

7.2 Segmental Paving Design and Construction

Introduction

Section 7.1 has dealt with the specification of the segmental paving unit.

This Section 7.2 gives some guidance to matters of design and construction.

Design

For most applications in New Zealand, whether it is segmental paving or flagstones, NZS 3116 provides sufficient guidance on design and construction thickness of the overall pavement application. Where a more detailed study is required then the Concrete Masonry Association Australia (CMAA) has several publications that provide information on design:

- *Concrete Segmental Pavements – Detailing Guide* (T46).
- *Concrete Flag Pavements – Design and Construction Guide* (MA44).

These publications are free for download from: <http://www.cmaa.com.au/html/TechInfo/TechInfoPaving.html>.

An alternative New Zealand reference is IB 67 *Interlocking Concrete Block Road Pavements* free for download from the Cement & Concrete Association of New Zealand (CCANZ) website: <http://www.ccanz.org.nz/files/documents/135d9e0c-2b78-4270-9dcb-c22c3d7086ea/IB%2067.pdf>. This IB does not deal with flagstone pavements

Please note, however, that the NZCMA does *NOT* recommend the use of flagstones (flags) where vehicular traffic used the paving. This is based on practical experience in New Zealand.

Please also note that NZS 3116 has a requirement and test procedure for determining the suitability of bedding sands.

In the more heavily trafficked applications, it is imperative to use a bedding sand that does not abrade. Sands containing pumice are particularly susceptible to the abrading failure.

Experience has shown that many earlier problems with segmental paving related to a failure to understand the importance of the bedding sand.

To summarise:

- (a) Follow grading provisions for the applications.
- (b) Check that the sand has the appropriate abrading resistance (See NZS 3116).
- (c) Do not use crusher dust fines because after time the dust forms an impervious layer trapping water on the underside of the segmental paving. Water must be able to 'flow' in the bedding sand.

Construction Practices

Two construction methods are outlined in NZS 3116.

For flagstones, the pre-compacted method is one recommended.

A useful construction detail reference is:

- *Concrete Segmental Pavements – Detailing Guide* (T46).

Together with:

- *Concrete Segmental Pavements – Maintenance Guide* (MA48).

These publications are free for download from: <http://www.cmaa.com.au/html/TechInfo/TechInfoPaving.html>.

An alternative reference is IB 68 *Construction of Concrete Block Paving*, free for download from the Cement & Concrete Association of New Zealand (CCANZ) website:

<http://www.ccanz.org.nz/files/documents/a20d7e5d-b998-4397-b2ca-4e9aacfa5516/IB%2068.pdf>.

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