

the Trump administration has opted to not include the sector in its new apprenticeship proposal,” said Stephen E. Sandherr, CEO of AGC of America.

“Instead of opening new routes for many thousands of Americans to embark on high-paying construction careers, the administration has instead opted to exclude one of the largest single sectors of the economy from what is supposed to be their signature workforce initiative,” he said.

Sandherr acknowledged that many paths into the industry exist, but pointed to obstacles including affordability and inflexible registration processes.

Regarding the department’s NPRM itself, AGC is displeased not only at the lack of what it sees as a “compelling” rationale for the exemption, but also that the DOL provided no concrete factors that the DOL might assess in the future with regard to allowing construction training programs into this kind of apprenticeship expansion.

Just before Labor Day, AGC released a construction industry study conducted with Autodesk. It found that 80 percent of construction firms are having trouble filling the “hourly craft positions that represent the bulk of the construction workforce.”

Labor shortages and ongoing demand have motivated two-thirds of participants to raise pay rates, the survey found, with 30 percent developing other incentives and bonuses. Along the

lines of other industry comment, nearly half of respondents “have launched or expanded in-house training programs, with half getting involved in career building programs.”

Much of that may sound like basic good business sense and a first wave of free-market efforts to attract needed labor. However, while AGC touted apprenticeship expansion as one way the federal government can help, it named Pell grant financial aid eligibility as another policy area where it feels the government should take a step further. Community and technical colleges, the AGC observed, cannot currently offer Pell grants for students in construction-focused training programs.

“It’s high time to end the federal funding bias against career and technical education and provide students with the same opportunities available to students attending four-year colleges,” said Sandherr.

WHAT’S NEXT

In official terms, the DOL is revising 29 CFR part 29, Labor Standards for the Registration of Apprenticeship Programs. No hard timeframe exists for the DOL to review the submitted public comments or deliberate further. But at some point, the DOL will announce a final revision (or lack of revision) to the rules about who can operate an apprenticeship program, how they can operate it, and in which industries. [N](#)

Public Comment Tilts Pro-Exemption with a Union Hue

Look through HVAC-related public comments submitted to the Department of Labor (DOL) about its proposed apprenticeship revisions – including its current intent to exempt the military and the construction industry from such a change – and consistent support emerges for keeping the construction industry out of any new initiatives.

The bulk of comments refer to individuals’ successes in and support for the union-related apprenticeship programs they completed. Recurring positive attributes in the comments included the quality of the overall training, emphasis on safety, an adequate wage during the training so that participants could afford to finish the program, and the quality of life and employment that they have found as a result. These respondents reportedly work in trades including HVAC, electrical, and sheet metal.

It is worth mentioning that not all of these comments attacked the idea of expanding apprenticeship programs, per se. What they did do was extoll the strengths of the (often union-related) programs that they knew. The underlying and often explicit concern, however, is that opening the doors to a wider range of apprenticeship programs and programmers would dilute the quality of the average apprentice’s experience and skill set.

One more layer beneath that, the concern seemed to be that such a revision would threaten unions and the quality of work they encourage in a more fundamental way.

John McNerney, general counsel for the Mechanical Contractors Association of America (MCAA), set the current rulemaking process against a similar backdrop. MCAA filed comment with DOL in favor of the exemption, and in subsequent comment for this article, McNerney detailed his organization’s concerns.

Among MCAA’s reasons for opposing any effort to roll back the exemption, McNerney said that removing it would “flatly contradict the Blue Ribbon Task Force’s recommendation, and also would likely exceed the statutory authority of the Labor Department as well.

“Moreover,” he continued, “the political impact and fallout from that frontal assault on the premier apprenticeship system nationwide would be significant, to say the least.”

McNerney, whose association represents approximately 2,600 companies in HVACR, plumbing, and piping, also pointed to ways the current proposal does or could differ in practice from the Apprenticeship Task Force’s previous recommendations. At the top of the list is what MCAA sees as the potential for newly enabled IRAPs to circumvent process in traditional State Apprenticeship Council states.

McNerney noted “many inconsistencies” in affirmative action and equal employment opportunity requirements as they would be applied to this new wave of IRAPs, compared to previous requirements and norms. He listed non-discrimination grounds, written affirmative action plans, and curriculum and test validation procedures as specific examples.

MCAA understands the ongoing workforce shortage affecting the construction industry and others, McNerney emphasized. That said, he sees the DOL’s current IRAP-based proposal as “an expedient approach that offers a shallow panacea.” MCAA favors exploring workforce development reforms based on the Building Trades / employer joint workforce model as a better path toward long-term results.

