



TIMBER HUB

Requirements on and typologies of connections



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”...a structure is
an assembly of connections
separated by members.”
(McLain 1998)

Demands on connections



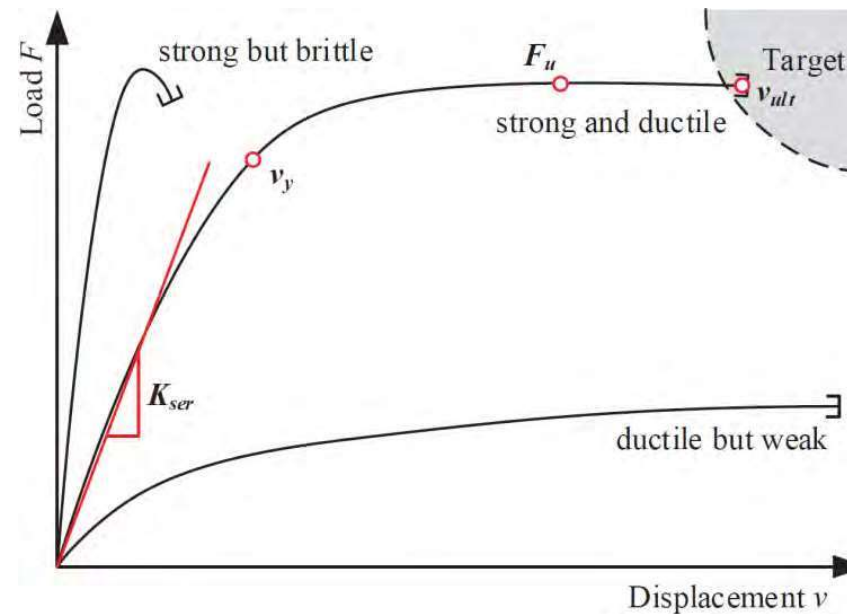
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Basic requirements

- high load-carrying capacity
- high stiffness
- sufficient ductility and robustness

Additional requirements

- Durability and controlled quality
- Fire resistance
- Ease of manufacturing
- Simplicity of design
- Costs
- etc.



Source: adapted Haller, P. (1998)

Connections in general



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Some remarks:

- Connections are the weak links in the structure, expensive to make and time consuming
- The simpler the connection and fewer the number of joints, the better is the structural behavior
- Keep it simple!!

Different types of connections



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$\alpha = 0$				
$0 < \alpha < 90$				
$\alpha = 90$				

Source: R. Jockwer, A. Frangi: Joining and re-assembling of wood, Mechanical wood connection.
 IN: P. Niemz, A. Teischinger (eds.): Springer Handbook of Wood Science and Technology (Springer, in press)

Types of joints



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Timber connections

- Traditional or carpentry joints
- Modern timber connections

Connections with (metal) fasteners

- Dowel-type fasteners
- Ring, toothed plate and shear connection
- Punched metal plate

