

RISE Certified Solar Roofing Professional (CSRP) Job Task Analysis
August 2011

RISE CERTIFIED SOLAR ROOFING PROFESSIONAL (CSRP) JOB TASK ANALYSIS

Primary Objective: Given a proposed roof-mounted photovoltaic (PV) system design, a solar roofing professional will apply essential knowledge, skills and abilities to advise estimators, contractors and sales professionals and plan, coordinate and supervise the installation of a low-slope or steep-slope roof-mounted PV system that complies with applicable codes, standards and regulatory requirements; maintains the weatherproofing abilities of the integrated roof system; and meets customers' needs by the following items.

Domain 1: Planning and Implementing Safety Requirements

Domain 2: Identifying Structural, Roof Assembly and PV System Design Issues

Domain 3: Applying Basic Electrical System Principles and Practices

Domain 4: Estimating, Contracting and Selling a Roof-mounted PV System

Domain 5: Managing and Directing Roof-mounted PV System Installations

Domain 1: Planning and Implementing Safety Requirements		Criticality
<i>As part of safe installation and maintenance of a roof-mounted PV system, a solar roofing professional must be able to:</i>		
1.1	Develop and implement a comprehensive safety plan for all construction phases	Very important
1.2	Demonstrate proper use of necessary PPE, tools and equipment	Very important
1.3	Prescribe safe handling, rigging, hoisting and loading of all roof system and PV system components	Very important
1.4	Verify employees have completed all required safety training	Very important
1.5	Demonstrate proficiency in basic CPR and first aid	Important
<i>For all phases of a roof-mounted PV system installation, a solar roofing professional must be able to identify and address:</i>		
1.6	Building owner safety requirements and procedures	Important
1.7	Site-specific safety hazards	Very important
1.8	Potential environmental hazards	Important
1.9	Basic structural safety issues (e.g., point loading)	Very important
1.10	Basic electrical hazards	Very important
1.11	Requirements for safely accommodating rooftop traffic and allowing necessary access during construction and future system maintenance	Very important
1.12	Compliance with applicable codes, regulations and standards concerning worker and public safety	Very important

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Domain 2: Identifying Structural, Roof Assembly and PV System Design Issues		Criticality
<i>When advising others on structural and general design issues, a solar roofing professional must be able to:</i>		
2.1	Identify the structural and mechanical issues presented as-built for an existing job site	Important
2.2	Identify applicable codes and standards, including those associated with electricity, fire, wind and impact resistance	Very important
2.3	Describe means and methods to accommodate future maintenance requirements	Important
2.4	Read and interpret electrical schematics and make recommendations for modifications in electrical layout in roof system and PV system construction details and drawings	Important
<i>When advising others on roof assembly and roof system issues, a solar roofing professional must be able to:</i>		
2.5	Describe characteristics and explain functions of individual roof assembly components	Important
2.6	Evaluate and describe the condition of an existing roof system	Very important
2.7	Assess whether a proposed roof-mounted PV system is appropriate by comparing the expected service life of the PV system to the anticipated service life of the existing roof system	Very important
2.8	Identify local energy code requirements for a roof assembly	Important
2.9	Identify requirements for positive drainage of the entire roof assembly	Important
2.10	Verify with the manufacturer of the existing roof system that the new PV system will not void the existing manufacturer's warranty	Very important
2.11	Plan and prescribe the installation procedures for penetrating PV system mounts and building attachments to comply with industry best practices and manufacturers' warranty requirements	Very important
<i>When advising others on PV system issues, a solar roofing professional must be able to:</i>		
2.12	Define basic PV system terms	Important
2.13	Explain the basic principles of PV system design	Important
2.14	Identify PV system components	Important
2.15	Describe available PV technologies and the power-generating characteristics of each	Important
2.16	Conduct a site assessment for solar energy access and shading	Important
2.17	Identify available rooftop area suitable to receive PV system components	Very important
2.18	Recognize when actual site conditions require revisions to a given roof-mounted PV system design	Very important
2.19	Identify the required documentation, fulfillment and commissioning procedures (e.g., tests, submittals, warranties, maintenance, administrative record-keeping) for a given roof-mounted PV system project	Important
2.20	Explain PV system maintenance issues that affect power-generating performance	Important
2.21	Describe the functions of power performance monitoring systems	Important

