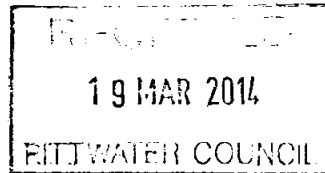


Metro Building Consultancy

Suite 305, 110 Pacific Highway
North Sydney NSW 2060
P: 02 9692 8477
F: 02 8209 4955
admin@metrobc.com.au
www.metrobc.com.au

Ref: 13171 Council OC Letter



17 March 2014

Pittwater Council,
PO Box 882
Mona Vale NSW 1660

Attention: General Manager

**Loquat Valley School, 1973 Pittwater Road, Bayview NSW 2104
Registration of an Occupation Certificate for alterations to classrooms**

With regard to the above project please see attached a copy of the Occupation Certificate as per Clause 151 (2) of the Environmental Planning and Assessment Regulation 2000, including:

- a copy of the determination,
- copies of any documents that were lodged with the application for the certificate,
- if an occupation certificate was issued, a copy of the certificate,
- a copy of all critical stage inspections and any other inspections carried out because they were required by the principal certifying authority under section 109E (3) (d) of the Environmental Planning and Assessment Act 1979 No 203,
- a copy of any inspection carried out under clause 162A (6) (c) of the Environmental Planning and Assessment Regulation 2000,
- a copy of any missed inspection to which clause 162C applies,
- a copy of any compliance certificate and of any other documentary evidence, whether or not of a kind referred to in Part A2, clause A2.2, of the *Building Code of Australia*, relied on in issuing the occupation certificate.

Please also see attached a cheque for \$36 which I believe to be the registration fee. Please send a receipt to the above address quoting this job number 13171.

If you have any question please do not hesitate to contact this office.

Regards

A handwritten signature in black ink, appearing to read "SEAN MOORE".

Sean Moore
Metro Building Consultancy

Commercial

Occupation Certificate

Under Section 109C (1) (c) & 109H of the Environmental Planning and Assessment Act 1979

Applicant's details

Title	Mr <input checked="" type="checkbox"/>	Ms <input type="checkbox"/>	Mrs <input type="checkbox"/>	Other <input type="checkbox"/>	
First Name	Kyle	Surname	Watson	Position	Project Co-ordinator
Company / Organisation Name	Sydney Anglican Schools Corporation				
Address	Level 1, 420 Forest Road, Hurstville NSW 2220				
Phone No	02 8567 4045	Fax No	02 9570 2220	Mobile No	0422 479 375
				Email	kwatson@sasc.nsw.edu.au

Property details

Property address	Detailed description of the development - Building Work
Loquat Valley School	Alterations to Tutorial Room T7 and
1973 Pittwater Road,	Classrooms C9, C10, C11, C12 to extend
Bayview NSW 2104	onto the existing balconies and the
	construction of a new Art Room adjacent
	to Classroom C12.
Lot Number	Existing BCA Classification
Lot 1	Class 9b
DP / SP Number	Proposed BCA Classification
DP 304830	Class 9b
Vol / Fol	

Type of Occupation Certificate

Type of Occupation Certificate applied for. Interim Final
If Interim, the extent of the area for the Interim Occupation Certificate or the extent of the area excluded from the Interim Occupation Certificate

--

Development approval (DA) or Complying Development Certificate (CDC) details

DA or CDC Number	13171CDC01	Date of DA / CDC	27/08/13
Name of the Certifying Authority	Sean Moore		

Construction Certificate (CC) details

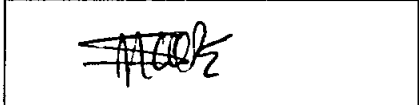
CC Number	NA	Date of CC	NA
Name of the Certifying Authority	NA		

Determination

Date of certificate	17/03/14	Determination of application	Approved
Certificate number	13171OC01	Building Professional Board accreditation number	0764

I confirm that:

- (i) the health and safety of the occupants of the building have been taken into consideration where an interim occupation certificate is being issued, and
- (ii) a current development consent or complying development certificate is in force for the building, and
- (iii) if any building work has been carried out, a current construction certificate (or complying development certificate) has been issued with respect to the plans and specifications for the building, and
- (iv) the building is suitable for occupation or use in accordance with its classification under the *Building Code of Australia*, and
- (v) a fire safety certificate has been issued for the building, and
- (vi) a report from the Fire Commissioner has been considered (if required).

Name of Accredited Certifier	Sean Moore	Signature of Accredited Certifier	
------------------------------	------------	-----------------------------------	---

Attachments to the Occupation Certificate

No.	Item
1.	Copy of Occupation Certificate application form dated 03/02/14.
2.	Copy of the Interim or Final Fire Safety Certificate dated 10/02/14.
3.	Copy of Clause 162A EPAR Critical Stage Inspection report dated 29/01/14.
4.	Copy of the Structural Inspection Certificate (steelwork, concrete areas, timber framing) from Cantilever Consulting Engineers Pty Ltd dated 24/01/14.
5.	Copy of the concrete installation certificate from Concrete Enterprises Pty Ltd dated 24/01/14.
6.	Copy of the mechanical services installation certificate from Advanced Aircon Design & Construct Pty Ltd dated 07/02/14.
7.	Copy of the testing and compliance certificate (electrical installation) from Hyspec Electrics dated 29/01/14.
8.	Copy of the emergency lighting and exit signage Installation Certificate from Hyspec Electrics dated 28/01/14.
9.	Copy of the letter of compliance (security system installation fitted with smoke detection alarms) from National Electronic Security dated 28/01/14.
10.	Copy of the installation certificate (fire extinguishers) from Celsius Fire Pty Ltd dated 05/02/14.
11.	Copy of the installation certificate (plumbing) from Gow Plumbing & Draining (NSW) Pty Ltd dated 30/01/14.
12.	Copy of the compliance certificate (glazing installation) from High Tech Aluminium & Glass dated 24/01/14.
13.	Copy of the Fire Hazard Indices Laboratory Test Results for the carpet tiles from AWTA Product Testing dated 11/06/10.
14.	Copy of the Fire Hazard Indices Laboratory Test Results for the vinyl flooring from AWTA Product Testing dated 24/06/11.
15.	Copy of the Fire Hazard Indices Laboratory Test Results for the corded carpet from AWTA Product Testing dated 14/09/04.
16.	Copy of the Fire Hazard Indices Laboratory Test Results for loop pile tufted carpet from AWTA Product Testing dated 19/01/05.
17.	Copy of the Fire Hazard Indices Laboratory Test Results for loop pile tufted carpet from AWTA Product Testing dated 12/01/06.
18.	Copy of the Fire Hazard Indices Laboratory Test Results for the vinyl flooring from AWTA Product Testing dated 02/07/10.
19.	Copy of the Slip Resistance Classification for the new vinyl flooring from Armstrong World Industries (Aust) Pty Ltd dated 13/12/11.
20.	Copy of the Slip resistance Tests Performed for the new vinyl flooring from CSIRO dated 15/04/11.
21.	Copy of the Slip Resistance Classification for the new vinyl flooring from Armstrong World Industries (Aust) Pty Ltd dated 13/12/11.
22.	Copy of the Slip resistance Tests Performed for the new vinyl flooring from CSIRO dated 03/06/10.