Glued connections

- Glued joint
- Glued-in rods



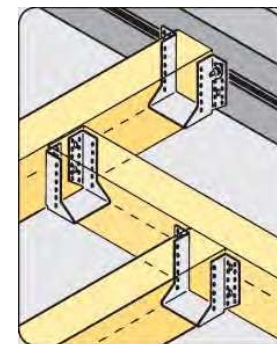
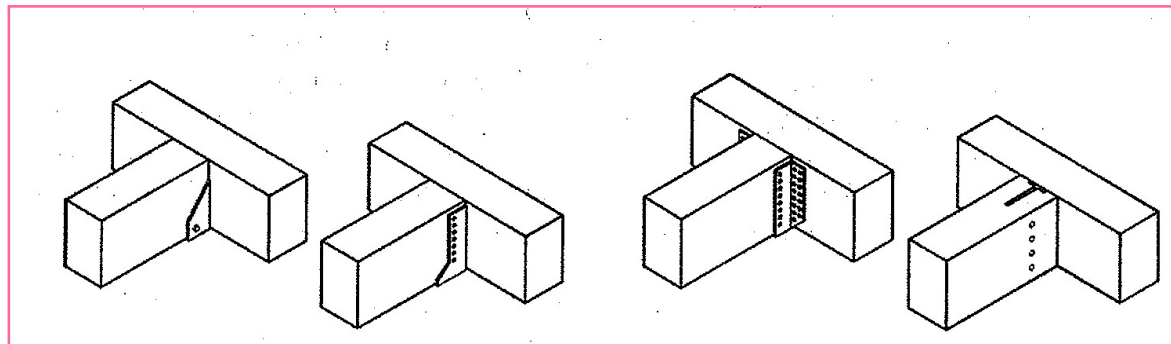
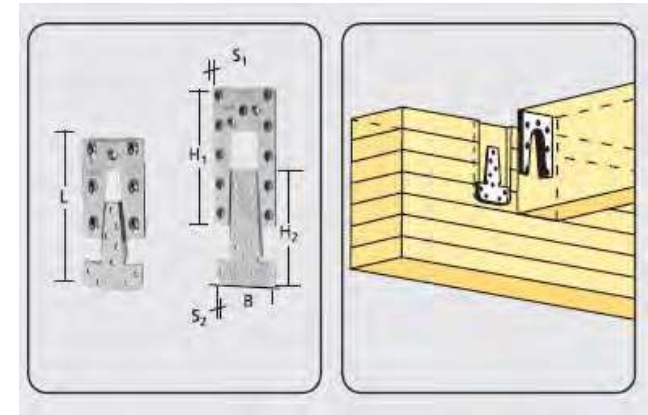
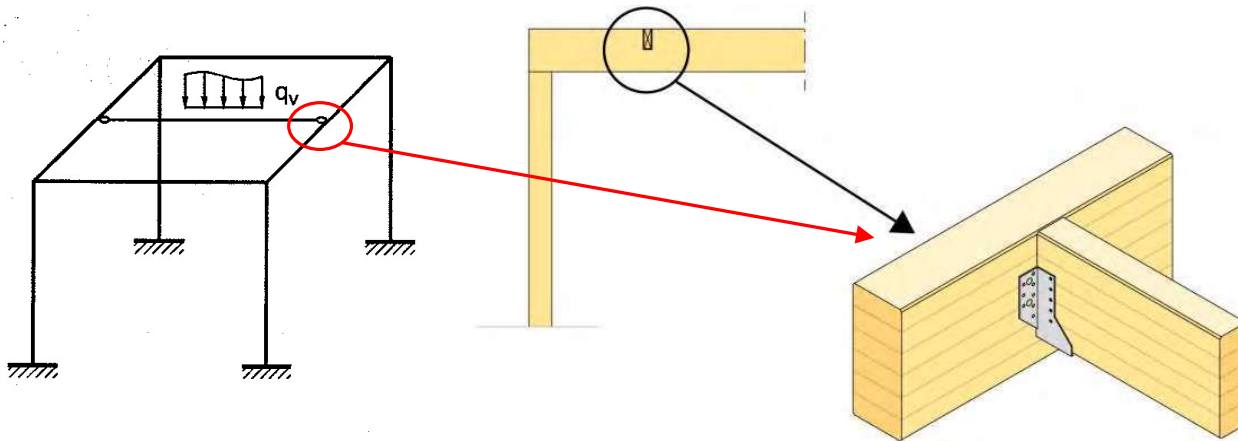
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Overview

