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REPORT NO: ACA – 170607

**MAXIMUM WALL HEIGHTS
AND
FIRE RESISTANCE LEVELS
OF
STUDWORKS NON-LOADBEARING WALL SYSTEMS**

**CLIENT: STUDWORKS PROFILE SYSTEMS PTY LTD (STUDWORKS)
45 OSBORNE AVENUE,
SPRINGVALE, VIC. 3171
AUSTRALIA**

DATE: JULY 11TH 2017



Table 3: Maximum Wall Heights

- Internal Non-Load Bearing Walls - No Nogging requirement (unless noted otherwise)		- Single Studs (0.50mm, bmt) - Lined on both sides		- Studs Max. 600 mm centres - Deflection limit L/240	
Stud Width, w(mm)	Maximum Wall height (mm)	FRL (-/x/x), for wall height with 10mm Plasterboard both sides	FRL (-/x/x), for wall height with 13mm Plasterboard both sides	FRL (-/x/x), for wall height with 16mm Plasterboard both sides	FRL (-/x/x), for wall height with 2 x 16mm Plasterboard both sides
51	2770	-/-/-	-/60/60	-/90/90	-/120/120
	3200	X	-/60/60	-/90/90	-/120/120
	3380	X	X	-/90/90	-/120/120
64	3330	-/-/-	-/60/60	-/90/90	-/120/120
	3720	X	-/60/60	-/90/90	-/120/120
	3910	X	X	-/90/90	-/120/120
76	3360	-/-/-	-/60/60	-/90/90	-/120/120
	3750	X	-/60/60	-/90/90	-/120/120
	3910	X	X	-/90/90	-/120/120
92	4130	-/-/-	-/60/60	-/90/90	-/120/120
	4490 ¹	X	-/60/60	-/90/90	-/120/120
	4710 ¹	X	X	-/90/90	-/120/120

Notes:

1. A "1" indicates one row of noggings required at mid-height of the wall, otherwise no nogging is required.
2. An "X" indicates no solution is available for this height/lining combination.
3. A deflection limit of height/240 (maximum 30mm) at 0.25kPa lateral pressure loading in accordance with NCC 2016, BCA Vol.1, Spec. C1.8, Cl. 3.4
4. Maximum wall heights relate to structural wall heights only.
5. Shelf loading is not permitted.
6. Applicable loadings include: P_{ult.} = 0.375 kPa, P_{serv.} = 0.25kPa.
7. Loads shall be determined in accordance with AS/NZS 1170 suite of standards.
8. Walls analysed in accordance with AS/NZS 4600.



Appendix C: Studworks - Installation of Studworks Non-Load Bearing Wall Systems, 11/07/17

Installation of Studworks Non-Load Bearing Wall Systems:

11 July 2016

Systems Selection

Studworks non-load bearing wall systems come in widths of 51mm, 64mm, 76mm and 92mm excluding linings. You will need to refer to our "Wall Heights" table to select the wall system appropriate to your wall height and required linings. The determined wall system will provide you with the size and gauge of your studs, bottom track, head track, deflection head track and noggins. Please note that the determined wall system can always be sized up, but must never be sized down. After you have determined the wall system, you will need to refer to our "Noggin" table to determine if noggin track/s are required.

Set Out and Installation of Bottom and Head Tracks

Set out your wall layout on the floor, then fix your bottom track to the floor at no less than 600mm centres, and in 100mm from the ends. Plumb up from the bottom track, then fix the head track to the ceiling at no less than 600mm centres, and in 100mm from the ends.

Wall Studs

The studs should be cut to the correct length to ensure a firm vertical fit, then inserted into the bottom and head tracks at the required vertical centres, ensuring that the studs are all facing in the same direction and that the service holes line up horizontally. The studs are installed by a twist action, and will remain in a firm hold. The studs are fixed either side of the to the bottom and head tracks. When a deflection head track is used, the studs should be cut short to ensure that the anticipated deflection can be accommodated without a vertical load being applied, and the studs must remain free (6-10mm clearance must be left between the top of the stud and a deflection head track) and not fixed to the deflection head track (fixings between stud and plasterboard lining shall be 100mm down from the deflection head track).

