



Section L Certification

Logicwall® Certification, Load resistance, FRL Certification, CSIRO Assessment, Acoustic Performance, Thermal Performance, Compaction Test, Bracing Design.



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L1. Certification

Disclaimer: This section of the AFS Logicwall® Design Guide is intended only by AFS to represent good building practice in achieving suitable internal design of AFS Logicwall®. This section is not intended in any way by AFS to represent all relevant information required on a project. It is the responsibility of those using AFS Logicwall®, including but not limited to builders, designers, consultants and engineers, to ensure that AFS Logicwall® is suitable for use on a project in relation to internal design. All diagram, plans and illustrations used in this section including any reinforcement shown are included for indicative and diagrammatic purposes only. It remains the responsibility of those using AFS Logicwall® to ensure that reference is made to the structural engineer's details for all diagrammatic and reinforcement requirements.

Structure

In October 2004 Logicwall® was subjected to a lateral load resistance test by the University of Canterbury in New Zealand.

The following letter (Fig L1) from Van Der Meer Consulting Engineers is a summary of the test and its results.

Fig L1: Van Der Meer Consulting Letter

A better solution...

Our Ref: SY030230
Enquiries to: Neil Bonser

Our Ref: SY030230
Enquiries to: AD

21/9/2005

Architectural Framing Systems
PO Box 899
SEVEN HILLS NSW 1730

Attention: Mr Andrew Horsfall

Dear Sir,

**RE: LATERAL LOAD RESISTANCE OF AFS WALL PANELS
RESULTS OF STRUCTURAL TESTING**


We understand concern has been raised over the ductility of AFS wall panels, the ability of the panels to perform under lateral loads, and how design of the wall panels is achieved in compliance with AS3600.

In October 2004, the Department of Civil Engineering at the University of Canterbury was commissioned and instructed by Architectural Framing Systems (*not Van der Meer Consulting Pty Ltd*) to conduct insitu testing on a series of AFS wall panels. The purpose of the research was to investigate the lateral load resistance of AFS wall panels. This was achieved by simulating horizontal earthquake loading in the form of reverse cyclic loading and then evaluating the subsequent performance of the panels. The experimental results were compared against predicted behaviour from theoretical models.

Following the testing in New Zealand, the Department of Civil Engineering prepared Report C2004-02. This report outlines the testing procedure and theory, the measured behaviour of the AFS wall panels, and compares the test results against predicted theory.

Van der Meer Consulting Pty Ltd has reviewed the report and assessed the conclusions put forward by the authors. The report is quite detailed and complete, although the following salient points should be noted:

- In regions of seismic activity, reinforced concrete walls are required to perform in a ductile manner when subjected to lateral loading. The testing showed that the AFS wall panel systems behaved in a fully ductile manner, achieving a displacement ductility level in excess of 6.



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DUBAI

VDM (NSW) Pty Ltd
ACN 109 829 512
ABN 48 109 829 512

Printed on 21/09/2005 1:24 PM
\\SYD-SERV002\Projects\SY03\SY030230\Letters\Lateral test.doc

Page 1 of 2

A better solution...



- The flexural response of the AFS wall panels was adequately predicted using conventional reinforced concrete theory and analysis techniques. In fact, testing showed that the actual lateral load resisting capacity of the wall panels exceeded the theoretical value by as much as 38%.
- The vertical steel stud members in the AFS wall panels act as flexural reinforcement in the wall panels, effectively limiting the length of the plastic hinge zone to the junction between the wall and foundation members. This did not adversely affect the performance of the walls in the experimental testing.
- We are aware concern has been raised in the past regarding the slip shear interface between the concrete and the vertical steel studs in the wall panels. The testing has shown that the shear reinforcement requirements for the AFS wall panel systems are adequately predicted using the AFS design method (as outlined in the AFS Technical Manual). The authors recommend that the conservative estimates of β_4 & β_5 developed by AFS be adopted.
- No shear deformations were found to occur within the AFS wall panels during the testing. This finding was the case for all test specimens and was independent on the amount of shear reinforcement.
- Testing confirms AFS' recommendations that the height-to-length ratio of the wall panels should not exceed 1.0 when being relied upon as shear walls.

Based on the testing and the conclusions of the authors, we advise that the behaviour and design of AFS wall panels for lateral loads can satisfactorily be undertaken in accordance with AS3600, modified as noted in the AFS Technical Manual.

Yours faithfully,
Van der Meer Consulting Pty Ltd

Neil Bonser
Managing Director

Fig L2: Lateral Load Resistance of AFS Wall Panels.

