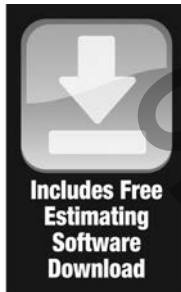




2014 NATIONAL REPAIR & REMODELING ESTIMATOR

by **Albert S. Paxton**
General editor - **Joshua Paxton**

Includes inside the back cover:



Inside the back cover of this book you'll find a software download certificate. To access the download, follow the instructions printed there. The download includes the *National Estimator*, an easy-to-use estimating program with all the cost estimates in this book. The software will run on PCs using Windows XP, Vista, 7 or 8 operating systems.

Quarterly price updates on the Web are free and automatic all during 2014. You'll be prompted when it's time to collect the next update. A connection to the Web is required.

Download all of Craftsman's most popular costbooks for one low price with the Craftsman Site License. <http://www.CraftsmanSiteLicense.com>



- 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 author has corresponded with manufacturers and wholesalers of building material supplies and surveyed retail pricing services. From these sources, he has developed Average Material Unit Costs which should apply in most parts of the country.

Wherever possible, the author has 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.

Credits and Acknowledgments

This book has over 12,000 cost estimates for 2014. To develop these estimates, the author and editors relied on information supplied by hundreds of construction cost authorities. We offer our sincere thanks to the contractors, engineers, design professionals, construction estimators,

American Standard Products
DAP Products
Outwater Plastic Industries
Con-Rock Concrete
Georgia Pacific Products

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 author's 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.

material suppliers and manufacturers who, in the spirit of cooperation, have assisted in the preparation of this 37th edition of the *National Repair & Remodeling Estimator*. Our appreciation is extended to those listed below.

Kohler Products
Wood Mode Cabinets
Transit Mixed Concrete
U.S. Gypsum Products
Henry Roofing Products

Special thanks to: Dal-Tile Corporation, 1713 Stewart, Santa Monica, California

About the Author

Albert Paxton is a Project Director at *Unified Building Sciences, Inc. (UBS)* (www.UnifiedGroup.com), located in Dallas, Texas.

Mr. Paxton (ALP@UnifiedGroup.com) is a California licensed General Contractor (B1-425946) and a Certified Professional Estimator with the *American Society of Professional Estimators*. The *UBS* staff is comprised of estimators, engineers and project managers who are also expert witnesses, building appraisers and arbitrators operating throughout the United States.

UBS clients include property insurance carriers, financial institutions, self-insureds, and private indi-

viduals. The expertise of *UBS* is in both new and repair/remodel work, for both residential and commercial construction. In addition to daily claims involving individual structures, *UBS* assignments have included natural disasters such as the Northridge earthquake in California, Hurricanes Charley, Frances, Ivan and Jeanne striking Florida and the southeastern states, the catastrophic Hurricane Katrina, whose impact on the Gulf Coast is still being felt in the building and repair industry, Hurricanes Dolly and Ike, and the cleanup, repair and rebuilding of the massive destruction of Superstorm Sandy.

Main Subject Index

Abbreviations	20	Boilers / Forced air / Space heaters	
Acoustical treatment	21	Insulation	268
Adhesives	24	Batt or roll / Loose fill / Rigid	
Air conditioning and ventilating systems .	28	Lighting fixtures	278
Bath accessories	38	Indoor / Outdoor	
Bathtubs (includes whirlpool)	44	Mantels, fireplace	281
Cabinets	60	Masonry	282
Kitchen / Vanity		Brick / Concrete block / Glass block	
Canopies	75	Glazed tile / Quarry tile / Veneer	
Carpet	78	Medicine cabinets	41
Caulking	80	Molding and trim	298
Ceramic tile	83	Pine / Oak / Redwood / Resin	
Countertop / Floors / Walls		Painting and cleaning	326
Closet door systems	86	Interior / Exterior	
Bi-folding / Mirror / Sliding		Paneling	340
Columns	94	Plaster and stucco	344
Concrete, cast-in-place	96	Range hoods	348
Footings / Forms / Foundations / Reinforcing		Resilient flooring	350
Countertops	106	Linoleum / Tile / Vinyl	
Ceramic tile / Concrete / Engineered stone /		Roofing	356
Formica / Granite / Quartz / Wood		Aluminum / Built-up / Clay tile / Composition	
Cupolas	113	Mineral surface / Wood shakes or shingles	
Demolition	114	Sheet metal	372
Concrete / Masonry / Rough carpentry		Flashing / Gravel stop / Roof edging / Vents	
Dishwashers	130	Shower and tub doors	376
Door frames	132	Shower bases or receptors	381
Door hardware	134	Shower stalls	383
Doors	136	Shower tub units	386
Exterior / Interior		Shutters	387
Drywall	153	Siding	390
Electrical	155	Aluminum / Hardboard / Vinyl / Wood	
Entrances	160	Sinks	402
Excavation	160	Bathroom / Kitchen / Utility	
Fences	162	Skylights	425
Board / Chain link / Gates / Split rail		Spas	431
Fiberglass panels	168	Stairs	434
Fireplaces	170	Stair parts / Shop fabricated stairs	
Food centers	172	Suspended ceilings	438
Framing (rough carpentry)	173	Toilets, bidets, urinals	442
Beams / Joists / Rafters / Trusses		Trash compactors	448
Garage door operators	224	Ventilation	449
Garage doors	221	Flue piping / Chimney vent	
Garbage disposers	225	Wallpaper	452
Glass and glazing	227	Water filters	453
Glu-lam products	230	Water heaters	454
Beams / Purlins / Sub-purlins / Ledgers		Electric / Gas / Solar	
Gutters and downspouts	255	Water softeners	462
Hardwood flooring	258	Windows	463
Block / Parquetry / Strip		Aluminum / Horizontal slide / Wood / Garden	
Heating	261	Index	499

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.



Inside the back cover of this book you'll find a software download certificate. To access the download, follow the instructions printed there. The download includes the *National Estimator*, an easy-to-use estimating program with all the cost estimates in this book. The software will run on PCs using Windows XP, Vista, 7 or 8 operating systems. When the *National Estimator* program has been installed, click Help on the menu bar to see a list of topics that will get you up and running. Or, go online to www.costbook.com and click the ShowMe tutorial link to view an interactive tutorial for *National Estimator*.

Building Repair Estimate

Insured John Q. Smith Date Claim or Policy No. DP 0029 Page 1 of 2
Loss Address 123 A. Main St. Home Ph. 555-1241 Cause of Loss Fire
City Anywhere, Anystate 00010 Bus. Ph. 555-1438 Other Ins. Y N
Bldg. R.C.V. 100,000 Bldg. A.C.V. 80,000 Insurance Amount \$100,000

Table with columns: Description of Item, Unit, Unit Price, Total (Col. A), Hours, Rate, Total (Col. B). Includes items like sheetrock, paint, and sealers.

TOTALS 324.00 1058.09
The undersigned agrees to complete and guarantee repairs at a total of \$
Repairer ABC Construction
Street 316 E. 2nd Street Phone 88.93
City Anywhere 1465.08
By Jack Williams 10% Overhead 146.50
Adjuster Stan Jones Date of A/P N/A 10% Profit 146.50
Adj. License No. (If Any) 561-84
Service Office Name Phoenix 1758.03

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

Building Repair Estimate

Insured 1 Date 33 Claim or Policy No. 2 Page of 3
Loss Address 4 Home Ph. Cause of Loss 5
City Other Ins. Y N 6
Bldg. R.C.V. 7 Bldg. A.C.V. 8 Insurance Amount 9

Table with columns: Description of Item, Unit, Unit Price, Total (Col. A), Hours, Rate, Total (Col. B). Includes item 20.

TOTALS 21 22
The undersigned agrees to complete and guarantee repairs at a total of \$ 29
Repairer 30 Total Column A 23
Street 31 Phone 24
City 32 25
By 34 Date of A/P 27
Adj. License No. (If Any) 35
Service Office Name 36 28 Grand Total

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

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.
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 \$.10 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).
- 16-19. 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

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)	Hours	Rate	Total Col. B)
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 2013 and projected to mid-2014. 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 5.15% 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 (0.80%), Social Security and Medicare tax (7.65%), lia-

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 4.55% of the Base Wage Per Hour.

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

Trade	1	2	3	4	5	6
	Base Wage Per Hour	Taxable Fringe Benefits (5.15% of Base Wage)	Liability Insurance & Employer Taxes %	\$	Non-Taxable Fringe Benefits (4.55% of Base Wage)	Total Hourly Cost Used in This Book
Air Tool Operator	\$30.78	\$1.59	26.22%	\$8.49	\$1.40	\$42.26
Bricklayer or Stone Mason	\$26.84	\$1.38	25.34%	\$7.15	\$1.22	\$36.59
Bricktender	\$20.04	\$1.03	25.34%	\$5.34	\$0.91	\$27.32
Carpenter	\$25.21	\$1.30	31.63%	\$8.39	\$1.15	\$36.05
Cement Mason	\$25.38	\$1.31	23.15%	\$6.18	\$1.15	\$34.02
Drywall Installer	\$25.96	\$1.34	23.57%	\$6.43	\$1.18	\$34.91
Drywall Taper	\$26.49	\$1.36	23.57%	\$6.56	\$1.21	\$35.62
Electrician, Journeyman Wireman	\$29.90	\$1.54	19.84%	\$6.24	\$1.36	\$39.04
Equipment Operator	\$30.04	\$1.55	25.22%	\$7.97	\$1.37	\$40.93
Fence Erector	\$27.20	\$1.40	26.01%	\$7.44	\$1.24	\$37.28
Floorlayer: Carpet, Linoleum, Soft Tile	\$24.13	\$1.24	23.82%	\$6.04	\$1.10	\$32.51
Floorlayer: Hardwood	\$25.34	\$1.30	23.82%	\$6.34	\$1.15	\$34.13
Glazier	\$25.41	\$1.31	25.78%	\$6.89	\$1.16	\$34.77
Laborer, General Construction	\$20.21	\$1.04	32.73%	\$6.96	\$0.92	\$29.13
Lather	\$26.42	\$1.36	21.28%	\$5.91	\$1.20	\$34.89
Marble Setter	\$23.96	\$1.23	21.36%	\$5.38	\$1.09	\$31.66
Millright / Finish Carpenter	\$25.64	\$1.32	21.24%	\$5.73	\$1.17	\$33.86
Mosaic and Terrazzo Setter	\$25.65	\$1.32	21.36%	\$5.76	\$1.17	\$33.90
Mosaic and Terrazzo Setter Helper	\$19.60	\$1.01	21.36%	\$4.40	\$0.89	\$25.90
Painter, Brush	\$26.93	\$1.39	24.88%	\$7.05	\$1.23	\$36.60
Painter, Spray-Gun	\$27.74	\$1.43	24.88%	\$7.26	\$1.26	\$37.69
Paperhanger	\$28.28	\$1.46	24.88%	\$7.40	\$1.29	\$38.43
Plasterer	\$26.06	\$1.34	28.58%	\$7.83	\$1.19	\$36.42
Plasterer Helper	\$20.34	\$1.05	28.58%	\$6.11	\$0.93	\$28.43
Plumber	\$30.80	\$1.59	24.27%	\$7.86	\$1.40	\$41.65
Reinforcing Ironworker	\$26.37	\$1.36	28.61%	\$7.93	\$1.20	\$36.86
Roofer, Foreman	\$28.51	\$1.47	44.14%	\$13.23	\$1.30	\$44.51
Roofer, Journeyman	\$25.92	\$1.33	44.14%	\$12.03	\$1.18	\$40.46
Roofer, Hot Mop Pitch	\$26.70	\$1.37	44.14%	\$12.39	\$1.21	\$41.67
Roofer, Wood Shingles	\$27.22	\$1.40	44.14%	\$12.63	\$1.24	\$42.49
Sheet Metal Worker	\$29.56	\$1.52	26.01%	\$8.08	\$1.34	\$40.50
Tile Setter	\$25.70	\$1.32	21.36%	\$5.77	\$1.17	\$33.96
Tile Setter Helper	\$19.60	\$1.01	21.36%	\$4.40	\$0.89	\$25.90
Truck Driver	\$21.77	\$1.12	26.22%	\$6.00	\$0.99	\$29.88

