## **M+G** Consulting

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18 May 2009

RECEIVED 27 MAY 2009 BY:\_\_\_\_\_

Attn. Mr Sherif Hanna 2 Prince Edward Road Seaforth NSW 2092

Dear Sir,

Re. 2 Prince Edward Road, Seaforth – New Timber Deck Our Ref. 3372

## CERTIFICATE OF STRUCTURAL ADEQUACY

This is to certify that the structure of the new timber deck has been constructed in accordance with relevant structural requirements of the BCA and following relevant current Australian Structural Standards:

AS/NZS1170.0, AS/NZS1170.1, AS1684, AS 1720.1, AS3600

We confirm that at the time of our inspection the deck was structurally adequate in accordance with the above Australian Structural Standards.

This certificate is based on our inspection 16 May 2009 as detailed on our Site Inspection Report (attached).

This certification shall not be construed as relieving any other party of their responsibilities, liabilities or contractual obligations.

Yours faithfully M+G Consulting

Simon Matthews CPEng, NPER No. 251846

Attached

Directors: Simon Matthews, BE, MEngSc, CPEng, NPER Zlatko Gashi, BE, CPEng, NPER, RPEQ, BPBVic, BPTas Associate: Andrew Poles, BE, CPEng, NPER Paul Kenny, BE, MEngSc, CPEng, NPER



