



GORDIAN[®]

Facilities Maintenance & Repair Costs

with RSMMeans Data



2024

31st annual edition

Facilities Maintenance & Repair Costs with RSMMeans Data

Brian Adams, Senior Editor

GORDIAN®

2024

31st annual edition

Chief Product Officer

Chris Gaudreau

Chief Technology Officer

Chris Gaudreau

Director, Data Operations

Sam Giffin

Engineering and Research

Matthew Doheny, Sr. Manager

Engineers: Architectural Divisions

1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 41

Sam Babbitt

Stephen Bell

Richard Goldin

Scott Keller

Thomas Lane

Melissa Stewart

Engineers: Civil Divisions and Wages

2, 31, 32, 33, 34, 35, 44, 46

Derrick Hale, PE

Christopher Babbitt

Michael Lynch

Elisa Mello

Giles Munyard

David Yazbek

Engineers: Mechanical, Electrical, Plumbing & Conveying Divisions

14, 21, 22, 23, 25, 26, 27, 28, 48

Joseph Kelble

Brian Adams

Michelle Curran

Antonio D'Aulerio

Thomas Lyons

Jake MacDonald

Chris Clough

Contributing Engineers

John Melin, PE, Manager

Paul Cowan

Gerard Lafond, PE

Matthew Sorrentino

Production

Debra Panarelli, Manager

Sheryl Rose

Janice Thalín

Data Quality

Patrice Bruesch

Ellen D'Amico

Cover Design

Blaire Collins

Data Management Ecosystem

Audrey Considine

Kedar Gaikwad

Mike Bruesch

Jonathan Forgit



RSMMeans Data from Gordian

Construction Publishers & Consultants

30 Patewood Dr., Suite 350

Greenville, SC 29615

United States of America

1.800.448.8182

rsmeans.com

Copyright 2023 by The Gordian Group Inc.

All rights reserved.

Cover photo © iStock.com/tverkhovinets

Printed in the United States of America

ISSN 1074-0953

ISBN 978-1-961006-07-2

Gordian's authors, editors, and engineers apply diligence and judgment in locating and using reliable sources for the information published. However, Gordian 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. Gordian makes no express or implied warranty of merchantability or fitness for a particular purpose. Gordian 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. For the purposes of this paragraph, "Gordian" shall include The Gordian Group, Inc., and its divisions, subsidiaries, successors, parent companies, and their employees, partners, principals, agents and representatives, and any third-party providers or sources of information or data. Gordian grants the purchaser of this publication limited license to use the cost data

contained herein for purchaser's internal business purposes in connection with construction estimating and related work. The publication, and all cost data contained herein, may not be reproduced, integrated into any software or computer program, developed into a database or other electronic compilation, stored in an information storage or retrieval system, or transmitted or distributed to anyone in any form or by any means, electronic or mechanical, including photocopying or scanning, without prior written permission of Gordian. This publication is subject to protection under copyright law, trade secret law and other intellectual property laws of the United States, Canada and other jurisdictions. Gordian and its affiliates exclusively own and retain all rights, title and interest in and to this publication and the cost data contained herein including, without limitation, all copyright, patent, trademark and trade secret rights. Except for the limited license contained herein, your purchase of this publication does not grant you any intellectual property rights in the publication or the cost data.

3024

\$1,180.00 per copy (in United States)
Price is subject to change without prior notice.

Table of Contents

Foreword	iv
How the Cost Data Is Built: An Overview	v
How to Use the Cost Data: The Details	viii
Maintenance & Repair	1
Preventive Maintenance	377
General Maintenance	555
Facilities Audits	569
Auditing the Facility	571
Audits Checklists	575
Reference Section	597
Construction Equipment Rental Costs	599
Crew Listings	611
Travel Costs	617
Reference Tables	618
City Adjustments	624
Location Factors	639
Reference Aids	645
Life Cycle Costing	664
Abbreviations	669
Training Class Options	676
Labor Trade Rates including Overhead & Profit	Inside Back Cover

Maintenance & Repair

Table of Contents

A10 Foundations

A1033 Slab on Grade

A1033 110 Concrete, Unfinished	7
--------------------------------	---

B10 Superstructure

B1013 Floor Construction

B1013 510 Concrete Stairs	8
B1013 520 Masonry Steps	8
B1013 530 Wood Stairs	9
B1013 540 Railing, Wood	9
B1013 550 Metal Stairs	10
B1013 560 Railing, Metal	10
B1013 570 Wrought Iron Exterior Balustrade	11
B1013 580 Metal Fire Escapes	11
B1013 910 Steel Decking	12
B1013 920 Metal Grating	12

