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2019 NATIONAL CONSTRUCTION ESTIMATOR

67th Edition

Edited by Richard Pray

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This Book Is an Encyclopedia of 2019 Building Costs

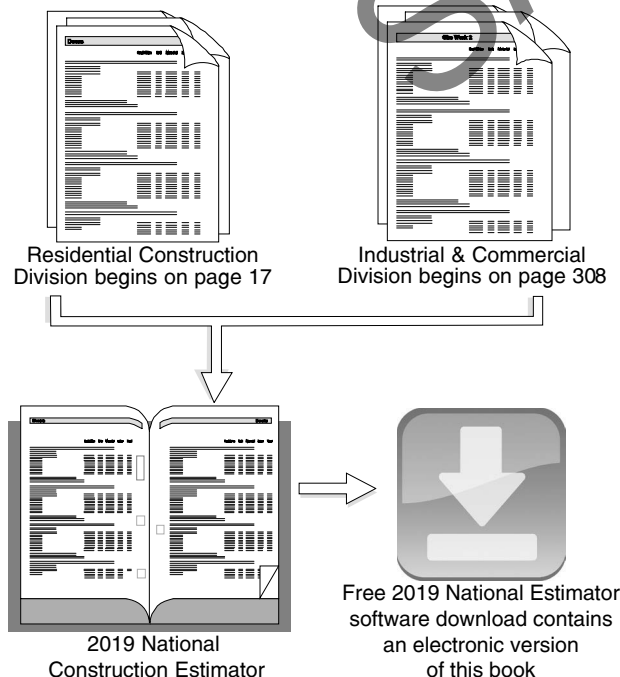
The 2019 National Construction Estimator lists estimated construction costs to general contractors performing the work with their own crews, as of mid-2019. Overhead & profit are not included.

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

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

National Estimator The software will run on PCs using Windows XP, Vista, 7, 8, or 10 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.craftsman-book.com, click on "Support", then click on "Tutorials" to view an interactive video for National Estimator.



Material Costs

Material Costs for each item are listed in the column headed "Material." These are neither retail nor wholesale prices. They are estimates of what most contractors who buy in moderate volume will pay suppliers as of mid-2019. Discounts may be available for purchases in larger volume.

Quarterly prices updates on the Web are free and automatic all during 2019. You'll be prompted when it's time to collect the next update. A connection to the Web is required.

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

Add Sales Tax when sales tax will be charged to the contractor buying the materials.

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

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

Labor Costs

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

Hourly labor costs used in the Industrial and Commercial Division are higher than those used in the

Residential Division, reflecting the fact that craftsmen on industrial and commercial jobs are often paid more than craftsmen on residential jobs.

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

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

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

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

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

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

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

Adjust for Unusual Labor Productivity. Costs in the labor column are for normal conditions: experienced craftsmen working on reasonably well planned and managed new construction with fair to good productivity. Labor estimates assume that materials are standard grade, appropriate tools are on hand, work done by other crafts is adequate, layout and installation

are relatively uncomplicated, and working conditions don't slow progress.

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

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

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

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

Equipment Costs

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

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

Subcontracted Work

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

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

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

Markup

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

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

Keep In Mind

Labor and Material Costs Change. Costs were compiled in the fall of 2018 and projected to mid-2019 based on recent price trends. These estimates will be accurate for some materials and inaccurate for others. No one can predict every change in material prices.

How Accurate Are These Figures? As accurate as possible considering that the estimators who wrote this book don't know your subcontractors or material suppliers, haven't seen the plans or specifications, don't know what building code applies or where the job is, had to project material costs at least 6 months into the future, and had no record of how much work the crew that will be assigned to the job can handle.

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

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

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

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

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

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



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

Free telephone assistance is available from 8 a.m. until 5 p.m. California time Monday through Friday except holidays. Phone 760-438-7828 x 2.

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

Abbreviations

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

Symbols

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

Craft Codes, Hourly Costs and Crew Compositions

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

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

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

B1@.016

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

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

To install 1,000 square feet of ½" BC wall sheathing at .016 manhours per square foot, that crew would need 16 manhours (one 8-hour day for a crew of two).

Notice also in the table below that the cost per manhour for crew B1 is listed as \$33.51. That's the average for a residential laborer (listed at \$30.00 per hour on page 10) and a residential carpenter (listed at \$37.02 per hour): \$30.00 plus \$37.02 is \$67.02. Divide by 2 to get \$33.51, the average cost per manhour for crew B1.

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

Costs in the Labor column in this book are the installation time (in manhours) multiplied by the cost per manhour. For example, on page 51 the labor cost listed for ½" BC wall sheathing is \$0.54 per square foot. That's the installation time (.016 manhours per square foot) multiplied by \$33.51, the average cost per manhour for crew B1.

Residential Division

Craft Code	Cost Per Manhour	Crew Composition	Craft Code	Cost Per Manhour	Crew Composition
B1	\$33.51	1 laborer and 1 carpenter	BR	\$35.58	1 lather
B2	\$34.68	1 laborer, 2 carpenters	BS	\$32.91	1 marble setter
B3	\$32.34	2 laborers, 1 carpenter	CF	\$35.16	1 cement mason
B4	\$37.07	1 laborer 1 operating engineer 1 reinforcing iron worker	CT	\$34.97	1 mosaic & terrazzo worker
B5	\$36.68	1 laborer, 1 carpenter 1 cement mason 1 operating engineer 1 reinforcing iron worker	D1	\$36.06	1 drywall installer 1 drywall taper
B6	\$32.58	1 laborer, 1 cement mason	DI	\$36.09	1 drywall installer
B7	\$30.40	1 laborer, 1 truck driver	DT	\$36.02	1 drywall taper
B8	\$36.14	1 laborer 1 operating engineer	HC	\$29.09	1 plasterer helper
B9	\$32.72	1 bricklayer 1 bricklayer's helper	OE	\$42.27	1 operating engineer
BB	\$37.58	1 bricklayer	P1	\$36.51	1 laborer, 1 plumber
BC	\$37.02	1 carpenter	PM	\$43.02	1 plumber
BE	\$40.19	1 electrician	PP	\$33.91	1 painter, 1 laborer
BF	\$33.93	1 floor layer	PR	\$37.06	1 plasterer
BG	\$35.78	1 glazier	PT	\$37.82	1 painter
BH	\$27.85	1 bricklayer's helper	R1	\$35.64	1 roofer, 1 laborer
BL	\$30.00	1 laborer	RI	\$38.95	1 reinforcing iron worker
			RR	\$41.27	1 roofer
			SW	\$41.72	1 sheet metal worker
			T1	\$32.65	1 tile layer, 1 laborer
			TL	\$35.29	1 tile layer
			TR	\$30.80	1 truck driver

Commercial and Industrial Division

Craft Code	Cost Per Manhour	Crew Composition	Craft Code	Cost Per Manhour	Crew Composition
A1	\$50.57	1 asbestos worker 1 laborer	F6	\$48.64	2 carpenters, 2 laborers 1 tractor operator
AT	\$43.65	1 air tool operator	F7	\$50.61	2 carpenters, 1 laborer 1 tractor operator
AW	\$60.33	1 asbestos worker	F8	\$51.18	2 plasterers 1 plasterer's helper
BM	\$61.05	1 boilermaker	F9	\$45.82	1 laborer, 1 floor layer
BT	\$40.97	1 bricklayer tender	FL	\$50.83	1 floor layer
C1	\$41.73	4 laborers, 1 truck driver	G1	\$47.87	1 glazier, 1 laborer
C2	\$49.02	1 laborer, 2 truck drivers 2 tractor operators	H1	\$53.88	1 carpenter, 1 laborer 1 iron worker (structural) 1 tractor operator
C3	\$47.65	1 laborer, 1 truck driver 1 tractor operator	H2	\$51.18	1 crane operator 1 truck driver
C4	\$42.35	2 laborers, 1 truck driver	H3	\$46.20	1 carpenter, 3 laborers 1 crane operator 1 truck driver
C5	\$45.94	2 laborers, 1 truck driver 1 tractor operator	H4	\$61.96	1 crane operator 6 iron workers (structural) 1 truck driver
C6	\$44.91	6 laborers, 2 truck drivers 2 tractor operators	H5	\$53.92	1 crane operator 2 iron workers (structural) 2 laborers
C7	\$47.36	2 laborers, 3 truck drivers 1 crane operator 1 tractor operator	H6	\$53.18	1 iron worker (structural) 1 laborer
C8	\$46.63	1 laborer, 1 carpenter	H7	\$62.67	1 crane operator 2 iron workers (structural)
C9	\$48.86	1 laborer, 1 crane operator	H8	\$60.76	1 crane operator 4 iron workers (structural) 1 truck driver
CB	\$53.50	1 bricklayer	H9	\$59.89	1 electrician 1 sheet metal worker
CC	\$52.46	1 carpenter	IW	\$65.55	1 iron worker (structural)
CD	\$51.74	1 drywall installer	LA	\$47.45	1 lather
CE	\$59.76	1 electrician	M1	\$47.24	1 bricklayer 1 bricklayer's tender
CG	\$54.94	1 glazier	M2	\$44.69	1 carpenter, 2 laborers
CL	\$40.80	1 laborer	M3	\$49.60	1 plasterer 1 plasterer's helper
CM	\$50.83	1 cement mason	M4	\$47.21	1 laborer, 1 marble setter
CO	\$56.92	1 crane operator	M5	\$51.29	1 pipefitter, 1 laborer,
CV	\$56.60	1 elevator constructor	M6	\$54.30	1 asbestos worker 1 laborer, 1 pipefitter
D2	\$46.27	1 drywall installer 1 laborer	M8	\$56.53	3 pipefitters, 1 laborer
D3	\$53.21	1 laborer, 1 iron worker (structural), 1 millwright	M9	\$60.77	1 electrician, 1 pipefitter
D4	\$47.05	1 laborer, 1 millwright	MI	\$54.78	2 pipefitters, 1 laborer
D5	\$50.93	1 boilermaker, 1 laborer	MS	\$53.62	marble setter
D6	\$54.43	2 millwrights 1 tractor operator	MT	\$50.56	mosaic & terrazzo worker
D7	\$46.75	1 painter, 1 laborer	MW	\$53.29	millwright
D9	\$49.13	2 millwrights, 1 laborer			
E1	\$51.56	2 electricians, 2 laborers 1 tractor operator			
E2	\$50.28	2 electricians, 2 laborers			
E3	\$51.01	2 electricians, 2 laborers 2 carpenters			
E4	\$50.28	1 electrician, 1 laborer			
F5	\$47.80	3 carpenters, 2 laborers			

Commercial and Industrial Division

Craft Code	Cost Per Manhour	Crew Composition	Craft Code	Cost Per Manhour	Crew Composition
P5	\$44.91	3 laborers 1 tractor operator 1 truck driver	S8	\$50.48	2 pile drivers, 2 laborers 1 truck driver 1 crane operator 1 tractor operator
P6	\$51.82	1 laborer, 1 plumber			
P8	\$45.82	1 laborer, 1 cement mason	S9	\$48.02	1 pile driver, 2 laborers 1 tractor operator 1 truck driver
P9	\$48.03	1 carpenter, 1 laborer 1 cement mason			
PA	\$52.69	1 painter	SM	\$60.02	1 sheet metal worker
PD	\$56.35	1 pile driver	SP	\$64.09	1 sprinkler fitter
PF	\$61.77	1 pipefitter	SS	\$51.40	1 laborer 2 tractor operators
PH	\$44.84	1 plasterer's helper			
PL	\$62.83	1 plumber	T2	\$52.62	3 laborers, 3 carpenters 3 iron workers (structural) 1 crane operator 1 truck driver
PS	\$54.35	1 plasterer			
R3	\$46.28	2 roofers, 1 laborer			
RB	\$64.56	1 reinforcing iron worker	T3	\$52.68	1 laborer 1 reinforcing iron worker
RF	\$49.02	1 roofer			
S1	\$48.75	1 laborer 1 tractor operator	T4	\$45.68	1 laborer, 1 mosaic worker
S3	\$51.07	1 truck driver 1 tractor operator	T5	\$50.41	1 sheet metal worker 1 laborer
S4	\$40.80	3 laborers	T6	\$53.61	2 sheet metal workers 1 laborer
S5	\$43.77	5 laborers 1 crane operator 1 truck driver	TD	\$45.44	1 truck driver
S6	\$46.10	2 laborers 1 tractor operator	TO	\$56.70	1 tractor operator
S7	\$48.75	3 laborers 3 tractor operators	U1	\$50.28	1 plumber, 2 laborers 1 tractor operator
			U2	\$48.14	1 plumber, 2 laborers

Residential Division

	1	2	3	4	5	6
Craft	Base wage per hour	Taxable fringe benefits (@5.49% of base wage)	Insurance and employer taxes (%)	Insurance and employer taxes (\$)	Non-taxable fringe benefits (@4.85% of base wage)	Total hourly cost used in this book
Bricklayer	\$27.48	\$1.51	25.06%	\$7.26	\$1.33	\$37.58
Bricklayer's Helper	20.36	1.12	25.06	5.38	0.99	27.85
Building Laborer	20.78	1.14	32.27	7.07	1.01	30.00
Carpenter	25.85	1.42	31.17	8.50	1.25	37.02
Cement Mason	26.13	1.43	22.97	6.33	1.27	35.16
Drywall installer	26.74	1.47	23.32	6.58	1.30	36.09
Drywall Taper	26.69	1.47	23.32	6.57	1.29	36.02
Electrician	30.65	1.68	19.71	6.37	1.49	40.19
Floor Layer	25.08	1.38	23.61	6.25	1.22	33.93
Glazier	26.08	1.43	25.47	7.01	1.26	35.78
Lather	26.83	1.47	21.12	5.98	1.30	35.58
Marble Setter	24.80	1.36	21.20	5.55	1.20	32.91
Millwright	26.29	1.44	21.09	5.85	1.28	34.86
Mosiatic & Terrazzo Worker	26.35	1.45	21.20	5.89	1.28	34.97
Operating Engineer	30.93	1.70	24.95	8.14	1.50	42.27
Painter	27.74	1.52	24.65	7.21	1.35	37.82
Plasterer	26.46	1.45	28.21	7.87	1.28	37.06
Plasterer Helper	20.76	1.14	28.21	6.18	1.01	29.09
Plumber	31.69	1.74	24.08	8.05	1.54	43.02
Reinforcing Ironworker	27.78	1.53	28.27	8.29	1.35	38.95
Roofer	26.45	1.45	43.34	12.09	1.28	41.27
Sheet Metal Worker	30.34	1.67	25.74	8.24	1.47	41.72
Sprinkler Fitter	31.14	1.71	24.86	8.17	1.51	42.53
Tile Layer	26.59	1.46	21.20	5.95	1.29	35.29
Truck Driver	22.37	1.23	25.95	6.12	1.08	30.80

Hourly Labor Cost

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

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

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

what many contractors will be paying craftsmen working on residential construction in 2019.

Column 2, taxable fringe benefits, includes vacation pay, sick leave and other taxable benefits. These fringe benefits average 5.49% of the base wage for many construction contractors. This benefit is in addition to the base wage.

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

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

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

Column 5, non-taxable fringe benefits, includes employer paid non-taxable benefits such as medical coverage and tax-deferred pension and profit sharing plans. These fringe benefits average 4.85% of the base wage for many construction contractors. The employer pays no taxes or insurance on these benefits.

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

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

Adjusting Labor Costs

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

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

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

Then add the regular work hours for the year:

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

Multiply these hours by the base wage per hour. If you pay carpenters \$10.00 per hour, the calculation would be:

$$\begin{array}{r} 2,080 \text{ hours} \\ \times \$10.00 \text{ per hour} \\ \hline \$20,800 \text{ per year} \end{array}$$

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

Continuing with our example, we'll use 31.17%, the rate for carpenters in column 3 on page 10. To increase the annual taxable wage by 31.17%, we'll multiply by 1.3117:

$$\begin{array}{r} \$20,800 \text{ per year} \\ \times 1.3117 \text{ tax \& insurance rate} \\ \hline \$27,283 \text{ annual cost} \end{array}$$

Then add the cost of non-taxable benefits. Suppose your company has no pension or profit sharing plan but does provide medical insurance for employees. Assume that the cost for your carpenter is \$343.67 per month or \$4,124 per year.

$$\begin{array}{r} \$4,124 \text{ medical plan} \\ + \$27,283 \text{ annual cost} \\ \hline \$31,407 \text{ total annual cost} \end{array}$$

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

$$\frac{\$31,407}{2,000} = \$15.70 \text{ per hour}$$

Finally, find your modification factor for the labor costs in this book. Divide your total hourly labor cost by the total hourly labor cost shown on page 10. For the carpenter in our example, the figure in column 6 is \$36.94.

$$\frac{\$15.70}{\$37.02} = .424$$

Your modification factor is 42.4%. Multiply any building carpenter (Craft Code BC) labor costs in the Residential Division of this book by .424 to find your estimated cost. For example, on page 24 the labor cost for installing an 18" long towel bar is \$10.40 per each bar. If installed by your carpenter working at \$10.00 per hour, your estimated cost would be 42.4% of \$10.40 or \$4.41. The manhours would remain the same @.280, assuming normal productivity.

If the Labor Rate Is Unknown

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

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

Area Modification Factors

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

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

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

The National Estimator program will apply an area modification factor for any five-digit zip you select. Click Utilities. Click Options. Then select the Area Modification Factors tab.

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

Location	Zip	Mat.	Lab.	Equip.	Total Wtd. Avg.
Alabama Average					
Anniston	362	-3	-13	-1	-8%
Auburn	368	-1	-8	0	-4%
Bellamy	369	-2	13	-1	5%
Birmingham	350-352	-3	8	-1	2%
Dothan	363	-1	-13	0	-7%
Evergreen	364	-1	-20	0	-10%
Gadsden	359	-4	-15	-1	-9%
Huntsville	358	1	-3	0	-1%
Jasper	355	-2	-16	-1	-8%
Mobile	365-366	-1	-3	0	-2%
Montgomery	360-361	-1	-3	0	-2%
Scottsboro	357	0	-8	0	-4%
Selma	367	-1	-10	0	-5%
Sheffield	356	-1	1	0	0%
Tuscaloosa	354	1	-9	0	-4%
Alaska Average					
Anchorage	995	16	38	5	26%
Fairbanks	997	16	40	5	27%
Juneau	998	18	20	6	19%
Ketchikan	999	3	36	1	18%
King Salmon	996	16	32	5	23%
Arizona Average					
Chambers	865	1	-19	0	-4%
Douglas	855	0	-18	0	-8%
Flagstaff	860	2	-17	1	-7%
Kingman	864	1	-11	0	-5%
Mesa	852	1	5	0	3%
Phoenix	850	1	6	0	3%
Prescott	863	3	-16	1	-6%
Show Low	859	2	-18	1	-7%
Tucson	856-857	0	-10	0	-5%
Yuma	853	0	5	0	2%
Arkansas Average					
Batesville	725	0	-20	0	-9%
Camden	717	-4	1	-1	-2%
Fayetteville	727	0	-8	0	-4%
Fort Smith	729	-1	-14	0	-7%
Harrison	726	-1	-25	0	-12%
Hope	718	-3	-15	-1	-8%
Hot Springs	719	-2	-25	-1	-13%
Jonesboro	724	-1	-18	0	-9%
Little Rock	720-722	-1	-6	0	-3%
Pine Bluff	716	-4	-19	-1	-11%
Russellville	728	0	-9	0	-4%
West Memphis	723	-3	-1	-1	-2%
California Average					
Alhambra	917-918	3	15	1	8%
Bakersfield	932-933	1	4	0	2%
El Centro	922	1	-1	0	0%
Eureka	955	1	-11	0	-5%
Fresno	936-938	0	-5	0	-2%
Herlong	961	2	-7	1	-2%
Inglewood	902-905	3	16	1	9%
Irvine	926-927	3	24	1	13%
Lompoc	934	3	2	1	3%
Colorado Average					
Aurora	800-801	3	11	1	7%
Boulder	803-804	3	5	1	4%
Colorado Springs	808-809	2	-3	1	0%
Denver	802	3	13	1	8%
Durango	813	1	-3	0	-1%
Fort Morgan	807	2	-6	1	-2%
Glenwood Springs	816	2	6	1	4%
Grand Junction	814-815	1	-1	0	0%
Greeley	806	3	8	1	5%
Longmont	805	3	1	1	2%
Pagosa Springs	811	0	-9	0	-4%
Pueblo	810	-1	2	0	0%
Salida	812	2	-15	1	-6%
Connecticut Average					
Bridgeport	066	0	13	0	6%
Bristol	060	1	24	0	12%
Fairfield	064	2	17	1	9%
Hartford	061	0	23	0	11%
New Haven	065	1	15	0	7%
Norwich	063	0	7	0	3%
Stamford	068-069	4	21	1	12%
Waterbury	067	1	12	0	6%
West Hartford	062	1	9	0	5%
Delaware Average					
Dover	199	1	-9	0	-4%
Newark	197	2	10	1	6%
Wilmington	198	0	9	0	4%
District of Columbia Average					
Washington	200-205	3	23	1	12%
Florida Average					
Altamonte Springs	327	-1	-6	0	-3%
Bradenton	342	0	-12	0	-6%
Brooksville	346	0	-16	0	-7%
Daytona Beach	321	-2	-18	-1	-9%
Fort Lauderdale	333	3	1	1	2%
Fort Myers	339	0	-12	0	-6%
Fort Pierce	349	-2	-20	-1	-10%
Gainesville	326	-1	-18	0	-9%
Jacksonville	322	-1	-3	0	-2%
Lakeland	338	-3	-13	-1	-8%
Melbourne	329	-2	-15	-1	-8%
Miami	330-332	2	-1	1	1%
Naples	341	3	-8	1	-2%
Ocala	344	-3	-23	-1	-12%
Orlando	328	0	2	0	1%
Panama City	324	-2	-21	-1	-11%
Pensacola	325	-1	-17	0	-8%
Saint Augustine	320	-1	-4	0	-2%
Saint Cloud	347	0	-5	0	-2%
St Petersburg	337	0	-12	0	-6%
Tallahassee	323	0	-13	0	-6%
Tampa	335-336	-1	-1	0	-1%
West Palm Beach	334	1	-5	0	-2%
Georgia Average					
Albany	317	-2	-10	-1	-6%
Athens	306	0	-11	0	-5%
Atlanta	303	3	23	1	12%
Augusta	308-309	-2	-2	-1	-2%
Buford	305	0	-5	0	-2%
Calhoun	307	-1	-19	0	-9%
Columbus	318-319	-1	-6	0	-3%
Dublin/Fort Valley	310	-3	-13	-1	-8%
Hinesville	313	-2	-11	-1	-6%
Kings Bay	315	-2	-19	-1	-10%
Macon	312	-2	-7	-1	-4%
Marietta	300-302	1	8	0	4%
Savannah	314	-1	-7	0	-4%
Statesboro	304	-2	-21	-1	-11%
Valdosta	316	-1	-1	0	-1%
Hawaii Average					
Aliamanu	968	17	29	6	22%
Ewa	967	17	23	6	20%
Halawa Heights	967	17	23	6	20%
Hilo	967	17	23	6	20%
Honolulu	968	17	29	6	22%
Kailua	968	17	29	6	22%
Lualualei	967	17	23	6	20%
Mililani Town	967	17	23	6	20%
Pearl City	967	17	23	6	20%
Wahiawa	967	17	23	6	20%
Waianae	967	17	23	6	20%
Wailuku (Maui)	967	17	23	6	20%

Area Modification Factors

Idaho						Kentucky						Michigan					
Location	Zip	Mat.	Lab.	Equip.	Total Wtd. Avg.	Location	Zip	Mat.	Lab.	Equip.	Total Wtd. Avg.	Location	Zip	Mat.	Lab.	Equip.	Total Wtd. Avg.
Idaho Average						Kentucky Average						Michigan Average					
Boise	837	1	-12	0	-5%	Hutchinson	675	-3	-9	-1	-6%	Battle Creek	490-491	-3	1	-1	-1%
Coeur d'Alene	838	0	-21	0	-10%	Independence	673	-3	67	-1	29%	Detroit	481-482	0	15	0	7%
Idaho Falls	834	-1	-19	0	-9%	Kansas City	660-662	0	10	0	5%	Flint	484-485	-3	-5	-1	-4%
Lewiston	835	0	-24	0	-11%	Liberal	679	-2	33	-1	14%	Grand Rapids	493-495	-2	4	-1	1%
Meridian	836	0	-19	0	-9%	Salina	674	-3	-11	-1	-7%	Grayling	497	1	-17	0	-7%
Pocatello	832	-1	-20	0	-10%	Topeka	664-666	-3	2	-1	-1%	Jackson	492	-3	1	-1	-1%
Sun Valley	833	0	-18	0	-8%	Wichita	670-672	-2	-6	-1	-4%	Lansing	488-489	-1	1	0	0%
Illinois Average						Louisiana Average						Minnesota Average					
Arlington Heights	600	1	29	0	14%	Ashland	411-412	-4	-5	-1	-4%	Bemidji	566	-1	-11	0	-6%
Aurora	605	2	28	1	14%	Bowling Green	421	0	-11	0	-5%	Brainerd	564	0	-6	0	-3%
Belleville	622	-2	2	-1	0%	Campton	413-414	-1	-23	0	-11%	Duluth	556-558	-2	7	-1	2%
Bloomington	617	1	-4	0	-1%	Covington	410	-1	5	0	2%	Fergus Falls	565	-1	-20	0	-10%
Carbondale	629	-3	-6	-1	-4%	Elizabethtown	427	-1	-20	0	-10%	Magnolia	561	0	-18	0	-8%
Carol Stream	601	2	28	1	14%	Frankfort	406	1	13	0	7%	Mankato	560	0	-8	0	-4%
Centralia	628	-3	-3	-1	-3%	Hazard	417-418	-2	-19	-1	-10%	Minneapolis	553-555	1	28	0	13%
Champaign	618	-1	-3	0	-2%	Hopkinsville	422	-2	-9	-1	-5%	Rochester	559	0	-3	0	-1%
Chicago	606-608	2	31	1	15%	Lexington	403-405	1	1	0	1%	St Cloud	563	-1	6	0	2%
Decatur	623	-2	-13	-1	-7%	London	407-409	-1	-13	0	-7%	St Paul	550-551	1	26	0	12%
Galesburg	614	-2	-6	-1	-4%	Louisville	400-402	-1	5	0	2%	Thief River Falls	567	0	-5	0	-2%
Granite City	620	-3	11	-1	3%	Owensboro	423	-2	-6	-1	-4%	Willmar	562	-1	-11	0	-6%
Green River	612	-1	12	0	5%	Paducah	420	-2	2	-1	0%	Mississippi Average					
Joliet	604	0	29	0	13%	Pikeville	415-416	-3	-14	-1	-8%	Clarksdale	386	-3	-16	-1	-9%
Kankakee	609	-2	-4	-1	-3%	Somerset	425-426	0	-23	0	-11%	Columbus	397	-1	1	0	0%
Lawrenceville	624	-4	-9	-1	-6%	White Plains	424	-3	-6	-1	-4%	Greenville	387	-4	-26	-1	-14%
Oak Park	603	3	35	1	18%	Louisiana Average						Greenwood	389	-3	-18	-1	-10%
Peoria	615-616	-1	15	0	6%	Alexandria	713-714	-3	-1	-1	-2%	Gulfport	395	-2	-11	-1	-6%
Peru	613	0	4	0	2%	Baton Rouge	707-708	0	21	0	10%	Jackson	390-392	-3	-2	-1	-3%
Quincy	602	3	31	1	16%	Houma	703	-2	11	-1	4%	Laurel	394	-3	-11	-1	-7%
Rockford	610-611	-2	8	-1	3%	Lafayette	705	0	4	0	2%	McComb	396	-2	-22	-1	-11%
Springfield	625-627	-2	2	-1	0%	Lake Charles	706	-2	16	-1	6%	Meridian	393	-2	8	-1	3%
Urbana	619	-3	-6	-1	-4%	Mandeville	704	-1	-5	0	-3%	Tupelo	388	-1	-13	0	-7%
Indiana Average						Maine Average						Missouri Average					
Aurora	470	-1	-9	0	-5%	Auburn	042	-1	-7	0	-4%	Cape Girardeau	637	-2	-8	-1	-5%
Bloomington	474	1	-6	0	-2%	Augusta	043	-1	-9	0	-5%	Caruthersville	638	-1	-15	0	-7%
Columbus	472	0	-9	0	-4%	Bangor	044	-1	-11	0	-6%	Chillicothe	646	-2	-7	-1	-4%
Elkhart	465	-2	-7	-1	-4%	Bath	045	1	-15	0	-6%	Columbia	652	1	-9	0	-4%
Evansville	476-477	-2	12	-1	4%	Brunswick	039-040	1	-3	0	-1%	East Lynne	647	-1	10	0	4%
Fort Wayne	467-468	-3	1	-1	-1%	Camden	048	-1	-21	0	-10%	Farmington	636	-3	-15	-1	-8%
Gary	463-464	-4	23	-1	8%	Cuttler	046	-1	-15	0	-7%	Hannibal	634	0	-4	0	-2%
Indianapolis	460-462	-1	10	0	4%	Dexter	049	-1	-8	0	-4%	Independence	640	-1	13	0	5%
Jasper	475	-2	-14	-1	-8%	Northern Area	047	-2	-16	-1	-8%	Jefferson City	650-651	1	-11	0	-5%
Jeffersonville	471	0	-11	0	-5%	Portland	041	2	2	1	2%	Joplin	648	-2	-10	-1	-6%
Kokomo	469	-2	-15	-1	-8%	Maryland Average						Kansas City	641	-2	15	-1	6%
Lafayette	479	-2	-9	-1	-5%	Annapolis	214	4	13	1	8%	Kirksville	635	0	-33	0	-15%
Muncie	473	-4	-13	-1	-8%	Baltimore	210-212	-1	16	0	7%	Knob Noster	653	0	7	0	3%
South Bend	466	-4	0	-1	-2%	Bethesda	208-209	3	24	1	13%	Lebanon	654-655	-2	-23	-1	-12%
Terre Haute	478	-4	-2	-1	-3%	Church Hill	216	2	-10	1	-4%	Poplar Bluff	639	-1	-21	0	-10%
Iowa Average						Massachusetts Average						Montana Average					
Burlington	526	0	2	0	1%	Ayer	015-016	1	11	0	6%	Billings	590-591	0	-4	0	-2%
Carroll	514	-3	-20	-1	-11%	Bedford	017	3	30	1	15%	Butte	597	1	-7	0	-3%
Cedar Falls	506	-1	-7	0	-4%	Boston	021-022	3	77	1	37%	Fairview	592	-1	27	0	12%
Cedar Rapids	522-524	0	5	0	2%	Brockton	023-024	3	41	1	20%	Great Falls	594	-1	-11	0	-6%
Cherokee	510	-2	4	-1	1%	Cape Cod	026	2	6	1	4%	Havre	595	-1	-19	0	-9%
Council Bluffs	515	-2	1	-1	-1%	Chicopee	010	1	14	0	7%	Helena	596	0	-4	0	-2%
Creston	508	-3	6	-1	1%	Dedham	019	2	36	1	18%	Kalispell	599	1	-15	0	-6%
Davenport	527-528	-1	3	0	1%	Fitchburg	014	2	21	1	11%	Miles City	593	-1	-15	0	-7%
Decorah	521	-2	-14	-1	-8%	Hingham	020	3	37	1	19%	Missoula	598	1	-14	0	-6%
Des Moines	500-503	-2	13	-1	5%	Lawrence	018	2	28	1	14%	Nebraska Average					
Dubuque	520	-2	-7	-1	-4%	Nantucket	025	3	16	1	9%	Alliance	693	-1	-21	0	-10%
Fort Dodge	505	-2	-5	-1	-3%	New Bedford	027	1	12	0	6%	Columbus	686	-1	-15	0	-7%
Mason City	504	0	-6	0	-3%	Northfield	013	2	3	1	2%	Grand Island	688	0	-18	0	-8%
Ottumwa	525	0	-13	0	-6%	Pittsfield	012	1	0	0	1%	Hastings	689	0	-20	0	-9%
Sheldon	512	0	-15	0	-7%	Springfield	011	-1	18	0	8%	Lincoln	683-685	0	-9	0	-4%
Shenandoah	516	-3	-26	-1	-14%	Kansas Average						Mississippi Average					
Sioux City	511	-2	14	-1	5%	Colby	677	-1	-17	0	-8%	Clarksdale	386	-3	-16	-1	-9%
Spencer	513	-1	-14	0	-7%	Concordia	669	-1	-25	0	-12%	Columbus	397	-1	1	0	0%
Waterloo	507	-4	-1	-1	-3%	Dodge City	678	-2	-7	-1	-4%	Greenville	387	-4	-26	-1	-14%
Kansas Average						Kentucky Average						Greenwood					
Kansas Average						Kentucky Average						Greenwood					

Area Modification Factors

Location	Zip	Mat.	Lab.	Equip.	Total Wtd. Avg.
McCook	690	1	-21	0	-9%
Norfolk	687	-3	-19	-1	-10%
North Platte	691	0	-14	0	-6%
Omaha	680-681	-1	1	0	0%
Valentine	692	-2	-31	-1	-15%
Nevada Average	2	0	1		1%
Carson City	897	2	-12	1	-4%
Elko	898	1	19	0	9%
Ely	893	2	-8	1	-3%
Fallon	894	2	-2	1	0%
Las Vegas	889-891	2	5	1	3%
Reno	895	2	-4	1	-1%
New Hampshire Average	1	-4	0		-1%
Charlestown	036	1	-11	0	-5%
Concord	034	1	-7	0	-3%
Dover	038	1	1	0	1%
Lebanon	037	2	-8	1	-3%
Littleton	035	-1	-12	0	-6%
Manchester	032-033	0	4	0	2%
New Boston	030-031	1	5	0	3%
New Jersey Average	1	20	0		9%
Atlantic City	080-084	-2	12	-1	4%
Brick	087	2	2	1	2%
Dover	078	1	19	0	9%
Edison	088-089	1	28	0	13%
Hackensack	076	3	18	1	10%
Monmouth	077	3	22	1	12%
Newark	071-073	1	23	0	11%
Passaic	070	2	23	1	12%
Paterson	074-075	2	13	1	7%
Princeton	085	-2	24	-1	10%
Summit	079	3	32	1	16%
Trenton	086	-3	19	-1	7%
New Mexico Average	0	-17	0		-8%
Alamogordo	883	-1	-22	0	-11%
Albuquerque	870-871	2	-8	1	-3%
Clovis	881	-2	-22	-1	-11%
Farmington	874	2	-4	1	-1%
Fort Sumner	882	-3	0	-1	-2%
Gallup	873	1	-17	0	-7%
Holman	877	2	-24	1	-10%
Las Cruces	880	-1	-17	0	-8%
Santa Fe	875	3	-20	1	-8%
Socorro	878	1	-32	0	-14%
Truth or Consequences	879	-2	-15	-1	-8%
Tucumcari	884	-1	-17	0	-8%
New York Average	0	13	0		6%
Albany	120-123	-1	16	0	7%
Amityville	117	2	18	1	9%
Batavia	140	-3	5	-1	1%
Binghamton	137-139	-3	0	-1	-2%
Bronx	104	2	19	1	10%
Brooklyn	112	3	12	1	7%
Buffalo	142	-3	7	-1	2%
Elmira	149	-4	-1	-1	-3%
Flushing	113	3	30	1	15%
Garden City	115	3	29	1	15%
Hicksville	118	3	27	1	14%
Ithaca	148	-4	-6	-1	-5%
Jamaica	114	3	27	1	14%
Jamestown	147	-4	-11	-1	-7%
Kingston	124	0	-8	0	-4%
Long Island	111	3	62	1	30%
Montauk	119	1	15	0	7%
New York (Manhattan)	100-102	3	64	1	31%
New York City	100-102	3	64	1	31%
Newcomb	128	-1	2	0	0%
Niagara Falls	143	-4	-8	-1	-6%
Plattsburgh	129	1	-3	0	-1%
Poughkeepsie	125-126	1	2	0	1%
Queens	110	4	33	1	17%
Rochester	144-146	-3	8	-1	2%
Rockaway	116	3	18	1	10%
Rome	133-134	-3	-6	-1	-4%
Staten Island	103	3	15	1	8%
Stewart	127	-1	-9	0	-5%
Syracuse	130-132	-3	7	-1	2%
Tonawanda	141	-4	2	-1	-1%
Utica	135	-4	-8	-1	-6%
Watertown	136	-2	0	-1	-1%
West Point	109	1	11	0	6%
White Plains	105-108	3	27	1	14%
North Carolina Average	1	-9	0		-4%
Asheville	287-289	1	-16	0	-7%
Charlotte	280-282	1	15	0	7%
Durham	277	2	-3	1	0%
Elizabeth City	279	1	-18	0	-8%
Fayetteville	283	-1	-12	0	-6%
Goldsboro	275	1	-2	0	0%
Greensboro	274	1	-7	0	-3%
Hickory	286	-1	-17	0	-8%
Kinston	285	-1	-19	0	-9%
Raleigh	276	3	2	1	3%
Rocky Mount	278	0	-14	0	-6%
Wilmington	284	1	-14	0	-6%
Winston-Salem	270-273	0	-10	0	-5%
North Dakota Average	-1	10	0		4%
Bismarck	585	0	6	0	3%
Dickinson	586	-1	34	0	15%
Fargo	580-581	0	1	0	0%
Grand Forks	582	0	-3	0	-1%
Jamestown	584	-1	-7	0	-4%
Minot	587	-1	21	0	9%
Nekoma	583	-1	-20	0	-10%
Williston	588	-1	47	0	21%
Ohio Average	-2	2	-1		0%
Akron	442-443	-2	4	-1	1%
Canton	446-447	-2	-3	-1	-2%
Chillicothe	456	-2	-3	-1	-2%
Cincinnati	450-452	-1	7	0	3%
Cleveland	440-441	-3	11	-1	3%
Columbus	432	0	11	0	5%
Dayton	453-455	-3	6	-1	1%
Lima	458	-3	-8	-1	-5%
Marietta	457	-2	-8	-1	-5%
Marion	433	-3	-9	-1	-6%
Newark	430-431	-1	8	0	3%
Sandusky	448-449	-1	-5	0	-3%
Steubenville	439	-3	6	-1	1%
Toledo	434-436	-1	16	0	7%
Warren	444	-4	-6	-1	-5%
Youngstown	445	-5	-1	-2	-3%
Zanesville	437-438	-2	0	-1	-1%
Oklahoma Average	-3	-7	-1		-5%
Adams	739	-2	-20	-1	-10%
Ardmore	734	-3	1	-1	-1%
Clinton	736	-3	-2	-1	-3%
Durant	747	-4	-20	-1	-11%
Enid	737	-4	-4	-1	-4%
Lawton	735	-3	-15	-1	-8%
McAlester	745	-4	-10	-1	-7%
Muskogee	744	-2	-16	-1	-8%
Norman	730	-2	-6	-1	-4%
Oklahoma City	731	-2	-4	-1	-3%
Ponca City	746	-3	1	-1	-1%
Poteau	749	-2	-13	-1	-7%
Pryor	743	-2	-11	-1	-6%
Shawnee	748	-4	-13	-1	-8%
Tulsa	740-741	-1	1	0	0%
Woodward	738	-4	15	-1	5%
Oregon Average	1	-9	1		-3%
Adrian	979	-1	-24	0	-12%
Bend	977	1	-11	0	-5%
Eugene	974	2	-9	1	-3%
Grants Pass	975	2	-13	1	-5%
Klamath Falls	976	2	-19	1	-8%
Pendleton	978	0	-7	0	-3%
Portland	970-972	2	19	1	10%
Salem	973	2	-7	1	-2%
Pennsylvania Average	-3	0	-1		-1%
Allentown	181	-2	8	-1	3%
Altoona	166	-3	-14	-1	-8%
Beaver Springs	178	-3	-8	-1	-5%
Bethlehem	180	-1	10	0	4%
Bradford	167	-4	-13	-1	-8%
Butler	160	-4	1	-1	-2%
Chambersburg	172	-1	-13	0	-7%
Clearfield	168	2	-8	1	-3%
DuBois	158	-2	-19	-1	-10%
East Stroudsburg	183	0	-11	0	-5%
Erie	164-165	-3	-10	-1	-6%
Genesee	169	-4	-5	-1	-4%
Greensburg	156	-4	-5	-1	-4%
Harrisburg	170-171	-2	8	-1	3%
Hazleton	182	-3	-3	-1	-3%
Johnstown	159	-4	-16	-1	-9%
Kittanning	162	-4	-9	-1	-6%
Lancaster	175-176	-2	1	-1	-1%
Meadville	163	-4	-16	-1	-9%
Montrose	188	-3	-6	-1	-4%
New Castle	161	-4	-1	-1	-3%
Philadelphia	190-191	-3	27	-1	11%
Pittsburgh	152	-4	17	-1	6%
Pottsville	179	-4	-12	-1	-8%
Punxsutawney	157	-4	-1	-1	-3%
Reading	195-196	-4	9	-1	2%
Scranton	184-185	-2	4	-1	1%
Somerset	155	-4	-16	-1	-9%
Southeastern	193	0	18	0	8%
Uniontown	154	-4	-9	-1	-6%
Valley Forge	194	-3	27	-1	11%
Warminster	189	-1	24	0	11%
Warrendale	150-151	-4	16	-1	5%
Washington	153	-4	23	-1	8%
Wilkes Barre	186-187	-3	2	-1	-1%
Williamsport	177	-3	-1	-1	-2%
York	173-174	-3	2	-1	-1%
Rhode Island Average	1	10	0		5%
Bristol	028	1	9	0	5%
Coventry	028	1	9	0	5%
Cranston	029	1	12	0	6%
Davisville	028	1	9	0	5%
Narragansett	028	1	9	0	5%
Newport	028	1	9	0	5%
Providence	029	1	12	0	6%
Warwick	028	1	9	0	5%
South Carolina Average	-1	-2	0		-1%
Aiken	298	0	9	0	4%
Beaufort	299	-1	-4	0	-2%
Charleston	294	-1	0	0	-1%
Columbia	290-292	0	-4	0	-2%
Greenville	296	0	17	0	8%
Myrtle Beach	295	0	-17	0	-8%
Rock Hill	297	-1	-11	0	-6%
Spartanburg	293	-2	-6	-1	-4%
South Dakota Average	-1	-12	0		-6%
Aberdeen	574	-1	-15	0	-7%
Mitchell	573	-1	-11	0	-6%
Mobridge	576	-2	-18	-1	-9%
Pierre	575	-2	-20	-1	-10%
Rapid City	577	-2	-14	-1	-8%
Sioux Falls	570-571	0	-2	0	-1%
Watertown	572	-1	-7	0	-4%
Tennessee Average	0	-5	0		-2%
Chattanooga	374	-1	5	0	2%
Clarksville	370	1	2	0	1%
Cleveland	373	-1	-1	0	-1%

