

Introduction

EN 1992-1-2: 2004¹ Annex A contains a 2D test reference case for validating transient simulation programs in case of fire exposed structures. A concrete column ($h \times b = 300 \text{ mm} \times 160 \text{ mm}$) is exposed to fire conditions. The case is simulated using the programs BISTRA and VOLTRA and the results are in accordance with the Eurocode.

Simulation data

BISTRA data kolom_300_160_25%.bst
VOLTRA data kolom_300_160_25%_vtr

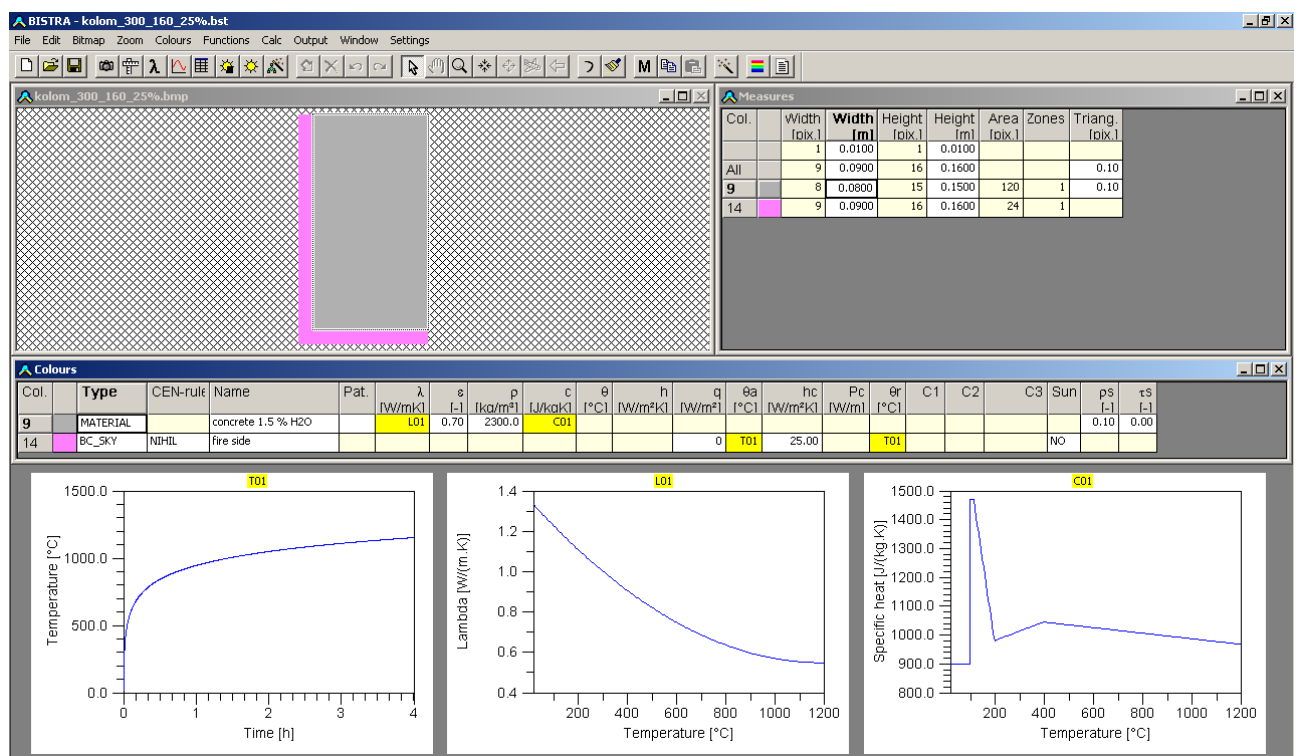


Figure 1. BISTRA simulation of the EN 1992-1-2 reference case

¹ EN 1992-1-2: 2004 *Eurocode 2: Design of concrete structures – Part 1-2: General rules – Structural fire design*

