Survey of Innovative Connections for Mass Timber and Composite Structures

Presented November 2014 by:
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Disclaimer: This presentation was developed by a third party and is not funded by WoodWorks or the Softwood Lumber Board.
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Fasteners we know from NDS

- Bolts
- Screws
- Lag Screws
- Timber Rivets
- Nails
- Split rings and shear plates
- Truss plates
Properties we know from NDS

- Shear
- Withdrawal
- Spacing and edge distance requirements
Advanced fasteners for glulam

- Bertsche BVD
- Self-tapping Screws
- Tight fit pins
- Glued-in rods

Some are proprietary
Some are not
Source: Bertsche Systems, BVD Connector, Germany
Self-tapping screws

Source: SFS Intec
Self-tapping screws – SFS Intec

Wood-to-wood

Wood-steel-wood
Applications

Source: SFS Intec
Fastenbers in CLT

Photo: Sarah Hicks
Fasteners in CLT

- Self-tapping screws dominate
- No pre-drilling required
- Fast installation
- 5/32” to 1/2” diameter
- Lengths up to 2’-0”
Fasteners in CLT

• Proprietary design values – not in current standards
• Withdrawal and shear capacity
CLT Handbook

Download from
www.rethinkwood.com
Source: CLT Handbook (FPInnovations and the Bi-national Softwood Lumber Council)
From: BC WoodWorks! case study
From: BC WoodWorks! case study
Floor or wall spline

Source: CLT Handbook (FPInnovations and the Bi-national Softwood Lumber Council)
Floor or wall surface spline

Source: CLT Handbook (FPInnovations and the Bi-national Softwood Lumber Council)
Floor or wall Lap Splice

Source: CLT Handbook (FPInnovations and the Bi-national Softwood Lumber Council)
Knapp Fastener Splice

Source: CLT Handbook (FPInnovations and the Bi-national Softwood Lumber Council)
Wall to wall Corner

Source: CLT Handbook (FPInnovations and the Bi-national Softwood Lumber Council)
Wall to wall corner w/steel

Source: CLT Handbook (FPInnovations and the Bi-national Softwood Lumber Council)
Wall to foundation

Source: CLT Handbook (FPInnovations and the Bi-national Softwood Lumber Council)
SFS, ASSY, GRK, HECO, KNAPP
Innisfil Hydro, Ontario
CLT Installation Video

http://www.youtube.com/watch?v=GykhrasSoIY
Courtesy: Sarah Hicks
Playvalue Toys, Ottawa
Playvalue Toys – Rothoblass Screws
Playvalue Toys – Rivet hold down
Playvalue Toys – Wall corner
Playvalue Toys – Wall to FDN
Wood-concrete composites

Source: SFS Intec
HBV – Leander Bathon

Source: http://www.ticomtec.de
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QUESTIONS?

This concludes The American Institute of Architects Continuing Education Systems Course

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