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CHAPTER SPOTLIGHT
The Future Is Bright—
Bright Green That Is

TECHNICAL TIPS
Solar in Hawaii

DECEMBER 2008

the PHCC Connection

PLUMBING-HEATING-COOLING CONTRACTORS ASSOCIATION

A FEW MOMENTS WITH...

Steve Allen, Allen's Plumbing
Kahului, Hawaii

Solar energy can be a profitable type of work to add to a company's expertise. Below, Steve Allen gives his tips on the pluses and minuses of providing this service.

The Advantages

In my opinion, the biggest advantage for my company to offer a solar expertise is business development. Selling solar systems puts us in peoples' home and businesses that maybe we wouldn't have gotten into otherwise. I also believe it generates other work opportunities for us.

In the solar industry homeowners just don't wake up and decide it's the day they're going to spend $6,000 for a water heater! So contractors have to be able to develop a marketing program, learn how to deal with salespeople as part of their day-to-day operation and still operate an installation team.

Solar also has proven to be a great training ground for workers. Part of the solar installation side is the most basic of plumbing fundamentals. This allows us to test prospective plumbers for aptitude,

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FLYING SOLAR IN HAWAII

Lots of sunshine. An island base. Plenty of business. An airplane. A company dog. Sounds like an ideal scenario for a contractor, doesn't it?

The central character in this Utopia is PHCC and Quality Service Contractors' member Steve Allen, Allen's Plumbing—The Drain Surgeon *(http://allens plumbing.e-siteworks.com/)*, Kahului, Hawaii. The company has a solar specialty that has provided a boon for business. Most of the solar installations are in the retrofit market for existing home and the replacement market of systems installed 20 years ago. New construction accounts for approximately 15 percent of its solar business.

"I got interested in the solar business for a few reasons," Allen said. "The main one is that I knew it should belong to the plumbing industry. I was watching these solar companies doing a lot of work that I considered mine, so I went after it. The other reason is everyone uses hot water one way or another, and I always have tried to stay close to providing necessary services, which is essentially the strength of our industry."

Allen got involved in solar in 1982 when he opened his plumbing business. "The only intention I had was to feed myself—no real dreams or vision, just hunger," he said. "I got lucky and found a couple of large-scale commercial projects and then I banged out residential installs for about six months. Then I went out on my own."

Originally he did "standard plumbing stuff," like faucets, water heaters and draining. He was a one-man shop for three years until he started hiring help. The company has since grown to 30 employees—and a dog that comes to the office every day. (Allen admits that the dog has a pretty flexible schedule, but everyone else has to follow the rules.)

Besides solar work, the company has sewer cameras in all vehicles and does pipe bursting, pipe relining, hydro-jetting and, as he puts it, "all that tricky stuff to keep up with the technology of our industry."

Allen's initial solar education came from experts in the area. "I was lucky and met some early solar pioneers who taught me the fundamentals of installing solar systems," he said. "As time went on, equipment and installation procedures became standardized in Hawaii."

As he entered this new field, Allen believes his plumbing background was a real strength. "My plumbing knowledge helped me step it up a notch from these non-plumbing solar providers," he said. "I have installed some larger commercial systems, the largest being 5,200 gallons. That requires plumbing knowledge, and certainly a lot of solar installation experience, too. Not everyone has that dual expertise"

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PHCC CALENDAR OF MAJOR EVENTS

March 4-6
Construction Contractors' Alliance
Sheraton Wild Horse Pass Resort
Phoenix, Ariz.

March 11-13
HVACR and Plumbing Instructor Workshop
Lansdowne, Va.

March 18-21
Essentials of Project Management Course
Lansdowne, Va.

March 19-21
QSC Power Meeting XXX
Hilton Daytona Beach Oceanfront Resort
Daytona Beach, Fla.

April 28-30
Leadership & Legislative '09
Key Bridge Marriott, Arlington, VA

May 13-16
UAC Unity Meeting
Inn on Woodlake, Kohler, Wis.

July (Dates TBD)
PHCC Educational Foundation
Essentials of Project Management Course
Fort Worth, Texas

July 16-18
QSC Power Meeting XXXI
Crowne Plaza, Colorado Springs, Colo.

Oct. 21-23
PHCC Convention
Sheraton New Orleans

ARE YOU BONDING CSST GAS PIPING SYSTEMS PROPERLY?

By Robert Torbin
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Lightning is a random and capricious act of nature that can destroy whatever it strikes. Direct and indirect strikes on or near structures can cause severe damage to the building and initiate fires. There are, on average, approximately 4,800 house fires a year caused by lightning. Given this number, it is surprising that almost no jurisdictions invoke special code requirements to address the damage caused by a lightning strike. Therefore, it should come as no surprise that many metallic systems (including the corrugated stainless steel tubing (CSST) gas piping) can be damaged during an electrical storm.

The National Fuel Gas Code considered published reports of damage to the CSST from lightning strikes and approved new coverage for CSST bonding in the 2009 edition. The same coverage has also been approved for the 2009 editions of the IFGC and the UPC. That language includes the following:

7.13.2: CSST gas piping systems shall be bonded to the electrical service grounding electrode system at the point where the gas service enters the building. The bonding jumper shall not be smaller than 6 AWG copper wire or equivalent.

As a result, the CSST manufacturers have instituted new bonding requirements. These practices require the installation of a bonding clamp and conductor (in accordance with the NEC) between the gas piping and the grounding electrode, grounding electrode conductor or the service panel enclosure. As shown in Figures 1 and 2, the bonding clamp must be attached (in an accessible location) to a segment of rigid pipe downstream of the gas meter outlet and upstream of the first CSST fitting. The bonding clamp must be listed to UL 467 and attached in accordance with its listing. When properly sized and installed, bonding can lower the amount of voltage transmitted through the piping system and minimize the electrical potential difference between the piping and other metallic pathways which will significantly reduce the occurrence of arcing.

Who is responsible? A contractor who is qualified (by the local Authority Having Jurisdiction) should install the bonding clamp and conductor. In many jurisdictions, bonding is considered electrical work, and the electrician should pull an electrical permit to perform this work. However, it is not uncommon (particularly on remodeling jobs) for the HVAC or plumbing contractor with a limited electrical license to install the bonding clamp and conductor provided the connection to the grounding electrode system is outside the service enclosure. Until the NEC is updated, the CSST installer is ultimately responsible to insure that the bonding is installed in accordance with local code. The question of who installs the bonding clamp/conductor depends on several factors, including:

- Stage of construction (new verses retrofit)
- Local licensing requirements for trades
- Local plumbing and electrical codes in effect
- Opinion/ruling of local building officials

For an expanded version of this article, visit www.phccweb.org.

Figure 1: Bonding Clamp at Gas Meter Outlet

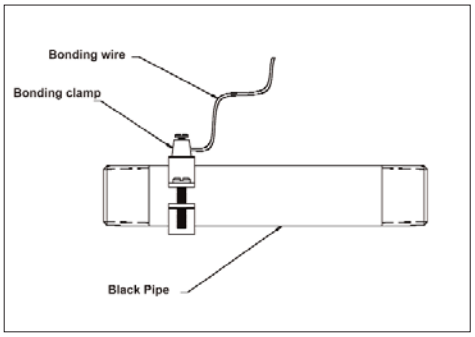

Figure 2: Clamp Attached to Rigid Pipe