



Fire Safety Design Report



Toilet Alterations

Block A
St. Teresa's Primary School
63 Bell Street
Featherston

Reference	Revision	Date	Comment
17063R01	-	th May 2017	

INTRODUCTION

This assessment has been undertaken in order to review the proposed toilet alterations to the existing Block A at St. Teresa's Primary School, 63 Bell Street, Featherston and report on the fire safety requirements of the NZ Building Act 2004 and New Zealand Building Code.

FIRE ENGINEERING DESIGN PHILOSOPHY

This assessment has been undertaken in accordance with Section 112 of the New Zealand Building Act 2004 and has taken into consideration the requirements of the New Zealand Building Code (NZBC) clauses C/AS4 (Fire Safety), F6/AS1 (Visibility in Escape Routes), F7/AS1 (Warning Systems) and F8/AS1 (Signs).

NZ FIRE SERVICE DESIGN REVIEW UNIT

According to "Building Controls Update No. 132: Gazette notice updated for fire design review" and "Gazette Notice 49", designs for building consent must be submitted to the Fire Service Commission **when both criteria 1 and 2 below are met:**

Criteria 1 - Building type

Only the following types of buildings require designs be submitted to the Fire Service Commission (provided the design/building work meets one of Criteria 2 below):

Buildings (or parts of buildings) used for:

- gathering together of 100 or more people (for any purpose)
- employment for 10 or more people
- accommodation for 6 or more people (other than in 3 or fewer household units)
- hazardous substances in quantities exceeding prescribed minimum amounts
- early childhood facilities
- nursing, medical, or geriatric care
- specialised care for persons with disabilities
- lawful detention of people (not home or community detention).

Excluding the following:

- Crown buildings that are specified by the Minister in the Gazette premises of diplomatic missions
- single household units
- buildings in which every fire-cell is a household unit separated vertically from the other fire-cells, and each fire-cell has independent and direct egress to a safe place outside the building
- an internal fit-out, unless the fit-out relates to a change of use
- outbuildings or ancillary buildings.

Criteria 2 - Designs/building work type

Consent applications need to be sent to the Fire Service Commission in any of the following circumstances:

- Designs for new buildings using alternative solutions (not using an Acceptable Solution or Verification Method) to comply with any of the following Building Code clauses:
 - C1-C6 Protection from Fire
 - D1 Access routes
 - F6 Visibility in escape routes
 - F8 Signs.
- When waivers or modifications to any of the above Building Code clauses are required.
- Alterations, change of use or subdivisions that have a more than minor effect on fire safety systems.

As the proposed work will not have more than a minor effect on the fire safety systems, **this application for Building Consent is not required to be sent to the NZ DRU.**

FIRE SAFETY AND EVACUATION OF BUILDINGS REGULATIONS 2006 AND HAZARDOUS SUBSTANCES AND NEW ORGANISMS ACT (HSNO)

This fire safety assessment does not take into consideration the requirements of the “Hazardous Substances and New Organisms Act” (HSNO) or the “Fire Safety and Evacuation of Buildings Regulations 2006” and it is important that the owners understand their legal requirements to comply with these legal documents.

A copy of the above Act and Regulation is available free of charge from <http://www.legislation.govt.nz>

BUILDING DESCRIPTION

St Teresa's School is a relatively small primary school based in Featherston. Block A to which the minor alterations are proposed is a standalone single storey block with two classrooms, resource rooms as well as the school administration offices.

PROJECT DESCRIPTION

The proposed work is limited to re-locating the toilets further down the block to where the resource room 1 currently is. New windows and exit door will also be installed around the toilet area. The vacant space left by the toilet relocation will be used as a store room.

BASIS OF REPORT

This assessment has been based on the drawings forming Appendix 1 of this report as well as a site visit undertaken on the 8th of May 2017.

PART 1: GENERAL

Risk group

The principal risk group for the building is CA in accordance with Table 1.1, C/AS4.

Design occupancy

The Principal has explained that the entire school has a maximum of 100 students when the role is full and 10 staff giving a maximum occupancy of 110 persons.

The design occupancy for the altered Block A based on C/AS4 is considered to be;

Classroom 1: 53m² approx. / 2m² per person = 27 persons

Classroom 2: 53m² approx. / 2m² per person = 27 persons

Admin offices: 49m² approx. / 10m² per person = 5 person

Ancillary areas (used by persons counted elsewhere) = 0 persons

Total = 59 persons

The design occupancy is in line with the actual occupancy as each classroom has a maximum of 25 students (currently 15-17) and 2 teachers (usually only 1).

