

# Foundations

The foundations are the most important and sometimes difficult part of your build it is essential to get these right as they provide the base for the support of your building

The type of foundation you require will depend on the soil type you are building on and its quality (Sandy soil can freeze freeze and rise up as it expands. Clay soil will shrink in a drought and may cause movement in your foundation.), the weather conditions and the load of the building.

The different types of foundation you may need are:

Strip, raft, Block and Beam or insul slab.

## **Strip**

The most common foundation used, cost effective and strong. These foundations are trenches which are dug out until clay is reached. Stepped foundations are used on sloping sites.

There are three types of strip foundation - traditional shallow strip, as described above, wide strip, similar to shallow strip but wider and may use reinforcement and deep strip (also known as trenchfill foundations) a narrow deep strip.

## **Raft**

Raft foundations are used on soft compressible subsoil such as soft clay or peat. However, it is important that they are well reinforced to resist the effect of ground movement and the raft should also be constructed with an apron edge so that it doesn't slide.

## **Insul Slab**

Insulslab SFRC is a complete system, based on a type of raft foundation which comprises a series of interlocking expanded polystyrene pods, forming a substantially rigid 'waffle' shaped slab (waffle foundation system). Steel fibre reinforced concrete is poured over the top to form the finished foundation.

When compared to traditional methods of foundation production such as beam and block and raft foundation, Insulslab SFRC offers:

Increased speed of construction/quicker completion times

Excellent thermal performance - typical U-values of around 0.10 - 0.12W/m<sup>2</sup>K, depending on P/A ratio

Significant cost savings - a typical saving of 25 - 33% over traditional beam and block/raft; reduction in labour costs

Shallow foundation system requires minimal excavation, less disruption, reduced waste disposal and site traffic

Greater flexibility within the overall design of the thermal envelope

Facilitates easy compliance with \*Part L (Section 6 Scotland) without the need for an additional layer of insulation and screed

Also meets Part E (Section 5 Scotland) sound insulation requirements when used as proprietary Robust Details construction

Code for Sustainable Homes & BREEAM credit scores. Green Guide Rating

Less intrusive system - perfect for brownfield sites

Less volume of concrete required

Health & Safety benefits as fewer trenches means fewer associated risks; no heavy blocks to lift; minimal manual handling; less risk of injury due to absence of rebar and mesh

## **Pile Foundations**

These are used when conventional foundations would need to be so deep that they would be uneconomical. They comprise of columns resting on the clay layer of soil up to 4m deep.