Application Form

2007 System Showcase

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

Phone: (970) 613-0100
Fax: (970) 613-0098

Response ID Z2704 **Date Posted** 5/8/07

Step 1 CATEGORY

6-15 Radiant Zones, new residential

Step 2 SUBMITTED BY

Step 3 PROJECT INFORMATION

PROJECT NAME: Vacek Residence LOCATION: Lincoln, NE
YEAR COMPLETED: 2007 SQ FT LIVING AREA: 8100

STRUCTURE AGE: New SPACE HEATED/COOLED BY RADIANT: _____ sq ft
LEVELS/STORIES: _____

STRUCTURE CONSTRUCTION: wood frame

STRUCTURE USE: residence

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**

○ **Convectors** **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 DESCRIPTON

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 _____

OTHER PANEL DETAILS: _____

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

Spacing: 9 **to** 12 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:

8 **Air sensing thermostats** ____ **Panel sensors** **Other** ____

OUTDOOR SENSING: _____

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

____ _____

PANEL TEMPERATURE CONTROL:

____ **3-way mixing valves** ____ **4-way mixing valves** ____ **Injection valves**

____ **Injection Pumps** ____ **Heat exchangers** ____ **On-off valves**

8 **On-off pumps** ____ **On-off heat source** ____

_____

ROOM CONTROL:

_____ **Zone valves** _____ **Manifold telestats** 8 **Pumping zones**

_____ **Thermostatic valves** _____ **Relays (electric system)** _____

_____

Step 6 ADDITIONAL DESCRIPTION

This newly constructed slab-on-grade residence features 8,100 sq/ft of living space and 1,900 sq/ft of garage all heated via high-mass infloor radiant heat. We used 9,880 linear feet of 1/2" pex-al-pex for our infloor tubing spaced from 9-12" OC depending on the heatloss requirements. We also used 920 linear feet of 3/4" pex-al-pex for our supply and return lines to our remotely mounted manifolds strategically located throughout the house. All eight zones of floor heat are controlled by Tekmar TN4 system that control eight zone pumps with integral flow-checks coupled with visual flow indicators (flow-setters) on the return line. The tekmar TN4 system controls two modulating Lochinvar Knight boilers and one HTP 120 Gal indirect water heater. The TN4 system modulates the boilers based on an outdoor-reset principle for this single low-temp system, also giving priority to the DHW system. Zone synchronization is a very nice feature for this home so that even with two boilers that can low fire at 20,000 btu's each, the zone synchronization function allows multiple zones to engage at optimum times together, rather than on/off (bang bang) zoning principles of yesteryear. With 8 zones of heating, the TN4 thermostats also perform additional roles in providing temperature averaging for 3 zones of cooling. An additional Tekmar 480 control can provide 1 button access to engage all thermostats in "Occupied", "Unoccupied", and "Away" modes.

The Caleffi Hydroseparator performs air and dirt separation responsibilities as well as simplifies boiler and system loop piping. One other notable feature on this job was the insulation package. Glossy black PVC "skin" was applied over the jacketed fiberglass insulation which surrounds the wrot copper Pro-Press fittings and the brazed copper header that was "T-pulled".

Step 7 DESCRIPTIVE PROJECT PHOTO

Step 8 SUPPORTING PHOTOGRAPHS

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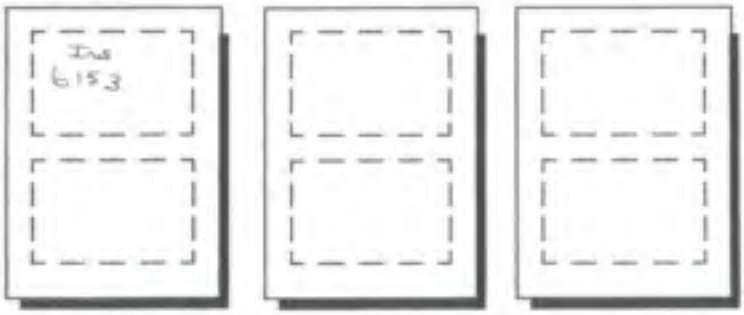
Attach photos to standard letter size paper (8 1/2 x 11") as shown below. You may include a maximum of three sheets of paper (six photos) for this section.

