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MAURICEVILLE SCHOOL
BLOCK 1 ADMINISTRATION AREA ALTERATIONS

MAIN ROAD
RD2
MASTERTON

MAURICEVILLE SCHOOL BOARD OF TRUSTEES

VERSION A

29 JUNE 2016

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ISSUE AUTHORISATION

Project: Mauriceville School – Block 1 Administration Alterations

Project No. 115091

Version	Date	Status	Written	Reviewed
A	29 June 2016	For Consent	VAD	DCR

Version	Extent of revision

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Reviewed by:

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The building owner must be aware that the fire safety solutions described in this report address the requirements of the Building Code. Consideration of protection of the building owner's property is not included unless this has been specifically requested.



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1 PURPOSE

The purpose of this report is to determine the minimum fire safety precautions that must be installed within the existing Block 1 building at Mauriceville School, Masterton to demonstrate compliance with Section 112 of the New Zealand Building Act 2004 with respect to the fire regulations.

This is a legal requirement whereby it must be shown that after the completion of works, the objectives of the New Zealand Building Code relating to means of escape from fire are satisfied to the extent required by the Act.

This Fire Safety Strategy Report includes a performance based Scope of Works advising of fire safety issues affecting architecture, building services and structure in accordance with the requirements of the New Zealand Building Code.

As such this report is a performance document that is intended to be used by the Architect and other consultants in implementing their detailed designs and preparing their working drawings and specifications. The consultants whose documentation is required to incorporate the requirements of this Fire Safety Strategy Report are expected to have read this report, understood the implications as it affects their scope of work and have incorporated the relevant fire safety requirements into their drawings and specifications.

This is not a 'For Construction' document, and shall be read in conjunction with all other appropriate project design documents (drawings, specifications, and other documents) prepared by the other design disciplines.

2 DESIGN PHILOSOPHY

To demonstrate compliance with the relevant fire safety clauses of the Building Code, the following Compliance Documents have been adopted as the design basis:

1. C/AS4 -Acceptable Solution for Buildings with Public Access and Educational Facilities, Risk Group CA, Amendment 3, 1 July 2014.

2.1 New Zealand Fire Service Commission

In accordance with section 46(1) of the Building Act 2004 some kinds of applications for Building Consent must be provided to the New Zealand Fire Service Commission for

The proposed works constitute an internal fit-out only, therefore under Clause 3(c) of the Gazette we believe this application need not be forwarded to the New Zealand Fire Service Commission.



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3 GENERALLY

The block 1 admin building is a stand-alone single level school building at the Mauriceville School in Mauriceville, Masterton. The building contains two classrooms, a library, offices, staff room and related amenities.

The proposed works consists of refurbishing the administration areas of the building removing the library and extending the office and staff room space. As part of these works the surface linings in the area of alterations will be replaced. The remaining areas of the building will not be altered as part of the works.

The school roll is currently under 30 pupils and have been so for many years. The building has no alarm system installed. The corridors and classrooms in the building were upgraded with new internal surface linings five years ago.

4 SCOPE OF WORKS

We believe that the proposed alterations to the Block 1 Building will be in compliance with the objectives of the New Zealand Building Code clauses C1 to C6 Protection from Fire, to the extent required by the Building Act, based on implementation of the following Scope of Works. This shall be read in conjunction with the attached Fire Safety Sketches.

4.1 Means of Escape and Wayfinding

- 4.1.1 Doors are permitted to open in the direction shown on the attached plans.
- 4.1.2 All doors on escape routes shall have a clear height of no less than 1955 mm for the required width of the opening.
- 4.1.3 All locking devices on doors on escape routes from the area of alteration shall be clearly visible, located where such a device would normally be expected, designed to be easily operated without a key or other implement and allow the door to open in a normal manner.
- 4.1.4 Doors on escape routes from the area of alteration that are fitted with electronic locking devices shall also be fitted with a push button or switch that releases the lock and allows the door to be opened (in the direction of escape) without a swipe card or key code, unless the doors act under free handle. This push button or switch may be placed behind a break-glass panel but must be clearly labelled "Emergency door release". Electromechanical locks that are not free handle are required to unlock (fail safe/open) in the event of power failure or door malfunction.
- 4.1.5 Emergency lighting is required within the building in accordance with F6/AS1.



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- 4.1.6 Exit signage is required to be installed throughout the area of alteration in accordance with F8/AS1 (note that F8/AS1 4.5.1 permits signs to be internally illuminated, externally illuminated or photoluminescent).

