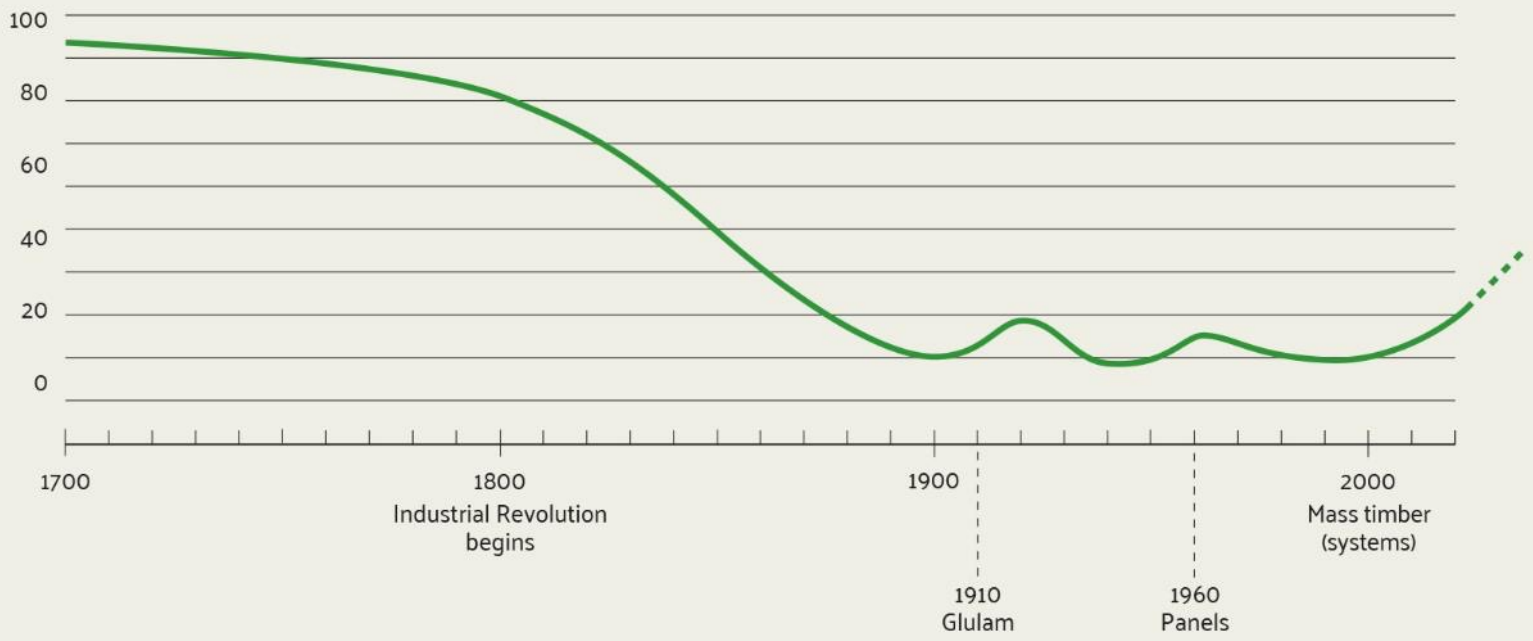
HISTORIC TIMBER USAGE

Use of timber as building material in Northern and Central Europa as percentage of all building materials (years indicate commercial introduction, not invention).