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

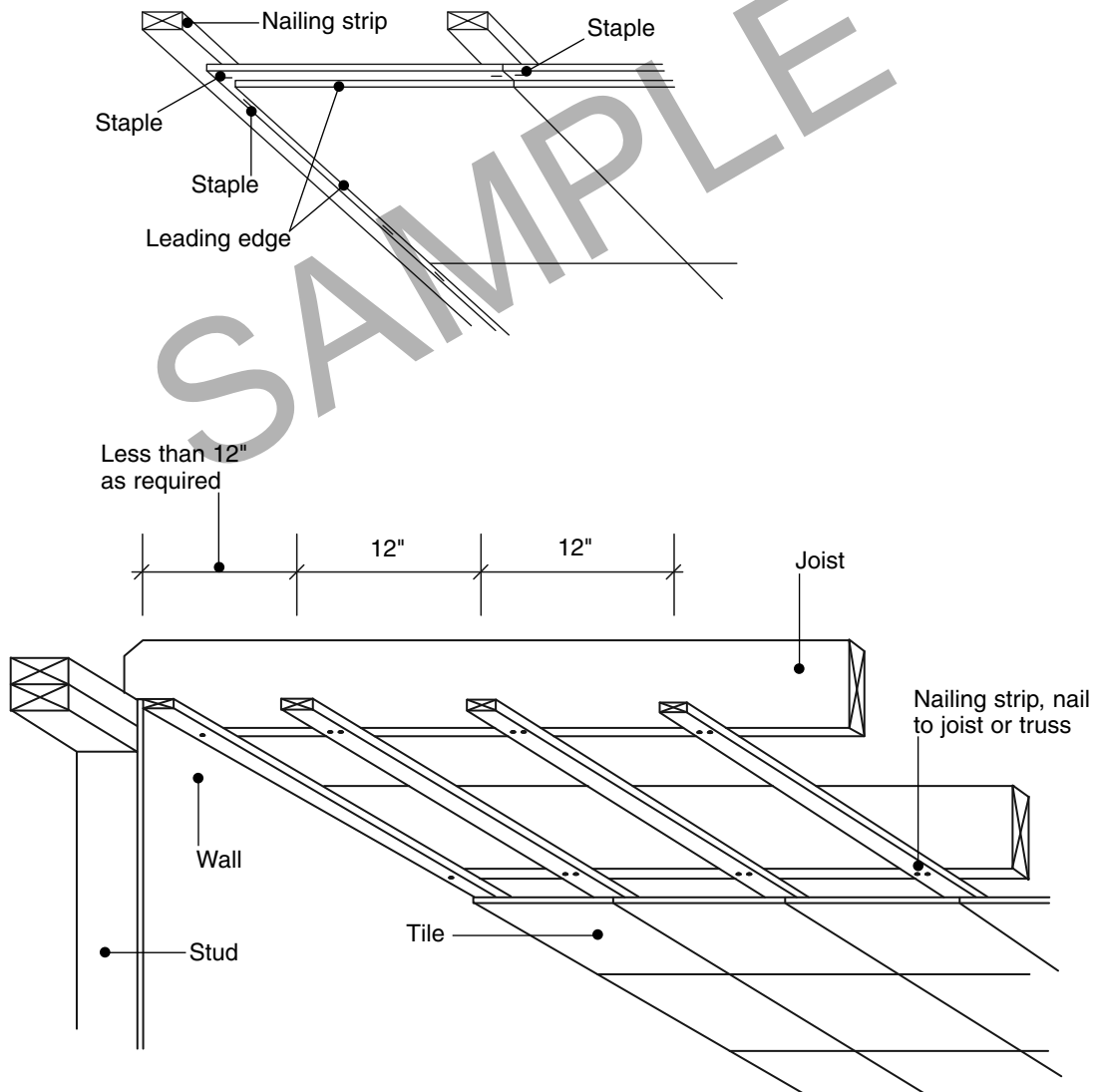
- a. Acoustical tile. 1/2" thick x 12" x 12", 24".
- b. Insulating tile, decorative. 1/2" thick x 12" x 12", 24"; 1/2" thick x 16" x 16", 32".

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 \$20.00 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 Mat'l Unit Cost	Avg Labor Unit Cost	Avg Equip Unit Cost	Avg Total Unit Cost	Avg Price Incl O&P
					hours per Unit	Output per Day					

Acoustical treatment

See also *Suspended ceiling systems*, page 439

Ceiling and wall tile

Adhesive set

Tile only, no grid system

Demo	SF	Lg	LB	.012	1300	---	.35	---	.35	.49
Demo	SF	Sm	LB	.018	910.0	---	.52	---	.52	.73

Tile on furring strips

Demo	SF	Lg	LB	.009	1710	---	.26	---	.26	.37
Demo	SF	Sm	LB	.013	1197	---	.38	---	.38	.53

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	.77	.65	---	1.42	1.79
	Inst	SF	Sm	2C	.026	616.0	.85	.94	---	1.79	2.29
Standard, random perforated	Inst	SF	Lg	2C	.018	880.0	1.44	.65	---	2.09	2.56
	Inst	SF	Sm	2C	.026	616.0	1.60	.94	---	2.54	3.15
Designer, swirl perforation	Inst	SF	Lg	2C	.018	880.0	2.00	.65	---	2.65	3.21
	Inst	SF	Sm	2C	.026	616.0	2.21	.94	---	3.15	3.85
Deluxe, sculptured face	Inst	SF	Lg	2C	.018	880.0	2.39	.65	---	3.04	3.66
	Inst	SF	Sm	2C	.026	616.0	2.65	.94	---	3.59	4.36

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

Economy, mini perforated	Inst	SF	Lg	2C	.018	880.0	.92	.65	---	1.57	1.97
	Inst	SF	Sm	2C	.026	616.0	1.02	.94	---	1.96	2.49
Standard, random perforated	Inst	SF	Lg	2C	.018	880.0	1.77	.65	---	2.42	2.94
	Inst	SF	Sm	2C	.026	616.0	1.95	.94	---	2.89	3.55
Designer, swirl perforation	Inst	SF	Lg	2C	.018	880.0	2.45	.65	---	3.10	3.73
	Inst	SF	Sm	2C	.026	616.0	2.71	.94	---	3.65	4.43
Deluxe, sculptured face	Inst	SF	Lg	2C	.018	880.0	2.95	.65	---	3.60	4.30
	Inst	SF	Sm	2C	.026	616.0	3.27	.94	---	4.21	5.07

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

Economy, mini perforated	Inst	SF	Lg	2C	.018	880.0	1.02	.65	---	1.67	2.08
	Inst	SF	Sm	2C	.026	616.0	1.12	.94	---	2.06	2.60
Standard, random perforated	Inst	SF	Lg	2C	.018	880.0	1.96	.65	---	2.61	3.16
	Inst	SF	Sm	2C	.026	616.0	2.16	.94	---	3.10	3.80
Designer, swirl perforation	Inst	SF	Lg	2C	.018	880.0	2.73	.65	---	3.38	4.05
	Inst	SF	Sm	2C	.026	616.0	3.01	.94	---	3.95	4.77
Deluxe, sculptured face	Inst	SF	Lg	2C	.018	880.0	3.29	.65	---	3.94	4.69
	Inst	SF	Sm	2C	.026	616.0	3.63	.94	---	4.57	5.49

Applied by adhesive to furring strips ADD

Inst	SF	Lg	2C	.002	---	---	---	.07	---	.07	.10
Inst	SF	Sm	2C	.002	---	---	---	.07	---	.07	.10

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
-------------	------	------	-----	-----------	--------------------	---------------------	---------------------	---------------------	---------------------	---------------------	--------------------

Stapled

Tile only, no grid system	Demo	SF	Lg	LB	.014	1170	---	.41	---	.41	.57
	Demo	SF	Sm	LB	.020	819	---	.58	---	.58	.82
Tile on furring strips	Demo	SF	Lg	LB	.010	1540	---	.29	---	.29	.41
	Demo	SF	Sm	LB	.015	1078	---	.44	---	.44	.61

Mineral fiber, vinyl coated, tile only

Applied in square pattern by staples, nails, or clips; 5% tile waste

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

Economy, mini perforated	Inst	SF	Lg	2C	.017	960.0	.66	.61	---	1.27	1.62
	Inst	SF	Sm	2C	.024	672.0	.72	.87	---	1.59	2.04
Standard, random perforated	Inst	SF	Lg	2C	.017	960.0	1.33	.61	---	1.94	2.39
	Inst	SF	Sm	2C	.024	672.0	1.47	.87	---	2.34	2.90
Designer, swirl perforation	Inst	SF	Lg	2C	.017	960.0	1.88	.61	---	2.49	3.02
	Inst	SF	Sm	2C	.024	672.0	2.08	.87	---	2.95	3.60
Deluxe, sculptured face	Inst	SF	Lg	2C	.017	960.0	2.28	.61	---	2.89	3.48
	Inst	SF	Sm	2C	.024	672.0	2.52	.87	---	3.39	4.11

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

Economy, mini perforated	Inst	SF	Lg	2C	.017	960.0	.81	.61	---	1.42	1.79
	Inst	SF	Sm	2C	.024	672.0	.89	.87	---	1.76	2.23
Standard, random perforated	Inst	SF	Lg	2C	.017	960.0	1.65	.61	---	2.26	2.76
	Inst	SF	Sm	2C	.024	672.0	1.83	.87	---	2.70	3.32
Designer, swirl perforation	Inst	SF	Lg	2C	.017	960.0	2.34	.61	---	2.95	3.55
	Inst	SF	Sm	2C	.024	672.0	2.58	.87	---	3.45	4.18
Deluxe, sculptured face	Inst	SF	Lg	2C	.017	960.0	2.84	.61	---	3.45	4.12
	Inst	SF	Sm	2C	.024	672.0	3.14	.87	---	4.01	4.82

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

Economy, mini perforated	Inst	SF	Lg	2C	.017	960.0	.90	.61	---	1.51	1.89
	Inst	SF	Sm	2C	.024	672.0	1.00	.87	---	1.87	2.36
Standard, random perforated	Inst	SF	Lg	2C	.017	960.0	1.84	.61	---	2.45	2.97
	Inst	SF	Sm	2C	.024	672.0	2.04	.87	---	2.91	3.56
Designer, swirl perforation	Inst	SF	Lg	2C	.017	960.0	2.61	.61	---	3.22	3.86
	Inst	SF	Sm	2C	.024	672.0	2.89	.87	---	3.76	4.53
Deluxe, sculptured face	Inst	SF	Lg	2C	.017	960.0	3.17	.61	---	3.78	4.50
	Inst	SF	Sm	2C	.024	672.0	3.51	.87	---	4.38	5.25

Applied by staples, nails or clips to furring strips ADD

	Inst	SF	Lg	2C	.017	960.0	---	.61	---	.61	.86
	Inst	SF	Sm	2C	.024	672.0	---	.87	---	.87	1.21

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-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
-------------	------	------	-----	-----------	--------------------	---------------------	---------------------	---------------------	---------------------	---------------------	--------------------

Furring strips, 8% waste included

Over wood

1" x 4", 12" oc	Inst	SF	Lg	2C	.010	1600	.27	.36	---	.63	.82
	Inst	SF	Sm	2C	.014	1120	.29	.50	---	.79	1.04
1" x 4", 16" oc	Inst	SF	Lg	2C	.008	1920	.23	.29	---	.52	.67
	Inst	SF	Sm	2C	.012	1344	.25	.43	---	.68	.89

Over plaster

1" x 4", 12" oc	Inst	SF	Lg	2C	.013	1280	.27	.47	---	.74	.97
	Inst	SF	Sm	2C	.018	896	.29	.65	---	.94	1.24
1" x 4", 16" oc	Inst	SF	Lg	2C	.010	1600	.23	.36	---	.59	.77
	Inst	SF	Sm	2C	.014	1120	.25	.50	---	.75	.99

Adhesives

Better quality, gun-applied in continuous bead to wood or metal framing or furring members.

Per 100 SF of surface area including 6% waste.

Panel adhesives

Subfloor adhesive, on floors

12" oc members

1/8" diameter (11 fl.oz./CSF)	Inst	CSF	Lg	CA	.075	106.0	3.89	2.70	---	6.59	8.14
	Inst	CSF	Sm	CA	.101	79.50	4.29	3.64	---	7.93	9.90
1/4" diameter (43 fl.oz./CSF)	Inst	CSF	Lg	CA	.075	106.0	15.50	2.70	---	18.20	21.10
	Inst	CSF	Sm	CA	.101	79.50	17.10	3.64	---	20.74	24.20
3/8" diameter (97 fl.oz./CSF)	Inst	CSF	Lg	CA	.075	106.0	34.90	2.70	---	37.60	42.90
	Inst	CSF	Sm	CA	.101	79.50	38.60	3.64	---	42.24	48.30
1/2" diameter (172 fl.oz./CSF)	Inst	CSF	Lg	CA	.075	106.0	61.70	2.70	---	64.40	72.90
	Inst	CSF	Sm	CA	.101	79.50	68.20	3.64	---	71.84	81.50

16" oc members

1/8" diameter (9 fl.oz./CSF)	Inst	CSF	Lg	CA	.056	143.0	3.11	2.02	---	5.13	6.31
	Inst	CSF	Sm	CA	.075	107.3	3.43	2.70	---	6.13	7.63
1/4" diameter (34 fl.oz./CSF)	Inst	CSF	Lg	CA	.056	143.0	12.40	2.02	---	14.42	16.70
	Inst	CSF	Sm	CA	.075	107.3	13.70	2.70	---	16.40	19.10
3/8" diameter (78 fl.oz./CSF)	Inst	CSF	Lg	CA	.056	143.0	27.90	2.02	---	29.92	34.10
	Inst	CSF	Sm	CA	.075	107.3	30.90	2.70	---	33.60	38.30
1/2" diameter (137 fl.oz./CSF)	Inst	CSF	Lg	CA	.056	143.0	49.40	2.02	---	51.42	58.10
	Inst	CSF	Sm	CA	.075	107.3	54.60	2.70	---	57.30	64.90

