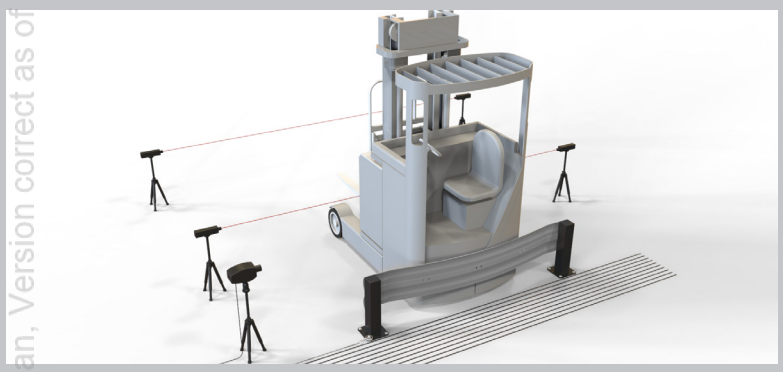
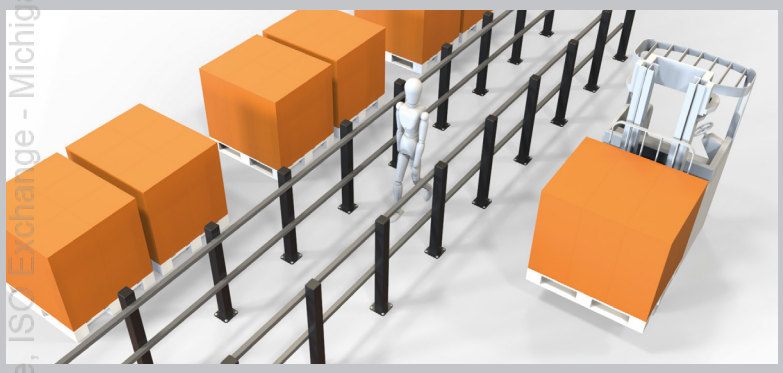
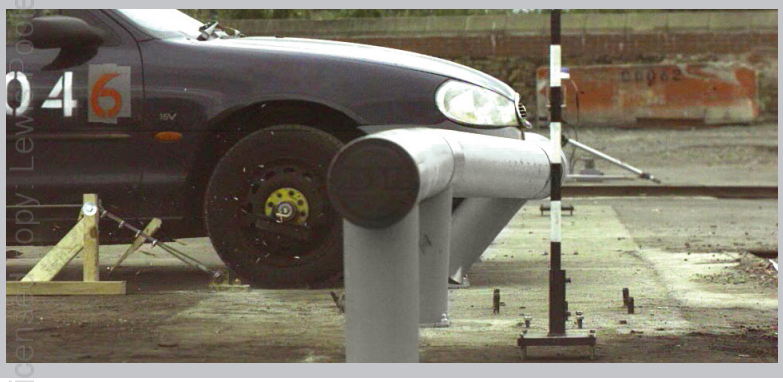
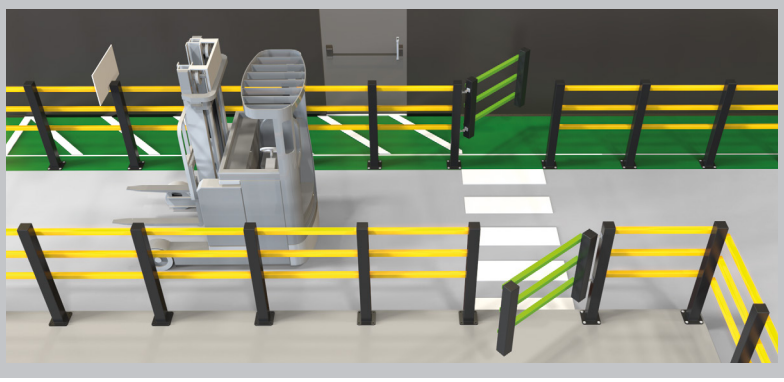
PAS 13:2017

Code of practice for safety barriers used in traffic management within workplace environments with test methods for safety barrier impact resilience





A-SAFE Est. 1984
asafe.com

bsi.

Publishing and copyright information

The BSI copyright notice displayed in this document indicates when the document was last issued.

ISBN 978 0 580 87605 9

ICS 91.140.01

Publication history

First published 2017

Contents

List of figures

List of tables

Foreword

This PAS was sponsored by A-Safe (UK) Ltd. Its development was facilitated by BSI Standards Limited and published under licence from The British Standards Institution. It came into effect on 28 February 2017.

Acknowledgment is given to the following organizations that were involved in the development of this PAS as members of the Steering Group.

- Allianz Insurance
- British Industrial Truck Association
- DHL
- Health and Safety Executive
- Jaguar Land Rover
- Mars Cares & Treats
- Nestle Purina PetCare
- RIBA Enterprises
- STOMMPY Srl
- The University of Manchester, School of Mechanical, Aerospace and Civil Engineering
- TUV UK Ltd
- Wickens Engineering Ltd

Acknowledgment is also given to the members of a wider review panel who were consulted in the development of this PAS.

This PAS is not to be regarded as a British Standard. It will be withdrawn upon publication of its content in, or as, a British Standard.