Commercial

Occupation Certificate Application Form

Under Section 109C (1) (c) & 109H of the Environmental Planning and Assessment Act 1979

Applicant's details (The applicant must be the property owner or the person having the benefit of the development consent. A building contractor however cannot be the applicant unless the contractor is the owner of the property.)

Title Mr Ms Mrs Other

First Name Kyle Surname Watson. Position Project Co-ordinator.

Company / Organisation Name Sydney Anglican Schools Corporation.

Address Level 1 420 forest rd Hurstville 2220

Phone No Fax No Mobile No 0422479375 Email KWatson@SASC.NSW.edu.au.

Signature [Signature] Date 3/2/14.

Property details

Property address

Loquat Valley School
1973 Pittwater Road,
Bayview NSW 2104

Lot Number Lot 1
 DP / SP Number DP 304830
 Vol / Fol

Detailed description of the development - Building Work

Alterations to Tutorial Room T7 and Classrooms C9, C10, C11, C12 to extend onto the existing balconies and the construction of a new Art Room adjacent to Classroom C12.

Existing BCA Classification Class 9b

Proposed BCA Classification Class 9b

Type of Occupation Certificate

Type of Occupation Certificate applied for, select one. Interim Final
 If Interim, specify the extent of the area for the Interim Occupation Certificate or specify the extent of the area excluded from the Interim Occupation Certificate

Checklist of information required to accompany the application

Included? Y/N

A copy of the relevant development consent or complying development certificate	Y
A copy of any relevant construction certificate	NA
A copy of the final fire safety report from the NSW Fire Brigade	NA
A copy of the completed Interim or Final Fire Safety Certificate	Y
Where there is planning agreement that would prevent the issue of the occupation certificate, a certificate must be provided from the relevant planning authority stating that the requirements of the agreement have been met.	NA

Office Use Date of receipt 03/02/14 Received by: [Signature]

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Metro Building Consultancy
Suite 305, 110 Pacific Highway, North Sydney NSW 2060
P: 02 9692 8477 F: 02 8209 4955 E: admin@metrobc.com.au
www.metrobc.com.au



Interim / Final Fire Safety Certificate

Under Section 170, 171, 172, 173 and 174 of the Environmental Planning and Assessment Regulations 2000

Type of certificate being issued

Interim Fire Safety Certificate
Final Fire Safety Certificate

Details of the building

Address **Loquat Valley School, 1973 Pittwater Road, Bayview NSW 2104**

Description of the building or part **Alterations to Tutorial Room T7 and Classrooms C9, C10, C11, C12 to extend onto the existing balconies and the construction of a new Art Room adjacent to Classroom C12.**

Owner's details

First Name **Bruce** Surname **Litchfield** Position **Capital Works Manager**

Company / Organisation Name **Sydney Anglican Schools Corporation**

Address **PO Box 465, Hurstville BC NSW 1481**

Owner's agent / builder's details

First Name **Adrian** Surname **Nolan** Position **Contract Admin**

Company / Organisation Name **Quasar Constructions**

Address **Unit 3 & 4 23 Brookhollow Ave, Baulkham Hills** Phone **(02) 8853 5600**

I confirm that each essential fire safety measure specified in this certificate:

- (a) has been assessed by a properly qualified person, and
- (b) was found, when it was assessed, to be capable of performing to at least the standard required by the current fire safety schedule for the building for which the certificate is issued, and
- (c) the information contained in this statement is, to the best of my knowledge and belief, true and accurate.

Signature  Date **10-02-14**

Fire Safety Schedule

No	Fire Safety Measure	Standard of Performance	Existing Yes / No	Proposed to be modified Yes / No
1.	Fire Blankets	As 2444 (2001)	Yes	No
2.	Fire hydrant systems	AS 2419.1 (1994)	Yes	No
3.	Hose reel systems	AS 2441 (1998)	Yes	No
4.	Portable fire extinguishers	As 2444 (2001)	Yes	No

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www.metrobc.com.au



(Commercial - Class 5, 6, 7, 8 or 9 building)

Record of Critical Stage Inspection

Under Section 162A and 162B of the Environmental Planning and Assessment Regulations 2000

The registered number of the development application and of the construction certificate or complying development certificate.

Complying Development Certificate 13171cdc01

The address of the property at which the inspection was carried out.

Loquat Valley School, 1973 Pittwater Road, Bayview NSW 2104

Type of Critical Stage Inspection

Prior to covering any stormwater drainage connections.
After the building work has been completed and prior to any occupation certificate being issued in relation to the building.
In the case of a swimming pool, as soon as practicable after the barrier (if one is required under the Swimming Pools Act 1992) has been erected.
After the commencement of the excavation for, and before the placement of, the first footing.

No
Yes
No
No

The date on which the inspection was carried out.

29/01/14

The identity of the certifying authority by whom the inspection was carried out.

Sean Moore

If the certifying authority by whom the inspection was carried out is an accredited certifier, the accreditation number of the certifying authority.

Building Professionals Board accreditation number 0764

Whether or not the inspection was satisfactory in the opinion of the certifying authority who carried it out.

The inspection was satisfactory.

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24 January 2014

Sydney Anglican Schools Corporation
C/- Patton Architects
114 Sutherland Road
JANNALI NSW 2226
Att: Belinda Patton

Loquat Valley Anglican School - alterations and additions - structural inspection certificate

Dear Bruce,

We, Cantilever Consulting Engineers Pty Ltd, are professional structural engineers in accordance with the meaning within the Building Code of Australia. I am a properly qualified person with appropriate insurance and experience. My qualifications and accreditations are listed below.

We certify that we have carried out periodic structural inspections of the structural steelwork, reinforcement for the concrete areas and timber framing for the alterations and additions at Loquat Valley Anglican School in accordance with accepted engineering practices and principles during the construction. At the time of our inspections, as represented by our site reports, the work inspected was generally within the intent of the structural engineering as conveyed by the structural engineering drawings, 00827: S0.00, S1.00, S1.01 & S2.00.

This certification shall not be construed as relieving any other party of their responsibilities, liabilities and contractual obligations. Please note that this certification does not include those areas that required rectification at the time of our inspection and does not include those areas that were not inspected.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Hadley", written over a horizontal line.

