

LP Waterworks, Inc.

June 17, 2014

Office of Commission Clerk
Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399

RECEIVED-FPSC
14 JUN 23 AM 9:30
COMMISSION
CLERK

RE: Docket No. 130153-WS- Application for staff-assisted rate case in Highlands County, by L.P. Utilities Corporation c/o LP Waterworks, Inc. – Staff Fourth Data Request

To Whom It May Concern:

Attached please find LP Waterworks, Inc.'s (LPW) response to staff's Fourth Data Request submitted in the above referenced docket:

1. On December 27, 2012, L.P. Waterworks, Inc. ("L.P" or "Utility") signed a management services agreement ("Agreement") with U.S. Water Services Corporation ("U.S. Water"). Please provide a complete copy of this Agreement as originally executed, including all Appendices (a/k/a Attachments).

Response: This information was previously provided in response to Audit Document Request No. 10. However, the document is being provided again and is attached.

2. Since the date this Agreement was executed (December 27, 2012), has any portion of the Agreement been revised, amended, deleted, or modified in any way? If yes, please provide a detailed description of each change to the Agreement and provide a copy of each such revision, amendment, deletion or modification.

Response: No, no portion of the Agreement has been revised, amended, deleted, or modified in any way. See attached most recently revised Schedule of Fees.

3. Since the date this Agreement was executed (December 27, 2012), has any portion of an Attachment to this Agreement been revised, amended, deleted, or modified in any way? If yes, please provide a detailed description each change to each such Attachment and provide a copy of each such revision, amendment, deletion or modification.

Response: This is the same request as No. 2 above. Please see above.

4. Attachment G, Schedule of Service Fees, includes notations that state, "Fees are subject to change without notice and are updated annually at a minimum, [and] Invoices may be subject to fuel surcharges."

- a. Please identify the date of the latest update to Attachment G, and provide 1) the most current copy of this Attachment, and 2) each document that has modified Attachment G to effectuate a change, update, or fuel surcharge.

Response: See Revised Schedule G effective May 1, 2014. This schedule may be updated annually based on CPI depending on the current economic conditions. If the economic conditions are unfavorable, these fees may not be increased. These Service Fees have not been changed since the date of execution, or for the past several years.

- b. Please identify and describe the basis used to establish the fuel surcharge.

Response: The fuel surcharge is added for only emergency repairs performed outside the contract. This surcharge may be decreased or increased depending on the fuel market for each respective year. This surcharge is typically not charged to the regulated utilities and is covered under the service contract.

- c. For the purpose of this question, assume that the Utility needs \$1,000 worth of services or equipment for a repair, or an improvement. Please explain how Attachment G works as applied to such a repair or improvement. In this context, please identify and explain any differences in how Attachment G works for repairs (expenses) versus improvements (capital items).

Response: The actual time worked on either the repair or improvement outside the normal contract services is charged based on the record keeping of the USW employee on actual time worked on the specific project. The equipment is also charged based on the actual amount of time used on the specific project. Per the USW contract, the utility is responsible for any repair or improvement above \$400. There are no differences in how Attachment G works for repairs versus improvements. However, these would be for items that are required above and beyond the normal services already being provided through the actual service contract.

- d. Since the date this agreement was executed (December 27, 2012), how many updates, if any, have been made to Attachment G?

Response: The Fee Schedule has not changed since the execution of the contract.

- e. Attachment G lists several services with various hourly rates. As an example, Line 10 shows that a Field Inspector is available to the Utility for an hourly rate. Please identify the industry benchmarks or pricing guidelines used to develop the hourly rate for the specialists identified in Attachment G.

Response: USW used the RSMeans® Heavy Construction Cost Data to conduct cost analysis. Typically the fees charged by USW are under the RSMeans® costs. RSMeans is a construction estimation database that is used by professional estimators for up to date labor, materials and overhead costs for specific project types and locations. Since 1942, RS Means has been actively engaged in construction cost publishing and consulting throughout North America. RS Means collects data from all facets of the industry, including both the private and public sectors,

including federal, state, and municipal agencies, corporations, institutions, construction management firms, hospitals, and associations.

RS Means is the national leader for custom database development to fit any construction or facilities management situation. RS Means has developed and maintains a global cost estimating database for the U.S. Army Corps of Engineers and the Department of Defense. Means has developed a cost index for various building types for the U.S. Department of Labor, Bureau of Labor Statistics.

For the Schedule of Service Fees, items 1 through 9 are typically never charged to the regulated utilities. The main labor items charged to the regulated utilities for the service performed outside the normal contract are for (1) Tradesman, and (2) Maintenance Technician.

Below is a cost comparison for these two positions charged to regulated utilities:

	<u>USWC</u>	<u>RSMeans®</u>
Tradesman (Master Mechanic)	\$57.91	\$76.05
Maintenance Technician (Skilled Worker)	\$52.01	\$73.25

(see attached schedules)

One other position that may be charged depending on the specifications of the project is:

	<u>USWC</u>	<u>RSMeans®</u>
Utility Electrician (Electrician)	\$60.53	\$79.85

Further, USWC currently has over 400 service contracts with various cities, counties, federal agencies, private corporations, FGUA, etc. These contracts were subject to the competitively bid process across the state. Thus these contracts were openly bid throughout the open market and were selective through the competitive bid processes of the various statewide clients. Ultimately for these similar contracts, USWC was selected through this open market process for the same type of service, thus demonstrating that its charges and fees for services are below market.

- f. Attachment G lists several types of equipment with various rates and charges. As an example, Line 38 shows that a Crane Truck is available to the Utility by the hour. Please identify the industry benchmarks or pricing guidelines used to develop the hourly rates for equipment.

Response: USW used the RSMeans® Heavy Construction Cost Data to conduct cost analysis. See answer to 4e above. Below is a comparison of a selection of some of the equipment costs:

	<u>USWC</u>	<u>RSMeans®</u>
Crane Truck	\$138.12/hr	\$280.00/hr
Diaphragm Pump Rental	\$ 52.37/day	\$ 72.00/day
Cutting Torches	\$ 84.68/day	\$152.00/day
Submersible Bypass Pump Rental	\$ 58.19day	\$ 75.40/day

Pressure Washer

\$ 28.04/day

\$ 69.40/day

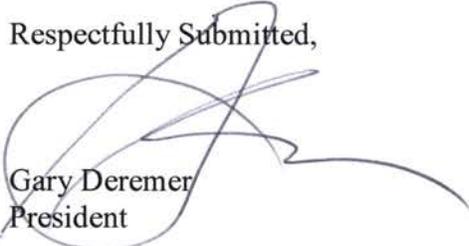
- g. Attachment G, Line 22 states that materials and reimbursable expenses will be billed at actual cost plus a percentage for mark-up. Please identify the industry benchmarks or pricing guides used in setting the mark-up amount.

Response: The 18% markup was derived at by using factors of 8% overhead and 10% profit. According to RS Means®, (1) the “Average Fixed Overhead for all services across the United States is 17.9%; (2) the Overhead varied from a low of 11% to a high of 16%; (3) while the Profit across all services was at 10%. Thus the Overall Overhead and Profit across all services across the United States varied from a low of 47.4% to a high of 80.4%. (See attached schedule). This 18% markup is also consistent with the FGUA contracts which were selected through the competitive bid process across the state. The 18% markup for overhead and profit is below the market percentage markups nationwide.

- h. Attachment G, Line 27 states that Operations Supplies will be billed at actual cost plus a percentage for mark-up. Please identify the industry benchmarks or pricing guidelines used in setting the mark-up amount.

Response: See response to 4g above.

Respectfully Submitted,



Gary Deremer
President

Attachments

Cc: Victoria Penick
Troy Rendell



ATTACHMENT G

SCHEDULE OF SERVICE FEES

Effective May 1, 2014

1	Principal	\$166.52 per hour
2	Director of Engineering Services: (Registered Professional Engineer)	\$145.89 per hour
3	Engineer III (Registered Professional Engineer)	\$130.28 per hour
4	Engineer II	\$106.82 per hour
5	Engineer I	\$ 84.33 per hour
6	Sr. Environmental Consultant	\$125.70 per hour
7	Hydrogeologist (Registered Professional Geologist)	\$118.17 per hour
8	Sr. Project Manager /Utility Manager, CIP or PSC Filings	\$139.66 per hour
9	Project Manager	\$ 98.92 per hour
10	Field Inspector	\$ 95.86 per hour
11	Engineering Technician	\$ 62.14 per hour
12	Cad Operator	\$ 66.99 per hour
13	Instrumentation/Control Technician/Maintenance Supervisor/Chief Mechanic	\$ 89.43 per hour
14	Lab Tech/Collection Capture	\$ 42.66 per hour
15	Tradesman	\$ 57.91 per hour
16	Maintenance Technician	\$ 52.01 per hour
17	Welder/Fabricator	\$ 65.00 per hour
18	Utility Electrician	\$ 67.82 per hour
19	Certified Cross Connection Control Technician (Backflow Prevention Technician)	\$ 73.37 per hour
20	Water and Wastewater Plant Operator (LEAD)	\$ 79.01 per hour
21	Water and Wastewater Plant Operator	\$ 58.19 per hour
22	Administrative Support	\$ 52.37 per hour
23	Materials and reimbursable expenses will be billed at actual cost plus: 18%	18%
24	Automobile Travel Mileage Reimbursement Associated With Consulting Services	\$ 0.55 per mile
25	Disposal Fee for Disposal of Non Hazardous Material and Debris.	\$ 13.99 per visit
26**	Labor Rates of 1.5 times the regular hourly rate will apply under the following circumstances: **Monday - Friday from 4:00pm to 7:00am and Weekends at All Hours	
27	Labor Rates of 2.0 times the regular hourly rate will apply on holidays recognized by US Water.	
28	Operations Supplies provided will be billed at actual cost plus 18%.	

