Test Report

AZUMA Design

Sheet Roof and Wall Cladding

Client – Sipo Building Solutions

Product – Walsc AAC Panel

Tested By

Azuma Design Pty Ltd

AZT0181.20

Test results in this report are relevant only to the sample tested.

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards

1 Customer Requirements

To test the sample the test methods set forth in the AS 4040 series for Sheet Roof and Wall Cladding to determine the deflections of the cladding and the performance of the fastenings.

2 Referenced Standards

The test sample is tested to the methods found in:

- AS 4040.3 – 2018 Methods of testing sheet roof and wall cladding – Method 3: Resistance to wind pressures for cyclone regions.

The testing is completed with reference to the following standards:

- AS 4040.0 – 1992 Methods of testing sheet roof and wall cladding – Part 0: Introduction, list of methods and general requirements
- AS/NZS1170.1:2002 Structural design actions- Permanent, imposed and other actions (Clause 3.5, Table 3.2)

3 General Information

Model No./Name	Walsc AAC Panel 50 mm
Customer	Sipo Building Solutions
Address	D3, 27-29 Fariola Street, Silverwater NSW 2128
Azuma Testing Number	AZT0181.20
Date of Test	21/05/2020 – 22/05/2020
Overall Size	2430 mm (Height) x 1970 mm (Width)
Test Sample Description	Light weight concrete panels with 50 mm thickness, fixed to steel batten sub frame and tied off to the sides to structural Plywood.
Drawing Supplied	VE-SIP-S1, see attached

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4 Test Specimen Details

Part Number/Name	NASAHI AAC Panel
Panel Dimensions (Profile)	2200 mm x 600 mm x 50mm, some panels cut down to show a join
Panel Material	Tobermorite (70 %), Quartz (23 %), Gypsum (5 %) and Additives (< 2 %)
Panel Finish	No finish
Number of Panels in Sample	Total of 4 sheets used, 2 sheets cut into 1/3 size
Fastener Name/Number	Self-drilling screws
Fastener Material	Type 17 galvanised class 3 steel
Fastener Length and Gauge	14-10x95 hex head
Supporting Substructure	89x0.95 BMT G550 Steel stud with 24x40x0.42 BMT steel battens

5 Procedures

5.1 Strength Limit State

1) The model shall be subjected to the fatigue loading sequence specified in Table 1. The single load cycle shall be held for 1 min. The rate of load cycling shall not exceed 3 Hz.
2) The behaviour of cladding, fastenings, supporting members and substructure shall be observed and recorded.

Range of Test Pressure (%)	Number of Cycles
0 to 0.4 P_t	8000
0 to 0.5 Pt	2000
0 to 0.65 Pt	200
0 to 1.3 Pt*	1 for 1 min

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6 Results

6.1 Strength Limit State

Pressure (P_t)	4270 Pa		
Range of Test Pressure (%)	**Test Pressure**	**Number of Cycles**	**Observations**
0 to 0.4 P_t	1708 Pa	8000	230 mm crack 1.5 mm opening, 30 mm from the edge of the sample, hairline crack on join between top panels and panel below, horizontal crack does not extend the full length
0 to 0.5 P_t	2135 Pa	2000	No new cracks
0 to 0.65 P_t	2775.5 Pa	200	Hairline crack at join between bottom two panels and between the 3rd row panels extends 270 mm into 2nd row panel
0 to 0.883 P_t (Fall back figure if 1.3 P_t could not be reached)	3770.41 Pa	1 minute	No inspection due to the time constraint
0 to 1.3 P_t	5551 Pa	1 minute	Small hole, 5 mm, in 2nd row panel at 105 mm from edge and 30 mm from top of panel. 2 curved cracks in bottom row one from top of panel to edge of panel, the other 130 mm in length. 1.47 mm movement of top row left panel in relation to the adjacent panels

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Figure 1: Diagram of Crack Locations (Cracks indicated by Pink)

Figure 2: During Stage 1 Cycling - 1

Figure 3: During Stage 1 Cycling – 2

Figure 4: During Stage 2 Cycling

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Figure 5: After cycle testing completed - 1