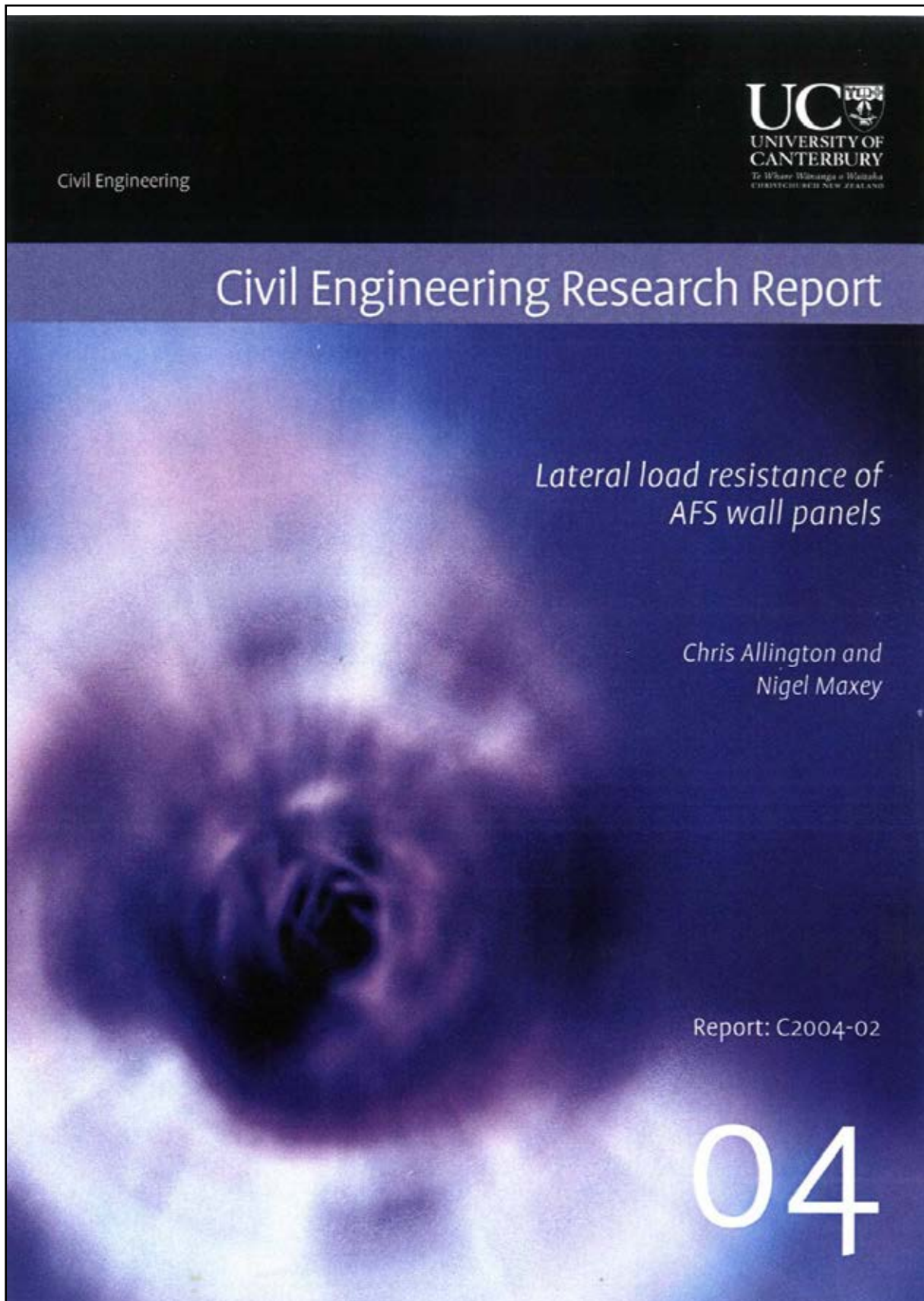



Fig L3: Durability Compliance



MAHAFFEY ASSOCIATES PTY LTD (ABN 90 001 629 036)
 Incorporating BEMAC Laboratories
 Unit 9/108-110 Percival Rd (PO Box 2162) Smithfield NSW 2164
 Ph (02) 9756 4003 Fax (02) 9757 4228 Email mahaffey@mahaffey.com.au

DRM/L01/10655

3 November 2014

AFS Systems Pty Ltd
 39 Delhi Rd
NORTH RYDE NSW 2113

Attention : Mr S. Darwell

Dear Sir,

Re : AFS LOGICWALL – AS3600 Durability Compliance Review

1. Introduction

Mahaffey Associates has carried out a review of the AFS LOGICWALL system to assess whether a wall constructed using this system complies with the durability requirements of AS3600, “Concrete Structures”.

The LOGICWALL system is designed for the construction of reinforced or non-reinforced concrete walls. Once constructed, the formwork does not contribute to the structural capacity of the wall which acts as a normal reinforced concrete structure.

2. Discussion

The concrete and reinforcement are encapsulated within the fibre cement shell and coating which together act as a protective barrier. When used in the construction of walls in interior and exterior environments, the presence of the protective barrier enhances the protection against the effects of the prevailing environment.

LOGICWALL walls designed in accordance with AS 3600 will be subjected to environments consistent with a B2 exposure classification. AS3600 states that protective coatings can be taken into account when assigning exposure classification. Accordingly, the coating system plays a significant role in the design of the system in compliance with AS3600. In a typical

Specialist Consultants in
 -Concrete Technology -Structure Condition Assessment -Building Repair Management -Materials Testing -Product Development
Since 1978

Durability Compliance

AFS Systems Pty Ltd

Page 2 of 2

Re : AFS LOGICWALL – AS3600 Durability Review

3 November 2014

environment, the main agent of deterioration is carbonation. Therefore, the coated external skin in combination with concrete cover to the reinforcement, meets the durability and service life requirement of the standard.

The galvanised steel stud framework becomes embedded in concrete. Field evidence has shown that galvanised steel is durable in concrete in the harshest marine environment. In carbonated concrete, galvanized steel is even more resistant to corrosion.

3. *Conclusion*


Walls constructed using the LOGICWALL system comply with AS3600 provided that the concrete strength and cover meet the requirements of the standard for exposure classifications up to and including B2. Additional protection is provided to the concrete and reinforcement as well as to the components of the LOGICWALL system by the specified protective coating.

