

16 June 2016
Project No: 2067

The Australian Trellis Door Co.
Unit A6, 366 Edgar Street
CONDELL PARK NSW 2200

Attention: Jonathan Kaplan
By Email: JKaplan@trellisdoors.com

Dear Jonathan,

Re: BCA Compliance Assessment of New Trellis Door – The Australian Trellis Door Co.

A. Introduction

I refer to your instructions to review and comment on the current Building Code of Australia (BCA) compliance of your proposed prototype trellis door in shopping centres such as Westfield Shopping Centres (see Annexure 1).

The purpose of this report is to determine the current BCA compliance on the use of a new prototype of trellis door manufactured by The Australian Trellis Door Co. in relation to various Deemed-to-Satisfy (DTS) Provisions of the BCA to enable use in in shopping centres such as Westfield Shopping Centres.

It is understood the explicit proposed use of the subject prototype trellis door is for them to be moved into position within airlocks at the entrances of shopping centres after hours to prevent unauthorised into the shopping centre malls proper. As the subject prototype trellis door will be only temporarily installed during out-of-business hours and removed prior to opening, it is expected that the only occupants of shopping centres at this time will be cleaners and night-fill staff of the supermarkets and department stores. Truck drivers and delivery drivers would be expected to only occupy loading dock areas during out-of-business hours.

I note our meeting at Murrow Consulting Pty Ltd offices on 25 May 2016 for a demonstration on the proposed door, photographs of which are contained within this report. The subject prototype trellis door is shown (in the closed position) below and is akin to the S04-1 System – Mobile Trackless Trellis by The Australian Trellis Door Co.



B. Author's Qualifications and Expertise

I, Greg Murrow, am an expert in the field of BCA fire safety provisions and building regulations in NSW. I am accredited at the highest level in NSW as an A1 Unrestricted Accredited Certifier with the NSW Building Professionals Board, which recognises my post graduate qualifications and 17 years experience as a professional building surveyor. I am the Director of Murrow Consulting Pty Ltd, specialising in specialist BCA consulting services including expert witness matters relating to the identification and resolution of fire safety related BCA Deemed-to-Satisfy (DTS) non-compliances, BCA reviews and audits of buildings and products. Please refer to Annexure 2 for a full copy of my curriculum vitae.

C. Information Relied Upon

The following information has been relied upon in the execution of this report:

Item No.	Documentation	Date
Plans		
1.	The S04-1 System – Mobile Trackless Trellis by The Australian Trellis Door Co. (see Annexure 3).	-
Emails		
2.	Email from Jonathan Kaplan (The Australian Trellis Door Co.) advising of queries relating to the BCA compliance of the S04-1 System – Mobile Trackless Trellis by The Australian Trellis Door Co. (see Annexure 1).	12.05.16
Demonstration meeting		
2.	Meeting at Murrow Consulting Pty Ltd offices on 25 May 2016 involving Jonathan Kaplan and Paul O'Connor (The Australian Trellis Door Co.) and Greg Murrow (Murrow Consulting Pty Ltd) for a demonstration on the proposed doors.	25.05.16
Applicable BCA		
4.	National Construction Code Series 2016 – Volume One - Building Code of Australia – Class 2 to 9 Buildings, published by the Australia Building Codes Board (ABCB)	2016
5.	National Construction Code Series 2016 – Guide to Volume One - Building Code of Australia – Class 2 to 9 Buildings, published by the Australia Building Codes Board (ABCB)	2016

D. Limitations of the Report

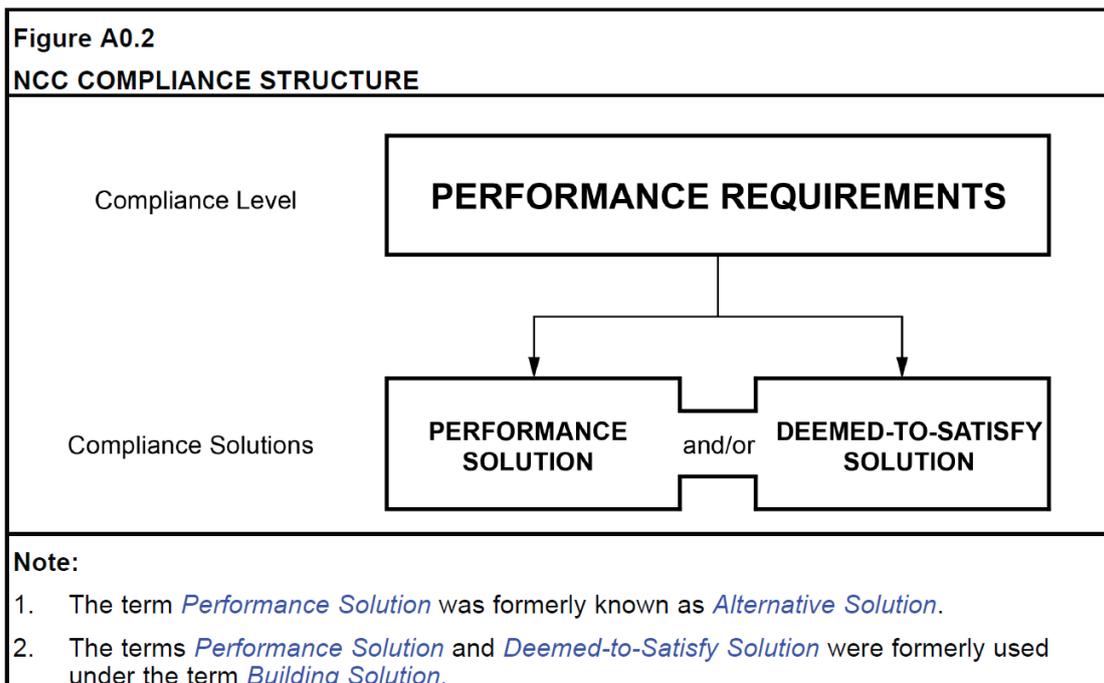
The following exclusions / limitations apply to this report:

