



BRANZ Appraised
Appraisal No.562 [2007]

BRANZ Appraisals

Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
No. 562 (2007)**

ROKCORE PANEL SYSTEM - INTERNAL PARTITIONS AND CEILINGS

Bradcore Panel Systems
Locked Bag No. 6,
Chatswood,
Sydney,
NSW 2067

Tel: +61 2 9235 8000
Fax: +61 2 9372 5471



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 The Rokcore Panel System is for use as internal partitions and ceilings. The system incorporates Rokcore panels, which are sandwich panels fabricated by adhering coil-coated steel faces to a mineral wool (rockwool) core.
- 1.2 The Rokcore panels come in thicknesses ranging from 50 to 240 mm, widths of 300 to 1200 mm and lengths of up to 12 m. Several different options are available for the exposed surface finish of the steel, including both profile and colour.

Scope

- 2.1 The Rokcore Panel System has been appraised for use as non-loadbearing internal partition and ceiling systems for buildings within the following scope:
- category I to V buildings as defined in NZS 4203, except that housing and communal residential buildings are excluded; and
 - constructed with concrete framing complying with NZS 3101 or steel framing complying with NZS 3404.
- 2.2 The Rokcore Panel System may be used where fire rated partitions and ceilings are required.
- 2.3 The structural, fire and thermal design of the Rokcore Panel System for each specific structure is the responsibility of the building designer.
- 2.4 The installation of the Rokcore Panel System is to be carried out by installers trained by Bradcore Panel Systems.

Building Regulations

3.1 In the opinion of BRANZ, the Rokcore Panel System, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the New Zealand Building Code (NZBC):

Clause B1 – STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. The Rokcore Panel System meets the requirements for loads arising from self-weight, wind, and fire [i.e. B1.3.3 (a), (h) and (i)]. See Paragraphs 8.1 – 8.4.

Clause B2 – DURABILITY: Performance B2.3.1 (b) 15 years. The Rokcore Panel System meets this requirement. See Paragraphs 9.1 – 9.4.

Clause C3 – SPREAD OF FIRE: Performance C3.3.1 and C3.3.2. The Rokcore Panel System meets these requirements. See Paragraphs 11.1 – 11.6.

Clause F2 – HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The Rokcore Panel System meets this requirement and will not present a health hazard to people.

3.2 This is an Appraisal of an **Alternative Solution** in terms of New Zealand Building Code compliance.

Technical Specification

4.1 Components and accessories for the Rokcore Panel System, which are supplied by Bradcore Panel Systems, are:

Rokcore Panels

4.2 Rokcore panels comprise mineral wool cored, steel faced panels manufactured in modules of 300 to 1200 mm wide and to a maximum length of 12000 mm. The thicknesses of the Rokcore panels are nominally 50, 80, 100, 120, 150, 175, 200 and 240 mm.

4.3 The fibres of the mineral wool cores of the Rokcore panels are oriented perpendicular to the metal sheet faces, and are designated as 50C, 50F, 75C and 75F. The 50 and 75 refer to the shear strength in kN/m². The C and F vary in core density and composition, with the F core being of a higher density than the C core. The fibres are adhesive fixed to the metal sheets.

4.4 The metal sheet faces are available in different surface profiles, steel sheet thicknesses of 0.5, 0.6 or 0.7 mm, and a variety of coatings including polyvinylidene fluoride (PVDF), PVDF-HB, polyester (PE), foodsafe, and stainless steel. The Rokcore panels are supplied in a range of colours.

Accessories

4.5 Accessories used with the Rokcore Panel System are supplied by Bradcore Panel Systems. These items include:

- screws and spikes for panel fixing
- screws, rivets and spikes for flashing fixing
- standard profiles for joints between sheets
- standard flashings for internal walls
- steel sheets for flashing manufacture
- sealants
- insulation and paint.

Handling and Storage

5.1 Handling of the Rokcore Panels and the associated accessories must be in accordance with the Rokcore Panel System Technical Literature and Bradcore Panel Systems Safe Work Method Statements.

Technical Literature

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

Design Information

General

Concrete Framed Structures

7.1 The Rokcore Panel System is suitable for use with concrete framed buildings that have been specifically designed in accordance with NZS 3101 and NZS 4203 or AS/NZS 1170.

Steel Framed Buildings

7.2 The Rokcore Panel System is suitable for use with steel framed buildings that have been specifically designed in accordance with NZS 3404 and NZS 4203 or AS/NZS 1170.

