

GMI COMPOSITES  
Date: October 3, 2010  
P.O. No.: 15515EB

Report No.: 100214617GRR-001e  
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**Test Report For:**

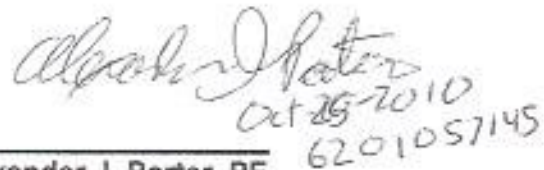
**GMI COMPOSITES**

**Access Cover 3<sup>rd</sup> Party Test Witnessing**

**Three (3) GMI 32" glass fiber reinforced  
covers with GMI composite frame to  
AASHTO M 306-05**



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Department Manager  
Performance Testing



Oct 25 2010  
6201057145

**Alexander J. Porter, PE**  
Reviewer / Chief Engineer

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**DATE RECEIVED:** 09/08/10  
**DATE TESTED:** 09/24/10

**DESCRIPTION OF SAMPLES:**

Part Number: GMI 3200  
Material Submitted: 32" DIA access hole cover  
Material Specification: Fiber reinforced polymer  
Condition of Test Sample: Production

**WORK REQUESTED / APPLICABLE DOCUMENTS:**

AASHTO (American Association of State Highway and Transportation Officials) M 306-05  
Section 5

Testing is to be performed as per client request and referencing Intertek Quotation No.:  
Q500254995 dated 08/30/10.

**CONCLUSIONS:**

Permanent set was less than 1.2 mm (0.047 inch). No cracks or damage were observed  
after application of 222 kN (50 klb) load for 1 minute.

As observed, the samples tested met the stated requirements.

**GMI EQUIPMENT USED:**

Access Cover Tester (Large Hydraulic Press):	ID No. FM-03	Calibrated 4-21-10
Pressure gauge (reference only):	ID No. 1127061	Calibrated 3-19-10
Dial indicator (also verified with gauge blocks)	ID No. 01-100	Calibrated 9-27-10

Access cover holding frame: supplied by GMI Composites, clear opening (CO) = 30"

**ACCESS COVER LOADING:**

Date Received: 09/08/10  
Date Tested: 09/24/10

Description of Samples:

Part Number: GMI 3200  
Material Submitted: 32" DIA access hole cover  
Material Specification: Fiber reinforced polymer  
Cover diameter: 31.65" nominal

Test Procedure:

AASHTO (American Association of State Highway and Transportation Officials) M 306-05

Section 5: 5.2 Proof-load testing 222 kN (50 klb) on 9" x 9" area at center for 1 minute with measurement of permanent set of the cover or grating after the application of the test load. H-25 or HS-25 loading.

Testing is to be performed as per client request and referencing Intertek Quotation No.: Q500254995 dated 08/30/10.

Number of Specimens Tested: Three (3)

Deviations:

None

Acceptance Criteria:

Permanent set shall be less than 3.2 mm (0.126 inch).  
No cracks or detrimental permanent deformation are allowed.

Results:

Testing was performed by GMI Composites, and witnessed by Intertek. Test methods, procedures and verification of test equipment traceability to NIST were evaluated and confirmed to be acceptable for the testing performed.

Access cover was loaded within a frame (see Figures 1-2). All loading exposures were applied with a 229 mm x 229 mm (9 inch x 9 inch) steel plate, nominal 1 inch thick with a 1/4" rubber load distribution pad sandwiched between the steel plate and the test sample.

The permanent displacement measurement was determined via dial indicator attached to a reference frame at the center of the access cover. Gauge was set to 0.000" initially, gauge fixture was removed, cover was loaded and then gauge fixture was re-installed to record a permanent set. Load application rate was a nominal 1 – 5 kN / sec.

<b>Cover</b>	<b>Load (klb)</b>	<b>Accumulated permanent set (inches)</b>	<b>Notes</b>
#1	53.3	0.0470	Load held 60 seconds
#2	53.5	0.0375	Load held 60 seconds
#3	53.4	0.0385	Load held 60 seconds

Test Note: permanent set was recorded 1 minute after load removal.

Permanent set was less than 1.2 mm (0.047 inch). No cracks or damage were observed after application of application of 222 kN (50 klb) load for 1 minute.

Disposition of Test Specimens/Samples:

Samples were tested and left at GMI Composites for storage or disposal.



Figure 1 - AASHTO 32 inch #2.

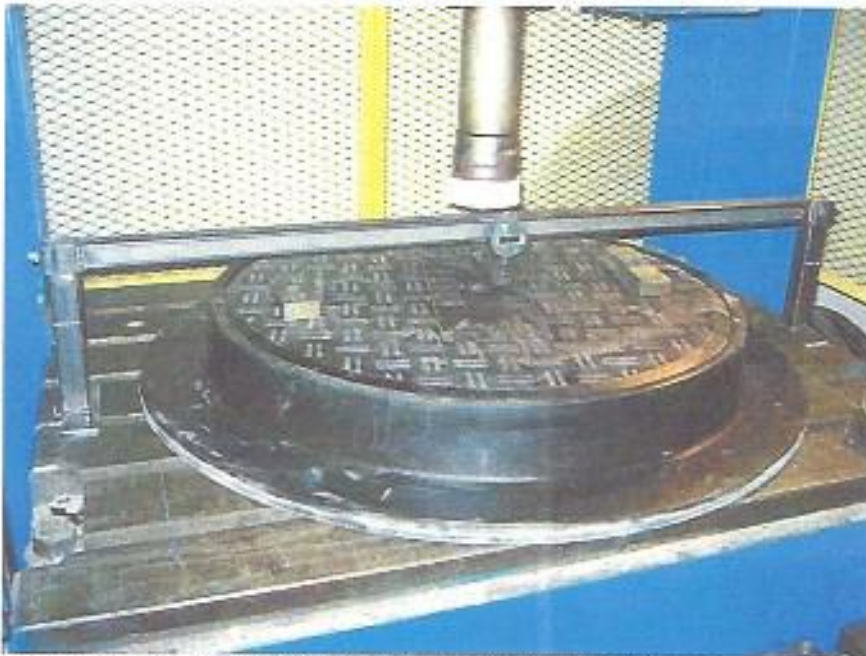


Figure 2 - AASHTO 32 inch zero displacement set.