24" oc members

1/8" diameter (7 fl.oz./CSF)	Inst	CSF	Lg	CA	.052	154.0	2.33	1.87	---	4.20	5.23
	Inst	CSF	Sm	CA	.069	115.5	2.57	2.49	---	5.06	6.36
1/4" diameter (26 fl.oz./CSF)	Inst	CSF	Lg	CA	.052	154.0	9.28	1.87	---	11.15	13.00
	Inst	CSF	Sm	CA	.069	115.5	10.30	2.49	---	12.79	15.00
3/8" diameter (58 fl.oz./CSF)	Inst	CSF	Lg	CA	.052	154.0	20.90	1.87	---	22.77	26.10
	Inst	CSF	Sm	CA	.069	115.5	23.10	2.49	---	25.59	29.40
1/2" diameter (103 fl.oz./CSF)	Inst	CSF	Lg	CA	.052	154.0	37.00	1.87	---	38.87	44.10
	Inst	CSF	Sm	CA	.069	115.5	40.90	2.49	---	43.39	49.30

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
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	3.35	3.61	---	6.96	8.80
	Inst	CSF	Sm	CA	.133	60.00	3.71	4.79	---	8.50	10.90
1/4" diameter (43 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	13.40	3.61	---	17.01	20.00
	Inst	CSF	Sm	CA	.133	60.00	14.80	4.79	---	19.59	23.20
3/8" diameter (97 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	30.10	3.61	---	33.71	38.80
	Inst	CSF	Sm	CA	.133	60.00	33.30	4.79	---	38.09	44.00
1/2" diameter (172 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	53.30	3.61	---	56.91	64.70
	Inst	CSF	Sm	CA	.133	60.00	58.90	4.79	---	63.69	72.70
16" oc members											
1/8" diameter (9 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	2.68	3.28	---	5.96	7.59
	Inst	CSF	Sm	CA	.121	66.00	2.96	4.36	---	7.32	9.42
1/4" diameter (34 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	10.70	3.28	---	13.98	16.60
	Inst	CSF	Sm	CA	.121	66.00	11.80	4.36	---	16.16	19.30
3/8" diameter (78 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	24.10	3.28	---	27.38	31.60
	Inst	CSF	Sm	CA	.121	66.00	26.60	4.36	---	30.96	35.90
1/2" diameter (137 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	42.60	3.28	---	45.88	52.30
	Inst	CSF	Sm	CA	.121	66.00	47.10	4.36	---	51.46	58.90
24" oc members											
1/8" diameter (7 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	2.01	3.03	---	5.04	6.49
	Inst	CSF	Sm	CA	.112	71.25	2.23	4.04	---	6.27	8.15
1/4" diameter (26 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	8.01	3.03	---	11.04	13.20
	Inst	CSF	Sm	CA	.112	71.25	8.85	4.04	---	12.89	15.60
3/8" diameter (58 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	18.10	3.03	---	21.13	24.50
	Inst	CSF	Sm	CA	.112	71.25	20.00	4.04	---	24.04	28.00
1/2" diameter (103 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	32.00	3.03	---	35.03	40.00
	Inst	CSF	Sm	CA	.112	71.25	35.30	4.04	---	39.34	45.20
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	4.31	3.61	---	7.92	9.87
	Inst	CSF	Sm	CA	.133	60.00	4.77	4.79	---	9.56	12.10
1/4" diameter (43 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	17.20	3.61	---	20.81	24.30
	Inst	CSF	Sm	CA	.133	60.00	19.00	4.79	---	23.79	28.00
3/8" diameter (97 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	38.80	3.61	---	42.41	48.50
	Inst	CSF	Sm	CA	.133	60.00	42.80	4.79	---	47.59	54.70
1/2" diameter (172 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	68.60	3.61	---	72.21	81.90
	Inst	CSF	Sm	CA	.133	60.00	75.80	4.79	---	80.59	91.60
16" oc members											
1/8" diameter (9 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	3.45	3.28	---	6.73	8.46
	Inst	CSF	Sm	CA	.121	66.00	3.81	4.36	---	8.17	10.40
1/4" diameter (34 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	13.80	3.28	---	17.08	20.00
	Inst	CSF	Sm	CA	.121	66.00	15.20	4.36	---	19.56	23.10
3/8" diameter (78 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	31.00	3.28	---	34.28	39.30
	Inst	CSF	Sm	CA	.121	66.00	34.30	4.36	---	38.66	44.50
1/2" diameter (137 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	54.90	3.28	---	58.18	66.00
	Inst	CSF	Sm	CA	.121	66.00	60.60	4.36	---	64.96	74.00

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
24" oc members											
1/8" diameter (7 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	2.58	3.03	---	5.61	7.13
	Inst	CSF	Sm	CA	.129	62.00	2.86	4.65	---	7.51	9.71
1/4" diameter (26 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	10.30	3.03	---	13.33	15.80
	Inst	CSF	Sm	CA	.129	62.00	11.40	4.65	---	16.05	19.30
3/8" diameter (58 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	23.30	3.03	---	26.33	30.30
	Inst	CSF	Sm	CA	.129	62.00	25.70	4.65	---	30.35	35.30
1/2" diameter (103 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	41.10	3.03	---	44.13	50.30
	Inst	CSF	Sm	CA	.129	62.00	45.50	4.65	---	50.15	57.50
Gypsum drywall adhesive, on ceilings											
12" oc members											
1/8" diameter (11 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	2.00	3.61	---	5.61	7.29
	Inst	CSF	Sm	CA	.133	60.00	2.22	4.79	---	7.01	9.20
1/4" diameter (43 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	8.00	3.61	---	11.61	14.00
	Inst	CSF	Sm	CA	.133	60.00	8.84	4.79	---	13.63	16.60
3/8" diameter (97 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	18.00	3.61	---	21.61	25.30
	Inst	CSF	Sm	CA	.133	60.00	19.90	4.79	---	24.69	29.10
1/2" diameter (172 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	31.90	3.61	---	35.51	40.80
	Inst	CSF	Sm	CA	.133	60.00	35.30	4.79	---	40.09	46.20
16" oc members											
1/8" diameter (9 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	1.61	3.28	---	4.89	6.40
	Inst	CSF	Sm	CA	.121	66.00	1.77	4.36	---	6.13	8.09
1/4" diameter (34 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	6.39	3.28	---	9.67	11.80
	Inst	CSF	Sm	CA	.121	66.00	7.07	4.36	---	11.43	14.00
3/8" diameter (78 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	14.40	3.28	---	17.68	20.80
	Inst	CSF	Sm	CA	.121	66.00	16.00	4.36	---	20.36	24.00
1/2" diameter (137 fl.oz./CSF)	Inst	CSF	Lg	CA	.091	88.00	25.60	3.28	---	28.88	33.20
	Inst	CSF	Sm	CA	.121	66.00	28.20	4.36	---	32.56	37.70
24" oc members											
1/8" diameter (7 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	1.21	3.03	---	4.24	5.59
	Inst	CSF	Sm	CA	.112	71.25	1.33	4.04	---	5.37	7.14
1/4" diameter (26 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	4.80	3.03	---	7.83	9.62
	Inst	CSF	Sm	CA	.112	71.25	5.30	4.04	---	9.34	11.60
3/8" diameter (58 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	10.80	3.03	---	13.83	16.40
	Inst	CSF	Sm	CA	.112	71.25	12.00	4.04	---	16.04	19.10
1/2" diameter (103 fl.oz./CSF)	Inst	CSF	Lg	CA	.084	95.00	19.20	3.03	---	22.23	25.70
	Inst	CSF	Sm	CA	.112	71.25	21.20	4.04	---	25.24	29.40
Gypsum drywall adhesive, on walls											
12" oc members											
1/8" diameter (11 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	2.00	3.61	---	5.61	7.29
	Inst	CSF	Sm	CA	.133	60.00	2.22	4.79	---	7.01	9.20
1/4" diameter (43 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	8.00	3.61	---	11.61	14.00
	Inst	CSF	Sm	CA	.133	60.00	8.84	4.79	---	13.63	16.60
3/8" diameter (97 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	18.00	3.61	---	21.61	25.30
	Inst	CSF	Sm	CA	.133	60.00	19.90	4.79	---	24.69	29.10
1/2" diameter (172 fl.oz./CSF)	Inst	CSF	Lg	CA	.100	80.00	31.90	3.61	---	35.51	40.80
	Inst	CSF	Sm	CA	.133	60.00	35.30	4.79	---	40.09	46.20

Index

A

- A.O. Smith water heaters 454-459
 Abbreviations used20
 Access doors375
 Accessibility
 site6
 workplace5
 Accessories
 air conditioning duct29-31
 bath39-43
 boiler264
 fiberglass panels169
 fireplaces171
 Accordion doors93
 Accurate estimating methods5
 Acoustical tile/panels
 adhesive cost21
 adhesive set22
 ceiling tile22-23
 demolition129
 dimensions21
 estimating technique21
 furring strips23-24
 installation21
 painting331
 patterns23-24
 stapled/no grid23
 suspended ceiling systems439-440
 wall tile22-23
 Acrylic
 bathtubs49-52
 diffusers278
 dome skylights427-428
 flooring, wood parquet blocks261
 Adhesives24-27
 ceiling panels22
 ceramic tile106
 drywall panels26-27
 floor panels23
 gypsum drywall panels26-27
 hardboard wall panels27
 plastic wall panels27
 polystyrene wall panels25-26
 polyurethane foam wall panels25-26
 subfloor24
 wall panels25-27
 Adjustable roof flashing451
 Adjuster, insurance5
 Adobe, brick290
 Aggregate, ready mix concrete103-105
 Air conditioning systems
 diffusers28
 ductwork29-31
 fans32
 system components28
 system units, complete35-37
 ventilation, residential33-34
 Air conditioning units
 fan coil35
 heat pumps36
 roof top36
 window37
 Air extractors, A/C duct30
 Air return, aluminum ventilation
 grilles34-35
 Air supply registers34-35
 Air tool operator
 crew rates15
 wages11
 Air tools, demolition115-116
 Alarm bell157
 Aluminum
 carport, freestanding75
 columns94
 cupola roof113
 diffusers28
 ductwork, A/C29
 exterior shutters387
 garage doors221
 grilles, ventilation34
 gutters and downspouts255
 kickplates134
 roofing359
 roofing, demolition123
 sash, window glass229
 screen doors150
 screening, wire, door150
 shower and tub doors376-380
 sliding glass door144-145, 378-380
 sliding glass door, demolition128
 thresholds135
 weathervanes113
 windows463-471
 windows, demolition126-127
 wire screening, door150
 Aluminum siding
 clapboard393
 corrugated393
 demolition393
 dimensions390
 estimating390
 installation390
 panels393
 shingles393
 American Standard Products
 Americast fixtures381-382, 418-420
 bathtubs47-52
 bidets447-448
 countertop bathroom sinks402-404
 kitchen sinks418-420
 pedestal sinks405-407
 shower bases381-382
 sinks418-420
 toilets443
 wall hung bathroom sinks411-412
 Americast
 shower bases381-382
 sinks418-420
 Angle bar, bathroom39, 40
 Anti-algae caulking82
 Antique bathtubs46-47
 Apron mold308
 Aqua Glass shower surround383
 Arch roof, calculating paint
 coverage327
 Architectural, cement, white105
 Archway, entrance160
 Area modification factors
 calculating12
 Canada14
 U.S.12
 Armstrong sheet vinyl352, 354
 Ash, V-grooved, paneling341
 Ash-sen, paneling341
 Ashlar pattern, tile installation23
 Asphalt shingles359-363
 demolition124, 359
 Asphalt tile flooring351, 353
 Assembled package
 door units137
 Astragal molding
 oak316
 pine304
 Attic
 access doors375
 ventilation33-34
 Average costs4
 Average manhours per unit4
 demolition114
 Awning windows472-475
 Awnings
 aluminum75
 canopies75-77
 canvas77
 patio76-77
 roll-up77
 window76-77
 wood, patio192
 Axial flow fans32