Structure

Mass

8.1 The mass of the Rokcore panels per square metre is given in Table 1.

Table 1: Panel Mass kg/m².

Nominal Thickness (mm)	Panel Weight (kg/m ²)			
	50C	75C	50F	75F
50	15	16	16	16
80	17	20	19	20
100	19	22	21	22
120	20	25	23	25
150	23	29	27	29
175	25	32	30	32
200	27	35	33	35
240	31	40	38	40

Impact Resistance

8.2 The surfaces of Rokcore panels are susceptible to impacts from hard and sharp bodies. Care must therefore be taken when installing the system. The likelihood of impact damage to the system during use should be considered at the design stage, and appropriate protection such as the installation of bollards or barriers should be considered for vulnerable areas.

Design Method

8.3 The design method for the Rokcore Panel System is contained in the Technical Literature.

8.4 The maximum design load for the selection of Rokcore Panel screw fixings is 1 kN, as at this level deformation of the panel starts to occur. The fastener and the structural frame material at the point of connection must be capable of achieving this load.

Durability

Serviceable Life

9.1 When installed and maintained in accordance with the specifications and installation instructions contained within the Technical Literature, the Rokcore Panel System has an expected serviceable life of greater than 15 years.

9.2 Where Rokcore 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 Bradcore Panel Systems should be contacted to determine the correct panel coating selection is made to ensure the required service life of the system is achieved.

Maintenance

9.3 Regular maintenance is essential for Rokcore Panel System installations to maximise the serviceable life of the system.

9.4 An inspection of Rokcore Panel System installations should be undertaken at least annually to determine the condition of the whole building. Items to be checked include, but are not limited to:

- dirt – any accumulation of dirt should be washed from the surface of the panels
- painted surfaces – evaluate the surface condition and determine if repainting is necessary
- scratches and dents – these need to be identified and repaired
- flashing fixing screws – check the tightness of the screws.
- corrosion of cut edges of flashings – check the condition of cut edges
- flashing tightness – check that the flashings are tight against the panel.

See the Technical Literature for details on repair techniques.

Table 2: Summary of Maximum Heights (metres) for Given Fire Resistance Ratings of Vertically Oriented Rokcore Panels

Note: Heights may be limited by structural and serviceability requirements.

Core Type	Panel Thickness (mm)	FRR				
		-/60/60	-/90/90	-120/120	-/180/180	-/240/240
50F, 75F	80	10	8	-	-	-
	100	10	8	8	-	-
	120	10	8	8	-	-
	150	10	10	10	8	-
	200	10	10	10	10	10
	240	12	12	12	12	10
50C, 75C	100	6	-	-	-	-
	120	6	-	-	-	-
	150	8	8	-	-	-
	200	8	8	8	8	-
	240	10	10	10	10	10

Outbreak of Fire

10.1 The Rokcore Panel System has not been assessed for construction associated with heating appliances and must not be used as such.

Control of Internal Fire and Smoke Spread

11.1 For the purposes of complying with the requirements for internal surface finishes, Rokcore Panels have a Spread of Flame Index (SFI) of 0 (zero) and a Smoke Developed Index (SDI) of 2 (two). This means that they can be used in buildings containing any purpose group in accordance with NBZC Acceptable Solution C/AS1 Part 6, Table 6.2.

11.2 Methods of and details for constructing fire resistant Rokcore Panel Systems are given in the Technical Literature.

11.3 In order to satisfy the requirements of NZBC C4 Structural Stability During Fire, designers must ensure that the fire rated elements are supported by building elements having at least the same Fire Resistance Rating (FRR) as the fire rated element they are supporting.

11.4 Requirements for FRR's are specified in the NZBC. Rokcore Panel System walls can achieve FRR's of up -/240/240 for non-loadbearing walls. Fire Resistance Ratings for the different panel core types and vertical panel orientation are given in Table 2. Note that the maximum heights given in Table 2 may be limited by structural and/or serviceability requirements. Fire Resistance Ratings for the different core types and horizontal panel orientation (for horizontal spans limited to 8 metres) are given in Table 3.

11.5 50 mm thick 50F and 75F Rokcore Panels can achieve FRR's of -/30/30 and 80 mm thick 50C and 75C Rokcore Panels can achieve FRR's of -/60/60, however Bradcore Panel Systems should be contacted to determine the maximum height allowable when used vertically and the maximum length when used horizontally.

11.6 When used as a ceiling, the Rokcore Panel System can achieve the FRR's given in Table 4.

Table 3: Fire Resistance Ratings for Horizontally Oriented Rokcore Panels

Note: Heights are limited by structural and serviceability requirements. All horizontal spans limited to 8 metres.