Damian Hadley, Director BAsc(Hons), CPEng, MIE(Aust), NPER
Cantilever Consulting Engineers Pty Ltd

Our reference: 00827.C12C001

Relevant qualifications and accreditations:	BAsc(Hons), MIE(Aust), CPEng, NPER
Name of certifier:	Damian Hadley
Company:	Cantilever Consulting Engineers Pty Ltd
Address:	Suite 206 / 3 Gladstone Street, NEWTOWN NSW
Phone number:	(02) 9565 4292



24.01.14

TO: Quasar Constructions Pty Ltd
 Unit 3 & 4, 23 Brookhollow Avenue
BAULKHAM HILL NSW 1585

Attention : Mr. Adrian Nolan
 Reference : Loquat Valley School, Bayview

Dear Adrian

On behalf of Concrete Enterprises Pty Limited, I herewith certify that the work under the Contract for the Concrete Placing and Finishing Works on the above mentioned project represented by the items of Work listed has been executed and tested in accordance with the quality plan and conforms in all respects with the requirements of the Contract and as per the Australian Standards Codes AS 1302 1991, AS 1303 1991, AS 1304 1991, AS 1379 1991, AS 3600 19942001, AS 3610 1995 and AS 3972 1997.

Please do not hesitate to contact us if you require any further information or assistance in this matter.

Yours Sincerely,
FOR CONCRETE ENTERPRISES PTY LTD

Mohammad Ali
DIRECTOR
MOB: 0406 392 786
EMAIL: mohammad.cepl@gmail.com

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advanced aircon design&construct Pty Ltd
Quantum Corporate Park
Unit 20/7-9 Percy St Auburn NSW 2144
PO Box 1232 Strathfield NSW 2135
Ph 02 9749 7400 Fax 02 9749 7900
ABN 46154328462



CERTIFICATE OF INSTALLATION
MECHANICAL AND AIR CONDITIONING SERVICES

DEVELOPMENT DETAIL: PRINCIPAL, LOQUAT VALLEY ANGLICAN PREPARATORY SCHOOL
SITE ADDRESS: 1977 PITTWATER ROAD, BAYVIEW – NSW 2104
PRINCIPAL CERTIFIER: N/A
DA APPLICATION NO.: N/A
PRINCIPAL CONTRACTOR: QUASAR CONSTRUCTIONS PTY. LTD.
JOB REFERENCE (advanced aircon): Q201 – 0613

I hereby certify that the above building work has been installed in accordance with the standard engineering practices and meets the requirements of the Building Code of Australia 2010, relevant Australian Standards, Environmental Planning and Assessment Act 1979 and Regulation 2000 of the Development Application.

In particular the building work involved the relocation of six split units.

I, Daniel Wade of Advanced Aircon Design & Construct Pty Ltd, state that:

I am an appropriately qualified and competent person in this area being accredited to undertake the works and as such can certify that the performance of the system has been checked and installed to comply with above codes.

Experience: Over 10 years project manager

Signature: 

Date 07TH February 2014



CERTIFICATE OF:

(Please mark relevant check-box)

TESTING AND COMPLIANCE (**Electrical installations**)

Issued in accordance with AS3000.2007 and AS 1680.0

TESTING AND SAFETY (**Electrical equipment**)

Issued in accordance with s15 of the *Electrical Safety Regulation 2002*

* Work performed for:

* Job Loquat Valley Anglican School
Job

* Address 1977 Pittwater Road
Street
Bayview 2104
Suburb/town Postcode

* Electrical installation / equipment tested:

- New lighting circuits and controls
- New power outlets
- Emergency lighting
- Upgrade Distribution board

* Date of test 29 / 01 / 2014 * Electrical contractor licence number 106513C


Name on contractor licence Craig Lewis

Electrical contractor phone number 0488206373

For **electrical installations**, this certifies that the electrical installation, to the extent it is affected by the electrical work, has been tested to ensure that it is electrically safe and is in accordance with the requirements of the wiring rules AS 3000.2007.

For **electrical equipment**, this certifies that the electrical equipment, to the extent it is affected by the electrical work, is electrically safe.

Name Craig Lewis
Person who performed, or person who is responsible for work

Signature 

Date 29 / 01 / 2014

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Fire Safety Certificate

Issued under the Environmental Planning and Assessment Regulation 2000,
Clauses 170 to 174

Type of Certificate

Interim

Final

Owner / Agent

I, Craig Lewis

Address

of 29 Kentucky Drive Glossodia NSW 2756

Certify that:

each of the essential fire safety measures specified in the current fire safety schedule for the building to which the certificate relates:

- a) has been assessed by a properly qualified person, and
- b) was found, when it was assessed, to be capable of performing to at least the standard required by the current fire safety schedule for the building for which the certificate is issued.

Identification of Building

Street

1977 Pittwater Road Bayview

House/Unit No. or Building Name

Loquat Valley Anglican School

Side of Street

South

Nearest Cross Street

Loquat Valley Road

Particulars of Building

Scope

Whole

Part

Description of Part (where applicable)

Classrooms, Staff Room, Seminar Room, Art Room

House/Unit No. or Building Name

Loquat Valley Anglican School

Date of Assessment

29/01/14

Owner's Details

Name

Address

A copy of this certificate together with the relevant fire safety schedule must be forwarded to the Council and the Commissioner of the New South Wales Brigades.

A copy of this certificate together with the relevant fire safety schedule must be prominently displayed in the building.

Notes for completing the Fire Safety Certificate

Note 1

An **interim fire safety certificate** or a **final fire safety certificate** is required before:

- an interim occupation certificate can be issued to allow a partially completed new building (including and altered portion of, or an extension to, a new building) to be occupied or used, or
- an interim occupation certification can be issued to allow a change of building use for part of an existing building.

A **final fire safety certificate** is required:

- before a final occupation certificate can be issued to allow a new building (including an altered portion of, or extension to, a new building) to be occupied or used, or
- before a final occupation certificate can be issued to allow a change of building use for an existing building, or
- in accordance with a fire safety order given by a council.

An **interim fire safety certificate** is issued for part of the building and may deal only with those essential fire safety measures appearing on the most recent fire safety schedule (see note 3) relevant to the part of the building for which interim occupation certificate will be sought.

A **final fire safety certificate** must deal with all essential fire safety measures appearing on the most recent fire safety schedule (see note 3), subject to the following.

An **interim fire safety certificate** or a **final fire safety certificate** need not deal with those essential fire safety measures which have been the subject of some other final fire safety certificate or annual fire safety statement within the previous 6 months, unless the person or authority responsible for determining the relevant development consent, complying development certificate, construction certificate or fire safety order, has specified otherwise in the schedule. See also note 3.