Yours faithfully,
Mahaffey Associates Pty Ltd



D. R. Mahaffey

Fig L4: AFS Unisearch Report

**Unisearch Expert Opinion Services**

COMMERCIAL-IN-CONFIDENCE
Report prepared on behalf of Expert Opinion Services
A business of UNSW Global Pty Limited

AFS WALLING SYSTEMS

for

Colin Biggers & Paisley
Your reference: David Miller

by

Mark Bradford
Scientia Professor & Professor of Civil Engineering
Australian Laureate Fellow,
Centre for Infrastructure Engineering and Safety
Faculty of Engineering,
The University of New South Wales

Date of Issue: 5 May 2014
Our Reference: J085172

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Fig L5: FRL Certificate for LW150 Logicwall®

Certificate of Test

No. 1745

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This is to certify that the element of construction described below was tested by the CSIRO Division of Manufacturing and Infrastructure Technology in accordance with Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-1997 on behalf of:

Architectural Framing Systems Pty Ltd
29 Prime Drive
SEVEN HILLS NSW

A full description of the test specimen and the complete test results are detailed in the Division's sponsored investigation report numbered FSV 1038.

Product Name: Permanent formwork, load-bearing, reinforced concrete wall system

Description: The specimen comprised a reinforced concrete wall system of dimensions 2980-mm high x 3000-mm wide x 150-mm thick made up of 3 pre-fabricated permanent formwork panels filled with insitu concrete after assembly.

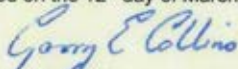
The formwork panels were fabricated from two 2980-mm high x 1200-mm wide x 6-mm thick fibre cement sheets bonded to 10 galvanised C-section metal studs of dimensions 136-mm x 35-mm x 0.6-mm using "AV Syntec" general purpose building glue. The studs were spaced at 100-mm centres and fixed together in a rigid frame. The studs had 90-mm diameter round holes spaced at 150-mm centres for a provision of horizontal reinforcing bars. The panels were fixed to a floor track (galvanised steel C-section) with provision for reinforcing starter bars from a completed floor slab. Succeeding panels were fitted together in a tongue and groove arrangement, and fixed with 9-18 x 20-mm fibretecs csk rib head screws at 500-mm centres. The wall was reinforced with N12 reinforcing bars at 450-mm centres, horizontally and vertically. Electrical services were installed in the cavity of the wall, that included two general power outlets and associated PVC conduits at 1200-mm centres. The panels were appropriately braced and 32 Mpa concrete 32-10-120 was pumped in through the top openings in 1500-mm layers and trowelled-off when completely filled. The specimen was subjected to an evenly distributed total load of 600 kN. Details of panel construction are shown in drawing numbered 146-01 Issue B, dated 17 December 2003, by LGDS.


The element of construction described above satisfied the following criteria for fire-resistance for the period stated.

Structural Adequacy	-	no failure at 240 applicable
Integrity	-	no failure at 240 applicable
Insulation	-	236 minutes


and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of 240/240/180. The FRL is applicable for exposure to fire from either direction.

Testing Officer: Chris Wojcik Date of Test: 25 February 2004
Issued on the 12th day of March 2004 without alterations or additions.


Garry E Collins
Manager, Fire Testing and Assessments



This laboratory is accredited (Accreditation No. 3632) by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its terms of accreditation.



CSIRO Manufacturing & Infrastructure Technology
14 Julius Avenue, Riverside Corporate Park, North Ryde NSW 2113 AUSTRALIA
Telephone: 61 2 9490 5444 Facsimile: 61 2 9490 5555

Fig L6: FRL Certificate for LW120 Logicwall®

Certificate of Test

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 without written authorization from CSIRO is forbidden.

This is to certify that the element of construction described below was tested by the CSIRO Division of Manufacturing and Infrastructure Technology in accordance with Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-2005, Fire-resistance test of elements of construction on behalf of:

AFS Products Group Pty Ltd
 22-24 Sommerville Circuit
 EMU PLAINS NSW

A full description of the test specimen and the complete test results are detailed in the Division's sponsored investigation report numbered FSV 1513A.

PRODUCT NAME 120-mm thick, load-bearing AFS structural wall system.

DESCRIPTION: The specimen comprised a reinforced concrete wall system 3000-mm high x 3000-mm wide x 120-mm thick made up of three pre-fabricated permanent formwork panels core-filled with concrete after assembly. The pre-fabricated permanent formwork panels, 1200-mm wide x 3000-mm high, comprised two 6-mm thick fibre cement sheets (CSR Waterblock Technology) bonded to the perforated steel stud assembly using AFS Structural Adhesive. The studs, nominally 2900-mm long x 108-mm wide x 35-mm high, with perforations shown in drawing numbered AFS-CSIR-23-11-11, dated 23 November 2011, by Peter Ellsmore & Associates Pty Ltd., were equally spaced over the width of the panel at nominally 140-mm centres. The wall was reinforced with N12 reinforcing bars at 400-mm centres vertically and 600-mm centres horizontally. The panels were appropriately braced and 32 Mpa 120-mm slump concrete was pumped in through the top openings in 1500-mm high layers, and trowelled off when completely filled. A total load of 700 kN was applied to the specimen for the duration of the test.

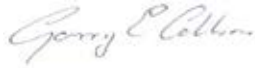
The element of construction described above satisfied the following criteria for fire-resistance for the period stated

Structural adequacy	-	no failure at 241 minutes
Integrity	-	no failure at 241 minutes
Insulation	-	190 minutes


and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of 240/240/180. The FRL is applicable for exposure to fire from either direction.

This certificate is provided for general information only and does not comply with the regulatory requirements for evidence of compliance.


Testing Officer: Chris Wojcik Date of Test: 23 November 2011
 Issued on the 16th day of December 2011 without alterations or additions.