B

 B & B casing299
 Back band casing300
 Backfilling161
 Backsplash
 butcher block113
 ceramic tile106
 engineered stone111
 Formica106, 108, 110
 granite109
 marble109
 quartz110
 Silestone111
 stainless steel112
 Balusters, stair434
 Balustrade, curved oak437
 Band mold307
 Bar nosing, oak317
 Bar sinks423
 Bars, towel40
 Base cabinets, kitchen62-64
 installation procedure61
 Base cap, molding/trim302
 Base molding
 finger joint pine310-311
 installation298
 resin flexible319-320
 wood bullnose round corner324-325
 Base shoe
 finger joint pine310
 oak314
 oak base round corners320
 resin319
 solid pine301-302
 Basement stairs435
 Bases, shower381-382
 Basketweave fence, redwood162
 Bath accessories39-43
 costs explained38
 demolition122
 Bath caulking81-82
 anti-algae82
 mildew resistant82
 Bathroom
 sinks402-418
 wall heaters267-268
 Bathroom angle bar39
 Bathroom door locksets134
 Bathroom heaters267-268
 Ceiling Heat-A-Lite267
 Ceiling Heat-A-Ventlite267
 Bathroom wallpaper453
 Bathtub wall, ceramic tile83
 Bathtubs
 acrylic49-52
 American Standard Products47-52
 antique46-47
 cast iron46-47
 demolition386
 fiberglass44
 free-standing46-47
 Kohler Products46-47, 49, 52-58
 recessed47
 remove & reset44-45, 59
 rough-in45
 shower fixture45, 47, 59
 shower tub units386
 slip resistant48
 steel48
 sunken49-52
 whirlpool49-58
 Batt insulation268-273
 demolition123
 Battens siding391
 Batts
 lattice305-306
 pine399-400
 redwood318
 Bead casing299
 Beams
 built-up176-177
 demolition118
 dimension lumber176-179
 glu-lam230-249
 single member177-178
 Bedroom door locksets134
 Bell court casing310
 Benefits, employer paid11
 Bevel siding
 demolition125
 dimensions390
 wood395-396
 Bi-folding closet doors86-88
 Bidets442, 447-448
 Birch
 blinds388
 doors147-150
 fire doors147
 paneling342
 shutters388
 Blender, kitchen172
 Blinds, exterior
 birch388
 Cellwood389
 door387
 pine387
 western hemlock388
 Block flooring, hardwood260
 Block, concrete
 demolition290
 dimensions282
 exterior walls292
 fences294-295
 foundations290-291
 heavyweight291
 lightweight291

partitions	293-294	Butyl caulk	80	elastomeric	82	Chimney, vent	449-451
retaining walls	290-291	BX cable	156	gun	82	Chimneys	
slump	295-296	Bypassing closet doors	89-92	latex	80	brick	284-285
walls	290-291	C		mildew resistant	82	demolition	284-285
walls, insulating	275	Cabinet crown mold	308	multi-purpose	80	factory built	170
Block, glass	297	Cabinetry	62-74	oil base	81	flashing	372
Blocking, demolition	179-180	Cabinets, kitchen	62-74	silicone	81	Chrome bath accessories	38
Board and batten siding		demolition	122	CDX plywood sheathing	215-216	Circline lighting fixtures	278
aluminum	390	description	60	Cedar		Circular area, paint coverage	327
wood	399-400	installation procedure	60	fencing	162-164	Clam shell casing	309
Board fence systems	162-167	natural finish	332	roofing	367-371	Clapboard siding	
Board sheathing		painting	332	siding	396	aluminum	393
demolition	215-216	quality of	60	Ceiling		demolition	123
subfloor	217	Cabinets, medicine	41-43	fans	32	Claw-foot bathtubs	46
wall	215	Cabinets, vanity	72-74	heat	267	Clay tile roofing	359-363
Board siding	399	Cable, service entrance	155	joists	185	demolition	124
demolition	125	Calculating		molding	298	Clay tile, shapes and sizes	283
Boilers		area modification factors	12	panels	22-23	Clean-up center, kitchen	60
accessories	264	overhead expenses	327	registers, air supply	34	Cleaning	328-329
conversion accessories	264	paint coverage	6	titles	22-23	Cleaning, paint preparation	
electric fired	261	total hourly cost	11	Ceiling applications		exteriors	334-335
gas fired	262-263	Calgon water softeners	462-463	drywall	153	interiors	328-329
hot water	261-264	Cambridge casing	310	drywall adhesive	26	Clients	7
oil fired	263-264	Canada		paint	330-332	communication with	7
steam	261-264	adjusting factors	12	plaster lath	345	evaluating	7
Bolted ledgers	191	area modification factors	14	wallpaper	453	Closet door systems	86-94
Bottom plates	192	Canopies		Ceiling Heat-A-Ventlite		accordion	93
Box stairs	435-436	aluminum	75-77	bathroom heaters	267	bi-folding	86-88
Box-type rain gutter	255	canvass	77	Ceiling light fixtures		bypassing	89-92
Bracing	180	carport	75	indoor	278-279	demolition, with track	126
demolition	118	door	75-76	outdoor	280	hardware	93
Brass kickplates	134	roll-up	77	Ceiling systems, suspended	438	mirrored	91-92
Brick		window	76-77	demolition	438	prefinished	88
adobe	290	Canvas awnings	77	grid	438	sliding	89-92
chimneys	284-285	Cap molding	304	tile/panels, acoustical	22-23	track and hardware	93
columns	285-288	Cape Cod molding		Ceiling/wall tile		unfinished	86-88
concrete slump	296	base & shoe, pine	301	demolition	22	Closets	
demolition	116	base, oak	314	stapled	23	kitchen utility	64
dimensions	282	base, pine	311	Cellwood shutters	389	mirrored	91-92
mold, redwood	318	casing, oak	313-314	Cement		Clothes dryer vent	374
paint, one coat	335	casing, pine	300	architectural	105	Coal-fired furnace	266
running bond	284-285	casing, resin	319	painting	337	Collectors, solar	459-460
standard	284-289	Card reader, electrical	157	Cement masons		mounting kits	460
veneer	288-289	Carpenter		crew rates	16	Colonial molding	
walls	288-289	crew rates	15, 16, 17	wages	11	base & shoe	302
Bricklayer		Carpet		Ceramic tile		casing	300
crew rates	15, 17	pad	78-79	adhesive	106	chair rail	303, 325
wages	11	Carport, freestanding	75	bathtub wall installation	83	crown molding	303
Bricktender		Casement windows	475-486	countertops	84, 106	spindles	321-323
crew rates	15, 17	four ventilating lites	480-486	cove/base	84	Colonial style	
wages	11	one ventilating lite	475-476	demolition	84	door frames	132
Bridging		two ventilating lites	476-480	dimensions	83	entrances	160
demolition	118	Casing		estimating techniques	83	shutters	388
solid, between joists	181-182	finger joint pine	308-310	floors	84	Colonnades, columns	94-95
Bronze kickplates	134	oak	313-314	installation methods	83	Coloring, concrete	105
Bruner water softeners	462-463	resin	319	mortar	106	Column headings, book, explained	4
Builder's series spa	431-432	solid pine	299-300	wainscot cap	85	Columns	
Building Repair Estimate	10	Cast in place concrete	98-105	walls	85	aluminum	94
Building Repair Estimate form	8	footings	98-99	Chain link fence	164-166	brick	285-288
checklist	6	forming	100-101	Chain-drive garage door		brick, demolition	116
example	8	foundations	100-101	opener	224	demolition	118
explanation	6, 9	interior floor finishing	103	Chair rail molding		entrance	94-95
Built-in dishwashers	130	reinforcing steel rods	102	finger joint pine	312	extruded aluminum	94
Built-in food center	172	retaining walls	100	oak	316	framing	183
Built-up roofing		slabs	102	pine	325	framing, demolition	183
demolition	124	Cast iron		wood bullnose round corner	325	wood	95
dimensions	357	bathroom sinks	415-417	Chamfer mold	308	Combo-fired furnaces	266
over concrete deck	365	bathtubs	46-47	Change orders	7	Common rafters	
over existing roof	363-365	boilers	262, 263	Channel molding, Marlite	281	cut-up roofs	196-198, 201-202
over wood deck	364	kitchen sinks	420-421	Checklist, estimating	6	gable or hip	193
Bullnose corner molding	324-325	Caulking	80-82	Chemical additives, concrete	105	Communication with clients	7
Burglary detection systems	157-158	anti-algae	82	Chemical feed pumps, soft water systems	463	Compactors, trash	448
Burners, boiler	264	bathub	81-82	Chesapeake casing	309	Composition shingle	
Butcher block countertops	113	butyl flex	80	Chimes, doorbell	158	roofing	359-363
Button, doorbell	158						

Composition vinyl tile flooring	352, 353	Compressors, air conditioning	28	Concrete		Dead locks	134	footings	98
architectural	105	new construction	5	cast in place	102	Deck insulation	275-276	framing	118-125
chemical additives	105	repair and remodeling	5	coloring	105	Decking		furring strips	119
demolition	115-116	Counterspace, rule of thumb	60	demolition	115-116	demolition	192	furring strips on ceilings	183
finish grading	97	Countertop bathroom sinks	415-417	roof	203	fixtures	203	gable ends	204-205
interior floor finishes	96	American Standard Products	402-404	wood patio	192	Decorative circline lighting	278	garage doors	126
labor	96, 97	Kohler Products	404	Decorative molds	307	Demolition		glass	227-229
painting	335, 337	vitreous china	402-405	acoustical ceiling tile	129	glass sliding doors	128	glazed tile	297
pour and finish slabs	102	Countertops	106-113	adobe brick	290	glazing	127	glu-lam beams	230-249
ready mix	103-104	butcher block	113	aluminum roofing	123	glu-lam ledgers	253-254	glu-lam products	120, 230-254
reinforcing	97	ceramic tile	106	aluminum siding	393	glu-lam purlins	249-251	glu-lam sub-purlins	251-252
screeds	102	concrete	106	asphalt shingles	124, 359	gutters	123	gypsum board	128
Concrete block		engineered stone	111-112	awning, wood	192	gypsum panels	128	hardboard siding	124
demolition	117	Formica	106-109	bath accessories	122	hardwood flooring	122	headers	120, 184-185
dimensions	282	granite	109-110	bathtub	386	insulating ceiling tile	129	insulating glass	127
exterior walls	292	imitation granite/marble	111-112	beams	118, 230-249	insulation	123	joists	119, 185-191
fences	294-295	marble	109-110	bevel siding	125	kitchen cabinets	122	labor, average output	114
foundations	290-291	quartz	110-111	block, concrete	290	lath	119	ledgers	120
heavyweight	291	Silestone	111-112	blocking	179-180	loose fill	123	lintels	184-185
lightweight	291	stainless steel	112	board and batten	399-400	lumber	118-122, 176	Marlite panels	122
partitions	293-294	terrazzo	112	board sheathing	215-216	Masonite siding	124	Masonry	116-117
retaining walls	290-291	Country style Dutch doors	140-141	board siding	125	medicine cabinets	122	molding	122
slump	295-296	Cove		bottom plates	192	paneling	122	particleboard	217
Concrete countertops	106	ceramic tile	84	bracing	118, 180	partitions, block	293-294	plaster	128, 345
Concrete footings	98-99	linoleum	355	brick	116	plastic tile	128	plates	120, 192
cast in place	98-99	Cove molding		brick chimneys	284-285	plywood	215-217	plywood sheathing	121
demolition	115	finger joint pine	312	brick columns	285-287	plywood siding	125	posts	118, 183
dimensions	96, 98	oak	315	bridging	118, 181-182	quarry tile	297	rafters	120, 193-202
estimating techniques	96	solid pine	305	built-up hot roofing	124	receptors	381	resilient flooring	129, 351
installation techniques	96	Cover, patio	76	cabinets, kitchen	122	retaining walls	115-116	rigid insulation	123
labor	96	Coverage calculations,	327	ceiling furring strips	183	roof decking	121, 203	roof sheathing	216
Concrete foundations	100-101	painting	327	ceiling joists	119	roofing	121, 123-124, 365	rough carpentry	118-122
demolition	115-116	Crew compositions	4, 15-19	ceiling tile	129	screen block	296	screen doors	126
dimensions	96	Crew rates	15-19	chimneys	284-285	shake roof	367	shakes, wood	125
estimating techniques	96	air tool operator	15	clapboard	123	sheathing	121, 215-217	sheathing, subfloor	217
installation techniques	96	bricklayer	15, 17	clay tile roofing	124	sheet flooring	129, 351	sheet metal	123
interior floor finishes	96	bricktender	15, 17	closet doors, with track	126	sheetrock	154	shingles	359
labor	96	carpenter	15, 16, 17	columns	118, 183	shingles, wood	125, 368	shower bases	381
pour and finish slabs	102	cement mason	16	concrete block	117	shower stalls	383	shower tub units	386
Concrete steps, painting	337	electrician	16, 18	concrete block fences	294	siding	123-125	slabs	102
Concrete, cast in place	98-105	equipment operator	19	concrete block partitions	293-294	sliding closet doors	126	slump block	295
footings	98-99	fence erector	16	concrete footings	115				
forming	102	floorlayer	16	concrete foundations	100				
foundations	100-101	glazier	16	concrete retaining walls	100				
interior floor finishes	96	lather	17	concrete slabs	116				
retaining walls	100-101	painter	17	corrugated roofing	359				
slabs	102	paperhanger	18	deck, roof	121				
Condensing units, A/C	26	plasterer	17	deck, wood	192				
Cone, surface area,	327	plumber	18, 19	decking	121, 203				
calculating paint coverage	327	roofer	18	diagonal bracing	118, 180				
Convertible dishwashers	88	sheet metal worker	19	diagonal let-ins	118, 180				
Cooking center, kitchen	60	tile setter	19	dimensional lumber	118-121, 176				
Copper roofs, cupola	113	Crown & cornice	303	doors	126				
Corinthian cap, column	94-95	Crown molding		downspouts	123				
Corner boards, siding	392	finger joint pine	312	drop siding	125				
Corner cabinets		oak	315	drywall	128, 154				
kitchen	63	solid pine	303	entry doors	126				
vanity	74	wood bullnose round corner	325	excavation	160-161				
Corner guard molding	316	Cup holder	39	exterior walls	117				
outside	303	Cupolas	113	fascia	118, 183				
Corner posts, chain link fence	166	Curtain rod, shower	39	fences, concrete block	294				
Corner studs, applications	175	Curtain-type dampers, A/C duct	31	fences, masonry	117				
Cornice trim, solid pine	303	Curved stairways	437	fiberboard sheathing	215				
Coronado casing	309	Cylinder, surface area,	327	finish carpentry	122				
Corrugated aluminum		calculating paint coverage	327	finishes	128-129				
demolition, roofing/siding	123	D		fire doors	126				
downspouts	255	Daily production, average	4	firestops	119				
roofing	359	Dampers, air conditioning		floor joists	119				
siding	393	fire, curtain type	31	floors, ceramic tile	84				
Corrugated fiberglass panels	168	multi-blade	31	floors, quarry tile	118				
Cosmetic box	41	variable volume	31	folding closet doors	126				