Note 2

The person who carries out the assessment:

- must inspect and verify the performance of each fire safety measure being assessed; and
- in the case of a (interim or final) fire safety certificate for a new building (not an alteration to, or enlargement or extension of an existing building) must test the operation of each item of fire safety equipment installed in the building.

Note 3

The relevant essential fire safety measures are those specified in the most recent fire safety schedule, attached to one of the following:

- development consent for a change of building use; or
- complying development certificate for the erection of a building or a change of building use; or
- construction certificate for proposed building work, including building work associated with a change of building use; or
- a fire safety order.

The fire safety schedule will also identify standard of performance for each essential fire safety measure.



LETTER OF COMPLIANCE.

28th January 2014.

Mr. Adrian Nolan
Contracts Administrator.

Quasar Group.
Unit 3 & 4, 23 Brookhollow Ave.
Baulkham Hills NSW 2153

PREMISES.
Loquat Valley Anglican Prep School.
1977 Pittwater Road
BAYVIEW NSW 2104.

This document is written to confirm the following,

-The Security system at these premises including the new classroom/staffroom works, has been installed in compliance with manufacturer's specifications and in accordance with relevant standard, namely AS2201. The alarm system is composed of tamper sealed control panels, Internal intruder detection devices, alert sirens and interface codepads.

-The system is also fitted with smoke detection alarms, which are installed as per manufacturer's specifications. Both equipment and locations comply with Australian Standards, namely AS3786, AS1670.

-The system is currently monitored via our Grade 1 Monitoring centre.

-As per Australian Standards AS2201, annual maintenance is conducted on this system.

Greg Wares.
Licensed Security Consultant No. 408608706.
General Manager.
National Electronic Security.



Certificate of Installation

Address	Loquat Valley Anglican School 1977 Pittwater Road, Bayview.
Project	Install Extinguisher
Building Co.	Quasar

I, Justin Ryan of Celsius Fire Pty Ltd, 1/70 Gibbes Street, Chatswood, NSW 2067


Certify that:

- (a) That the essential fire safety measure nominated below which has been installed / altered within the building complies with the measures identified respectively
- (b) This certificate relates solely to the scope of works identified below within the location nominated
- (c) The information contained in this certificate is, to the best of my knowledge and belief, true and accurate.

Scope of works

1. Supply and installation of Fire Extinguishers the renovated / alteration sections of building. Within the existing building.

<u>Essential Fire Safety Measure</u> Portable fire extinguishers	<u>Standard of Performance</u> AS 2444- 2001 BCA E1.6	<u>Date of installation</u> 10.October.2013
---	--	--

Date of Certificate Wednesday, 5 February 2014	Signature 
--	---





GOW

PLUMBING & DRAINING (N.S.W.) PTY LTD

ABN 34 003 772 450 ACN 003 772 450 Lic. No. L8944 CONTRACTORS AUTHORITY No. A 3557

CONTRACTORS • CONSULTANTS

E8/15 Narabang Way BELROSE NSW 2085

TEL: 9986 2477 (24 HOURS)

FAX: 9986 3221

EMAIL: office@gowplumbing.com.au

30 January 2014

TO WHOM IT MAY CONCERN

SITE: LOQUAT VALLEY ANGLICAN SCHOOL

Please be advised that all plumbing work recently carried out during renovation of the above premises were carried out in accordance with Australian Plumbing Standards AS 3500.

The work carried out included renovation of existing downstairs toilet, renovation of existing upstairs staff room toilets, renovation of existing art room changed into staffroom, renovation of classrooms including installation of sinks.

Should you require any further information regarding this matter please do not hesitate to contact me.

Yours sincerely

**BRYCE MUNRO
DIRECTOR**

GOW PLUMBING & DRAINING (NSW) PTY LTD

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HighTech Aluminium & Glass

Quasar
Unit 3 & 4, 23 Brook hollow Avenue
Baulkham Hills NSW, 2153

Dated : 24.01.2013

Site Address :

- Loquat Valley Anglican School
1977 Pittwater Road
Bayview NSW, 2104

Re : Compliance Certificate

We now have the pleasure of confirming the Glass in the following Items supplied and installed by our company at the above address complies with the following Australian Standards & Performance

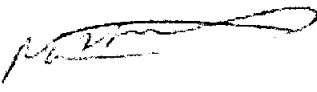
- AS1288 – 2006
- AS2047 – 1999

Windows

- W01,02,03,04,05,06,07,08,09,10,11,12
- Additional Sliding Door

Should you require any further details, please do not hesitate to contact our office

Yours faithfully

X 

Mark Radisich [Director]
HighTech Aluminium & Glass Architecture Pty Ltd

AWTA PRODUCT TESTING

Australian Wool Testing Authority Ltd - trading as AWTA Product Testing
A.B.N. 43 006 014 106
1st Floor, 191 Racecourse Road, Flemington, Victoria 3031
P.O. Box 240, North Melbourne, Victoria 3051
Phone (03) 9371 2400 Fax (03) 9371 2499

TEST REPORT

CLIENT : QEP AUSTRALIA PTY LTD
2 DUNLOPILLO DRIVE
DANDENONG VIC 3175

TEST NUMBER : 7-573170-CV
ISSUE DATE : 11/06/2010
PRINT DATE : 11/06/2010

SAMPLE DESCRIPTION Clients Ref: "Protile Business Class Collection"
Loop pile carpet tiles
Colour: Various
Approx pile height: 3.5 to 4.5mm

Material Specification:

Nominal composition: 100% solution dyed 6,6
Nominal total pile mass: 644 to 712g/mn2
Nominal backing: Exotex, non woven Terylene

ASISO 9239.1-2003
Part 1

Reaction to Fire Tests for Floorings
Determination of the Burning Behaviour
using a Radiant Heat Source

Date of sample arrival: 05/05/2010

Date tested: 09/06/2010

Results: CHF (Critical Heat Flux / Critical Radiant Flux)

	1	2	3	Mean	
Length	8.7	8.0	9.1	8.6	kW/m2
Width	9.1	-	-	-	kW/m2

Smoke Value

	128	110	126	121	% min
Length	128	110	126	121	% min
Width	87	-	-	-	% min

Observations: melting, blistering, penetration of flame through to substrate

Note: Sample was conditioned in accordance with BSEN 13238-2001 at a temperature of 23+/-2degC and Relative Humidity of 50+/-5% for a minimum of 48 hours prior to testing

Each specimen was adhered to a substrate of 6mm thick reinforced cement board using Roberts 656 adhesive and clamped prior to testing

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use



This Laboratory is accredited by the National Association of Testing Authorities, Australia, for:
- Chemical Testing of Textiles & Related Products : Accreditation No. 993
- Mechanical Testing of Textiles & Related Products : Accreditation No. 985
- Heat & Temperature Measurement : Accreditation No. 1358

This document is issued in accordance with NATA's accreditation requirements. Samples, and their identifying descriptions have been provided by the client unless otherwise stated. AWTA Ltd makes no warranty, implied or otherwise, as to the source of the tested samples. The above test results relate only to the sample or samples tested. This document shall not be reproduced except in full and shall be rendered void if amended or altered. This document, the names AWTA Product Testing and AWTA Ltd may be used in advertising providing the content and format of the advertisement have been approved in advance by the Managing Director of AWTA Ltd.



