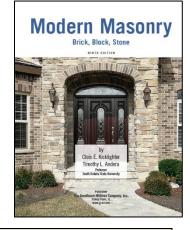
Correlation of Modern Masonry, 9th edition Clois E. Kicklighter and Timothy L. Andera (Goodheart-Willcox Publisher ©2022) to

HBI Residential Masonry & Concrete Standards

Goodheart-Willcox is pleased to partner with the Home Builder's Institute by correlating *Modern Masonry* to the Residential Masonry & Concrete Standards.

The correlation chart below lists the Standards and Objectives for the Residential Masonry & Concrete Standards exam in the left column. Corresponding content from *Modern Masonry* that can be used by a student to help achieve the standard and objective is listed in the right column.



Standards / Objectives	Textbook Pages	
Standard 1: Residential Masonry & Concrete As Career	'S	
Objective 1 What Work Performed by Masons & Concrete Finishers	pgs. 4-5, 8	
Objective 2 Physical Qualifications	pgs. 3-4, 5-6	
Objective 3 Career Benefits in Residential Masonry & Concrete	pgs. 6-8	
Objective 4 Career Pathways & Apprenticeship	pgs. 4-8	
Objective 5 Employment Outlook and Opportunities	pgs.6-8	
Standard 2: Safety		
Objective 1 Proper Dress & Protective Clothing	pgs. 52-54	
Objective 2 Personal Protection Equipment (Hard Hats, Masks, etc.)	pgs. 52-54	
Objective 3 Fall Protection	pgs. 58-59	
Objective 4 Stacking Materials	pg. 57-58	
Objective 5 Tool Safety	pgs. 54-56	
Objective 6 Lifting Safety	pgs. 52, 57	
Objective 7 Safe Use of Materials	pgs. 57-58	
Objective 8 Hazardous Materials	pgs. 61-63	
Objective 9 OSHA Safety Rules & MSDS	pgs. 50-52, 210, 253, 258, 401	
Objective 10 Scaffolding & Ladders	pgs. 58-61, 259	

Standards / Objectives	Textbook Pages
Objective 11 Ventilation & Respiration Equipment	pgs. 61-62
Standard 3: Reading Drawings & Plans	
Objective 1 The Use of Lines, Symbols & Abbreviations in Plans	pgs. 68-69, 71-73
Objective 2 Types of Plans and Drawings	pgs. 74-86
Objective 3 Dimensions & Scales	pgs. 69-70, 74
Objective 4 Revisions to the Working Drawing	pgs. 74-76
Objective 5 Care of the Working Drawing	pg. 69
Standard 4: Residential Materials	
Objective 1 Specifications and Codes	pgs. 86-87, 112-113
Objective 2 Characteristics/Properties of CMUs & Clay Brick Materials	pgs. 113-114
Objective 3 Sizes, Shapes, Types & Textures of Clay Brick & CMUs	pgs. 116-121, 154-170
Objective 4 Color & Finishes	pgs. 120-121
Objective 5 Dry-Stacked, Surface-Bonded Masonry	pgs. 126, 129-130
Objective 6 Fundamentals of Concrete	pgs. 381-386
Objective 7 Residential Applications of Concrete	pgs. 381
Standard 5: Use of Masonry Tools	
Objective 1 Trowels	pgs. 25-27, 43, 220-224, 286-287
Objective 2 Hammers	pgs. 28-29
Objective 3 Plumb Rule/Level	pgs. 32-33, 225, 233-235, 270-272
Objective 4 Mason's Scale Rule	pgs. 32-33, 228-229, 234, 272
Objective 5 Rotary Laser Levels	pgs. 33-34
Objective 6 Brick Set/Blocking Chisel	pgs. 34, 267
Objective 7 Mason's Chisel	pgs. 34, 267
Objective 8 Plugging/Joint Chisel	pgs. 34, 237
Objective 9 Lines/Fastening	pgs. 35-36, 225-227
Objective 10 Jointers	pg. 27, 230, 273
Objective 11 Mason's Brush	pgs. 36-37, 238, 274
Objective 12 Steel Square	pgs. 32, 229
Objective 13 Chalk Box	pgs. 32, 222-223, 228-229, 232
Objective 14 Tool Bag	pg. 29
Objective 15 Hard Hat & Safety Glasses	pgs. 52-53, 51, 55, 193, 238