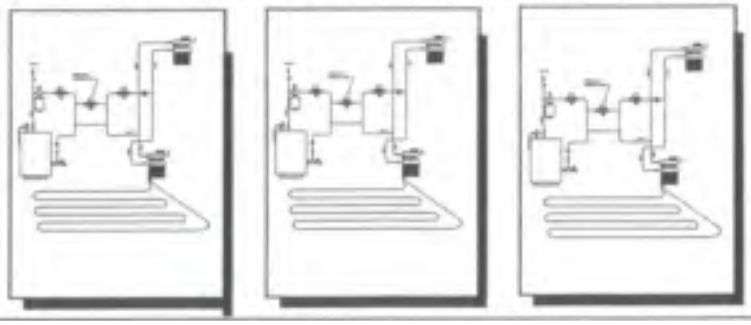
Required photos:
- tube or cable rough in
- finished installation of radiant heated area

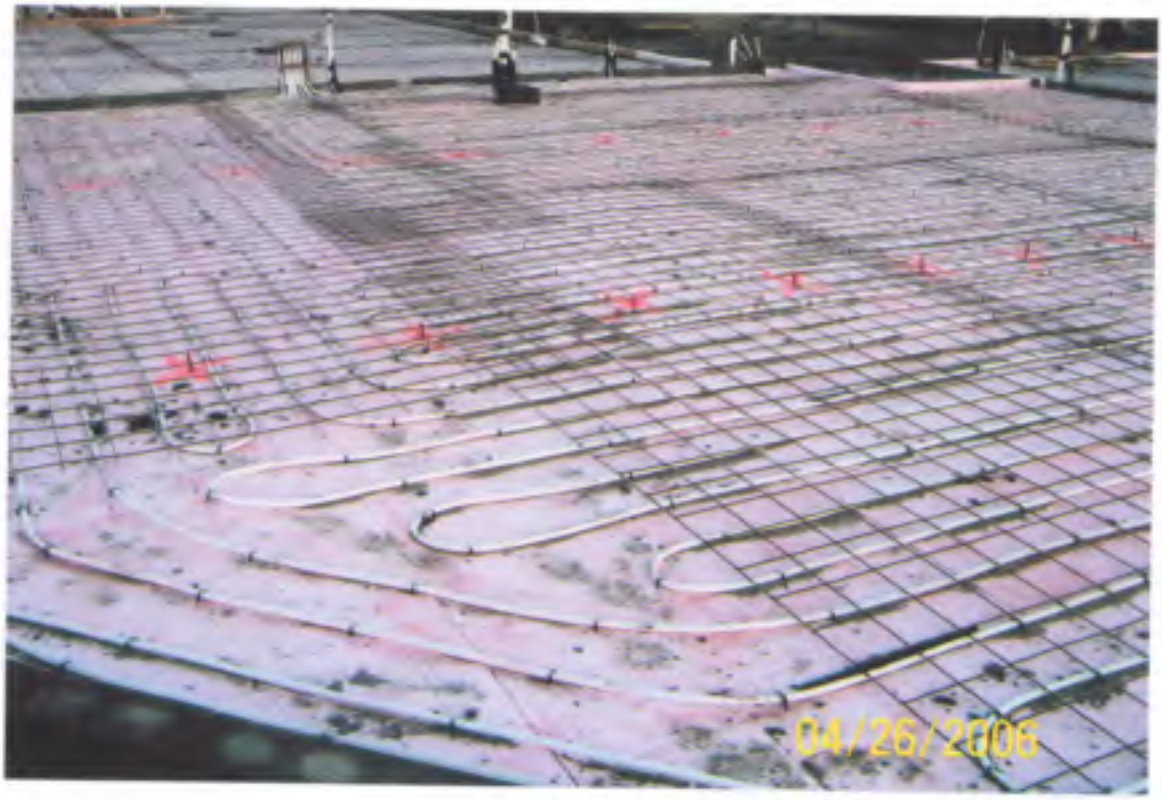
Suggested photos:
- building exterior
- panel installation
- mechanical room
- controls
- unique features



Step 9 SCHEMATICS or DRAWINGS (maximum 3 - 81/2 X 11)

Attach up to three sheets of letter size paper (8 1/2 x 11") containing drawings or schematics depicting the mechanical/electrical details of the system. These may be hand sketches, professional drawings or computer generated.