[Signature]
APPROVED SIGNATORY

[Signature]
MANAGING DIRECTOR

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AWTA PRODUCT TESTING

Australian Wool Testing Authority Ltd - trading as AWTA Product Testing
A.B.N. 43 006 014 106
1st Floor, 191 Racecourse Road, Flemington, Victoria 3031
P.O. Box 240, North Melbourne, Victoria 3051
Phone (03) 9371 2400 Fax (03) 9371 2499

TEST REPORT

CLIENT : ARMSTRONG WORLD INDUSTRIES
(AUSTRALIA) PTY LTD
29-39 MILLS ROAD
BRAESIDE VIC 3195

TEST NUMBER : 7-579355-CV
ISSUE DATE : 24/06/2011
PRINT DATE : 29/06/2011
ORDER NUMBER : 100443
ORDER NUMBER : 100443

SAMPLE DESCRIPTION Clients Ref: "Timberline"
Vinyl tile adhered to cement sheet
Colour: Brown
Nom coating thickness: 2mm
Tested on 6mm cement sheet backing (Total thickness 8mm)

Material Specification:
Nominal Composition: PVC, Filler, Plasticizer
Nominal Backing: N/A

ASISO 9239.1-2003
Part 1

Reaction to Fire Tests for Floorings
Determination of the Burning Behaviour
using a Radiant Heat Source

Date of sample arrival: 27.05.2011
Date tested: 23.06.2011

Results:	CHF	(Critical Heat Flux /	Critical Radiant Flux)	Mean	
Non directional 8.8	1	2	3	9.0	kW/m2
	10.0	8.2			
Non directional 133	158	192	161		% min

Observations: Blistering

Note: Sample was conditioned in accordance with BSEN 13238-2001 at a temperature of 23+/-2degC and Relative Humidity of 50+/-5% for a minimum of 48 hours prior to testing

No directional properties, three specimens tested only.

Each specimen was clamped as supplied by client prior to testing.

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use

188165

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(END OF REPORT)

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APPROVED SIGNATORY

MICHAEL A. JACKSON B.Sc (Hons)
MANAGING DIRECTOR

AWTA TEXTILE TESTING

Australian Wool Testing Authority Ltd - trading as AWTA Textile Testing
A.B.N. 43 006 014 106
1st Floor, 191 Racecourse Road, Flemington, Victoria 3031
P.O. Box 240, North Melbourne, Victoria 3051
Phone (03) 9371 2400 Fax (03) 9371 2499

TEST REPORT

CLIENT : GIBBON GROUP PTY LTD
PO BOX 5612
BRENDALE QLD 4500

TEST NUMBER : 7-530721-AQ
DATE : 14/09/2004
ORDER NUMBER : 030904

SAMPLE DESCRIPTION Clients ref: Tretford Cord
Corded carpet with hessian backing
Colour: Dark Brown
Approximate pile height: 7.4mm

Material Specification:
Nominal Composition: 80% goat hair, 15% nylon, 5% viscose
Nominal total Pile Mass: 2518g/m2
Nominal Backing: Primary: PVC
Secondary: Hessian

ASISO 9239.1-2003 Part 1 Reaction to Fire Tests for Floorings
Determination of the Burning Behaviour
using a Radiant Heat Source

Date of sample arrival: 07/09/2004
Date tested: 10/09/2004
Results:

	CHF Value			Mean	
	1	2	3		
Length	7.1	-	-	-	kW/m2
Width	7.1	7.1	7.2	7.2	kW/m2

	Smoke Value			
	Smoke Value			
Length	97	-	-	% min
Width	136	138	112	129 % min

Observations: Transitory flaming
Melting
Blistering

Note: Sample was conditioned in accordance with BSEN 13238-2001 at a temperature of 23+/-2degC and Relative Humidity of 50+/-5% for a minimum of 48 hours prior to testing

Each specimen was adhered to a substrate of 6mm thick fibre reinforced cement board using Gibbons TP 266 adhesive and clamped prior to testing



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TEST REPORT

CLIENT : GIBBON GROUP PTY LTD
PO BOX 5612
BRENDALD QLD 4500

TEST NUMBER : 7-530721-AQ
DATE : 14/09/2004
ORDER NUMBER : 030904

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use

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0204/7/04

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MANAGING DIRECTOR

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Phone (03) 9371 2400 Fax (03) 9371 2499

TEST REPORT

CLIENT : GIBBON GROUP PTY LTD
PO BOX 5612
BRENDALD QLD 4500

TEST NUMBER : 7-533628-AQ
DATE : 19/01/2005

SAMPLE DESCRIPTION Clients Ref: Tretford - Broadloom
Carded Fibres formed into a continuous corrugation
(Loop pile tufted carpet)
Colour: Magenta
Approximate Pile Height: 7.40mm

Material Specification:

Nominal Composition: 80% goat hair, 15% nylon, 5% viscose
Nominal Total Mass: 2.51kg/m²
Nominal Backing: Hessian, PVC bonded

ASISO 9239.1-2003 Reaction to Fire Tests for Floorings
Part 1 Determination of the Burning Behaviour
using a Radiant Heat Source

Date of sample arrival: 24/12/2004
Date tested: 12/01/2005

	CHF (Critical Heat Flux / Critical Radiant Flux)				
	1	2	3	Mean	
Length	5.7	5.7	5.7	5.7	kW/m ²
Width	7.3				kW/m ²

	Smoke Value				
	1	2	3	Mean	
Length	405	434	480	440	% min
Width	434				% min

Observation: Melting
Blistering

Note: Sample was conditioned in accordance with BSEN 13238-2001 at a temperature of 23+/-2degC and Relative Humidity of 50+/-5% for a minimum of 48 hours prior to testing

Each specimen was adhered to "Bridgestone Airstep Slab" underlay of nominal thickness 4.7mm, composed of SBR Latex of Mass 1390+/-50g/m² using "Gibbons TF266" adhesive and underlay was then adhered using "Gibbons TF266" adhesive to a substrate of 6mm thick fibre reinforced cement board

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(CONTINUED NEXT PAGE)

PAGE 1

Sample and Testing Information

The laboratory named at the top of this report is a member of the Australian Testing Authorities Association for Chemical Textile and Textile Finishing. Membership of this Association is subject to the requirements of the Association.

