BRANZ Appraised
Appraisal No.559 [2007]

BRANZ Appraisals

Technical Assessments of products for building and construction

BRANZ APPRAISAL No. 559 (2007)

SPEEDWALL® SYSTEM

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WFTAO

Product

1.1 The Speedwall® System incorporates Speedwall® panels that are used to construct non-loadbearing standard, fire and acoustically rated walls and partitions within the building envelope.
1.2 Speedwall® panels are made from lightweight aerated concrete encased in profiled galvanised steel sheet steel formwork.

Scope

2.1 The Speedwall® System has been appraised for use as non-loadbearing standard and fire and acoustically rated internally located walls and partitions for all building classes as defined by NZS 4203.
2.2 The Speedwall® panels may be installed with either a vertical or horizontal orientation. The maximum span for the panels between structural supports is 8 m. The overall height or length of a Speedwall® System wall will be determined by the structural support. When used as part of a fire rated system, the maximum span of the Speedwall® panels is 4 m. Greater spans are subject to specific engineering design and/or fire engineering assessment and are outside the scope of this Appraisal.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, the Speedwall® System, if designed, installed, used and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:
Clause B1 Structure: Performance B1.3.1, B1.3.2 and B1.3.4. The Speedwall® System meets the requirements for loads arising from self-weight, earthquake, wind, impact and creep and shrinkage [i.e. B1.3.3 (a), (f), (h), (j), and (q)]. See Paragraphs 8.1 - 8.2.
Clause B2 Durability: Performance B2.3.1(a), not less than 50 years, Performance B2.3.1(b), 15 years, Performance B2.3.1(c), 5 years. The Speedwall® System meets these requirements. See Paragraphs 9.1 - 9.3.
Clause C3 Spread of Fire: Performance C3.3.1, C3.3.2 and C3.3.5. The Speedwall® System will meet these requirements. See Paragraphs 11.1 - 11.9.
Clause F2 Hazardous Building Materials: Performance F2.3.1. The Speedwall® System meets this requirement and will not present a health hazard to people.
Clause G6 Airborne and Impact Sound: Performance G6.3.1. The Speedwall® System will contribute to meeting this requirement. See Paragraphs 12.1 - 12.2.
3.2 This is an Appraisal of an **Alternative Solution** in terms of New Zealand Building Code compliance.

Technical Specification

General

4.1 The Speedwall® System is a non-loadbearing wall system that is attached to the structural frames of buildings to provide internal walls and partitions.

Speedwall® Panels

4.2 Speedwall® panels are manufactured from lightweight aerated concrete encased in a galvanised steel permanent formwork. The permanent formwork is roll-formed from zinc coated steel strips. The steel has a base metal thickness of 0.4 mm with ZM275 zinc coating. Paint coated steel coil may also be used for one or both faces.

4.3 The Speedwall® panels are supplied in lengths of up to 8 metres. They are 78 mm thick and 288 mm deep. The long edges are tongue and groove so the pitch of the panels when installed is 250 mm.

4.4 The Speedwall panels are available in nominal densities of 400 kg/m^3, 600 kg/m^3, 800 kg/m^3 and 1000 kg/m^3.

Accessories

4.5 Accessories and materials used with the Speedwall® System that are supplied by Speedwall® (NZ) Ltd are:

- Speedwall® C-track - 60 x 80 x 60 x 1.15 mm (base metal thickness) C-section available in galvanised steel and powder coated to match the paint coated steel coil.
- Speedwall® angle - 50 x 60 x 1.2 mm (bmt) angle available in galvanised steel and powder coated to match the paint coated steel coil.
- Fasteners for panel to panel connection, panel to C-track and angle connection, C-track and angle to concrete and C-track and angle to steelwork.

4.6 Accessories used with the Speedwall® Systems that are supplied by Speedwall® (NZ) Ltd or the building contractor are:

- Light gauge steel framing.
- 10 mm GIB® Standard Plasterboard.
- 13 mm GIB Fyreline®.
- 13 mm GIB Noiseline®.
- 25 mm and 32 mm x 6g GIB® Grabber™ scavenger head drywall self tapping screws.
- Pink® Batts® R1.8 (75 mm) .

