Facilities Maintenance Technician Standards Painting

Volume I Addendum

Home Builders Institute

An Overview of HBI Framework for Skill Standards

We are pleased to present an addendum to the fifth in a series of National Skill standards for the residential/light commercial construction industry. The goal of this project is to establish national standards for the residential construction industry that reflect industry skill requirements as they apply to facility maintenance painters. The standards provide a basis for the certification and training of workers as well as objective benchmarks for employee selection and evaluating training needs. In addition, educators will find the standards useful for designing curriculum and evaluating individual training outcomes.

These standards in and by themselves do not represent a model training program. These standards are designed to be a source in developing training programs and curricula and evaluating the outcomes of residential facilities management training programs.

Residential and light commercial standards are designed for entry- and skilled-level facility maintenance technicians. Standards are developed and validated for the following painting related two critical work functions: *Basic Core Skills and Panting Fundamentals.*

Critical work functions describe the major tasks and content areas of work within a specialty.

Key activities, or major tasks and knowledge involved in completing critical work functions, are also provided.

Performance Indicators, or skill standards, which help determine when critical work functions and key activities are being performed competently, are referenced to critical work functions.

How the Standards Were Developed

A Committee of three subject matter experts (SMEs) representing facilities maintenance technicians, small, medium and large facilities maintenance companies, instructors, trainers and other experts in the field from across the nation established and validated these standards. The final list of two critical work functions reflects and accommodates regional differences.

The project called for the formation of a committee of National Association of Home Builders (NAHB) leaders in facilities maintenance who were qualified and experienced in painting.

These leaders represented the Northeast, West, and Southeast regions. They had experience in painting the following type of facilities: *garden apartments, high- and medium-rise apartments, multi-family and senior units, and condominiums*.

- A preliminary list of critical work functions and activities organized into duty areas performed by facilities maintenance technicians was developed from industry texts, curricula, association reference materials and other sources of information about the organization and array of tasks performed and knowledge required in residential and light commercial facilities maintenance.
- A committee of three SMEs reviewed and rated critical work functions and key activities. The committee validated the original list and developed performance standards for critical work functions and key activities.

How Standards are organized

Facilities Maintenance painting standards are organized into the follow broad categories: *Basic Core Skills and Panting Fundamentals.* Applied Academic Skills, Basic Occupational Skills and Facilities Maintenance Occupational Skills for the broader facilities maintenance technician are found Facilities Maintenance Technician Standards Volume I.

Skill Levels and Training

Entry-level skill standards can typically be met in training programs of six months to one year, depending on the student's prior job training and educational background. Previous education in applied mathematics, work experience, interests and mechanical aptitude, as well as breadth, scope and sequence of the training program all influence the length of training necessary for competence. Entry-level technicians usually perform work under the direction of a skilled facilities maintenance technician.

Entry-level skills are typically learned in high school vocational programs, informal or formal facilities maintenance-based training programs, on-the-job training or some combination of these.

Skilled technicians usually work independently and may supervise one or more entry-level technicians. Skilled technicians typically require two or more years of work experience mastering skills learned in training or on the job. Incumbent workers with extensive experience in carpentry, plumbing, electrical, and painting may be able to demonstrate competence on standards with little or no additional structured or informal training.

Critical Work Functions and Key Activity Ratings

Importance ratings and percent of all facilities maintenance technicians who perform critical work functions and key activities are found in Appendix A.

Importance

The importance of key activities, tasks and topical content areas reported in Appendix A is the product of the proficiency or skill required to perform each task and the impact or risk to the employer, job incumbent, and/or tenant or home owner if the task is preformed improperly. Impact or risk includes possible injury to the job incumbent, financial exposure or litigation to the employer, health risk to the tenant or home owner, to name but a few.

Proficiency was rated by the SMEs using a four point scale with a 1 indicating Minimally Skilled and a 4 Highly Skilled.

Risk was rated was rated using a four point scale with a 1 indicating Minimal Risk and 4 Catastrophic Risk.

Appendix B lists the tools and equipment required for facilities maintenance painters.