Noggins

The continuous noggin track can be installed by sitting the noggin track (flanges down) over the top of the floor track, then fit the studs through the noggin track into the floor track. Slide the noggin track up to the required horizontal height then screw fix either side of the noggin track.

Expansion Joints

Install vertical expansion joints in accordance with the plasterboard manufacturers' requirements.

Plasterboard Lining

While plasterboard manufacturers should be consulted about linings, it is critical that lining boards be installed to the open side of the stud first to ensure misalignment of joints does not occur in vertical fixing applications. Lining of the second side of the wall should be performed by starting with a half-sheet so that joints are staggered.



Fixings

Please refer to the table below for the suggested fixings to suit your project requirements. The screw fixing information provided is to be used as a guide, and was sourced from our preferred supplier "Iccons Pty Ltd" products guide. For your specific project requirements, you should refer to "Iccons Pty Ltd" or your preferred manufacturer products guide prior to commencement of work. All fixings should comply with AS/NZ 3566.2 2002 Corrosion Resistance.

FIXING	RECOMMENDED FIXINGS	SIZE
<p>to Steel</p> <p>Bottom and Head Tracks to Steel Members.</p> <p>Deflection Track Head Tracks to Steel Members.</p> <p>Wall Studs to Steel Columns.</p>	<p>Hexagonal Head (self-drilling)</p> <p>for steel up to 3.5mm thick.</p> <p>for steel up to 4.5mm thick.</p> <p>for steel up to 5.0mm thick.</p> <p>for steel up to 6.0mm thick</p>	<p>10-24 x 25mm</p> <p>12-24 x 30mm</p> <p>14-20 x 25mm</p> <p>12-24 x 32mm</p>
<p>to Steel</p> <p>Bottom and Head Tracks to Wall Studs.</p> <p>Noggings to Wall Studs.</p>	<p>Wafer Head (self-drilling)</p> <p>for steel up to 3.0mm thick.</p>	<p>10-16 x 16mm</p>
<p>to Concrete or Masonry</p> <p>Bottom and Head Tracks to Concrete.</p> <p>Deflection Track Head Tracks to Concrete.</p> <p>Wall Studs to Concrete or Masonry.</p>	<p>Power Actuated Anchors</p>	<p>Refer to Manufacturer's details.</p>
	<p>Hexagonal Head Sleeve Anchors</p>	<p>Refer to Manufacturer's details.</p>
<p>of Plasterboard</p> <p>Plasterboard to Wall Studs.</p> <p>Plasterboard to Noggings.</p>	<p>Bugle Head Needle Point (self-drilling)</p> <p>for steel up to 0.6mm thick.</p>	<p>6-18 x 20mm</p> <p>6-18 x 25mm</p> <p>6-18 x 32mm</p> <p>6-18 x 35mm</p> <p>6-18 x 41mm</p> <p>7-16 x 45mm</p>
<p>of Cement Sheet</p> <p>Cement Sheet to Wall Studs</p>	<p>CSK Head (self-drilling)</p> <p>for steel up to 3.5mm thick.</p>	<p>10-24 x 30mm</p>



Appendix D: Ignis Solutions – FRL Assessment 06/07/17



ABN: 24 160 047 325
 Unit 16 / 14 Lonsdale Street
 Braddon, ACT 2612
 PO Box 674
 Civic Square ACT 2608
 t: (02) 6100 3900
mail@ignissolutions.com.au
www.ignissolutions.com.au

05 July 2017

Date of Issue

**IGNIS ENGINEERING
 CERTIFICATE**

Evaluation No.5137 [2017]

Technical Assessment of product for compliance under the National Construction Code of Australia

This engineering certificate serves as a certificate from professional engineer in accordance with Clause A2.2 and 1.2.2 (a)(ii) of the National Construction Code Volume One and Two Building Code of Australia