Packaging, Handling and Storage

5.1 Speedwall® panels are delivered to site in packages. They must be handled with care to avoid physical damage, particularly to the bottom edges and the finished exposed faces, and must be stored so that they are protected from the weather under clean, dry and ventilated conditions. They should be stored on bearers no more than 2 m apart.

5.2 Accessories used with the Speedwall® System must also be handled with care to avoid damage. Components such as sealants and grouts must be stored in dry locations protected from the weather. Other components should be stored so that they are protected from the weather.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Speedwall® System. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, installation, use and maintenance contained within the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

General

7.1 The Speedwall® System Technical Literature contains design information and procedures required to allow building designers to design structures incorporating the Speedwall® System. This includes incorporating both fire rated systems and noise control systems depending upon the users requirements.

7.2 The maximum length of Speedwall® panel allowed between structural supports is 8 m. Where the system is being used as a fire rated system, the maximum length of Speedwall® panel allowed between structural supports is 4 m. Greater spans are subject to specific engineering design and/or fire engineering assessment and are outside the scope of this Appraisal.

7.3 Speedwall® panels may be laid up either horizontally or vertically.

Structure

General

8.1 The Speedwall® system is for use within concrete framed structures that have been designed in accordance with NZS 3101 and/or steel framed structures that have been designed in accordance with NZS 3404.

Design

8.2 Design of Speedwall® Systems must be in accordance with the information and methods given in the Technical Literature and must be carried out by a suitably qualified design engineer considering all loading types as specified in Paragraph 3.1.

Durability

9.1 The Speedwall® Systems are expected to have a serviceable life of at least 50 years.

9.2 Where Speedwall® panels will experience regular use of chemical cleaning agents, or be in the presence of vapours that may attack galvanised steel components during service, then Speedwall® (NZ) Ltd should be contacted to determine the correct panel coating selection is made to ensure the required service life of the system is achieved.

9.3 The ability of the Speedwall® Systems and other incorporated elements to remain durable is dependent on them remaining dry in service.

Maintenance

10.1 Where Speedwall® panels are exposed an inspection should be carried out at least annually to ensure that no undue degradation is occurring. Where items such as corrosion are identified, then the cause must be determined, and repairs must be made to restore the system.

10.2 Where Speedwall® panels are not exposed then no maintenance should be required. In the event of damage to linings or claddings, these should be repaired immediately.

Spread of Fire

11.1 The Technical Literature gives four different fire rated wall systems incorporating Speedwall® panels. These vary in rating from 90 minutes up to 4 hours depending on the system chosen.

11.2 Speedwall® fire rated systems are used where a Fire Resistance Rating (FRR) is required.

11.3 Where Speedwall® walls are used as part of a fire rated system then the maximum span of the Speedwall® panels is 4 m. Greater spans are subject to specific engineering design and/or fire engineering assessment and are outside the scope of this Appraisal.
11.4 In order to satisfy the requirements of NZBC Clause C4 Structural Stability during Fire, designers must ensure that fire rated elements, i.e. the Speedwall® Systems, are supported by building elements having at least the same FRR as the fire rated element they are supporting.
11.5 The Speedwall® fire rated systems given in the Technical Literature will comply with NZBC Clause C3.3.1 when used within the limits of the Spread of Flame Index (SFI) and Smoke Developed Index (SDI) and for locations as defined in Table 6.2 of NZBC Acceptable Solution C/AS1.
11.6 Table 1 shows surface finish properties for the galvanised steel and paint coated steel coil used to fabricate the Speedwall® panels without any other applied coating.

Table 1. Surface Finish Properties

Product	Spread of Flame Index	Smoke Developed Index
Galvanised steel	0	0
Paint coated steel coil	0	0-2

11.7 When an applied finish or lining is used over Speedwall® systems, the SFI and SDI must be obtained from the manufacturer of the finished product or system.
11.8 The Speedwall® fire rated systems given in the Technical Literature will comply with NZBC Clause C3.3.2 for fire separation when used to provide a FRR that meets the requirements of NZBC Acceptable Solution C/AS1.
11.9 The Speedwall® fire rated systems given in the Technical Literature will comply with NZBC Clause C3.3.5 when used to provide a FRR that meets the requirements of NZBC Acceptable Solution C/AS1 Part 7.10.

