



Facing the Future

Housebuilders are used to ever-improving standards as the industry moves towards making the building of new homes more sustainable than ever. But the Future Homes Standard (FSH) is a big leap.

The FSH will become mandatory in 2025 and produce homes that produce 75-80% fewer carbon emissions than under existing Building Regulations. This will create challenges across the industry but from fabric and renewables to appliances and landscaping, the supply chain is preparing for the next leap forward.

Fabric

Key to this will be offsite manufacturing and modern methods of construction (MMC) that can provide highly insulated homes that are built faster, while reducing emissions.

"Offsite manufacturing can meet the criteria of the FHS by supplying consistent, reliable,

Steve Menary looks at how the various sectors of the supply industry are helping housebuilders prepare for the Future Homes Standard. He considers the buiding fabric, appliances, lighting, heating and green infrastructure

high-performance structures capable of meeting the required fabric performance in a repeatable and scalable way," says Tom Cox, technical and development director of Saint-Gobain Off-Site Solutions. "But rather than think about individual parts of a home separately, for example the timber frame or roof, all the elements should be considered together to deliver the best performance and quality."

Saint-Gobain's MMC products that can help build the homes of the future include Thermistud, which is a closed timber wall panel system incorporating factory installed Isover

mineral wool insulation that is hand fitted to reduce voids and slumping to cut heat loss.

Another Saint-Gobain subsidiary, Weber, provides external wall insulation systems using sustainable timber and light steel framing, while Saint-Gobain Weber's webertherm XM EWI system is a traditional multi-layered system that improves thermal performance and the interior comfort of homes.

Block walls can also help housebuilders comply and H+H's Celcon already does. H+H head of marketing Jenny Smith-Andrews says: "At H+H we don't need to pull any rabbits out



H+H says its Celcon Blocks are made of aircrete, boasting excellent thermal properties

of hats. Celcon Blocks are made of aircrete which has excellent thermal properties so housebuilders using our products are already one step ahead.

"A high performing building fabric is essential for achieving the FHS. This doesn't just mean using a thermally efficient material but also reducing thermal bridges to minimise the heat lost from a building.

"Of course, larger format blocks mean fewer junctions. Housebuilders can benefit from the thermal properties of aircrete, with fewer thermal bridges, and a quicker build with H+H Vertical Wall Panels. These are storey-high panels of aircrete that form part of a masonry MMC solution."

H+H is working on a pioneering trial with

social housing provider Midland Heart and Birmingham City University that built different house types constructed to meet the FHS. Smith-Andrews explains: "Two of the three house types were constructed with H+H Celcon Blocks and technologies that included heat pumps, photovoltaic panels and mechanical ventilation systems. Initial results from monitoring the now occupied houses shows promising indications of substantial carbon reductions."

Wall insulation is another key component that can comply with the FHS and fits with the fabric first approach.

"The first necessary step to improving energy efficiency in a home is the installation of an optimum insulation solution," says Bob Dalrymple, head of marketing at Superglass, which has nearly doubled capacity at its Stirling facility in the past few years. "Taking a 'fabric first' approach to building is key when aiming for the highest possible standards. Green

technology like solar and heat pumps are also a key part of the zero carbon mission, but these require proper insulation to perform optimally."

Timber frame is another key MMC component that can help with the expected new standards. The Structural Timber Association is working with the Future Homes Hub to find out what can be achieved.

STA director Andrew Orriss explains: "The STA has been working with FHH working groups to provide the government with data on how far they can push the fabric of a building
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from 2025 regulation changes on energy conservation. The outcome of the working group was the presentation of six contender specifications with different U values.

"Each specification was selected on the basis of certain criteria; required to be supported with fire testing data, already available with the industry capable of supplying at scale, the wall thickness to be as thin as possible and required to address the impact of cold bridging."

Solar

Marley has also been carrying out market research to try and understand what the market wants. "We conducted a survey of 200 housebuilders, architects and specifiers," says

The Structural Timber Association is working with the Future Homes Hub to find out what can be achieved with timber frame

Stuart Nicholson, roof systems director. "It highlighted that the primary challenges when it comes to meeting the new requirements were cost pressures, low levels of client understanding around sustainability, and a lack of skills required to implement the changes needed to remain compliant."

Marley's products that can help achieve



the required cut in emissions include roof systems featuring Marley SolarTile, which is a fully integrated solar photovoltaics system. Nicholson adds: "SolarTile can be integrated with any existing Marley tile, including concrete, clay, or slate, interlocking or plain and machine or handmade. It is being increasingly specified as a solution to the new regulatory landscape housebuilders face."

To compliment SolarTile, Marley has also developed ArcBox, which is a solar connector enclosure designed to further improve the safety of solar installations should an electrical arc occur. The product has been independently verified by the KIWA fire test laboratory and Loughborough University. Marley has also developed its own 7Kw wall mounted socketed electric vehicle charger.

Appliances

The appliances installed in new homes are also central to meeting the demands of the FHS.

Chris Ibbitson, channel manager contracts at appliances group Electrolux, says: "It's more important now than ever that suppliers are providing housebuilders with appliances that ensure these standards are achievable and that sustainable targets are met.

"With sustainability being at the top of our agenda for many years now, we've moved our attention towards induction hobs within the home, making sure they are energy efficient alternatives to gas, as this is being removed from new build properties by 2025. Our 7000 SenseBoil Induction Hob saves both energy and time as the Boil Sensor detects rising bubbles and automatically adjusts the temperature settings."

Electrolux subsidiary AEG's new EcoLine range of appliances have an energy rating better than the best A rating on the market and include resource saving features such as AutoDose and AbsoluteWash to reduce costs. "We know that consumers are looking for more energy efficient appliances such as these within their home," adds Ibbitson.