As for removing the construction exemption – an idea McNerney sees as unlikely to succeed at present but likely to return – “It’s our view that there are many more constructive and far less controversial regulatory rollbacks the Labor Department could engage in that would be much more well received by the industry and labor and management together.”

HYDRONICS ZONE WET HEAT ELITE

Radiant Redux: Pennsylvania Home Blends Technology, Design

Fifteen years ago, Douglas and Kathleen DeAngelis’ home in Lancaster, Pennsylvania, was built for spacious luxury. It wasn’t until recently that the owners dialed in on the home’s comfort systems — just in time for the winter of 2018-2019, when January temps dipped as low as minus 10°F.

The 5,900-square-foot, radiantly-heated home, now renovated and modernized, is perched on a gentle rise above the Conestoga River in the heart of Pennsylvania Amish country. When the house was originally constructed, Douglas DeAngelis’ one prerequisite was radiant heat. Both he and Kathleen grew up

in New England, the bedrock of hydronics in the U.S.

“We were determined to have hydronic heat again,” said Kathleen DeAngelis. “We both love the fact that the radiant heating system doesn’t interfere with furniture placement, and that there are no registers or baseboard to contend with. I’m delighted to have all solid

surfaces for the flooring, and yet still have warm feet.”

As a retired Navy aircraft electrician, Douglas DeAngelis was no stranger to technology. While Kathleen focused on comfort and the design benefits of radiant heat, he was looking more at the functionality of the system: chiefly, fuel efficiency and energy savings.

“I insisted on high efficiency systems and the best means of distributing heat throughout the home,” he said.

THE DO-IT-ALL RADIANT SOLUTION

The first floor’s finished spaces are heated by stapled-up EPDM rubber Onix™ radiant tubing, attached to the

HYDRONICS ZONE WET HEAT ELITE

subfloor with no need for transmission plates.

“Back in ’04, we decided to break the home’s main 3,160-square-foot section into seven separate heating zones,” said Douglas DeAngelis. “The zones gave us tremendous control and flexibility over how the heat’s applied.”

For instance, the DeAngelis both like a warm living room and a cool bedroom — yet guests might like warmer sleeping conditions.

“We could do it all with radiant,” said Kathleen DeAngelis.

With the latest renovation, the home’s unfinished 2,800-square-foot daylight basement space was completed. It was an easy task with the heating system, because the large slab has been “radiant-ready” with three zones from inception, plus a fourth from when the pad for a future sunroom was added in 2008.

THE FINAL FRONTIER

Before the slab was poured in 2004, over 4,400 linear feet of Watts RadiantPEX tubing was attached to rewire there, awaiting its later use. So for 15 years, the basement level represented the home’s final frontier.

Completion of the home’s luxurious lower level finally came to fruition just before winter struck. Now, the wide-open, radiantly-heated slab and 10-foot ceiling height provide ample room for a second master suite with bath, two additional bedrooms, a full bath, kitchenette, and sunroom — divided into four zones for ideal control of the radiant heat — bringing the house to a total of six bedrooms, four full baths, and one powder room. RadiantPEX tubing was also used to transport heat to the garage, heated by hydro-air.

“We also chose to install two zones of electric heat under the tile in our master bath and laundry room/powder room areas,” said Kathleen DeAngelis. They chose Watts SunTouch electric mat because of the ease of installation. “The electric radiant is great for warming the floors during the fall and spring seasons, when we may not want to use the main radiant heat system for house heat.”

A MECHANICAL ROOM TO SHOWCASE

Douglas DeAngelis’ ambitious mechanical system plans granted an opportunity for the



RADIANT REQUIRED: “We were determined to have hydronic heat again,” said Kathlee DeAngelis when building her Lancaster, Pennsylvania, home.



ZONING IN PLACE: The tekmar Zone Manager provides zoning solutions for two-wire tekmarNet® thermostats.



TEMPERATURE TWIST: Seven different zones allow the DeAngelis to have a warm living room, a cool bedroom, and warmer sleeping conditions for guests.

ultimate showpiece: in his words, “a mechanical room to die for.”

The 20- by 25-foot room — now fully modernized with a new heat plant, controls, and circulators — is unquestionably a mechanical masterpiece. The initial installations and the large, custom-built hydronic panel were the result of a long collaboration between Douglas DeAngelis and Vince Youndt, president of Stevens, Pennsylvania-based Vertex Mechanical.