B20 Exterior Closure

B2013 Exterior Walls

B2013 104 Copings	13
B2013 109 Concrete Block	14
B2013 114 Concrete Block Wall, Painted	15
B2013 118 Terra Cotta	16
B2013 119 Clay Brick	17
B2013 121 Clay Brick, Painted	18
B2013 123 Field Stone	20
B2013 140 Glass Block	21
B2013 141 Aluminum Siding	22
B2012 142 Steel Siding	24
B2013 143 Masonite Panel, Sealed	26
B2013 145 Wood Clapboard Finished, 1 Coat	26
B2013 147 Wood Shingles, Unfinished	27
B2013 148 Wood Shingles, Finished	28
B2013 150 Fiberglass Panel, Rigid	30
B2013 152 Synthetic Veneer Plaster	31
B2013 156 Exterior Soffit Gypsum Board, Painted	31
B2013 157 Overhang, Exterior Entry	33
B2013 158 Recaulking	33
B2013 310 Wood Louvers and Shutters	34
B2013 320 Aluminum Louver	36
B2013 330 Steel Louver	37

B2023 Exterior Windows

B2023 102 Steel Frame, Operating	39
B2023 103 Steel Frame, Fixed	42
B2023 110 Aluminum Window, Operating	44
B2023 111 Aluminum Window, Fixed	46
B2023 112 Wood Frame, Operating	48
B2023 113 Wood Frame, Fixed	51
B2023 116 Aluminum Frame Storm Window	53
B2023 117 Steel Frame Storm Window	54
B2023 119 Wood Frame Storm Window	56
B2023 122 Vinyl Clad Wood Window, Operating	57
B2023 123 Vinyl Clad Wood Window, Fixed	58
B2023 150 Glass Block, Fixed	59
B2023 160 Aluminum Shutter	60
B2023 162 Steel Shutter	61
B2023 164 Wood Shutter	62
B2023 166 Metal Window Grating	64

B2023 168 Metal Wire Mesh Cover	65
B2023 170 Aluminum Frame Window Screen	66
B2023 172 Steel Frame Window Screen	67
B2023 174 Wood Frame Window Screen	68
B2023 324 Plate Glass	69

B2033 Exterior Doors

B2033 111 Glazed Aluminum	70
B2033 130 Glazed Wood	71
B2033 206 Solid Core, Painted	72
B2033 210 Aluminum Doors	74
B2033 220 Steel, Painted	77
B2033 221 Steel, Unpainted	80
B2033 410 Steel Roll-Up, Single	83
B2033 412 Steel Roll-Up, Double	83
B2033 413 Steel Garage Door, Single Leaf, Spring	84
B2033 420 Aluminum Roll-Up, Single	84
B2033 422 Aluminum Roll-Up, Double	85
B2033 423 Aluminum Garage Door, Single Leaf, Spring	85
B2033 430 Wood Roll-Up, Single	86
B2033 432 Wood Roll-Up, Double	86
B2033 433 Wood Garage Door, Single Leaf, Spring	87
B2033 513 Electric Bifolding Hangar Door	87
B2033 810 Hinges, Brass	88
B2033 820 Lockset, Brass	88
B2033 830 Door Closer, Brass	88
B2033 840 Door Opener	89
B2033 850 Deadbolt, Brass	89
B2033 860 Weatherstripping, Brass	89
B2033 870 Panic Device	90
B2033 905 Hollow Core, Painted	90
B2033 925 Metal Grated	91
B2033 926 Metal Wire Mesh Door	92
B2033 927 Louvered Door	93
B2033 935 Screen/Storm Aluminum, Plain/Anodized	95
B2033 960 Aluminized Steel Pedestrian Gate	95
B2033 961 Gal. Steel Pedestrian Gate	96
B2033 962 Wood Pedestrian Gate	96
B2033 963 Wrought Iron Gate	97

B30 Roofing

B3013 Roof Covering

B3013 105 Built-Up Roofing	98
B3013 120 Modified Bituminous/Thermoplastic	99
B3013 125 Thermosetting	101
B3013 127 EPDM (Ethylene Propylene Diene Monomer)	102
B3013 130 Metal Panel Roofing	102
B3013 140 Slate Tile Roofing	104
B3013 142 Mineral Fiber Steep Roofing	104
B3013 144 Clay Tile Roofing	105
B3013 146 Asphalt Shingle Roofing	106
B3013 160 Roll Roofing	107
B3013 165 Corrugated Fiberglass Panel Roofing	108
B3013 170 Roof Edges	109
B3013 620 Gutters and Downspouts	110

B3023 Roof Openings

B3023 110 Single Unit Glass Skylight	113
B3023 120 Hatches	113
B3023 130 Smoke Hatches	114

C10 Interior Construction

C1013 Partitions

C1013 110 Concrete Block, Painted	115
C1013 115 Glazed CMU Interior Wall Finish	115
C1013 120 Glass Block	116
C1013 125 Stone Veneer	116
C1013 230 Demountable Partitions	117
C1013 544 Channel Frame Wire Mesh Wall	117
C1013 730 Plate Glass Wall - Interior	117