Appendix A
HBI/NAHB Facilities Maintenance/Painting Standards Matrix
Importance Ratings

(L) Little Importance 1-4
(M) Moderate Importance 5-8
(V) Very Important 9-12
`
(E) Extremely Important 13-16

		***Semi-skilled*: Perform work effectively under supervision** ***Skilled*: Perform quality work independently**	**Semi-Skilled Importance**	**Skilled Importance**	**Performed Y=Yes N=No**
Basic Skills		**Safety**			
	1	Inspects, maintains and uses appropriate Personal Protective Equipment (PPE)	**E**	**E**	**Y**
	2	Follows safety standards, rules, policies and procedures	**E**	**E**	**Y**
	3	Demonstrates safety precautions during all tasks and tool	**E**	**E**	**Y**
	4	Practices safety procedures with and around others	**E**	**E**	**Y**
	5	Identifies safe work site procedures, including fall protection, confined and open work areas, and heavy equipment	**E**	**E**	**Y**
	6	Takes corrective action when faced with a safety hazard	**E**	**E**	**Y**
	7	Handles, stores and disposes of hazardous materials according to OSHA and MSDS standards	**E**	**E**	**Y**
	8	Practices safety precautions when working with and around electricity	**E**	**E**	**Y**
	9	Demonstrates proper lifting techniques	**E**	**E**	**Y**

		Semi-Skilled	Skilled	Performed
10	Describe safety hazards concerning lead	**E**	**E**	**Y**
11	Describes safety procedures concerning respiratory protection	**E**	**E**	**Y**
12	Complete 10-hour OSHA training course in Construction Safety and Health	**E**	**E**	**Y**
13	Location of all fire extinguishers and first aid equipment	**E**	**E**	**Y**
		E	**E**	**Y**
	Tools			
1	Employs safe and proper use of hand tools	**E**	**E**	**Y**
2	Employs safe and proper use of portable and/or stationary (if applicable) power tools	**E**	**E**	**Y**
3	Maintains and stores tools	**E**	**E**	**Y**
4	Demonstrate ability to properly use tools and equipment	**E**	**E**	**Y**
5	Identify basic hand tools used in painting	**E**	**E**	**Y**
		E	**E**	
	Trade Math			
1	Calculate square foot, linear and cubic measurements	**E**	**E**	**Y**
			E	**Y**
	Measurement	**E**	**E**	**Y**
1	Measures using tape or ruler accurately to the nearest 1/16"	**E**	**E**	**Y**
2	Differentiate between gallons, quarts and pints	**V**	**E**	**Y**
3	Convert oral information into math equations and vice versa	**E**	**E**	**Y**
3	Perform estimating for simple projects	**V**	**E**	**Y**
		V	**E**	**Y**
	Blueprint Identification			
1	Identify, describe and locate basic blueprint terms, components and symbols	**L**	**L**	**Y**
		L	**L**	**Y**

	Temporary Work Platforms	Semi-Skilled	Skilled	Performed
1	Identifies work platforms, scissor lifts, scaffolds and corresponding components	**E**	**E**	**Y**
2	Identifies and demonstrates the use of fall protection devices	**E**	**E**	**Y**
3	Safely erects and uses ladders	**E**	**E**	**Y**
		E	**E**	**Y**
	Anchors and Fasteners			
1	Describes, selects and installs anchors, fasteners and adhesives	**V**	**V**	**Y**
		V	**V**	**Y**
	Surface/Substrate Materials			
1	Identify tools and materials required for the following substrates: (wood, metal, masonry, drywall, synthetic)	**V**	**V**	**Y**
2	Identify various substrates used in construction	**V**	**V**	**Y**
3	Demonstrate the proper procedures required for preparing and finishing substrates	**V**	**V**	**Y**
		V	**V**	
	Protecting surfaces			
1	Demonstrate how to properly protect surfaces	**V**	**V**	**Y**
2	Demonstrate the importance of proper cleanup	**V**	**V**	**Y**
3	Identify tools and materials required for protecting surfaces	**V**	**V**	**Y**
4	Describe and demonstrate the importance of proper cleanup	**V**	**V**	**Y**