EQUIPMENT

29	Confined Space Entry – With Permit and Equipment	\$110.00 per/entry
30	Diaphragm Pump Rental	\$ 52.37 per/day
31	Submersible Bypass Pump Rental	\$ 79.01 per/day
32	Cut Saw Rental	\$ 29.11 per/day
33	Cut Saw Blades	\$ 11.65 each
34	RPZ Certification	\$145.60 each
35	Lift Station Calibration and Testing	\$368.78 each
36	Pressure Washer	\$ 28.04 per/hour
37	Pressure Jetter	\$ 84.68 per/day
38	Cutting Torches	\$ 84.68 per/day
39	Crane Truck	\$138.12 per/hour
40	VacTruck/Residuals Hauler	\$317.51 per/hour
41	Residual Liquid Hauled	\$ 0.39 per/gallon
42	Pump Hoist	\$ 78.08 per/day
43	TV Camera	\$ 88.52 per/foot

Fees are subject to change without notice and are updated annually at a minimum.

END

Invoices may be subject to fuel surcharges.

Installing Contractor's Overhead & Profit

Below are the **average** installing contractor's percentage markups applied to base labor rates to arrive at typical billing rates.

Column A: Labor rates are based on union wages averaged for 30 major U.S. cities. Base rates including fringe benefits are listed hourly and daily. These figures are the sum of the wage rate and employer-paid fringe benefits such as vacation pay, employer-paid health and welfare costs, pension costs, plus appropriate training and industry advancement funds costs.

Column B: Workers' compensation rates are the national average of state rates established for each trade.

Column C: Column C lists average fixed overhead figures for all trades. Included are federal and state unemployment costs set at 7.8%; social security taxes (FICA) set at 7.65%; builder's risk insurance costs set at 0.44%; and public liability costs set at 2.02%. All the percentages except those for social security taxes vary from state to state as well as from company to company.

Columns D and E: Percentages in Columns D and E are based on the presumption that the installing contractor has annual billing of \$4,000,000 and up. Overhead percentages may increase with smaller annual billing. The overhead percentages for any given contractor may vary greatly and depend on a number of factors, such as the contractor's annual volume, engineering and logistical support costs, and staff requirements. The figures for overhead and profit will also vary depending on the type of job, the job location, and the prevailing economic conditions. All factors should be examined very carefully for each job.

Column F: Column F lists the total of Columns B, C, D, and E.

Column G: Column G is Column A (hourly base labor rate) multiplied by the percentage in Column F (O&P percentage).

Column H: Column H is the total of Column A (hourly base labor rate) plus Column G (Total O&P).

Column I: Column I is Column H multiplied by eight hours.

Abbr.	Trade	A		B	C	D	E	F		G		H		I
		Base Rate Incl. Fringes		Workers' Comp. Ins.	Average Fixed Overhead	Overhead	Profit	Total Overhead & Profit		Rate with O & P		Hourly	Daily	
		Hourly	Daily					%	Amount	Hourly	Daily			
Skwk	Skilled Workers Average (35 trades)	\$47.30	\$378.40	14.0%	17.9%	13.0%	10%	54.9%	\$25.95	\$ 73.25	\$586.00			
	Helpers Average (5 trades)	34.65	277.20	16.1		11.0		55.0	19.05	53.70	429.60			
	Foreman Average, Inside (\$50 over trade)	47.80	382.40	14.0		13.0		54.9	26.25	74.05	592.40			
	Foreman Average, Outside (\$2.00 over trade)	49.30	394.40	14.0		13.0		54.9	27.05	76.35	610.80			
	Common Building Laborers	36.65	293.20	15.4		11.0		54.3	19.90	56.55	452.40			
Asbe	Asbestos/Insulation Workers/Pipe Coverers	51.15	409.20	11.7		16.0		55.6	28.45	79.60	636.80			
	Boilermakers	59.90	479.20	9.9		16.0		53.8	32.25	92.15	737.20			
Bric	Bricklayers	45.60	364.80	13.5		11.0		52.4	23.90	69.50	556.00			
Bric	Bricklayer Helpers	37.00	296.00	13.5		11.0		52.4	19.40	56.40	451.20			
Carp	Carpenters	45.85	366.80	15.4		11.0		54.3	24.90	70.75	566.00			
Cemf	Cement Finishers	44.05	352.40	8.9		11.0		47.8	21.05	65.10	520.80			
Elec	Electricians	53.35	426.80	9.8		16.0		49.7	26.50	79.85	638.80			
Elev	Elevator Constructors	74.15	593.20	5.7		16.0		49.6	36.80	110.95	887.60			
Eqhw	Equipment Operators, Crane or Shovel	50.25	402.00	9.7		14.0		51.6	25.95	76.20	609.60			
Eqmd	Equipment Operators, Medium Equipment	48.90	391.20	9.7		14.0		51.6	25.25	74.15	593.20			
Eqll	Equipment Operators, Light Equipment	47.05	376.40	9.7		14.0		51.6	24.30	71.35	570.80			
Eqol	Equipment Operators, Oilers	43.55	348.40	9.7		14.0		51.6	22.45	66.00	528.00			
Eqmm	Equipment Operators, Master Mechanics	50.15	401.20	9.7		14.0		51.6	25.90	76.05	608.40			
Glaz	Glaziers	44.05	352.40	13.2		11.0		52.1	22.95	67.00	536.00			
Lath	Lathers	40.60	324.80	8.1		11.0		47.0	19.10	59.70	477.60			
Marb	Marble Setters	42.25	338.00	13.5		11.0		52.4	22.15	64.40	515.20			
Mill	Millwrights	48.10	384.80	8.4		11.0		47.3	22.75	70.85	566.80			
Mstz	Mosaic & Terrazzo Workers	41.65	333.20	8.5		11.0		47.4	19.75	61.40	491.20			
Pord	Painters, Ordinary	39.55	316.40	11.5		11.0		50.4	19.95	59.50	476.00			
Past	Painters, Structural Steel	40.50	324.00	41.5		11.0		80.4	32.55	73.05	584.40			
Pape	Paper Hangers	39.80	318.40	11.5		11.0		50.4	20.05	59.85	478.80			
Pile	Pile Drivers	44.40	355.20	14.7		16.0		58.6	26.00	70.40	563.20			
Plas	Plasterers	41.95	335.60	11.6		11.0		50.5	21.20	63.15	505.20			
Plah	Plasterer Helpers	37.20	297.60	11.6		11.0		50.5	18.80	56.00	448.00			
Plum	Plumbers	57.55	460.40	7.1		16.0		51.0	29.35	86.90	695.20			
Rodm	Rodmen (Reinforcing)	50.65	405.20	15.2		14.0		57.1	28.90	79.55	636.40			
Rofc	Roofers, Composition	39.15	313.20	31.3		11.0		70.2	27.50	66.65	533.20			
Rofs	Roofers, Tile & Slate	39.35	314.80	31.3		11.0		70.2	27.60	66.95	535.60			
Rofh	Roofers, Helpers (Composition)	29.15	233.20	31.3		11.0		70.2	20.45	49.60	396.80			
Shee	Sheet Metal Workers	54.70	437.60	8.8		16.0		52.7	28.85	83.55	668.40			
Spr	Sprinkler Installers	55.40	443.20	7.2		16.0		51.1	28.30	83.70	669.60			
Stpi	Steamfitters or Pipefitters	58.50	468.00	7.1		16.0		51.0	29.85	88.35	706.80			
Ston	Stone Masons	45.85	366.80	13.5		11.0		52.4	24.05	69.90	559.20			
Sswk	Structural Steel Workers	51.10	408.80	34.6		14.0		76.5	39.10	90.20	721.60			
Tiff	Tile Layers	41.95	335.60	8.5		11.0		47.4	19.90	61.85	494.80			
Tilh	Tile Layers Helpers	33.25	266.00	8.5		11.0		47.4	15.75	49.00	392.00			
Trit	Truck Drivers, Light	36.50	292.00	13.7		11.0		52.6	19.20	55.70	445.60			
Trhw	Truck Drivers, Heavy	37.55	300.40	13.7		11.0		52.6	19.75	57.30	458.40			
Sawl	Welders, Structural Steel	51.10	408.80	34.6		14.0		76.5	39.10	90.20	721.60			
Wick	*Wrecking	36.65	293.20	29.2		11.0		68.1	24.95	61.60	492.80			

*Not included in averages

Heavy Construction Cost Data

RSMMeans[®] Heavy Construction Cost Data



Large civil projects including marine, waterways, airports, highways, and tunnels

2014

28th annual edition

Cost data from the most quoted name in construction

The 2014 *Heavy Construction Cost Data*, 28th annual edition, and all of the RSMMeans annual cost data books for 2014, are dedicated to the memory of our respected colleague and friend, Paula Reale-Camelio.

2014

RSMMeans

A division of Reed Construction Data, LLC
Construction Publishers & Consultants
700 Longwater Drive
Norwell, MA 02061
USA
1-800-334-3509
www.rsmeans.com

Copyright 2013 by RSMMeans
A division of Reed Construction Data, LLC
All rights reserved.

Printed in the United States of America
ISSN 0893-5602
ISBN 978-1-940238-35-7

The authors, editors, and engineers of RSMMeans apply diligence and judgment in locating and using reliable sources for the information published. However, RSMMeans makes no express or implied warranty or guarantee in connection with the content of the information contained herein, including the accuracy, correctness, value, sufficiency, or completeness of the data, methods, and other information contained herein. RSMMeans makes no express or implied warranty of merchantability or fitness for a particular purpose. RSMMeans shall have no liability to any customer or third party for any loss, expense, or damage, including consequential, incidental, special, or punitive damage, including lost profits or lost revenue, caused directly or indirectly by any error or omission, or arising out of, or in connection with, the information contained herein.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without prior written permission of RSMMeans. The cost data contained in this publication is valuable and proprietary information of RSMMeans and others and there is no transfer to you of any ownership rights in the cost data or any license granted to you to create derivative works based on or which utilize the cost data.