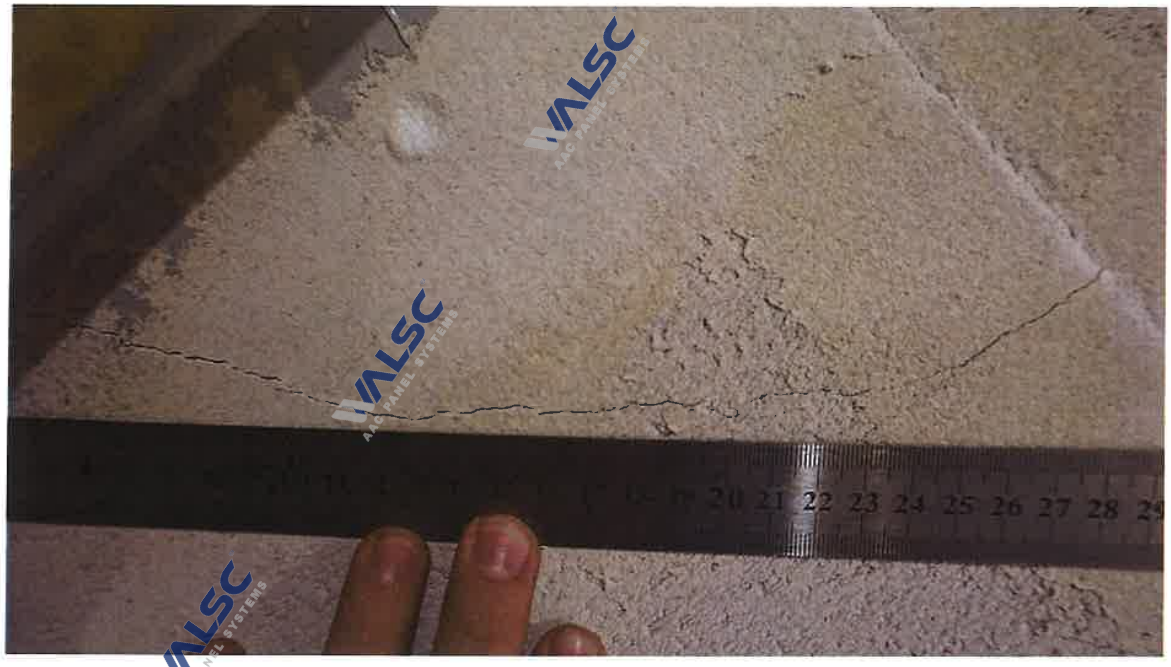

Figure 6: After cycle testing completed - 2

Figure 7: After cycle testing completed - 3

Figure 8: After cycle testing completed – 4

Figure 9: After cycle testing completed – 5

7 Signatories

Tested By: Ash Horne

Signature: AHorne

Date: 25/05/2020

END OF REPORT

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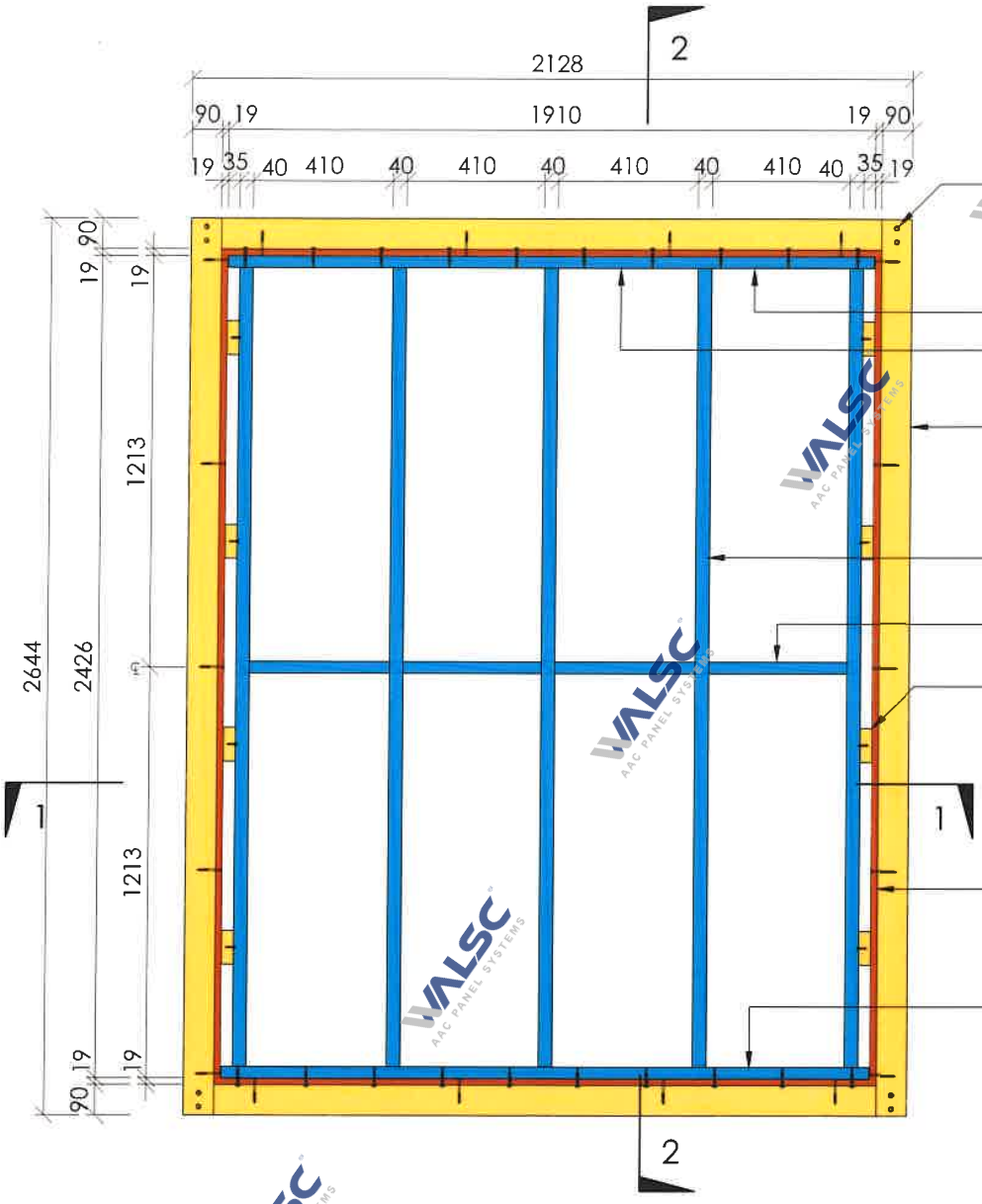


