

# Timber

## ► Wood as a material

- Hardwood vs. Softwood
- Pith, Heartwood, Sapwood:
- Density and moisture content
- Anisotropic strength

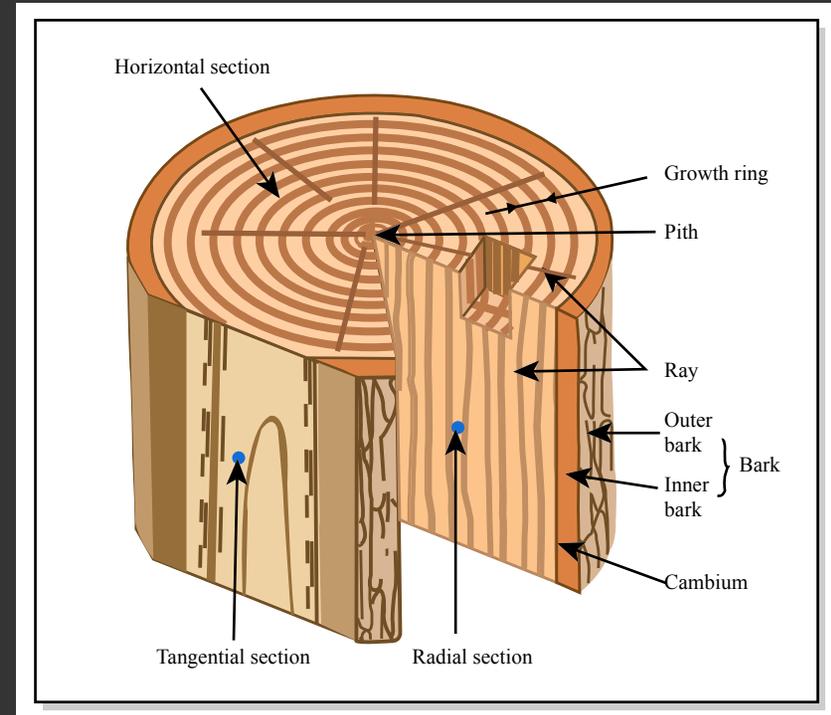


Image by MIT OCW.

### Moisture Content vs. Relative Humidity

Relative Humidity	Moisture Content
0	0
25	5
50	9
75	14
99	23-30

## ▶ Wood-based products

### ■ Layered products

- Glued laminated timber (glulam)
- Plywood

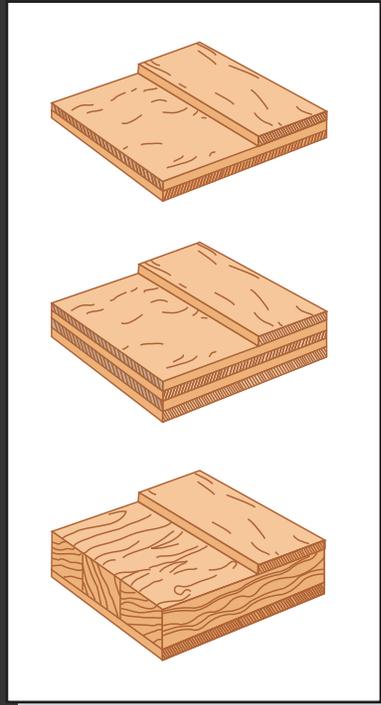


Image by MIT OCW.