C1023 Interior Doors

C1023 108 Fully Glazed Wooden Doors	119
C1023 110 Steel Painted Interior Doors	119
C1023 111 Steel Unpainted Interior Doors	122
C1023 112 Bi-Fold Interior Doors	124
C1023 114 Aluminum Interior Doors	124
C1023 116 Fully Glazed Aluminum Doors	126
C1023 120 Hollow Core Interior Doors	127
C1023 121 Solid Core Interior Doors	127
C1023 129 Interior Gates	129
C1023 324 Hinges, Brass	129
C1023 325 Lockset, Brass	129
C1023 326 Door Closer, Brass	130
C1023 327 Deadbolt, Brass	130
C1023 328 Weatherstripping, Brass	130
C1023 329 Panic Bar	130

C1033 Fittings

C1033 110 Toilet Partitions	131
C1033 210 Metal Lockers	132

C20 Stairs

C2013 Stair Construction

C2013 110 Concrete Steps	133
C2013 115 Masonry Steps, Painted	133
C2013 130 Metal Steps	133
C2013 435 Interior Metal Stair Railing	134
C2013 437 Interior Iron Stair Railing	134
C2013 440 Wood Steps	135
C2013 445 Interior Wood Stair Railing	135

C2023 Stair Finishes

C2023 110 Carpeted Steps	136
C2023 120 Rubber Steps	136
C2023 130 Terrazzo Steps	136

C30 Interior Finishes

C3013 Wall Finishes

C3013 106 Vinyl Wall Covering	137
C3013 202 Wallpaper	137
C3013 206 Fabric Interior Wall Finish	138
C3013 208 Cork Tile	138
C3013 210 Acoustical Tile	139
C3013 212 Stucco	139
C3013 213 Plaster	140
C3013 214 Drywall	141
C3013 215 Fiberglass Panels, Rigid	142
C3013 220 Tile	143
C3013 230 Plywood Paneling	143
C3013 234 Wainscot	144
C3013 240 Stainless Steel Interior Finish	144
C3013 410 Fireplace Mantles, Wood	144

Table of Contents (cont.)