Beam-beam hinged connection



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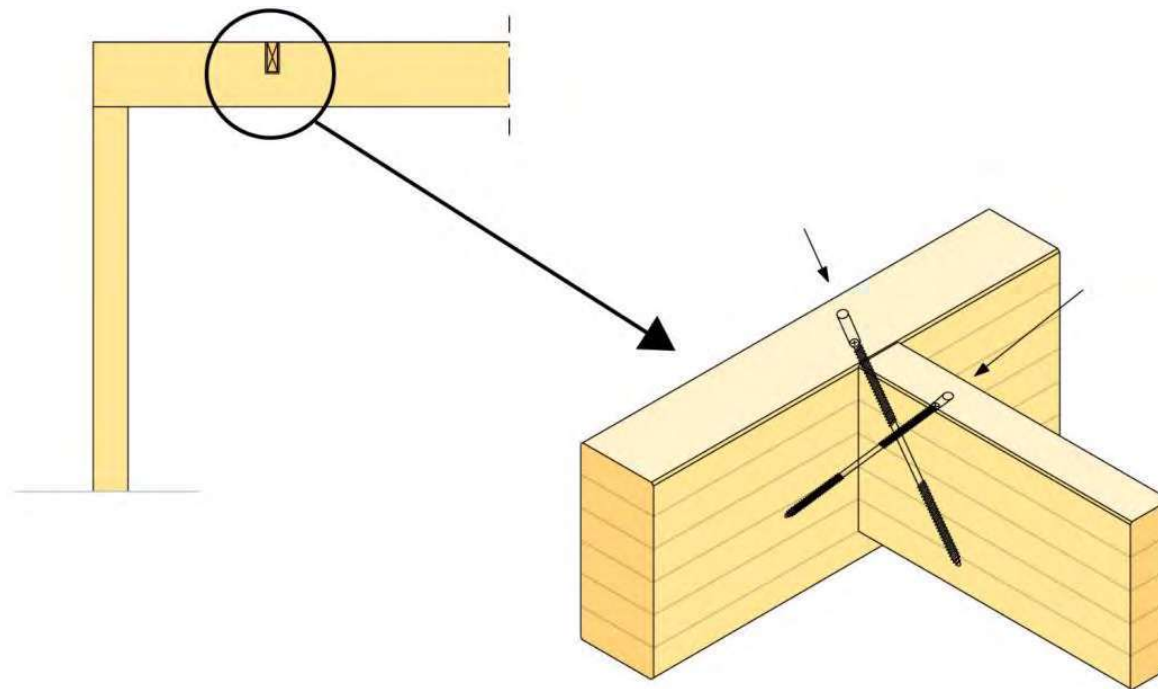
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Beam-beam hinged connection