slump brick	296	installation	130	Drawer base, kitchen	64	Enameled steel sinks, American Standard Products	418-420
solid bridging	118	sink combination	131	Drip edge flashing	374	End posts, chain link fence	166
steel garage doors	126	Disposers, garbage	225-226	Drip mold	308	Engineered stone countertops	111-112
stiffeners	119	Domes, skylight	425-427	Drop outlet, downspouts	255-257	Entrance columns	94-95
storm combination doors	126	Door		Drop siding		Entrance disconnect switch	155
stucco	128, 345	blinds, exterior	387	demolition	125	Entrance doors	138-139
studs	203-215	canopies	75-76	dimensions	391	demolition	126
subfloor	122	chimes	158	installation	391	steel	151-152
suspended ceilings	129	jamb assemblies	137	wood	397-398	Entrances	160
tile, clay or concrete	365	sill assembly	137	Drywall	153-155	Equipment operator	
toilets, bidets, urinals	442	sills, exterior	132	adhesive	26-27	crew rates	19
top plates	192	switches, electrical	157	ceiling application	153	wages	11
trim	299	Door frames		ceiling panels	154-155	Equipment unit cost, average	4
trusses	122	assembly	136	demolition	154	Estimate	
underlayment	217	Colonial	132	dimensions	153	adjusting for area	12-14
vanity cabinets	72	exterior, wood	132	estimating techniques	153	blank form	10
veneer, brick	116	Door openers, garage	224	fire resistant	155	charging for	7
wall furring strips	184	Door swing, kitchen cabinet	60	installation techniques	153	checklist	6
wall sheathing	215	Doorbell systems	158	painting	329-330	form	8-10
wallboard	128	Doors		repair, paint preparation	329	starting	7
wallpaper	129	access	375	tape joints	154	Estimating methods	5
walls	121	accordion	93	wall application	153	Estimating techniques	5, 6
walls, ceramic tile	85	bi-folding	86-88	wall panels	154	acoustical tile	21
walls, masonry	116, 290	birch	147-150	water resistant	155	aluminum siding	390
weather protection	123	bypassing	89-92	Dual glazed windows	465, 468, 471	batten siding	391
windows	126-127	closet	86-94	Duct		brick	282
wood deck	192	Colonial	136	accessories	30-31	built-up roofing	357
wood roofing	124	decorative glass	138-139	furnaces	265	ceramic tile	83
wood shakes/shingles	367-368	demolition	126	Ductwork, air conditioning	29	concrete block	282
wood siding	123-125	Douglas fir	143-144	Dumpster rental	114	concrete footings	96
Demolition, with air tools	115-116	Dutch	141-142	Duolux		drop siding	391
Description column, book	4	entrance	138-139	paneling	340	drywall	153
Designer Group spa	432-433	fire doors	147	pegboard	341	fiberglass shingles	356
Detailed estimate	5	frames, interior	133	Dutch doors	141-142	finish grading	96
importance of	7	French	143-144	E		forms, screeds and rods	96, 102-103
Detectors		French, sliding	145-146	Eaves, painting	327	insulating tile	21
fire	157-158	garden	144	Economy hardboard, paneling	340	mortar	344
infrared photoelectric	157	hardboard	147-149	Elastomeric caulking	82	painting	326
microwave	157	hollow core	147-148	Electric fired		plywood siding	392
motion	157	interior	147-150	bathroom heaters	267-268	quarry tile	282
smoke	157	interior systems	136	boilers	261	roll roofing	356
ultrasonic	157	Lauan	147-149	furnaces	265	suspended ceilings	438
Diagonal let-ins	180	louver	87	Electric water heaters, solar	459-461	vertical siding	391
Diameter casing, resin	319	mirrored	91-92	Electrical work	155-159	wallpaper	452
Diamond lath	344	package door units	137	alarms	157-158	wood shingle siding	392
metal	345	panel	140-141	burglary detection systems	157-158	wood shingles	356
Diffusers		passage	147-148	doorbell systems	158	Evaluating clients	7
acrylic	278	prehung	148-150	EMT	156	Excavation	160-161
air conditioning	28	screen	150	fire alarm systems	158	Exit control locks	157
Digging	160	shower	376-380	ground cable	156	Exterior	
Dimension lumber		sliding	89-92	ground rod with clamp	156	concrete block walls	292
beams	176-179	solid core	148, 149-150	intercom systems	159	corner framing	175
blocking	179-180	steel	151-152	meter socket	155	door frames	132
bracing	180	tub	376-381	motion detectors	157	finishes, demolition	128-129
bridging	181-182	with sidelights	138-139	panelboard	156	masonry walls demolition	117
columns	183	wood	141-144	phone jack wiring	159	molding	312
demolition	118-122	Doors, finishing		service entrance cable	155	painting	326
diagonal let-ins	180	exterior, paint	336	signal bell	158	redwood molds	318
fascia	183	interior, paint	331-332	smoke detector	157	shutters	387-389
girders	176-179	natural finish	332	television antenna wiring	159	sills, doors	132
headers	184-185	Dormer louvers	374	weathercap	155	wood doors	141-144
joists	185-191	Double door entrances	160	wiring	156	Exterior key switch, garage door opener	224
ledgers	191	Double hung windows	487-489	Electrician		Extractors, air duct	30
lintels	184-185	Double roll top countertop, Formica	107	crew rates	16, 18	Extruded aluminum columns	94
patio decking	192	Double top plate	192	wages	11	Extruded polystyrene foam insulation	277
plates	192	Douglas fir		EMT		F	
posts	183	doors	143-144	bar	423	Fabric awning	77
rafters	193-202	fencing	162-164	bathroom	415-417	Fabricated ductwork, A/C	29
sheathing	215-217	Downspouts	255-257	kitchen	420-421	Factors, area modification	12
solid roof decking	203	demolition	123	Kohler Products	415-417	Fan coil, A/C system	35
studs	203-215	drop outlet	255-257	utility	424		
Direct drive roof ventilator	32	painting	336, 338				
Disconnect switch, entrance	155	Drain detail	38				
Dish, soap	39	Drainage, gutters and downspouts	255-257				
Dishwashers	130-131						
built-in	130						
convertible	131						

Fans	32	Fixed type skylights	425-428	blocking	179-180	Gas valve, fireplace	171
ceiling	32	Fixtures, lighting	278-280	bracing	180	Gate posts, chain link fence	166
in-line centrifugal	32	Flashing	372-373	bridging	181-182	Gates	
Fascia	183	roof vent	451	columns	183	chain link fence	166
demolition	118	Flat Hoffco mold	308	demolition	118-125	split-rail	167
Fascia bracket, downspouts	255-257	Flat panels, fiberglass	168	diagonal let-ins	180	Georgian crown molding	312
Federal unemployment insurance	11	Flat streamline molding	301	dimension lumber	173	Girders	176-179
Felt underlayment, sheet flooring	350	base & base shoe	301	fascia	183	Glass	
Fence erector		casing, pine	299	headers	184-185	roof windows	431
crew rates	16	Flexible coated ductwork, A/C	30	joists	185-191	skywindows	429-430
wages	11	Flexible moldings, resin	319-320	ledgers	191	Glass and glazing	227-229
Fence posts		Floor finishes, concrete	96	lintels	184-185	Glass bead & screen, solid pine	304
chain link	164, 166	Floor framing	175	patio decking	192	Glass block	297
redwood	162-163	applications	175	plates	192	Glass break alarm switch	158
split rail	167	joists	185-191	posts	183	Glass doors	
Fences		joists, demolition	119	rafters	193-202	demolition	126, 128
chain link	164-166	Floor mounted space heaters	266	rough carpentry	173-220	shower	378-380
lateral reinforcing	295	Flooring		sheathing	215-217	sliding	144-146
lightweight block	295	ceramic tile	83	solid roof decking	203	tub	378-381
masonry	295	demolition	84, 118	studs	203-215	Glass shelf, bathroom	39
masonry, demolition	117	hardwood	258-261	Free-standing bathtubs	46-47	Glazed tile	297
split rail	167	installation, wood	258-261	Free-standing carport	75	Glazier	
Fiberboard sheathing	215	mastic	258	French doors	143-144	crew rates	16
Fiberglass		oak	259-260	sidelites	144, 152	wages	11
bathtubs	56-58	panel adhesive	24	sliding	145-146	Glazing	227-229
ceiling panels	439-440	parquet	260-261	steel	151-152	demolition	127
garage doors	222	parquet tile	297	French, sidelites	144	Glulam beams	230-249
insulation, Johns-Manville	268-273	quarry tile	297	Fringe benefits	11	3-1/8	230-233
molding	169	resilient	350-355	Front end loader, excavation	160	5-1/8	233-238
panels	168	Floorlayer		Fruit juicer	172	6-3/4	239-241
screening, door	150	crew rates	16	Full round molding, oak	317	8-3/4	242-245
shingles	356	wages	11	Furnaces		10-3/4	246-249
shower tub units	386	Floors, shower	381-382	coal fired	266	Glulam products	
shower units	386	Floors, wood		combo fired	266	beams	230-249
1550 molding	300, 301	cleaning	328-329	duct	265	ledgers	253-254
Filler strips, chain link	165	finishing	333	gas fired	265	purlins	249-251
Filter, water	453-454	natural finish	333	oil fired	266	sub-purlins	251-252
Filters, water, soft water systems	463	painting, wood	333	wall	267	Grab bars	39
Finger joint pine moldings		sealing	331	wood	266	Grading	
base	308-313	stainwax	333	Furring strips	24, 183-184	cast in place concrete	102
casing	308-310	waxing	333	demolition	119	footings	98
chair rail	312	Flue piping	449-451	over plaster	24	slabs	102
cove molding	312	Fluorescent lighting	278	over wood	24	Granite countertops	109-110
crown & cornice molding	312	Flush doors, steel	151-152	G		Gravel stop	373
exterior mold	312	Flush face paneling, birch	342	Gable		Grid system, suspended ceiling	439-441
stool & apron	313	Fluted casing	309	ends	204-205, 208-212	Grid, ceiling	438
stops	310	Foam insulation	277	rafters	193-195, 199-200	Grilles, aluminum	34
Finish carpentry, demolition	122	Foil-faced insulation	269, 271, 273	shakes	367	Ground cable	156
Finish grading	98	Folding closet doors	86-88	shingles	368-370	Ground rod	156
Finishes		demolition	126	Galvanized netting	347	GROUT mix	103-104
concrete floor	96	Food centers, small appliance	172	Galvanized steel		Guard, outside corner	303
demolition	128-129	Footings		ductwork, A/C	29	Guide, how to use book	4
natural	332-333	cast in place	98-99	fence posts	164, 166	Gun applied adhesives	24-27
paint	328-339	concrete	96-98	Gambrel roof, calculating paint coverage	327	Gun, caulking	82
wood floor	333	excavation for	161	Garage door openers	224	Gusset, framing	173
Finishing, concrete floor	103	Forced warm air systems	265-266	Garage doors	221-224	Gutters and downspouts	255-257
Fir, wood		Formica countertops	106-109	demolition	126	cleaning	334
decking	192	cost adjustments	108	wood	223-224	demolition	123
doors, Dutch	141-142	Forming, concrete		Garbage compactors	448	painting	327
flooring	259	footings	98	Garbage disposers		painting, 2-coats	338
shutters	387	foundation	103	Badger	225	Gypsum	
Fire alarm systems	158	retaining wall	100-101	In-Sink-Erator	225	adhesive	26-27
Fire damage	6	slabs	103	parts/accessories	226	lath	345
Fire doors	147	Foundation vents, galvanized	374	remove/reset	225-226	panels, demolition	128
Fire-resistant drywall	153-155	Foundations		Garden doors	144	plaster	346
Fire-retardant fiberglass panels	168	concrete block	290-291	Garden windows	493-498	plasterboard	154-155
Fireplaces	170-171	demolition	100	one fixed lite	493-497	H	
accessories	171	poured from truck	103	one sliding lite	497-498	Half round molding, solid pine	305
mantels	281	Four bead casing	299	Gas fired		Hand excavation	160
Firestops, demolition	119	Framing	173-220	boilers	262-263	Hand rail, molding, oak	317
		applications	173	furnaces	265	Hand tools, definition	114
		beams	173	space heaters	266-267	Handlesets, door	134-135