C3023 Floor Finishes		D2023 152 Valve, Non-Drain, 2"	182	D3023 Heat Generating Systems	
C3023 112 Concrete, Finished	145	D2023 154 Valve, Non-Drain, 3"	182	D3023 180 Boiler, Gas	217
C3023 405 Epoxy Flooring	145	D2023 156 Valve, Non-Drain, 4" and Larger	182	D3023 182 Boiler, Coal	219
C3023 410 Vinyl Tile	145	D2023 160 Insulation, Pipe	183	D3023 184 Boiler, Oil	219
C3023 412 Vinyl Sheet	145	D2023 210 Water Heater, Gas/Oil, 30 Gallon	184	D3023 186 Boiler, Gas/Oil	222
C3023 414 Rubber Tile	146	D2023 212 Water Heater, Gas/Oil, 70 Gallon	185	D3023 198 Blowoff System	223
C3023 418 Rubber/Vinyl Trim	146	D2023 214 Water Heater, Gas/Oil, 1150 GPH	185	D3023 292 Chemical Feed System	224
C3023 420 Ceramic Tile	146	D2023 220 Water Heater, Electric, 120 Gal.	186	D3023 294 Feed Water Supply	224
C3023 428 Ceramic Trim	147	D2023 222 Water Heater, Electric, 300 Gal.	186	D3023 296 Deaerator	225
C3023 430 Terrazzo	147	D2023 224 Water Heater, Electric, 1000 Gal.	187	D3023 298 Separators for 9000 Ton Chilled Water System	225
C3023 438 Terrazzo Trim	147	D2023 226 Water Heater, Electric, 2000 Gal.	187	D3023 310 Metal Flue/Chimney	225
C3023 440 Quarry Tile	148	D2023 230 Steam Converter, Domestic Hot Water	188	D3023 388 Pneumatic Coal Spreader	226
C3023 450 Brick	148	D2023 240 Storage Tank, Domestic Hot Water	188	D3023 390 Fuel Oil Equipment	227
C3023 460 Marble	148	D2023 245 Solar Storage Tank, 1000 Gallon	188		
C3023 470 Plywood	149	D2023 250 Expansion Chamber	189	D3033 Cooling Generating Systems	
C3023 472 Wood Parquet	149	D2023 260 Circulation Pump, 1/12 HP	189	D3033 115 Cooling Tower	228
C3023 474 Maple Strip	149	D2023 261 Circulation Pump, 1/8 HP	190	D3033 130 Chiller, Water Cooled, Recip.	229
C3023 478 Wood Trim	150	D2023 262 Circulation Pump, 1/6 HP	190	D3033 135 Chiller, Air Cooled, Reciprocating	231
C3023 510 Carpet	150	D2023 264 Circulation Pump, 1/2 HP	191	D3033 137 Chiller, Water Cooled, Scroll	232
C3033 Ceiling Finishes		D2023 266 Circulation Pump, Bronze 1 HP	191	D3033 140 Chiller, Hermetic Centrifugal	234
C3033 105 Plaster	151	D2023 267 Circulation Pump, C.I. 1-1/2 HP	192	D3033 142 Chiller, Open Centrifugal	236
C3033 107 Gypsum Wall Board	151	D2023 268 Circulation Pump, 3 HP	192	D3033 145 Chiller, Absorption	237
C3033 108 Acoustic Tile	152	D2023 310 Hose Bibb	193	D3033 210 Air Cooled Condenser	238
C3033 109 Acoustic Tile, Fire Rated	154	D2023 320 Water Meter	193	D3033 260 Evaporative Condenser	240
C3033 120 Wood	154	D2023 370 Water Softener	194		
D20 Plumbing		D2033 Sanitary Waste		D3043 Distribution Systems	
D2013 Plumbing Fixtures		D2033 110 Pipe & Fittings, Cast Iron	195	D3043 120 Fan Coil	242
D2013 110 Tankless Water Closet	155	D2033 130 Pipe & Fittings, PVC	195	D3043 122 Fan Coil, DX A/C, Cooling Only	244
D2013 130 Flush-Tank Water Closet	156	D2033 305 Pipe & Fittings	196	D3043 124 Fan Coil, DX A/C w/Heat	248
D2013 210 Urinal	158	D2033 310 Floor Drain w/o Bucket	197	D3043 128 Unit Ventilator	249
D2013 310 Lavatory, Iron, Enamel	159	D2033 330 Floor Drain with Bucket	197	D3043 140 Duct Heater	250
D2013 330 Lavatory, Vitreous China	160	D2043 Rain Water Drainage		D3043 210 Draft Fan	250
D2013 350 Lavatory, Enameled Steel	161	D2043 110 Distribution: Gutters, Pipe	198	D3043 220 Exhaust Fan	251
D2013 410 Sink, Iron Enamel	162	D2043 210 Drain: Roof, Scupper, Area	198	D3043 250 Fireplaces, Clay Flue	253
D2013 420 Sink, Enameled Steel	163	D2043 310 Rainwater Sump Pump	199	D3043 252 Fireplaces, Metal Flue	253
D2013 430 Sink, Stainless Steel	164	D2093 Other Plumbing Systems		D3043 310 Steam Converter, Commercial	254
D2013 440 Sink, Plastic	165	D2093 910 Pipe & Fittings, Industrial Gas	200	D3043 320 Flash Tank, 24 Gallon	254
D2013 444 Laboratory Sink	167	D2093 920 Pipe & Fittings, Anesthesia	200	D3043 330 Steam Regulator Valve	254
D2013 450 Laundry Sink, Plastic	167	D2093 930 Pipe & Fittings, Oxygen	200	D3043 340 Condensate Meter	255
D2013 455 Laundry Sink, Stone	168	D2093 940 Pipe & Fittings, Compressed Air	201	D3043 350 Steam Traps	256
D2013 460 Service/Utility Sink	169	D2093 946 Compressed Air Systems, Compressors	202	D3043 410 Radiator Valve	256
D2013 470 Group Washfountain	170	D30 HVAC		D3043 420 Cast Iron Radiator, 10' Section	257
D2013 510 Bathtub, Cast Iron Enamel	170	D3013 Energy Supply		D3043 430 Baseboard Radiation, 10' Section	257
D2013 530 Bathtub, Enameled Steel	171	D3013 110 Fuel Oil Storage Tank, 275 Gallon	205	D3043 440 Finned Radiator, Wall, 10' Section	258
D2013 550 Bathtub, Fiberglass	171	D3013 150 Fuel Level Meter	205	D3043 450 Duct Coil, 1-Row, Hot Water	258
D2013 710 Shower, Terrazzo	172	D3013 160 Oil Filter	205	D3043 510 Pipe & Ftngs., Steel/Iron, Flanged	259
D2013 730 Shower, Enameled Steel	173	D3013 170 Fuel Oil Storage: Pipe & Fittings, Copper	206	D3043 520 Valves	259
D2013 750 Shower, Fiberglass	174	D3013 210 Natural Gas: Pipe & Fittings, Steel/Iron	207	D3043 530 Circulator Pump	261
D2013 770 Shower, Misc.	175	D3013 240 Natural Gas: Pressure Reducing Valve	212	D3043 540 Expansion Tank	262
D2013 810 Drinking Fountain	176	D3013 260 LPG Distribution: Pipe & Fittings, Steel/Iron	213	D3043 550 Pipe Insulation	263
D2013 910 Emergency Shower Station	177	D3013 601 Solar Panel, 3' x 8'	216	D3053 Terminal & Package Units	
D2013 920 Emergency Eye Wash	177			D3053 110 Unit Heater	269
D2023 Domestic Water Distribution				D3053 112 Infrared Heater Suspended, Commercial	270
D2023 110 Pipe & Fittings, Copper	178			D3053 114 Standard Suspended Heater	271
D2023 120 Pipe & Fittings, Steel/Iron, Threaded	179			D3053 116 Explosionproof Industrial Heater	271
D2023 130 Solar Piping: Pipe & Fittings, PVC	179			D3053 150 Wall Mounted/Recessed Heater, with Fan	272
D2023 150 Valve, Non-Drain, Less Than 1-1/2"	181				

Table of Contents (cont.)