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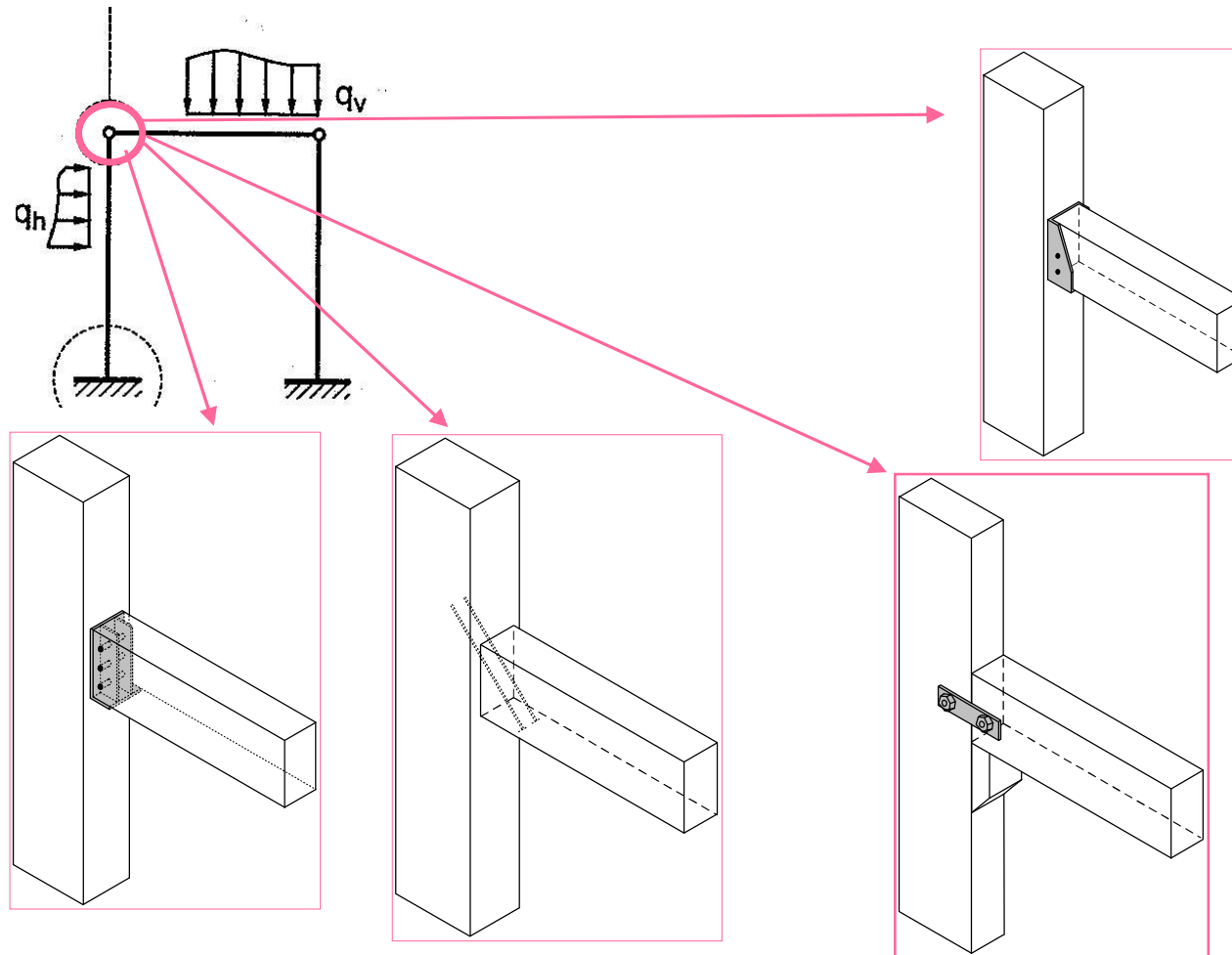
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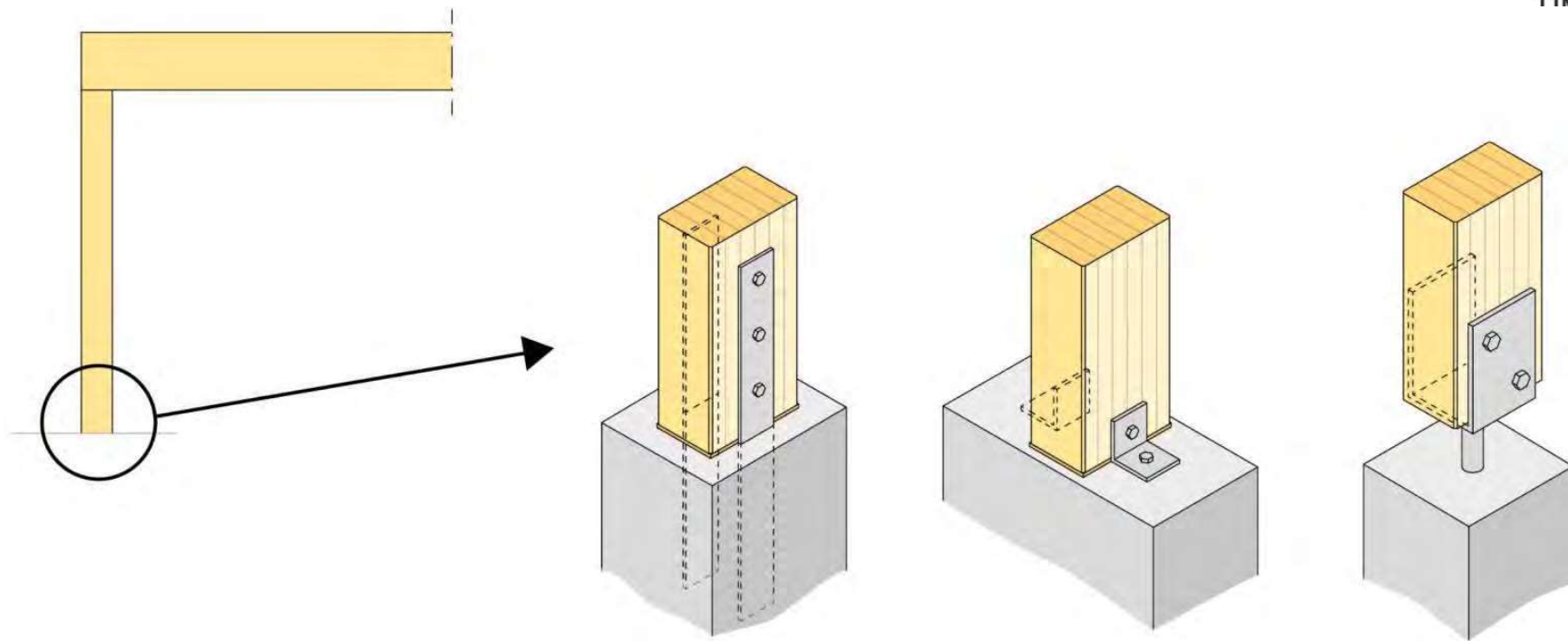
Beam-column hinged connection