- This report is limited to a Building Code of Australia (BCA) compliance assessment of the proposed new prototype trellis door by The Australian Trellis Door Co. in shopping centres such as Westfield Shopping Centres;
- This report does not address any matters that are outside the scope of the BCA;
- This report does not provide for the formulation of Alternative Solutions or fire engineering advice;
- This report is not a Part 4A Certificate under the Environmental Planning & Assessment Act 1979 or Regulation 2000;
- This report does not consider energy or water authority requirements; and
- This report does not consider Council's local planning policies.

E. BCA requirements

To comply with the Building Code of Australia (BCA), the building must comply with the BCA Performance Requirements. In accordance with Clause A0.2 of the BCA, satisfaction of the Performance Requirements can only be achieved by-

- (a) Performance Solution; or
- (b) Deemed-to-Satisfy Solution; or
- (c) combination of (a) and (b).



In terms of Performance Solutions, BCA Clause A0.3 prescribes the following:

“(a) A Performance Solution must—

(i) comply with the Performance Requirements; or

(ii) be at least equivalent to the Deemed-to-Satisfy Provisions, and be assessed according to one or more of the Assessment Methods.

(b) A Performance Solution will only comply with the NCC when the Assessment Methods used satisfactorily demonstrate compliance with the Performance Requirements”.

However for the purposes of this report, a DTS Solution will be sought. BCA Clause A0.4 confirms that:

“(a) A Deemed-to-Satisfy Solution which complies with the Deemed-to-Satisfy Provisions is deemed to comply with the Performance Requirements.

(b) A Deemed-to-Satisfy Solution may be assessed according to one or more of the Assessment Methods, as appropriate”.

In lieu of developing a Performance Solution, the aim is to determine compliance with the Deemed-to-Satisfy Provisions and therefore achieve a Deemed-to-Satisfy Solution as the pathway to compliance with the BCA Performance Requirements.

F. Relevant BCA DTS Provisions

The BCA DTS requirements for the subject prototype trellis door are provided below (relevant excerpts in bold for clarity):

D1.6 – Dimensions of exits and paths of travel to exits

In a required exit or path of travel to an exit—

(a) the unobstructed height throughout must be not less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1980 mm; and

(b) the unobstructed width of each exit or path of travel to an exit, except for doorways, must be not less than—

(i) 1m; or

(ii) 1.8 m in a passageway, corridor or ramp normally used for the transportation of patients in beds within a treatment area or ward area; and