Hanger applications	173	Incandescent lighting fixtures	279-280	Interior finishes		masonry installations	282
Hanging island cabinets	66	Indicating panels, detection	157	concrete floor	96	unit cost	4
Hardboard		Indoor lighting	278-280	demolition	128-129	Labor costs	
adhesive	27	Infrared lamps, Heat-A-Lite	267	painting	326	bath accessories	38
demolition	124	Inspection, visual	7	painting, estimating	326	local	4, 12
doors, interior	147-149	Installation techniques		Interlocking tile shingles	359-363, 365	tile patterns	23
installation	340	acoustical tile	21	Invoices, cataloguing	6	Laborer	
paneling	340	aluminum siding	390	Ironworker, reinforcing,		crew rates	17
plywood paneling	340	batten siding	391	wages	11	wages	11
siding	393	bevel siding	390	Island cabinets, kitchen	65	Lacquer	332-333
underlayment	217	brick	282	J		Lantern post	280
Hardware		built-up roofing	357-358	Jacuzzi spa	431-433	Lasco	
door	134-135	ceramic tile	83	Jamb assembly, door	137	shower stalls	383-385
sliding door	89-92	concrete block	282	Jamb-type garage doors		shower tub units	386
Hardwood flooring		concrete footings	96	aluminum	221	Lateral reinforcing	
applications	258-261	dishwasher	130	fiberglass	222	concrete block	291, 292
block	260	drop siding	391	steel	223	concrete block partitions	295
demolition	122	drywall	153	wood	223	Latex	
fir	259	fiberglass shingles	356	Job summary file	6	caulking	80
machine sand	259, 261	inside/outside siding corners	392	variance report	6	paint, application	330-331
maple	259	insulating tile	21	Jobs, estimating	5	Lath and plaster	345-346
oak	259-260	lath	344	Johns-Manville fiberglass		caulking	80
parquet	260-261	molding/trim	298	insulation	268-273	demolition	128-129
penetrating stainwax	228	mortar	344	Joists		installation	344
strip	259	painting	326	bridging	181-182	Lather	
teak	260	paneling	392	ceiling/floor	185-191	crew rates	17
walnut	260	plaster	344	demolition	119, 185-191	wages	11
waxing	333	plywood siding	392	framing hanger	173	Lattice and battens, molding	306
yellow pine	259	quarry tile	282	insulation	268-269, 273-274	redwood	318
Hardwood molding	313-318	roll roofing	356	LF of stick	185-188	Lattice, batts	305-306
Headers	184-185	sheet flooring products	350	SF of area	188-191	Lauan doors	147-149
demolition	119	stucco	344	K		Lavatories	402-418
Heat lamp, radiant heat	268	suspended ceilings	438	Key switch, exterior,		Lay-down type ventilators,	
Heat pumps	36	tile products	350, 391	garage door opener	224	attic	34
Heat-A-Lite	267	wallpaper	452	Kickplates	134	Lay-in suspended	
Heat-A-Ventlite	267	wood shingle	356	Kitchen		ceiling system	440
Heaters		wood shingle siding	392	counters, rule of thumb	60	Layout, kitchen	60
electric, bath	267-268	Installation, National Estimator	7	food center	172	Lazy Susan cabinet	64
space heater	266-267	instruction manual	7	sinks	418-422	Ledger, demolition	120
wall	268	Insulating		wallpaper	453	Ledgers	191
wiring	268	block walls	275	work triangle	60	glu-lam	253-254
Heating systems		cavity walls	274-275	Kitchen cabinets	62-72	Let-ins, diagonal bracing	180
boilers	262-263	glass	228-229	base with drawers	62-63	Liability insurance	11
forced air	265-266	roofs	275-276	corner base	65	Light, bathroom heater	267
furnace	265-267	walls	275-276	demolition	122	Light, medicine cabinet	42
Heavyweight blocks,		Insulating tile, acoustical	21	description	60	Lighting	
concrete	291	ceiling	22-23	drawer base	64	fixtures	278-280
Help, National Estimator	7	demolition	129	hanging island	66	fluorescent	278
Hemlock French doors	143-144	dimensions	21	installation procedure	60	incandescent	279
Hermosa casing	310	wall	22-23	island base	65	indoor	278-280
Hiders, identifying	6	Insulation		oven	67	outdoor	280
Hip		bat or roll	268-273	range	67-68, 69-72	porch ceiling	280
rafters	193-195, 199-200	demolition	123	refrigerator	69	porch wall	280
shakes	367	extruded polystyrene		sink	67-68	post lantern fixture	280
shingles	368-371	rigid foam	277	utility closet	64	track lighting	279
Historical price data	5	foil-faced	269, 271, 273	wall	69-72	wall fixtures	280
collecting	6	kraft-faced	269, 270, 272	with lazy Susan	64	Lightweight blocks, concrete	291
Hollow core doors	147-148	loose fill	273-274	Knife sharpener	172	Line posts, chain link fence	164
Hoods, range	348-349	perlite	274	Kohler Products		Linoleum	
Hook, robe	39	rafters	270-271	bar sinks	423	cove	355
Horizontal blocking	179-180	rigid	275-276	bathtubs	46-47, 49, 52-58	cove molding	305
Horizontal slide aluminum		studs	272-273	countertop bathroom sinks	404-405	installation	350
windows	466-471	unfaced	268, 270, 272	kitchen sinks	420-422	Lintels	184-185
Hot air heating	265-267	Vermiculite	274	pedestal sinks	407-411	Lites, panel door	138-139
Hot tub, whirlpool	431-433	Insurance claims adjuster	5	shower stalls	386	Loaded wage, total	11
Hot water boilers	261-264	Insurance, liability	11	sinks	412-418	Local labor rates	4, 12
Hourly cost, total	11	Intercom systems	159	utility sinks	424	Locks, exit control	157
How to use book	4	Interior		Kraft-faced insulation	269, 270, 272	Locksets	134
I		doors	147-150	L		Log lighter, fireplace	171
Ice crusher	172	painting	326	Labor		Loose fill insulation	273-274
Imitation stone countertops	111-112	Interior doors		average output, demolition	114	demolition	123
In-line centrifugal fans	32	frames, wood	133	concrete installation	96-97	Louver	
In-Sink-Erator garbage		types	136			closet doors	87
disposer	225					vents	374

Louvers			
natural finish	332		
paint	331		
Low profile			
skylights	427-428		
skywindows	430		
Lumber			
beams	176-179		
blocking	179-180		
bracing	180		
bridging	181-182		
columns	183		
demolition	118-122, 176		
diagonal let-ins	180		
dimension	176		
fascia	183		
girders	176-179		
headers	184-185		
joists	185-191		
ledgers	191		
lintels	184-185		
patio decking	192		
plates	192		
posts	183		
rafters	193-202		
sheathing	215-217		
solid roof decking	203		
studs	203-215		
Lumber list	7		
Luminous panels, ceiling	439-440		
M			
Machine sand			
hardwood flooring	259, 261		
parquetry	260-261		
Manhours per unit, average	4		
Mannington sheet vinyl	352, 354		
Mantels, fireplace	281		
Maple flooring	259		
Marble countertops	109-110		
Marble setter, wages	11		
Marble tops, vanity cabinets	73		
Marlite paneling	281		
demolition	122		
Mason, cement, crew rates	16		
Masonite			
paneling, installation	341		
siding	394		
Masonite panels, Marlite	281		
Masonry	282		
adobe brick walls	290		
block dimensions	282		
brick	290		
brick veneers	288-289		
chimneys, brick	284-285		
columns, brick	285-288		
concrete block	290-295		
concrete screen block	296		
concrete slump brick	296		
demolition	116-117		
exterior walls, block	292		
fences, concrete block	295		
fences, lightweight block	295		
floors, quarry tile	297		
foundations,			
concrete block	290-291		
glass block	297		
glazed tile	297		
painting	335		
partitions,			
concrete block	293-294		
quarry tile	297		
retaining walls, block	290-291		
textured screen block	296		
tile	297		
walls	290		
Material pricing			
acoustical tile	21		
bath accessories	38		
Material storage	6		
Material takeoff	7		
Material unit cost, average	4		
Meat grinder	172		
Medicare tax	11		
Medicine cabinets	41-43		
demolition	122		
light fixtures	42		
recessed	42-43		
sliding door	41		
surface mounted	41-42		
swing door	42		
3-way mirror	41-42		
Mediterranean design spindles	322-323		
Membrane roofing			
demolition	364		
over concrete deck	365		
over existing roof	363		
over wood deck	364		
Metal joist hanger,			
application	173		
Metal lath	345		
Meter socket	155		
Methods, estimating	5		
Microwave detectors	157		
Mildew resistant caulking	82		
Milled fence boards,			
dog-eared	162		
Millwork and trim, paint	331, 334		
Mineral fiber ceiling panels	23		
Mineral surfaced roll roofing	366		
demolition	124		
dimensions	356		
mirror, medicine cabinet	41-42		
Mirrors	43		
3-way	41-42		
tri-view	41-42		
Mixer, kitchen	172		
Mixing box,			
air conditioning duct	31		
Modification factors, area	12		
Molding and trim	298-325		
demolition	122		
1550 molding	300, 301		
installation	298		
Marlite	281		
natural finishes	332		
oak	313-318, 325		
painting	334		
pine	299-313, 324-325		
redwood	318		
resin flexible	319-320		
711 molding	298		
shapes	298		
spindles	321-323		
stops	310		
3-step	299, 301		
Moldings, oak			
astragal	316		
bar nosing	318		
base	314		
base,			
bullnose round corner	325		
casing	313-314		
chair rail	316		
cove	315		
crown & cornice	315		
full round	317		
half round	315		
hand rail	317		
nose & cove	317		
outside corner guard	316		
panel cap	316		
panel mold	317		
quarter round	315		
S4S	317		
screen mold	316		
stops	315		
Moldings, pine	299-308		
astragal	304		
base	301-302, 310-311		
base & shoe	301-302		
cap	304		
casing	299-300, 308-310		
chair rail	303, 312		
cove	305, 312		
crown & cornice	303, 312		
exterior mold	312		
flat stool	312		
glass bead & screen	304		
half round	305		
lattice	305-306		
outside corner guard	303		
panel & decorative molds	306		
quarter round	304		
stool & apron	313		
stops	302, 310		
wood bullnose round corner	324-325		
Moldings, redwood			
batts	318		
exterior molds	318		
lattice	318		
Moldings, resin flexible			
blocks	319-320		
diameter casing	319		
diameter casing, oak grain	320		
oak grain	320		
Moldings, spindles			
colonial design	321-322		
Mediterranean design	322-323		
planter design	321		
Monterey casing	308-310		
Mortar	344		
ceramic tile	106		
installation	344		
Mosaic tile, installation	83		
Motion detectors	157		
Motorized dampers, A/C duct	31		
Mullion casing	300		
Multi-blade dampers, A/C duct	31		
Multi-purpose caulk	80		
N			
Nailed ledgers	191		
National Estimator program	7		
ShowMe video	7		
Natural finishes	332		
stain	337		
Natural gas fired, boiler	262-263		
Netting, galvanized	347		
Newels, stair	434		
No wax sheet vinyl	352, 354		
Non-acoustical rated panels	439, 440		
Non-taxable benefits	11		
Nose & cove mold	308		
Nosing, roof edge flashing	372-373		
Notes section	4		
Nylon carpet	79		
O			
Oak			
bar nosing	317		
flooring	259-260		
paneling	342		
paneling, flush face	342		
stairways	437		
Oak grain resin molding	320		
Oak hardwood molding			
astragal	316		
bar nosing	317		
base	314		
casing	313-314		
chair rail	316		
cove	315		
crown & cornice	315		
full round	317		
half round	315		
hand rail	317		
nose & cove	317		
outside corner guard	316		
panel cap	316		
panel mold	317		
quarter round	315		
S4S	317		
screen mold	316		
stops	315		
Ogee stops			
oak	315		
pine	302		
Oil base caulking	81		
Oil fired			
boilers	263-264		
furnaces	266		
One coat paint applications			
cement base paint	337		
exterior painting	335-337		
interior painting	329-332		
latex	330-331		
latex enamel	330-331		
natural finishes	332-333		
sealer	330		
sizing	329		
stain	337		
One-flue chimneys	284-285		
Open stairs	436		
Openers, garage door	224		
Operation column	4		
OSB strand board sheathing	216		
Outdoor lighting	280		
Outside corner guard			
oak	316		
solid pine	303		
Oval streamline casing	299		
Oven cabinets, kitchen	67		
Overhead and profit	4, 6-7		
Overhead expenses	6		
P			
Package door units	137		
Pad, carpet	78-79		
Paint			
characteristics	326		
coverage, estimating	326		
preparation	328-329		
removal	329		
Paint grade resin moldings	319-320		
Painter			
crew rates	17		
wages	11		
Painting and cleaning			
exterior	334-335		
interior	326		
Panel			
adhesives	24-25		
doors	140-141		
molds	307		
shutters, exterior	387		
Panel siding			
aluminum	393		
hardboard	395		

