

BY JOHN MESENBRINK

# ECO-FRIENDLY MECHANICALS LAUDED AT BUDDHIST RETREAT CENTER

**Advanced Radiant Design Inc.**  
**wins RPA's best for radiant installation**  
**at Won Dharma Retreat Center.**

**R**ight place, right time? Luck of the draw? During the recessed economy, some contractors might have relied on these as pick-me-ups for winning contracts. For others, not a chance. John Abularrage, owner, Advanced Radiant Design, Stone Ridge, N.Y., gets work the old-fashioned way — hard work, experience, and reputation. You see, Abularrage is one of the most respected names in radiant circles, and for good reason. He has been preaching and practicing methods in relation to his radiant and alternative energy philosophies since 1979, which is strange because he doesn't look a day over 35.

Awards, accolades, recognition: for Abularrage, it all circles back to commitment and investment in the radiant industry. And his philosophy — as should be the philosophy of all contractors — is that every job should be conducted as if awards are given for work performed. It's called pride in your work. And that can't be second-guessed in Abularrage's canvas. But let's face it, awards are nice, and when people take notice, it makes one feel worthy of the work he/she does. Last year, John was awarded first place in the 2012 Radiant Professionals Alliance (RPA) System Design Showcase in the Commercial



The Won Dharma Retreat Center project consisted of an innovative radiant system in two buildings: the administration and meditation buildings.

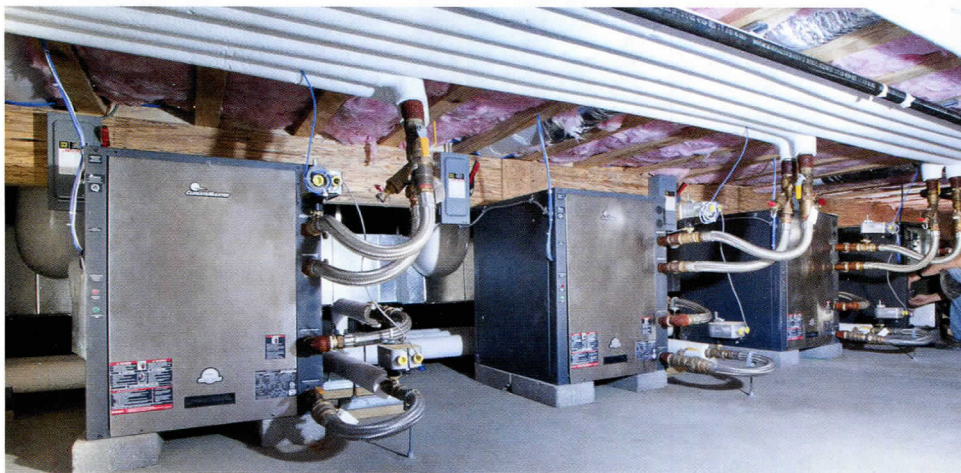


Division for work on a Buddhist retreat center in New York State.

### Meditation Zen

The Won Dharma Retreat Center, Claverack, N.Y., is an Open Circle of teachers and students, neighbors and visitors, young and old, from any faith to no faith, each and all of whom contribute to the commitment to reduce and eliminate suffering in the world. The goal is to provide a safe and eco-friendly space for nurturing holistic well being, spiritual growth, and harmony.

Construction of the center consisted of many eco-friendly installations, including the mechanical room. The design plan was to install and implement radiant heat and alternative energy sources, and Kevin Shaeffer, mechanical engineer, CSArch, Albany, N.Y., had absolutely no qualms about referring Advanced Radiant Design to Greg Heitmann, president, Heitmann Builders Inc., Hopewell Junction, N.Y., for the



**Four geothermal heat pumps had to be moved to the meditation hall's crawl space due to space constraints.**

job. And the sentiment was mutual: "Working with Kevin was great; he is alternative-energy minded and has great design instincts. The robust selection and integration of green technologies was well integrated by design from Kevin," says Abularrage.