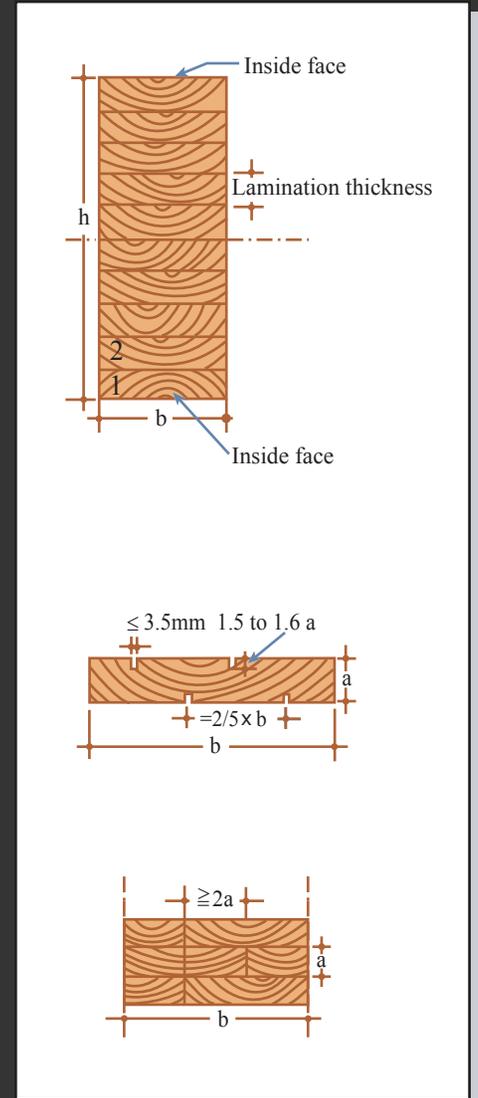


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## ▶ Wood-based products

### ■ Layered products

- Glued laminated timber (glulam)
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### ■ Particleboards

- Chipboard
- Flakeboard
- Oriented Strand Board (OSB)

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### ■ Fibreboards

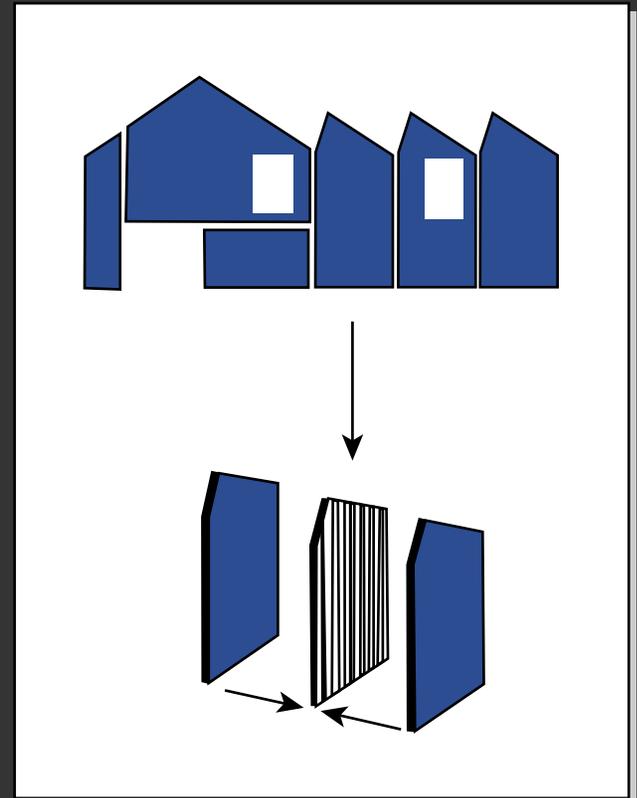
- Wet method
- Dry method (Medium Density Fibreboard or MDF)