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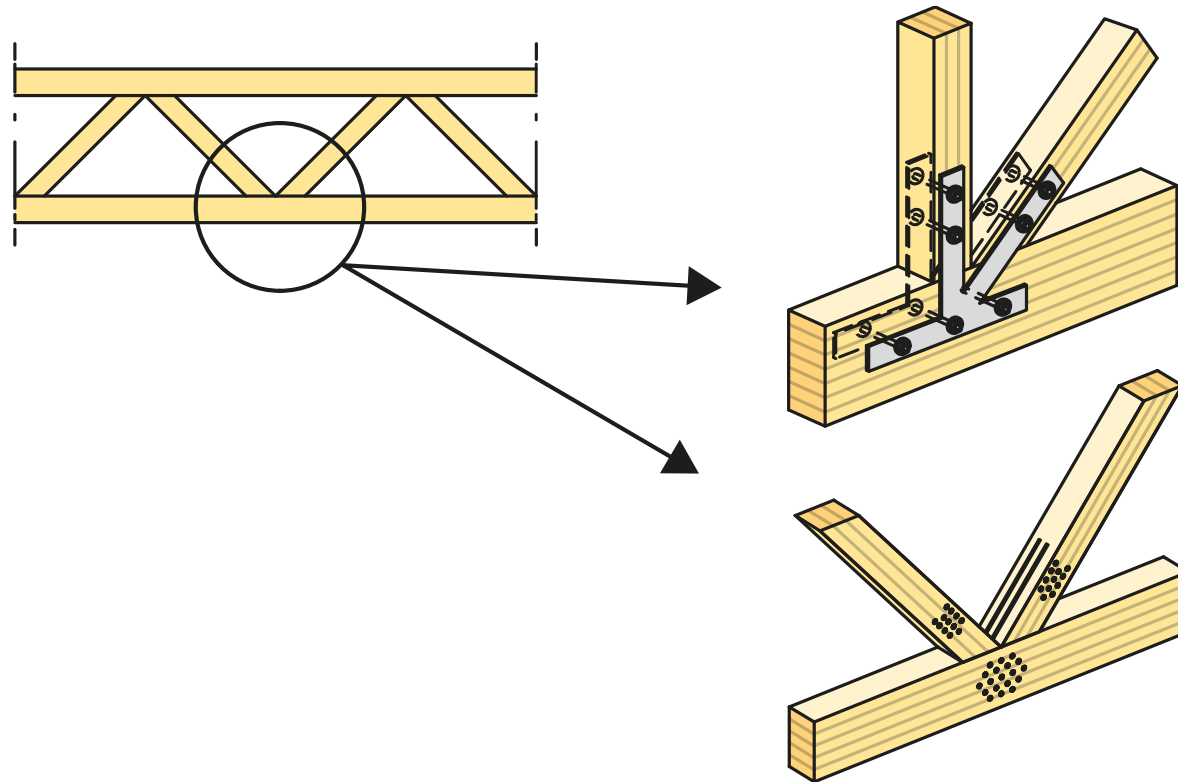
Hinged column foot



