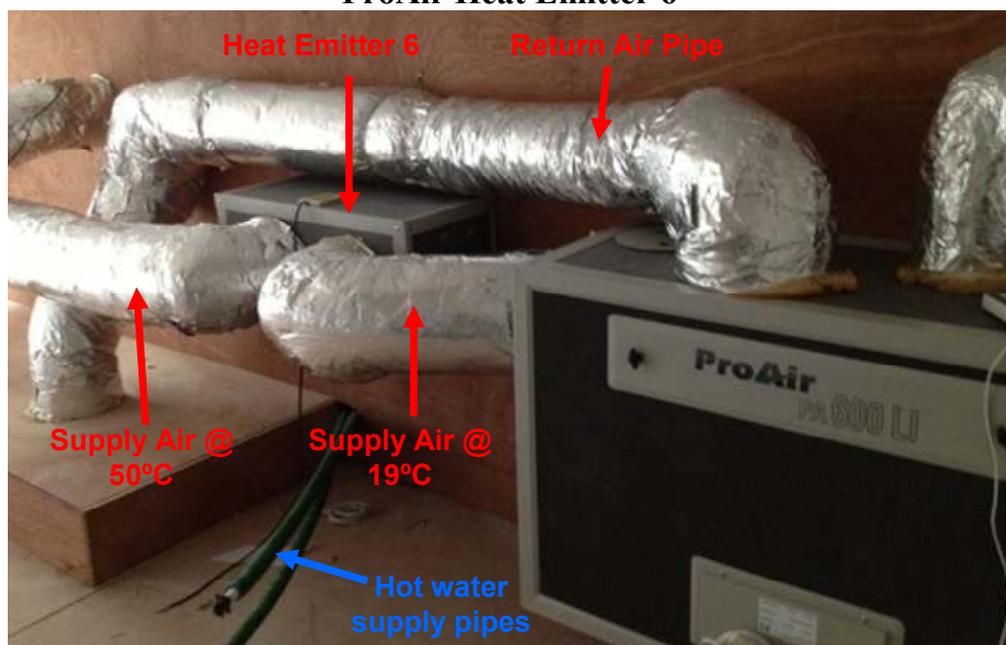


Can we use the Heat Recovery Ventilation system to heat our houses?

The answer is yes, if we can move enough air and if the source of the heat is appropriate.

The amount of heat which can be moved via the ventilation air supply is limited. (This figure in KW is a product of the amount of air and the temperature we can get it up to). The amount of air moved is a function of the HRV unit used and this is usually a maximum of 500m³/hour. The temperature reached is related to the temperature of the fluid which we push through the heater unit. This fluid is usually water from an independent source such as a buffer tank. If this water is at 60°C then it is possible, with the largest **ProAir Heat Emitter 6**, (PAHE 6W) to move up to 6 KW of heating power to the building using it in conjunction with the PA600 LI heat recovery ventilation unit. This amount of heating power is relatively small when we compare it to the capacity of the smaller oil boilers on the market. General housing stock would have a heating requirement usually between 16 and 20 KW. With the heating demand in new A3 rated houses at a very low level, the maximum load in a typical 3 bed semi detached house would be below this 6 KW level during the worst external conditions.

ProAir Heat Emitter 6



What is an air heat emitter? It is simply an arrangement of copper pipes configured in an zigzag fashion and encased with finned aluminium plates. It is similar to a car radiator. This is sometimes termed a heat exchanger coil. It exchanges heat from the hot water circulating within the copper pipe network to the air passing through it. At ProAir, we install these exchanger coils within a custom designed insulated box. We design it in a way that the supply air from the HRV unit has to pass through the coil twice and picks up maximum heat from the coil or emitter. This is done by cleverly installing a motorised damper in such a way that when the ProAir visual system calls for heat, it sends a signal to the damper to divert the air through the emitter at a higher speed than normal. During the 90% of the time when our highly insulated new houses don't require heat and only require ventilation, the air bypasses the emitter and operates at normal speed.

This means that we send in relatively short bursts of heat, i.e., large amounts of air at around 50°C. When the sensor in the return air decides this air is warm enough the water stops circulating, the damper goes to bypass and the HRV unit returns to normal speed.

What is the best source of hot water for the emitter? It is best supplied from an insulated tank sometimes known as a buffer tank. This buffer will need to be larger enough that it can supply hot water to the emitter and at the same time satisfy demand from showers etc.

What heats this buffer tank? These tanks usually have three input exchangers in them which can be coupled to various sources of hot water, such as solar, a solid fuel boiler in a stove, a gas / oil boiler or a heat pump. Indeed many of them contain an electrical immersion heater for those rare situations when none of the other sources are available.