Approved for Issue
Authorised Signatory
Availability No. 1114



The laboratory named at the top of this report is a member of the Australian Testing Authorities Association for Chemical Textile and Textile Finishing. Membership of this Association is subject to the requirements of the Association. The laboratory named at the top of this report is a member of the Australian Testing Authorities Association for Chemical Textile and Textile Finishing. Membership of this Association is subject to the requirements of the Association.

APPROVED LABORATORY

MANAGING DIRECTOR

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Phone (03) 9371 2400 Fax (03) 9371 2499

TEST REPORT

CLIENT : GIBBON GROUP PTY LTD
PO BOX 5612
BRENDALD QLD 4500

TEST NUMBER : 7-533628-AQ
DATE : 19/01/2005

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use

141076

PAGE 2

Australian Wool Testing Authority Ltd
191 Racecourse Road, Flemington, Vic 3031

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0204704

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MANAGING DIRECTOR

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Phone (03) 9371 2400 Fax (03) 9371 2499

TEST REPORT

CLIENT : TUFTMASTER CARPETS PTY LTD
1 BENNET STREET
DANDENONG VIC 3175

TEST NUMBER : 7-542448-AV
DATE : 12/01/2006
ORDER NUMBER : 20864

SAMPLE DESCRIPTION Clients Ref: Flashpoint 40
Patterned level loop pile tufted carpet
Colour: brown/grey stripes with red highlights
Approx pile height: 4.5mm

Material Specification:
Nominal composition: 100% wool
Nominal total pile mass: 1356g/m²
Nominal backing: primary woven polypropylene
secondary hessian

ASISO 9239.1-2003 Reaction to Fire Tests for Floorings
Part 1 Determination of the Burning Behaviour
using a Radiant Heat Source

Date of sample arrival:	22/12/2005				
Date tested:	05/01/2006				
Results:	CHF (Critical Heat Flux / Critical Radiant Flux)				
	1	2	3	Mean	
Length	8.9	9.7	9.1	9.2	kW/m ²
Width	9.5	-	-	-	kW/m ²
	Smoke Value				
Length	64	63	45	57	% min
Width	53	-	-	-	% min

Observations: melting, blistering

Note: Sample was conditioned in accordance with BSEN 13238-2001 at a temperature of 23+/-2degC and Relative Humidity of 50+/-5% for a minimum of 48 hours prior to testing

Each specimen was tested over Bridgestone Airstep Cushion Pad reconstituted fibre underlay of nominal thickness 9.0+/-0.8mm have a mass of 900+/-50g/m² and clamped to a substrate of 6mm thick fibre reinforced cement board

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard of the product.

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16 JAN 2006
DANDY

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[Signature]
APPROVED SIGNATORY

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TEST REPORT

CLIENT : ARMSTRONG WORLD INDUSTRIES
(AUSTRALIA) PTY LTD
29-39 MILLS ROAD
BRAESIDE VIC 3195

TEST NUMBER : 7-573538-CV
ISSUE DATE : 02/07/2010
PRINT DATE : 23/07/2010
ORDER NUMBER : 48144
ORDER NUMBER : 48144

SAMPLE DESCRIPTION Clients Ref: "Accolade Plus/Accolade Safe Plus"
Homogeneous commercial vinyl floorcovering adhered to 6mm
thick cement sheet using Armstrong SV200 Acrylic adhesive
Colour: White/Grey/Pink
Nominal thickness: 2.0mm

Material Specification:
Nominal composition: Given to AWTA in confidence
Nominal total mass: 3.2kg/m²

ASISO 9239.1-2003 Reaction to Fire Tests for Floorings
Part 1 Determination of the Burning Behaviour
using a Radiant Heat Source
Date of sample arrival: 08/06/2010
Date tested: 01/07/2010
Results: CHF (Critical Heat Flux / Critical Radiant Flux)
1 2 3 Mean
Non directional > or equal > or equal > or equal < or equal
to 11 to 11 to 11 to 11 kW/m²
Smoke Value
Non directional 15 14 16 15 % min

Observations: Blistering, penetration of flame through to substrate

Note: Sample was conditioned in accordance with BSEN 13238-2001 at a
temperature of 23+/-2degC and Relative Humidity of 50+/-5% for a minimum of
48 hours prior to testing

No directional properties, three specimens tested
Each specimen was clamped as supplied by client prior to testing

The test results relate to the behaviour of the test specimens of a product
under the particular conditions of the test, they are not intended to be the
sole criterion for assessing the potential fire hazard of the product in use

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(END OF REPORT)

PAGE 1

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Armstrong World Industries (Aust) Pty Ltd
29-39 Mills Rd, Braeside Vic 3190
Phone (03) 9586 5500

RE; CSIRO Test Report No. 5763.3s & 5763.4s

AS/NZS 4586:2004 Slip resistance classification of new pedestrian surface materials.

Armstrong 'Timberline' (emboss code EC-3 & EC-4) Heterogeneous sheet vinyl flooring.

Slip Resistance - Areas subject to frequent surface moisture.

While Armstrong 'Timberline' achieves an 'R10' result ((as per attached certificate) and offers a higher level slip resistance, Armstrong does not recommend installation of 'Timberline' to 'wet' areas such as ensuites, showers and bathrooms where floors are subjected to frequent surface moisture.

Armstrong recommends **Accolade Safe Plus** for installation in 'wet' areas that are subjected to frequent surface moisture (eg ensuites, shower rooms and bathrooms), such as those noted in; HB197-1999 (Table 3, 4 & 5).

Please note the following from the CSIRO

"It is important to realize that the results obtained on unused factory-fresh samples may not be directly applicable in service, where proprietary surface coatings, contamination, wear and subsequent cleaning all influence the behaviour of the pedestrian surface". CSIRO Test report No. 5763.3s & 5763.4s

Michael Keam
Marketing & Product Manager – Commercial Flooring
Armstrong World Industries (Australia) Pty Ltd.
Email: mdkeam@armstrong.com

13 December 2011



CSIRO

Industrial Research Services

Materials Science & Engineering, Graham Road (PO Box 56), Highett, Victoria, Australia 3190
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Registered Testing Authority - CSIRO

15 April 2011

Our Ref. EN13 / 580 03/0212

TEST REPORT No. 5763.3s

Requested by: Armstrong World Industries Aust. Pty Ltd
PO Box 109
Mordialloc
VIC 3195
on (date): 14 April 2011
Manufacturer: Armstrong World Industries Aust. Pty Ltd
Product Desc.: Floor Vinyl sheeting Code; C Timberline EC-3
1000mm x 500mm
Sampling details:
Where: Delivered
Date: 14 April 2011
By whom: Courier
How (methods): N/A

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This test report consists of 4 pages

SUMMARY OF SLIP RESISTANCE TESTS PERFORMED:

		Result	Class
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials Appendix A: WET Pendulum (Four S slider):		
	Mean BPN:	30	Y [MEDIUM*]
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials, Appendix D: OIL-WET Ramp		
	Mean overall acceptance angle:	15.7°	R 10 [HIGH*]

* = CSIRO classification

In order to interpret the classifications, please refer to Standards Australia Handbook 197, An Introductory Guide to the Slip Resistance of Pedestrian Surface Materials, which recommends minimum classifications for a wide variety of locations.

