Glulam / Hybrid Structures

Overview
Framing Options – Glulam, Steel, Concrete

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Steel and Concrete
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Timber Propped Concrete

www.cbg-ing.ch
Timber & Steel Pylon

www.ib-miebach.de
Timber & Steel Pylon

www.ib-miebach.de
Timber & Steel Truss
Timber & Steel Composite

www.ib-miebach.de
Timber & Steel Truss

www.cbg-ing.ch
Timber & Concrete Composite

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Life Cycle Tower

www.creebyrhomberg.com
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Material Properties
Material Properties Compared

![Graph showing material properties comparison]

**Strength to weight values**
Equivalent Structural Properties

50kg  
75kg ECO2  
£65

300kg  
65kg ECO2  
£65

50kg  
20kg ECO2  
(80kg SCO2)  
£85
Timber Strengths

- **Softwood C24**
- **LVL**
- **Glulam GL24h**

- Bending strength
- Tensile strength
- Compressive strength

30%
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Glulam Futures

- What would a glulam solution look like?

November 2012 – Google give $3m funding to USGBC to research healthy buildings and how building materials affect human health...
Glulam Hybrid Long Span Floors

- 15m clear span

800-1000mm Glulam beams

650-750mm Glulam & concrete composite

650-750mm Glulam & timber composite
Glulam and LVL Hybrid

- 15m clear span
- 240mm deep glulam beams
- 60x600mm LVL ribs
- 90min fire resistance
- 130kg/m²

...but can it cost £250/m²?
September 2012