(iii) in a public corridor in a Class 9c building, notwithstanding (c) and (d)—

(A) 1.5 m; and

- (B) 1.8 m for the full width of the doorway, providing access into a sole-occupancy unit or communal bathroom; and
- (c) if the storey, mezzanine or open spectator stand accommodates more than 100 persons but not more than 200 persons, the aggregate unobstructed width, except for doorways, must be not less than—
 - (i) 1 m plus 250 mm for each 25 persons (or part) in excess of 100; or
 - (ii) 1.8 m in a passageway, corridor or ramp normally used for the transportation of patients in beds within a treatment area or ward area; and
- (d) if the storey, mezzanine or open spectator stand accommodates more than 200 persons, the aggregate unobstructed width, except for doorways, must be increased to—
 - (i) 2 m plus 500 mm for every 60 persons (or part) in excess of 200 persons if egress involves a change in floor level by a stairway or ramp with a gradient steeper than 1 in 12; or
 - (ii) in any other case, 2 m plus 500 mm for every 75 persons (or part) in excess of 200; and
- (e) in an open spectator stand which accommodates more than 2000 persons, the aggregate unobstructed width, except for doorways, must be increased to 17 m plus a width (in metres) equal to the number in excess of 2000 divided by 600; and
- (f) the unobstructed width of a doorway must be not less than—
 - (i) in patient care areas through which patients would normally be transported in beds, if the doorway provides access to, or from, a corridor of width—
 - (A) less than 2.2 m — 1200 mm; or
 - (B) 2.2 m or greater — 1070 mm,
 and where the doorway is fitted with two leaves and one leaf is secured in the closed position in accordance with D2.21(b)(v), the other leaf must permit an unobstructed opening not less than 800 mm wide; or
 - (ii) in patient care areas in a horizontal exit — 1250 mm; or
 - (iii) the unobstructed width of each exit provided to comply with (b), (c), (d) or (e), minus 250 mm; or
 - (iv) in a Class 9c building—
 - (A) 1070 mm where it opens from a public corridor to a sole-occupancy unit; or
 - (B) 870 mm in other resident use areas; or
 - (C) 800 mm in non-resident use areas,
 and where the doorway is fitted with two leaves and one leaf is secured in the closed position in accordance with D2.21(b)(v), the other leaf must permit an unobstructed opening not less than 870 mm wide in resident use areas and 800 mm wide in non-resident use areas; or
 - (v) in any other case except where it opens to a sanitary compartment or bathroom — 750 mm wide; and
- (g) the unobstructed width of a required exit must not diminish in the direction of travel to a road or open space, except where the width is increased in accordance with (b)(ii) or (f)(i); and**
- (h) the required width of a stairway or ramp must—
 - (i) be measured clear of all obstructions such as handrails, projecting parts of barriers and the like; and
 - (ii) extend without interruption, except for ceiling cornices, to a height not less than 2 m vertically above a line along the nosings of the treads or the floor surface of the ramp or landing; and
- (i) to determine the aggregate unobstructed width, the number of persons accommodated must be calculated according to D1.13.

D2.19 Doorways and doors

- (a) A doorway in a resident use area of a Class 9c building must not be fitted with—
 - (i) a sliding fire door; or
 - (ii) a sliding smoke door; or
 - (iii) a revolving door; or
 - (iv) a roller shutter door; or
 - (v) a tilt-up door.
- (b) A doorway serving as a required exit or forming part of a required exit, or a doorway in a patient care area of a Class 9a health-care building—**
 - (i) must not be fitted with a revolving door; and
 - (ii) must not be fitted with a roller shutter or tilt-up door unless—
 - (A) it serves a Class 6, 7 or 8 building or part with a floor area not more than 200 m²; and
 - (B) the doorway is the only required exit from the building or part; and

- (C) it is held in the open position while the building or part is lawfully occupied; and
- (iii) must not be fitted with a sliding door unless—**
 - (A) it leads directly to a road or open space; and**
 - (B) the door is able to be opened manually under a force of not more than 110 N; and**
- (iv) if fitted with a door which is power-operated—
 - (A) it must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source; and
 - (B) if it leads directly to a road or open space it must open automatically if there is a power failure to the door or on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door.

(c) A power-operated door in a path of travel to a required exit, except for a door in a patient care area of a Class 9a health-care building as provided in (b), must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source.

D2.20 Swinging doors

A swinging door in a required exit or forming part of a required exit—

- (a) must not encroach—
 - (i) at any part of its swing by more than 500 mm on the required width (including any landings) of a required—
 - (A) stairway; or
 - (B) ramp; or
 - (C) passageway, if it is likely to impede the path of travel of the people already using the exit; and
 - (ii) when fully open, by more than 100 mm on the required width of the required exit, and the measurement of encroachment in each case is to include door handles or other furniture or attachments to the door; and
- (b) must swing in the direction of egress unless—
 - (i) it serves a building or part with a floor area not more than 200 m², it is the only required exit from the building or part and it is fitted with a device for holding it in the open position; or
 - (ii) it serves a sanitary compartment or airlock (in which case it may swing in either direction); and
- (c) must not otherwise impede the path or direction of egress.

D2.21 Operation of latch

- (a) A door in a required exit, forming part of a required exit or in the path of travel to a required exit must be readily openable without a key from the side that faces a person seeking egress, by—
 - (i) a single hand downward action on a single device which is located between 900 mm and 1.1 m from the floor and if serving an area required to be accessible by Part D3—
 - (A) be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and
 - (B) have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35 mm and not more than 45 mm; or
 - (ii) a single hand pushing action on a single device which is located between 900 mm and 1.2 m from the floor.
- (b) The requirements of (a) do not apply to a door that—
 - (i) serves a vault, strong-room, sanitary compartment, or the like; or
 - (ii) serves only, or is within—
 - (A) a sole-occupancy unit in a Class 2 building or a Class 4 part of a building; or
 - (B) a sole-occupancy unit in a Class 3 building (other than an entry door to a sole-occupancy unit of a boarding house, guest house, hostel, lodging house or backpacker accommodation); or
 - (C) a sole-occupancy unit with a floor area not more than 200 m² in a Class 5, 6, 7 or 8 building; or
 - (D) a space which is otherwise inaccessible to persons at all times when the door is locked; or
 - (iii) serves—
 - (A) Australian Government Security Zones 4 or 5; or

