JOB TASK ANALYSIS

NRCA PROCertification®

METAL SHINGLE SYSTEMS INSTALLER

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NRCA

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Job Task Analysis for ProCertified® Metal Shingle Systems Installer Certification

Introduction

This document presents an in-depth Job Task Analysis (JTA) for professionals who install metal shingle systems. A committee of subject matter experts who have extensive experience with installing these systems participated in developing this JTA to create the NRCA ProCertified Metal Shingle Systems certification. This document also adopts applicable knowledge, skills and abilities referenced in the NRCA Roofing Manual.

Purpose and Scope

This JTA defines the general body of knowledge, skills and abilities typically performed by professional installers of metal shingle systems.

A JTA is a foundational document for developing all certification programs. It helps define the requirements for the assessment and credentialing of system installers. Further, it helps establish the requirements for recognizing or accrediting related training and educational programs and in developing curricula. The tasks listed in this document—or modified versions thereof—may be used by states or organizations that wish to develop requirements for education or training to qualify existing or new industry installers. This JTA is intended to be all-inclusive of the knowledge, skills, abilities and attitudes expected for any qualified installer of metal shingle systems.

Limits and Exceptions

In general, the job tasks listed in this document are grouped into common themes, or domains, which include project safety; general work practices and communications; system materials; tools and equipment; materials installation; flashings and accessories installation; and housekeeping. Note the listed general workplace safety and general work practices and communication tasks are common to most system installations.

As noted, this JTA includes specific knowledge, skills and abilities for installing metal shingle systems. Flashing designs typically include a variety of field-constructed, shop-fabricated and premanufactured accessories used to weatherproof the system at interruptions, penetrations and terminations. Many of these accessories are fabricated using other materials including different metals, polymer-coated metals and other materials. NRCA recognizes these accessories are integral components of successful system design which manufacturers may require to be integrated into the system installation to meet system performance requirements. However, the skill sets required for fabricators and installers of metal or polymer-coated metal components in many cases are significantly different from those required for installers of metal shingles. Therefore, only the installation skills for flashing and accessory components typically performed by metal shingle

installers are included in this JTA. It should be noted that many related flashing and accessory installation skills are included in other ProCertification JTA documents.

NRCA ProCertified Metal Shingle Systems certification is not a license to practice, nor does it supersede any licensing requirements. It is assumed NRCA ProCertified Metal Shingle Systems Installers will comply with applicable federal, state, and local laws and regulations. The tasks listed in this JTA will not all be relevant to every installation. Rather, they are meant as a comprehensive list of all tasks that could apply depending on the scope and complexity of any given installation. It also should be noted the tasks under each subsection are not necessarily listed in a prioritized order within a topic area.

NRCA ProCertified® Metal Shingle Systems Installer Examination Specifications

DOMAIN	DESCRIPTION	PERCENTAGE
1	Project safety	18.2%
2	General work practices and communications	14%
3	System materials	13.2%
4	Tools and equipment	7.4%
5	Materials installation	28.1%
6	Flashings and accessories installation	12.5%
7	Job-site housekeeping	6.6%
	Total:	**100%**

Job Description	Given instructions for installing specific metal shingle systems a ProCertified® Metal Shingle Systems Installer must be able to:	
DOMAIN 1	PROJECT SAFETY	18.2%
General workplace safety		
1.1	Comply with all employer's safety instructions, policies and rules	
1.2	Participate actively in discussions with supervisors (e.g., foreman, superintendent or safety director) about specific hazards likely to be found on a job site and their controls before the start of each day's work	
1.3	Ask supervisors to explain unclear safety instructions	
1.4	Notify supervisors and other crew members immediately of any unsafe work conditions discovered during construction and implement corrective actions, if feasible, to ensure safety of others.	
1.5	Recognize the specific safety regulations published by the Occupational Safety and Health Administration (OSHA) or other organizations with jurisdiction that may apply to a given job site	
Specific workplace safety		
1.6	Confirm fall-protection systems are set up during all construction phases	
1.7	Use and maintain fall-protection system(s) following manufacturer's and employer's policies and instructions	
1.8	Identify safety equipment and devices required to meet project requirements	
1.9	Locate safety data sheets for all materials being used on the job	
1.10	Review and implement the information provided in SDSs	
1.11	Select and wear required personal protective equipment (PPE) when hazards are present	
1.12	Maintain PPE following manufacturer's instructions and employer's policies and procedures	
1.13	Determine safe and efficient roof access locations	
1.14	Select, set up and use ladders following manufacturer's and employer's instructions and policies before each day's use	
1.15	Lift, move and set materials without injuring yourself or others	
1.16	Use hand and power tools only after receiving training	
1.17	Inspect all hand and power tools and equipment for damage prior to use	
1.18	Tag and remove damaged tools or equipment from job sites and report them to supervisors and other crew members following employer's policies and instructions	
1.19	Confirm an adequate ground fault circuit interrupter-protected power source for each tool before use	
1.20	Identify electrical hazards specific to metal panel work	
1.21	Identify hazards when handling and cutting sharp-edged materials	
1.22	Identify and avoid walking on integrated skylights built into metal panel roof systems	

