

<b>TNI</b>	<b>TECHNICKÁ NORMALIZAČNÁ INFORMÁCIA</b>	<b>TNI ISO/TR 16730-4</b>  92 0109
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**Požiarnobezpečnostné inžinierstvo**  
**Hodnotenie, verifikácia a validácia výpočtových metód**  
**Časť 4: Príklad konštrukčného modelu**

Fire safety engineering  
Assessment, verification and validation of calculation methods  
Part 4: Example of a structural model

Táto technická normalizačná informácia obsahuje anglickú verziu ISO/TR 16730-4: 2013 a má postavenie oficiálnej verzie.

This technical standard information includes the English version of ISO/TR 16730-4: 2013 and has the status of the official version.



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## **Anotácia**

Táto časť súboru ISO 16730 ukazuje, ako sa používa (aplikuje) ISO 16730-1 pre výpočtovú metódu na konkrétnom (špecifickom) príklade. Preukazuje, ako sú správne opísané technické a užívateľské hľadiská (aspekty) metódy, aby sa umožnilo posúdenie metódy z hľadiska verifikácie a validácie.

Príklad v tejto časti súboru ISO 16730 opisuje použitie postupov uvedených v ISO 16730-1 pre konštrukčný model požiarnej odolnosti.

Hlavným cieľom spracovaného konkrétneho (špecifického) modelu je simulácia prenosu tepla a konštrukčných reakcií stenových zostáv.

## **Národný predhovor**

Dokumenty týkajúce sa požiarnebezpečnostného inžinierstva sú na medzinárodnej úrovni spracovávané v subkomisii ISO/TC 92/SC 4 Požiarnebezpečnostné inžinierstvo a v európskej pracovnej skupine CEN/TC 127 WG 8 Požiarnebezpečnostné inžinierstvo – angl. Fire safety engineering (ďalej len „FSE“).

Požiarnebezpečnostné inžinierstvo je určené pre nové inovatívne výrobky, návrhy a projekty a prevádzku, kde nie sú určené požiadavky požiarnej bezpečnosti stavieb.

Požiarnebezpečnostné inžinierstvo je alternatívou predpisových (právnych a normatívnych) riešení. Je zapracované v mnohých európskych a medzinárodných normách a normatívnych dokumentoch, (napr. časti eurokódov, týkajúcich sa účinkov požiaru) prijatých do sústavy STN a pokynov EÚ na požiar.

Požiarnebezpečnostné inžinierstvo sa používa v súlade s zákonom č. 314/2000 Z. z. o ochrane pred požiarimi. Národné predpisy a normy umožňujú ich používanie za špecificky určených podmienok.

Požiarnebezpečnostné inžinierstvo ako podrobné alternatívne riešenie je možné používať na návrh komplexných alebo čiastkových problémov požiarnebezpečnostného inžinierstva.

Pre správne používanie je nevyhnutná znalosť najnovších základných dokumentov FSE a spracovanie požiarnymi inžiniermi – požiarnymi expertmi.

Tieto dokumenty FSE sú určené pre vedeckých pracovníkov, technické inžinierske vzdelávanie, architektov a stavebných inžinierov, účastníkov stavebného procesu, schvaľujúce orgány a manažment prevádzok budov a inžinierskych diel.

## **Normatívne referenčné dokumenty**

Tento dokument neobsahuje normatívne referenčné dokumenty.

## **Vypracovanie technickej normalizačnej informácie**

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. [www.iso.org/directives](http://www.iso.org/directives)

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 92, *Fire safety*, Subcommittee SC 4, *Fire safety engineering*.

ISO 16730 consists of the following parts, under the general title *Fire safety engineering — Assessment, verification and validation of calculation methods*:

- *Part 2: Example of a fire zone model* [Technical Report]
- *Part 3: Example of a CFD model* [Technical Report]
- *Part 4: Example of a structural model* [Technical Report]
- *Part 5: Example of an Egress model* [Technical Report]

The following parts are under preparation:

- *Part 1: General* (revision of ISO 16730:2008)

## Introduction

Certain commercial entities, equipment, products, or materials are identified in this document in order to describe a procedure or concept adequately or to trace the history of the procedures and practices used. Such identification is not intended to imply recommendation, endorsement, or implication that the entities, products, materials, or equipment are necessarily the best available for the purpose. Nor does such identification imply a finding of fault or negligence by the International Standards Organization.

For the particular case of the example application of ISO 16730-1 described in this document, ISO takes no responsibility for the correctness of the code used or the validity of the verification or the validation statements for this example. By publishing the example, ISO does not endorse the use of the software or the model assumptions described therein and states that there are other calculation methods available.



# Fire safety engineering — Assessment, verification and validation of calculation methods —

## Part 4: Example of a structural model

### 1 Scope

This part of ISO 16730 shows how ISO 16730-1 is applied to a calculation method for a specific example. It demonstrates how technical and users' aspects of the method are properly described in order to enable the assessment of the method in view of verification and validation.

The example in this part of ISO 16730 describes the application of procedures given in ISO 16730-1 for a structural fire resistance model.

The main objective of the specific model treated here is the simulation of the heat transfer and structural responses of wall assemblies.

### 2 General information on the structural model

An analytical model for predicting the fire resistance of load bearing, gypsum protected, wood-stud wall assemblies is presented. The model couples a heat transfer sub-model and a structural sub-model. The heat transfer sub-model predicts the temperature profile inside the wood-stud wall and the time to insulation failure. The structural sub-model, based on the elastic buckling-load, uses the temperature profile to calculate the deflection of the wood studs and the time to structural failure of the assembly.

### 3 Methodology used in this Technical Report

For the calculation method considered, checks based on ISO 16730-1 and as outlined in this Technical Report are applied. This Technical Report lists in [Annexes A](#) and [B](#) the important issues to be checked in the left-hand column of a two-column table. The issues addressed are then described in detail, and it is shown how these were dealt with during the development of the calculation method in the right-hand column of the [Annexes A](#) and [B](#) cited above, where [Annex A](#) covers the description of the calculation method and [Annex B](#) covers the complete description of the assessment (verification and validation) of the particular calculation method. The Bibliography includes a worked example and user manual.

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**