



Application Form

2007 System Showcase

Radiant Panel Association
1399 S. Garfield Ave., Loveland, CO 80537

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Response ID HC703

Date Posted 4/25/07

Step 1 CATEGORY

Commercial - Installed radiant in a commercial property as the primary heating system

Step 2 SUBMITTED BY

Empty text box for submitted by information.

Step 3 PROJECT INFORMATION

PROJECT NAME: Riverview Apartments LOCATION: Bristol, CT
YEAR COMPLETED: 2005 SQ FT LIVING AREA: 140,000

STRUCTURE AGE: New SPACE HEATED/COOLED BY RADIANT: 140,000 sq ft
LEVELS/STORIES: 4

STRUCTURE CONSTRUCTION: _____ wood/brick/stucco

STRUCTURE USE: condo/apt

PROJECT TYPE: _____
 Heating Cooling Snow Melting Other Type

RADIANT PANEL LOCATION: _____
 Floor wall Ceiling Other Location _____
Radiant Zones: # _____

ADDITIONAL FUNCTIONS:
 Fan Coil Domestic HW Hot Tub Pool
 Convector Other Functions

UTILITY: _____
 Electric Natural gas Propane Oil
 Solar Other Utility

HEAT SOURCE: _____
 Resistance Boiler Heat Pump Water Heater
 Furnace Other Heat Source

Step 4 PANEL DESCRIPTOR

Floor Panels

TUBE OR ELEMENT:

- Cable Film PEX tube PB tube Rubber PE/Metal
 PE Copper Other Tube/Element

PANEL CONSTRUCTION:

- Concrete slab on grade Concrete slab below grade Sand below concrete slab
 Gypsum on concrete Gypsum on wood subfloor Concrete/wood subfloor
 Wood sleepers Under wood subfloor Suspended in joist bay
 Aluminum plates Reflective barrier Premanufactured panels

Other Panel Construction

PANEL COVERING:

- Carpet glued Carpet & pad Hardwood Softwood
 Ceramic Tile Stone Brick Bare

Other Panel Covering Sheet Goods

OTHER PANEL DETAILS:

Tube Size: 1/2" inch **Cable Size:** _____ watts/ft

Spacing: 6 to 9 in o/c (range) **Other Panel Details:** _____

Wall Panels

- Cast iron Welded steel Extruded aluminum
 Embedded tube/cable Premanufactured electric

Other Wall

Ceiling Panels

- Embedded tube/cable Premanufactured electric Premanufactured hydronic

Snow Melt Panels

SNOW MELT CONSTRUCTION:

- Embedded tube Embedded cable
 Asphalt Concrete Pavers

SNOW AND ICE MELTING:

- Always clear and dry Melt and run off Melt within an hour of snowfall

Step 5 CONTROLS

INDOOR SENSING:

____ Air sensing thermostats ____ Panel sensors Other ____

OUTDOOR SENSING:

1 ____ Reset heat source high limits ____ Secondary loop temp controls

PANEL TEMPERATURE CONTROL:

1 ____ 3-way mixing valves	_____ 4-way mixing valves	_____ Injection valves
_____ Injection Pumps	1 _____ Heat exchangers	_____ On-off valves
2 ____ On-off pumps	_____ On-off heat source	2 ____ Weather responsive outdoor reset

ROOM CONTROL:

_____ Zone valves	_____ Manifold telestats	_____ Pumping zones
142 ____ Thermostatic valves	_____ Relays (electric system)	_____

Step 6 ADDITIONAL DESCRIPTION

This project is a 4-story (140) unit apartment building for people over 55 years of age, which was being developed & operated by the same person, was brought to us through a referral by the Mechanical engineer on the project.

