AS/NZS 3845.2:2017

Australian/New Zealand Standard™

Road safety barrier systems and devices

Part 2: Road safety devices

STANDARDS Australia

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AS/NZS 3845.2:2017

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The following are represented on Committee CE-033:

Association of Rotational Moulders Australasia
Australian Industry Group
Australian Motorcycle Council
Australian Steel Institute
Austroads
Concrete Institute of Australia
Department for Transport, Energy and Infrastructure, SA
Department of Transport and Main Roads, Qld
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Part 2: Road safety devices

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee CE-033, Road Safety Barriers, to supersede, in part, AS/NZS 3845:1999, *Road safety barrier systems*.

This Standard is Part 2 of a series of two Standards on road safety barrier systems and devices. This Part 2 sets out the requirements for both permanent and temporary safety devices that include bollards, longitudinal channelizing devices, truck or trailer mounted attenuators, rear underrun protection devices and sign support structures and poles. Part 1 sets out the requirements for permanent and temporary safety barrier systems that include longitudinal road safety barriers, terminals, crash cushions, interfaces including transitions, and longitudinal barrier gate systems.

Notes to the text contain information and guidance. They are not an integral part of the Standard.

Statements expressed in mandatory terms in Notes to Tables are deemed to be requirements of this Standard.

The term ‘informative’ has been used in this Standard to define the application of the appendices to which it applies. An ‘informative’ appendix is only for information and guidance.

FOREWORD

In 2006, the National Highway Cooperative Research Program of the US Transportation Research Board was revising the testing conditions documented in NCHRP Report 350. At this time, Standards Australia and Standards New Zealand decided to revise AS/NZS 3845:1999 in line with the American Association of State Highway and Transportation Officials (AASHTO) Manual for Assessing Safety Hardware (MASH).

At about the same time, the Safe System approach has become the underlying philosophy for road safety. It is recognized that road crashes are the major cause of societal suffering, preventable death and injury and a major cost burden of the order of tens of billions of dollars on health systems and society in general. Some governments have recognized this societal burden and, as a result, have adopted a safe system approach in their action plans to reduce deaths and injuries on roads. The Safe System approach is based on human injury tolerance to impact forces. The Safe System approach acknowledges that humans make errors, but that the road traffic system should be designed to increase the chances of road users surviving any accidents which do occur. Refer to OECD, [2008]. *Towards Zero: Ambitious road safety targets and the safe system approach*, International Transport Forum, ISBN 978-92-821-0195-7.

In a Safe System, if a road user travels in accordance with all traffic laws and on a safe road in a safe vehicle, but finds through no fault of their own they become involved in a crash, the crash should not result in death or serious injury. Similarly, if a driver does make an error then a Safe System should react to minimize the consequences of the error. In a Safe System, the regulatory system should strongly discourage socially unacceptable road use behaviour. Thus all road user training and behaviour management, vehicle development and regulation, and road design and traffic management systems should be considered as a holistic inter-related system and governed according to this paradigm. The Safe System comprises four major interconnected elements: safe use, safe roads and roadsides, safe vehicles and safe speeds.

Road safety devices contributing to safer roads

Road safety devices are integral components of the safer roads element of the Safe System approach. However, there are a limited number of ways in which road safety devices can operate. Some devices attempt to dissipate the kinetic energy of a vehicle crash by one or more of the following mechanisms:

(a) Heat through friction.

(b) Elastic movement of the device or components of the vehicle, or both.

(c) Plastic deformation of portions of the device or the vehicle, or both.

(d) Fracture of elements of the device or the vehicle, or both.

(e) Physical displacement of the device or the vehicle, or both, such as lifting the vehicle.

Energy should not be dissipated in unexpected or uncontrolled ways. For instance, unintended snagging of a vehicle on an element of the device can cause violent rolling and yawing, which may result in fatal or serious injuries to vehicle occupants. The unintended snagging of a rider on an element of the device can cause fatal or serious injuries.

The majority of passenger vehicles have been designed to meet New Car Assessment Programmes (NCAP) and, in Australia, the Australian Design Rules (ADRs) with a reasonable crash survivability outcome for the occupants. This means that road environments can be designed by taking into consideration safer vehicle technology.