D3053 160 Convactor Suspended, Commercial	272	D5023 140 Safety Switch, General Duty	326	E1093 610 Dust Collector	355
D3050 170 Terminal Reheat	273	D5023 150 Receptacles & Plugs	327	E1093 910 Pump Systems	355
D3053 245 Heat Pump	274	D5023 154 4-Pin Receptacle	327		
D3053 265 Air Conditioner, Window, 1 Ton ..	277	D5023 210 Contactors & Relays	328	G10 Site Preparation	
D3053 266 Air Conditioner, Thru-The-Wall ..	278	D5023 220 Wiring Devices, Switches	328	G1023 Site Demolition &	
D3053 272 Air Conditioner, DX Package	278	D5023 222 Switch, Pull Cord	329	Relocations	
D3053 274 Computer Room A/C Units, Air Cooled	281	D5023 230 Light Dimming Panel	329	G1023 210 Underground Storage Tank Removal	356
D3053 276 Computer Room A/C Units, Chilled Water	285	D5023 240 Incandescent Lighting Fixtures ..	330		
D3053 278 Multi-Zone Air Conditioner	287	D5023 250 Quartz Fixture	331	G20 Site Improvements	
D3053 280 Single Zone Air Conditioner	289	D5023 260 Fluorescent Lighting Fixture	331	G2023 Parking Lots	
D3053 282 Multi-Zone Variable Volume	293	D5023 270 Metal Halide Fixture	332	G2023 210 Parking Lot Repairs	358
D3053 284 Single Zone Variable Volume	296	D5023 280 H.P. Sodium Fixture	334	G2023 310 General	358
D3053 286 Central Station Air Conditioning Air Handling Unit	298				
D3053 310 Residential Furnace, Gas	300	D5033 Communications &			
D3053 320 Residential Furnace, Oil	301	Security			
D3053 330 Residential Furnace, Electric	303	D5033 310 Telephone Cable	335	G2033 Pedestrian Paving	
D3053 410 Electric Baseboard Heating Units ..	304	D5033 410 Master Clock Control	335	G2033 130 Asphalt Sidewalk & Curb	359
D3053 420 Cast Iron Radiator, 10 Section, 1 Side	304	D5033 510 TV Cable Outlet	336	G2033 140 Concrete Sidewalk & Curb	359
D3053 710 Fireplaces, Firebrick	304	D5033 610 Door Bell	336	G2033 150 Patios	360
		D5033 620 Sound System Components	337	G2033 250 Handicap Ramp	360
D40 Fire Protection		D5033 630 Intercom System Components	338		
D4013 Sprinklers		D5033 640 Security System Components	339	G2043 Site Development	
D4013 110 Backflow Preventer	305	D5033 710 Smoke Detector	339	G2043 105 Chain Link Fence & Gate Repairs ..	361
D4013 310 Sprinkler Sys., Fire Suppression ...	306	D5033 712 Heat Detector	340	G2043 110 Wood Fence	363
D4013 410 Fire Pump	307	D5033 720 Manual Pull Station	340	G2043 710 Bleachers, Exterior	363
		D5033 760 Fire Alarm Control Panel	341	G2043 750 Tennis Court Resurfacing	364
D50 Electrical		D5033 766 Annunciation Panel	342	G2043 810 Flag Pole	364
D5013 Electrical Service/ Distribution		D5033 770 Fire Alarm Bell	342		
D5013 110 Primary Transformer, Liquid Filled ..	308			G30 Site Mechanical Utilities	
D5013 120 Primary Transformer, Dry	308			G3013 Water Supply	
D5013 210 Switchgear, Mainframe	309	D5093 Other Electrical		G3013 400 Ground Level Water Storage Tank	365
D5013 216 Fuses	309	Systems		G3013 405 Ground Level Water Storage Standpipe	367
D5013 220 Switchgear, Indoor, Less Than 600 V	309	D5093 110 Electrical Service Ground	343	G3013 410 Fire Hydrants	368
D5013 224 Switchgear, Indoor, 600 V	312	D5093 120 Building Structure Ground	343	G3013 470 Post Indicator Valve	369
D5013 230 Meters	312	D5093 130 Lightning Protection System	344	G3013 510 Elevated Water Storage Tank	369
D5013 240 Inverter	312	D5093 140 Lightning Ground Rod	344		
D5013 250 Rectifier, Up To 600 V	313	D5093 150 Computer Ground System	344	G3063 410 Fuel Distribution	
D5013 264 Motor Starter, Up To 600 V	313	D5093 190 Special Ground System	345	G3063 410 Ground Level Fuel Storage Tank	371
D5013 266 Motor Starter, 600 V	314	D5093 210 Generator, Gasoline, 175 kW	345		
D5013 272 Secondary Transformer, Liquid Filled	315	D5093 220 Generator, Diesel, 750 kW	346	G40 Site Electrical Utilities	
D5013 274 Secondary Transformer, Dry	315	D5093 230 Transfer Switch	346	G4013 Electrical Distribution	
D5013 280 Lighting Panel, Indoor	316	D5093 240 Emergency Lighting Fixture	347	G4013 210 Overhead Service Cables	372
		D5093 250 Exit Light	347		
D5023 Lighting & Branch Wiring		D5093 255 Exit Light L.E.D.	348	G4023 Site Lighting	
D5023 110 Wireway	317	D5093 260 Battery, Wet	348	G4023 210 Outdoor Pole Lights	373
D5023 112 Conduit EMT	317	D5093 265 Battery, Dry	349		
D5023 120 Cable, Non-Metallic (NM) Sheathed	317	D5093 270 Battery Charger	349	H10 Construction Aids	
D5023 122 Cable, Service	318	D5093 280 UPS Battery	349	H1043 Construction Aids	
D5023 124 Cable, Armored	318	D5093 920 Communications Components ...	350	H1043 200 Temporary Cranes	375
D5023 126 Branch Wiring, With Junction Box ..	319				
D5023 128 Branch Wiring, 600 V	319	E10 Equipment			
D5023 130 Circuit Breaker	319	E1023 Institutional Equipment			
D5023 132 Safety Switch, Heavy Duty	324	E1023 710 Laboratory Equipment	351		
		E1033 Vehicular Equipment			
		E1033 110 Automotive Equipment	352		
		E1093 Other Equipment			
		E1093 310 Loading Dock Equipment	353		
		E1093 315 Dishwasher	353		
		E1093 316 Waste Disposal, Residential	353		
		E1093 320 Waste Handling Equipment	354		
		E1093 510 Darkroom Dryer	354		