Masonite	394	Pine shutters	387	redwood fence	162	Red cedar siding	
vinyl	395	Pine siding	398	split rail fence	167	bevel	396
Panelboard	156	Pits, digging	160	Prefabricated fireplaces	170	board and batten	399-400
Paneling		Plain siding, painting	335	Prefinished		board on board	399
demolition	122, 340	Plane and specification sheet	7	closet doors	88	drop	397
hardboard	340	Plank and beam construction,		panel shutters	389	lap	396
Marlite	281	roof decking	203	Prefit casting	308	shakes	400
plywood	340	Planter design spindles	321	Prehung doors		shingles	401
Panels		Plaster	344-347	steel	152	Redwood	
acoustical	22-23, 439, 440	ceilings	346	wood	149	cupolas	113
adhesive set	22-23	demolition	128, 345	Preparation, painting	328-329	decking	192
drywall	154-155	installation	344	Presdwood		fence posts	162-163
fiberglass	168	painting	330-331	paneling	340	fencing	162-164
mineral fiber	23	sealer application	330	pegboard	341	lath	345
painting	331	sizing, paint preparation	329	Price data	5-6	molding	318
Paper, wallcovering	452	walls	346	Productivity, your company	7	siding	396
Paperhanger		Plasterboard, gypsum	154-155	Profit allowance	4	Refrigerator cabinets	69
crew rates	18	Plasterer		Project schedule	7	Register kit, space heaters	267
wages	11	crew rates	17	Propane fired boiler	262-263	Registers, ventilation	34-35
Parquetry, hardwood flooring		wages	11	Property damage appraiser	5	Reinforced concrete	
Particleboard		Plastic		Provincial shutters	387	cast in place	99
demolition	217	laminated countertops	106-109	Pry bar	114	demolition	115-116
subfloor	217	panel adhesives	27	Pumps, heat	36	footing	99
underlayment, installation	340	shower stalls	383-385	Purlins, glu-lam	249-251	foundations	100-101
Parting bead mold	307	Plates	192	PVC, downspouts	256-257	slabs	102-103
Partition walls		gable ends	204-205	Q		Reinforcing	
concrete block	293-294	LF of stick	203-204	Quarry tile	297	cast in place concrete	102-103
demolition	121	LF of wall	212-215	demolition	118, 297	concrete	97
framing, stud/plates	203	per SF of wall area	205-212	dimensions	282	concrete block	291-295
studs	205-208	walls/partitions	212-215	floors	297	masonry	291-295
Passage doors, interior	147-148	Plumber		Quarter round molding		Reinforcing ironworker,	
latches	134	crew rates	18, 19	oak	315	wages	11
Paste		wages	11	solid pine	304	Reinforcing steel rods	103
flooring installations	350	Plumbing accessories, costs	38	Quartz countertops	110-111	Remodeling jobs, estimating	5
wallpaper	452	Plywood paneling	340	R		Repair estimate	5
Patio		demolition	340	Rabbeted window stool	306	example	8-9
awnings	76	installation	340	Radiant heaters	267-268	Residential electrical work	155-156
cover	76	Plywood sheathing	215-216	Radio controlled garage door		Residential jobs, estimating	5
framing	192	demolition	121	opener	224	Resilient flooring	
Patterns, acoustical tile,		Plywood siding		Rafters	193-202	demolition	129
labor	23	board and batten	399-400	common	193-198	installed over concrete	351-352
Pedestal sinks	405-411	board on board	399	cut-up roofs	196-198, 201-202	sheet products	350
Pediments	160	demolition	124	demolition	120, 193-202	subfloor	353-354
Peel-off caulk	82	dimensions	392	gable or hip	193-195, 199-200	tile products	350
Pegboard, installation	341	installation	392	insulation	270-271	Resin flexible molding	319-320
Pendant mounted worklights	278	Pocket door frame	133	LF of stick	193-198	oak grain	320
Per measure estimating	5	Police connect panel	158	SF of area	199-202	Retaining walls	290-291
Perlite, loose fill insulation	274	Polish, hardwood flooring		Railings, stair	434	concrete	100-101
Philippine mahogany paneling	343	259-261		Rails, spindle	323	demolition	100-101
Phone jack, wiring	159	Polycarbonate dome skylights		Rails, split rail fence	167	Riblath	344
Photographs, before and after	6	425-427		Rain diverter	372	metal	345
Picture mold	308	Polystyrene		Rain gutters	255-257	Ridge or hip application,	
Picture windows	489-492	foam insulation	277	Raised panel louver doors	136	roofing	362-363
Pilasters	160	molded foam shutters	389	Range cabinets	67-68, 69-72	Rigid conduit	156
Pine moldings	299-308	panels, adhesive	25-26	Range hoods	348-349	Rigid foam insulation	277
astragal	304	Polyurethane foam panels,		designer models	349	Rigid insulating board	275-276
base	301-302, 310-311	adhesive	25-26	Rates, wage	11	Risers, stair	434
base & shoe	301-302	Ponderosa pine fireplace		Ready mix concrete	103-104	Robe hook	39
cap	304	mantels	281	Receptors, shower	381-382	Rod, shower curtain	39
casing	299-300, 308-310	Pop-up drain detail	38	demolition	381	Roll insulation	268-269
chair rail	303, 312	Porcelain enameled steel sink		Recessed		Roll roofing	365
cove	305, 312	bathroom	418	bathroom ceiling heaters	268	demolition	124
crown & cornice	303, 312	kitchen	418-420, 422	lighting	278	Roll valley	368-371
exterior mold	312	Porch columns	94-95	medicine cabinets	42-43	Roll-up awnings	77
flat stool	313	Porch floors, painting		wall heaters	268	Romex cable, wiring	156
glass bead & screen	304	cement	337	Rectangular ductwork, A/C	29	Roof	
half round	305	concrete	339	calculating paint coverage	327	decking	203
lattice	305-306	preparation, cleaning	334	Red cedar fence, split rail	167	decking, demolition	121
outside corner guard	303	wood	336	shakes	367	edge flashing	374
panel & decorative molds	307	Porch lighting	280	shingles	368-371	edging	374
quarter round	304	Portable dishwashers	131	Rectangular surface area,		flashing	372-373
stool & apron	313	Portland cement, ceramic tile		installation	83	flashing, adjustable	451
stops	302, 310	Post-formed countertops,		insulation	275-276	sheathing	216
window stool	306	Formica	106-107	sheathing	216	strength	6
wood bullnose		Posts	183	ventilators	32	vents	374
round corner	324-325	chain link fence	164, 166				
		demolition	118, 183				

Roof top air conditioners . . . . .	.36	demolition . . . . .	.126	Shingles		Site work, demolition labor . . .114
Roof windows . . . . .	.431	wood . . . . .	.150	asphalt/fiberglass . . . . .	.359-363	base & base shoe
Roofer		Screen mold, oak . . . . .	.316	demolition . . . . .	.359	casing
crew rates . . . . .	.18	Screens, painting . . . . .	.336	nailed . . . . .	.125, 359-363	Sizing application,
wages . . . . .	.11	Screw-worm garage door		roofing . . . . .	.359-363	paint preparation
Roofing . . . . .	.356	opener . . . . .	.224	tile . . . . .	.365	Skirt board, stair
aluminum . . . . .	.359	Sealer, application		wood, roofing . . . . .	.368-371	Skylights
asphalt composition		acoustical tile or panels . . . . .	.330	Shoe mold/trim . . . . .	.310, 314, 320	acrylic dome
shingles . . . . .	.359-363	sheetrock or plaster . . . . .	.330	Shower		fixed
built-up . . . . .	.363-365	Sectional-type garage doors		bares/receptors . . . . .	.381-382	low profile
clay tile . . . . .	.365	aluminum . . . . .	.222	curtain rod . . . . .	.39	polycarbonate dome
composition shingles . . . . .	.359	fiberglass . . . . .	.222	demolition . . . . .	.381	self flashing
demolition . . . . .	.123-124	wood . . . . .	.224	fixtures . . . . .	.45, 59	ventilating
drip edge . . . . .	.374	Security, job site . . . . .	.6	Shower bases . . . . .	.381-382	Skywindows
flashing . . . . .	.372-373	Self-edge countertop, Formica	108	Shower doors		insulated glass
gravel stop . . . . .	.373	Self-flashing skylights . . . . .	.425-427	hinged . . . . .	.376-378	low profile
membrane . . . . .	.363-365	Self-flashing skywindows . . . . .	.430	sliding . . . . .	.378-380	Slabs
mineral surfaced roll . . . . .	.365	Selvage roll, mineral		Shower floors,		concrete
nails, estimating need . . . . .	.356	surfaced roll roofing . . . . .	.365	slip resistant . . . . .	.383-385	demolition
parapet walls . . . . .	.357	Service entrance cable . . . . .	.155	Shower modules,		102, 116
roll roofing . . . . .	.365	711 molding . . . . .	.311	space saver . . . . .	.383-385	Sledge hammer
sheathing paper . . . . .	.371	oak base . . . . .	.314	Shower stalls		Sliding doors
shingles . . . . .	.359-363	oak casing . . . . .	.313	demolition . . . . .	.383	aluminum frame
tar usage . . . . .	.357	pine base & base shoe . . . . .	.301	nonintegral . . . . .	.385	closet
tile . . . . .	.365	pine casing . . . . .	.299	two wall models . . . . .	.384	French
top coat . . . . .	.357	resin casing . . . . .	.320	Shower tub units . . . . .	.386	glass
wood shakes . . . . .	.367	Shake roof . . . . .	.367	ShowMe video . . . . .	.7	hardware
wood shingles . . . . .	.368-371	demolition . . . . .	.367	Shutters, exterior		shower
Roofs, wood shingle . . . . .	.368-371	Shake siding . . . . .	.400	aluminum, louvered . . . . .	.387	shower tub
staining . . . . .	.337	demolition . . . . .	.125	birch . . . . .	.388	Slip-resistant shower floors
Rosette plinth block		Shear panel, adhesives . . . . .	.25	Cellwood . . . . .	.389	383-385
base & base shoe . . . . .	.302	Sheathing		fir . . . . .	.387	Slump block,
casing . . . . .	.300	applications, framing . . . . .	.174	pine . . . . .	.387	concrete walls
Rough carpentry, framing	173-220	demolition . . . . .	.121	western hemlock . . . . .	.388	.295-296
beams . . . . .	.176-179	paper . . . . .	.371	Shutters, painting . . . . .	.338	Slump brick, concrete walls
blocking . . . . .	.179-180	roof . . . . .	.216	Sidelites . . . . .	.138-139, 144	Smith, A.O.,
bracing . . . . .	.180	subfloor . . . . .	.217	French . . . . .	.144, 152	water heaters
bridging . . . . .	.181-182	wall . . . . .	.215	Siding . . . . .	.390-401	.454-459
columns . . . . .	.183	Sheet flooring products,		aluminum . . . . .	.393	Smoke detectors
demolition . . . . .	.118-125	installation . . . . .	.350	battens . . . . .	.392	.158
diagonal let-ins . . . . .	.180	Sheet metal		bevel . . . . .	.395	Soap dish
dimension . . . . .	.176	access doors . . . . .	.375	board and batten . . . . .	.399-400	.39
fascia . . . . .	.183	clothes dryer vent set . . . . .	.374	board on board . . . . .	.400	Soap holder
girders . . . . .	.176-179	demolition . . . . .	.123	clapboard . . . . .	.390	.39
headers . . . . .	.184-185	dormer louvers . . . . .	.374	demolition . . . . .	.123-125	Social Security
joists . . . . .	.185-191	flashing . . . . .	.372-373	drop . . . . .	.397-398	.11
ledgers . . . . .	.191	foundation vents . . . . .	.374	furring strips . . . . .	.392	Socket, meter
lintels . . . . .	.184-185	gravel stop . . . . .	.373	hardboard . . . . .	.394	.155
patio decking . . . . .	.192	roof edging . . . . .	.374	Masonite . . . . .	.394	Softeners, water
plates . . . . .	.192	roof flashing . . . . .	.372-373	painting . . . . .	.337	.462-463
posts . . . . .	.183	utility louvers . . . . .	.375	plywood . . . . .	.400	.6
rafters . . . . .	.193-202	vents . . . . .	.374-375	shake . . . . .	.400	Soil type
sheathing . . . . .	.215-217	vertical chimney flashing . . . . .	.372	shingles . . . . .	.401	.168
solid roof decking . . . . .	.203	Z bar flashing . . . . .	.372	wood . . . . .	.395-396	.168
studs . . . . .	.203-215	Sheet metal worker		Silestone countertops . . . . .	.111-112	Solar collectors
Rough fence board,		crew rates . . . . .	.19	Silicone caulking . . . . .	.81	.459-460
squared ends . . . . .	.163	wages . . . . .	.11	Sill assembly, door . . . . .	.137	mounting kits
Rough-in, bathtub . . . . .	.45	Sheet vinyl flooring . . . . .	.350	Sill plates . . . . .	.192	.460
Running bond		demolition . . . . .	.129	Single top plate . . . . .	.192	storage tanks
adobe brick . . . . .	.290	Sheetrock . . . . .	.153-155	Sink cabinets		.461
concrete slump brick . . . . .	.296	ceilings . . . . .	.154-155	kitchen base . . . . .	.67-68	Solar water heating
standard brick . . . . .	.285-288	demolition . . . . .	.154	vanity . . . . .	.72-74	systems
textured screen block . . . . .	.296	repair, paint preparation . . . . .	.329	Sinks		.459-461
S		sealer application . . . . .	.330	bar . . . . .	.423	Solid bridging
S4S molding . . . . .	.305-306	sizing . . . . .	.329	bathroom . . . . .	.402-418	.181-182
oak . . . . .	.317	tape joints . . . . .	.154	countertop . . . . .	.415-417	Solid core doors
Sample Building Repair		walls . . . . .	.154-155	kitchen . . . . .	.418-422	.148, 149-150
Estimate form . . . . .	.8	Shelf		pedestal . . . . .	.405-411	Solid pine molding
Sanding		glass, bathroom . . . . .	.39	undercounter . . . . .	.404	astragal
hardwood flooring . . . . .	.259, 261	towel supply . . . . .	.40	utility . . . . .	.424	base & base shoe
paint preparation . . . . .	.328-329	Shellac . . . . .	.332-333	wall hung . . . . .	.411-415	.301-302
Schedule, project . . . . .	.7	Shingle roofs, wood . . . . .	.368-371	Site accessibility . . . . .	.6	cap
Screeds, concrete . . . . .	.102	stain . . . . .	.337	Shingle siding		.304
Screen doors		Shingle siding		aluminum . . . . .	.394	casing
aluminum frame . . . . .	.150	wood . . . . .	.401	aluminum . . . . .	.393	chair rail

