QAI LABORATORIES
CERTIFICATION TESTING INSPECTION

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CLIENT: **POLY ROCK**
3765 Glenrosa Road
West Kelowna, BC
Canada

Test Report No: T1078-1	Date: April 28th, 2016

SAMPLE ID: Expanded Polystyrene Loose Fill materials.

SAMPLING DETAIL: Test samples were submitted directly to QAI Toronto by client.

DATE OF RECEIPT: The samples were received at QAI Laboratories on February 16th, 2016 in good condition.

TESTING PERIOD: April 8th, 2016.

AUTHORIZATION: Signed QAI Test Proposal Number GH-2015-1218-01 dated December 18th, 2015.

TEST(S) REQUESTED: 1) ASTM D1621-10 - *Standard Test Method for Compressive Properties of Rigid Cellular Plastics.*
2) ASTM C518-15 - *Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*

TEST RESULTS: See Pages 2-3

Prepared By

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Project Technician

Signed for and on behalf of QAI Laboratories Ltd.

Matt Lansdowne
Business Manager

1.0 COMPRESSIVE STRENGTH TEST PER ASTM D 1621-10

Test Procedure

Test samples were conditioned at 23°C ± 2°C (75°F ± 5°F) at 50% ± 5% relative humidity for 40 hours prior to testing.

Testing was conducted following the loading procedure outlined in ASTM D1621-10. The test specimen consisted of EPS Loose Fill Packing Material, pictures of the test specimen can be found in Appendix A. The specimen setup was placed in a United Tension/Compression Machine and compressed at a constant rate of 5.08 mm/min (0.2") until the max load of the load cell was reached.

The test specimen was preloaded to 25 lbf. Then height and force measurements were taken at percent of total thickness intervals.

Test Box's inner dimensions: Length = 307.79 mm
Width = 307.71 mm
Height = 288.85 mm

Test Requirements

No requirements were noted for product.

Test Results

EPS Thickness, %	Force, N	Area, mm^2	Compressive Stress		Height[1,2], mm	Volume, cm^3	Density	
			N/mm^2	psi			kg/m^3	pcf
5	452.73	92908	0.0049	0.707	278.43	26370.12	9.7	0.61
10	857.21		0.0092	1.338	272.35	25794.29	10.0	0.62
15	1235.38		0.0133	1.929	257.48	24385.95	10.5	0.66
20	1630.68		0.0176	2.546	244.15	23123.46	11.1	0.69
25	2059.97		0.0222	3.216	229.31	21717.96	11.8	0.74
30	2526.20		0.0272	3.944	214.30	20296.37	12.6	0.79
35	3041.05		0.0327	4.748	200.31	18971.37	13.5	0.84
40	3621.23		0.0390	5.653	185.48	17566.82	14.6	0.91
45	4261.80		0.0459	6.653	171.33	16226.67	15.8	0.99
50	4992.10		0.0537	7.794	157.48	14914.94	17.2	1.07
55	6030.00		0.0649	9.414	142.45	13491.45	19.0	1.19
60	7070.00		0.0761	11.037	127.27	12053.75	21.3	1.33
65	8365.00		0.0900	13.059	113.32	10732.54	23.9	1.49

Note 1 - Used 24" Caliper (T0008) to measure marks on a non-calibrated metal ruler.
Note 2 - Measured Marks minus Plate Thickness

DEVATION FROM METHOD:

Note: As per client's request, the specimen area was 144 in^2 which is a deviation from the maximum area stated in ASTM D 1621-10 section 6.1.
ASTM D1621 is noted for rigid cellular products, which the test sample was not. The loading rate was applied following this method.

2.0 THERMAL RESISTANCE TEST PER ASTM C 518-15

Test Procedure

Test samples were conditioned at 23°C ± 2°C (75°F ± 5°F) at 50% ± 5% relative humidity prior to testing.

Testing was conducted in accordance with ASTM C 518-15. A 10mm thickness Oriented Strand Board (OSB) frame as constructed, with 3mm polyethylene film placed around the frame bottom. Poly Rock supplied EPS Loose Fill was manually placed in the OSB frame at 100mm height. The test specimen was then placed horizontally in a Laser Tech Thermal Conductivity Test Apparatus maintained in a controlled environment.