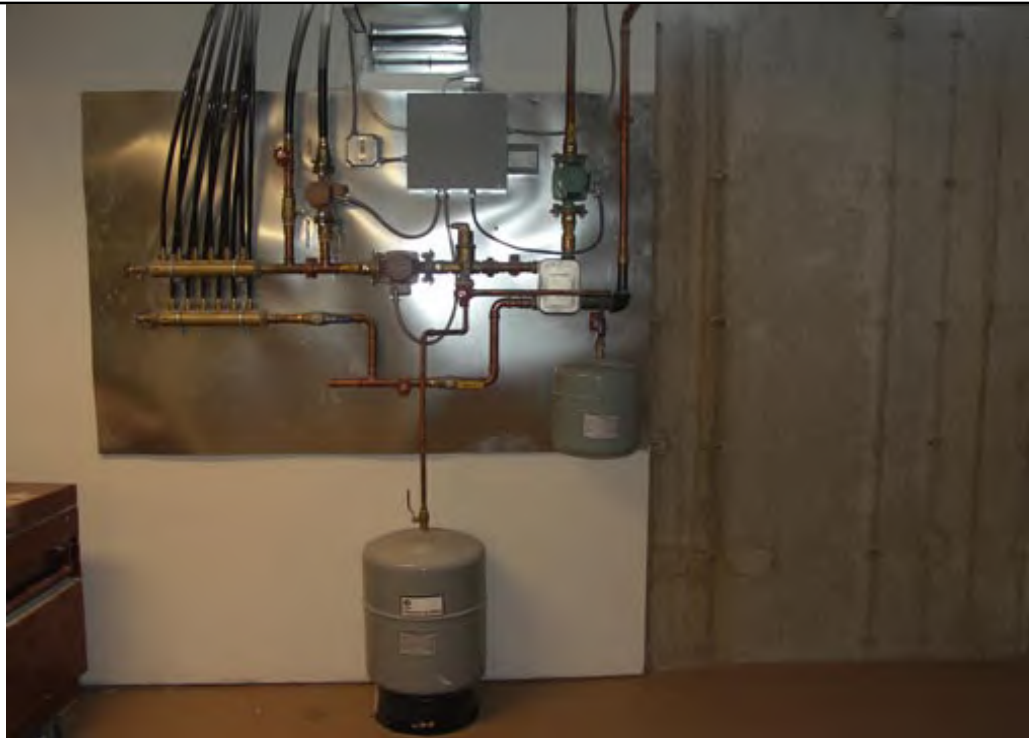
We were given the original drawings which consisted of a hot water firm tube system with (2) boiler rooms, with a total of 6 boilers rated @ 1,300,000 each for a total of 7,800,000 btu's, there were also a total of (16) 80-gallon indirect water heaters. The building was basically a wood frame structure with 50% of the lower level slab on grade; the rest of the lower living level was concrete/steel deck. The upper 3 floors were wood floors with Gyp. I realized there was a chance the project could be over designed since the entire building was either concrete or gypcrete, for sound and fire ratings, I decided this would be a perfect candidate for radiant heat. I did some preliminary heat losses & tubing budgets and realized that with proper sizing we could offer a high end, energy efficient radiant system for no more than the specified system was costing. Actually a little bit less.

I pitched the idea to the owner who was receptive to the plan. I then needed to bring the Mechanical engineer back on board for total redesign. With some value engineering on our part & their expertise we designed a building with fully radiant living space with each apartment as a separate zone. The hallways and common spaces heated with gas fired rooftop units. The stairwells & vestibule are heated with low temp fan coil units. The boilers are (2) Viessmann Rndomat RMT 500 Dual Fuel fired gas/oil boilers; just under 2,000,000 btu's each. The house circulator is a dual arm, Armstrong 190 gpm with 90 ft. of head controlled with a Variable Frequency Drive (VFD). Domestic water is (3) 120-gallon Phase 111 indirect water heater.