Indicative locations of exit signs are shown on the attached plans; however these do not take account of possible obscuration due to the installation of storage racks, plant, furniture and other fittings and therefore should not be assumed to depict all required signs.

4.2 Control of Internal Fire and Smoke Spread

- 4.2.1 Throughout the building any new the internal surface finishes shall meet the following early fire hazard indices limitations (when tested to ISO 9705 as per C/VM2 Clause A1.2, or ISO 5660 as per C/VM2 Clause A1.3).

Building Elements	Location	Maximum Material Group
Ceilings and walls	All occupied spaces	2S
HVAC ducts	Internal surfaces	1S
	External surfaces	3

The correlation of wall and ceiling surface finishes derived from Australian or European classifications to the Group Number requirements of NZBC Clause 3.4(a) can, without the need for further testing, be taken as described in the following table (reference <http://www.building.govt.nz/building-code-compliance/c-protection-from-fire/c-clauses-c1-c6/surface-finishes/overview/>).

Group Number to NZBC Clause C3.4(a) using ISO 9705:1993	Australian Group Number to NCC Specification C1.10 Clause 4 using AS ISO 9705:2003	European Classification to EN 13501-1:2007+A1:2009
1-S	Group 1, and a smoke growth rate index not more than 100	Class A1, A2 or B and Smoke production rating s1 or s2
1	Group 1	Class A1, A2 or B
2-S	Group 2, and a smoke growth rate index not more than 100	Class C and Smoke production rating s1 or s2
2	Group 2	Class C
3	Group 3	Class D

- 4.2.2 Any foamed plastic building materials or exposed combustible insulating materials forming part of a wall, ceiling or roof system are required to have a completed system (foamed plastic and/or foamed plastic plus a surface lining)



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meeting the above maximum material group number as applicable for the location of this building material. In addition the foamed plastic is to meet the flame propagation criteria as specified in AS 1366. It is strongly recommended that foamed plastic materials are not used.

- 4.2.3 Any new flooring shall meet the following critical radiant flux limitations (when tested to ISO 9239-1).

Area of Building	Minimum Critical Radiant Flux [kW/m ²]
All occupied spaces	2.2

- 4.2.4 Within the building any new suspended flexible fabrics shall have a Flammability Index of no greater than 12 (when tested to AS 1530.2).

The scope of works above lists the fire safety precautions needed for compliance with the fire safety requirements of the Building Code, this scope of works should be read with the plans appended to this report. Information contained within the following sections of this report is technical information intended to assist in the approvals process only.



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5 MEANS OF ESCAPE

5.1 Risk Groups and Occupant Loads

The following is a summary of the design occupancies and risk group classifications within the building.

Table 1: Summary of Risk Groups and Occupant Loads

Level	Description	Risk Group	Area [m ²]	Occupant Density [m ² /person]	Occupant Load
G	Classrooms	CA	102	2	51
G	Staff Room	CA	23	5	5
G	Office	CA	16	10	2
G	Meeting	CA	16	2.5	10
	Total				68

The above occupant loads are based upon the methods recommended in the Acceptable solutions C/AS4.

5.2 Fire Safety Precautions and Fire Resistance Ratings

The following summarises the fire safety precautions for the building from C/AS4.

Table 2: Fire Safety Systems Required

Risk Group	Occ. Load	Escape Height [m]	Systems	Notes
CA	<100	<4	2 ¹ , 18 ²	

Explanatory Notes:

1. Not required where the escape routes serve no more than 50 people (in a single level building where the Risk Group is CA, WB).
2. Not required where Fire Service hose run distance from the point of Fire Service vehicular access to any point on any floor is less than 75 m.



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Table 3: Fire Resistance Ratings Required

Risk Group	Life Rating [min]	Property Rating [min]
CA	60	120

Given the above the proposed fire safety features are shown below with comparison to the requirements of C/AS4 as appropriate.

Table 4: Proposed Fire Safety Precautions

Feature	C/AS4 Requirement	Existing/Proposed Features
Fire Rating	(60)/60/60 between firecells.	As the building is considered a single firecell no internal fire separations are required or proposed.
Alarm System	As the escape routes serve less than 50 people, no alarm system is required. Additionally, MOE does not require manual call point systems in schools where staff and pupils totals less than 100.	No existing alarm system, and none proposed as part of the works.
Visibility in Escape Routes	Emergency lighting fixtures to be provided in accordance with F6/AS1.	Emergency lighting fixtures to be provided in accordance with F6/AS1.
Fire Hydrant System	Not required as Fire Service hose run distance is less than 75 m.	Not required as Fire Service hose run distance is less than 75 m.

Table 5: Other Precautions Related to Means of Escape

Feature	F6/AS1 and F8/AS1 Requirement	Existing/Proposed Features
Visibility in Escape Routes	Emergency lighting fixtures to be provided in accordance with F6/AS1.	Emergency lighting fixtures to be provided in accordance with F6/AS1.
Exit & Directional Signage	Exit and directional signage required accordance with F8/AS1.	Exit and directional signage required accordance with F8/AS1.



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5.3 Escape Route Features

The following summarises the configuration of the escape routes within the building.

CLASSROOMS

Occupants in both classrooms can exit to the main entrance via the entry corridor, or directly to the outside via an exit door in each classroom.

ADMIN AREA

Occupants in the admin area can exit to the main entrance via the entry corridor, or into the classroom via the library exiting to the back of the building.

5.4 Escape Route Widths

The following summarises the allowable and actual escape route widths provided from the floor level or area noted.

Table 6: Egress Width Requirements - Horizontal

Level	Description	Occ. Load	Total Width Required [mm]	Width Required Horiz. ¹ [mm]	Width Actual Horiz. [mm]
G	All Areas	68	469	2x760	1x1700 2x760

The above shows that the escape route widths within the building comply with the minimum requirements of C/AS4.

5.5 Travel Distances

The following summarises the allowable and actual travel distances, taking into account the permitted distances based on the installed fire safety systems.

Table 7: Summary of Actual and Permitted Travel Distances

Level	Description	DEOP Permitted [m]	DEOP Actual [m]	TOP Permitted [m]	TOP Actual [m]
G	Classrooms	20	5.5	50	25.6
G	Admin Area	20	8.4	50	24.6



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The above shows that the travel distances within the building comply with the maximum permitted by C/AS4.

6 SPREAD OF SMOKE AND FIRE

6.1 Internal Fire Rating Requirements

As the Life Rating of the building is 60 minutes, it is required under C/AS4 each firecell be separated with bounding construction that achieves a FRR of no less than (60)/60/60sm. As the building is considered a single firecell, no internal fire separations are required or proposed.

All new internal surface linings are to be fully compliant with the requirements of Section 4 of this report. The existing linings consists of painted GIB plasterboard wall linings and softboard ceilings. The surface finishes of the classrooms and corridors were upgraded 5 years ago and are considered to comply on an as near as is reasonably practicable basis.

7 DUTY OF CARE

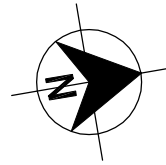
Please note that the solution we are proposing herein will meet the requirements of the New Zealand Building Code to the extent required by the Building Act with respect to the means of escape from fire only.

Under the New Zealand Building Act 2004, there is no requirement for the building owner to protect their own property other than to satisfy the life safety objectives of the Building Act. As such, in the event of a fire, it is possible that the property loss within the building could be significant.

The extent of emergency lighting specified in this fire report are minimum for fire safety only and does not specifically account for lighting that may be needed for other emergencies. Please note that other emergency lighting not specified in this report and not related to fire safety may be required for compliance with Clause F6 of the New Zealand Building Code.

Escape route widths specified in this fire report are minimum widths for fire safety only and do not specifically account for widths that may be needed for access for people with disabilities. Also note that other escape routes features (not specified in this report) and not related to fire safety may be required for compliance with Clauses D1 and F4 of the New Zealand Building Code.

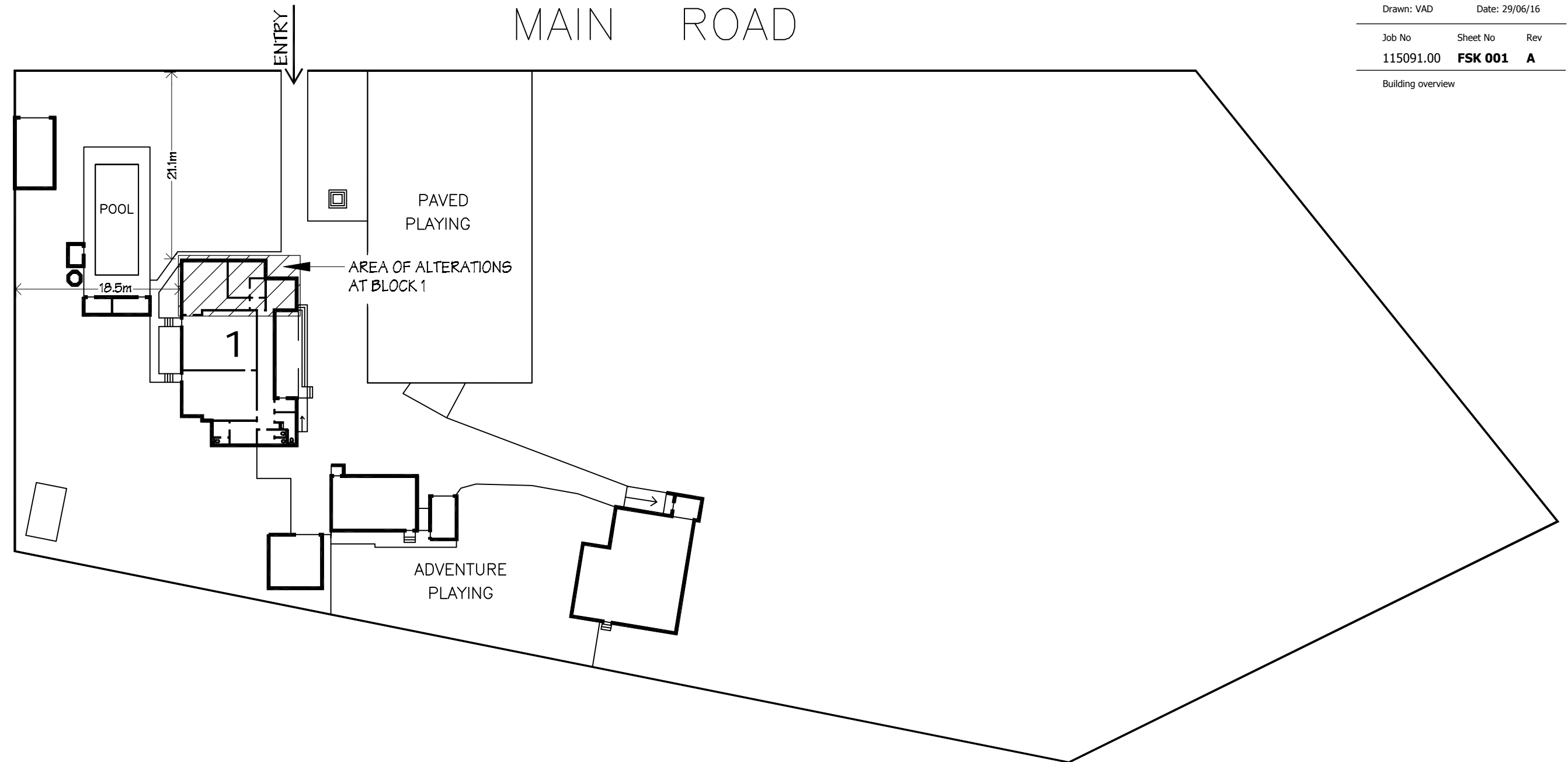
Submission of this Report for Building Consent implies full understanding and acceptance of the above.



Drawn: VAD Date: 29/06/16

Job No	Sheet No	Rev
115091.00	FSK 001	A

Building overview



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Mauriceville School
Main Road
RD2
Masterton

PROJECT
**Block 1
Administration Alterations**

DRAWING TITLE
Site Plan

REVISIONS		
No	Date	Description

Scale	1:500
Date	31/05/16
Original sheet size	A3
Drawn	S.T.
Sheet No	1 of 13
Dwg Ref	1

Pricing/Building Consent
Drawings
*Do not scale from drawings.
Check all dimensions on site*



