The Certified Solar Roofing Professional (CSRP) Credential:

REALIZING THE PROMISE OF ROOF-MOUNTED PHOTOVOLTAICS

BY JOHN SCHEHL

There is little question that roof-mounted photovoltaics (PV) have ushered in a new era in the roofing industry, and with this change comes a promise of new careers; business opportunities for contractors, consultants, and manufacturers; and opportunities for energy cost savings to building owners. Realizing these promises for all stakeholders demands new levels of knowledge and professionalism in the roofing industry.

To meet this demand, the Center for Environmental Innovation in Roofing and the National Roofing Contractors Association (NRCA) partnered to create a new industry organization, Roof Integrated Solar Energy (RISE). RISE was created to provide a means of evaluating and certifying solar roofing professionals to support the widespread use of rooftop solar energy. RISE also provides the public with tools to identify skilled rooftop solar energy professionals. It is governed by a board of directors comprised of key stakeholder representatives from the roofing and solar industries who have a working knowledge of successful rooftop solar installation and maintenance.

The means to accomplish the mission of RISE is the Certified Solar Roofing Professional (CSRP) credential. The RISE board of directors recognized the importance of including an eligibility track for roof consultants as part of the new credentialing program.

WHY DEVELOP THE CSRP CREDENTIAL?

According to the Solar Energy Industries Association (SEIA), in 2010, the U.S. solar market grew to $6 billion, up from $3.6 billion in 2009. Over this same period, national weighted-average PV system pricing fell by 20.5%, from $6.45 per watt to $5.13 per watt. In contrast to U.S. gross domestic product (GDP) growth of only 2.8%, the U.S. solar market grew 67% in value in 2010. In *Figure 1*, the Y-axis represents the total megawatts of PV installed in the U.S. during the past six years. The total megawatts installed in 2010 more than doubled over the previous year. It is fair to say that the U.S. solar market is growing at a very rapid pace.

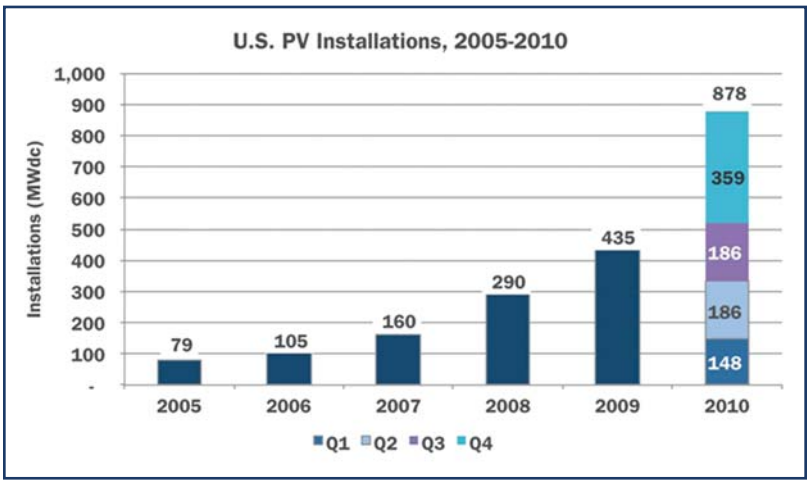

Figure 1 – Graphic courtesy of the Solar Energy Industries Association (SEIA).

Rapid growth brings rapid change, and rapid change almost always includes growing pains. A similar example of rapid change experienced by the roofing industry was brought on by new technologies in commercial air conditioning systems during the 1960s, and the HVAC industry suddenly began mounting equipment on rooftops. With this change came the challenges of damaged roof systems, voided warranties, overheated or damaged equipment, condensation leakage, and a lot of unhappy building owners.

Fortunately, over time, these issues improved, but too often the industry was left "holding the bag." In fact, this change, together with rapid growth in system technologies, created conditions demanding competent third-party professional opinions, and the age of roof consulting was born.

Roof system manufacturers are currently experiencing similar problems and warranty issues concerning roof-mounted PV systems. These systems are often installed by solar integrators, electricians, building owners, or others who are unfamiliar with roofing technologies and work processes. These unqualified installers are damaging systems, voiding warranties, and making many building owners dissatisfied.

