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IN CONFIDENCE TO THE CLIENT

REPORT NO: MT-12/775

## COMPRESSION LOAD TESTING OF BILDAVOID SUPA VOID

CLIENT: **BILDAVOID**  
ATT: CHRISTINE MANCER  
PO Box 199  
BEROWRA HEIGHTS NSW 2082

DATE OF TEST: DECEMBER 11<sup>TH</sup> 2012

DATE OF REPORT: DECEMBER 17<sup>TH</sup> 2012

### TEST SYNOPSIS:

Concrete void forming systems, of various thicknesses, manufactured from recycled corrugated fibreboard (cardboard) were delivered to the MTS laboratory for compressive load testing.

The client provided the following identification details:

**Product I.D:** *SupaVOID*

**Panel Size:** 1100mm x 1100mm

**Thicknesses:** 50mm, 75mm, 100mm & 150mm

At the request of the client compression tests were to be conducted on the void forms to determine the ultimate load capacity of the product.



**FIG.1**  
**BILDAVOID TEST ITEMS**

### TEST PROCEDURE:

Testing of the supaVOID forming system was conducted by positioning each test sample on a flat steel base-plate of a universal testing machine. A rigid loading platen constructed from 19mm ply and laminated with a sheet stainless steel skin was placed on top of the void to provide uniformly distributed bearing over the test sample. The back of the loading platen was stiffened with a standard 1200mm x 1200mm timber pallet which was in turn coupled to the testing machines actuator (see Fig.2). Compressive force was then applied in linear rate of 5.0mm/min until the supaVOID forms were crushed. The applied test force and corresponding displacement was autographically recorded throughout each test.

### TEST RESULTS & OBSERVATIONS:

The recorded peak test force and the calculated average peak force per kg/m<sup>2</sup> are provided in Table 1. Post-test observations of the supaVOID test items revealed collapse of the internal webs as the predominant failure mechanism.

Test data curves for “Test Force vs. Crush Displacement” are provided in Figures 4 & 5.

**TEST COMMENTS:**

Both 100mm & 150mm thick samples were observed to perform linearly until approximately 50kN of test force. From this point on, non-linear performance was observed as the voids became excessively distorted as they approached peak force.

In the case of the 75mm thick samples both voids displayed an initial peak of approximately 73kN. As the test progressed the applied test load rebounded marginally before the ultimate load capacity was achieved and the onset of collapse was observed.

The 50mm thick void forms were observed to be the stiffest samples, with the load vs crush displacement increasing in stiffness until approximately 70kN. After this point the force continued to increase, however void distortion of the void forms rapidly increased until the peak force was achieved.



**FIG.2  
TEST SET-UP**

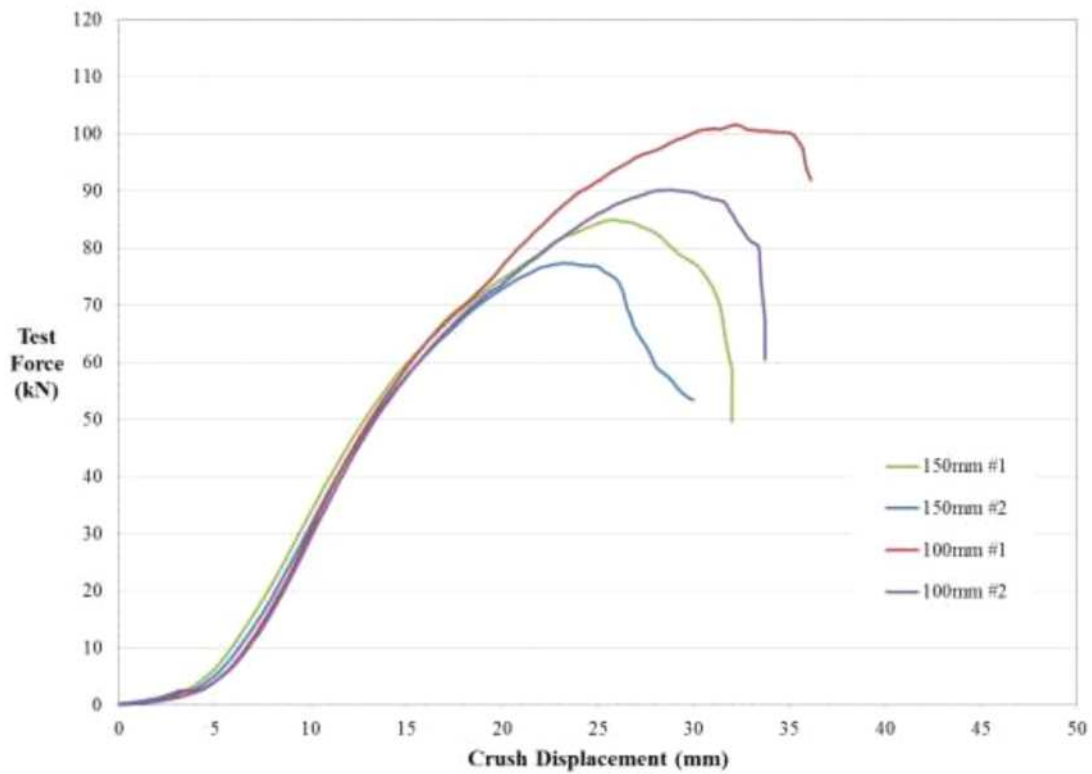
<b>Test No</b>	<b>Thickness (mm)</b>	<b>Peak Force (kN)</b>	<b>Average (kN)</b>	<b>Average (kg)</b>	<b>Average Peak Force (kg/m<sup>2</sup>)</b>
1	150	85.0	81.0	8257	6824
2		77.0			
3	100	101.6	95.9	9774	8078
4		90.2			
5	75	79.5	81.9	8344	6895
6		84.2			
7	50	102.5	101.8	10377	8576
8		101.1			