3372 2 Prince Edward Rd Seaforth 2009-05-18.doc

3.9.2.3	Explanatory 1. For the serving stainway 2. A wire b 3. To assi defined: (a) Co	0 0 Eta sat	(III) For cont (A) m (B) ct	(f) A wire balust (i) For hori (A) w (B) m (ii) For nor	<ul> <li>(d) A balustrade or other b accordance with AS 1170.1</li> <li>(e) For floors more than 4 m within the balustrade or other must not facilitate climbing.</li> </ul>	<ul> <li>(b) A transition zc changes from 3.9.2.2).</li> <li>(c) Openings in t be constructed</li> </ul>	Page 450 (B) 8
	<ol> <li>Explanatory Information:</li> <li>For the purpose of this clause, a wire balustrade consist of a series of tensioned wire rope connected to either vertical or honzontal supports serving as a guard to minimise the risk of a person failing from a root, stairway, raised floor level or the like.</li> <li>A wire balustrade excludes wire mesh fences and the like</li> <li>To assist in the application of 3.9.2.3(f), the following terms have been defined:         <ul> <li>(a) Continuous — where the wire spans three or more supports.</li> </ul> </li> </ol>	must have supporting rails, constructed with a spacing of not more than 800 mm, of a material that does not allow deflection that would decrease the tension of the wire under load; and when the wire tension is measured with a strain indicator, it must be in accordance with the tension values in <b>Table 3.9.2.2</b> and measured in the furthermost span from the tensioning device.	<ul> <li>For continuous vertical or continuous near vertical sloped wire systems—         (A) must have wires of no more than 2.5 mm diameter with a lay of 7×7 or 7×19 construction; and         (B) changes in direction at support rails must pass around a pulley block without causing permanent deformation to the wire; and     </li> </ul>	<ul> <li>A wire balustrade must be constructed in accordance with the following and is deemed to meet the requirements of (c):</li> <li>(i) For horizontal wire systems— <ul> <li>(A) when measured with a strain indicator, it must be in accordance with the tension values in Table 3.9.2.1; or</li> <li>(B) must not exceed the maximum deflections in Table 3.9.2.1.</li> <li>(ii) For non-continuous vertical wire systems, when measured with a strain indicator, must be in accordance with the tension values in Table 3.9.2.1.</li> </ul> </li> </ul>	through it and for stairs, the space is tested above the nosing line. A balustrade or other barrier must be designed to take loading forces in accordance with AS 1170.1 or AS/NZS 1170.1. For floors more than 4 m above the surface beneath, any horizontal elements within the balustrade or other barrier between 150 mm and 760 mm above the floor must not facilitate climbing.	A transition zone may be incorporated where the balustrade or other barrier beight changes from 865 mm on the stair <i>flight</i> or ramp to 1 m at the <i>landing</i> (see Figure 3.9.2.2). Openings in balustrades (including decorative balustrades) or other barriers must be constructed so that any opening does not permit a 125 mm sphere to pass	Australian Building Codes Board 865 mm above the floor of a <i>landing</i> to a stair or ramp where the balustrade or other barrier is provided along the inside edge of the <i>landing</i> and is not more than 500 mm long.
	use, a wire balus inter verified to either ver mise the risk of a rithe like, of 3.9.2.3(f), the the wire spans three	y rails, constructed laterial that does r of the wire under k is measured with rension values in T rom the tensioning	ance with the tensis intrinuous near vert i more than 2.5 mr d at support rails mu anent deformation	ructed in accorda of (c): 	is tested above th must be designe NZS 1170.1. In the surface benuer between 150 m	ated where the ba r <i>flight</i> or ramp to g decorative balus	Australian Building Codes Board bove the floor of a <i>landing</i> t or other barrier is provided is not more than 500 mm lor
BCA 2	strade consist of , initical or horizonta a person failing fr and the like hollowing terms h or more supports	d with a spacing not allow deflection oad; and a strain indicator, i able 3.9.2.2 and r device.	ical sloped wire sy n diameter with a l ist pass around a to the wire; and	ince with the follo it must be in accc it in Table 3.9.2.1 when measured we prove the sin Table	ie nosing line. d to take loadin sath, any horizont m and 760 mm ab	lustrade or other b 1 m at the <i>landing</i> trades) or other b nit a 125 mm sph	d to a stair or ram, along the inside ng.
BCA 2008 Volume Two	a series of al supports om a roof, have been	of not more n that would It must be in measured in	stems- lay of 7x7 or pulley block	wing and is ordance with	g forces in tal elements ove the floor	oarrier height (see Figure aarriers must here to pass	P where the edge of the
ACA 2008 Volume Two			<u>elena anende</u>	6. Likewis anchor 7. Tempe is little shorter 8. Stainle 8. Stainle and with of	spacings were der passage a predet during ti	(d) Perm (e) Supp that 4. Tables 3 wires In	(b) Non-
wo	an an an an		1	Likewise, if a threaded anchor bears against a solution Likewise, if a threaded anchor bears against a solution anchor may inderit the post or rail, thus lossening the wire anchor may inderit the post or rail, thus lossening the wire anchor may inderit the post or rail, thus lossening remperature effects on the tension of the wire star- is little that can be done to allow for temperature variation is little that can be done to allow for temperature variation is little that can be done to allow for temperature variation is little that can be done to allow for the effect will be shorter the wire span, the lesser the effect will be Stainless steel wire with a lay of 1 x 19 has the greater Stainless steel wire with a lay of 1 x 19 has the greater Stainless steel wire with a lay of 1 x 19 has the greater and will take up the same load with less extension that and will take up the same load with less extension that with other lays.	spacings, we show a spacing combinations in order to were derived from testing the spacing combinations in order to the passage of a 125 mm diameter solid cone penetrating between the passage of a 125 mm diameter solid cone penetration will be passage of a 125 mm diameter solid cone penetrating between the solid cone penetrations it may be not care needs to be taken to ensure that wire tension will be to care needs to be taken to ensure that wire tension in the wire during the life of the balustrade in some situations, it may be not concerned to the wire during the life of the balustrade in some situations is the wire during the life of the balustrade in some situations.	permissible deflection Support rails are that span across the that span across the that span across the that span across per in vertical and hold per units enactions	Australian Building Codes Board Non-continuous — where the wire only spans between two su Pulley block — a device consisting of a wheel in which a v Pulley block — a device consisting of a wheel in which a v around to change its direction
		BY:	RUE CHEAT VIEW	anchor bears a lost or rail, thus the tension for e to allow for the te lesser the eff he lesser the eff he load with 1 ame load with 1	the spacing or ameter solid cor n to ensure that strade. In somu- strade. In somu-	<ul> <li>1 — Is no complete to participate to parti</li></ul>	Australian Building Codes Board ous — where the wire only sp — a device consisting of a range its direction.
	•		IN 1000	gainst a sur loosening tr emperature apperature fact will be fact will be less extensit less extensit	at wire ten e situations to loosenin	to provide to providet	ly spans bet of a wheel
		N	11	gre val	ng o g o	a cent	5 8
				Likewise, if a threaded anchor bears against a sour work of the second s	specings, whe spacing combinations in order the wires at were derived from testing the spacing combinations in order the wires at passage of a 125 mm diameter solid core penetrating between the maintained a predetermined force. Care needs to be taken to ensure that wire tension will be maintained Care needs to be taken to ensure that wire tension, it may be necessary to Care needs to be taken to ensure that wire situations, it may be necessary to care needs to be taken to ensure that observing of the wire during the life of the balastrade in some situations, it may be necessary to care needs to be taken to prevent to lossening of the wire.	<ul> <li>(d) Permissible deflection — is we cannot be provide system</li> <li>(e) Support rails — are horizontal components of the balustrade system</li> <li>(e) Support rails — are horizontal components to provide structural support.</li> <li>(e) that span across the top and bottom to provide structural support.</li> <li>(f) that span across contains tension and deflection requirements for the balustrades systems with varying post.</li> <li>(f) the snactions and wire types. The figures contained in the table wires in vertical and horizontal wire types. The figures contained to prevent the snactions and wire types.</li> </ul>	Jian Building Codes Board - where the wire only spans between two supports. - device consisting of a wheel in which a wire runs - the direction. - is the allowable bending of the wire.

