




Università di Trieste
Dipartimento di Ingegneria e Architettura

Corso di
Costruzioni in Legno
a.a. 2018-2019

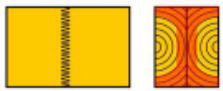
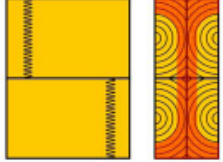

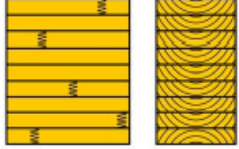
PRODOTTI A BASE DI LEGNO

Prof. Ing. Natalino Gattesco

PRODOTTI A BASE DI LEGNO

product	u [%]	dimensions	surface	additional
Sawn timber 	≤ 20 %	slat: t ≤ 40; h < 80 mm board: t ≤ 40; h ≥ 80 mm beam: t ≤ h ≤ 3b; t > 40 mm	unplaned / planed	
Round timber 	≤ 20 %	l ≤ 20 m d ≤ 300 mm	unmoulded / moulded	unweakened cross sections: $f_{m,d}$ and $f_{c,d}$ 20 % higher
Finger jointed construction timber (KVH®) (KVH®-Si, KVH®-NSi) 	15 ± 3 %	w = 60 - 120 mm h = 120 - 240 mm	planed and moulded (edges)	add. grading rules (break-down, knottiness, checks, discoloration, etc.)

PRODOTTI A BASE DI LEGNO

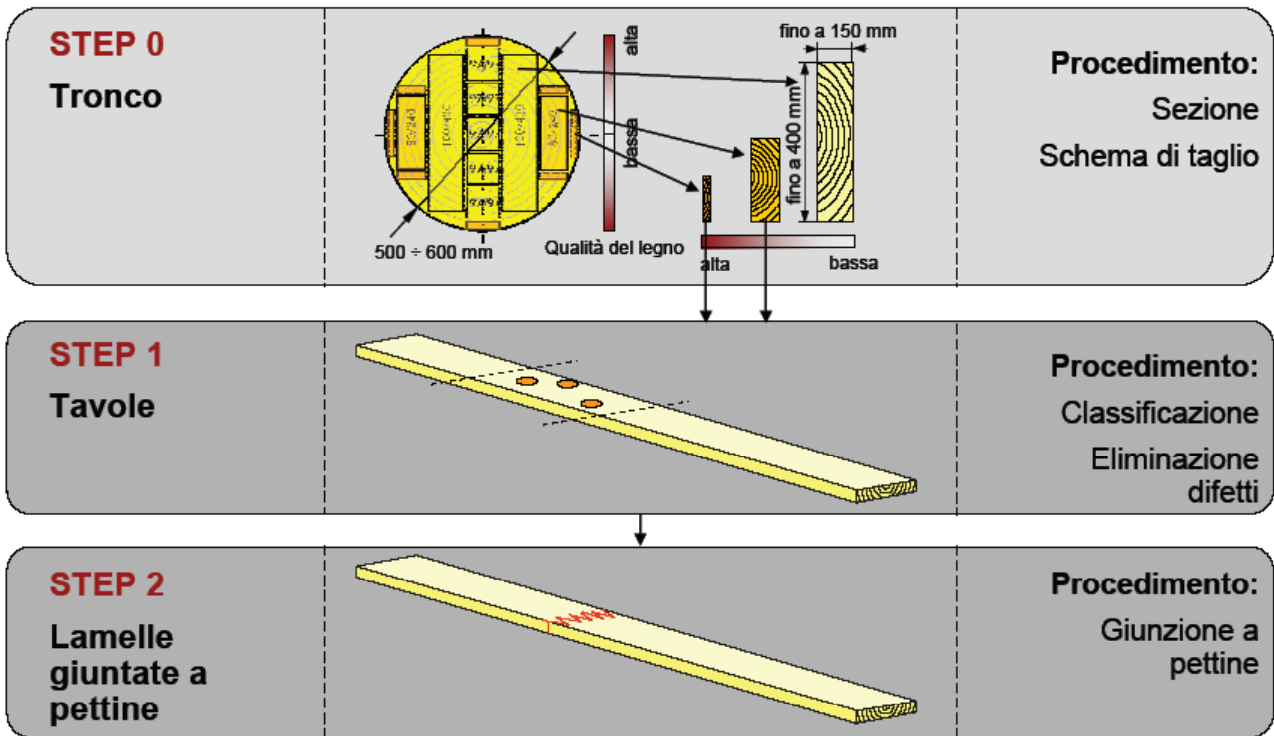
product	u [%]	dimensions	surface	additional
Duo- Trio-beams 	≤ 15 %	Duo: w = 80 - 160; h = 100 - 240 mm Trio: w = 180 - 240; h = 100 - 240 mm	planed and moulded (edges)	
Multi girder 	≤ 15 %	build up of KVH®, Duo- and Trio-beams	planed and moulded (edges)	
Cross beam 	≤ 15 %	w = 80 - 200 mm; h = 100 - 260 mm l ≤ 12 m	planed and moulded (edges)	h / w ≤ 2
Glued laminated timber (GLT) (BS 11, 14, 16, 18) 	8 - 15 %	w ≤ 220 (300) mm h ≤ 2000 (3000) mm l ≤ 30 (60) m	planed and moulded (edges)	thickness of lamellas t = 6 - 45 mm