rails	323	Stucco	344-347	clay, roofing	365	Tube doors	
western hemlock	321-323	demolition	128	demolition	365	hinged	376-378
Split rail fence	167	exterior walls	347	glazed	297	sliding	381
Spotlight, indoor	279	installation	344	installation	350	Tub, bath	
Spring steel ductwork, A/C	30	painting	335, 338	insulating	21	acrylic	49-52
Sprung cove molding	305	Stucco mold	312	mineral fiber	23	antique	46-47
Square surface area, paint coverage	327	redwood	318	painting	335, 338	cast iron	44-46, 53-56
Stain	332	Stud arrangement, framing	175	quarry	297	combination tub/shower	386
Stainless steel countertops	112	Studs		resilient flooring	351-354	demolition	386
Stainless steel sinks		bracing	180	resilient flooring, demolition	129	enameled steel	45-46
kitchen	422	demolition	121, 203-215	shingles	365	fiberglass	56-58
Kohler Products	423	gable ends	208-212	Tile setter		free-standing	44, 46-47
Stainwax, penetrating, hardwood floors	331	horizontal blocking	179-180	crew rates	19	recessed	47-48
Stairs	434-437	insulating	272-273	wages	11	remove and reset	44-45, 59
balusters	434	LF of stick	203-204	Tile setter helper, wages	11	rough-in	45
balustrade, curved	437	LF of wall	212-215	Toilet roll holder	40	steel	44, 48
basement	435	SF of wall area	205-212	Toilets		sunken	44-45, 49-52
box-type	435-436	Sub-purlins, glu-lam	251-252	American Standard Prod	443	whirlpool	44-45, 47-58
carpeting	79	Subfloor		floor mounted	443	Two coat paint applications	
curved, oak	437	adhesive	24	Kohler Products	444, 446	cement base paint	339
newels	434	demolition	122	one piece, floor mounted	443-444	enamel	337-339
nosing, mitered return	435	sheathing	217	remove and reset	442	exterior painting	337-339
open type	436	Sunken bathtubs	44-45, 49-52	wall mounted	446	interior painting	333-334
railings	434	remove	59	water saver models	442-446	latex	333-334
risers	434	Supply shelf, towel	40	Tongue & groove roof decking	203	stain	339
shop fabricated	435-437	Surface repair, paint preparation	328-329	Toothbrush holder	39	Two-flue chimneys	284-285
skirt board	435	Surface-mounted light fixtures	278-280	Top plates	192	2 round edge casing	299
treads	435	Suspended ceilings		Top set base, flooring	355	275 casing	310
Stalls, shower	383-385	complete systems	439	Total hourly cost, calculating	11	U	
Standard brick	284-289	demolition	129, 439	Towel		Undercounter sinks	404
Standard drywall	153	estimating materials	438	bars	40	Underlayment, particleboard	340
Stapled ceiling/wall tile	23	grid system components	441	ladders	40	Unemployment insurance	11
Stationary slat blinds	388	installation procedures	438	pins	40	Unfaced insulation	268, 270, 272
Steam boilers	261-264	panels only	440	rings	40	Unfinished closet doors	86-88
Steel		Suspension mounted space heaters	266	shelves	40	Unfinished hardwood plywood	341-343
bathrooms	48	Track lighting	279	Track, sliding door	93	Universal casing	300
boilers	169-170	Track, sliding door	93	Track-type garage doors		resin	319
gutters and downspouts	255-256	Track-type garage doors		aluminum	222	Urinals	442
Steel doors		aluminum	222	fiberglass	222	Utility closets, kitchen	64
decorative, dual glazed	151	fiberglass	222	steel	223	Utility louvers, vents	375
embossed raised panel	151	steel	223	wood	224	Utility sinks, Kohler Products	424
flush	152	Tractor backhoe, excavation	161	Transformer, doorbell	158	V	
French	152	Transformer, doorbell	158	Transmitters, garage door opener	224	V-grooved paneling	341-343
garage doors	223	Tape joints, drywall	154	Trash compactors	448	Valley roll	363-365
prehung package	152	Taping compounds, drywall	153	Treads, stair	435	Vanity cabinets	72-74
Steel posts, chain link fence	164, 166	Tarkett sheet vinyl	352, 354	Trenching	161	marble top	73
Steel reinforcing		Taxable fringe benefits	11	Tri-view mirror, medicine cabinet	41-42	remove and reset	74
concrete	101	Taxes, employer	11	Triangular surface area, calculating paint coverage	327	2-door	73
masonry	291-295	Teak flooring	260	Trim		Variable volume dampers, A/C duct	31
Steel sash, window glass	227-228	Techniques, estimating	5, 6	casing	299-300	Varnish	332-333
Steps, painting		Telephone		demolition	299	Veneer, brick	288-289
cement	337	dialer	158	finger joint pine	308-313	demolition	116
concrete	339	wiring	159	oak	313-318	Vent chimney	449-451
wood	336	Television antenna wiring	159	oak grain resin	320	damper	449
Stick by stick estimating	5	Tempered glass	229	painting	331, 333	Ventilating skylights	426-428
Stiffeners	180	door	144-145	redwood	318	Ventilating systems	28-31
demolition	119	Terrazzo countertops	112	solid pine	299-308	Ventilation	449-451
Stile and rail raised panel doors	140-141	Terrazzo setter, wages	11	Trim and molding	298-325	residential	33-34
Stone mason, wages	11	Thermostat wiring	159	Trim kit, spa	433	Ventilators	
Stool & apron mold	313	3-step molding		Truck driver, wages	11	attic	33-34
Stops, molding	310	base & base shoe	301	Truss		base	35
ogee, oak	315	casing	299	construction, W-type	173	lay-down type	34
ogee, pine	302	364 casing		demolition	122	roof	32-33
rounded edge, oak	315	oak	313	shop fabricated, wood	218-220	round top	451
Storm windows, painting	336	pine	300	Truck driver, wages	11	wall type	33
Streamline molding	301	resin	320	Truss		Vents	374-375
casing, oak	313	Thresholds		construction, W-type	173	access doors	375
Strip flooring, installation	258-259	aluminum	135	demolition	122	attic access	375
Strip lighting	278	oak	133	shop fabricated, wood	218-220	clothes dryer	374
Structural soundness	6	wood	133	Tub caulking	81-82		
		Tile		anti-algae	82		
		acoustical treatment	22-23	mildew resistant	82		
		ceramic	83-85, 106				

dormer louvers	374	Wallpaper	452-453	vertical slide	463-466	dimension	118-125
foundation	374	demolition	129	wood	472-498	fascia	183
louver	374-375	Walls		Wire lath	347	girders	176-179
utility louver	375	acoustical tile	22-23	Wiring		hanger, joist	173
Vermiculite loose fill		adobe brick	290	burglary detection systems	157-158	headers	184-185
insulation	274	brick veneer	288-289	doorbell systems	158	joists	185-191
Vertical		cavity, insulating	274-275	electrical service	156	ledgers	191
chimney flashing	372	cement, painting	339	fire alarm systems	158	lintels	184-185
dampers, A/C duct	26	ceramic tile	85	food centers	172	patio decking	192
reinforcing, concrete block	292	ceramic tile demolition	85	intercom systems	159	plates	192
siding, dimensions	391	concrete block	290-291	outlets	156	posts	183
slide aluminum windows	463-466	framing	205-208	range hoods	348-349	rafters	193-202
Vertical crown molding,		furring strips	184	switches	156	sheathing	215-217
fiberglass	169	insulating	275-277	telephone jacks	159	solid roof decking	203
Vibrating plate compaction	161	masonry, demolition	116-117	television antennas	159	studs	203-215
Victorian casing, oak	314	partition	205-208	thermostat	159	Wood lath	344
Video, ShowMe	7	plaster	346	wall heaters, bathroom	268	Wood molding	
Vinyl		retaining	290-291	WM 374 casing	309	finger joint pine	308-313
base molding	355	screen block	296	Wood		oak	313-318
gutters and downspouts	256-257	shower	383-385	columns	95, 183	redwood	318
sheet flooring	351-354	slump block	296	countertops, butcher		solid pine	299-308
siding	395	slump brick	296	block	113	wood bullnose round	
tile flooring	351-354	stucco	347	cupolas	113	corner	324-325
wallpaper	452	studs	13	decks	192	Wood paneling	
wallpaper, demolition	129	studs/plates	205-208	fences	162-164	demolition	122, 340
Vinyl coated mineral		Walnut flooring	260	lath	345	hardboard	340-343
fiber tile	22-23	Water closets	442-446	patios	192	particleboard	340
Visual inspection	7	Water filters	453-454	sash, window glass	227-228	plywood	341-343
Vitreous china sinks		soft water systems	463	screen doors	150	Wood roofing	
American Standard Products	402-404, 411-412	Water heaters		shutters	387-388	accessories	371
bathroom	402-415	A.O. Smith	454-459	thresholds	135	demolition	121, 124
Kohler Products	407-411, 412-415	accessories	461	windows	472-498	dimensions	356
utility	424	cabinets/stands	459	Wood doors	141-144	shakes	368-371
Vitreous china toilets	442-446	electric	454-457	Dutch	141-142	shingles	368-371
Volume control dampers,		gas	457-459	fire, natural birch	147	Wood sheathing	
A/C duct	31	solar	459-461	frames, exterior	132	applications	174
W		Water softeners		French	143-144, 145-146	board	215-216
W-truss		Bruner	462-463	garage doors	223-224	fiberboard	215
construction methods	173	Calgon	462-463	garden	144	hardboard	217
shop fabricated,		chemical feed pumps	463	hollow core	149	particleboard	217
wood	218-220	storage tanks	462	interior	147-150	plywood	215-216
Wage rates	11	water filters	463	raised panel	142	roof	216
all trades	11	Water-resistant drywall	153-155	screen	150	subfloor	217
craft compositions	15-19	Wax, flooring	259-261	sliding glass	145-146	underlayment	217
Wainscot, ceramic tile	85	Weather protection,		solid core	149-150	wall	215
installation	83	demolition	123	threshold	133	Wood siding	
Wall cabinets, kitchen	69-72	Weathercap	155	Wood flooring		bevel	390
installation procedure	60	Weathervanes	113	applications	258-261	board and batten	399-400
Wall heaters		Well cap, downspouts	256-257	block	258	board on board	400
bathroom	268	Well outlet, downspouts	256-257	cleaning	328-329	demolition	125
furnace	268	Western hemlock		finishing	333	dimensions	392
recessed	268	shutters	388	fir	259	drop	397-398
space heaters	266-267	spindles	321-323	maple	259	estimating	390
Wall hung bathroom sinks		Whirlpool bath	44-45, 47-58	natural finish	333	installation	390
American Standard Products	411-412	spa	431-433	oak	259-260	plywood	400
Kohler Products	412-415	White cement	105	painting, wood	334	shakes	400
Wall insulation	275-277	Window		parquet	260-261	shingle siding	392, 401
demolition	123	molding, stool	306	sealing	331	vertical	399-400
Wall lighting fixtures	280	painting	338	stainwax	331	Wood steps, painting	336
Wall molding, ceiling grid		painting, finishing	332-333	strip	258	Woodburning fireplaces	170
systems	441	repair/reputty	335	teak	260	Work triangle, kitchen	60
Wall mounted urinals	447-448	unit air conditioners	37	walnut	260	Workers' compensation	11
Wall outlets, wiring	156	Windows	463-498	waxing	333	Workplace accessibility	5
Wall sheathing	215	aluminum	463-471	yellow pine	259	X, Y, Z	
adhesives	25-27	awning	472-475	Wood framing		X-type bridging	181
Wall type ventilators, attic	33	casement	475-486	beams	176-179	XPS rigid foam insulation	277
Wallboard		demolition	126-127	blocking	179-180	Yellow pine flooring	259
demolition	128	double hung	487-489	bracing	180	Z bar flashing	372
drywall application	153	garden	493-498	bridging	181-182		
		horizontal slide	466-471	columns	183		
		picture	489-492	demolition	176		
		roof	431	diagonal let-ins	180		
		sky	429-430				