumbing journeyman, master or state-required plumbing contracting exam.

384 pages, 8½ x 11, \$67.00

eBook (PDF) also available; \$33.50 at www.craftsman-book.com

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

Also available as an eBook (PDF), \$23.25 at www.craftsman-book.com

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.

60 pages, 8½ x 11, \$61.50

Also available as an eBook (PDF), \$30.75 at www.craftsman-book.com

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 www.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 www.craftsman-book.com

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 www.craftsman-book.com

Painter's Handbook eBook

Loaded with "how-to" information you'll use every day to get professional results on any job: the best way to prepare a surface for painting or repainting; selecting and using the right materials and tools (including airless spray); tips for repainting kitchens, bathrooms, cabinets, eaves and porches; how to match and blend colors; why coatings fail and what to do about it. Lists 30 profitable specialties in the painting business.

Available only as an eBook (PDF); \$16.50 at www.craftsman-book.com

Contractor's Year-Round Tax Guide Revised



How to set up and run your construction business to minimize taxes: corporate tax strategy and how to use it to your advantage, and what you should be aware of in contracts with others. Covers tax shelters for builders, write-offs and investments that will reduce your taxes, accounting methods that are best for contractors and what the I.R.S. allows and what it often questions.

208 pages, 8½ x 11, \$26.50

Cabinetmaking: From Design To Finish



Every aspect of cabinetmaking, from layout, through joinery, to finishing techniques. Gives illustrated instructions for designing cabinets to fit the kitchen workcenter; create dado, mortise, tenon, lap and dowel joints; make frames and panels; construct cabinets; and install cabinet hardware.

416 pages, 5½ x 8½, \$22.00

Handbook of Construction Contracting, Vol. 1

Volume 1: Everything you need to know to start and run your construction business; the pros and cons of each type of contracting, the records you'll need to keep, and how to read and understand house plans and specs so you find any problems before the actual work begins. All aspects of construction are covered in detail, including all-weather wood foundations, practical math for the job site, and elementary surveying.

416 pages, 8½ x 11, \$32.75

Handbook of Construction Contracting, Vol. 2

Volume 2: Everything you need to know to keep your construction business profitable, including estimating methods, controlling costs, concrete, masonry, rough carpentry, roof covering, insulation, doors and windows, exterior finishes, specialty finishes, scheduling, managing workers, marketing, spec building and land development.

320 pages, 8½ x 11, \$33.75

Smart Business for Contractors

In this book, a construction attorney explains how you should charge for your work, how to figure your overhead expenses, and how to calculate a realistic hourly rate to apply on each estimate. Includes how to bill and collect on your invoices, what you should always include in your contracts and creative new ways of dealing with contract disputes. Shows how to keep customers happy so they'll hand you referrals, how best to handle subcontractors, and how to find a good accountant. You'll learn the pros and cons of incorporating, how to handle tax issues such as what you can and can't deduct, and what you're allowed to depreciate, and how to plan the future of your company. Reading this book is like getting good advice from a construction lawyer – at a fraction of the cost.

Published by: Taunton Press. 204 pages, 8½ x 11, \$19.95

Craftsman eLibrary

Craftsman's eLibrary license gives you immediate access to 60+ PDF eBooks in our bookstore for 12 full months!

You pay only one low price. \$149.99.

Visit www.craftsman-book.com for more details.



BNI Remodeling Costbook 2025

Now you can quickly and easily estimate the cost of all types of home remodeling projects. You'll find prices for the most difficult types of estimates, such as demolition, cutting and patching, working around existing conditions, plus minimum quantity and costs.

Published by BNI Building News. 525 Pages, 8½ x 11, \$139.95

BNI Home Remodeler's Costbook 2025

Developed in cooperation with the National Association of Home Builders, this book let's you quickly and easily estimate the cost of all types of home remodeling projects, including additions, new kitchens and baths, and much more. You'll quickly agree that this costbook is the first place to turn, whether you're preparing a preliminary estimate, evaluating a subcontractor's bid, or submitting a formal budget proposal. It puts at your fingertips accurate and up-to-date material and labor costs for thousands of cost items, based on the latest national averages and standard labor productivity rates. What's more, the book includes detailed regional cost modifiers for adjusting your estimate to your local conditions.

Published by: BNI Building News. 372 pages, 8½ x 11, \$134.95

BNI Home Builder's Costbook 2025

Here's the easy way to estimate the cost of all types of residential construction projects! It's designed specifically for home builders. This costbook is the first place you should turn, whether you're preparing a preliminary estimate, evaluating a subcontractor's bid, or submitting a formal budget proposal. It puts at your fingertips accurate and up-to-date material and labor costs for thousands of cost items used in home construction -- concrete, framing, insulation, painting, flooring, plumbing, and wiring -- based on the latest national averages and standard labor productivity rates.