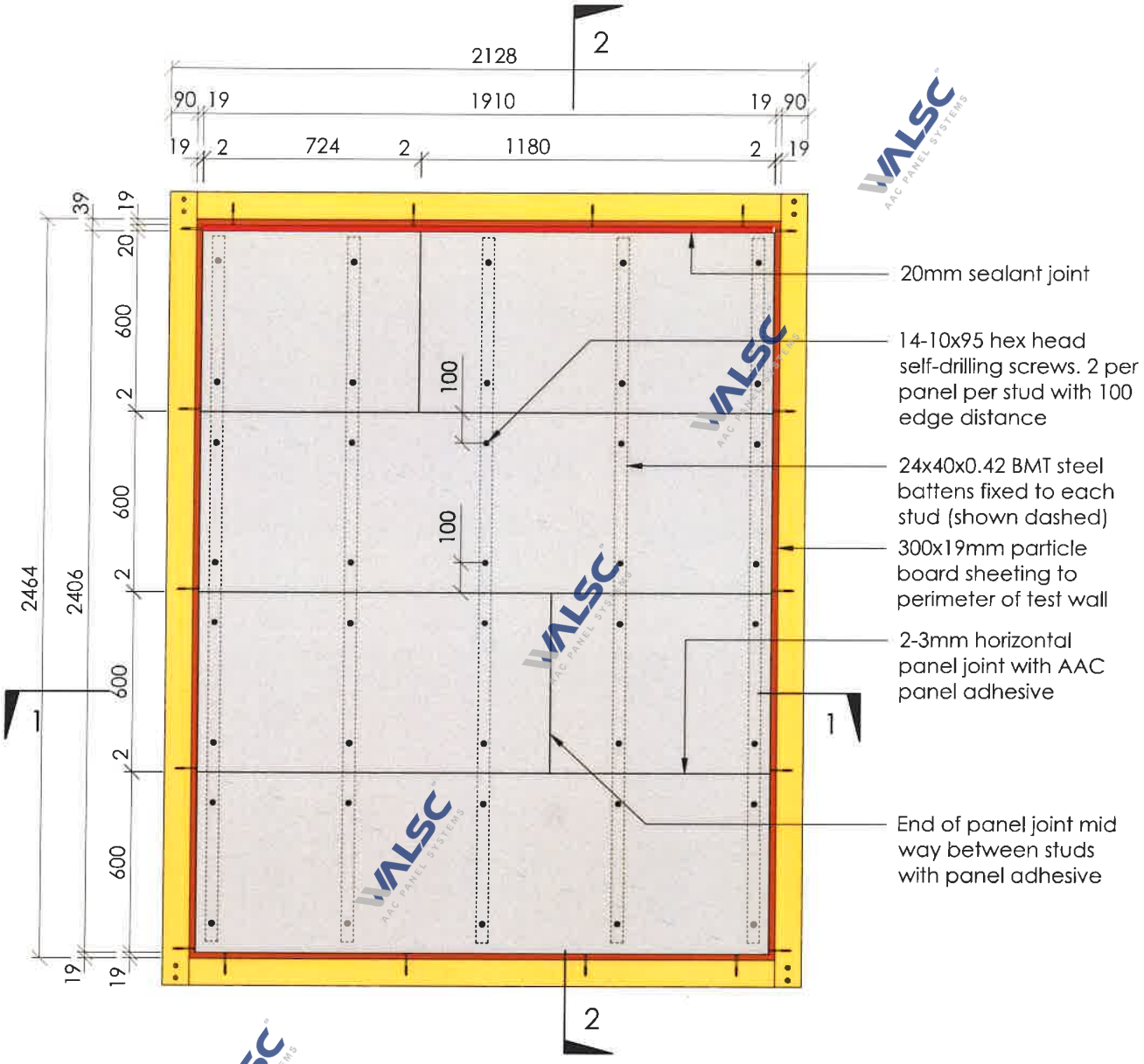
STUD FRAME ELEVATION

SCALE 1:20

INFORMATION SUPPLIED BY CUSTOMER

VENN ENGINEERING
ABN 39 626 802 257
a - PO Box 3084
AUSTINMER NSW 2515
p - 0426 241 673
e - admin@venn.engineering

client	50mm AAC AS4040.3 Test	designed	date	
client	Sipo Building Solutions P/L	drawn G.J.W.	13/05/2020	
site	Azuma Design 38 Redfern St, Wetherill Park	job code VE-SIP-S1	scale As shown @ A4	
			sheet 1 of 3	rev. C