Garry E Collins
 Manager, Fire Testing and Assessments



CSIRO Materials Science and Engineering
 14 Julius Avenue, Riverside Corporate Park, North Ryde NSW 2113 AUSTRALIA
 Telephone: 61 2 9490 5444 Facsimile: 61 2 9490 5555



This document is issued in accordance with NATA's accreditation requirements

Fig L7: FRL Assessment

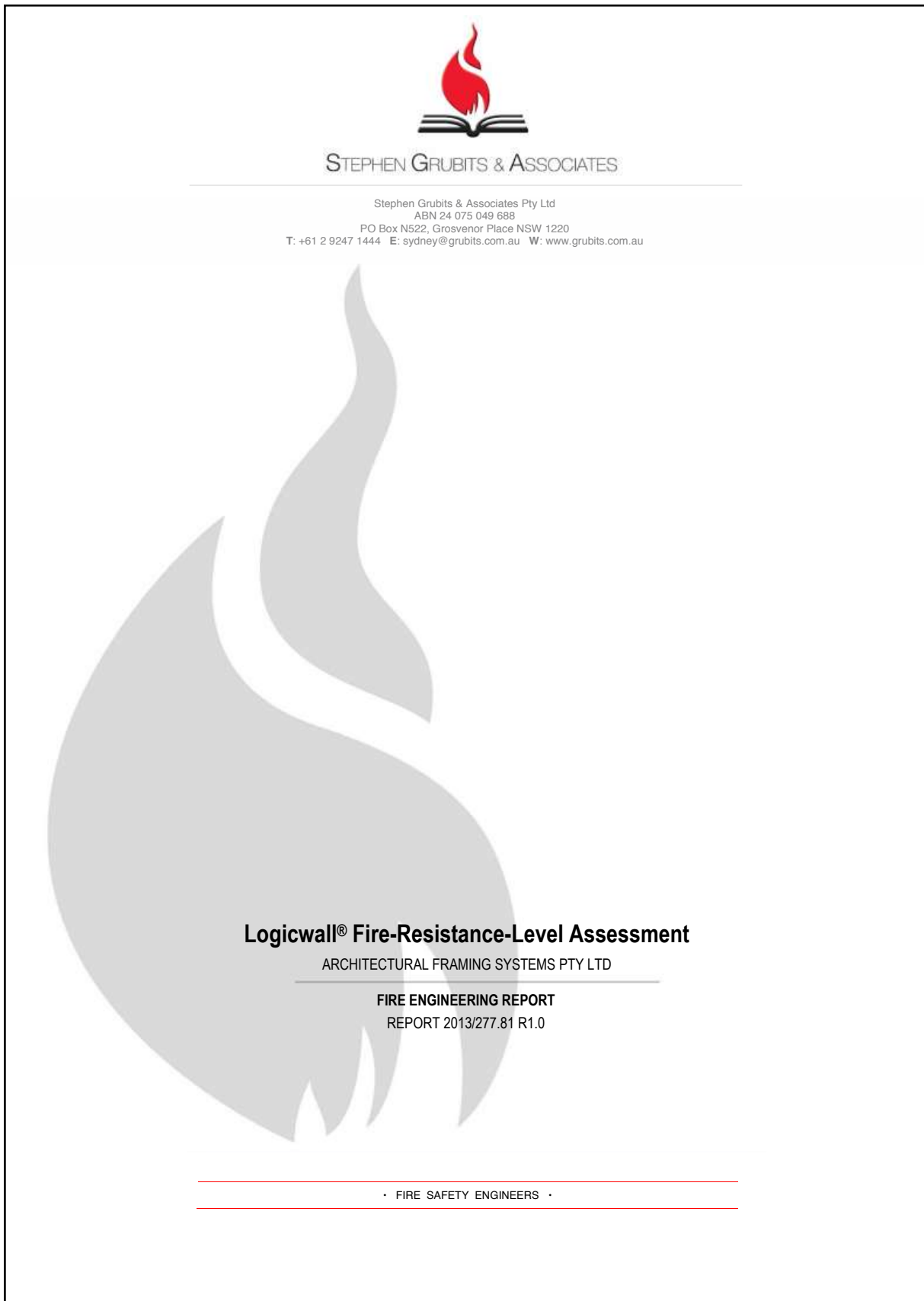


Fig L8: CSIRO Assessment Report

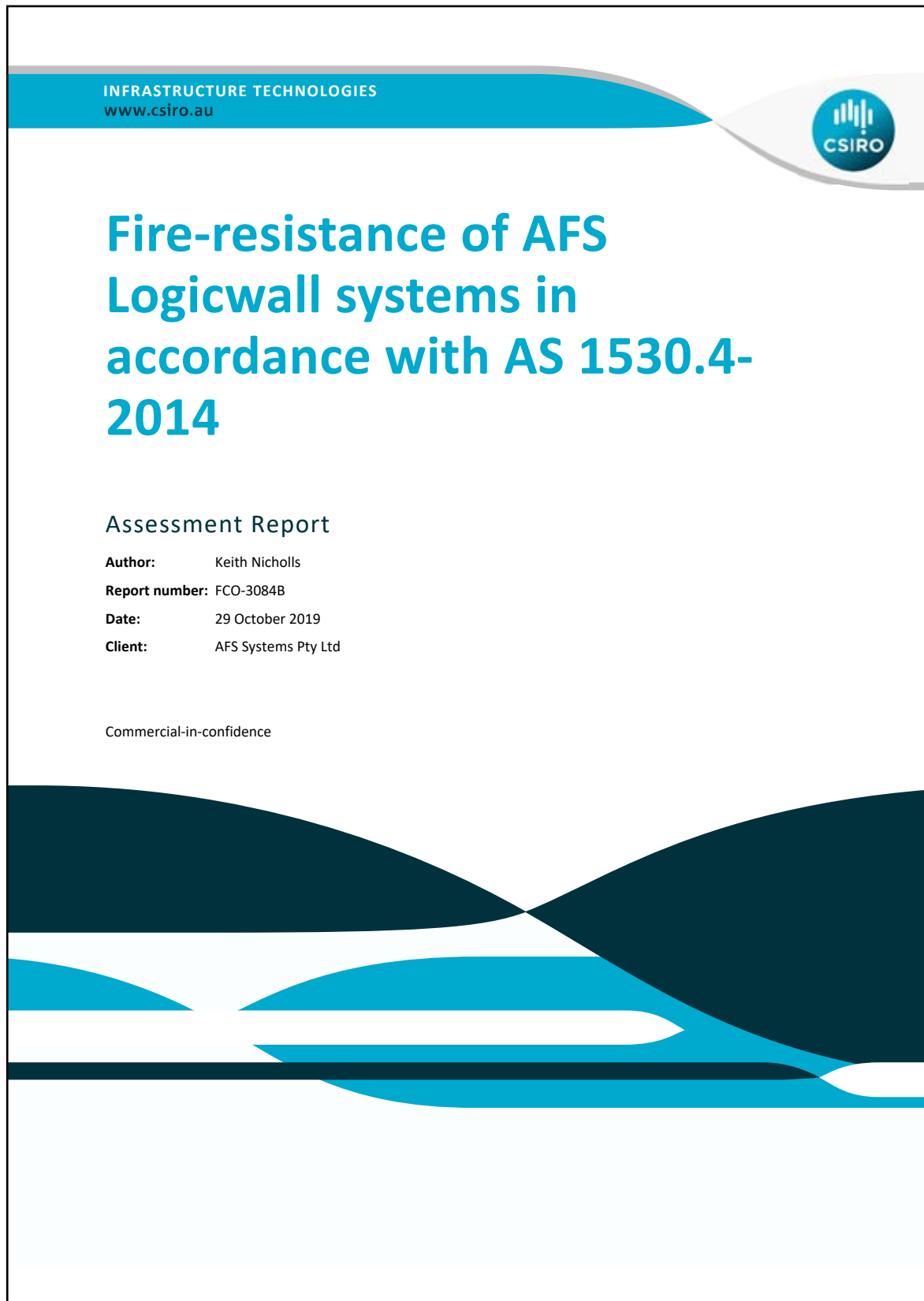



Fig L9: Acoustic Performance Assessment



**Acoustic Performance Assessment
Of a Product or System**


Company Description
AFS Systems Pty Ltd, 2/34-38 Anzac Ave, Smeaton Grange

Product
AFS Logic Wall covering range of AFS120 to AFS262D providing ISO or ASTM Evaluation of various configurations from the base walls or using plasterboard on one or both sides

Assessment Number
PKA-A144

Project Number
215 020

Fig L10: Acoustic Performance Assessment



**BCA / NCC Evidence of Suitability
Acoustic Performance**


Company Description
AFS Systems Pty Ltd, 2/34-38 Anzac Ave, Smeaton Grange

Product
AFS Logic Wall AFS162

Evidence of Suitability Number
PKA-EOS 001 Part A

Project Number
215 012

Fig L11: Acoustic Performance Assessment



**BCA / NCC Evidence of Suitability
Acoustic Performance**


Company Description
AFS Systems Pty Ltd, 2/34-38 Anzac Ave, Smeaton Grange

Product
AFS Logic Wall AFS162

Evidence of Suitability Number
PKA-EOS 001 Part B

Project Number
215 012

Fig L12: CSIRO Laboratory Measurement of Airborne Sound Insulation



CSIRO

www.cmit.csiro.au

