KLH®

MADE FOR BUILDING

BUILT FOR LIVING

TRE & BETONG

Oslo 27.09.2018 / Stefan Fritz

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- KLH Massivholz GmbH
- Timber concrete composites
- Case Study IBA Hamburg

INSIGHT INTO THE COMPANY'S HISTORY

1996	Product development in cooperation with Graz University of Technology
1997	Company establishment
1999	Opening of the production site in Teufenbach-Katsch
2005	Subsidiary company establishment „KLH UK Ltd."
2011	Go international
2012/2013	Johann Offner Unternehmensgruppe becomes sole owner of KLH Massivholz GmbH
2014	Subsidiary company establishment „KLH US Holding Corp.
2016/2017	Modification and modernisation production site Teufenbach-Katsch
2020	Opening of the new factory

FACTS & FIGURES

PRODUCTION CAPACITY	120,000 m^3 per year
LAST YEARS VOLUME PRODUCED	850,500 m^2
LAST YEARS TURNOVER	€ 57 Mio.
EMPLOYEES	190
SALES	international
EXPORT QUOTA	75 %

Sales partner in Norway

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KLH – CROSS LAMINATED TIMBER – THE PRODUCT

- crosswise glued lamellas mainly in spruce
- large sized structural elements for walls, ceilings and roofs
- maximum dimensions 16.50 m by 2.95 m up to 0.50 m
- different surface qualities
- 3, 5, 7 or even more layers, according to structural requirements
- production made to order

KLH – CROSS LAMINATED TIMBER – THE ADVANTAGES

- sustainable, environmentally friendly building material
- light-weight construction
- short erection time due to prefabrication
- extremely accurate shapes and openings
- combinable with many different materials
- allows for maximum architectural freedom

KLH – PIONEER AND MARKET LEADER

- longest experience in the industry
- extensive technical know-how and ongoing project support
- solution and customer service oriented working style
- state-of-the-art manufacturing processes and equipment
- long-lasting and motivated employees
- custom fit surfaces and finishes
- internal R&D department with own research facilities
- more than 25,000 reference projects worldwide

MANUFACTURING

- high quality PEFC/FSC–
  certified raw material ensuring homogenous appe
  arance
- glued under a high pressing power of 6 kg/cm^2 fo
  r 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 Trimming

– with state-of-the-art CNC-technology within a tolerance of 1 – 2 mm

– fully integrated data flow from drawings to machine programs

DELIVERY AND ASSEMBLING

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

TECHNICAL APPROVALS & CERTIFICATES

European Technical Assessment ETA – 06/0138 I Japanese Approval NTI-301 I Product Approval for USA & Canada ANSI/APA PRG 320

Genereal Building Approval for Germany Z-9.1-482 I French Approval AT-3/12-731 I Seal for Quality for Spain AITIM 31-01

Quality Management ISO EN 9001:2015 I Environmental Management ISO EN 14001:2015 I Energy Management ISO EN 50001:2011

PEFC Certification I FSC Certification I Product certification (LEED, BREEAM)

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Timber concrete composites

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Product description

- composite product of timber and concrete (CLT and concrete on top)
- timber → tensile forces
- concrete → compressive forces
- shear resistant connection
- the stiffer the shear connection is executed, the stronger is the TCC element
- effective for spans of 6,5m – 9,0m
- 5s 160 TL / 5s 180 TL / 5s 200 TL

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Reason´s to go for TCC

- technical & economical advantages at large spans
- still a light weight construction
- additional weight of the concrete improves the acoustic properties
- better basic sound insulation
- lower susceptibility to vibration
- improve the fire resistance (non-combustible concrete layer)