PRODOTTI A BASE DI LEGNO

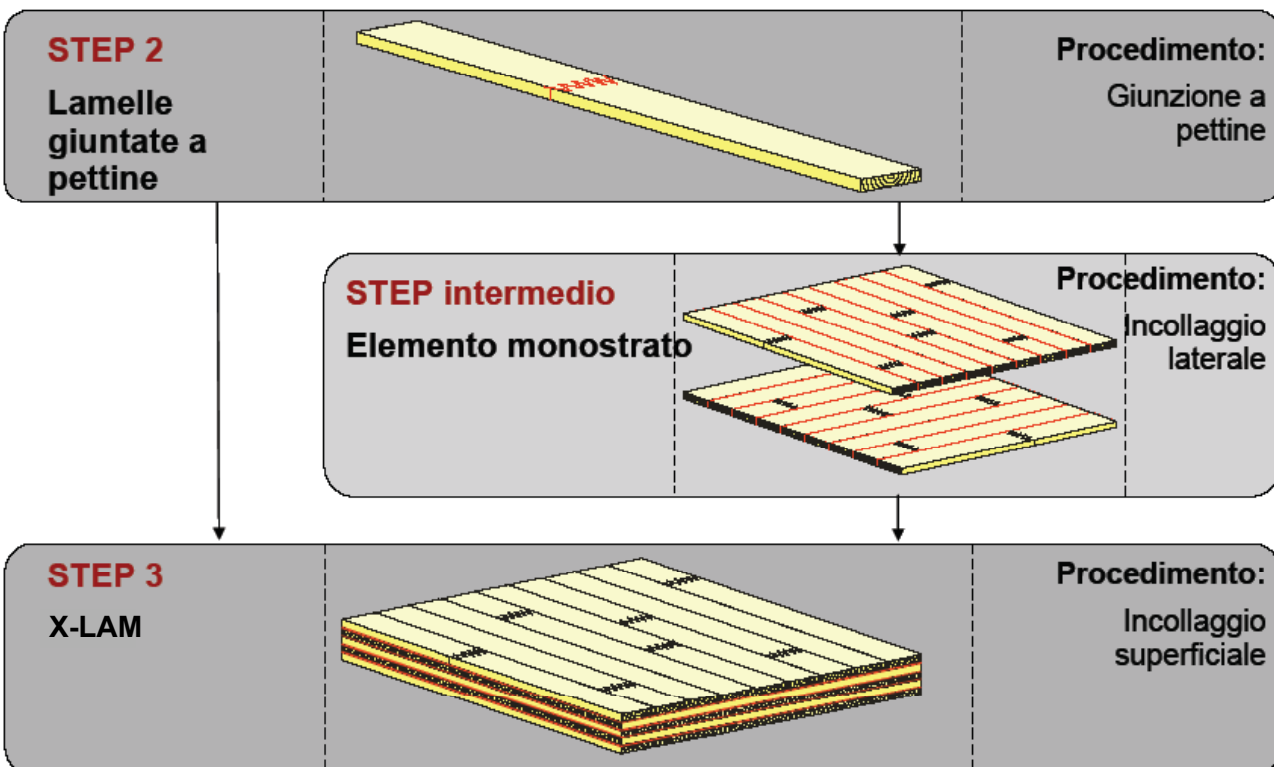
Lamellare incrociato (X-LAM)