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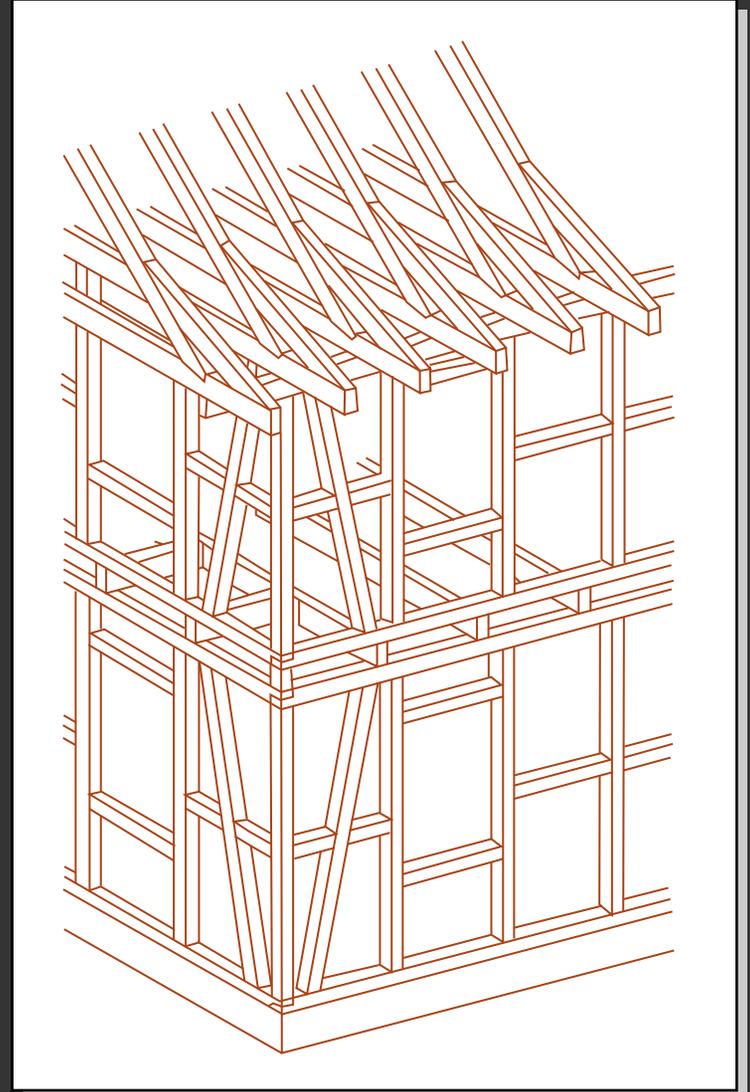
## ▶ Wood-based products

- Low-quality wood
- Isotropic & strong
- Free dimensions & openings

→ Panel construction & "black boxes"

