



**Stewart Milne has developed the first seven storey timber frame apartment building in the UK for Bellway in Bristol**

**T**he "year of timber frame" is how Phil Key, UK Timber Frame Association chairman, describes 2006. Key points to a recent National Audit Office report into modern methods of construction (MMC) which concludes that timber frame construction delivers a tangible financial boost to developers in England and Wales of up to £35 per square metre.

Key explains: "The tougher new Part L regulations will encourage more housebuilders and housing associations to try timber frame construction. These economic advantages come at the same time as regulatory changes that will hit masonry construction hard but are negligible to us. New regulations can easily be achieved with a simple, highly insulated timber frame solution already standard across our industry."

Key claims that timber frame construction requires 20% fewer on-site labour days than masonry and buildings are weathertight in almost half the time, while the cost of snagging timber frame homes is a third less than brick and block. "Timber frame systems

**Timber and steel frame suppliers are raising their game in line with the modern methods of construction agenda. Tim Palmer reports**

# Frame academy

are also particularly suited to brownfield sites favouring lighter buildings as well as sites with restricted access," he adds. "Housebuilders can build one additional house per week with exactly the same cost and resources if they swap to a MMC such as timber frame."

The UK's largest timber frame order to date went to Stewart Milne to provide 500 new MMC key worker

homes in Stepney within 18 months. Sales and marketing director Christine Jones says the £6 million order underpins the growing acceptance that timber frame construction is the way forward. "We predict that new Part L will precipitate a change in the timber frame market share of up to 5%. Cost reduction is a key driver to a change of construction method and the

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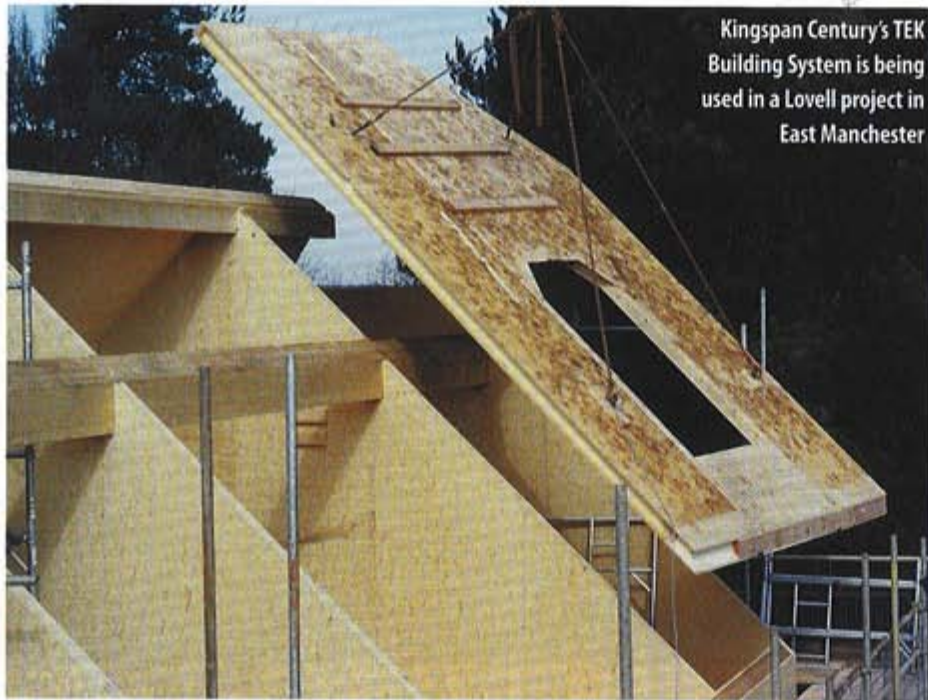
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new regulations will add between £800 and £1,200 to the costs of building a new home according to three national developers we work with. Using timber frame will reduce this figure for the developer while providing an environmentally friendly home."

Stewart Milne has also developed the first seven storey timber frame apartment building in the UK in

and block, timber and steel frame – and provides a direct alternative to the current 'room in the roof' attic truss. The system will be key in taking MMC forward."

One key project established to promote MMC is the SmartLIFE Housing Project in Cambridgeshire. Pinewood Structures has been chosen to supply timber frames on three sites as part of the project to help demonstrate how MMC can help alleviate housing shortages. Around



Kingspan Century's TEK Building System is being used in a Lovell project in East Manchester

Bristol in partnership with Bellway Homes, and Jones predicts a 33% growth in business to £40 million (4,000 units) over the next year. She says: "Bellway recognises the benefits of timber frame for apartments and has recently given a group directive to encourage the use of timber frame for flatted structures over three storeys."

## "Bellway has given a group directive to encourage the use of timber frame for flatted structures over three storeys"

TRADA and housebuilder customers have recently given input to Donaldson Timber Engineering, in the development of its new Structural Integrated Roofing System. Managing director George Watson says: "The system delivers significant advantages: it doesn't use purlins, offers no restrictions on room length and can mean up to a 25% increase in floor space. It's flexible and suitable for all standard forms of housing – brick

75% of the housing in the scheme will be built using three different modern methods and monitored against the remaining homes built using brick and block.

Pinewood md Geoff Arnold says: "Today's timber frame structures aren't just wooden frames, they're sophisticated, highly engineered and multi-layered sandwiches of modern materials. Being precision

engineered under factory conditions means more accurate room dimensions. Dry plasterboard lining allows internal finishing to be completed quicker and eliminates problems of plaster shrinkage."

