

**Residential Masonry & Concrete
Standards Summary Vol. II**

Submitted To:

Home Builders Institute

Washington, DC 20005

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Academy of Residential Construction
National Association of Home Builders
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Residential Masonry & Concrete Standards

Introduction

We are pleased to present a summary of residential masonry and concrete standards. The goal of this project is to establish national standards for the residential construction industry that reflect industry skill requirements. The standards will provide a basis for the certification and training of workers and provide employers with objective benchmarks for selecting employees and evaluating training needs. In addition, educators will find the standards useful for designing curriculum and evaluating an individual's training outcomes.

These standards in and by themselves do not represent a model-training program. These standards are designed to be a source for developing program and curriculum and evaluating the outcomes of residential masonry and concrete training programs.

Residential masonry and concrete standards have been developed and validated and incorporate Level I standards for semi-skilled masons and Level II standards for skilled masons. Standards were developed and validated for two specialties; masonry and concrete. Forty-five (45) critical work functions or duty areas were identified. Critical work functions describe the major tasks and content areas of work within each specialty. Key activities or major tasks and knowledge involved in completing critical work functions are also provided.

Performance Indicators, which help determine when critical work functions and key activity are being performed competently and meet standards, are referenced to critical work functions. These indicators are found in *Residential Construction Performance*

Guidelines for Professional Builders & Remodelers 2nd Edition published by the National Association of Home Builders.¹

In addition, applied academic skills required to perform key activities are provided. These include measurement, arithmetic, layout, geometry, communications and applied academic skills. Safety requirements involved in completing key activities have also been identified.

This report presents each of the 45 critical work functions or duty areas as a series of two–page summaries. The first page of each summary lists the critical work function and masonry or concrete specialty that perform the work function. Key activities, performance indicators and applied academic skills and safety requirements are also listed on the first page. Page references from Thompson Learning Delmar’s *Masonry Skills* (5th edition) correspond with each key activity.

Descriptions of the codes used on the first page of each standard are listed on the second page of each summary. This format offers a concise presentation of the critical parts of each standard. For more detailed information, the reader is encouraged to review the complete report, *Residential Masonry and Concrete Standards*, published by the Home Builders Institute.

¹ Residential Constructional Performance Guidelines for Professional Builders & Remodelers 2nd Edition, National Association of Home Builders, Washington, DC, 2000.

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): Masonry , Concrete

Critical Work Function (The major responsibilities of work within a concentration): Safety

The Work

(What does the worker need to do to be able to perform the work competently)

The Worker

(What knowledge does the worker need)

Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
	NAHB Performance Guidelines 2000					Kreh 5 th Ed.)
A. Proper Dress & Protective Clothing			1,2			Pages 1-13
B. Personal Protection Equipment (Hard Hats, Masks, etc)			1,2			
C. Fall Protection			1,2			
D. Stacking Materials			1,2			
E. Tool Safety			1,2			
F. Lifting Safety			1,2			
G. Safe Use of Materials			1,2			
H. Hazardous Materials			1,2			
I. OSHA Safety Rules & MSDS			1,2			
J. Scaffolding & Ladders			1,2			
K. Ventilation & Respiration Equipment			1,2			

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection
					5.	5. Power Tools
					6.	6. PPE
					7.	7. Handling Materials
					8.	8. Ladders & Scaffolds
					9.	9. Moving and Lifting

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): Masonry, Concrete

Critical Work Function (The major responsibilities of work within a concentration): Residential Materials

The Work

(What does the worker need to do to be able to perform the work competently)

The Worker

(What knowledge does the worker need)

Key Activity

(The major tasks or knowledge involved in completing the CWF)

Performance Indicators

(Indicators of how to determine when the key activity is being performed competently)

NAHB Performance Guidelines 2000

Additional Knowledge

(Additional skills and knowledge required to perform key activities)

References

(Nationally recognized training materials)

Kreh 5th Ed.)

