



WORKSHOPS 2009

June 11-12

WS 10: Understanding glass strength, stress analysis and design methodologies for architectural glass

Presenter: Dr. Leon Jacob, Jacob & Associates Pty Ltd.

Course Summary

The glass industries understanding of the structural behaviour of glass subjected to lateral loads has made significant advances over the past few years. The availability of high powered computers and finite element analysis techniques has made the appreciation of glass behaviour easier. It has also enabled the development of improved standards and better design using glass.

The aim of this course is to provide participants with a basic appreciation of the issues that go to explaining the non linear behaviour of glass. In addition some basic 'rules of thumb' will be discussed to enable simplified design for other specialised loading conditions.

Methodologies will be presented to determine the stress and deflection of laterally loaded glass panels.

A brief discussion on the statistical issues relating to the observed variability in the strength of glass and the probability of failure of glass panels will enable a better understanding of these issues.

Bullet Point Summary

- Methods and analytical techniques used in determining glass strength
- Glass – material properties and fracture behaviour
- Glass plate behaviour
- FEA methods and issues related to stress analysis of glass plates
- Stress analysis for glass plates
- Response of glass plates to different load types and duration
- Fracture mechanics approach to Glass design

Course Timetable - Thursday 11.6.2009

9.00 -

**WORKSHOP LOCATION:
UNIVERSITY OF TAMPERE, PINNI B
KANSLERINRINNE 1**

Registration for Workshops at www.gpd.fi



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THURSDAY 11 June

Structural Properties of Laminated Glass

Presenters: S. J. Bennison & I. Stelzer,
E.I. DuPont de Nemours & Co. Inc

Milestones to better understand the Flat Glass Business (history - today - tomorrow)

Presenter: B. Savaëte, BJS. Différences

Industrial Glass Coating Technologies and systems powered by nanotechnology (Beneq)

Presenter: M. Saikkonen, Beneq Oy

Glass Tempering Process (level1): Fundamental steps in tempering and machine test runs

Presenters: V-J. Kuusiniemi & T. Pesonen &
M. Äppelqvist & S. Suominen, Glaston Finland Oy

Glass Bending & Tempering process: Theory and machine test runs

Presenters: V-J. Kuusiniemi & T. Pesonen &
M. Äppelqvist & S. Suominen, Glaston Finland Oy

Laminating of Heat treated and other speciality glass

Presenters: M.P. Verleyen, Solutia Europe; M. Rantanen & J. Ala-Savikola, Glaston Finland Oy; R. Giovannini, Glaston Italy; A. Uusikartano, Suomen Turvalasi Tambest; C. Bostick, Consulting Architects; J. Gilleeney, Independent Glass

Glass processing basics for Solar industry specialists

Presenters: R. Nieminen, Glaston America Inc.;
I. Hiekkanen & T. Pesonen, Glaston Finland Oy

Understanding glass strength, stress analysis and design methodologies for architectural glass

Presenter: Dr. L. Jacob, Jacob & Associates Pty Ltd.

FRIDAY 12 June

Cutting, Grinding, Washing: Three fundamental steps in Float Glass Processing

Presenters: P. Pokoern, Bohle AG; M. Emonds, ACW

Coated Glass - Applications and markets

Presenter: S. Nadel, Applied Materials

Seeing Through Glass Design

Presenter: C. Bostick, Consulting Architects

Basics of Glass Coating Processes and Coated Glass

Presenters: P. Vuoristo & T. Mäntylä,
Tampere University of Technology

Digital Printing on Glass

Presenters: Y. Ninoy & T. Salenius, DIP Tech Ltd.

Glass Tempering Process (level2): Glass Factory profitability and tempering technology know-how

Presenters: V-J. Kuusiniemi & T. Pesonen &
M. Äppelqvist, Glaston Finland Oy; F. Serruys,
Saint-Gobain Glass Solutions

Profitability of a Glass Processing Factory

Presenter: K. Heikkilä, Glaston Singapore

Solar Power - Opportunities for the glass industry

Presenters: R. Nieminen, Glaston America Inc.; I. Hiekkanen, Glaston Finland Oy; M. Rajala, Beneq Oy; A. Karpinski, Kuraray Europe GmbH; O. Mal, AGC Flat Glass; B. Szyszka, Fraunhofer IST; S. Byers, Ritec International Ltd.; V. Geyer, Scheuten Solar; G. Strij-Hipp, BSW Solar

New trends in the Infrared Non-contact Temperature Measurement for the glass industries

Presenters: R. Gärtner & E. Drews, Raytek GmbH

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