Kingspan Century's TEK Building System is well established, and has been supplied to the largest off-site manufactured residential development in the UK: a Lovell project in East Manchester. TEK comprises structural insulated panels (SIPs) connected with a unique jointing system for walls and roofs and timber I-beams for intermediate floors. Roof and wall panels are made up of two 15mm OSB3 facings with a 112mm zero ODP rigid urethane insulation core.

The OSB3 facings are "autohesively" bonded to the

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## STEEL FRAME SPECIALISTS

Graham Raven, Steel Homes Group' convenor, is so confident of the efficiencies of steel frame construction that he urges the government to strengthen its environmental targets for 2010. "The 20% reduction in carbon, weaker than the originally proposed 25%, was almost certainly set to enable traditional builders to meet standards without increasing cavity wall thickness.

### improved sustainability

"Utilising modern building techniques and materials steel home providers can meet and even exceed new Part L regulations by simply adding supplementary insulation to stud walls. Modern homes can provide improved sustainability without increasing thickness of cavity walls thereby maintaining the amount of usable floor space."

Fleming Developments UK has used Fusion Building Systems' residential steel frame technology on the 23-unit Bywater Court development within the Allerton Bywater millennium community, which is being built on a former colliery near Leeds. English Partnerships' Summit House, based on a prototype originally designed in 2005, will provide the blueprint for the remaining 22 properties. Fleming director Michael Martin says: "Bywater Court will showcase how steel frame technology is ideal for delivering cutting edge cost-effective high quality attractive homes.

"Outperforming all the alternatives, the Fusion technology proved the most practical option in the design and delivery of a model development appealing to housebuilders and homebuyers alike."

## KEY CONTACTS

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## LINDEN HOMES CHOOSES TIMBER FRAME

Linden Homes introduced timber frame into its business just two years ago, but now uses it in more than 90% of its developments – a rapid take-up which the firm attributes to the speed of build offered by the technique. For The Pulse phase of Linden's Village development in Caterham, which is on the site of the former Caterham army barracks, the housebuilder chose to work with timber frame designer and manufacturer, Prestoplan, to build 18 one and two-bedroom apartments.

### technical teams

Prestoplan's design and technical teams worked closely with Linden Homes for three months prior to the project's start on site to ensure that every detail of the bespoke frames were accurately planned.

"Using timber frames enabled us to complete the development in 15 weeks with no delays, which is a vast improvement on the estimated 24 to 30 weeks that it used to take," says Linden's construction director Adrian Corser. "The apartments were ready to move into by December 5, bang on schedule."

He adds: "Prestoplan's timber frames give us added value and eases the supply chain, which cuts down on time and cost on site. The future of timber frame will probably see more process and product development. The more that Prestoplan can provide us with, the more efficient we can become while maintaining our stringent quality standards."

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insulation core during manufacture resulting in reliable and superior adhesion between the core and the OSB3 facings. It achieves U-values of 0.20 and can deliver high levels of airtightness as panels are joined together during construction using a sealed jointing system minimising air passing through the joints.

Gerry McCaughey, Kingspan Century chief executive, says: "Flagship projects such as Lovell's are reinforcing the message that off-site construction is the future of construction. Timber-based solutions are leading the pack in terms of MMC, particularly in the new build housing sector, and timber frame in particular is now emerging as a mainstream building method."

### canadian panellised system

Another highly efficient panellised system on the market hails from across the Atlantic in the form of the Canadian Super E brand. And DGS Construction has now partnered up with DAC International, the Canadian company which produces Super E timber frame panels, to produce the UK's first bespoke self build Super E home in Cornwall.

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## CORUS BI-STEEL'S COREFAST SYSTEM



Westpoint Homes has achieved major savings on the construction programme at its multi-storey Southgate development in Glasgow by using Corus Bi-Steel's Corefast.

Corefast is a new technique in building core construction, which uses steel/concrete panels

combined off site, to allow rapid and accurate assembly once on site to create lift and stair cores.

The system is suitable for cores from six storeys to more than 100 storeys in any combination of lift cores and stairwells, and its high strength means that its footprint can be reduced to maximise productive useable space.

The development on Pollockshaws Road comprises six apartment blocks containing 335 one and two-bedroom units. In seeking to embrace modern methods of construction for the scheme, Westpoint chose Corefast over other forms of steel frame construction, due to the time savings it offered – estimated at around six weeks.

### rapid-erect modular system

The Southgate development is in fact the first UK installation of the rapid-erect modular system, and it has proved a great success, with the system completed in a record time of seven days. The new technology enabled Southgate to meet its objectives for the project of reducing the site programme and enhancing building accuracy.

Westpoint's quantity surveyor Evan McKinnon commented on his decision to specify the technique: "This is a large city centre scheme with multiple lift cores, so the speed of installation offered by Corefast was a key factor in our decision to use the product.

"The installation went exceptionally well and was completed in a record time that saved us approximately six weeks in construction time, so provided us with significant cost savings and gives us the opportunity to achieve earlier unit sales."

Corefast has since been specified for several other multi-storey developments. The first installation in a UK commercial scheme at Langtree's prestigious FortySpringgardens development in central Manchester began in January.

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Air leakage in the home is controlled with around one air change per hour as opposed to ten in a typical UK house, leading to higher occupant comfort and reduced energy bills. Construction consists of cedar cladding from sustainable sources, Excel Warmcel insulation made from recycled paper while Fermacell boards (recycled paper and gypsum) are used for floors, walls and ceilings instead of plasterboard and chipboard which improves fire retardancy and limits sound transfer within the house.

Such innovations in timber frame construction are driving the sector forward at a rate of knots. **hb**