RSMMeans® Heavy Construction Cost Data

28TH ANNUAL EDITION

Senior Editor

Robert Fortier, PE (2, 31, 32, 34, 35, 46)*

Contributing Editors

Christopher Babbitt
Adrian C. Charest, PE (26, 27, 28, 48)
Gary W. Christensen
David G. Drain, PE (33)
Cheryl Elsmore
David Fiske
Robert J. Kuchta (8)
Thomas Lane
Robert C. McNichols
Genevieve Medeiros
Melville J. Mossman, PE (21, 22, 23)
Jeannene D. Murphy
Marilyn Phelan, AIA (9, 10, 11, 12)
Stephen C. Plotner (3, 5)
Siobhan Soucie
Phillip R. Waier, PE (1, 13)

Cover Design

Wendy McBay
Paul Robertson
Wayne Engebretson

Chief Operating Officer

Richard Remington

Vice President, Business Development

Steven Ritchie

Vice President, Finance & Operations

Renée Pinczes

Senior Director, Inside Sales

Derek F. Dean

Sales Manager

Reid Clanton

Director, Engineering

Bob Mewis, CCC (4, 6, 7, 14, 41, 44)

Senior Director, Product Management

Jennifer Johnson

Senior Product Marketing Manager

Andrea Sillah

Senior Director, Operations

Rodney L. Sharples

Production Manager

Michael Kokernak

Production

Jill Goodman
Jonathan Forgit
Debbie Panarelli
Sara Rutan
Mary Lou Geary

Technical Support

Christopher Anderson
Gary L. Hoitt
Kathryn S. Rodriguez

* Numbers in italics are the divisional responsibilities for each editor.
Please contact the designated editor directly with any questions.

Related RSMeans Products and Services

The engineers at RSMeans suggest the following products and services as companion information resources to *RSMeans Heavy Construction Cost Data*:

Construction Cost Data Books

Building Construction Cost Data 2014
Site Work & Landscape Cost Data 2014
Concrete & Masonry Cost Data 2014

Reference Books

Landscape Estimating Methods
Unit Price Estimating Methods
Estimating Building Costs
RSMeans Estimating Handbook
Green Building: Project Planning & Estimating
How to Estimate with Means Data and CostWorks
Plan Reading & Material Takeoff
Project Scheduling and Management for Construction

Seminars and In-House Training

Site Work & Heavy Construction Estimating
RSMeans Online® Training
RSMeans Data for Job Order Contracting (JOC)
Plan Reading & Material Takeoff
Scheduling & Project Management
Unit Price Estimating

RSMeans Online Bookstore

Visit RSMeans at www.rsmeans.com for a one-stop portal for the most reliable and current resources available on the market. Here you can learn about our more than 20 annual cost data books, also available on CD and online versions, as well as our library of reference books and RSMeans seminars.

RSMeans Electronic Data

Get the information found in RSMeans cost books electronically at RSMeansOnline.com.

RSMeans Business Solutions

Cost engineers and analysts conduct facility life cycle and benchmark research studies and predictive cost modeling, as well as offer consultation services for conceptual estimating, real property management, and job order contracting. Research studies are designed with the application of proprietary cost and project data from Reed Construction Data and RSMeans' extensive North American databases. Analysts offer building product manufacturers qualitative and quantitative market research, as well as time/motion studies for new products, and Web-based dashboards for market opportunity analysis. Clients are from both the public and private sectors, including federal, state, and municipal agencies; corporations;

institutions; construction management firms; hospitals; and associations.

RSMeans for Job Order Contracting (JOC)

Best practice job order contracting (JOC) services support the owner in the development of their program. RSMeans develops all required contracting documents, works with stakeholders, and develops qualified and experienced contractor lists. RSMeans JOCWorks® software is the best of class in the functional tools that meet JOC specific requirements. RSMeans data is organized to meet JOC cost estimating requirements.

Construction Costs for Software Applications

More than 25 unit price and assemblies cost databases are available through a number of leading estimating and facilities management software providers (listed below). For more information see the "Other RSMeans Products" pages at the back of this publication.

RSMeansData™ is also available to federal, state, and local government agencies as multi-year, multi-seat licenses.

- 4Clicks-Solutions, LLC
- Assetworks
- Beck Technology
- BSD – Building Systems Design, Inc.
- CMS – Construction Management Software
- Corecon Technologies, Inc.
- CorVet Systems
- Hard Dollar Corporation
- Maxwell Systems
- MC²
- MOCA Systems
- Parsons Corporation
- ProEst
- Refined Data
- Sage Timberline Office
- UDA Technologies, Inc.
- US Cost, Inc.
- VFA – Vanderweil Facility Advisers
- WinEstimator, Inc.
- R & K Solutions
- Tririga

Foreword

Our Mission

Since 1942, RSMeans has been actively engaged in construction cost publishing and consulting throughout North America.

Today, more than 70 years after RSMeans began, our primary objective remains the same: to provide you, the construction and facilities professional, with the most current and comprehensive construction cost data possible.

Whether you are a contractor, owner, architect, engineer, facilities manager, or anyone else who needs a reliable construction cost estimate, you'll find this publication to be a highly useful and necessary tool.

With the constant flow of new construction methods and materials today, it's difficult to find the time to look at and evaluate all the different construction cost possibilities. In addition, because labor and material costs keep changing, last year's cost information is not a reliable basis for today's estimate or budget.

That's why so many construction professionals turn to RSMeans. We keep track of the costs for you, along with a wide range of other key information, from city cost indexes . . . to productivity rates . . . to crew composition . . . to contractor's overhead and profit rates.

RSMeans performs these functions by collecting data from all facets of the industry and organizing it in a format that is instantly accessible to you. From the preliminary budget to the detailed unit price estimate, you'll find the data in this book useful for all phases of construction cost determination.

The Staff, the Organization, and Our Services

When you purchase one of RSMeans' publications, you are, in effect, hiring the services of a full-time staff of construction and engineering professionals.

Our thoroughly experienced and highly qualified staff works daily at collecting, analyzing, and disseminating comprehensive cost information for your needs. These staff members have years of practical construction experience and engineering training prior to joining the firm. As a result, you can count on them not only for accurate cost figures, but also for additional background reference information that will help you create a realistic estimate.

The RSMeans organization is always prepared to help you solve construction problems through its variety of data solutions, including online, CD, and print book formats, as well as cost estimating expertise available via our business solutions, training, and seminars.

Besides a full array of construction cost estimating books, RSMeans also publishes a number of other reference works for the construction industry. Subjects include construction estimating and project and business management, special topics such as green building and job order contracting, and a library of facility management references.

In addition, you can access all of our construction cost data electronically in convenient CD format or on the web. Visit RSMeansOnline.com for more information on our 24/7 online cost data.

What's more, you can increase your knowledge and improve your construction estimating and management performance with an RSMeans construction seminar or in-house training program. These two-day seminar programs offer unparalleled opportunities for everyone in your organization to become updated on a wide variety of construction-related issues.

RSMeans is also a worldwide provider of construction cost management and analysis services for commercial and government owners.

In short, RSMeans can provide you with the tools and expertise for constructing accurate and dependable construction estimates and budgets in a variety of ways.

Robert Snow Means Established a Tradition of Quality That Continues Today

Robert Snow Means spent years building RSMeans, making certain he always delivered a quality product.

Today, at RSMeans, we do more than talk about the quality of our data and the usefulness of our books. We stand behind all of our data, from historical cost indexes to construction materials and techniques to current costs.

If you have any questions about our products or services, please call us toll-free at 1-800-334-3509. Our customer service representatives will be happy to assist you. You can also visit our website at www.rsmeans.com

How the Book is Built: An Overview

The Construction Specifications Institute (CSI) and Construction Specifications Canada (CSC) have produced the 2012 edition of MasterFormat®, a system of titles and numbers used extensively to organize construction information.

All unit price data in the RSMMeans cost data books is now arranged in the 50-division MasterFormat® 2012 system.

A Powerful Construction Tool

You have in your hands one of the most powerful construction tools available today. A successful project is built on the foundation of an accurate and dependable estimate. This book will enable you to construct just such an estimate.

For the casual user the book is designed to be:

- quickly and easily understood so you can get right to your estimate.
- filled with valuable information so you can understand the necessary factors that go into the cost estimate.

For the regular user, the book is designed to be:

- a handy desk reference that can be quickly referred to for key costs.
- a comprehensive, fully reliable source of current construction costs and productivity rates so you'll be prepared to estimate any project.
- a source book for preliminary project cost, product selections, and alternate materials and methods.

To meet all of these requirements, we have organized the book into the following clearly defined sections.

Quick Start

See our "Quick Start" instructions on the following page to get started right away.

Estimating with RSMMeans Unit Price Cost Data

Please refer to these steps for guidance on completing an estimate using RSMMeans unit price cost data.

How to Use the Book: The Details

This section contains an in-depth explanation of how the book is arranged . . . and how you can use it to determine a reliable construction cost estimate. It includes information about how we develop our cost figures and how to completely prepare your estimate.

Unit Price Section

All cost data has been divided into the 50 divisions according to the MasterFormat system of classification and numbering. For a listing of these divisions and an outline of their subdivisions, see the Unit Price Section Table of Contents.

Estimating tips are included at the beginning of each division.

Assemblies Section

The cost data in this section has been organized in an "Assemblies" format. These assemblies are the functional elements of a building and are arranged according to the 7 elements of the UNIFORMAT II classification system. For a complete explanation of a typical "Assemblies" page, see "How RSMMeans Assemblies Data Works."