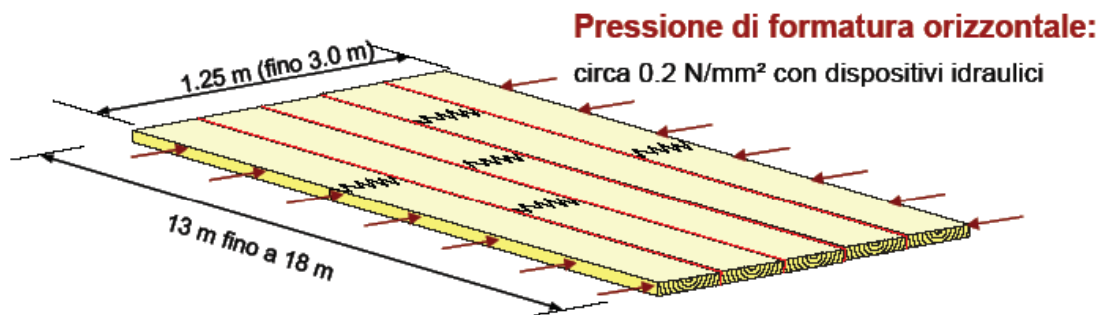
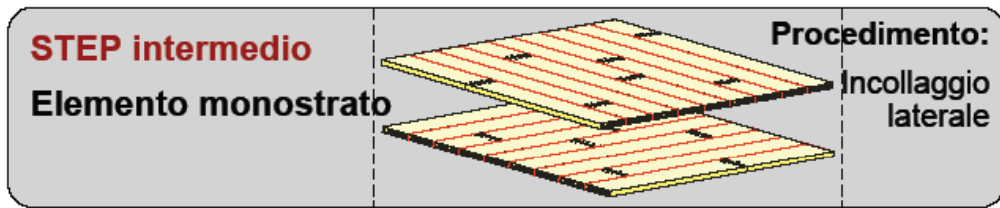
PRODUZIONE X-LAM



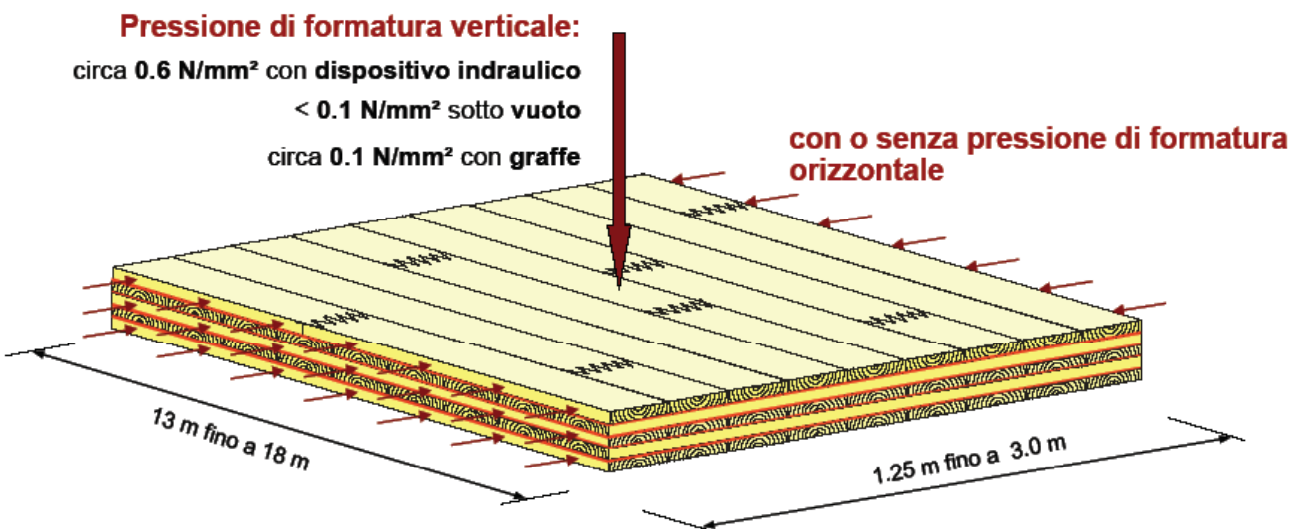
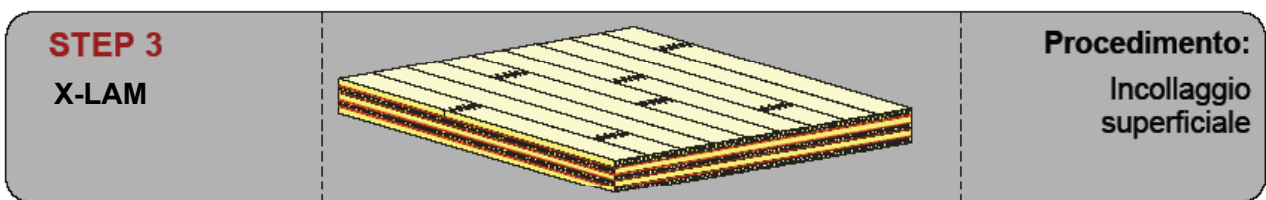
PRODUZIONE X-LAM



