KLH

CROSS-LAMINATED TIMBER

A REVOLUTION IN TIMBER CONSTRUCTION


WITH LOGO NO. 31, 2010
© RICHARD WOODS ...
MODERN ART OXFORD IS CHANGING ...
"TIMBER IS THE NEW CONCRETE."
ALEX DE RIJKE

‘The best friend on earth of man is the tree. When we use the tree respectfully and economically, we have on of the greatest resources on earth.’

Frank Lloyd Wright

CROSS LAMINATED TIMBER – THE PRODUCT

- crosswise glued lamellas *mainly* in spruce
- large sized structural elements for walls, ceilings and roofs
- maximum dimensions 55 feet by 10 feet up to 20 inches thick
- non-visible, industrial visible and domestic visible quality
- 3, 5, 7 or even more layers, according to structural requirements
- production made to order

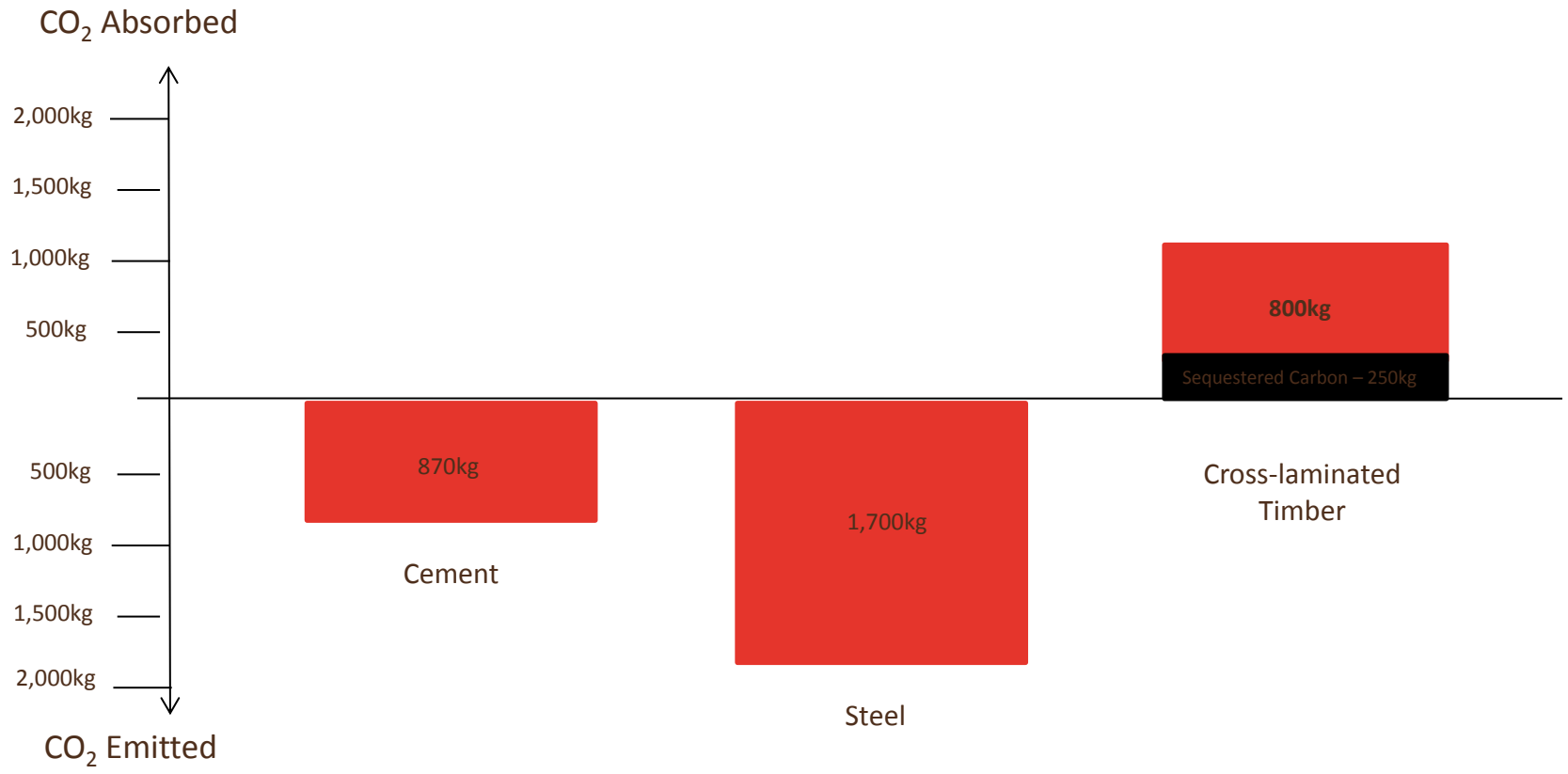
CROSS LAMINATED TIMBER – THE ADVANTAGES

- sustainable, environmentally friendly building material
- light-weight construction
- short erection time due to prefabrication
- extremely accurate shapes and openings
- compatable with many different materials
- allows for maximum architectural freedom
- active climate protection – 1 m^3 timber stores approx. 1 ton of CO_2