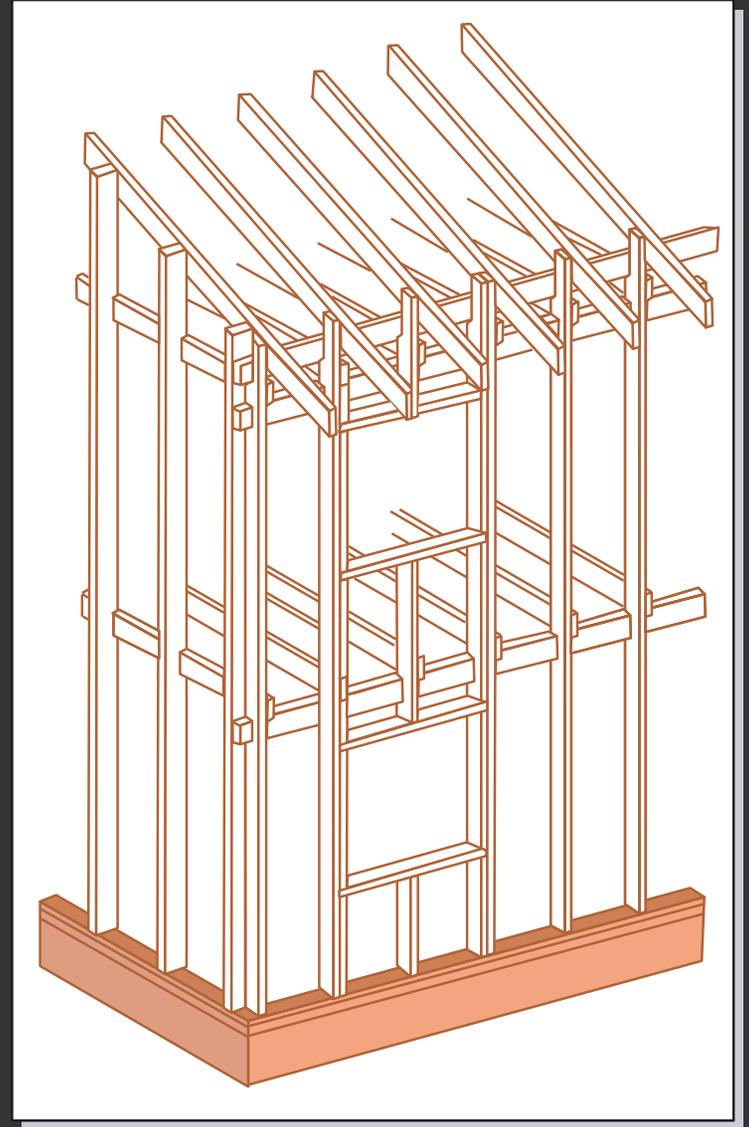


- ▶ Timber construction systems
  - Timber frame construction



## ▶ Timber construction systems

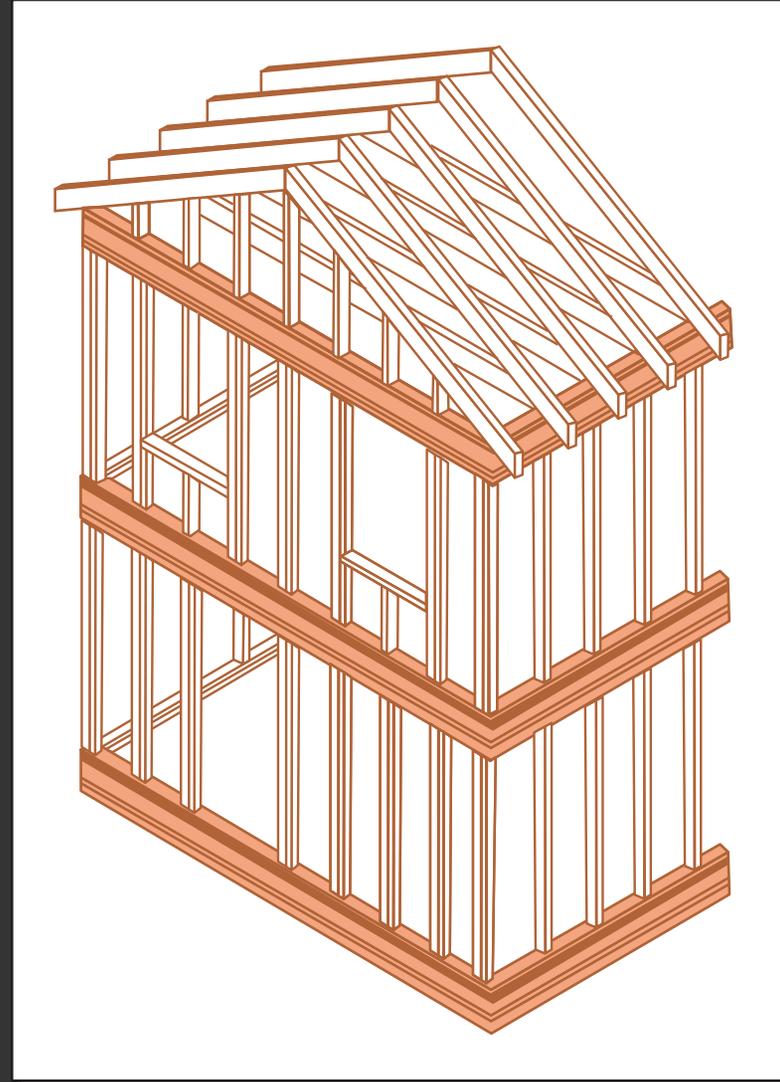
- Timber frame construction
- Balloon frame construction (timber stud construction)



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## ▶ Timber construction systems

