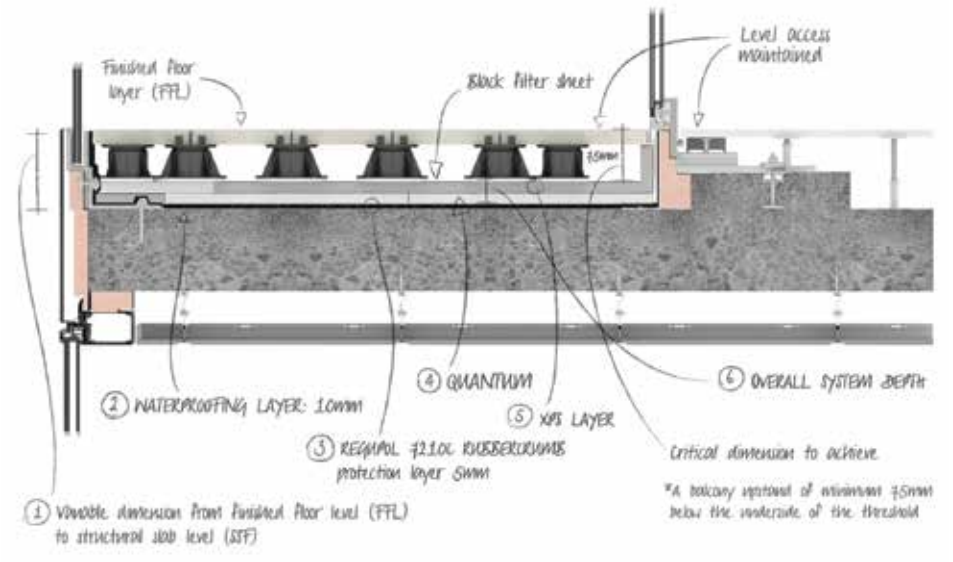
Optimise

Energy Efficiency Standards



Environmental issues influence the construction industry at every stage of the supply chain with building consuming almost half of the energy used in the developed world. As government legislation and Building Regulations become more stringent with every update, the need for more sustainable approaches to building design is influencing the clear drive towards the design, construction and delivery of more energy efficient buildings.

Part L of the Building Regulations sets the levels of thermal insulation required for both new builds and refurbishments. Expressed as a U-value, this required standard will depend on the location, type of building and the application. For flat roofs, this varies from 0.11W/m²K in new builds to 0.18W/m²K in refurbishments - with the typical requirements for a balcony or terrace of 0.15W/m²K.

As well as meeting the thermal performance requirements of Building Regulations, designers must also ensure that balconies and terraces comply with Approved Document M: Access to and Use of Buildings. Approved Document M details the requirements that there most be a smooth transition from the internal space onto the terrace without any step or change in floor height. It states that: 'People, regardless of disability, age or gender, should be able to gain access to buildings and gain access within buildings and use their facilities, both as visitors and as people who live or work in them.'

Another key specification in the design of a balcony or terrace is stipulated by the NHBC Standards - the document that sets the benchmark for acceptable levels of design, material specification and workmanship for newly-built homes registered with NHBC. In Chapter 7.1 'Flat roofs and balconies', the standards state that a minimum void of no less than 75mm is required. With this in mind, it's even more important that the insulation specified is as thin as possible.

In order to meet the required U-values, the insulation will sometimes be installed both on top of and on the underside of the balcony or terrace. Not only can this be time-consuming, technically challenging and pose a condensation risk, it can also add unnecessary costs and increase the overall thickness of the construction.

In new-build applications, stringent regulatory requirements and long term economic viability has pushed demand for improved energy efficiency whilst roofing designers and installers continually strive to keep overall construction as thin as possible. High performance insulation already exists to meet some of these requirements, but there remains a huge industry demand for thinner and better performing products that will have a smaller impact on constructability and function in use.

In practice, optimum performance will always be achieved by using the right combination of product, surface preparation and application procedures. In response to the growth in demand for improved thermal performance whilst keeping building fabric as thin as possible, waterproofing and green roof specialist Radmat launched ProTherm Quantum VIP system - a unique and ultra-thin thermal insulation system for inverted roofing applications.

Powered by the same technology used to keep donor organs and drugs at a stable temperature, Radmat's ProTherm Quantum Inverted Roof System achieves an exceptionally low U-value of 0.15W/m²K whilst using 80% less thickness than a traditional extruded polystyrene insulation (XPS). In fact, over a 20-storey development, the specification and installation of the Radmat Quantum system will substantially reduce the thickness of insulation required to allow an additional storey to be built.

Manufactured in a state-of-the-art production facility in the UK, the vacuum insulated panels consist of a microporous core which is evacuated of air and moisture prior to being encased and sealed in a thin, gas-tight special hybrid aluminium. This combination provides outstanding thermal conductivity of 0.007W/m²K with a 400mm thickness - compared with thermal conductivity of 0.034W/m²K for 200mm thick XPS and 0.038W/m²K for 220mm thick EPS - thereby achieving the thinnest possible insulation solution available.

Radmat Quantum offers a thinner, more versatile, aesthetically-pleasing and thermally efficient system. In an industry where there are a number of high performance insulation products to choose from, it fits the bill for specifiers, contractors and clients alike when designing balconies and terraces to meet Building Regulations, NHBS Standards and access legislation.