PRODUZIONE X-LAM



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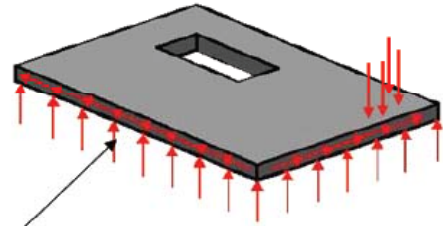
ASSEMBLAGGIO SOLAIO-PARETI

Veduta di 'Judenburg West'

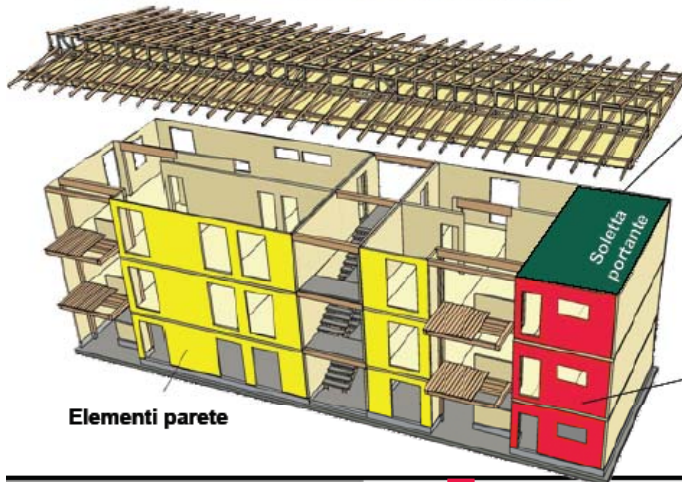
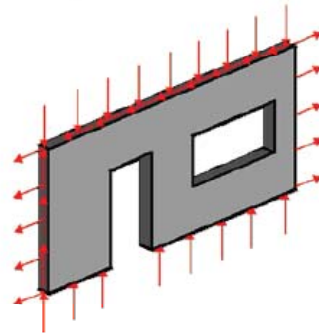


Modulo 1

Carichi perp. al piano – Soletta portante

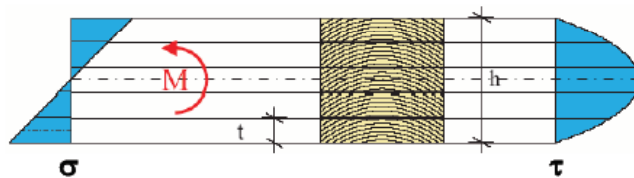


Carichi nel piano – Elementi parete



VERIFICHE SOLAI

Procedimento di verifica (SLU)

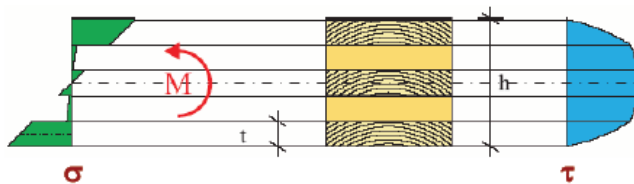


- Trazione/Compressione (0° alla fibratura)

Flessione

$$\frac{\sigma_{t,0,d}}{f_{t,0,d}} + \frac{\sigma_{m,d}}{f_{m,d}} \leq 1$$

$$\frac{\sigma_{c,0,d}}{f_{c,0,d}} + \frac{\sigma_{m,d}}{f_{m,d}} \leq 1$$



- Taglio

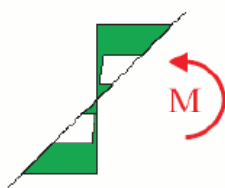
$$\frac{\tau_d}{f_{v,d}} \leq 1$$

- Trazione/Compressione (90° alla fibratura)