Core Type	Thickness (mm)	FRR (min)
50F, 75F	80	-/90/90
	100	-/120/120
	120	-/120/120
	150	-/180/180
	200	-/240/240
	240	-/240/240
50C, 75C	100	-/60/60
	120	-/60/60
	150	-/90/90
	200	-/180/180
	240	-/240/240

Table 4: Fire Resistance Rating for Rokcore Panels used as a Ceiling

Core Type	Thickness (mm)	FRR (min)
75F	100	-/90/90

Thermal Resistance

12.1 The thermal resistance of Rokcore Panels are given in Table 5. These values do not include surface resistances or thermal bridging effects such as joints, framing and panel connectors.

Table 5: Thermal Resistance

Core Type	Thermal Conductivity (W/mK)	Thermal Resistance (R-value), m ² K/W @ 15°C							
		Panel Thickness (mm)							
		50	80	100	120	150	175	200	240
Rokcore 50C	0.043	1.18	1.87	2.33	2.78	3.44	3.99	4.53	5.37
Rokcore 50F	0.047	1.08	1.72	2.15	2.57	3.21	3.73	4.26	5.09
Rokcore 75C/F	0.046	1.09	1.73	2.15	2.57	3.20	3.72	4.23	5.04

Health and Safety

13.1 If the Rokcore Panels are to be cut using high-speed cutting tools, then it is strongly recommended that a particulate respirator conforming to AS/NZS 1715 and AS/NZS 1716 be worn.

Quality

17.1 The quality of manufacture of the Rokcore panels, components and accessories by Bradcore Panel Systems has been examined by Bureau Veritas for BRANZ and found to be satisfactory.

17.2 Bradcore Panel Systems are responsible for the quality of product supplied.

17.3 Quality on-site is the responsibility of the installer.

17.4 Designers are responsible for the building design, including weathertightness design of penetrations, and installers are responsible for the quality of installation of the Rokcore Panel System components and accessories in accordance with the Technical Literature.

17.5 Building owners are responsible for the maintenance of the Rokcore Panel System after installation.

Installation Information**General**

14.1 Installation of the Rokcore Panel System must be in accordance with the Rokcore Panel System Technical Literature.

Inspections

14.2 For inspection, reference must be made to the specific building design documentation and Bradcore's installation information.

Basis of Appraisal**Tests**

15.1 Fire testing has been carried out for Bradcore Panel Systems to determine the performance of Rokcore Panel Systems under fire conditions. The test methods and results have been reviewed by BRANZ and found to be satisfactory.

15.2 The simultaneous determination of ignitability, flame propagation, heat release and smoke release test, AS/NZS 1530.3, was carried out on Rokcore Panel samples for Bradcore Panel Systems. The results have been reviewed by BRANZ and found to be satisfactory.

15.3 Thermal conductivity testing was carried out by BRANZ to AS/NZS 4859.1 on Rokcore Panel samples.

Other Investigations

16.1 The Rokcore Panel System Technical Literature has been reviewed by BRANZ and found to be satisfactory.

16.2 Site visits have been carried out to assess the practicability of installation.

16.3 Opinions on structural, durability, and fire resistance aspects were given by BRANZ technical experts.

Sources of Information

- AS/NZS 1170 Structural design actions.
- AS/NZS 1530.3 - 1999 Simultaneous determination of ignitability, flame propagation, heat release and smoke release.
- AS/NZS 1715 – 1994 Selection, use and maintenance of respiratory protective devices.
- AS/NZS 1716 – 2003 Respiratory protective devices.
- AS/NZS 4859.1: 2002 - Materials for the thermal insulation of buildings - General criteria and technical provisions.
- NZS 3101:1995 The design of concrete structures.
- NZS 3404:1997 Steel structures standard.
- NZS 4203:1992 General structural design and design loadings for buildings.
- New Zealand Building Code Handbook and Approved Documents, Building Industry Authority, 1992.
- The Building Regulations 1992, up to and including June 2007 Amendment.
- European Recommendations for Sandwich Panels, CIB Publication 257, 2000.



BRANZ

In the opinion of BRANZ, [Rokcore Panel 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 [Bradcore Panel Systems](#), 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. [Bradcore Panel Systems](#):
 - 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 [Bradcore Panel Systems](#).
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 [Bradcore Panel Systems](#) or any third party.

For BRANZ

C Preston
Chief Executive

Date of issue: 25 September 2007