(B) the secure parts of a bank, detention centre, mental health facility, early childhood centre or the like; and

it can be immediately unlocked—

(C) by operating a fail-safe control switch, not contained within a protective enclosure, to actuate a device to unlock the door; or

(D) by hand by a person or persons, specifically nominated by the owner, properly instructed as to the duties and responsibilities involved and available at all times when the building is lawfully occupied so that persons in the building or part may immediately escape if there is a fire; or

(iv) is fitted with a fail-safe device which automatically unlocks the door upon the activation of any sprinkler system complying with Specification E1.5 or smoke, or any other detector system deemed suitable in accordance with AS 1670.1 installed throughout the building; or

(v) is in a Class 9a or 9c building and—

(A) is one leaf of a two-leaf door complying with D1.6(f)(i) or D1.6(f)(iv) provided that it is not held closed by a locking mechanism and is readily openable; and

(B) the door is not required to be a fire door or smoke door.

(c) The requirements of (a) do not apply in a Class 9b building (other than a school, an early childhood centre or a building used for religious purposes) to a door in a required exit, forming part of a required exit or in the path of travel to a required exit serving a storey or room accommodating more than 100 persons, determined in accordance with D1.13, in which case it must be readily openable—

(i) without a key from the side that faces a person seeking egress; and

(ii) by a single hand pushing action on a single device such as a panic bar located between 900 mm and 1.2 m from the floor; and

(iii) where a two-leaf door is fitted, the provisions of (i) and (ii) need only apply to one door leaf if the appropriate requirements of D1.6 are satisfied by the opening of that one leaf.

G. DTS Compliance Summary

Compliance with the DTS Provisions is sought and summarised below.

Item No.	BCA DTS Provision	Compliance / Comment	Photographs
1.	<p><u>D1.6 – Dimensions of exits and paths of travel to exits</u> In a required exit or path of travel to an exit—</p> <p>(a) the unobstructed height throughout must be not less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1980 mm; and</p> <p>(g) the unobstructed width of a required exit must not diminish in the direction of travel to a road or open space, except where the width is increased in accordance with (b)(ii) or (f)(i); and</p>	<p>D1.6(a) – Complies. The subject prototype trellis door has a height not less than 1980mm.</p> <p>D1.6(g) – To comply. No assessment has been undertaken on existing unobstructed egress width of exits and paths of travel to exits within shopping centres however the subject prototype trellis door shall not diminish the existing unobstructed egress width of exits and paths of travel to exits within shopping centres.</p> <p>The bottom trolley feet horizontal section shall be cut back on the side that faces a person seeking egress, to maintain the unobstructed egress width during a swinging door action, when the door is open or in the process of being opened.</p> <p><i>Note: The door can slide open as well as swing open.</i></p>	 <p>D1.6(a)</p>  <p>D1.6(g)</p>

Item No.	BCA DTS Provision	Compliance / Comment	Photographs
2.	<p>D2.19 – Doorways and doors (b) A doorway serving as a required exit or forming part of a required exit: (iii) must not be fitted with a sliding door unless— (A) it leads directly to a road or open space; and (B) the door is able to be opened manually under a force of not more than 110 N; and</p>	<p>D2.19(b)(iii)(A) – Not applicable as the subject prototype trellis door will not be a doorway serving as a required exit or forming part of a required exit, but rather will be a door in a path of travel to a required exit.</p>	 <p>D2.19(b)(iii) – Subject prototype trellis door (being a door in a path of travel to an exit) can slide open.</p>  <p>D2.19(b)(iii) – Subject prototype trellis door (being a door in a path of travel to an exit) can swing open.</p>
3.	<p>D2.20 Swinging doors A swinging door in a required exit or forming part of a required exit— (a) must not encroach— (ii) when fully open, by more than 100 mm on the required width of the required exit, and the measurement of encroachment in each case is to include door handles or other furniture or attachments to the door; and (b) must swing in the direction of egress unless— (i) it serves a building or part with a floor area not more than 200 m², it is the only required exit from the building or part and it is fitted with a device for holding it in the open position; or (ii) it serves a sanitary compartment or airlock (in which case it may swing in either direction); and (c) must not otherwise impede the path or direction of egress.</p>	<p>D2.20 – Not applicable as the subject prototype trellis door is not in a required exit or forming part of a required exit, but rather will be a door in a path of travel to a required exit.</p>	