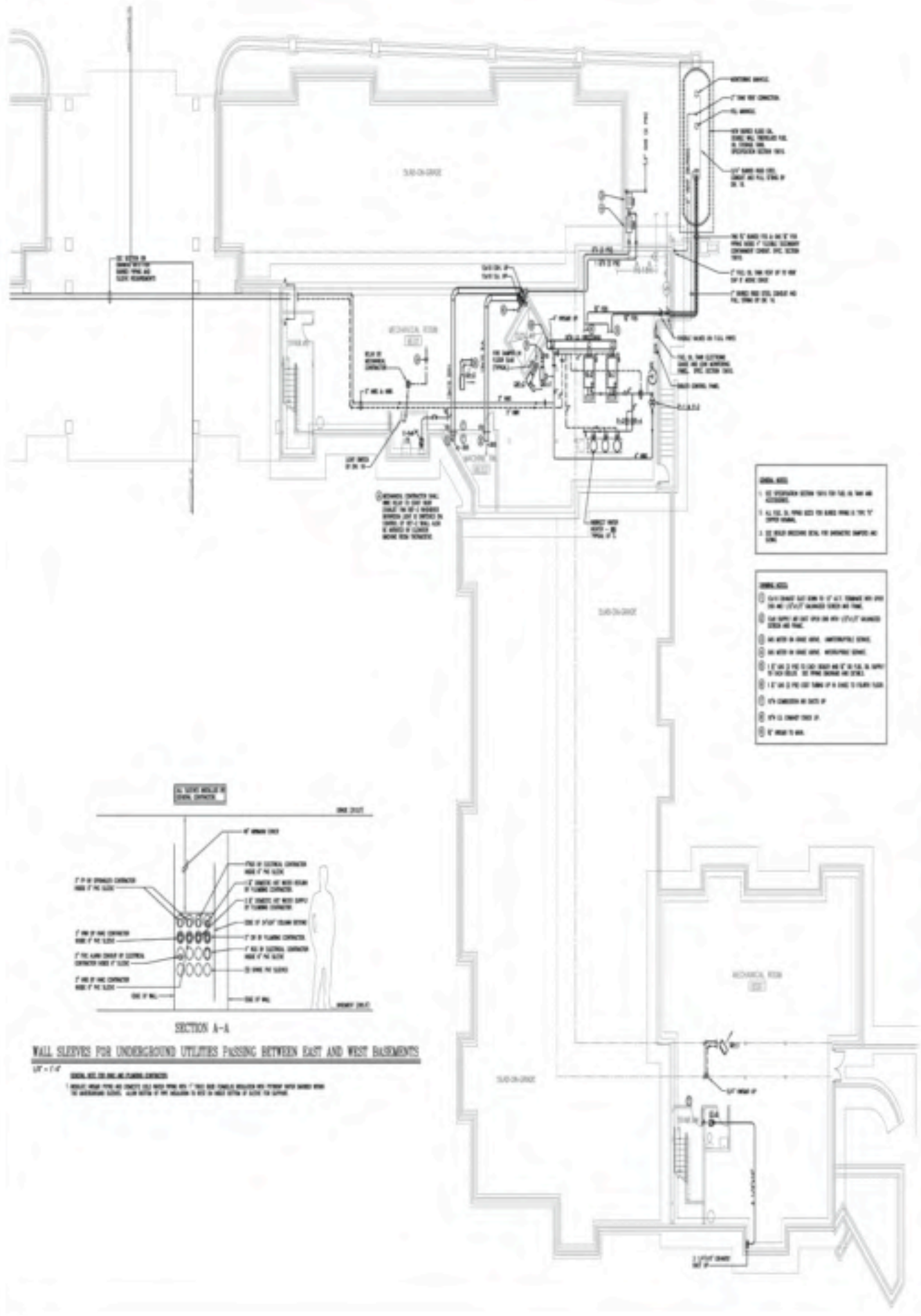
The building is fed with a reverse return piping arrangement with the supply running on the first floor ceiling, the return pipe running on the fourth floor ceiling. There are individual supply & return riser/drops for each (4) apartment set. We also added a Nexus pre-set circuit setter on the top of each return for a self-balancing system. Danfoss non-electric valves control the individual apartment zones. On some of the apartments that had higher heat losses and multiple outside walls we added some finn-tube for supplemental heat. In hindsight this probably was not necessary. The building was so efficient in the dead of winter on a 0 degree day the 130,000 sq. ft. building only consumed 100 gallons this is less than 3/4 of a gallon per apartment per day. As an extra bonus we installed snow melting on the (2) main entrances to the building to create a safe clean environment. Everyone involved with the project was pleased with the results.





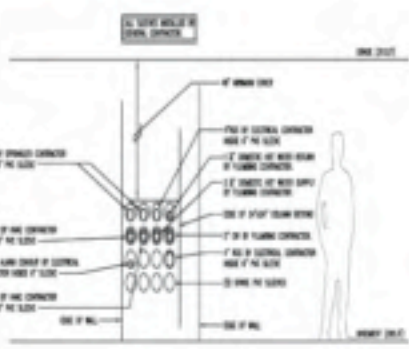






- WALL SLEEVES**
1. 12" DIA. CONCRETE SLEEVE FOR 12" DIA. HD. GALV. STEEL PIPE.
 2. 12" DIA. CONCRETE SLEEVE FOR 12" DIA. HD. GALV. STEEL PIPE.
 3. 12" DIA. CONCRETE SLEEVE FOR 12" DIA. HD. GALV. STEEL PIPE.

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SECTION A-A

WALL SLEEVES FOR UNDERGROUND UTILITIES PASSING BETWEEN EAST AND WEST BASEMENTS

- NOTES:**
1. WALL SLEEVES SHALL BE CAST IN PLACE CONCRETE WITH 2" MIN. THICKNESS AND SHALL BE CAST WITH A 1/2" GAP TO THE UTILITY PIPE.
 2. WALL SLEEVES SHALL BE CAST IN PLACE CONCRETE WITH 2" MIN. THICKNESS AND SHALL BE CAST WITH A 1/2" GAP TO THE UTILITY PIPE.
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RiverView Apartments

BASEMENT EAST MECHANICAL

M1.0
 REF. 1