Reference Section

This section includes information on Equipment Rental Costs, Crew Listings, Historical Cost Indexes, City Cost Indexes, Location Factors, Reference Tables, Change Orders, Square Foot Costs, and a listing of Abbreviations.

Equipment Rental Costs: This section contains the average costs to rent and operate hundreds of pieces of construction equipment.

Crew Listings: This section lists all of the crews referenced in the book. For the purposes of this book, a crew is composed of more than one trade classification and/or the addition of power equipment to any trade classification. Power equipment is included in the cost of the crew. Costs are shown both with bare labor rates and with the installing contractor's overhead and profit added. For each, the total crew cost per eight-hour day and the composite cost per labor-hour are listed.

Historical Cost Indexes: These indexes provide you with data to adjust construction costs over time.

City Cost Indexes: All costs in this book are U.S. national averages. Costs vary because of the regional economy. You can adjust costs by CSI Division to over 700 locations throughout the U.S. and Canada by using the data in this section.

Location Factors: You can adjust total project costs to over 900 locations throughout the U.S. and Canada by using the data in this section.

Reference Tables: At the beginning of selected major classifications in the Unit Price section are reference numbers shown in a shaded box. These numbers refer you to related information in the Reference Section. In this section, you'll find reference tables, explanations, estimating information that support how we develop the unit price data, technical data, and estimating procedures.

Change Orders: This section includes information on the factors that influence the pricing of change orders.

Square Foot Costs: This section contains costs for 59 different building types that allow you to make a rough estimate for the overall cost of a project or its major components.

Abbreviations: A listing of abbreviations used throughout this book, along with the terms they represent, is included in this section.

Index

A comprehensive listing of all terms and subjects in this book will help you quickly find what you need when you are not sure where it occurs in MasterFormat.

The Scope of This Book

This book is designed to be as comprehensive and as easy to use as possible. To that end we have made certain assumptions and limited its scope in two key ways:

1. We have established material prices based on a national average.
2. We have computed labor costs based on a 30-city national average of union wage rates.

For a more detailed explanation of how the cost data is developed, see "How To Use the Book: The Details."

Project Size/Type

The material prices in RSMMeans data cost books are "contractor's prices." They are the prices that contractors can expect to pay at the lumberyards, suppliers/distributors warehouses, etc. Small orders of speciality items would be higher than the costs shown, while very large orders, such as truckload lots, would be less. The variation would depend on the size, timing, and negotiating power of the contractor. The labor costs are primarily for new construction or major renovation rather than repairs or minor alterations.

With reasonable exercise of judgment, the figures can be used for any building work.

How to Use the Book: The Details

What's Behind the Numbers? The Development of Cost Data

The staff at RSMMeans continually monitors developments in the construction industry in order to ensure reliable, thorough, and up-to-date cost information. While overall construction costs may vary relative to general economic conditions, price fluctuations within the industry are dependent upon many factors. Individual price variations may, in fact, be opposite to overall economic trends. Therefore, costs are constantly tracked and complete updates are published yearly. Also, new items are frequently added in response to changes in materials and methods.

Costs—\$ (U.S.)

All costs represent U.S. national averages and are given in U.S. dollars. The RSMMeans City Cost Indexes can be used to adjust costs to a particular location. The City Cost Indexes for Canada can be used to adjust U.S. national averages to local costs in Canadian dollars. No exchange rate conversion is necessary.

G The processes or products identified by the green symbol in our publications have been determined to be environmentally responsible and/or resource-efficient solely by the RSMMeans engineering staff. The inclusion of the green symbol does not represent compliance with any specific industry association or standard.

Material Costs

The RSMMeans staff contacts manufacturers, dealers, distributors, and contractors all across the U.S. and Canada to determine national average material costs. If you have access to current material costs for your specific location, you may wish to make adjustments to reflect differences from the national average. Included within material costs are fasteners for a normal installation. RSMMeans engineers use manufacturers' recommendations, written

specifications, and/or standard construction practice for size and spacing of fasteners. Adjustments to material costs may be required for your specific application or location. The manufacturer's warranty is assumed. Extended warranties are not included in the material costs. Material costs do not include sales tax.

Labor Costs

Labor costs are based on the average of wage rates from 30 major U.S. cities. Rates are determined from labor union agreements or prevailing wages for construction trades for the current year. Rates, along with overhead and profit markups, are listed on the inside back cover of this book.

- If wage rates in your area vary from those used in this book, or if rate increases are expected within a given year, labor costs should be adjusted accordingly.

Labor costs reflect productivity based on actual working conditions. In addition to actual installation, these figures include time spent during a normal weekday on tasks such as, material receiving and handling, mobilization at site, site movement, breaks, and cleanup.

Productivity data is developed over an extended period so as not to be influenced by abnormal variations and reflects a typical average.

Equipment Costs

Equipment costs include not only rental, but also operating costs for equipment under normal use. The operating costs include parts and labor for routine servicing such as repair and replacement of pumps, filters, and worn lines. Normal operating expendables, such as fuel, lubricants, tires, and electricity (where applicable), are also included. Extraordinary operating expendables with highly variable wear patterns, such as diamond bits and blades, are excluded. These costs are included under materials. Equipment rental rates are obtained from industry sources throughout North America—contractors, suppliers, dealers, manufacturers, and distributors.

Equipment costs do not include operators' wages; nor do they include the cost to move equipment to a job site (mobilization) or from a job site (demobilization).

Equipment Cost/Day—The cost of power equipment required for each crew is included

in the Crew Listings in the Reference Section (small tools that are considered as essential everyday tools are not listed out separately). The Crew Listings itemize specialized tools and heavy equipment along with labor trades. The daily cost of itemized equipment included in a crew is based on dividing the weekly bare rental rate by 5 (number of working days per week) and then adding the hourly operating cost times 8 (the number of hours per day). This Equipment Cost/Day is shown in the last column of the Equipment Rental Cost pages in the Reference Section.

Mobilization/Demobilization—The cost to move construction equipment from an equipment yard or rental company to the job site and back again is not included in equipment costs. Mobilization (to the site) and demobilization (from the site) costs can be found in the Unit Price Section. If a piece of equipment is already at the job site, it is not appropriate to utilize mob./demob. costs again in an estimate.

General Conditions

Cost data in this book is presented in two ways: Bare Costs and Total Cost including O&P (Overhead and Profit). General Conditions, when applicable, should also be added to the Total Cost including O&P. The costs for General Conditions are listed in Division 1 of the Unit Price Section and the Reference Section of this book. General Conditions for the *Installing Contractor* may range from 0% to 10% of the Total Cost including O&P. For the *General* or *Prime Contractor*, costs for General Conditions may range from 5% to 15% of the Total Cost including O&P, with a figure of 10% as the most typical allowance.

Overhead and Profit

Total Cost including O&P for the *Installing Contractor* is shown in the last column on both the Unit Price and the Assemblies pages of this book. This figure is the sum of the bare material cost plus 10% for profit, the bare labor cost plus total overhead and profit, and the bare equipment cost plus 10% for profit. Details for the calculation of Overhead and Profit on labor are shown on the inside back cover and in the Reference Section of this book. (See the "How RSMMeans Data Works" for an example of this calculation.)

City Cost Indexes

How to Use the City Cost Indexes

What you should know before you begin

RSMeans City Cost Indexes (CCI) are an extremely useful tool to use when you want to compare costs from city to city and region to region.

This publication contains average construction cost indexes for 731 U.S. and Canadian cities covering over 930 three-digit zip code locations, as listed directly under each city.

Keep in mind that a City Cost Index number is a percentage ratio of a specific city's cost to the national average cost of the same item at a stated time period.

In other words, these index figures represent relative construction factors (or, if you prefer, multipliers) for Material and Installation costs, as well as the weighted average for Total In Place costs for each CSI MasterFormat division. Installation costs include both labor and equipment rental costs. When estimating equipment rental rates only, for a specific location, use 01 54 33 EQUIPMENT RENTAL COSTS in the Reference Section at the back of the book.

The 30 City Average Index is the average of 30 major U.S. cities and serves as a National Average.

Index figures for both material and installation are based on the 30 major city average of 100 and represent the cost relationship as of July 1, 2013. The index for each division is computed from representative material and labor quantities for that division. The weighted average for each city is a weighted total of the components listed above it, but does not include relative productivity between trades or cities.

As changes occur in local material prices, labor rates, and equipment rental rates (including fuel costs), the impact of these changes should be accurately measured by the change in the City Cost Index for each particular city (as compared to the 30 City Average).

Therefore, if you know (or have estimated) building costs in one city today, you can easily convert those costs to expected building costs in another city.

In addition, by using the Historical Cost Index, you can easily convert National Average building costs at a particular time to the approximate building costs for some other time. The City Cost Indexes can then be applied to calculate the costs for a particular city.

Quick Calculations

Location Adjustment Using the City Cost Indexes:

$$\frac{\text{Index for City A}}{\text{Index for City B}} \times \text{Cost in City B} = \text{Cost in City A}$$

Time Adjustment for the National Average Using the Historical Cost Index:

$$\frac{\text{Index for Year A}}{\text{Index for Year B}} \times \text{Cost in Year B} = \text{Cost in Year A}$$

Adjustment from the National Average:

$$\frac{\text{Index for City A}}{100} \times \text{National Average Cost} = \text{Cost in City A}$$

Since each of the other RSMeans publications contains many different items, any *one* item multiplied by the particular city index may give incorrect results. However, the larger the number of items compiled, the closer the results should be to actual costs for that particular city.

The City Cost Indexes for Canadian cities are calculated using Canadian material and equipment prices and labor rates, in Canadian dollars. Therefore, indexes for Canadian cities can be used to convert U.S. National Average prices to local costs in Canadian dollars.