Area Modification Factors

Location	Zip	Mat.	Lab.	Equip.	Total Wtd. Avg.
Columbia	384	-1	-14	0	-7%
Cookeville	385	0	-18	0	-8%
Jackson	383	-1	-3	0	-2%
Kingsport	376	0	-11	0	-5%
Knoxville	377-379	-1	-3	0	-2%
McKenzie	382	-1	-16	0	-8%
Memphis	380-381	-1	3	0	1%
Nashville	371-372	1	4	0	2%
Texas Average	-2	4	-1	1%	
Abilene	795-796	-4	0	-1	-2%
Amarillo	790-791	-2	-2	-1	-2%
Arlington	760	-1	4	0	1%
Austin	786-787	1	10	0	5%
Bay City	774	-1	62	0	28%
Beaumont	776-777	-3	19	-1	7%
Brownwood	768	-3	-14	-1	-8%
Bryan	778	0	-6	0	-3%
Childress	792	-3	-28	-1	-14%
Corpus Christi	783-784	-2	17	-1	7%
Dallas	751-753	-1	15	0	6%
Del Rio	788	-3	4	-1	0%
El Paso	798-799	-3	-12	-1	-7%
Fort Worth	761-762	-1	5	0	2%
Galveston	775	-3	31	-1	13%
Giddings	789	0	-1	0	0%
Greenville	754	-3	9	-1	3%
Houston	770-772	-1	34	0	15%
Huntsville	773	-2	35	-1	15%
Longview	756	-2	4	-1	1%
Lubbock	793-794	-3	-11	-1	-7%
Lufkin	759	-3	-4	-1	-3%
McAllen	785	-3	-23	-1	-12%
Midland	797	-3	25	-1	10%
Palestine	758	-2	7	-1	2%
Plano	750	0	15	0	7%
San Angelo	769	-3	-9	-1	-6%
San Antonio	780-782	-2	5	-1	1%
Texarkana	755	-3	-15	-1	-8%
Tyler	757	-1	-15	0	-7%
Victoria	779	-2	5	-1	1%
Waco	765-767	-3	-2	-1	-3%
Wichita Falls	763	-3	-16	-1	-9%
Woodson	764	-3	-3	-1	-3%
Utah Average	1	-9	1	-3%	
Clearfield	840	2	-3	1	0%
Green River	845	1	-7	0	-3%
Ogden	843-844	0	-19	0	-9%
Provo	846-847	2	-16	1	-6%
Salt Lake City	841	2	-1	1	1%
Vermont Average	1	-11	0	-5%	
Albany	058	1	-16	0	-7%
Battleboro	053	1	-9	0	-4%
Beecher Falls	059	1	-19	0	-8%
Bennington	052	-1	-12	0	-6%
Burlington	054	3	5	1	4%
Montpelier	056	2	-10	1	-4%
Rutland	057	-1	-13	0	-7%
Springfield	051	-1	-11	0	-6%
White River Junction	050	1	-12	0	-5%
Virginia Average	0	-8	0	-4%	
Abingdon	242	-2	-18	-1	-9%
Alexandria	220-223	3	18	1	10%
Charlottesville	229	1	-15	0	-6%
Chesapeake	233	0	-8	0	-4%
Culpeper	227	1	-12	0	-5%
Farmville	239	-2	-24	-1	-12%
Fredericksburg	224-225	1	-11	0	-5%
Galax	243	-2	-20	-1	-10%
Harrisonburg	228	1	-14	0	-6%
Lynchburg	245	-2	-17	-1	-9%
Norfolk	235-237	0	-4	0	-2%
Petersburg	238	-2	-5	-1	-3%
Radford	241	-1	-18	0	-9%
Reston	201	3	12	1	7%
Richmond	232	-1	5	0	2%
Roanoke	240	-1	-18	0	-9%
Staunton	244	0	-15	0	-7%
Tazewell	246	-3	-10	-1	-6%
Virginia Beach	234	1	-6	0	-2%
Williamsburg	230-231	0	-6	0	-3%
Winchester	226	0	9	0	4%
Washington Average	1	-2	1	0%	
Clarkston	994	0	-18	0	-8%
Everett	982	2	2	1	2%
Olympia	985	2	-6	1	-2%
Pasco	993	0	2	0	1%
Seattle	980-981	3	21	1	11%
Spokane	990-992	0	-7	0	-3%
Tacoma	983-984	2	3	1	2%
Vancouver	986	2	4	1	3%
Wenatchee	988	1	-14	0	-6%
Yakima	989	0	-10	0	-5%
West Virginia Average	-2	-8	-1	-5%	
Beckley	258-259	1	-11	0	-5%
Bluefield	247-248	-1	2	0	0%
Charleston	250-253	1	8	0	4%
Clarksburg	263-264	-3	-11	-1	-7%
Fairmont	266	0	-24	0	-11%
Huntington	255-257	-1	-7	0	-4%
Lewisburg	249	-2	-29	-1	-14%
Martinsburg	254	-1	-10	0	-5%
Morgantown	265	-3	-6	-1	-4%
New Martinsville	262	-2	-18	-1	-9%
Parkersburg	261	-3	5	-1	1%
Romney	267	-4	-10	-1	-7%
Sugar Grove	268	-3	-14	-1	-8%
Wheeling	260	-3	14	-1	5%
Wisconsin Average	-1	1	0	0%	
Amery	540	0	-3	0	-1%
Beloit	535	0	10	0	5%
Clam Lake	545	-1	-17	0	-8%
Eau Claire	547	-1	-4	0	-2%
Green Bay	541-543	0	6	0	3%
La Crosse	546	-2	3	-1	0%
Ladysmith	548	-2	-1	-1	-2%
Madison	537	2	14	1	8%
Milwaukee	530-534	0	12	0	6%
Oshkosh	549	-1	9	0	4%
Portage	539	0	0	0	0%
Prairie du Chien	538	-2	-12	-1	-7%
Wausau	544	-1	-6	0	-3%
Wyoming Average	0	-1	0	-1%	
Casper	826	-1	4	0	1%
Cheyenne/					
Laramie	820	1	-6	0	-2%
Gillette	827	-1	7	0	3%
Powell	824	0	-7	0	-3%
Rawlins	823	0	17	0	8%
Riverton	825	-1	-12	0	-6%
Rock Springs	829-831	0	2	0	1%
Sheridan	828	1	-8	0	-3%
Wheatland	822	0	-7	0	-3%
UNITED STATES TERRITORIES					
Guam	53	-21	-5	18%	
Puerto Rico	2	-47	-5	-21%	
VIRGIN ISLANDS					
St. Croix	18	-15	-4	2%	
St. John	52	-15	-4	20%	
St. Thomas	23	-15	-4	5%	
CANADIAN AREA MODIFIERS					
These figures assume an exchange rate of \$1.00 Canadian to \$0.76 U.S.					
Alberta Average	26	-1	7	13%	
Calgary	26	1	7	14%	
Edmonton	25	2	7	14%	
Fort McMurray	28	-7	7	12%	
British Columbia Average	26	-15	7	7%	
Fraser Valley	26	-16	7	6%	
Okanagan	27	-18	7	6%	
Vancouver	26	-11	7	9%	
Manitoba Average	20	-22	5	0%	
North Manitoba	20	-22	5	0%	
Selkirk	20	-22	5	0%	
South Manitoba	20	-22	5	0%	
Winnipeg	20	-22	5	0%	
New Brunswick Average	16	-47	3	-13%	
Moncton	16	-47	3	-13%	
Nova Scotia Average	17	-36	4	-8%	
Amherst	16	-36	3	-8%	
Nova Scotia	17	-35	4	-7%	
Sydney	17	-37	4	-8%	
Newfoundland/					
Labrador	19	-29	4	-3%	
Ontario Average	22	-11	5	7%	
London	22	-10	5	7%	
Thunder Bay	24	-14	6	6%	
Toronto	21	-9	5	7%	
Quebec Average	19	-24	4	-1%	
Montreal	19	-24	4	-1%	
Quebec City	19	-24	4	-1%	
Saskatchewan Average	23	-18	5	4%	
La Ronge	24	-21	6	3%	
Prince Albert	22	-20	5	2%	
Saskatoon	22	-14	5	5%	

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Adhesives

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

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

	Unit	Bead diameter			
		1/8"	1/4"	3/8"	1/2"
Subfloor adhesive, on floors					
12" OC members	CSF	2.57	10.30	23.10	41.10
16" OC members	CSF	1.93	7.71	17.40	30.80
20" OC members	CSF	1.54	6.17	13.90	24.70
24" OC members	CSF	1.28	5.14	11.60	20.60
Wall sheathing or shear panel adhesive, on walls					
16" OC members	CSF	2.63	10.50	23.70	42.10
20" OC members	CSF	2.11	8.42	19.00	33.70
24" OC members	CSF	1.75	7.02	15.80	28.10
Polystyrene or polyurethane foam panel adhesive, on walls					
12" OC members	CSF	3.51	14.00	31.60	56.10
16" OC members	CSF	2.63	10.50	23.70	42.10
20" OC members	CSF	2.11	8.42	19.00	33.70
24" OC members	CSF	1.75	7.02	15.80	28.10
Gypsum drywall adhesive					
12" OC members	CSF	1.31	5.22	11.80	20.90
16" OC members	CSF	.98	3.92	8.82	15.70
20" OC members	CSF	.78	3.13	7.05	12.50
24" OC members	CSF	.65	2.61	5.88	10.50
Hardboard or plastic panel adhesive, on walls					
12" OC members	CSF	3.51	14.00	31.60	56.20
16" OC members	CSF	2.63	10.50	23.70	42.10
20" OC members	CSF	2.11	8.42	19.00	33.70
24" OC members	CSF	1.75	7.02	15.80	28.10

	Craft@Hrs	Unit	Material	Labor	Total
Labor to apply adhesive to framing members, 1/8" to 1/2" bead diameter, no material included					
Floor or ceiling joists					
12" OC members	BC@.075	CSF	—	2.78	2.78
16" OC members	BC@.056	CSF	—	2.07	2.07
20" OC members	BC@.052	CSF	—	1.93	1.93
24" OC members	BC@.042	CSF	—	1.55	1.55
Interior and exterior wall members					
12" OC members	BC@.100	CSF	—	3.70	3.70
16" OC members	BC@.090	CSF	—	3.33	3.33
20" OC members	BC@.084	CSF	—	3.11	3.11
24" OC members	BC@.084	CSF	—	3.11	3.11

Special purpose adhesives

Construction adhesive, for counters, cabinets, paneling, brick veneer, ceramic fixtures, shelving,

sets in 10 minutes, 10.5 oz. cartridge

— Ea 1.67 — 1.67

Epoxy-tie adhesive, bonds concrete, fills cracks to 3/4", seals doors and windows, anchor grouting,

non-shrink, 22 oz. cartridge

— Ea 27.00 — 27.00

Gypsum drywall adhesive, waterproof, bonds to wood, metal, masonry, concrete, 29 oz. cartridge

— Ea 4.40 — 4.40

Aggregate

	Craft@Hrs	Unit	Material	Labor	Total
Latex FRP adhesive, indoor, bonds wood, concrete, drywall, foamboard, trowel grade, gallon	—	Ea	22.00	—	22.00
Panel insulation adhesive, waterproof, for polyurethane & polystyrene panels, bonds to wood, metal, masonry, concrete, 4.5 lbs.	—	Ea	33.00	—	33.00
Marine adhesive/sealant, 10 oz.	—	Ea	20.00	—	20.00
Project adhesive, rubber-based, bonds plywood, hardboard fiberglass, drywall, foam board, shelving, ceramic fixtures, 10 minute work time, 10.5 oz. cartridge	—	Ea	3.87	—	3.87

	Unit	1 quart can	1 gallon can
General purpose adhesives			
Acoustic tile adhesive, solvent base, waterproof, sound deadening type	Ea	—	16.50
Aliphatic resin woodworking glue	Ea	12.00	27.00
Carpet cement, outdoor	Ea	18.40	—
Professional carpenter's glue, multi-purpose	Ea	5.50	24.10
Contact cement, rubber based, waterproof, bonds veneers to plywood, particleboard, wallboard	Ea	16.00	35.00
Gel contact cement	Ea	16.00	—
Resilient flooring adhesive, latex base, adheres to concrete, plywood, felt, sheet flooring	Ea	6.00	17.00
Tile cement, solvent base, ceramic/stone, interior	Ea	9.50	24.00

	Craft@Hrs	Unit	Material	Labor	Total
Aggregate Typical prices, 5 mile haul, 24 ton minimum. See also Roofing, Built-up					
Crushed stone (1.4 tons per CY)					
3/8" stone	—	Ton	28.20	—	28.20
3/4" (Number 3)	—	Ton	26.90	—	26.90
1-1/2" (Number 2)	—	Ton	28.20	—	28.20
Crushed slag, typical prices where available					
3/4" slag	—	Ton	18.10	—	18.10
1-1/2"	—	Ton	18.50	—	18.50
Washed gravel (1.4 tons per CY)					
3/4" gravel	—	Ton	28.20	—	28.20
1-1/2"	—	Ton	28.30	—	28.30
Fill sand (1.35 tons per CY)	—	Ton	13.10	—	13.10
Add per ton less than 24 tons	—	Ton	8.00	—	8.00
Add for delivery over 5 miles, one way	—	Mile	10.00	—	10.00

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

Appraisal and Arbitration Fees

	Craft@Hrs	Unit	Material	Labor	Total
Single family residences, condominiums, planned unit developments (PUDs). Fees for complex, expensive (over \$1 million) or atypical properties or those that require higher licensure than a state license are usually negotiated. Based on square feet of gross living area (excluding the garage).					
To 2,500 square feet	—	LS	—	—	383.00
Over 2,500 SF to 3,500 SF	—	LS	—	—	434.00
Over 3,500 SF to 5,000 SF	—	LS	—	—	536.00
Over 5,000 SF	—	LS	—	—	791.00
Small residential income properties (duplex, triplex, quadriplex)					
2 to 4 units	—	LS	—	—	689.00
Apartment houses, commercial and industrial buildings					
To \$300,000 valuation	—	LS	—	—	3,320.00
Over \$300,000 to \$1,000,000 valuation	—	LS	—	—	4,340.00
Over \$1,000,000 to \$3,000,000 valuation	—	LS	—	—	4,850.00
Over \$3,000,000 to \$5,000,000 valuation	—	LS	—	—	6,120.00
Other services					
Additional photograph (each)	—	LS	—	—	28.10
Outlying area fee	—	LS	—	—	56.10
Satisfactory Completion (old Form 442 / new Form 1004d)	—	LS	—	—	153.00
Appraisal Update same comps (Form 1004d)	—	LS	—	—	306.00
Operating Income Statement (FNMA 216)	—	LS	—	—	81.60
SFR Rental Survey (FNMA 1007)	—	LS	—	—	81.60
Appraisal review (desk)	—	LS	—	—	179.00
Appraisal review (field)	—	LS	—	—	383.00
Drive-by appraisal (Form 2055) starting at	—	LS	—	—	281.00
Drive-by appraisal (Form 2070/2075)	—	LS	—	—	230.00
Machinery (Fee is based on total value of equipment appraised) Additional charges for travel and lodging may be required					
To \$30,000 valuation	—	LS	—	—	633.00
Over \$30,000 to \$100,000 valuation	—	LS	—	—	847.00
Over \$100,000 to \$500,000 valuation	—	LS	—	—	1,430.00
Over \$500,000 to \$1,000,000 valuation	—	LS	—	—	1,940.00
Over \$1,000,000 to \$5,000,000 valuation	—	LS	—	—	3,320.00
Court testimony (excluding preparation)	—	Day	—	—	1,530.00
Consulting fees are billed at an hourly rate	—	Hour	—	—	194.00
Outside of office meetings or court appearance are billed including travel time and expenses round trip, minimum 4 hours.					

Arbitration and Mediation Fees These are administrative fees paid to the American Arbitration Association (AAA). Rules and fees are subject to change. The AAA's web site at www.adr.org has current rules and fee information. Fees charged by Construction Dispute Resolution Services (<http://www.constructiondisputes-cdrs.com>) will usually be less. Arbitrators are chosen from the National Roster of Construction Arbitrators and are paid a fee by the parties. Legal representation, if desired (although not necessary), is at the expense of each party. These fees do not include rental of a hearing room. An initial filing fee is payable in full by a filing party when a claim, counterclaim or additional claim is filed. A case service fee is payable at the time the first hearing is scheduled. This fee will be refunded at the conclusion of the case if no hearings have occurred so long as the Association was notified of cancellation at least 24 hours before the first scheduled hearing. The minimum AAA filing fee for any case having three or more arbitrators is \$2,750 plus a \$1,000 case service fee.

Arbitration and Mediation Fees

	Unit	Initial Filing Fee	Case Service Fee
Claims to \$75,000	LS	750.00	800.00
Claims over \$75,000 to \$150,000	LS	1,750.00	1,250.00
Claims over \$150,000 to \$300,000	LS	2,650.00	2,000.00
Claims over \$300,000 to \$500,000	LS	4,000.00	3,500.00
Claims over \$500,000 to \$1,000,000	LS	5,000.00	6,200.00
Claims over \$1,000,000 to \$10,000,000	LS	7,000.00	7,700.00
Claims over \$10,000,000 *	LS	*	12,500.00
No Amount Stated **	LS	7,000.00	7,700.00

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

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

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

Craft@Hrs Unit Material Labor Total

Mediation, mobile Generally will meet at the offices of the attorneys involved in the dispute. Does not replace legal counsel but is used to maintain equity between the mediating parties. Typical fees.

Nonrefundable retainer (half from each party)	—	Ea	—	—	345.00
Weekday sessions after the initial consultation	—	Hr	—	—	173.00
Nonrefundable retainer for weekend mediation	—	Ea	—	—	417.00
Weekend mediation sessions	—	Hr	—	—	261.00

Architectural Illustrations Full color painting on watercolor board with matted frame with title and credit on matte. Glass and elaborate framing are extra. Costs for pen and ink illustrations with color Mylar overlay are similar to cost for watercolor illustrations. Typical fees.



Custom home, eye level view					
Simple rendering	—	LS	—	—	1,010.00
Complex rendering	—	LS	—	—	1,490.00
Custom home, bird's eye view					
Simple rendering	—	LS	—	—	1,230.00
Complex rendering	—	LS	—	—	1,760.00
Tract homes in groups of five or more (single floor plans, multiple elevations), eye level view					
Simple rendering	—	LS	—	—	602.00
Complex rendering	—	LS	—	—	828.00
Tract homes in groups of five or more (single floor plans, multiple elevations), bird's eye view					
Simple rendering	—	LS	—	—	774.00
Complex rendering	—	LS	—	—	1,250.00
Tract homes or condominium project, overall bird's eye view					
10-25 homes or living units	—	LS	—	—	3,820.00
Typical commercial structure					
Eye level view	—	LS	—	—	1,690.00
Bird's eye view	—	LS	—	—	1,890.00
Complex commercial structure					
Eye level view	—	LS	—	—	2,490.00
Bird's eye view	—	LS	—	—	3,210.00

Doors, Patio

	Craft@Hrs	Unit	Material	Labor	Total
6-panel hemlock prehung interior doors. Bored for lockset. Ready to paint or stain. 1-3/8" thick. 4-9/16" jambs.					
24" x 80"	BC@.750	Ea	225.00	27.80	252.80
28" x 80"	BC@.750	Ea	266.00	27.80	293.80
30" x 80"	BC@.750	Ea	235.00	27.80	262.80
32" x 80"	BC@.750	Ea	240.00	27.80	267.80
36" x 80"	BC@.750	Ea	246.00	27.80	273.80
2-panel knotty alder prehung interior doors. Bored for lockset. 1-3/8" thick.					
24" x 80"	BC@.750	Ea	235.00	27.80	262.80
28" x 80"	BC@.750	Ea	240.00	27.80	267.80
30" x 80"	BC@.750	Ea	246.00	27.80	273.80
32" x 80"	BC@.750	Ea	251.00	27.80	278.80
36" x 80"	BC@.750	Ea	256.00	27.80	283.80
Pine full louver prehung interior doors. Ready to install. Provides ventilation while maintaining privacy. 11/16" x 4-9/16" clear face pine door jamb. 1-3/8" thick. Includes (3) 3-1/2" x 3-1/2" hinges with brass finish. Bored for lockset.					
24" x 80"	BC@.750	Ea	105.00	27.80	132.80
28" x 80"	BC@.750	Ea	111.00	27.80	138.80
30" x 80"	BC@.750	Ea	115.00	27.80	142.80
32" x 80"	BC@.750	Ea	117.00	27.80	144.80
36" x 80"	BC@.750	Ea	127.00	27.80	154.80
10-lite wood French prehung double interior doors. Pre-masked tempered glass for easy finishing. True divided light design. Ponderosa pine. 1-3/8" thick. French doors are mostly glass, with one, to as many as fifteen panes set in wood sash.					
48" x 80", unfinished	BC@1.25	Ea	359.00	46.30	405.30
60" x 80", unfinished	BC@1.25	Ea	405.00	46.30	451.30
48" x 80", primed	BC@1.25	Ea	250.00	46.30	296.30
60" x 80", primed	BC@1.25	Ea	436.00	46.30	482.30
Oak French prehung double interior doors. Bored for lockset. 1-3/8" thick.					
48" x 80"	BC@1.25	Ea	461.00	46.30	507.30
60" x 80"	BC@1.25	Ea	522.00	46.30	568.30
Patio Doors					
10-lite swinging patio double doors. White finish. Dual-glazed with clear tempered glass. Fully weatherstripped. Pre-drilled lock-bore.					
6'-0" wide x 6'-8" high	B1@3.58	Ea	451.00	120.00	571.00
Vinyl-clad hinged patio double doors, Frenchwood®, Andersen. White exterior. Perma-Shield® low-maintenance finish. Clear pine interior. 1-lite. 3-point locking system. Adjustable hinges with ball-bearing pivots. Low-E2 tempered insulating glass. Mortise and tenon joints.					
6'-0" x 6'-8"	B1@3.58	Ea	3,120.00	120.00	3,240.00
Center hinge 15-lite aluminum patio double doors. Sized for replacement. Unfinished clear pine interior. White extruded aluminum-clad exterior. Weatherstripped frame. Self-draining sill. Bored for lockset. 3/4" Low-E insulated safety glass.					
6'-0" x 6'-8"	B1@3.58	Ea	1,060.00	120.00	1,180.00
Aluminum inward swing 1-lite patio double doors. Low-E insulated safety glass. Clear wood interior ready to paint or stain.					
6'-0" x 6'-8"	B1@3.58	Ea	843.00	120.00	963.00
Aluminum inward swing 10-lite patio double doors. Unfinished interior. Low-E2 argon-filled insulated glass. Thermal-break sill. Bored for lockset. With head and foot bolts.					
6'-0" x 6'-8"	B1@3.58	Ea	985.00	120.00	1,105.00



Doors, Patio

	Craft@Hrs	Unit	Material	Labor	Total
200 series Narroline™ sliding wood patio doors, Andersen. Dual-pane Low-E glass. Anodized aluminum track with stainless steel cap. With hardware and screen. White.					
6'-0" x 6'-8"	B1@3.58	Ea	2,080.00	120.00	2,200.00
Vinyl-clad gliding patio doors, Andersen. White. Tempered 1" Low-E insulating glass. Anodized aluminum track.					
6'-0" x 6'-8"	B1@3.58	Ea	794.00	120.00	914.00
10-lite sliding patio doors. Solid pine core. Weatherstripped on 4 sides of operating panels. Butcher block 4-1/2"-wide stiles and 9-1/2" bottom rail. 4-9/16" jamb width. White. Actual dimensions: 71-1/4" wide x 79-1/2" high. Pre-drilled lock-bore.					
6'-0" wide x 6'-8" high	B1@3.58	Ea	354.00	120.00	474.00
Aluminum sliding patio doors. Unfinished interior. White aluminum-clad exterior. With lockset. Insulating Low-E2 glass.					
6'-0" x 6'-8", 1 lite	B1@3.58	Ea	693.00	120.00	813.00
6'-0" x 6'-8", 15 lites	B1@3.58	Ea	808.00	120.00	928.00
Aluminum sliding patio doors. Insulating glass. Reversible, self-aligning ball bearing rollers. Zinc finish lock. With screen. By nominal width x height. Actual height and width are 1/2" less.					
5' x 6'-8", bronze finish	B1@3.58	Ea	570.00	120.00	690.00
6' x 6'-8", bronze finish	B1@3.58	Ea	602.00	120.00	722.00
6' x 6'-8", mill finish	B1@3.58	Ea	444.00	120.00	564.00
Aluminum sliding patio doors. With screen. Insulated glass except as noted. Reversible, self-aligning ball bearing rollers. Zinc finish lock. By nominal width x height. Actual height and width are 1/2" less.					
5'-0" x 6'-8", mill finish, single glazed	B1@3.58	Ea	235.00	120.00	355.00
5'-0" x 6'-8", white finish	B1@3.58	Ea	333.00	120.00	453.00
5'-0" x 8'-0", white finish, with grids	B1@3.58	Ea	378.00	120.00	498.00
6'-0" x 6'-8", bronze finish, single glazed	B1@3.58	Ea	392.00	120.00	512.00
6'-0" x 6'-8", bronze finish, with grids	B1@3.58	Ea	378.00	120.00	498.00
6'-0" x 6'-8", white finish, single glazed	B1@3.58	Ea	337.00	120.00	457.00
8'-0" x 8'-0", white finish	B1@4.60	Ea	419.00	154.00	573.00
Screen for sliding or swinging patio doors, 72-1/2" wide x 6'8" high.					
Inswing/Outswing, French door, white	B1@.250	Ea	131.00	8.38	139.38
Traditional, aluminum frame, fiberglass screen	B1@.250	Ea	130.00	8.38	138.38
Retractable, for in-swing door, white 36" x 80"	B1@.250	Ea	113.00	8.38	121.38
Vinyl sliding patio doors. Includes screen. Low-E insulating glass.					
5'-0" x 6'-8"	B1@3.58	Ea	644.00	120.00	764.00
5'-0" x 6'-8", with internal mini-blinds	B1@3.58	Ea	1,030.00	120.00	1,150.00
6'-0" x 6'-8"	B1@3.58	Ea	666.00	120.00	786.00
6'-0" x 6'-8" with grid	B1@3.58	Ea	944.00	120.00	1,064.00
6'-0" x 6'-8" with internal mini-blinds	B1@3.58	Ea	1,050.00	120.00	1,170.00
1-lite swinging prehung steel patio double doors. Polyurethane core. High-performance weatherstrip. Adjustable thermal-break sill. Non-yellowing frame and grille. Inward swing.					
6'-0" x 6'-8"	B1@3.58	Ea	351.00	120.00	471.00

Doors, Folding

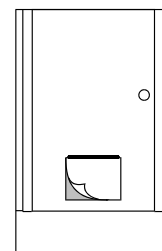
	Craft@Hrs	Unit	Material	Labor	Total
1-lite swinging steel patio double door with internal mini-blinds. Prehung. Double-pane insulated safety glass.					
6'-0" x 6'-8", outward swing	B1@3.58	Ea	572.00	120.00	692.00
6'-0" x 6'-8", inward swing, with brick mold	B1@3.58	Ea	644.00	120.00	764.00
6'-0" x 6'-8", outward swing, Dade County-approved (high wind)	B1@3.58	Ea	1,220.00	120.00	1,340.00
10-lite swinging steel patio double doors. Inward swing. Insulated Low-E glass.					
5'-0" x 6'-8"	B1@3.58	Ea	998.00	120.00	1,118.00
6'-0" x 6'-8"	B1@3.58	Ea	998.00	120.00	1,118.00
10-lite venting steel patio double doors. Inward swing. Insulated glass.					
6'-0" x 6'-8"	B1@3.58	Ea	709.00	120.00	829.00
8'-0" x 6'-8"	B1@3.58	Ea	799.00	120.00	919.00
15-lite swinging steel patio double doors. Inward swing					
5'-0" x 6'-8", insulated glass	B1@3.58	Ea	899.00	120.00	1,019.00
6'-0" x 6'-8", Low-E insulated glass	B1@3.58	Ea	899.00	120.00	1,019.00
6'-0" x 6'-8", single glazed	B1@3.58	Ea	823.00	120.00	943.00
15-lite prehung swinging fiberglass patio double doors. Outward swing. Insulated glass. Adjustable mill finish thermal-break threshold					
6'-0" x 6'-8"	B1@3.58	Ea	1,170.00	120.00	1,290.00

Accordion Folding Doors Vertical embossed surface. Includes hardware. Fully assembled. Hung in a cased opening.

32" x 80" vinyl, natural color, Horizon	BC@.750	Ea	27.10	27.80	54.90
32" x 80" vinyl, white, Horizon	BC@.750	Ea	21.50	27.80	49.30
32" x 80" vinyl, fruitwood color, Encore	BC@.750	Ea	68.30	27.80	96.10
32" x 80" vinyl, white, Horizon	BC@.750	Ea	69.30	27.80	97.10
32" x 80" vinyl, oak color, Horizon	BC@.750	Ea	69.30	27.80	97.10
32" x 80" vinyl, white, Capri	BC@.750	Ea	199.00	27.80	226.80
32" x 80" frosted Plexiglas, asstd colors	BC@.750	Ea	212.00	27.80	239.80
36" x 80" vinyl, oak color, Via	BC@.750	Ea	27.20	27.80	55.00
36" x 80" vinyl, white, Via	BC@.750	Ea	32.00	27.80	59.80
36" x 80" vinyl, white, Contempra	BC@.750	Ea	41.40	27.80	69.20
36" x 80" vinyl, white, Oakmont	BC@.750	Ea	57.20	27.80	85.00
36" x 96" vinyl, oak color, Express One	BC@.750	Ea	136.00	27.80	163.80
36" x 96" vinyl, white, Express One	BC@.750	Ea	140.00	27.80	167.80
48" x 96" vinyl, oak color, Express One	BC@.750	Ea	171.00	27.80	198.80
48" x 96" vinyl, white, Express One	BC@.750	Ea	171.00	27.80	198.80
Folding door lock.					
Door lock	BC@.250	Ea	9.12	9.26	18.38

Pet Doors Entrance doors, lockable, swinging, aluminum frame with security panel

Small, 5" x 7" opening	BC@.800	Ea	37.20	29.60	66.80
Medium, 7" x 11-1/4" opening	BC@.800	Ea	41.70	29.60	71.30
Large, 10-1/2" x 15" opening	BC@.850	Ea	56.10	31.50	87.60
Super large, 15" x 20" opening	BC@.850	Ea	92.60	31.50	124.10
Entrance doors, lockable, swinging, aluminum frame with security panel, dual flap, insulated					
Small, 5" x 9-1/4" opening	BC@.800	Ea	80.30	29.60	109.90
Medium, 7-1/4" x 13" opening	BC@.800	Ea	95.80	29.60	125.40
Large, 9-3/4" x 17" opening	BC@.850	Ea	101.00	31.50	132.50
Super large, 15" x 23-1/2" opening	BC@.850	Ea	168.00	31.50	199.50

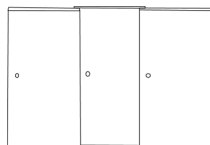


Doors, Closet

	Craft@Hrs	Unit	Material	Labor	Total
Entrance pet doors, lockable, with wall installation kit, swinging, aluminum frame with security panel, dual flap, insulated. Labor for creating wall opening not included					
Small, 5" x 9-1/4" opening	BC@.800	Ea	110.00	29.60	139.60
Medium, 7-1/4" x 13" opening	BC@.800	Ea	119.00	29.60	148.60
Large, 9-3/4" x 17" opening	BC@.850	Ea	131.00	31.50	162.50
Super large, 15" x 23-1/2" opening	BC@.850	Ea	201.00	31.50	232.50
Sliding screen or patio doors, adjustable full length 1/2" panel, 80" high, "Lexan" plastic above lockable, swinging PVC door, aluminum frame					
For cats and miniature dogs, panel is 11-1/2" wide with					
5" x 7-1/2" door	BC@.500	Ea	181.00	18.50	199.50
For small dogs, panel is 15" wide with					
8-1/2" x 12-1/2" door	BC@.500	Ea	145.00	18.50	163.50
For medium and large dogs, panel is 18" wide with					
11-1/2" x 16-1/2" door	BC@.500	Ea	219.00	18.50	237.50
Pet screen, vinyl coated 48" x 84"					
Resists tears and punctures	BC@.500	Ea	19.20	18.50	37.70
Pet grill, steel, 36" x 31-3/8"	BC@.250	Ea	28.60	9.26	37.86

Bypass Closet Doors Bypass closet doors slide left or right on an overhead track, never revealing more than one-half of the interior.

White bypass closet doors. Prefinished white vinyl-covered hardboard panels instead of mirrors. White steel frame. Jump-proof bottom track. 1-1/2" dual race ball bearing wheels. Injection-molded top guides. Dimensions are width x height. Per pair of doors.



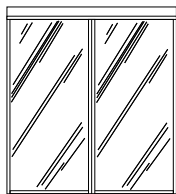
48" x 80"	BC@.750	Ea	36.70	27.80	64.50
60" x 80"	BC@1.00	Ea	83.20	37.00	120.20
72" x 80"	BC@1.00	Ea	93.00	37.00	130.00
48" x 96"	BC@.750	Ea	97.30	27.80	125.10
60" x 96"	BC@1.00	Ea	113.00	37.00	150.00
72" x 96"	BC@1.00	Ea	113.00	37.00	150.00

Economy mirrored bypass closet doors. Gold finished steel. Plate mirror with double strength glass.

Bottom rail with jump-proof track. Dimensions are width x height. Per pair of doors.

47" x 80"	BC@.750	Ea	86.60	27.80	114.40
59" x 80"	BC@1.00	Ea	111.00	37.00	148.00
71" x 80"	BC@1.00	Ea	123.00	37.00	160.00
95" x 80"	BC@1.25	Ea	195.00	46.30	241.30

Good quality mirrored bypass closet doors. White frame. Safety-backed mirror. Dimensions are width x height. Per pair of doors.



48" x 80", silver nickel mirror	BC@.750	Ea	119.00	27.80	146.80
60" x 80", silver nickel mirror	BC@1.00	Ea	145.00	37.00	182.00
72" x 80", silver nickel mirror	BC@1.00	Ea	170.00	37.00	207.00
48" x 80", trimline bronze mirror door	BC@.750	Ea	223.00	27.80	250.80
60" x 80", trimline bronze mirror door	BC@1.00	Ea	246.00	37.00	283.00
72" x 80", trimline bronze mirror door	BC@1.00	Ea	272.00	37.00	309.00
48" x 80", satin mirror door	BC@.750	Ea	189.00	27.80	216.80
60" x 80", satin mirror door	BC@1.00	Ea	215.00	37.00	252.00
72" x 80", satin mirror door	BC@1.00	Ea	240.00	37.00	277.00

Beveled mirror bypass closet doors. 1/2" bevel on both sides of glass. Safety-backed mirror. Includes hardware. Dimensions are width x height. Per pair of doors.

48" x 80"	BC@.750	Ea	132.00	27.80	159.80
60" x 80"	BC@1.00	Ea	153.00	37.00	190.00
72" x 80"	BC@1.00	Ea	201.00	37.00	238.00
96" x 80"	BC@1.25	Ea	251.00	46.30	297.30

Doors, Closet**Craft@Hrs Unit Material Labor Total**

Premium mirrored bypass closet doors. Brushed nickel. Anodized aluminum finish with color-coordinated glazing vinyl. Color-matched mirror handles. "Select" quality 3mm plate mirror. Jump-proof bottom track and 1-1/2" dual race ball bearing wheels. Mitered frame corners. Dimensions are width x height. Per pair of doors.

48" x 81"	BC@.750	Ea	219.00	27.80	246.80
60" x 81"	BC@1.00	Ea	254.00	37.00	291.00
72" x 81"	BC@1.00	Ea	280.00	37.00	317.00
96" x 81"	BC@1.25	Ea	317.00	46.30	363.30

Bypass door accessories

Bumper	BC@.175	Ea	3.31	6.48	9.79
Carpet riser	BC@.175	Ea	2.88	6.48	9.36
Guide	BC@.175	Ea	3.04	6.48	9.52

Bi-Fold Closet Doors Bi-fold closet doors fold in half when open, revealing nearly the full interior.

Lauan bi-fold flush closet doors. 1-3/8" thick. 2 prehung panels. Ready to paint, stain, or varnish.

24" x 80"	BC@.700	Ea	41.10	25.90	67.00
30" x 80"	BC@.700	Ea	46.70	25.90	72.60
32" x 80"	BC@.700	Ea	48.90	25.90	74.80
36" x 80"	BC@.700	Ea	52.20	25.90	78.10

Primed hardboard bi-fold flush closet doors. 1-3/8" thick. 2 prehung panels.

24" x 80"	BC@.700	Ea	103.00	25.90	128.90
30" x 80"	BC@.700	Ea	104.00	25.90	129.90
32" x 80"	BC@.700	Ea	112.00	25.90	137.90
36" x 80"	BC@.700	Ea	107.00	25.90	132.90

4-panel birch bi-fold flush closet doors. Wood stile and rail construction. 1-3/8" thick. Open left or right. Includes track and hardware.

24" x 80"	BC@.700	Ea	40.90	25.90	66.80
30" x 80"	BC@.700	Ea	47.50	25.90	73.40
36" x 80"	BC@.700	Ea	54.10	25.90	80.00
48" x 80"	BC@.800	Ea	80.50	29.60	110.10

4-panel lauan flush bi-fold closet doors. Wood stile and rail construction. 1-3/8" thick. Open left or right. Includes track and hardware.

48" x 80"	BC@.800	Ea	64.60	29.60	94.20
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4-panel red oak flush bi-fold closet doors. Wood stile and rail construction. 1-3/8" thick. Open left or right. Includes track and hardware.

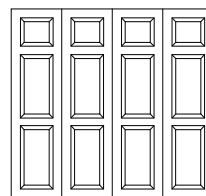
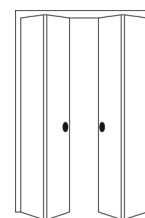
24" x 80"	BC@.700	Ea	46.80	25.90	72.70
30" x 80"	BC@.700	Ea	52.00	25.90	77.90
36" x 80"	BC@.700	Ea	60.40	25.90	86.30
48" x 80"	BC@.800	Ea	87.00	29.60	116.60

Pine colonial panel bi-fold doors. Includes hardware and track. Can be painted or stained. Two hinged panels.

24" x 80"	BC@.700	Ea	82.90	25.90	108.80
30" x 80"	BC@.700	Ea	90.10	25.90	116.00
36" x 80"	BC@.700	Ea	96.70	25.90	122.60

Clear pine 2-panel colonial bi-fold doors. Clear pine. Recessed rails. Unfinished. Open left or right. Includes all hardware and track. Two hinged panels.

24" x 80"	BC@.700	Ea	146.00	25.90	171.90
30" x 80"	BC@.700	Ea	151.00	25.90	176.90
32" x 80"	BC@.700	Ea	157.00	25.90	182.90
36" x 80"	BC@.700	Ea	164.00	25.90	189.90



Doors, Closet

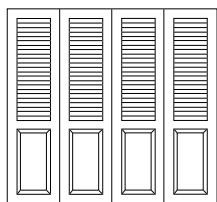
	Craft@Hrs	Unit	Material	Labor	Total
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Oak panel bi-fold doors. Includes track and hardware. 1-3/8" thick. Ready to finish. Classic. Two hinged panels.

24" x 80"	BC@.700	Ea	134.00	25.90	159.90
30" x 80"	BC@.700	Ea	145.00	25.90	170.90
36" x 80"	BC@.700	Ea	155.00	25.90	180.90

Pine louver over louver bi-fold doors. 1-1/8" thick ponderosa pine. 3-11/16" wide rails. 1-1/4" wide stiles. Two prehung panels. Unfinished.

24" x 80"	BC@.700	Ea	64.10	25.90	90.00
30" x 80"	BC@.700	Ea	70.00	25.90	95.90
32" x 80"	BC@.700	Ea	79.30	25.90	105.20
36" x 80"	BC@.700	Ea	83.90	25.90	109.80



Pine louver over panel bi-fold doors. Recessed rails. Open left or right. 1/2" swing space. Two prehung panels. Includes track and hardware. Unfinished stain grade.

24" x 80"	BC@.700	Ea	63.70	25.90	89.60
30" x 80"	BC@.700	Ea	99.20	25.90	125.10
36" x 80"	BC@.700	Ea	113.00	25.90	138.90

Bi-fold door hardware

Bi-fold hinge	BC@.175	Ea	4.22	6.48	10.70
Carpet riser	BC@.175	Ea	2.51	6.48	8.99
Hardware set	BC@.175	Ea	9.25	6.48	15.73
48" track	—	Ea	28.70	—	28.70
60" track	—	Ea	29.40	—	29.40
72" track	—	Ea	31.20	—	31.20

Mirrored Bi-Fold Closet Doors Framed bi-fold mirror doors. White frame. Top-hung with single wheel top hanger. Snap-in bottom guide and fascia. Low rise bottom track. Non-binding door operation. Reversible top and bottom track. 3 mm safety-backed mirror. Two hinged panels.

24" x 80"	BC@.700	Ea	104.00	25.90	129.90
30" x 80"	BC@.700	Ea	117.00	25.90	142.90
36" x 80"	BC@.700	Ea	129.00	25.90	154.90

Bevel edge bi-fold mirror doors. 1/2" vertical bevel with bearing hinges. White finished steel frame with safety-backed mirror. Includes hardware. Full access to closet opening. Reversible high- and low-profile top and bottom tracks. Two hinged panels.

24" x 80"	BC@.700	Ea	119.00	25.90	144.90
30" x 80"	BC@.700	Ea	131.00	25.90	156.90

Frameless bi-fold mirror doors. Frameless style maximizes the mirror surface. Beveled edge glass. All preassembled hinges. Safety-reinforced mirror backing. Two hinged panels. Includes hardware.

36" x 80"	BC@.700	Ea	107.00	25.90	132.90
30" x 80"	BC@.700	Ea	129.00	25.90	154.90
36" x 80"	BC@.700	Ea	143.00	25.90	168.90

Chrome bi-fold mirror doors. Two hinged panels. Includes hardware.

24" x 80"	BC@.700	Ea	186.00	25.90	211.90
30" x 80"	BC@.700	Ea	198.00	25.90	223.90
36" x 80"	BC@.700	Ea	211.00	25.90	236.90

Drafting

	Craft@Hrs	Unit	Material	Labor	Total
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Drafting Per SF of floor area, architectural only, not including engineering fees. See also Architectural Illustrations and Blueprinting. Typical prices.

Apartments	—	SF	—	—	2.26
Warehouses and storage buildings	—	SF	—	—	2.01
Office buildings	—	SF	—	—	3.94
Residences					
Minimum quality tract work	—	SF	—	—	3.05
Typical work	—	SF	—	—	3.78
Detailed jobs, exposed woods, hillsides	—	SF	—	—	4.73

Drainage Piping Corrugated plastic drainage pipe, plain or perforated and snap-on fittings. Installed in trenches or at foundation footings. No excavation, gravel or backfill included.