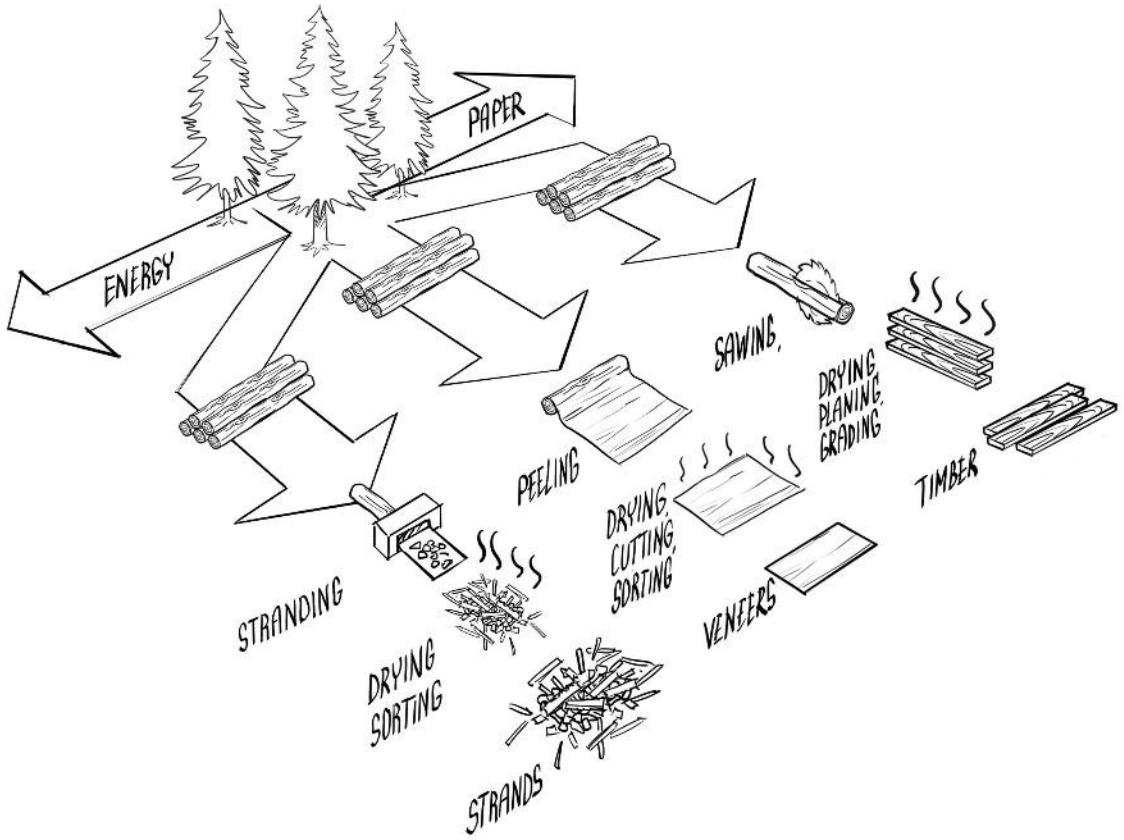








TIMBER INDUSTRIALIZATION



TIMBER INDUSTRIALIZATION

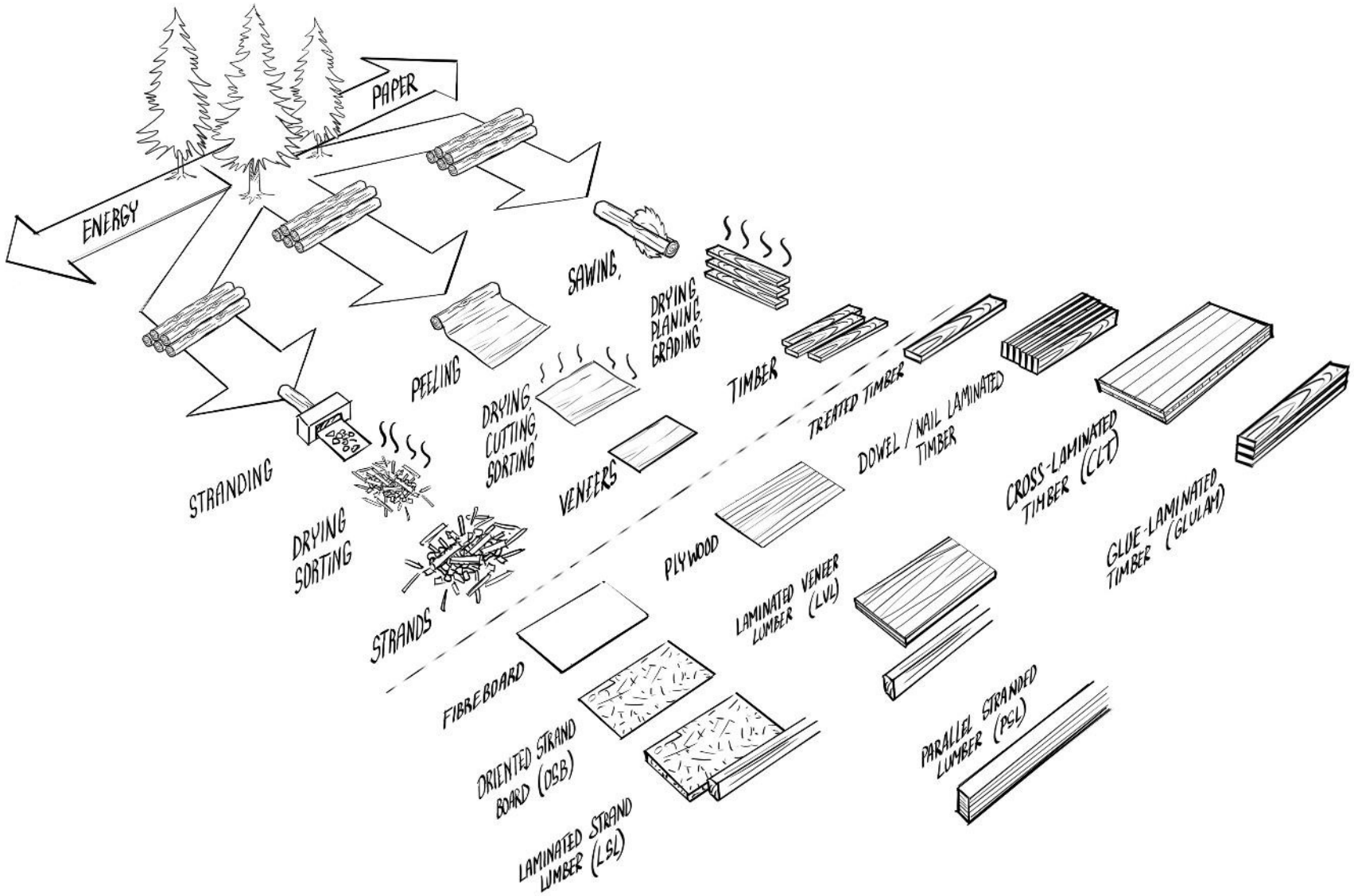








Photo: dataholz.eu

MASS TIMBER

KAPLA VOOR GROTE MENSEN







Swatch and Omega Campus I Biel, Switzerland I Shigeru Ban Architects

Photo: Philippe Zinniker



Mjostarnet I Brumunddal, Norway I Voll Arkitekter

Photo: Moelven

CLT – CROSS LAMINATED TIMBER





CLT – PRODUCTION

Derix, Niederkrüchten, Dld



Photo: CLT-S



Dalston Works | London, UK | Waugh Thistleton architects

Photo: Daniel Shearing



Astor - Klein Vedekens I Geel, Belgium I OSAR Architecten

Photo: Stora Enso



Stories | Amsterdam, the Netherlands | Olaf Gipser

Photo: Luuk Kramer



I-logistics (109 x 104 x 20 m) | Vienna, Austria | Poppe Prehal Architekten