BUILDING WITH TIMBER

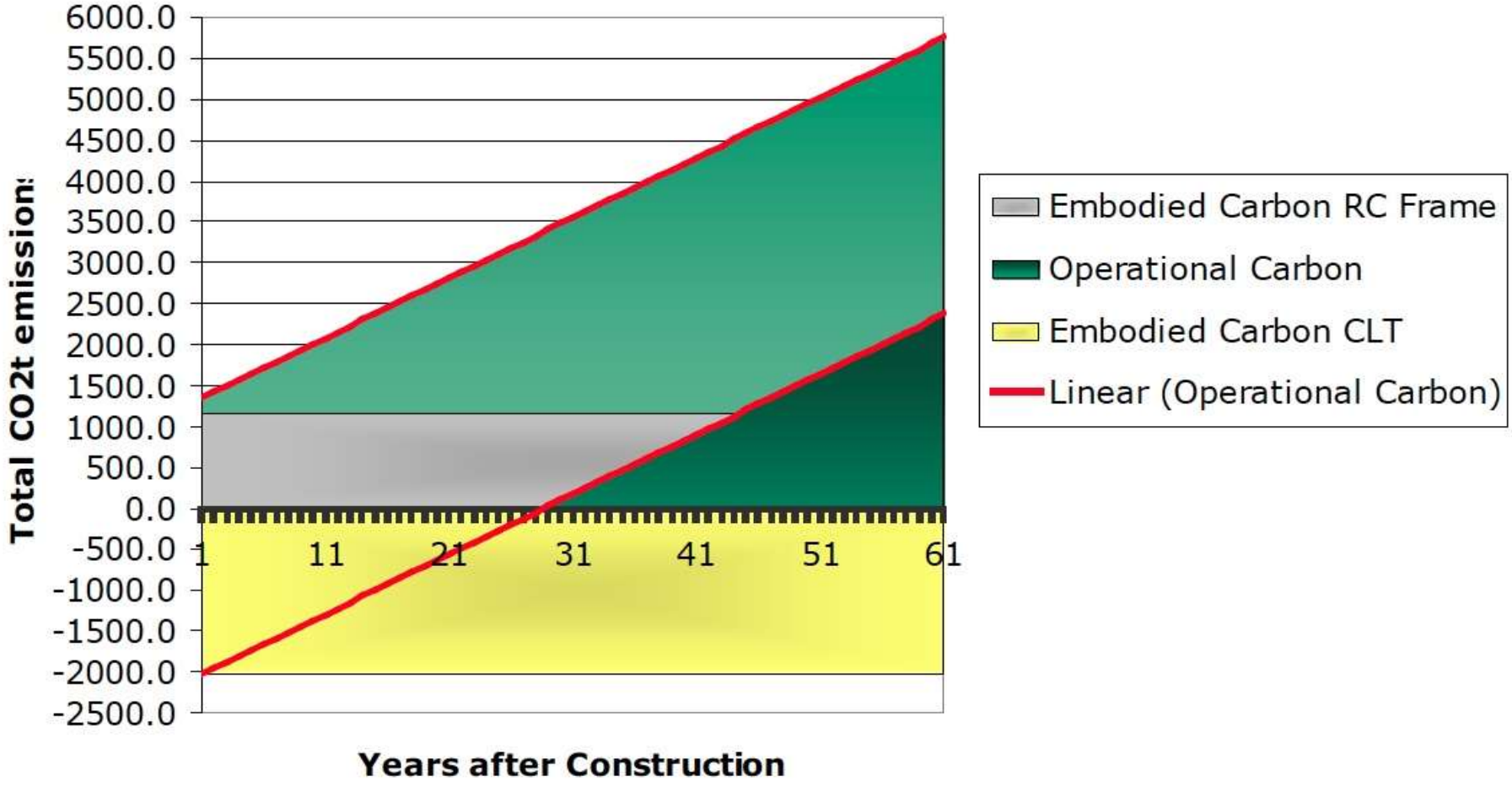
- Timber is the only renewable structural building material
- Timber has the lowest energy consumption of any building material across its lifecycle
- Using solid timber will reduce CO_2 emissions when used in place of traditional construction materials i.e. concrete, steel, brick & block etc.
- Forests act as a carbon ‘sink’ removing CO_2 from the atmosphere, releasing oxygen and sequestering/storing carbon