Water management will be key and there are synergies between this and energy efficiency that housebuilders can integrate in
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Electric Heating Company's range includes 100% efficient radiators

Heating

The systems used to heat homes are also central with the shift from gas boilers to heat pumps.

Elizabeth Wilkinson, domestic product director at Ideal Boilers, says: "With the Future Homes Standard signalling a shift in the way new build homes will be heated, Ideal have invested heavily to support this. We have already launched our flagship monobloc heat pump the Logic Air alongside our pre-plumbed and pre-wired Logic Air Heat Pump Cylinder. With 16 variants of heat pump cylinder including slimline, and models with an integrated buffer tank, there is a solution for everyone."

Ideal's sister brand Atlantic also has a range of electric panels and hot water solutions and electric heating is just what the Electric Heating Company provides. EHC's range includes 100% efficient radiators, electric system boilers, electric combi boilers, and the air source heat pump Iconic Air but the group remains frustrated with what is going into the grid.

Marketing co-ordinator Yousef AL-Khateeb says: "The products are designed with a minimal environmental footprint, emphasising clean and eco-friendly heating solutions that do not contribute to air pollution or contamination. However, the

broader challenge lies in the source of electricity that powers these innovative heating products.

"We question why the energy grid isn't predominantly supplied by renewable sources, given the imperative of reducing carbon emissions. The stance aligns with the broader trend observed in the automotive industry, where there's a clear shift away from fossil fuels toward electric vehicles. It is essential to remember that the broader transition to renewable energy sources within the electricity grid is an integral part of achieving a genuinely sustainable future."



GL's GridBuddy battery storage and inverter solutions have a low wattage input that is compatible where solar is limited

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environmental strategies.

Caroline Gray-Mason, business development director for water at Cenergist, which provides consultancy services on energy and water and provides patented Control Flow technology, says: "It will be no surprise if water features on any new iterations of the Future Homes Standard. So, it's essential for developers to consider water in strategies now to navigate any potential challenges.

"One often overlooked example is considering the synergy between a household's water efficiency – measured in per capita consumption – and energy. There are already products that reduce PCC at the point of demand such as specially designed showerheads, taps and toilets. But solutions that generate efficiencies in a property's water supply provides significant improvements."

Tests on Cenergist's Control Flow HL202 technology show a 23% reduction in

AEG's new Ecoline range includes resource saving features such as AutoDose and AbsoluteWash to reduce costs

residences, translating to roughly 30 litres per day per person or 73 litres for an entire household. Efficiencies are generated by eliminating flow variations caused by pressure fluctuations in the supply system to provide a controlled and steady flow with deviations of less than 2%. Gray Mason adds: "A more efficient water flow also yields significant reductions in energy demands."

Green infrastructure

A reduction in carbon emissions can also be achieved outside the home in a range of areas from lighting through to improvements in green infrastructure (GI) and open spaces.

External lighting is increasingly popular and products are available that provide the right level of energy efficiency, such as downlights.

Sara Mason-Parker, specification sales manager at lighting group GL, says: "Many of



our products have been and are continuing to be developed to comply with the FHS such as our GridBuddy battery storage and inverter solutions for all new-build house types and sizes. This product has a low wattage input that is compatible where there is limited solar and can be housed in the loft area and fit through the loft hatch, so there is no complex house redesign needed.

Green infrastructure can also help housebuilders improve the sustainability of their new homes. "GI can play a significant role in meeting these standards and creating more sustainable and liveable communities," says Adam Ralph, biodiversity and strategic project director at Greenbelt, which delivers and manages open spaces for a range of housebuilders. "In its Future Homes Standard consultation [of 2021], the government stated that it is committed to 'ensuring that new homes are built in a way that enhances the natural environment and contributes to the government's net zero ambitions.'"

Examples of how this can contribute to the FHS range from green roofs and walls to insulating buildings, reducing energy consumption, and improving air quality, to rainwater harvesting to cut the demand for tap water, and permeable paving allowing water to infiltrate the ground, which can help reduce flooding and improve water quality and wetlands to filter pollutants from water, reducing flooding, and storing carbon.

Within 18 months, the FHS will be upon the industry and housebuilders need to keep a keen eye on specification to meet these new standards. **hb**

KEY CONTACTS

Cenergist www.cenergist.com

Electric Heating Company
www.electric-heatingcompany.co.uk

Electrolux <https://shop.electrolux.co.uk>

GL <https://gl-e.uk>

Greenbelt www.greenbelt.co.uk

H+H www.hhcelcon.co.uk

Ideal Boilers <https://mail.idealboilers.com/products>

James Latham www.lathamtimber.co.uk

Saint-Gobain Off-Site Solutions
www.saint-gobain.co.uk/off-site-solutions-division

Structural Timber Association
www.structuraltimber.co.uk

Superglass www.superglass.co.uk

Providing proof

With housebuilders increasingly expected to select the lowest carbon materials possible for developments, accuracy around the green claims made by building product manufacturers has become essential to meet design brief requirements, according to Stu Devoil, group head of marketing at James Latham, distributor of timber, panels and decorative surfaces.

"This means the sustainability

information provided needs to be correct, comprehensive and as up-to-date as possible. After all, incomplete and incorrect product carbon data can risk developers missing carbon targets or worse, falling out of regulatory compliance, resulting in significant excess cost and waste."

James Latham has audited its own timber portfolio to offer clients third party verification on individual products' carbon credentials. "This mammoth

24-month exercise led to the development of a proprietary Carbon Calculator, a back-end tool which uses a combination of EPDs, publicly available and manufacturer data to rate a material's environmental impact from forest to our depot. Crucially, for the first time this final rating, plus scoring of input data used to form the calculation, offers a codified proof point which can then be used for reporting and response to green design briefs."