

Working Group 2 (WG 2), Ljubljana Meeting, September 22, 2009

Attending:

Carmen Bucur (RO)
Victor Mircea Bucur (RO)
Geoffrey Decan (BE)
Miguel Pereira (UK)
Michael Byfield (UK)
Ulrike Kuhlmann (DE)
Leslaw Kwasniewski (PL)
Zenon Drabowicz (PL)
Bernt Leira (NO)
Jana Markova (CZ)
Miroslav Sykora (CZ)
Luis Costa Neves (PT)
Ton Vrouwenvelder (NL)

1. Opening and adoption of the agenda

The items for the agenda were listed.

2. Minutes of the Coimbra meeting

It was observed that the detailed agreements on the final reporting were overruled by the Chair decision to produce Factsheets. This made, however, little difference.

3. Factsheets general

A number of factsheets had been distributed in the week before the meeting and a subset was presented on the first day of the combined E55 - TU 0601 – Workshop. Final versions are expected by the Chair in one month. The objective of the Working Group meeting would be to decide which factsheets versions will be completed within this 4 weeks period and to which extend. It is further agreed that:

- factsheets need not to be restricted to 7 pages
- further development in a later stage is always possible
- for some tasks the factsheet may be considered as the final Working Group report

4. Factsheets in Activity 4

4.1 Exposure conditions

A draft version was distributed and Ton Vrouwenvelder had presented the topic on the first day of the Workshop. As the contents were already discussed extensively in previous

meetings, not many changes are necessary. Written comments of all WG2 members are nevertheless appreciated.

4.2 Human error

A draft version was distributed and Ton Vrouwenvelder had presented the topic on the first day of the Workshop. The content is still under development and some improvements/extensions will be made within the next month. In particular the Examples and the Third Party Control (as e.g. proposed in the Eurocode for important structures) need further attention. During the Workshop it was argued that Third Party Control in whatever form (Prüfungsingenieur, insurance company, local authority, other design office) may have positive effects. It ensures for instance proper documentation, and in some cases errors may be detected. It is unclear whether designers will become more sloppy or more accurate when they know that they will be checked. Ton Vrouwenvelder and Miroslav Sykora will take care.

4.3 Internal Gas Explosion

Bernt Leira presents the draft fact sheet during the meeting. Good progress has been made since the last meeting, in particular with respect to the addition of advanced CFD models and the interpretation of the simple models. Bernt Leiar will finalise the factsheet within one month, using input from Mike Byfield and Ton Vrouwenvelder. Some differentiation between various fuel types is considered to be a valuable addition as well as some clarifications to the figures 1 and 3. Notice will be taken from the “TM5-1300 Structures to resist the effects of accidental explosion, US Department of the Army, Navy and Air Force, 1990”. For the longer period Leslaw Kwasniewski offers to make a CFD calculation in order to check the example given in the fact sheet. Bert Leira and Ton Vrouwenvelder will provide the necessary information.

5. Factsheets in Activity 5

5.1 Models and Analysis

A draft factsheet has been prepared by Leslaw Kwasniewski and was presented in the Plenary Workshop. The factsheet concerns items like material models, geometrical nonlinearities, 2D and 3D schematisations, Finite Element modelling, dynamic integration schemes etc. The contributions by Bassam Izzuddin have not yet been included and this will taken care of within the next period by Miguel Pereira. This concerns mainly the introduction of some simplified models. Carmen Bucur presents a separate fact sheet on Applied Element Methods that can be considered as another powerful tool next to FEM. It is decided that this document will be incorporated in the above factsheet.

4.2 Steel

The factsheet, based on documents already developed earlier in the project, is almost ready. A section on strain rate effects needs to be added. Contributions are expected from Bassam Izzuddin (Miguel Pereira) and Mike Byfield. Ton Vrouwenvelder likes to see some information on observed scatter in tests, where relevant. Ulrike Kuhlman will be responsible for the final version. All correspondence should contain her name on the CC list.

4.3 Concrete

A draft version of the factsheet has been prepared by Luc Taerwe and Geoffrey Decan and is presented by Geoffrey. It can be finalised within the indicated period of one month. The dome effect may need some further discussion. The addition of some practical examples in a later stage (in cooperation with Luis Costa Neves) will be considered.

4.4 Timber

Daniel Honfi, presently working in Sweden together with Sven Theleandersson, has given a presentation during the Workshop. Given the existing report as discussed at the previous meeting there seems to be sufficient material for developing a factsheet within one month. Ton Vrouwenvelder will contact Sven.

4.5 Composite structures

Ulrike Kuhlmann shows the present state of affairs. It is decided that this fact sheet is not suited for publication on short terms. A complete first draft is expected the next meeting in the spring of 2010.

4.6 Existing structures

Miroslav Sykora and Jana Markova have prepared a general presentation on the assessment of existing structures but it turns out to be difficult to make the link to robustness requirements. Ton Vrouwenvelder will assist in further development. A possible idea is to take some explicit example or case study, for instance a bridge.

5. Case study

Last meeting an example case study building was proposed. Ton Vrouwenvelder will contact WG3 to see how we can proceed.

6. Summary of Factsheet program

⇒ **Bold printing** indicates completion before October 22.

Activity 4

FS	Title	Responsible	Support
1	Exposure conditions	Vrouwenvelder	
2	Human errors	Vrouwenvelder	Sykora
3	Internal Gas explosions	Leira	Vrouwenvelder Byfield

Activity 5

FS	Title	Responsible	Support
1	Modelling and analysis	Kwasniewski	Izzudin Bucur
2	Steel	Kuhlmann	Izzudin Byfield
3	Concrete	Decan	Neves
4	Composite	Kuhlmann	Kwasniewski
5	Timber	Thelelanderson	
6	Existing structures	Markova	Sykora Vrouwenvelder

7 AOB

None

8. Closure