PART 2: FIRECELLS, FIRE SAFETY SYSTEMS AND FIRE RESISTANCE RATINGS

Escape heights

The existing building is single storey.

Fire safety systems

A Type 2 manual fire alarm system is required within the building and currently a manual fire alarm system is present and is not affected by the proposed toilet alterations.

A fire hydrant system is not required as the fire service hose run distance is less than 75m to any point of the building.

PART 3: MEANS OF ESCAPE

Number of escape routes

The building has a minimum of two escape routes which terminate at a safe place (outside) as indicated on the attached plan, and this satisfies the requirements of the Acceptable Solutions.

Escape route width

The clear egress width from the altered area is required to be a minimum of 850mm for horizontal travel (1200mm along the accessible route and 760mm through doorways) in accordance with C/AS4.

Escape route length

The following are the allowable and actual worst case escape distance from the altered area of the building.

Allowable Escape Distance		
	D.E.O.P	T.O.P
CA	20m	50m
Actual Escape Distance		
	D.E.O.P	T.O.P
Worst case	5m	26.5m

The actual escape distances are within the allowable maxima.

Signage

Illuminated or photo-luminescent (glow in the dark) exit signs shall be provided in accordance with clause F8/AS1 as indicated on the attached plans.

Emergency lighting

Emergency lighting shall be provided above the changes in level along the escape routes as indicated on the attached plans in accordance with clause F6/AS1 and AS/NZS 2293.2:1995.

PART 4: CONTROL OF INTERNAL FIRE AND SMOKE SPREAD**Interior surface finishes**

Any new internal surface finishes (paints etc) on ceilings and walls are required to satisfy the group number requirements of Section 4.17.7, C/AS4.

Surface Finishes	
Location	Group Number
> 1.2m off the ground	2S or less
< 1.2m off the ground	3 or less

Please refer to Appendix 2 for the Resene Paint Test data which may be used to satisfy the above requirements.

Flooring

The proposed flooring (carpet, vinyl etc) shall have a critical radiant heat flux of not less than that specified in Table 4.2 of C/AS4 being 2.2 kW/m². This information can be obtained from the flooring manufacturer.

Suspended flexible fabrics (curtains etc)

New suspended flexible fabrics (curtains etc) if any shall have a flammability index of no greater than 12 when tested to AS 1530 Part 2. This information may be obtained from the manufacturer.

PART 5: CONTROL OF EXTERNAL FIRE SPREAD

The proposed window openings are located on external walls which are remote from the boundaries and therefore the walls may be 100% unprotected.

FIRE SAFETY INSPECTIONS

Any fire safety construction inspections required as part of the Building Consent can be carried out by the Building Consent Authority. There are no specific inspections required to be carried out by a Fire Engineer.

COMPLIANCE SCHEDULE

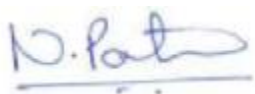
There are no changes proposed to the existing compliance schedule issued for the building with the exception that the proposed emergency lighting shall be installed, maintained and inspected in accordance with AS/NZS 2293.2:1995.

SUMMARY

1. The clear egress width from the altered area is required to be a minimum of 850mm for horizontal travel (1200mm along the accessible route and 760mm through doorways) in accordance with C/AS4.
2. Illuminated or photo-luminescent (glow in the dark) exit signs shall be provided in accordance with clause F8/AS1 as indicated on the attached plans.
3. Emergency lighting shall be provided above the changes in level along the escape routes as indicated on the attached plans in accordance with clause F6/AS1 and AS/NZS 2293.2:1995.
4. Any new interior surface finishes (paints etc) on ceilings and walls shall comply with the requirements of this report.
5. Any new flooring (carpet, etc) shall have a critical radiant heat flux of not less than that specified in this report.
6. Any new suspended flexible fabrics (curtains etc) shall have a flammability index of no greater than 12 when tested to AS 1530 Part 2.