BUILDING WITH TIMBER



BUILDING WITH TIMBER

- Growing timber / trees removes CO_2 from the atmosphere
- $1m^3$ (480-500kg/m^3) of KLH panels will remove approximately 800kg of CO_2
- The CO_2 is absorbed by the timber and ultimately the carbon is stored / sequestered (and the oxygen released). Therefore $1m^3$ of KLH panels will have approximately 240-250kg of 'locked-in' carbon.
- The sequestered carbon provides the option to offset any renewables required.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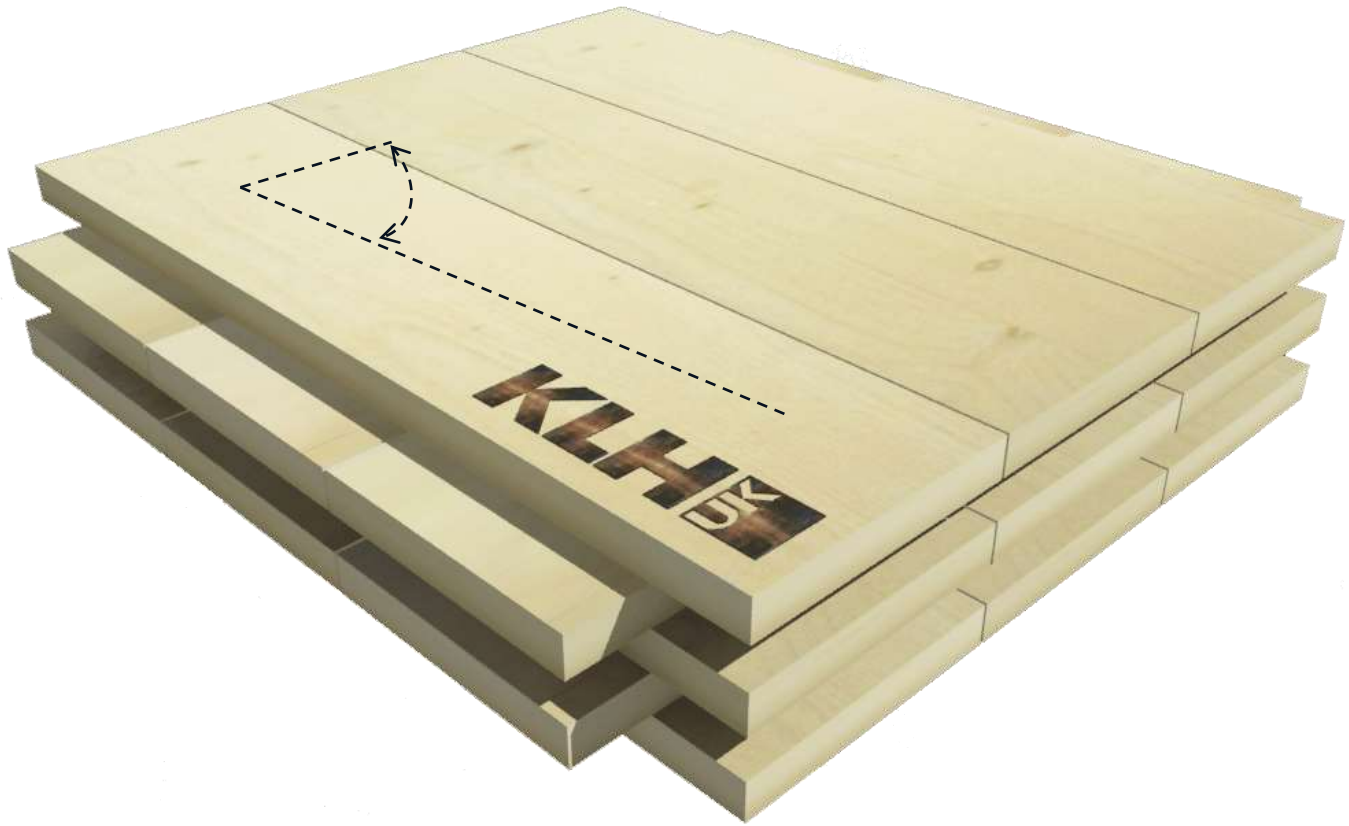
Total CO2t emissions
Years after Construction
Embodied Carbon RC Frame
Operational Carbon
Embodied Carbon CLT
Linear (Operational Carbon)

