

Fabric First

KEY CONSIDERATIONS FOR A FABRIC FIRST APPROACH ON PROJECTS

Dramatically reducing emissions that cause global warming with known technologies is essential if we are to meet the net zero target for the UK, as recently proposed in the latest report from the Committee on Climate Change (CCC) “Net Zero: The UK’s contribution to stopping global warming”. The IMA says a well-designed, fully insulated building fabric will make a significant contribution to reducing heat loss, improving energy consumption and cutting carbon emissions. Below the association outlines the fabric-first route to long-term energy efficiency and the role that insulation plays in creating efficient buildings and curbing the impact of climate change.

The Committee on Climate Change (CCC) report stressed the importance of tackling the inefficiency of new and existing building stock. Good insulation is essential if homes and buildings in the UK are to become more energy efficient and sustainable and off-set some of the increasing energy costs and climate change conditions. The fabric-first approach to energy efficiency ensures that a thermally insulated building envelope will achieve high performance, low maintenance, reduced energy bills and long-term energy efficiency.

Some improvements have been made over recent years and plenty of our draughty, leaky and inefficient homes are better than they were. But we still have many homes that are woefully inadequate, with occupants and owners either unaware or unwilling to understand even the basic energy improvements that could and should be carried out.

Fit and forget

Fabric first is essentially a ‘fit and forget’ solution that homeowners or occupiers will appreciate

without even realising it. With little or no maintenance, energy efficiency is built into the building fabric for the life of the building. A fabric first approach is considered by experts to be more sustainable than installing energy saving technology or renewables; these should only be considered after the fabric approach has been completed as they can be expensive and may not be used efficiently by the consumer.

The thermal performance of a building envelope makes a significant contribution to reducing the overall building energy usage – so tighter U-values in walls, floors and roofs will help to deliver the standards required. To achieve this, PIR and PUR insulation offers a highly effective solution, achieving excellent levels of thermal performance. The versatility is testament to the fact that this insulation is available as boards and blocks, cavity injected, composite panels as well as a spray and panel insulation.

Utilising the very high levels of thermal efficiency that PIR provides can mean the difference between a building’s success or failure, and the



growing popularity of rigid PIR insulation throughout Europe demonstrates how designers can achieve the highest insulation values from the minimum thickness of material.

With lambda values as low as 0.021 W/mK, PIR insulation performance can be achieved with less thickness than other commonly used insulation materials. It has become increasingly popular on residential, commercial and refurbishment projects because of its exceptional insulating properties, high strength and light weight.

Fitting the bill

In order to meet the design values of a project, fabric insulation should be correctly fitted with appropriate attention paid to airtightness and cold



Above: Roof installation of PIR Boards; Left: Flat roof boards being installed: “To achieve more thermally-efficient building envelopes we must have a fabric-first approach.”

bridging. Competency in installation is vital because when a high performing product such as PIR/PUR is installed incorrectly, it could compromise that performance. All contractors need to make sure that not only the levels of site supervision are of a high standard, but the manufacturer’s installation instructions are followed and installation instructions around potential cold thermal bridges and awkward details are achieved. Eliminating poor installation will drastically reduce heat loss.

Once the high-quality building fabric has been completed there should be no need to worry about it. Fabric-first will enable specifiers to future-proof their designs which can be employed on projects of any size from the largest public building to the smallest domestic extension. A more energy efficient fabric from the outset can

“Eliminating poor installation will drastically reduce heat loss”

be upgraded later on through improved services, ventilation measures or the addition of renewable technologies.

While insulation clearly has the biggest role to play in improving the thermal performance of a building, fabric-first is about giving consideration to ensuring continuous insulation, minimising thermal bridging and achieving high levels of airtightness. Addressing these aspects of construction means the Building Regulation’s thermal targets can be met and those performance levels can be incorporated into the

finished building’s performance targets.

To achieve more thermally-efficient building envelopes as well as comfortable buildings, we must have a fabric-first approach which includes insulation such as high-performance PIR. Ultimately, the ‘fabric-first’ approach will remain the most direct route to achieving the net zero target as well as compliance with the energy performance requirements of Building Regulations. When a structure is built correctly in the first place, it will continue to perform as intended for many years to come.

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