Panel Testing

of Topglass GC 2400gsm & Topglass GC Ultra-Safe 3660gsm Roof Sheet

August 2014

Tests and Standards

Component Test	Test Standard
Impact Resistance	AS/NZS 4257.6:1994
Shear Strength	ASTM D732-10
Compressive Strength	ISO 604-2003
Flexural Strength	ASTM D790-10
Specific Gravity	ASTM D792-08
Tensile Strength	ISO 527-1 & ISO 527-2
Coefficient of Linear Expansion	ASTM D696-98
Thermal Conductivity	C518-10

Impact Strength Test Results

AS/NZS 4256.3

	Parameter	Value	Units	Notes
2400gsm	Mass	0.223	kg	
	Drop Height	0.905	m	
	$a_{gravity}$	9.81	m/s	
	E_{impact}	1.98	J	E=mass x height x gravitational acceleration
	Number of Samples Tested	40		
	Number of Failed Samples	0		
3660gsm	Mass	0.223	kg	
	Drop Height	0.905	m	
	$a_{gravity}$	9.81	m/s	
	E_{impact}	1.98	J	E=mass x height x gravitational acceleration
	Number of Samples Tested	40		
	Number of Failed Samples	0		

Flexural Strength Test Results

Test Method: ASTM D790-10

Material	Flexural Modulus (MPa)	Flexural Strength (MPa)
2400gsm	7822	223
3660gsm	7730	289

Shear Strength

Test Results
ASTM D732-10

Material	Shear Strength (MPa)
2400gsm	77.8
3660gsm	81.3

Compressive Strength

Test Results
Test Method: ISO 604-2003

Material	Compressive Strength (MPa)
2400gsm	124
3660gsm	166

Specific Gravity

Test Results
Test Method: ASTM D792-08

Material	Specific Gravity
2400gsm	1.43
3660gsm	1.44

Coefficient of Linear Expansion

Test Results
Test Method: ASTM D696-98

Material	Coefficient of Linear Thermal Expansion (X10-6mm/mm °C)
2400gsm	29.1
3660gsm	32.6

Thermal Transmission Test Results

Test Method: ASTM C518-10

Material	Thermal Conductivity K Value *Btu-in/hr-ft2-°F*	Thermal Conductivity K Value *W/m-K*	Thermal Resistance R Value *Hr-ft2- °F/Btu*	Thermal Resistance R Value *m2-K/W*	Thermal Resistance R/in *Hr-ft2- °F/Btu/in*	Thermal Resistance R/m *m2-K/W/m*	Thermal Resistance U *W/m2-K*
2400gsm	0.249802	0.03603	0.24711	0.0435	4.01	27.77	22.98
3660gsm	0.357473	0.05156	0.37564	0.0662	2.80	19.39	15.12

Tensile Properties Test Results

Test Method: ISO 527-1 & ISO 527-2

Material	Tensile Strength at Maximum Load (MPa)	Tensile Strain at Yield (%)
2400gsm	7822	223
3660gsm	7730	289