

# CERTIFICATE OF CONFORMITY

This product Certificate is issued under Section 269 of the Building Act 2004 for:

## Allied Concrete READY Floor



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### Product Description

Allied Concrete READY Floor is a concrete flooring system that contains integral reinforcement in the form of steel fibres.

The steel fibres used as reinforcing for Allied Concrete READY Floor are Dramix® READY fibres manufactured by Bekaert. They are nominally 60 mm long with a diameter of 0.75 mm. Each end of each fibre has a hook. The steel is low carbon with a tensile strength of 1225 MPa. The fibres have a bright steel finish. The fibres are manufactured in accordance with EN14889-1:2006 and the dosage used exceeds the minimum declared value in accordance with the CE Certifications BC1-251-0024-0051-001 and BC1-251-0024-0051-002.

The concrete grade for use with Allied Concrete READY Floor is 20 MPa, 25 MPa or 30 MPa, manufactured in accordance with NZS 3104:2003 including Amendment 1 and 2.

Where reinforcing steel is required, D300E12 bars in accordance with AS/NZS 4671:2001 including Amendment 1 are to be used.

### Product purpose and use

Allied Concrete READY Floor has been assessed for the following uses:

- for residential floor slabs with combined foundations for houses within the scope of NZS 3604:2011, built on good ground as defined by the Acceptable Solutions and Verification Methods for New Zealand Building Code Clause B1 Ministry of Business, Innovation and Employment, First Edition, July 2005 (Amendment 18, 27 June 2019) and,
- for separately poured floor slabs with conventionally reinforced foundations for building within the scope of NZS3604:2011, built on good ground as defined by the Acceptable Solutions and Verification Methods for New Zealand Building Code Clause B1 Ministry of Business, Innovation and Employment, First Edition, July 2005 (Amendment 18, 27 June 2019) ,
- as commercial and/or industrial concrete slabs-on-ground from 100 mm to 150 mm thick, on soil with a modulus of subgrade reaction of  $k > 30$  kPa/mm.

Allied Concrete READY Floor is not suitable for soils that are expansive or prone to liquefaction or differential settlement.

### Certificate holder

Allied Concrete Ltd.  
PO Box 1104, Invercargill 9840, New Zealand  
35 Inglewood Road, Invercargill 9810, New Zealand  
Tel: +61 (0)2 2171600 , call free number 0800 4 255433  
[www.alliedconcrete.co.nz](http://www.alliedconcrete.co.nz)

CodeMark Certification Body		29/10/2013	4/11/2019	4/11/2022	GM-CM30046-RevG
Global-Mark Pty Ltd, Suite 4.07, 32 Delhi Road, North Ryde NSW 2113, Australia Tel: +61 (0)2 9886 0222 <a href="http://www.Global-Mark.com.au">www.Global-Mark.com.au</a>	Herve Michoux Managing Director	Date of issue	Last update	Date of next re-certification	Certificate Number

The purpose of construction site audits is to confirm the practicability of installing the product; and to confirm the appropriateness and accuracy of installation instructions. In issuing this certificate, Global-Mark has relied on the independent expert and/or laboratory advise or reports. This certificate is issued by Global-Mark Pty Limited, an independent certification body accredited by the product certification accreditation body (JAS-ANZ) appointed by the Chief Executive of the Ministry of Business Innovation and Employment under the Building Act 2004. The Ministry of Business Innovation and Employment does not in any way warrant, guarantee, or represent that the building method or product the subject of this certificate conforms with the New Zealand Building Code, nor accept any liability arising out of the use of the building method or product. The Ministry of Business Innovation and Employment disclaims, to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages, and costs arising as a result of the use of the building method(s) or product(s) referred to in this certificate. This Certificate may only be reproduced in its entirety.

It is advised to check that this Certificate of Conformity is currently valid and not withdrawn, suspended or superseded by a later issue by referring to the Ministry of Business Innovation and Employment website, <http://www.mbie.govt.nz/>

New Zealand Building Code (NZBC) references the Building Code in force at the time of issuing the product certificate.

Certificate holder will notify Global-Mark Pty Ltd in accordance with Regulation 15 of the Building (Product Certification) Regulations 2008

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### Compliance with the New Zealand Building Code (NZBC):

- **Clause B1 STRUCTURE:** Performance B1.3.1, B1.3.2 and B1.3.4. Allied Concrete READY Floor meets the requirements for loads arising from self-weight, imposed gravity loads, earthquake, wind, differential movements and time dependent effects including creep and shrinkage. [i.e. B1.3.3 (a), (b), (f), (h), (m) and (q)].
- **Clause B2 DURABILITY:** Performance B2.3.1 (a) not less than 50 years. Allied Concrete READY Floor meets this requirement.
- **Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. Allied Concrete READY Floor meets this requirement.

