



 **HEAT-TIMER**
CORPORATION

CASE | NO. 12

BUILDING TYPE: *Residential*
NO. OF UNIT: *10,000 sq. ft.*
LOCATION: *Westport*
Connecticut

Westport Mansion Gets State-of-the-Art Comfort with American Made Controls

PROBLEM: The owners of the newly erected 10,000 sq. ft.

stone mansion in Westport, Connecticut wanted the best, most comfortable heating system money could buy. And they wanted American.

SOLUTION: Discriminating tastes and large homes are far from extraordinary in upscale Westport. The community is home to many of the rich and famous, including Martha Stewart, Paul Newman, and Phil Donahue. So a 10,000 sq. ft. mansion with exquisite interiors is nothing unusual. However, the fact that the owners chose to invest in the creme de la creme of mechanical systems makes this home stand out.

"A lot of times these large homes end up with typical residential type heating systems which really aren't designed to support this kind of load," said Jack Welch, of Goodyer Zonino, who supplied much of the mechanical equipment for the job. "A home like this really needs to be treated like a commercial installation for long term performance."

That's exactly what Edgerton Heating & Cooling and Goodyer Zonino did, putting together a hydronic heating system that uses a combination of radiant floor heat and hydro air. Because the home was so large, two boiler rooms were used, one at either end of the house. Two high efficiency commercial boilers were installed in each boiler room. The second boiler room was justified by the length of piping and wire it would take to pipe all the extremities of the house to a signal boiler room. The second boiler system also provided the homeowner the luxury of being able to retire to certain rooms of the house in case one boiler system failed.

The System and How It Works

Radiant floor heat was the natural choice for the lower level foyer, kitchen, service entrance, and hallways. The marble flooring in these areas would have made the lower

level difficult to heat otherwise. This system was designed to maintain an 80 ° F floor temperature, which is usually enough heat to maintain comfort throughout the lower level.

The hydro air system provides heat for the upper level and supplements the heat in the lower level as needed. Since both systems are hydronic, they can operate off the same boiler systems.

Heat-Timer Controls Complete American Made Touch

Controls were a critical element of this system. Naturally, the mechanical contractor wanted controls that would maximize the efficiency and comfort of the system's design. Fully automated operation was also an obvious necessity. But the owners had one other requirement. The controls, like the rest of the mechanical equipment, had to be American made.

Several Heat-Timer controls were selected for the job:

1) *Heat-Trol (Hot Water Reset Control)* -Varies the temperature of the circulating water based on outside air temperature.

2) (10) *Digi-Span@ SPC-100Fs* used as Floor Sensors - An individual floor sensor senses floor temperature in each of the 10 radiant zones of the home, so that an 80°F set point temperature is maintained.

3) *Zone Control Panels* -Control heat to the hydro air and radiant heat zones, as well as an indirect water heater.

Primary functions are to:

• Turn off the boiler when all zones are satisfied.

• Momentarily turn off the heating system when there is a need for domestic hot water (Domestic Hot Water Priority)

• Prevent certain "high priority" heat zones from shutting down when there is a call for domestic hot water.

4) *Sequencing Controls* -Bring on the boilers one stage at a time, as needed, rotating lead boilers every 24 hours. This control also incorporates Pill logic, a feature which enables it to assess the rate of change in the system before activating the next stage. This prevents unnecessary cycling.

Sequence of Operation

When a Digi-Span sensor senses that the floor temperature has dropped below 80°F, a signal is sent to the Zone Control Panel (ZCP), asking for more heat. The ZCP responds by opening that particular zone actuator. At the same time, the Heat-Trol® hot water reset control activates the circulating pump. The Heat-Trol regulates the temperature of the circulating water by direct modulation of a 3-way valve. The valve opens, letting in the precise amount of boiler water needed to maintain set point temperature given the outside air temperature.

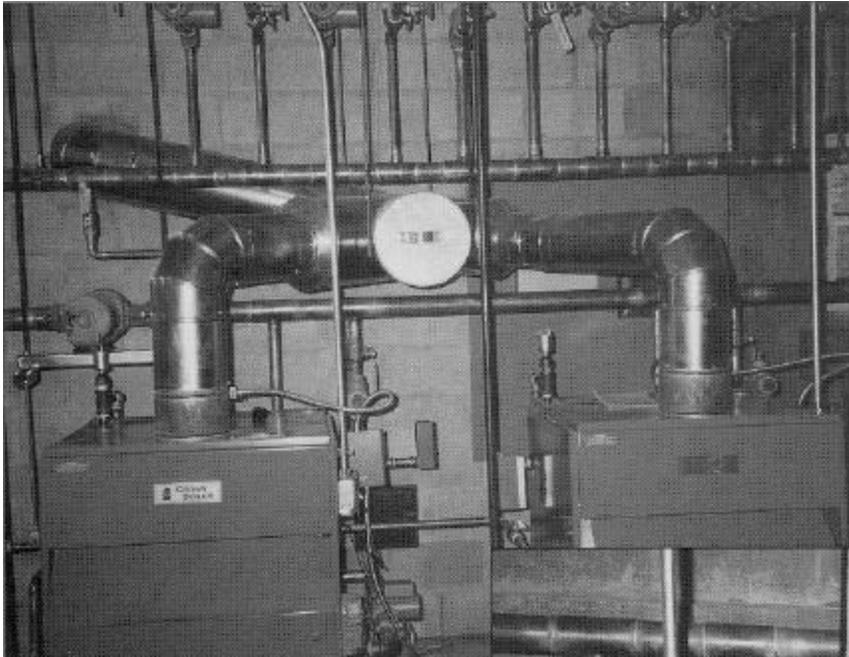
The end result is a system that is not only highly responsive, but also extremely efficient. Outdoor reset brings out the best in a radiant heat system because it keeps the supply of heat in line with demand, which maximizes comfort and minimizes waste.

A Lifetime of Worry Free Operation

In the unlikely event that the heating system should ever fail, the owners can rest assured that parts and labor for all of the major equipment -including the controls -are abundantly available. It's one of the advantages of buying American.

"The best boilers, controls, and equipment you can buy are the ones you can get parts for quickly," remarked Jack Welch. "Heat-Timer equipment can be serviced by most mechanical outfits."

Obviously, the builder of this waterfront mansion thought of everything-right down to the last mechanical detail. The home is not only a showcase for gracious living, but a truly state-of-the-art heating and control system.



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- 3) Zone Control Panels*
- 4) Sequencing Controls.*

