



**SPECIFY WITH
CONFIDENCE**
BRANZ Appraisals

Technical Assessments of
products for building and
construction

**BRANZ
APPRAISAL
CERTIFICATE
No. 318 (2005)**

This Certificate replaces BRANZ
Appraisal Certificate No. 318 (2004)
issued 31 March 2004

**BAYONET
GALVANISED
WIRE NETTING
STUCCO
PLASTER
REINFORCEMENT**

Paul Industries
P O Box 308
Tauranga

Tel: 07 578 8209

Fax: 07 928 5244

Web: www.paulindustries.co.nz



BRANZ Limited
Private Bag 50 908
Porirua City
New Zealand
Tel: +64 4 237 1170
Fax: +64 4 237 1171
www.branz.co.nz

BRANZ Pty Ltd
P O Box 830
Brookvale
NSW 2100
Australia
Tel: +61 2 9938 6011
Fax: +61 2 9938 6911
www.branz.com.au



Product

1.1 Bayonet Galvanised Wire Netting is a range of woven flat and crimped (self-furring) hexagonal, galvanised mild steel netting, for use as reinforcement for exterior stucco plaster cladding.



Solid plaster wall cladding reinforced with Bayonet Galvanised Wire Netting

Scope

2.1 Bayonet Galvanised Wire Netting has been appraised for use as a reinforcing mesh with stucco plaster wall cladding within the following scope:

- on buildings within the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- complying with NZBC Acceptable Solution E2/AS1, Section 9.3; and,
- with timber framing of external walls supporting the cladding complying with NZS 3604 and NZS 4251.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Bayonet Galvanised Wire Netting, if used, designed, installed and maintained in accordance with the statements and conditions of this Certificate, will meet, or contribute to meeting the following provisions of the NZBC:

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. Stucco plaster cladding that complies with NZBC Acceptable Solution E2/AS1, Section 9.3, when reinforced with Bayonet Galvanised Wire Netting meets the requirements for loads arising from earthquake, wind, human impact and creep and shrinkage [i.e. B1.3.3 (f), (h), (j) and (q)]. See Paragraph 8.1.

Clause B2 DURABILITY: Performance B2.3.1 (b), 15 years. Bayonet Galvanised Wire Netting meets this requirement. See Paragraphs 9.1 and 9.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Stucco plaster cladding that complies with NZBC Acceptable Solution E2/AS1, Section 9.3, when reinforced with Bayonet Galvanised Wire Netting meets this requirement. See Paragraph 11.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Bayonet Galvanised Wire Netting meets this requirement and will not present a health hazard to people.

3.2 This Certificate appraises an Acceptable Solution in terms of the New Zealand Building Code compliance. Refer to Paragraphs 7.1 - 7.3.

Technical Specification

4.1 Bayonet Galvanised Wire Netting stucco plaster reinforcement consists of a range of hexagonal, 19, 25 and 41 mm flat mesh, manufactured from 0.9, 1.0 and 1.4 mm diameter galvanised mild steel wire. The 19 and 25 mm mesh is supplied in rolls 900 mm wide in lengths of 50 m, and the 41 mm mesh is supplied in rolls 900 and 1066 mm wide in lengths of 50 m.

4.2 The range also includes hexagonal 25 mm crimped (self-furring) mesh manufactured with 0.9 mm galvanised steel wire. The mesh is crimped with a 7.5 mm projection and is supplied in rolls 900 mm wide in lengths of 50 m.

4.3 Wire used to manufacture Bayonet Galvanised Wire Netting conforms to Class W10 of AS/NZS 4534. The wire has a tensile strength of between 350 and 550 MPa and the minimum mass of galvanised coating is 140 g/m² for the 0.9 mm diameter wire, 150 g/m² for the 1.0 mm diameter wire and 185 g/m² for the 1.4 mm diameter wire.

4.4 Each roll is labelled with the product name, dimensions, and manufacturer's information.

Handling and Storage

5.1 Handling and storage of the product, whether on or off site, is under the control of the installer. Bayonet Galvanised Wire Netting must be handled with care to prevent damage to the netting.