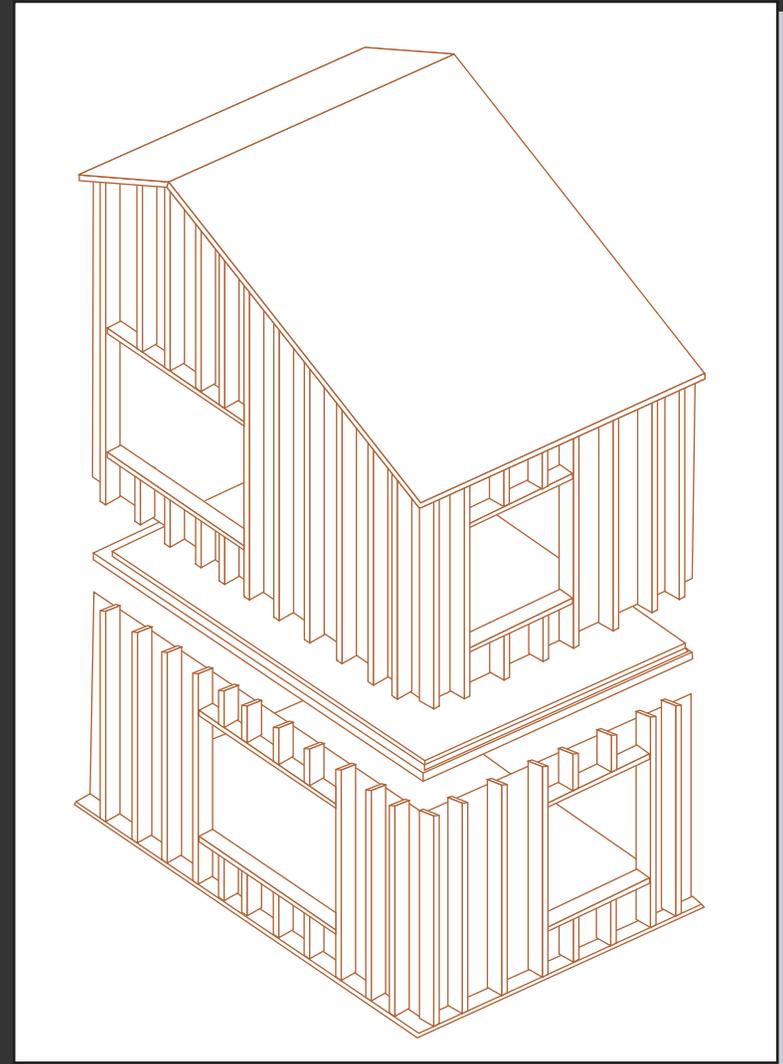
- Timber frame construction
- Balloon frame construction (timber stud construction)
- Platform frame construction



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## ▶ Timber construction systems

- Timber frame construction
- Balloon frame construction (timber stud construction)
- Platform frame construction
- Panel construction