### Subject to the following conditions and limitations:

1. Maintaining the validity of BRANZ Appraisal No. 810 (2017) 20 December 2017 Allied Concrete READY Floor.

### Design and Installation Conditions:

#### 1. General

The soil that the slab is to be poured on must be "good ground" as defined by the Acceptable Solutions and Verification Methods for New Zealand Building Code Clause B1 Ministry of Business, Innovation and Employment, First Edition, July 2005 (Amendment 18, 27 June 2019). For specific engineering design the modulus of subgrade reaction,  $k$ , must be greater than 30 kPa/mm. The design philosophy for Allied Concrete READY Floor slabs is for the direct transfer of wind, gravity and earthquake loads from the structure to the ground. Allied Concrete READY Floor slabs are not designed to resist other actions or to accommodate differential settlements of the ground beyond 25 mm over a horizontal distance of 6 m. Hence expansive and liquefaction prone soils, that could impart large lateral loads, and greater differential settlements are outside the scope of this certificate. Degradation of exposed fibres at exterior concrete surfaces will occur, and these degraded exposed fibres will be removed by weathering. This degradation is non-structural and will not affect the overall durability provision of the NZBC for these concrete structures, however corrosion products at the surface may be created as a result of the steel fibres corroding. Allied Concrete READY Floor may not be suitable where decorative, exposed aggregate or architecturally sensitive concrete is specified.

#### 2. Structure

##### NZS 3604: 2011 Floor Slabs

Allied Concrete READY Floor can be used for constructing concrete slab-on-ground floors for buildings within the scope of NZS 3604:2011. Where the Allied Concrete READY Floor is to have the foundation integral with the floor slab, this must be placed as one continuous pour. The dimensions of the floor and foundations must be as described in NZS 3604:2011, Figure 7.13 (B) or 7.15 (B), for the concrete slab-on-ground with combined foundations. There is no requirement for the steel mesh or R10 stirrups and only one D12 bar is required at each of the top and bottom of the footing. These bars must be installed in accordance with the Allied Concrete READY Floor Brochure 1116V1. The minimum depth of Allied Concrete READY Floor foundations below cleared ground level shall be 200 mm as specified by NZS 3604:2011, Paragraph 3.4.2. The inner face of the foundation shall slope up to the underside of the integral floor slab at an angle of approximately 45°, as shown in NZS 3604:2011, Figure 7.13 (B).

Where the foundations are poured separately, they must be in accordance with NZS3604:2011, Figure 7.13 (B), 7.14 (B) or 7.15 (B), including the reinforcement steel. The slab may then be poured at a later date, and mesh not required.

Regardless of whether the foundations are poured separately or are integral to the slab, the dimensions of slab thickenings under internal loadbearing walls must be as described in NZS 3604:2011, Section 7.5.11, except that there is no need for additional reinforcing.

Shrinkage control joints must be made by saw cuts at maximum 6 metre centres. Saw cutting of Allied Concrete READY Floor should be carried out as soon as the concrete surface can endure the saw cutting process but no later than 24 hours after placement. It is recommended that shrinkage control joints extend from re-entrant corners. Where this is not practical supplementary steel in accordance with NZS 3604:2011, Clause 7.5.8.6.4 (b) must be used.

##### Other Concrete Slabs

For buildings subject to specific design, Table 1 gives the maximum loads for different slab thicknesses for Allied Concrete READY

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Floor.

**Table 1: Maximum Loads**

Floor Thickness (mm)	Maximum Loads		
	Tonne/axle	Tonne/point	Tonne/m <sup>2</sup>
100	1.2	0.3	0.3
120	3.0	1.0	1.5
130	3.5	1.5	2.0
140	4.0	2.0	2.5
150	6.0	3.0	3.0

Thickness up to 200mm may be used provided the allowable loads do not exceed what is shown in Table 1, or specific design is required.

Allied Concrete READY Floor commercial / industrial ground floor slabs should be detailed following industry best practice, such as but not limited to:

- isolating slabs from beams or internal columns;
- local reinforcing at re-entrant corners; and
- incorporating free movement joints with dowels, where necessary, to transfer slab loads across joints.

### 3. Serviceability

Allied Concrete READY Floor is expected to have a serviceable life equal to that of standard concrete floors and slabs. Degradation of exposed fibres at exterior concrete surfaces will occur, and these degraded exposed fibres will be removed by weathering. This degradation is non-structural and will not affect compliance with B2.3.1(a) for these concrete structures.

There is no minimum cover requirement to the steel fibres in Allied Concrete READY Floor. Satisfactory cover to any supplementary steel incorporated in the concrete must be maintained.

### 4. Installation Information

The steel fibre reinforced concrete used for Allied Concrete READY Floor is batched at plants that are certified under the New Zealand Ready Mixed Concrete Association Plant Audit Scheme.

The concrete for Allied Concrete READY Floor must be placed, finished and cured in accordance with the requirements of NZS 3109:1997 including Amendment 1 and 2.

### 5. Installation Conditions

Installation of Allied Concrete READY Floor shall be carried out by:

- A Licensed Building Practitioner with experience in concrete floor installation; or,
- By competent tradespersons with an understanding of concrete floor installation.

Where the installation relates to a residential building, and where the installer is not a licensed building practitioner; installation will be supervised by a licensed building practitioner. This licensed building practitioner will then complete and sign the Restricted Building Work memorandum.

The installer shall also comply with all relevant technical information relating to the products use, including information contained within the Allied Concrete READY Floor Brochure 1116V1 and the BRANZ Appraisal No. 810 (2017) 20 December 2017 Allied Concrete READY Floor and this certificate.

**End of record.**