Polyethylene pipe

3" pipe perforated	BL@.010	LF	.67	.30	.97
4" pipe solid	BL@.010	LF	.67	.30	.97
6" pipe slotted	BL@.012	LF	2.45	.36	2.81

Corrugated drain snap pipe fittings

3" internal coupling	P1@.100	Ea	2.25	3.65	5.90
3" perforated end cap	P1@.055	Ea	2.44	2.01	4.45
3" snap adapter	P1@.100	Ea	4.29	3.65	7.94
3" corrugated x smooth adapter	P1@.100	Ea	2.18	3.65	5.83
4" internal coupling	P1@.100	Ea	4.35	3.65	8.00
4" universal adapter	P1@.100	Ea	4.87	3.65	8.52
4" x 3" reducer	P1@.100	Ea	3.56	3.65	7.21
4" snap adapter	P1@.100	Ea	3.87	3.65	7.52
6" snap adapter	P1@.110	Ea	12.80	4.02	16.82
6" x 4" reducer	P1@.110	Ea	12.30	4.02	16.32
6" snap coupling	P1@.110	Ea	2.45	4.02	6.47
6" wye	P1@.150	Ea	7.74	5.48	13.22
6" tee	P1@.150	Ea	19.70	5.48	25.18
6" blind tee	P1@.150	Ea	14.20	5.48	19.68
6" split end cap	P1@.060	Ea	7.41	2.19	9.60

Filter sock sieve. Keeps soil out of perforated pipe. Reduces need for aggregate filters. By pipe size. Per linear foot of sock.

3", 10' length	P1@.006	LF	.54	.22	.76
4", 10' length	P1@.007	LF	.59	.26	.85
4", 100' length	P1@.007	LF	.22	.26	.48

Rock or sand fill for drainage systems. Labor cost is for spreading base and covering pipe. 3 mile haul, dumped on site and placed by wheelbarrow.

Crushed stone (1.4 tons per CY)					
3/4" (Number 3)	BL@.700	CY	37.60	21.00	58.60
1-1/2" (Number 2)	BL@.700	CY	39.50	21.00	60.50
Crushed slag (1.86 tons per CY)					
3/4"	BL@.700	CY	25.30	21.00	46.30
Sand (1.35 tons per CY)	BL@.360	CY	18.40	10.80	29.20

Draperies

Craft@Hrs Unit Material Labor Total

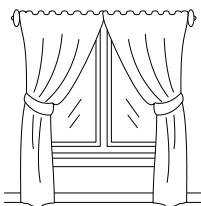
Precast Residential Rain Drain System System includes 5 interlocking tongue and groove connection channels with galvanized steel slotted grate, one meter long each, 4" outlet and closing end caps, catch basin, and 4" PVC pipe outlet. Channel has 4" internal width. System withstands imposed loadings up to 3,500 lbs. Set in concrete, not including concrete or forming costs.



System components

1 meter channel with grate	—	Ea	85.50	—	85.50
4" outlet cap	—	Ea	7.55	—	7.55
4" closed end cap	—	Ea	7.54	—	7.54
Catch basin with PVC trash bucket and steel grating	—	Ea	101.00	—	101.00
4" PVC pipe outlet	—	Ea	23.50	—	23.50
Typical 5 meter rain drain system	BL@4.0	Ea	567.00	120.00	687.00

Draperies, Custom, Subcontract Custom draperies include 4" double hems and headers, 1-1/2" side hems, and weighted corners. Finished sizes allow 4" above, 4" below (except for sliding glass openings), and 5" on each side of wall openings. Prices are figured at one width, 48" of fabric, pleated to 16". Costs listed include fabric, full liner, manufacturing, all hardware, and installation. Add 50% per LF of width for jobs outside working range of metropolitan centers. Use \$300 as a minimum job charge.



Minimum quality, 200% fullness, average is 6 panels of fabric, limited choice of fabric styles, colors, and textures

To 95" high	—	LF	—	—	49.00
To 68" high	—	LF	—	—	45.90
To 54" high	—	LF	—	—	44.40

Good quality, fully lined, 250% fullness, average is 5 panels of fabric, better selection of fabric styles, colors, and textures, weighted seams

To 95" high	—	LF	—	—	117.00
To 84" high	—	LF	—	—	112.00
To 68" high	—	LF	—	—	104.00
To 54" high	—	LF	—	—	98.10
To 44" high	—	LF	—	—	94.50
Deduct for multi-unit jobs	—	%	—	—	-25.0
Add for insulated fabrics or liners					
Pleated shade liner	—	SY	—	—	32.20
Thermal liner	—	SY	—	—	34.70

Better quality, fully lined, choice of finest fabric styles, colors, and textures, does not include special treatments such as elaborate swags, or custom fabrics

To 95" high	—	LF	—	—	144.00
To 84" high	—	LF	—	—	139.00
To 68" high	—	LF	—	—	124.00
To 54" high	—	LF	—	—	115.00
To 44" high	—	LF	—	—	107.00

Electrical Work, Subcontract Costs listed below are for wiring new residential and light commercial buildings with Romex cable and assume circuit lengths averaging 40 feet. If flex cable is required, add \$15.00 for 15 amp circuits and \$35 for 20 amp circuits. No fixtures or appliances included except as noted. Work on second and higher floors may cost 25% more. Work performed by a qualified subcontractor.

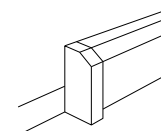
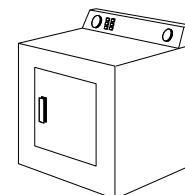
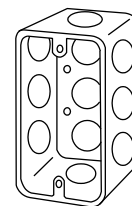


Rule of thumb: Total cost for electrical work, performed by a qualified subcontractor, per SF of floor area. Includes service entrance, outlets, switches, basic lighting fixtures and connecting appliances only.

All wiring and fixtures	—	SF	—	—	5.73
Lighting fixtures only (no wiring)	—	SF	—	—	1.66

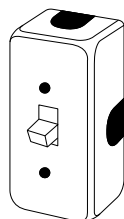
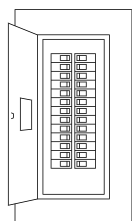
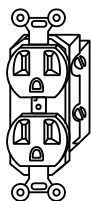
Electrical Work, Subcontract

	Craft@Hrs	Unit	Material	Labor	Total
Air conditioners (with thermostat)					
Central, 2 ton (220 volt)	—	LS	—	—	787.00
First floor room (115 volt)	—	LS	—	—	235.00
Second floor room (115 volt)	—	LS	—	—	474.00
Add for thermostat on second floor	—	LS	—	—	161.00
Alarms. See also Security Alarms					
Fire or smoke detector, wiring and outlet box only	—	LS	—	—	178.00
Add for detector unit	—	LS	—	—	90.40
Bathroom fixtures, wiring only, no fixtures or equipment included					
Mirror lighting (valance or side lighted mirrors)	—	LS	—	—	160.00
Sauna heater (40 amp branch circuit)	—	LS	—	—	475.00
Steam bath generator	—	LS	—	—	474.00
Heat lamp with timer wall switch	—	LS	—	—	235.00
Whirlpool bath system and wall switch	—	LS	—	—	395.00
Clock outlets (recessed)	—	LS	—	—	119.00
Closet lighting					
Ceramic "pull chain" ceiling fixture	—	LS	—	—	120.00
Switch-operated fixture with wall switch	—	LS	—	—	160.00
Clothes dryers					
Gas dryer, receptacle only	—	LS	—	—	161.00
Direct connection for up to 5,760 watt (30 amp) electric dryer, 220 volt	—	LS	—	—	235.00
Direct connection for over 5,760 watt (40 amp) electric dryer, 220 volt	—	LS	—	—	277.00
Clothes washers (115 volt)	—	LS	—	—	118.00
Dishwashers	—	LS	—	—	161.00
Door bells, rough wiring, front and rear with transformer					
Add the cost of two push-buttons and the chime	—	LS	—	—	234.00
Fans (exhaust)					
Attic fans (wiring only)	—	LS	—	—	159.00
Bathroom fans (includes 70 CFM fan)	—	LS	—	—	232.00
Garage fans (wiring only)	—	LS	—	—	162.00
Kitchen fans (includes 225 CFM fan)	—	LS	—	—	316.00
Furnace wiring and blower hookup only	—	LS	—	—	192.00
Garage door opener, wiring and hookup only	—	LS	—	—	163.00
Garbage disposers, wiring, switch and connection only					
No disposer included	—	LS	—	—	199.00
Grounding devices (see also Lightning protection systems below)					
Grounding entire electrical system	—	LS	—	—	228.00
Grounding single appliance	—	LS	—	—	97.40
Ground fault circuit interrupter (GFCI), rough and finish wiring					
Includes outlet box and GFCI	—	LS	—	—	199.00
Heaters					
Baseboard (115 volt) per branch circuit	—	LS	—	—	161.00
Bathroom (ceiling type) wiring, switch connection (with GFCI) only	—	LS	—	—	187.00
Ceiling heat system (radiant-resistance type) 1,000 watt, 120 volt, per branch circuit, including thermostat	—	LS	—	—	362.00
Space heating (flush in-wall type) up to 2,000 watt, 220 volt	—	LS	—	—	330.00
Humidifiers, central	—	LS	—	—	161.00



Electrical Work, Subcontract

	Craft@Hrs	Unit	Material	Labor	Total
Exterior lamp posts, wiring and hookup only, to 25'					
Using buried wire and conduit	—	LS	—	—	943.00
Lighting fixture outlets (rough wiring and box only)					
Ceiling	—	Ea	—	—	78.10
Floor	—	Ea	—	—	119.00
Set in concrete	—	Ea	—	—	158.00
Set in masonry	—	Ea	—	—	158.00
Underground	—	Ea	—	—	206.00
Valance	—	Ea	—	—	94.00
Wall outlet	—	Ea	—	—	78.10
Lightning protection systems (static electric grounding system) Residential, ridge protection including one chimney and connected garage (houses with cut-up roofs will cost more)					
Typical home system	—	LS	—	—	3,360.00
Barns and light commercial buildings	—	LS	—	—	6,570.00
Ovens, wall type (up to 10' of wiring and hookup only), 220 volt					
To 4,800 watts (20 amp)	—	LS	—	—	192.00
4,800 to 7,200 watts (30 amp)	—	LS	—	—	224.00
7,200 to 9,600 watts (40 amp)	—	LS	—	—	292.00
Ranges, (up to 10' of wiring and hookup only), 220 volt					
Countertop type					
To 4,800 watts (20 amp)	—	LS	—	—	157.00
4,800 to 7,200 watts (30 amp)	—	LS	—	—	225.00
7,200 to 9,600 watts (40 amp)	—	LS	—	—	292.00
Freestanding type (50 amp)	—	LS	—	—	322.00
Receptacle outlets (rough wiring, box, receptacle and plate)					
Ceiling	—	Ea	—	—	64.50
Countertop wall	—	Ea	—	—	70.10
Floor outlet	—	Ea	—	—	96.20
Split-wired	—	Ea	—	—	121.00
Standard indoor, duplex wall outlet	—	Ea	—	—	64.50
Waterproof, with ground fault circuit	—	Ea	—	—	103.00
Refrigerator or freezer wall outlet	—	Ea	—	—	77.10
Service entrance connections, complete (panel box hookup but no wiring)					
100 amp service including meter socket, main switch, GFCI and 5 single pole breakers					
in 20 breaker space exterior panel box	—	LS	—	—	1,220.00
200 amp service including meter socket, main switch, 2 GFCI and 15 single pole breakers					
in 40 breaker space exterior panel box	—	LS	—	—	2,010.00
Sub-panel connections (panel box hookup but no wiring)					
40 amp circuit panel including 12 single pole breakers					
in 12 breaker indoor panel box	—	LS	—	—	452.00
50 amp circuit panel including 16 single pole breakers					
in 16 breaker indoor panel box	—	LS	—	—	482.00
Sump pump connection					
including 15' of underground conduit	—	Ea	—	—	231.00
Switches (includes rough wiring, box, switch and plate)					
Dimmer	—	Ea	—	—	67.80
Lighted	—	Ea	—	—	67.90
Quiet	—	Ea	—	—	54.30
Mercury	—	Ea	—	—	67.70
Standard indoor wall switch	—	Ea	—	—	53.20
Stair-wired (3 way)	—	Ea	—	—	143.00
Waterproof	—	Ea	—	—	115.00
Television outlet wiring (300 ohm wire)	—	Ea	—	—	54.30



Computer Wiring & Network Setup

	Craft@Hrs	Unit	Material	Labor	Total
Trash compactor, 15" (includes compactor installed under counter and wiring)					
Standard	—	LS	—	—	606.00
Deluxe	—	LS	—	—	708.00
Vacuuming system, central					
Central unit hookup	—	LS	—	—	135.00
Remote vacuum outlets					
Receptacle wiring only	—	Ea	—	—	64.50
Water heaters					
(up to 10' of wiring and hookup only), 220 volt	—	LS	—	—	201.00
Water pumps, domestic potable water					
Connection only	—	LS	—	—	143.00

Residential computer wiring and network setup These costs are based on work done with wall cavities exposed. Labor costs in existing dwellings will be up to four times higher if cable has to be fished through enclosed walls. Single story homes use stranded wire. Multi story homes use solid wire on vertical runs. Includes normal (5%) waste. Costs assume cable runs terminate at the point of phone or cable service entry and that connections are made at a wall-mounted punch down block with RJ45 connectors. The local building code may require wire runs in conduit or use of plenum type cable.

Network cable, twisted pair category 5e, rated for 350 Mbps, material price based on 1,000' rolls. Add the cost of conduit, if required. Costs per linear foot of cable run.

4 pair UTP PVC stranded wire	BE@.008	LF	.15	.32	.47
4 pair UTP PVC solid wire	BE@.008	LF	.15	.32	.47
Add for plenum grade wire	—	%	60.0	—	—

Termination to structured cable panel. Includes structured cable panel with telephone, data and video connectors for 6, 12 or 18 stations. Also includes RJ45 keystone jack and wall plate at the room/station end.

12 station termination	BE@1.40	Ea	195.00	56.30	251.30
18 station termination	BE@2.10	Ea	220.00	84.40	304.40
24 station termination	BE@2.80	Ea	254.00	113.00	367.00

Cable testing using a dedicated cable tester

Shielded/Unshielded twisted pair, per cable	E4@.125	Ea	—	6.29	6.29
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Distribution of Internet connection to network switch or router. Includes 10/100 network switch/wireless router and patch cables

6 station connection	BE@.166	Ea	98.70	6.67	105.37
12 station connection	BE@.333	Ea	102.00	13.40	115.40
18 station connection	BE@.500	Ea	150.00	20.10	170.10

Wireless access points. Preferred location is one foot below the ceiling on a small shelf. Each access point counts as one station termination and connection. Add the cost of network cable wiring to the access point and an electrical outlet at the access point.

Wireless access point	BE@.100	Ea	72.10	4.02	76.12
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Remote high gain antenna for a wireless network access point. (Extends the range of wireless connections beyond the usual 50 to 100 feet.) Add the cost of cable connection to the wireless router/access point.

8 Dbi high gain panel antenna	—	Ea	76.50	—	76.50
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Cable for high gain antennae, thin ethernet, 50 ohm, (RG58). Used to connect a high gain antenna to the wireless access points.

PVC cable	BE@.008	LF	.16	.32	.48
Plenum cable	BE@.008	LF	.50	.32	.82

Electrical Work, Digital Networking

	Craft@Hrs	Unit	Material	Labor	Total
Connection of live internet feed to each computer. Includes physical connection of DSL or cable internet feed, internet setup per carriers' instruction, setup and testing of live feed at each outlet and wireless access point. Testing assumes the computers are installed and running.					
Connection and setup of Internet feed	BE@2.00	Ea	—	80.40	80.40
Testing of live feed at each computer	BE@1.00	Ea	—	40.20	40.20
Post installation of room/station computer setup. Assumes a peer to peer network with resources shared per the customers' preference, including browser and email setup.					
Cost per computer configuration	—	LS	—	—	50.00

Digital Networking Systems, Subcontract Modular and expandable electronic gateway for the in-home distribution of external services such as CATV, satellite TV, broadcast TV, telephone and high speed internet access. System also processes and redistributes in-home generated signals such as those from VCRs, DVD players, audio, security cameras and computers. Provides (6) computer local area network (LAN) outlets, (6) telephone jacks and (6) cable hookups where required. Costs include standalone console, 1,000' of each type of cable (phone, network, video), installation and connection.

Basic networking system

Six TV and eight voice locations	—	LS	—	—	649.00
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Apartment type networking system

Six video, six data and six voice locations	—	LS	—	—	709.00
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Amplified networking system. Video and voice surge protection

Six video, six data and 15 voice locations	—	LS	—	—	826.00
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Large amplified networking system. Video and voice surge protection

Six video, 8 data and 18 voice locations	—	LS	—	—	920.00
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Electrical generators, residential Suitable for standby or extended primary power generation. Dual fuel (liquid propane or natural gas) two-stroke, V-twin cylinder, 60 Hz, single phase, UL and CSA listed. Emissions certified to EPA Tier 3 rating. 65 decibels sound output rating at 10 feet. Control package includes digital engine and generator control panel, ground fault interruption, lightning shield and combination voltage regulator and automatic transfer switch with automatic dual utility connection lockout. Includes fused main circuit breaker, electronic load-sharing module for generator ganging, electric starter motor, battery and trickle charger. Add the cost of connecting electrical loads and electrical controls. Add 4,000 lb. capacity rough-terrain fork lift, if required. Includes set in place only.

7 KW, 120 volt	B8@1.00	Ea	4,480.00	36.10	4,516.10
10 KW, 120 volt	B8@1.00	Ea	5,470.00	36.10	5,506.10
12 KW, 120 volt	B8@1.00	Ea	8,890.00	36.10	8,926.10
15 KW, 120 volt	B8@1.00	Ea	11,500.00	36.10	11,536.10
20 KW, 120 volt	B8@1.00	Ea	17,700.00	36.10	17,736.10
65 KW, 400/480 volt	B8@1.00	Ea	74,200.00	36.10	74,236.10
100 KW, 400/480 volt	B8@1.00	Ea	115,000.00	36.10	115,036.10
150 KW, 400/480 volt	B8@1.00	Ea	171,000.00	36.10	171,036.10
200 KW, 400/480 volt	B8@1.00	Ea	229,000.00	36.10	229,036.10
250 KW, 400/480 volt	B8@1.00	Ea	285,000.00	36.10	285,036.10
Residential motor generator installation					
Form and pour slab foundation	B5@.069	SF	2.93	2.53	5.46
Tie-down and leveling	B1@1.00	Ea	25.00	33.50	58.50
Piping for twin fuel trains, lube oil cooling, and dedicated fire protection	B9@0.04	LF	2.66	1.31	3.97
Mount and wire automatic transfer switch to household main breaker box	BE@.184	LF	.42	7.39	7.81
Check and test wiring	BE@.250	LF	.36	10.00	10.36
RFI, lightning and ground fault wiring	BE@.184	LF	.39	7.39	7.78
350 gallon propane tank	B9@1.00	Ea	714.00	32.70	746.70
Fire protection CO2 extinguisher and piping	B9@2.00	Ea	169.00	65.40	234.40

Electrical Generators, Residential

	Craft@Hrs	Unit	Material	Labor	Total
Soundproof "doghouse" enclosure for reduction of noise level to 10 decibels at 10 feet distance. Includes vertical support studs, spacers, fasteners and trim. Complies with American Institute of Sound Engineering specifications. Per square foot of wall or ceiling covered.					
Sidewall coverage	D1@.040	SF	1.92	1.44	3.36
Ceiling coverage	D1@.060	SF	1.92	2.16	4.08
Utility shed generator enclosure, 5/8" plywood with 2 x 4 frame, prefabricated kit, weatherized, with mansard roof, double door, lock assembly, and dual galvanized metal screened lintel air inlet and exhaust vents					
Generator enclosure, per SF of floor	D1@.020	SF	9.22	.72	9.94
Combination digital load/voltage controller, usage meter with main breaker box and controls tie-in					
Controller	BE@.184	Ea	1,580.00	7.39	1,587.39
Zone control fused panel box to shield sensitive electronics and home medical electronics for handicapped					
Fused panel box	BE@.184	Ea	680.00	7.39	687.39
Uninterruptible power supply and trickle charger for sensitive electronic and medical appliances					
UPS	BE@.184	Ea	605.00	7.39	612.39
Automatic supervisory control and data acquisition (SCADA) notification circuit to local emergency services to prevent electrical shock of electrical utility repair technicians or fire department personnel					
Notification circuit	BE@.184	Ea	265.00	7.39	272.39
Generator-activated power failure lighting system. Self-diagnostic emergency lighting fixtures, microprocessor based, continuously monitored, with battery and lamps.					
Two-lamp emergency fixture	BE@.825	Ea	182.00	33.20	215.20

Wind turbine generators Vertical dual-use ventilator or conventional horizontal type, rated and certified to California Construction Code and American Wind Energy Association standards. Technospin, Rooftop Wind Power LLC, or equal. Rated wind speed 11 m/s (24.6 mph) start-up wind: 2.5 m/s (5.6 mph) survival wind: 60 m/s (134 mph) max. Permanent magnet generator. Generator voltage for battery charging: 12 to 48 V DC. Voltage for grid connection is adjusted to requirements of inverter. Overspeed protection, mechanical and electrical system. Maximum axis load: 150 Kg force (330 lb). Installation specifications are for rooftop mounting. For tax incentives, see <https://smarterhouse.org/resources/federal-tax-incentives>. Costs include weather-proof metal enclosure, wind rotor, generator, main wiring and breaker, overspeed protection, control modules and basic power meter. Add the cost of design work, regulatory fees and insurance inspection, electrical interconnection to the power grid and battery backup, if required.



Wind turbine electrical generator					
100 watts	R1@2.50	Ea	447.00	89.10	536.10
500 watts	R1@3.00	Ea	1,940.00	107.00	2,047.00
750 watts	R1@3.00	Ea	3,360.00	107.00	3,467.00
1.0 Kw	R1@3.50	Ea	4,470.00	125.00	4,595.00
1.5 Kw	R1@3.50	Ea	6,710.00	125.00	6,835.00
2.0 Kw	R1@4.00	Ea	8,960.00	143.00	9,103.00
Base plate for rooftop mount	BE@1.00	Ea	150.00	40.20	190.20
Tie-down for generator	R1@.250	Ea	300.00	8.91	308.91
Electric and control modules	BE@.350	Ea	28.10	14.10	42.20
Install electrical wiring (typical)	BE@.150	LF	2.15	6.03	8.18
Install controls	BE@.500	Ea	—	20.10	20.10
Commission and test	BE@4.00	Ea	—	161.00	161.00

Elevators and Lifts, Subcontract

Craft@Hrs Unit Material Labor Total

Elevators and Lifts, Subcontract Elevators for apartments or commercial buildings, hydraulic vertical cab, meets code requirements for public buildings, 2,500 pound capacity, to 13 passengers. Includes side opening sliding door, illuminated controls, emergency light, alarm, code-approved fire service operation, motor control unit, wiring in hoistway, cab and door design options.

Basic 2 stop, typical costs

100 feet per minute	—	LS	—	—	46,000.00
125 feet per minute	—	LS	—	—	50,300.00
150 feet per minute	—	LS	—	—	54,200.00
Add per stop to 5 stops	—	LS	—	—	4,960.00
Add for infrared door protection	—	Ea	—	—	1,860.00
Add for hall position indicator	—	Ea	—	—	456.00
Add for car position indicator	—	Ea	—	—	456.00
Add for car direction light & tone	—	Ea	—	—	456.00
Add for hall lantern with audible tone	—	Ea	—	—	456.00

Elevators for private residences, electric cable, motor driven, 500 pound capacity, includes complete installation of elevator, controls and safety equipment. Meets code requirements for residences

2 stops (up to 10' rise)	—	LS	—	—	24,000.00
3 stops (up to 20' rise)	—	LS	—	—	27,100.00
4 stops (up to 30' rise)	—	LS	—	—	30,500.00
5 stops (up to 40' rise)	—	LS	—	—	33,600.00
Add for additional gate	—	Ea	—	—	1,050.00

Dumbwaiters, electric

75 pound, 2 stop, 24" x 24" x 30"	—	LS	—	—	9,280.00
75 pound, add for each extra stop	—	Ea	—	—	1,670.00
100 pound, 2 stop, 24" x 30" x 36"	—	LS	—	—	10,400.00
100 pound, add for each extra stop	—	Ea	—	—	1,880.00
100 pound, 2 stop, 24" x 24" x 36", tray type	—	LS	—	—	14,400.00
100 pound tray type, add for each extra stop	—	Ea	—	—	2,240.00
300 pound, 2 stop, 30" x 30" x 36", tray type	—	LS	—	—	21,000.00
300 pound, add for each extra stop	—	Ea	—	—	3,320.00
500 pound, 2 stop, 23" x 56" x 48"	—	LS	—	—	22,400.00
500 pound, add for each extra stop	—	Ea	—	—	3,320.00

Hydraulic elevators, private residence, 750 pound capacity. Includes controls and safety equipment with standard unfinished birch plywood cab and one gate.

2 stops (up to 15' rise)	—	LS	—	—	26,000.00
3 stops (up to 22' rise)	—	LS	—	—	29,500.00
4 stops (up to 28' rise)	—	LS	—	—	32,500.00
5 stops (up to 34' rise)	—	LS	—	—	38,200.00
Add for adjacent opening	—	Ea	—	—	612.00
Add for additional gate	—	Ea	—	—	1,060.00
Add for plastic laminate cab	—	Ea	—	—	833.00
Add for oak raised panel cab	—	Ea	—	—	3,560.00

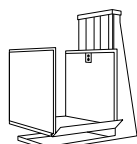
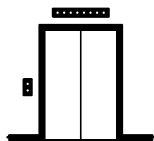
Stairlifts (incline lifts), single passenger, indoor. Lift to 18' measured diagonally. 300 pound capacity. Includes top and bottom call button, safety chair, track, power unit, installation by a licensed elevator contractor. Single family residential use

Straight stairs	—	LS	—	—	4,230.00
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Wheelchair lift (porch lift), screw driven, fully enclosed sides.

Typical electrical connections and control included. Up to 5' rise

Residential wheelchair lift	—	LS	—	—	9,550.00
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Engineering Fees

	Craft@Hrs	Unit	Material	Labor	Total
Engineering Fees Typical cost for consulting work.					
Acoustical engineering (Based on an hourly wage of \$70.00 to \$135.00)					
Environmental noise survey of a lot; includes technician with measuring equipment, data reduction and analysis, and written report with recommendations					
Written report with recommendations	—	LS	—	—	1,950.00
Exterior to interior noise analysis	—	LS	—	—	643.00
Measure "Impact Insulation Class" and "Sound Transmission Class" in existing buildings, (walls, floors, and ceilings)					
Minimum cost	—	LS	—	—	1,280.00
Priced by wall, floor, or ceiling sections					
Per section, approx. 100 SF	—	Ea	—	—	642.00
Analyze office, conference room, or examining room to assure acoustical privacy					
Per room analyzed	—	LS	—	—	564.00
Prepare acoustical design for church, auditorium, or lecture hall, (fees vary greatly with complexity of acoustics desired)					
Typical cost	—	LS	—	—	2,400.00
Evaluate noise problems from proposed building					
Impact on surrounding environment	—	LS	—	—	1,280.00
Evaluate noise problems from surrounding environment					
Impact on a proposed building	—	LS	—	—	1,040.00
Front end scheduling. Coordinate architectural, engineering and other consultant services, plan check times and other approval times					
For residential and commercial projects	—	LS	—	—	7,470.00
Project scheduling using CPM (Critical Path Method). Includes consultation, review of construction documents, development of construction logic, and graphic schedule. Comprehensive schedules to meet government or owner specifications will cost more.					
Wood frame buildings, 1 or 2 stories	—	LS	—	—	4,990.00
Structural engineering plan check, typical 2-story, 8 to 10 unit apartment building					
Typical price per apartment building	—	LS	—	—	1,310.00
Add for underground parking	—	LS	—	—	1,060.00

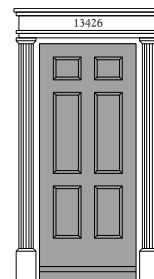
Entrances, Colonial An entrance consists of two pilasters (one at each side of the exterior opening) and a crosshead at the top of the door. A decorative pediment may rest on the crosshead. No crosshead is required if the pediment includes a breastboard. No door, frame or sill costs are included in the estimates below. Unpainted urethane.

Molded one-piece pilasters with plinth blocks, per set of two pilasters

1-1/2" wide x 86" high	BC@.800	Ea	42.60	29.60	72.20
3-1/2" wide x 81" high	BC@.800	Ea	53.50	29.60	83.10
3-1/2" wide x 108" high	BC@.800	Ea	65.90	29.60	95.50
5" wide x 108" high	BC@.800	Ea	98.80	29.60	128.40
7" wide x 90" high	BC@.800	Ea	119.00	29.60	148.60
9" wide x 90" high	BC@.800	Ea	153.00	29.60	182.60
9" wide x 108" high	BC@.800	Ea	154.00	29.60	183.60
11" wide x 144" high	BC@.800	Ea	276.00	29.60	305.60

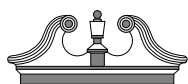
Molded entrance crosshead, without pediment

40" wide by 6" high	BC@.400	Ea	43.80	14.80	58.60
48" wide by 6" high	BC@.400	Ea	52.60	14.80	67.40
78" wide by 6" high	BC@.400	Ea	85.50	14.80	100.30
40" wide by 10" high	BC@.400	Ea	74.60	14.80	89.40
48" wide by 10" high	BC@.400	Ea	88.20	14.80	103.00
78" wide by 10" high	BC@.400	Ea	139.00	14.80	153.80



Excavation

	Craft@Hrs	Unit	Material	Labor	Total
40" wide by 14" high	BC@.400	Ea	130.00	14.80	144.80
48" wide by 14" high	BC@.400	Ea	161.00	14.80	175.80
78" wide by 14" high	BC@.400	Ea	195.00	14.80	209.80
96" wide by 14" high	BC@.400	Ea	247.00	14.80	261.80
Molded pediment without breastboard (crosshead required)					
38" wide, 10" high peaked cap	BC@.400	Ea	93.40	14.80	108.20
48" wide, 13" high peaked cap	BC@.400	Ea	170.00	14.80	184.80
78" wide, 21" high peaked cap	BC@.400	Ea	179.00	14.80	193.80
42" wide, 12" high decorative acorn	BC@.400	Ea	87.90	14.80	102.70
56" wide, 13" high decorative acorn	BC@.400	Ea	79.30	14.80	94.10
78" wide, 16" high decorative acorn	BC@.400	Ea	167.00	14.80	181.80
49" wide, 18" high ram's head	BC@.400	Ea	154.00	14.80	168.80
61" wide, 21" high ram's head	BC@.400	Ea	144.00	14.80	158.80
91" wide, 29" high ram's head	BC@.400	Ea	211.00	14.80	225.80
Molded pediment with breastboard (no crosshead required)					
40" wide, 17" high peaked cap	BC@.400	Ea	93.40	14.80	108.20
48" wide, 19" high peaked cap	BC@.400	Ea	114.00	14.80	128.80
80" wide, 29" high peaked cap	BC@.400	Ea	183.00	14.80	197.80
50" wide, 21" high decorative acorn	BC@.400	Ea	96.10	14.80	110.90
58" wide, 22" high decorative acorn	BC@.400	Ea	132.00	14.80	146.80
80" wide, 26" high decorative acorn	BC@.400	Ea	176.00	14.80	190.80
50" wide, 24" high ram's head	BC@.400	Ea	154.00	14.80	168.80
58" wide, 25" high ram's head	BC@.400	Ea	190.00	14.80	204.80
80" wide, 36" high ram's head	BC@.400	Ea	251.00	14.80	265.80



Excavation and Backfill by Hand Using hand tools.

General excavation, using a pick and shovel (loosening and one throw)

Light soil	BL@1.10	CY	—	33.00	33.00
Average soil	BL@1.70	CY	—	51.00	51.00
Heavy soil or loose rock	BL@2.25	CY	—	67.50	67.50

Backfilling (one shovel throw from stockpile)

Sand	BL@.367	CY	—	11.00	11.00
Average soil	BL@.467	CY	—	14.00	14.00
Rock or clay	BL@.625	CY	—	18.80	18.80
Add for compaction, average soil or sand	BL@.400	CY	—	12.00	12.00
Fine grading	BL@.008	SF	—	.24	.24

Footings, light soil, using a pick and shovel

6" deep x 12" wide (1.85 CY per CLF)	BL@.034	LF	—	1.02	1.02
8" deep x 12" wide (2.47 CY per CLF)	BL@.050	LF	—	1.50	1.50
8" deep x 16" wide (3.29 CY per CLF)	BL@.055	LF	—	1.65	1.65
8" deep x 18" wide (3.70 CY per CLF)	BL@.060	LF	—	1.80	1.80
10" deep x 12" wide (3.09 CY per CLF)	BL@.050	LF	—	1.50	1.50
10" deep x 16" wide (4.12 CY per CLF)	BL@.067	LF	—	2.01	2.01
10" deep x 18" wide (4.63 CY per CLF)	BL@.075	LF	—	2.25	2.25
12" deep x 12" wide (3.70 CY per CLF)	BL@.060	LF	—	1.80	1.80
12" deep x 16" wide (4.94 CY per CLF)	BL@.081	LF	—	2.43	2.43
12" deep x 20" wide (6.17 CY per CLF)	BL@.100	LF	—	3.00	3.00
12" deep x 24" wide (7.41 CY per CLF)	BL@.125	LF	—	3.75	3.75
16" deep x 16" wide (6.59 CY per CLF)	BL@.110	LF	—	3.30	3.30
Add for average soil - loose rock or roots	—	%	—	50.0	—

Loading trucks (shoveling, one throw)

Average soil	BL@1.45	CY	—	43.50	43.50
Rock or clay	BL@2.68	CY	—	80.40	80.40

Excavation

	Craft@Hrs	Unit	Material	Labor	Total
Pits to 5' (pits over 5' require shoring)					
Light soil	BL@1.34	CY	—	40.20	40.20
Average soil	BL@2.00	CY	—	60.00	60.00
Heavy soil	BL@2.75	CY	—	82.50	82.50
Shaping trench bottom for pipe					
To 10" pipe	BL@.024	LF	—	.72	.72
12" to 20" pipe	BL@.076	LF	—	2.28	2.28
Shaping embankment slopes					
Up to 1 in 4 slope	BL@.060	SY	—	1.80	1.80
Over 1 in 4 slope	BL@.075	SY	—	2.25	2.25
Add for top crown or toe	—	%	—	50.0	—
Add for swales	—	%	—	90.0	—
Spreading material piled on site					
Average soil	BL@.367	CY	—	11.00	11.00
Stone or clay	BL@.468	CY	—	14.00	14.00
Strip and pile top soil, depths to 6"	BL@.024	SF	—	.72	.72
Tamping, hand tamp only	BL@.612	CY	—	18.40	18.40
Trenches to 5', soil piled beside trench					
Light soil	BL@1.13	CY	—	33.90	33.90
Average soil	BL@1.84	CY	—	55.20	55.20
Heavy soil or loose rock	BL@2.86	CY	—	85.80	85.80

	Craft@Hrs	Unit	Material	Labor	Equipment	Total
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Trenching and Backfill with Heavy Equipment These costs and productivity are based on utility line trenches and continuous footings where the spoil is piled adjacent to the trench. Linear feet (LF) and cubic yards (CY) per hour shown are based on a crew of two. Reduce productivity by 10% to 25% when spoil is loaded in trucks. Shoring, dewatering or unusual conditions are not included.

Wheel loader 55 HP, with integral backhoe

12" wide bucket, for 12" wide trench. Depths 3' to 5'

Light soil (60 LF per hour)	B8@.033	LF	—	1.19	.70	1.89
Medium soil (55 LF per hour)	B8@.036	LF	—	1.30	.77	2.07
Heavy or wet soil (35 LF per hour)	B8@.057	LF	—	2.06	1.22	3.28

18" wide bucket, for 18" wide trench. Depths 3' to 5'

Light soil (55 LF per hour)	B8@.036	LF	—	1.30	.77	2.07
Medium soil (50 LF per hour)	B8@.040	LF	—	1.45	.85	2.30
Heavy or wet soil (30 LF per hour)	B8@.067	LF	—	2.42	1.43	3.85

24" wide bucket, for 24" wide trench. Depths 3' to 5'

Light soil (50 LF per hour)	B8@.040	LF	—	1.45	.85	2.30
Medium soil (45 LF per hour)	B8@.044	LF	—	1.59	.94	2.53
Heavy or wet soil (25 LF per hour)	B8@.080	LF	—	2.89	1.71	4.60

Backfill trenches from loose material piled adjacent to trench. No compaction included.

Soil, previously excavated

Front-end loader 60 HP

(50 CY per hour)	B8@.040	CY	—	1.45	.77	2.22
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D-3 crawler dozer

(25 CY per hour)	B8@.080	CY	—	2.89	2.07	4.96
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3/4 CY crawler loader

(33 CY per hour)	B8@.061	CY	—	2.20	1.32	3.52
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D-7 crawler dozer

(130 CY per hour)	B8@.015	CY	—	.54	.86	1.40
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Sand or gravel bedding

3/4 CY wheel loader

(80 CY per hour)	B8@.025	CY	—	.90	.39	1.29
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Excavation with Heavy Equipment

	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Compaction of soil in trenches in 8" layers						
Pneumatic tampers						
(40 CY per hour)	BL@.050	CY	—	1.50	1.27	2.77
Vibrating rammers, gasoline powered "Jumping Jack"						
(20 CY per hour)	BL@.100	CY	—	3.00	1.14	4.14
	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Excavation with Heavy Equipment These figures assume a crew of one operator unless noted otherwise. Only labor costs are included here. See equipment rental costs at the end of this section. Use the productivity rates listed here to determine the number of hours or days that the equipment will be needed. For larger jobs and commercial work, see excavation costs under Site Work in the Commercial and Industrial division of this book.						
Excavation rule of thumb for small jobs	—	CY	—		2.85	2.85
Backhoe, operator and one laborer, 3/4 CY bucket						
Light soil (13.2 CY per hour)	B8@.152	CY	—	5.49		5.49
Average soil (12.5 CY per hour)	B8@.160	CY	—	5.78		5.78
Heavy soil (10.3 CY per hour)	B8@.194	CY	—	7.01		7.01
Sand (16 CY per hour)	B8@.125	CY	—	4.52		4.52
Add when using 1/2 CY bucket	—	%	—	25.0		—
Bulldozer, 65 HP unit						
Backfill (36 CY per hour)	0E@.027	CY	—	1.14		1.14
Clearing brush (900 SF per hour)	0E@.001	SF	—	.04		.04
Add for thick brush	—	%	—	300.0		—
Spread dumped soil (42 CY per hour)	0E@.024	CY	—	1.01		1.01
Strip topsoil (17 CY per hour)	0E@.059	CY	—	2.49		2.49
Bulldozer, 90 HP unit						
Backfill (40 CY per hour)	0E@.025	CY	—	1.06		1.06
Clearing brush (1,000 SF per hour)	0E@.001	SF	—	.04		.04
Add for thick brush	—	%	—	300.0		—
Spread dumped soil (45 CY per hour)	0E@.023	CY	—	.97		.97
Strip top soil (20 CY per hour)	0E@.050	CY	—	2.11		2.11
Bulldozer, 140 HP unit						
Backfill (53 CY per hour)	0E@.019	CY	—	.80		.80
Clearing brush (1,250 SF per hour)	0E@.001	SF	—	.04		.04
Add for thick brush	—	%	—	200.0		—
Spread dumped soil (63 CY per hour)	0E@.016	CY	—	.68		.68
Strip top soil (25 CY per hour)	0E@.040	CY	—	1.69		1.69
Dump truck, spot, load, unload, travel						
3 CY truck						
Short haul (9 CY per hour)	B7@.222	CY	—	6.75		6.75
2-3 mile haul (6 CY per hour)	B7@.333	CY	—	10.10		10.10
4 mile haul (4 CY per hour)	B7@.500	CY	—	15.20		15.20
5 mile haul (3 CY per hour)	B7@.666	CY	—	20.20		20.20
4 CY truck						
Short haul (11 CY per hour)	B7@.182	CY	—	5.53		5.53
2-3 mile haul (7 CY per hour)	B7@.286	CY	—	8.69		8.69
4 mile haul (5.5 CY per hour)	B7@.364	CY	—	11.10		11.10
5 mile haul (4.5 CY per hour)	B7@.444	CY	—	13.50		13.50
5 CY truck						
Short haul (14 CY per hour)	B7@.143	CY	—	4.35		4.35
2-3 mile haul (9.5 CY per hour)	B7@.211	CY	—	6.41		6.41
4 mile haul (6.5 CY per hour)	B7@.308	CY	—	9.36		9.36
5 mile haul (5.5 CY per hour)	B7@.364	CY	—	11.10		11.10

Excavation Equipment Rental

	Craft@Hrs	Unit	Material	Labor	Total
Jackhammer, one laborer (per CY of unloosened soil)					
Average soil (2-1/2 CY per hour)	BL@.400	CY	—	12.00	12.00
Heavy soil (2 CY per hour)	BL@.500	CY	—	15.00	15.00
Igneous or dense rock (.7 CY per hour)	BL@1.43	CY	—	42.90	42.90
Most weathered rock (1.2 CY per hour)	BL@.833	CY	—	25.00	25.00
Soft sedimentary rock (2 CY per hour)	BL@.500	CY	—	15.00	15.00
Air tamp (3 CY per hour)	BL@.333	CY	—	9.99	9.99
Loader (tractor shovel)					
Piling earth on premises, 1 CY bucket					
Light soil (43 CY per hour)	OE@.023	CY	—	.97	.97
Heavy soil (35 CY per hour)	OE@.029	CY	—	1.23	1.23
Loading trucks, 1 CY bucket					
Light soil (53 CY per hour)	OE@.019	CY	—	.80	.80
Average soil (43 CY per hour)	OE@.023	CY	—	.97	.97
Heavy soil (40 CY per hour)	OE@.025	CY	—	1.06	1.06
Deduct for 2-1/4 CY bucket	—	%	—	-43.0	—
Sheepsfoot roller (18.8 CSF per hour)	OE@.001	SF	—	.04	.04
Sprinkling with truck, (62.3 CSF per hour)	TR@.001	SF	—	.03	.03
Tree and brush removal, labor only (clear and grub, one operator and one laborer)					
Light brush	B8@34.8	Acre	—	1,260.00	1,260.00
Heavy brush	B8@45.2	Acre	—	1,630.00	1,630.00
Wooded	B8@48.7	Acre	—	1,760.00	1,760.00
Tree removal, cutting trees, removing branches, cutting into short lengths with chain saws and axes, by tree diameter, labor only					
8" to 12" (5 manhours per tree)	BL@5.00	Ea	—	150.00	150.00
13" to 18" (7 manhours per tree)	BL@7.00	Ea	—	210.00	210.00
19" to 24" (11 manhours per tree)	BL@11.0	Ea	—	330.00	330.00
25" to 36" (14 manhours per tree)	BL@14.0	Ea	—	420.00	420.00
Tree stump removal, using a small backhoe, by tree diameter, operator only					
6" to 10" (1.6 manhours per stump)	OE@1.60	Ea	—	67.60	67.60
11" to 14" (2.1 manhours per stump)	OE@2.10	Ea	—	88.80	88.80
15" to 18" (2.6 manhours per stump)	OE@2.60	Ea	—	110.00	110.00
19" to 24" (3.1 manhours per stump)	OE@3.10	Ea	—	131.00	131.00
25" to 30" (3.3 manhours per stump)	OE@3.30	Ea	—	139.00	139.00
Trenching machine, crawler-mounted					
Light soil (27 CY per hour)	OE@.037	CY	—	1.56	1.56
Heavy soil (21 CY per hour)	OE@.048	CY	—	2.03	2.03
Add for pneumatic-tired machine	—	%	—	15.0	—

Excavation Equipment Rental Costs Typical cost not including fuel, delivery or pickup charges. Add labor costs from the previous section. Half day minimums.