Standards / Objectives	Textbook Pages	
Standard 6: Related Masonry Equipment		
Objective 1 Manual Tools (wheelbarrows, shovels)	pgs. 40-41, 39, 43	
Objective 2 Power-driven Tools (mixers, saws & grinders, vibrators, prime mover, etc.)	pgs. 38-39, 41, 44, 46, 259, 288	
Standard 7: Cutting with Masonry Saws		
Objective 1 Wet & Dry Cutting	pgs. 38-39, 225, 267	
Objective 2 Safety Practices	pgs. 38-39, 55-56	
Objective 3 Care of Saw	pgs. 38-39	
Standard 8: Types of Characteristics of Mortar		
Objective 1 Ingredients & Types of Mortar (water, admixtures)	pgs. 186-189	
Objective 2 Recommended Uses of Mortar: Type M, S, N, O	pgs. 191-192	
Objective 3 Recommended Mortar Joints in Historical Bldgs (tuckpointing)	pgs. 193-194	
Objective 4 Potential Problems (discoloration, efflorescence, etc.)	pgs. 194-196	
Standard 9: Mixing Mortar		
Objective 1 Standard Proportions for Mortar Mixtures	pgs. 188-190	
Objective 2 Mixing Mortar Manually	pgs. 189-190	
Objective 3 Mixing Mortar w/Power Mixer	pg. 189	
Objective 4 Troubleshooting Mixing Mortar	pgs. 188-193	
Standard 10: Mixing Grout		
Objective 1 Applications & Types of Grout	pgs. 197	
Objective 2 Standard Proportions for Grout Mixtures	pgs. 198-199	
Objective 3 Mixing Grout Manually	pg. 199	
Objective 4 Mixing Grout w/Power Mixer	pg. 199	
Objective 5 Troubleshooting Mixing & Placing Grout	pgs. 199-200	
Standard 11: Brick Bonds & Patterns		
Objective 1 Running/Stretcher Bond	pgs. 126-127, 130	
Objective 2 Stack Bond	pgs. 129-131	
Objective 3 Common or American Bond	pgs. 129-130	
Objective 4 Flemish Bond	pgs. 129-130	
Objective 5 English Bond	pgs. 129-130	
Objective 6 Garden Wall Bonds	pgs. 129-130	

Standards / Objectives	Textbook Pages
Standard 12: CMU Bonds	
Objective 1 Running Bond	pgs. 167-168
Objective 2 Stack Bond	pgs. 167-168
Objective 3 Decorative Bonds (CMH p92-98)	pgs. 167-168
Standard 13: Laying Brick to the Line	
Objective 1 Mortar Bonding Characteristics	pgs. 125-130
Objective 2 Corner Pole	pgs. 225, 229
Objective 3 Line Block	pgs. 36, 226, 236
Objective 4 Setting the trig	pgs. 268, 236
Objective 5 Laying the units	pgs. 222-223, 232-238
Objective 6 Pressing units into place	pg. 223, 252
Objective 7 Laying the closure unit	pgs. 224, 236, 241-242
Standard 14: Layout	
Objective 1 Dry Bond First Course	pgs. 240, 269
Objective 2 Modular Construction	pgs. 119–120, 138, 154, 228-238
Objective 3 Building Layout Doors & Windows	pgs. 348-349, 355
Objective 4 Masonry Openings for Ductwork, AC Units, etc.	pgs. 348, 356, 358
Standard 15: Building Brick Corners	
Objective 1 Building an Outside Corner	pgs. 228-230, 235
Objective 2 Building an Inside Corner	pg. 230
Objective 3 Rack-Back Lead	pgs. 230, 235
Objective 4 Toothing the Corner and Openings	pg. 320
Standard 16: Laying Concrete Block to the Line	
Objective 1 Spreading Mortar	pgs. 263-265, 270
Objective 2 Laying the First Course	pgs. 264-265, 268-271
Objective 3 Applying the Head Joint	pg. 266-267
Objective 4 Positioning Block	pgs. 266, 268
Objective 5 Adjusting Blocks	pgs. 270-272
Objective 6 Installing the Closure Block	pgs. 271, 273
Objective 7 Reinforcing Bed Joints of Concrete Block	pgs. 266, 268, 204-209
Objective 8 Tooling Joints	pg. 274
Objective 9 Cutting Concrete Block	pgs. 266-268
Objective 10 Safety Practices on the Job	pgs. 258, 268, 272,