Key Activity	Performance Indicators	Additional Knowledge				References
		Math	Com.	Mat.	Safety	
A. Specifications and Codes			1,2	1,2		
B. Characteristics/Properties of CMUs & Clay Brick Materials			1,2	1,2		
C. Sizes, Shapes, Types & Textures of Clay Brick & CMUs			1,2	1,2		
D. Color & Finishes			1,2	1,2		
E. Dry-Stacked, Surface-Bonded Masonry			1,2	1,2		
F. Fundamentals of Concrete			1,2	1,2		
G. Residential Applications of Concrete			1,2	1,2		

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): **Masonry**

Critical Work Function (The major responsibilities of work within a concentration): Use of Masonry Tools

The Work

(What does the worker need to do to be able to perform the work competently?)

The Worker

(What knowledge does the worker need?)

Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
	NAHB Performance Guidelines 2000					Kreh 5 th Ed.)
A. Trowels			1,2			Pages 53-84
B. Hammers			1,2		6	
C. Plumb Rule/Level			1,2			
D. Mason's Scale Rule		1,2,3,4	1,2			
E. Rotary Laser Levels			1,2		6	
F. Brick Set/Blocking Chisel			1,2		6	
G. Mason's Chisel			1,2		6	
H. Plugging/Joint Chisel			1,2		6	
I. Lines/Fastening			1,2			
J. Jointers			1,2			
K. Mason's Brush		1,2,3,4	1,2			
L. Steel Square			1,2			
M. Chalk Box			1,2			
N. Tool Bag			1,2			
O. Hard Hat & Safety Glasses					6	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): **Masonry**

Critical Work Function (The major responsibilities of work within a concentration): **Mixing Mortar**

The Work

(What does the worker need to do to be able to perform the work competently)

The Worker

(What knowledge does the worker need)

Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
	NAHB Performance Guidelines 2000					Kreh 5 th Ed.)
A. Standard Proportions for Mortar Mixtures		1,2	1,2	1,2	2,6,7,9	Pages 132-142
B. Mixing Mortar Manually		1,2	1,2	1,2	2,6,7,9	
C. Mixing Mortar w/Power Mixer		1,2	1,2	1,2	2,5,6,7,9	
D. Troubleshooting Mixing Mortar		1,2	1,2	1,2	2,5,6,7,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): Masonry						
Critical Work Function (The major responsibilities of work within a concentration): Brick Bonds & Patterns						
The Work (What does the worker need to do to be able to perform the work competently)				The Worker (What knowledge does the worker need)		
Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
A. Running/Stretcher Bond	NAHB Performance Guidelines 2000	1,2,3	1,2	1,2	1,2,5,6,7,8,9	Pages 143-174
B. Stack Bond		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
C. Common or American Bond		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
D. Flemish Bond		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
E. English Bond		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
F. Garden Wall Bonds		1,2,3	1,2	1,2	1,2,5,6,7,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): Masonry						
Critical Work Function (The major responsibilities of work within a concentration): Laying Brick to the Line						
The Work (What does the worker need to do to be able to perform the work competently)			The Worker (What knowledge does the worker need)			
Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
A. Mortar Bonding Characteristics	NAHB Performance Guidelines 2000		1,2	1,2		Pages 175-267
B. Corner Pole		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
C. Line Block		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
D. Setting the trig		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
E. Laying the units		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
F. Pressing units into place		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
G. Laying the closure unit		1,2,3	1,2	1,2	1,2,5,6,7,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): **Masonry**

Critical Work Function (The major responsibilities of work within a concentration): **Building Brick Corners**

The Work

(What does the worker need to do to be able to perform the work competently)

The Worker

(What knowledge does the worker need)

Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
	NAHB Performance Guidelines 2000					Kreh 5 th Ed.)
A. Building an Outside Corner		1,2,3	1,2	1,2	1,2,5,6,7,8,9	Pages 188-203
B. Building an Inside Corner		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
C. Rack-Back Lead		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
D. Toothing the Corner and Openings		1,2,3	1,2	1,2	1,2,5,6,7,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): **Masonry**