**TABLE 1  
SUPA VOID COMPRESSIVE LOAD TEST DATA**

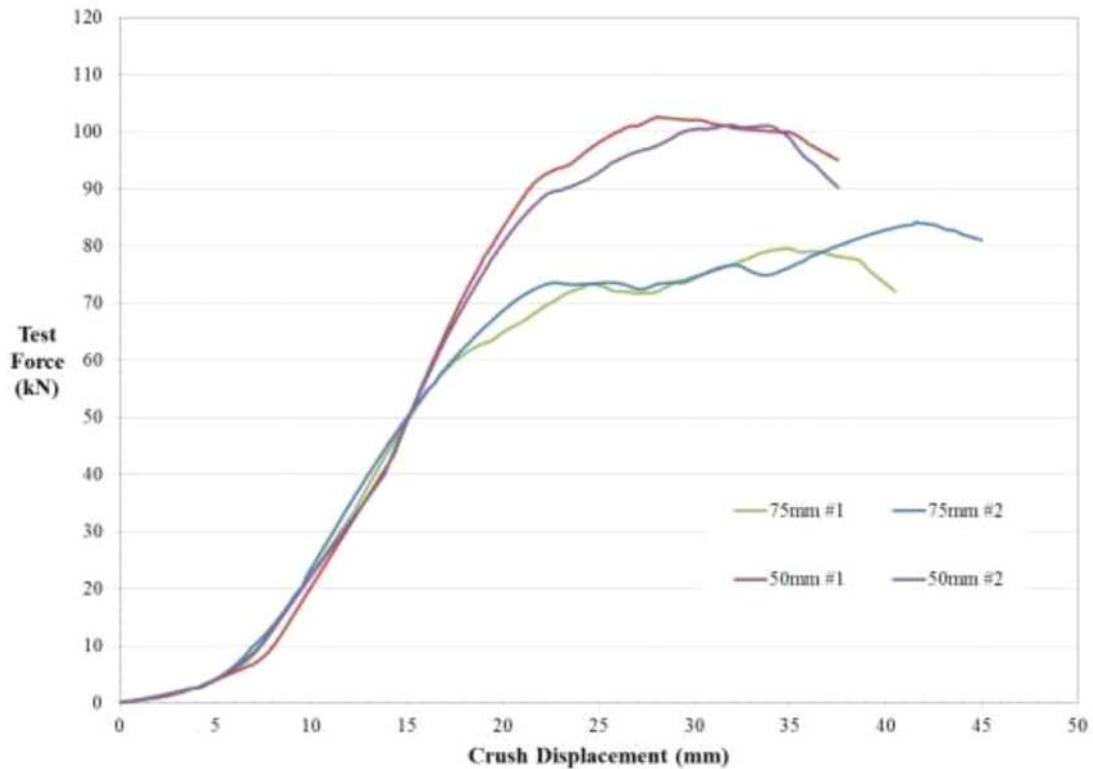




**FIG.3**  
**150MM SUPAVOID LOAD TEST AT FAILURE**



**FIG.4**  
**TEST CURVES FOR 150MM & 100MM THICK SUPAVOID**



**FIG.5**  
**TEST CURVES FOR 75MM & 50MM THICK SUPAVOID**

Notes:

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- It remains the responsibility of the client to ensure that the samples tested are representative of the entire product batch.
- MTS shall take no responsibility for the procurement and authenticity of the test product as described herein.
- This report is specific to the test items in their state at the time of testing. It should not be taken as a statement that all products in all states of repair, would also perform in the same manner.
- MTS shall take no responsibility for the interpretation or misinterpretation of the procedures or calculation methods as provided herein or for the appropriateness or validity of the test procedures for the test items described and reported herein.
- MTS shall take no responsibility for the installation procedures used for the test items as described herein.
- The tests were conducted at 21°C and are considered Experimental Type Tests and therefore do not validate or certify the products with any Australian or International standards that may apply.

**CAREY ARTHURSON**

MTS Test Officer