5.2 The rolls must be stored on end, under cover and protected from moisture. They must not be double stacked or used to support other materials. Bayonet Galvanised Wire Netting rolls must not be stored on concrete floors for long periods, particularly where moisture is present, as this can result in an accelerated corrosion of the galvanising.

Technical Literature

6.1 Refer to the Appraisals listings on the BRANZ website for details of the current Technical Literature for Bayonet Galvanised Wire Netting. The Technical Literature must be read in conjunction with this Certificate. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Certificate must be followed.

Design Information

General

7.1 Stucco plaster cladding design and installations incorporating Bayonet Galvanised Wire Netting reinforcement must comply with the requirements of NZBC Acceptable Solution E2/AS1, Section 9.3 and the sections of NZS 4251 and NZS 3604 referred to within NZBC Acceptable Solution E2/AS1, Section 9.3.

7.2 Bayonet Galvanised Wire Netting hexagonal flat mesh is suitable for use as a metal reinforcement for stucco plaster over rigid and non-rigid backings and meets the performance requirements of NZS 4251, Paragraph 4.3.3(a) and Paragraph 5.3.3(a).

7.3 Bayonet Galvanised Wire Netting hexagonal crimped mesh is suitable for use as a self-furring metal reinforcement for stucco plaster over rigid backings and meets the performance requirements of NZS 4251, Paragraph 4.3.4.3.

7.4 When Bayonet Galvanised Wire Netting flat mesh is used, it must be stretched taut and spaced (furred) out from the rigid or non-rigid backing by not less than 6 mm or more than 9

mm in accordance with the requirements of NZS 4251, Sections 4.3.4 and 5.3.4. Bayonet Galvanised Wire Netting crimped mesh must be stretched taut but does not need to be spaced out from the rigid backing material.

7.5 Spacers used to hold the wire netting off the backing material must be either 6 to 9 mm, 50 mm square H3 timber plywood or fibre cement. Alternative spacers, such as 6 to 9 mm thick plastic, 30 mm in diameter (such as the plastic lids to 2 litre plastic milk containers) are acceptable subject to Territorial Authority approval.

Control Joints

7.6 Movement control joints in the stucco plaster cladding system must be installed as required in NZS 4251. Bayonet Galvanised Wire Netting must be stopped at control joints to ensure there is a complete break in the reinforcing.

Structure

8.1 When Bayonet Galvanised Wire Netting is used as reinforcement for stucco plaster in accordance with the statements and conditions of this Certificate, the stucco plaster cladding will resist the following loads:

- wind face loads up to and including those associated with the Very High Building Wind Zone of NZS 3604; and,
- earthquake face loads associated with construction complying with the scope limitations of Paragraph 1.1.2 of NZS 3604; and,
- soft body impacts associated with domestic construction; and,
- creep and shrinkage (subject to adequate curing and the plaster not being subjected to vibration, bending or shock in its early life, particularly within the first seven days).

Durability

Serviceable Life

9.1 When Bayonet Galvanised Wire Netting is contained within a stucco plaster wall cladding in accordance with this Certificate, the stucco plaster cladding will have a serviceable life in excess of 25 years.

9.2 This durability opinion is contingent upon the stucco plaster having sealant maintained at the joints and a weather-tight protective coating applied and maintained on the outside surface.

Maintenance

10.1 Stucco plaster cladding systems must be inspected on an annual basis, and maintained and recoated as necessary to ensure they remain weathertight.

External Moisture

11.1 Stucco plaster cladding systems, when designed, installed and maintained in accordance with NZBC Acceptable Solution E2/AS1, Section 9.3 and NZS 4251 meet the performance requirements of NZBC Clause E2.3.2, E2.3.5 and E2.3.6.

Installation Information

Installation Skill Level Requirements

12.1 Installation must always be carried out in accordance with the Technical Literature and this Certificate, by competent solid plaster tradespersons.

Bayonet Galvanised Wire Netting Installation

Pre-Installation Check

13.1 Prior to installation of the netting, ensure the framing system and cavity battens have been installed in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Section 9.3.

13.2 Where rigid backing material has been installed, check that the material has not distorted more than 5 mm between the cavity battens before fixing the reinforcement. Where a rigid backing is used, building wrap must be installed over it to act as a slip layer before fixing the wire netting reinforcement.