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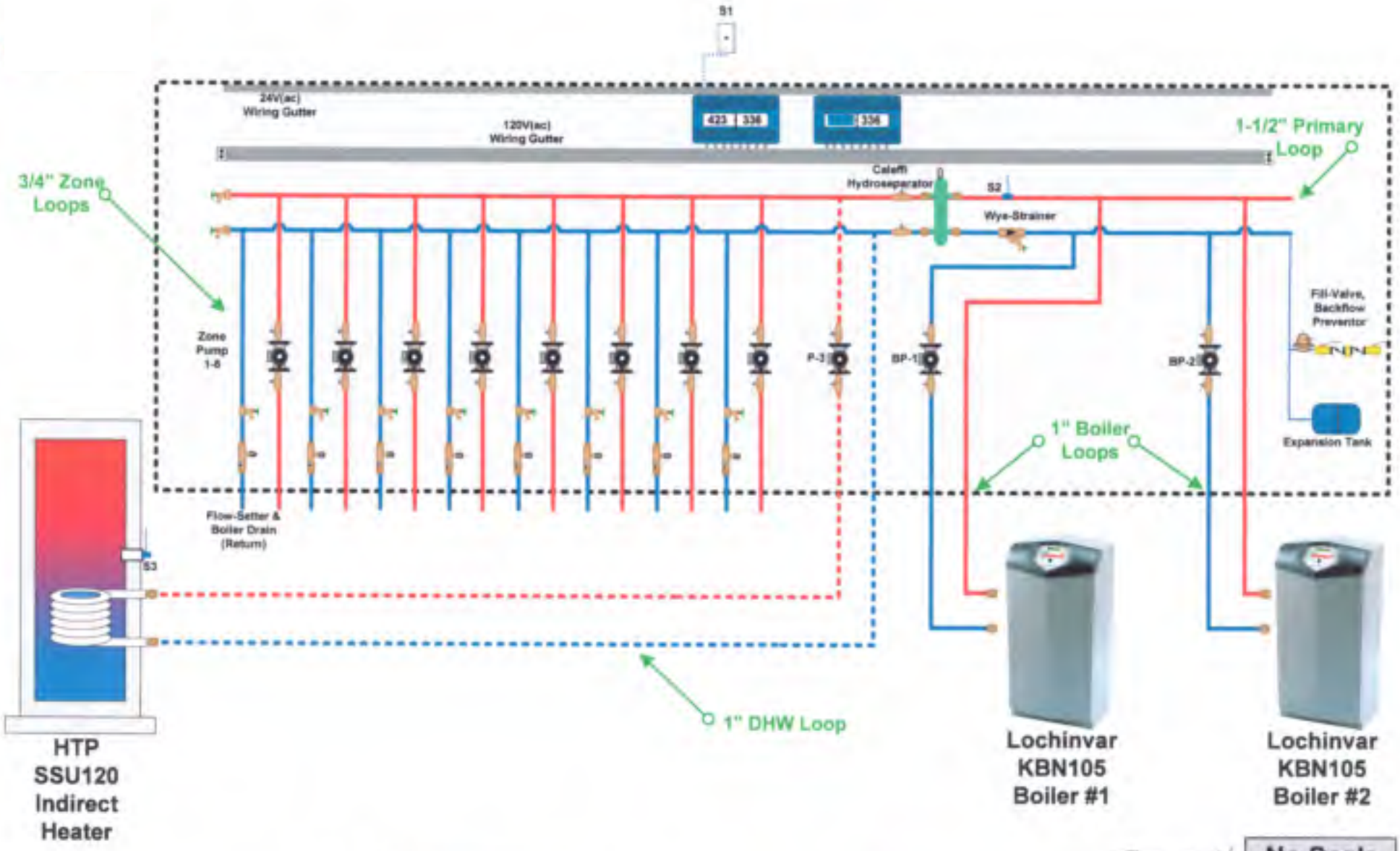


Z2704

No Scale

NOTE: This drawing is conceptual only, not an engineered drawing. It is up to the system designer to determine the necessary components for and configuration of the particular system designed, including additional equipment, isolation relays (for loads greater than the control's specified output ratings), and any safety devices which in the judgement of the designer are appropriate. Certain components may have been left out on this drawing for the purpose of clarity. Mechanical considerations such as tee spacing, flow control, pipe sizing and pump selection, is the responsibility of the installing contractor. Local codes and trade practices must be followed.