	Surface Preparation	Semi-Skilled	Skilled	Performed
1	Use proper tools and materials to prepare surfaces	**V**	**V**	**Y**
2	Differentiate between the procedures required for new and previously painted surfaces	**V**	**V**	**Y**
3	Identify the surface condition of substrates and select coatings for various types of surfaces	**V**	**V**	**Y**
4	Describe and identify preparation tools and materials used in basic surface preparation	**V**	**V**	**Y**
5	Describe and demonstrate the different methods for preparing new and previously painted wood surfaces	**V**	**V**	**Y**
6	Describe and demonstrate the different methods for preparing new and previously painted metal surfaces	**V**	**V**	**Y**
7	Describe and demonstrate the different methods for preparing new and previously painted (exterior) concrete and masonry surfaces	**V**	**V**	**Y**
8	Describe and demonstrate the different methods for preparing new and previously painted drywall	**V**	**V**	**Y**
9	Describe and demonstrate the different methods for preparing new and previously painted synthetic materials	**V**	**V**	**Y**
10	Describe types of chemical cleaners and strippers for appropriate tasks	**V**	**V**	**Y**
11	Demonstrate the procedures for low-pressure water cleaning	**V**	**V**	**Y**

	Sealant and Repair/Fillers	Semi-Skilled	Skilled	Performed
1	Identify and use various sealants and fillers for appropriate tasks	**V**	**V**	**Y**
	and application	**V**	**V**	**Y**
		V	**V**	**Y**
	Paints and Coatings			
1	Identify the basic functions of solvents and additives	**V**	**V**	**Y**
2	Differentiate between water-based, oil-based and epoxy-based paints and coatings	**E**	**E**	**Y**
3	Explain the function of various types of paints and coatings	**V**	**V**	**Y**
4	Demonstrate how to properly cleanup after use of various types of	**E**	**E**	**Y**
	paints and coatings	**V**	**V**	**Y**
	Application			
1	Identify safe use of equipment and its components	**E**	**E**	**Y**
2	Demonstrate the proper use of various types of paint brushes	**V**	**V**	**Y**
3	Demonstrate the proper use of various types of paint rollers and frames	**V**	**V**	**Y**
4	Demonstrate how to properly apply paint to various types of surfaces	**V**	**V**	**Y**
5	Demonstrate how to properly cleanup after application	**E**	**E**	**Y**
		E	**E**	**Y**
	Troubleshooting			
1	Identify most common paint failures	**M**	**M**	**Y**

	Drywall Finishing	**Semi-Skilled**	**Skilled**	**Performed**
1	Identify and demonstrate how to use proper hand tools to finish and/or repair drywall	**V**	**E**	**Y**
2	Identify and use various types of materials for drywall finishing and/or repair drywall	**V**	**E**	**Y**
		V	**E**	**Y**
	Wood Finishing and Stains			
1	Identify various types of wood in regards to application of stain and/or finish	**M**	**M**	**Y**
2	Differentiate between stains and other coatings	**M**	**M**	**Y**
3	Demonstrate the wood finishing process	**M**	**M**	**Y**
		M	**M**	**Y**
Painting Fundamentals				
	Painting Theory			
1	Identify and describe basic painting terminology	**M**	**M**	**Y**
2	Identify and describe the various types of finishes of paints and coatings	**M**	**M**	**Y**
3	Demonstrate the safe use of chemical cleaners and strippers	**E**	**E**	**Y**
		V	**V**	**Y**

Appendix B
Facilities Maintenance Painting Tools

Hand Tools
5 in 1 tool
Assortment of brushes
Assortment roller covers
Roller carriages
Extension poles
Grids
4 in 1 screw driver
Exterior scrapers
Taping knives
Mud trays
Hawks
Pans
Tape reel
Wisk brooms
Various strainers
Wire wheels/brushes
Masking gun
Edge cutters

Hand Tools
Utility knives
Hammer
Nail Set
Caulk gun
Cut can
Brush/roller spinner
Ladders/scaffolding
Pot hook
Hoses
Paint trays
PPE

Materials
Caulking
Spackle
Joint compound
Painters tape
Sponges
Rags
Abrasive paper
Masking tape
Masking paper
Wood filler
Glazing

Materials
Drop Cloth
Corner bead
Strippers
Aluminum oxide shot
White sand --silica free
Mineral spirits
Paint
Stains
Clear Coats
Finish nails
Glazes
Tints
Flotrol additive
Penetrol

Power Tools
Drills
Screw guns
Belt sanders
Vibrating sanders
Palm sanders
Angle grinders
Shakers
Hammer drill
Circular saw
Reciprocating saw
Sand blaster
Vacuums
Pressure washer
Vac
HEPA