KLH = KreuzLagenHolz

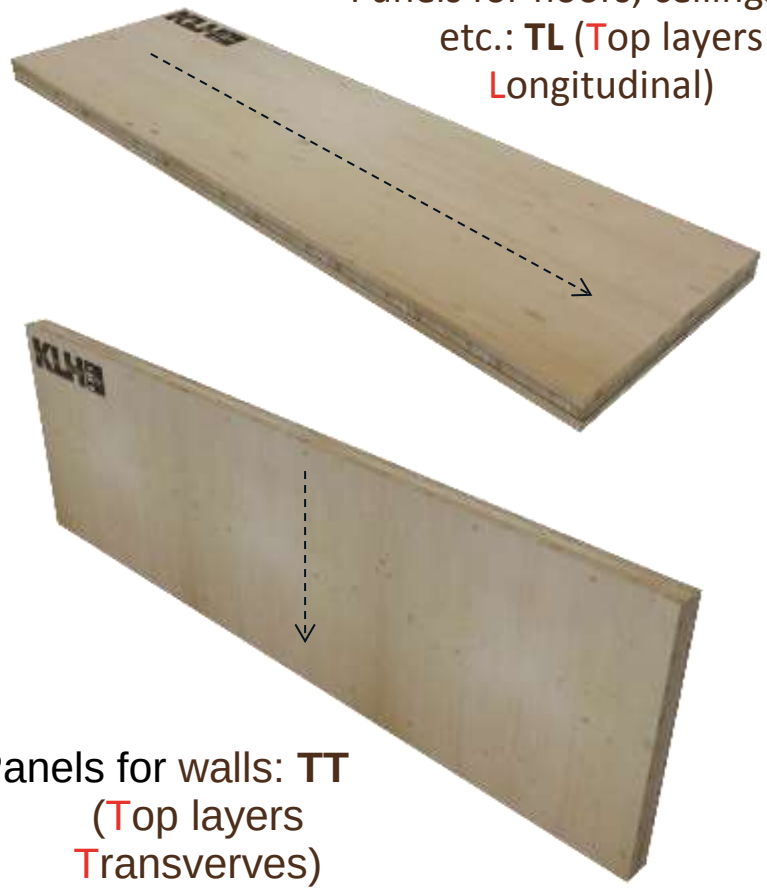
Engl. = Cross Laminated Solid Timber Panels



PANEL PROPERTIES

- PANEL TYPES
  - TL Panel
  - TT Panel
- PANEL THICKNESSES / LENGTHS
  - Range from 57mm to 320mm.
  - Number of layers is dependant on thickness
  - Up to 16.5m in length
- FINISHES
  - Wsi Domestic Visual Quality (Wsi)
  - Industrial Visual Quality (Isi)
  - Non-Visual Quality (Nsi)
  - As Standard, WSI and ISI only available on one side

Panels for floors; ceilings etc.: **TL** (Top layers Longitudinal)



Panels for walls: **TT** (Top layers Transverves)

MANUFACTURING

- high quality PEFC/FSC–certified raw material ensuring homogenous appearance
- glued under a high pressing power of 6 kg/cm² for excellent structural characteristics
- emission free PUR adhesive, according to DIN 1052 and EN 15425 for the production of load-bearing and non-load-bearing timber components

CNC - ROUTING

- routing with state-of-the-art CNC-technology
- fully integrated data flow from drawings to machine programs


Massivholz GmbH
KLH®
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ASSEMBLING

- delivery to the construction site
- assembling by expert timber construction companies

OVERVIEW OF THE CORPORATE HISTORY

1996 Product development

1997 Establishment of the company

1999 Opening of the current production plant in Katsch/Mur

2005 Establishment of the subsidiary company „KLH UK Ltd."

2011 Beginning of internationalisation

2012/2013 Offner Group assumes sole ownership of KLH Massivholz GmbH

2014 Investment CNC machine (1,5 Mio.) – increase of production capacity to 1 Mio. m^2 resp. 125.000 m^3

CORPORATE PROFILE

PRODUCTION CAPACITY	1 Mio. m² / 125.000 m³
LAST YEAR‘S SALES VOLUME	587.000 m²
LAST YEAR‘S TURNOVER	~ € 46 Mio.
NUMBER OF EMPLOYEES	approx. 155
SALES REGION	worldwide
EXPORT QUOTA 2013	75 %

TECHNICAL APPROVALS & CERTIFICATES

European Technical Approval › Approval for Germany › Approval for France › Approval for Spain