It is important to realise that test results obtained on unused factory-fresh samples may not be directly applicable in service, where proprietary surface coatings, contamination, wear and subsequent cleaning all influence the behaviour of the pedestrian surface.



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REPORT NO: 5763.3s
ISSUE DATE: 15 April 2011
MANUFACTURER: Armstrong World Industries Aust. Pty Ltd
PRODUCT DESC: Floor Vinyl sheeting Code; C Timberline EC-3
1000mm x 500mm

Page 2 of 4

SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

WET PENDULUM TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix A)

Test Date: 14 April 2011

RESULTS: Location: Slip Resistance Laboratory Rubber slider used: Four S
Sample: Unfixed Conditioned with grade P400 paper, dry
Cleaning: Deionized water
Temperature: 23°C

Pendulum Friction Tester: Munro-Stanley (S/N: 9234, calibrated 23/09/09)
Test conducted by:

	Specimen				
	1	2	3	4	5
Last 3 swings	33	33	29	29	30
	32	32	28	29	30
	31	32	28	28	29
Averages	32	32	28	29	30

Mean BPN : 30

CLASS :

Y [MEDIUM*]

* = CSIRO classification



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REPORT NO: 5763.3s
ISSUE DATE: 15 April 2011
MANUFACTURER: Armstrong World Industries Aust. Pty Ltd
PRODUCT DESC: Floor Vinyl sheeting Code; C Timberline EC-3
1000mm x 500mm

Page 3 of 4

SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

OIL-WET RAMP TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix D)

Test Date: 15 April 2011

Location: Slip Resistance Laboratory

Sample Fixed

Joint width: 0 mm

Surface structure: Smooth
 Profiled
 Structured

RESULTS

Mean overall acceptance angle: 15.7 °

Displacement space: not tested

CLASSIFICATION:

Slip Resistance Assessment Group:

R 10 [HIGH*]

Displacement Space Assessment Group:

-

* = CSIRO classification



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REPORT NO: 5763.3s
 ISSUE DATE: 15 April 2011
 MANUFACTURER: Armstrong World Industries Aust. Pty Ltd
 TILE DESC: Floor Vinyl sheeting Code; C Timberline EC-3
 1000mm x 500mm

Page 4 of 4

Date and Place 15 April 2011, Highett, Vic

Name, Title and Digital Signature:

PETER WESTGATE
 Project Leader
 Tel: 61 3 92526108
 Fax: 61 3 92526244
 Email: Peter.Westgate@csiro.au

*CSIRO recommended classification of Slip Resistance as determined from:
 AS/NZS 4586: 2004 Slip Resistance Classification of New Pedestrian Surface Materials (Appendices A & D).

Wet Pendulum Class	BPN 4S Rubber	CSIRO Class LOW	CSIRO Class MEDIUM	CSIRO Class HIGH
V	>54	54-57	58-61	>61
W	45-54	45-48	49-51	52-54
X	35-44	35-38	39-41	42-44
Y	25-34	25-28	29-31	32-34
Z	<25	<18	18-21	22-25
Oil Wet Ramp Class	Angle (degrees)	CSIRO Class LOW	CSIRO Class MEDIUM	CSIRO Class HIGH
R9	≥6 to <10	≥6 to 7.5	7.6 to 9	9.1 to 9.9
R10	≥10 to <19	≥10 to 12	12.1 to 15	15.1 to 18.9
R11	≥19 to <27	≥19 to 21	21.1 to 24	24.1 to 26.9
R12	≥27 to <35	≥27 to 29	29.1 to 32	32.1 to 34.9
R13	≥35	≥35 to 36	36.1 to 38	≥38.1

This table should not be read or relied upon without reference to the CSIRO/Standards Australia publication:
 AS/NZS 4586 Slip Resistance Classification of New Pedestrian Surface Materials (Appendices A & D).

CSIRO has categorized the AS4586 classifications into sub-groups Low, Medium & High. The slip resistance test classification is still determined according to AS 4586 Australian Standard (Appendices A & D). The added information of Low, Medium and High allows professionals to make a better judgement of pedestrian floor requirements.



Armstrong World Industries (Aust) Pty Ltd
29-39 Mills Rd, Braeside Vic 3190
Phone (03) 9586 5500

RE; CSIRO Test Report No. 5372.1s

AS/NZS 4586:2004 Slip resistance classification of new pedestrian surface materials.

Armstrong 'Accolade Plus' Homogeneous sheet vinyl flooring.

Slip Resistance - Areas subject to frequent surface moisture.

While Armstrong 'Accolade Plus' achieves 'R10' and 'X' results (as per attached certificate) and offers a higher level slip resistance, Armstrong does not recommend installation of 'Accolade Plus' to 'wet' areas such as ensuites, showers and bathrooms where floors are subjected to running water frequent surface moisture.

Armstrong recommends **Accolade Safe Plus** for installation in 'wet' areas that are subjected to frequent surface moisture (eg ensuites, shower rooms and bathrooms), such as those noted in; HB197-1999 (Table 3, 4 & 5).

Please note the following from the CSIRO

"It is important to realize that the results obtained on unused factory-fresh samples may not be directly applicable in service, where proprietary surface coatings, contamination, wear and subsequent cleaning all influence the behaviour of the pedestrian surface". CSIRO Test report No. 5372.1s

Michael Keam
Marketing & Product Manager – Commercial Flooring
Armstrong World Industries (Australia) Pty Ltd.
Email: mdkeom@ormstrong.com

13 December 2011



Industrial Research Services

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Telephone: 61 3 9252 6000 Facsimile: 61 3 9252 6244 Email: tiles@csiro.au Web: http://www.cmsa.csiro.au

Registered Testing Authority - CSIRO

8 June 2010

Our Ref. EN13 / 518 03/0212

TEST REPORT No. 5372.1s

Requested by: Armstrong World Industries (Australia) Pty Ltd
29-39 Mills Road (PO Box 109)
Braeside (Mordialloc)
VIC 3195

on (date): 3 June 2010
Manufacturer: Armstrong World Industries
Product Desc.: Accolade Plus, Vinyl Floor Sheet
1000x500mm

Sampling details:
Where: Delivered
Date: 3 June 2010
By whom: Courier
How (methods): N/A

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This test report consists of 5 pages

SUMMARY OF SLIP RESISTANCE TESTS PERFORMED:

		Result	Class
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials Appendix A: WET Pendulum (Four S slider): Mean BPN:	39	X [MEDIUM*]
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials Appendix C: WET/BAREFOOT Ramp Mean angle of inclination:	18°	A
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials. Appendix D: OIL-WET Ramp Mean overall acceptance angle:	14.2°	R 10 [MEDIUM*]

* = CSIRO classification

In order to interpret the classifications, please refer to Standards Australia Handbook 197, An Introductory Guide to the Slip Resistance of Pedestrian Surface Materials, which recommends minimum classifications for a wide variety of locations.