Correlation of *Modern Masonry* to HBI Residential Masonry & Concrete Standards—page 5

Standards / Objectives	Textbook Pages	
Objective 11 Repointing the Wall	pg. 193	
Objective 12 Bracing, Care and Protection of Work	pgs. 281	
Standard 17: Laying the Block Corner		
Objective 1 Constructing the Block Corner	pgs. 269-274	
Objective 2 Bonding Corners for 4, 6, 10 & 12-inch Block	pg. 260	
Objective 3 Building the Corner to the Specified Height	pgs. 270-271	
Objective 4 Installing Wire Reinforcement in Joints	pgs. 205-206, 276-277	
Objective 5 Tooling Joints	pgs. 273-274	
Objective 6 Using 3-4-5 Method	pgs. 228-231	
Standard 18: Wall Construction		
Objective 1 Cavity & Veneer Walls	pgs. 242–247, 276-278, 328–334	
Objective 2 Composite Walls (double-wythe walls) CMH Fig 4-18	pgs. 209, 277, 336-337	
Objective 3 Minimizing Mortar Protrusions & Controlling Mortar Bridging	pgs. 276-278	
Objective 4 Tying Wythes Together with Headers	pgs. 299, 329, 331, 336	
Objective 5 Using Metal Ties and Collar Joints	pgs. 299, 329, 331, 336	
Objective 6 Reinforced Walls with Rebar & Grout	pgs. 338-339	
Standard 19: Masonry Supports and Bearing Plates		
Objective 1 Lintels	pg. 336	
Objective 2 Piers	pgs. 318-319	
Objective 3 Steel Bearing Plates	pgs. 333, 338	
Objective 4 Pilasters	pgs. 318-321	
Objective 5 Solid Masonry-Bearing Walls	pgs. 326-328	
Objective 6 Laying Units Around Door and Window Frames	pgs. 348-349, 355	
Standard 20: Movement Joints and Intersecting Walls		
Objective 1 Control Joints (concrete masonry)	pgs. 355-356	
Objective 2 Expansion Joints (clay masonry)	pg. 358	
Objective 3 Intersecting Walls	pg. 275	
Standard 21: Installation Details		
Objective 1 Setting Anchor Bolts	pgs. 212, 276	
Objective 2 Masonry Fasteners during & after construction	pgs. 204–217, 249	
Objective 3 Working with Electrical Wiring & Plumbing	pgs. 248, 348, 423-424	

Standards / Objectives	Textbook Pages	
Objective 4 Brick Corbeling & Quoine Corners	pgs. 181, 250, 359-360	
Objective 5 Columns, Piers & Pilasters	pgs. 318-321	
Objective 6 Wall Copings	pgs. 359-360	
Standard 22: Constructing Water-Resistant Walls		
Objective 1 Moisture Content of Brick	pgs. 243-244, 249	
Objective 2 Mortar Joints	pg. 244	
Objective 3 Air Cavity	pgs. 328-331	
Objective 4 Flashings, Vents & Weeps (holes, roping, vents)	pgs. 243-244, 246	
Objective 5 Mortar Collection Devices	pgs. 28–30, 278, 330	
Objective 6 Origins & Prevention of Efflorescence	pgs. 244, 246	
Objective 7 Water Repellants	pgs. 332	
Objective 8 Air Infiltration Barriers	pg. 356	
Standard 23: Constructing Water-Resistant Walls		
Objective 1 Proper Foundations & Supports	pgs. 414-415	
Objective 2 Parts of a Step	pgs. 369-370	
Objective 3 Rule of 25 (twice rise + depth of tread =25)	pg. 369	
Objective 4 Determining Number of Treads & Risers	pg. 369	
Objective 5 Constructing Steps	pg. 369	
Objective 6 Perimeter Wall Construction	pgs. 410-411	
Objective 7 Reinforced Concrete Slabs	pgs. 416-417	
Objective 8 Paving Brick Surface	pgs. 364-369	
Standard 24: Mortared Brick Pavers		
Objective 1 Intended Use (light, medium of heavy traffic)	pg. 116	
Objective 2 Paving brick classifications	pgs. 116-119	
Objective 3 Thickness Options	pgs. 119-120, 122	
Objective 4 Brick Density	pgs. 364-367	
Objective 5 Types of Base (rigid, semi-rigid, flexible)	pgs. 364-369	
Objective 6 Appearances & Sizes	pgs. 119-121	
Objective 7 Pattern Bond	pgs. 125-132	
Standard 25: Single Flue Chimney		
Objective 1 The Chimney Base	pg. 373	
Objective 2 Mortar for the Chimney Flue Liners	pgs. 192, 290-291	
Objective 3 Units for the Chimney	pg. 374	

