

Light steel is not just for regular housebuilding. On Oxford's riverside it demonstrates its versatility and speed of erection in an architect's own house, which won praise from local planners.

An Architect's Riverside House in Light Steel

Housing



Light steel construction has rapidly established itself and is used increasingly on projects with ambitious architectural goals.

One pointer to the future is the riverside family house in Oxford, designed by architect Adrian James for himself and his family. Framed in light steel panels supplied by Metframe (a division of the Metsec Group), it has won praise for its elegance and its contribution to the townscape. Its significance is all the greater in view of the fact that it was completed by a small local builder with no previous experience of light steel construction.

James, who now runs his own practice, previously worked with John Outram on an American project where the local executive architects were using light steel. He was duly impressed, and chose to specify light steel framing when designing his own house on Oxford's riverside.

It was not the appearance of light steel but its versatility, accuracy and speed of construction that impressed James.

James and contractor Robert Gee worked closely with Metsec Framing Ltd to develop the structural frame. "I gave them 1:50 layouts," says James, "and they did all the superstructure information and regulations work."

Construction was quick. The three-storey super-

structure of the house went up in just five days.

The structural frame is a combination of hot rolled and light steel elements. The hot rolled sections created a clear bay façade, while the light steel joists led to a totally open ground floor and a huge bay window opening on to the river.

"The system was a revelation to me," says James, "and the fact that it is bolted and screwed together is a huge advantage." James also found that the factory installation of insulation and brick ties eliminated many problems.

Despite light steel's clear advantages in terms of construction time and dimensional accuracy, the building cost of the house proved to be similar to that of conventional construction.

James found his building to be well received from all quarters. The planners liked it, and the system also caused no problems for the building inspector. The Oxford Civic Society wrote to say they welcomed the application.

James, too, is pleased – above all, for architectural reasons. "(Light steel) is so versatile it does not prescribe the look of the house at all," he says. Perhaps paradoxically for such a lightweight form of construction, he also likes the way that services can easily be accommodated inside thick panelled walls.

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Construction viewed from the riverside.

An Architect's Riverside House in Light Steel

Technical details

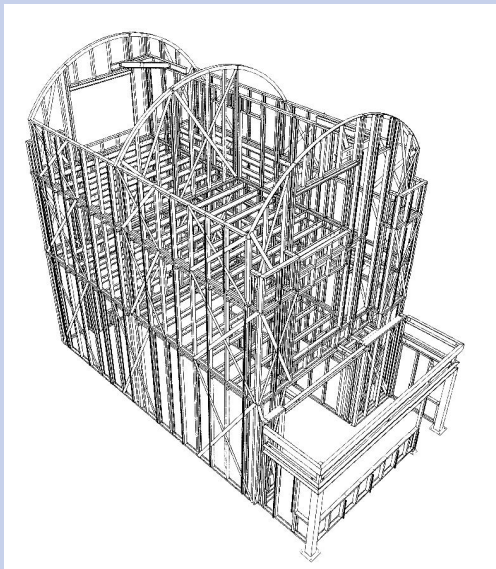
Application benefits

- Architectural opportunities and long spans internally.
- Speed of erection: three-storey superstructure constructed in under a week.
- Versatility of system does not prescribe the architectural form.
- Construction costs comparable with conventional construction.
- System quality assured.
- Dimensional accuracy.
- Factory installation of insulation and brick ties help to ensure quality control.
- Open roof space.

Construction details

The house uses steel framing wherever possible. The structural frame is generally in light steel with key members in hot rolled steel (see isometric below). Floor joists are all steel, while the roof deck is in profiled steel, curved longitudinally over shaped steel angles to form a barrel vault. All structural walls are prefabricated panels made from cold formed steel sections with insulation and brick tie channels attached in the factory,

Steel has also been expressed externally wherever possible. The light steel framework is concealed within the brick cladding, but the hot rolled sections are brightly highlighted on the exterior. The bay window has a highly visible steel frame externally. The open roof space is occupied as a bedroom, thereby maximising useable floor area.



Isometric of structure (by Metframe).

Project data

Architect
Adrian James Architects

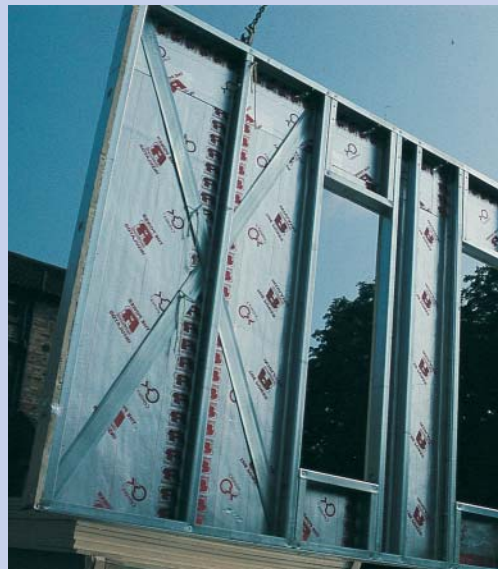
Contractor
Robert Gee, Cumnor, Oxon.

Structural engineer (foundations)
Ian Howdill & Associates

Steel frame suppliers
Metsec Framing Ltd, a division of Metsec plc.

Cost analysis

ELEMENT	TOTAL COST (£)
Prelims, groundwork & services	17,100
Steel frame erection	20,000
Brick shell	12,800
First fix services	19,400
Copper roof	10,400
Second fix services	30,800
Decoration & landscaping	20,900
Total construction cost	131,400



Prefabricated panels lifted into place.

Housing



Bolted structure is erected quickly.

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