AAC PANEL ELEVATION

SCALE 1:20

INFORMATION SUPPLIED BY CUSTOMER

VENN ENGINEERING
ABN 39 626 802 257
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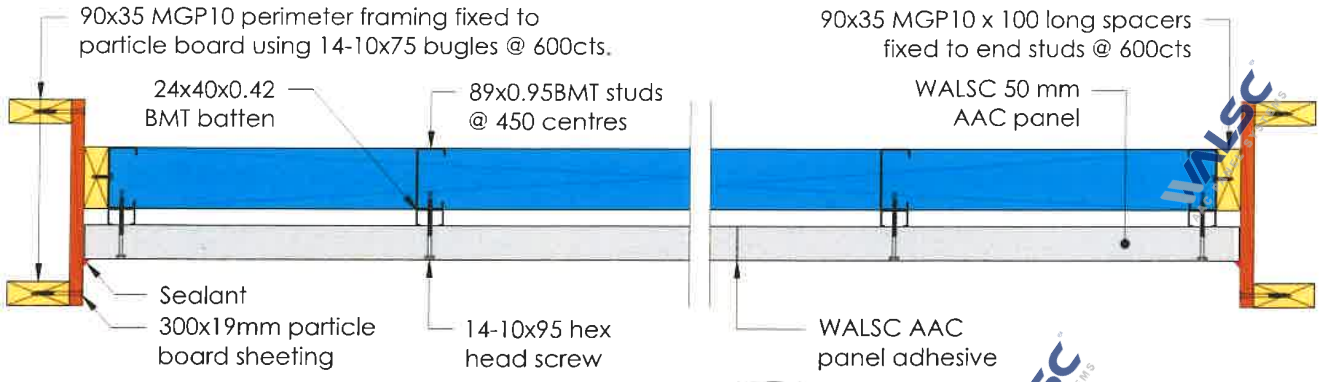
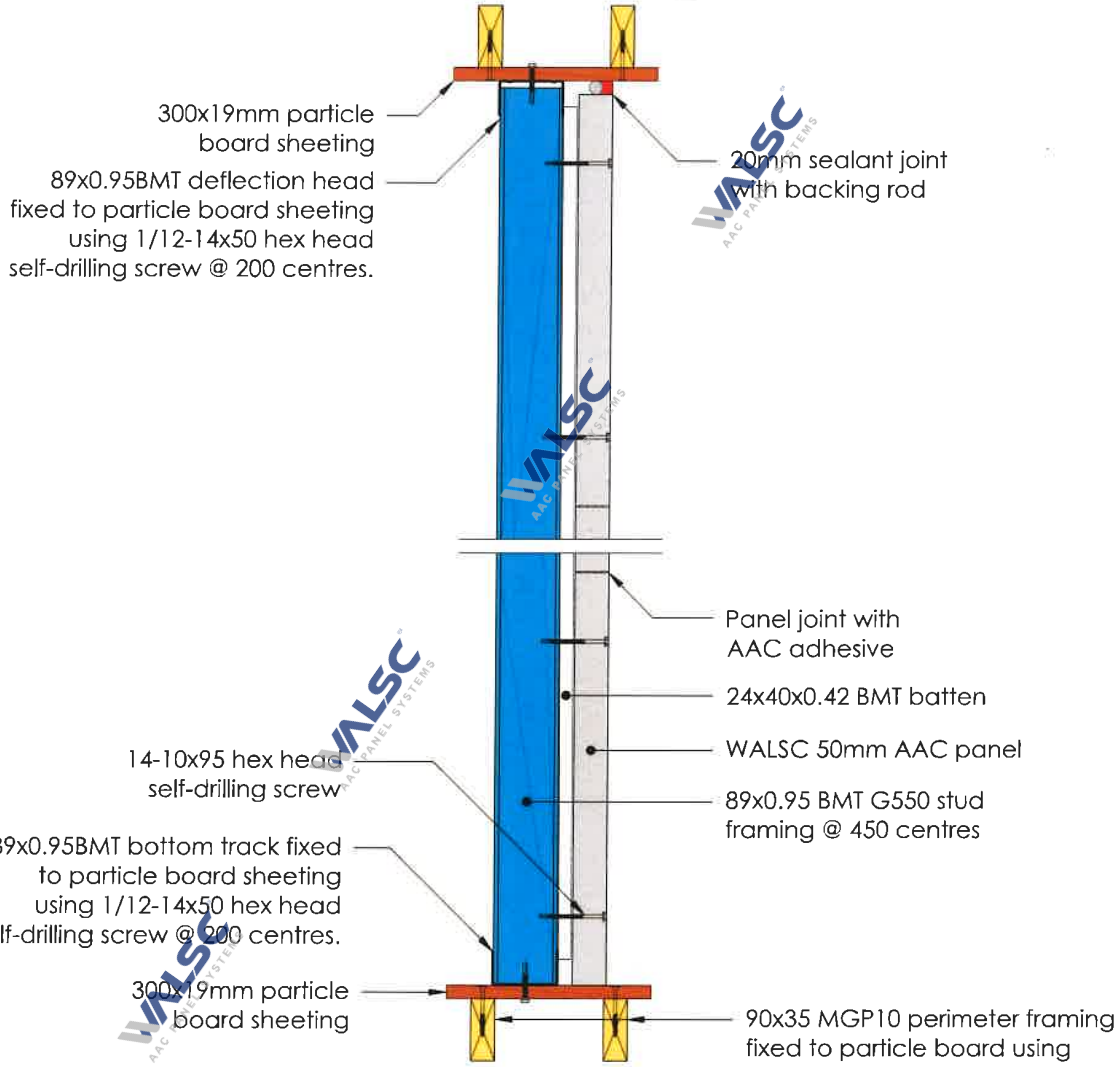
AUSTINMER NSW 2515
p - 0426 241 673
e - admin@venn.engineering

client	50mm AAC AS4040.3 Test	designed	G.J.W	date 13/05/2020
client	Sipo Building Solutions P/L	drawn	G.J.W	scale As shown @ A4
site	Azuma Design 38 Redfern St, Wetherill Park	job code	VE-SIP-S1	sheet 2 of 3 rev. C



SECTION 1
SCALE 1:10

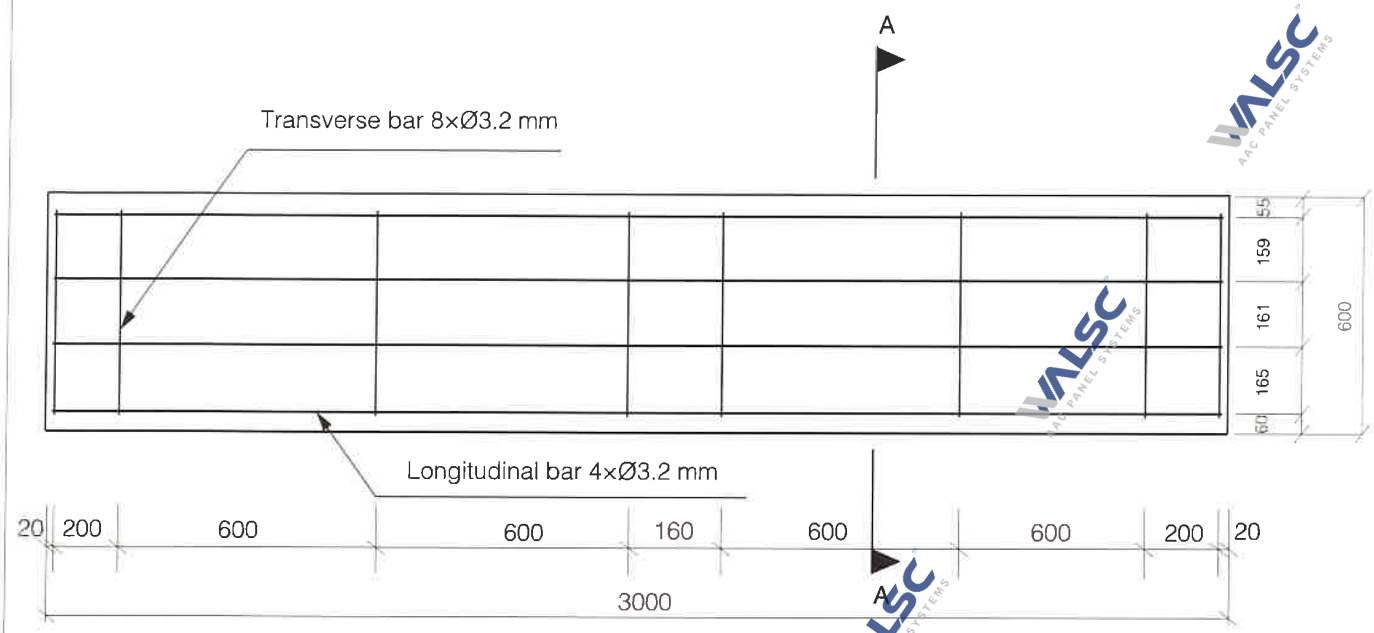


SECTION 2
SCALE 1:10

INFORMATION SUPPLIED BY CUSTOMER

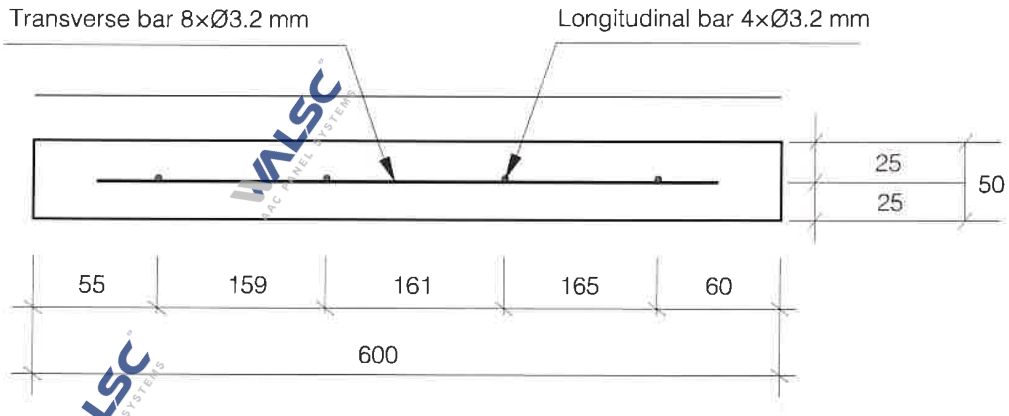
VENN ENGINEERING
ABN 39 626 802 257
a - PO Box 3084 AUSTINMER NSW 2515
p - 0426 241 673
e - admin@venn.engineering

client	50mm AAC AS4040.3 Test	designed	date	
client	Sipo Building Solutions P/L	G.J.W	3/05/2020	
site	Azuma Design 38 Redfern St, Wetherill Park	drawn G.J.W	scale As shown @ A4	
		job code VE-SIP-S1	sheet 3 of 3	rev. C



