G®RDIAN®

Electrical Costs

with RSMeans data



2021

44th annual edition

Copyright The Gordian Group, Inc. 2021



GR

DIAN[®]

44th annual edition

Vice President, Data

Tim Duggan

Vice President, Product

Ted Kail

Product Manager

Jason Jordan

Principal Engineer

Bob Mewis

Engineers: Architectural Divisions

1, 3, 4, 5, 6, 7, 8, 9, 10, 11,

12 13 41

Matthew Doheny, Manager

Sam Babbitt

Sergeleen Edouard Richard Goldin

Scott Keller Thomas Lane

Engineers: Civil Divisions and Wages

2, 31, 32, 33, 34, 35,

44, 46

Derrick Hale, PE, Manager

Christopher Babbitt Stephen Bell

Michael Lynch

Elisa Mello

David Yazbek

Engineers: Mechanical, Electrical, Plumbing &

Conveying Divisions 14, 21, 22, 23, 25, 26, 27,

28, 48 Joseph Kelble, Manager

Brian Adams

Michelle Curran

Antonio D'Aulerio Thomas Lyons

Jake MacDonald

Contributing Engineers

John Melin, PE, Manager

Paul Cowan

Barry Hutchinson

Gerard Lafond, PE Matthew Sorrentino

Technical Project Lead Kevin Souza

Production

Debra Panarelli, Manager Jonathan Forgit

Sharon Larsen

Shervl Rose

Janice Thalin

Data Quality

Joseph Ingargiola, Manager David Byars

Audrey Considine

Cover Design **Blaire Collins**

Innovation

Ellen D'Amico

Ray Diwakar, Vice President

Kedar Gaikwad

Todd Glowac Srini Narla

Joseph Woughter

RSMeans data from Gordian

Construction Publishers & Consultants 1099 Hingham Street, Suite 201 Rockland, MA 02370 United States of America 1.800.448.8182 RSMeans.com

Copyright 2020 by The Gordian Group Inc. All rights reserved. Cover photo © iStock.com/roman023

Printed in the United States of America ISSN 1540-6318 ISBN 978-1-950656-54-7

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

0031

\$319.00 per copy (in United States) Price is subject to change without prior notice. 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.



Table of Contents

Foreword	iv
How the Cost Data Is Built: An Overview	V
Estimating with RSMeans data: Unit Prices	vii
How to Use the Cost Data: The Details	ix
Unit Price Section	1
RSMeans data: Unit Prices—How They Worl	c 2
Assemblies Section	385
RSMeans data: Assemblies—How They Wor	k 386
Reference Section	469
Construction Equipment Rental Costs	471
Crew Listings	483
Historical Cost Indexes	520
City Cost Indexes	521
Location Factors	564
Reference Tables	570
Change Orders	640
Project Costs	643
Abbreviations	648
Index	652
Other Data and Services	673
Labor Trade Rates including Overhead & Profit	Inside Back Cover