Critical Work Function (The major responsibilities of work within a concentration): Laying Concrete Block to the Line

The Work

(What does the worker need to do to be able to perform the work competently)

The Worker

(What knowledge does the worker need)

Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
	NAHB Performance Guidelines 2000					Kreh 5 th Ed.)
A. Spreading Mortar		1,2,3	1,2	1,2	1,2,5,6,7,8,9	Pages 211-222
B. Laying the First Course		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
C. Applying the Head Joint		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
D. Positioning Block		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
E. Adjusting Blocks		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
F. Installing the Closure Block		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
G. Reinforcing Bed Joints of Concrete Block		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
H. Tooling Joints		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
I. Cutting Concrete Block		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
J. Safety Practices on the Job		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
K. Repointing the Wall		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
L. Bracing, Care and Protection of Work		1,2,3	1,2	1,2	1,2,5,6,7,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): Masonry						
Critical Work Function (The major responsibilities of work within a concentration): Laying the Block Corner						
The Work (What does the worker need to do to be able to perform the work competently)				The Worker (What knowledge does the worker need)		
Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
A. Constructing the Block Corner	NAHB Performance Guidelines 2000	1,2,3	1,2	1,2	1,2,5,6,7,8,9	Pages 223-232
B. Bonding Corners for 4, 6, 10 & 12-inch Block		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
C. Building the Corner to the Specified Height		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
D. Installing Wire Reinforcement in Joints		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
E. Tooling Joints		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
F. Using 3-4-5 Method		1,2,3,4	1,2	1,2	1,2,5,6,7,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): Masonry						
Critical Work Function (The major responsibilities of work within a concentration): Wall Construction						
The Work (What does the worker need to do to be able to perform the work competently)				The Worker (What knowledge does the worker need)		
Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
A. Cavity & Veneer Walls	NAHB Performance Guidelines 2000	1,2,3	1,2	1,2	1,2,5,6,7,8,9	Pages 239-267
B. Composite Walls (double-wythe walls) CMH Fig 4-18		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
C. Minimizing Mortar Protrusions & Controlling Mortar Bridging		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
D. Tying Wythes Together with Headers		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
E. Using Metal Ties and Collar Joints		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
F. Reinforced Walls with Rebar & Grout		1,2,3	1,2	1,2	1,2,5,6,7,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): Masonry						
Critical Work Function (The major responsibilities of work within a concentration): Installation Details						
The Work (What does the worker need to do to be able to perform the work competently)				The Worker (What knowledge does the worker need)		
Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
A. Setting Anchor Bolts	NAHB Performance Guidelines 2000	1,2,3	1,2	1,2	1,2,5,6,7,8,9	Pages 317-328
B. Masonry Fasteners during & after construction		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
C. Working with Electrical Wiring & Plumbing		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
D. Brick Corbeling & Quoine Corners		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
E. Columns, Piers & Pilasters		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
F. Wall Copings		1,2,3	1,2	1,2	1,2,5,6,7,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): Masonry							
Critical Work Function (The major responsibilities of work within a concentration): Constructing Water-Resistant Walls							
The Work (What does the worker need to do to be able to perform the work competently)				The Worker (What knowledge does the worker need)			
Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)	
		NAHB Performance Guidelines 2000	Math	Com.	Mat.		Safety
A. Moisture Content of Brick			1,2,3	1,2	1,2	1,2,5,6,7,8,9	Pages 124-125,252-254,479-480
B. Mortar Joints			1,2,3	1,2	1,2	1,2,5,6,7,8,9	
C. Air Cavity			1,2,3	1,2	1,2	1,2,5,6,7,8,9	
D. Flashings, Vents & Weeps (holes, roping, vents)			1,2,3	1,2	1,2	1,2,5,6,7,8,9	
E. Mortar Collection Devices			1,2,3	1,2	1,2	1,2,5,6,7,8,9	
F. Origins & Prevention of Efflorescence			1,2,3	1,2	1,2	1,2,5,6,7,8,9	
G. Water Repellants			1,2,3	1,2	1,2	1,2,5,6,7,8,9	
H. Air Infiltration Barriers			1,2,3	1,2	1,2	1,2,5,6,7,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): **Masonry**