How to use this section

1. Compare costs from city to city.

In using the RSMeans Indexes, remember that an index number is not a fixed number but a ratio: It's a percentage ratio of a building component's cost at any stated time to the National Average cost of that same component at the same time period. Put in the form of an equation:

$$\frac{\text{Specific City Cost}}{\text{National Average Cost}} \times 100 = \text{City Index Number}$$

Therefore, when making cost comparisons between cities, do not subtract one city's index number from the index number of another city and read the result as a percentage difference. Instead, divide one city's index number by that of the other city. The resulting number may then be used as a multiplier to calculate cost differences from city to city.

The formula used to find cost differences between cities for the purpose of comparison is as follows:

$$\frac{\text{City A Index}}{\text{City B Index}} \times \text{City B Cost (Known)} = \text{City A Cost (Unknown)}$$

In addition, you can use RSMeans CCI to calculate and compare costs division by division between cities using the same basic formula. (Just be sure that you're comparing similar divisions.)

2. Compare a specific city's construction costs with the National Average.

When you're studying construction location feasibility, it's advisable to compare a prospective project's cost index with an index of the National Average cost.

For example, divide the weighted average index of construction costs of a specific city by that of the 30 City Average, which = 100.

$$\frac{\text{City Index}}{100} = \% \text{ of National Average}$$

As a result, you get a ratio that indicates the relative cost of construction in that city in comparison with the National Average.

3. Convert U.S. National Average to actual costs in Canadian City.

$$\frac{\text{Index for Canadian City}}{100} \times \text{National Average Cost} = \text{Cost in Canadian City in } \$ \text{ CAN}$$

4. Adjust construction cost data based on a National Average.

When you use a source of construction cost data which is based on a National Average (such as RSMeans cost data publications), it is necessary to adjust those costs to a specific location.

$$\frac{\text{City Index}}{100} \times \frac{\text{"Book" Cost Based on}}{\text{National Average Costs}} = \text{City Cost (Unknown)}$$

5. When applying the City Cost Indexes to demolition projects, use the appropriate division installation index. For example, for removal of existing doors and windows, use Division 8 (Openings) index.

What you might like to know about how we developed the Indexes

The information presented in the CCI is organized according to the Construction Specifications Institute (CSI) MasterFormat 2012 classification system.

To create a reliable index, RSMeans researched the building type most often constructed in the United States and Canada. Because it was concluded that no one type of building completely represented the building construction industry, nine different types of buildings were combined to create a composite model.

The exact material, labor, and equipment quantities are based on detailed analyses of these nine building types, and then each quantity is weighted in proportion to expected usage. These various material items, labor hours, and equipment rental rates are thus combined to form a composite building representing as closely as possible the actual usage of materials, labor, and equipment used in the North American building construction industry.

The following structures were chosen to make up that composite model:

1. Factory, 1 story
2. Office, 2-4 story
3. Store, Retail
4. Town Hall, 2-3 story
5. High School, 2-3 story
6. Hospital, 4-8 story
7. Garage, Parking
8. Apartment, 1-3 story
9. Hotel/Motel, 2-3 story

For the purposes of ensuring the timeliness of the data, the components of the index for the composite model have been streamlined. They currently consist of:

- specific quantities of 66 commonly used construction materials;
- specific labor-hours for 21 building construction trades; and
- specific days of equipment rental for 6 types of construction equipment (normally used to install the 66 material items by the 21 trades.) Fuel costs and routine maintenance costs are included in the equipment cost.

A sophisticated computer program handles the updating of all costs for each city on a quarterly basis. Material and equipment price quotations are gathered quarterly from 731 cities in the United States and Canada. These prices and the latest negotiated labor wage rates for 21 different building trades are used to compile the quarterly update of the City Cost Index.

The 30 major U.S. cities used to calculate the National Average are:

Atlanta, GA	Memphis, TN
Baltimore, MD	Milwaukee, WI
Boston, MA	Minneapolis, MN
Buffalo, NY	Nashville, TN
Chicago, IL	New Orleans, LA
Cincinnati, OH	New York, NY
Cleveland, OH	Philadelphia, PA
Columbus, OH	Phoenix, AZ
Dallas, TX	Pittsburgh, PA
Denver, CO	St. Louis, MO
Detroit, MI	San Antonio, TX
Houston, TX	San Diego, CA
Indianapolis, IN	San Francisco, CA
Kansas City, MO	Seattle, WA
Los Angeles, CA	Washington, DC

What the CCI does not indicate

The weighted average for each city is a total of the divisional components weighted to reflect typical usage, but it does not include the productivity variations between trades or cities.

In addition, the CCI does not take into consideration factors such as the following:

- managerial efficiency
- competitive conditions
- automation
- restrictive union practices
- unique local requirements
- regional variations due to specific building codes

Installing Contractor's Overhead & Profit

Below are the **average** installing contractor's percentage markups applied to base labor rates to arrive at typical billing rates.

Column A: Labor rates are based on union wages averaged for 30 major U.S. cities. Base rates including fringe benefits are listed hourly and daily. These figures are the sum of the wage rate and employer-paid fringe benefits such as vacation pay, employer-paid health and welfare costs, pension costs, plus appropriate training and industry advancement funds costs.

Column B: Workers' compensation rates are the national average of state rates established for each trade.

Column C: Column C lists average fixed overhead figures for all trades. Included are federal and state unemployment costs set at 7.8%; social security taxes (FICA) set at 7.65%; builder's risk insurance costs set at 0.44%; and public liability costs set at 2.02%. All the percentages except those for social security taxes vary from state to state as well as from company to company.

Columns D and E: Percentages in Columns D and E are based on the presumption that the installing contractor has annual billing of \$4,000,000 and up. Overhead percentages may increase with smaller annual billing. The overhead percentages for any given contractor may vary greatly and depend on a number of factors, such as the contractor's annual volume, engineering and logistical support costs, and staff requirements. The figures for overhead and profit will also vary depending on the type of job, the job location, and the prevailing economic conditions. All factors should be examined very carefully for each job.

Column F: Column F lists the total of Columns B, C, D, and E.

Column G: Column G is Column A (hourly base labor rate) multiplied by the percentage in Column F (O&P percentage).

Column H: Column H is the total of Column A (hourly base labor rate) plus Column G (Total O&P).

Column I: Column I is Column H multiplied by eight hours.

Abbr.	Trade	A		B	C	D	E	F		G		H		I
		Base Rate Incl. Fringes						Workers' Comp. Ins.	Average Fixed Overhead	Overhead	Profit	Total Overhead & Profit		
		Hourly	Daily	%	Amount	Hourly	Daily							
Skwk	Skilled Workers Average (35 trades)	\$47.30	\$378.40	14.0%	17.9%	13.0%	10%	54.9%	\$26.95	\$ 73.25	\$586.00			
	Helpers Average (15 trades)	34.65	277.20	16.1		11.0		55.0	19.05	53.70	429.60			
	Foreman Average, Inside (\$50 over trade)	47.80	382.40	14.0		13.0		54.9	26.25	74.05	592.40			
	Foreman Average, Outside (\$200 over trade)	49.30	394.40	14.0		13.0		54.9	27.05	76.35	610.80			
Clab	Common Building Laborers	36.65	293.20	15.4		11.0		54.3	19.90	56.55	452.40			
Asbe	Asbestos/Insulation Workers/Pipe Coverers	51.15	409.20	11.7		16.0		55.6	26.45	79.60	636.80			
Bol	Boilermakers	59.90	479.20	9.9		16.0		53.8	32.25	92.15	737.20			
Bric	Bricklayers	45.60	364.80	13.5		11.0		52.4	23.90	69.50	556.00			
Brla	Bricklayer Helpers	37.00	296.00	13.5		11.0		52.4	19.40	58.40	451.20			
Carp	Carpenters	45.85	366.80	15.4		11.0		54.3	24.90	70.75	566.00			
Cef	Cement Finishers	44.05	352.40	8.9		11.0		47.8	21.05	65.10	520.80			
Elec	Electricians	53.35	426.80	5.8		16.0		49.7	26.50	79.85	638.80			
Elev	Elevator Constructors	74.15	593.20	5.7		16.0		49.6	36.80	110.95	887.60			
Eqhv	Equipment Operators, Crane or Shovel	50.25	402.00	9.7		14.0		51.6	25.95	76.20	609.60			
Eqmd	Equipment Operators, Medium Equipment	48.90	391.20	9.7		14.0		51.6	25.25	74.15	593.20			
Eqit	Equipment Operators, Light Equipment	47.05	376.40	9.7		14.0		51.6	24.30	71.35	570.80			
Eqol	Equipment Operators, Oilers	43.55	348.40	9.7		14.0		51.6	22.45	66.00	528.00			
Eqmm	Equipment Operators, Master Mechanics	50.15	401.20	9.7		14.0		51.6	25.90	76.05	608.40			
Glaz	Glaziers	44.05	352.40	13.2		11.0		52.1	22.95	67.00	536.00			
Lath	Lathers	40.60	324.80	8.1		11.0		47.0	19.10	59.70	477.60			
Marb	Marble Setters	42.25	338.00	13.5		11.0		52.4	22.15	64.40	515.20			
Mill	Millwrights	48.10	384.80	8.4		11.0		47.3	22.75	70.85	566.80			
Mstz	Mosaic & Terrazzo Workers	41.65	333.20	8.5		11.0		47.4	19.75	61.40	491.20			
Pord	Painters, Ordinary	39.55	316.40	11.5		11.0		50.4	19.95	59.50	476.00			
Psst	Painters, Structural Steel	40.50	324.00	41.5		11.0		80.4	32.55	73.05	584.40			
Pape	Paper Hangers	39.80	318.40	11.5		11.0		50.4	20.05	59.85	478.80			
Pile	Pile Drivers	44.40	355.20	14.7		16.0		58.6	26.00	70.40	563.20			
Plas	Plasterers	41.95	335.60	11.6		11.0		50.5	21.20	63.15	505.20			
Plah	Plasterer Helpers	37.20	297.60	11.6		11.0		50.5	18.80	56.00	448.00			
Plum	Plumbers	57.55	460.40	7.1		16.0		51.0	29.35	86.90	695.20			
Rodm	Rodmen (Reinforcing)	50.65	405.20	15.2		14.0		57.1	28.90	79.55	636.40			
Rofc	Roofers, Composition	39.15	313.20	31.3		11.0		70.2	27.50	66.65	533.20			
Rofs	Roofers, Tile & Slate	39.35	314.80	31.3		11.0		70.2	27.60	66.95	535.60			
Rofh	Roofers, Helpers (Composition)	29.15	233.20	31.3		11.0		70.2	20.45	49.60	396.80			
Shee	Sheet Metal Workers	54.70	437.60	8.8		16.0		52.7	28.85	83.55	668.40			
Sprl	Sprinkler Installers	55.40	443.20	7.2		16.0		51.1	28.30	83.70	669.60			
Stpl	Steamfitters or Pipefitters	58.50	468.00	7.1		16.0		51.0	29.85	88.35	706.80			
Ston	Stone Masons	45.85	366.80	13.5		11.0		52.4	24.05	69.90	559.20			
Sawk	Structural Steel Workers	51.10	408.80	34.6		14.0		76.5	39.10	90.20	721.60			
Tfl	Tile Layers	41.95	335.60	8.5		11.0		47.4	19.90	61.85	494.80			
Tilh	Tile Layers Helpers	33.25	266.00	8.5		11.0		47.4	15.75	49.00	392.00			
Trfk	Truck Drivers, Light	36.50	292.00	13.7		11.0		52.6	19.20	55.70	445.60			
Trhv	Truck Drivers, Heavy	37.55	300.40	13.7		11.0		52.6	19.75	57.30	458.40			
Sswl	Welders, Structural Steel	51.10	408.80	34.6		14.0		76.5	39.10	90.20	721.60			
Wreck	*Wrecking	36.65	293.20	29.2		11.0		68.1	24.95	61.60	492.80			