Preventive Maintenance

Table of Contents

B20 Exterior Closure

B2035 Exterior Doors

B2035 110 Door, Sliding, Electric	383
B2035 225 Door, Emergency Egress	384
B2035 300 Door, Revolving	385
B2035 400 Door, Overhead, Manual	386
B2035 410 Door, Overhead, Roll-up, Electric	386
B2035 450 Shutter, Roll-up, Electric	387

C10 Interior Construction

C1025 Interior Doors

C1025 110 Fire Doors	388
----------------------	-----

D10 Conveying

D1015 Elevators & Lifts

D1015 100 Elevator, Electric, Pass/Freight	390
D1015 110 Elevator, Hydraulic, Pass/Freight	393
D1015 310 Wheelchair Lift	394

D1025 Escalators & Moving Walks

D1025 100 Escalator, Electric	395
-------------------------------	-----

D1095 Other Conveying Systems

D1095 100 Dumbwaiter, Electric	396
D1095 110 Dumbwaiter, Hydraulic	396
D1095 200 Pneumatic Tube System	397

D20 Plumbing

D2015 Plumbing Fixtures

D2015 100 Facility Plumbing Fixture Service	398
D2015 800 Drinking Fountain	399

D2025 Domestic Water Distribution

D2025 120 Valve, Butterfly	400
D2025 125 Valve, Check	400
D2025 130 Valve, Cock	401
D2025 135 Valve, Diaphragm	401
D2025 140 Valve, Gate	401
D2025 145 Valve, Globe	402
D2025 150 Valve, Motor Operated	402
D2025 155 Valve, OS&Y	403
D2025 190 Water Heater, Solar	404
D2025 260 Water Heater, Gas/Oil/Steam	405
D2025 262 Valve, Pressure Relief	407
D2025 265 Valve, Pressure Regulator	407
D2025 270 Valve, Sediment Strainer	407
D2025 310 Valve, Automatic	408

D2095 Other Plumbing Systems

D2095 905 Duplex Sump	409
D2095 910 Pump, Submersible	409
D2095 930 Oxygen Monitor	410

D30 HVAC

D3025 Heat Generating Systems

D3025 110 Boiler, Electric	411
D3025 130 Boiler, Hot Water, Oil/Gas/Comb.	412
D3025 140 Boiler, Steam, Oil/Gas/Comb.	416
D3025 210 Deaerator Tank	420
D3025 310 Pumps	421

D3035 Cooling Generating Systems

D3035 110 Cooling Tower	423
D3035 130 Chiller, Recip., Air Cooled	425
D3035 135 Chiller, Recip., Water Cooled	426
D3035 140 Chiller, Centrif., Water Cooled	427
D3035 150 Chiller, Absorption Unit	429
D3035 160 Chiller, Screw, Water Cooled	430
D3035 170 Evaporative Cooler	431
D3035 180 Evap. Cooler, Rotating Drum	431
D3035 210 Condenser, Air Cooled	432
D3035 220 Condensing Unit, Air Cooled	434
D3035 240 Condensing Unit, Water Cooled	436
D3035 260 Compressor, DX Refrigeration	438
D3035 290 Fluid Cooler	439