› ISO 9001 Quality management › ISO 14001 Environmental management

› PEFC/FSC – Certification › ISO 14025 Environmental Product Declaration

4-STOREY PASSIVE HOUSE „AM MÜHLWEG“

in Vienna | Austria

5-STOREY RESIDENTIAL BUILDING

in Berlin – Germany

9-STOREY RESIDENTIAL BUILDING „MURRAY GROVE“

in London | United Kingdom

Stadthaus, Murray Grove
Waugh Thistleton Architects

Stadthaus, Murray Grove - Waugh Thistleton Architects


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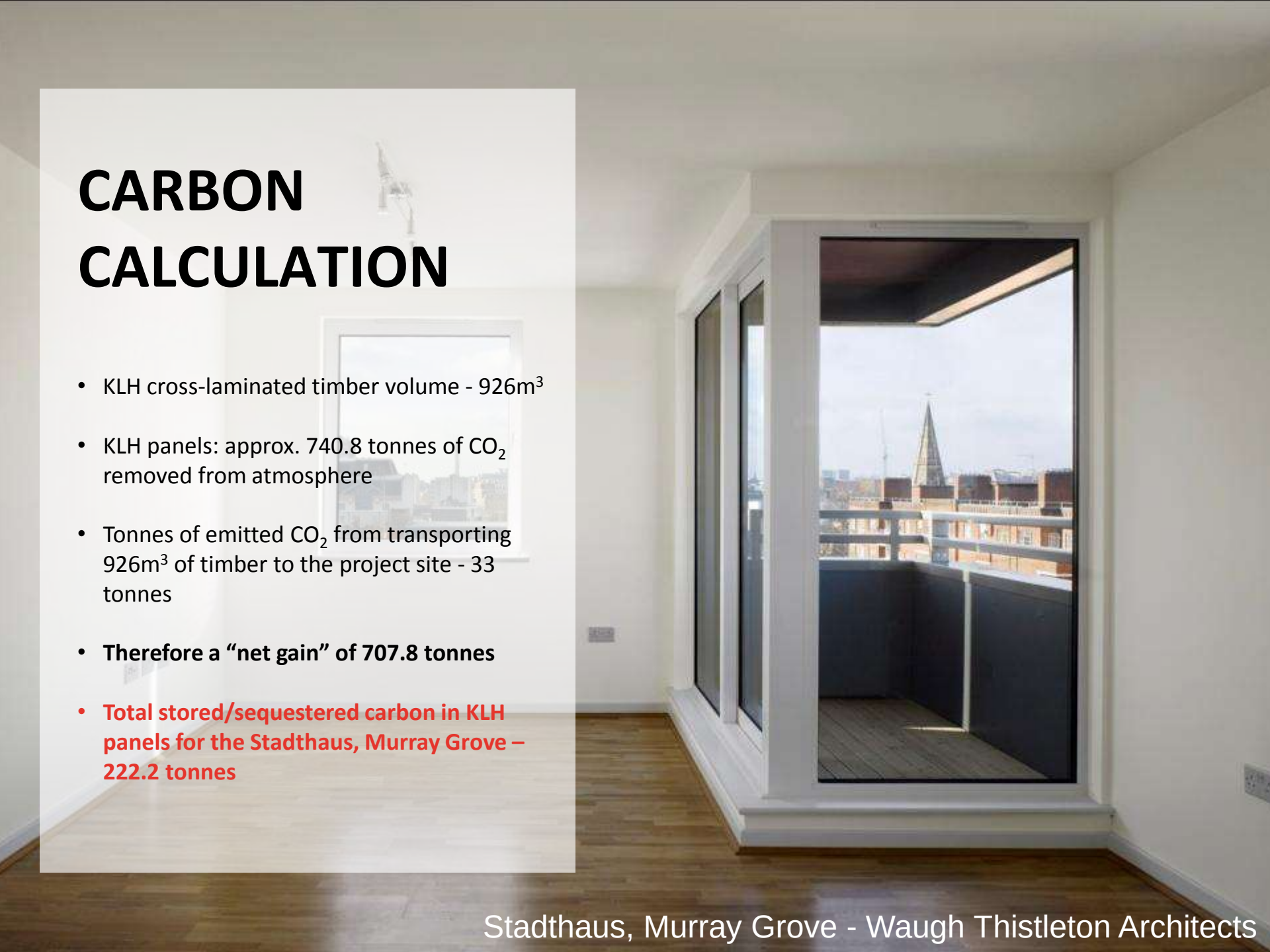
CARBON CALCULATION

