

# **WORKSHOP RESULTS**

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## **PROJECT – “SAFETY”**

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# GROUP MEMBERS

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**Budapest University of Tech**

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# **WORKSHOP – FIRST RESULTS**

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**The outcomes in Nancy were reviewed.**

**Members were asked to list 5 topics of interest to them.**

**A list of about 40 keywords emerged.**

**Those topics which were nominated by more than one person were discussed at some length.**

# **TOPICS – NOT OF GENERAL INTEREST**

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**These included:**

**Slender structures**

**Climate Tests (Temp, Hum)**

**Probabilistic Optimisation**

**Joints under static loads**

**Safe Construction**

**Burglar-safe structures**

**Safety and Security of Data and Documents**

**Adhesive Bonding**

**Corrugated webs**

**Bayesian Networks**

**New Structural Materials**

**Integrated design**

# SUITABLE FOR SEPTEMBER 2009

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**Improved Fire Resistance / Fire Safety  
Steel connections in fire**

**The theme of 'fire' was judged to be appropriate for  
an RFCS application next year.**

**It was agreed that work on this application should not  
be left until the last minute/month.**

***Action Required (1)***

# SUITABLE FOR FP7 DECEMBER 2008 (1)

## Monitoring for Assessment of Structures

Data acquisition (Laboratory Tests)  
(Seismic Resistance)

It was agreed that the topic of 'monitoring' was suitable for an application under FP7, particularly if it was linked to historical or new, but important, structures.

*Action Required (2)*

# SUITABLE FOR FP7 DECEMBER 2008 (2)

**Optimum Design**

**Probabilistic Designs**

**Bayesian Networks**

**It was agreed that this topic was also appropriate for an FP7 application. There is a need to focus on an appropriate field of application. The techniques to be adopted include:**

**Gradient methods, Genetic algorithms, etc**

***Action Required (3)***



# SUITABLE FOR FP7 DECEMBER 2008 (3)

## Steel Connections – 3D behaviour (Laboratory Testing)

This topic was considered to be of high priority.  
The application could go in under RFCS, but it would also be appropriate for FP7.

The topic could have an immediate impact on the design of steel structures

***Action Required (4)***

# **HÄMEENLINNA - FEBRUARY 2008**

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# GROUP MEMBERS

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**HAMK**

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**City University London**

# **WORKSHOP**

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**The outcomes in Nancy were reviewed.**

**Particular attention was paid to the comments from the Reviewers.**

**Possible Work Themes were explored, taking into account expertise and interests of those attending.**

# STRATEGY

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**The proposal will focus on “Structural Safety” in view of the likely title of the expected Call for Proposals. The revised proposal will retain those elements which had received favourable comments from the Referees.**

# **SUGGESTED TOPICS**

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# CONTRIBUTION FROM THE GROUP

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- 1. Structural Safety should be put in the context of Actions which increase the risk of failure of structures**

**Extreme wind loading**

**Extreme Snow loading**

**Stability of soils – mudslides**

**These can be related to Climate Change – one of the themes of FP7**

# **COMMENTARY 1.**

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**There have been several failures in the last year or so involving steel structures when exposed to extreme snow loading**

**Reference to Climate Change – one of the themes of FP7 – is not helpful. Close reading of the FP7 information suggests that the aims of FP7 are targeted towards actions to prevent Global Warming. It is difficult to see how this can be adapted to Steel Structures.**



# CONTRIBUTION FROM THE GROUP

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## 2. Actions which involve accidental or intentional damage

**Explosions**

**Human factors, for example, on construction sites**

**Fires**

**Problems with Nuclear Reactors**

## **COMMENTARY 2.**

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**Safety in the context of explosions is a serious concern. Steel structures are, in general, considered to be capable of responding well to impulsive loading.**

**One possible line of investigation would be to develop the concept of 'robustness' when applied to steel buildings – commercial as well as industrial.**

# CONTRIBUTION FROM THE GROUP

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## **3. Structural safety relating to deterioration due to the age of the structure**

**Issues relating to reconstruction**

**Consequences of poor quality control during  
fabrication of steel structures – welding, bolting**

## **COMMENTARY 3.**

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**Safety in the context of assessment and subsequent repair of steel structures is a topic not widely researched in the past.**

**Innovative techniques of assessing residual life of steel structures must be an attractive proposition. One only has to consider the number of bridges which are more than a century old. The project offers scope for laboratory or on-site tests.**

# CONTRIBUTION FROM THE GROUP

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## 4. Use of new technologies for assisting with Structural Safety

Structural monitoring using newly developed sensors

New materials – use without long term evaluation

Simulation techniques

## **COMMENTARY 4.**

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**Innovative techniques of assessing material properties and state of stress and strain, again, could be linked to Pont 3 on assessment and repair of steel structures.**

# CONTRIBUTION FROM THE GROUP

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**5. Cost issues. Cutting cost often is associated with poor quality construction, which results in early deterioration and possible structural failure**

**Cost indirectly affects structural safety**

**Role of Risk Management in balancing need to build economically and ensuring safety of steel structures**

## **COMMENTARY 5.**

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**There is no doubt that cost is a major factor in construction industry as in any other industry. After all, firms need to make profits, and one way is to cut costs.**



# OUTCOMES

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**The 'SAFETY' project could well have the following themes – which may form the basis of Work Packages**

# PROPOSED WORK PACKAGES

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- 1. Structural Optimisation**
- 2. Simulation of Structural Behaviour**  
**Extreme loading**
- 3. Structural Testing as a means of ensuring safety**
- 4. Monitoring of Structures**  
**Assessment and Repair of Structures**
- 5. Stiffeneing effect of cladding on structural performance**
- 6. Managing safety – monitoring as well as taking decisions**

# **REMINDER OF REFEREES' REPORTS**

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# REPORT ON PREVIOUS SUBMISSION 1

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## Quote from the letter from the Commission

**However, this proposal fails to show how the various techniques mentioned will be integrated into a coherent overall safety management system. It fails to clarify whether the primary focus is structural safety or construction site safety.**

# REPORT ON PREVIOUS SUBMISSION 2

## Quote from the letter from the Commission

**It identifies human factors aspects as the most relevant factor, yet fails to discuss how they will be applied. The objectives are not stated in a measurable and verifiable form. The integration of the specified techniques into an overall risk management system is not properly thought out**

# REPORT ON PREVIOUS SUBMISSION 3

## Quote from the letter from the Commission

**Although a number of techniques are mentioned the expected progress beyond the state of the art is not clear. ... The potentially innovative area of integrating these techniques into a Safety Management System is not sufficiently elaborated to be confident a breakthrough will be achieved. The level of innovation achieved by the proposal is not sufficiently justified.**

# **NEXT STEPS**

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# KEY STEPS

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**The project will be divided into at least 5 Work Packages, with clear objectives and deliverables. Each Work package will be led by a different partner. Some Work Packages may have Sub-Work Packages.**

**All members listed above will be members of the 5 Work Packages. It would be possible not to take part in a given package.**

**Other METNET members will be welcome.**



# SOURCES OF FUNDING

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**FP7 – Call with keyword ‘structural safety’**  
**Only One Call**  
**Nuclear Fission and Radiation Protection**

**RFCS – Research Fund for Coal and Steel**  
**Annual call**  
**Open call**  
**(Has disadvantages)**

# **TIME SCALE**

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# TIME SCALE

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## Type 1

End January

End March

Stage 1 Proposals

Second draft with Budget

## Type 2

End March

Full proposal

**NEXT?**

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