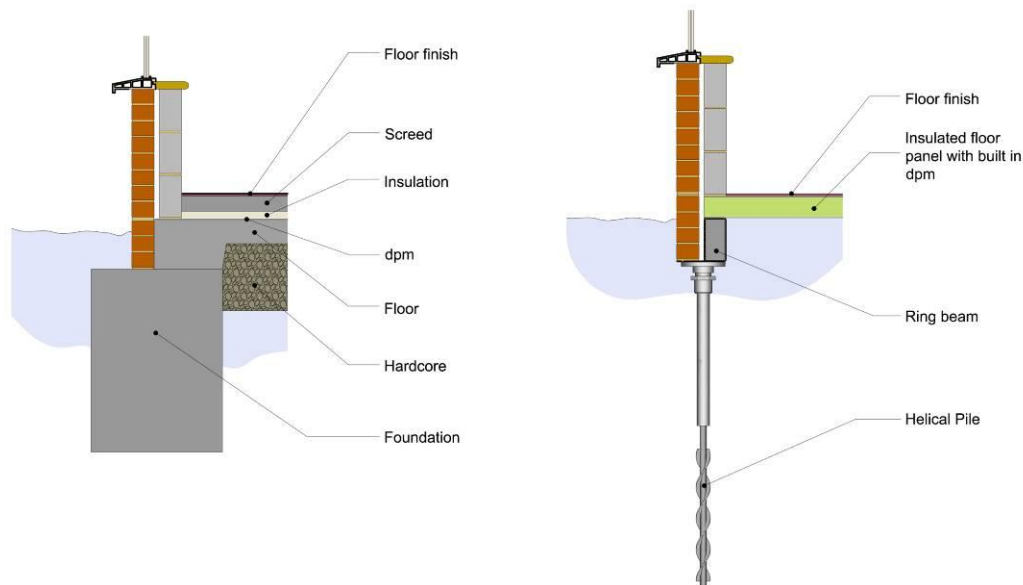


QuickBase is an innovative new foundation and floor system for lightweight structures. Quickbase was a finalist at the innovation awards at Civils 2008 and was hailed as the 'Best New Exterior Product' at Interbuild.

An unrivalled modular system, QuickBase was developed and pioneered by Shire Structures with its sister company Shire Consulting and promises the highest quality construction with significant environmental and technical benefits, as well as offering major time and cost savings when compared with traditional methods.

## What is QuickBase?

The heart of the QuickBase system is Shire's helical screw piles, which are driven into the ground to suitable load bearing strata, removing the need for mass concrete foundations. The piles are generally driven to a depth of 4 metres (deeper if required) to accommodate loose surface soils and troublesome tree roots.



Traditional foundations (left) compared with QuickBase (right)


# QUICKBASE™

Foundation Systems

The piles support lightweight, part-recycled plastic ground beams connected via a series of push-fit joints to form a frame. The ground beam is then filled with a specially formulated non-shrink grout to give a high strength composite beam. A pre-manufactured lightweight insulated damp proof floor slab is fixed with resin onto the completed ground beams.

## Step by step - how QuickBase™ saves time and hassle

**Stage 01** ⌚ 2hr




Site preparation is simpler with no need for deep foundations: saving time, minimising disruption and keeping the customer happy.

**Stage 02** ⌚ 2hr




Helical screw piles are quickly driven to the required depth to reduce the hazards associated with made-up ground or trees. A levelling head is added to the pile to form the connection with the ground beam.

**Stage 03** ⌚ 1hr




Lightweight, partly-recycled plastic push-fit beams are joined together to form the framework that sits on top of the load-bearing piles.

**Stage 04** ⌚ 1hr




A pre-manufactured lightweight floor slab is laid on top of the framework. This unique base includes both insulation and a damp proof barrier.

**Stage 05** ⌚ 4hr



With the floor slab in place, the walls of the conservatory are built - with the inner wall laid on the slab and the outer wall on the ground beam.

**Stage 06** ⌚ 6hr



Glazing is installed and the conservatory completed in a fraction of the time taken using conventional foundation methods.

Increasing labour costs and the trend for more environmentally-friendly forms of building make the QuickBase system an attractive option for builders and homeowners alike.

Prefabricated corners of different angle and 'T' connectors allow complex building plans to be easily accommodated. Most projects up to 20-25m<sup>2</sup> in size would normally be completed in one day.



## The benefits

QuickBase offers a number of overwhelming benefits when compared to traditional foundations.

a) **Cost**

QuickBase delivers overall cost benefits against traditional building methods. It does not require wet trade finishing, lowering overall labour costs.

b) **Time**

In most instances QuickBase foundations can be started and finished in less than one day, against up to a week digging out deep foundations.

c) **Environmental**

QuickBase is a more environmentally friendly method of construction. The beams are made partly from recycled materials and the damp proof floor slab is insulated, making it more economical once built.

