Summary of the work of Working Group 1 – Theoretical and methodological framework

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- WG 1 focus areas - MoU
- Publications / results
- Cooperation with COST TU601

Introduction – WG 1 - MoU

Activity 3: Development of theoretical/methodical framework for assessing robustness and acceptance criteria.

- Development of theoretically basis for
  - assessment of robustness
  - acceptance criteria for structural robustness

- in order to facilitate development of methods (for practice)
  - for ensuring robust design
  - strategies for maintaining the robustness of existing structures throughout their service life

Introduction – WG 1 - MoU

- Risk-based basis:
  - What is robustness of an engineered system; how is it defined?
  - Which are the indicators of structural robustness?
  - How may robustness be represented in engineering models?
  - How may robustness be assessed or even quantified?
  - How can robustness be ensured in the design of structures?
  - How can robustness be improved in existing structures?
  - How may robustness be controlled and maintained over the life cycle of structures?
  - How to assess criteria for acceptable robustness?

WG 1 – activities / results

- 'Theoretical framework on structural robustness', 2011
- Contributions to 'Robust structural design for practising engineers', 2011
- Fact sheets, 2009
- Presentations and papers from COST TU601 workshops
- Presentations and papers at conferences
- Slides for 3 lectures at 'Summer school', 2011

- Close cooperation with COST E55 'Modelling of the performance of timber structures'
  - COST / Shaker: Guideline - Design for robustness of timber structures, 2011
  - Papers in 'Engineering Structures', 2011

Fact sheets, 2009

1. Robustness – theoretical framework - *John D. Sørensen, Enrico Rizzuto and Michael H. Faber*
2. Definition of robustness and related terms *Gerhard Fink, René Steiger and Jochen Köhler*
3. Earthquakes and robustness for timber structures - *Jorge Branco and Luís Neves*
4. System reliability of timber structures – ductility and redundancy - *Poul H. Kirkegaard, John D. Sørensen and Dean Čizmar*
5. Robustness considerations from failures in two large-span timber roof structures - *Jørgen Munch-Andersen and Philipp Dietsch*
6. Robustness design of timber structures – secondary structures - *Philipp Dietsch*