

## TEMPERATURE ASSESSMENT OF A VERTICAL STEEL MEMBER SUBJECTED TO LOCALISED FIRE PROJECT (LocaFi)

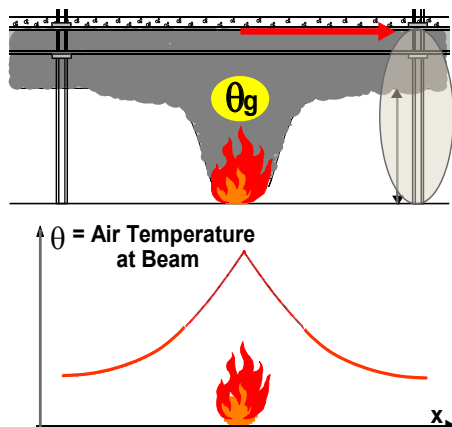
### Goal of the project

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.

### 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.



### 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

### 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.

### Implementation period

1 July 2012–30 June 2015

## Applicability 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.

## Research team

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

## Research centre

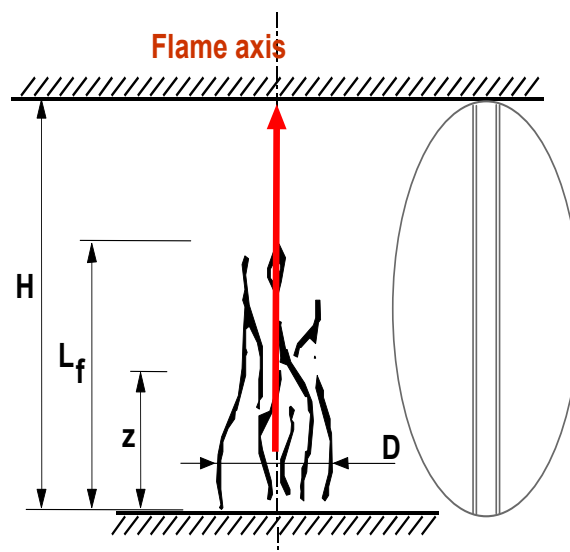
Research Center for Mechanics of Materials and Structural Safety - CEMSIG

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## Fields of interest

Design of buildings in fire situation.



## Contact information

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