PLAN VIEW

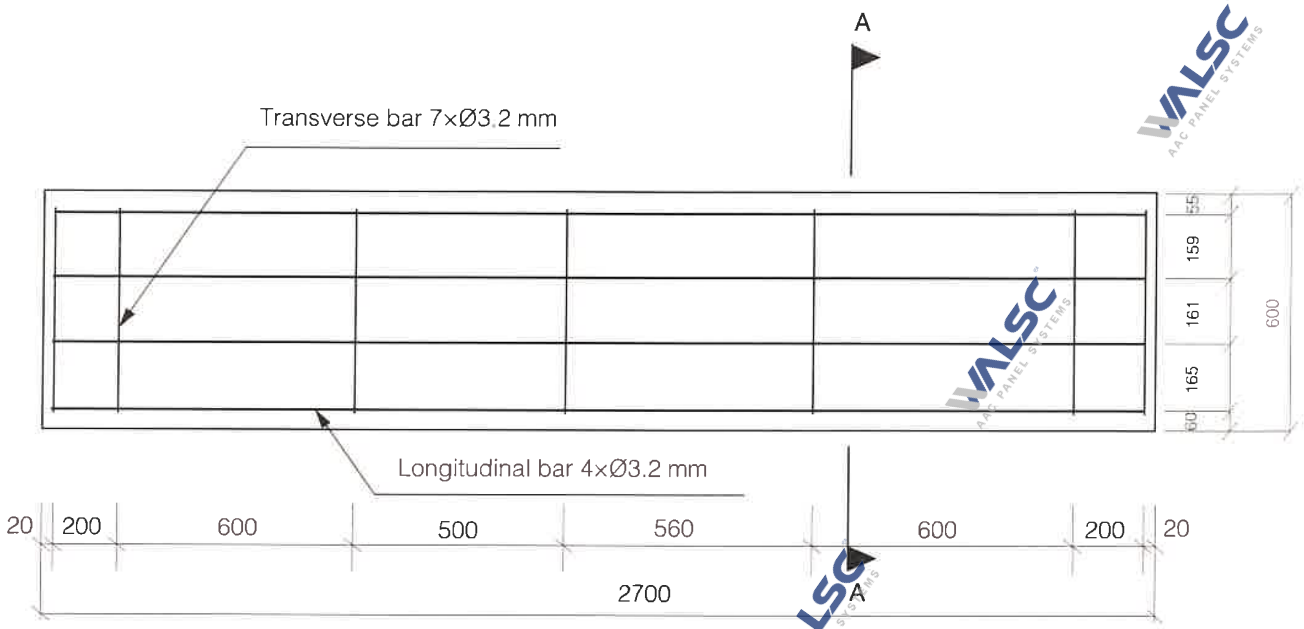
NOT TO SCALE



SECTION A-A VIEW

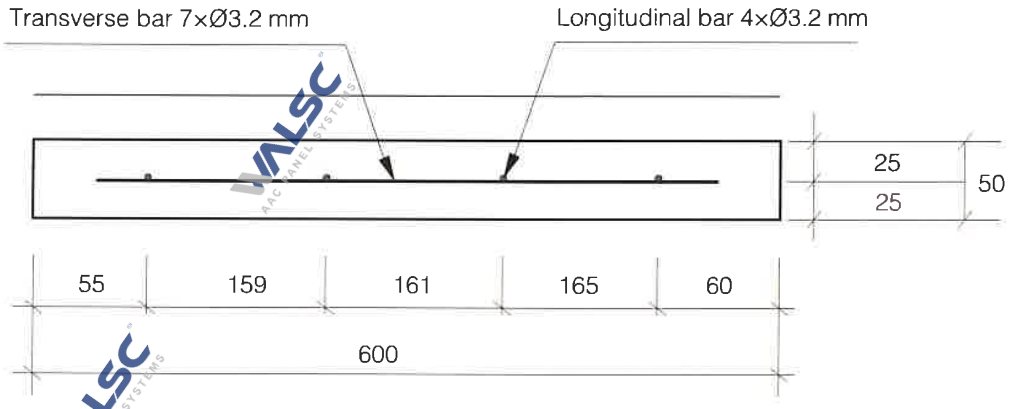
NOT TO SCALE

Company:	DWG Title:			
Sipo Building Solutions Pty Ltd Walsc Australia Pty Ltd	Walsc AAC Panel (3000×600×50mm) Reinforcement Detail			
	Drawn by: SG	Date: 5 Aug 2019	Drawing No: AAC50-REO-3000	Ver: V1