SYMBOLS

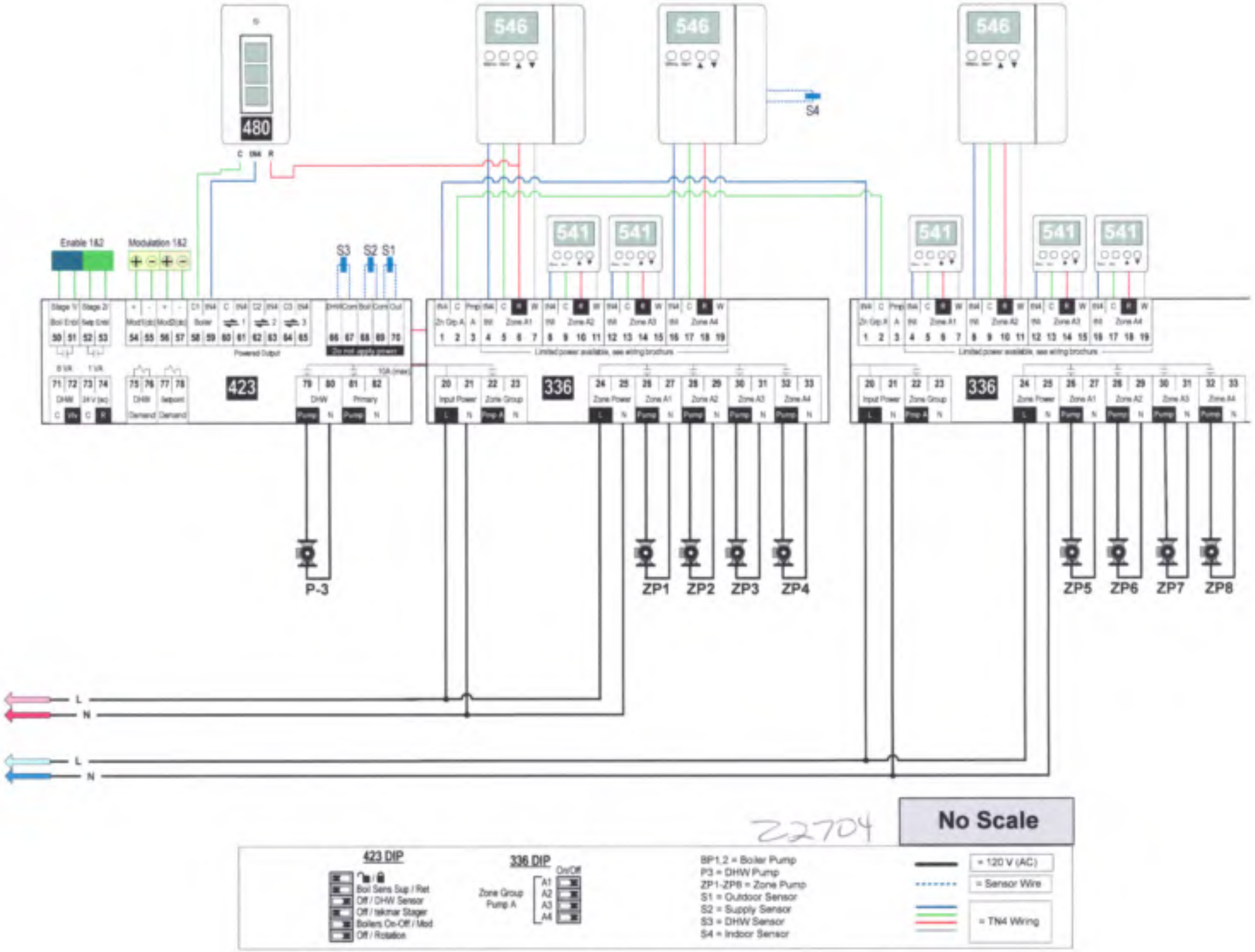
- = Pump
- = Air Separator & Expansion Tank w/ fill
- = Caleffi Hydrolink
- = Zone Valve
- = Indirect Water Heater
- = Boiler
- = Isolec Flow Setter
- = Pressure By-Pass Valve
- = Hydro Separator
- = Buffer Tank

