

01 December 2016

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Project No. 1-LA235.16  
Lab Ref No. AL777/3  
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## LOAD TESTING OF GRATE

<b>Description:</b>	Powder Coated Grate - Series 200 Cross Flow
<b>Manufacture Date:</b>	May 2016
<b>Place of manufacture:</b>	China
<b>Metal Type:</b>	Ductile Iron
<b>Clear Opening Size:</b>	205 x 500 mm (205mm CO)
<b>Testing Standard:</b>	AS3996-2006 - Appendix C – Class E
<b>Test Block Size/Shape:</b>	155 x 240 mm Rectangle
<b>Testing Equipment:</b>	Shimadzu REH100TV Universal Testing Machine Complying with Class 1 of International Standard EN ISO 7500-1:2004.
<b>Test Results:</b>	Testing carried out at Opus International Consultants Albany Laboratory on 25/11/16. Refer to Page 2 of 2 for notes.

<b>Permanent set measured</b>	<b>= 0.85mm</b>
<b>Permanent set permissible</b>	<b>= CO/100 (1mm max) = 1.00mm</b>
<b>Max def. at serviceability load</b>	<b>= 2.85mm</b>
<b>Max def. permissible at serviceability load</b>	<b>= CO/45 = 205/45 = 4.56mm</b>
<b>Load Reduction Factor</b>	<b>= 205/250 = 0.82</b>
<b>Class E: Serviceability load</b>	<b>= 267 x 0.82 = 219 kN</b>
<b>Class E: Ultimate Design Load</b>	<b>= 400 x 0.82 = 328 kN</b>
<b>Ultimate Load Applied</b>	<b>= 328 kN (Not tested to failure)</b>



**Notes:**

- Due to the impracticalities of testing the grate installed in support frame, the frame was simulated in the universal testing machine by supporting each long side of the grate with steel to allow bending of the grate under the test area.
- Due to the test block being made of plywood which deforms under load, it was loaded to the serviceability load once to embed the plywood into the test grate prior to the 5 test cycles for serviceability design load. The deformations (def.) and permanent set shown on page 1 include any further deformation in the plywood test block.

**Conclusion:**

**Product as tested complies with the design Classification requirements of the standard AS3996-2006 – Appendix C – Class E.**

**Tested by:** Ben Richardson  
Laboratory Quality Manager

Joshua Burton  
Engineering Technician

**Date tested:** 25/11/2016

**Approved by:** Ben Richardson  
Laboratory Quality Manager

**Date approved:** 01/12/2016