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february 2012 Vol 12 | No 2



HYDRONICS

Positioned for success in D.C.

Foley Mechanical writes the recipe for business success

“We rarely stray far from the Capital Beltway,” said Dan Foley, owner of Lorton, Va.-based Foley Mechanical Inc. (FMI). With the abundance of custom homes in the affluent, 600-square-mile Washington D.C. area, Foley keeps 14 technicians busy year ’round. The business continues to grow, and the client list is a veritable “who’s-who” of inside-Capitol Hill circles.

Foley started the firm in 2002 when he saw an opening in the market for a strictly high-end residential mechanical company focusing on complex, custom HVAC systems. Ever since then, he’s been making a name for himself and deliberately positioning his firm to do business with custom builders, GCs, architects and homeowners in the area.

“In this area, we’re fortunate to be insulated from many economic woes,” said Foley. Government, medical industry and supporting services in the greater D.C. area help to maintain a steady demand for higher-end commercial and residential systems.

An “average” system for FMI (though Foley admits there really isn’t such a thing in his market) involves radiant heat, ultra-high efficiency hydronics and/or geothermal and loads of complex installation work. He rarely looks at a job for less than \$10,000, and a few jobs each year easily wander into the \$1 to \$2 million range.

“Contractors from outside the area often ask how I keep my cool with such demanding clientele,” continued Foley. “Truth is, as a group, they’re like any other sector. We do have demanding clients, but most are quite pleasant to work with once they see that our expectations are often higher than theirs, and they tend to set the bar pretty high.”

Limited space

Half a mile from the Pentagon and Arlington Cemetery is a street with two very different themes. Sandwiched among older, neglected homes are million-plus dollar houses. With real estate in the area in high demand, and with no new building

lots, professionals are willing to pay a premium to avoid long commutes.

Properties are purchased and — with greater frequency — existing homes are simply removed. In their place, larger, state-of-the-art homes are erected. Forty- and 60-year old “suburban” homes are now high-demand, high-dollar downtown properties.

The site of one FMI geothermal installation is one of these. On just a third of an acre now stands a three-story, 6,300-square foot home with all the bells and whistles. Long before the house was completed, the drilling subcontractor sunk four 360-foot geo-exchange boreholes that were piped and thermally grouted; they now reside under the small concrete pad in front of the detached garage. The system now handles all of the home’s heating and cooling demands.

“You have to stay far enough away from the foundation of the home with the drill rig, and you can’t get too close to the property line,” said Foley. The code specifies an eight-foot setback, and it’s closely monitored.

The geo-exchange field feeds two ClimateMaster Tranquility 27® water-to-air units.

Inside, the four separate ground loops come into one flow center. Foley is adamant that any time one heat pump turns on, it must draw capacity from all four bore holes at once. This way, if one of the heat-pumps is dominant, it won’t wear out two bore holes while the other two go underutilized.

The basement mechanical room is home to a four-ton ClimateMaster indoor split system and a 2½-ton packaged unit. The split system is piped to an air handler in the attic and serves the needs of the second and third floors. The smaller unit handles the basement and first floor.

The domestic hot water load for the home, including six bathrooms, is met by three in-line tanks. The first is a preheat tank, as the professionals at FMI refer to it. This 80-gallon Bradford White indirect tank is tied to a desuperheater on the larger of the two ClimateMaster units. Its task is to temper the utility-supplied water so that the downstream tanks



Clients paying millions for a home aren’t about to scrimp on mechanicals, often opting for geothermal systems to provide heating and cooling. Foley’s jobs are well-designed and efficient, with no excess equipment and no loose ends.

can luxuriate in lower Delta Ts.

The plumbing contractor piped two 50-gallon electric water heaters behind the preheat tank. Given the lengthy hot water lines, a Taco hot water recirculation system was also installed.

“Our average electric bill is around \$110 month,” said the homeowner. Isynene spray foam on the home’s entire exterior contributes to its thermal efficiency.