	1/2 day	Day	Week
Backhoe, wheeled mounted			
55 HP unit, 1/8 to 3/4 CY bucket	264.00	377.00	1,040.00
65 HP unit, 1/4 to 1 CY bucket	309.00	441.00	1,430.00
Add for each delivery or pickup	150.00	150.00	150.00
Bulldozer, crawler tractor			
65 HP	321.00	458.00	1,370.00
90 to 105 HP unit, D-4 or D-5	424.00	605.00	1,630.00
140 HP unit, D-6	579.00	827.00	2,360.00
Add for each delivery or pickup	150.00	150.00	150.00

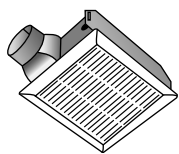
Excavation Equipment Rental

	1/2 day	Day	Week
Dump truck, on-highway type			
3 CY	270.00	385.00	1,020.00
5 CY	286.00	408.00	1,070.00
10 CY	602.00	860.00	2,720.00
Wheel loaders, front-end load and dump, diesel			
3/4 CY bucket, 4WD, articulated	123.00	176.00	617.00
1 CY bucket, 4WD, articulated	250.00	357.00	940.00
2 CY bucket, 4WD, articulated	344.00	491.00	1,480.00
3-1/4 CY bucket, 4WD, articulated	541.00	773.00	2,220.00
5 CY bucket, 4WD, articulated	636.00	908.00	2,750.00
Add for each delivery or pickup	150.00	150.00	150.00
Sheepsfoot roller, towed type, 40" diameter, 48" wide, double drum	129.00	184.00	550.00
Trenching machine, to 5'6" depth, 6" to 16" width capacity, crawler-mounted type	147.00	210.00	690.00
Add for each delivery or pickup	150.00	150.00	150.00
Compactor, 32" plate width, manually guided, gasoline engine, vibratory plate type	200.00	285.00	763.00
Chain saw, 18" to 23" bar, gasoline engine	102.00	145.00	350.00
Breakers, pavement, medium duty, with blade Including 50' of 1" hose	60.00	86.00	252.00
Air compressors, trailer-mounted, gas powered, silenced			
100 CFM to 150 CFM	132.00	188.00	485.00
175 CFM	231.00	330.00	847.00

Craft@Hrs Unit Material Labor Total

Fans

Economy ceiling and wall exhaust fan. For baths, utility, and recreation rooms. For baths up to 45 square feet, other rooms up to 60 square feet. Installs in ceiling or in wall. Plastic duct collar. White polymeric grille. UL listed for use in tub and shower enclosure with GFI branch circuit wiring. Housing dimensions: 8-1/16-inch length, 7-3/16-inch width, 3-7/8-inch depth. Grille size, 8-11/16-inch x 9-1/2-inch. 3-inch duct. 0.75 amp. CFM (cubic feet of air per minute). Labor includes setting and connecting only. Add the cost of wiring and ducting.



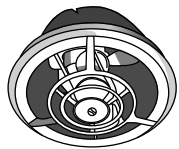
50 CFM, 2.5 sones	BE@1.00	Ea	13.40	40.20	53.60
70 CFM, 4.0 sones	BE@1.00	Ea	27.40	40.20	67.60

Vertical discharge bath fan. Galvanized steel housing, with built-in damper and spin-on white polymeric grille. Polymeric fan blade and duct connectors. Built-in double steel mounting ears with keyhole slots. Fits 8-inch ducts. UL listed. CFM (cubic feet of air per minute). Labor includes setting and connecting only. Add the cost of wiring and ducting.



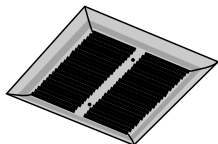
80 CFM, 1.0 sones	BE@1.00	Ea	111.00	40.20	151.20
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Vertical discharge utility fan. Mounts in ceiling. Discharges through duct to roof or wall. Pre-wired motor with plug-in receptacle. Adjustable hanger bars for 16- or 24-inch on-center joists. Silver anodized aluminum grille. Fits 7-inch round ducts. Housing dimensions: 11-inch diameter x 5-5/8-inch deep. UL listed. CFM (cubic feet of air per minute). Labor includes setting and connecting only. Add the cost of wiring and ducting.



210 CFM, 6.5 sones	BE@1.00	Ea	85.70	40.20	125.90
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Ceiling or wall bath exhaust fan. White polymeric grille. Torsion spring grille mounting requires no tools. Plug-in, permanently lubricated motor. Centrifugal blower wheel. Rugged, 26 gauge galvanized steel housing. Sturdy key holes mounting brackets for quick, accurate installation. Tapered, polymeric duct fitting with built-in backdraft damper. U.L. listed for use over bathtubs and showers when connected to a GFCI circuit. 120 volts, 0.5 amps, 2.5 sones, 80 CFM (HVI-2100 certified) and 4-inch round duct. Labor includes setting and connecting only. Add the cost of wiring and ducting.



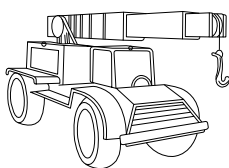
80 CFM, 2.5 sones	BE@1.00	Ea	57.70	40.20	97.90
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01 General Requirements

	Craft@Hrs	Unit	Material	Labor	Total
Construction Photography Digital, professional quality work, hand printed, labeled, numbered and dated. High resolution photographs on a memory card or lower resolution delivered as an email attachment.					
Job progress photos, includes shots of all building corners, two 8" x 10" color prints of each shot, per visit					
Typical cost	—	LS	—	—	580.00
High cost	—	LS	—	—	661.00
Periodic survey visits to job site to figure angles (for shots of all building corners)					
Minimum two photos, per visit	—	Ea	—	—	376.00
Exterior completion photographs, two 8" x 10" prints (two angles)					
Black and white	—	Ea	—	—	574.00
Color	—	Ea	—	—	576.00
Interior completion photographs, with lighting setup, two 8" x 10" prints of each shot (minimum three shots)					
Black and white	—	Ea	—	—	656.00
Color	—	Ea	—	—	674.00
Reprints or enlargements from existing digital file. Hand (custom) prints					
8" x 10", black and white	—	Ea	—	—	25.90
11" x 14", black and white	—	Ea	—	—	36.40
8" x 10", color	—	Ea	—	—	28.60
11" x 14", color	—	Ea	—	—	39.20
Retouching services (taking out phone lines, power poles, autos, signs, etc.) will run about \$100.00 per hour of computer time.					
Signs and Markers Pipe markers, self-stick vinyl, by overall outside diameter of pipe or covering, meets OSHA and ANSI requirements. Costs are based on standard wording and colors.					
3/4" to 1-3/8" diameter, 1/2" letters, 8" long	PA@.077	Ea	3.20	4.06	7.26
1-1/2" to 2 3/8" diameter, 3/4" letters, 8" long	PA@.077	Ea	3.20	4.06	7.26
2 1/2" to 7 7/8" diameter, 1-1/4" letters, 12" long	PA@.077	Ea	4.90	4.06	8.96
8" to 10" diameter, 2-1/2" letters, 24" long	PA@.095	Ea	7.00	5.01	12.01
Flow arrows, 2" wide tape x 108' roll, perforated every 8" (use \$50.00 as minimum material cost)	PA@.095	Ea	3.20	5.01	8.21
Barrier tapes, 3" wide x 1,000' long. "Caution", "Danger", "Open Trench", and other stock wording (Use \$35.00 as minimum material cost.) Labor shown is based on one man installing 500 LF in 1 hour.					
3 mil thick, short-term or indoor use	PA@.002	LF	.02	.11	.13
4 mil thick, long-term or outdoor use	PA@.002	LF	.04	.11	.15
Traffic control signage, "No Parking Between Signs", "Customer Parking", and other stock traffic control signs and graphics, reflective aluminum signs except as noted.					
12" x 18"	PA@.455	Ea	63.60	24.00	87.60
18" x 24"	PA@.455	Ea	111.00	24.00	135.00
24" x 8", Diamond grade (highly reflective)	PA@.455	Ea	118.00	24.00	142.00
24" x 12", Diamond grade (highly reflective)	PA@.455	Ea	134.00	24.00	158.00
24" x 18"	PA@.455	Ea	111.00	24.00	135.00
24" x 24"	PA@.455	Ea	124.00	24.00	148.00
30" x 30"	PA@.455	Ea	198.00	24.00	222.00
Add for 8' breakaway pole and mounting	CL@1.00	Ea	79.10	40.80	119.90
Add for aluminum signs	—	Ea	10.50	—	10.50
Temporary Utilities No permit fees included.					
Drop pole for electric service					
Power pole installation, wiring, 6 months rent and pickup					
100 amp meter pole	—	Ea	—	—	504.00
200 amp meter pole	—	Ea	—	—	664.00

01 General Requirements

	Craft@Hrs	Unit	Material	Labor	Total
Electric drop line and run to contractor's panel (assuming proper phase, voltage and service are available within 100' of site)					
Overhead run to contractor's "T" pole (including removal)					
Single phase, 100 amps	—	LS	—	—	405.00
Single phase, over 100 to 200 amps	—	LS	—	—	548.00
Three phase, to 200 amps	—	LS	—	—	630.00
Underground run in contractor's trench and conduit (including removal)					
Single phase, 100 amps, "USA" wire	—	LS	—	—	584.00
Single phase, 101-200 amps, "USA" wire	—	LS	—	—	755.00
Three phase, to 200 amps, "USA" wire	—	LS	—	—	837.00
Typical power cost					
Per kilowatt hour (\$5.00 minimum)	—	Ea	—	—	.15
Per 1,000 SF of building per month of construction	—	MSF	—	—	2.38
Temporary water service, meter installed on fire hydrant. Add the cost of distribution hose or piping.					
Meter fee, 2" meter (excluding \$400 deposit)	—	LS	—	—	83.40
Water cost, per 1,000 gallons	—	M	—	—	2.04
Job phone, typical costs including message unit charges					
Cellular phone and one year service	—	LS	—	—	599.00
Portable job site toilets, including delivery, weekly service, and pickup, per 28 day month, six month contract					
Good quality (polyethylene)	—	Mo	—	—	74.80
Deluxe quality, with sink, soap dispenser, towel dispenser, mirror	—	Mo	—	—	120.00
Trailer-mounted male and female compartment double, 2 stalls in each, sink, soap dispenser, mirror and towel dispenser in each compartment					
Rental per week	—	Wk	—	—	334.00
Construction Elevators and Hoists					
Hoisting towers to 200', monthly rent					
Material hoist	C0@176.	Mo	5,200.00	10,000.00	15,200.00
Personnel hoist	C0@176.	Mo	11,400.00	10,000.00	21,400.00
Tower cranes, self-climbing (electric), monthly rent					
5 ton lift at 180' radius, one operator	C0@176.	Mo	29,900.00	10,000.00	39,900.00
With two operators	C0@352.	Mo	29,900.00	20,000.00	49,900.00
7 ton lift at 170' radius, one operator	C0@176.	Mo	39,900.00	10,000.00	49,900.00
With two operators	C0@352.	Mo	42,100.00	20,000.00	62,100.00
Mobilize, erect and dismantle self-climbing tower cranes					
Good access	—	LS	—	—	71,700.00
Average access	—	LS	—	—	87,200.00
Poor access	—	LS	—	—	142,000.00
Hydraulic Truck Cranes Includes equipment rental and operator. Four hour minimum. Time charge begins at the rental yard. By rated crane capacity.					
12-1/2 ton	—	Hr	—	—	251.00
15 ton	—	Hr	—	—	286.00
25 ton	—	Hr	—	—	265.00
50 ton	—	Hr	—	—	351.00
70 ton	—	Hr	—	—	433.00
80 ton	—	Hr	—	—	433.00
100 ton	—	Hr	—	—	446.00

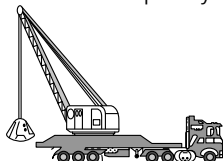


01 General Requirements

	Craft@Hrs	Unit	Material	Labor	Total
125 ton	—	Hr	—	—	501.00
150 ton	—	Hr	—	—	529.00
Add for clamshell or breaker ball work	—	Hr	—	—	57.00

Conventional Cable Cranes Including equipment rental and operator. Four hour minimum. Time charge begins at the rental yard. By rated crane capacity with 80' boom.

50 tons	—	Hr	—	—	403.00
70 tons	—	Hr	—	—	455.00
90 tons	—	Hr	—	—	511.00
125 tons	—	Hr	—	—	708.00
140 tons	—	Hr	—	—	549.00



Equipment Rental Rates Costs are for equipment in good condition but exclude accessories. Includes the costs of damage waiver (about 10% of the rental cost), insurance, fuel, and oil. Add the cost of an equipment operator, pickup, return to yard and repairs, if necessary. Delivery and pickup within 30 miles of the rental yard are usually offered at an additional cost of one day's rent. A rental "day" is assumed to be one 8-hour shift and begins when the equipment leaves the rental yard. A "week" is 40 hours in five consecutive days. A "month" is 176 hours in 30 consecutive days.

	Day	Week	Month
Air equipment rental			
Air compressors, wheel-mounted			
16 CFM, shop type, electric	72.00	172.00	516.00
30 CFM, shop type, electric	77.00	237.00	711.00
80 CFM, shop type, electric	93.00	281.00	840.00
100 CFM, gasoline unit	115.00	345.00	968.00
125 CFM, gasoline unit	143.00	430.00	1,290.00
Air compressors wheel-mounted diesel units			
to 159 CFM	108.00	322.00	968.00
160 - 249 CFM	143.00	430.00	1,290.00
250 - 449 CFM	216.00	646.00	1,937.00
450 - 749 CFM	287.00	860.00	2,580.00
750 - 1,200 CFM	573.00	1,720.00	5,060.00
1,400 CFM and over	717.00	2,150.00	7,310.00
Paving breakers (no bits included) hand-held, pneumatic			
to 40 lb	47.00	150.00	331.00
41 - 55 lb	74.00	265.00	564.00
56 - 70 lb	63.00	215.00	474.00
71 - 90 lb	108.00	255.00	546.00
Paving breakers jackhammer bits			
Moil points, 15" to 18"	8.00	20.00	38.00
Chisels, 3"	8.00	18.00	36.00
Clay spades, 5-1/2"	16.00	47.00	91.00
Asphalt cutters, 5"	11.00	23.00	55.00
Rock drills, jackhammers, hand-held, pneumatic			
to 29 lb	43.00	128.00	318.00
30 - 39 lb	68.00	279.00	565.00
40 - 49 lb	100.00	247.00	580.00
50 lb and over	59.00	202.00	684.00
Rock drill bits, hexagonal			
7/8", 2' long	12.00	30.00	58.00
1", 6' long	10.00	30.00	63.00

01 General Requirements

	Day	Week	Month
Pneumatic chippers, medium weight, 10 lb	97.00	220.00	488.00
Pneumatic tampers, medium weight, 30 lb	34.00	115.00	401.00
Pneumatic grinders, hand-held, 7 lb (no stone)	27.00	68.00	177.00
Air hose, 50 LF section			
5/8" air hose	8.00	17.00	42.00
3/4" air hose	9.00	22.00	53.00
1" air hose	12.00	30.00	64.00
1-1/2" air hose	20.00	61.00	156.00
Compaction equipment rental			
Vibro plate, 300 lb, 24" plate width, gas	143.00	456.00	966.00
Vibro plate, 600 lb, 32" plate width, gas	289.00	763.00	1,670.00
Rammer, 60 CPM, 200 lb, gas powered	100.00	305.00	647.00
Rollers, two axle steel drum, road type			
1 ton, gasoline	336.00	1,010.00	2,550.00
6 - 8 ton, gasoline	434.00	1,320.00	3,260.00
8 - 10 ton	535.00	1,700.00	4,350.00
Rollers, rubber tired, self propelled			
12 ton, 9 wheel, diesel	446.00	1,360.00	3,980.00
15 ton, 9 wheel, diesel	617.00	2,630.00	5,590.00
30 ton, 11 wheel, diesel	623.00	2,120.00	4,680.00
Rollers, towed, sheepsfoot type			
40" diameter, double drum, 28" wide	166.00	506.00	1,520.00
60" diameter, double drum, 54" wide	310.00	919.00	2,760.00
Rollers, self-propelled vibratory dual sheepsfoot drum, gas			
25 HP, 26" wide roll	491.00	1,650.00	5,000.00
100 HP, 36" wide roll	1,020.00	4,030.00	11,900.00
Rollers, vibrating steel drum, gas powered, walk behind			
7 HP, 1,000 lb, one drum, 2' wide	176.00	605.00	1,350.00
10 HP, 2,000 lb, two drum, 2'-6" wide	131.00	500.00	1,400.00
Rollers, self-propelled riding type, vibrating steel drum			
9,000 lb, gasoline, two drum	265.00	824.00	2,170.00
15,000 lb, diesel, two drum	455.00	2,000.00	4,000.00
25,000 lb, diesel, two drum	638.00	1,820.00	5,260.00
Concrete equipment rental			
Buggies, push type, 7 CF	84.00	589.00	867.00
Buggies, walking type, 12 CF	123.00	266.00	770.00
Buggies, riding type, 14 CF	167.00	468.00	769.00
Buggies, riding type, 18 CF	116.00	365.00	755.00
Vibrator, electric, 3 HP, flexible shaft	65.00	204.00	485.00
Vibrator, gasoline, 6 HP, flexible shaft	90.00	266.00	794.00
Troweling machine, 36", 4 paddle	69.00	224.00	620.00
Cement mixer, 6 CF	113.00	335.00	700.00
Towable mixer (10+ CF)	117.00	390.00	632.00
Power trowel 36", gas, with standard handle	69.00	224.00	620.00
Bull float	15.00	44.00	104.00
Concrete saws, gas powered, excluding blade cost			
10 HP, push type	131.00	322.00	712.00
20 HP, self propelled	179.00	522.00	1,060.00
37 HP, self propelled	283.00	895.00	1,880.00



01 General Requirements

	Day	Week	Month
Concrete bucket, bottom dump 1 CY	90.00	266.00	570.00
Plaster mixer, gas, portable, 5 CF	95.00	290.00	585.00
Concrete conveyor, belt type, portable, gas powered			
All sizes	142.00	515.00	1,490.00
Vibrating screed, 16', single beam	87.00	278.00	600.00
Column clamps, to 48", per set	—	—	9.00

Crane rental Add for clamshell, dragline, or pile driver attachments from below.

Cable controlled crawler-mounted lifting cranes, diesel

45 ton	—	3,460	9,830.00
60 ton	—	6,230.00	10,600.00
100 ton (125 ton)	1,940.00	5,880.00	18,900.00
150 ton	2,860.00	8,460.00	25,800.00

Cable controlled, truck-mounted lifting cranes, diesel

50 ton	682.00	2,010.00	6,540.00
75 ton	869.00	2,590.00	7,840.00
100 ton	1,260.00	3,770.00	10,200.00

Hydraulic – rough terrain

10 ton, gasoline	429.00	1,250.00	3,610.00
17 ton, diesel	536.00	1,520.00	4,240.00
35 ton, diesel	659.00	2,240.00	6,600.00
50 ton, diesel	1,460.00	4,440.00	12,500.00

Clamshell, dragline, and pile driver attachments Add to crane rental costs shown above.

Clamshell buckets

Rehandling type, 1 CY	—	349.00	1,030.00
General purpose, 2 CY	88.00	562.00	1,480.00

Dragline buckets

1 CY bucket	48.00	119.00	335.00
2 CY bucket	93.00	335.00	702.00

Pile drivers, hammers

25,000 - 49,999 ft-lb	520.00	2,320.00	4,170.00
75 - 99 tons vibratory	1,220.00	2,990.00	8,000.00
1,000 - 1,999 ft-lb extractor	—	742.00	1,930.00

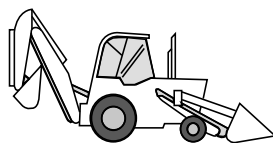
Excavation equipment rental

Backhoe/loaders, crawler mounted, diesel

3/8 CY backhoe	318.00	1,130.00	3,090.00
3/4 CY backhoe	359.00	1,300.00	3,030.00
1-1/2 CY backhoe	399.00	1,260.00	3,740.00
2 CY backhoe	616.00	1,890.00	4,480.00
2-1/2 CY backhoe	677.00	2,210.00	6,040.00
3 CY backhoe	909.00	2,810.00	7,680.00

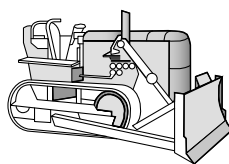
Backhoe/loaders, wheel mounted, diesel or gasoline

1/2 CY bucket capacity, 55 HP	235.00	721.00	1,660.00
1 CY bucket capacity, 65 HP	217.00	670.00	2,020.00
1-1/4 CY bucket capacity, 75 HP	212.00	714.00	1,980.00
1-1/2 CY bucket capacity, 100 HP	378.00	1,040.00	2,660.00
Mounted with 750-lb. breaker	495.00	1,720.00	5,150.00
Mounted with 2,000-lb. breaker	735.00	2,780.00	7,740.00



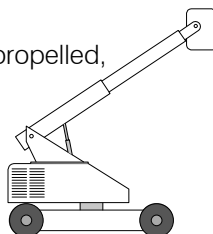
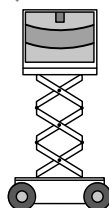
01 General Requirements

	Day	Week	Month
Crawler dozers, with angle dozer or bulldozer blade, diesel			
65 HP, D-3	433.00	1,300.00	3,560.00
90-105 HP, D-4 or D-5	606.00	1,640.00	4,540.00
140 HP, D-6	826.00	2,360.00	6,960.00
200 HP, D-7	1,210.00	3,470.00	10,100.00
335 HP, D-8	1,630.00	5,020.00	15,300.00
460 HP, D-9	3,510.00	8,270.00	24,500.00
Crawler loaders, diesel			
3/4 CY loader	359.00	1,300.00	3,030.00
1-1/2 CY loader	399.00	1,260.00	3,740.00
2 CY loader	616.00	1,890.00	4,480.00
Hydraulic excavators, crawler mounted with backhoe type arm, diesel			
.2 - .4 CY bucket	535.00	1,550.00	3,570.00
.4 - .6 CY bucket	504.00	1,510.00	3,430.00
.6 - .8 CY bucket	485.00	1,510.00	4,330.00
Gradall, truck mounted, diesel			
3/4 CY bucket	960.00	2,880.00	8,280.00
1 CY bucket	1,170.00	5,100.00	15,200.00
Front-end loader, diesel or gas (Skiploader)			
40-hp	152.00	515.00	1,350.00
60-hp	263.00	859.00	2,040.00
80-hp	296.00	862.00	2,060.00
Skid steer loaders			
Bobcat 643, 1,000-lb capacity	232.00	809.00	1,850.00
Bobcat 753, 1,350-lb capacity	227.00	731.00	1,610.00
Bobcat 763, 1,750-lb capacity	278.00	809.00	1,830.00
Bobcat 863, 1,900-lb capacity	270.00	816.00	1,920.00
Skid steer attachments			
Auger	147.00	467.00	848.00
Hydraulic breaker	182.00	535.00	1,540.00
Backhoe	120.00	273.00	1,100.00
Sweeper	149.00	359.00	869.00
Grapple bucket	56.00	162.00	475.00
Wheel loaders, front-end load and dump, diesel			
3/4 CY bucket, 4WD, articulated	182.00	621.00	1,880.00
1 CY bucket, 4WD, articulated	321.00	933.00	2,620.00
2 CY bucket, 4WD, articulated	503.00	1,480.00	3,910.00
3-1/4 CY bucket, 4WD, articulated	778.00	2,220.00	6,060.00
5 CY bucket, 4WD, articulated	919.00	2,780.00	8,810.00
Motor scraper-hauler, 2 wheel tractor			
Under 18 CY capacity, single engine	1,880.00	5,150.00	14,400.00
18 CY and over, single engine	2,420.00	7,070.00	21,000.00
Under 18 CY capacity, Two engine	2,880.00	8,090.00	22,300.00
18 CY and over, Two engine	1,680.00	6,190.00	21,500.00
Graders, diesel, pneumatic tired, articulated			
100 HP	615.00	1,740.00	4,890.00
150 HP	808.00	2,510.00	8,690.00
200 HP	1,140.00	3,690.00	11,000.00
Trenchers, inclined chain boom type, pneumatic tired			
15 HP, 12" wide, 48" max. depth, walking	205.00	583.00	1,630.00
20 HP, 12" wide, 60" max. depth, riding	303.00	906.00	1,840.00
55 HP, 18" wide, 96" max. depth, riding	384.00	1,290.00	2,530.00
100 HP, 24" x 96" deep, crawler mount	1,550.00	4,450.00	11,800.00



01 General Requirements

	Day	Week	Month
Trenching shields, steel, 8' high x 12' long			
Single wall	131.00	338.00	1000.00
Hydraulic trench braces, 8' long, to 42" wide	23.00	66.00	202.00
Truck-mounted wagon drills, self propelled, crawler mounted			
4" drifter, straight boom	597.00	1,590.00	4,320.00
4-1/2" drifter, hydraulic swing boom	890.00	2,760.00	7,830.00
Truck rental			
1-1/2 ton truck	101.00	302.00	906.00
Flatbed with boom	545.00	1,670.00	4,820.00
Dump trucks, rental rate plus mileage			
3 CY	385.00	1,020.00	1,920.00
5 CY	408.00	1,080.00	3,010.00
10 CY	860.00	2,720.00	3,390.00
25 CY off highway	—	4,160.00	12,400.00
Forklift rental			
Rough terrain, towable, gas powered			
4,000 lb capacity	266.00	742.00	1,910.00
8,000 lb capacity	409.00	1,020.00	2,310.00
Extension boom, 2 wheel steering			
4,000 lb, 30' lift	504.00	1,060.00	2,290.00
6,000 lb, 35' lift	484.00	1,300.00	2,670.00
8,000 lb, 40' lift, 4 wheel steering	582.00	1,420.00	2,860.00
Aerial platform rental			
Rolling scissor lifts, 2' x 3' platform, 650 lb capacity, push around, electric powered			
30' high	312.00	561.00	1,000.00
40' high	357.00	847.00	1,700.00
50' high	521.00	1,240.00	2,620.00
Rolling scissor lifts, self-propelled, hydraulic, electric powered			
To 20'	150.00	306.00	596.00
21' - 30'	328.00	1,000.00	1,540.00
31' - 40'	206.00	429.00	879.00
Rolling scissor lifts, self-propelled, hydraulic, diesel powered			
To 20'	101.00	253.00	657.00
21' - 30'	281.00	590.00	1,210.00
31' - 40'	315.00	657.00	1,370.00
Boomlifts, telescoping and articulating booms, self-propelled, gas or diesel powered, 2-wheel drive			
21' - 30'	284.00	606.00	1,700.00
31' - 40'	385.00	954.00	1,890.00
41' - 50'	504.00	1,270.00	2,830.00
51' - 60'	562.00	1,370.00	2,970.00
Pump rental Hoses not included.			
Submersible pump rental			
1-1/2" to 2", electric	65.00	196.00	466.00
3" to 4", electric	108.00	237.00	556.00
All diameters, hydraulic	222.00	667.00	1,990.00
Trash pumps, self-priming, gas			
1-1/2" connection	71.00	220.00	570.00
4" connection	61.00	212.00	624.00
6" connection	131.00	379.00	949.00



26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
EMT Conduit Circuits Cost per circuit based on 30' run from the panel. Includes THHN copper wire pulled in conduit, 2 compression connectors, 2 couplings, conduit bending, straps, bolts and washers. Three-wire circuits are 120, 240 or 277 volt 1 phase, with 2 conductors and ground. Four-wire circuits are 120/208 or 480 volt 3 phase, with 3 conductors and ground. Five-wire circuits are 120/208 or 480 volt 3 phase, with 3 conductors, neutral and ground. Installed exposed in vertical or horizontal runs to 10' above floor level in a building. Add 15% to the manhours and labor costs for heights over 10' to 20'. Use these figures for preliminary estimates. Based on commercial quantity discounts.					
15 amp circuits					
3 #14 wire, 1/2" conduit	E4@2.39	Ea	19.40	120.00	139.40
4 #14 wire, 1/2" conduit	E4@2.58	Ea	22.60	130.00	152.60
20 amp circuits					
3 #12 wire, 1/2" conduit	E4@2.49	Ea	25.10	125.00	150.10
4 #12 wire, 1/2" conduit	E4@2.72	Ea	30.10	137.00	167.10
5 #12 wire, 1/2" conduit	E4@2.95	Ea	35.20	148.00	183.20
30 amp circuits					
3 #10 wire, 1/2" conduit	E4@2.75	Ea	27.40	138.00	165.40
4 #10 wire, 1/2" conduit	E4@3.08	Ea	33.20	155.00	188.20
5 #10 wire, 3/4" conduit	E4@3.58	Ea	45.20	180.00	225.20
50 amp circuits					
3 #8 wire, 3/4" conduit	E4@2.98	Ea	42.80	150.00	192.80
4 #8 wire, 3/4" conduit	E4@3.32	Ea	51.80	167.00	218.80
5 #8 wire, 1" conduit	E4@4.02	Ea	73.40	202.00	275.40
65 amp circuits					
2 #6, 1 #8 wire, 1" conduit	E4@3.42	Ea	67.10	172.00	239.10
3 #6, 1 #8 wire, 1" conduit	E4@3.76	Ea	81.90	189.00	270.90
4 #6, 1 #8 wire, 1-1/4" conduit	E4@4.48	Ea	117.00	225.00	342.00
85 amp circuits in 1-1/4" conduit					
2 #4, 1 #8 wire	E4@3.89	Ea	96.00	196.00	292.00
3 #4, 1 #8 wire	E4@4.25	Ea	115.00	214.00	329.00
4 #4, 1 #8 wire	E4@4.48	Ea	134.00	225.00	359.00
100 amp circuits in 1-1/2" conduit					
2 #3, 1 #8 wire	E4@4.20	Ea	121.00	211.00	332.00
3 #3, 1 #8 wire	E4@4.66	Ea	147.00	234.00	381.00
4 #3, 1 #8 wire	E4@5.10	Ea	173.00	256.00	429.00
125 amp circuits in 1-1/2" conduit					
2 #1, 1 #8 wire	E4@4.40	Ea	173.00	221.00	394.00
3 #1, 1 #8 wire	E4@4.92	Ea	226.00	247.00	473.00
4 #1, 1 #8 wire	E4@5.47	Ea	279.00	275.00	554.00
150 amp circuits in 2" conduit					
2 #1/0, 1 #6 wire	E4@5.16	Ea	235.00	259.00	494.00
3 #1/0, 1 #6 wire	E4@5.78	Ea	309.00	291.00	600.00
4 #1/0, 1 #6 wire	E4@6.43	Ea	383.00	323.00	706.00
200 amp circuits in 2" conduit					
2 #3/0, 1 #4 wire	E4@5.49	Ea	241.00	276.00	517.00
3 #3/0, 1 #4 wire	E4@6.27	Ea	315.00	315.00	630.00
4 #3/0, 1 #4 wire	E4@7.80	Ea	390.00	392.00	782.00
225 amp circuits in 2-1/2" conduit					
2 #4/0, 1 #2 wire	E4@6.48	Ea	364.00	326.00	690.00
3 #4/0, 1 #2 wire	E4@7.33	Ea	458.00	369.00	827.00
4 #4/0, 1 #2 wire	E4@8.19	Ea	552.00	412.00	964.00
250 amp circuits in 2-1/2" conduit					
2 250 MCM, 1 #2 wire	E4@6.63	Ea	412.00	333.00	745.00
3 250 MCM, 1 #2 wire	E4@8.24	Ea	529.00	414.00	943.00
4 250 MCM, 1 #2 wire	E4@9.56	Ea	647.00	481.00	1,128.00

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
Intermediate Metal Conduit (IMC) Installed exposed in a building either vertically or horizontally up to 10' above floor level. No wire, fittings or supports included.					
1/2" conduit	E4@.038	LF	1.22	1.91	3.13
3/4" conduit	E4@.048	LF	1.39	2.41	3.80
1" conduit	E4@.056	LF	2.03	2.82	4.85
1-1/4" conduit	E4@.073	LF	2.34	3.67	6.01
1-1/2" conduit	E4@.086	LF	3.24	4.32	7.56
2" conduit	E4@.101	LF	4.24	5.08	9.32
2-1/2" conduit	E4@.127	LF	9.14	6.39	15.53
3" conduit	E4@.146	LF	9.26	7.34	16.60
PVC Schedule 40 Conduit Installed in or under a building slab. No wire, fittings or supports included.					
1/2"	E4@.030	LF	.22	1.51	1.73
3/4"	E4@.036	LF	.27	1.81	2.08
1"	E4@.046	LF	.40	2.31	2.71
1-1/4"	E4@.056	LF	.61	2.82	3.43
1-1/2"	E4@.061	LF	.68	3.07	3.75
2"	E4@.072	LF	.86	3.62	4.48
2-1/2"	E4@.089	LF	1.55	4.47	6.02
3"	E4@.105	LF	1.85	5.28	7.13
3-12"	E4@.130	LF	2.21	6.54	8.75
4"	E4@.151	LF	2.57	7.59	10.16
5"	E4@.176	LF	4.08	8.85	12.93
PVC Schedule 80 Conduit Installed in or under a building slab. No wire, fittings or supports included.					
1/2"	E4@.030	LF	.44	1.51	1.95
3/4"	E4@.036	LF	.67	1.81	2.48
1"	E4@.046	LF	.78	2.31	3.09
1-1/4"	E4@.056	LF	1.04	2.82	3.86
2"	E4@.072	LF	1.42	3.62	5.04
2-1/2"	E4@.089	LF	2.32	4.47	6.79
3"	E4@.105	LF	3.11	5.28	8.39
Schedule 40 PVC conduit coupling					
1/2" coupling	E4@.020	Ea	.17	1.01	1.18
3/4" coupling	E4@.051	Ea	.18	2.56	2.74
1" coupling	E4@.062	Ea	.33	3.12	3.45
1-1/4" coupling	E4@.078	Ea	.44	3.92	4.36
1-1/2" coupling	E4@.084	Ea	.58	4.22	4.80
2" coupling	E4@.102	Ea	.66	5.13	5.79
2-1/2" coupling	E4@.113	Ea	1.42	5.68	7.10
3" coupling	E4@.129	Ea	1.92	6.49	8.41
4" coupling	E4@.156	Ea	3.35	7.84	11.19
90-degree Schedule 40 non-metallic elbow					
1/2" ell	E4@.082	Ea	.74	4.12	4.86
3/4" ell	E4@.102	Ea	.91	5.13	6.04
1" ell	E4@.124	Ea	1.72	6.23	7.95
1-1/4" ell	E4@.154	Ea	1.94	7.74	9.68
1-1/2" ell	E4@.195	Ea	2.79	9.80	12.59
2" ell	E4@.205	Ea	3.85	10.30	14.15
2-1/2" ell	E4@.226	Ea	6.38	11.40	17.78
3" ell	E4@.259	Ea	10.70	13.00	23.70
4" ell	E4@.313	Ea	14.90	15.70	30.60
1/2" access pull ell	E4@.082	Ea	3.43	4.12	7.55
3/4" access pull ell	E4@.102	Ea	3.46	5.13	8.59
1-1/4" ell, 24" radius	E4@.154	Ea	22.60	7.74	30.34

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
1-1/2" ell, 24" radius	E4@.195	Ea	11.90	9.80	21.70
2" ell, 24" radius	E4@.205	Ea	9.09	10.30	19.39
2" ell, 36" radius	E4@.205	Ea	22.00	10.30	32.30
2-1/2" ell, 24" radius	E4@.226	Ea	20.50	11.40	31.90
2-1/2" ell, 36" radius	E4@.226	Ea	20.20	11.40	31.60
3" ell, 24" radius	E4@.259	Ea	17.70	13.00	30.70
Increase for 45 or 30 degree ells	—	%	40.0	—	—
90-degree Schedule 80 non-metallic elbow					
1" ell	E4@.124	Ea	1.72	6.23	7.95
1-1/4" ell	E4@.154	Ea	1.94	7.74	9.68
1-1/2" ell	E4@.195	Ea	2.79	9.80	12.59
2" ell	E4@.205	Ea	3.85	10.30	14.15
2-1/2" ell	E4@.226	Ea	6.38	11.40	17.78
1" ell, 24" radius	E4@.124	Ea	15.50	6.23	21.73
1-1/2" ell, 24" radius	E4@.168	Ea	13.30	8.45	21.75
2" ell, 24" radius	E4@.205	Ea	15.90	10.30	26.20
2" ell, 36" radius	E4@.205	Ea	31.90	10.30	42.20
2-1/2" ell, 24" radius	E4@.226	Ea	25.40	11.40	36.80
3" ell, 36" radius	E4@.226	Ea	68.60	11.40	80.00
PVC conduit end bell					
1" bell end	E4@.105	Ea	2.44	5.28	7.72
1-1/4" bell end	E4@.115	Ea	3.44	5.78	9.22
1-1/2" bell end	E4@.124	Ea	3.48	6.23	9.71
2" bell end	E4@.143	Ea	4.57	7.19	11.76
2-1/2" bell end	E4@.221	Ea	4.94	11.10	16.04
3" bell end	E4@.285	Ea	7.09	14.30	21.39
PVC bell end reducer					
3" to 2-1/2"	E4@.200	Ea	18.50	10.10	28.60
4" to 3"	E4@.250	Ea	23.40	12.60	36.00
Thermoplastic insulating bushing					
1/2" bushing	E4@.025	Ea	.12	1.26	1.38
3/4" bushing	E4@.025	Ea	.15	1.26	1.41
1" bushing	E4@.030	Ea	.58	1.51	2.09
1-1/4" bushing	E4@.040	Ea	.73	2.01	2.74
1-1/2" bushing	E4@.040	Ea	.53	2.01	2.54
2" bushing	E4@.050	Ea	1.43	2.51	3.94
2-1/2" bushing	E4@.050	Ea	2.10	2.51	4.61
3" bushing	E4@.070	Ea	2.69	3.52	6.21
PVC reducer bushing, Schedule 40, socket ends					
3/4" x 1/2" bushing	E4@.030	Ea	.87	1.51	2.38
1" x 1/2" bushing	E4@.030	Ea	2.07	1.51	3.58
1" x 3/4" bushing	E4@.040	Ea	1.99	2.01	4.00
1-1/4" x 1" bushing	E4@.050	Ea	2.59	2.51	5.10
1-1/2" x 1" bushing	E4@.050	Ea	2.34	2.51	4.85
1-1/2" x 1-1/4" bushing	E4@.050	Ea	2.59	2.51	5.10
2" x 1-1/4" bushing	E4@.050	Ea	3.21	2.51	5.72
2" x 1-1/2" bushing	E4@.070	Ea	2.98	3.52	6.50
3" x 2" bushing	E4@.100	Ea	13.80	5.03	18.83
PVC conduit box adapter					
1/2" adapter	E4@.050	Ea	.49	2.51	3.00
3/4" adapter	E4@.060	Ea	.55	3.02	3.57
1" adapter	E4@.080	Ea	.60	4.02	4.62
1-1/4" adapter	E4@.100	Ea	.89	5.03	5.92
1-1/2" adapter	E4@.100	Ea	1.00	5.03	6.03
2" adapter	E4@.150	Ea	1.24	7.54	8.78

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
PVC female conduit adapter, for joining conduit to threaded fittings					
1/2" adapter	E4@.050	Ea	.22	2.51	2.73
3/4" adapter	E4@.060	Ea	.37	3.02	3.39
1" adapter	E4@.080	Ea	.43	4.02	4.45
1-1/4" adapter	E4@.100	Ea	.67	5.03	5.70
1-1/2" adapter	E4@.100	Ea	.59	5.03	5.62
2" adapter	E4@.150	Ea	.80	7.54	8.34
2-1/2" adapter	E4@.178	Ea	1.95	8.95	10.90
4" adapter	E4@.244	Ea	4.00	12.30	16.30
PVC male conduit adapter, for joining conduit to threaded fittings					
1/2" adapter	E4@.050	Ea	.21	2.51	2.72
3/4" adapter	E4@.060	Ea	.36	3.02	3.38
1" adapter	E4@.080	Ea	.43	4.02	4.45
1-1/4" adapter	E4@.100	Ea	.77	5.03	5.80
1-1/2" adapter	E4@.100	Ea	.70	5.03	5.73
2" adapter	E4@.150	Ea	1.15	7.54	8.69
2-1/2" adapter	E4@.178	Ea	2.07	8.95	11.02
3" adapter	E4@.244	Ea	1.87	12.30	14.17
Type T PVC conduit body (access fitting)					
1/2" conduit body	E4@.150	Ea	2.41	7.54	9.95
3/4" conduit body	E4@.184	Ea	2.97	9.25	12.22
1" conduit body	E4@.225	Ea	3.01	11.30	14.31
1-1/4" conduit body	E4@.300	Ea	4.32	15.10	19.42
1-1/2" conduit body	E4@.350	Ea	6.62	17.60	24.22
2" conduit body	E4@.400	Ea	9.38	20.10	29.48
Type C PVC conduit body (access fitting)					
1/2" conduit body	E4@.100	Ea	2.40	5.03	7.43
3/4" conduit body	E4@.132	Ea	3.53	6.64	10.17
1" conduit body	E4@.164	Ea	3.80	8.25	12.05
1-1/4" conduit body	E4@.197	Ea	5.30	9.91	15.21
1-1/2" conduit body	E4@.234	Ea	6.52	11.80	18.32
2" conduit body	E4@.263	Ea	10.90	13.20	24.10
Type LB PVC conduit body (access fitting)					
1/2" conduit body	E4@.100	Ea	1.87	5.03	6.90
3/4" conduit body	E4@.132	Ea	2.63	6.64	9.27
1" conduit body	E4@.164	Ea	2.70	8.25	10.95
1-1/4" conduit body	E4@.197	Ea	4.11	9.91	14.02
1-1/2" conduit body	E4@.234	Ea	4.96	11.80	16.76
2" conduit body	E4@.263	Ea	9.27	13.20	22.47
3" conduit body	E4@.300	Ea	28.00	15.10	43.10
4" conduit body	E4@.350	Ea	30.50	17.60	48.10
Type LL PVC conduit body (access fitting)					
1/2" conduit body	E4@.100	Ea	1.91	5.03	6.94
3/4" conduit body	E4@.132	Ea	2.47	6.64	9.11
1" conduit body	E4@.164	Ea	2.42	8.25	10.67
1-1/4" conduit body	E4@.197	Ea	3.72	9.91	13.63
1-1/2" conduit body	E4@.234	Ea	4.59	11.80	16.39
2" conduit body	E4@.263	Ea	7.72	13.20	20.92
Type LR PVC conduit body (access fitting)					
1/2" conduit body	E4@.100	Ea	1.88	5.03	6.91
3/4" conduit body	E4@.132	Ea	2.35	6.64	8.99
1" conduit body	E4@.164	Ea	2.56	8.25	10.81
1-1/4" conduit body	E4@.197	Ea	4.29	9.91	14.20
1-1/2" conduit body	E4@.234	Ea	4.40	11.80	16.20
2" conduit body	E4@.263	Ea	7.72	13.20	20.92

