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Fire extinguishing systems in commercial kitchens - System design, documentation, and test requirements - Fire test procedures for plenum and ducts

Systèmes d'extinction d'incendie dans les cuisines professionnelles - Conception du système, documentation et exigences d'essai - Modes opératoires d'essais au feu pour le plénum et les conduits

Feuerlöschanlagen in Großküchen - Anforderungen an die Planung, Dokumentation und Prüfung von Anlagen - Brandprüfverfahren für Plenum und Kanäle

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European foreword

This document (CEN/TS 17749:2022) has been prepared by Technical Committee CEN/TC 191 “Fixed Fire Fighting Systems”, the secretariat of which is held by BSI.

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This document is intended to be used in conjunction with EN 17446.

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Introduction

The purpose of this document is to provide the user with a procedure for conducting the fire testing in the plenum and air extract ducts as specified in EN 17446:2021, Clause 7.4.

This document is intended to allow test authorities and specifiers to gain experience in the application of plenum and air extract ducts tests as specified in EN 17446 and allow a common understanding of the test methods and results obtained from the test.

1 Scope

This document establishes the detailed test procedures for conducting the test on the plenum and air extract ducts.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 17446:2021, *Fire extinguishing systems in commercial kitchens — System design, documentation, and test requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 17446 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Air extract duct test - actuation sequence

4.1 Adjustment of the exhaust conditions during the test

Before the start of the actual test, exhaust conditions shall be adjusted according to the type of test to perform:

a) at the full scale test with natural air exhaustion, the damper is brought to its maximum opening position, so that the outlet of the air extract duct is fully open and is to be kept like this for the whole duration of the testing. Air flow by a blower is permitted and shall be turned off after ignition;

b) at the full scale test without air exhaustion, proceed as in the previous point but close the air extract duct outlet immediately before system actuation. Air flow by a blower is permitted and shall be turned off after ignition;

c) at the full scale test with forced air exhaustion by a blower, its position shall be determined so that the air velocity is between 150 m/min to 300 m/min inside the air extract duct. The air extract duct outlet shall be open and the blower shall be working during the whole duration of the test.

4.2 Test

In each test proceed in the same way after the adjustment of the exhaust conditions indicated in the previous Clause and the application of fuel:

The procedure described below is applicable for all three exhaust and damper conditions defined in 5.1. The requirement described there shall be implemented in the process as applicable.

a) In the case forced air exhaustion is used, start the exhaustion;

b) Start the deep fat fryer's heat source and wait until fire propagates to filters and plenum;