Standards / Objectives	Textbook Pages	
Objective 4 Installing the Cleanout Door	pgs. 370-371	
Objective 5 Installing the Flue Lining	pg. 373, 376-377	
Objective 6 Beginning Installation	pgs. 370-372	
Objective 7 Installing Wood Framing Around Chimneys	pg. 371	
Objective 8 Installing Flashing at the Roof	pg. 374	
Objective 9 Capping the Chimney	pg. 374	
Objective 10 Checking for a Good Draft	pg. 371	
Objective 11 The Importance of Good Workmanship	pg. 366	
Objective 12 Building Code Requirements	pgs. 371-374	
Standard 26: Erecting and Using Ladders & Scaffolding		
Objective 1 Tubular Steel Sectional Scaffolding & Planking	pgs. 37, 60	
Objective 2 Avoiding Scaffolding Hazards	pgs. 58-61	
Objective 3 General Precautions & Safety Rules	pgs. 58-61	
Objective 4 OSHA Requirements	pgs. 58-59	
Standard 27: Cleaning Brick and Concrete Masonry		
Objective 1 Safe Use of Cleaning Agents	pg. 63	
Objective 2 Cleaning Brickwork during Construction	pgs. 252-254	
Objective 3 Cleaning Concrete Block during Construction	pg. 281	
Objective 4 Preventing Stains during Construction	pgs. 251-252	
Objective 5 Removing Stains after Construction	pgs. 252-254, 281	
Standard 28: Applied Finishes for Concrete Masonry		
Objective 1 Surface Applications (Paints, Stains & Clear Coatings)	pgs. 160, 443	
Objective 2 Portland Cement Plaster Finishes (Stucco)	pgs. 381-383	
Objective 3 Furred and Other Finishes	pgs. 249, 327	
Objective 4 Water Penetration Resistance	pgs. 161, 248-249	
Objective 5 Parging (Below-Grade, Above-Grade Surfaces)	pg. 279	
Standard 29: Additional Applications of Concrete Masonry		
Objective 1 Screen Walls	pgs. 473-474	
Objective 2 Garden Walls and Fences	pgs. 340-341	
Objective 3 Conventional Masonry Retaining Walls	pgs. 338-340	
Objective 4 SRW Segmental Retaining Walls	pgs. 346-348	
Objective 5 Interlocking Concrete Pavers	pgs. 251, 320	

Standards / Objectives	Textbook Pages	
Objective 6 Manufactured Stone	pgs. 181-183	
Objective 7 Cast Stone	pgs. 181-183	
Standard 30: Design and Construction of a Fireplace		
Objective 1 Essentials of Fireplace Construction	pgs. 369-370	
Objective 2 Mortar & Materials for Fireplace Construction	pgs. 118, 176, 178	
Objective 3 Laying out the Foundation & Clearances	pgs. 369-370, 373	
Objective 4 Installing the Rough Hearth	pg. 373, 376-377	
Objective 5 The Finished Hearth and Rough Opening	pgs. 373, 376-377	
Objective 6 Laying the Hearth	pgs. 373, 376-377	
Objective 7 Fireplace Openings	pgs. 370-372	
Objective 8 Laying Out the Firebox	pgs. 370-371, 375-377	
Objective 9 Building the Walls of the Firebox	pgs. 370-371, 375-377	
Objective 10 The Smoke Shelf	pgs. 372-373	
Objective 11 Fireplace Throat and Damper	pg. 372	
Objective 12 Installing the Damper	pg. 372	
Objective 13 Forming the Smoke Chamber	pgs. 372-373	
Objective 14 Determining the Size of Flue Linings	pg. 373	
Objective 15 Installing Outside Combustion Air Intakes	pgs. 374-375	
Objective 16 Setting the Flue Lining Over the Smoke Chamber	pgs. 372-373	
Standard 31: Arches		
Objective 1 Arch Construction & Terminology	pgs. 349, 351, 352-355	
Objective 2 Types & Classes of Arches	pgs. 349, 351-352	
Objective 3 Laying out Arches From the Radial Center Point	pgs. 353, 355	
Objective 4 Marking Off Spacing of the Arch Bricks	pgs. 349-350, 354	
Objective 5 Laying the Arch in Mortar	pgs. 351, 353-354	
Standard 32: Masonry Construction in Extreme Weather Conditions		
Objective 1 Hot-Weather Construction	pg. 196	
Objective 2 Cold-Weather Construction	pgs. 195-196	
Standard 33: Estimating Masonry Units		
Objective 1 The Importance of Estimating	pgs. 196-197	
Objective 2 The Wall Area Method	pgs. 104-106	
Objective 3 Estimating Square Feet	pg. 106	

