



Real world hydronic system technology for Green Building design.

meeting street school

NEW CONSTRUCTION, PROVIDENCE, RI



systems made **easy**



Taco LoadMatch® Real world hydronic system technology for Green Building design.

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LoadMatch® System helps school qualify for LEED certification

Project Snapshot: Meeting Street School, a nationally recognized school serving children and young adults with disabilities and developmental delays as well as students without, has opened an expansive new campus on seven acres of a redeveloped brownfield site located on the south side of Providence, RI. The \$16.5 million dollar campus is equipped with a LoadMatch® two pipe hydronic heating and cooling system from Taco, Inc. that will, in part, qualify the project for LEED certification.

The new building complex, designed by Saccoccio and Associates, of Cranston, RI, comprises 76,000 sq. feet of space for an early learning center and classrooms for the school's elementary, middle, and high school students. In addition, the campus includes a gym, pool, office areas and a library, which houses a Family Resource Center. The building also has a life skills center on the second floor.

Meeting Street School Project:

Architect:

Saccoccio & Associates, Inc.

General Contractor:

Lusi Construction, Smithfield, RI

Mechanical Engineering:

Engineering Design Services, Inc, Slatersville, RI

Mechanical Contractor:

Delta Mechanical, Warwick, RI





The Client:

Founded in 1946, Meeting Street School is recognized as a national leader in education and child development. The school is known for developing “revolutionary” concepts that are now widely accepted best practices. The school has a staff of some 130 employees and serves 200 children and young adults within the building. Ages range from as young as three weeks to adulthood, and come from many RI communities.

The New Building:

The new building’s design is in direct response to the special needs of its students. The client requested that administrative services be spread throughout the school to allow for greater interaction and “inclusiveness.” The two-story complex’s layout is comprised of a main “street” corridor spine with five intersecting wings. This layout allows for considerable window space along the perimeters of the complex in order to harvest natural light. 90 percent of all interior spaces are served by daylighting

The HVAC System:

Engineering Design Services, Inc. (EDS), of Slatersville, RI, designed the heating and cooling system for the building. EDS Inc. specializes in mechanical, electrical, plumbing and fire protection design of commercial buildings like schools, hotels and office buildings. EDS had previously specified the Taco LoadMatch® system for the Lake of Isles golf course clubhouse at the Foxwoods Casino and Resort in nearby Mashantucket, CT.

According to William T. Mayer III, P.E., a principal at EDS, LoadMatch® was the “a great application” for the project and helped hold down initial installation costs because of its need for less piping and valves than a conventional hydronic system. Another benefit realized by the project due to the LoadMatch® system was the reduction in balancing, commissioning and startup labor due to the self-balancing nature of the system and the simple control strategy.

The Taco LoadMatch Solution:

EDS used Taco’s Hydronic System Solutions (HSS) design software to lay out the two pipe system within the Meeting Street complex, saving time on pump selection and calculations for pipe sizing, which the software does automatically.

The LoadMatch® system employs ceiling mounted IEC fan coil units with 2 factory-installed Taco LoadMatch® circulators per fan coil. There are two circulators per fan coil – one for heating and one for cooling, providing “four pipe” performance with only two pipes. The building is equipped with a total of 56 fan coils along with 18 blower coils. Each fan coil comprises a separate zone. Indoor comfort within the building’s many classrooms and activity spaces is controlled by DDC units from Johnson Controls.

Taco’s LoadMatch® system provides better comfort than DX air systems as well as conventional 4-pipe hydronic systems. It is self-balancing and eliminates the need for most

balancing valves by replacing them with small, energy efficient Load-Match® circulators. The LoadMatch® circulators direct system water to where it needs to go, as opposed to forcing the water through the system’s piping loop.

The Heating System:

The heating system consists of two Camus Hydraulics DynaFlame Series gas-fired condensing boilers (2 million BTUs each), two Taco vertical inline pumps, a Taco 4900 Series air separator and a CA-1000 expansion tank.

The chilled water system consists of a roof-mounted Trane 200 ton air cooled chiller, two Taco vertical inline pumps, a Taco 4900 Series air separator and a Taco PAX-170 expansion tank. Domestic hot water is provided by two 70-gallon PVI condensing firetube water heaters.

The new complex, started in July 2004, was officially opened in December 2006.

Results:

There have been no problems with the system since the building went operational.

According to Saccoccio and Associates the complex’s HVAC system will qualify for LEED credits in two areas – Optimizing Energy Performance and Innovation in Design, based on expected energy savings and the reduced amount of materials employed, especially system pipe.

You'll be more comfortable.

LoadMatch[®] provides better comfort than all air-systems, as well as conventional hydronic systems. LoadMatch[®] is a self balancing system and assures the required flow to all heating and cooling units at all times. Your heating and air conditioning system will deliver BTU's where they're needed, and when they're needed.

You'll save energy.

With less pipe and the elimination of control valves and most balancing valves, lower pump head and less power is required to move the water.

You'll save money.

Fewer parts, about 40% less pipe and fittings, no control valves and almost no balancing valves reduce first costs. Lower pump head and operation of pumps to match the load reduce operating and maintenance costs. All this adds up to big savings on the system, typically up to 30% of life cycle costs.

Contact Us

Taco engineers are at the forefront of Green Building hydronics, designing components and systems to help you meet the challenges of environmentally sensitive – and budget conscious – design and build. Visit our web site at taco-hvac.com or e-mail greenteam@taco-hvac for more information or to talk to a Taco Green Building professional.