“My distributors are great,” said Foley. “R.E. Michel Company, in Maryland, supplies all of my Bradford White tanks. You just can’t beat the combination of a good product and good supplier.”

“All our ground-source equipment

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"In this area, most of my high-profile clients know each other. We've worked in the homes of past presidents and billionaires. I give them a great product, while giving their privacy and security the utmost consideration."

comes from 1st Energy, in Westminster, Md.," continued Foley. "I switched brands and suppliers several years ago because the previous supplier just wouldn't stand behind the product. With all the ClimateMaster gear I now install, 1st Energy is there every step of the way."

Speaking of industry ties and the importance of supplier and manufacturer relationships, Foley adds that he sits on Taco's advisory board. "Usually we meet once a year to discuss their products and what's coming down the pipeline. It's an opportunity to give direct feedback from the field to product engineers and marketing pros. I've always been surprised at how responsive they've been and how solicitous of my comments and recommendations."

Details, details, details

"You don't always get what you pay for, but you never get what you don't pay for," said Foley. "It's a line I borrow from Jeff Young, one of my long-time radiant heat comrades who's well-known as 'Heatboy' in the industry."

So when a manufacturer is attentive to what Foley says, he'll watch the product line or installer programs for improvement and change. Likewise, when preparing to submit a bid for work, Foley listens well and has learned to be an acute

observer. His proposals are closely tailored to the needs and interests of customers and tied to technology and design recommendations he feels best fit the need.

With an FMI installation, the customer is going to pay a fair price for the best job possible. Every last detail is covered. But Dan will readily admit that he's not in the business to win jobs by competing on price. "Our customers demand the best. We'll give it to them, but the 'best' always requires well-honed skills, more time and better equipment."

For instance, at any Foley job, all pipe mounting brackets are rubber bedded, so there is no sound or vibration transfer from equipment into the home itself. Units are mounted to the floor on Mason Industries spring bases, isolating the slab from the heat pump.

When it comes to ductwork, mastic is always used in place of tape. "Not only is tape a pain to make adhere on unfinished job sites in the winter," said Foley, "but it eventually dries out and decreases system efficiency."

Highly regarded

"I'm adamant that our D.C. area clients consider FMI to be their mechanical contractor," said David Jameson FAIA, principal of David Jameson Architect Inc. "They're the

only mechanical contractor we've connected with that's as detail oriented and unwilling to compromise on quality as I am."

Based in Alexandria, Virginia — with more than 150 design awards, and featured in over 200 design



Foley technician, Brian Golden, adjusts a system that incorporates two 50-gallon Bradford White water heaters behind the preheat tank.



For passive homes that "you could heat with a candle," adequate ventilation is paramount. In this installation two ERVs run continuously, but the air system incorporates an experimental ground loop to temper the incoming fresh air.

publications — Jameson's firm is recognized internationally. Architectural Digest named him the youngest member of their AD100 roster, a listing of the top 100 architects and designers worldwide.

"Foley Mechanical designs a system that integrates with the architecture, and it's a defining stamp that we've not encountered before," added Jameson.

"If a project includes radiant, as many of these homes do, you only get one shot at designing the mechanical system for optimal performance," said Foley. "You might be able to shave 10 percent by price shopping, but there are just too many horror stories out there about magnificent homes with comfort systems that don't work. So, we avoid those issues entirely by staying focused on

providing the very best system that's realistic for the customer."

The detailed work of FMI carries over to the ground loop installation as well. "The exchange field is a hydronic system," said Foley. "Like



Dan Foley is justifiably proud of his handiwork.

any other, it needs an expansion tank and an air separator. I've rarely seen the proper hardware on a competitor's system."

"If there's any weeping from the pipe, the circulators will start to cavitate," continued Foley. "Heck, I've seen painters come into a mechanical room and crack the valve on the ground loop trying to get water to clean up with. These installations require an expansion tank; it's simply not an option."

Heart of Georgetown (\$5,000 parking fine!)