It is virtually a dry build process, reducing the volume of water used. Less natural aggregates are used and there is generally no excavated material to take to landfill sites. All components are delivered from a single source, reducing the volume of construction traffic.

d) **Access and flexibility**

QuickBase is ideal for houses with limited or no outside access to the site. Modular parts can be carried safely and cleanly through the house, and no heavy digging equipment is required.

The adjustable pile depth guarantees that the structure will sit on suitable load-bearing strata and can support structures which would otherwise be unbuildable. The pile is generally driven to a depth of 4 metres to accommodate loose ground and tree roots, but it can be driven deeper if required. The patented helical fin arrangement allows the pile to work in both granular and cohesive soils.

e) **Quality**

The QuickBase system uses the best materials and the highest quality construction to guarantee a reliable, safe product. Offsite, modular construction means quality and the tightest tolerances can be assured. The ground beams and floor are corrosion resistant, and QuickBase-approved installers can provide a full installation warranty.

f) **Strength**

The plastic beam is designed to carry loads up to a single storey building and higher loads can be carried by increasing the reinforcement in the ground beam or by reducing the pile centres. The beam is filled with a high strength grout which increases its strength and prevents any excessive thermal movement.

### The research and development process

Shire Stabilizers were developed by Shire Structures for its work for the remedial insurance market. The potential for smaller piles to be used in lightweight new build construction became obvious and Shire piles - the supports for QuickBase - were born.

Difficult access often makes the construction of traditional foundations to the rear of a property difficult. A prefabricated lightweight foundation system would eliminate these problems and development of the Quickbase system started 3 years ago. The early prototypes were launched at Interbuild 2007 and, since then, a programme of field test and laboratory testing has been underway. Both floor slabs (insulation sandwiched between two layers of fibreglass) and ground beam (grout filled plastic) are composite sections and required extensive testing and design.



Testing ground beam to failure at Coventry University



Long term testing of floor panel

## Technical information



### Piles

- The pile is in three sections: base, stem and head.
- The base comprises a steel rod with helical steel fins which trap the soil and increase capacity
- The stem tubes have a baked on slip coating and are used to transfer the load from the head of the pile to the base.
- A unique pile head has been produced to give both vertical and angular adjustment.

### Ground beam

- The standard ground beam comprises a rectangular section with a leg to support the outer skin of brickwork. Sections without legs are available for internal beams.
- Preformed corners, T junctions and straight couplers are available. The corners can be set to any angle allowing complex plan shapes to be supported.



### Floor Panels

- Standard floor panels are 1.2m wide and up to 4m long.
- K value of insulation is 0.025 wmc for the standard 100mm thick floor, giving a U value of 0.25W/m<sup>2</sup>. The insulation is of a closed cell construction and therefore resistant to all moisture. Additional insulation can be provided if required.
- Two fibreglass skins give a lightweight composite construction with high load carrying capacities.



## The customer's reaction

QuickBase has been used for the foundations to conservatories, building extensions, garden rooms and Eco-extensions.



Conservatories



Garden Rooms



Building Extensions

Andrew Roff from Cheltenham chose QuickBase when adding a kitchen extension on to his property. The extension was planned to be built on clay, within close proximity to trees and with no direct road access, and Andrew had already come to the conclusion that piles were more suitable to the project than solid concrete-filled trenches.

He was recommended to choose QuickBase over traditional piles for the 16m<sup>2</sup> extension. Ten piles in total were installed to a depth of 4.7m and the whole process, including installing the floor panels, took just one day.

“My builder thought it was wonderful,” said Andrew. “A completely level, set-out base on which they could immediately start their blockwork. The building inspector visited on the day of installation and seemed impressed with the speed of progress. She raised no queries on the design or materials used. At the end of the day there was no mess and no rutted ground.”

Photographs of the installation are shown on the following page.

# QUICKBASE™

## Foundation Systems

### CASE STUDY - CHELTENHAM



It was proposed to construction a kitchen extension on a Quickbase foundation for this property in Cheltenham. The photograph shows the site preparation following demolition of an existing structure.



The piles for the extension had to be drive to a depth of 4.7m to protect against the influence of the adjacent trees. A total of 10 piles were installed.



Levelling heads are fitted over the installed piles and the piles/heads infilled with a high strength grout.



The Quickbase beam sections are then fitted together on top of the pile levelling heads. Reinforcement is added to the beams which are then infilled with a high strength grout.



The final Quickbase site operation is to install the floor panels and trim to size.



The completed kitchen extension.

Quickbase foundation systems are manufactured and distributed in the UK by the Quickbase Foundation Systems Limited.

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