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Domain 3: Applying Basic Electrical System Principles and Practices		Criticality
<i>A solar roofing professional must be able to:</i>		
3.1	Define basic electrical terms and systems (amperage, voltage, wattage, energy, power, phase, wire sizing, circuit components, etc.)	Important
3.2	Explain basic principles of alternating and direct current	Moderate importance
3.3	Explain basic principles of parallel and series electrical circuits	Moderate importance
3.4	Identify PV system electrical components in given specifications and drawings	Important
3.5	Describe the functions of PV system electrical components	Moderate importance
3.6	Explain basic principles of string sizing	Moderate importance
3.7	Use basic procedures for calculating anticipated kilowatt capacity for a proposed PV system design	Moderate importance
3.8	Test functionality of individual PV modules during installation	Moderate importance
3.9	Conduct PV system line and commissioning performance tests	Moderate importance

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Domain 4: Estimating, Contracting and Selling a Roof-mounted PV System		Criticality
<i>When advising an estimator, a solar roofing professional must be able to:</i>		
4.1	Acquire current system component pricing	Important
4.2	Explain the criteria for choosing compatible roof systems and PV systems	Important
4.3	Determine the requirements for complying with applicable codes, standards and other regulatory requirements	Important
4.4	Determine labor requirements and costs for installing all system components	Important
4.5	Identify as-built structural and mechanical issues that affect project costs	Important
4.6	Identify job-site staging restrictions and their effects on costs	Important
4.7	Identify subcontracting needs, scheduling and related costs	Important
4.8	Identify warranty options available for specific roof-mounted PV system designs	Important
4.9	Identify all components that could be included, including optional components	Important
4.10	Calculate overall construction budget, including required labor, materials, sequencing and subcontracted services	Important
4.11	Identify insurance and bonding requirements and related costs	Important
<i>When advising a roof-mounted PV system installation contractor, a solar roofing professional must be able to:</i>		
4.12	Identify and explain the major components of a comprehensive contract agreement between the roof-mounted PV system installation contractor and the building owner	Important
4.13	Identify and explain the major components of a comprehensive contract agreement between the roof-mounted PV system installation contractor and the subcontractor	Important
4.14	Identify the unique job-specific issues that should be part of a comprehensive risk assessment for a given roof-mounted PV system installation project	Important
4.15	Facilitate execution of tasks and processes related to financing the project	Moderate importance
<i>When advising a salesperson about important information for customers, a solar roofing professional must be able to:</i>		
4.16	Explain the variables included in life-cycle costing, return on investment and payback period calculations	Important
4.17	Explain power purchase agreements	Important
4.18	Give a basic explanation of how PV systems work	Important
4.19	Identify local, state and federal rebate and incentive programs available for a given project	Important
4.20	Provide an accurate description of a given PV system's potential financial costs and returns	Important
4.21	Describe the warranty provisions (inclusions and exclusions) of PV system and roof system components	Important
4.22	Identify and explain future PV system and roof system maintenance needs	Important
4.23	Identify and explain customer service and support needs (e.g., project management, documentation, rebate and incentive fulfillment, etc.)	Important

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Domain 5: Managing and Directing Roof-mounted PV System Installations		Criticality
<i>A solar roofing professional must be able to:</i>		
5.1	Identify and describe leadership and project management skills required to oversee the installation of roof-mounted PV systems	Important
5.2	Identify skills training necessary for workers to install specific roof systems and roof-mounted PV systems	Important
5.3	Determine, schedule and manage the labor requirements for installing all roof system and PV system components	Important
5.4	Interpret and implement system layout, construction details and sequencing as provided in the specification documents, drawings and electrical schematics	Important
5.5	Identify, schedule and implement all manufacturers' installation instructions, including quality- assurance inspection and testing protocols and related documentation	Very important
5.6	Assemble and install penetrating PV system mounts in compliance with manufacturers' instructions and roofing industry best practices	Very important
5.7	Plan for and maintain a roof system's weatherproofing or watershedding integrity throughout the construction process	Very important
5.8	Plan for the protection of roof system and PV system components from damage and theft throughout the construction process	Important
5.9	Determine requirements for installation equipment and tools	Important
5.10	Determine delivery sequencing for all products contained in the scope of work	Important
5.11	Develop and implement a construction schedule including all subcontractors	Important
5.12	Monitor the performance of all project personnel for compliance with safety and installation requirements	Important
5.13	Advise the PV system designer of actual site conditions and implement subsequent design revisions if necessary	Important
5.14	Implement onsite change order policies and procedures	Important