13.3 Where non-rigid backing material is used, ensure that the wrap is taut and appropriately supported so that it does not deviate more than 5 mm between battens.

Installation General

13.4 Bayonet Galvanised Wire Netting reinforcement must be stretched taut. Flat mesh must be spaced off the backing material using spacers at 150 mm centres on all framing centrelines.

13.5 Bayonet Galvanised Wire Netting reinforcement must be run horizontally. It must start at least one stud space from a corner and be continuous around the corner. If no control joints are required at openings, diagonal strips of wire netting which are 450 mm long by 300 mm wide must be placed at an angle of 45 degrees across the corners to reinforce the opening. Alternatively, place additional 150 mm wide strips of wire netting around the perimeter of openings.

13.6 Bayonet Galvanised Wire Netting must be fixed (flat mesh through spacers) at 150 mm centres to all vertical and horizontal framing. Fixings must be bent-over hot-dip galvanised flat head nails or Type 304 or 316 stainless steel staples. Fixings must have a minimum diameter of 2.8 mm and a minimum embedment into the wall frame of 35 mm. (Note: Cavity battens are considered packers only and nail penetration through the batten does not count towards the minimum embedment length.)

13.7 Netting laps must be a minimum of 100 mm and end laps must be a minimum of 150 mm. End laps must be staggered. Wire mesh must be tied together at laps with soft galvanised tie wire or clips which are not less than 1.2 mm diameter, spaced at not more than 150 mm centres, or fixed to the framing at these centres.

Inspection

14.1 The following are considered key inspection points for Bayonet Galvanised Wire Netting installations:

- Installation of rigid or non-rigid backings.
- Installation of spacers for flat mesh.
- Layout of reinforcement mesh.
- Fixing of reinforcement mesh through the cavity battens to the wall frame.
- Supplementary reinforcement mesh around openings.
- Lapping of reinforcement mesh joints and tying of mesh at these joints.
- Stucco plaster mixes, coats and curing.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Investigations

15.1 Note has been taken over many years of the structural performance, durability and non-hazardous properties of galvanised wire netting used as reinforcement for solid plaster, both in New Zealand and overseas.

15.2 A durability assessment has been carried out by BRANZ.

15.3 The practicability of installation has been assessed by BRANZ and found to be satisfactory.

15.4 The Technical Literature, including installation instructions, has been examined by BRANZ and found to be satisfactory.

Quality

16.1 The manufacture of Bayonet Galvanised Wire Netting has been examined by BRANZ, including methods used for quality control, and details obtained of the quality and composition of the materials used. These are considered satisfactory.

16.2 The quality of supply to the market is the responsibility of Paul Industries.

16.3 Building designers are responsible for the design of the building, and for the incorporation of Bayonet Galvanised Wire Netting into their stucco plaster design in accordance with the instructions Paul Industries.

16.4 Quality of installation is the responsibility of the installer in accordance with the instructions of Paul Industries.

Sources of Information

- AS/NZS 4534:1998 Zinc and zinc/aluminium-alloy coatings on steel wire.
- NZS 3604:1999 Timber Framed Buildings.
- NZS 4251:Part 1:1998 Solid Plastering - Cement plasters for walls, ceilings and soffits.
- Compliance Document for the New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005.
- New Zealand Building Code Handbook and Approved Documents, Building Industry Authority, 1992.
- The Building Regulations 1992, up to, and including October 2004 Amendment.

In the opinion of BRANZ, Bayonet Galvanised Wire Netting Stucco Plaster Reinforcement is fit for purpose and will comply with the Building Code to the extent specified in this Certificate provided it is used, designed, installed and maintained as set out in this Certificate.

The Appraisal Certificate is issued only to the Certificate Holder, Paul Industries, and is valid until further notice, subject to the Conditions of Certification.

Conditions of Certification

1. This Certificate:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the technical literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. The Certificate Holder:
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions.
3. The product and the manufacture are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ.
4. BRANZ makes no representation as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by the Certificate Holder.
5. Any reference in this Certificate to any other publication shall be read as a reference to the version of the publication specified in this Certificate.

For BRANZ



**P Robertson
Chief Executive**

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