Item No.	BCA DTS Provision	Compliance / Comment	Photographs
4.	<p>D2.21 Operation of latch</p> <p>(a) A door in a required exit, forming part of a required exit or in the path of travel to a required exit must be readily openable without a key from the side that faces a person seeking egress, by—</p> <p>(i) a single hand downward action on a single device which is located between 900 mm and 1.1 m from the floor and if serving an area required to be accessible by Part D3—</p> <p>(A) be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and</p> <p>(B) have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35 mm and not more than 45 mm; or</p> <p>(b) The requirements of (a) do not apply to a door that—</p> <p>(ii) serves only, or is within—</p> <p>(C) a sole-occupancy unit with a floor area not more than 200 m² in a Class 5, 6, 7 or 8 building; or</p> <p>(D) a space which is otherwise inaccessible to persons at all times when the door is locked.</p>	<p>D2.21(a)(i) – Complies as the subject prototype trellis door is readily openable without a key from the side that faces a person seeking egress, by a single hand downward action on a single device which is located between 900 mm and 1.1 m from the floor and if serving an area required to be accessible by Part D3—</p> <ul style="list-style-type: none"> • be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and • have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35 mm and not more than 45 mm. <p>D2.21(b) – Not applicable as the subject prototype trellis door does not serve only, or is within a Class 6 sole-occupancy unit (i.e. retail tenancy) with a floor area not more than 200 m²; or a space which is otherwise inaccessible to persons at all times when the door is locked.</p>	 <p>Subject prototype trellis door is readily openable without a key from the side that faces a person seeking egress, by a single hand downward action on a single device which is located between 900 mm and 1.1 m from the floor.</p>  <p>Subject prototype trellis door lever handle is such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and has a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35mm and not more than 45mm.</p>

H. Conclusion

Summary

In summary, the proposed trellis door to be used in shopping centres such as Westfield Shopping Centres (akin to the S04-1 System – Mobile Trackless Trellis by The Australian Trellis Door Co.), the subject of this report comply with the following Deemed-to-Satisfy Provisions of the BCA:

1. **BCA Clause D1.6(a):** The subject prototype trellis door has a height not less than 1980mm.
2. **BCA Clause D2.21(a)(i):**
 - a. The subject prototype trellis door is readily openable without a key from the side that faces a person seeking egress, by a single hand downward action on a single device which is located between 900 mm and 1.1 m from the floor.
 - b. The subject prototype trellis door lever handle is such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and has a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35mm and not more than 45mm.

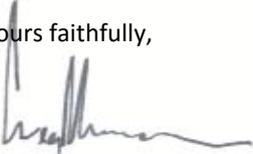
Conditions

The proposed trellis doors:

1. BCA Clause D1.6(g):
 - a. Shall not diminish the existing unobstructed egress width of exits and paths of travel to exits within shopping centres.
Note: No assessment has been undertaken on existing unobstructed egress width of exits and paths of travel to exits within shopping centres.
 - b. Shall be cut back on the side that faces a person seeking egress, to maintain the unobstructed egress width during a swinging door action, when the door is open or in the process of being opened.

If you require any further information, please contact the undersigned on (02) 8386 0737 or email greg@murrowconsulting.com.au

Yours faithfully,



Greg Murrow

Director – Murrow Consulting Pty Ltd

MAIBS, MAAC, MSFA, MFPA

B App Sc Env Hlth & Build Surv (UWS) & Grad Dip Build Surv (UWS)

A1 – Accredited Certifier – Building Surveying BPB No. BPB1767

ANNEXURE 1 – INSTRUCTIONS

From: [Jonathan Kaplan](#)
To: [Greg Murrow](#)
Subject: TRELIS DOORS AND BCA
Date: Thursday, 12 May 2016 5:22:14 PM
Attachments: [S06.pdf](#)
[S04-1.pdf](#)
[2011-0616-1 Updated Certificate of Compliance Trellis Door Prototype R1 0.pdf](#)

Hi Greg

We spoke earlier. Peter Tran, who we have worked with before, referred us to you.

We specialize in a range of security barrier systems which are lockable and often BCA egress issues arise.

We have 2 types of retractable door—one that runs on a top track and one that is free-standing. See examples of the 2 types attached above.—ie S06 and S04-1 models respectively.

We obtained a limited BCA certification for both types when installed in front of shops inside a shopping centre. See copy of certification attached.

We have been requested by WESTFIELD to see if our doors can be made to comply with the BCA requirements when installed inside the centre quite close to the auto doors near the entry to the shopping centre and installed purely as a barrier type system (ie no top or bottom track)

We would appreciate you letting us know if this is something you feel you could resolve for us and then, if so, what your typical charges would be to achieve this resolution.

Look forward to hearing from you.

Best regards,
Jonathan Kaplan



**THE AUSTRALIAN
TRELLIS DOOR CO.**

Master Security Licence No: 408031732



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Canberra Office: 66 Sheppard St, Hume ACT 2620 - Ph: (02) 6280 2752
Tasmania Office: Unit 1, 144 Don Road, Devonport TAS 7310 - Ph: (03) 6424 6548
Townsville Office: 3 Tryon Court Kirwan Qld 4817 - Ph: (07) 4273 1163

Website: www.trellisdoors.com.au

Email: trellis@trellisdoors.com

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ANNEXURE 2 – AUTHORS CURRICULUM VITAE



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Drummoyne NSW 2047

murrowconsulting.com.au
02 8386 0737
info@murrowconsulting.com.au

CURRICULUM VITAE OF GREG MURROW

Greg Murrow of Murrow Consulting Pty Ltd is a respected fire safety defects expert witness and BCA consultant with over 17 years experience in building regulations consulting.