*Not included in averages

Heavy Construction Cost Data

Estimating Tips

- This section contains the average costs to rent and operate hundreds of pieces of construction equipment. This is useful information when estimating the time and material requirements of any particular operation in order to establish a unit or total cost. Equipment costs include not only rental, but also operating costs for equipment under normal use.

Rental Costs

- Equipment rental rates are obtained from industry sources throughout North America—contractors, suppliers, dealers, manufacturers, and distributors.
- Rental rates vary throughout the country, with larger cities generally having lower rates. Lease plans for new equipment are available for periods in excess of six months, with a percentage of payments applying toward purchase.
- Monthly rental rates vary from 2% to 5% of the purchase price of the equipment depending on the anticipated life of the equipment and its wearing parts.
- Weekly rental rates are about 1/3 the monthly rates, and daily rental rates are about 1/3 the weekly rate.
- Rental rates can also be treated as reimbursement costs for contractor-owned equipment. Owned equipment costs include depreciation, loan payments, interest, taxes, insurance, storage, and major repairs.

Operating Costs

- The operating costs include parts and labor for routine servicing, such as repair and replacement of pumps, filters and worn lines. Normal operating expendables, such as fuel, lubricants, tires and electricity (where applicable), are also included.
- Extraordinary operating expendables with highly variable wear patterns, such as diamond bits and blades, are excluded. These costs can be found as material costs in the Unit Price section.
- The hourly operating costs listed do not include the operator's wages.

Equipment Cost/Day

- Any power equipment required by a crew is shown in the Crew Listings with a daily cost.
- The daily cost of equipment needed by a crew is based on dividing the weekly rental rate by 5 (number of working days in the week), and then adding the hourly operating cost times 8 (the number of hours in a day). This "Equipment Cost/Day" is shown in the far right column of the Equipment Rental pages.
- If equipment is needed for only one or two days, it is best to develop your own cost by including components for daily rent and hourly operating cost. This is important when the listed Crew for a task does not contain the equipment needed, such as a crane for lifting mechanical heating/cooling equipment up onto a roof.

- If the quantity of work is less than the crew's Daily Output shown for a Unit Price line item that includes a bare unit equipment cost, it is recommended to estimate one day's rental cost and operating cost for equipment shown in the Crew Listing for that line item.

Mobilization/Demobilization

- The cost to move construction equipment from an equipment yard or rental company to the jobsite and back again is not included in equipment rental costs listed in the Reference section, nor in the bare equipment cost of any Unit Price line item, nor in any equipment costs shown in the Crew listings.
- Mobilization (to the site) and demobilization (from the site) costs can be found in the Unit Price section.
- If a piece of equipment is already at the jobsite, it is not appropriate to utilize mobil./demob. costs again in an estimate.

01 54 | Construction Aids

01 54 33 Equipment Rental		UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY	
50	4901 Trailer, low bed, 75 ton capacity	Ea.	10.10	232	695	2,075	219.80	
	5000 Road planer, walk behind, 10' cutting width, 10 H.P.		4.00	33.50	100	300	52	
	5100 Self-propelled, 12' cutting width, 64 H.P.		11.45	113	340	1,025	159.60	
	5120 Traffic line remover, metal ball blaster, truck mounted, 115 H.P.		48.75	750	2,245	6,725	839	
	5140 Grinder, truck mounted, 115 H.P.		55.45	810	2,435	7,300	930.60	
	5160 Walk-behind, 11 H.P.		4.55	53.50	160	480	68.40	
	5200 Pavement profiler, 4' to 6' wide, 450 H.P.		258.10	3,350	10,045	30,100	4,074	
	5300 8' to 10' wide, 750 H.P.		405.10	4,400	13,180	39,500	5,877	
	5400 Roadway plate, steel, 1" x 8' x 20'		.08	13	39	117	8.45	
	5600 Stabilizer, self-propelled, 150 H.P.		50.10	610	1,835	5,500	767.80	
	5700 310 H.P.		100.25	1,700	5,125	15,400	1,827	
	5800 Striper, truck mounted, 120 gallon paint, 460 H.P.		71.05	485	1,460	4,375	860.40	
	5900 Thermal paint heating kettle, 115 gallons		5.95	25.50	77	231	63	
	6000 Tar kettle, 330 gallon, trailer mounted		8.70	58.50	175	525	104.60	
	7000 Tunnel locomotive, diesel, 8 to 12 ton		32.40	585	1,760	5,275	611.20	
	7005 Electric, 10 ton		26.55	670	2,010	6,025	614.40	
	7010 Muck cars, 1/2 C.Y. capacity		2.05	24.50	74	222	31.20	
	7020 1 C.Y. capacity		2.30	32.50	98	294	38	
	7030 2 C.Y. capacity		2.45	36.50	110	330	41.60	
	7040 Side dump, 2 C.Y. capacity		2.65	45	135	405	48.20	
	7050 3 C.Y. capacity		3.55	51.50	155	465	59.40	
	7060 5 C.Y. capacity		5.10	65	195	585	79.80	
	7100 Ventilating blower for tunnel, 7-1/2 H.P.		2.05	51.50	155	465	47.40	
	7110 10 H.P.		2.22	53.50	160	480	49.75	
	7120 20 H.P.		3.43	69.50	208	625	69.05	
	7140 40 H.P.		5.59	98.50	295	885	103.70	
	7160 60 H.P.		8.54	152	455	1,375	159.30	
	7175 75 H.P.		11.25	207	620	1,850	214	
	7180 200 H.P.		22.56	305	910	2,725	362.50	
	7800 Windrow loader, elevating		55.95	1,325	3,960	11,900	1,240	
60	0010 LIFTING AND HOISTING EQUIPMENT RENTAL without operators							
	0120 Aerial lift truck, 2 person, to 80'	R015433 -10	Ea.	26.75	715	2,145	6,425	643
	0140 Boom work platform, 40' snorkel	R015433 -15		16.10	277	830	2,500	294.80
	0150 Crane, flatbed mounted, 3 ton capacity			16.55	193	580	1,750	248.40
	0200 Crane, climbing, 106' jib, 6000 lb. capacity, 410 fpm	R312316 -45		37.76	1,625	4,860	14,600	1,274
	0300 101' jib, 10,250 lb. capacity, 270 fpm			44.26	2,050	6,160	18,500	1,586
	0500 Tower, static, 130' high, 106' jib, 6200 lb. capacity at 400 fpm			41.56	1,875	5,620	16,900	1,456
	0600 Crawler mounted, lattice boom, 1/2 C.Y., 15 tons at 12' radius			37.52	640	1,920	5,750	684.15
	0700 3/4 C.Y., 20 tons at 12' radius			50.03	800	2,400	7,200	880.25
	0800 1 C.Y., 25 tons at 12' radius			66.70	1,075	3,195	9,575	1,173
	0900 1-1/2 C.Y., 40 tons at 12' radius			66.70	1,075	3,225	9,675	1,179
	1000 2 C.Y., 50 tons at 12' radius			70.70	1,250	3,765	11,300	1,319
	1100 3 C.Y., 75 tons at 12' radius			75.65	1,475	4,435	13,300	1,492
	1200 100 ton capacity, 60' boom			85.65	1,700	5,090	15,300	1,703
	1300 165 ton capacity, 60' boom			109.15	2,000	5,980	17,900	2,069
	1400 200 ton capacity, 70' boom			132.10	2,500	7,480	22,400	2,553
	1500 350 ton capacity, 80' boom			184.60	3,725	11,210	33,600	3,719
	1600 Truck mounted, lattice boom, 6 x 4, 20 tons at 10' radius			37.31	1,100	3,310	9,925	960.50
	1700 25 tons at 10' radius			40.35	1,200	3,610	10,800	1,045
	1800 8 x 4, 30 tons at 10' radius			43.85	1,275	3,840	11,500	1,119
	1900 40 tons at 12' radius			46.92	1,325	4,010	12,000	1,177
	2000 60 tons at 15' radius			53.24	1,425	4,240	12,700	1,274
	2050 82 tons at 15' radius			60.06	1,525	4,540	13,600	1,388
	2100 90 tons at 15' radius			67.57	1,650	4,940	14,800	1,529
	2200 115 tons at 15' radius			76.34	1,850	5,520	16,600	1,715
	2300 150 tons at 18' radius			84.40	1,950	5,815	17,400	1,838
	2350 165 tons at 18' radius			90.25	2,050	6,160	18,500	1,954
	2400 Truck mounted, hydraulic, 12 ton capacity			43.00	530	1,595	4,775	663

