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FIRE RESISTANCE TESTS -

PART 3: VERIFICATION OF FURNACE PERFORMANCE

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Foreword

This European Prestandard has been prepared by Technical Committee CEN/TC 127 "Fire safety in buildings", the secretariat of which is held by BSI.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this European Prestandard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

The general requirements for fire resistance testing including the specifications of the apparatus to be used are given in EN1363-1. However, the specification for the thermal exposure provided by fire resistance furnaces only requires that they are able to follow a defined temperature-time relationship when controlled with thermocouples of a prescribed type. In order to have a reproducible test method, it is important that the thermal exposures produced by fire resistance furnaces of different design are within defined limits. The purpose of this document is to verify the thermal exposure performance of furnaces used for the fire resistance testing of separating elements.

In addition to verifying the thermal exposure in furnaces, the procedure also verifies that the static pressure distribution in the furnace is within defined limits and the oxygen concentration are within the limits given in EN 1363-1. Variations in pressure and oxygen content will affect the integrity measurements when using the cotton pad and variations in oxygen content will also affect the rate of combustion of combustible test specimens.

The verification procedure is performed using an arrangement of measuring elements mounted within a supporting construction. The measuring elements consist of two steel plates separated by insulation. The test construction is exposed to the standard heating and pressure conditions given in EN 1363-1 for 60 minutes and measurements are made of the exposed face temperature of the steel plate of the measuring elements. In addition measurements are also made in the furnace of the static pressure distribution at several positions and of the oxygen concentration.

The thermal exposure performance of the furnace is deemed acceptable if the measurements obtained from the measuring elements and the static pressure distribution are within defined limits and the oxygen concentration is within the limits given in EN 1363-1.

Caution

The attention of all persons concerned with managing and carrying out fire resistance tests is drawn to the fact that fire testing may be hazardous and that there is a possibility that toxic and/or harmful smoke and gases may be evolved during the test. Mechanical and operational hazards may also arise during the construction of the test elements or structures, their testing and disposal of test residues.

An assessment of all potential hazards and risks to health shall be made and safety precautions shall be identified and provided. Written safety instructions shall be issued. Appropriate training shall be given to relevant personnel. Laboratory personnel shall ensure that they follow written safety instructions at all times.