

# JOB TASK ANALYSIS



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## METAL PANEL ROOF SYSTEMS INSTALLER



NATIONAL ROOFING CONTRACTORS ASSOCIATION





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# **Job Task Analysis for ProCertified® Metal Panel Roof Systems Installer Certification**

## **Introduction**

This document presents an in-depth Job Task Analysis for professionals who install metal panel roof 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 Panel Roof System 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 panel roof 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 a robust but not exhaustive list of the knowledge, skills, abilities and attitudes the NRCA expects for any qualified installer of metal panel roof 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 panel roof 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, plastics and other materials. NRCA recognizes these accessories are integral components of successful system design that 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 roof panels. Therefore, only the installation skills for flashing and accessory components typically performed by metal roof panel



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

NRCA ProCertified Metal Panel Roof System certification is not a license to practice, nor does it supersede any licensing requirements. It is assumed NRCA ProCertified Metal Panel Roof System 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 Panel Roof 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%
	<b>Total:</b>	<b>100%</b>



<b>Job Description</b>	<b>Given instructions for installing specific metal panel roof system a ProCertified® Metal Panel Roof Systems Installer must be able to:</b>	
<b>DOMAIN 1</b>	<b>PROJECT SAFETY</b>	<b>18.2%</b>
<i>General workplace safety</i>		
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	
<i>Specific workplace safety</i>		
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 when hazards are present	
1.12	Maintain PPE following manufacturer’s instructions and employer’s policies and procedures	
1.13	Determine safe, efficient roof access and egress 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	



<b>DOMAIN 2</b>	<b>GENERAL WORK PRACTICES AND COMMUNICATIONS</b>	<b>14%</b>
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 solicit 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	
<b>DOMAIN 3</b>	<b>SYSTEM MATERIALS</b>	<b>13.2%</b>
3.1	Explain the function(s) of all metal roof system materials and accessories	
3.2	Identify the various types of metal panels	
3.3	Identify and select the materials and accessories required for a given specification	
3.4	Identify underlayment roll size, types and coverage	
3.5	Identify area of coverage provided by each metal panel	
3.6	Locate and review manufacturer installation instructions	
3.7	Identify incompatible materials and substrates	
3.8	Identify potential problems when handling and cutting materials	
3.9	Explain the effects of varying environmental conditions may have on metal roof system installations	
3.10	Describe the effects of thermal movement of metal roofs	
3.11	Identify roof system ventilation components	
3.12	Explain the function of common ventilation products and accessories	
3.13	Describe and identify various fastener types used in installation	
3.14	Describe the difference between fixed and floating/sliding clips	
3.15	Recognize and react to defective, rusted or damaged materials following employer's policies and manufacturer's recommendations	



3.16	Preserve the integrity of manufacturer’s protective film on metal panels and components	
<b>DOMAIN 4</b>	<b>TOOLS AND EQUIPMENT</b>	<b>7.4%</b>
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, shears and roll formers	
4.5	Use and maintain tools and equipment per manufacturer instructions	
4.6	Only operate powered tools and equipment that you have been trained to use	
4.7	Select electrical extension cords to match the power requirement of a tool	
4.8	Confirm an adequate ground fault circuit interrupter-protected power source for each tool before use	
4.9	Clean tools and equipment after each use	
<b>DOMAIN 5</b>	<b>MATERIALS INSTALLATION</b>	<b>28.1%</b>
<i>General preparation</i>		
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 attachment requirements and fastening patterns 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 required by manufacturer recommendation and employer policies.	
5.6	Ensure staged materials are protected from damage and displacement caused by wind, weather and other job-site conditions	
5.7	Explain the need for positive drainage on an installed roof	
5.8	Recognize the need for and perform nightly tie-ins where old roofing materials meet new during reroofing projects	
5.9	Install field-applied sealants to compliment factory-applied sealants to meet project requirements and manufacturer recommendations	
5.10	Determine metal component installation sequence and fit to meet project requirements and related manufacturer’s instructions	
5.11	Attach various types of system accessories (such as snow guards, fencing and equipment mounts) to meet project requirements and manufacturer recommendations	



<b><i>Substrate preparation</i></b>	
5.12	Visually inspect steep-slope substrates to ensure they are secure, firm, smooth, clean, dry and frost-free before installing materials
5.13	Isolate and notify supervisor and other crew members immediately of any potentially deteriorated substrate conditions discovered during construction and implement corrective actions, if feasible, to ensure safety of others
5.14	Repair substrate defects as instructed by supervisor
5.15	Remove existing metal edge flashings, vertical surface flashings, counterflashings or accessories as specified during reroofing projects
<b><i>Underlayment layout and attachment</i></b>	
5.16	Determine underlayment locations and sequencing to meet project requirements
5.17	Overlap underlayment materials to ensure water flows over the laps, penetrations, flashings and accessories
5.18	Set and maintain specified underlayment sidelaps and endlaps
5.19	Unroll and attach underlayment without wrinkles, buckles or voids
5.20	Ensure ventilation openings are unobstructed after underlayment installation is completed
5.21	Repair or replace damaged underlayment before covering with metal roof materials
<b><i>Metal panel layout and attachment</i></b>	
5.22	Install all materials square to the buildings' eave when applicable
5.23	Ensure a visually consistent appearance of finished roof system without wrinkles, buckles or voids
5.24	Install all fasteners in their specified locations, properly spaced and not underdriven or overdriven
5.25	Measures, cuts, trims, fits, folds, hems and field-forms all metal panels and components
5.26	Ensure ventilation openings are unobstructed in the finished roof system
5.27	Install various types of hip and ridge trim and accessories
5.28	Immediately replace any scratched or damaged metal components
5.29	Install various types of prefabricated equipment curbs, crickets and saddles
5.30	Remove protective film from metal components as work progresses throughout the installation process
5.31	Maintain consistent panel width and coverage (modularity) to ensure the installation achieves the manufacturer's recommendations and desired aesthetics
5.32	Consistently nest, join, interlock and seal all laps and seams following project requirements and manufacturer recommendations
5.33	Identify various sealant types and their application locations during the installation process
5.34	Set up, use and remove roof bracket work platforms (slide guards) that are unique to metal roof system installations



<b>DOMAIN 6</b>	<b>FLASHING AND ACCESSORIES INSTALLATION</b>	<b>12.5%</b>
6.1	Identify components of a specific flashing detail	
6.2	Describe the function(s) of all flashing components	
6.3	Follow the installation sequence for all required flashing components and accessories to meet project requirements and manufacturer recommendations	
6.4	Install eave and ridge end closures, trim and accessories tightly nested and sealed to metal panels to meet project requirements and manufacturer recommendations	
6.5	Attach each flashing component and accessory using the specified fastener types and locations	
6.6	Install ventilation accessories including continuous ridge, static, mechanical and powered vents	
6.7	Install various profiles of edge metal flashings at perimeter rake and eave edges	
6.8	Install penetration flashing components, including flanges and accessories, where metal panels intersect pipes or vents	
6.9	Install flashing components and accessories at all slope transitions, including steep-to-low; low-to-steep; and steep-to-steep transition areas	
6.10	Identify locations and apply mastics and sealants at all flashing and accessory details to meet project requirements and manufacturer's specifications	
6.11	Engage and fasten all interlocking system seams, trim or 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 and trim	
<b>DOMAIN 7</b>	<b>JOB SITE HOUSEKEEPING</b>	<b>6.6%</b>
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 metal 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 guidelines	
7.8	Ensure every completed roofing project is left clean and free of scrap, excess fasteners, waste materials or other debris	