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
Two-hole PVC clamp					
1/2" clamp	E4@.100	Ea	.20	5.03	5.23
3/4" clamp	E4@.100	Ea	.27	5.03	5.30
1" clamp	E4@.125	Ea	.34	6.29	6.63
1-1/4" clamp	E4@.150	Ea	.43	7.54	7.97
1-1/2" clamp	E4@.150	Ea	.46	7.54	8.00
2" clamp	E4@.175	Ea	.51	8.80	9.31
3" clamp	E4@.175	Ea	1.68	8.80	10.48
PVC Conduit with Wire Includes THHN wire pulled in Type 40 rigid PVC heavy wall conduit placed in a slab. Use these figures for preliminary estimates. Includes one rigid coupling every 10'. Add for fittings as required. Based on commercial quantity discounts.					
1/2" PVC conduit with wire					
3 #12 solid copper	E4@.054	LF	.71	2.72	3.43
4 #12 solid copper	E4@.061	LF	.87	3.07	3.94
5 #12 solid copper	E4@.069	LF	1.03	3.47	4.50
3 #10 solid copper	E4@.062	LF	.76	3.12	3.88
4 #10 solid copper	E4@.073	LF	.94	3.67	4.61
3/4" PVC conduit with wire					
5 #10 solid copper	E4@.089	LF	1.17	4.47	5.64
3 #8 copper	E4@.069	LF	1.19	3.47	4.66
4 #8 copper	E4@.080	LF	1.49	4.02	5.51
1" PVC conduit with wire					
2 #6 copper, 1 #8 copper	E4@.081	LF	1.72	4.07	5.79
3 #6 copper, 1 #8 copper	E4@.092	LF	2.21	4.63	6.84
5 #8 copper	E4@.100	LF	1.93	5.03	6.96
1-1/2" PVC conduit with wire					
4 #6 copper, 1 #8 copper	E4@.117	LF	3.01	5.88	8.89
2 #4 copper, 1 #8 copper	E4@.097	LF	2.32	4.88	7.20
2 #1 alum, 1 #8 copper	E4@.102	LF	3.06	5.13	8.19
3 #1 alum, 1 #8 copper	E4@.119	LF	4.07	5.98	10.05
4 #4 copper, 1 #8 copper	E4@.124	LF	3.60	6.23	9.83
3 #3 copper, 1 #8 copper	E4@.116	LF	3.68	5.83	9.51
4 #3 copper, 1 #8 copper	E4@.132	LF	4.56	6.64	11.20
2 #1 copper, 1 #8 copper	E4@.108	LF	4.55	5.43	9.98
3 #1 copper, 1 #8 copper	E4@.125	LF	6.31	6.29	12.60
4 #1 copper, 1 #8 copper	E4@.143	LF	8.07	7.19	15.26
2" PVC conduit with wire					
4 #1 alum, 1 #8 copper	E4@.154	LF	5.34	7.74	13.08
2 2/0 alum, 1 #6 copper	E4@.123	LF	4.41	6.18	10.59
3 2/0 alum, 1 #6 copper	E4@.143	LF	5.87	7.19	13.06
4 2/0 alum, 1 #6 copper	E4@.163	LF	7.33	8.20	15.53
2 3/0 alum, 1 #6 copper	E4@.127	LF	5.13	6.39	11.52
3 3/0 alum, 1 #6 copper	E4@.148	LF	6.95	7.44	14.39
4 3/0 alum, 1 #6 copper	E4@.171	LF	8.77	8.60	17.37
2 1/0 & 1 #6 copper	E4@.124	LF	3.97	6.23	10.20
3 1/0 & 1 #6 copper	E4@.146	LF	5.21	7.34	12.55
4 1/0 & 1 #6 copper	E4@.167	LF	6.45	8.40	14.85
2 3/0 & 1 #4 copper	E4@.136	LF	5.28	6.84	12.12
3 3/0 & 1 #4 copper	E4@.162	LF	7.10	8.15	15.25

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
2-1/2" PVC conduit with wire					
2 250 MCM alum, 1 #4 copper	E4@.156	LF	7.31	7.84	15.15
3 250 MCM alum, 1 #4 copper	E4@.183	LF	9.77	9.20	18.97
4 3/0 alum, 1 #4 copper	E4@.206	LF	7.85	10.40	18.25
2 4/0 alum, 1 #2 copper	E4@.164	LF	6.78	8.25	15.03
3 4/0 alum, 1 #2 copper	E4@.193	LF	8.80	9.70	18.50
4 4/0 alum, 1 #2 copper	E4@.221	LF	10.80	11.10	21.90
2 250 MCM copper, 1 #2 copper	E4@.170	LF	10.60	8.55	19.15
3" PVC conduit with wire					
4 250 MCM alum, 1 #4 copper	E4@.226	LF	12.70	11.40	24.10
2 350 MCM alum, 1 #2 copper	E4@.186	LF	10.10	9.35	19.45
3 350 MCM alum, 1 #2 copper	E4@.217	LF	13.60	10.90	24.50
3 250 MCM alum, 1 #2 copper	E4@.217	LF	10.60	10.90	21.50
4 250 MCM alum, 1 #2 copper	E4@.248	LF	13.00	12.50	25.50
3-1/2" PVC conduit with wire					
4 350 MCM alum, 1 #2 copper	E4@.264	LF	17.40	13.30	30.70
4" PVC conduit with wire					
6 350 MCM alum, 1 #2 copper	E4@.293	LF	27.70	14.70	42.40
7 350 MCM alum, 1 #2 copper	E4@.391	LF	31.10	19.70	50.80
3 500 MCM alum, 1 1/0 copper	E4@.311	LF	21.80	15.60	37.40
4 500 MCM alum, 1 1/0 copper	E4@.355	LF	26.30	17.80	44.10
Flexible Aluminum Conduit Type RWA installed in a building to 10' above floor level. No wire, fittings or supports included.					
3/8" conduit	E4@.025	LF	.55	1.26	1.81
1/2" conduit	E4@.028	LF	.57	1.41	1.98
3/4" conduit	E4@.030	LF	.64	1.51	2.15
1" conduit	E4@.033	LF	1.29	1.66	2.95
1-1/4" conduit	E4@.035	LF	1.83	1.76	3.59
1-1/2" conduit	E4@.038	LF	2.73	1.91	4.64
2" conduit	E4@.040	LF	3.48	2.01	5.49
Flexible Steel Conduit installed in a building to 10' above floor level. No wire, fittings or supports included.					
3/8" conduit	E4@.025	LF	.52	1.26	1.78
1/2" conduit	E4@.028	LF	.53	1.41	1.94
3/4" conduit	E4@.030	LF	.73	1.51	2.24
1" conduit	E4@.033	LF	1.61	1.66	3.27
1-1/4" conduit	E4@.035	LF	1.82	1.76	3.58
1-1/2" conduit, 25' coil	E4@.038	LF	2.88	1.91	4.79
2" conduit	E4@.040	LF	3.55	2.01	5.56
90-degree flex screw-in connector					
3/8" connector	E4@.070	Ea	1.62	3.52	5.14
1/2" connector	E4@.086	Ea	2.36	4.32	6.68
3/4" connector	E4@.100	Ea	2.98	5.03	8.01
1" connector	E4@.113	Ea	10.30	5.68	15.98
1-1/4" connector	E4@.148	Ea	15.40	7.44	22.84
1-1/2" connector	E4@.191	Ea	39.10	9.60	48.70
2" connector	E4@.260	Ea	42.90	13.10	56.00
2-1/2" connector	E4@.326	Ea	152.00	16.40	168.40
3" connector	E4@.435	Ea	272.00	21.90	293.90
Add for insulated set-screw connector	—	%	100.0	—	—

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
Flex screw-in coupling					
1/2" coupling	E4@.086	Ea	.98	4.32	5.30
3/4" coupling	E4@.100	Ea	1.63	5.03	6.66
1" coupling	E4@.113	Ea	2.17	5.68	7.85
1-1/4" coupling	E4@.148	Ea	4.64	7.44	12.08
1-1/2" coupling	E4@.191	Ea	5.50	9.60	15.10
2" coupling	E4@.260	Ea	9.08	13.10	22.18
Add for height over 10' to 20'	—	%	—	20.0	—

Flexible Non-metallic Conduit, (ENT) blue conduit installed in a building to 10' above floor level. NER-290. No wire, fittings or supports included.

1/2" conduit	E4@.021	LF	.78	1.06	1.84
3/4" conduit	E4@.022	LF	.64	1.11	1.75
1" conduit	E4@.030	LF	1.00	1.51	2.51

Liquid-Tight Flexible Metal Conduit, construction grade installed exposed in a building either vertically or horizontally up to 10' above floor level. No wire, fittings or supports included.

3/8" conduit	E4@.045	LF	.27	2.26	2.53
1/2" conduit	E4@.045	LF	.44	2.26	2.70
3/4" conduit	E4@.047	LF	.59	2.36	2.95
1" conduit	E4@.050	LF	.79	2.51	3.30
1-1/4" conduit	E4@.055	LF	1.45	2.77	4.22
1-1/2" conduit	E4@.065	LF	1.83	3.27	5.10
2" conduit	E4@.070	LF	1.91	3.52	5.43

Liquid-Tight Flexible Metal Conduit, Type LT installed exposed in a building either vertically or horizontally up to 10' above floor level. No wire, fittings or supports included.

3/8" conduit	E4@.045	LF	.71	2.26	2.97
1/2" conduit	E4@.045	LF	.73	2.26	2.99
3/4" conduit	E4@.047	LF	.93	2.36	3.29
1" conduit	E4@.050	LF	1.42	2.51	3.93
1-1/4" conduit	E4@.055	LF	1.87	2.77	4.64
1-1/2" conduit	E4@.065	LF	3.34	3.27	6.61
2" conduit	E4@.070	LF	3.79	3.52	7.31

Liquid-tight straight flex connector, die cast

1/2" connector	E4@.129	Ea	4.50	6.49	10.99
3/4" connector	E4@.140	Ea	6.80	7.04	13.84
1" connector	E4@.221	Ea	8.88	11.10	19.98
1-1/4" connector	E4@.244	Ea	10.50	12.30	22.80
1-1/2" connector	E4@.293	Ea	31.90	14.70	46.60
2" connector	E4@.492	Ea	49.70	24.70	74.40

90-degree liquid-tight flex connector, die cast

1/2" connector	E4@.129	Ea	5.70	6.49	12.19
3/4" connector	E4@.140	Ea	8.30	7.04	15.34
1" connector	E4@.221	Ea	16.00	11.10	27.10
1-1/4" connector	E4@.244	Ea	21.90	12.30	34.20
1-1/2" connector	E4@.293	Ea	27.80	14.70	42.50
2" connector	E4@.492	Ea	45.60	24.70	70.30

Non-Metallic Liquid-Tight Flexible Conduit installed exposed in a building either vertically or horizontally up to 10' above floor level. No wire, fittings or supports included.

3/8" conduit, 100-foot rolls	E4@.051	LF	.52	2.56	3.08
1/2" conduit, 100-foot rolls	E4@.051	LF	.49	2.56	3.05
3/4" conduit, 100-foot rolls	E4@.067	LF	.63	3.37	4.00
1" conduit, 100-foot rolls	E4@.067	LF	1.81	3.37	5.18
1-1/4" conduit, 100-foot rolls	E4@.085	LF	2.35	4.27	6.62
1-1/2" conduit, 50-foot rolls	E4@.085	LF	3.15	4.27	7.42
2" conduit, 50-foot rolls	E4@.105	LF	4.09	5.28	9.37

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
Non-metallic liquid-tight flex connector					
1/2" zero to 90 degree connector	E4@.060	Ea	7.05	3.02	10.07
3/4" zero to 90 degree connector	E4@.070	Ea	7.10	3.52	10.62
1" zero to 90 degree connector	E4@.080	Ea	6.66	4.02	10.68
1-1/4" zero to 90 degree connector	E4@.100	Ea	14.20	5.03	19.23
1-1/2" zero to 90 degree connector	E4@.100	Ea	18.90	5.03	23.93
2" zero to 90 degree connector	E4@.140	Ea	32.40	7.04	39.44
1/2" 90 degree connector	E4@.060	Ea	6.35	3.02	9.37
3/4" 90 degree connector	E4@.070	Ea	8.90	3.52	12.42
1" 90 degree connector	E4@.080	Ea	19.70	4.02	23.72
1-1/4" 90 degree connector	E4@.100	Ea	24.60	5.03	29.63
1-1/2" 90 degree connector	E4@.100	Ea	31.50	5.03	36.53
2" 90 degree connector	E4@.140	Ea	45.40	7.04	52.44
Add for height over 10' to 20'	—	%	—	20.0	—
Conduit Supports and Hangers By conduit size. Installed exposed in a building to 10' above floor level. Hangers and supports installed at heights over 10' will add about 20% to the labor cost.					
Right angle conduit supports					
3/8" support	E4@.030	Ea	.43	1.51	1.94
1/2" support or 3/4" support	E4@.040	Ea	.43	2.01	2.44
1" support	E4@.050	Ea	.65	2.51	3.16
1-1/4" support	E4@.060	Ea	.72	3.02	3.74
1-1/2" support	E4@.060	Ea	.77	3.02	3.79
2" support	E4@.100	Ea	1.03	5.03	6.06
2-1/2" support	E4@.100	Ea	1.24	5.03	6.27
3" support	E4@.150	Ea	1.53	7.54	9.07
3-1/2" support	E4@.150	Ea	2.04	7.54	9.58
4" support	E4@.150	Ea	4.27	7.54	11.81
Add for parallel conduit supports	—	%	50.0	—	—
Add for edge conduit supports	—	%	120.0	—	—
Conduit hangers, rigid with bolt, labor includes the cost of cutting threaded rod to length and attaching the rod. Add the material cost of the threaded rod from below.					
1/2" hanger	E4@.097	Ea	.74	4.88	5.62
3/4" hanger	E4@.097	Ea	.76	4.88	5.64
1" hanger	E4@.108	Ea	1.25	5.43	6.68
1-1/4" hanger	E4@.108	Ea	1.73	5.43	7.16
1-1/2" hanger	E4@.108	Ea	2.10	5.43	7.53
2" hanger	E4@.119	Ea	2.29	5.98	8.27
2-1/2" hanger	E4@.119	Ea	2.95	5.98	8.93
3" hanger	E4@.119	Ea	3.53	5.98	9.51
3-1/2" hanger	E4@.129	Ea	5.03	6.49	11.52
4" hanger	E4@.129	Ea	11.90	6.49	18.39
All threaded rod, plated steel, per linear foot of rod					
1/4", 20 thread	—	LF	.57	—	.57
5/16", 18 thread	—	LF	.64	—	.64
3/8", 16 thread	—	LF	.73	—	.73
1/2", 13 thread	—	LF	.92	—	.92
5/8", 11 thread	—	LF	1.51	—	1.51
Deduct for plain steel rod	—	%	-10.0	—	—
Rod beam clamps, for 1/4" or 3/8" threaded rod					
1" x 1" base, 15/16" jaw, 450 lb rating	E4@.200	Ea	2.44	10.10	12.54
2" x 2" base, 1" jaw, 1,300 lb rating	E4@.200	Ea	4.47	10.10	14.57
2-5/8" x 2-1/2" base, 1" jaw, 1,300 lb rating	E4@.234	Ea	6.24	11.80	18.04

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
Conduit clamps for EMT conduit					
1/2" or 3/4" clamp	E4@.062	Ea	.22	3.12	3.34
1" clamp	E4@.069	Ea	.30	3.47	3.77
1-1/4" clamp	E4@.069	Ea	.47	3.47	3.94
1-1/2" clamp	E4@.069	Ea	.49	3.47	3.96
2" clamp	E4@.075	Ea	.56	3.77	4.33
One hole heavy-duty stamped steel conduit straps					
1/2" strap	E4@.039	Ea	.16	1.96	2.12
3/4" strap	E4@.039	Ea	.20	1.96	2.16
1" strap	E4@.039	Ea	.36	1.96	2.32
1-1/4" strap	E4@.039	Ea	.56	1.96	2.52
1-1/2" strap	E4@.039	Ea	.74	1.96	2.70
2" strap	E4@.039	Ea	.95	1.96	2.91
2-1/2" strap	E4@.053	Ea	3.29	2.66	5.95
3" strap	E4@.053	Ea	4.59	2.66	7.25
3-1/2" strap	E4@.059	Ea	6.90	2.97	9.87
4" strap	E4@.059	Ea	7.15	2.97	10.12
Add for malleable iron one hole straps	—	%	30.0	—	—
Deduct for nail drive straps	—	%	-20.0	-30.0	—
Deduct for two hole stamped steel EMT straps	—	%	-70.0	—	—
Hanger channel, 1-5/8" x 1-5/8", based on 12" length					
No holes, solid back, 12 gauge steel	E4@.119	Ea	4.00	5.98	9.98
Holes 1-1/2" on center, 12 gauge aluminum	E4@.119	Ea	4.59	5.98	10.57
Channel strap for rigid steel conduit or EMT conduit, by conduit size, with bolts					
1/2" strap	E4@.020	Ea	1.16	1.01	2.17
3/4" strap	E4@.020	Ea	1.30	1.01	2.31
1" strap	E4@.023	Ea	1.39	1.16	2.55
1-1/4" strap	E4@.023	Ea	1.61	1.16	2.77
1-1/2" strap	E4@.023	Ea	1.81	1.16	2.97
2" strap	E4@.023	Ea	2.07	1.16	3.23
2-1/2" strap	E4@.039	Ea	2.26	1.96	4.22
3" strap	E4@.039	Ea	2.47	1.96	4.43
3-1/2" strap	E4@.039	Ea	3.03	1.96	4.99
4" strap	E4@.062	Ea	3.37	3.12	6.49
5" strap	E4@.062	Ea	4.16	3.12	7.28
6" strap	E4@.062	Ea	5.57	3.12	8.69
Lag screws, zinc plated, flattened end with stove bolt					
1/4" x 3"	E4@.092	Ea	.26	4.63	4.89
1/4" x 4"	E4@.092	Ea	.39	4.63	5.02
5/16" x 3-1/2"	E4@.092	Ea	.42	4.63	5.05
3/8" x 4"	E4@.119	Ea	.50	5.98	6.48
1/2" x 5"	E4@.129	Ea	.82	6.49	7.31
Add for galvanized screws	—	%	100.0	—	—
Lag screw short expansion shields, without screws. Labor is for drilling hole					
1/4" or 5/16" x 1" shield	E4@.175	Ea	.37	8.80	9.17
3/8" x 1-3/4" shield	E4@.272	Ea	.76	13.70	14.46
1/2" x 2" shield	E4@.321	Ea	1.00	16.10	17.10
5/8" x 2" shield	E4@.321	Ea	2.52	16.10	18.62
5/8" x 3-1/2" shield	E4@.345	Ea	3.80	17.30	21.10

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
Self drilling masonry anchors					
1/4" anchor	E4@.127	Ea	.67	6.39	7.06
5/16" anchor	E4@.127	Ea	.91	6.39	7.30
3/8" anchor	E4@.191	Ea	1.05	9.60	10.65
1/2" anchor	E4@.191	Ea	1.65	9.60	11.25
5/8" anchor	E4@.259	Ea	2.74	13.00	15.74
3/4" anchor	E4@.259	Ea	4.52	13.00	17.52
Wiremold Raceway Steel, one-piece, installed on a finished wall in a building. Raceway including one coupling each 10 feet					
V500 2 wire surface mounted raceway	E4@.059	LF	.90	2.97	3.87
V700 2 wire surface mounted raceway	E4@.067	LF	1.60	3.37	4.97
Wiremold fittings					
V700 90-degree flat elbow	E4@.050	Ea	4.47	2.51	6.98
V700 90-degree twist elbow	E4@.050	Ea	8.47	2.51	10.98
V700 90-degree inside elbow	E4@.050	Ea	4.47	2.51	6.98
V700 90-degree outside elbow	E4@.050	Ea	4.47	2.51	6.98
V700 90-degree internal pull elbow	E4@.050	Ea	13.00	2.51	15.51
V700 90-degree internal twist elbow	E4@.150	Ea	4.64	7.54	12.18
V500 45-degree flat elbow	E4@.150	Ea	4.76	7.54	12.30
V500 90-degree flat elbow	E4@.150	Ea	2.39	7.54	9.93
V500/700 adjustable offset connector	E4@.150	Ea	9.56	7.54	17.10
V500 conduit connector	E4@.150	Ea	4.17	7.54	11.71
V700 connection cover	E4@.200	Ea	.47	10.10	10.57
V700 3-way branch "T"-fitting	E4@.100	Ea	7.00	5.03	12.03
V700 to 1/2" conduit transition fitting	E4@.050	Ea	5.98	2.51	8.49
V500/700 flexible section, 18"	E4@.350	Ea	18.60	17.60	36.20
V500/700 galvanized box connector	E4@.200	Ea	6.49	10.10	16.59
V500/700 coupling	E4@.200	Ea	.41	10.10	10.51
V500/700 support clip	—	Ea	.45	—	.45
Wiremold device box, V500/700 surface raceway					
1 gang, 1-3/8" diameter, 1 KO	E4@.250	Ea	6.47	12.60	19.07
1 gang, 2-1/4" diameter, 1 KO	E4@.250	Ea	13.50	12.60	26.10
1 gang, 4-5/8" x 2-7/8"	E4@.200	Ea	5.98	10.10	16.08
2 gang, 4-3/4" x 4-3/4"	E4@.300	Ea	10.50	15.10	25.60
2 gang, 15/16" diameter, 1 KO	E4@.300	Ea	4.98	15.10	20.08
2 gang, 1-3/4" diameter, 2 KO	E4@.300	Ea	13.00	15.10	28.10
2 gang, 2-1/4" diameter, 1 KO	E4@.300	Ea	17.10	15.10	32.20
Corner box, 2-1/2" diameter	E4@.250	Ea	13.60	12.60	26.20
Duplex receptacle box, 4-1/8" x 2" x 1-3/8"	E4@.360	Ea	12.00	18.10	30.10
Fixture box, 4-3/4" diameter	E4@.250	Ea	10.20	12.60	22.80
Fixture box, 6-3/8" diameter	E4@.250	Ea	12.00	12.60	24.60
Fixture box, 5-1/2" diameter	E4@.250	Ea	9.80	12.60	22.40
Junction and pull box, 1" x 5-1/2" diameter	E4@.250	Ea	9.98	12.60	22.58
Extension box, 4-3/4" diameter	E4@.250	Ea	9.47	12.60	22.07
Wiremold outlet box, V700 surface raceway					
Regular outlet box	E4@.250	Ea	6.46	12.60	19.06
Deep outlet box	E4@.250	Ea	7.78	12.60	20.38
Extra deep outlet box	E4@.250	Ea	7.98	12.60	20.58
Fan box	E4@.250	Ea	12.00	12.60	24.60
Starter box	E4@.250	Ea	6.47	12.60	19.07
Utility box, 2" x 4-1/8" x 1-3/8"	E4@.360	Ea	7.47	18.10	25.57

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
Plugmould® V2000 multi-outlet raceway					
Entrance end fitting	E4@.100	Ea	5.92	5.03	10.95
6 outlets, 36" long	E4@.450	Ea	30.60	22.60	53.20
6 outlets, 40" long, w/ circuit breaker	E4@.450	Ea	36.40	22.60	59.00
8 outlets, 52" long	E4@.550	Ea	45.90	27.70	73.60
10 outlets, 60" long	E4@.650	Ea	35.70	32.70	68.40

Cable Tray and Duct

Cable tray, zinc-plated steel wire basket type. Mounted on walls or posts or suspended from the ceiling.

6" or 8" wide, 2" deep, straight tray	E4@.144	LF	4.81	7.24	12.05
12" wide, 2" deep, straight tray	E4@.187	LF	4.99	9.40	14.39
18" wide, 2" deep, straight tray	E4@.187	LF	5.60	9.40	15.00
24" wide, 2" deep, straight tray	E4@.238	LF	6.30	12.00	18.30
6" or 8" wide, 4" deep, straight tray	E4@.144	LF	5.29	7.24	12.53
12" wide, 4" deep, straight tray	E4@.187	LF	5.97	9.40	15.37
18" wide, 4" deep, straight tray	E4@.187	LF	6.90	9.40	16.30
24" wide, 4" deep, straight tray	E4@.238	LF	7.74	12.00	19.74
Add for each L or reducer section	E4@.476	Ea	30.40	23.90	54.30
Add for each T or X junction section	E4@.476	Ea	60.90	23.90	84.80

Steel underfloor duct, including typical supports, fittings and accessories

3-1/4" wide, 1 cell	E4@.097	LF	8.20	4.88	13.08
3-1/4" wide, 2 cell	E4@.104	LF	16.70	5.23	21.93
7-1/4" wide, 1 cell	E4@.148	LF	19.40	7.44	26.84
7-1/4" wide, 2 cell	E4@.148	LF	29.50	7.44	36.94

Wire and Cable

Copper wire and cable prices can change very quickly. Quarterly price updates for *National Estimator* are free and automatic during the year of issue. You'll be prompted when it's time to collect the next update. A Web connection is required.

Service Entrance Cable 600 volt stranded service entrance. Full spool prices.

SEU copper service entrance cable. Pulled in conduit. No excavation or conduit included. Type XHHW wire wound in a concentrically applied neutral and jacketed with gray sunlight-resistant PVC.

10-10-10	E4@.012	LF	.84	.60	1.44
8-8-8	E4@.012	LF	1.01	.60	1.61
6-6-8	E4@.012	LF	1.92	.60	2.52
6-6-6	E4@.012	LF	2.22	.60	2.82
4-4-6	E4@.014	LF	3.23	.70	3.93
4-4-4	E4@.014	LF	2.76	.70	3.46
3-3-5	E4@.014	LF	3.71	.70	4.41
3-3-3	E4@.015	LF	3.99	.75	4.74
2-2-4	E4@.016	LF	4.35	.80	5.15
2-2-2	E4@.016	LF	5.17	.80	5.97
1-1-1	E4@.018	LF	6.39	.91	7.30
1/0-1/0-1/0	E4@.020	LF	7.91	1.01	8.92
2/0-2/0-2/0	E4@.022	LF	9.04	1.11	10.15
3/0-3/0-3/0	E4@.024	LF	12.40	1.21	13.61
4/0-4/0-4/0	E4@.026	LF	13.90	1.31	15.21

SER aluminum service entrance cable. Three stranded aluminum conductors with color-coded cross-linked polyethylene (XLPE) insulation, bare ground wire and PVC jacket. For above ground service entrance, panel feeder and branch circuits.

6 gauge, 3 conductors, 6 gauge ground, 60 amps	E4@.012	LF	.82	.60	1.42
4 gauge, 3 conductors, 6 gauge ground, 75 amps	E4@.014	LF	.92	.70	1.62
2 gauge, 3 conductors, 4 gauge ground, 100 amps	E4@.016	LF	1.37	.80	2.17
1 gauge, 3 conductors, 2 gauge ground, 110 amps	E4@.018	LF	1.67	.91	2.58
1/0, 3 conductors, 2 gauge ground, 125 amps	E4@.020	LF	1.98	1.01	2.99
2/0, 3 conductors, 1 gauge ground, 150 amps	E4@.022	LF	2.38	1.11	3.49
3/0, 3 conductors, 1/0 ground, 175 amps	E4@.024	LF	2.98	1.21	4.19
4/0, 3 conductors, 2/0 ground, 200 amps	E4@.026	LF	3.38	1.31	4.69

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	Craft@Hrs	Unit	Material	Labor	Total
USE underground service entrance wire. Stranded conductor insulated with abrasion, heat, moisture, and sunlight-resistant cross-linked polyethylene (XLP). General purpose wire, including conduit, direct burial and overhead.					
8 gauge, copper	E4@.009	LF	.41	.45	.86
6 gauge, copper	E4@.010	LF	.64	.50	1.14
2 gauge, copper	E4@.016	LF	1.40	.80	2.20
1/0 gauge, copper	E4@.017	LF	2.42	.85	3.27
2/0 gauge, copper	E4@.018	LF	2.85	.91	3.76
4/0 gauge, copper	E4@.018	LF	5.31	.91	6.22
250 MCM, copper	E4@.020	LF	5.75	1.01	6.76
500 MCM, copper	E4@.022	LF	9.29	1.11	10.40
Deduct for aluminum USE service entrance wire	—	%	-60.0	—	—
URD triplex aluminum service entrance cable. For direct burial or installation in ducts, in either wet or dry locations.					
6 gauge, Erskine	E4@.011	LF	.63	.55	1.18
4 gauge, Vassar	E4@.012	LF	.78	.60	1.38
2 gauge, Ramapo	E4@.013	LF	1.01	.65	1.66
2/0 gauge, Converse	E4@.017	LF	1.45	.85	2.30
4/0 gauge, Monmouth	E4@.020	LF	1.95	1.01	2.96
Bare Copper Ground Wire Pulled in conduit with conductor wires. No excavation or duct included. By American Wire Gauge. Cost based upon 1,000' reels. For cut-to-length prices, add 100% to the material cost.					
12 gauge, solid, 1,000' reel	E4@.004	LF	.16	.20	.36
10 gauge, solid, 1,000' reel	E4@.005	LF	.24	.25	.49
8 gauge, solid, 1,000' reel	E4@.005	LF	.36	.25	.61
6 gauge, solid, 1,000' reel	E4@.005	LF	.50	.25	.75
4 gauge, solid, 1,000' reel	E4@.006	LF	.74	.30	1.04
4 gauge, stranded, 1,000' reel	E4@.006	LF	.76	.30	1.06
2 gauge, solid, 1,000' reel	E4@.008	LF	1.05	.40	1.45
2 gauge, stranded, 1,000' reel	E4@.008	LF	1.24	.40	1.64
THHN/THWN-2 Copper Building Wire Pulled in conduit for feeder and branch circuits. No conduit included. THHN has a heat-resistant thermoplastic cover approved for working temperatures up to 90 degrees Celsius in dry locations. THWN resists moisture, oil and gasoline and is approved for temperatures to 75 degrees Celsius in dry, wet or oil locations. THHN/THWN is made from soft annealed copper and insulated with heat- and moisture-resistant PVC and covered with nylon (polyamide). Available in colors to simplify identification of conductors after wire is pulled in conduit. By American Wire Gauge (AWG). Stranded wire has 19 strands. Cost based on 1,000' reels. For cut-to-length prices, add 100% to the material cost. Copper wire prices are highly volatile.					
14 gauge, solid, 1,000' reel	E4@.006	LF	.09	.30	.39
14 gauge, stranded, 1,000' reel	E4@.006	LF	.10	.30	.40
12 gauge, solid, 1,000' reel	E4@.007	LF	.16	.35	.51
12 gauge, stranded, 1,000' reel	E4@.007	LF	.17	.35	.52
10 gauge, solid, 1,000' reel	E4@.008	LF	.18	.40	.58
10 gauge, stranded, 1,000' reel	E4@.008	LF	.19	.40	.59
8 gauge, stranded, 1,000' reel	E4@.009	LF	.30	.45	.75
6 gauge, stranded, 1,000' reel	E4@.010	LF	.49	.50	.99
4 gauge, stranded, 1,000' reel	E4@.012	LF	.63	.60	1.23
3 gauge, stranded, 1,000' reel	E4@.013	LF	.88	.65	1.53
2 gauge, stranded, 1,000' reel	E4@.013	LF	.94	.65	1.59
1 gauge, stranded, 1,000' reel	E4@.014	LF	1.76	.70	2.46
1/0 gauge, stranded, 1,000' reel	E4@.015	LF	2.47	.75	3.22
2/0 gauge, stranded, 1,000' reel	E4@.016	LF	4.34	.80	5.14
3/0 gauge, stranded, 1,000' reel	E4@.017	LF	2.49	.85	3.34
4/0 gauge, stranded, 1,000' reel	E4@.018	LF	3.12	.91	4.03
250 MCM, stranded, 1,000' reel	E4@.020	LF	3.92	1.01	4.93
350 MCM, stranded, 1,000' reel	E4@.038	LF	5.01	1.91	6.92
500 MCM, stranded, 1,000' reel	E4@.046	LF	7.30	2.31	9.61

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
XHHW Copper Building Wire Pulled in conduit for feeder and branch circuits. No conduit included. Abrasion-, moisture- and heat-resistant thermoplastic intended for harsh environments. Maximum operating temperature is 90 degrees Celsius in dry locations and 75 degrees Celsius in wet locations. Flame-retardant cross-linked synthetic polymer insulation. XHHW has no outer jacket or covering. Available in colors to simplify identification of conductors after wire is pulled in conduit. By American Wire Gauge (AWG). Stranded wire has 19 strands. Cost based on 1,000' reels. For cut-to-length prices, add 100% to the material cost. Copper wire prices are highly volatile.					
14 gauge, stranded	E4@.006	LF	.15	.30	.45
12 gauge, stranded	E4@.007	LF	.23	.35	.58
10 gauge, solid	E4@.008	LF	.22	.40	.62
8 gauge, stranded	E4@.009	LF	.40	.45	.85
6 gauge, stranded	E4@.010	LF	.63	.50	1.13
4 gauge, stranded	E4@.012	LF	.87	.60	1.47
3 gauge, stranded	E4@.013	LF	1.07	.65	1.72
2 gauge, stranded	E4@.014	LF	1.33	.70	2.03
1 gauge, stranded	E4@.015	LF	1.78	.75	2.53
1/0 gauge, stranded	E4@.016	LF	2.24	.80	3.04
2/0 gauge, stranded	E4@.017	LF	2.85	.85	3.70
4/0 gauge, stranded	E4@.018	LF	4.36	.91	5.27
250 MCM, stranded	E4@.020	LF	4.86	1.01	5.87

Type UF-B Direct Burial Sheathed Cable Installed in an open trench. No excavation or backfill included. UF-B is designed for burial in a trench but may also be used to wire interior branch circuits in residential and agricultural buildings. The cable jacket is sunlight-, fungus- and moisture-resistant gray PVC. Full-size ground wire. Full coil quantities. Copper wire prices are highly volatile.

14 gauge, 2 conductor	E4@.005	LF	.28	.25	.53
14 gauge, 3 conductor	E4@.005	LF	.43	.25	.68
12 gauge, 2 conductor	E4@.005	LF	.45	.25	.70
12 gauge, 3 conductor	E4@.005	LF	.66	.25	.91
10 gauge, 2 conductor	E4@.005	LF	.81	.25	1.06
10 gauge, 3 conductor	E4@.006	LF	1.11	.30	1.41
8 gauge, 2 conductor	E4@.007	LF	1.17	.35	1.52
8 gauge, 3 conductor	E4@.007	LF	1.72	.35	2.07
6 gauge, 2 conductor	E4@.008	LF	1.62	.40	2.02
6 gauge, 3 conductor	E4@.008	LF	2.54	.40	2.94
Add for cut length quantities	—	%	20.0	—	—

Type NM-B (Romex) Sheathed Cable Installed in wood frame walls for outlets and switched fixtures, including boring out and pulling cable. NM-B cable can also be run through voids in masonry block or tile walls if little moisture is expected. Conductor insulation is color-coded PVC. 14 AWG (American Wire Gauge) is white, 12 AWG is yellow, 10 AWG is orange, and 8 and 6 AWG are black. Rated at 15 amps. With full-size ground wire. Full coil prices.

14 gauge, 2 conductor	E4@.027	LF	.25	1.36	1.61
14 gauge, 3 conductor	E4@.030	LF	.40	1.51	1.91
12 gauge, 2 conductor	E4@.030	LF	.37	1.51	1.88
12 gauge, 3 conductor	E4@.031	LF	.56	1.56	2.12
10 gauge, 2 conductor	E4@.031	LF	.65	1.56	2.21
10 gauge, 3 conductor	E4@.035	LF	.87	1.76	2.63
8 gauge, 2 conductor	E4@.040	LF	.97	2.01	2.98
8 gauge, 3 conductor	E4@.043	LF	1.45	2.16	3.61
6 gauge, 2 conductor	E4@.043	LF	1.32	2.16	3.48
6 gauge, 3 conductor	E4@.047	LF	2.15	2.36	4.51
4 gauge, 3 conductor	E4@.051	LF	4.39	2.56	6.95
2 gauge, 3 conductor	E4@.056	LF	6.74	2.82	9.56
Add for cut coil quantities	—	%	20.0	—	—
Deduct for no ground wire, #14 and #12 cable	—	%	-5.0	-5.0	—
Deduct for no ground wire, #10, #8 and #6 wire	—	%	-15.0	-5.0	—

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
MC Aluminum-Clad Copper Cable For use in dry sites. Exposed, concealed, or in approved raceway. Open or messenger-supported aerial runs. For powering lighting, control and signal circuits. Includes neutral, ground and one or two phase conductors. Installed with clamps or staples in a frame building or embedded in masonry, including approved bushings at terminations. Full coil prices.					
14 gauge, 2 conductor	E4@.009	LF	.44	.45	.89
14 gauge, 3 conductor	E4@.010	LF	.70	.50	1.20
14 gauge, 4 conductor	E4@.011	LF	.97	.55	1.52
12 gauge, 2 conductor	E4@.010	LF	.45	.50	.95
12 gauge, 3 conductor	E4@.011	LF	.77	.55	1.32
12 gauge, 4 conductor	E4@.012	LF	1.04	.60	1.64
10 gauge, 2 conductor	E4@.011	LF	.95	.55	1.50
10 gauge, 3 conductor	E4@.012	LF	1.33	.60	1.93
10 gauge, 4 conductor	E4@.013	LF	2.10	.65	2.75
Flexible Armored AC Cable , galvanized steel, 16 gauge integral bond wire to armor grounding path. Paper wrap conductor insulation covering. By American Wire Gauge and number of conductors. Installed exposed in a building either vertically or horizontally up to 10' above floor level. Sometimes referred to as "BX" cable.					
#14 wire, 2 conductor	E4@.030	LF	.59	1.51	2.10
#14 wire, 3 conductor	E4@.030	LF	.92	1.51	2.43
#12 wire, 2 conductor	E4@.030	LF	.43	1.51	1.94
#12 wire, 3 conductor	E4@.035	LF	.77	1.76	2.53
#12 wire, 4 conductor	E4@.038	LF	1.06	1.91	2.97
#10 wire, 2 conductor	E4@.031	LF	.84	1.56	2.40
#10 wire, 3 conductor	E4@.039	LF	1.19	1.96	3.15
# 6 wire, 3 conductor	E4@.047	LF	3.23	2.36	5.59
# 4 wire, 3 conductor	E4@.051	LF	5.06	2.56	7.62
# 2 wire, 3 conductor	E4@.056	LF	7.20	2.82	10.02
Power Cable Single conductor medium voltage ozone-resistant stranded copper cable pulled in conduit. No conduit included. Labor cost assumes three bundled conductors are pulled at one time on runs up to 100 feet. Labor cost will be higher on longer cable pulls and about 50% lower when cable is laid in an open trench. No splicing included. Listed by American Wire Gauge. Note that wire prices can change very quickly. Check with supplier.					
5,000 volt, tape shielded, crosslinked polyethylene (XLP) insulated, with PVC jacket					
#6 gauge	E4@.014	LF	5.35	.70	6.05
#4 gauge	E4@.016	LF	5.58	.80	6.38
#2 gauge	E4@.021	LF	5.81	1.06	6.87
#1/0 gauge	E4@.026	LF	10.10	1.31	11.41
#2/0 gauge	E4@.028	LF	14.50	1.41	15.91
#4/0 gauge	E4@.038	LF	17.00	1.91	18.91
350 MCM	E4@.047	LF	25.30	2.36	27.66
500 MCM	E4@.053	LF	33.70	2.66	36.36
15,000 volt, tape shielded, ethylene propylene rubber (EPR) insulated, with PVC jacket					
#2 gauge	E4@.024	LF	11.80	1.21	13.01
#1/0	E4@.030	LF	14.90	1.51	16.41
#2/0	E4@.032	LF	17.60	1.61	19.21
350 MCM	E4@.055	LF	30.50	2.77	33.27
500 MCM	E4@.062	LF	35.20	3.12	38.32

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
Snow-Melting Cable For concrete pavement. Self-regulating heater cable 208-277 volt AC, encased in concrete pavement for walkways, steps, loading ramps or parking garages. Based on Raychem ElectroMelt™ System for concrete pavement. Cable is cut to length at the site and laid in a serpentine pattern using 12-inch center-to-center spacing. Use nylon cable ties to fasten cable to the top of reinforcing before concrete is placed. For scheduling purposes estimate that a crew of one can lay out, cut to length, install and tie 600 LF of cable in an 8-hour day. Based on 1.1 LF of cable per SF of pavement, including ties, "return bends" and waste, this yields 545 SF of pavement. These costs do not include reinforcing, concrete or concrete placing. A rule of thumb for sizing circuit breakers: For startup at 0 degrees F with 220 volts AC, allow 0.20 amps per LF of cable.					
Heater cable (1.1 LF per SF of pavement)	CE@.015	SF	10.20	.90	11.10
Power connection kit, including end seals	CE@.500	Ea	34.80	29.90	64.70
Cable splice kit	CE@.250	Ea	16.30	14.90	31.20
Cable expansion joint kit	CE@.250	Ea	24.30	14.90	39.20
ElectroMelt™ junction box	CE@.500	Ea	132.00	29.90	161.90
System controller, automatic	CE@1.50	Ea	2,780.00	89.60	2,869.60
Thermostat, line sensing	CE@.500	Ea	284.00	29.90	313.90
Ground fault protection device	CE@.969	Ea	420.00	57.90	477.90

Ice-Melting Cable For roofs, gutters and downspouts. Self-regulating heater cable 120 or 208-277 volts AC, run exposed on the surface of the roof or within gutters. Based on Raychem IceStop™ System for roofs and gutters. Cable is cut to length on site and laid in a serpentine pattern using 24-inch center-to-center spacing and 32-inch loop height. Fasten to the roof with Raychem clips. For scheduling purposes estimate that a crew of one can cut to length and install 400 LF of cable in an 8-hour day. Based on 1.2 LF of cable per SF of protected roof area, including clips, "return bends" and waste, this yields 330 SF of protected area. Figure each LF of gutter as equal to one SF of roof. Figure each downspout as equal to 15 SF of roof. These costs do not include the roofing, gutters, or downspouts. A rule of thumb for sizing circuit breakers: For startup at 0 degrees F with 120 volts AC, allow 0.17 amps per LF of cable. For startup at 0 degrees F with 208-277 volts AC, allow 0.11 amps per LF of cable.