D3045 Distribution Systems

D3045 110 Air Handling Unit	440
D3045 112 A.H.U., Computer Room	441
D3045 120 Fan Coil Unit	442
D3045 150 Air Filters, Electrostatic	442
D3045 160 VAV Boxes	443
D3045 170 Fire Dampers	443
D3045 210 Fan, Axial	444
D3045 220 Fan, Centrifugal	446
D3045 250 Hood and Blower	447
D3045 410 Pump, Centrifugal	448
D3045 420 Pump w/Oil Reservoir, Electric	449
D3045 600 Heat Exchanger, Steam	450

D3055 Terminal & Package Units

D3055 110 Space Heater	451
D3055 122 Forced Air Heater, Oil/Gas Fired	453
D3055 210 Package Unit, Air Cooled	454
D3055 220 Package Unit, Water Cooled	455
D3055 230 Package Unit, Computer Room	456
D3055 240 Package Terminal Unit	457
D3055 250 Air Conditioning, Split System	458
D3055 310 Heat Pump, Air Cooled	459
D3055 320 Heat Pump, Water Cooled	460

D3065 Controls & Instrumentation

D3065 100 Controls, Central System	461
------------------------------------	-----

D3095 Other HVAC Systems & Equipment

D3095 110 Air Compressor, Gas Engine	462
D3095 114 Air Compressor, Centrifugal	463
D3095 118 Air Compressor, Reciprocating	465
D3095 210 Humidification Systems	467
D3095 220 Dehumidifier, Desiccant Wheel	468

D40 Fire Protection

D4015 Sprinklers

D4015 100 Backflow Prevention Device	469
D4015 150 Extinguishing System, Wet Pipe	470
D4015 180 Extinguishing System, Deluge/Preaction	471
D4015 210 Fire Pump, Electric Motor Driven	472
D4015 250 Fire Pump, Motor/Engine Driven	473
D4015 310 Extinguishing System, Dry Pipe	474

D4095 Other Fire Protection Systems

D4095 100 Extinguishing System, CO ₂	475
D4095 200 Extinguishing Sys., Foam Bottle	476
D4095 210 Extinguishing Sys., Foam, Electric	477
D4095 220 Extinguishing Sys., Foam, Diesel	478
D4095 400 Extinguishing Sys., Dry Chemical	479
D4095 450 Extinguishing System, FM200	480

D50 Electrical

D5015 Electrical Service & Distribution

D5015 210 Switchboard, Electrical	481
D5015 214 Switchboard, w/Air Circ. Breaker	481
D5015 217 Switchboard, w/Air C.B. and Tie	482
D5015 220 Circuit Breaker, HV Air	483
D5015 222 Circuit Breaker, HV Oil	483
D5015 230 Switch, Selector, HV Air	484
D5015 232 Switch, Selector, HV Oil	484
D5015 234 Switch, Automatic Transfer	485
D5015 236 Switch, Interrupt, HV, Fused Air	485
D5015 238 Switch, HV w/Aux. Fuses, Air	485
D5015 240 Transformer	486
D5015 260 Panelboard, 225 Amps and Above	488
D5015 280 Motor Control Center	488

D5035 Communication & Security

D5035 610 Clock Systems	489
D5035 710 Fire Alarm Annunciator System	490
D5035 810 Security/Intrusion Alarm Control Panel	490

D5095 Other Electrical Systems

D5095 210 Emergency Generator	491
D5095 220 Power Stabilizer	493
D5095 230 Uninterruptible Power System	494
D5095 240 Wet Battery System and Charger	495
D5095 250 Lighting System, Emergency	496

E10 Equipment

E1015 Commercial Equipment

E1015 810 Personal Computers	497
------------------------------	-----

E1035 Vehicular Equipment

E1035 100 Hydraulic Lift, Automotive	498
E1035 310 Hydraulic Lift, Loading Dock	498

Table of Contents (cont.)

E1095 Other Equipment	
E1095 122 Crane, Electric Bridge	499
E1095 123 Crane, Manual Bridge	501
E1095 125 Hoist, Pneumatic	502
E1095 126 Hoist/Winch, Chain/Cable	503
E1095 302 Beverage Dispensing Unit	503
E1095 304 Braising Pan	504
E1095 306 Bread Slicer	504
E1095 310 Broiler	505
E1095 312 Chopper, Electric	506
E1095 314 Coffee Maker/Urn	507
E1095 316 Cooker	508
E1095 318 Cookie Maker	509
E1095 320 Deep Fat Fryer	510
E1095 322 Dishwasher, Electric/Steam	512
E1095 328 Dispenser, Beverage	514
E1095 332 Disposal, Garbage	514
E1095 334 Dough, Divider/Roller	515
E1095 336 Drink Cooler	516
E1095 338 Fluid Cooler	516
E1095 340 Food Saw/Slicer	517
E1095 346 Grill, Gas/Electric	518
E1095 348 Ice Machine	518
E1095 350 Kettle, Steam	519
E1095 354 Mixer, Electric	520
E1095 356 Oven, Convection/Rotary	521
E1095 366 Peeler, Vegetable	522
E1095 368 Pie Maker, Electric	523
E1095 370 Proofer, Automatic	523
E1095 380 Refrigerator	524
E1095 382 Refrigerator/Freezer	526
E1095 386 Steam Table	527
E1095 388 Steamer, Vegetable	527
E1095 390 Toaster, Rotary	528
E1095 930 Pump, Vacuum	528