With the experience gained from 9 years in local government as a specialist building surveyor throughout Sydney, coupled with over 8 years experience gained from working in private industry including 7 years in a prominent certification and consulting company in Sydney, Greg Murrow is a fully accomplished BCA consultant with particular expertise in fire safety.

Greg Murrow's competence is also reflected in his undergraduate and postgraduate qualifications and peak accreditation as an A1 – Accredited Certifier – Building Surveying Grade 1 (Unrestricted) under the NSW Government Building Professionals Board Accreditation Scheme.

As a result, Greg's reputation as a skilled, knowledgeable and reliable BCA consultant and fire safety expert witness is well established amongst clients and industry peers.

TERTIARY QUALIFICATIONS

- Graduate Diploma in Building Surveying – University of Western Sydney 2008
- Bachelor of Applied Science Degree with major studies in Environmental Health with Credit – University of Western Sydney 2001

SUPPLEMENTARY QUALIFICATIONS

- National WHS General Construction Induction Training – WorkCover NSW 2014
- Experts Forum – Grace Lawyers 2013
- Advanced Building Regulations Short Course – UTS 2006
- Development Control Short Course – UTS 2001

ACCREDITATIONS & AFFILIATIONS

- A1 – Accredited Certifier – Building Surveying Grade 1 (Unrestricted) NSW Government Building Professionals Board – Registration No: BPB1767
- Member Association of Accredited Certifiers (AAC) since 2010
- Member Australian Institute of Building Surveyors (AIBS) since 2003
- Member Engineers Australia Society of Fire Safety (SFS) since 2015
- Member Fire Protection Association (FPA) Australia since 2015

FIRE SAFETY EXPERT WITNESS

- Extensive experience as a BCA fire safety defects expert witness attained from the appointment as the expert witness on over 50 significant litigation proceedings predominantly relating to residential buildings and mixed use residential / commercial buildings.
- Inspections of more than 3000 apartments to date in addition to common areas and expert witness reporting in accordance with the NSW Civil & Administrative Tribunal Procedural Direction 3 for Expert Witnesses; and the Uniform



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Civil Procedure Rules 2005 – Schedule 7 Expert witness code of conduct.

- Giving of evidence in the Supreme Court of NSW.
- Expert witness on other building code and regulations matters with concerted attention to detail, transparency and objectivity.
- A full list of expert witness portfolio available on request.

AUTHOR OF ALTERNATIVE SOLUTIONS

- Leading author of BCA Part A0 reasoned qualitative Alternative Solutions for an extensive range of Deemed-to-Satisfy (DTS) matters concerning:
 - Fire resistance;
 - Access and Egress;
 - Services and Equipment;
 - Health and Amenity.

ADDITIONAL KEY EXPERIENCE

Besides demonstrated expertise in residential buildings and construction, Greg Murrow has also established proficiencies in other building classes. A summary of some key projects is listed below:

- **Child care centres:**
 - BCA Consultant for child care centres in Leichhardt, Earlwood and Burwood.
- **Commercial buildings:**
 - BCA Consultant for prominent retail heritage building in central Sydney.
 - Fire safety audit & upgrade strategies for large office / corporate centres.
- **Council buildings:**
 - Fire safety audit & upgrade strategy for a Central Coast Council building.
- **Court houses:**
 - BCA (fire safety) & Disability Discrimination Act Assessment Reports for two major court houses in central Sydney and western Sydney.
- **Film sets / television facilities:**
 - BCA upgrade strategy for television production facility building in Frenchs Forest.
 - BCA Consultant for a boxing reality television show film set.
- **Industrial:**
 - Fire safety audit & upgrade strategy for the field support centre building in Unanderra for a major distributor of electricity company.
 - BCA Consultant for a north shore Council depot building in Cammeray.
- **Hospitals:**
 - Crown Certification and BCA Consultant for a psychiatric facility in a major public hospital in Randwick.
 - Crown Certification and BCA Consultant for a radiation oncology unit in a major public hospital in Camperdown.
 - BCA Consultant for private hospitals in Randwick, Manly and southern highlands.
- **Hotels / entertainment venues:**
 - Project Manager for the Accredited Certifier for a large hotel in Eskineville.
 - Place of Public Entertainment (POPE) officer for prominent nightclub in central Sydney.
 - Place of Public Entertainment (POPE) officer for bowling entertainment venue at King Street Wharf.