"It has become evident in the roofing manufacturing community that the right individual needs to be present in the emerging market of PV to oversee the installation of these systems," says Jeff Henegar, director of research and development for Firestone Building Products. Henegar has firsthand experience with these situations. "Roofs are taken for granted by building owners and solar integrators. They seem to be unaware of the advances in system technologies and the levels of skill and knowledge of roofing professionals today."

Henegar provides an example, shown in *Photo 1*. This new construction project included a TPO membrane fully adhered to layers of polyisocyanurate insulation. No cover board was specified. There was no communication from the building owner to the TPO manufacturer or the roofing contractor before or during the project that a PV system would be installed (by others) when the roof installation was completed. During the final warranty inspection, the TPO manufacturer's field inspectors found the membrane adhesion delaminated over the majority of the (unprotected) traffic areas, the underlying insulation was completely crushed at the staging area, and heavy foot traffic and dragging of materials and debris had permanently stained and damaged the membrane surface to the point there was no way to restore it to its original condition.

Henegar adds, "Building owners expect their warranties to be in effect and be maintained." Manufacturers too often find themselves in a delicate balancing act of keeping building owners happy and protecting their shareholders' investments.

Building owners investing in PV systems also expect certain returns on their investment. Another example Henegar provided is a building owner who installed a 250-kilowatt (kW) PV system at a cost of approximately $1.2 million. This system was installed over a 10-year-old EPDM membrane that was not well maintained. The PV installation accelerated roof system degradation, and the roof system failed soon after the PV system was installed. The subsequent cost to the owner to decommission and remove the PV system was approximately $300,000, and another $400,000 to reinstall and recommission the PV system, all incurred just to replace the roof with one that would provide an adequate platform and equivalent service life for the PV system.

Aaron Martin, president of DRI Commercial, Irvine, CA, and president of the board of directors for RISE, cites several issues and concerns about integrating PV systems. "Failure to consider and properly address all aspects of a [roof-mounted PV] installation can result in massive financial losses or harm to individuals. From a technical perspective, considerations when installing these systems include: life cycle performance, waterproofing integrity, future replacement, maintenance, safety, water drainage, access to equipment, structural impact, wind loads, warranties, building code compliance, and penetration flashings, to name a few." In addition, PV systems may increase heat loads to membranes from concentrated reflective or absorbed solar energy. Based on what has

Photo 1 – New TPO roof damaged during PV installation. Courtesy of Firestone Building Products.

been occurring and witnessed by roofing professionals in recent years, solar integrators, electricians, and others are installing PV systems with little or no consideration for the roof platform on which they are working.

Craig Silvertooth, executive director of the center, offers his insight to the impetus driving the development of the CSRP credential. "It was threefold. The industry recognized the need to protect its jurisdiction over building-integrated solar systems due to the proliferation of nonroofing professionals installing such systems. In order to claim the jurisdiction successfully, a program was required to strengthen the professionalism and competency of the industry. And finally, adding solar systems to the rooftop environment necessitated an initiative for ensuring the integrity of systems. CSRP delivers on all requirements."

WHAT IS THE CSRP CREDENTIAL?

The CSRP credential was launched in July 2010. It is a voluntary certification for professionals who plan and oversee the installation of roof-mounted PV systems. It was developed in accordance with and endeavors to follow the "Standards for Accreditation of Certification Programs" published by the National Commission for Certifying Agencies. The CSRP credential does not attempt to convert roofers or consultants into electricians or PV system engineers. It does, however, help protect building owners by helping to ensure that qualified individuals are performing roofing work when it is done in conjunction with PV system installations. The roofing industry knows best how to manufacture, design, install, and maintain its systems, including how to do so safely. The certification is administered by the aforementioned RISE, Inc.

WHAT VALUE DOES THE CSRP OFFER?

