Chapter 9 Equipment Layout

Plant Coordinate System 170
Plant Elevations 170
Site Plans 176
Unit Plot Plan 176
Equipment Location Drawing 176
Foundation Location Drawing 176
Piping Drawing Index 176
Chapter 9 Review Quiz 182
Chapter 9 Drawing Exercises 183

Chapter 10 Piping Arrangement Drawings, Sections, and Elevations

Arrangement Drawings 186
Responsibilities of the Piping Designer 186
Information Sources for Piping Arrangement Drawings 186
Layout Procedures 187
Piping Arrangement Drawing Layout 187
Dimensioning 233
Piping Sections and Elevations: What Are They? 233
Detail Drawings 237
Pipe Line List 237
Chapter 10 Review Quiz 241
Exercises: Plans, Elevations, and Sections 241

Chapter 11 Standard Piping Details

Pipe Rack Spacing 242
Drawing Pipe in The Rack 242
Pipe Flexibility 243
Planning for Heat Expansion 244
Pipe Anchors 246
Pipe Insulation Shoes 247
Pipe Guides 247
Pipe Spans 247
Pipe Supports 248
Field Supports 248
Dummy Supports 250
Hanger Rods 251
Spring Hangers 251
Pick-up Pipe Supports 251
Chapter 11 Review Quiz 258

Chapter 12 Piping Systems

Plant Utilities 259
Control Valve Manifolds 260
Utility Stations 262
Meter Runs 263
Sewer and Underground Piping Systems 266
Chapter 12 Review Quiz 267
Chapter 12 Exercises 267

Chapter 13 Piping Isometrics

What is an Isometric? 269
Isometric Orientation 272
Drawing Piping Isometrics 275
Isometric Dimensions, Notes, and Callouts 278
Isometric Offsets 278
Chapter 13 Review Quiz 288
Chapter 13 Drawing Exercises 289

Chapter 14 Building 3D Piping Models

Advantages of 3D Modeling 307
Checking for Interferences 307
Generating Drawings Automatically from a Model 311
Generating Isometric Drawings Automatically 312
Computer-Aided Engineering of Models 312
Choosing a Modeling Software Package 314
Building a 3D Model Using PDMS 314

Chapter 15 Project Coordination

Process and Instrument Diagrams 342
Piping Arrangement Drawings with Elevations 345
Foundation and Equipment Location Drawings 352
Mechanical Equipment: Vendor Drawings 358
Mechanical Equipment: Footings, Foundations, and Pedestals 378
Main Pipe Rack and Miscellaneous Pipe Supports: Plans, Elevations, and Details 390
Electrical Drawings: Lighting and Power Supply and Grounding Plan 395
3D Model Views: Units 01-04 403

Appendix A: Dimensional Data 408
Appendix B: Alphabet of Lines 448
Appendix C: Review of Math 449
Appendix D: Use of the Calculator 450
Appendix E: Architect's Scale 453
Glossary 454
Index 461