- KLH cross-laminated timber volume - 926m^3
- KLH panels: approx. 740.8 tonnes of CO_2 removed from atmosphere
- Tonnes of emitted CO_2 from transporting 926m^3 of timber to the project site - 33 tonnes
- **Therefore a "net gain" of 707.8 tonnes**
- **Total stored/sequestered carbon in KLH panels for the Stadthaus, Murray Grove – 222.2 tonnes**



Stadthaus, Murray Grove - Waugh Thistleton Architects

STADTHAUS, MURRAY GROVE

- **Design Team:**
  Waugh Thistleton Architects
  Techniker
  Telford Homes

- **Project Details:**
  Value: Confidential
  Dates: 2007 – 2009
  Services: Supply and Erection
  Timber volume: 926m^3
  Build period: 7 weeks

- **First 9 storey cross-laminated timber building in the world (completed and occupied)**

Stadthaus, Murray Grove – first 9 storey cross-laminated timber building in the world

10-STOREY RESIDENTIAL BUILDING

World‘s Tallest Timber Apartments in Melbourne | Australia

Forte Apartments – Lend Lease

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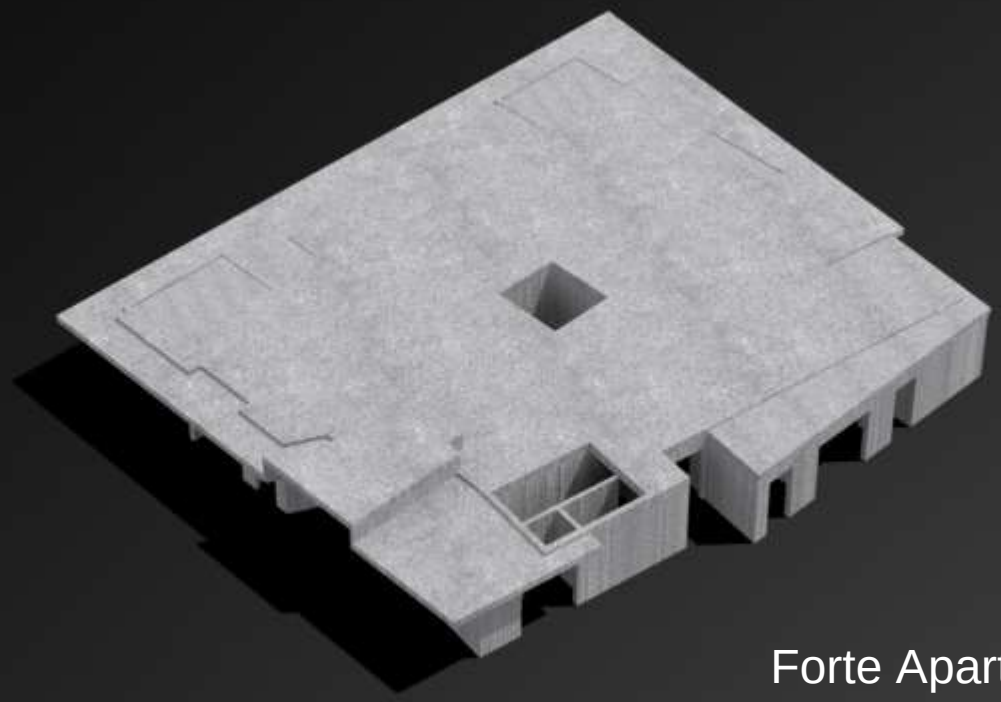
Forte Apartments – Lend Lease