Airborne and Impact Sound
12.1 The Technical Literature gives four different Speedwall® noise control systems for walls with Sound Transmission Class (STC) ratings of 40 to 75. Only systems Two, Three and Four in the Technical Literature give solutions greater than STC 55 as required by the NZBC for intertenancy walls.
12.2 Speedwall® noise control systems One, Two and Three in the Technical Literature are based on Speedwall® panels with concrete density of 400 kg/m^3. Speedwall® noise control system Four is based on Speedwall® Panels with a concrete density of 600 kg/m^3.

Installation Information

Installation Skill Level Requirement
13.1 Installation of the Speedwall® panels must be carried out by experienced building contractors.

General
14.1 Speedwall® systems must be installed in accordance with the specifications contained in the Technical Literature.

Inspections
14.2 For inspection, reference must be made to the specific building design documentation and the Technical Literature.

Cutting Panels
14.3 Speedwall® panels can be cut to length with the use of a sabre saw, circular saw or evacuated grinder to minimise dust. Where Speedwall® panels are trimmed to width, the cut section of the panel is fitted with track and is always the last panel abutting the wall, column or soffit. The panel is then sealed and fixed with an angle section.

Health and Safety
14.4 Suitable safety glasses, ear muffs and face masks must always be worn when cutting Speedwall panels. The recommended installation practices of the insulation manufacturer must be followed when insulation is installed.
14.5 Where powder-actuated fasteners are used OSH guidelines on the use of powder-actuated hand-held fastening tools must be followed.

Framing
14.6 The structural frame to which the Speedwall® systems will be attached must be as per the designer's specifications, and must be plumb, level and in true alignment.

Fixing
14.7 The fixing of all Speedwall® panels, channels and angles must be strictly in accordance with the Technical Literature.

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

Tests
15.1 Fire testing has been carried out to determine the performance of Speedwall® Systems under fire conditions. The test methods and results have been reviewed by BRANZ and found to be satisfactory.
15.2 Sound insulation testing has been carried out to determine the acoustic performance of Speedwall® Systems. The test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations
16.1 The Speedwall® System Technical Literature has been examined by BRANZ and found to be satisfactory.
16.2 Site visits were carried out by BRANZ to assess the practicability of the installation of the systems, and to view completed installations.
16.3 An assessment was made of the durability of the systems by BRANZ technical experts and found to be satisfactory.

Quality
17.1 Speedwall (NZ) Ltd's manufacturing process and details of the quality and composition of the materials have been examined by BRANZ and found to be satisfactory.
17.2 Speedwall (NZ) Ltd is responsible for the quality of the product supplied.
17.3 Quality on site is the responsibility of the installer.
17.4 Designers are responsible for incorporating the Speedwall® Systems into the design of their buildings.
17.5 Building owners are responsible for the maintenance of the Speedwall® Systems in accordance with the instructions of Speedwall (NZ) Ltd.

Sources of Information

- AS/NZS 1170 Structural design actions.
- NZS 3101.1 & 2:2006 Concrete structures standard.
- NZS 3404.1 & 2:1997 Steel structures standard.
- NZS 4203:1992 General structural design and design loadings for buildings.
- New Zealand Building Code Handbook Department of Building and Housing, Third Edition May 2007.
- The Building Regulations 1992, up to, and including June 2007 Amendment.

BRANZ

In the opinion of BRANZ, The Speedwall System is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.
The Appraisal is issued only to Speedwall (NZ) Ltd, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
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. Speedwall (NZ) Ltd:
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. Warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
4. BRANZ makes no representation or warranty 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 Speedwall (NZ) Ltd.
5. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
6. BRANZ provides no certification, guarantee, indemnity or warranty, to Speedwall (NZ) Ltd or any third party.

For BRANZ

Chris Preston

C Preston
Chief Executive

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