Photo: Walter Ebenhofer Poppe Prehal Architekten



PRIVATE VILLA

Location
Nederhorst den Berg, NL

Architect
Schipperdouwes

Wood & CLT use
approx 60 m3

Photo: DERIX group



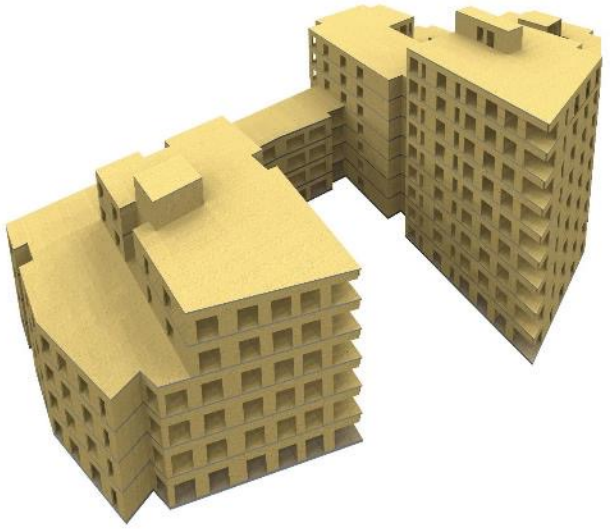
LVL – LAMINATED VENEER LUMBER



Cepezed office | Delft | Cepezed Architecture

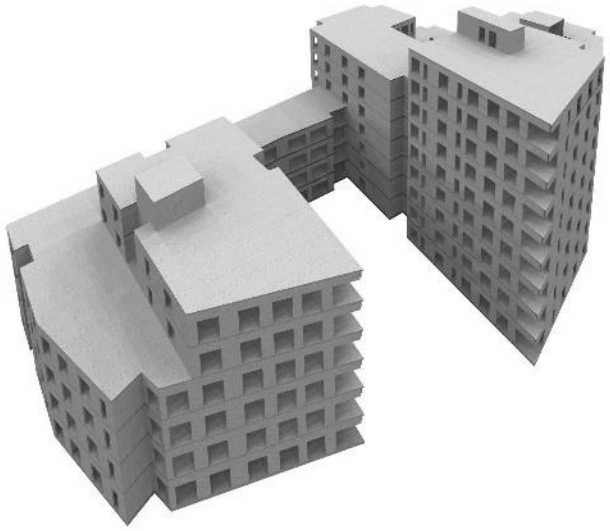
Photo: Lucas van der Wee

MASS TIMBER vs CONCRETE



1 m3 – 450 kg

5x



1 m3 – 2400 kg

Credit: Waugh Thistleton Architects



DALSTON WORKS

Location
London, UK

Architect
Waugh Thistleton

Volume mass timber
4649m3

Photo: Daniel Shearing



Photo: Daniel Shearing



LOW NUISANCE BUILDING SITE

Photo: Daniel Shearing



Photo: Daniel Shearing

COSTS (AVERAGE 7-STORY APPARTMENT BUILDING IN UK)

	Total (£)		
Element / description	CLT	Concrete	Variance
Foundation	5.248.535	6.011.035	(762.500)
Above-ground bearing structure and fit-out	57.070.618	55.882.224	1.188.394
Main contractor items (preliminaries OH&P, fixed price risk)	14.751.225	15.084.934	(333.709)
Total (£)	**77.070.378**	**76.978.193**	**92.185**

Source: Alinea Consulting (2017)

Photo: Daniel Shearing

HIGH, HIGHER, HIGHEST
(SO FAR)



Mjostarnet I Brumunddal, Norway I Voll Arkitekter

Photo: Moelven



MJOSTARNET
(18 STORIES, 85.4 METERS)

Location
Brumunddal, Norway

Architect
Volf Arkitekter

Bearing structure
Glulam exoskeleton

Post and beam glulam system

LVL cassette flooring

CLT walls and shafts

Photo: Moelven


“IS THERE ENOUGH WOOD?”



EU Forests

Area: 180 mio. Ha

+ 0.3 mio. ha per year

Sustainably managed (EUTR)

(96 mio ha FSC / PEFC)