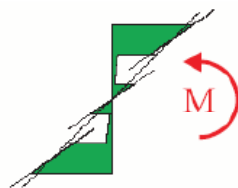
Taglio trasversale

$$\frac{\sigma_{t,90,d}}{f_{t,90,d}} + \frac{\tau_{R,d}}{f_{R,d}} \leq 1$$

$$\frac{\sigma_{c,90,d}}{f_{c,90,d}} + \frac{\tau_{R,d}}{f_{R,d}} \leq 1$$



Collegamento rigido



Collegamento deformabile

CONNESSIONI

Connessioni nelle costruzioni massicce di legno

Modulo 2



CONNESSIONI

Connessioni nelle costruzioni massicce di legno

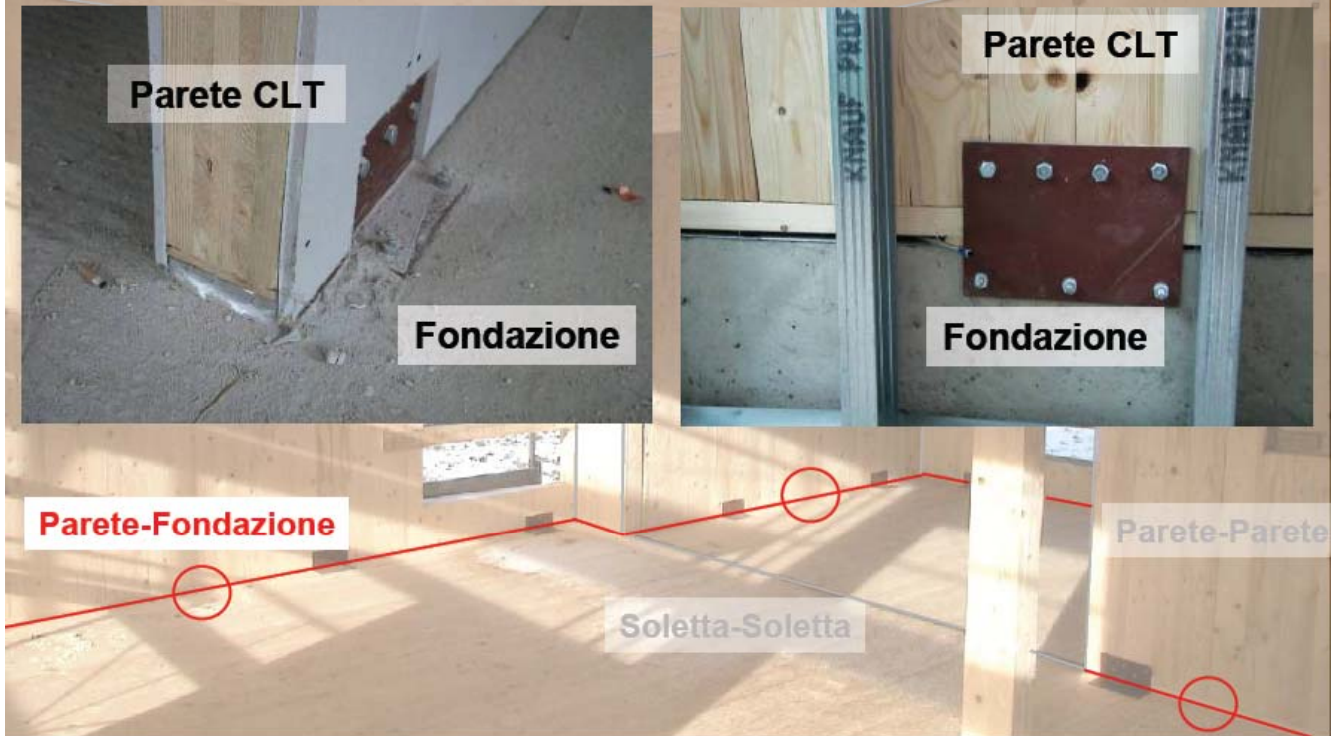
Modulo 2



CONNESSIONI

Conessioni nelle costruzioni massicce di legno

Modulo 2



CONNESSIONI

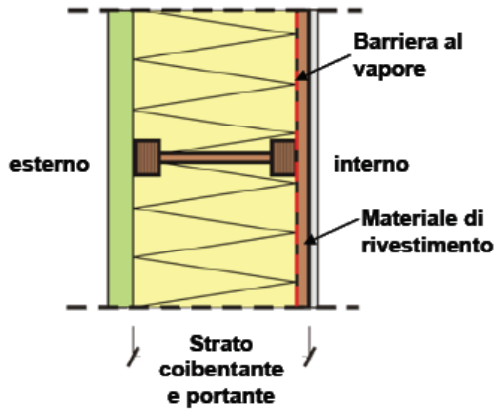
Conessioni nelle costruzioni massicce di legno