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PO Box 56, Highett, Victoria 3190, Australia
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Facsimile 61 3 9252 6244

LABORATORY MEASUREMENT
OF
AIRBORNE SOUND INSULATION

MEASUREMENT NO: TL463
DATE OF MEASUREMENT: 20 - 26 July, 2006
COMMISSIONED BY: Architectural Framing Systems
29 Prime Drive,
Seven Hills,
NSW, 2147.

SUMMARY

The sound transmission loss (*TL*) of a masonry wall; bare and also with two (2) different framing/plasterboard/insulation cladding combinations, has been determined.

The measurement was performed in compliance with the requirements of AS 1191-2002 "*Acoustics - Method for Laboratory Measurement of Airborne Sound Insulation of Building Elements*".

The Sound Transmission Class (STC) and the Weighted Sound Reduction Index (R_w) of the wall were calculated using the procedures respectively specified by AS 1276-1979 and AS/NZS ISO 717.1:2004.

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Fig L13: Thermal Performance

“TOTAL R”
THERMAL PERFORMANCE CALCULATIONS
TO AS/NZS 4859 Parts 1 & 2:2018

The following calculations by James M Fricker Pty Ltd are based upon:

- a) AS/NZS 4859.1:2018 “Thermal insulation materials for buildings. Part 1: General criteria and technical provisions”,
- b) AS/NZS 4859.2:2018 “Thermal insulation materials for buildings. Part 2: Design”,
- c) the Australian Institute of Refrigeration Air-conditioning & Heating (AIRAH) Handbook (Edition 5, 2013), and (if necessary) the ASHRAE Fundamentals Handbook.