Unit Price Section

Table of Contents

Sect. N	No.	Page	Sect	No.	Page	Sect.	No.	Page
	General Requirements		11 71	Medical Sterilizing Equipment	67	26 61	Lighting Systems and Accessories .	318
01 11	Summary of Work	8	11 72	Examination		26 71	Electrical Machines	
01 21	Allowances			and Treatment Equipment	67		Communications	
01 31	Project Management		11 76	Operating Room Equipment		27 01	Operation and Maintenance of	
	and Coordination	10	11 78	Mortuary Equipment		2/ 01	Communications Systems	32.0
01 32	Construction Progress	10	11 82	Facility Solid Waste		27 05	Common Work Results for	020
01 41	Documentation			Handling Equipment	68		Communications	320
01 51	Regulatory Requirements Temporary Utilities	12		Furnishings		27 11	Communications Equipment Room	
01 52	Construction Facilities	14	12 46	Furnishing Accessories	70		Fittings	327
01 54	Construction Aids			Special Construction		27 13	Communications Backbone	
01 55	Vehicular Access and Parking		13 11	Swimming Pools	72		Cabling	329
01 56	Temporary Barriers and Enclosures	17	13 12	Fountains		27 15	Communications Horizontal	
01 58	Project Identification	19	13 21	Controlled Environment Rooms .			Cabling	330
01 66	Product Storage and Handling	10	13 24	Special Activity Rooms	74	27 21	Data Communications Network	
01 74	Requirements		13 47	Facility Protection		07.00	Equipment	
01 91	Commissioning		13 49	Radiation Protection	/5	27 32	Voice Communications Terminal	22
01 93	Facility Maintenance			Fire Suppression		07 41	Equipment	
	Existing Conditions	20	21 21	Carbon-Dioxide Fire-Extinguishin		27 41	Audio-Video Systems	
02 31	Geophysical Investigations	24	21 22	SystemsClean-Agent Fire-Extinguishing	/8	27 42	Electronic Digital Systems	335
02 41	Demolition	24	21 22	Systems	78	27 51	Distributed Audio-Video	22
02 82	Asbestos Remediation	26		Plumbing	/ 0	27 52	Communications Systems	330
	Concrete		22 01	Operation and Maintenance		2/ 32	Healthcare Communications and	22.
03 01	Maintenance of Concrete	30	22 01	of Plumbing	82	27 53	Monitoring Systems	
03 11	Concrete Forming		22 05	Common Work Results	02	2/ 33	Distributed Systems	33
03 15	Concrete Accessories			for Plumbing	83		Electronic Safety & Security	
03 21	Reinforcement Bars		22 33	Electric Domestic Water Heaters		28 01	Operation and Maint. of Electronic	
03 22	Fabric and Grid Reinforcing		22 34	Fuel-Fired Domestic Water Heater	rs 86	•• ••	Safety and Security	340
03 30	Cast-In-Place Concrete			Heating Ventilation Air Conditioning		28 05	Common Work Results for	
03 31	Structural Concrete		23 05	Common Work Results for HVAC	C 88	20.15	Electronic Safety and Security	
03 35 03 54	Concrete Finishing		23 09	Instrumentation and Control		28 15	Access Control Hardware Devices	340
03 63	Cast Underlayment		02.24	for HVAC		28 18	Security Access Detection	2.40
03 81	Epoxy Grouting		23 34 23 52	HVAC Fans		20.22	Equipment	
03 82	Concrete Boring		23 54	Heating Boilers Furnaces		28 23 28 31	Video Management System	
	Metals	00	23 82	Convection Heating	21		Intrusion Detection	
05 05	Common Work Results for Metals	40		and Cooling Units	98	28 33	Security Monitoring and Control	
05 12	Structural Steel Framing		23 83	Radiant Heating Units		28 46	Fire Detection and Alarm	
05 35	Raceway Decking Assemblies			Integrated Automation		28 47	Mass Notification	
	Wood, Plastics & Composites		25 05	Common Work Results		28 52	Detention Security Systems	340
06 16	Sheathing	46		for Integrated Automation	106		Earthwork	
	Thermal & Moisture Protection	10	25 36	Integrated Automation		31 23	Excavation and Fill	348
07 84	Firestopping	18		Instrumentation & Terminal	106		Exterior Improvements	
07 91	Preformed Joint Seals			Devices	106	32 31	Fences and Gates	369
07 92	Joint Sealants		07.01	Electrical			Utilities	002
	Openings		26 01	Operation and Maintenance	100	33 05		
08 31	Access Doors and Panels	54	26 05	of Electrical Systems	106	33 03	Common Work Results for Utilities	26
	Finishes	0 1	20 00	for Electrical	109	33 42		
09 22	Supports for Plaster		26 09	Instrumentation and Control for		33 71	Stormwater Conveyance Electrical Utility Transmission	360
0/	and Gypsum Board	56		Electrical Systems	216	33 / 1	and Distribution	360
09 57	Special Function Ceilings		26 12	Medium-Voltage Transformers	218	33 72	Utility Substations	
09 69	Access Flooring		26 13 26 22	Medium-Voltage Switchgear		33 73	Utility Transformers	37
	Specialties		26 24	Low-Voltage Transformers Switchboards and Panelboards		33 75	High-Voltage Switchgear	
10 28	Toilet, Bath, and Laundry		26 25	Low-Voltage Enclosed Bus	223	33 7 3	and Protection Devices	370
	Accessories'	60	20 20	Assemblies	247	33 78	Substation Converter Stations	
	Equipment		26 27	Low-Voltage Distribution		33 79	Site Grounding	
11 12	Parking Control Equipment	62		Equipment	268	33 81	Communications Structures	
11 21	Retail and Service Equipment	62	26 28	Low-Voltage Circuit Protective	201	55 51		0 / 0
11 30	Residential Equipment	63	27, 20	Devices		24 42	Transportation	
11 32	Unit Kitchens		26 29 26 31	Low-Voltage Controllers		34 43	Airfield Signaling and Control	200
11 41	Foodservice Storage Equipment		26 32	Photovoltaic Collectors			Equipment	380
11 42 11 44	Food Cooking Equipment		26 33	Packaged Generator Assemblies . Battery Equipment			Electrical Power Generation	
11 44	Food Cooking Equipment Food Dispensing Equipment		26 35	Power Filters and Conditioners		48 13	Hydroelectric Plant Electrical Power	er
11 48	Foodservice Cleaning and Disposal		26 36	Transfer Switches		40.4-	Generation Equipment	382
11 10	Equipment		26 41	Facility Lightning Protection		48 15	Wind Energy Electrical Power	
11 52	Audio-Visual Equipment		26 51	Interior Lighting	302	40.40	Generation Equipment	382
11 53	Laboratory Equipment		26 52	Safety Lighting		48 18	Fuel Cell Electrical Power	
11 61	Broadcast, Theater.		26 54	Classified Location Lighting	311		Generation Equipment	382
11 66	and Stage Equipment	67	26 55 26 56	Special Purpose Lighting	312			
11 00	ATRICTIC Equipment	6/	(0.70	HYTORIOR LIGHTING	414			