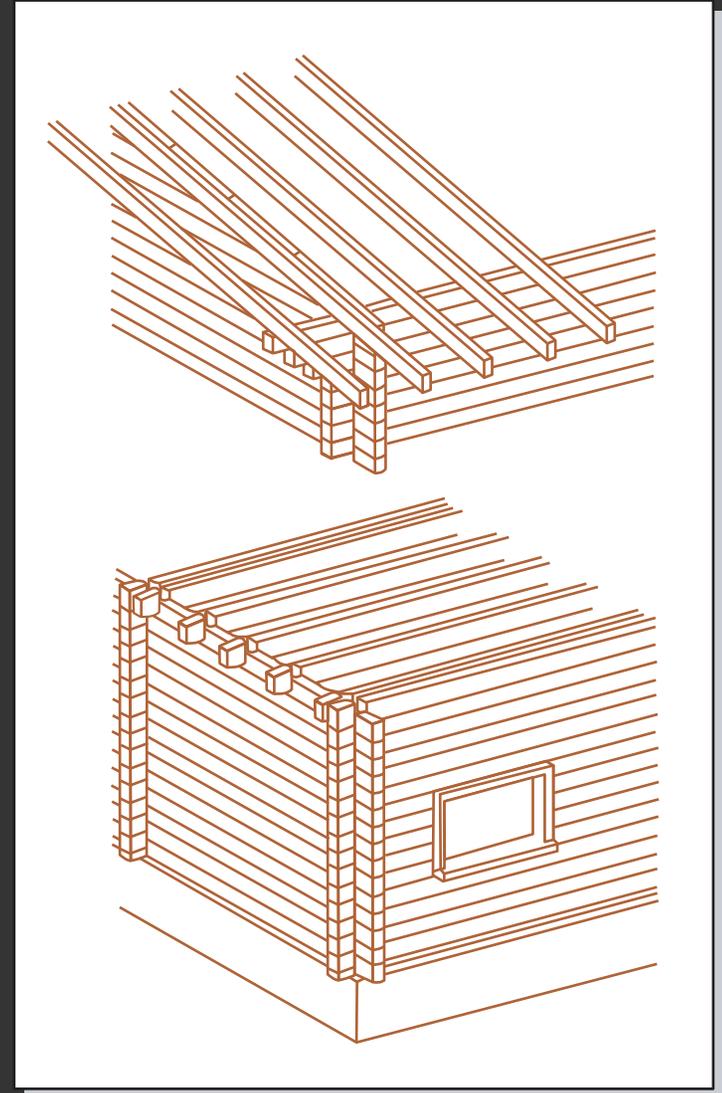
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Photographs and floor plans  
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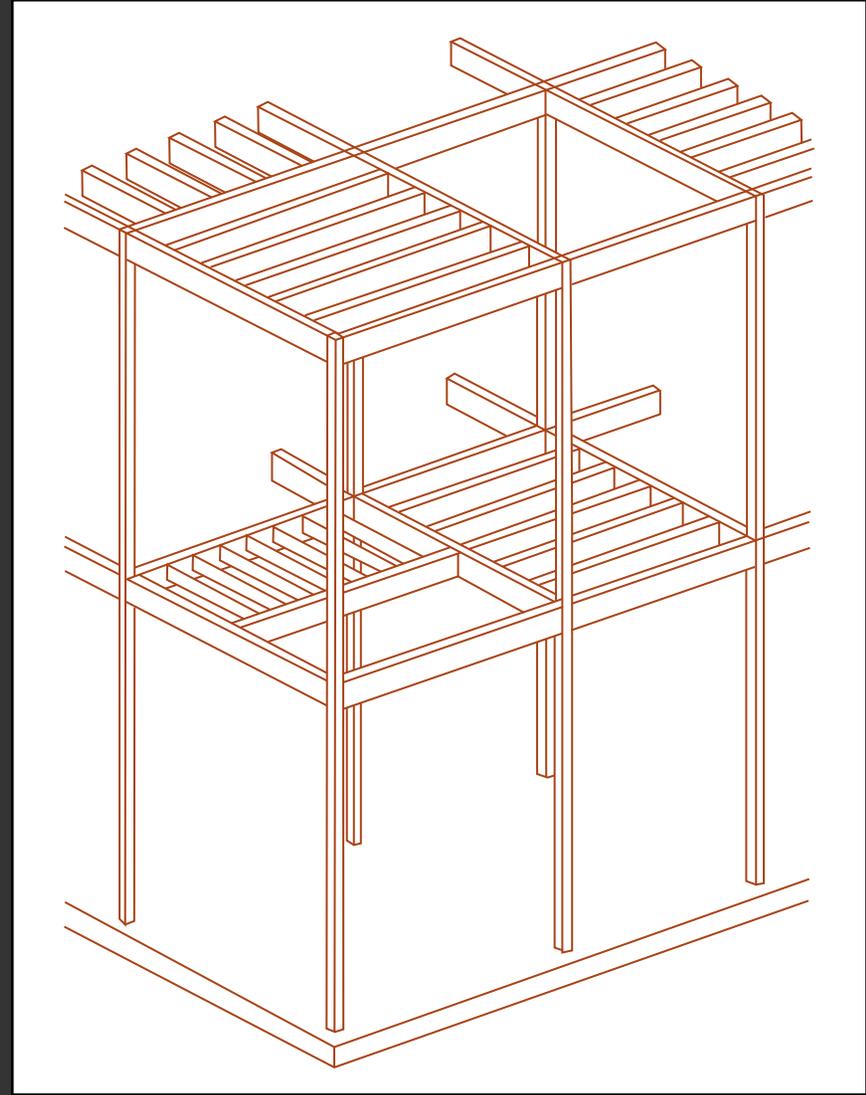
## ▶ Timber construction systems