Report Prepared by

Vishnu Fire Safety Limited



Nirav Patel

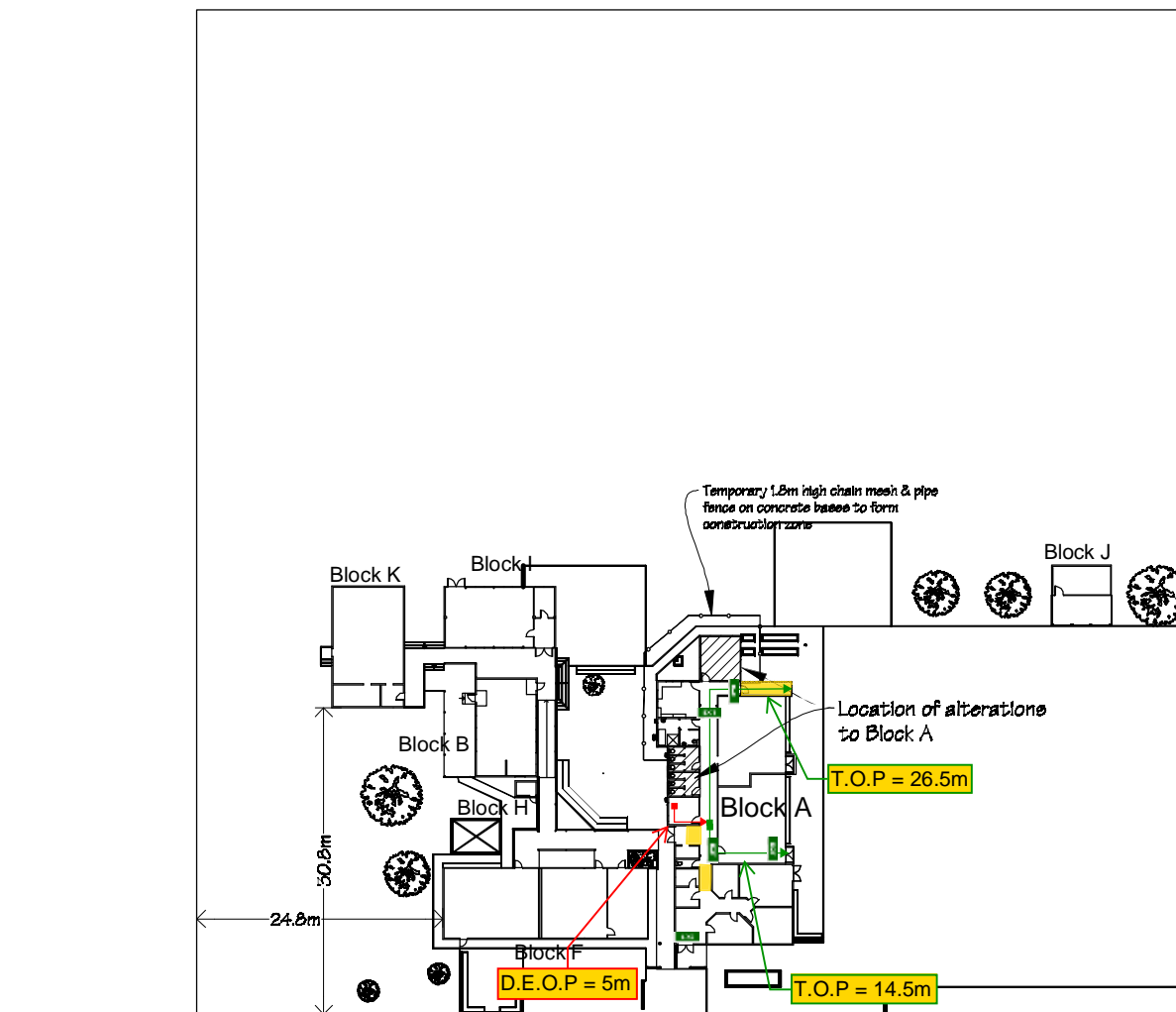
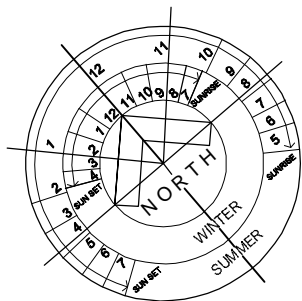
Fire Engineer / Director

BBSc, G.Dip (Fire.Safe.Eng)

nirav@vishnufiresafety.co.nz

APPENDIX 1

DRAWINGS



BIRDWOOD STREET

BELL STREET

Illuminated or photo - luminescent glow in the dark exit signs to clause F8/AS1

Area to be covered by emergency lighting to clause F6/AS1

LEGAL INFORMATION
Lot 1
DPB2226
ADDRESS
63 Bell Street
Featherston
SITE INFORMATION
Exposure Zone B.
Earthquake Zone 3.
Wind Zone - Very High



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Web www.irbuild.co.nz

St. Teresa's School
63 Bell Street
Featherston

Block A
Toilet Alterations

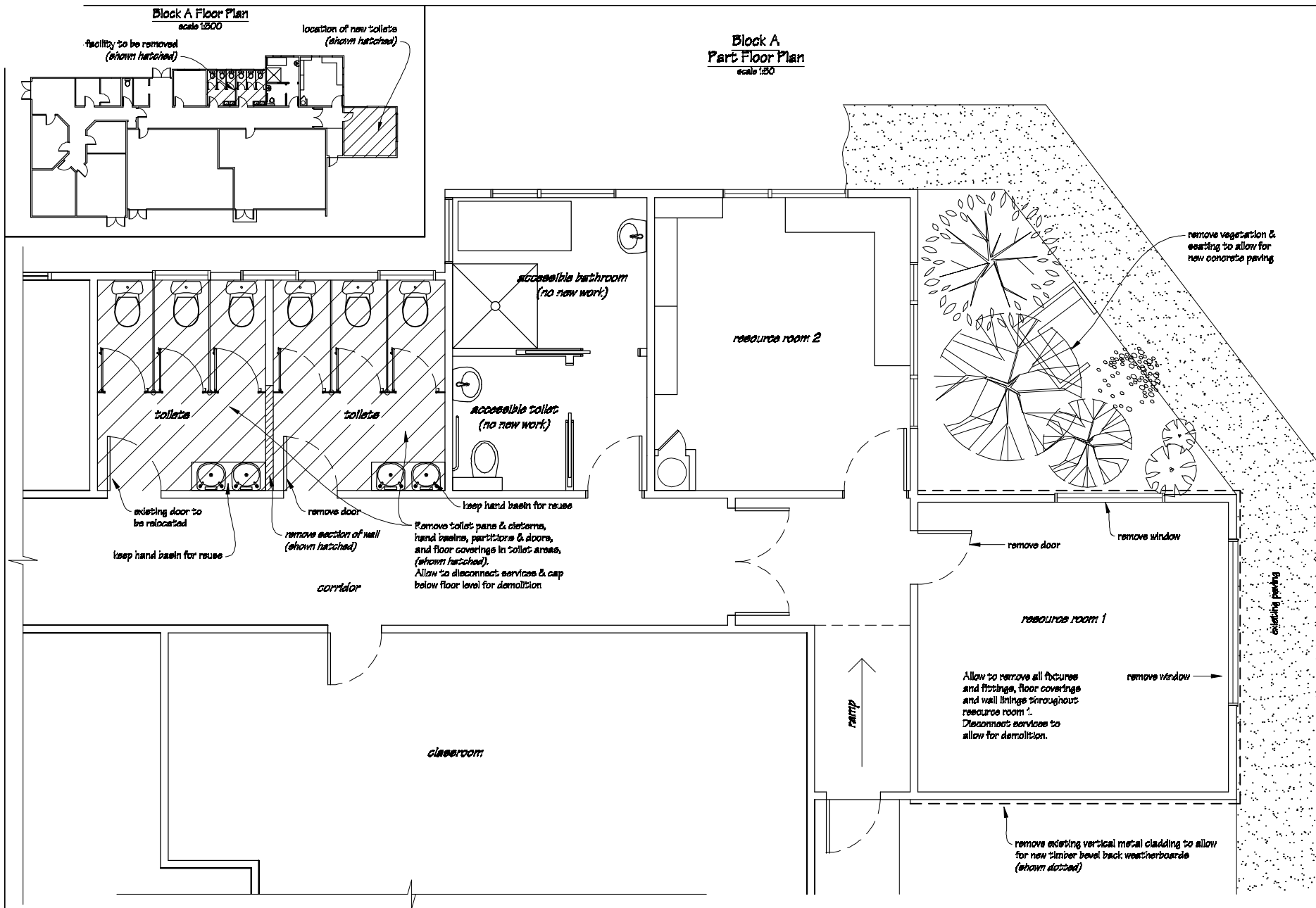
Site Plan

Revisions
No
Date
Description

Scale
1:500
Date
28/11/18
Original sheet size
A3
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6.1.
Sheet No
1 of 15
Drawn By

Pricing/Building Consent
Drawings

Do not scale from drawings.
Check all dimensions on site.



 IR Group Ltd <small>Southern Island Development Corporation</small>	Phone- Office 04 526-7711 Mobile- Ian 021-427-347 Mobile- Stephen 027-3355889 Email- ian@irgroup.co.nz steve@irgroup.co.nz Web- www.irgroup.co.nz	St. Teresa's School 63 Bell Street Featherston	PROJECT: Block A Toilet Alterations	DRAWING TITLE Existing Floor Plan	REVISIONS <table><tr><th>No</th><th>Date</th><th>Description</th></tr><tr><td> </td><td> </td><td> </td></tr></table>	No	Date	Description				<table><tr><td>Scale</td><td>as shown</td></tr><tr><td>Date</td><td>28/11/18</td></tr><tr><td>Original sheet size</td><td>A3</td></tr><tr><td>Drawn</td><td>S.T.</td></tr><tr><td>Sheet No</td><td>2 of 16</td></tr><tr><td>Proj Ref</td><td>2</td></tr></table>	Scale	as shown	Date	28/11/18	Original sheet size	A3	Drawn	S.T.	Sheet No	2 of 16	Proj Ref	2	Pricing/Building Consent Drawings <i>Do not scale from drawings. Check all dimensions on site.</i>
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APPENDIX 2

RESENE PAINT TEST INFORMATION

Resene Paint Systems - Fire Ratings



The listed Resene paint systems over the listed substrate have been fire tested using a cone calorimeter in accordance with ISO 5660 to determine Group Classification in accordance with New Zealand Building Code (NZBC) Verification Method C/VM2 Appendix A; National Construction Code (NCC) Volume One Specification C1.10 and A2.4 of the Building Code of Australia

Substrate	Undercoat (1 coat unless otherwise stated)	Topcoat (2 coats unless otherwise stated)	Indicated Group No.	Test Report
10mm Paperfaced Plasterboard	Resene Broadwall Waterborne Wallboard Sealer (SR 10 sqm/L)	Resene SpaceCote Low Sheen (SR 15 sqm/L)	1-S (NZBC) 1 (NCC)	FH4967
10mm Paperfaced Plasterboard	Resene Broadwall Waterborne Wallboard Sealer (SR 10 sqm/L)	Resene SpaceCote Flat (SR 15 sqm/L)	1-S (NZBC) 1 (NCC)	FH4967
10mm Paperfaced Plasterboard	Resene Broadwall Waterborne Wallboard Sealer (SR 10 sqm/L)	Resene Zylone Sheen (SR 15 sqm/L)	1-S (NZBC) 1 (NCC)	FH4967
10mm Paperfaced Plasterboard	Resene Broadwall Waterborne Wallboard Sealer (SR 10 sqm/L)	Resene Ceiling Paint (SR 12 sqm/L)	1-S (NZBC) 1 (NCC)	FH4967
10mm Paperfaced Plasterboard	Resene Sureseal (SR 15 sqm/L)	Resene SpaceCote Flat (SR 14 sqm/L)	1-S (NZBC) 1 (NCC)	7-593235-CO
10mm Paperfaced Plasterboard	Resene Sureseal (SR 15 sqm/L)	Resene Lustacryl (SR 14 sqm/L)	1-S (NZBC) 1 (NCC)	7-593262-CO
13mm Paperfaced Plasterboard	Resene Broadwall Waterborne Wallboard Sealer (SR 11 sqm/L)	Resene ClinicalCote Satin (SR 14 sqm/L)	1-S (NZBC) 1 (NCC)	FH4925
13mm Paperfaced Plasterboard	Resene Broadwall Waterborne Wallboard Sealer (SR 11 sqm/L)	Resene ClinicalCote Low Sheen (SR 15 sqm/L)	1-S (NZBC) 1 (NCC)	FH4925
13mm Paperfaced Plasterboard	Resene Broadwall 3 in 1 (SR 2.5 sqm/L)	Resene ClinicalCote Satin (SR 14 sqm/L)	1-S (NZBC) 1 (NCC)	FH4925
13mm Paperfaced Plasterboard	Resene Broadwall 3 in 1 (SR 2.5 sqm/L)	Resene ClinicalCote Low Sheen (SR 15 sqm/L)	1-S (NZBC) 1 (NCC)	FH4925
13mm Paperfaced Plasterboard	Resene Broadwall Surface Prep & Seal (SR 6 sqm/L)	Resene ClinicalCote Satin (SR 14 sqm/L)	1-S (NZBC) 1 (NCC)	FH4925
13mm Paperfaced Plasterboard	Resene Broadwall Surface Prep & Seal (SR 6 sqm/L)	Resene ClinicalCote Low Sheen (SR 15 sqm/L)	1-S (NZBC) 1 (NCC)	FH4925
13mm Paperfaced Plasterboard	Resene Broadwall 3 in 1 (2 coats) (SR 7 sqm/L)	-	1-S (NZBC) 1 (NZBC)	FAR3981
13mm Paperfaced Plasterboard	Resene Broadwall 3 in 1 (SR 7 sqm/L)	Resene Zylone Sheen VOC Free (SR 16 sqm/L)	1-S (NZBC) 1 (NZBC)	FAR3981
13mm Paperfaced Plasterboard	Resene Broadwall 3 in 1 (SR 7 sqm/L)	Resene SpaceCote Low Sheen (SR 16 sqm/L)	1-S (NZBC) 1 (NZBC)	FAR3981
13mm Paperfaced Plasterboard	Resene Waterborne Smooth Surface Sealer (SR 12 sqm/L)	Resene SpaceCote Low Sheen (SR 16 sqm/L)	1-S (NZBC) 1 (NZBC)	FAR3981
13mm Paperfaced Plasterboard	Resene Broadwall Waterborne Wallboard Sealer (SR 10 sqm/L)	Resene Ceiling Paint (SR 12 sqm/L)	1-S (NZBC) 1 (NZBC)	FAR3981
6mm Fibre Cement Board	Resene Quick Dry (SR 12 sqm/L)	Resene Uracryl 802 (SR 16 sqm/L)	1-S (NZBC) 1 (NCC)	FH5139*
6mm Fibre Cement Board	Resene Quick Dry (SR 12 sqm/L)	Resene Uracryl 803 (SR 16 sqm/L)	1-S (NZBC) 1 (NCC)	FH5139*
6mm Fibre Cement Board	Resene Sureseal (SR 12 sqm/L)	Resene Uracryl 802 (SR 16 sqm/L)	1-S (NZBC) 1 (NCC)	FH5139*