Standards / Objectives	Textbook Pages
Objective 4 Estimating Masonry Cementitious Materials	pgs. 196-197
Objective 5 Estimating Sand	pgs. 197, 199
Objective 6 Steel Reinforcements (rebar, joint reinforcement)	pgs. 206, 211
Objective 7 Estimating Material Cost on the Job	pgs. 95-96, 257
Objective 8 Estimating Labor Costs	pgs. 97, 257
Standard 34: Problem Prevention, Maintenance and Re	epair of Masonry
Objective 1 Inspection	pgs. 498
Objective 2 Weathering and Frost Damage	pgs. 124, 364, 388
Objective 3 Cracks and Spalls	pgs. 243-244, 268, 274
Objective 4 Sealants	pgs. 299-300, 303
Objective 5 Water and Air Permeation	pgs. 154, 248-249
Objective 6 Efflorescence	pgs. 124-125
Objective 7 Tuckpointing	pgs. 193-194
Objective 8 Cleaning Concrete Masonry Surfaces	pgs. 281
Objective 9 Stain Removal	pgs. 252-254, 281
Objective 10 Protective Surface Treatments	pg. 304
Standard 35: Use of Concrete Tools	
Objective 1 Personal Protection Equipment (Gloves, eye protection, etc.)	pgs. 51-55, 223-226, 238, 274, 414, 429, 431, 437- 438, 457
Objective 2 Trowels, Floats, Concrete Rakes & Screeds	pgs. 25-28, 41-42
Objective 3 Hammers	pgs. 28
Objective 4 2- and 4-foot Levels	pgs. 32-34
Objective 5 Measuring Tape/Rule	pgs. 30-32
Objective 6 Edgers & Groovers	pgs. 43-44
Objective 7 Hand-held Rubbing Stone	pgs. 281
Objective 8 Hand Saws	pgs. 38-39
Objective 9 Lines/Fastening	pgs. 35-36, 227, 236, 272-273
Objective 10 Brooms	pg. 44
Standard 36: Use of Concrete Tools	
Objective 1 Manual Tools (wheelbarrows, shovels, rakes)	pgs. 39-42
Objective 2 Power-driven Tools (mixers, vibrators, power trowel, prime mover, plate compactor, concrete saws etc.)	pgs. 38-39, 41, 44, 46