Modulo 2

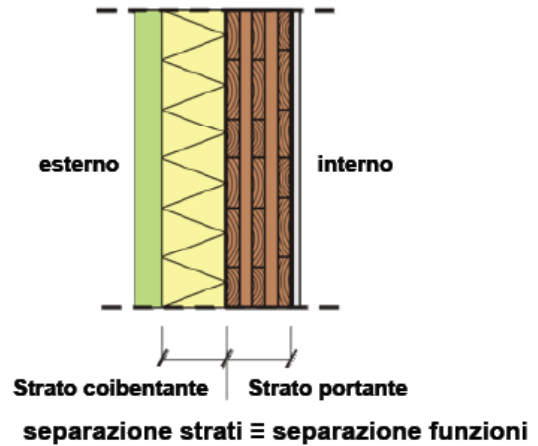


CONFRONTO TIPOLOGIE COSTRUTTIVE

Costruzione Leggera di Legno (TLC)



Costruzione Massiccia di Legno (TMC)



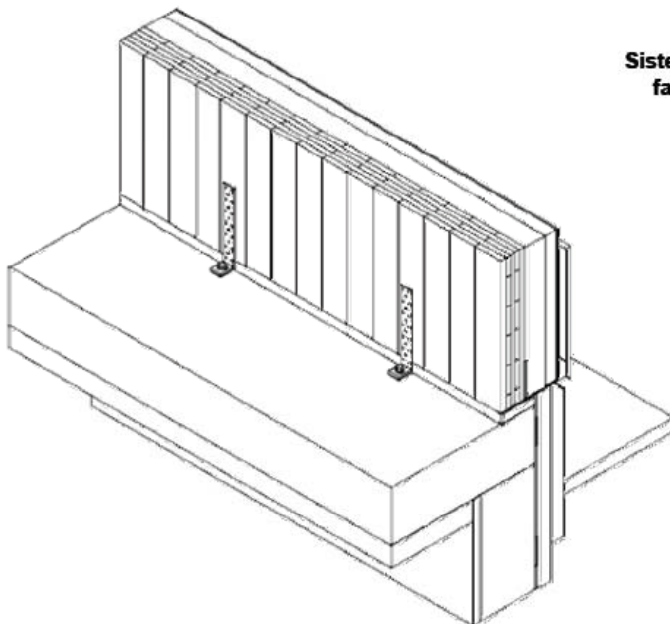
Confronto dei materiali

Prodotti lineari: legno strutturale, GLT, TJI, etc.
Rivestimento: pannelli di fibre, OSB, pannelli a 3 strati, pannelli di gesso, pannelli truciolari

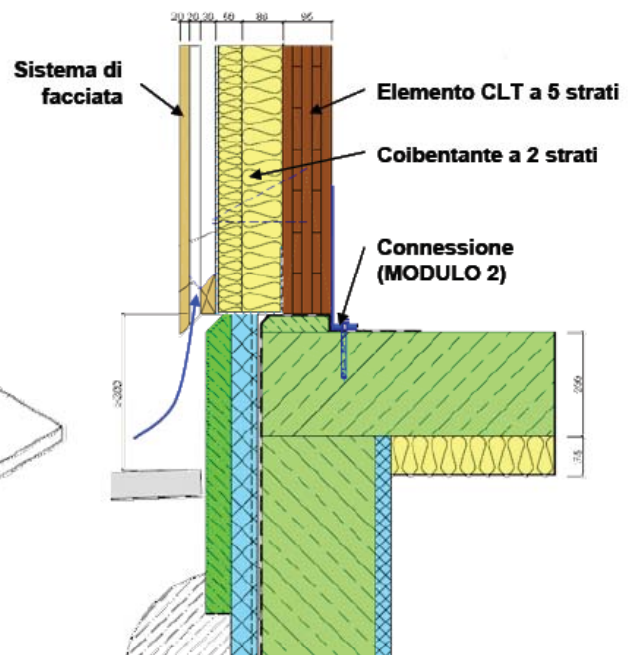
Prodotti bidimensionali elementi CLT omologati prodotti multistrato a base di strand (nuovo sviluppo)

PARTICOLARI COSTRUTTIVI

Assonometria



Particolare costruttivo



ESEMPI DI COSTRUZIONI IN X-LAM

Case unifamiliari



Edifici multipiano



Capannoni industriali e uffici



Ponti di legno