“The final design uses remote manifolds to help reduce the amount of tubing loss, to increase head pressure at the manifolds,

and to keep all system components well organized and sensible,” said Youndt. “We generally like to fabricate our manifold/circulator wall panels in the shop, and in a single piece. But we soon saw that the size and weight of this one would require three separate sections. We estimated the weight to be around 450 pounds, with dimensions of 8 feet high and 12 feet wide.”

Youndt and installers designed the panel to be constructed of three separate, interconnecting mechanical panels that later required some extra unions and precise pipefitting in the field.



RATE OF FLOW: By reducing flow, variable-speed ECM circulators increase system delta T, so the system requires much less fuel to run.



KNOW WHAT WORKS: A Laars Mascot FT boiler was chosen to replace the original Laars heat plant because it had worked so well in the past.

According to Youndt, the DeAngelis’ radiant heat system — which has performed admirably through 15 winters — operates in four temperatures; three of them are on outdoor reset. There’s an indirect-fired water heater and hydro-air blower coil running at 165°F whenever they call for heat; these are located in the buffer loop. The primary loop operates at 140°F, with mix-down from that to secondary loops using variable speed injection. At full load, temps in secondary loops dial in at 128°F, 109°F, and 98°F.

The 128°F temps are for the staple-up areas with hardwood flooring above; 109°F for staple-up under tiles; and 98°F for basement in-slab and sunroom use.

DIALING IT IN

Through the years, a new vision to optimize the DeAngelis’ hydronic system emerge. Douglas DeAngelis met occasionally and compared notes with a fellow he described as a “mechanical savant” — Harry Papazian, owner of Staten Island, New York-based Bridge Mechanical.

“Originally, all of the PSC (permanent split capacitor) wet rotor circulators offered three-speed operation,” explained Douglas DeAngelis. “Harry recommended swapping them out for new, super-efficient, variable speed ECM (electronically commutated motor) circs, to modernize the controls, and to replace the original Laars boiler (with 5:1 turndown) with a more efficient boiler providing 10:1 turndown.”

Papazian explained that Taco’s new variable-speed ECM circulators are a great investment.

“By varying flow rate, they reduce pumping energy substantially. And, by reducing flow, they increase system delta T — the temperature difference between water leaving the boiler and water returning — which further improves system efficiency, using much less fuel.

“Douglas and I chose the Taco 00e series circs, developed with ECM variable-speed technology to use up to 85 percent less electricity,” Papazian continued. “I’m especially fond of the 00e because of the bio-barrier that protects internal components from system contaminants. And there’s a feature that also purges air and unblocks the pump to keep it trouble-free at start-up.”

The original control system combined three tekmar Mixing Control 362 modules for outdoor reset and variable speed injection with three tekmar Zone Control 369 units used for zone controlling.

“But things have improved substantially in 15 years,” said Papazian. He and Douglas DeAngelis decided to update the existing controls; they selected tekmar’s Universal Reset Module 423 paired with tekmar’s Zone Manager 334, Mixing Expansion Module 444s and a tekmarNet® Internet Gateway — designed to operate all of the mechanical equipment while coordinating their operation through network communication.

“The 423 can be used in applications ranging from a single zone of baseboard with an on/off boiler, to four temperature systems composed of multiple fan coils, baseboard, mixed radiant floor zones, and two modulating/condensing boilers,” added Papazian. “It regulates up to four space-heating water temperatures through outdoor reset and indoor temperature feedback.

“It’s capable of controlling two on/off or modulating boilers, domestic hot water, and

setpoint loads, and it can expand up to 24 zones for each space heating water temperature,” he continued. “The tekmar Zone Manager at Douglas and Kathleen’s home is designed to provide zoning solution for two-wire tekmarNet® thermostats.”

“Early on, I learned that high efficiency condensing boilers work more efficiently with cool

return water temperatures — and that’s the way our system was constructed initially — so we chose a new Laars Mascot FT boiler to replace the original Laars heat plant because it served us so well,” said Douglas DeAngelis.

For the new source of hydronic and domestic water heat, Douglas DeAngelis and

Papazian chose a 199-MBH, wall-hung Laars Mascot FT condensing boiler. The natural gas (or LP-fired) Mascot FT provides a fire tube stainless steel heat exchanger that produces 95 percent AFUE efficiency and is fully modulating (10:1) for maximized fuel savings.

“I honestly don’t think we could improve on the home’s

mechanical systems,” said Douglas DeAngelis. “At last, it all came together perfectly.”

Information courtesy of John Vasty, president of Common Ground, a public relations firm that serves the HVAC, plumbing & mechanical, geothermal, radiant heat, renewable energy, and broad construction industries. Contact him at cground@ptd.net or 717-664-0535.

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