The heat flow metering area distance to OSB frame was considered by QAI to have no influence on the testing data.

The 3mm polyethylene film used for EPS Loose Fill placement was not considered to have influence on the test data.

Test Requirements

Testing was conducted in accordance with ASTM C 518-15

Test Results

Specimen ID	Specimen Thickness		Specimen Density		Mean Test Temp		Delta T		Thermal Resistance	Thermal Resistivity	Thermal Conductivity
(units)	*mm*	*Inch*	*Kg/m³*	*lbs/ft³*	*°C*	*°F*	*°C*	*°F*	*m²·K/W (hr·ft²·°F/BTU)*	*m·K/W (hr·ft²·°F/BTU·in)*	*W/m*K (Btu·in/ft²·°F·h)*
1	100.32	3.95	8.52	0.53	24	75	22	40	0.92 (5.22)	9.16 (1.321)	0.10920 (0.7572)

Revisions: No revisions to date.

Appendix A

(Photos)

(1 Pages)

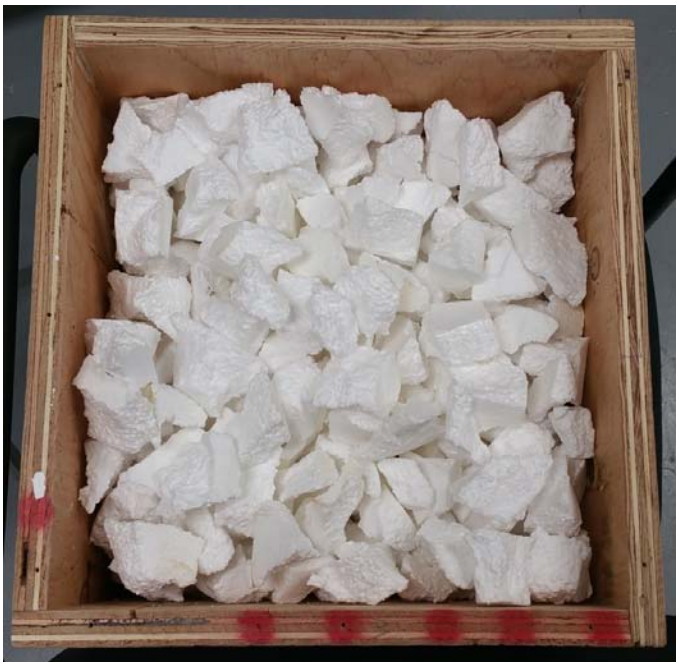

Figure 1 - EPS Loose Fill Material Before Appling Load

Figure 2 - EPS Loose Fill Material After Being Subjected To 9500 N Load

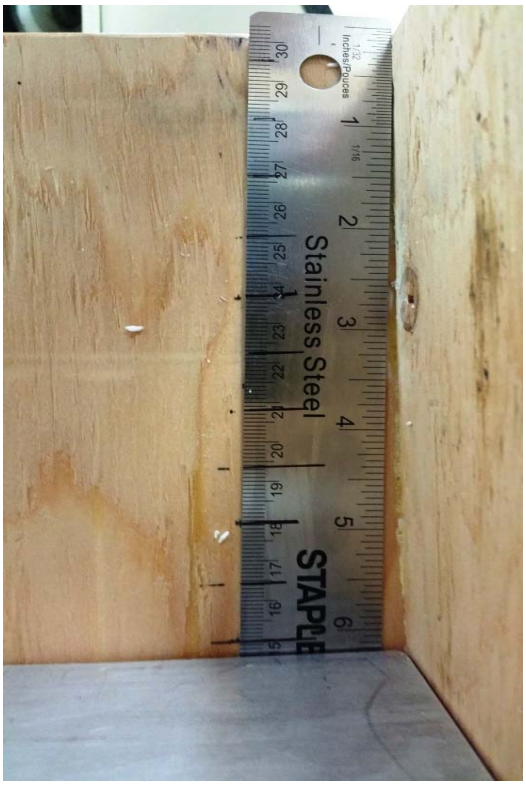

Figure 3 - EPS Loose Fill Material At Under Load

****End of Report****