Drawn: VAD Date: 29/06/16

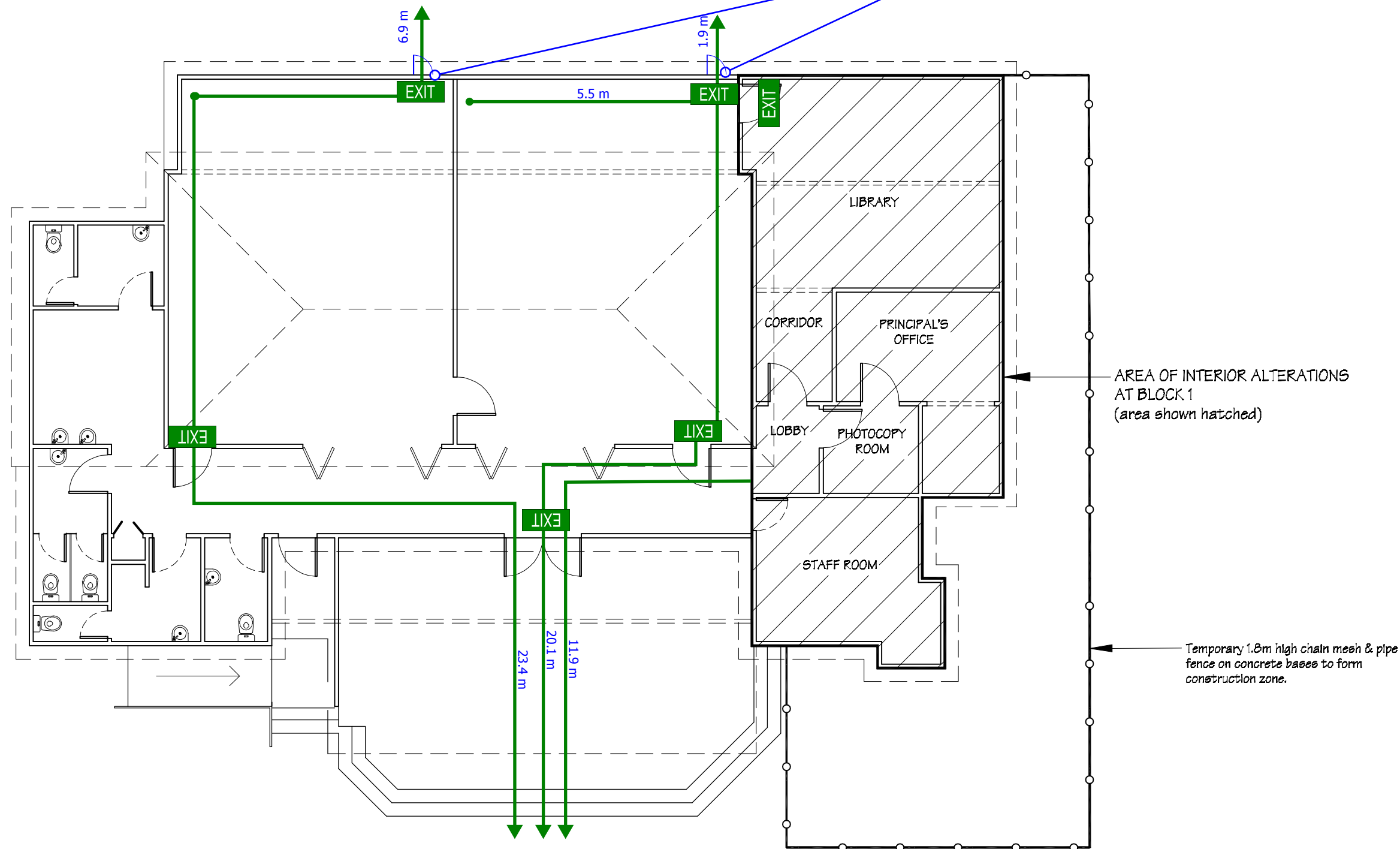
Job No Sheet No Rev
115091.00 FSK 002 A

This sketch does not constitute a complete fire engineering design or detail. Detailed construction drawings are provided by others. Best viewed in colour. Not all fire separations around ducts and shafts are shown.

Project Title
**Mauriceville School
Block 1 Admin area
alterations**

Sketch Title
Means of Escape

Legend
EXIT Exit Sign
→ Egress route (door to swing in direction of egress)



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Mauriceville School
Main Road
RD2
Masterton

PROJECT
**Block 1
Administration Alterations**

DRAWING TITLE
Block 1 Floor Plan

REVISIONS
No Date Description

Scale 1:100
Date 31/03/16
Original sheet size A3
Drawn S.T.
Sheet No 2 of 13
Dwg Ref 2

Pricing/Building Consent
Drawings
*Do not scale from drawings.
Check all dimensions on site*