- **Public buildings:**
 - BCA audit of Wynyard train station and BCA Consultant for early projects in the refurbishment and extension of Wynyard train station.
 - Crown Certification and BCA Consultant for Anzac Memorial, Hyde Park.
 - Fire safety audit & upgrade strategy for large town hall building in south-western Sydney.
 - Inspection and BCA Report for government office building on Norfolk Island.
 - BCA Consultant for community centre buildings in Kensington and Lane Cove.
- **Schools:**
 - BCA Consultant for an large number of schools during the Building the Education Revolution (BER) Australian government program, administered by the Department of Education, Employment and Workplace Relations (DEEWR).
- **Shopping centres / homemaker centres:**
 - Fire safety audit & upgrade strategy for a shopping village at Waratah NSW.
 - Project Manager for the Accredited Certifier for a major department store building redevelopment in Albury.
 - Project Manager for the Accredited Certifier for a homemaker centre in Lake Macquarie.
- **Sporting venues / clubhouses:**
 - BCA Consultant for an inner west community facility / grandstand building and players amenity building.
 - BCA Consultant for population analysis for a prestige golf club house in Cattai.
- **Student Accommodation & Backpackers Accommodation:**
 - Project Manager for the Accredited Certifier for a student accommodation village in western Sydney.
 - BCA Consultant for backpackers' accommodation buildings in Surry Hills, Kings Cross, Katoomba and central Sydney.
- **Substations:**
 - Crown Certification and BCA Consultant for 15 major substation developments in the Greater Sydney and Central Coast areas.
 - BCA Consultant for two other substation redevelopments in central and north-western Sydney.
- **Supermarkets:**
 - Fire safety audit & upgrade strategy for large inner west supermarket and library building.
 - Project Manager for the Accredited Certifier for supermarkets in Wetherill Park and St Ives.
- **Theatres:**
 - BCA Consultant for theatres in Darlinghurst and Surry Hills.
 - Place of Public Entertainment (POPE) officer for a theatre in Newtown.

CAREER

Murrow Consulting Pty Ltd

Director

October 2015 to present

- BCA fire safety defects expert witness services including litigation compliant reports and troubleshooting in BCA and building regulations disputes;
- BCA compliance assessment reports for proposed development;
- BCA compliance audit reports for existing buildings;
- BCA performance-based Alternative Solutions reports;
- Crown Certification (S109R) certifying BCA compliance has been met for Crown developments;
- Development of building fire safety schedules.
- Development of building fire safety upgrades;

- Fire damper audits and upgrades;
- Fire safety order negotiation with Council and technical advisor roles;
- Critical stage inspections of development on behalf of Principal Certifying Authorities (PCA);
- Quality assurance consulting to builders and developers to ensure BCA compliance on projects;
- Technical fire safety rectification scopes of works for inclusion in others' tender invitation documents (for issue to prospective tenderers); and
- Inspections of fire rectification / upgrade works and liaison with contractors to align with scopes of works.

AED Group

Associate Director

April 2008 to October 2015

- Technical building regulations consultant and certifier for all complexity of buildings of all classes;
- Fire safety defects expert witness services for use in litigation proceedings;
- BCA compliance assessment reports for proposed development;
- BCA compliance audit reports for existing buildings;
- BCA Alternative Solution reports;
- Development of building fire safety upgrades;
- Fire safety order negotiation with Council and technical advisor;
- Fire dampers audits and upgrades;
- Part 4A Certificate applications (Construction Certificates, Occupation Certificates, Complying Development Certificates) for all classes of proposed buildings / building work; and
- Section 109R Certificate applications for Crown development proposals for all classes of proposed buildings / building work.

City of Sydney Council

January 2005 to April 2008

- **Specialist Building Surveyor (May 2007 to April 2008)**
- **District Building Surveyor (January 2006 to May 2007)**
- **Building Compliance Officer (Contract Position) January 2005 to June 2005**
- Specialist Building Surveyor undertaking fire safety audits of buildings and issuing of fire safety orders from October 2007 to April 2008;
- Specialist Building Surveyor assessing Local Government Act entertainment venue applications from May 2007 to October 2007;
- District Building Surveyor for Glebe, Pyrmont, Ultimo and Camperdown assessing Part 4A Certificate applications (Construction Certificates, Occupation Certificates, Complying Development Certificates) for all classes of buildings / building work, Building Certificate applications and hoarding applications; and progress building inspections to assess BCA compliance.
- Investigation and resolution of resident and inter-Council complaints concerning non-compliance with development consents and unauthorised building work; and

Leichhardt Municipal Council
Building Surveyor (Contract Position)
October 2004 to January 2005

- Assessment and determination of Construction Certificate applications, building certificate applications and complying development certificate applications for all classes of buildings.

Penrith City Council
Building Surveyor (Contract Position)
February 2004 to September 2004

- Daily undertaking of building progress inspections for all classes of buildings;
- Building certificate inspections;
- Investigation and resolution of complaints lodged with Council; and

Fairfield City Council
January 1999 to April 2003

- **District Building Surveyor (December 2000 to April 2003)**
- **Trainee Health & Building Surveyor (January 1999 to December 2000)**
- Assessment of development applications for Class 1 and 10 buildings and assessing Part 4A Certificate applications (Construction Certificates, Occupation Certificates, Complying Development Certificates) for all classes of buildings / building work and Building Certificate applications.