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Truss joint



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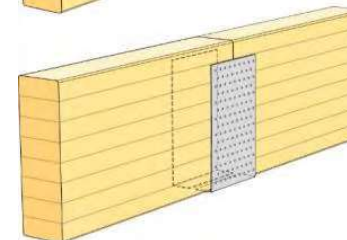
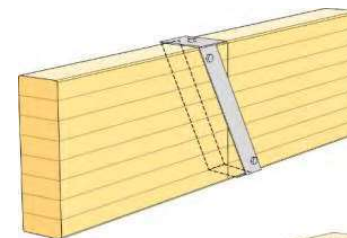
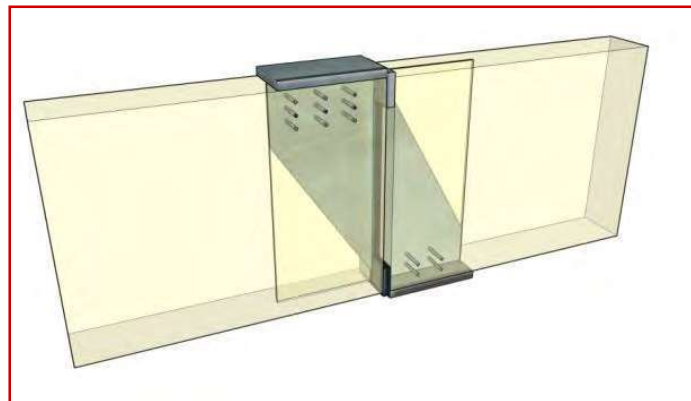
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Gerber - hinge



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Moment resisting connections



Moment-rigid joint

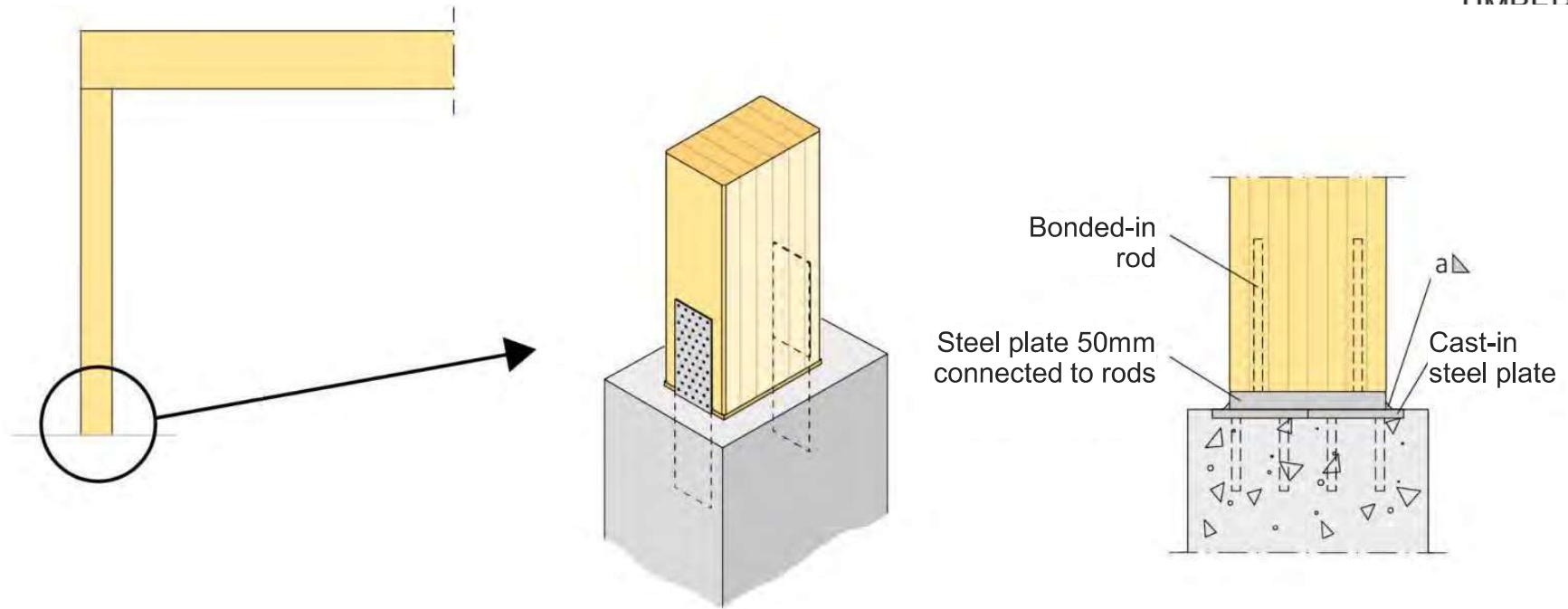


TIMBER UNION



Foton: Rubner Holzbau S.p.A., Bressanone – Italien

Clamped column foot



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