**IGNIS
 ENGINEERING
 CERTIFICATE
 No. 5137 I01R01**


**Stud Works wall
 profile**

**Stud Works
 45 Osborne Avenue
 Springvale Victoria
 3171 Australia**

www.studworks.com.au

t: +61 3 8516 1553

f: +61 3 9546 3533



Benjamin Hughes-Brown
 FIEAust CPEng NER
 Chartered Professional Engineer
 CPEng, NER (Fire Safety / Mech) 2590991 RPEQ
 11498, BPB-C10-1875, EF-39394
 MFire Safety (UWS), BEng (UTS),
 GradDiplomaFire (UWS), DipEngPrac (UTS),
 DipEng (CIT)

Ignis Solutions reserves the right to amend or withdraw this assessment if information becomes available which indicates the stated fire performance may not be achieved

Ignis Solutions Pty Ltd

1 Executive Summary

Ignis Solutions has been engaged to evaluate the use of the Stud Works lightweight steel wall frame in line with BCA fire safety compliance where the studs are proposed to be used within wall systems achieving a Fire Resistance Level.

In accordance with Specification A2.3 Clause 2(c) of the BCA a building element meets the requirements of the BCA if it differs in only a minor degree from a prototype tested under the Standard Fire Test.

The Stud Works wall profile studs are available in a stud depth of 51mm, 64mm, 76mm and 92mm. An example of the stud is detailed below.



It is proposed to evaluate the use of the Stud Works wall profile within a CSR tested wall system in its capacity to maintain the required FRL. The CSR RedBook 2017 details that 'other steel components of equivalent performance may be used, however it is the responsibility of the manufacturer of the steel component to substantiate equivalent performance to the recommended component'.

2 Product Equivalence

The Stud Works wall profile studs have been tested in accordance with AS 1391-2007 by Melbourne Testing Services in their test report MT-17/433 dated 07 June 2017. The test demonstrated a suitable structural ability for the studs to be used within a wall system. The tested wall systems included a 51mm, 64mm, 76mm and 92mm stud width. The Base Material Thickness (BMT) included 0.50mm and the deflection head is 0.71mm BMT. The BMT and stud thickness does not vary the FRL achieved, this is established by the bounding thickness and layers of the fire rated Gyprock plasterboard.

3 National Construction Code Compliance

The National Construction Code (NCC) establishes the design and installation requirements for buildings within Australia. Class 2 to 9 buildings (being commercial based buildings) are addressed within Volume One and Class 1 and 10 in Volume Two.

For the purpose of compliance with the NCC Volume One, the Stud Works wall profile is considered to differ in only a minor degree. The following clauses are considered applicable to the compliance:

Volume One and Two – Building Code of Australia

- **Clause A0.5 (a) and 1.0.5(a)** complying with the Deemed-to-Satisfy Provisions
- **Clause A2.2 and 1.2.2 sub-clause (a)(ii)** as evidence to support that the Stud Works wall profile studs meet the nominated Performance Requirements through the Deemed-to-Satisfy Solution under an Engineering Evaluation Certificate by a Professional Engineer.
- **Specification A2.3 Fire Resistance of Building elements** - The Stud Works wall profile studs has been proven to differ in only a minor degree from a prototype tested under the standard fire test and the FRL attributed to the building element is confirmed as follows for the various wall systems.

The following single stud frames have been evaluated. Based on the CSR tested wall systems, the thickness of the single studs does not vary the FRL achieved. The thickness of the studs does however vary the thermal and acoustic results. The following table details the thickness and location of fire rated Gyprock on either side of the studs.

FRL (-/x/x)	FRL (-/x/x)	FRL (-/x/x)	FRL (-/x/x)
10mm both sides	13mm both sides	16mm both sides	2 x 16mm both sides
-/-	-/60/60	-/90/90	-/120/120

4 Summary

The testing and dimensions of the Stud Works wall profile studs, as detailed above, is considered to be a suitable substitute within a CSR wall system where it is only a minor degree in variation from the tested prototype and that the above wall FRLs are likely to be achieved.

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