Supply

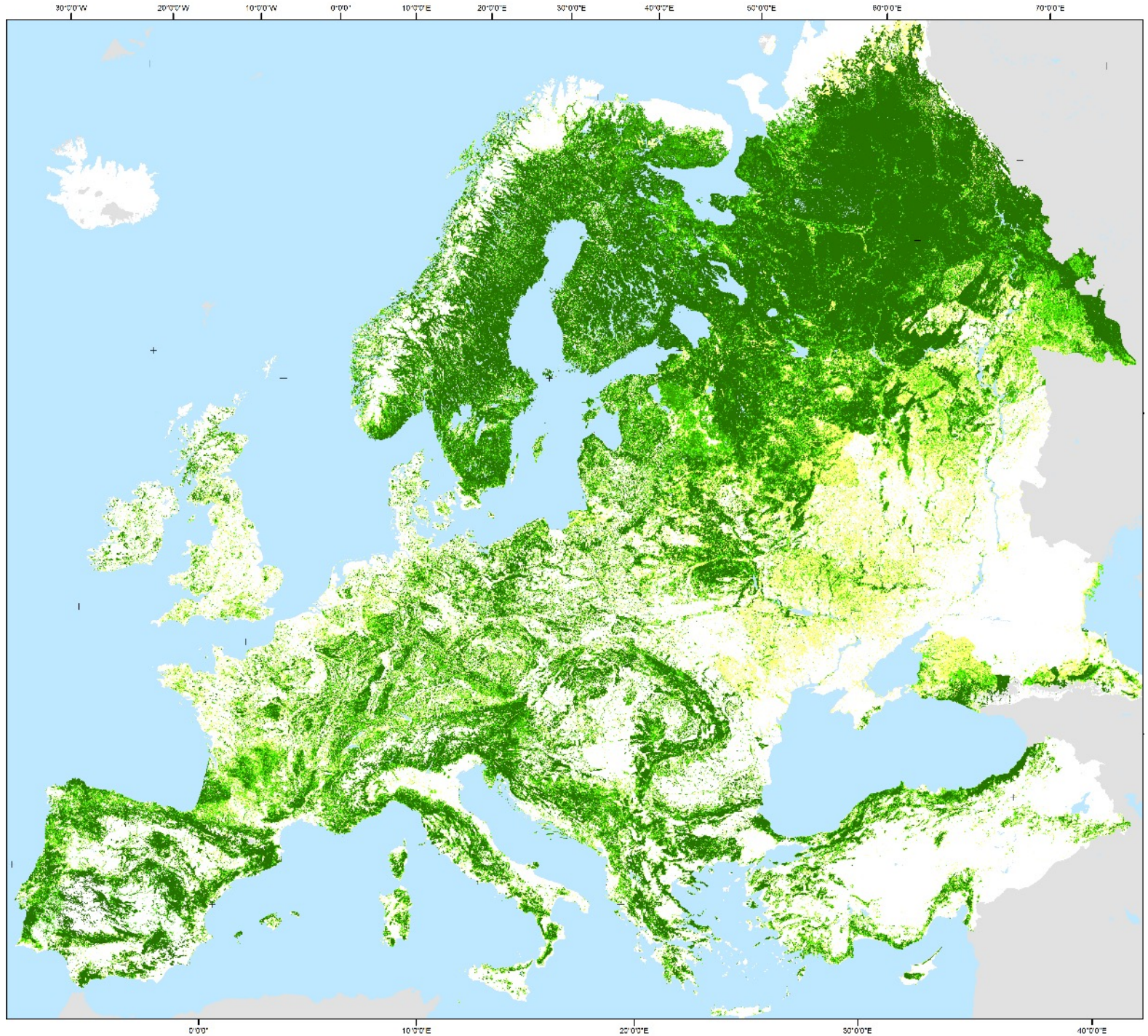
Increment: 800 mio m3 / yr

Harvest: 500 mio m3 / yr

(+300 mio m3 / yr
+50-100 mio m3 timber)

Source: Centrum Hout, Prof. Nabuurs (WUR)

Photo: Kjell Wiklund for the PEFC photo contest



Annual additional capacity EU forests



70 mio m3 logs
30 mio m3 mass timber



Private house - 60 m3
(appartment 30 m3)



Means:

500.000 houses / year
(1 mio appartments)

Every year again, from sustainably managed forests!



16 sociale huurwoningen | Weert | Limburg Wonen



Biosintrum | Oosterwolde, the Netherlands | Paul de Ruiter

Photo: Egbert de Boer



KLEIN AMSTERDAM

Location
Amsterdam, The Netherlands

Architect
SeARCH

Circularity
Complete modular mass timber units,; the complete school can (and will be) moved to another location.

Photo: Rien Zandee



Private housing | Amsterdam, the Netherlands | MAATworks

Photo: Lidewij Lenders, MAATworks

MASS TIMBER = MASS INDUSTRIALIZATION



new prefabrication possibilities

- File to factory
- Integration of services
- Building speed
- Quality – precision
- Low emissions (CO_2, NO_x)
- Safe, low disturbance site

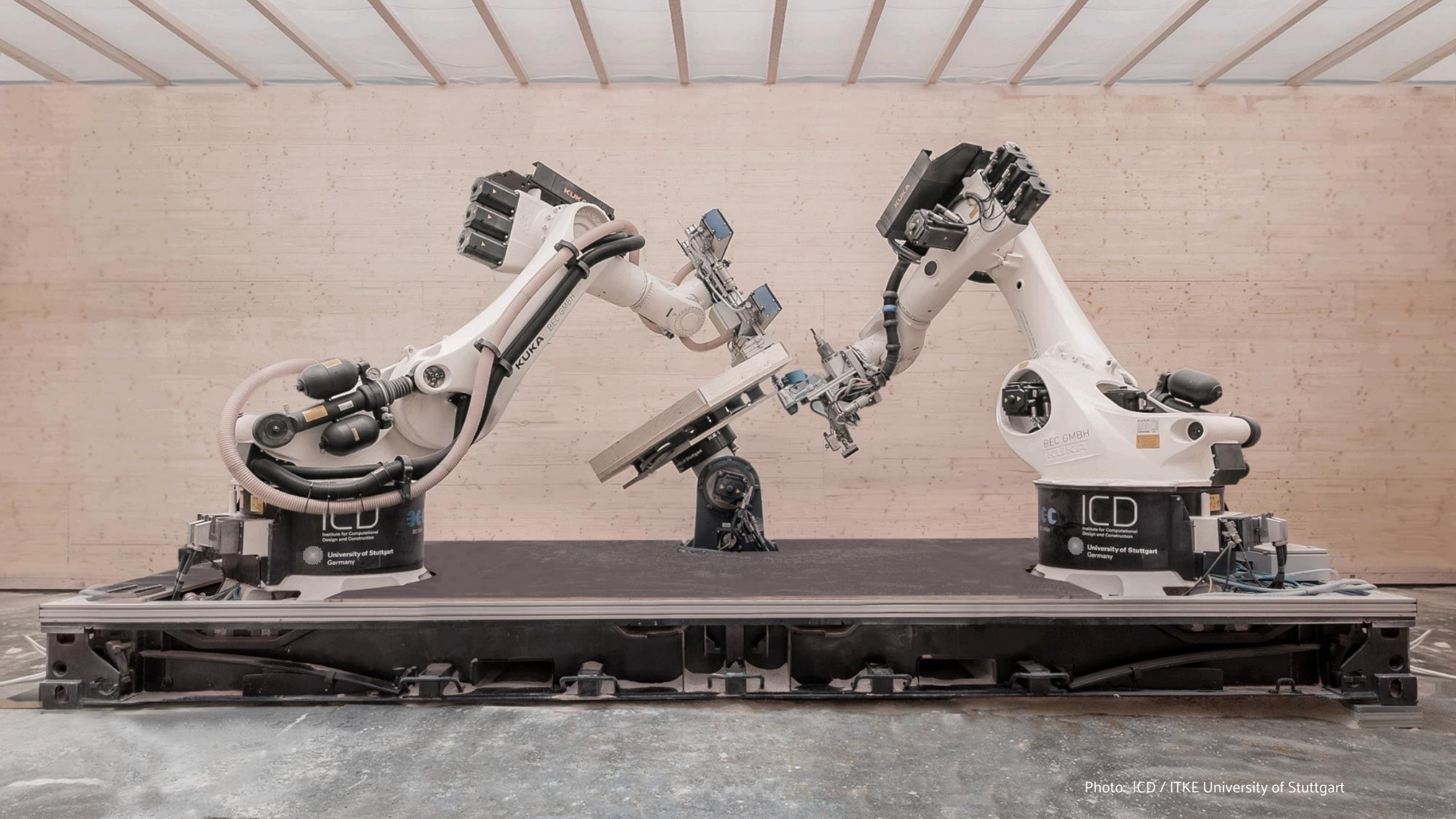


Photo: ICD / ITKE University of Stuttgart



PREFAB MODULES

Photo: DERIX group

MASS TIMBER REVOLUTION

Be part of the second timber age



TOMORROW'S TIMBER STARTS TODAY



Robin Wood I Amsterdam, the Netherlands I MKA & ANA

Credit: MKA