In 1885, Washington entrepreneur James Wormley constructed the Wormley School. It served to educate the city's African-American students. Recently, the building called for the involvement of all Foley employees. Just blocks from Georgetown University, the newly renovated, four-story brick building now houses upscale condominiums.

The project, and its plethora of complications, illustrates FMI's broad

capabilities.

With eight-foot high, 100-year-old windows (the historic district prohibits visible upgrades, including modern windows) and invisible, poured concrete construction, the ideal heating option was radiant. The structural engineer wouldn't allow FMI to install the radiant tubing in the structural slab, but Foley had another plan.

With ceiling heights that range between 12 and 14 feet, Foley knew that they could afford the space to pour a capping slab over the structural slab. But, before doing that, his crews added 2" of rigid insulation to which radiant tubing was attached; that was followed by two more inches of concrete. In all, 15,000 lineal feet of 1/2" PEX tubing was used to heat the building.

Prospect Street was closed for 48 hours while concrete pump trucks ran on and off the site. "We really needed four days for the pour but were given half that. So it was all hands on deck, and everyone got a workout," said Foley.

The large FMI crew didn't come cheap, but neither do the seven units inside the building. Single bedroom units start at \$1.8 million, and a third story suite sold for \$5 million.

"We budgeted \$2,000 for parking tickets," said Foley. "By the end of the first phase, we had already been fined \$5,000. You aren't going to do a commercial job in Georgetown and not get tickets. Logistically, there are few places on the planet tougher to work in."

Passive house

A new challenge for Foley's crew was their work on Washington

D.C.'s very first passive house.

Thanks to several previous, successful jobs with the home's builder, Foley was quickly chosen to install mechanical systems there.

"You could heat this place with a candle," said Foley, though only exaggerating slightly. The new, 4,600-square-foot home complies with rigorous Passive House Institute standards. When at ambient design temperature of 0°, the structure calls for 24,000 Btu/hr. Foley installed a 96-percent efficient mod-con boiler, capable of modulating between 11 and 55 MBH.

Energy-wise air conditioning for the home is achieved by using a two-zone ducted system, with one air handler in the basement and one in the attic. "It was important to choose a variable capacity system for the AC," said Foley. "We couldn't afford to oversize the system, but it does get very hot and humid here, and the owner of a \$1.7 million home isn't eager to sacrifice comfort."

As tight as the building is, one of the main challenges was providing adequate ventilation without giving up much energy in the form of heat loss. Two ERVs run continuously, but this air system has a little secret. FMI installed an experimental ground loop to temper the fresh air coming into the ERVs; 350' of 5/8" PEX is buried around the perimeter of the home, 10 feet below grade. Fluid is circulated to a small heat exchanger, cooling or warming air before it enters the ERV. "We'll have efficiency data on the experiment before too long," said Foley.

Efficiency at its core

"We run lean and mean," said Foley. "Maintaining efficient operations allows me to operate the company profitably, yet also pay my technicians at the very high end of the scale for the skills they bring to our job sites with incredible reliability."

Mechanical rooms on his jobs look much like his business plan. No excess equipment and no loose ends.

"One phenomenal part-time bookkeeper makes up our entire office staff," he added. "I don't advertise, either. Aside from supporting local kids' sports and the signage on our trucks, all business is developed through referrals."

"In this area, most of my high-profile clients know each other," he continued. "We've worked in the homes of past presidents and billionaires. I give them a great product, while giving their privacy and security the utmost consideration. It's been a business model that's worked so far." ●

Livable Art

David Jameson Architect is a 5-person design studio whose work is rooted in the distillation of an elemental Architecture. Based in Alexandria, Virginia, the firm was founded by David Jameson in 2000 and has won more than 130 local, regional, national and international design awards. The studio's work negotiates modernist constructs in the context of unique situational aesthetics and is conceived as an intertwining of the products of industry and the hand of the artisan.

For more information, visit www.DavidJamesonArchitect.com.



Photo Credit: Paul Warchol