

INTEGRATION AND INNOVATION

PSLG DECEMBER SCHOOL BUILDS

Developers are under increasing pressure to deliver projects against tight schedules while keeping build costs to a minimum. This comes at the same time as Building Regulations become ever more stringent, particularly where Part L and sustainability targets are concerned. Mark Gray, technical manager, Insulslab SFRC, discusses the challenges facing developers, and explains why modern integrated foundation systems offer a cost effective and practical solution for public sector developments.

The main challenge facing developers today is to reduce build time and cost. These two factors are inextricably linked as the longer a project is on-site, the greater the labour demand. However, efficiency and financial gains cannot come at the expense of quality. As such, pioneers in modern methods of construction (MMC) are constantly striving to develop new systems and techniques which support the developer in addressing the time/cost challenge.

One of the latest innovations to launch to market is the fully integrated foundation system. Constructed of expanded polystyrene (EPS) pods and steel fibre reinforced concrete (SFRC), these advanced foundation systems are helping developers to realise significant on-site benefits. Already adopted by innovators in the private residential market, public sector developments are also turning to these new systems in order to achieve time and cost savings – while simultaneously improving performance.

Public Performance

The very nature of an integrated system delivers efficiency savings on-site by simplifying the installation process. As compared with traditional foundation systems such as beam and block or raft, integrated systems require minimal ground excavation. This translates into the following benefits: reduced labour time and costs; less spoil to cart away or manage on-site; the ground is ready to build on much quicker. Moreover, fully integrated systems deliver the foundation up to ground floor slab – without the need for an additional insulation layer. The EPS pods are an inherent part of the foundation structure, but they also deliver thermal insulation far superior to traditional floor build-ups.

In contrast to residential developments, public sector construction often requires the management of complex service lines and operations, due to the nature of the buildings. As the foundation structure is laid out by simply putting the EPS pods in place, and casting the SFRC on top, the system also streamlines the integration of service lines.

The lightweight EPS pods are easily cut on-site without any specialist machinery, which makes it quicker, easier and more cost effective to plan and execute the service lines. Suitable for many public sector applications, modern integrated systems are designed for use with buildings up to four storeys high. Combined with the fact that they are easy to manage on-site, and on restricted access sites, these systems are particularly suited to new build extensions, such as schools and leisure centres. Lawrence Sheriff School in Rugby has already benefited from using an innovative integrated foundation system for its changing room extension.

INTEGRATION AND INNOVATION CONT'D

MMC in Practice

Insulslab SFRC, a modern, super-insulated foundation system, was specified for a new build extension at Lawrence Sheriff School, Rugby.

As the school extension was to be used as a changing room and shower facility, the installation of service lines was a key construction consideration. In addition, the proposed site was in close proximity to existing playing fields, which meant site access would be restricted.

Evaluating the project parameters, GHW Consulting Structural Engineers specified Insulslab SFRC, which was subsequently installed by Symons Construction. Lawrence Sheriff School was the first Insulslab SFRC project for Symons Construction, leaving the groundworker apprehensive about the number of services which had to be laid through the foundation floor:

In practice, the site team found it easy to accurately cut the Insulslab expanded polystyrene (EPS) pods to house all 23 services – this element of the programme was finished in just one day. A single concrete pour of 48m³ was then completed the next morning, with the shuttering removed once adequate curing time had passed.

The benefits of using Insulslab SFRC in this application were far reaching. For example, Insulslab SFRC provided a system that accommodated controlled 'just-in-time' delivery of components, which avoided any disruption to the school operations. In addition, the efficient installation of Insulslab SFRC allowed follow-on trades of bricklayers to commence work immediately, which contributed to an overall reduction in the construction programme.