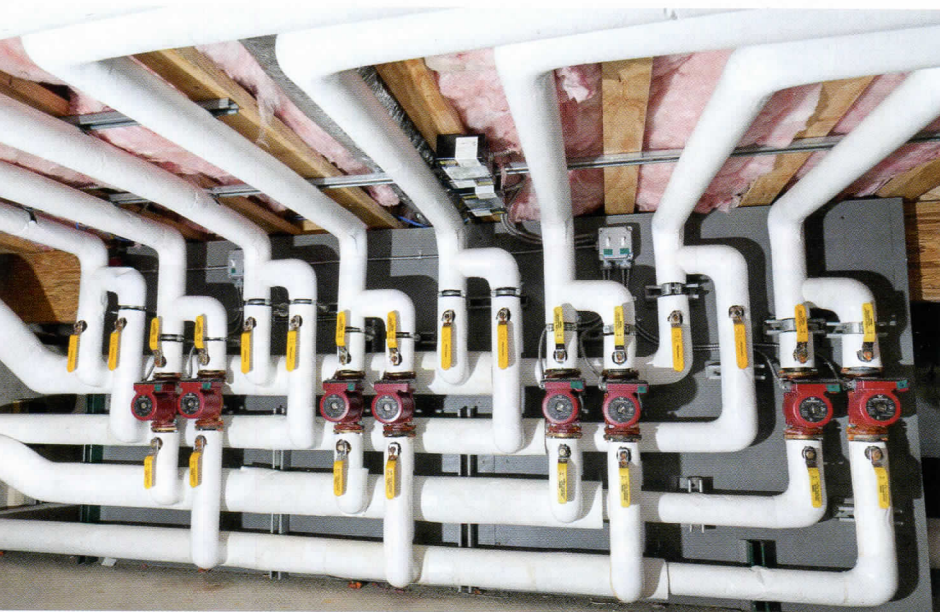


**Abularrage's team worked tirelessly to put the radiant underlayment system in place.**

### Inside the System

The innovative heating and cooling system was actually installed in two separate locations — the center's administration building's basement and the meditation hall's crawl space — due to space constraints. Scrapping original designs, the geothermal heat pumps were moved to the crawl space to afford more room for the overall size and scope of the complete mechanical room. The administration building and meditation hall, which are interconnected, rely on the geothermal heating and cooling with a boiler backup. The center consists of a radiantly heated meditation hall and hydro-coils in the administration building. The build-





**Grundfos VersaFlo cast-iron circulators were used to send heated and chilled water to the heat and cool tanks.**

ings are interconnected underground with pre-insulated Uponor Ecoflex tubing. The 3,200-sq.ft. meditation hall consists of a Viega Climate Panel ½-inch radiant underlayment system — and FostaPEX for supply and return mains — for comfortable distribution heating. Radiant tubing in the meditation hall was installed on top of the subfloor for high efficiency and quick response.

“The comfort of radiant heat is particularly striking in this application,” says Abularrage. Radiant floor heat was preferred, because when you think about it, ideally, what could provide more comfort to those sitting on the floor, meditating? As a bonus, the silent delivery of the heat was appreciated, as many meditations are conducted in silence. Moreover, “The ceiling of the meditation room is approximately 20-ft. high, further enhancing the energy savings of the radiant heat attributed to the reduction of stratification as compared to conventional distribution systems,” notes Abularrage.

Geothermal is the primary heating source for both the administration and meditation buildings. The radiant floor is supplied with heat generated by four, 5-ton ClimateMaster Tranquility modular water-to-water series

ground source heat pumps that are staged, as necessary, and are located in the administration building crawl space. Grundfos VersaFlo UPS 32 cast-iron circulators were used for the load side heating and cooling pumps for each of the four heat pumps to send heated and chilled water to the heat and cool tanks.

The other mechanicals are located in the administration building basement. The buildings are approximately

75 feet apart. The heat is distributed to the radiant floor via pre-insulated PEX lines buried between the buildings. The geothermal heat pumps also feed two air handlers in the meditation hall for air conditioning and four air handlers in the 4,300-sq.ft. administration building for heat and air conditioning. The heating portion of the system is backed up with a Triangle Tube, Prestige Solo 250 condensing boiler and solar thermal systems. There is a six-panel solar system — not installed by Advanced Radiant Design — that provides domestic hot water to the kitchen, which is located in the administration building.

The distribution pumps for the radiant heat and air handlers for both heating and cooling are Wilo Stratos ECM pumps. The pumps respond to changes in circulation pressure due to the opening and closing of zone valves. The pumps automatically adapt to these changing circumstances, maintaining constant pumping pressure. “The electrical savings of these pumps is up to 80% as compared to conventional pumping technology,” says Abularrage.

### Space, Space, Space

The biggest challenge of the project was getting all of the mechanicals to fit in the available space. “We



**Viega's Climate Panel radiant underlayment system was instrumental in providing ultimate comfort in the retreat.**



worked with the engineer to renegotiate the space so everything could fit, and work properly,” explains Abularrage. The crew installed the four heat pumps and the heat pumping array in the 4-ft. crawl space adjacent to the mechanical room, which is located in the basement. While the headroom was challenging, the associated working discomfort was minimized by the prefabrication of the associated mechanical control panels, which took place back at Advanced Radiant Design’s shop.

Advanced Radiant Design also performed some after-project work in the three interconnected residence halls. At the request of tenants of the retreat center, Abularrage returned to the site last fall to install an eco-friendly Froeling wood-fired gasification boiler system with existing dual, Triangle Tube Prestige, propane-fired boilers serving as back up. The Froeling wood gasification boiler was installed to cut down on energy costs. “The Center is committed to alternative energy use,” says Abularrage. The property sits on hundreds of wooded acres, which equals fuel. Residents participate in their service to the retreat by harvesting wood on-site.

“The project continued to grow as an example of integrated green technologies, and today, the clients are most happy and satisfied with the performance and comfort of the system,” says Abularrage.

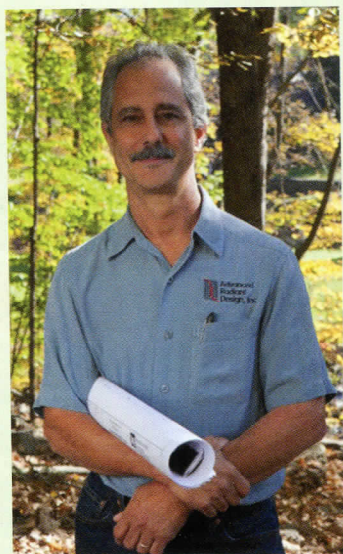
*John Mesenbrink is a freelance writer and contributor to Radiant Living.*



**Wilo Stratos ECM pumps handle distribution for the radiant heat and air handlers for both heating and cooling.**



**The goal of the center is to provide a safe and eco-friendly space for nurturing holistic well being and spiritual growth.**



## Radiant, All-In

With more than 30 years of experience, Advanced Radiant Design Inc.’s philosophy has remained consistent: “At Advanced Radiant Design Inc., radiant heating is our primary business. We are committed to radiant heating; we design and install radiant systems that deliver complete comfort, the highest efficiency, and greatest reliability.”

Graduating with a degree in solar design and analysis from SUNY New Paltz — the State University of New York at New Paltz — John Abularrage has been practicing radiant principles for nearly 35 years. He started his own business, consulting in design work, solar thermal, alternative energy, and radiant floor systems, before starting Advanced Radiant Design, Inc. You could say that radiant “circulates” in his blood.

Advanced Radiant Design Inc., Stone Ridge, N.Y., is a nationally recognized leader in the industry by the Radiant Professionals Alliance (RPA), with numerous first-place awards for residential, commercial, and snow-melt projects. The company custom designs sophisticated, elegant, and fully integrated heating systems.