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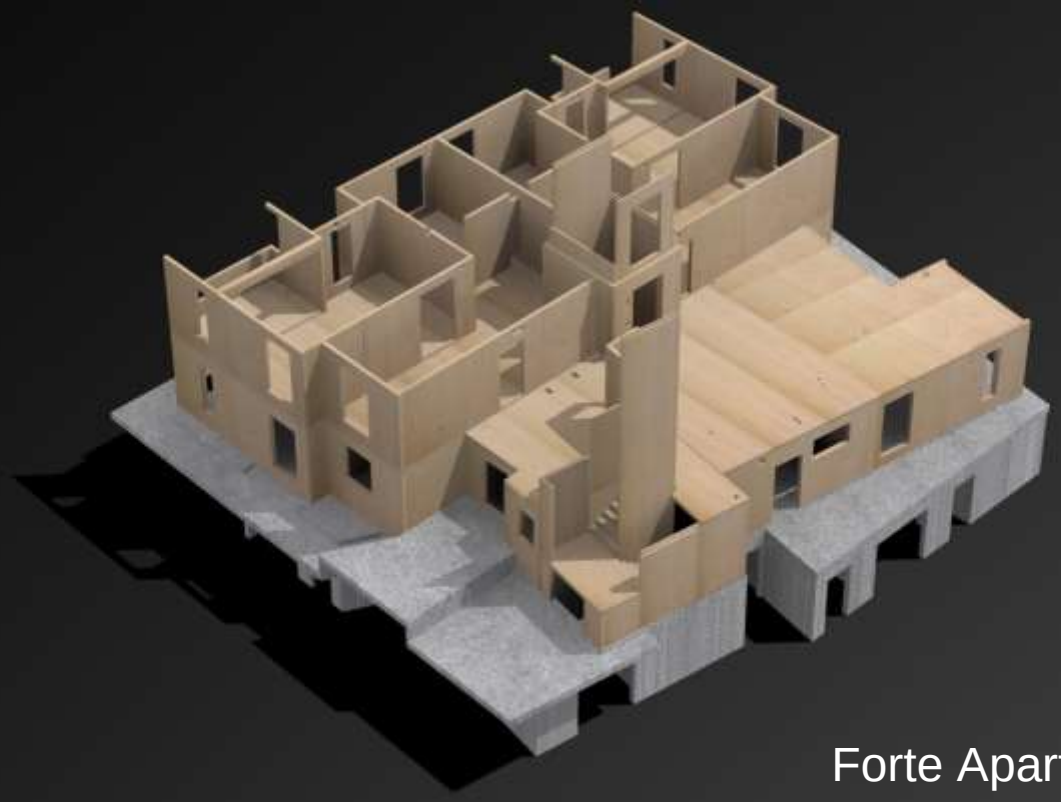

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CARBON CALCULATION

- KLH cross-laminated timber volume – 1,052m^3
- KLH panels: approx. 841.6 tonnes of CO_2 removed from atmosphere
- **Total stored/sequestered carbon in KLH panels for the residential development – 252.5 tonnes**

