Preface xiii
Acknowledgments xv

Part I Design Considerations 1

Chapter 1 Finish Selection and Specification 3
Functional Criteria 4
Health and Safety Codes 7
Building Codes 7
Residential Codes 8
Other Regulations and Standards 9
Finish and Furniture Selection and Codes 11
Human Factors and Material Selection 12
Accessible and Universal Design 13
Cost Estimating 14

Chapter 2 Sustainable Design 17
Sustainable Design Principles 18
Sustainability Codes and Standards 18
Sustainable Materials 19
Materials Selection Considerations 20
Evaluating Sustainable Materials 23
Product Certifications and Standards 25
Product Certification Systems 25
Sustainable Product Standards 25
The LEED System 26
Green Globes 27

Chapter 3 Existing Buildings 29
Existing Building Interiors 30
Cost Factors for Existing Buildings 31
Historic Buildings 32
Treatment Standards and Guidelines 32
Rehabilitating Historic Interiors 36
Hazardous Existing Materials 37
Asbestos 37
Lead 38
Mold 39
Part II Interior Materials 41

Chapter 4 Concrete and Cement-Based Materials 43

Cement 43
  Types of Cement 43
  Manufacturing Cement 44
  Environmental Impacts of Cement 45
  Specifying Cement 46
  Applications for Cement 46

Terrazzo 49
  Types of Terrazzo 49
  Terrazzo Materials 50
  Environmental Impacts of Terrazzo 50
  Applications for Terrazzo 51
  Specifying and Cost Factors for Terrazzo 51
  Installing Terrazzo 52

Concrete 53
  Design Context for Concrete 53
  Types of Concrete 54
  Manufacturing of Concrete 55
  Environmental Impacts of Concrete 55
  Applications for Concrete 56
  Cost Factors for Concrete 58
  Finishes for Concrete 58

Chapter 5 Stone, Masonry, and Concrete Masonry Units 63

Stone 63
  Design Context for Stone 63
  Types of Stone 65
  Processing Stone 68
  Environmental Impacts of Stone 69
  Interior Applications for Stone 70
  Specifying Stone 72
  Cost Factors for Stone 72
  Installing Stone 72

Brick 74
  Design Context for Brick 74
  Types of Brick 76
  Manufacturing Brick 76
  Environmental Impacts of Brick 77
  Interior Applications for Brick 77
  Specifying and Cost Factors for Brick 78
  Installing Brick 78
Concrete Masonry Units (CMUs) 79
  Properties of CMUs 80
  Types of CMUs 80
  Environmental Impacts of CMUs 80
  Specifying and Cost Factors for CMUs 80
  Installing CMUs 82

Chapter 6 Glass and Ceramics 83
  Glass 83
    Design Context for Glass 84
    Types of Glass 86
    Manufacturing Glass 91
    Environmental Impacts of Glass 91
    Interior Applications for Glass 92
    Codes, Specifications, and Cost Factors for Glass 93
    Installing Glass 95
  Ceramics 97
    Design Context for Ceramics 97
    Types of Ceramics 97
    Manufacturing Ceramics 98
    Environmental Impacts of Ceramics 98
    Interior Applications for Ceramics 100
    Specifying and Cost Factors for Ceramics 103
    Installing Ceramic Tile 105

Chapter 7 Wood and Wood Products 107
  Solid Wood 107
    Design Context for Wood 107
    Types of Wood 109
    Manufacturing Solid Wood 113
    Environmental Impacts of Solid Wood 114
    Interior Applications for Solid Wood 116
    Specifying and Cost Factors for Solid Wood 117
    Installing Solid Wood 118
  Wood Veneer 119
    Design Context for Wood Veneer 119
    Types of Wood Veneer 120
    Manufacturing Wood Veneer 121
    Environmental Impacts of Wood Veneer 121
    Interior Applications for Wood Veneer 122
    Specifying and Cost Factors for Wood Veneer 123
    Installing Wood Veneer 123
Wood Panel Products 125
  Design Context for Wood Panels 125
  Types of Wood Panel Products 126
  Environmental Impacts of Wood Panels 130
  Specifying and Cost Factors for Wood Panels 130
  Finishes for Wood Panels 131

Chapter 8 Plaster and Gypsum Board 133
  Plaster 133
    Design Context for Plaster 133
    Types of Plaster 135
    Manufacturing Plaster 135
    Environmental Impacts of Plaster 137
    Interior Applications for Plaster 137
    Specifying and Cost Factors for Plaster 138
    Installing Plaster 139
  Gypsum Board 142
    Design Context for Gypsum Board 142
    Types of Gypsum Board 143
    Manufacturing Gypsum Board 143
    Environmental Impacts of Gypsum Board 144
    Interior Applications for Gypsum Board 144
    Specifying and Cost Factors for Gypsum Board 145
    Installing Gypsum Board 145
  Glass Fiber Reinforced Gypsum (GFRG) 147
    Interior Applications for GFRG 148
    Specifying and Cost Factors for GFRG 148
    Installing GFRG 149