Standards / Objectives	Textbook Pages
Standard 37: Cutting Control Joints with Concrete Saws	
Objective 1 Wet & Dry cutting	pgs. 44
Objective 2 Walk Behind, Hand-held & Soft Cut Saws	pgs. Add 44
Objective 3 Safety Practices	pgs. 53, 55
Objective 4 Care of Saws	pgs. 38-39, 44
Standard 38: Concrete Forms and Placing Footings	
Objective 1 Size of the Footings	pgs. 311-312
Objective 2 Steel Reinforcement	pgs. 208, 248, 338
Objective 3 Concrete for Footings	pgs. 309-313
Objective 4 How to Estimate Concrete for a Footing	pgs. 429
Objective 5 Types of Footings	pgs. 310-313
Objective 6 Placing Concrete for Footings	pgs. 310-313
Objective 7 Curing Time	pgs. 439-441
Objective 8 Other Uses of Forms for Concrete	pgs. 442-446
Standard 39: Essentials of Concrete Work	
Objective 1 Concrete Ingredients, Additives & Mix Proportioning	pgs. 381-386
Objective 2 Controlling Water-Cement Ratio, Strength & Workability on the Job	pgs. 387-389
Objective 3 Working Safely with Concrete	pgs. 51, 53-55, 57-58, 61-62
Objective 4 Preparation to Place Concrete	pgs. 428-430
Objective 5 Placing Concrete (including conveyor belts & pumping)	pgs. 430-433
Objective 6 Finishing Concrete	pgs. 433-437
Objective 7 Finishes for Concrete	pgs. 437-438, 442-448
Objective 8 Curing	pgs. 439
Objective 9 Troubleshooting Concrete Problems	pgs. 439-441
Objective 10 Air Entrainment and Freeze-Thaw Resistance	pgs. 439-441
Objective 11 Preventing Damage From Deicing Chemicals	pgs. 439-440
Standard 40: Concrete Reinforcement	
Objective 1 Steel (rebar & wire mesh)	pg. 394
Objective 2 Fiber reinforcement (polypropylene & steel)	pgs. 394
Standard 41: Concrete Construction in Extreme Weather Conditions	
Objective 1 Hot-Weather Construction	pgs. 440-441

Standards / Objectives	Textbook Pages
Objective 2 Cold-Weather Construction	pgs. 439-440
Standard 42: Preconstruction Preparation Checklist	
Objective 1 Necessary Tools for the Job	pgs. 219-220, 257-258
Objective 2 Subgrade Preparation	pgs. 39-40, 428-430
Objective 3 Moisture Protection (vapor retarders)	pg. 249
Objective 4 Formwork	pg. 404
Objective 5 Reinforcement (primary & secondary)	pgs. 209-212, 248, 338
Objective 6 Joint Design	pgs. 213-214
Objective 7 Desired Finish	pgs. 433-439
Standard 43: Finishing Concrete/Flatwork- Step by Step	p
Objective 1 Step 1. Subgrade Preparation (Vapor Retarders)	pgs. 428-430
Objective 2 Step 2: Setting Forms (Place Reinforcement)	pgs. 428-430
Objective 3 Step 3: Placing Concrete	pgs. 430-433
Objective 4 Step 4: Strike-off	pg. 433
Objective 5 Step 5: Darbying or Bullfloating	pgs. 433-435,
Objective 6 Step 6: Edging	pgs. 435-436
Objective 7 Step 7: Jointing	pgs. 441-442
Objective 8 Step 8: Waiting Period	pg. 431
Objective 9 Step 9: Floating	pgs. 436-437
Objective 10 Step 10: Troweling	pg. 437-439
Objective 11 Step 11: Curing	pgs. 439-441
Objective 12 Step 12: Protection	pgs. 439-441
Objective 13 Precautions about Adding Water	pgs. 431, 434
Objective 14 Problems and Cures in Finishing Concrete	pgs. 439-441
Standard 44: Building Concrete Steps	
Objective 1 Step 1: Subgrade Preparation	pgs. 414-415
Objective 2 Step 2: Layout	pgs. 414-415
Objective 3 Step 3: Formwork	pgs. 414-415
Objective 4 Step 4: Placement	-
Objective 5 Step 5: Strike-off	-
Objective 6 Step 6: Wait	-
Objective 7 Step 7: Floating and Edging	-
Objective 8 Step 8: Tread Finishing	-

Standards / Objectives	Textbook Pages
Objective 9 Step 9: Riser Finishing	—
Objective 10 Step 10: Form Removal	pg. 417
Objective 11 Step 11: Curing	pgs. 439-441
Objective 12 Precautions about Adding Water	pgs. 431, 434
Objective 13 Problems and Cures in Finishing Concrete	pgs. 439-441
Standard 45: Preventing Surface Defects	
Objective 1 Dusting	pgs. 433-435
Objective 2 Blisters	pgs. 431-432, 443, 437-438
Objective 3 Delaminations	pgs. 431-432, 437-438
Objective 4 Scaling	pgs. 383, 385, 433-435
Objective 5 Popouts	pgs. 431-432, 437-438
Objective 6 Crazing	pgs. 433-435
Objective 7 Cracking	pgs. 394, 435-436. 440, 444-445
Objective 8 Discoloration	_