6mm Fibre Cement Board	Resene Sureseal (SR 12 sqm/L)	Resene Uracryl 803 (SR 16 sqm/L)	1-S (NZBC) 1 (NCC)	FH5139*
8mm MDF	Resene Quick Dry (SR 12 sqm/L)	Resene Fireguard (SR 3.5 sqm/L)	3 (NZBC) 3 (NCC)	FH5137
8mm MDF	Resene Quick Dry (SR 12 sqm/L)	Resene Fireguard (SR 3.5 sqm/L), Resene SpaceCote Low Sheen (SR 14 sqm/L)	3 (NZBC) 3 (NCC)	FH5137
18mm MDF	Resene Quick Dry (SR 12 sqm/L)	Resene Fireguard (SR 3.5 sqm/L)	3 (NZBC) 3 (NCC)	FH5137
18mm MDF	Resene Quick Dry (SR 12 sqm/L)	Resene Fireguard (SR 3.5 sqm/L), Resene SpaceCote Low Sheen (SR 14 sqm/L)	3 (NZBC) 3 (NCC)	FH5137
9mm thick 'A' grade plywood	Resene Aquaclear Semi-Gloss	Resene Aquaclear Semi-Gloss (3 coats SR 12 sqm/L)	3 (NZBC)	FAR3981
≥ 26mm Metrapanel	Pre-primed	Resene Fireguard (SR 1 sqm/L), Resene SpaceCote Low Sheen (SR 16 sqm/L)	1-S (NZBC) 1 (NCC)	FH5334

Notes:

Test reports give the Group rating determined by application of a paint system to a given substrate thickness. The same Group rating applies to the paint system applied to greater thicknesses of the substrate given in the test report.

The Group rating of a given substrate coated with a standard 3 coat acrylic paint system will be the same as the uncoated substrate.

FH5139*

It is considered that the resulting Group Classifications achieved by paint systems on fibre cement substrates would not be adversely affected if applied to a concrete substrate. Paint system applied at coverage rates not less than the minimum specified for the fibre cement substrate.

31 Jan 2014