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TCC systems

- elements with shear connectors
- elements with grooves
- elements with screws

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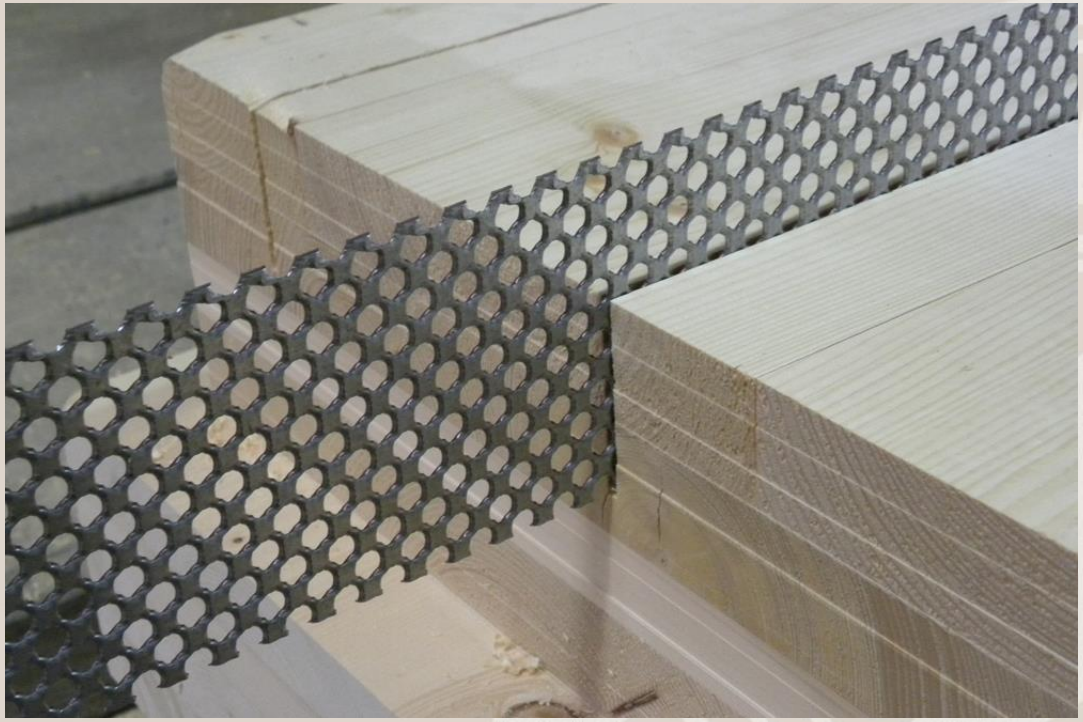
Shear connector



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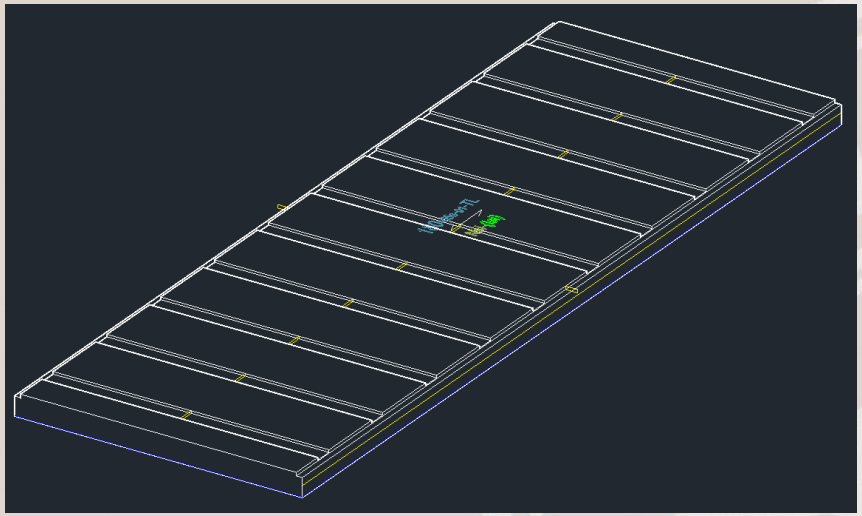
Grooves / Notches



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Screws

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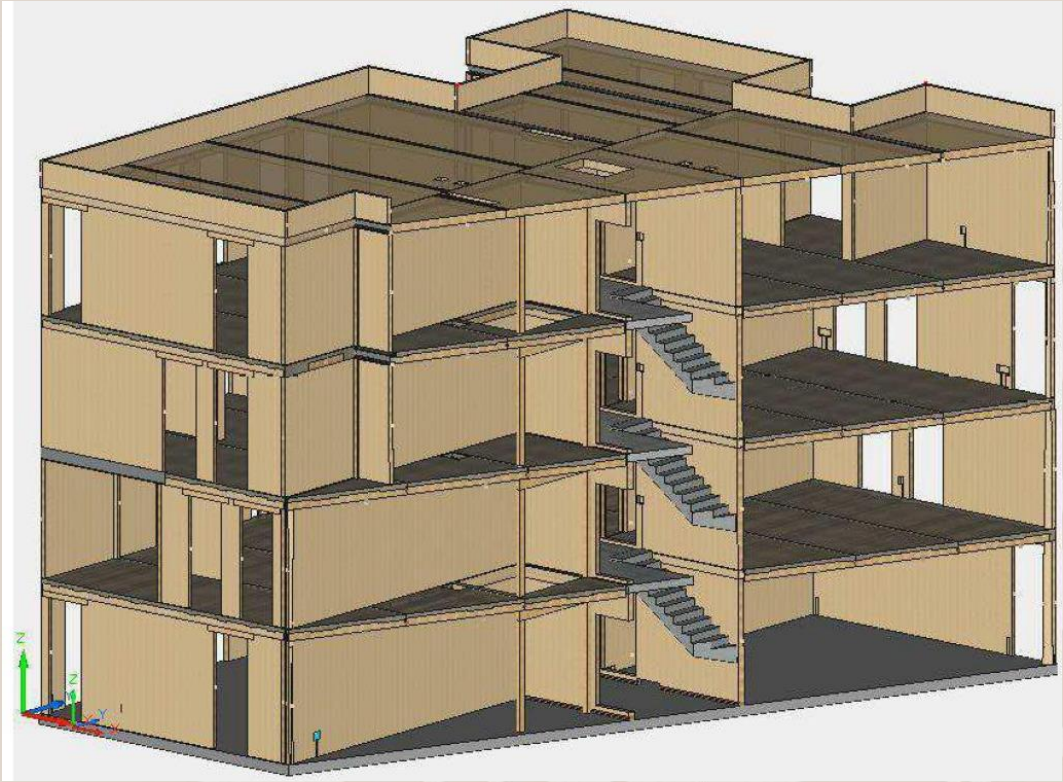
Four storey residential building