- Timber frame construction
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- Log construction



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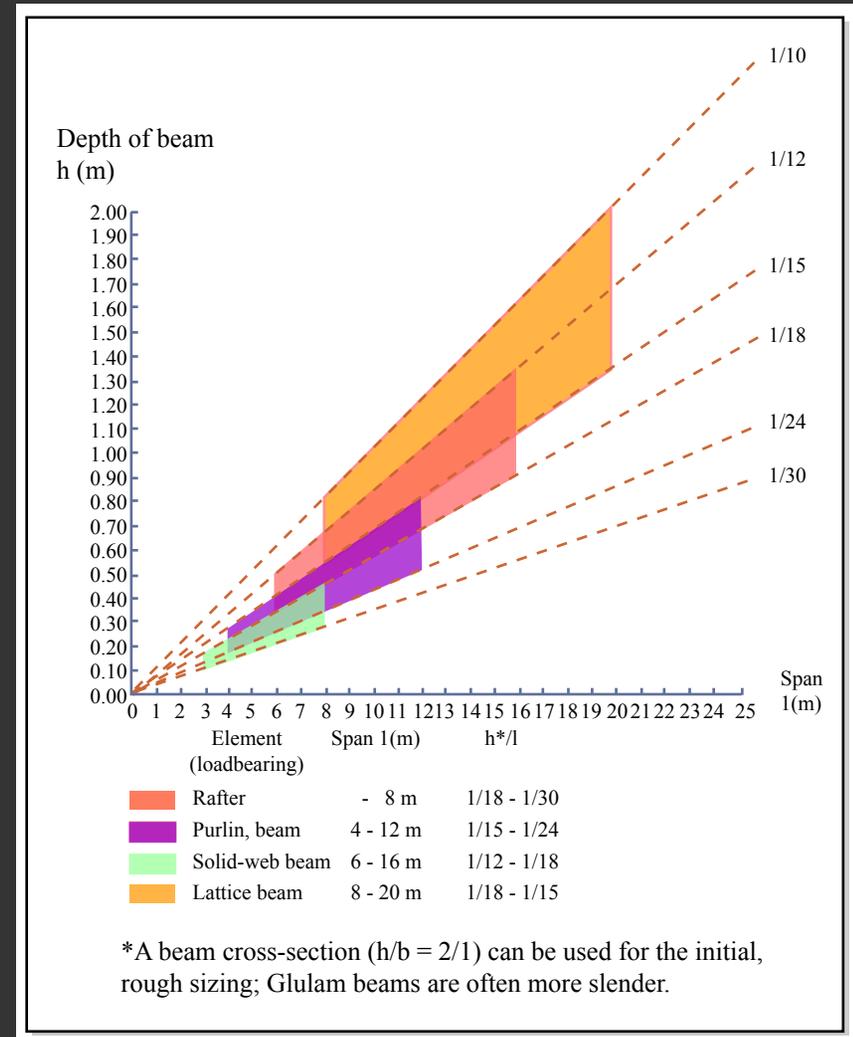
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- ▶ Main reference for lecture contents:
  - "Constructing Architecture" by Deplazes: pp. 77-112
- ▶ Additional readings relevant to lecture topics:
  - "Fundamentals of Building Construction" by Allen:  
&
  - "Building Construction Illustrated" by Ching & Adams:  
chapters on timber and wood construction