

Hybrid HWAT System – Recirculation and HWAT Design

APPLICATION DESIGN NOTE

In high rise residential construction, it is fairly common for the plumbing engineer to recirculate the hot water main but then heat trace the branch piping within each unit. This is done to simplify code mandated submetering of hot water usage in each unit, reduce wasted water and minimize the wait time for hot water at point of use.

Since the hot water line serving the condominium is not recirculated, the water temperature in the branch piping would go to ambient when there is no hot water flow without an approved heat tracing solution. These horizontal distribution lines are difficult to recirculate because of submetering requirements as well as pressure and balancing issues in the high rise building. Furthermore, the risers don't always line up vertically because the floor plan of each unit may be different.

The nVent RAYCHEM HWAT hot water maintenance system offers a solution utilizing self-regulating heating cables and the nVent RAYCHEM HWAT-ECO-GF or ACS-30 electronic controller, in conjunction with the main recirculation system. This combination of recirculated hot water mains and the HWAT system for the horizontal piping is often the best of both worlds. The engineer can simply heat trace the horizontal hot water lines within the condominium to provide the owner with instant hot water and meet energy and water usage codes.

Different floor plans are also not a problem because the HWAT heating cable simply attaches to the hot water piping regardless of the unit's configuration.

The drawing in Fig. 1 shows a typical hot water riser with a main recirculation loop and heat traced horizontal hot water branch lines feeding the condominiums. The HWAT system is installed following the design guidelines in the HWAT System Installation and Operation Manual (H57548).

Multiple horizontal runs can be controlled as long as the HWAT heating cable maximum circuit length is not exceeded, the same cable is on each run and the ambient conditions are the same for each pipe.

The system shown in Figure 1 includes eight circuits of nVent RAYCHEM HWAT-R2 heating cable each 50 feet long, which can be wired in parallel to a junction box and controlled by a single HWAT-ECO-GF controller. 120 V Solutions using nVent RAYCHEM HWAT-P1 and the HWAT ECO-GF controller are also available. Refer to the HWAT Design guide (H57510) for details.

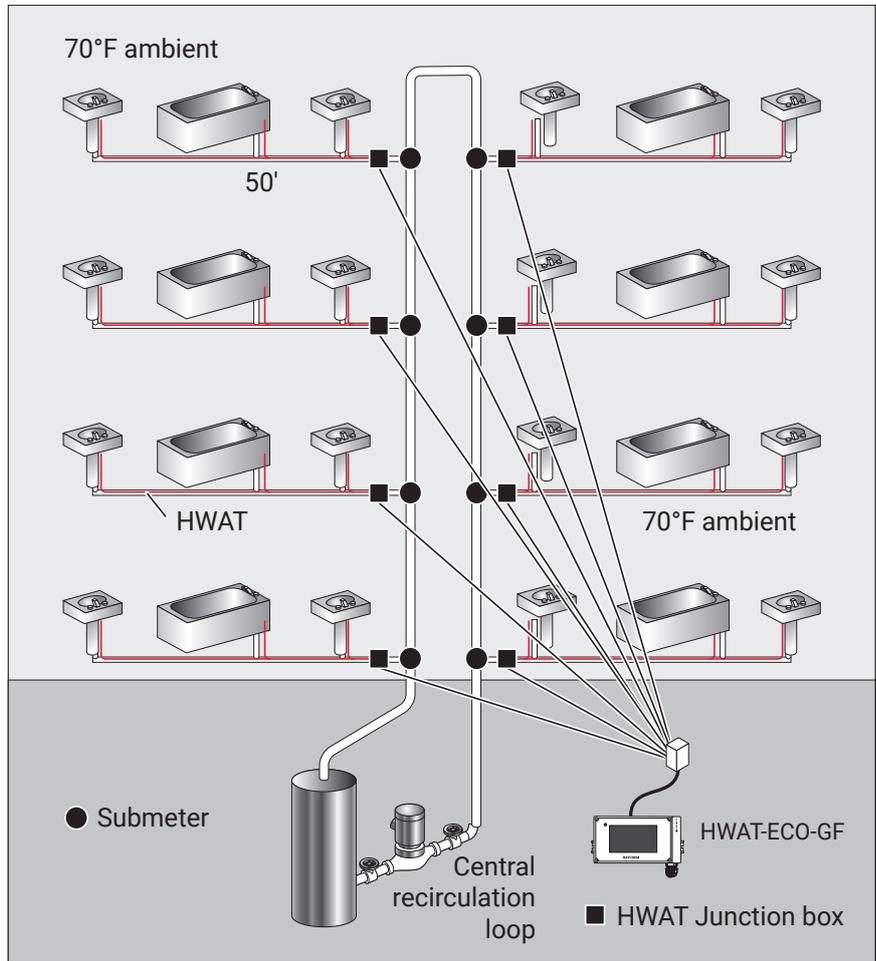


Fig. 1 Generic hybrid HWAT system

Heating Cable	HWAT-R2 or P1
Circuit Length	Total heating cable must be less than the maximum circuit length.
Insulation	Install in accordance with the Installation and Operating Manual to maintain uniform pipe temperatures.
Ambient	Pipes must be in uniform ambient conditions.

Install the system in accordance with the HWAT System Installation and Operation Manual (H57548) and the HWAT-ECO-GF Installation and Maintenance Manual (H60223).

Approvals and performance are based on using nVent approved connection kits and accessories, do not substitute parts.

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