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West Country Hearth

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# EXECUTIVE SUMMARY

## Overview of Boiler repairs and Piping Changes

The boiler piping changes to the domestic hot water system and boiler heating system were completed in the summer of 2018 and are now online and working. The new boiler installed is now the lead boiler and controls the staging of all the other boilers based on outside air. The boilers will deliver up to 180 F if required. The boilers deliver the hot water to the 7 pump panels located in the basement and crawl space. Water is then remixed at the pump panels for use as heating in the individual suites.

The hot water tanks have been opened and the coils descaled which will now give you more hot water recovery capacity than before. These tanks are turning off and on as required to maintain domestic water temperature. The new boiler looks after supplying the hot water to these three tanks and takes priority when required.

## Proposed System Operation Changes

The West Country Hearth building uses highly efficient boilers to heat a closed water heating loop to deliver heating to fan coil units and wall radiation cabinets. Phase two of the heating upgrade will accomplish a number of things that will benefit West Country Hearth. Phase two work includes the following areas: four wings and additional short wing to the Alzheimer ward, the central basement core area, the mechanical room and removal of all pump panels and approximately 12,000 feet of pex piping running from the pump panels.

We will be able to deliver hotter water to the suites which means a warmer suite temperature during the coldest days of winter. Presently the far South ends of the wings are only getting 135 F water during the coldest days even though the boilers are operating at 180 F. You have been getting complaints of cold suites during the coldest days. This is due to the numerous times that the boiler water gets diluted in the injection panels each time it is mixed, lowering the water temperature.

The new piping system eliminates the injection panels altogether and we will deliver 180 F to the far ends of the wings.

1. Combine the changes we made during this last summer to the boiler system to marry with the new changes we are proposing. This would entail expanding the primary loop piping in the boiler room to be carried into the undeveloped central area in the basement. We have already sized your new primary pump for the future piping of this loop.
2. Install individual 2" supply and return piping into each of the 4 wings plus south West extension to replace the pump panels. The supply and return pipes will supply the required heating water to the suite zone valves. Each wing will operate off the main circulating pump which has a VFD pump to control the



water flow. This will eliminate approximately 55 individual pumps, increase system efficiency and lower power consumption and maintenance costs.

3. Install glycol exchangers for the hallway make-up airs and central core fan coil units and heat recover ventilators.
4. Your existing boilers will continue to supply the required hot water for the heating and domestic water uses.

## Phase Two Advantages

1. Elimination of the 5 injection panels located in the crawl space consists of approximately 55 pumps, which makes for a maintenance intensive system that does not work as per its design.
2. Elimination of coil freeze ups in the crawl space make-up air systems would now be on glycol and will not be subject to freezing.
3. Boiler control will be optimized by being able to supply the correct boiler water temperature corresponding to the outside air temperatures. Presently the boilers are supplying a higher water temperature then required to counter the mixing panels, this will lower your gas consumption.
4. Elimination of freezing concern of the heating coils within the air handling units serving the central core by converting to glycol. This will eliminate the costly repair of frozen coils in the past. Some of these coils will need to be replaced because of the number of times they have been repaired, but are not included in this scope of work. Some units are not providing heat because of non-repairable coil damage.

This is what we are proposing as a solution for a complete building heating Fix.

1. Install individual supply and return piping into each of the 4 plus the south West extension wing to replace the pump panels. The supply and return pipes will supply the required heating water to the suite zone valves. Each wing will have a 2" reverse return piping arrangement to control the water flow. This will eliminate approximately 55 individual pumps, increase system efficiency, lower power consumption, lower gas consumption and lower your maintenance costs.

**Supply and Install Cost for the Above is .....\$175,000.00 Plus GST**



2. The 5 hallway pressurization units and crawl space Make-up air units will be converted to a glycol system along with the 12-fan coil/water furnaces units located in the basement. These units have had numerous coil repairs in the past and some of the units may need coil replacement due to the numerous repairs of the past. This can be looked into at the time of conversion. The controls will be modified as well to simplify operation. Install a glycol 1200 MBH exchanger system for the water furnace units, and 5 heat exchanger panels for the hallway and make-up air units. This would tie into your existing boiler system.

**The supply and installation Price for the above work is.....\$110,091.00 Plus GST**

**Total Installation Cost of The Above.....\$285,091.00 Plus GST**

A thorough knowledge of HVAC systems is essential in the maintenance and operations of your building in order to maintain operating sustainability. This will become a standard operating practice that will provide a positive building environment with reduced operating costs.

Sincerely,

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