F10 Special Construction

F1045 Special Facilities	
F1045 110 Swimming Pool	529

G20 Site Improvements

G2015 Roadways	
G2015 610 Traffic Signal Light	530

G2045 Site Development	
G2045 150 Chain Link Fence Gates	531

G30 Site Mechanical Utilities

G3015 Water Supply	
G3015 108 Storage Tank	533
G3015 116 Water Flow Meter	534
G3015 118 Reservoir Controls	534
G3015 126 Pumps	535
G3015 310 Pump, Turbine Well	540
G3015 320 Pump, Vertical Lift	540
G3015 410 Fire Hydrant	541
G3015 420 Valve, Post Indicator	541
G3015 612 Water Treatment, Filtration Plant	542
G3015 630 Water Treatment, De-Ionization	542
G3015 632 Reverse Osmosis System	543
G3015 634 Water Ion Exchange System	543
G3015 650 Water Softener	544
G3015 660 Fluoride Saturator	544
G3015 670 Water Treatment, Chlorine	545

G3025 Sanitary Sewer	
G3025 410 Pump, Sewage Ejector	546
G3025 412 Ejector Pump	547
G3025 420 Pump, Sewage Lift	548
G3025 530 Aerator, Floating	549
G3025 532 Barminutor	549
G3025 534 Blower, Aerator	550
G3025 536 Clarifier	550
G3025 538 Comminutor	551
G3025 540 Filter, Trickling	551
G3025 542 Grit Drive	552
G3025 544 Mixer, Sewage	552

G3065 Fuel Distribution	
G3065 310 Fuel Oil Tank	553

G40 Site Electrical Utilities

G4095 Other Site Electrical Utilities	
G4095 110 Cathodic Protection System	554

General Maintenance

Table of Contents

Landscaping Maintenance

01 93 04.15	Edging	559
01 93 04.20	Flower, Shrub & Tree Care	559
01 93 04.35	Lawn Care	559
01 93 04.40	Lawn Renovation	559
01 93 04.65	Raking	560
01 93 04.85	Walkways and Parking Care	560
01 93 04.90	Yard Waste Disposal	560

Exterior General Maintenance

01 93 05.95	Window Washing	560
-------------	--------------------------	-----

Interior General Maintenance

01 93 06.20	Carpet Care	560
01 93 06.25	Ceiling Care	561
01 93 06.40	General Cleaning	561
01 93 06.45	Hard Floor Care	562
01 93 06.80	Vacuuming	565
01 93 06.90	Wall Care	566
01 93 06.95	Window and Accessory Care	566

Facility Maintenance Equipment

01 93 08.50	Equipment	567
-------------	---------------------	-----

Facilities Audits

Table of Contents

Auditing the Facility	571
Audit Checklists	575
Building Data Summary	575
Facilities Inventory Form	576
Standard Inspection Form	577
A10–Foundations Inspection Checklist	578
A20–Basement Inspection Checklist	579
B10–Superstructures Inspection Checklist	580
B20–Exterior Closure Inspection Checklist	582
B30–Roofing Inspection Checklist	583
C10–Partitions & Doors Inspection Checklist	585
C30–Walls & Finishes Inspection Checklist	586
C30–Floors & Finishes Inspection Checklist	587
C30–Ceilings & Finishes Inspection Checklist	588
D10–Conveying Inspection Checklist	589
D20–Mechanical/Plumbing Inspection Checklist	590
D30–Mechanical/HVAC Inspection Checklist	591
D50–Electrical/Service & Distribution Inspection Checklist	593
G20–Site Work Inspection Checklist	594
H10–Safety Standards Inspection Checklist	595

Reference Section

All the reference information is in one section, making it easy to find what you need to know . . . and easy to use the data set on a daily basis. This section is visually identified by a vertical black bar on the page edges.

In this Reference Section we've included information on Equipment Rental Costs, Crew Listings, Travel Costs, Reference Tables, Life Cycle Costing, and a listing of Abbreviations.

Table of Contents

Equipment Rental Costs	599
Crew Listings	611
Travel Costs	617
Reference Tables	618
H General Conditions	
RH1010 Overhead, Design & Engineering, Worker's Compensation.....	618
RH1020 Overhead & Miscellaneous Data & Overtime	622
RH1030 Sales Tax.....	622
RH1040 Temporary Supports	623
City Adjustments	
RJ1010 Component Indexes.....	624
RJ1020 Historical Cost Indexes.....	625
RJ1030 City Cost Indexes	626
RJ1040 Location Factors	639
Reference Aids	
RL1010 Live Loads, Dead Loads, Wind Loads & Snow Loads	645
RL1020 Area Requirements & Building Code Requirements.....	653
RL1030 "R" Values & Thermal Properties	657
RL1040 Construction Classification.....	660
RL1090 Conversion Factors.....	663
Life Cycle Costing	664
Abbreviations	669