DOMAIN 2	GENERAL WORK PRACTICES AND COMMUNICATIONS	14%
2.1	Define basic roofing terminology	
2.2	Perform basic roof calculations and measurements	
2.3	Review project specifications and follow supervisor's instructions	
2.4	Ask questions to review and clarify instructions	
2.5	Review work goals, tasks and objectives with supervisor to start each day	
2.6	Remain flexible when work conditions unexpectedly change	
2.7	Participate in and contribute to problem-solving discussions	
2.8	Collaborate with other team members	
2.9	Share work experience and knowledge with others	
2.10	Arrive at job sites on time	
2.11	Express ideas about ways to improve work processes	
2.12	Respect everyone	
2.13	Actively seek feedback on one's performance	
2.14	Notify supervisors when resources are running low	
2.15	Perform all tasks with pride and seek to achieve high-quality standards	
2.16	Take personal responsibility for and report mistakes	
2.17	Continuously seek and actively participate in education and training opportunities that enhance and grow a professional career	
DOMAIN 3	**SYSTEM MATERIALS**	**13.2%**
3.1	Explain the function(s) of all metal shingle systems materials and accessories	
3.2	Identify and select the materials and accessories required for a given specification	
3.3	Identify underlayment roll size, types and coverage	
3.4	Identify area of coverage provided by each metal shingle	
3.5	Locate and review manufacturer's installation instructions	
3.6	Identify incompatible materials and substrates	
3.7	Identify potential problems when handling and cutting materials	
3.8	Explain the effects of varying environmental conditions may have on metal shingle system installations	
3.9	Describe the effects of thermal movement of metal roofs	
3.10	Identify roof system ventilation and the function of common ventilation products and accessories	
3.11	Describe and identify various fastener types used in installation	
3.12	Recognize defective, rusted or damaged materials and take action according to employer's policies and manufacturer's recommendations	
3.13	Store and maintain film-protected products without damaging materials	

DOMAIN 4	TOOLS AND EQUIPMENT	7.4%
4.1	Select the required tools and equipment for a given task	
4.2	Inspect tool and equipment condition before every use	
4.3	Use tools and equipment only for their intended purposes	
4.4	Transport, set up, operate and maintain portable metal forming brakes and shears	
4.5	Maintain tools and equipment per manufacturer's instructions	
4.6	Select electrical extension cords to match the power requirement of a tool	
4.7	Confirm an adequate ground fault circuit interrupter-protected (GFCI) power source for each tool before use	
4.8	Clean tools and equipment after each use	
DOMAIN 5	**MATERIALS INSTALLATION**	**28.1%**
General preparation		
5.1	Set up and inspect all safety-related equipment and devices	
5.2	Determine the installation sequence for all required metal panel system components	
5.3	Identify fastening patterns and attachment requirements for all materials and accessories to meet project requirements and manufacturer specifications	
5.4	Stage and position all required materials, tools and equipment	
5.5	Inspect all materials and accessories for damage; replace as necessary	
5.6	Ensure staged materials are protected from damage and displacement caused by weather and other job-site conditions	
5.7	Recognize the need for and perform nightly tie-ins where old roofing materials meet new during reroofing projects	
5.8	Install field-applied sealants to compliment factory-applied sealants to meet project requirements and manufacturer recommendations	
5.9	Determine metal component installation sequence and fit to meet project requirements and related manufacturer's instructions	
Substrate preparation		
5.10	Visually inspect steep-slope substrates to ensure they are secure, firm, smooth, clean, frost-free and dry before installing materials	
5.11	Visually inspect the substrate to ensure it is in-plane to meet manufacturer's tolerances	
5.12	Notify supervisor and other crew members immediately of any deteriorated substrate conditions discovered during construction and implement corrective actions, if feasible, to ensure safety of others	
5.13	Repair substrate defects as instructed by supervisor	