PLAN VIEW

NOT TO SCALE

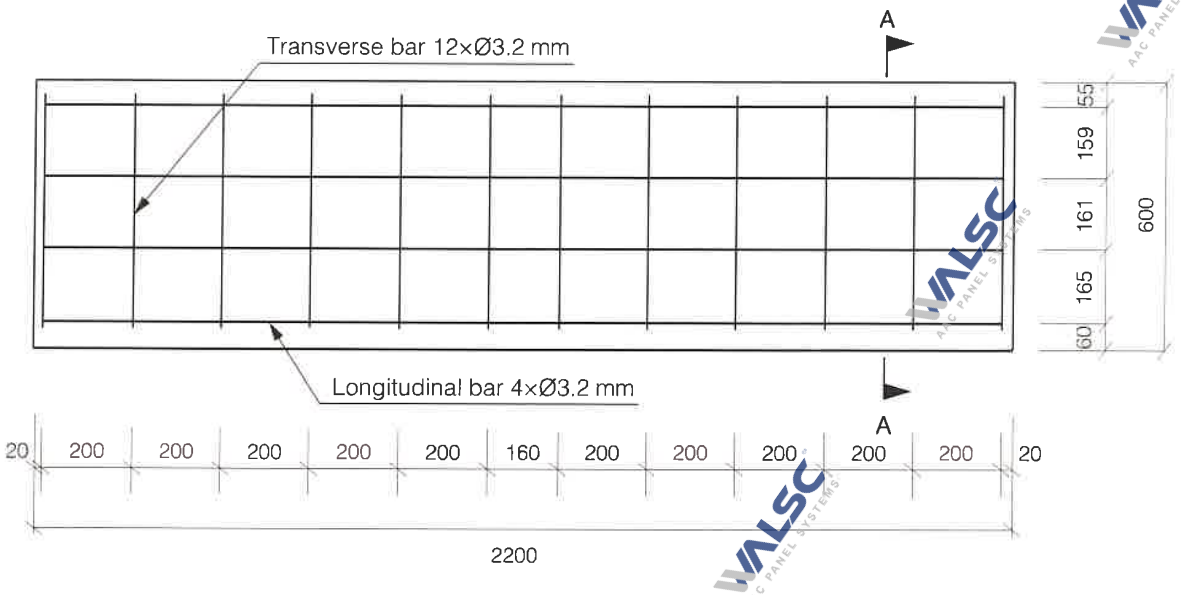


SECTION A-A VIEW

NOT TO SCALE

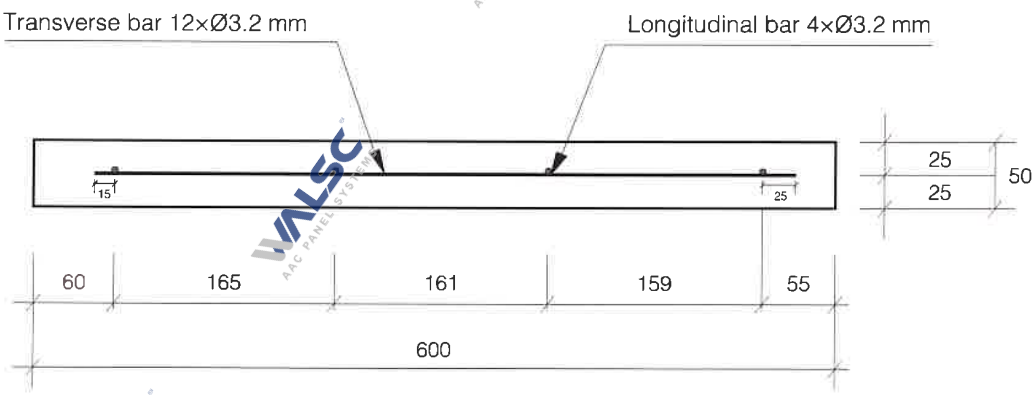
INFORMATION SUPPLIED BY CUSTOMER

Company:	DWG Title:			
Sipo Building Solutions Pty Ltd Walsc Australia Pty Ltd	Walsc AAC Panel (3000×600×50mm) Reinforcement Detail			
	Drawn by: SG	Date: 5 Aug 2019	Drawing No: AAC50-REO-2700	Ver: V1



PLAN VIEW

SCALE 1:15 (A4)



SECTION A-A VIEW

SCALE 1:5 (A4)

Dry Density: 525kg/m³
Density for Design: 650kg/m³

INFORMATION SUPPLIED BY CUSTOMER

Company:	DWG Title:			
Sipo Building Solutions Pty Ltd Walsc Australia Pty Ltd	Walsc AAC Panel (2200×600×50mm) Reinforcement Detail			
	Drawn by: JY	Date: 17 April 2019	Drawing No: AAC50-REO-2200	Ver: V1

NASAHI AAC PANEL
Material Safety Data Sheet (MSDS)

SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	NASAHI AAC Panel
Other Names	Walsc AAC Panel, Walsc AAC Wall Panel
Recommended Use	The NASAHI AAC Panel is suitable for use as external wall cladding, internal non-loadbearing walls, internal non-loadbearing fire separating walls as well as flooring. The nature of the AAC material provides the panels with superior thermal insulation, excellent fire resistance, workability and adequate strength.
Supplier	Walsc Australia Pty Ltd/Sipo Building Solutions Pty Ltd
Address	D3, 27-29 Fariola Street, Silverwater, NSW 2128
Telephone	02 9748 2832
Email Address	info@walsc.com.au/info@sipo.com.au
Website	www.walsc.com.au
Emergency Phone Number	000 Fire Brigade, Police and Ambulance (available in Australia only)
Poisons Information Center	13 11 26 (available in Australia only)

SECTION 2: HAZARDS IDENTIFICATION

The supplied **NASAHI AAC Panel** is classified as **Non-Dangerous Goods.**
During the installation and delivery, dust is created when the AAC Panel is sawn, cut, drilled and chased. The inhalation of respirable crystalline silica carried by the dust is harmful. Then the dust is classified as **Hazardous Substance.**

Classification		**Labelling**			
Hazard		**Pictogram**	**Signal Words**	**Hazard Statement**	**Precautionary Statement**
Class	**Category**				
Eye Irritation	Category 2A		Warning	**H319** Causes serious eye irritation	**P264** Wash eyes thoroughly after handling
Specific Target Organ Toxicity - Single Exposure, Respiratory Tract Irritation	Category 3		Warning	**H335** May cause respiratory irritation	**P261** Avoid breathing dust

INFORMATION SUPPLIED BY CUSTOMER

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NASAHI AAC PANEL
Material Safety Data Sheet (MSDS)

Skin Irritation	Category 2		Warning	**H315** Causes skin irritation	**P264** Wash hands thoroughly after handling
Specific Target Organ Toxicity - Repeated Exposure	Category 2		Warning	**H373** May cause damage to mucous membranes of the lung, nose, throat and upper respiratory system through prolonged or repeated inhalation.	**P260** Do not breathe dust

SECTION 3: COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical Ingredients	Proportion	CAS Number
Calcium silicate hydrate (Tobermorite)	Approx. 70%	1344-95-2
Crystalline silica (Quartz)	Approx. 23%	14808-60-7
Calcium sulfate (Gypsum)	Approx. 5%	7778-18-9
Additives	<2%	Proprietary

SECTION 4: FIRST AID MEASURES

Skin contact	Wipe away excess. Wash skin with water and a mild soap while removing contaminated clothing and shoes. Seek medical attention if irritation or redness develops.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Consult medical professionals for further information if eye irritation persists.
Inhalation	Keep patient calm. Remove from exposure to fresh air. Provide necessary breathing support. Consult medical professionals for further information if symptoms persist.
Swallow	Do not induce vomiting unless directed to do so by medical professional. Rinse mouth with flowing water. Seek medical attention if symptoms persist.
Additional	Treat symptomatically

INFORMATION SUPPLIED BY CUSTOMER

NASAHI AAC PANEL
Material Safety Data Sheet (MSDS)

SECTION 5: FIRE FIGHTING MEASURES

The supplied **NASAHI AAC Panel** is **Non-combustible**.