Critical Work Function (The major responsibilities of work within a concentration): **Brick Steps, Stoops & Porches**

The Work

(What does the worker need to do to be able to perform the work competently)

The Worker

(What knowledge does the worker need)

Key Activity

(The major tasks or knowledge involved in completing the CWF)

Performance Indicators

(Indicators of how to determine when the key activity is being performed competently)

NAHB Performance Guidelines 2000

Additional Knowledge

(Additional skills and knowledge required to perform key activities)

References

(Nationally recognized training materials)

Kreh 5th Ed.)

Key Activity	Performance Indicators	Additional Knowledge				References
		Math	Com.	Mat.	Safety	
A. Proper Foundations & Supports		1,2,3	1,2	1,2	1,2,5,6,7,8,9	Pages 515-517
B. Parts of a Step		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
C. Rule of 25 (twice rise + depth of tread =25)		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
D. Determining Number of Treads & Risers		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
E. Constructing Steps		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
F. Perimeter Wall Construction		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
G. Reinforced Concrete Slabs		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
H. Paving Brick Surface		1,2,3	1,2	1,2	1,2,5,6,7,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math	Communication Skills	Materials	Safety
1. Measurement	1. Follow Verbal Directions	1. Select Appropriate Materials	1. Fall Protection
2. Arithmetic	2. Follow Written Directions	2. Apply as Specified	2. Silica Protection
3. Layout	3. Give Simple Directions		3. HAZMAT
4. Applied Geometry	4. Give Complex Directions		4. Electrical Protection
			5. Power Tools
			6. PPE
			7. Handling Materials
			8. Ladders & Scaffolds
			9. Moving and Lifting

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	
					10.	10. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): Masonry						
Critical Work Function (The major responsibilities of work within a concentration): Single Flue Chimney						
The Work (What does the worker need to do to be able to perform the work competently)				The Worker (What knowledge does the worker need)		
Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
A. The Chimney Base	NAHB Performance Guidelines 2000	1,2,3	1,2	1,2	1,2,5,6,7,8,9	Pages 285-299
B. Mortar for the Chimney Flue Liners		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
C. Units for the Chimney		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
D. Installing the Cleanout Door		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
E. Installing the Flue Lining		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
F. Beginning Installation		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
G. Installing Wood Framing Around Chimneys		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
H. Installing Flashing at the Roof		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
I. Capping the Chimney		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
J. Checking for a Good Draft		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
K. The Importance of Good Workmanship		1,2,3	1,2	1,2	1,2,5,6,7,8,9	
L. Building Code Requirements		1,2,3	1,2	1,2	1,2,5,6,7,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): Masonry						
Critical Work Function (The major responsibilities of work within a concentration): Erecting and Using Ladders & Scaffolding						
The Work (What does the worker need to do to be able to perform the work competently)				The Worker (What knowledge does the worker need)		
Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
A. Tubular Steel Sectional Scaffolding & Planking	NAHB Performance Guidelines 2000	1,2,3	1,2		1,4,5,6,7,8,9	Pages 347-365
B. Avoiding Scaffolding Hazards		1,2,3	1,2		1,4,5,6,7,8,9	
C. General Precautions & Safety Rules		1,2,3	1,2		1,4,5,6,7,8,9	
D. OSHA Requirements		1,2,3	1,2		1,4,5,6,7,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): **Masonry**

Critical Work Function (The major responsibilities of work within a concentration): Applied Finishes for Concrete Masonry

The Work

(What does the worker need to do to be able to perform the work competently)

The Worker

(What knowledge does the worker need)

Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
	NAHB Performance Guidelines 2000					Kreh 5 th Ed.)
A. Surface Applications (Paints, Stains & Clear Coatings)		1,2	1,2	1,2	1,3,4,5,6,8,9	Page 192
B. Portland Cement Plaster Finishes (Stucco)		1,2	1,2	1,2	1,3,4,5,6,8,9	
C. Furred and Other Finishes		1,2	1,2	1,2	1,3,4,5,6,8,9	
D. Water Penetration Resistance		1,2	1,2	1,2	1,3,4,5,6,8,9	
E. Parging (Below-Grade, Above-Grade Surfaces)		1,2	1,2	1,2	1,3,4,5,6,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): Masonry						
Critical Work Function (The major responsibilities of work within a concentration): Additional Applications of Concrete Masonry						
The Work (What does the worker need to do to be able to perform the work competently)				The Worker (What knowledge does the worker need)		
Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
A. Screen Walls	NAHB Performance Guidelines 2000	1,2,3,4	1,2	1,2	1,2,6,7,8,9	
B. Garden Walls and Fences		1,2,3,4	1,2	1,2	1,2,6,7,8,9	
C. Conventional Masonry Retaining Walls		1,2,3,4	1,2	1,2	1,2,6,7,8,9	
D. SRW -- Segmental Retaining Walls		1,2,3,4	1,2	1,2	1,2,5,6,7,8,9	
E. Interlocking Concrete Pavers		1,2,3,4	1,2	1,2	2,5,6,7,8,9	
F. Manufactured Stone		1,2,3,4	1,2	1,2	1,2,6,7,8,9	
G. Cast Stone		1,2,3,4	1,2	1,2	1,2,6,7,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): Masonry						
Critical Work Function (<i>The major responsibilities of work within a concentration</i>): Design and Construction of a Fireplace						
The Work (<i>What does the worker need to do to be able to perform the work competently</i>)				The Worker (<i>What knowledge does the worker need</i>)		
Key Activity (<i>The major tasks or knowledge involved in completing the CWF</i>)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (<i>Additional skills and knowledge required to perform key activities</i>)				References (<i>Nationally recognized training materials</i>)
		Math	Com.	Mat.	Safety	Kreh 5 th Ed.)
A. Essentials of Fireplace Construction	NAHB Performance Guidelines 2000	1,2,3,4	1,2	1,2	1,2,6,7,8,9	Pages 391-464
B. Mortar & Materials for Fireplace Construction		1,2	1,2	1,2	2,4,5,6,7,9	
C. Laying out the Foundation & Clearances		1,2,3,4	1,2	1,2	1,2,6,7,8,9	
D. Installing the Rough Hearth		1,2	1,2	1,2	2,4,5,6,7,9	
E. The Finished Hearth and Rough Opening		1,2	1,2	1,2	2,4,5,6,7,9	
F. Laying the Hearth		1,2,3,4	1,2	1,2	1,2,6,7,8,9	
G. Fireplace Openings		1,2	1,2	1,2	2,4,5,6,7,9	
H. Laying Out the Firebox		1,2,3,4	1,2	1,2	1,2,6,7,8,9	
I. Building the Walls of the Firebox		1,2	1,2	1,2	2,4,5,6,7,9	
J. The Smoke Shelf		1,2,3,4	1,2	1,2	1,2,6,7,8,9	
K. Fireplace Throat and Damper		1,2,3,4	1,2	1,2	1,2,6,7,8,9	
L. Installing the Damper		1,2,3,4	1,2	1,2	1,2,6,7,8,9	
M. Forming the Smoke Chamber		1,2,3,4	1,2	1,2	2,4,5,6,7,9	
N. Determining the Size of Flue Linings		1,2	1,2	1,2	2,4,5,6,7,9	
O. Installing Outside Combustion Air Intakes		1,2	1,2	1,2	2,4,5,6,7,9	
P. Setting the Flue Lining Over the Smoke Chamber		1,2	1,2	1,2		

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): Masonry						
Critical Work Function (The major responsibilities of work within a concentration): Estimating Masonry Units						
The Work (What does the worker need to do to be able to perform the work competently)				The Worker (What knowledge does the worker need)		
Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
A. The Importance of Estimating		1,2	1,2			Pages 204-210, 233-238
B. The Wall Area Method		1,2,3,4	1,2			
C. Estimating Square Feet		1,2,3,4	1,2			
D. Estimating Masonry Cementitious Materials		1,2	1,2			
E. Estimating Sand		1,2	1,2			
F. Steel Reinforcements (rebar, joint reinforcement)		1,2,3,4	1,2			
G. Estimating Material Cost on the Job		1,2	1,2			
H. Estimating Labor Costs		1,2	1,2			

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): **Masonry**

Critical Work Function (The major responsibilities of work within a concentration): Problem Prevention, Maintenance and Repair of Masonry

The Work

(What does the worker need to do to be able to perform the work competently)

The Worker

(What knowledge does the worker need)

Key Activity

(The major tasks or knowledge involved in completing the CWF)

Performance Indicators

(Indicators of how to determine when the key activity is being performed competently)

NAHB Performance Guidelines 2000

Additional Knowledge

(Additional skills and knowledge required to perform key activities)

References

(Nationally recognized training materials)

Kreh 5th Ed.)

Key Activity	Performance Indicators	Additional Knowledge				References
		Math	Com.	Mat.	Safety	
A. Inspection			1,2			Pages 93,223,292,378,366-389
B. Weathering and Frost Damage			1,2			
C. Cracks and Spalls		1,2	1,2	1,2	1,2,5,6,7,8,9	
D. Sealants		1,2	1,2	1,2	1,2,5,6,7,8,9	
E. Water and Air Permeation		1,2	1,2	1,2	1,2,5,6,7,8,9	
F. Efflorescence		1,2	1,2	1,2	1,2,5,6,7,8,9	
G. Tuckpointing		1,2	1,2	1,2	1,2,5,6,7,8,9	
H. Cleaning Concrete Masonry Surfaces		1,2	1,2	1,2	1,2,5,6,7,8,9	
I. Stain Removal		1,2	1,2	1,2	1,2,5,6,7,8,9	
J. Protective Surface Treatments		1,2	1,2	1,2	1,2,5,6,7,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): **Concrete**

Critical Work Function (The major responsibilities of work within a concentration): Use of Concrete Tools

The Work

(What does the worker need to do to be able to perform the work competently)

The Worker

(What knowledge does the worker need)

Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
	NAHB Performance Guidelines 2000					Kreh 5 th Ed.)
A. Personal Protection Equipment (Gloves, eye protection, etc)						Pages 11-13
B. Trowels, Floats, Concrete Rakes & Screeds						
C. Hammers						
D. 2- and 4-foot Levels						
E. Measuring Tape/Rule						
F. Edgers & Groovers						
G. Hand-held Rubbing Stone						
H. Hand Saws						
I. Lines/Fastening						
J. Brooms						

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): **Concrete**

Critical Work Function (The major responsibilities of work within a concentration): Concrete Forms and Placing Footings

The Work

(What does the worker need to do to be able to perform the work competently)

The Worker

(What knowledge does the worker need)

Key Activity

(The major tasks or knowledge involved in completing the CWF)

Performance Indicators

(Indicators of how to determine when the key activity is being performed competently)

NAHB Performance Guidelines 2000

Additional Knowledge

(Additional skills and knowledge required to perform key activities)

References

(Nationally recognized training materials)