01 54 | Construction Aids

01 54 33 Equipment Rental		UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY	
50	4901 Trailer, low bed, 75 ton capacity	Ea.	10.10	232	695	2,075	219.80	
	5000 Road planer, walk behind, 10' cutting width, 10 H.P.		4.00	33.50	100	300	52	
	5100 Self-propelled, 12' cutting width, 64 H.P.		11.45	113	340	1,025	159.60	
	5120 Traffic line remover, metal ball blaster, truck mounted, 115 H.P.		48.75	750	2,245	6,725	839	
	5140 Grinder, truck mounted, 115 H.P.		55.45	810	2,435	7,300	930.60	
	5160 Walk-behind, 11 H.P.		4.55	53.50	160	480	68.40	
	5200 Pavement profiler, 4' to 6' wide, 450 H.P.		258.10	3,350	10,045	30,100	4,074	
	5300 8' to 10' wide, 750 H.P.		405.10	4,400	13,180	39,500	5,877	
	5400 Roadway plate, steel, 1' x 8' x 20'		.08	13	39	117	8.45	
	5600 Stabilizer, self-propelled, 150 H.P.		50.10	610	1,835	5,500	767.80	
	5700 310 H.P.		100.25	1,700	5,125	15,400	1,827	
	5800 Striper, truck mounted, 120 gallon paint, 460 H.P.		71.05	485	1,460	4,375	860.40	
	5900 Thermal paint heating kettle, 115 gallons		5.95	25.50	77	231	63	
	6000 Tar kettle, 330 gallon, trailer mounted		8.70	58.50	175	525	104.60	
	7000 Tunnel locomotive, diesel, 8 to 12 ton		32.40	585	1,760	5,275	611.20	
	7005 Electric, 10 ton		26.55	670	2,010	6,025	614.40	
	7010 Muck cars, 1/2 C.Y. capacity		2.05	24.50	74	222	31.20	
	7020 1 C.Y. capacity		2.30	32.50	98	294	38	
	7030 2 C.Y. capacity		2.45	36.50	110	330	41.60	
	7040 Side dump, 2 C.Y. capacity		2.65	45	135	405	48.20	
	7050 3 C.Y. capacity		3.55	51.50	155	465	59.40	
	7060 5 C.Y. capacity		5.10	65	195	585	79.80	
	7100 Ventilating blower for tunnel, 7-1/2 H.P.		2.05	51.50	155	465	47.40	
	7110 10 H.P.		2.22	53.50	160	480	49.75	
	7120 20 H.P.		3.43	69.50	208	625	69.05	
	7140 40 H.P.		5.59	98.50	295	885	103.70	
	7160 60 H.P.		8.54	152	455	1,375	159.30	
	7175 75 H.P.		11.25	207	620	1,850	214	
	7180 200 H.P.		22.56	305	910	2,725	362.50	
	7800 Windrow loader, elevating		55.95	1,325	3,960	11,900	1,240	
60	0010 LIFTING AND HOISTING EQUIPMENT RENTAL without operators	R015433 -10	Ea.	26.75	715	2,145	6,425	643
	0120 Aerial lift truck, 2 person, to 80'		16.10	277	830	2,500	294.80	
	0140 Boom work platform, 40' snorkel	R015433 -15		16.55	193	580	1,750	248.40
	0150 Crane, flatbed mounted, 3 ton capacity		37.76	1,625	4,860	14,600	1,274	
	0200 Crane, climbing, 106' jib, 6000 lb. capacity, 410 fpm	R312316 -45		44.26	2,050	6,160	18,500	1,586
	0300 101' jib, 10,250 lb. capacity, 270 fpm		41.56	1,875	5,620	16,900	1,456	
	0500 Tower, static, 130' high, 106' jib, 6200 lb. capacity at 400 fpm		37.52	640	1,920	5,750	684.15	
	0600 Crawler mounted, lattice boom, 1/2 C.Y., 15 tons at 12' radius		50.03	800	2,400	7,200	880.25	
	0700 3/4 C.Y., 20 tons at 12' radius		66.70	1,075	3,195	9,575	1,173	
	0800 1 C.Y., 25 tons at 12' radius		66.70	1,075	3,225	9,675	1,179	
	0900 1-1/2 C.Y., 40 tons at 12' radius		70.70	1,250	3,765	11,300	1,319	
	1000 2 C.Y., 50 tons at 12' radius		75.65	1,475	4,435	13,300	1,492	
	1100 3 C.Y., 75 tons at 12' radius		85.65	1,700	5,090	15,300	1,703	
	1200 100 ton capacity, 60' boom		109.15	2,000	5,980	17,900	2,069	
	1300 165 ton capacity, 60' boom		132.10	2,500	7,480	22,400	2,553	
	1400 200 ton capacity, 70' boom		184.60	3,725	11,210	33,600	3,719	
	1500 350 ton capacity, 80' boom		37.31	1,100	3,310	9,925	960.50	
	1600 Truck mounted, lattice boom, 6 x 4, 20 tons at 10' radius		40.35	1,200	3,610	10,800	1,045	
	1700 25 tons at 10' radius		43.85	1,275	3,840	11,500	1,119	
	1800 8 x 4, 30 tons at 10' radius		46.92	1,325	4,010	12,000	1,177	
	1900 40 tons at 12' radius		53.24	1,425	4,240	12,700	1,274	
	2000 60 tons at 15' radius		60.06	1,525	4,540	13,600	1,388	
	2050 82 tons at 15' radius		67.57	1,650	4,940	14,800	1,529	
	2100 90 tons at 15' radius		76.34	1,850	5,520	16,600	1,715	
	2200 115 tons at 15' radius		84.40	1,950	5,815	17,400	1,838	
	2300 150 tons at 18' radius		90.25	2,050	6,160	18,500	1,954	
	2350 165 tons at 18' radius		43.00	530	1,595	4,775	663	
	2400 Truck mounted, hydraulic, 12 ton capacity							

01 54 | Construction Aids

01 54 33 Equipment Rental		UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY
60	2500 25 ton capacity	Ea.	45.35	640	1,915	5,750	745.80
	2550 33 ton capacity		45.90	655	1,960	5,875	759.20
	2560 40 ton capacity		59.35	765	2,290	6,875	932.80
	2600 55 ton capacity		77.50	860	2,585	7,750	1,137
	2700 80 ton capacity		101.35	1,400	4,205	12,600	1,652
	2720 100 ton capacity		94.95	1,450	4,325	13,000	1,625
	2740 120 ton capacity		109.95	1,550	4,665	14,000	1,813
	2760 150 ton capacity		128.55	2,050	6,135	18,400	2,255
	2800 Self-propelled, 4 x 4, with telescoping boom, 5 ton		17.75	230	690	2,075	280
	2900 12-1/2 ton capacity		32.65	365	1,100	3,300	481.20
	3000 15 ton capacity		33.35	385	1,160	3,475	498.80
	3050 20 ton capacity		36.30	450	1,350	4,050	560.40
	3100 25 ton capacity		37.90	505	1,520	4,550	607.20
	3150 40 ton capacity		46.50	570	1,705	5,125	713
	3200 Derricks, guy, 20 ton capacity, 60' boom, 75' mast		27.18	395	1,190	3,575	455.45
	3300 100' boom, 115' mast		42.63	685	2,050	6,150	751.05
	3400 Stiffleg, 20 ton capacity, 70' boom, 37' mast		29.70	515	1,550	4,650	547.60
	3500 100' boom, 47' mast		45.64	825	2,480	7,450	861.10
	3550 Helicopter, small, lift to 1250 lb. maximum, w/pilot		100.87	3,200	9,610	28,800	2,729
	3600 Hoists, chain type, overhead, manual, 3/4 ton		.10	.33	1	3	1
	3900 10 ton		.75	6	18	54	9.60
	4000 Hoist and tower, 5000 lb. cap., portable electric, 40' high		4.77	228	685	2,050	175.15
	4100 For each added 10' section, add		.11	18	54	162	11.70
	4200 Hoist and single tubular tower, 5000 lb. electric, 100' high		6.47	320	957	2,875	243.15
	4300 For each added 6'-6" section, add		.19	31	93	279	20.10
	4400 Hoist and double tubular tower, 5000 lb., 100' high		6.95	350	1,054	3,150	266.40
	4500 For each added 6'-6" section, add		.21	34.50	103	310	22.30
	4550 Hoist and tower, mast type, 6000 lb., 100' high		7.48	365	1,093	3,275	278.45
	4570 For each added 10' section, add		.13	21.50	64	192	13.85
	4600 Hoist and tower, personnel, electric, 2000 lb., 100' @ 125 fpm		15.90	970	2,910	8,725	709.20
	4700 3000 lb., 100' @ 200 fpm		18.13	1,100	3,290	9,875	803.05
	4800 3000 lb., 150' @ 300 fpm		20.13	1,225	3,690	11,100	899.05
	4900 4000 lb., 100' @ 300 fpm		20.82	1,250	3,760	11,300	918.55
	5000 6000 lb., 100' @ 275 fpm		22.44	1,325	3,950	11,900	969.50
	5100 For added heights up to 500', add	LF.	.01	1.67	5	15	1.10
	5200 Jacks, hydraulic, 20 ton	Ea.	.05	2	6	18	1.60
	5500 100 ton		.40	11.65	35	105	10.20
	6100 Jacks, hydraulic, climbing w/50' jackrods, control console, 30 ton cap.		1.97	131	394	1,175	94.55
	6150 For each added 10' jackrod section, add		.05	3.33	10	30	2.40
	6300 50 ton capacity		3.17	211	633	1,900	151.95
	6350 For each added 10' jackrod section, add		.06	4	12	36	2.90
	6500 125 ton capacity		8.30	555	1,660	4,975	398.40
	6550 For each added 10' jackrod section, add		.57	37.50	113	340	27.15
	6600 Cable jack, 10 ton capacity with 200' cable		1.65	110	329	985	79
	6650 For each added 50' of cable, add		.20	13	39	117	9.40
70	0010 WELLPOINT EQUIPMENT RENTAL without operators						
	0020 Based on 2 months rental	R015433 -10					
	0100 Combination jetting & wellpoint pump, 60 H.P. diesel	Ea.	18.14	325	976	2,925	340.30
	0200 High pressure gas jet pump, 200 H.P., 300 psi	"	43.54	278	834	2,500	515.10
	0300 Discharge pipe, 8" diameter	LF.	.01	.53	1.59	4.77	.40
	0350 12" diameter		.01	.78	2.33	7	.55
	0400 Header pipe, flows up to 150 GPM, 4" diameter		.01	.48	1.44	4.32	.35
	0500 400 GPM, 6" diameter		.01	.56	1.69	5.05	.40
	0600 800 GPM, 8" diameter		.01	.78	2.33	7	.55
	0700 1500 GPM, 10" diameter		.01	.82	2.46	7.40	.55
	0800 2500 GPM, 12" diameter		.02	1.55	4.65	13.95	1.10
	0900 4500 GPM, 16" diameter		.03	1.98	5.95	17.85	1.45