The PAS process enables a code of practice to be rapidly developed in order to fulfil an immediate need in industry. A PAS can be considered for further development as a British Standard, or constitute part of the UK input into the development of a European or International Standard.

Use of this document

As a code of practice, this PAS takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this PAS is expected to be able to justify any course of action that deviates from its recommendations.

It has been assumed in the preparation of this PAS that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Information about this document

Product certification/inspection/testing. Users of this PAS are advised to consider the desirability of third-party certification/inspection/ testing of product conformity with this PAS. Users seeking assistance in identifying appropriate conformity assessment bodies or schemes may ask BSI to forward their enquiries to the relevant association.

Assessed capability. Users of this PAS are advised to consider the desirability of quality system assessment and registration against the appropriate standard in the BS EN ISO 9000 series by an accredited third-party certification body.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

The word "should" is used to express recommendations of this standard. The word "may" is used in the text to express permissibility, e.g. as an alternative to the primary recommendation of the clause. The word "can" is used to express possibility, e.g. a consequence of an action or an event.

Notes and commentaries are provided throughout the text of this standard. Notes give references and additional information that are important but do not form part of the recommendations. Commentaries give background information.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

0 Introduction

0.1 Background

Health and safety statistics show that approximately 50 people are killed each year and more than 5 000 injured in accidents involving workplace transport [1].

Each workplace is unique and likely to present different hazards and risks. However, a well-designed and maintained workplace with proper segregation of vehicles and people will experience fewer workplace accidents [2].

The most effective way of ensuring pedestrians and vehicles move safely around a workplace is to provide separate pedestrian and vehicle traffic routes and, where necessary, implement barriers, rails and signage to prevent pedestrians crossing at dangerous places and to direct them to safer crossing points [2].

There is a lot of information from safety organizations about workplace transport. The Health and Safety Executive (HSE) states that workplace transport means any vehicle or piece of mobile equipment used in any work setting [3]. Segregation of pedestrians and vehicles is advised but the way to achieve this can only be determined by assessing all of the site-specific issues and risks.

Warehousing and storage, a guide to health and safety (HSE) states [3]: "*Warehouses should be designed and laid out to allow for the safe movement of goods, materials and people. Good design and layout can help reduce accidents, including those involving vehicles and people slipping and tripping*."

The movement of goods and materials involves the use of a wide range of vehicles and accounts for a large proportion of accidents in the workplace. It is important to have a safe system of traffic management, including methods and procedures for arrival, reception, unloading, loading and movement of vehicles within the workplace. People and vehicles should be segregated as far as is "reasonably practicable".[1)]

Mixing vehicles and pedestrians increases the risk of potential accidents, so it is imperative that steps are taken to minimize the associated risks by applying the following:

- Separate pedestrian activities from areas where vehicles are operating, where reasonably practical.
- Define, designate and clearly mark pedestrian routes and crossing places.
- Use protective barriers and traffic management procedures to control the movement of vehicles and pedestrians.

PAS 13 outlines the current good practice traffic management procedures for a workplace and provides a standard for the safety barriers within them.

Frequently asked questions after determining the requirement for pedestrian and vehicle segregation include:

- What type of protection or safety barrier is to be used?
- When is a vehicle barrier, pedestrian barrier or white line used?
- Is the current protection or safety barrier fit for purpose?

PAS 13 provides recommendations for these questions and give further understanding on how the selected protection may be rated and meet a specification and a performance rating by use of a test method. The test method element of the PAS describes dynamic impact tests and barrier performance measurement.

[1)] Health and Safety Executive, ALARP "at a glance", 2014, *www.hse.gov.uk/risk/theory/alarpglance.htm.*

0.2 Main clauses

This PAS is divided into four main clauses that describe the testing and implementation of safety barriers, and best traffic management practices.

1) **Clause 4: Safety barriers used in traffic management within the workplace**
   - How safety barriers can be used to assist in the safe management of workplace traffic.

2) **Clause 5: Safety barrier design**
   - Principles of safety barrier design for individual applications and environments.

3) **Clause 6: Kinetic energy of vehicles**
   - How to calculate the impact kinetic energy of vehicles in a workplace. Once this potential energy is determined, safety barriers that withstand the impacts of specific vehicles can be selected.

4) **Clause 7: Methods of testing the force of impact that a safety barrier can withstand**
   - How to test, measure and rate a safety barrier for use within a workplace environment, with clear pass or fail criteria.

1 Scope

This PAS gives recommendations for the impact resilience, dimensions and positions of safety barriers in the workplace, and guidance on how to manage the risks associated with vehicles within the workplace, and specifies the criteria for testing the impact resilience of a barrier.

It is applicable to safety barriers used where there is a risk of collision between workplace vehicles or machinery and pedestrians. It is intended to be used by those who are concerned with selecting the appropriate safety barrier for their workplace to protect personnel, vehicles and structures, those who want to apply traffic management procedures and those who test and measure the performance of safety barriers.

It may also be of interest to manufacturers and distributors of safety barriers.

This PAS does not cover:

- highways and public environments;
- an installation specification or installation guide for safety barriers;
- safety barriers when working at height regulations.

Traffic and pedestrian routes do not cover stairs, staircases and fixed ladders.