Key Activity	Performance Indicators	Additional Knowledge				References
		Math	Com.	Mat.	Safety	Kreh 5 th Ed.)
A. Size of the Footings		1,2,3,4	1,2	1,2		Page 16
B. Steel Reinforcement		1,2,3,4	1,2	1,2	1,4,5,6,7,8,9	
C. Concrete for Footings		1,2	1,2	1,2		
D. How to Estimate Concrete for a Footing		1,2	1,2	1		
E. Types of Footings			1,2			
F. Placing Concrete for Footings		1,2,3,4	1,2	1,2	1,2,4,5,6,7,8,9	
G. Curing Time		1,2	1,2	1,2	6,9	
H. Other Uses of Forms for Concrete		1,2,3,4	1,2	1,2	1,2,4,5,6,7,8,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): Concrete						
Critical Work Function (The major responsibilities of work within a concentration): Essentials of Concrete Work						
The Work (What does the worker need to do to be able to perform the work competently)				The Worker (What knowledge does the worker need)		
Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		NAHB Performance Guidelines 2000	Math	Com.	Mat.	
A. Concrete Ingredients, Additives & Mix Proportioning			1,2	1,2	1,2	Pages 1-9, 25-40
B. Controlling Water-Cement Ratio, Strength & Workability on the Job			1,2	1,2	1,2	6,7,9
C. Working Safely with Concrete				1,2	1,2	
D. Preparation to Place Concrete				1,2	1,2	
E. Placing Concrete (including conveyor belts & pumping)				1,2	1,2	1,2,4,5,6,7,9
F. Finishing Concrete				1,2	1,2	1,2,4,5,6,7,9
G. Finishes for Concrete				1,2	1,2	
H. Curing				1,2	1,2	6,9
I. Troubleshooting Concrete Problems				1,2	1,2	1,2,4,5,6,7,8,9
J. Air Entrainment and Freeze-Thaw Resistance			1,2	1,2	1,2	1,2,4,5,6,7,8,9
K. Preventing Damage From Deicing Chemicals			1,2	1,2	1,2	6,7,9

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): **Concrete**

Critical Work Function (The major responsibilities of work within a concentration): Concrete Reinforcement

The Work

(What does the worker need to do to be able to perform the work competently)

The Worker

(What knowledge does the worker need)

Key Activity

(The major tasks or knowledge involved in completing the CWF)

Performance Indicators

(Indicators of how to determine when the key activity is being performed competently)

NAHB Performance Guidelines 2000

Additional Knowledge

(Additional skills and knowledge required to perform key activities)

References

(Nationally recognized training materials)

Kreh 5th Ed.)

Key Activity	Performance Indicators	Additional Knowledge				References
		Math	Com.	Mat.	Safety	
A. Steel (rebar & wire mesh)		1,2	1,2	1,2	6,7,9	Page 16
B. Fiber reinforcement (polypropylene & steel)		1,2	1,2	1,2	6,7,9	

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): **Concrete**

Critical Work Function (The major responsibilities of work within a concentration): Preconstruction Preparation Checklist

The Work

(What does the worker need to do to be able to perform the work competently)

The Worker

(What knowledge does the worker need)

Key Activity <i>(The major tasks or knowledge involved in completing the CWF)</i>	Performance Indicators <i>(Indicators of how to determine when the key activity is being performed competently)</i>	Additional Knowledge <i>(Additional skills and knowledge required to perform key activities)</i>				References <i>(Nationally recognized training materials)</i>
		Math	Com.	Mat.	Safety	
A. Necessary Tools for the Job	NAHB Performance Guidelines 2000		1,2			Page 42
B. Subgrade Preparation			1,2			
C. Moisture Protection (vapor retarders)			1,2			
D. Formwork			1,2			
E. Reinforcement (primary & secondary)			1,2			
F. Joint Design			1,2			
G. Desired Finish			1,2			

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): **Concrete**

Critical Work Function (The major responsibilities of work within a concentration): Preconstruction Preparation Checklist

The Work (What does the worker need to do to be able to perform the work competently)		The Worker (What knowledge does the worker need)				
Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
	NAHB Performance Guidelines 2000	Math	Com.	Mat.	Safety	Kreh 5 th Ed.)
A. Step 1: Subgrade Preparation (Vapor Retarders)		1,2	1,2	1,2	1,4,5,6,9	Page 25-40, 51-52
B. Step 2: Setting Forms (place reinforcement)		1,2,3,4	1,2	1,2	1,5,6,9	
C. Step 3: Placing Concrete			1,2	1,2	1,2,4,5,6,7,9	
D. Step 4: Strike-off			1,2		1,4,5,6,9	
E. Step 5: Darbying or Bullfloating			1,2		1,6,9	
F. Step 6: Edging			1,2		1,6,9	
G. Step 7: Jointing			1,2		1,6,9	
H. Step 8: Waiting Period			1,2			
I. Step 9: Floating			1,2		1,4,5,6,9	
J. Step 10: Troweling			1,2		1,4,,5,6,9	
K. Step 11: Curing			1,2		6,9	
L. Step 12: Protection			1,2		1,8,9	
M. Precautions about Adding Water			1,2			
N. Problems and Cures in Finishing Concrete			1,2			

