

## NEXT TIMBER

First workshop

Summary of presentations and discussions

## Performance of timber structures

### Performance > Requirement

Deem-to-satisfy performance ↔ performance classes

More innovation → more requirements

Novel solutions → novel test methods

↗ Catalogues might harm developments

↗ Correct requirements allow space for innovation

Presentation: JMA

## Execution standard



Aftonbladet 1950 about AMA (*General materials and work description*)

” Som varje förnuftig människa redan anat kommer detta högteoretiska nya språkbruk från dem som sitter vid skrivborden och letar efter arbetsuppgifter. ”

“As any sane person already guessed, this new high theoretical language from those who sit at their desks and looking for work.”

Presentation: TT

## Recent Nordic experiences

Standards are the foundation of a building  
→ changes can be negotiated

Construction is a local business → knowledge about your home market

Limits due to the fire regulations are crucial

Political regulations steer the market (“we will build if we must”)

Money talks – how to ensure high quality?

↗ Geotechnical advantages of timber buildings (soil/earthquake)  
↗ important: what is needed. What is the structure. Where to get information.

Presentation: AL

# Consequences of national choices

Higher national requirements? - Comparison of rules in 5 countries

Not possible to use only one document/code

$$\eta < 1$$

Large differences in some areas (e.g. vibrations) → error?

National tradition or scientific disagreement

National choice on load combination is crucial!

Swedish snow is lighter than Norwegian snow.

Fire: many requirements not in EC but in regulations

➤ What is the correct action plan?

Presentation: JMA

# RunkoPES

No building system! A cook book!

Today's system works when everyone is a trusted business partners.

Wall and floor element from different producers?

Different roles/needs of producers/architects/building contractor.

Ex.: preplan vs. load transfer plan

- Where are the borders for responsibility?
- When do producers start to participate in the process?
  - Is this timber-friendly?
- Reduce "fear of contact" of contractors!

Presentation: TL

# Norwegian experiences from Guidelines

Guidelines instead of an execution standard.

Further checklists are needed.

Simplifications are requested! To any costs??

Need of better understanding!

➤ ..

Presentation: SE

# Web-tools

Open = free ?

Best practice / verified and reviewed information

Calculation and download

- Interface to other softwares (REVIT)?
- Connection to Product Declaration?

Presentation: JS

## Stability during the building phase

Most spectacular timber structure:  
scaffolding for Sandö bridge using Brettstapel- technique  
(1938).

Failure of timber structures: **30% instability**, 15% Bending failure  
[Frühwald, 2007]  
**90% of failures** are primarily caused by gross human errors!

Importance of bracing:  $74\text{kN} \neq 14\text{kN} \neq 3.7\text{kN}$   
Internal forces due to initial deflection ( $k_1$ ,  $k_2$ ) – stabilizing forces  
Support & horizontal forces  
Lateral buckling of top chord

→ **NO-one is responsible for STABILITY CONTROL!**

Presentation: NIB

## Norwegian execution standard

### 2014-2016

Reason: Building defects → ~10% of total costs (1/3 due to execution)

Tolerances

Quality control

Moisture content

↗ Cooperation with other countries (FIN)?

Presentation: VM

## Finish execution standard

Published 2014/08

quality = performance : expected performance  
Indicators of a good quality process

Communication/bracing/humidity/...

Example: Moisture control plan:  
Who is **responsible, delivers, verifies, follows**.

↗ ..?

Presentation: TT

## Execution and moisture control

Moisture damage:  $\frac{1}{4}$  free water  
Today's requirements: TEK 10, Health

How to measure the moisture content?  
Weather protection levels: PL0 to PL3.  
Air tightness.

Competence = knowledge + experience

↗ ..?

Presentation: KN

# Execution and fire safety

## More questions than answers!

No harmonization regarding the fire safety requirements.

Sensitivity of details (Fire stops, facades,...)!

Construction phases!

↗ ..?