Total R-values are based on product in-service conditions in accordance with AS/NZS 4859.1:2018 including the alteration of insulation Material R for temperature, and Air Space R for temperature and infrared emittance.

Each calculation result is subject to any specific notes and assumptions listed on the calculation.

If a construction differs from the described system, the thermal resistance may be different.

All calculations were done by James M Fricker, F.AIRAH F.IEAust CPEng NER APEC Engineer IntPE(Aus)



ENGINEERS
AUSTRALIA
 Chartered Professional Engineer
MEMBER 1179647



JAMES M FRICKER PTY LTD
54 Felix Crescent
Ringwood North VIC 3134
Australia
 Mobile: 0414 804 097
 Phone: (03) 9879 5744
fricker@optusnet.com.au
<http://fricker.net.au>

Fig L14: Corefill Compaction Test



Corefill Compaction Test

Conducted on 16/11/2009



1300 727 237

afsformwork.com.au



Corefill Compaction Test (continued)

AFS LOGICWALL CONCRETE COMPACTION TEST

MONDAY 16/11/09

LOCATION: 29 Prime Drive, Seven Hills NSW

PRESENT: Harold Roper / Materials Professor
 Robert Herbertson / Wellstructured Structural Engineers
 Nick Crennan / Colin Biggers & Paisley Lawyers
 Peter Saddington / Coffey International
 Steven Nash / PDR Smart Structures
 AFS (Directors)
 Clyde Daish / HD Projects
 Andrew Bonnette / Bonnette Marketing
 Lenny Casella / Hanson Concrete
 Willy Reinhardt / ANF Concrete Pumping

RECORD OF EVENTS:

MONDAY 16/11/09

11.05am	Concrete arrives (refer docket 50410305). Mixed on site for 1 ½ minutes.
11.10am	Commenced slump test – result 130mm. Added 10 litres water to mix.
11.17am	Another slump test – result 140mm
11.20am	Commenced core filling wall
11.24am	Finish first lift (1600mm) Temperature at 11:30am - 32°C. WAIT BETWEEN LIFTS
11.55am	Another slump test – result 85mm Added 30 litres water & mixed for 5 minutes.
12:04pm	Retest slump – result 110mm Added another 20 litres water & mixed for 4 minutes
12:12pm	Retest slump – result 135mm
12:13pm	Commenced core-filling
12:18pm	Finished second lift.
2:00pm	Commenced stripping the Perspex panels & strips from one of the fibre cement panels
3:30pm	Commenced filming the stripping procedure & the compacted walls
4:15pm	Finish filming stripping procedure & compacted walls

TUESDAY 17/11/09

4.00-5:30pm	Coffey International core-drilled 6 samples from unstripped wall, at base, middle & top of wall.
-------------	--

Corefill Compaction Test (continued)

SLUMP TEST - 140mm



UNFILLED PERSPEX CLAD PANELS



Corefill Compaction Test (continued)

CORE FILLING



STRIPPED PANELS



Corefill Compaction Test (continued)

CORE DRILL TEST PANEL



CORE DRILL SAMPLES



(L-R) Base, Middle & Top of Wall

Corefill Compaction Test (continued)

**PROJECTS**

P. 02 9999 5288 F. 02 9999 5014
PO Box 1585 Mona Vale NSW 1660
16/8 Jubilee Ave Warriewood NSW 2102
www.hdprojects.com.au
ABN. 84 099 530 588 Lic. 133322C

AFS Products Group
Att: Dan Arkoll

18th November, 2009

RE: AFS Wall Compaction Test - performed at 29 Prime Drive, Seven Hills 16/11/09

Dear Dan,

We confirm that we were in attendance and assisted with the above test with the following items:

- Supply of boom concrete pump
- Supply of the HD Projects 32/10/120 Wall Mix
- Vibration of the mix being placed.

We confirm that the test that was undertaken, excepting the volume of the test, was an accurate representation of how we would core fill walls on a typical site including vibration of the steel studs and concrete placement.

The concrete we supplied was of a typical consistency of what we would expect on site.

For any queries please do not hesitate to contact me.

AS PER Clyde Daish.

Regards,
Clyde Daish
Operations Director

Corefill Compaction Test (continued)

HANSON CONSTRUCTION MATERIALS PTY LTD
 ABN 90 009 679 734

TAX INVOICE



VISCO ADDED

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or persons should wear eye protection. Wash exposed skin areas thoroughly with cool water for ten minutes.
 2. Silica dust may be released when working with quarry products or when quarry or concrete products are broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and wear dust masks that conform to Australian standards.
MIX FOR 5 MINUTES
AT PLANT C 1349893

SAFETY ADVICE
CAUTION

Delivery No.	50410305	CUSTOMER SERVICE CENTRE	PHONE 132662	Pg: 1
Date	16.11.09	Job/Order No.	126943	Customer Purchase ON:
Tuck	PLC2667	Plant	3049	ASS
Distance	6	Map Ref	189 P1	

Customer Name: HD PROJECTS PTY LTD
Delivery Address: 29 PRIME DR SEVEN HILLS NSW 2147
 NEAREST CROSS RD: SAINT JAMES PL
THIS ORDER IS A TEST TRIAL ORGANISED BY PETRO/CSM/
LOAD IS TO BE CORRECTLY SLUMPED NO MORE THAN 140MM.