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): **Concrete**

Critical Work Function (The major responsibilities of work within a concentration): Building Concrete Steps

The Work

(What does the worker need to do to be able to perform the work competently)

The Worker

(What knowledge does the worker need)

Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently) NAHB Performance Guidelines 2000	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials) Kreh 5 th Ed.)
		Math	Com.	Mat.	Safety	
A. Step 1: Subgrade Preparation		1,2	1,2	1,2	1,4,5,6,9	Pages 41-52
B. Step 2: Layout		1,2,3,4	1,2			
C. Step 3: Formwork		1,2,3,4	1,2	1,2	1,5,6,9	
D. Step 4: Placement			1,2	1,2	1,2,4,5,6,7,9	
E. Step 5: Strike-off			1,2		1,4,5,6,9	
F. Step 6: Wait			1,2			
G. Step 7: Floating and Edging			1,2		1,6,9	
H. Step 8: Tread Finishing			1,2		1,6,9	
I. Step 9: Riser Finishing			1,2		1,6,9	
J. Step 10: Form Removal			1,2		1,6,9	
K. Step 11: Curing			1,2			
L. Precautions about Adding Water			1,2			
M. Problems and Cures in Finishing Concrete			1,2			

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains

HBI National Residential Masonry-Concrete Skill Standards

Specialty (Major concentration in career area): **Concrete**

Critical Work Function (The major responsibilities of work within a concentration): Preventing Surface Defects

The Work
(What does the worker need to do to be able to perform the work competently)

The Worker
(What knowledge does the worker need)

Key Activity (The major tasks or knowledge involved in completing the CWF)	Performance Indicators (Indicators of how to determine when the key activity is being performed competently)	Additional Knowledge (Additional skills and knowledge required to perform key activities)				References (Nationally recognized training materials)
		Math	Com.	Mat.	Safety	
	NAHB Performance Guidelines 2000					Kreh 5 th Ed.)
A. Dusting			1,2			Pages 51-60
B. Blisters			1,2			
C. Delaminations			1,2			
D. Scaling			1,2			
E. Popouts			1,2			
F. Cracking			1,2			
G. Cracking			1,2			
H. Discoloration			1,2			

Standard Scales

These scales will be used to assess performance to standard and required knowledge necessary to achieve competency.

Applied Academics

Math		Communication Skills		Materials		Safety	
1. Measurement	1.	1. Follow Verbal Directions	1.	1. Select Appropriate Materials	1.	1. Fall Protection	
2. Arithmetic	2.	2. Follow Written Directions	2.	2. Apply as Specified	2.	2. Silica Protection	
3. Layout	3.	3. Give Simple Directions			3.	3. HAZMAT	
4. Applied Geometry	4.	4. Give Complex Directions			4.	4. Electrical Protection	
					5.	5. Power Tools	
					6.	6. PPE	
					7.	7. Handling Materials	
					8.	8. Ladders & Scaffolds	
					9.	9. Moving and Lifting	

Skill Level

Semi-Skilled	Qualified to perform effectively under supervision
Skilled	Qualified to perform work independently

Masonry-Concrete Specialties

Masonry
Concrete

General Quality Guidelines

Masonry: cracks not larger than 1/4"

Brick: +/- 1/4" variation in brick veneer course

Concrete Stoops & Steps: separation from structure <1"

Garage Floor: separation, settle or heave from structure <1"

Square: Foundations – 1/2" maximum discrepancy for outside corner-to-corner diagonal measurement

Mortar Stains: Free from mortar stains