

PULTRUDED VINYL ESTER GRATING DURABILITY

Strongwell's DURAGRID[®] VE (vinyl ester) pultruded grating was installed in 1994 on a large metropolitan bridge in Camden, New Jersey. A 46" (117 cm) long sample from this installation was recently obtained for a strength, stiffness and durability study. The test was performed on a randomly selected piece of I4000- 1" (2.54 cm) panel.

The panel was subjected to a three-point bend test, to failure, on a 42" (107 cm) span, and then retested to measure deflection and any remaining strength. Upon failure at the test peak load of 6,527 lbs (2,961 kg), the same panel was tested to determine what load would cause the industry-recognized $\frac{1}{4}$ " (6.35 mm) deflection. In this case, it was 55 lb. At a 200 lb (90.7 kg) load, deflection measured 1.30" (33 mm), but the panel supported the weight.

CONCLUSION:

Strongwell products, including DURAGRID® VE pultruded grating, have been produced in conformance with quality standards that ensure the products meet, or exceed, published load table values at the time of production. This durability study demonstrates that DURAGRID® VE pultruded grating strength will meet and exceed industry recognized, in-service design loads, for a 20-year, and counting, service life. Measured stiffness decreases are expected to be negligible. DURAGRID® VE pultruded grating is a structural alternative to steel and aluminum grating especially when long-term durability is a concern. Additional benefits include fabrication requiring fewer tools, lighter in weight, measured strength against impact, measured fire resistance and strength retention at increased service temperatures, and a measured decrease in maintenance. Strongwell has worked to continually improve product strength, durability and impact resistance of DURAGRID® VE pultruded grating.

TEST RESULTS		
Test Peak Load:	6,527 lb	2,961 kg
Peak Load (Load Table*):	4,947 lb	2,244 kg
Test Modulus:	4.94 Mpsi	3.40 x 10 ⁴ MPa
Modulus (Load Table*):	4.88 Mpsi	3.36 x 10⁴ MPa

* Load table typical values generated from test data of current product.





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