WARNING: Addition of water or additives may void product guarantee.
 Water Added on Site: Yes No
 Est. Litres: L
 Est. Final Slump: mm

Tare	Gross	Net/Load	UoM	Class/MPa	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		5.0	M3	S 32	10	120MM	5.0	5.0	10.30			min
Sale Items												
PMP 32/10/120												
HD PROJECTS												
			2N31EBJ									
				32 MPa								
					Sub Total inc. GST	\$				Amt Received	Cash	Chq
												CR
					Extra Charges inc. GST	\$				Driver Signs for Payment		
					Carried Fwd inc. GST	\$				Plant Signs for Payment		
					TOTAL inc. GST	\$						

Concrete Returned m3: Environmental Disposal Fees apply.
 SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF. I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME 1057
**CUSTOMER SIGNATURE**.....**ABN: 84099530588**
 WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT CLIVE 0406-427-472
 HAN 006 (ALIS)

Corefill Compaction Test (continued)

25 Nov 2009 13:40 Hanson 0298971425 p. 1

Fax message

Date 25/11/09

To Clyde

Company HD Projects P/L

Project Prime Dr, Seven Hills

Fax 9999 5014

From Hanson Lab

Subject Test Results

Pages 1 including this one

Field Sheet	Specimen	Date Cast	Product Description	Age	Strength MPa
80546	A	16/11/09	ZN31IEBJ	7	39.0

Fig L15: Weatherproofing

AECOM Imagine it. Delivered.

Weatherproofing Verification to NCC 2019
CSR Building Products Limited
13-May-2019

AFS Logicwall System

National Construction Code (NCC 2019)




Fig L16: Lifting Bar Certification



ABN: 36 102 975 600
 Level 2 Suite 201C 19 Harris St, Pyrmont, NSW 2009
 Tel: 02 9817 2611
 Email: info@mydconsulting.com

28th November 2018

Certificate of Structural Design

Client: AFS Systems Pty Ltd

Elements: AFS Lifting Bar

We MYD Consulting Engineers, being professional Engineers in accordance with the Building Code of Australia, certify that the structural details as shown in the structural drawing Nos.

- P2445 S-01/Rev 01 Logicwall Lifting Bar Details,

was prepared by a professional Structural Engineer certified under NER, in accordance with the relevant structural requirements of the BCA, and Australian Standards in particular:

- AS 4100 (1998) - Steel Structures Codes.
- AS 1170 (2011) - Parts 1 Loading Codes.
- AS3610 (1995,2010)-Formwork Design Code.

The AFS report titled – Lifting Bar Test Rev B June 18 was used as a reference document for the verification of the lifting bar capacity

The use of the lifting bar as detailed in the drawings above shall be limited to the following conditions:

- Wind speeds not greater than 15m/s
- Maximum lifting weight 150kg
- Lifting strap located at centroid of load and to be checked to be in satisfactory condition prior to lifting
- Lifting bar undamaged (not bent or kinked)
- EHS practices followed by users of lifting bar
- Ensure the bar has engaged satisfactorily prior to lifting

Lifting Bar Certification (continued)

2

Exclusions:

- Adequacy and certification of Lifting strap used around lifting bar

Any scenarios outside these conditions, MYD consulting shall be consulted for further advice.

This certificate shall not be construed as relieving any other party of their responsibilities.



Peter Marzullo B.Sc, B.E., MIE Aust, CP Eng
For and behalf of
MYD Consulting Engineers.

Lifting Bar Certification (continued)

TABLE 1: PANEL WIDTH AND LIFTING BAR DIMENSIONS

PANEL WIDTH (in)	L-BAR DIMENSION 'X' (in)
550 - 850	850
850 - 1100	1100

NOTES:

- THIS LIFTING METHOD SHALL NOT BE USED FOR WIND SPEED GREATER THAN 15m/s.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SAFE WORK INSTRUCTION PREPARED BY AFS SYSTEMS PLY LTD FOR LOGICWALL® LIFTING L-BAR. DOCUMENT NO. AFS-NAT-SW13-LOGICWALL LIFTING L-BARS AFS-NAT-SW10-LOGICWALL INSTALLATION
- THE BUILDER/INSTALLER IS RESPONSIBLE FOR ASSESSING RISK AND DEVELOPING THEIR OWN PROJECT SPECIFIC SAFE WORK METHOD IN ACCORDANCE WITH REFERENCE DOCUMENTS AFS-NAT-SW13-LOGICWALL LIFTING L-BARS AFS-NAT-SW10-LOGICWALL INSTALLATION

FRONT ELEVATION
AFS LOGICWALL® PANEL
 1050 MAX
 1050
 100 COG TD
 LOCATE LIFTING BAR
 LIFTING STRAP
 NIS L-SHAPE LIFTING BAR
 AFS PANKRED STUD
 8000 MAX

SIDE ELEVATION
 1500
 100 COG TD
 LIFTING STRAP
 FULLY INTACT STUD WEB OVER LIFTING BAR
 NIS REMOVED/CHG L-BAR

TABLE 1: PANEL WIDTH AND LIFTING BAR DIMENSIONS

- LIFTING BAR TO FULLY ENGAGE MINIMUM OF 2 STUDS EACH SIDE OF THE LIFTING STRAP
- LIFTING BAR TO BE LOCATED AT LEAST 2 COMPLETE STUD HOLES BELOW THE TOP OF LOGIC WALL PANEL

afs smarter permanent formwork.
myd. CONSULTING ENGINEERS
 14/2, 19th Street
 Pyrmont, NSW 2009
 T: 02 9551 2344
 E: info@myd-engineers.com

DATE: _____ **SCALE:** _____
REVISIONS: _____
DATE: _____ **SCALE:** _____
REVISIONS: _____

THIS DRAWING IS THE PROPERTY OF AFS SYSTEMS PLY LTD. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFIC TO WHICH IT IS ISSUED. IT IS NOT TO BE REPRODUCED OR USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN PERMISSION OF AFS SYSTEMS PLY LTD.