- KLH elements for the wall
- TCC (grooves) for the slab
- KLH elements for the roof
- bearing sturtcure →KLH



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Structural concept

- wall thickness 94 -140mm
- roof thickness 202 mm
- TCC elements: KLH 182mm + 100mm concrete

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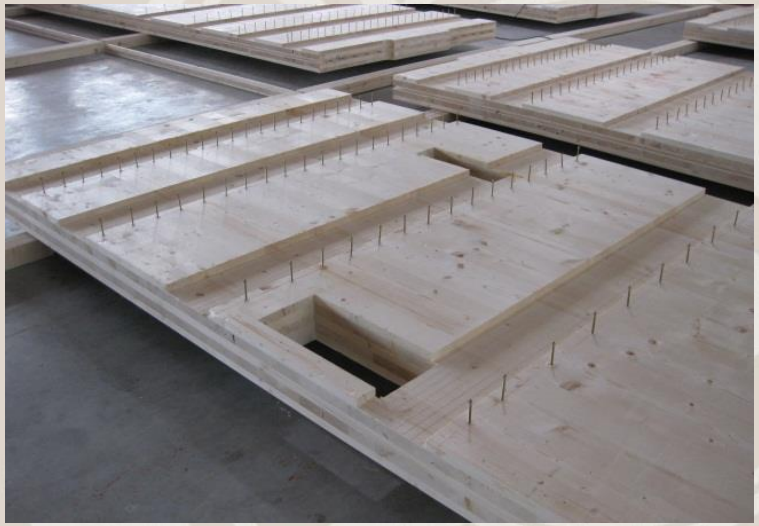
Structural concept TCC elements

- grooves (according to the structural requirements)
- screws (fully threaded) for the tensile forces (KLH↔concrete)
- 1 span element 7,5m
- pre-fabricated at the factory (Bobingen/Germany)
- pre–fabricated with a pre-camber



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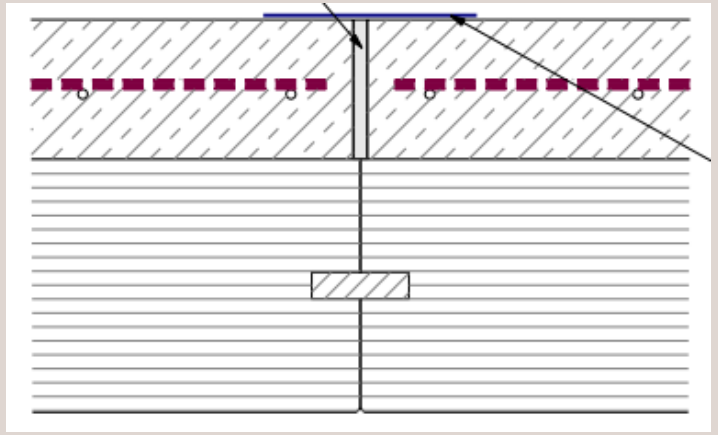
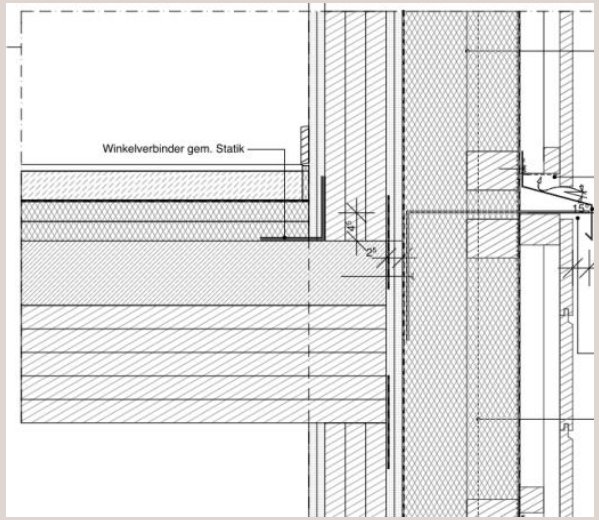
SCHULZ




Winkelverbinder gem. Statik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THANKS FOR YOUR ATTENTION!