Simulation results

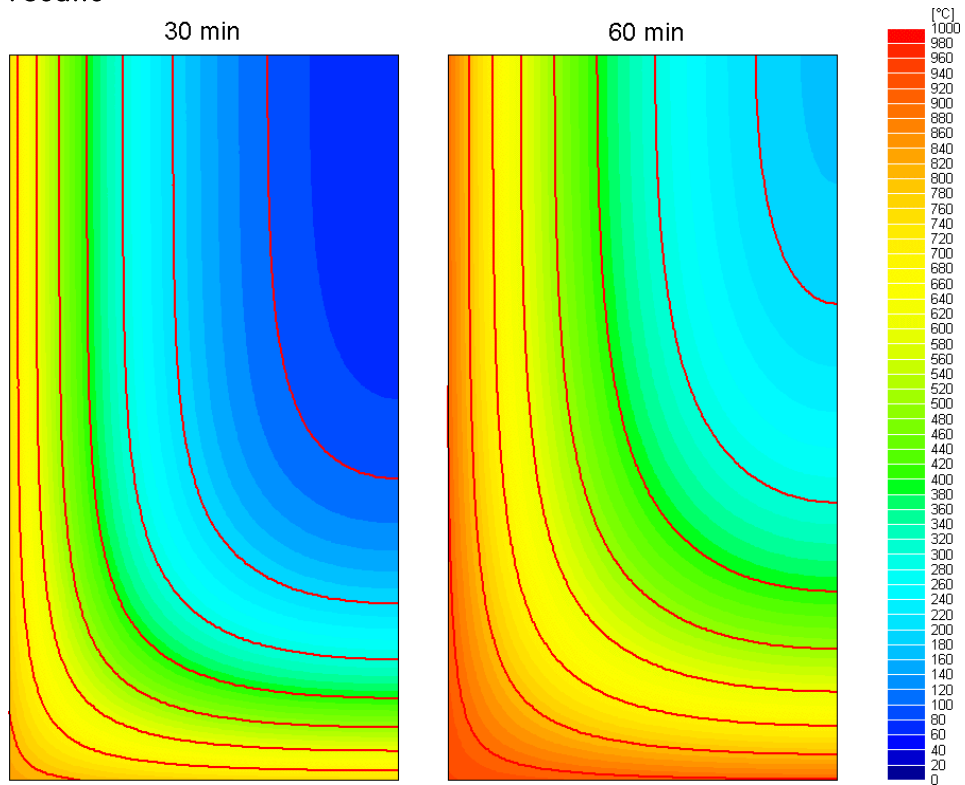


Figure 2. BISTRA simulation results after 30 min (left) and 60 min (right)

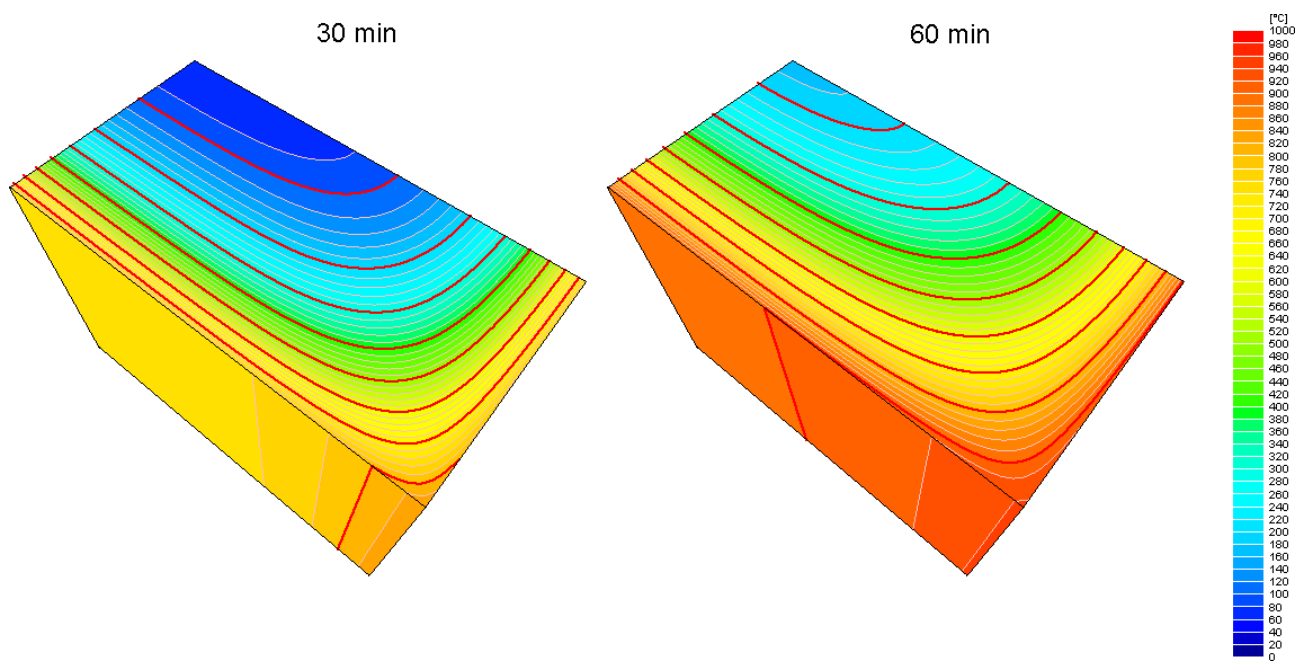
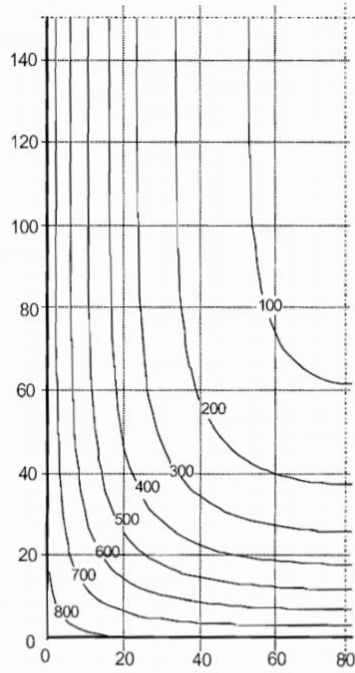
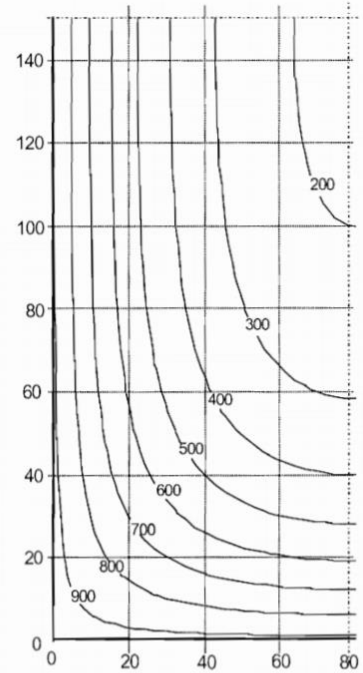


Figure 3. VOLTRA simulation results after 30 min (left) and 60 min (right)



a) R30



b) R60

Temperature profiles (°C) for a beam, $h \times b = 300 \times 160$

Figure 4. Results from EN 1992-1-2 after 30 min (left) and 60 min (right)