Fig L17: Bracing Design Certification



ABN: 36 102 975 600
 Level 2 Suite 201C 19 Harris St, Pyrmont, NSW 2009
 Tel: 02 9817 2611
 Email: info@mydconsulting.com

11th December 2018

Certificate of Structural Design

Client: AFS Systems Pty Ltd

Elements: AFS Logicwall® Standard Propping Details

We MYD Consulting Engineers, being professional Engineers in accordance with the Building Code of Australia, certify that the structural details as shown in the structural drawing Nos.

- P2351 S-01/Rev D AFS Brace Arrangement Type L1,
- P2351 S-02/Rev D AFS Brace Details Type L1,
- P2351 S-03/Rev D AFS Brace Arrangement Type S1,
- P2351 S-04/Rev D AFS Brace Details Type S1,

Were prepared by a professional Structural Engineer certified under NER, in accordance with the relevant structural requirements of the BCA, and Australian Standards in particular:

- AS 4100 (1998) - Steel Structures Codes.
- AS 1170 (2011) - Parts 1 and 2 Loading Codes.
- AS3610 (1995,2010)-Formwork Design Code.
- AS 2269 (2004)-Structural Plywood Code.
- AS 1720 (2010) - Timber Structures.
- AS 3600(2009) - Concrete design Code.

The use of the propping as detailed in the drawings above shall be limited to the following conditions:

- Region A (non cyclonic)
- Category 3
- Height limited to 8 storeys above surrounding ground level
- The props are to temporarily support the Logicwall formwork only. Based on maximum brace installation period of 4 days.
- All fixings to concrete slab based on the slab having a minimum thickness of 130mm

Bracing Design Certification (continued)

2

Exclusions:

- The prop shall not support backfill behind the wall.
- The structural design and certification of the slabs is by the project engineer
- The structural requirements of the Logic wall to support the structure shall be verified and certified by the project engineer


Any scenarios outside these conditions, MYD consulting shall be consulted for further advice.

This certificate shall not be construed as relieving any other party of their responsibilities.



Peter Marzullo B.Sc, B.E., MIE Aust, CP Eng
For and behalf of
MYD Consulting Engineers.

Fig L18: CodeMark Certificate of Conformity



global-mark
Australia

global-mark

Global-Mark Pty Ltd, Suite
4.07, 32 Delhi Road, North
Ryde NSW 2113,
Australia
Tel: +61 (0)2 9886 0222 -
www.Global-Mark.com.au

Certificate Holder:

CSR Building Products Ltd
- **AFS Systems Pty Ltd**
Trinity 3, 39 Delhi Rd,
North Ryde, NSW 2113
www.afsformwork.com.au
Tel: 1300 727 237

AFS LOGICWALL®

THIS TO CERTIFY THAT

Certificate number: CM30062 Rev 3

Type and/or use of product:

AFS LOGICWALL is a permanent formwork system for internal and external load-bearing and non-load bearing reinforced concrete walls with fire, weatherproofing, acoustic and thermal performance characteristics.

AFS LOGICWALL® types are as follows, the numerical values representing the thickness of the wall in millimetres, and "D" indicating double layer of reinforcing steel:

1. LW120
2. LW150
3. LW162
4. LW200
5. LW200D
6. LW262D

Description of product:

AFS LOGICWALL comprises:

- Galvanised cold-formed steel studs at 146mm centres, the studs having large lipped penetrations in their web element to facilitate placement of reinforcing steel and flow and subsequent bond of concrete fill.
- CSR Cemintel fmm AFS Formwork Board bonded each side to the flanges of the studs with an adhesive compound.
- Reinforcing steel.
- Concrete fill.

COMPLIES WITH THE FOLLOWING BCA PROVISIONS AND STATE OR TERRITORY VARIATION(S)

Volume One	Volume Two
BP1.1	P2.1.1
Structural reliability	Structural stability and resistance

BCA (2019)

Scope of certification: The CodeMark Scheme is a building product certification scheme. The rules of the Scheme are available at the ABCB website www.abcb.gov.au. This Certificate of Conformity is to confirm that the relevant requirements of the Building Code of Australia (BCA) as claimed against have been met. The responsibility for the product performance and its fitness for the intended use remain with the certificate holder. The certification is not transferrable to a manufacturer not listed on Appendix A of this certificate.

Disclaimer: The Scheme Owner, Scheme Administrator and Scheme Accreditation Body do not make any representations, warranties or guarantees, and accept no legal liability whatsoever arising from or connected to, the accuracy, reliability, currency or completeness of any material contained within this certificate; and the Scheme Owner, Scheme Administrator and Scheme Accreditation Body disclaim to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages and costs arising as a result of the use of the product(s) referred to in this certificate. The purpose of Global-Mark construction site audits is to confirm the practicability of installing the product; and to confirm the appropriateness and accuracy of installation instructions. In placing the CodeMark mark on the product/system, the certificate holder makes a declaration of compliance with the certification standard(s) and confirms that the product is identical to the product certified herein. In issuing this Certificate of Approval Global-Mark has relied on the expertise of external bodies (laboratories, and technical experts).

Herve Michoux



Herve Michoux
Global-Mark Managing Director

P. Gardner

Peter Gardner
Unrestricted Building Certifier

Date of issue: 28/11/2019

Date of expiry: 21/01/2022

Certificate number: CM30062

This certificate is only valid when reproduced in its entirety.

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CSR