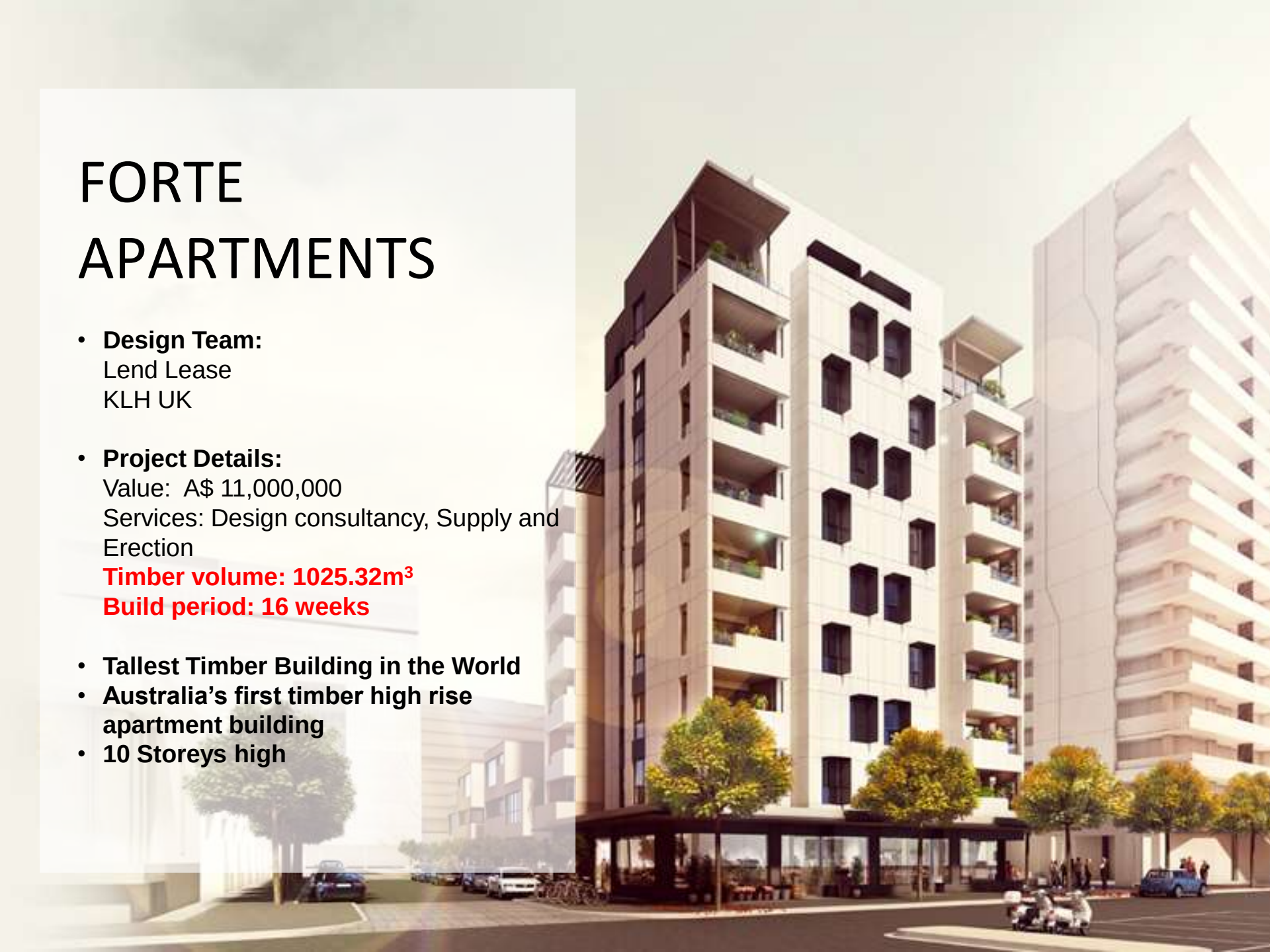
Forte Apartments – Lend Lease

FORTE APARTMENTS

- **Design Team:**
  Lend Lease
  KLH UK

- **Project Details:**
  Value: A$ 11,000,000
  Services: Design consultancy, Supply and Erection
  Timber volume: 1025.32m^3
  Build period: 16 weeks

- **Tallest Timber Building in the World**
- **Australia's first timber high rise apartment building**
- **10 Storeys high**



THE NEXT …

KLH

EXTRACT OF MORE THAN
15.000 REFERENCE PROJECTS

RESIDENTIAL BUILDING „HELIADES“

in Saint-Dié-des-Vosges | France

CASA SIFERA

Girona | Spain

SINGLE FAMILY HOUSE

Ammersee | Germany

THE OPEN ACADEMY

in Norwich | United Kingdom

WEST LONDON ACADEMY

in London | United Kingdom

WILLIAM PERKIN SCHOOL

in London | United Kingdom

BILGER-BREUSTEDT-SCHOOL CENTRE

in Taufkirchen/Pram | Austria

KINDERGARTEN „JOSEF-FELDER-STRASSE“

in Augsburg | Germany

BESSEMER GRANGE CHILDREN‘S CENTRE

in Dulwich | United Kingdom

EDUCATIONAL CENTRE CEIP CATALUNYA

in Barcelona | Spain

HOTEL FANES

in St. Kassian | South Tyrol

MULTI-FUNCTIONAL CENTRE

in Žabčice | Czech Republic

ICEBLOCK RESTAURANT

in Sölden | Austria

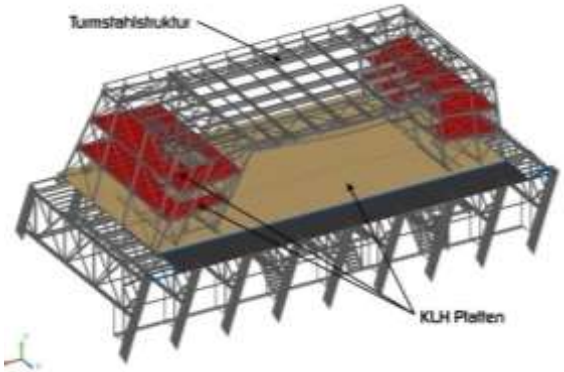
KLH

US OLYMPICS HOSPITALITY BUILDING

in Sochi | Russia

EIFFEL TOWER

in Paris | France



TIMBER TOWER

in Hannover | Germany

WINE DEPOT

in Appremont | France

OFFICE BUILDING „HOLZBAU MEIBERGER“

in Lofer | Austria

OFFICE BUILDING

in Longueuil | Canada

BANCA ETICA

in Padua | Italy

LIBRARY

in Vennesla | Norway

THEATER „LA COMÉDIE FRANÇAISE“

in Paris | France

OPEN-AIR THEATRE

in Smøla | Norway

SWIMMING POOL PROJECT

in Almada | Portugal

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KIER
William Perkin Academy – Feilden Clegg Bradley Studios
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‘If the nineteenth century was the century of steel and the twentieth the century of concrete, then the twenty-first century is about engineered timber.’

Alex de Rijke, Director, dRMM

KLH

made for building,

built for living

For further information please visit

www.klh.at or www.klhuk.com