Chapter 9 Metals 151
  General Information 151
  Ferrous Metals 152
    Design Context for Ferrous Metals 152
    Types of Ferrous Metals 153
    Manufacturing and Environmental Impacts of Ferrous Metals 154
    Interior Applications for Ferrous Metals 155
    Specifying and Cost Factors for Ferrous Metals 155
    Installation and Maintenance of Ferrous Metals 157
  Nonferrous Metals 158
    Design Context for Nonferrous Metals 158
    Types of Nonferrous Metals 160
    Manufacturing and Environmental Impacts of Nonferrous Metals 167
    Interior Applications for Nonferrous Metals 168
Specifying and Cost Factors for Nonferrous Metals 169
Finishes for Nonferrous Metals 170
Maintenance of Nonferrous Metals 171

Chapter 10 Synthetic Materials 173
General Information 173
Design Context for Synthetics 173
Manufacturing Synthetics 175
Environmental Impacts of Synthetics 175
Cost Factors for Synthetic Materials 177
Types of Synthetic Materials 178
Thermoplastics 178
Thermoset Plastics 182
Elastomers 183
Composite Materials 183
Interior Applications for Synthetic Materials 185
Finish Materials 185
Plastic Furniture 188
Adhesives 188
Plastic Films 189

Part III Finish Comparisons 191

Chapter 11 Paints and Coatings 193
Paints 193
Painting Systems 193
Paint Components 195
Types of Interior Paints 195
Specifying and Cost Factors for Paints 200
Coatings and Stains 201
Finishes for Wood 201
Finishes for Metals 205

Chapter 12 Fibers, Textiles, and Leather 209
Fibers 209
Properties of Fibers 209
Plant Fibers 210
Animal Fibers 213
Synthetic Fibers 217
Textiles 222
General Considerations for Textiles 222
Fabrication Methods for Textiles 223
Finishing Textiles 229
Leather 232
  General Considerations for Leather 232
  Types of Leather 232
  Manufacturing Leather 233
  Environmental Impacts of Leather 234
  Interior Applications for Leather 235
  Specifying and Cost Factors for Leather 235
  Finishes and Maintenance for Leather 236

Chapter 13 Floor Finishes 237
  General Considerations for Floor Finishes 237
    Durability 237
    Accessories and Maintenance 237
    Codes and Standards for Floor Finishes 238
    Cost Factors 238
  Hard Floor Surfaces 238
    Tile Flooring 239
    Glass Flooring 243
    Concrete, Terrazzo, and Poured Flooring 243
    Laminate Flooring 244
  Wood and Bamboo Flooring 246
    Solid Wood Flooring 246
    Parquet Flooring 250
    Engineered Hardwood Flooring 250
    Bamboo Flooring 251
  Resilient Flooring 253
    General Considerations for Resilient Flooring 253
    Cork Flooring 254
    Linoleum 255
    Rubber Flooring 256
    Vinyl Flooring 257
    Leather Floor Tiles 259
  Soft Floor Coverings 260
    Codes and Standards for Soft Floor Coverings 260
    Carpets 260
    Rugs 268

Chapter 14 Wall and Window Finishes 273
  Wall Finishes 273
    General Considerations for Wall Finishes 273
    Wall Tiles 274
    Wall Panels 276
Low Partitions  283
  Toilet Partitions  283
  Office Partitions  284
Wallcoverings  284
  General Considerations for Wallcoverings  284
  Wallpaper and Wall Lining  287
  Wood and Natural Fiber Wallcoverings  288
  Textile, Nonwoven, and Leather Wallcoverings  292
Glass Partitions and Glazing  295
  General Considerations for Glass and Glazing  295
  Glass Block Walls  296
  Glazed Walls  296
  Interior Glazing  298
Window Treatments  300
  Shutters, Blinds, and Shades  300
  Draperies and Curtains  303

Chapter 15 Ceiling Finishes  309
  General Considerations  309
    Light, Sound, and Heat  309
    Codes and Standards  311
    Cost Factors  311
  Ceiling Forms  311
  Exposed Ceilings  312
    Wood Structures  313
      Concrete and Metal Structures  314
  Plaster and Gypsum Board Ceilings  314
    Plaster Ceilings  314
      Gypsum Board Ceilings  315
        Finishes  315
  Wood Ceilings  316
    Planks and Panels  316
  Suspended Ceiling Systems  317
    Ceiling System Grids  317
      Canopies and Clouds  318
        Decorative Grids  319
          Acoustical Tiles and Panels  319
            Metal Ceilings  321
              Textile Ceiling Systems  325
Chapter 16 Millwork, Casework, and Furnishings  327
  Millwork  327
    Design Considerations for Millwork  327
    Moldings and Trims  328
  Casework  332
    Design Considerations for Casework  332
    Cabinets  333
    Shelving  339
    Countertops  339
  Furnishings  345
    General Considerations for Furnishings  346
    Furniture Types  347
    Furniture Materials  350
    Upholstery  355
    Other Furnishings  359

Glossary  361
Index  369