Assemblies Section

Table of Contents

Table I		Page
DOLK	D2020 Domestic Water Distribution	
D2020	210 Electric Water Heaters - Residential Systems	202
	240 Electric Water Heaters - Commercial Systems	
D2020	•	. 070
D2020	D3020 Heat Generating Systems	204
	102 Small Heating Systems, Hydronic, Electric Boilers	
D3020	104 Large Heating Systems, Hydronic, Electric Boilers	. 395
	D4090 Other Fire Protection Systems	
D4090	910 Fire Suppression Unit Components	. 396
D4090	920 FM200 Systems	. 396
	D5010 Electrical Service/Distribution	
D5010	110 High Voltage Shielded Conductors	. 397
	120 Overhead Electric Service, 3 Phase - 4 Wire	
	130 Underground Electric Service	
	230 Feeder Installation	
	240 Switchgear	
	250 Panelboard	
	D5020 Lighting and Branch Wiring	
D5020	110 Receptacle (by Wattage)	406
	115 Receptacles, Floor	
	120 Receptacles & Wall Switches	
	125 Receptacles & Switches by Each	
	130 Wall Switch by Sq. Ft.	
D5020	135 Miscellaneous Power	411
D5020	140 Central A. C. Power (by Wattage)	412
D5020	145 Motor Installation	413
D5020	155 Motor Feeder	415
D5020	160 Magnetic Starter	416
D5020	165 Safety Switches	417
D5020	170 Motor Connections	418
D5020	175 Motor & Starter	419
D5020	208 Fluorescent Fixtures (by Type)	425
	210 Fluorescent Fixtures (by Wattage)	
	214 Incandescent Fixture (by Type)	
	216 Incandescent Fixture (by Wattage)	
	218 Fluorescent Fixture, High Bay, 8'-10' (by Wattage)	
D5020	220 H.I.D. Fixture, High Bay, 8'-10' (by Type)	430

	age
D5020 222 H.I.D. Fixture, High Bay, 8'-10' (by Wattage)	
D5020 224 H.I.D. Fixture, High Bay, 16' (by Type)	
D5020 226 H.I.D. Fixture, High Bay, 16' [by Wattage]	
D5020 228 H.I.D. Fixture, High Bay, 20' (by Type)	
D5020 230 H.I.D. Fixture, High Bay, 20' [by Wattage]	
D5020 232 H.I.D. Fixture, High Bay, 30' (by Type)	
D5020 234 H.I.D. Fixture, High Bay, 30' (by Wattage)	
D5020 236 H.I.D. Fixture, Low Bay, 8'-10' (by Type)	
D5020 238 H.I.D. Fixture, Low Bay, 8'-10' (by Wattage)	
D5020 240 H.I.D. Fixture, Low Bay, 16' (by Type)	
D5020 242 H.I.D. Fixture, Low Bay, 16' (by Wattage)	
D5020 290 Daylight Dimming System	
D5020 295 Lighting On/Off Control System	443
D5030 Communications and Security	
D5030 310 Telephone Systems	
D5030 810 Security & Detection Systems	
D5030 910 Communication & Alarm Systems	
D5030 920 Data Communication	446
D5090 Other Electrical Systems	
D5090 210 Generators (by kW)	447
D5090 420 Photovoltaic Power System, Stand Alone	449
D5090 430 Photovoltaic Power System, Grid Connected	450
D5090 480 Energy Monitoring Systems	451
D5090 510 Electric Baseboard Radiation (Low Density)	452
D5090 520 Electric Baseboard Radiation (Medium Density)	453
G BUILDING SITEWORK	
G1030 Site Earthwork	
G1030 805 Trenching Common Earth	456
G1030 806 Trenching Loam & Sandy Clay	
G1030 807 Trenching Sand & Gravel	
G4010 Electrical Distribution	
G4010 312 Underground Power Feed	462
G4010 320 Underground Electrical Conduit	
G4020 Site Lighting	
G4020 110 Site Lighting	466
G4020 210 Light Pole (Installed)	

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 Equipment Rental Costs, a listing of rental and operating costs; Crew Listings, a full listing of all crews, equipment, and their costs; Historical Cost Indexes for cost comparisons over time; City Cost Indexes and Location Factors for adjusting costs to the region you are in; Reference Tables, where you will find explanations, estimating information and procedures, and technical data; and an explanation of all the Abbreviations in the data set.

Table of Contents

Construction Equipment Rental Costs	471
Crew Listings	483
Historical Cost Indexes	520
City Cost Indexes	521
Location Factors	564
Reference Tables	570
R01 General Requirements	570
R02 Existing Conditions	582
R05 Metals	583
R07 Thermal & Moisture Protection	583

Reference Tables (cont.)

R22 Plumbing	584	
R23 Heating, Ventilating &		
Air Conditioning	586	
R26 Electrical	588	
R27 Communications	636	
R31 Earthwork	637	
R33 Utilities	638	
Change Orders		
Project Costs	643	
Abbreviations	648	