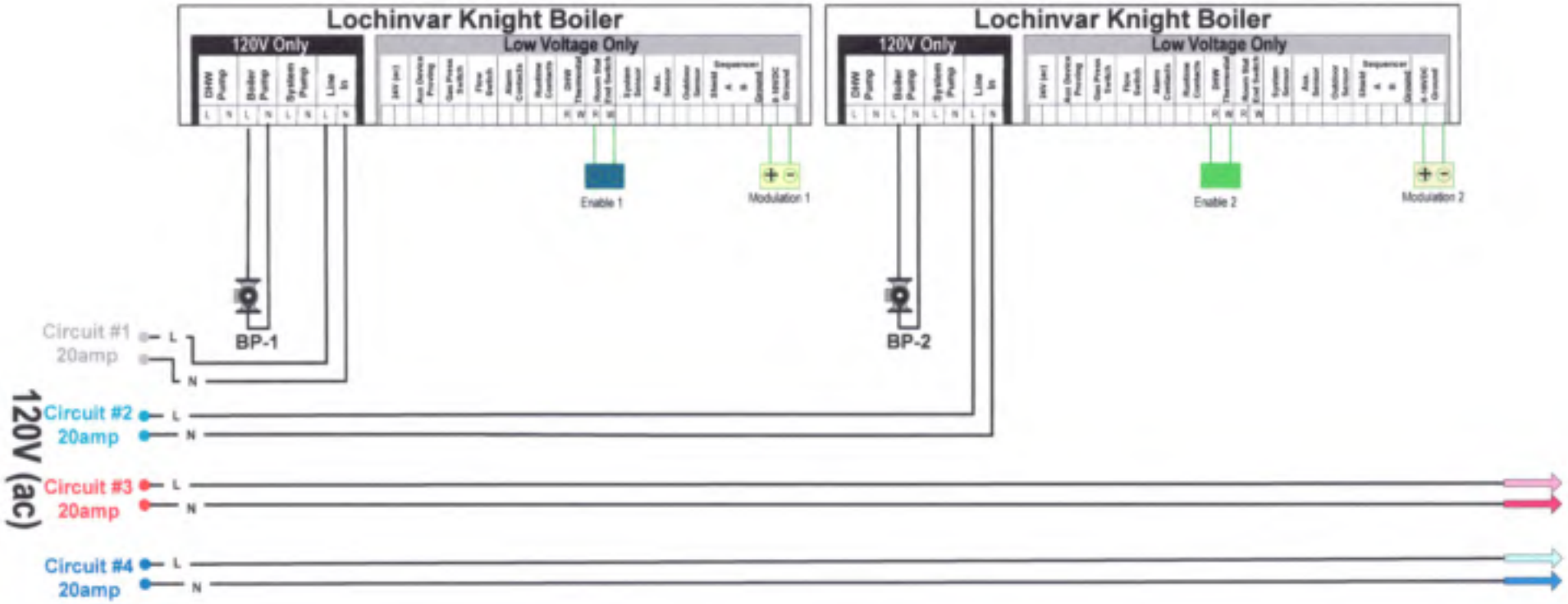
Project: Pelican Bay

Checked by:

Rep:

DATE:


480
546
546
546
S4
541
541
541
541
541
Enable 1&2
Modulation 1&2
S3 S2 S1
423
336
336
Powered Output
Do not apply power
Limited power available, see wiring brochure
P-3
ZP1 ZP2 ZP3 ZP4
ZP5 ZP6 ZP7 ZP8
L
N
L
N
22704
No Scale
423 DIP
Boi Sens Sup / Ret
Off / DHW Sensor
Off / tekmar Stager
Boilers On-Off / Mod
Off / Rotation
336 DIP
Zone Group Pump A
On/Off
A1
A2
A3
A4
BP1,2 = Boiler Pump
P3 = DHW Pump
ZP1-ZP8 = Zone Pump
S1 = Outdoor Sensor
S2 = Supply Sensor
S3 = DHW Sensor
S4 = Indoor Sensor
= 120 V (AC)
= Sensor Wire
= TN4 Wiring



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= Zone Valve

= Indirect Water Heater

= Boiler

= Isotec Flow Setter

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Hydro Separator

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