Industry Sector	RTD Thematic Area	Date
	E&D and DLE	24th Feb 2005

FENET Design by Analysis Workshop

Budapest, 24th February 2005

John Smart, North East Wales Institute, Wrexham
Co-ordinator Education & Dissemination

Nicola Petrone, University of Padova, Italy
Co-ordinator Durability & Life Extension

The objectives of the workshops were to:

Identify the state of the art of Design by Analysis in different industry sectors.

To identify common problems of Finite Element Analysis validation and acceptance in Design Codes of Practice.

To find areas where NAFEMS can contribute to advancing Design by Analysis either by dissemination of information or in the validation of results.

Contributions: morning plenary session

Fernando Espiga, LABEIN, Technological Centre Derio, Spain
Design by Analysis in the Automotive Industry

Jack Reijmers, IV-Nevesbu, Netherlands
Design by Analysis in the Marine Industry

Iain Davidson, Department for Transport, United Kingdom
Design by Analysis – A Regulator's viewpoint

Casamir Katz, Sofistik, Germany
How do international design codes allow for analysis - Differences between "Codes of Practice" and "Structural Mechanics" based on EC/BS/BAEL/DIN/SNIP etc in Civil Engineering".

Franz Rauscher, Vienna University of Technology, Austria
Tresca's or Mises' yield condition in pressure vessel design

Contributions: afternoon joint session

Donald Mackenzie, University of Strathclyde, Scotland
FEM in Pressure Vessel Design By Analysis

Hongjun Li, University of Strathclyde, Scotland
Applying Advanced FEA to Pressure Vessel Design

Chris Rogers, CREA Consultants
Validation of Analysis in Design by Analysis Projects

Discussion

SUMMARY REPORT

A recurring message from several contributions and discussion:
the NEED of a proper EDUCATION for a successful DbA:

1. **knowledge of PRODUCTS of different sectors of application:**
2. **knowledge of PHYSICAL PHENOMENA or PROCESSES involved in the application or production of different products:**
3. **knowledge of the CODES of PRACTICE theoretical and engineering basis behind the formulas:**
4. **knowledge of SW TOOLS performances, possibilities, limitations and proper use:**
5. **knowledge of correct FE Analysis Results handling and processing.**

The DISCUSSION further suggested that:

- the DRIVE to the development of Design by Analysis in different sectors is ECONOMIC: DbA reduces costs of development / safety / insurance of products;
- different sectors show different levels of Acceptance of DbA in the Codes of Practice;
- NAFEMS can result as an experienced external body that is accepted to perform the DbA (RA scheme);
- NAFEMS may act to influence the Design Code Developers for major acceptance of DbA;
- NAFEMS can act as catalyst and pursue the development of Analysis Standards in different industry sectors that may be taken as pre-standards for the inclusion in Design Codes.