Heater cable (1.2 LF per SF of protected area)	CE@.033	LF	6.13	1.97	8.10
Power connection kit	CE@.500	Ea	34.80	29.90	64.70
Cable splice kit	CE@.374	Ea	16.30	22.40	38.70
End seal kit	CE@.374	Ea	15.00	22.40	37.40
Downspout hanger	CE@.374	Ea	28.90	22.40	51.30
Metal roof mounting kit	CE@.500	Ea	28.80	29.90	58.70

Electrical Outlet Boxes Steel boxes installed on an exposed wall or ceiling. The material cost for phenolic, PVC and fiberglass boxes will be 50% to 70% less. These costs include fasteners but no switch or receptacle

Square outlet boxes

4" x 4" x 1-1/2" deep with
1/2" and 3/4" knockouts
Side mounting bracket



E4@.187	Ea	1.58	9.40	10.98
E4@.187	Ea	2.75	9.40	12.15

4" x 4" x 2-1/8" deep with
1/2" and 3/4" knockouts
Side mounting bracket

E4@.245	Ea	2.96	12.30	15.26
E4@.245	Ea	1.04	12.30	13.34

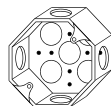
Add for

1-1/2" deep extension rings
Romex or BX clamps
Steel flush cover blanks
Plaster rings to 3/4" deep

E4@.120	Ea	2.70	6.03	8.73
—	Ea	.91	—	.91
E4@.039	Ea	.62	1.96	2.58
E4@.080	Ea	1.69	4.02	5.71

Octagon outlet boxes

4" x 1-1/2" deep with
1/2" knockouts
Mounting bracket, horizontal



E4@.187	Ea	1.14	9.40	10.54
E4@.187	Ea	2.16	9.40	11.56

4" x 2-1/8" deep with
1/2" and 3/4" knockouts

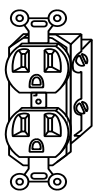
E4@.245	Ea	4.58	12.30	16.88
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	Craft@Hrs	Unit	Material	Labor	Total
Add for					
1-1/2" deep extension rings	E4@.120	Ea	2.27	6.03	8.30
1-1/2" with 18.5" adjustable bar set	E4@.282	Ea	2.69	14.20	16.89
3" deep concrete ring	E4@.516	Ea	1.96	25.90	27.86
4" steel flush cover blanks	E4@.039	Ea	.90	1.96	2.86
Plaster ring to 3/4" deep	E4@.080	Ea	1.76	4.02	5.78
Handy boxes, 4" x 2-1/8"					
1-1/2" deep, 1/2" knockouts	E4@.187	Ea	2.55	9.40	11.95
1-7/8" deep, 3/4" knockouts	E4@.187	Ea	.91	9.40	10.31
2-1/2" deep, 3/4" knockouts	E4@.245	Ea	2.96	12.30	15.26
2-1/8" deep, with side mounting bracket	E4@.245	Ea	2.60	12.30	14.90
1-1/2" deep extension rings	E4@.120	Ea	3.33	6.03	9.36
Blank or switch cover	E4@.039	Ea	.77	1.96	2.73
Weatherproof box and cover	E4@.059	Ea	3.82	2.97	6.79
Switch boxes, 3" x 2", square corner gangable boxes with mounting ears					
2" deep, 1/2" knockouts	E4@.245	Ea	1.57	12.30	13.87
2-1/2" deep, 1/2" knockouts	E4@.245	Ea	7.02	12.30	19.32
3-1/2" deep, 3/4" knockouts	E4@.324	Ea	4.72	16.30	21.02
Gang switch boxes, 2" x 3" x 1-5/8"					
2 gang	E4@.242	Ea	6.30	12.20	18.50
3 gang	E4@.342	Ea	8.49	17.20	25.69
4 gang	E4@.342	Ea	10.90	17.20	28.10
5 gang	E4@.482	Ea	17.80	24.20	42.00
6 gang	E4@.482	Ea	12.30	24.20	36.50
Floor boxes, watertight, cast iron, round					
4-3/16" x 3-3/4" deep, non-adjustable	E4@1.54	Ea	60.00	77.40	137.40
3-3/4" x 2" deep, semi-adjustable	E4@1.54	Ea	69.90	77.40	147.30
4-3/16" x 3-3/4" deep, adjustable	E4@1.54	Ea	83.20	77.40	160.60
2-1/8" single, round floor cover plates	E4@.156	Ea	39.10	7.84	46.94
Galvanized or gray enamel NEMA Class 1 (indoor) pull boxes, with screw cover, 4" deep					
4" x 4"	E4@.373	Ea	9.29	18.80	28.09
4" x 6"	E4@.373	Ea	11.10	18.80	29.90
6" x 6"	E4@.373	Ea	13.90	18.80	32.70
6" x 8"	E4@.391	Ea	15.30	19.70	35.00
8" x 8"	E4@.391	Ea	16.80	19.70	36.50
8" x 10"	E4@.444	Ea	20.50	22.30	42.80
8" x 12"	E4@.483	Ea	19.80	24.30	44.10
10" x 10"	E4@.492	Ea	18.70	24.70	43.40
10" x 12"	E4@.539	Ea	35.00	27.10	62.10
12" x 12"	E4@.593	Ea	39.50	29.80	69.30
12" x 16"	E4@.663	Ea	55.30	33.30	88.60
12" x 18"	E4@.785	Ea	57.50	39.50	97.00
Galvanized or gray enamel NEMA Class 1 (indoor) pull boxes, with screw cover, 6" deep					
6" x 6"	E4@.373	Ea	13.10	18.80	31.90
8" x 8"	E4@.391	Ea	18.10	19.70	37.80
8" x 10"	E4@.444	Ea	20.20	22.30	42.50
10" x 10"	E4@.492	Ea	24.00	24.70	48.70
10" x 12"	E4@.539	Ea	27.50	27.10	54.60
12" x 12"	E4@.593	Ea	34.30	29.80	64.10
12" x 16"	E4@.663	Ea	40.60	33.30	73.90

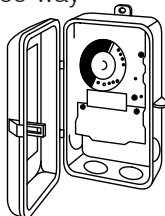
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	Craft@Hrs	Unit	Material	Labor	Total
12" x 18"	E4@.785	Ea	43.80	39.50	83.30
16" x 16"	E4@.929	Ea	49.60	46.70	96.30
18" x 18"	E4@1.10	Ea	53.90	55.30	109.20
18" x 24"	E4@1.30	Ea	98.20	65.40	163.60
24" x 24"	E4@1.54	Ea	123.00	77.40	200.40
Cast aluminum NEMA Class 3R (weatherproof) screw cover junction boxes, recessed, flush mounted, with cover					
6" x 6" x 4" deep	E4@.930	Ea	245.00	46.80	291.80
6" x 8" x 4" deep	E4@.930	Ea	302.00	46.80	348.80
6" x 6" x 6" deep	E4@.930	Ea	302.00	46.80	348.80
6" x 12" x 6" deep	E4@1.42	Ea	449.00	71.40	520.40
8" x 8" x 4" deep	E4@.982	Ea	344.00	49.40	393.40
8" x 8" x 6" deep	E4@1.14	Ea	370.00	57.30	427.30
8" x 12" x 6" deep	E4@1.30	Ea	559.00	65.40	624.40
10" x 10" x 6" deep	E4@1.33	Ea	316.00	66.90	382.90
12" x 12" x 6" deep	E4@1.35	Ea	664.00	67.90	731.90
12" x 12" x 8" deep	E4@1.73	Ea	781.00	87.00	868.00
12" x 24" x 6" deep	E4@1.97	Ea	1,480.00	99.10	1,579.10
18" x 36" x 8" deep	E4@2.56	Ea	3,430.00	129.00	3,559.00
Hinged cover panel enclosures, NEMA 1, enamel, with cover					
16" x 12" x 7" deep	E4@1.30	Ea	133.00	65.40	198.40
20" x 20" x 7" deep	E4@1.30	Ea	182.00	65.40	247.40
30" x 20" x 7" deep	E4@1.77	Ea	193.00	89.00	282.00
24" x 20" x 9" deep	E4@1.30	Ea	225.00	65.40	290.40
30" x 24" x 9" deep	E4@1.77	Ea	256.00	89.00	345.00
36" x 30" x 9" deep	E4@1.77	Ea	320.00	89.00	409.00
Electrical Receptacles					
Standard commercial grade except where noted. Ivory or brown receptacles. White or gray receptacles will cost about 10% more. Labor includes connecting wire and securing the device in the box. Add the cost of the box and the cover plate.					
15 amp, 125 volt self-grounding, 2 pole, 3 wire duplex receptacles					
Residential grade, grounded duplex	CE@.162	Ea	.52	9.68	10.20
Screwless, not self-grounding	CE@.162	Ea	2.56	9.68	12.24
Side terminals	CE@.162	Ea	2.56	9.68	12.24
Back and side terminals	CE@.162	Ea	2.55	9.68	12.23
Feed thru wiring, back and side terminals	CE@.162	Ea	5.89	9.68	15.57
Safety ground, side terminals	CE@.162	Ea	9.41	9.68	19.09
Ground fault circuit interrupter receptacle	CE@.324	Ea	14.10	19.40	33.50
Add for NEMA 5 single receptacles	—	%	15.0	—	—
20 amp, 125 volt self-grounding, 2 pole, 3 wire duplex receptacles					
Side terminals	CE@.162	Ea	7.06	9.68	16.74
Back and side terminals	CE@.162	Ea	9.55	9.68	19.23
Feed thru wiring, back and side terminals	CE@.162	Ea	9.96	9.68	19.64
Hospital grade	CE@.162	Ea	10.40	9.68	20.08
Ground fault circuit interrupter receptacle	CE@.324	Ea	16.20	19.40	35.60
Add for NEMA 5 single receptacles	—	%	15.0	—	—
250 volt receptacles, self-grounding, 2 pole, 3 wire, back & side terminals					
15 amp, duplex	CE@.187	Ea	10.60	11.20	21.80
15 amp, single	CE@.187	Ea	7.32	11.20	18.52
20 amp, duplex	CE@.187	Ea	8.24	11.20	19.44
20 amp, duplex, feed thru wiring	CE@.187	Ea	13.00	11.20	24.20
20 amp, single	CE@.187	Ea	10.10	11.20	21.30



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	Craft@Hrs	Unit	Material	Labor	Total
Clock receptacle, 2 pole, 15 amp, 125 volt	CE@.329	Ea	5.48	19.70	25.18
120/208 volt 20 amp 4 pole, duplex receptacle	CE@.795	Ea	28.60	47.50	76.10
125/250 volt 3 pole receptacles, flush mount					
15 amp/10 amp	CE@.714	Ea	9.75	42.70	52.45
20 amp	CE@.820	Ea	15.20	49.00	64.20
277 volt 30 amp 2 pole receptacle	CE@.268	Ea	45.50	16.00	61.50
Dryer receptacles, 250 volt, 30/50 amp, 3 wire	CE@.536	Ea	8.99	32.00	40.99
Accessories for 50 amp dryer receptacles					
Flush mounted plug	CE@.288	Ea	40.80	17.20	58.00
Surface mounted plug	CE@.288	Ea	28.00	17.20	45.20
Cord sets for dryer receptacles					
36 inch, three #10 wires	CE@.288	Ea	17.10	17.20	34.30
48 inch, three #10 wires	CE@.288	Ea	19.30	17.20	36.50
60 inch, three #10 wires	CE@.288	Ea	22.40	17.20	39.60
Electrical Switches Commercial grade, 120 to 277 volt rating except where noted. Ivory or brown. Add 10% for white or gray. Labor includes connecting wire to the switch and securing the switch in the box. Add the cost of the box and cover plate.					
15 amp switches, back and side wired					
One pole quiet switch, residential (side wired only)	CE@.112	Ea	.70	6.69	7.39
One pole switch, commercial, minimum quality	CE@.112	Ea	1.30	6.69	7.99
Two pole switch	CE@.309	Ea	10.40	18.50	28.90
Three-way switch	CE@.227	Ea	7.29	13.60	20.89
Four-way switch	CE@.309	Ea	10.10	18.50	28.60
20 amp switches, back and side wired					
One pole switch	CE@.187	Ea	3.02	11.20	14.22
Two pole switch	CE@.433	Ea	6.05	25.90	31.95
Three-way switch	CE@.291	Ea	5.03	17.40	22.43
Four-way switch	CE@.435	Ea	11.70	26.00	37.70
30 amp switches, side wired					
One pole switch	CE@.246	Ea	13.00	14.70	27.70
Two pole switch	CE@.475	Ea	19.30	28.40	47.70
Three-way switch	CE@.372	Ea	18.90	22.20	41.10
Four-way switch	CE@.475	Ea	28.10	28.40	56.50
20 amp weatherproof switches, lever handle, with cover					
One pole switch	CE@.187	Ea	9.41	11.20	20.61
Two pole switch	CE@.433	Ea	18.10	25.90	44.00
Three-way switch	CE@.291	Ea	12.40	17.40	29.80
Single pole, two gang, 10 amp	CE@.358	Ea	21.30	21.40	42.70
Dimmer switches, push for off					
Incandescent, 600 watt, one pole	CE@.417	Ea	10.10	24.90	35.00
LED or incandescent, single or three-way	CE@.626	Ea	31.50	37.40	68.90
Fluorescent dimmer,					
10 lamp load	CE@.626	Ea	46.70	37.40	84.10
Astro dial time switch,					
40 amp, with box	CE@3.00	Ea	118.00	179.00	297.00
15 minute timer switch,					
wall box mounted	CE@.426	Ea	50.20	25.50	75.70
Single pole, 1 throw time switch, 277 volt	CE@.890	Ea	55.00	53.20	108.20
Float switches for sump pumps, automatic					
10A, 125/250/480 VAC	CE@1.03	Ea	37.40	61.60	99.00



26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
One-way 15 amp toggle switch with neon pilot	CE@.327	Ea	8.06	19.50	27.56
Three-way 15 amp toggle switch with neon pilot	CE@.372	Ea	12.10	22.20	34.30
Photoelectric switches, flush, with wall plate					
120 volt, 1,000 watt	CE@.426	Ea	7.95	25.50	33.45
208 volt, 1,800 watt	CE@.626	Ea	13.00	37.40	50.40
480 volt, 3,000 watt	CE@.795	Ea	13.10	47.50	60.60
Button control stations, surface mounted, NEMA Class 1, standard duty, 120/240 volt, with enclosure					
Start-stop switch, 2 button	CE@.624	Ea	24.80	37.30	62.10
Start-stop switch with lockout, 2 button	CE@.624	Ea	37.10	37.30	74.40
Forward, reverse and stop buttons, 3 button	CE@.624	Ea	50.20	37.30	87.50
Forward, reverse, stop and lockout, 3 button	CE@.624	Ea	50.50	37.30	87.80
Manual toggle starter switches, surface mounted, NEMA Class 1, 120/240 volt, non-reversing, with enclosure					
Size 0 motors, 2 pole	CE@.613	Ea	101.00	36.60	137.60
Size 1 motors, 3 pole	CE@.698	Ea	130.00	41.70	171.70
Size 1-1/2 motors, 2 pole	CE@.901	Ea	149.00	53.80	202.80
Manual button starter switches, surface mounted, NEMA Class 1, 110 to 240 volt, 2 pole, 1 phase, with enclosure, start, stop, reset, with relay					
Size 00 motors	CE@.712	Ea	134.00	42.50	176.50
Size 0 motors	CE@.712	Ea	145.00	42.50	187.50
Size 1 motors	CE@.820	Ea	163.00	49.00	212.00
Size 1-1/2 motors	CE@.975	Ea	196.00	58.30	254.30
Electrical Box Cover Plates Includes the cover plate and screws. Add the cost of the box and switch or receptacle. Labor includes attaching the cover plate to the box. Almond or ivory plastic except as noted.					
Residential grade electrical box cover plates					
1 gang plate, duplex receptacle	CE@.050	Ea	.38	2.99	3.37
1 gang plate, toggle switch	CE@.050	Ea	.38	2.99	3.37
2 gang plate, 2 duplex receptacles	CE@.100	Ea	.97	5.98	6.95
2 gang plate, two toggle switches	CE@.100	Ea	.97	5.98	6.95
2 gang plate, oversize, toggle or receptacle	CE@.100	Ea	1.18	5.98	7.16
3 gang plate, toggle or receptacle	CE@.150	Ea	1.99	8.96	10.95
Decora multi-gang sectional plate, end or center	CE@.050	Ea	1.97	2.99	4.96
Stainless steel electrical box cover plates					
1 gang plate, blank, duplex or toggle	CE@.050	Ea	1.69	2.99	4.68
1 gang plate, power outlet	CE@.050	Ea	1.59	2.99	4.58
2 gang plate, blank, duplex or toggle	CE@.100	Ea	2.99	5.98	8.97
3 gang plate, blank, duplex or toggle	CE@.150	Ea	3.51	8.96	12.47
Specification grade electrical box cover plates					
1 gang plate, single receptacle or toggle switch	CE@.050	Ea	5.23	2.99	8.22
1 gang plate, duplex receptacle or toggle switch	CE@.050	Ea	7.78	2.99	10.77
1 gang plate, GFIC and rocker switch	CE@.050	Ea	7.78	2.99	10.77
2 gang plate, double duplex or toggle switches	CE@.100	Ea	6.67	5.98	12.65
2 gang plate, double GFIC and rocker switches	CE@.100	Ea	6.67	5.98	12.65
3 gang plate, duplex receptacles or switches	CE@.150	Ea	10.30	8.96	19.26
Grounding Devices No excavation or concrete included.					
Copper-clad grounding rods, driven					
1/2" x 8'	E4@.365	Ea	11.40	18.40	29.80
5/8" x 8'	E4@.365	Ea	12.50	18.40	30.90
5/8" x 10'	E4@.420	Ea	18.30	21.10	39.40
3/4" x 8'	E4@.365	Ea	27.20	18.40	45.60
3/4" x 10'	E4@.420	Ea	28.50	21.10	49.60

26 Electrical

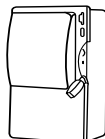
	Craft@Hrs	Unit	Material	Labor	Total
Grounding locknuts					
1/2" locknuts	E4@.050	Ea	1.60	2.51	4.11
3/4" locknuts	E4@.060	Ea	2.04	3.02	5.06
1" locknuts	E4@.080	Ea	2.76	4.02	6.78
1-1/4" locknuts	E4@.100	Ea	3.69	5.03	8.72
1-1/2" locknuts	E4@.100	Ea	4.97	5.03	10.00
2" locknuts	E4@.150	Ea	6.76	7.54	14.30
2-1/2" locknuts	E4@.200	Ea	13.70	10.10	23.80
3" locknuts	E4@.200	Ea	17.20	10.10	27.30
4" locknuts	E4@.300	Ea	35.90	15.10	51.00
Ground rod clamps					
1/2" clamp	E4@.249	Ea	2.01	12.50	14.51
5/8" clamp	E4@.249	Ea	2.34	12.50	14.84
3/4" clamp	E4@.249	Ea	3.35	12.50	15.85
Coupling for threaded ground rod					
5/8" clamp	E4@.249	Ea	13.30	12.50	25.80
3/4" clamp	E4@.249	Ea	18.40	12.50	30.90
Copper bonding connector straps, 3/4" x .050"					
1" strap	E4@.286	Ea	12.90	14.40	27.30
2" strap	E4@.300	Ea	16.60	15.10	31.70
3" strap	E4@.315	Ea	22.30	15.80	38.10
4" strap	E4@.330	Ea	26.40	16.60	43.00
Brazed connections for wire					
#6 wire	E4@.194	Ea	1.35	9.75	11.10
#2 wire	E4@.194	Ea	1.58	9.75	11.33
#1/0 wire	E4@.295	Ea	4.25	14.80	19.05
#4/0 wire	E4@.391	Ea	10.80	19.70	30.50
Grounding using a 5/8" x 8' copper clad ground rod, includes 10' grounding conductor, clamps, connectors, locknut, and rod.					
100 amp service, #8 copper wire	E4@1.13	Ea	33.30	56.80	90.10
150 amp service, #6 copper wire	E4@1.16	Ea	34.70	58.30	93.00
Electric Motors General purpose, 3 phase, open drip-proof, industrial duty, 1,700-1,780 RPM, 208-230/460 volt, rigid welded or solid base, furnished and placed, no hookup included. Based on Dayton motors.					
1/2 HP	E4@1.99	Ea	225.00	100.00	325.00
3/4 HP	E4@1.99	Ea	252.00	100.00	352.00
1 HP	E4@1.99	Ea	267.00	100.00	367.00
1-1/2 HP	E4@1.99	Ea	278.00	100.00	378.00
2 HP	E4@1.99	Ea	285.00	100.00	385.00
3 HP	E4@1.99	Ea	308.00	100.00	408.00
5 HP	E4@2.22	Ea	360.00	112.00	472.00
7-1/2 HP	E4@2.40	Ea	530.00	121.00	651.00
10 HP	E4@2.51	Ea	614.00	126.00	740.00
Electric Motor Connection Includes a NEMA-1 fusible heavy duty safety switch, connectors, fittings, ells, adapters, supports, anchors and conduit with wire appropriate for the load connected but no starter or motor.					
Single phase, using 10' RSC, 20' PVC and 6' flex conduit, NEMA Class 1 (indoor) general duty switch, 240 V					
For motor to 2 HP, 20 amps	E4@6.35	Ea	146.00	319.00	465.00
For 2.5 to 3 HP motor, 30 amps	E4@6.63	Ea	149.00	333.00	482.00
For 3 HP motor, 45 amps	E4@6.68	Ea	306.00	336.00	642.00
For 8 to 15 HP motor, 90 amps	E4@13.4	Ea	465.00	674.00	1,139.00

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	Craft@Hrs	Unit	Material	Labor	Total
Three phase wiring using 10' RSC, 20' PVC and 6' flex conduit, NEMA Class 1 (indoor) switch, 600 V					
For motor to 2 HP, 20 amps	E4@7.18	Ea	285.00	361.00	646.00
For 3 to 5 HP motor, 30 amps	E4@7.90	Ea	288.00	397.00	685.00
For 7 to 10 HP motor, 45 amps	E4@8.30	Ea	346.00	417.00	763.00
For 25 to 50 HP motor, 90 amps	E4@9.30	Ea	710.00	468.00	1,178.00
For 50 to 100 HP motor, 135 amps	E4@14.1	Ea	1,190.00	709.00	1,899.00
For 100 to 200 HP motor, 270 amps	E4@21.9	Ea	3,010.00	1,100.00	4,110.00
Single phase, using 10' RSC, 20' PVC and 6' flex conduit, NEMA Class 3R (weatherproof) switch, 240 V					
For motor to 2 HP, 20 amps	E4@6.63	Ea	168.00	333.00	501.00
For 2 to 5 HP motor, 30 amps	E4@6.97	Ea	171.00	350.00	521.00
For 5 to 7.5 HP motor, 45 amps	E4@6.94	Ea	241.00	349.00	590.00
Three phase using 10' RSC, 20' PVC and 6' flex conduit, NEMA Class 3R (weatherproof) switch, 600 V					
For motor to 5 HP motor, 20 amps	E4@7.10	Ea	395.00	357.00	752.00
For 1 to 10 HP motor, 30 amps	E4@7.25	Ea	398.00	365.00	763.00
For 10 to 25 HP motor, 45 amps	E4@9.51	Ea	481.00	478.00	959.00
For 25 to 50 HP motor, 90 amps	E4@9.51	Ea	847.00	478.00	1,325.00
For 60 to 100 HP motor, 135 amps	E4@12.1	Ea	1,350.00	608.00	1,958.00
For 125 to 200 HP motor, 270 amps	E4@21.6	Ea	3,370.00	1,090.00	4,460.00
Electric Motor Connection Complete installation, including magnetic motor starter, overload relay, all wiring, a heavy duty fusible safety switch, junction box and cover, connectors, fittings, adapters, supports, anchors and conduit appropriate for the load connected. No motor included.					
Single phase, using 10' RSC, 20' PVC and 6' flex conduit, NEMA Class 1 (indoor) starter, 230 V					
For motor to 2 HP, 20 amps	E4@8.11	Ea	343.00	408.00	751.00
For 2 to 3 HP motor, 30 amps	E4@8.32	Ea	385.00	418.00	803.00
For 3 to 8 HP motor, 45 amps	E4@8.45	Ea	559.00	425.00	984.00
For 8 to 15 HP motor, 90 amps	E4@15.5	Ea	949.00	779.00	1,728.00
Three phase wiring using 10' RSC, 20' PVC and 6' flex conduit, NEMA Class 1 (indoor) starter, 480 V					
For motor to 2 HP, 20 amps	E4@9.90	Ea	910.00	498.00	1,408.00
For 2 to 5 HP motor, 30 amps	E4@10.6	Ea	959.00	533.00	1,492.00
For 7 to 25 HP motor, 45 amps	E4@20.5	Ea	1,480.00	1,030.00	2,510.00
For 25 to 50 HP motor, 90 amps	E4@23.1	Ea	2,550.00	1,160.00	3,710.00
Single phase, using 10' RSC, 20' PVC and 6' flex conduit, NEMA Type 3R (weatherproof) starter, 230 V					
For motor to 2 HP, 20 amps	E4@8.91	Ea	470.00	448.00	918.00
For 2 to 5 HP motor, 30 amps	E4@9.15	Ea	533.00	460.00	993.00
For 5 to 7.5 HP motor, 45 amps	E4@9.25	Ea	762.00	465.00	1,227.00
Three phase using 10' RSC, 20' PVC and 6' flex conduit, NEMA Type 3R (weatherproof) starter, 480 V					
For motor to 5 HP, 20 amps	E4@10.9	Ea	1,310.00	548.00	1,858.00
For 5 to 10 HP motor, 30 amps	E4@11.7	Ea	1,380.00	588.00	1,968.00
For 10 to 25 HP motor, 45 amps	E4@22.5	Ea	2,150.00	1,130.00	3,280.00
For 25 to 50 HP motor, 90 amps	E4@25.4	Ea	3,650.00	1,280.00	4,930.00
Motor Starters Magnetic operated full voltage non-reversing motor controllers with thermal overload relays and enclosure.					
Two pole, 1 phase contactors, NEMA Class 1 (indoor), electrically held with holding interlock, one reset					
Size 00, 1/3 HP, 9 amp	E4@1.47	Ea	269.00	73.90	342.90
Size 0, 1 HP, 18 amp	E4@1.62	Ea	311.00	81.50	392.50
Size 1, 2 HP, 27 amp	E4@1.73	Ea	353.00	87.00	440.00
Size 2, 3 HP, 45 amp	E4@1.73	Ea	453.00	87.00	540.00
Size 3, 7-1/2 HP, 90 amp	E4@2.02	Ea	646.00	102.00	748.00

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
Three pole polyphase NEMA Class 1 (indoor) AC magnetic combination starters with fusible disconnect and overload relays but no heaters, 208 to 240 volts					
Size 0, 3 HP, 30 amps	E4@2.75	Ea	851.00	138.00	989.00
Size 1, 7.5 HP, 30 amps	E4@3.89	Ea	895.00	196.00	1,091.00
Size 1, 10 HP, 60 amps	E4@3.89	Ea	895.00	196.00	1,091.00
Size 2, 10 HP, 60 amps	E4@5.34	Ea	1,430.00	268.00	1,698.00
Size 2, 25 HP, 100 amps	E4@5.34	Ea	1,430.00	268.00	1,698.00
Size 3, 25 HP, 100 amps	E4@6.76	Ea	2,350.00	340.00	2,690.00
Size 3, 50 HP, 200 amps	E4@6.76	Ea	2,350.00	340.00	2,690.00
Size 4, 40 HP, 200 amps	E4@12.0	Ea	4,540.00	603.00	5,143.00
Size 4, 75 HP, 400 amps	E4@12.0	Ea	4,540.00	603.00	5,143.00
On and off switches for starter enclosures, any motor starter above					
Switch kit without pilot light	E4@.744	Ea	88.90	37.40	126.30
Switch kit with pilot light	E4@.744	Ea	134.00	37.40	171.40
Accessories for any motor starter					
Add for 440 to 600 volt starters	—	%	2.0	—	—
Add for NEMA Type 3R (rainproof) enclosure	—	%	40.0	10.0	—
Add for NEMA Type 4 (waterproof) enclosure	—	%	40.0	20.0	—
Add for NEMA Type 12 (dust-tight) enclosure	—	%	15.0	15.0	—
Add for starters in an oversize enclosure	—	%	21.0	—	—
Deduct for starters with circuit breakers	—	%	-4.0	—	—
Safety Switches Wall mounted switches with enclosures as noted. No fuses or hubs included.					
Heavy-duty (NEMA-1) 600 volt 2, 3 or 4 pole fusible safety switches					
30 amp	E4@3.06	Ea	186.00	154.00	340.00
60 amp	E4@3.89	Ea	216.00	196.00	412.00
100 amp	E4@4.20	Ea	403.00	211.00	614.00
200 amp	E4@6.92	Ea	581.00	348.00	929.00
400 amp	E4@11.4	Ea	1,430.00	573.00	2,003.00
600 amp	E4@14.3	Ea	2,130.00	719.00	2,849.00
800 amp	E4@19.6	Ea	2,960.00	985.00	3,945.00
1,200 amp	E4@22.7	Ea	4,990.00	1,140.00	6,130.00
Heavy-duty rainproof (NEMA-3R) 600 volt 2, 3 or 4 pole fusible safety switches					
30 amp	E4@3.32	Ea	286.00	167.00	453.00
60 amp	E4@4.61	Ea	339.00	232.00	571.00
100 amp	E4@4.77	Ea	527.00	240.00	767.00
200 amp	E4@7.51	Ea	724.00	378.00	1,102.00
400 amp	E4@12.4	Ea	1,750.00	623.00	2,373.00
600 amp	E4@15.6	Ea	3,510.00	784.00	4,294.00
800 amp	E4@21.4	Ea	5,270.00	1,080.00	6,350.00
1,200 amp	E4@25.8	Ea	5,780.00	1,300.00	7,080.00
Heavy-duty watertight (NEMA-4) 600 volt 3 pole, 4 wire fusible safety switches					
30 amp	E4@3.76	Ea	642.00	189.00	831.00
60 amp	E4@5.21	Ea	1,050.00	262.00	1,312.00
100 amp	E4@5.34	Ea	1,640.00	268.00	1,908.00
200 amp	E4@8.52	Ea	2,310.00	428.00	2,738.00
400 amp	E4@13.7	Ea	4,570.00	689.00	5,259.00
600 amp	E4@17.0	Ea	6,480.00	855.00	7,335.00
Heavy-duty dust-tight (NEMA-12) 600 volt 3 pole or 4 pole solid neutral fusible safety switches					
30 amp	E4@3.32	Ea	257.00	167.00	424.00
60 amp	E4@4.20	Ea	252.00	211.00	463.00
100 amp	E4@4.48	Ea	404.00	225.00	629.00
200 amp	E4@7.51	Ea	628.00	378.00	1,006.00
400 amp	E4@12.7	Ea	1,440.00	639.00	2,079.00
600 amp	E4@15.9	Ea	2,420.00	799.00	3,219.00



26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
Surface mounted steel sided fluorescent fixtures with acrylic prismatic diffuser, 7-1/16" x 4-1/2"					
Two 40 watt lamps	CE@.955	Ea	86.20	57.10	143.30
Four 40 watt lamps	CE@1.05	Ea	121.00	62.70	183.70
Add for 40 watt straight lamps	—	Ea	4.04	—	4.04
Wall surface mounted fluorescent fixtures, baked enamel finish, 2 lamps, 8" wide 5" high, hinged acrylic prismatic lens, Lightolier					
26" long fixture	CE@.737	Ea	181.00	44.00	225.00
38" long fixture	CE@.795	Ea	210.00	47.50	257.50
50" long fixture	CE@.858	Ea	203.00	51.30	254.30
Add for 24" 20 watt lamps	—	Ea	3.67	—	3.67
Add for 36" 30 watt lamps	—	Ea	5.71	—	5.71
Add for 48" 40 watt lamps	—	Ea	2.61	—	2.61
Industrial pendent or surface mounted open striplights, baked enamel finish, Lithonia C series					
One or two 40 watt lamps, 4' long (C240)	CE@.865	Ea	40.90	51.70	92.60
One or two 75 watt lamps, 8' long (C296)	CE@1.02	Ea	60.50	61.00	121.50
One or two 55 watt lamps, 6' long (C272)	CE@1.02	Ea	60.50	61.00	121.50
Add for 40 watt lamps	—	Ea	2.81	—	2.81
Add for 75 or 55 watt lamps	—	Ea	6.66	—	6.66
Add for 24" stem and canopy set, per fixture	—	Ea	6.66	—	6.66
Industrial pendent or surface mounted fluorescent fixtures, 12" wide baked enamel, steel reflector-shield, Lithonia L/LA series					
Two 40 watt lamps, 4' long (L-240-120)	CE@.908	Ea	43.90	54.00	97.90
Two 75 watt lamps, 8' long (L-296-120)	CE@1.21	Ea	86.20	72.30	158.50
Add for 40 watt lamps	—	Ea	2.81	—	2.81
Add for 75 watt lamps	—	Ea	6.71	—	6.71
Ceiling grid mounted fluorescent troffer fixtures, baked enamel finish, with hinged acrylic prismatic lens with energy saving ballast, Day-Brite					
Two 40 watt "U" lamp fixture, 2' x 2'	CE@.908	Ea	63.70	54.30	118.00
Two 40 watt lamp fixture, 2' x 4'	CE@.998	Ea	72.20	59.60	131.80
Four 40 watt lamp fixture, 2' x 4'	CE@1.05	Ea	78.00	62.70	140.70
Add for plaster frames, per fixture	—	Ea	9.30	—	9.30
Air-handling grid mounted floating door, heat transfer troffer fixtures with acrylic lens, no ductwork included					
1' x 4', two 40 watt lamps	CE@.908	Ea	121.00	54.30	175.30
2' x 2', one U-shape 40 watt lamp	CE@.809	Ea	128.00	48.30	176.30
2' x 4', two 40 watt lamps	CE@1.00	Ea	160.00	59.80	219.80
2' x 4', three 40 watt lamps	CE@1.05	Ea	199.00	62.70	261.70
2' x 4', four 40 watt lamps	CE@1.05	Ea	199.00	62.70	261.70
Add for 40 watt 4' lamps	—	Ea	2.81	—	2.81
Add for 40 watt "U" lamps	—	Ea	11.80	—	11.80
Surface mounted vandal-resistant luminaire with tamper-resistant screw-type latching, Sylvania					
1 lamp	CE@.761	Ea	133.00	45.50	178.50
2 lamps	CE@.761	Ea	135.00	45.50	180.50
4 lamps	CE@.761	Ea	227.00	45.50	272.50
Parabolic fluorescent luminaire, 6" x 24" x 24" with semi-specular anodized aluminum reflector and parabolic louvers, I.C.E. AR series					
Two 40 watt lamp, bracket or pendent mount	CE@.955	Ea	83.70	57.10	140.80
Four 40 watt lamps, bracket or pendent mount	CE@.955	Ea	134.00	57.10	191.10
Round surface mounted fluorescent fixtures, aluminum housing, matte black finish, polycarbonate or acrylic opal globe, Circleline					
22 to 32 watt, 14" diameter	CE@.478	Ea	52.60	28.60	81.20
32 to 40 watt, 18" diameter	CE@.478	Ea	72.90	28.60	101.50
Add for circline tubes	—	Ea	8.34	—	8.34

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
Outdoor sign fluorescent fixtures, anodized aluminum housing with parabolic specular reflector and acrylic lens, with high output lamps and remote ballast					
One 60 watt lamp, 48" long fixture	CE@2.39	Ea	255.00	143.00	398.00
One 85 watt lamp, 72" long fixture	CE@2.39	Ea	269.00	143.00	412.00
One 110 watt lamp, 96" long fixture	CE@2.39	Ea	297.00	143.00	440.00
Two 85 watt lamps, 144" long fixture	CE@2.39	Ea	402.00	143.00	545.00
Add for high output T12 800 MA lamps, sign white					
60 watt	—	Ea	7.69	—	7.69
85 watt	—	Ea	7.69	—	7.69
115 watt	—	Ea	21.50	—	21.50
Cost per linear foot of fixture	CE@.179	LF	67.60	10.70	78.30
Add for 90-degree elbows	CE@.475	Ea	177.00	28.40	205.40
Add for in-line connectors	CE@.475	Ea	88.80	28.40	117.20
Wet or damp location surface mounted fluorescent fixtures, hinge mounted acrylic diffuse lens, fiberglass or plastic housing with gaskets, Hubbell					
Two 40 watt lamps, 4' long fixture	CE@1.21	Ea	147.00	72.30	219.30
Two 40 watt lamps, 8' long fixture	CE@1.86	Ea	320.00	111.00	431.00
Add for 40 watt lamps	—	Ea	2.73	—	2.73
Commercial and industrial LED light fixtures					
With lamps but no wire or conduit. Labor includes setting and connecting prewired fixtures only.					
Recessed-LED 12 volt accent lights, aluminum reflector, 2-1/2" glass lens and pigtail connection, dimmable					
1 watt	CE@1.15	Ea	17.50	68.70	86.20
5 watt	CE@1.15	Ea	26.50	68.70	95.20
6 watt, waterproof	CE@1.15	Ea	53.00	68.70	121.70
Recessed LED downlight, 100 to 240 volt, frosted dome lens, white baffle trim, dimmable					
5" dia. 9 W, 60 W equivalent	CE@1.21	Ea	23.50	72.30	95.80
6" dia. 15 W, 75 W equivalent	CE@1.21	Ea	26.50	72.30	98.80
8" dia. 24 W, 190 W equivalent	CE@1.21	Ea	21.00	72.30	93.30
6" square, 9 W, 60 W equivalent	CE@1.21	Ea	15.80	72.30	88.10
Flush mount-LED ceiling lights, frosted dome lens, white aluminum trim, dimmable					
5-1/2" dia. 10 W, 60 W equivalent	CE@1.21	Ea	17.50	72.30	89.80
7" dia. 12 W, 75 W equivalent	CE@1.21	Ea	17.50	72.30	89.80
9" dia. 18 W, 100 W equivalent	CE@1.21	Ea	21.00	72.30	93.30
13" dia. 25 W, 100 W equivalent	CE@1.21	Ea	21.00	72.30	93.30
16" dia. 23 W, 100 W, bronze trim	CE@1.21	Ea	52.50	72.30	124.80
14" square, 10 W, 60 W equivalent	CE@1.21	Ea	21.00	72.30	93.30
LED panel lights, frosted dome lens, white aluminum trim, dimmable					
5-1/2" dia. 10 W, 60 W equivalent	CE@1.21	Ea	17.50	72.30	89.80
7" dia. 12 W, 75 W equivalent	CE@1.21	Ea	17.50	72.30	89.80
9" dia. 18 W, 100 W equivalent	CE@1.21	Ea	21.00	72.30	93.30
13" dia. 25 W, 100 W equivalent	CE@1.21	Ea	21.00	72.30	93.30
16" dia. 23 W, 100 W, bronze trim	CE@1.21	Ea	52.50	72.30	124.80
14" square, 10 W, 60 W equivalent	CE@1.21	Ea	21.00	72.30	93.30

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
Industrial LED wall packs, aluminum housing, bronze finish, polycarbonate lens, weatherproof, with lamps.					
20 watt, 70 W halide equivalent	CE@.955	Ea	33.50	57.10	90.60
28 watt, 70 W halide equivalent	CE@.955	Ea	48.00	57.10	105.10
40 watt, 250 W halide equivalent	CE@.955	Ea	95.00	57.10	152.10
80 watt, 400 W halide equivalent	CE@.955	Ea	115.00	57.10	172.10
80 watt, 400 W halide equivalent, rotatable	CE@.955	Ea	148.00	57.10	205.10
120 watt, 400 W halide equivalent	CE@.955	Ea	125.00	57.10	182.10
Add for photo cell control, factory-installed	—	Ea	15.00	—	15.00
High-bay LED industrial fixture, cast aluminum housing, 10" diameter tempered glass lens, suspended or surface mounted, with lamp, U-bracket, eye hook, and safety cable.					
100 watt, 250 W halide equivalent	CE@1.30	Ea	145.00	77.70	222.70
150 watt, 400 W halide equivalent	CE@1.30	Ea	178.00	77.70	255.70
200 watt, 750 W halide equivalent	CE@1.30	Ea	210.00	77.70	287.70
300 watt, 1000 W halide equivalent	CE@1.30	Ea	305.00	77.70	382.70
400 watt, 1500 W halide equivalent	CE@1.30	Ea	490.00	77.70	567.70
500 watt, 1500 W halide equivalent	CE@1.30	Ea	600.00	77.70	677.70
Add for wire guard on lens	CE@.250	Ea	77.10	14.90	92.00
High-bay LED linear fixtures, white aluminum frame, frosted poly lens, suspension mount, by metal halide lamp equivalent					
80 watt, 3 lamps, 24" x 12", 250 W halide	CE@1.39	Ea	84.00	83.10	167.10
100 watt, 4 lamps, 48" x 12", 250 W halide	CE@1.39	Ea	126.00	83.10	209.10
110 watt, 3 lamp, 24" x 12", 320 W halide	CE@1.39	Ea	105.00	83.10	188.10
150 watt, 4 lamps, 48" x 12", 250 W halide	CE@1.39	Ea	168.00	83.10	251.10
165 watt, 4 lamps, 24" x 12", 400 W halide	CE@1.39	Ea	138.00	83.10	221.10
225 watt, 6 lamp, 48" x 12", 400 W halide	CE@1.39	Ea	168.00	83.10	251.10
250 watt, 8 lamps, 48" x 20", 400 W halide	CE@1.39	Ea	263.00	83.10	346.10
300 watt, 10 lamp, 48" x 20", 1000 W halide	CE@1.39	Ea	305.00	83.10	388.10
Add for conduit mounting	CE@.250	Ea	10.50	14.90	25.40
Add for emergency driver, 25 W backup power for 90 minutes, with test switch	CE@1.71	Ea	150.00	102.00	252.00
LED area flood light fixtures, U-bracket mount, aluminum frame, poly lens, weatherproof					
30 watt, 150 W halide equivalent, 4" x 6"	CE@1.07	Ea	36.50	63.90	100.40
50 watt, 175 W halide equivalent	CE@1.07	Ea	53.00	63.90	116.90
100 watt, 250 W halide equivalent	CE@1.07	Ea	105.00	63.90	168.90
150 watt, 400 W halide equivalent	CE@1.07	Ea	158.00	63.90	221.90
200 watt, 600 W halide equivalent, 18" x 14"	CE@1.07	Ea	190.00	63.90	253.90
Vapor tight LED light fixtures, weatherproof aluminum housing and impact-resistant frosted polycarbonate lens. For use in harsh environments: gas stations, car washes, industrial kitchens, loading docks.					
30 watt, 2' long	CE@1.07	Ea	74.00	63.90	137.90
50 watt, 4' long	CE@1.21	Ea	121.00	72.30	193.30
60 watt, 4' long	CE@1.21	Ea	137.00	72.30	209.30
20 watt caged jelly jar fixture	CE@1.07	Ea	74.00	63.90	137.90
Incandescent Lighting Commercial and architectural grade. No wire, conduit or concrete included. Includes setting and connecting prewired fixtures only.					
Step illumination light fixtures, 16 gauge steel housing with white enamel finish, 5" high, 4" deep, 11" long					
Polycarbonate or tempered glass lens fixture	CE@1.07	Ea	218.00	63.90	281.90
Louvered sheet metal front fixture	CE@1.07	Ea	178.00	63.90	241.90
Add for brushed aluminum trim, 2 lamps	—	Ea	49.60	—	49.60
Wall surface mounted fluorescent fixtures, baked enamel finish, 2 lamps, 8" wide 5" high, hinged acrylic prismatic lens, Lightolier					
26" long fixture	CE@.737	Ea	182.00	44.00	226.00
38" long fixture	CE@.795	Ea	211.00	47.50	258.50
50" long fixture	CE@.858	Ea	204.00	51.30	255.30

26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
Add for 24" 20 watt lamps	—	Ea	3.71	—	3.71
Add for 36" 30 watt lamps	—	Ea	5.75	—	5.75
Add for 48" 40 watt lamps	—	Ea	2.62	—	2.62
Recessed round eyelid wall wash, 6" milligroove baffle, Prescolite 150 watt fixture	CE@1.07	Ea	177.00	63.90	240.90
Exterior wall fixtures, cast anodized aluminum with white polycarbonate globe, gaskets between globe and housing and between housing and base, Prescolite					
Cylinder globe fixture 	CE@.320	Ea	93.80	19.10	112.90
Round globe fixture 	CE@.430	Ea	30.90	25.70	56.60
Add for 100 watt lamp	—	Ea	5.11	—	5.11
Add for 150 watt lamp	—	Ea	5.20	—	5.20
Obstruction light, meets Federal Aviation Administration Specification L-810, cast aluminum housing, two one-piece red, heat-resistant fresnel globes, with photoelectric control, mounted on 1" rigid steel conduit, including junction box and mounting plate					
Two 100 watt lamp fixture	CE@4.91	Ea	154.00	293.00	447.00
Vandal-Resistant Lighting Commercial and architectural grade. Includes setting and connecting prewired fixtures but no wire, conduit or lamps.					
Ceiling mounted 12" x 12" x 6" fixture, polycarbonate prismatic lens					
Two 100 watt incandescent lamps	CE@.764	Ea	101.00	45.70	146.70
22 watt fluorescent circline lamp	CE@.955	Ea	71.10	57.10	128.20
Wall mounted 6" wide, 9" high, 7" deep fixture, polycarbonate prismatic diffuser					
One 100 watt incandescent lamp	CE@.572	Ea	73.00	34.20	107.20
13 watt fluorescent lamp	CE@.764	Ea	116.00	45.70	161.70
Lamps for vandal-resistant fixtures					
100 watt incandescent lamp	—	Ea	5.20	—	5.20
13 watt fluorescent lamp	—	Ea	10.80	—	10.80
35 to 70 watt high pressure sodium lamp	—	Ea	77.40	—	77.40
Lighted Exit Signs Includes setting and connecting prewired fixtures but no wire or conduit.					
Universal mount (wall or ceiling), Thinline series, 6" letters on one side, stencil face					
Single	CE@.764	Ea	32.20	45.70	77.90
Twin	CE@.764	Ea	32.20	45.70	77.90
Universal mount, 6" letters on two sides of polycarbonate housing, two 15 watt lamps					
	CE@.764	Ea	50.40	45.70	96.10
Add for two circuit supply	—	Ea	10.40	—	10.40
Add for 24" stem hanger	—	Ea	14.30	—	14.30
Add for battery backup for exit signs	CE@.381	Ea	24.00	22.80	46.80

Explosion-Proof Lighting

No wire, conduit or concrete included. Includes setting and connecting prewired fixtures only.

