

Smart Heating & Cooling Comfort



Underfloor heating is well known for its high comfort during winter. But underfloor cooling is a new phenomenon being offered in the New Zealand market by several companies. While it seems an unusual prospect, it works very well if the system is designed and controlled correctly

Central Heating New Zealand has been developing its system over the past 4 years. The success of our program is due to our Skunkworks team engineering a controller to work with a specific reversible heat pump for the 'NZ typical' high thermal mass floor slabs that the heating and cooling pipes are embedded in.

The SmartOne Heating Controller



The controller is the SmartOne programmable thermostat that is situated inside the house and is wifi

enabled for use from a smartphone app. It has a floor probe and a humidity sensor where the floor probe is installed within the floor inside the house and controls the minimum floor temperature. This is essential for the high thermal mass floors. The humidity sensor on the SmartOne is also essential to influence the floor temperature when cooling in summer when the humidity is high. This prevents dew from forming on the floors from the floor being too cold.

Controlling the Chofu Heat Pump

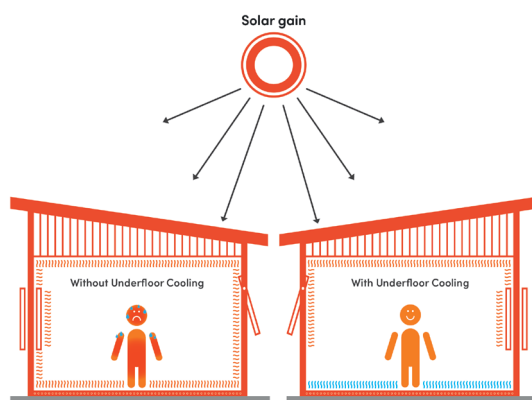


The controller communicates with the Chofu Air to Water heat pump. The Chofu heat pump provides warm water for heating the floor and chilled water for cooling the floor. The Chofu heat pump is made in Japan and is an unknown brand in New Zealand yet

but Chofu are a major supplier in Japan and have been making heat pumps for many of the other well-known brands. They have proven to be extremely reliable even in the harshest Central Otago Climate. Central Heating New Zealand has a unique relationship with Chofu and has distributed them in New Zealand for the past 6 years.

The heat pump has the ability to alter the water temperature according to the outside air temperature. For example: when the outside air temperature drops, the heat pump increases its water temperature for the heating system to cope with the colder weather. The heat pump also does the reverse in cooling mode, when the outside air temperature increases, the heat pump drops its water temperature to increase the cooling ability of the underfloor system. This feature is called Dynamic Setpoint or Climatic Curve.

Maximising the Cooling Effect



As well as the Dynamic Setpoint feature, the SmartOne is sensing the floor temperature and the ambient air temperature inside the house. The climate inside the house can be quite different from what is happening outside so this extra information is crucial to the heat pump to maximise the cooling effect without crossing the threshold of dew/condensation formation.

The other suppliers of underfloor cooling can offer a basic form of control, but they don't offer the fine-tune synchronisation that the SmartOne and Chofu heat pump combination can offer that maximises the cooling performance of the floor without risk of condensation.

Maximum cooling with minimum risk.