Drawn: VAD Date: 29/06/16

Job No 115091.00 Sheet No FSK 003 Rev A

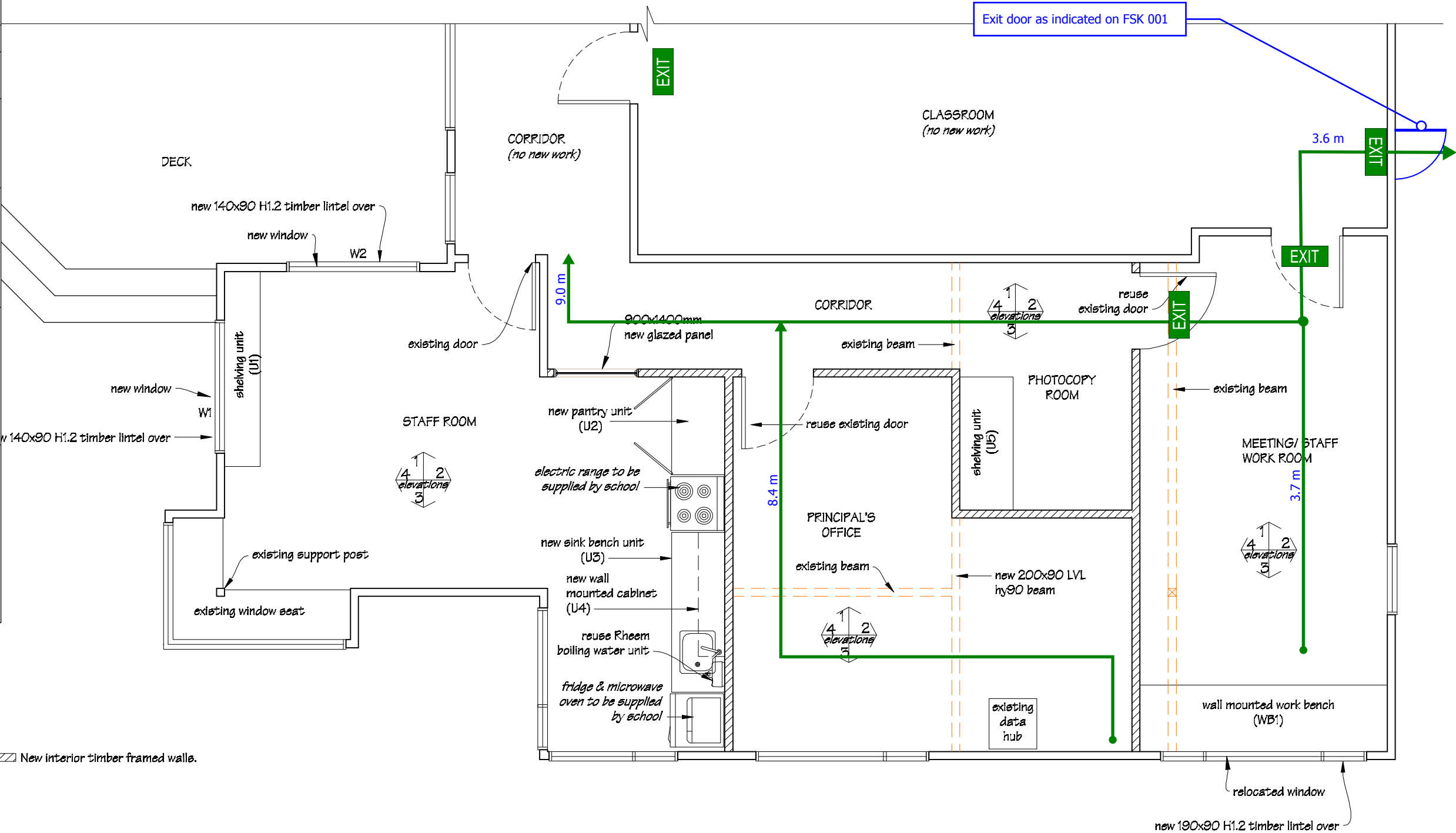
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Project Title
Mauriceville School
Block 1 Admin area
alterations

Sketch Title
Means of Escape
Admin Areas

Legend

EXIT Exit Sign
Egress route (door to swing in direction of egress)



 IR Group Ltd Design - Project Management - Planning	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	PROJECT Mauriceville School Main Road RD2 Masterton	Block 1 Administration Alterations	DRAWING TITLE Proposed Administration Floor Plan	REVISIONS No Para Description	Scale 1:50	Pricing/Building Consent Drawings Do not scale from drawings. Check all dimensions on site.
						Date 31/03/16	
						Original sheet size A3	
						Drawn S.T.	
						Sheet No 4 of 13	
						Dwg Ref 4	