Explosion proof LED light fixtures, rated for Class 1 Division 2 hazards (granaries, mills, mines, gas stations, airplane hangars, auto shops) cast aluminum housing, U-bracket mount, tempered glass lens

100 watt,					
175 W halide equivalent	CE@2.57	Ea	630.00	154.00	652.00
200 watt,					
400 W halide equivalent	CE@2.57	Ea	950.00	154.00	836.00
Explosion proof LED light fixtures, rated for Class 1 Division 1 hazards (vapors and gases are constantly present, i.e. paint spray booth) cast aluminum housing, U-bracket mount, tempered glass lens					
150 watt, 175 W halide equivalent	CE@2.57	Ea	1,770.00	154.00	652.00



26 Electrical

	Craft@Hrs	Unit	Material	Labor	Total
Emergency Lighting Includes setting and connecting prewired fixtures but no wire or conduit.					
Shelf or wall mounted solid state battery pack with charger, lead-acid battery, baked enamel finish, with 2 halogen lamps, 90 minute operation, indoor use only					
6 volt, 15 watt	CE@1.74	Ea	118.00	104.00	222.00
6 volt, 30 watt	CE@1.74	Ea	182.00	104.00	286.00
6 volt, 50 watt	CE@1.74	Ea	213.00	104.00	317.00
6 volt, 100 watt	CE@1.74	Ea	286.00	104.00	390.00
12 volt, 100 watt	CE@1.74	Ea	289.00	104.00	393.00
Self diagnostic emergency lighting fixtures, microprocessor based, continuously monitors battery/lamps					
Emergency fixture, two lamps, wall mount	CE@.825	Ea	218.00	49.30	267.30
LED exit sign with emergency fixture, wall mount	CE@.825	Ea	384.00	49.30	433.30
LED exit sign only, wall mount	CE@.825	Ea	328.00	49.30	377.30

	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Yard and Street Lighting Includes setting and connecting prewired fixtures with ballast but no pole, concrete work, excavation, wire, lamps or conduit. See pole costs below. Equipment is a flatbed truck with a boom & auger						
Rectangular LED floodlights, die-cast aluminum housing, tempered glass lens, photoelectric cell, add the cost of mounting pole or bracket						
100 watt, 250 W halide equivalent	E1@1.55	Ea	168.00	79.90	22.80	614.70
150 watt, 400 W halide equivalent	E1@1.55	Ea	180.00	79.90	22.80	631.70
200 watt, 750 W halide equivalent	E1@1.55	Ea	220.00	79.90	22.80	632.70
300 watt, 1,000 W halide equivalent	E1@1.55	Ea	305.00	79.90	22.80	667.70
Add for pole mount kit	E1@.547	Ea	16.00	28.20	8.05	117.75
Add for wall mount bracket	E1@.547	Ea	16.00	28.20	8.05	117.75
Canopy-mounted LED floodlights, die-cast anodized aluminum housing with shatterproof polycarbonate lens, flush or surface mount. Security lighting for parking garages, gas stations, drive-thrus and covered walkways.						
60 watt, 100 W halide equivalent	E1@2.71	Ea	200.00	140.00	39.90	625.90
100 watt, 250 W halide equivalent	E1@2.71	Ea	220.00	140.00	39.90	625.90
150 watt, 400 W halide equivalent	E1@2.71	Ea	295.00	140.00	39.90	568.90

Yard and Street Lighting Poles

Hole for a pole foundation dug with a truck-mounted auger, no soil disposal included

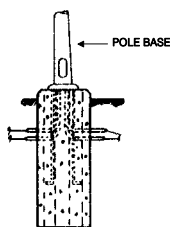
Per CF of undisturbed soil	E1@.064	CF	—	3.30	.94	4.24
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Concrete pole foundations, formed, poured and finished, with anchor bolts. Material costs shown include concrete, forms and anchor bolts

12" diameter, 36" deep, for 12' pole	E1@.746	Ea	31.40	38.50	11.00	80.90
24" diameter, 72" deep, for 30' pole	E1@1.14	Ea	126.00	58.80	16.80	201.60
30" diameter, 76" deep, for 40' pole	E1@1.54	Ea	163.00	79.40	22.70	265.10

Yard and street light poles, including base plate but no top brackets. See labor costs below.

	Unit	Round steel	Square steel	Alumi-num
12' high	Ea	795.00	517.00	303.00
16' high	Ea	932.00	605.00	378.00
20' high, 6" wide	Ea	1,260.00	764.00	536.00
25' high, 6" wide	Ea	1,530.00	932.00	1,190.00
30' high, 8" wide	Ea	1,760.00	1,420.00	1,340.00
35' high, 8" wide	Ea	2,270.00	1,780.00	2,080.00
40' high, 9" wide	Ea	2,640.00	2,000.00	2,370.00
50' high, 10" wide	Ea	2,960.00	2,920.00	—



26 Electrical

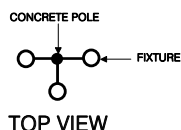
	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Labor setting metal light poles Equipment is a flatbed truck with a boom & auger						
To 20' high	E1@2.89	Ea	—	149.00	42.60	191.60
25' to 30' high	E1@4.35	Ea	—	224.00	64.10	288.10
35' to 40' high	E1@5.73	Ea	—	295.00	84.40	379.40
50' high	E1@8.57	Ea	—	442.00	126.00	568.00
Deduct for aluminum poles	—	%	—	-20.0	-20.0	—
Top brackets for steel and aluminum light poles, installed prior to setting pole						
Single arm	CE@.500	Ea	103.00	29.90	7.36	140.26
Two arm	CE@.500	Ea	122.00	29.90	7.36	159.26
Three arm	CE@.991	Ea	157.00	59.20	14.60	230.80
Four arm	CE@.991	Ea	196.00	59.20	14.60	269.80

Area Lighting, Installed on Poles

These costs include excavation for pole, pole foundation (2' x 2' x 3' deep), 150' of 2" PVC conduit run with 40' of RSC, 600' of #8 copper wire and terminations, 35' x 8" square steel pole and one arm and a 300 watt LED (1,000 watt metal halide equivalent) lamp for each fixture. Equipment is a flatbed truck with a boom and auger.

Cost per pole including fixtures as shown

1 fixture per pole	E1@30.4	Ea	3,980.00	1,570.00	448.00	5,998.00
2 fixtures per pole	E1@32.5	Ea	5,280.00	1,680.00	479.00	7,439.00
3 fixtures per pole	E1@34.8	Ea	6,590.00	1,790.00	512.00	8,892.00
4 fixtures per pole	E1@36.8	Ea	7,900.00	1,900.00	542.00	10,342.00



27 Communications

	Craft@Hrs	Unit	Material	Labor	Total
Security and Alarm Systems Sensor costs include connection but no wire runs.					
Monitor panels, including accessory section and connection to signal and power supply wiring, cost per panel					
1 zone wall-mounted cabinet with 1 monitor panel, tone, standard line supervision, and 115 volt power supply	E4@2.02	Ea	1,040.00	102.00	1,142.00
5 zone wall-mounted cabinet with 5 monitor panels, 10 zone monitor rack, 5 monitor panel blanks, tone, standard line supervision and 115 volt power supply	E4@8.21	Ea	5,950.00	413.00	6,363.00
10 zone wall-mounted cabinet with 10 monitor panels, 10 zone monitor rack, tone, standard line supervision and 115 volt power supply	E4@12.1	Ea	6,830.00	608.00	7,438.00
10 zone monitor rack and 10 monitor panels with tone and standard line supervision but no power supply and no cabinet	E4@11.1	Ea	5,650.00	558.00	6,208.00
1 zone wall-mounted cabinet with 1 monitor panel, tone, high security line supervision and 115 volt power supply	E4@2.02	Ea	1,400.00	102.00	1,502.00
high security line supervision but no power supply	E4@7.82	Ea	7,410.00	393.00	7,803.00
10 zone wall-mounted cabinet with 10 monitor panels, 10 zone monitor rack, tone, high security line supervision and 115 volt power supply	E4@12.0	Ea	8,680.00	603.00	9,283.00
Emergency power indicator for monitor panel	E4@1.14	Ea	278.00	57.30	335.30
Monitor panels					
Panel with accessory section, tone and standard line supervision	E4@.990	Ea	458.00	49.80	507.80
Panel with accessory section, tone and high security line supervision	E4@.904	Ea	689.00	45.50	734.50
Monitor racks					
1 zone with 115 volt power supply	E4@.904	Ea	378.00	45.50	423.50
10 zone with 115 volt power supply	E4@.904	Ea	1,940.00	45.50	1,985.50
10 zone with no power supply	E4@.904	Ea	1,510.00	45.50	1,555.50
Monitor cabinets					
1 zone monitor for wall mounted cabinet	E4@.990	Ea	592.00	49.80	641.80
5 zone monitor for wall mounted cabinet	E4@.990	Ea	757.00	49.80	806.80
10 zone monitor for wall mounted cabinet	E4@.990	Ea	924.00	49.80	973.80
20 zone monitor for wall mounted cabinet	E4@.990	Ea	1,260.00	49.80	1,309.80
50 zone monitor for wall mounted cabinet	E4@.990	Ea	2,810.00	49.80	2,859.80
50 zone monitor for floor mounted cabinet	E4@1.04	Ea	3,040.00	52.30	3,092.30
Balanced magnetic door switches					
Surface mounted	E4@2.02	Ea	115.00	102.00	217.00
Surface mounted with remote test	E4@2.02	Ea	162.00	102.00	264.00
Flush mounted	E4@2.02	Ea	111.00	102.00	213.00
Mounted bracket or spacer	E4@.249	Ea	6.70	12.50	19.20
Photoelectric sensors					
500' range, 12 volt DC	E4@2.02	Ea	316.00	102.00	418.00
800' range, 12 volt DC	E4@2.02	Ea	357.00	102.00	459.00
Fence type, 6 beam, without wire or trench	E4@3.89	Ea	11,500.00	196.00	11,696.00
Fence type, 9 beam, without wire or trench	E4@3.89	Ea	14,400.00	196.00	14,596.00
Capacitance wire grid systems					
Surface type	E4@.990	Ea	81.10	49.80	130.90
Duct type	E4@.990	Ea	66.20	49.80	116.00
Tube grid kit	E4@.990	Ea	121.00	49.80	170.80
Vibration sensors, to 30 per zone	E4@2.02	Ea	136.00	102.00	238.00
Audio sensors, to 30 per zone	E4@2.02	Ea	168.00	102.00	270.00
Inertia sensors, outdoor, without trenching	E4@2.02	Ea	111.00	102.00	213.00
Inertia sensors, indoor	E4@2.02	Ea	74.40	102.00	176.40
Electric sensor cable, 300 meters, no trenching	E4@3.89	Ea	1,690.00	196.00	1,886.00

27 Communications

	Craft@Hrs	Unit	Material	Labor	Total
Ultrasonic transmitters, to 20 per zone					
Omni-directional	E4@2.02	Ea	72.40	102.00	174.40
Directional	E4@2.02	Ea	81.10	102.00	183.10
Ultrasonic transceivers, to 20 per zone					
Omni-directional	E4@2.02	Ea	81.10	102.00	183.10
Directional	E4@2.02	Ea	86.90	102.00	188.90
High security	E4@2.02	Ea	294.00	102.00	396.00
Standard security	E4@2.02	Ea	121.00	102.00	223.00
Microwave perimeter sensor, to 4 per zone	E4@3.89	Ea	4,740.00	196.00	4,936.00
Passive interior infrared sensors, to 20 per zone					
Wide pattern	E4@2.02	Ea	658.00	102.00	760.00
Narrow pattern	E4@2.02	Ea	622.00	102.00	724.00
Access and secure control units					
For balanced magnetic door switches	E4@3.06	Ea	360.00	154.00	514.00
For photoelectric sensors	E4@3.06	Ea	658.00	154.00	812.00
For capacitance sensors	E4@3.06	Ea	667.00	154.00	821.00
For audio and vibration sensors	E4@3.06	Ea	769.00	154.00	923.00
For inertia sensors	E4@3.06	Ea	689.00	154.00	843.00
For nimmer (m.b.) detector	E4@3.06	Ea	573.00	154.00	727.00
For electric cable sensors	E4@3.06	Ea	3,470.00	154.00	3,624.00
For ultrasonic sensors	E4@3.06	Ea	1,040.00	154.00	1,194.00
For microwave sensors	E4@3.06	Ea	651.00	154.00	805.00
Accessories					
Tamper assembly for monitor cabinet	E4@.990	Ea	72.40	49.80	122.20
Monitor panel blank	E4@.249	Ea	8.09	12.50	20.59
Audible alarm	E4@.990	Ea	84.90	49.80	134.70
Audible alarm control	E4@.990	Ea	336.00	49.80	385.80
Termination screw terminal cabinet, 25 pair	E4@.990	Ea	244.00	49.80	293.80
Termination screw terminal cabinet, 50 pair	E4@1.36	Ea	396.00	68.40	464.40
Termination screw terminal cabinet, 150 pair	E4@3.45	Ea	654.00	173.00	827.00
Universal termination with remote test for cabinets and control panels	E4@1.47	Ea	59.60	73.90	133.50
Universal termination without remote test	E4@.990	Ea	34.90	49.80	84.70
High security line supervision termination					
With remote test and tone	E4@1.47	Ea	303.00	73.90	376.90
With tone only	E4@1.47	Ea	278.00	73.90	351.90
12" door cord for capacitance sensor	E4@.249	Ea	9.28	12.50	21.78
Insulation block kit for capacitance sensor	E4@.990	Ea	46.30	49.80	96.10
Termination block for capacitance sensor	E4@.249	Ea	9.84	12.50	22.34
200 zone graphic display	E4@3.06	Ea	4,630.00	154.00	4,784.00
210 zone multiplexer event recorder unit	E4@3.89	Ea	4,410.00	196.00	4,606.00
Guard alert display	E4@3.06	Ea	1,020.00	154.00	1,174.00
Uninterruptable power supply (battery)	E4@2.02	Ea	2,110.00	102.00	2,212.00
12 volt, 40VA plug-in transformer	E4@.495	Ea	39.90	24.90	64.80
18 volt, 40VA plug-in transformer	E4@.495	Ea	27.20	24.90	52.10
24 volt, 40VA plug-in transformer	E4@.495	Ea	19.80	24.90	44.70
Test relay	E4@.332	Ea	61.40	16.70	78.10
Sensor test control (average for sensors)	E4@.990	Ea	80.40	49.80	130.20
Cable, 2 pair 22 gauge, twisted, 1 pair shielded, run in exposed walls or per LF per pull, pulled in raceway and connected	E4@.008	LF	1.65	.40	2.05
Security access digital outdoor keypad/reader, modular single-unit type. Up to sixty users. Accepts cards, keyed-in passwords or both, non-volatile memory. Accepts any magnetic strip card format. Add the cost of the door actuator mechanism and the door. Cost includes control wiring.					
Digital access outdoor keypad/reader	CE@4.0	Ea	335.00	239.00	574.00

27 Communications

	Craft@Hrs	Unit	Material	Labor	Total
Fire Alarm and Detection Systems No wiring included except as noted.					
Pedestal mounted master fire alarm box	E4@3.89	Ea	1,430.00	196.00	1,626.00
Automatic coded signal transmitter	E4@3.89	Ea	752.00	196.00	948.00
Fire alarm control panel, simplex	E4@3.89	Ea	705.00	196.00	901.00
Fire detection annunciator panel					
8 zone drop	E4@3.89	Ea	467.00	196.00	663.00
12 zone drop	E4@5.03	Ea	614.00	253.00	867.00
16 zone drop	E4@5.93	Ea	952.00	298.00	1,250.00
8 zone lamp panel only	E4@4.33	Ea	155.00	218.00	373.00
12 zone lamp panel only	E4@5.93	Ea	228.00	298.00	526.00
16 zone lamp panel only	E4@7.23	Ea	302.00	364.00	666.00
Battery charger and cabinet, simplex	E4@6.19	Ea	406.00	311.00	717.00
Add for nickel cadmium batteries	E4@3.89	Ea	441.00	196.00	637.00
Fire alarm pull stations, manual operation	E4@.497	Ea	22.80	25.00	47.80
Fire alarm 10" bell with outlet box	E4@.497	Ea	74.10	25.00	99.10
Magnetic door holder	E4@1.33	Ea	69.50	66.90	136.40
Combination door holder and closer	E4@2.48	Ea	282.00	125.00	407.00
Detex door lock	E4@2.72	Ea	33.40	137.00	170.40
Thermodetector	E4@.497	Ea	9.95	25.00	34.95
Ionization AC smoke detector, with wiring	E4@.710	Ea	172.00	35.70	207.70
Fixed temp. and rate of rise smoke detector	E4@.746	Ea	15.50	37.50	53.00
Carbon dioxide pressure switch	E4@.746	Ea	5.30	37.50	42.80
Telephone Wiring					
Plywood backboard mount for circuit wiring, set on masonry wall					
4' x 4' x 3/4"	E4@.938	Ea	15.60	47.20	62.80
4' x 8' x 3/4"	E4@1.10	Ea	31.20	55.30	86.50
Cable tap in a manhole or junction box					
25 to 50 pair cable	E4@7.80	Ea	139.00	392.00	531.00
100 to 200 pair cable	E4@10.1	Ea	160.00	508.00	668.00
300 pair cable	E4@12.0	Ea	162.00	603.00	765.00
400 pair cable	E4@13.0	Ea	174.00	654.00	828.00
Cable terminations in a manhole or junction box					
25 pair cable	E4@1.36	Ea	12.50	68.40	80.90
50 pair cable	E4@1.36	Ea	14.30	68.40	82.70
100 pair cable	E4@2.72	Ea	28.60	137.00	165.60
150 pair cable	E4@3.45	Ea	43.30	173.00	216.30
200 pair cable	E4@4.61	Ea	64.70	232.00	296.70
300 pair cable	E4@5.03	Ea	86.00	253.00	339.00
400 pair cable	E4@5.34	Ea	114.00	268.00	382.00
Communications cable, pulled in conduit or walls and connected					
2 pair cable	E4@.008	LF	.14	.40	.54
25 pair cable	E4@.030	LF	1.71	1.51	3.22
50 pair cable	E4@.043	LF	3.64	2.16	5.80
75 pair cable	E4@.043	LF	4.53	2.16	6.69
100 pair cable	E4@.043	LF	5.28	2.16	7.44
150 pair cable	E4@.045	LF	7.36	2.26	9.62
200 pair cable	E4@.051	LF	9.60	2.56	12.16
300 pair cable	E4@.051	LF	14.20	2.56	16.76
Telephone outlets (no junction box included)					
Wall outlet	E4@.396	Ea	7.51	19.90	27.41
Floor outlet, flush mounted	E4@.495	Ea	9.32	24.90	34.22

27 Communications

	Craft@Hrs	Unit	Material	Labor	Total
Closed Circuit Television Systems					
Outdoor television camera in weatherproof housing, cable preinstalled.					
Wall or roof mount, professional grade	E4@.500	Ea	1,530.00	25.10	1,555.10
Wall or roof mount, economy	E4@.500	Ea	214.00	25.10	239.10
Self-terminating outlet box, cover plate	E4@.245	Ea	4.82	12.30	17.12
Coaxial cable (RG59/J), 75 ohms, no raceway included	E4@.006	LF	.32	.30	.62
In-line cable taps (PTU) for 36" TV system	E4@.689	Ea	7.02	34.60	41.62
Cable blocks for in-line taps	—	Ea	3.65	—	3.65
Desk-type TV monitor, 19" diagonal screen, 75 ohms, labor includes hookup only					
4 camera inputs	E4@.500	Ea	329.00	25.10	354.10
Security CCTV digital video recorder central control station, modular single-unit type. Allows up to 16 discrete channels and simultaneous real-time monitoring of all 16 channels. Digital video recorder saves pictures every 3 seconds per channel. Password control access to DVD data only. Cost includes monitor, PC, software, cable connectors for sixteen stations, keyboard, mouse, software training and installation. Add the cost of wiring to digital CCTV's.					
Security CCTV recorder control station	CE@4.0	Ea	5,360.00	239.00	5,599.00
Public Address Paging Systems					
Signal cable, #22 solid copper polyethylene insulated, PVC jacketed wire					
Pulled in conduit, no conduit included	E4@.008	LF	.14	.40	.54
Microphone, desk type, push to talk, with					
7' of three conductor cable	E4@.250	Ea	111.00	12.60	123.60
Wall mounted enameled steel amplifier cabinet (18" high, 24" wide, 6" deep) with electrical receptacle and lockable door					
	E4@1.67	Ea	342.00	84.00	426.00
Amplifier, 100 watts, 4 inputs, installation includes hookup only, no wire pull					
Complete unit	E4@.500	Ea	367.00	25.10	392.10
Wall mounted paging horns, transformer type, 250 to 13,000 Hertz, 8 ohms, 30 Watts, 10" diameter, 12" deep, gray baked enamel, labor includes hookup only					
Interior/exterior 15/30 Watts	E4@.250	Ea	69.10	12.60	81.70
Ceiling mounted 8" speaker with 12" grill, labor includes installation and hookup only, no wire pull					
8" ceiling speaker	E4@.330	Ea	29.70	16.60	46.30
8" ceiling speaker with volume	E4@.330	Ea	32.00	16.60	48.60
Outdoor weather resistant speakers					
Landscape weather resistant	E4@.330	Ea	234.00	16.60	250.60
Rock landscape (high end)	E4@.330	Ea	461.00	16.60	477.60
Computer Network Cable Pulled in conduit or walls. Add for connectors and cable testing. Prices are for cable purchased in bulk on 1,000' spools.					
Coaxial cable					
Thin Ethernet, 50 ohm, 10BASE2 (RG58). Used in modern networks for Wireless Network high gain antennae					
PVC cable	E4@.008	LF	.14	.40	.54
Plenum cable	E4@.008	LF	.38	.40	.78
Fiber optic cable					
Singlemode fiber optic cable, duplex is 4 strand, simplex is 1 strand					
Singlemode duplex fiber optic cables (8.3/125)	E4@.012	LF	.23	.60	.83
Singlemode simplex fiber optic cables (8.3/125)	E4@.012	LF	.22	.60	.82
Multimode fiber optic cable, duplex is a zip type					
Multimode duplex fiber optic cables (50/125)	E4@.012	LF	.26	.60	.86
Multimode duplex fiber optic cables (62.5/125)	E4@.012	LF	.26	.60	.86
Multimode simplex fiber optic cables (50/125)	E4@.012	LF	.26	.60	.86
Multimode simplex fiber optic cables (62.5/125)	E4@.012	LF	.26	.60	.86

27 Communications

	Craft@Hrs	Unit	Material	Labor	Total
Twisted pair Category 5, 100 Mbps, material price based on purchase of 1000' rolls. Use solid cable for horizontal runs. STP is shielded					
4 pair UTP PVC stranded cable	E4@.008	LF	.12	.40	.52
4 pair UTP PVC solid cable	E4@.008	LF	.12	.40	.52
4 pair UTP plenum solid cable	E4@.008	LF	.25	.40	.65
4 pair STP PVC stranded cable	E4@.008	LF	.22	.40	.62
4 pair STP PVC solid cable	E4@.008	LF	.22	.40	.62
4 pair STP plenum solid cable	E4@.008	LF	.25	.40	.65
Twisted pair Category 5e, 350 Mbps, material price based on purchase of 1,000' rolls, use solid for horizontal runs. STP is shielded.					
4 pair UTP PVC solid	E4@.008	LF	.21	.40	.61
4 pair UTP PVC stranded	E4@.008	LF	.21	.40	.61
4 pair UTP plenum solid	E4@.008	LF	.29	.40	.69
4 pair STP PVC stranded	E4@.008	LF	.22	.40	.62
4 pair STP PVC solid	E4@.008	LF	.22	.40	.62
4 pair STP plenum solid	E4@.008	LF	.30	.40	.70
Twisted pair Category 6, 1 Gbps, material price based on purchase of 1,000' rolls, use solid for horizontal runs					
4 pair UTP PVC stranded	E4@.008	LF	.22	.40	.62
4 pair UTP PVC solid	E4@.008	LF	.23	.40	.63
4 pair UTP plenum solid	E4@.008	LF	.35	.40	.75
Add for multiple cable pulls of thin Ethernet or unshielded twisted pair cables when cables are pulled simultaneously in plenum or PVC, based on quantity of cables pulled					
Add for each cable pulled simultaneously, over one	E4@.250	Ea	—	12.60	12.60
Punch-down blocks					
Plywood backboard mount for patch panel or punch-down blocks, set on a masonry wall					
4' x 4' x 3/4"	E4@.938	Ea	15.60	47.20	62.80
4' x 8' x 3/4"	E4@1.10	Ea	31.20	55.30	86.50
Distribution frame for punch-down blocks					
Holds 5 punch-down blocks	E4@.250	Ea	33.90	12.60	46.50
Holds 10 punch-down blocks	E4@.250	Ea	40.40	12.60	53.00
Punch-down blocks, labor is to install block in distribution frame only, add labor to punch-down wire pairs as shown below					
50 pair	E4@.250	Ea	18.40	12.60	31.00
100 pair	E4@.250	Ea	26.80	12.60	39.40
Punch-down wire pairs, labor only, per pair	E4@.020	Ea	—	1.01	1.01
Computer network cable connectors					
Coax					
Thin Ethernet					
BNC type, crimp on, female	E4@.100	Ea	4.43	5.03	9.46
Fiber optic cable, terminated, 10' length					
ST-ST singlemode duplex riser	E4@.100	Ea	67.70	5.03	72.73
ST-SC singlemode duplex riser	E4@.100	Ea	67.70	5.03	72.73
SC-SC singlemode duplex riser	E4@.100	Ea	67.70	5.03	72.73
FC-SC singlemode duplex riser	E4@.100	Ea	67.70	5.03	72.73
ST-ST singlemode simplex riser	E4@.100	Ea	37.10	5.03	42.13
ST-SC singlemode simplex riser	E4@.100	Ea	37.10	5.03	42.13
SC-SC singlemode simplex riser	E4@.100	Ea	37.10	5.03	42.13
FC-SC singlemode simplex riser	E4@.100	Ea	37.10	5.03	42.13
ST-ST multimode duplex riser	E4@.100	Ea	30.80	5.03	35.83

32 Exterior Improvements

	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Rolled curb and gutter, 6" roll						
6" x 18" base, straight curb	P9@.143	LF	9.12	6.87	2.03	18.02
6" x 18" base, curved curb	P9@.199	LF	9.23	9.56	2.83	21.62
6" x 24" base, straight curb	P9@.168	LF	11.50	8.07	2.39	21.96
6" x 24" base, curved curb	P9@.237	LF	11.60	11.40	3.37	26.37
Driveway aprons. Concrete cast-in-place driveway aprons, including 4% waste, wire mesh, forms and finishing. Per square foot of apron, no site preparation included. Use \$200 as a minimum job charge.						
4" thick (80 SF per CY)	P9@.024	SF	3.09	1.15	.23	4.47
6" thick (54 SF per CY)	P9@.032	SF	3.85	1.54	.30	5.69
Walkways Concrete, 2,000 PSI placed directly from the chute of a ready-mix truck, vibrated, plain scored, and broom finished. Costs include 2% allowance for waste but no forms or reinforcing.						
4" thick (80 SF per CY)	P8@.013	SF	1.56	.60	.03	2.19
Add for integral colors, most pastels	—	SF	1.94	—	—	1.79
Add for 1/2" color top course	P8@.012	SF	2.19	.55	.02	2.76
Add for steel trowel finish	CM@.011	SF	—	.56	.05	.61
Add for seeded aggregate finish	CM@.011	SF	.16	.56	.05	.77
Add for exposed aggregate wash process	CM@.006	SF	.07	.30	.03	.40
Asphalt walkway, temporary, including installation and breakout, but no hauling. Use \$500 as a minimum job charge.						
2" to 2-1/2" thick	P5@.015	SF	2.12	.67	.62	3.41
Headers and Dividers						
2" x 4", treated pine	C8@.027	LF	.87	1.26	—	2.13
2" x 6", treated pine	C8@.028	LF	1.17	1.31	—	2.48
2" x 6", redwood	C8@.028	LF	1.86	1.31	—	3.17
2" x 4", patio type dividers, untreated	C8@.030	LF	.56	1.40	—	1.96
Porous Paving Systems Thin-walled HDPE plastic rings connected by an interlocking geogrid structure, installed on a porous base course for commercial applications. Rings transfer loads from the surface to the grid structure to an engineered course base. Equipment includes a 1/2-CY backhoe. Installed on an existing prepared base.						
Porous paving system, grass. Rolled out over base course and seeded with grass mixture. Includes fertilizer and soil polymer mix for spreading over base.						
6.6' wide by 164' long rolls	S6@.100	CSF	300.00	4.61	1.85	306.46
Add for 1" sand fill	S6@.030	CSF	4.56	1.38	—	5.94
Porous paving system, gravel. Rolled out over base course and covered with decorative fill gravel.						
6.6' wide by 164' long rolls	S6@.110	CSF	300.00	5.07	2.04	307.11
Add for 1" gravel fill	S6@.030	CSF	10.10	1.38	—	11.48
Grass-stone pavers Open diamond pattern concrete block filled with grass or aggregate laid on a compacted sand base						
24" x 16" x 3-1/2" block	CL@.085	SF	4.96	3.47	—	8.43
Guardrails and Bumpers Equipment is a 4,000 lb forklift. Use \$4,000 as a minimum job charge						
Steel guardrail, standard beam	H1@.250	LF	24.50	13.50	2.15	40.15
Posts, wood, treated, 4" x 4" x 36" high.	H1@1.00	Ea	4.71	53.90	8.61	67.22
Guardrail two sides,						
Channel rail and side blocks	H1@1.00	LF	41.60	53.90	8.61	104.11
Sight screen	H1@.025	LF	2.14	1.35	.22	3.71
Highway median barricade, precast concrete						
2'8" high x 10' long	H1@.500	Ea	417.00	26.90	4.31	448.21
Add for reflectors, 2 per 10' section	—	LS	16.40	—	—	16.40
Parking bumper, precast concrete, including dowels						
3' wide	CL@.381	Ea	33.30	15.50	6.56	55.36
6' wide	CL@.454	Ea	58.70	18.50	7.82	85.02
Remove and reset wheel stop	CL@.908	Ea	—	37.00	15.60	52.60

32 Exterior Improvements

	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Bollards Posts mounted in walkways to limit vehicle entry. Equipment is a 4,000 lb. capacity forklift. Add for concrete footings, if required, from costs shown at the end of this section. Use \$1,000 as a minimum job charge.						
Cast iron bollards, ornamental, surface mounted						
12" diameter base, 42" high	\$1@1.00	Ea	1,240.00	48.80	17.20	1,306.00
17" diameter base, 42" high	\$1@1.00	Ea	2,100.00	48.80	17.20	2,166.00
Lighted, electrical work not included,						
17" diameter base, 42" high	\$1@1.00	Ea	2,350.00	48.80	17.20	2,416.00
Concrete bollards, precast, exposed aggregate, surface mounted						
Square, 12" x 12" x 30" high	\$1@1.00	Ea	465.00	48.80	17.20	531.00
Round, 12" diameter x 30" high	\$1@1.00	Ea	475.00	48.80	17.20	541.00
Granite bollards, doweled to concrete foundation or slab (foundation not included.) Costs will be higher when granite is not available locally.						
Square, smooth matte finish, flat top						
16" x 16" x 30", 756 lbs	\$1@1.00	Ea	1,200.00	48.80	17.20	1,266.00
16" x 16" x 54", 1,320 lbs	\$1@1.50	Ea	1,510.00	73.10	25.80	1,608.90
Square, rough finish, pyramid top						
12" x 12" x 24", 330 lbs	\$1@1.00	Ea	537.00	48.80	17.20	603.00
Round, smooth matte finish, flat top						
12" diameter, 18" high	\$1@1.00	Ea	1,150.00	48.80	17.20	1,216.00
Octagonal, smooth matte finish, flat top,						
24" x 24" x 20", 740 lbs	\$1@1.00	Ea	1,750.00	48.80	17.20	1,816.00
Pipe bollards, concrete filled steel pipe, painted yellow, 8' long, set 4' in concrete, includes digging hole						
6" diameter pipe	\$1@.750	Ea	151.00	36.60	12.90	200.50
8" diameter pipe	\$1@.750	Ea	251.00	36.60	12.90	300.50
12" diameter pipe	\$1@.750	Ea	408.00	36.60	12.90	457.50
Wood bollards, pressure treated timber, includes hand-digging and backfill of hole but no disposal of excess soil. Length shown is the portion exposed. Costs include bury to 3' depth.						
6" x 6" x 36" high	\$1@.750	Ea	38.60	36.60	12.90	88.10
8" x 8" x 30" high	\$1@.750	Ea	63.10	36.60	12.90	112.60
8" x 8" x 36" high	\$1@.750	Ea	68.70	36.60	12.90	118.20
8" x 8" x 42" high	\$1@.750	Ea	74.50	36.60	12.90	124.00
12" x 12" x 24" high	\$1@.750	Ea	128.00	36.60	12.90	177.50
12" x 12" x 36" high	\$1@.750	Ea	156.00	36.60	12.90	205.50
12" x 12" x 42" high	\$1@.750	Ea	169.00	36.60	12.90	218.50
Footings for bollards, add if required						
Permanent concrete footing	C8@.500	Ea	43.00	23.30	—	66.30
Footing for removable bollards	C8@.500	Ea	195.00	23.30	—	218.30
Pavement Striping and Marking Use \$150 as a minimum job charge. Pavement line markings.						
Single line striping, 4" wide solid	PA@.005	LF	.20	.26	.04	.50
Single line striping, 4" wide skip	PA@.005	LF	.09	.26	.04	.39
Red curb painting	PA@.006	LF	.69	.32	.05	1.06
Parking lot spaces. For estimating purposes, figure one space per 300 SF of parking pavement area.						
Single line striping,						
approximately 25 LF per space	PA@.115	Ea	4.87	6.06	.96	11.89
Dual line striping,						
approximately 45 LF per space	PA@.175	Ea	8.78	9.22	1.47	19.47
Traffic symbols						
Arrows	PA@.250	Ea	16.80	13.20	2.10	32.10
Lettering, 2' x 8' template	PA@.500	Ea	108.00	26.30	4.19	138.49
Handicapped symbol						
One color	PA@.250	Ea	13.80	13.20	2.10	29.10
Two color	PA@.500	Ea	17.80	26.30	4.19	48.29

32 Exterior Improvements

Speed Bumps and Parking Blocks Prefabricated solid plastic, pre-drilled. Based on Super Saver Bumps or Super Saver Blocks as manufactured by The Traffic Safety Store (www.trafficsafetystore.com) Costs shown include installation hardware. Labor includes drilling holes in substrate for anchors. Available in yellow, gray, blue, white.

Speed bumps, based on quantity of 16 bumps

6' x 2" x 10" (25 lbs each)

CL@.750 Ea 98.50 30.60 129.10

9' x 2" x 10" (45 lbs each)

CL@1.00 Ea 185.00 40.80 225.80

Parking blocks, based on quantity of 25 blocks

6' x 4" x 6" (16 lbs each)

CL@.750 Ea 77.00 30.60 107.60

Traffic Signs Reflectorized steel, with a high strength "U"-channel galvanized steel pipe post 10' long set 2' into the ground. Includes digging of hole with a manual auger and backfill.

Stop, 24" x 24"

CL@1.25 Ea 118.00 51.00 169.00

Speed limit, Exit, etc., 18" x 24"

CL@1.25 Ea 146.00 51.00 197.00

Warning, 24" x 24"

CL@1.25 Ea 260.00 51.00 311.00

Yield, 30" triangle

CL@1.25 Ea 290.00 51.00 341.00

Handicapped parking, 12" x 18"

CL@1.25 Ea 143.00 51.00 194.00

Add for breakaway galvanized square sign post

— Ea 18.60 — 18.60

Craft@Hrs Unit Material Labor Equipment Total

Post Holes Drilling 2' deep by 10" to 12" diameter fence post holes. Equipment is a gasoline powered 12" auger.

Costs will be higher on slopes or where access is limited. These costs do not include layout, setting of fence posts or disposal of excavated material.

Light to medium soil, laborer working with a hand auger

4 holes per hour

CL@.250 Ea — 10.20 3.42 13.62

Medium to heavy soil, laborer working with a breaking bar and hand auger

2 holes per hour

CL@.500 Ea — 20.40 6.83 27.23

Medium to heavy soil, 2 laborers working with a gas-powered auger

15 holes per hour

CL@.133 Ea — 5.43 1.82 7.25

Broken rock, laborer and equipment operator working with a compressor and jackhammer

2 holes per hour

S1@1.00 Ea — 48.80 12.70 61.50

Rock, laborer and an equipment operator working with a truck-mounted drill

12 holes per hour

S1@.166 Ea — 8.09 4.79 12.88

Fencing, Chain Link Fence, industrial grade 9 gauge 2" x 2" galvanized steel chain link fabric and framework, including 2" or 2-3/8" line posts, as indicated, set at 10' intervals, set in concrete in augured post holes and 1-5/8" top rail, tension panels at corners and abrupt grade changes. Add for gates, gate posts and corner posts as required. Equipment is a gasoline-powered 12" auger. Use \$600 as a minimum job charge. For scheduling purposes, estimate that a 2-man crew will install 125 to 130 LF of fence per 8-hour day.

4' high galvanized fence, 2" line posts

C4@.073 LF 6.10 3.09 .33 9.52

6' high galvanized fence, 2" line posts

C4@.106 LF 8.28 4.49 .48 13.25

6' high galvanized fence,

2-3/8" line posts

C4@.109 LF 8.83 4.62 .50 13.95

7' high galvanized fence,

2-3/8" line posts

C4@.127 LF 8.93 5.38 .58 14.89

8' high galvanized fence,

2-3/8" line posts

C4@.146 LF 10.50 6.18 .66 17.34

10' high galvanized fence,

2-3/8" line posts

C4@.182 LF 12.30 7.71 .83 20.84

12' high galvanized fence,

2-3/8" line posts

C4@.218 LF 14.10 9.23 .99 24.32

32 Exterior Improvements

	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Add for vertical aluminum privacy slats	C4@.016	SF	2.52	.68	—	3.20
Add for vinyl coated fabric and posts	—	%	50.0	—	—	—
Add for under 200 LF quantities	C4@.006	LF	1.06	.25	.03	1.34
Deduct for highway quantities	—	LF	-2.04	—	—	-2.04
Deduct for 11 gauge chain link fabric	—	SF	-1.95	—	—	-1.95
Deduct for "C"-section line posts	—	LF	-3.00	—	—	-3.00

Gates Driveway or walkway. 9 gauge 2" x 2" galvanized steel chain link with frame and tension bars. Costs shown are per square foot of frame area. Add for hardware and gate posts, from below.

With 1-3/8" diameter pipe frame	C4@.025	SF	13.60	1.06	—	14.66
With 1-5/8" diameter pipe frame	C4@.025	SF	15.80	1.06	—	16.86
Gate hardware, per gate						
Walkway gate	C4@.250	Ea	10.80	10.60	—	21.40
Driveway gate	C4@.250	Ea	26.70	10.60	—	37.30
Add for vinyl-coated fabric and frame	—	SF	1.05	—	—	1.05

Corner, end or gate posts, complete, heavyweight, 2-1/2" outside diameter galvanized, with fittings and brace. Costs include 2/3 CF sack of concrete per post.

4' high	C4@.612	Ea	34.40	25.90	2.79	63.09
5' high	C4@.668	Ea	38.31	28.30	3.04	69.65
6' high	C4@.735	Ea	40.30	31.10	3.35	74.75
7' high	C4@.800	Ea	40.00	33.90	3.64	77.54
8' high	C4@.882	Ea	52.90	37.40	4.02	94.32
10' high	C4@.962	Ea	60.10	40.70	4.38	105.18
12' high, with middle rail	C4@1.00	Ea	66.20	42.40	4.55	113.15
Add for vinyl-coated posts						
Per vertical foot	—	VLF	.47	—	—	.47
Deduct for 2" outside diameter	—	VLF	-1.30	—	—	-1.30
Barbed wire topper for galvanized chain link fence						
Single strand barbed wire	C4@.004	LF	.12	.17	—	.29
3 strands on one side, with support arm	C4@.008	LF	.71	.34	—	1.05
3 strand on each side, with support arm	C4@.013	LF	1.41	.55	—	1.96
Double coil of 24" to 30" barbed tape	C4@.038	LF	.22	1.61	—	1.83

Baseball Backstops Galvanized 9 gauge mesh chain link backstop with 2-5/8" OD galvanized vertical end posts, 2-3/8" OD galvanized vertical back posts and 1-5/8" OD galvanized framing. Includes 4' deep overhang, 20 LF behind home plate, 16 LF on both first and third base lines, rear and wing planks 3' high and two 12' long benches. Equipment is a 4,000 lb forklift.

