

Table of Contents

Contributors to This Edition	ix
Introduction	xi
How to Use This Book	xiii
Chapter 1: Types of Estimates	1
Four Types of Estimates	1
Time and Cost of Estimating	14
Chapter 2: Square Foot and Cubic Foot Estimates	15
Using Square Foot/Cubic Foot Cost Data	15
Some Examples	16
Conclusion	25
Chapter 3: Developing Structural Loads	27
Developing Loads	27
Assembly Versatility	28
Soil Bearing Capacity	28
Load Requirements	29
Conclusion	37
Assemblies Estimate: Three-Story Office Building	41
Chapter 4: Substructure	47
Spread Footings	47
Concrete Piers	49
Strip Footings	49
Grade Beams	52
Piles, Pile Caps, and Caissons	57
Slab on Grade	69
Assemblies Estimate: Three-Story Office Building	71
Chapter 5: Superstructure	81
Elevated Floor Assemblies	81
Considerations in Selecting Foundation and Framing Systems	86
Small versus Large Concrete Building	89
Assemblies Estimate: Three-Story Office Building	95

Chapter 6: Exterior Closure	103
The Effects of Energy Requirements	103
Exterior Wall Systems	108
Assemblies Estimate: Three-Story Office Building	112
Chapter 7: Roofing	123
Selecting a Roof Assembly	123
Calculation of Roof Area	127
Flashing	127
Roof Deck Insulation	129
Conclusion	129
Assemblies Estimate: Three-Story Office Building	130
Chapter 8: Interiors	137
Partitions	137
Stairs	140
Wall and Floor Finishes	140
Assemblies Estimate: Three-Story Office Building	145
Chapter 9: Conveying Systems	161
Selecting and Estimating Elevators	161
Safety	164
Speed and Capacity	164
Traffic	165
Sizing Elevators	166
Freight Elevators	168
Service Elevators	169
Federal Requirements	169
Cost of Elevators	169
Assemblies Estimate: Three-Story Office Building	170
Chapter 10: Plumbing	173
Estimating Plumbing Systems	173
Assemblies Estimate: Three-Story Office Building	182
Chapter 11: Heating, Ventilation, and Air Conditioning	195
Heating	196
Air Conditioning	197
Quality and Complexity	198
Assemblies Estimate: Three-Story Office Building	205
Chapter 12: Fire Protection	211
Classes of Fires	212
Standpipes	212
Sprinkler Systems	213
Occupancy Hazards	214
Assemblies Estimate: Three-Story Office Building	214
Chapter 13: Electrical	225
Budget Square Foot Costs	225
Estimating Procedure	229
Assemblies Estimate: Three-Story Office Building	233
Chapter 14: Equipment, Furnishings, and Special Construction	245
Equipment and Furnishings	245
Special Construction	246
Assemblies Estimate: Three-Story Office Building	246

Chapter 15: Building Sitework	249
Site Preparation	249
Site Improvements	249
Site Mechanical and Electrical Utilities	249
Earthwork	249
Utilities	250
Pavements	250
Assemblies Estimate: Three-Story Office Building	255
Chapter 16: Estimate Summary	263
The Installing Contractor's Overhead and Profit	263
General Contractor's Mark-ups	265
Assemblies Estimate: Three-Story Office Building	270
Completed Estimate Summary	271
Chapter 17: Overview/Estimate Analysis	275
Breakdown of Square Foot Costs	275
Cost Comparisons	275
Component Comparison	278
Estimating Accuracy	281
Estimate Summary	281
A Final Word	283
Appendix	287
Using UNIFORMAT II in Preliminary Design & Planning	287
UNIFORMAT II Levels 3 and 4	297
Overview of CostWorks	325
Index	337