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Fixed firefighting systems - Automatic sprinkler systems - Guidance for earthquake bracing

Installations fixes de lutte contre l'incendie - Systèmes d'extinction automatiques du type sprinkleur - Recommandation pour le contreventement sismique

Ortsfeste Brandbekämpfungsanlage - Automatische Sprinkleranlagen - Leitfaden für Erdbebensicherungen

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (CEN/TS 17551:2021) has been prepared by Technical Committee CEN/TC 191 “Fixed firefighting systems”, the secretariat of which is held by BSI.

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Introduction

This document specifies requirements for earthquake protection of automatic sprinkler systems in accordance with EN 12845 and fire hose piping systems. Requirements made herein are intended to greatly improve the likelihood that the fire protection systems will remain in working condition during earthquake and minimize or prevent any potential water damage from fixed firefighting systems leakage due to an earthquake.

1 Scope

This document specifies requirements for earthquake protection of automatic sprinkler systems in accordance with EN 12845. This document applies only to locations in earthquake zones in accordance to EN 1998-1:2004, 3.2.1[1] and for area subject to peak ground acceleration above 9 % of g.

This document does not cover all legislative requirements. In certain countries specific national regulations apply and take precedence over this document. Users of this document are advised to inform themselves of the applicability or non-applicability for this document by their national responsible authorities.

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 1998-1:2004, *Eurocode 8: Design of structures for earthquake resistance - Part 1: General rules, seismic actions and rules for buildings*[1]

EN 12845, *Fixed firefighting systems - Automatic sprinkler systems - Design, installation and maintenance*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1998-1:2004[1] and EN 12845 apply.

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

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

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

4 Design principles

Requirements given in this document fall into the following seven principles:

— brace sprinkler piping and equipment to minimize uncontrolled differential movement between these installations and the attached structure; and

— provide flexibility on piping systems and on equipment where differential movement between portions of those piping systems or equipment is expected; and

— provide clearance between sprinkler piping and structural members, walls, floors or other objects so that potential damage from impact is minimized; and

— provide anchorage or restraint to minimize potential sliding and/or overturning of equipment such as the booster pump, jockey pump, tanks, controller, battery package and diesel tank; and

— use types of pipe hangers and sway bracing in accordance to EN 12845 to minimize the potential for pull-out, properly locate them and attach them to structural members only; and

[1] As impacted by EN 1998-1:2004/AC:2009 and EN 1998-1:2004/A1:2013.