Traditional, 20' H x 58' W x 14' D	S6@24.0	Ea	7,340.00	1,110.00	276.00	8,726.00
Traditional, 30' H x 68' W x 14' D	S6@24.0	Ea	10,800.00	1,110.00	276.00	12,186.00
Arched, 20' H x 62' W x 20' D	S6@44.0	Ea	8,290.00	2,030.00	505.00	10,825.00
Arched, 18' H x 62' W x 20' D	S6@44.0	Ea	7,710.00	2,030.00	505.00	10,245.00

Add for concrete footings, 12" diameter x 24" deep, includes digging by hand and spreading excavated material adjacent to hole, using fence post mix bagged concrete.

Per footing	S6@4.00	Ea	5.56	184.00	—	189.56
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Sprinkler Irrigation Systems Typical complete system costs, including PVC pipe, heads, valves, fittings, trenching and backfill. Per SF of area watered. Add 10% for irrigation systems installed in areas subject to freezing hazard. Equipment is a 55 HP pneumatic tired riding type trencher.

Large areas using pop-up impact heads, 200 to 300 SF per head, manual system

To 5,000 SF job	S4@.005	SF	.20	.20	.08	.48
Over 5,000 SF to 10,000 SF	S4@.004	SF	.17	.16	.07	.40
Over 10,000 SF	S4@.003	SF	.15	.12	.05	.32
Add for automatic controls	S4@.001	SF	.09	.04	.02	.15

32 Exterior Improvements

	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Small areas, under 5,000 SF, spray heads						
Strip, automatic, shrub type	S4@.008	SF	.31	.33	.13	.77
Commercial type, manual	S4@.007	SF	.29	.29	.12	.70
Residential type, manual	S4@.007	SF	.28	.29	.12	.69
Add for automatic controls	S4@.001	SF	.09	.04	.02	.15
Trenching for sprinkler systems, in normal non-compacted topsoil						
Main lines with a 55 HP riding type trencher, 18" wide						
12" deep, 143 LF per hour	S1@.007	LF	—	.34	.17	.51
18" deep, 125 LF per hour	S1@.008	LF	—	.39	.20	.59
24" deep, 100 LF per hour	S1@.010	LF	—	.49	.25	.74
Lateral lines with a 20 HP riding type trencher, 12" wide						
8" deep, 200 LF per hour	S1@.005	LF	—	.24	.10	.34
12" deep, 125 LF per hour	S1@.008	LF	—	.39	.16	.55
Add for hard soil (shelf, rock field, hardpan)	S1@.006	LF	—	.29	.12	.41
Boring under walkways and pavement.						
To 8' wide, by hand, 8 LF per hour	CL@.125	LF	—	5.10	—	5.10
Backfill and compact trench, by hand.						
Mains, to 24" deep, 125 LF per hour	CL@.008	LF	—	.33	—	.33
Laterals, to 12" deep, 190 LF per hour	CL@.005	LF	—	.20	—	.20
	Craft@Hrs	Unit	Material	Labor		Total
Restore turf above pipe after sprinkler installation						
Replace and roll sod	CL@.019	SY	6.23	.78		7.01
Reseed by hand, cover, water and mulch	CL@.010	SY	.30	.41		.71
Connection to existing water line						
Residential or small commercial tap	CL@.939	Ea	26.60	38.30		64.90
Residential or small commercial stub	CL@.683	Ea	20.60	27.90		48.50
Medium commercial stub	CL@1.25	Ea	55.80	51.00		106.80
Atmospheric vacuum breaker						
3/4"	CL@.470	Ea	17.50	19.20		36.70
1"	CL@.500	Ea	23.40	20.40		43.80
1-1/2"	CL@.575	Ea	59.40	23.50		82.90
2"	CL@.625	Ea	103.00	25.50		128.50
Pressure type vacuum breaker, with threaded ball valves						
3/4"	CL@.700	Ea	153.00	28.60		181.60
1"	CL@.750	Ea	174.00	30.60		204.60
1-1/2"	CL@.850	Ea	423.00	34.70		457.70
2"	CL@.939	Ea	480.00	38.30		518.30
Double check valve assembly with two ball valves						
1-1/2" valve	CL@.750	Ea	386.00	30.60		416.60
2" valve	CL@.939	Ea	462.00	38.30		500.30
3" valve	CL@1.25	Ea	1,590.00	51.00		1,641.00
4" valve	CL@1.50	Ea	2,480.00	61.20		2,541.20
Reduced pressure backflow preventer with gate valves						
1" backflow preventer	CL@.750	Ea	199.00	30.60		229.60
1-1/2" backflow preventer	CL@.939	Ea	371.00	38.30		409.30
2" backflow preventer	CL@.939	Ea	417.00	38.30		455.30
3" backflow preventer	CL@1.25	Ea	1,550.00	51.00		1,601.00
4" backflow preventer	CL@1.50	Ea	2,400.00	61.20		2,461.20
6" backflow preventer	CL@1.88	Ea	3,110.00	76.70		3,186.70
Valve boxes, plastic box with plastic lid						
7" round	CL@.314	Ea	9.86	12.80		22.66
10" round	CL@.375	Ea	13.60	15.30		28.90

32 Exterior Improvements

	Craft@Hrs	Unit	Material	Labor	Total
Sprinkler controllers, solid state electronics, 115-volt/24-volt electric timer, add electrical connection and feeder wire to valves					
Indoor mount, 4 station	CL@.960	Ea	19.80	39.20	59.00
Indoor mount, 6 station	CL@.960	Ea	50.40	39.20	89.60
Indoor mount, 8 station	CL@1.10	Ea	59.30	44.90	104.20
Outdoor mount, 6-8 station, PC programmable	CL@1.10	Ea	112.00	44.90	156.90
Outdoor mount, 12 station	CL@1.10	Ea	68.50	44.90	113.40
Pedestal for outdoor units, set in concrete	CL@1.00	Ea	61.80	40.80	102.60
Underground control wire for automatic valves, includes waterproof connectors, wire laid in an open trench, common ground, one conductor per valve					
4 conductors	CL@.001	LF	.28	.04	.32
5 conductors	CL@.001	LF	.32	.04	.36
7 conductors	CL@.002	LF	.37	.08	.45
Anti-siphon solenoid flow control valves, with atmospheric vacuum breaker. UV-resistant PVC, 24 volt. Add control wire as required.					
3/4", residential	CL@.341	Ea	14.30	13.90	28.20
1" residential	CL@.341	Ea	14.50	13.90	28.40
3/4", commercial	CL@.341	Ea	24.20	13.90	38.10
1" commercial	CL@.418	Ea	25.20	17.10	42.30
1-1/2" commercial	CL@.796	Ea	33.40	32.50	65.90
2" commercial	CL@.866	Ea	36.00	35.30	71.30
Manual sprinkler control valves, anti-siphon, brass, with union					
3/4" valve	CL@.518	Ea	42.70	21.10	63.80
1" valve	CL@.610	Ea	55.40	24.90	80.30
1-1/4" valve	CL@.677	Ea	87.30	27.60	114.90
1-1/2" valve	CL@.796	Ea	95.40	32.50	127.90
2" valve	CL@.866	Ea	139.00	35.30	174.30
Angle valves, brass, with union					
3/4" valve	CL@.518	Ea	39.70	21.10	60.80
1" valve	CL@.610	Ea	50.00	24.90	74.90
1-1/4" valve	CL@.677	Ea	109.00	27.60	136.60
1-1/2" valve	CL@.796	Ea	119.00	32.50	151.50
2" valve	CL@.866	Ea	164.00	35.30	199.30
PVC Schedule 40 pipe and fittings , except as noted. Solvent welded. Plain end. Schedule 40 denotes wall thickness. Class 315, 200 and 160 identify the normal working pressure, 315, 200 or 160 PSI. Add the cost of excavation and backfill.					
1/2" pipe	CL@.005	LF	.22	.20	.42
1/2" pipe, Class 315	CL@.005	LF	.16	.20	.36
1/2" ell	CL@.120	Ea	.40	4.90	5.30
1/2" tee	CL@.140	Ea	.50	5.71	6.21
3/4" pipe	CL@.005	LF	.27	.20	.47
3/4" pipe, Class 200	CL@.005	LF	.18	.20	.38
3/4" ell	CL@.160	Ea	.51	6.53	7.04
3/4" tee	CL@.180	Ea	.62	7.34	7.96
1" pipe	CL@.006	LF	.39	.24	.63
1" pipe, Class 200	CL@.006	LF	.22	.24	.46
1" ell	CL@.180	Ea	1.11	7.34	8.45
1" tee	CL@.220	Ea	1.34	8.98	10.32
1-1/4" pipe	CL@.006	LF	.58	.24	.82
1-1/4" pipe, Class 160	CL@.006	LF	.30	.24	.54
1-1/4" ell	CL@.180	Ea	1.62	7.34	8.96
1-1/4" tee	CL@.250	Ea	2.33	10.20	12.53

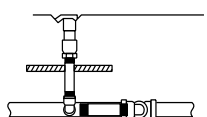
32 Exterior Improvements

	Craft@Hrs	Unit	Material	Labor	Total
1-1/2" pipe	CL@.007	LF	1.92	.29	2.21
1-1/2" pipe, Class 160	CL@.007	LF	.39	.29	.68
1-1/2" ell	CL@.180	Ea	1.80	7.34	9.14
1-1/2" tee	CL@.250	Ea	2.47	10.20	12.67
2" pipe	CL@.008	LF	.81	.33	1.14
2" ell	CL@.200	Ea	2.78	8.16	10.94
2" tee	CL@.300	Ea	3.28	12.20	15.48
3" pipe	CL@.008	LF	1.55	.33	1.88
3" ell	CL@.240	Ea	10.10	9.79	19.89
3" tee	CL@.360	Ea	13.40	14.70	28.10
Polyethylene pipe, 80 PSI, black, flexible 100' rolls					
3/4" diameter	CL@.006	LF	.23	.24	.47
1" diameter	CL@.006	LF	.48	.24	.72
1-1/4" diameter	CL@.007	LF	.46	.29	.75
1-1/2" diameter	CL@.008	LF	.67	.33	1.00
Polyethylene pipe, 100 PSI, black, flexible 100' rolls					
1-1/2" diameter	CL@.008	LF	1.66	.33	1.99
2" diameter	CL@.009	LF	.82	.37	1.19
Add for 125 PSI polyethylene pipe	—	%	25.0	—	—
Polyethylene pipe to male iron pipe thread adapter, brass					
3/4" male adapter	CL@.112	Ea	4.91	4.57	9.48
1" male adapter	CL@.172	Ea	6.66	7.02	13.68
1-1/4" male adapter	CL@.200	Ea	9.22	8.16	17.38
Shrub and Lawn Sprinkler Heads and Risers					
Shrub bubbler, plastic nozzle, brass adjustment screw					
1/4 circle	P1@.120	Ea	1.19	4.38	5.57
1/2 circle	P1@.120	Ea	1.19	4.38	5.57
Full circle	P1@.120	Ea	.98	4.38	5.36
Mushroom spray	P1@.120	Ea	1.29	4.38	5.67
Flush head plastic lawn sprinkler, brass insert					
1/4 circle	P1@.120	Ea	1.29	4.38	5.67
1/2 circle	P1@.120	Ea	1.29	4.38	5.67
Full circle	P1@.120	Ea	1.29	4.38	5.67
Strip sprinkler	P1@.120	Ea	3.01	4.38	7.39
Brass 2" pop-up lawn sprinkler					
1/4 circle	P1@.120	Ea	3.32	4.38	7.70
1/2 circle	P1@.120	Ea	3.32	4.38	7.70
Full circle	P1@.120	Ea	3.32	4.38	7.70
Spring-loaded plastic 4" pop-up lawn sprinkler					
1/4 circle	P1@.120	Ea	2.25	4.38	6.63
1/2 circle	P1@.120	Ea	2.25	4.38	6.63
Full circle	P1@.120	Ea	2.10	4.38	6.48
Adjustable circle	P1@.120	Ea	4.53	4.38	8.91
Gear-driven rotating lawn sprinkler, 40 to 360 degrees					
15' to 30' circle	P1@.140	Ea	7.58	5.11	12.69
Pop-up impact sprinkler, adjustable, 40 to 360 degrees					
To 80' radius	P1@.140	Ea	14.80	5.11	19.91
Sprinkler riser nipples					
1/2" x close	P1@.030	Ea	.13	1.10	1.23
1/2" x 2"	P1@.030	Ea	.14	1.10	1.24
1/2" x 6" cut-off	P1@.030	Ea	.24	1.10	1.34
1/2" x 6" flexible cut-off	P1@.030	Ea	.24	1.10	1.34
1/2" x 6"	P1@.030	Ea	.26	1.10	1.36



32 Exterior Improvements

	Craft@Hrs	Unit	Material	Labor	Total
1/2" x 12"	P1@.030	Ea	.38	1.10	1.48
1/2" threaded ell	P1@.030	Ea	1.22	1.10	2.32
1/2" and 3/4" x 6" cut off	P1@.030	Ea	.71	1.10	1.81
1/2" and 3/4" x 6" flexible cut-off	P1@.030	Ea	.71	1.10	1.81
3/4" x close	P1@.030	Ea	.20	1.10	1.30
3/4" x 2"	P1@.030	Ea	.21	1.10	1.31
3/4" x 6" cut off	P1@.030	Ea	.71	1.10	1.81
3/4" x 6" flexible cut-off	P1@.030	Ea	.71	1.10	1.81
3/4" threaded ell	P1@.030	Ea	1.00	1.10	2.10
Quick coupling valves, add swing joint costs below					
3/4" regular	CL@.089	Ea	34.80	3.63	38.43
3/4" 2-piece	CL@.089	Ea	40.80	3.63	44.43
1" regular	CL@.094	Ea	48.40	3.84	52.24
1" 2-piece	CL@.094	Ea	59.20	3.84	63.04
1-1/4" regular	CL@.108	Ea	62.10	4.41	66.51
1-1/2" regular	CL@.124	Ea	74.90	5.06	79.96
Add for locking vinyl cover	—	Ea	15.10	—	15.10
Double swing sprinkler riser. Two close nipples, two PVC ells, one cut-off riser.					
1/2" pipe	P1@.150	Ea	2.95	5.48	8.43
3/4" pipe	P1@.150	Ea	3.11	5.48	8.59
Triple swing sprinkler riser. Three close nipples, three PVC ells, one cut-off riser.					
1/2" pipe	P1@.150	Ea	4.30	5.48	9.78
3/4" pipe	P1@.150	Ea	4.32	5.48	9.80
Hose bibb					
1/2" with 12" galvanized riser	CL@.041	Ea	11.10	1.67	12.77
3/4" with 12" galvanized riser	CL@.041	Ea	13.10	1.67	14.77
1/2" x 8" frost-proof with vacuum breaker	CL@.041	Ea	25.10	1.67	26.77
3/4" x 8" frost-proof with vacuum breaker	CL@.041	Ea	29.10	1.67	30.77



	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Planting Bed Preparation						
Spreading topsoil from piles on site, based on topsoil delivered to the site. Topsoil prices can be expected to vary widely.						
Hand work, 10 CY job,						
level site, 10' throw	CL@.500	CY	43.60	20.40	—	64.00
Move 25' in wheelbarrow	CL@1.00	CY	43.60	40.80	—	84.40
With 3/4 CY loader						
100 CY job, level site	T0@.080	CY	43.60	4.54	2.48	50.62
Spreading granular or powdered soil conditioners, based on fertilizer at \$.26 per pound. Spread 20 pounds per 1,000 square feet (MSF). Add the cost of working fertilizer into the soil from below.						
By hand, 2,250 SF per hour	CL@.445	MSF	9.07	18.20	—	27.27
Hand broadcast spreader,						
9,000 SF per hour	CL@.111	MSF	9.07	4.53	.36	13.96
Push gravity spreader,						
3,000 SF per hour	CL@.333	MSF	9.07	13.60	1.62	24.29
Push broadcast spreader,						
20,000 SF per hour	CL@.050	MSF	9.07	2.04	.24	11.35
Tractor drawn broadcast spreader,						
87 MSF per hour	CL@.011	MSF	9.07	.45	.45	9.97
Spreading organic soil conditioners, based on peat humus at \$.19 per pound. Spread 200 pounds per 1,000 square feet (MSF). Add the mixing cost from below						
By hand,						
1,000 SF per hour	CL@1.00	MSF	68.00	40.80	—	108.80

32 Exterior Improvements

	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Push gravity spreader, 2,750 SF per hour	CL@.363	MSF	68.00	14.80	1.77	84.57
Manure spreader, 34,000 SF per hour	CL@.029	MSF	68.00	1.18	.13	69.31
Fertilizer and soil conditioners						
Most nitrate fertilizers, ammonium sulfate	—	Lb	.29	—	—	.29
Lawn and garden fertilizer, calcium nitrate	—	Lb	.31	—	—	.31
Hydrated lime sodium nitrate	—	Lb	.24	—	—	.24
Ground limestone	—	Ton	233.00	—	—	233.00
Ground dolomitic limestone	—	Ton	240.00	—	—	240.00
Composted manure	—	Lb	.04	—	—	.04
Peat humus	—	Lb	.04	—	—	.04
Vermiculite, perlite	—	CF	8.91	—	—	8.91
Spreading lime at 70 pounds per 1,000 SF. Based on an 8 acre job using a tractor-drawn spreader at \$25.00 per hour and 1 acre per hour. Add mixing cost from below. Note: 1 acre equals 43,560 square feet.						
Lime	T0@1.00	Acre	444.00	56.70	38.90	539.60
Lime	T0@.656	Ton	254.00	37.20	25.50	316.70
Mixing soil and fertilizer in place. Medium soil. Light soil (sand or soft loam) will decrease costs shown by 20% to 30%. Heavy soil (clay, wet or rocky soil) will increase costs shown by 20% to 40%. Add soil conditioner cost from the preceding sections.						
Mixing by hand						
2" deep, 9 SY per hour	CL@.111	SY	—	4.53	—	4.53
4" deep, 7.5 SY per hour	CL@.133	SY	—	5.43	—	5.43
6" deep, 5.5 SY per hour	CL@.181	SY	—	7.38	—	7.38
Mixing with a 11 HP rear-tined hydraulic tiller						
2" deep, 110 SY per hour	CL@.009	SY	—	.37	.18	.55
4" deep, 90 SY per hour	CL@.011	SY	—	.45	.22	.67
6" deep, 65 SY per hour	CL@.015	SY	—	.61	.30	.91
8" deep, 45 SY per hour	CL@.022	SY	—	.90	.44	1.34
Mixing with a 3' wide, 20 HP tractor-driven tiller						
2" deep, 50,000 SF per hour	T0@.020	MSF	—	1.13	.64	1.77
4" deep, 40,000 SF per hour	T0@.025	MSF	—	1.42	.80	2.22
6" deep, 30,000 SF per hour	T0@.033	MSF	—	1.87	1.06	2.93
8" deep, 20,000 SF per hour	T0@.050	MSF	—	2.84	1.60	4.44
Mixing with a 6' wide, 40 HP tractor-driven tiller						
2" deep, 90,000 SF per hour	T0@.011	MSF	—	.62	.39	1.01
4" deep, 70,000 SF per hour	T0@.014	MSF	—	.79	.50	1.29
6" deep, 53,000 SF per hour	T0@.019	MSF	—	1.08	.68	1.76
8" deep, 35,000 SF per hour	T0@.028	MSF	—	1.59	1.00	2.59
Leveling the surface for lawn or planting bed						
By hand, 110 SY per hour	CL@.009	SY	—	.37	—	.37
With 6' drag harrow, at 60,000 SF per hour	T0@.017	MSF	—	.96	.59	1.55
With 12' drag harrow, at 115,000 SF per hour	T0@.009	MSF	—	.51	.45	.96
Plant bed preparation						
With a 3/4 CY wheel loader, at 12.5 CY per hour	T0@.080	CY	—	4.54	3.46	8.00
By hand to 18" deep, 8.35 SY per hour	CL@.118	SY	—	4.81	—	4.81

32 Exterior Improvements

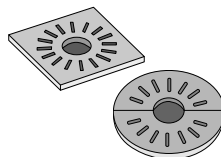
	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Mixing planting soil						
By hand, .9 CY per hour	CL@1.11	CY	—	45.30	—	45.30
With 3/4 CY wheel loader, 7 CY per hour	T0@.143	CY	—	8.11	6.18	14.29
With a soil shredder, 11 CY per hour	T0@.090	CY	—	5.10	3.89	8.99
Seeding and Planting						
Seeding with a hand broadcast spreader, 10 pounds per 1,000 SF. The cost of grass seed will vary greatly depending on variety — see below.						
4,000 SF per hour, hand seeding	CL@.250	MSF	34.50	10.20	.81	45.51
Seeding with push broadcast spreader, 5 pounds per 1,000 SF						
10,000 SF per hour,						
Push spreader seeding	CL@.100	MSF	17.20	4.08	.49	21.77
Seeding with a mechanical seeder at 175 pounds per acre, 5 acre job						
Mechanical seeding	T0@13.1	Acre	603.00	743.00	531.00	1,877.00
Mechanical seeding	T0@.300	MSF	13.90	17.00	12.20	43.10
Hydroseeding subcontract (spray application of seed, binder and fertilizer slurry). Costs will vary with access restrictions and site requirements.						
Minimum charge	—	LS	—	—	—	500.00
2,000 to 10,000 SF job	—	MSF	—	—	—	180.00
10,001 SF to 1 acre job	—	MSF	—	—	—	150.00
1 to 4.99 acre job	—	MSF	—	—	—	120.00
5 to 9.99 acre job	—	Acre	—	—	—	4,790.00
10 to 19.99 acre job	—	Acre	—	—	—	4,360.00
20 to 49.99 acre job	—	Acre	—	—	—	3,290.00
50 to 99.99 acre job	—	Acre	—	—	—	3,480.00
Over 100 acre job	—	Acre	—	—	—	3,050.00
Sealing soil, application by a hydroseeding unit. Use \$750 as a minimum job charge.						
Copolymer based liquid						
for erosion control	C4@.020	SY	1.50	.85	.22	2.57
Grass seed						
Annual ryegrass	—	Lb	2.76	—	—	2.76
Most fescue	—	Lb	2.78	—	—	2.78
Kentucky bluegrass	—	Lb	5.83	—	—	5.83
Bermuda	—	Lb	4.80	—	—	4.80
Heat-and drought-resistant premium blend	—	Lb	7.64	—	—	7.64
Dichondra	—	Lb	20.20	—	—	20.20
Centipede	—	Lb	47.70	—	—	47.70
Sodding, placed on level ground at 25 SY per hour. Add delivery cost below. Use 50 SY as a minimum job charge.						
Prices will vary by region and season.						
Bluegrass and bluegrass blends	CL@.040	SY	4.47	1.63	—	6.10
Fescue varieties	CL@.040	SY	6.60	1.63	—	8.23
Bermuda and centipedes	CL@.040	SY	6.16	1.63	—	7.79
Zoysias	CL@.040	SY	6.65	1.63	—	8.28
St. Augustine varieties	CL@.040	SY	7.34	1.63	—	8.97
Typical delivery cost, to 90 miles	—	SY	.75	—	—	.75
Add for staking sod on slopes	CL@.010	SY	.18	.41	—	.59
Deduct for 100 SY or greater jobs	—	%	-45.0	—	—	—
Work grass seed into soil, no seed included. Use \$1,500 as a minimum job charge.						
By hand, 220 SY per hour	CL@.005	SY	—	.20	—	.20
6' harrow and 40 HP tractor						
60 MSF per hour	T0@.017	MSF	—	.96	1.08	2.04
12' harrow and 60 HP tractor						
100 MSF per hour	T0@.010	MSF	—	.57	.50	1.07

32 Exterior Improvements

	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Apply top dressing over seed or stolons.						
300 pounds per 1,000 SF (2.7 pounds per SY)						
By hand, 65 SY per hour	CL@.015	SY	.71	.61	—	1.32
With manure spreader						
10,000 SF per hour	CL@.125	MSF	79.60	5.10	—	84.70
Roll sod or soil surface with a roller.						
With a push roller, 400 SY per hour	CL@.015	SY	—	.61	—	.61
With a 20 HP tractor						
25,000 SF per hour	T0@.040	MSF	—	2.27	1.06	3.33
Sprigging, by hand.						
6" spacing, 50 SY per hour	CL@.020	SY	.66	.82	—	1.48
9" spacing, 100 SY per hour	CL@.010	SY	.64	.41	—	1.05
12" spacing, 150 SY per hour	CL@.007	SY	.62	.29	—	.91
Hybrid Bermuda grass stolons,						
Per bushel	—	MSF	6.64	—	—	6.64
Ground cover, large areas, no surface preparation						
Ice plant (80 SF per flat)	CL@.008	SF	.43	.33	—	.76
Strawberry (75 SF per flat)	CL@.008	SF	.48	.33	—	.81
Ivy and similar (70 SF per flat)	CL@.008	SF	.45	.33	—	.78
Gravel bed, pea gravel (1.4 tons per CY)						
Spread by hand	CL@.555	CY	39.50	22.60	—	62.10
Trees and shrubs						
Shrubs, most varieties						
1 gallon, 100 units	CL@.085	Ea	16.40	3.47	—	19.87
1 gallon, over 100 units	CL@.076	Ea	15.10	3.10	—	18.20
5 gallons, 100 units	CL@.443	Ea	42.50	18.10	—	60.60
Trees, most varieties, complete, staked, typical costs						
5 gallon, 4' to 6' high	CL@.716	Ea	63.50	29.20	—	92.70
15 gallon, 8' to 10' high	CL@1.37	Ea	167.00	55.90	—	222.90
20" x 24" box, 10' to 12' high	CL@4.54	Ea	874.00	185.00	—	1,059.00
Specimen size 36" box,						
14' to 20' high	CL@11.6	Ea	1,810.00	473.00	—	2,283.00
Guaranteed establishment of plants						
Add, as a % of total contract price	—	%	—	—	—	12.0
Edging						
Plastic benderboard,						
5" x 3/8", staked	CL@.013	LF	.69	.53	—	1.22
Redwood benderboard,						
4" x 5/16",	CL@.013	LF	.36	.53	—	.89
Redwood headerboard, 2" x 4", staked						
Construction Common grade	CL@.127	LF	1.42	5.18	—	6.60
Decomposed granite edging						
Saturated and rolled, 3" deep	CL@.011	SF	.58	.45	—	1.03
Landscape stepping stones (concrete pavers)						
Laid on level ground, 12" x 12",						
30 lb. each	CL@.024	SF	1.74	.98	—	2.72
Pressure-treated piles, in 2' to 5' sections,						
9" to 12" diameter	CL@.045	LF	4.76	1.84	—	6.60

32 Exterior Improvements

	Craft@Hrs	Unit	Material	Labor	Total
Tree Grates Two piece cast iron grates surrounding a tree trunk, set in concrete. Add for delivery.					
36" x 36" x 2-3/4" square (270 lbs.)	C4@4.00	Ea	332.00	169.00	501.00
48" x 48" x 2-3/4" square (512 lbs.)	C4@5.00	Ea	368.00	212.00	580.00
60" x 60" x 2-3/4" square (750 lbs.)	C4@6.50	Ea	415.00	275.00	690.00
36" diameter x 2-3/4" round (230 lbs.)	C4@4.00	Ea	338.00	169.00	507.00
48" diameter x 2-3/4" round (480 lbs.)	C4@5.00	Ea	391.00	212.00	603.00
Add for cast steel frame	—	%	45.0	20.0	—



33 Utilities

	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Cast Iron Flanged Pipe AWWA C151 pipe with cast iron flanges on both ends. Pipe is laid and connected in an open trench. Equipment includes a wheel-mounted 1 CY backhoe for lifting and placing the pipe and fittings. Trench excavation, dewatering, backfill and compaction are not included. Use \$3,000 as a minimum job charge. See next section for fittings, valves and accessories.						
4" pipe, 260 pounds per 18' section	U1@.057	LF	22.60	2.87	.76	26.23
6" pipe, 405 pounds per 18' section	U1@.075	LF	26.50	3.77	1.00	31.27
8" pipe, 570 pounds per 18' section	U1@.075	LF	37.80	3.77	1.00	42.57
10" pipe, 740 pounds per 18' section	U1@.094	LF	51.10	4.73	1.25	57.08
12" pipe, 930 pounds per 18' section	U1@.094	LF	69.50	4.73	1.25	75.48

Cast Iron Fittings, Valves and Accessories Based on type ASA A21, 10-A21-11-6 and 4C110-64, C111-64 fittings. Installed in an open trench and connected. Equipment includes a wheel-mounted 1 CY backhoe for lifting and placing. Trench excavation, dewatering, backfill and compaction are not included. These items are also suitable for use with the Ductile Iron Pipe in the section that follows. Costs estimated using this section may be combined with the costs estimated from the Cast Iron Flanged Pipe section or the Ductile Iron Pipe section for arriving at the minimum job charge shown in those sections.

Cast iron mechanical joint 90 degree ells

4" ell	U1@.808	Ea	170.00	40.60	10.80	221.40
6" ell	U1@1.06	Ea	254.00	53.30	14.10	321.40
8" ell	U1@1.06	Ea	370.00	53.30	14.10	437.40
10" ell	U1@1.32	Ea	558.00	66.40	17.60	642.00
12" ell	U1@1.32	Ea	697.00	66.40	17.60	781.00
14" ell	U1@1.32	Ea	1,580.00	66.40	17.60	1,664.00
16" ell	U1@1.65	Ea	1,830.00	83.00	22.00	1,935.00

Deduct for 1/8 or 1/16 bends

—	%	-20.0	—	—	—
---	---	-------	---	---	---

Cast iron mechanical joint tees

4" x 4"	U1@1.22	Ea	262.00	61.30	16.30	339.60
6" x 4"	U1@1.59	Ea	332.00	79.90	21.20	433.10
6" x 6"	U1@1.59	Ea	362.00	79.90	21.20	463.10
8" x 8"	U1@1.59	Ea	521.00	79.90	21.20	622.10
10" x 10"	U1@1.59	Ea	758.00	79.90	21.20	859.10
12" x 12"	U1@2.48	Ea	983.00	125.00	33.10	1,141.10
Add for wyes	—	%	40.0	—	—	—
Add for crosses	—	%	30.0	33.0	33.0	—

Cast iron mechanical joint reducers

6" x 4"	U1@1.06	Ea	191.00	53.30	14.10	258.40
8" x 6"	U1@1.06	Ea	285.00	53.30	14.10	352.40
10" x 8"	U1@1.32	Ea	371.00	66.40	17.60	455.00
12" x 10"	U1@1.32	Ea	499.00	66.40	17.60	583.00

33 Utilities

	Craft@Hrs	Unit	Material	Labor	Equipment	Total
AWWA mechanical joint gate valves						
3" valve	U1@3.10	Ea	535.00	156.00	41.40	732.40
4" valve	U1@4.04	Ea	757.00	203.00	53.90	1,013.90
6" valve	U1@4.80	Ea	1,200.00	241.00	64.00	1,505.00
8" valve	U1@5.14	Ea	2,060.00	258.00	68.60	2,386.60
10" valve	U1@5.67	Ea	3,210.00	285.00	75.60	3,570.60
12" valve	U1@6.19	Ea	5,460.00	311.00	82.60	5,853.60
Indicator post valve						
6" upright, adjustable	U1@6.50	Ea	870.00	327.00	86.70	1,283.70
Fire hydrant with spool						
6"	U1@5.00	Ea	1,500.00	251.00	66.70	1,817.70
Backflow preventers, installed at ground level						
3" backflow preventer	U1@3.50	Ea	2,560.00	176.00	46.70	2,782.70
4" backflow preventer	U1@4.00	Ea	3,490.00	201.00	53.40	3,744.40
6" backflow preventer	U1@5.00	Ea	5,890.00	251.00	66.70	6,207.70
8" backflow preventer	U1@6.00	Ea	8,300.00	302.00	80.10	8,682.10
Block structure for backflow preventer						
5' x 7' x 34"	M1@32.0	Ea	1,150.00	1,510.00	—	2,660.00
Shear gate						
8", with adjustable release handle	U1@2.44	Ea	2,000.00	123.00	32.60	2,155.60
Adjustable length valve boxes, for up to 20" valves						
5' depth	U1@1.75	Ea	178.00	88.00	23.40	289.40
Concrete thrust blocks, minimum formwork						
1/4 CY thrust block	C8@1.20	Ea	82.40	56.00	—	138.40
1/2 CY thrust block	C8@2.47	Ea	166.00	115.00	—	281.00
3/4 CY thrust block	C8@3.80	Ea	246.00	177.00	—	423.00
1 CY thrust block	C8@4.86	Ea	329.00	227.00	—	556.00
Tapping saddles, double strap, iron body, tap size to 2"						
Pipe to 4"	U1@2.38	Ea	54.50	120.00	31.80	206.30
8" pipe	U1@2.89	Ea	71.50	145.00	38.60	255.10
10" pipe	U1@3.15	Ea	73.00	158.00	42.00	273.00
12" pipe	U1@3.52	Ea	96.30	177.00	47.00	320.30
14" pipe, bronze body	U1@3.78	Ea	96.50	190.00	50.40	336.90
Tapping valves, mechanical joint						
4" valve	U1@6.93	Ea	887.00	348.00	92.50	1,327.50
6" valve	U1@8.66	Ea	1,190.00	435.00	116.00	1,741.00
8" valve	U1@9.32	Ea	1,770.00	469.00	124.00	2,363.00
10" valve	U1@10.4	Ea	2,680.00	523.00	139.00	3,342.00
12" valve	U1@11.5	Ea	4,060.00	578.00	153.00	4,791.00
Labor and equipment tapping pipe, by hole size. Add the cost of excavation and backfill.						
4" pipe	U1@5.90	Ea	—	297.00	78.70	375.70
6" pipe	U1@9.32	Ea	—	469.00	124.00	593.00
8" pipe	U1@11.7	Ea	—	588.00	156.00	744.00
10" pipe	U1@15.5	Ea	—	779.00	206.00	985.00
12" pipe	U1@23.4	Ea	—	1,180.00	312.00	1,492.00

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	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Heavy-duty frame and lid						
17" diameter, 135 lb	\$6@2.51	Ea	295.00	116.00	44.70	455.70
21" diameter, 315 lb	\$6@3.77	Ea	654.00	174.00	67.10	895.10
24" diameter, 375 lb	\$6@4.30	Ea	757.00	198.00	76.50	1,031.50
Connect new drain line to existing manhole, no excavation or backfill included.						
Per connection	\$6@6.83	Ea	223.00	315.00	122.00	660.00
Connect existing drain line to new manhole, no excavation or backfill included.						
Per connection	\$6@3.54	Ea	135.00	163.00	63.00	361.00
Manhole repairs and alterations, typical costs						
Repair manhole leak with grout	\$6@15.8	Ea	624.00	728.00	281.00	1,633.00
Repair inlet leak with grout	\$6@15.8	Ea	758.00	728.00	281.00	1,767.00
Grout under manhole frame	\$6@1.29	Ea	12.90	59.50	23.00	95.40
Drill and grout pump setup cost	\$6@17.4	LS	758.00	802.00	310.00	1,870.00
Grout for pressure grouting	—	Gal	12.80	—	—	12.80
Replace brick in manhole wall	M1@8.79	SF	18.60	415.00	—	433.60
Replace brick under manhole frame	M1@8.79	LS	61.60	415.00	—	476.60
Raise existing frame and cover 2"	CL@4.76	LS	341.00	194.00	—	535.00
Raise existing frame and cover more than 2", per each 1" added	CL@.250	LS	117.00	10.20	—	127.20
Grouting concrete pipe joints						
6" to 30" diameter	\$6@.315	Ea	31.20	14.50	5.60	51.30
33" to 60" diameter	\$6@1.12	Ea	61.50	51.60	19.90	133.00
66" to 72" diameter	\$6@2.05	Ea	125.00	94.50	36.50	256.00
TV inspection of pipe interior , Robotic crawl camera inspecting 6" to 36" pipe. Report includes a DVD or VHS images and a plot of obstructions. Equipment is a video truck with operator. Time starts at the yard.						
Full 8-hour day	—	LS	—	—	—	1,430.00
Half day (4 hours)	—	LS	—	—	—	822.00
Addition hours	—	Ea	—	—	—	225.00
Pipe locator (2 hour minimum)	—	Hr	—	—	—	155.00
Accessories for Site Utilities Equipment includes a wheel-mounted 1 CY backhoe for lifting and placing the items. Trench excavation, bedding material and backfill are not included. Costs estimated using this section may be combined with costs estimated from other site work utility sections for arriving at a minimum job charge.						
Curb inlets, gray iron, asphalt coated, heavy-duty frame, grate and precast curb box						
20" x 11", 260 lb	\$6@2.75	Ea	521.00	127.00	48.90	696.90
20" x 16.5", 300 lb	\$6@3.04	Ea	567.00	140.00	54.10	761.10
20" x 17", 400 lb	\$6@4.30	Ea	717.00	198.00	76.50	991.50
19" x 18", 500 lb	\$6@5.06	Ea	860.00	233.00	90.00	1,183.00
30" x 17", 600 lb	\$6@6.04	Ea	931.00	278.00	107.00	1,316.00
Gutter inlets, gray iron, asphalt coated, heavy-duty frame and grate						
8" x 11.5", 85 lb	\$6@.444	Ea	174.00	20.50	7.90	202.40
22" x 17", 260 lb, concave	\$6@1.84	Ea	498.00	84.80	32.70	615.50
22.3" x 22.3", 475 lb	\$6@2.87	Ea	542.00	132.00	51.10	725.10
29.8" x 17.8", 750 lb	\$6@3.37	Ea	829.00	155.00	60.00	1,044.00
Trench inlets, ductile iron, light-duty frame and grate for pedestrian traffic						
53.5" x 8.3", 100 lb	\$6@.495	Ea	170.00	22.80	8.81	201.61
Trench inlets, gray iron, asphalt coated frame and grate or solid cover						
Light-duty, 1-1/4"						
8" wide grate	\$6@.247	LF	71.70	11.40	4.39	87.49
12" wide grate	\$6@.275	LF	103.00	12.70	4.89	120.59
8" wide solid cover	\$6@.247	LF	79.60	11.40	4.39	95.39
12" wide solid cover	\$6@.275	LF	112.00	12.70	4.89	129.59

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	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Heavy-duty, 1-3/4"						
8" wide grate	\$6@.275	LF	77.90	12.70	4.89	95.49
12" wide grate	\$6@.309	LF	114.00	14.20	5.50	133.70
8" wide solid cover	\$6@.275	LF	90.00	12.70	4.89	107.59
12" wide solid cover	\$6@.309	LF	124.00	14.20	5.50	143.70
Concrete headwalls By culvert drain pipe size. With 30-degree skewed wingwall. Add the cost of excavation, backfill and compaction.						
Cast in place concrete headwalls.						
12" pipe	P9@3.50	Ea	629.00	168.00	—	797.00
15" pipe	P9@3.80	Ea	758.00	183.00	—	941.00
18" pipe	P9@4.00	Ea	963.00	192.00	—	1,155.00
24" pipe	P9@4.50	Ea	1,430.00	216.00	—	1,646.00
30" pipe	P9@5.00	Ea	1,680.00	240.00	—	1,920.00
36" pipe	P9@7.50	Ea	1,890.00	360.00	—	2,250.00
42" pipe	P9@7.80	Ea	2,320.00	375.00	—	2,695.00
48" pipe	P9@9.90	Ea	2,420.00	475.00	—	2,895.00
54" pipe	P9@14.0	Ea	2,570.00	672.00	—	3,242.00
60" pipe	P9@15.5	Ea	3,340.00	744.00	—	4,084.00
Precast concrete headwalls, placed with a 1.38 CY wheel-loader backhoe						
12" pipe	\$6@8.00	Ea	359.00	369.00	16.30	744.30
15" pipe	\$6@8.00	Ea	359.00	369.00	16.30	744.30
18" pipe	\$6@9.60	Ea	359.00	443.00	19.80	821.80
24" pipe	\$6@9.60	Ea	436.00	443.00	19.80	898.80
30" pipe	\$6@12.0	Ea	663.00	553.00	24.70	1,240.70
36" pipe	\$6@12.0	Ea	663.00	553.00	24.70	1,240.70
Gas Distribution Lines Installed in an open trench. Equipment includes a wheel-mounted 1 CY backhoe for lifting and placing the pipe. No excavation, bedding material or backfill included. Use \$2,000 as a minimum job charge.						
Polyethylene pipe, 60 PSI						
1-1/4" diameter, coils	U1@.064	LF	2.35	3.22	.85	6.42
1-1/2" diameter, coils	U1@.064	LF	1.69	3.22	.85	5.76
2" diameter, coils	U1@.071	LF	4.45	3.57	.95	8.97
3" diameter, coils	U1@.086	LF	4.27	4.32	1.15	9.74
3" diameter, 38' long with couplings	U1@.133	LF	5.27	6.69	1.77	13.73
4" diameter, 38' long with couplings	U1@.168	LF	9.42	8.45	2.24	20.11
6" diameter, 38' long with couplings	U1@.182	LF	32.50	9.15	2.43	44.08
8" diameter, 38' long with couplings	U1@.218	LF	39.20	11.00	2.91	53.11
Meters and pressure regulators Natural gas diaphragm meters, direct digital reading, not including temperature and pressure compensation. For use with pressure regulators below.						
425 CFH at 10 PSI	P6@4.38	Ea	347.00	227.00	—	574.00
425 CFH at 25 PSI	P6@4.38	Ea	459.00	227.00	—	686.00
Natural gas pressure regulators with screwed connections						
3/4" or 1" connection	P6@.772	Ea	35.40	40.00	—	75.40
1-1/4" or 1-1/2" connection	P6@1.04	Ea	188.00	53.90	—	241.90
2" connection	P6@1.55	Ea	1,540.00	80.30	—	1,620.30
Pipe Jacking Typical costs for jacking .50" thick wall pipe casing under an existing roadway. Costs assume casing is left in place. Add 15% when ground water is present. Add 100% for light rock conditions. Includes jacking pits on both sides. Equipment includes a 1 CY wheel-mounted backhoe plus a 2-ton truck equipped for this type of work. Size shown is casing diameter. Use \$2,200 as a minimum job charge.						
2" casing	C5@.289	LF	8.67	13.30	6.00	27.97
3" casing	C5@.351	LF	10.20	16.10	7.29	33.59
4" casing	C5@.477	LF	13.40	21.90	9.90	45.20
6" casing	C5@.623	LF	17.30	28.60	12.90	58.80

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	Craft@Hrs	Unit	Material	Labor	Equipment	Total
8" casing	C5@.847	LF	23.00	38.90	17.60	79.50
10" casing	C5@1.24	LF	33.80	57.00	25.70	116.50
12" casing	C5@1.49	LF	40.90	68.50	30.90	140.30
16" casing	C5@1.78	LF	48.60	81.80	37.00	167.40
17" casing	C5@2.09	LF	55.90	96.00	43.40	195.30
24" casing	C5@7.27	LF	198.00	334.00	151.00	683.00
30" casing	C5@7.88	LF	213.00	362.00	164.00	739.00
36" casing	C5@8.61	LF	238.00	396.00	179.00	813.00
42" casing	C5@9.29	LF	251.00	427.00	193.00	871.00
48" casing	C5@10.2	LF	277.00	469.00	212.00	958.00

SAMPLE

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