

Australian/New Zealand Standard™

**Masonry units, pavers, flags and  
segmental retaining wall units**

**Part 2: Pavers and flags**



## **AS/NZS 4455.2:2010**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee BD-026, Masonry Units, Pavers, Flags and Segmental Retaining Wall Units. It was approved on behalf of the Council of Standards Australia on 10 June 2010 and on behalf of the Council of Standards New Zealand on 13 August 2010.

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CSIRO, Manufacturing and Infrastructure Technology  
Concrete Masonry Association of Australia  
Engineering and Construction Laboratories Association  
Institute of Public Works Engineering Australia  
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# Australian/New Zealand Standard™

## Masonry units, pavers, flags and segmental retaining wall units

### Part 2: Pavers and flags

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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD-026, Masonry Units, Pavers, Flags and Segmental Retaining Wall Units, to supersede, in part, AS/NZS 4455:1997, *Masonry units and segmental pavers*.

The objective of this Standard is to specify the requirements for pavers and flags in order to facilitate design and purchasing of segmental pavements and other applications.

This revision addresses—

- (a) the need for a basic Standard that specifies the essential properties common to all units covered by the scope of the Standard;
- (b) more stringent requirements that might need to be complied with (such as strength and precision) which would best be specified by the prospective purchaser as needed; and
- (c) test methods consistent with Items (a) and (b).

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

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## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

**Australian/New Zealand Standard****Masonry units, pavers, flags and segmental retaining wall units****Part 2: Pavers and flags**

## SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE**

This Standard specifies minimum requirements for pavers and flags for use in pavements carrying road traffic and pedestrians only.

The pavers and flags covered by this Standard include those made of concrete and fired clay (with or without shale).

## NOTES:

- 1 For New Zealand pavements, the design of segmental pavements is set out in NZS 3116.
- 2 Means for demonstrating compliance with the requirements for strength are given in Appendix A.
- 3 Guidance on means for demonstrating compliance with this Standard is given in Appendix B.
- 4 Guidance on determination of characteristic value is given in Appendix C.
- 5 Purchasing guidelines are given in Appendix D.
- 6 Guidance on optional additional testing is given in Appendix E.
- 7 There are non-rectilinear shapes for paving that are not illustrated in this Standard. Nevertheless, these are covered by this Standard with the provision that not all test methods mentioned may be applicable to such shapes.

**1.2 APPLICATION**

This Standard shall be used in conjunction with the testing requirements specified in AS/NZS 4456.3, AS/NZS 4456.5, AS/NZS 4456.9 and AS/NZS 4456.10.

**1.3 NORMATIVE REFERENCES**

The following are the normative documents referenced in this Standard:

NOTE: Documents referenced for informative purposes are listed in the Bibliography.

## AS

3942 Quality control—Variables charts—Guide

## AS/NZS

4456 Masonry units, segmental pavers and flags—Methods of test  
 4456.1 Method 1: Sampling for test  
 4456.2 Method 2: Assessment of mean and standard deviation  
 4456.3 Method 3: Determining dimensions  
 4456.5 Method 5: Determining the breaking load of segmental pavers and flags  
 4456.9 Method 9: Determining abrasion resistance  
 4456.10 Method 10: Determining resistance to salt attack  
 4456.19 Method 19: Determination of bow

AS/NZS

4586 Slip resistance classification of new pedestrian surface materials

NZS

3116 Concrete segmental and flagstone paving

## 1.4 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

### 1.4.1 Abrasion resistance

A measure of resistance to erosion of the surface of a paver or flag, expressed as an index, when tested in accordance with AS/NZS 4456.9.

### 1.4.2 Annual average daily traffic (AADT)

The total volume of traffic passing a point in the pavement, in both directions, for one year divided by the number of days in the year.

### 1.4.3 Breaking load

The failure load determined in accordance with AS/NZS 4456.5.

### 1.4.4 Characteristic value

The value that is exceeded by at least 95% of the units in the lot.

### 1.4.5 Commercial vehicle (CV)

A vehicle, having a gross weight of 3 t or more, that complies (in Australia) with State or Commonwealth legislation for the axle loads, tyre pressures and dimensions of vehicles permitted on public roads and streets.

### 1.4.6 Dimensional deviation

The deviation from work size of paving units when determined in accordance with AS/NZS 4456.3.

### 1.4.7 Flag

Large format solid (non-cored) paver with a gross plan area greater than 0.08 m<sup>2</sup>.

### 1.4.8 Light vehicle (LV)

A vehicle which, when fully loaded, has a gross weight less than 3 t.

NOTE: This category includes cars, utilities, delivery vans and some light two-axle trucks.

### 1.4.9 Lot

A group of units of a single type with specific characteristics and dimensions presented for sampling at the same time.

### 1.4.10 Paver

Solid unit with a gross plan area less than or equal to 0.08 m<sup>2</sup> which is used to form a surfacing layer.

### 1.4.11 Public space pavement

#### 1.4.11.1 Pedestrian pavement

A pavement subject only to foot traffic.

NOTE: Pedestrian pavements include footpaths not subject to vehicle overrun or parking, pedestrian precincts that are completely closed to vehicle access, residential paths, patios and hard landscaping.

**1.4.11.1.1 Low-volume pavement**

A pavement with less than 3000 pedestrian passes per day.

NOTE: Low-volume pavements include residential paths, paths in public gardens, pavements at schools or campuses, hard landscape areas, common outdoor areas of residential buildings, and pedestrian areas around institutional buildings, sporting or recreational areas.

**1.4.11.1.2 Medium-volume pavement**

A pavement with greater than 3000 and less than 30 000 pedestrian passes per day.

NOTE: Medium-volume pavements are typically suburban shopping area pavements.

**1.4.11.1.3 High-volume pavement**

A pavement with high-volume pedestrian traffic exceeding 30 000 pedestrian passes per day.

NOTE: High-volume pavements are typically inner-city and major suburban pedestrian areas and paths.

**1.4.11.2 Pedestrian and light vehicle pavement**

A pavement carrying pedestrians and light vehicles (LV) only.

**1.4.11.3 Malls, pedestrian and commercial vehicles pavement**

An area carrying both pedestrian and mixed vehicular traffic.

NOTE: This category of pavement includes commercial vehicle crossovers, driveways carrying occasional truck traffic, footpaths subject to truck overrun or parking, pedestrian malls accepting service vehicles and commercial vehicles, pedestrian crossings and lightly trafficked streets.

**1.4.12 Trafficked segmental pavers****1.4.12.1 Minor and residential**

Trafficked segmental pavers carrying an annual average daily traffic (AADT) less than 400 vehicles.

**1.4.12.2 Local access**

Trafficked segmental pavers carrying an annual average daily traffic (AADT) between 400–1000 vehicles.

**1.4.12.3 Collector**

Trafficked segmental pavers carrying an annual average daily traffic (AADT) between 1000–2000 vehicles.

**1.4.13 Salt attack resistance**

Resistance to attack by the action of soluble salts, determined by the action of sodium sulphate or sodium chloride, in accordance with AS/NZS 4456.10.

**1.4.14 Slip resistance class**

A classification of slip resistance as determined in accordance with AS/NZS 4586.

**1.4.15 Work size**

The size of a unit specified for its manufacture, from which deviations are measured.

**1.5 NOTATION**

The following symbols are used in this Standard:

$n$  = number of specimens in the test sample

$s$  = unbiased standard deviation determined in accordance with AS/NZS 4456.2

$P'_b$  = characteristic breaking load