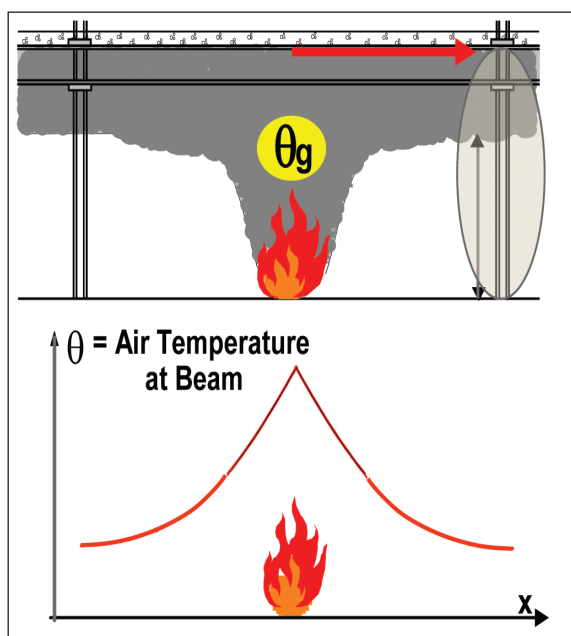


Goal of the project:

The main goal of the project is to improve the existing knowledge on the effects of the localized fires in a building compartment. With the actual methodology included in the Eurocodes for the fire design of buildings, it is only possible to assess the temperature of a steel element in the vertical axis of the localised fire. It is impossible to assess the temperature or the flux received by a vertical member at a given distance of the fire source.

**Project implemented by:**

- ArcelorMittal Luxembourg (coordinator)
- Centre Technique et Industriel de la Construction Métallique, France
- "Politehnica" University of Timisoara, Romania
- Universite de Liege, Belgium
- University of Ulster, Ireland

Short description of the project:

The project is devoted to the development of an analytical model for the calculation of the temperatures in the vertical structural steel elements of a building, subjected to localised fires.

The new method, developed by means of experimental and numerical research, will provide the fluxes received in any point of a building compartment subjected to a localised fire.

Implementation period:

1 July 2012-30 June 2015

Main activities:

- Collection of the different national annexes and national parameters for the application of the Natural Fire Models in different European countries and implementation of these parameters in a Software;
- Definition and realisation of laboratory tests assessing the effect of the real flame emissivity for element engulfed into the fire;
- Definition and realisation of laboratory tests assessing the fluxes received by an element subjected to localised fire but not engulfed in the fire;
- Development and validation using CFD models of simplified analytical model for the evaluation of the fluxes received by an element in any point of a compartment;
- Implementation of the developed analytical model in a user-friendly tool;
- Redaction of a design guide for the application of the new methodology including design examples

Results:

Design procedures based on the analytical models developed within the project will be proposed.

Fields of interest:

Design of buildings in fire situation

Financed through/by:

EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR RESEARCH
AND INNOVATION
Research Fund for Coal and Steel - RFCS

Research team:

Associate Professor Raul Zaharia
(coordinator for „Politehnica” University
of Timisoara) Professor Dan Dubina, C.M.
of the Romanian Academy Assistand
Professor Dan Pintea

Research centre:

Research Centre for Mechanics of

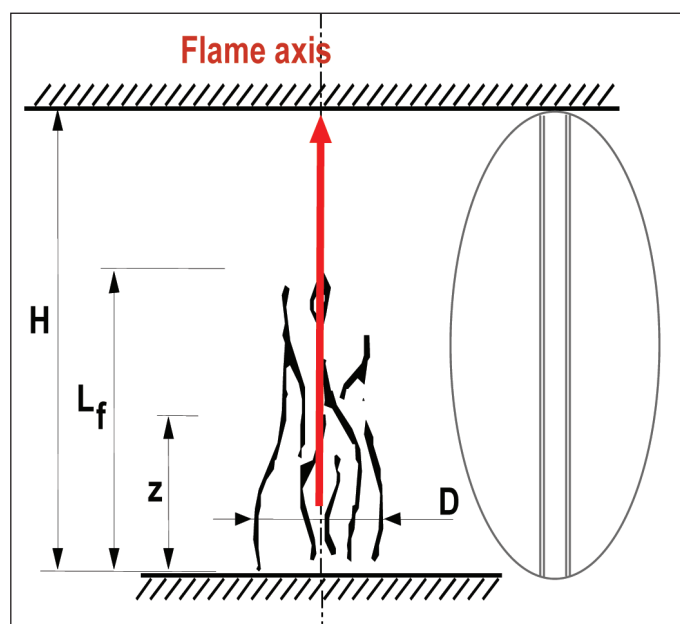
Materials and Structural Safety (CEMSIG),
Department of Steel Structures and
Structural Mechanics, Faculty of Civil
Engineering.

Aplicability and transferability of the results:

The analytical models developed within
the project will be introduced in a user
friendly software and in an advanced
calculation model for fire design, in order
to offer a large utilization of the procedure
for the construction market.

Contact information:

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*"Education is not the filling of a pail, but the
lighting of a fire"*

William Butler Yeats