Re-cover preparation over asphalt shingles	
5.14	Remove existing flashings, counterflashings and roof system accessories as specified
5.15	Identify, cut, secure or remove curled or lifted shingles
5.16	Remove existing hip and ridge shingles
5.17	Remove debris and loose material from existing roof surface
5.18	Trim back existing shingles from eave and rake edges to meet project requirements and manufacturers recommendations
5.19	Repair existing deck to accommodate the specified ventilation requirements, as directed by supervisor
Underlayment layout and attachment	
5.20	Determine underlayment layout and sequencing to meet project requirements
5.21	Move, set and align underlayment rolls into sequenced locations
5.22	Overlap adjoining underlayment materials to ensure water flows over the laps, penetration flashings and accessories
5.23	Unroll and attach underlayment without wrinkles, buckles or voids
5.24	Set and maintain specified underlayment sidelaps and endlaps
5.25	Ensure ventilation openings are unobstructed after underlayment installation is completed
5.26	Repair or replace damaged underlayment before covering with metal roof materials
Batten, hip and ridge nailer layout and attachment	
5.27	Install battens with spacing to meet project requirements and metal shingle manufacturers recommendations
5.28	Determine the position of the first and last metal shingle courses
5.29	Measure, cut and attach specified battens, counter-battens and shims
5.30	Measure, cut and attach specified hip and ridge nailers
Metal shingle layout and attachment	
5.31	Ensure a visually consistent appearance of finished roof system without creasing, buckles or voids
5.32	Measure, mark and chalk lines to achieve straight and parallel horizontal metal shingle alignment to meet project requirements and manufacturer's instructions
5.33	Install all fasteners in their specified locations, properly spaced and not underdriven or overdriven
5.34	Measure, cut, trim, fit, fold, hem and field form metal materials in accordance with project specifications
5.35	Cut, set and attach metal shingles around penetrations and dormers while maintaining specified overlap, exposure and alignment
5.36	Ensure ventilation openings are unobstructed in the finished roof system
5.37	Install various types of hip and ridge cap accessories
5.38	Immediately replace any scratched or damaged metal components

5.39	Explain the need for positive drainage on an installed roof	
5.40	Install various types of prefabricated and shop-fabricated equipment curbs, crickets and saddles	
5.41	Remove protective film from metal components throughout the installation process	
5.42	Maintain consistent metal shingle coverage to ensure the installation achieves the manufacturer's recommendations and desired aesthetics	
5.43	Consistently nest, join, interlock and seal all laps and seams following project requirements and manufacturer recommendations	
5.44	Identify various sealant types and their application locations during the installation process	
5.45	Set up, use and remove roof bracket work platforms (slide guards) that are unique to metal shingle system installations	
DOMAIN 6	**FLASHING AND ACCESSORIES INSTALLATION**	**12.5%**
6.1	Identify components of a specific flashing detail	
6.2	Demonstrate knowledge of the function(s) of all flashing detail components	
6.3	Install eave and ridge end closures, trim and accessories tightly fit and sealed to metal shingles to meet project requirements and manufacturers recommendations	
6.4	Determine and follow the installation sequence for all required flashing components and accessories	
6.5	Determine the attachment method for each flashing component and accessory including fastener type and locations to meet project requirements and manufacturer's specifications	
6.6	Install ventilation accessories including continuous ridge, static, mechanical and powered vents	
6.7	Install drip edge metal flashings at perimeter rake and eave edges	
6.8	Install penetration flashing components, including flanges and accessories, where metal shingles intersect pipes or vents	
6.9	Install flashing components and accessories at all roof slope transitions including steep-to-low; low-to-steep; and steep-to-steep transition areas	
6.10	Determine locations and apply mastics and sealants at all flashing and accessory details to meet project requirements and manufacturer's specifications	
6.11	Fully engage and fasten all interlocking system trim and accessories	
6.12	Install various profiles of valley flashings	
6.13	Install various types of penetration flashings	
6.14	Install various types of gable and rake trim accessories	
6.15	Install headwall flashings	
6.16	Attach various types of system accessories (e.g., snow guards and fencing and equipment mounts) to meet project requirements and manufacturers recommendations	

DOMAIN 7	JOB SITE HOUSEKEEPING	6.6%
7.1	Continuously remove all kinds of construction waste and debris from all substrates, roof surfaces, curbs, chimneys, vents, skylights or other surfaces	
7.2	Immediately clean spills of mastics, sealants, solvents or chemicals from roof surfaces	
7.3	Continuously clear gutters or other roof drainage systems of materials or debris	
7.4	Maintain clean footwear on all work surfaces throughout the installation process	
7.5	Ensure sharp-edged materials, fasteners, tools and equipment do not cut, puncture or scrape installed surfaces	
7.6	Always protects metal finishes from damage throughout the installation process	
7.7	Immediately correct any incidental damage to newly installed metal components following manufacturer's guidelines	
7.8	Ensure every completed roofing project is left clean and free of scrap, loose fasteners, waste materials or other debris	