Suitable extinguishing media	Use extinguishing media suitable for surrounding area.
Hazards from combustion products	None
Special precautions for fire fighters	Recommend wearing self-contained breathing apparatus and staying upwind.
HAZCHEM Code	None allocated

SECTION 6: ACCIDENTAL RELEASE MEASURES

Emergency procedures	None
Methods and materials for contamination and clean up	Use proper personal protective equipment as indicated in Section 8. Vacuuming or wet sweeping up dust and place into a suitable disposal container. Avoid generating dusty conditions. Provide ventilation.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling	Use with adequate ventilation. Avoid contact with eyes and skin, ingestion and inhalation. All workers should have appropriate personal protection equipment for the worksite conditions. Whenever manually lifting single panels, a minimum of two people should carry each panel and the panel should be carried on its side (not flat). Good lifting techniques and a clean worksite should be maintained.
Conditions for safe storage	Safety assessment and control of storage area should be undertaken. Protect the supplied AAC product against physical damages. Keep away from reactive products. Do not store near food, beverages or smoking materials. Maintain appropriate dust controls during handling.
Incompatibility	None

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Standards	**Total dust (of any type or particle size):** TWA – 10 mg/m^3 **Respirable dust (of any type or particle size):** TWA – 10 mg/m^3 **Crystalline silica (quartz) as respirable dust:** TWA – 0.1 mg/m^3

INFORMATION SUPPLIED BY CUSTOMER

NASAHI AAC PANEL
Material Safety Data Sheet (MSDS)

Biological exposure limits	None allocated
Engineering controls	Dust extraction systems should be appropriately filtered as required by local council regulations. The site should also be cleaned at regular intervals to prevent dust accumulation.
Recommended personal protective equipment	
Skin protection	Protective clothing such as long sleeve shirts and trousers, or overalls to prevent possible skin irritation. This will also have the added benefit of protecting outside workers from the sun.
Eye protection	Safety glasses with side shields are recommended. Maintain eyewash facilities at worksite. Eye protection in accordance with AS 1336.
Respiratory protection	For most conditions, no respiratory protection should be needed. Protective respirators should be of class P1 or P2 (to AS/NZS 1715 and AS/NZS 1716) and recommended for dust, at a minimum.
Personal Hygiene	Regularly clean personal protective equipment and wash hands.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Flat
Color	Off-white
Odor	Odorless
PH	9-10
Vapor Pressure	Not available
Vapor Density	Not available
Boiling Point	Not available
Freezing/Melting Point	Not available
Solubility in Water	Insoluble
Flash Point	Not available
Flammable Limits	Not available
Evaporation Rate	Not available
Octanol / water distribution coefficient:	Not available

NASAHI AAC PANEL
Material Safety Data Sheet (MSDS)

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability	Stable and none-reactivity.
Conditions to Avoid	Excessive dust generation during storage and handling.
Incompatible Materials	Specific materials/condition to avoid.
Hazardous Decomposition Products	Not occur.
Hazardous Polymerization	Has not been reported.

SECTION 11: TOXICOLOGICAL INFORMATION

Routes of Exposure	Skin contact, Eye contact, Inhalation and Swallow

Acute Health Effects

Skin Contact	Touch the material with bare skin may cause drying of the skin with consequent mild irritation or abrasion.
Eye Contact	Eye contact by larger amounts of silica dust may cause effects ranging from moderate eye irritation to chemical burns.
Inhalation	Exposure to silica dust may cause irritation to the mucous membranes of the nose, throat, and upper respiratory system. It may also leave unpleasant deposits in the nose.
Swallow	Although small quantities of dust are not known to be harmful, ill effects are possible if larger quantities are consumed.

Chronic Health Effects

Skin Contact	Repeated drastic contact can cause severe skin damage in the form of skin rash.
Eye Contact	Exposure to airborne dust may cause long-term irritation or inflammation.
Inhalation	Prolonged exposure to respirable free crystalline silica may aggravate other lung conditions. It may also cause delayed lung injury including silicosis, a disabling and potentially fatal lung disease.

Special Health Effects

Toxic Effects	Prolonged or repeated inhalation may affect lung health.

INFORMATION SUPPLIED BY CUSTOMER

NASAHI AAC PANEL
Material Safety Data Sheet (MSDS)

SECTION 12: ECOLOGICAL INFORMATION

Eco-toxicity	No recognized unusual toxicity.
Persistence	No information available.
Biodegradability	The supplied AAC Panel is not expected to biodegrade.
Mobility	No information available.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal methods and containers	Waste management should be in compliance with local authority regulations. Whatever cannot be saved for recycling should be managed in an appropriate and approved waste disposal facility. The dusty product should not be disposed into sewers.
Special precautions for landfill and incineration	Contact a specialist disposal company or the local waste regulator for advice.

SECTION 14: TRANSPORT INFORMATION

UN number	None allocated
Proper Shipping Name	None
Class and Subsidiary Risk	None
Packing Group	None
Special Precautions	None
HAZCHEM Code	None allocated

SECTION 15: REGULATORY INFORMATION

Poisons Scheduling	Not scheduled
All components of the material are listed on the Australian Inventory of Chemical Substances (AICS).	

INFORMATION SUPPLIED BY CUSTOMER

NASAHI AAC PANEL
Material Safety Data Sheet (MSDS)

SECTION 16: OTHER INFORMATION

First version issued on 21 Nov 2014
Last revision in 2019 and in compliance with GHS
Review and update in every 5 years
For further information on the **NASAHI AAC Panel**, please contact **Walsc Australia Pty Ltd.** Phone number: 1300 957 566 Email: info@walsc.com.au/info@sipo.com.au

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