The overarching value offered by the CSRP credential is that it addresses the needs and concerns of all stakeholders, including those of building owners; helps ensure responsible roof-mounted PV installations; and ultimately helps advance the widespread adoption of solar technologies throughout the U.S. But the CSRP also delivers unique value to individual stakeholders.

Craig Silvertooth sees the credential as "an opportunity to direct building-integrated solar business to roof consultants and other industry practitioners by making quality rooftop solar installations synonymous with our profession." Roof consultants who have achieved the CSRP credential can present themselves to the public as knowledgeable about PV systems. Silvertooth adds, "The credential offers value to the public by helping to ensure its building's roof does its job [to keep the building weatherproof] and [does] not suffer the consequences of unqualified people performing roofing work that results in voiding warranties or other collateral damage."

And Aaron Martin states, "The RISE CSRP program is valuable to all stakeholders by providing roof construction expertise and helping to mitigate risk in the developing PV industry, especially as it matures."

But the CSRP credential also offers great personal value to roofing professionals, as expressed by Rick Cook, partner of ADC Engineering, Inc., Hanahan, SC, and current president of RCI, Inc. Cook was among the very first applicants to successfully meet all the requirements and earn his CSRP credential. Says Cook, "I was looking for an opportunity to educate myself [about PV]. The short-term value for me is that it provided exactly what I was looking for. The program is laid out clearly, gave me the base of information I needed to do my job, allowed me to study the stan-

dards, gave me the guidance I needed, and is a great self-empowerment tool." Cook adds, "My gut feeling is that this credential will help redefine the industry." Cook also realizes that a person needs to seriously consider the risks as well as the rewards before stepping into the wild west of PV, and he adds, "It may take another three, five, or seven years—nobody knows—but things are happening very quickly."

Cook's comments reflect exactly what Albert Einstein meant when he stated, "All that is valuable in human society depends upon the opportunity for development accorded the individual." And the CSRP offered Cook exactly what he needed.

PURSUING THE CSRP CREDENTIAL

To be eligible for the RISE CSRP, an applicant must be at least 18, meet RISE's prerequisites of related experience and training or education, complete an application, sign a code of ethics of professional conduct, and pass a written exam. The applicant also must demonstrate he or she meets at least one of RISE's three eligibility tracks, which consist of:

1. Three years' experience installing roof systems as a roofing contractor or employee of a roofing contractor, in addition to completing 40 hours of recognized education or training. The applicant must be employed in a qualifying role or have been within the 12 months before submitting an application.
2. Three years' experience providing technical roof system consulting services that include a minimum of five installed roof system projects in addition to completing 40 hours of recognized training programs. The applicant must be employed in a qualifying role or have been within the 12 months before submitting an application.
3. A two- or four-year construction-related degree from a college or university accredited by an accrediting agency or state approval agency recognized by the U.S. Secretary of Education. In addition, the applicant must complete 40 hours of recognized education or training.

Those wishing to achieve CSRP certification should review the CSRP Job Task Analysis, exam specifications, and sample questions to assess their readiness to take the exam. The application and candidate handbook can be downloaded from RISE's Web site: www.riseprofessional.org. Completed applications must then be sent to RISE. If an applicant meets the program requirements, he or she will be eligible to take the CSRP certification exam.

Those who achieve the certification will receive a certificate and be entitled to use the RISE CSRP certification mark. CSRP certification is valid for three years; once certified, a person must meet the published standards, policies, and requirements for ongoing recertification to renew his or her certified status at the end of the three-year period.

The roofing industry is now fully engaged with the solar industry. As we enter this new era, RISE, Inc. and the CSRP credential will provide new levels of knowledge and professionalism that empower roof consultants and others to realize the promise of roof-mounted PV systems.

John Schehl

John Schehl has been active in the roofing industry since 1972, serving the last 14 years as education staff at NRCA. He currently serves as the executive director of RISE, Inc. Schehl is a Certified Association Executive (CAE) and has a master's degree in human resource development, instructional design.

CORRECTION

We regret that Jesse Torres, RRC, RRO, was incorrectly identified in the new RRC picture in the May/June 2011 issue of *Interface*. Mr. Torres is standing in the center of the back row of the top photo on page 20.