Published by: BNI Building News. 328 Pages, 8½ x 11, \$129.95

BNI General Construction Costbook 2025

Over 12,000 unit prices provide you with cost coverage for all aspects of construction -- from sitework and concrete, to doors and painting. The cost data is broken down into material and labor costs, to allow for maximum flexibility and accuracy in estimating.

Published by: BNI Building News. 572 pages, 8½ x 11, \$139.95

Construction Inspection Manual, 9th Edition

This extensively revised and updated ninth edition is updated with detailed testing procedures, and inspection checklists covering everything from sitework and earthwork to finishes and electrical installations.

376 pages, 8½ x 11, \$94.95

BNI Construction Dictionary: Pocket Edition

This handy reference fits perfectly in your pocket and yet offers extensive coverage of construction terms. If you're looking for a good construction dictionary that's portable, this is it!

Published by: BNI Building News. 86 Pages, 4½ x 7½, \$17.95

Now you can generate professional estimates from your internet browser with **National Estimator Cloud**.
<https://craftsman-book.com/national-estimator-cloud>



Craftsman Book Company
6058 Corte del Cedro
Carlsbad, CA 92011

Call me.
1-800-829-8123
Fax (760) 438-0398

In A Hurry?

We accept phone orders charged to your

Visa, MasterCard, Discover or American Express

Card _____

Exp. date _____ CVV# _____ Initials _____

Order online <http://www.craftsman-book.com>

Name _____

e-mail address (for order tracking and special offers) _____

Company _____

Address _____

City/State/Zip _____ This is a residence

Total enclosed _____ (In California add 7.5% tax)

*Free Media Mail shipping, within the US
when your check covers your order in full.*

Tax Deductible: Treasury regulations make these references tax deductible when used in your work. Save the canceled check or charge card statement as your receipt.

10-Day Money Back Guarantee

- 39.50 Basic Engineering for Builders
- 17.95 BNI Construction Dictionary: Pocket Edition
- 139.95 BNI General Construction Costbook 2025
- 129.95 BNI Home Builder's Costbook 2025
- 134.95 BNI Home Remodeler's Costbook 2025
- 139.95 BNI Remodeling Costbook 2025
- 61.50 Builder's Guide to Accounting Revised
- 34.95 Builder's Guide to Room Additions
- 32.50 Building Code Compliance for Contractors & Inspectors
- 22.00 Cabinetmaking: From Design to Finish
- 65.50 Commercial Metal Stud Framing
- 28.75 Concrete Construction
- 48.50 Construction Forms for Contractors
- 94.95 Construction Inspection Manual, 9th Edition
- 68.50 Contractor's Guide to *QuickBooks* by Online Accounting
- 49.50 Contractor's Plain-English Legal Guide
- 38.00 Contractor's Survival Manual Revised
- 26.50 Contractor's Year-Round Tax Guide Revised
- 65.00 Craftsman's Construction Installation Encyclopedia
- 59.00 Estimating Electrical Construction Revised
- 38.00 Estimating Home Building Costs, Revised
- 98.75 Fences & Retaining Walls, Revised
- 32.50 Finish Carpenter's Manual
- 32.75 Handbook of Construction Contracting Volume 1
- 33.75 Handbook of Construction Contracting Volume 2
- 52.50 Home Building Mistakes & Fixes
- 39.95 Home Inspection Handbook
- 28.50 How to Succeed With Your Own Construction Business
- 69.00 Insurance Restoration Contracting: Startup to Success
- 59.50 Markup & Profit: A Contractor's Guide, Revised
- 98.00 Natl. Building Cost Manual w/FREE Natl. Est. Download
- 117.50 National Construction Estimator
- 117.75 National Electrical Estimator
- 118.75 National Home Improvement Estimator
- 118.00 National Painting Cost Estimator
- 118.25 National Plumbing & HVAC Estimator
- 119.50 National Renovation & Ins. Repair Estimator
- 55.50 Paper Contracting: The How-To of Constr Mgmt Contracting
- 46.50 Paint Contractor's Manual
- 67.00 Plumber's Handbook Revised, 6th Edition
- 24.75 Profits in Buying & Renovating Homes
- 33.50 Renovating & Restyling Older Homes
- 62.50 Roofing Construction & Estimating, Revised
- 26.50 Rough Framing Carpentry
- 19.95 Smart Business for Contractors
- 118.50 National Repair & Remodeling Estimator

Prices subject to change without notice