01 54 | Construction Aids

01 54 33 Equipment Rental		UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY
40	2500 Diesel engine, 20 kW	Ea.	12.55	68.50	205	615	141.40
	2600 50 kW		24.35	103	310	930	256.80
	2700 100 kW		45.15	130	390	1,175	439.20
	2800 250 kW		88.85	237	710	2,125	852.80
	2850 Hammer, hydraulic, for mounting on boom, to 500 ft lb.		2.55	75	225	675	65.40
	2860 1000 ft lb.		4.35	127	380	1,150	110.80
	2900 Heaters, space, oil or electric, 50 MBH		1.93	7.65	23	69	20.05
	3000 100 MBH		3.61	10.65	32	96	35.30
	3100 300 MBH		10.58	38.50	115	345	107.65
	3150 500 MBH		17.40	45	135	405	166.20
	3200 Hose, water, suction with coupling, 20' long, 2" diameter		.02	3	9	27	1.95
	3210 3" diameter		.03	4.33	13	39	2.85
	3220 4" diameter		.03	5	15	45	3.25
	3230 6" diameter		.11	17.65	53	159	11.50
	3240 8" diameter		.20	33.50	100	300	21.60
	3250 Discharge hose with coupling, 50' long, 2" diameter		.01	1.33	4	12	.90
	3260 3" diameter		.01	2.33	7	21	1.50
	3270 4" diameter		.02	3.67	11	33	2.35
	3280 6" diameter		.06	9.35	28	84	6.10
	3290 8" diameter		.20	33.50	100	300	21.60
	3295 Insulation blower		.77	6	18	54	9.75
	3300 Ladders, extension type, 16' to 36' long		.14	22.50	68	204	14.70
	3400 40' to 60' long		.19	31	93	279	20.10
	3405 Lance for cutting concrete		2.52	89	267	800	73.55
	3407 Lawn mower, rotary, 22", 5 H.P.		2.10	59	177	530	52.20
	3408 48" self propelled		2.92	75	225	675	68.35
	3410 Level, electronic, automatic, with tripod and leveling rod		1.49	99	297	890	71.30
	3430 Laser type, for pipe and sewer line and grade		.73	48.50	145	435	34.85
	3440 Rotating beam for interior control		.97	64	192	575	46.15
	3460 Builder's optical transit, with tripod and rod		.10	16.65	50	150	10.80
	3500 Light towers, towable, with diesel generator, 2000 watt		4.60	93.50	280	840	92.80
	3600 4000 watt		4.90	98.50	295	885	98.20
	3700 Mixer, powered, plaster and mortar, 6 C.F., 7 H.P.		2.90	19	57	171	34.60
	3800 10 C.F., 9 H.P.		3.05	30.50	91	273	42.60
	3850 Nailer, pneumatic		.47	31	93	279	22.35
	3900 Paint sprayers complete, 8 CFM		.94	62.50	187	560	44.90
	4000 17 CFM		1.57	104	313	940	75.15
	4020 Pavers, bituminous, rubber tires, 8' wide, 50 H.P., diesel		31.85	500	1,500	4,500	554.80
	4030 10' wide, 150 H.P.		107.95	1,825	5,460	16,400	1,956
	4050 Crawler, 8' wide, 100 H.P., diesel		90.45	1,825	5,500	16,500	1,824
	4060 10' wide, 150 H.P.		115.10	2,250	6,715	20,100	2,264
	4070 Concrete paver, 12' to 24' wide, 250 H.P.		102.05	1,525	4,600	13,800	1,736
	4080 Placer-spreader-trimmer, 24' wide, 300 H.P.		147.05	2,475	7,405	22,200	2,657
	4100 Pump, centrifugal gas pump, 1-1/2" diam., 65 GPM		3.95	50	150	450	61.60
	4200 2" diameter, 130 GPM		5.30	55	165	495	75.40
	4300 3" diameter, 250 GPM		5.60	56.50	170	510	78.80
	4400 6" diameter, 1500 GPM		29.35	177	530	1,600	340.80
	4500 Submersible electric pump, 1-1/4" diameter, 55 GPM		.38	16.65	50	150	13.05
	4600 1-1/2" diameter, 83 GPM		.42	19	57	171	14.75
	4700 2" diameter, 120 GPM		1.43	23.50	71	213	25.65
	4800 3" diameter, 300 GPM		2.55	41.50	125	375	45.40
	4900 4" diameter, 560 GPM		10.65	160	480	1,450	181.20
	5000 6" diameter, 1590 GPM		15.75	215	645	1,925	255
	5100 Diaphragm pump, gas, single, 1-1/2" diameter		1.18	50.50	152	455	39.85
	5200 2" diameter		4.25	63.50	190	570	72
	5300 3" diameter		4.25	63.50	190	570	72
	5400 Double, 4" diameter		6.35	108	325	975	115.80
	5450 Pressure washer 5 GPM, 3000 psi		4.80	51.50	155	465	69.40

01 54 | Construction Aids

01 54 33 Equipment Rental		UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY	
40	5460							40
		Ea.	6.25	60	180	540	86	
	5500		4.50	21.50	64	192	48.80	
	5600		9.30	90	270	810	128.40	
	5650		25.55	150	450	1,350	294.40	
	5655		26.80	260	780	2,350	370.40	
	5700		3.81	13.65	41	123	38.70	
	5705		2.39	10.35	31	93	25.30	
	5720		.55	26.50	80	240	20.40	
	5730		.95	40	120	360	31.60	
	5740		.13	21.50	64	192	13.85	
	5750		.71	17	51	153	15.90	
	5760		.57	18.35	55	165	15.55	
	5800		2.25	22	66	198	31.20	
	5900		.75	65	195	585	45	
	5950		.75	66.50	200	600	46	
	6000		1.31	56.50	170	510	44.50	
	6050		2.40	33.50	100	300	39.20	
	6100		.22	4.67	14	42	4.55	
	6200		.22	8	24	72	6.55	
	6250		10.45	60	180	540	119.60	
	6275		4.80	293	880	2,650	214.40	
	6280		2.32	70	210	630	60.55	
	6300		3.70	76.50	230	690	75.60	
	6310		5.25	95	285	855	99	
	6340		10.50	76.50	230	690	130	
	6350		.30	15	45	135	11.40	
	6360		19.00				152	
	6410		.12	20.50	62	186	13.35	
	6420		.15	24.50	74	222	16	
	6430		.18	29.50	89	267	19.25	
	6440		.15	24.50	73	219	15.80	
	6465		21.90	277	830	2,500	341.20	
	6500		5.45	117	350	1,050	113.60	
	6600		7.00	160	480	1,450	152	
	6700		7.55	177	530	1,600	166.40	
	6800		9.35	232	695	2,075	213.80	
	6810		5.35	255	764	2,300	195.60	
	6820		10.64	505	1,520	4,550	389.10	
	6830		71.33	2,825	8,510	25,500	2,273	
	6900		6.95	143	430	1,300	141.60	
	6925		9.50	198	595	1,775	195	
	6950		89.80	775	2,330	7,000	1,184	
	7010		6.27	138	415	1,250	133.15	
	7020		.10	16.65	50	150	10.80	
	7030		.56	93.50	280	840	60.50	
	7040		.78	130	389	1,175	84.05	
	7050		1.08	180	540	1,625	116.65	
	7060		1.21	201	603	1,800	130.30	
	7065		1.27	211	633	1,900	136.75	
	7070		1.36	227	680	2,050	146.90	
	7100		15.25	58.50	175	525	157	
	7200		15.55	73.50	220	660	168.40	
	7250		21.60	86.50	260	780	224.80	
	7290		22.30	125	375	1,125	253.40	
	7300		31.05	197	590	1,775	366.40	
	7410		46.05	272	815	2,450	531.40	
	7500		52.85	315	950	2,850	612.80	
	7600		64.05	385	1,150	3,450	742.40	