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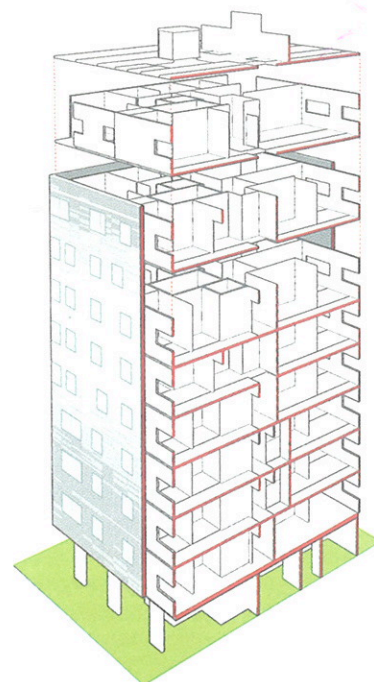
02/09

Green

Saving 120 tonnes of CO₂

Stadthaus Murray Grove in London
 Waugh Thistleton Architects, London

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Probably the world's tallest timber-framed residential building was completed in recent months in the suburb of Hackney, in East London. Stadthaus, part of the Murray Grove Housing Development, stands 29.75 metres high; it has nine storeys, one with shops, three for social housing and five with independently financed apartments. Apart from the plinth, which is of reinforced concrete, the entire building, including the two lift shafts and stairwells, was built of laminated plywood. The walls and floors form a honeycomb-like self-supporting load-bearing frame. All the walls are load-bearing, there are no lightweight partition walls. Only the flights of stairs are made from prefabricated hollow steel

forms filled with concrete. The facades are clad with fibre-cement panels, shaded from white to black, inspired by a painting by Gerhard Richter from 1999. Waugh Thistleton architects regard this new building as setting a precedent – nowhere else in Europe has a residential building in timber of anything like this height been authorised for construction. The construction method was worked out by the architects in cooperation with engineers Meghan Yates and Matt Linegar from Techniker Ltd., London. Indeed, the method was sufficiently new to the British building authorities for it now to be incorporated in the building regulations as an appendix. Meeting building code requirements for fire was

relatively straightforward: The existing thickness of the wood panels, combined with a layer of drywall, allowed the design team to achieve fire resistance ratings of 60 and 90 minutes.

Waugh Thistleton calculate that as much carbon is stored in the timber frame as would be emitted as CO₂ in operating the building during a period of around twenty years. During this time, therefore, Stadthaus will have a positive carbon footprint. Even accounting for the fact that the prefabricated timber elements were transported from Austria, there is still a saving of 120 tonnes of CO₂ emissions. Interestingly the choice of building material by the client, Telford Homes, was guided not so much by ecological considerations, as purely economic ones: The architects had simply presented the facts that a timber-framed construction would be faster, simpler and more cost-effective than a steel-framed one of similar dimensions. The insulation on the outer walls is 70 mm thick, giving a U value of 0.27 W/m²K. Andrew Waugh sees the greatest value of this new building in its combination of sustainability and cost-effectiveness: "If this had been a project with a declared 'green' orientation, it could perhaps easily have been dismissed as an experiment. But the special attraction of Murray Grove is the very fact that it is a mainstream development which is subject to all the usual criteria in residential construction. And it has fulfilled those criteria but using a brand new type of construction."

