

More technical information on each of the sustainable elements to the homes is listed below:

Building Performance	The houses are constructed using factory made Structural Insulated Panels (SIPs). This consists of polystyrene insulation sandwiched between two layers of Oriented Strand Board (OSB) which provides the structural strength within the panel. This modern method of construction is environmentally friendly and makes for a dryer, warmer property with lower heating costs. The layers of materials applied to the walls help achieve low air leakage rates (minimising draughts) and greater sound insulation between properties.
	The floor has been constructed using pre cast concrete beams that have then been in filled and overlaid with insulation. A concrete screed (finish) is then poured over the insulation but with careful detailing and construction, cold spots are avoided.
	The windows frames are uPVC with sealed triple glazed units which provide high levels of sound insulation and contribute towards the thermal efficiency of the dwelling.
Heating and Hot Water	Heating and hot water is provided by the 'Nilan' Air to Water heat pump. Similar to a fridge, but in reverse, this works by drawing the air in from the outside which not only provides the fresh air supply to the property, but is used to boil the refrigerant within the system that is used to provide warm air heating and hot water. Hot water is stored within the integral hot water cylinder.
	Moist air from the kitchen, bathroom and W.C. is drawn back to the Mechanical Ventilation Heat Recovery (MVHR) unit that is integrated within the Nilan unit, where the heat is removed and if required, used to warm the incoming air supply. All waste air is removed from the property through the exhaust duct. The unit monitors the external and internal air temperatures and adjusts the heating accordingly. The system is designed to run continuously 24 hours a day.
Renewable Technology	To achieve Code Level 5, one of the mandatory requirements is to reduce the Carbon Emissions of the property to Zero. This has been achieved by using Photovoltaic roof tiles placed on the south facing roof slope. These tiles produce electricity in 'Direct Current'. However, before these are connected to the house, this electricity passes through an Inverter to change the power to 'Alternating Current', suitable to use within the home. Any energy not used is feed /spilled directly onto the National grid.
Water Usage	A further mandatory requirement to achieve Code Level 5 is to reduce the water usage of each house to 80 litres /day /person. This is worked out by calculation and achieved by installing low flow showers, taps and a shallow bath. Further savings have been gained from installing a communal rainwater harvesting system. Rainwater is collected from the houses and bike store roofs, which passes through a filter removing debris and leaves before entering the water storage tank located under the car park. A demand for water from the W.C, washing machine or external tap will trigger a pump which will supply water to the house. In the event of water shortage, mains water will be automatically supplied.
Sustainability	The materials used within the scheme have been checked against the BRE 'Green guide to specification'. A number of the materials within the houses can be broken down, reformed and used again. Clean rainwater from the roof is harvested for reuse by the occupiers of the houses, whilst all other rainfall will disperse into the ground through permeable block paving, not to the sewer!