It is important to realise that test results obtained on unused factory-fresh samples may not be directly applicable in service, where proprietary surface coatings, contamination, wear and subsequent cleaning all influence the behaviour of the pedestrian surface.



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REPORT NO: 5372.1s
ISSUE DATE: 8 June 2010
MANUFACTURER: Armstrong World Industries
PRODUCT DESC: Accolade Plus, Vinyl Floor Sheet
1000x500mm

Page 2 of 5

SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS WET PENDULUM TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix A)

Test Date: 7 June 2010

RESULTS: Location: Slip Resistance Laboratory Rubber slider used: Four S
Conditioned with grade P400 paper, dry
Sample: Unfixed
Cleaning: Deionized water
Temperature: 23°C

Pendulum Friction Tester: Munro-Stanley (S/N: 9234, calibrated 23/09/09)
Test conducted by: Andy Giang

	Specimen				
	1	2	3	4	5
Last 3 swings	41	42	39	38	40
	40	41	38	38	39
	39	41	37	37	39
Averages	40	41	38	38	39

Mean BPN : 39

CLASS :

X [MEDIUM*]

* = CSIRO classification

Where products are to be used in wet barefoot areas, it is more appropriate to test to Appendix C of AS/NZS 4586 (which is technically equivalent to DIN 51097).



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REPORT NO: 5372.1s
ISSUE DATE: 8 June 2010
MANUFACTURER: Armstrong World Industries
PRODUCT DESC: Accolade Plus, Vinyl Floor Sheet
1000x500mm

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SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

WET/BAREFOOT RAMP TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix C)

Test Date: 8 June 2010

Location: Slip Resistance Laboratory

Sample Fixed

Joint width: 0 mm

Surface structure: Smooth
 Profiled
 Structured

RESULTS

		Actual mean	Reported mean
Mean angle of inclination:	Calibration Board A:	11.28 °	11 °
	Calibration Board B:	18.70 °	19 °
	Calibration Board C:	26.40 °	26 °
Mean angle of inclination of Test Board:		17.80 °	18 °

CLASSIFICATION:

Quality Group:

A



Industrial Research Services

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REPORT NO: 5372.1s
ISSUE DATE: 8 June 2010
MANUFACTURER: Armstrong World Industries
PRODUCT DESC: Accolade Plus, Vinyl Floor Sheet
1000x500mm

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SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS OIL-WET RAMP TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix D)

Test Date: 8 June 2010

Location: Slip Resistance Laboratory

Sample Fixed

Joint width: 0 mm

Surface structure: Smooth
 Profiled
 Structured

RESULTS

Mean overall acceptance angle: 14.2 °

Displacement space: not tested

CLASSIFICATION:

Slip Resistance Assessment Group:

R 10 [MEDIUM*]

Displacement Space Assessment Group:

-

* = CSIRO classification



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Date and Place 8 June 2010, Highett, Vic

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***CSIRO recommended classification of Slip Resistance as determined from:
AS/NZS 4586: 2004 Slip Resistance Classification of New Pedestrian Surface Materials (Appendices A & D).**

Wet Pendulum Class	BPN 4S Rubber	CSIRO Class LOW	CSIRO Class MEDIUM	CSIRO Class HIGH
V	>54	54-57	58-61	>61
W	45-54	45-48	49-51	52-54
X	35-44	35-38	39-41	42-44
Y	25-34	25-28	29-31	32-34
Z	<25	<18	18-21	22-25
Oil Wet Ramp Class	Angle (degrees)	CSIRO Class LOW	CSIRO Class MEDIUM	CSIRO Class HIGH
R9	≥6 to <10	≥6 to 7.5	7.6 to 9	9.1 to 9.9
R10	≥10 to <19	≥10 to 12	12.1 to 15	15.1 to 18.9
R11	≥19 to <27	≥19 to 21	21.1 to 24	24.1 to 26.9
R12	≥27 to <35	≥27 to 29	29.1 to 32	32.1 to 34.9
R13	≥35	≥35 to 36	36.1 to 38	≥38.1

This table should not be read or relied upon without reference to the CSIRO/Standards Australia publication:
AS/NZS 4586 Slip Resistance Classification of New Pedestrian Surface Materials (Appendices A & D).

CSIRO has categorized the AS4586 classifications into sub-groups Low, Medium & High. The slip resistance test classification is still determined according to AS 4586 Australian Standard (Appendices A & D). The added information of Low, Medium and High allows professionals to make a better judgement of pedestrian floor requirements.



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Addendum

DETERMINATION OF Rz SURFACE ROUGHNESS

(Using a Taylor-Hobson Surtronic Duo roughness meter using a 0.8mm cut off length)

Test Date: 7 June 2010

RESULTS

Location: Slip Resistance Laboratory

Rz values

1	29.1
2	21.7
3	26.4
4	20.3
5	18.9
6	25.1
7	20.2
8	21.2
9	32.9
10	18.5

Surface Roughness (Rz) mean = 23.4 microns

BS 7976:2002, Pendulum Testers, requires a different test foot preparation (lapping paper) for pedestrian surfaces that have a Rz roughness of less than 15 microns. This lapping paper tends to reduce the pendulum result, sometimes appreciably. CSIRO recommends the use of this procedure (CSIRO COF1) as an adjunct to AS/NZS 4586. It helps to discriminate among products that have marginal wet slip resistance and to identify those that may be dangerous if wet.

The measurement of the various aspects of surface roughness is complex given the number of potential roughness parameters. While there is still some uncertainty as to exactly what type of roughness needs to be measured, peak-to-trough roughness (Rz) gives a useful guide to the likely slip resistance in wet conditions. Research has suggested that hard floors need to have a slightly higher Rz roughness than polymeric floors for the same degree of safety in wet conditions, but whatever flooring material is used an Rz roughness value of at least 10 microns is required where wet slip resistance may be required. In circumstances where wetness is normal or expected, this figure should be increased by a factor of 2 or more.

Greater peak surface roughnesses are likely to be required where floors slope or where the floor is likely to become contaminated with high viscosity liquids.