Support (post or rail) Spacing		(D) Stainless Steel Wire														Galvanised Steel Wire			
	m)							Wire D	iameter	(mm) ar	nd Lay								
	}	2.5		2.5			3.0		3.0	4.0		4.0		4.0		3.25			
		7 x 7		1 x 19			1 x 19	w	7 x 7 ire Spac	7 x 7	 1)	7 x 19		1 x 19		1 x 6			
		60	60	80	100	60	80	100	60	60	60	80	100	60	60	80	100		
600	т	6	35	420	1140	25	325	1090	81	29	155	394	1038	6	45	240	1060	ustr	
	D	20	20	9	2	19	8	2	19	18	18	8	3	18	30	10	3	alian	
800	D	198 13	218 13	630 7	1565 2	183 16	555 6	1500 2	242	213	290 14	654 7	1412 3	127 14	140 23	537 7	1540 3	Build	
900	T	294	310	735	N/A	261	670	1705	323	14 242	358	785	1598	242	188	685	1780	Australian Building Codes Board	
	D	11	11	5	N/A	13	6	2	13	12	12	6	3	12	20	6	3	Code	
1000	т	390	402	840	N/A	340	785	1910	404	329	425	915	1785	358	235	853	N/A	Bo	
	D	10	10	5	N/A	11	6	2	11	10	10	5	3	10	17	6	N/A	ard	
1200	T	583 9	585 9	1050 5	N/A	520 8	1015 6	N/A N/A	525 8	519 8	599 8	1143 4	2165 2	525 8	435 13	1190 6	N/A N/A		
1500	T	860	810	1400	N/A	0 790	1330	N/A	681	785	860	1485	2735	785	735	N/A	N/A		
	D	8	8	5	NA	7	5	N/A	7	8	8	4	2	8	10	N/A	N/A		
1800	T	1100	1125	1750	N/A	1025	1725	N/A	980	1050	1080	1860	N/A	1000	1150	N/A	N/A	1	
	D	8	8	N/A	N/A	7	5	N/A	7	7	8	4 2105	N/A N/A	8	10 N/A	N/A N/A	N/A N/A	1	
2000	D	1229 8	1325	N/A	N/A N/A	1180 7	1980 5	N/A N/A	1171	1188 7	1285 7	4	N/A	7	NA	NA	NIA		
2500 Notes 1. 2. 3. 4. 5. 6.	Deflect the price Lay = in ea Galv	ction (D osts = numbe ch strar anised	er of stra d Steel Wi	nds by I re is on	the numb	N/A strain ind e deflection per of incoursed in s se in the r in this sil	dividual straight r	wires in	each stra	and. For	example	e / X 13						) <u></u>	Podes Board
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RECEIVED **M+G** Consulting 2 7 MAY 2009 M & G Consulting Engineers Pty Ltd Phone: +61 2 8920 3966 Level 3, 110 Pacific Highway BY: Fax: +61 2 8920 3977 North Sydney NSW 2060 Internet: mg.com.au SITE INSPECTION REPORT Prince Edward M Jabeth Project: Date: 16/5/09 Work Constatal Timbe Belion 3372 Observed: Job No.: Requested by: Sherif Hama #1 Report No.: 1) Inspective industrial of completed ballooning 2) Ensure all wirer to balustale are correctly tensional in according with the BCA requirerts (attacht to this ste Distriction) If the contractor considers that the execution of any work resulting from these instructions involves a variation, he shall obtain approval, as the contract requires. M+G Consulting's Representative: Contractor's Representative: