

Low income apartment complex goes green with mod-con systems

It's a tough economy out there, and it was especially tough last winter near Boulder Colorado when temperatures dropped well below zero. Low-income tenants living in one 18-family unit at a Thistle Community apartment complex were really feeling the pinch when space and domestic water heating bills jumped. At exactly the same time, system performance took a nosedive.

"It was an awful coincidence, with



Denver-based Advanced Hydronics mechanical firm specializes in designing and building hydronic heating systems and was the logical choice for replacing systems at Thistle Communities.

severe weather on the way, a rate hike and dying hot water systems happening all at once," said Tom Olds, president of Denver, Colo.-based Advanced Hydronics, Inc.

"I felt especially bad because — of

Advanced Hydronics, LLC – it's all in the name

Advanced Hydronics is a Denver, Colo.-based design-build mechanical firm specializing in hydronic heating systems. The firm also gets involved in chilled water systems, high velocity and conventional AC, solar thermal, ground source heat pumps, and anything else where owner Tom Olds thinks their skills can be intelligently put to use.

Olds describes himself as "tenacious about doing things correctly" and stresses that to his guys all the time. "However, I allow them to take the time to be precise with their installation methods so that our clients receive the full value of a job exceptionally well done. I've been in hundreds of mechanical rooms and — being as objective about it as I can be — no one locally does as fine a job as we do and I am very proud of that."

The NeoTherm is a direct vent, sealed combustion boiler...zero clearance to combustibles and convenient top connections made it a good choice for the mechanical room's tight confines.

the many multi-family mechanical system jobs we do — this was the first one I'd encountered where the tenants were paying directly for metered energy use," added Olds. "Outdoor conditions greatly increased their need for heat while at the same time the old, leaking equipment had become so inefficient that there was an urgent need to replace it.

"Every dollar the tenants could save through system replacement would give them more funds for other urgent needs — food, health care, car repair or education," continued Olds. "In my book, there's no better reason to do a quality installation."

Thorny situation at Thistle

"We were perplexed about how to handle the replacement of equipment at the Parkville Apartments (a six-building complex in Longmont, Colo., 10 miles northeast of Boulder)" said Susan Andre, Thistle Communities. "We'd hoped to nurse the heating equipment along until the spring, but the need became critical when the boiler's leak worsened. We're committed to long-term capital improvements as well as proactive problem-solving for our tenants so, in this case, we had to act quickly."

According to Mary Roosevelt, CEO, the mission of Thistle Communities, a non-profit organization with about 800 qualified-income apartment units in Colorado, is to create and preserve quality, permanently-affordable rental and ownership homes for working families, seniors and people with disabilities.

All residents are "income verified." Parkville apartment units are available only to those people earning up to 50% of the area median income, though most, at only 30% median income, earn only extremely low income. "Thistle homes allow construction workers, janitors and food service employees — people who are the backbone of our economy — to live in the communities

they serve," added Andre.

"With a philosophy like that, you naturally want things to go right for an altruistic organization and hard working people in need," said Olds. "At an elevation of 5,500 feet and with a design temp of -10°F, the worst of winter conditions can happen without warning." Fortunately, a "worst case scenario" didn't develop, so the story ended happily.

Olds won the opportunity to replace the old cast iron boiler and electric water heater with a new mod-con and "side-arm" indirect. The outdoor-access mechanical room was an awful mess, complicating the mid-February replacement, but his 2-man crew had the old systems removed and replaced in four days.

"As the work progressed, we provided a temporary heat source so that we could keep tenants comfortable while the retrofit work was in progress," explained Olds.

Technology to the rescue

Olds specified a 399 MBH, 95% efficient Laars NeoTherm modulating-condensing boiler and 120-gallon Bradford White indirect water heater for the replacement.

The NeoTherm is a direct vent, sealed combustion boiler that mod-



A Laars NeoTherm modulating-condensing boiler is the heart of the system. Advance techs built a boiler control panel that recognizes each living unit, with baseboard radiation loops, as a zone.

ulates with a five-to-one turndown. Zero clearance to combustibles and convenient top connections for water, gas and combustion air made it a good choice for the mechanical room's tight confines. The natural gas or LP-fired boiler features a stainless steel heat exchanger and low NO_x emissions.

The indirect water heater's coil is constructed of 1½" carbon steel tubing and coated with Vitraglas lining, offering exceptional first-hour delivery and abundant hot water reserves. The unit also has factory installed dielectric waterway fittings, T&P valve and brass drain valve. It's also equipped with three protective aluminum anode rods.

Sadly, the mechanical room posed a challenge of its own: Its 6'x10' size (Turn to Mod-Con... page 56.)



To the rescue: Advanced techs set up shop outside the complex prior to installing a new boiler and indirect water heating system during a cold February. A temporary heat source kept residents comfortable while work progressed.

Mod-Con boilers save scarce \$\$ for low-income residents

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placed a premium on every square foot. That meant Olds needed to wedge a lot of gear into the space. Working in there meant tight quarters, so, to simplify the install, his crew first designed and built a pre-fabricated hydronic control panel



The complex's 6'x10' boiler space presented a challenge to Advanced technicians, who turned this shambles into a neat, organized mechanical room.

at the shop.

When the new boiler and indirect water heater were activated, the systems fulfilled expectations quickly. The boiler's built-in outdoor reset control modulated system temperatures perfectly and the large indirect jumped in to meet domestic water needs.

Reward for a job well done

Olds explained that the new boiler control panel was built to recognize each living unit as a zone, sending heated water to baseboard radiation loops. Every tenant controls and pays for the heat they consume by analog meter measurements at each zone valve.

"The cost benefit of operating the high efficiency systems was immediately noticed by Thistle," said Andre. "Initially, the tenants weren't concerned about the level of efficiency offered by the system, though they expected some benefit because of it. The urgent need was for reliable heat. That happened quickly with the new system, and the residents will see the added advantage of greatly improved utility bills. They are delighted with that."

And, for Olds, more good news came by phone not long ago when he received word from Thistle Communities that a grant from the Governor's Energy Office came through to cover the cost of replacing all of the old, existing boilers and water heating equipment at Parkville Apartments, a complex of six buildings with 76 households.



Advanced techs load up an old, leaking water heater, to be replaced by a 120-gallon Bradford White indirect water heater coil.

The job Advanced Hydronics completed on the first of several projects won them the opportunity to replace five more similar systems, all within the same multi-family development. "We'll use the Laars NeoTherms for all of these jobs," added Olds. "We were very impressed with the ease of installation and operational efficiency. Gladly, they were, too." ■