TESTIMONIALS

City of Sydney Council

- Recognised by City of Sydney CEO for “your hard work and extra effort over the past 21 months” in a letter dated 27 September 2007; and
- Recognised and thanked by City of Sydney Mayor upon leaving Council in a letter dated 16 May 2008.

Leichhardt Municipal Council

- Recognised by Council’s Co-ordinator of Building Compliance in a letter dated 17 June 2005.

Penrith City Council

- Recognised by Council’s Field Operations Team Leader in a letter dated 22 September 2004.

Fairfield City Council

- Recognised and thanked by Mayor of Fairfield City for thesis report in a letter dated 11 May 2001; and
- Recipient of Council’s “Gold Top Hat Award” on 3 April 2002 for “your outstanding effort and commitment”.

S04-1

The S04-1 system is completely trackless. It is suitable for barrier access for shopping malls, factory units, carparks, loading docks, function centres, warehouses, sporting facilities, crowd control and partitioning.

Why should I choose the S04-1 for my business?

- **Unobtrusive**

The S04-1 can be removed from where it is being used, wheeled away and stored almost anywhere.

- **Flexibility**

The S04-1 operates on a series of steel reinforced trolleys & can be completely mobile.

The system can span any width and can be made to a maximum height of 2 1/2 metres.

As an alternative to a completely mobile unit, the S04-1 can pivot or rotate up to 270° so as not to restrict clear opening width.

A curved configuration is also available.

A Handling trolley is also available

- **Strength**

Shootbolt locking to the floor at the base of each trolley provides extra stability and security. In addition, a removeable lockable bollard can be used for high security.

- **Long Lasting**

The S04-1 grille has been treated, epoxy powdercoated and galvanised against corrosion.



S04-1 with shade cloth backing

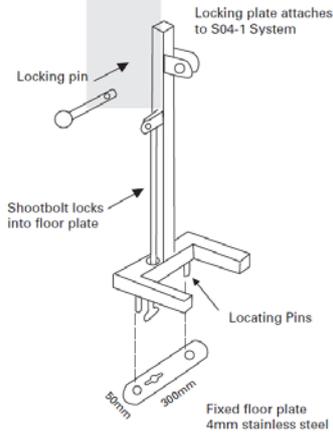


S04-1 Mobile Trackless Trellis

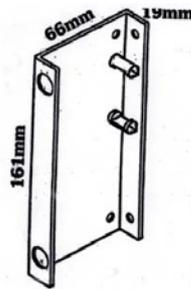
Technical Specifications

Refer to S04-1 Instruction Sheet for safe operation

Removable Lockable Bollard

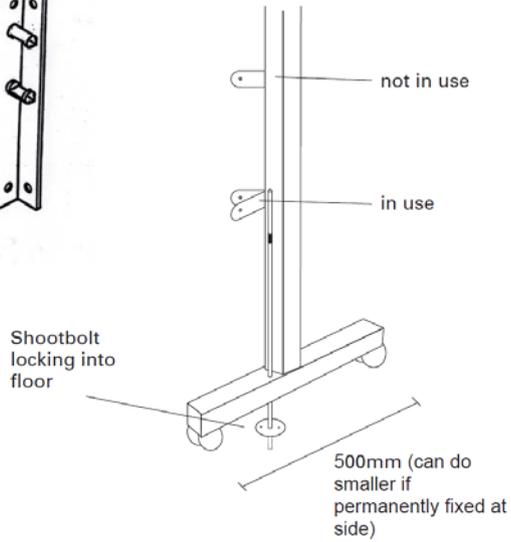


Lock Bracket

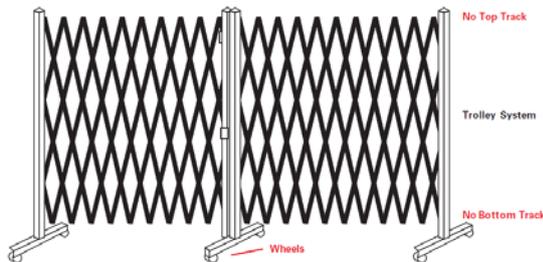


Locking Options

38mm x 38mm
RHS Steel



Trackless Trellis on Trolley System



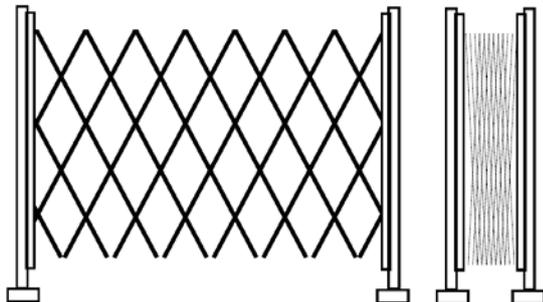
Trackless trellis can span any width on trolleys.
Note: Max height 2500mm

Plan view of trolley system showing 270° pivot rotation



S04-2 Mobile Trackless Trellis

Technical Specifications



Height: 1m
Open Width: 3m
Closed Width: 0.32m
Weight: 17.5kg



Australian Trellis Doors reserves the right to alter specifications without notice.