



ETL SEMKO

Test: **Flexural Strength**
 Date: July 4, 2003
 Client: Rocky Mountain Stone Works
 Project No: 3041212
 Product: Manufactured concrete stone
 Test Method: ASTM C99-87 (Reapproved 2000)
 Standard Test Method for Modulus of Rupture of Dimension Stone
 Exposure cycle: Dried at 60 +/- 2°C for 48 hours, then cooled to 23 +/- 2°C in a desiccator.
 Support Span: 7 inches
 Crosshead Speed: 0.02 inches/min (Dial @ 1.3)
 Equipment: Tinius Olsen, 10K pressure transducer ITS ID 9-0432
 Mitutoyo Digital Calipers CD-18 SN 7003817
 Mitutoyo Digital Calipers SN 98865 ITS ID 52639

Sample	Width	Thickness	Max Load	Modulus of Rupture	
	(mm)	(mm)	(lbf)	(MPa)	(psi)
1	100.2	37.5	395	3.33	483
2	100.3	36.0	376	3.45	500
3	101.5	36.1	354	3.18	461
4	99.7	36.3	376	3.41	495
5	99.6	36.8	407	3.60	522
6	99.9	36.2	378	3.43	497

Mean Result	3.40 MPa	493 psi
Coefficient of Variation	4.1 %	4.1 %



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Test: **Flexural Strength**
 Date: June 27, 2003
 Client: Rocky Mountain Stone Works
 Project No: 3041212
 Product: Manufactured concrete stone
 Test Method: ASTM C99-87 (Reapproved 2000)
 Standard Test Method for Modulus of Rupture of Dimension Stone
 Exposure cycle: Immersed in water at 23 +/- 2°C for 48 hours, then removed surface water.
 Support Span: 7 inches
 Crosshead Speed: 0.02 inches/min (Dial @ 1.3)
 Equipment: Tinius Olsen, 10K pressure transducer ITS ID 9-0432
 Mitutoyo Digital Calipers CD-18 SN 7003817
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Sample	Width	Thickness	Max Load	Modulus of Rupture	
	(mm)	(mm)	(lbf)	(MPa)	(psi)
1	100.3	36.8	589	5.16	748
2	100.4	36.8	505	4.42	641
3	100.9	36.0	479	4.36	632
4	100.8	36.1	541	4.90	710
5	100.8	36.2	512	4.61	669
6	100.8	37.9	392	3.22	467

Mean Result	4.44 MPa	644 psi
Coefficient of Variation	15.1 %	15.1 %

Test: Flexural Strength

Date: 25-Sep-06 Project No: 3091486
 Client: Rocky Mountain Stoneworks Technician(s): Trevor Kwasnycia, ASCT
 Product: Stone Cladding
 Specimen Thickness: 1.50 in 38.1 mm
 Test Method(s): ASTM C880 - 98 Standard Specification for Flexural Strength of Dimension Stone
 Conditioning: 48 hours at a temperature of 60 ± 2°C then cooled in a desiccator and tested at room temperature
 Support Span: 10.00 in 254 mm
 Crosshead Motion: 600.00 psi/min 4.14 MPa/min
 Bearing Edges: 1.00 in 25.4 mm
 Equipment: *Loading:* Tinius Olsen Universal Testing Machine (Intertek ID P52619)
Load Cell: Instron 5000lbs Load Cell (Intertek ID D0567) Calibration due Date: 23-Aug-06
Dimensions: Mitutoyo Digital Calipers (Intertek ID 1019) Calibration due Date: 13-June-06
Dimensions: Mitutoyo Digital Deflection Gauge (Intertek ID 1462) Calibration due Date: 19-Dec-06

Sample	Width (mm)			Depth (mm)					
	W1	W2	W3	D1	D2	D3	D4	D5	D6
1	102.50	102.68	102.86	37.33	37.60	38.36	37.76	37.82	38.29
2	102.13	102.04	102.13	37.90	37.78	37.35	37.34	37.81	37.00
3	102.73	103.02	102.74	36.63	37.21	37.53	37.61	37.84	37.49
4	102.40	102.60	102.70	39.83	40.24	39.94	39.99	40.05	39.21
5	102.08	107.92	107.56	37.96	38.23	38.43	38.35	38.51	38.59

Sample	Max Load	Max Load	Flexural Strength	
	(lbf)	(N)	(MPa)	(psi)
1	497	2212	2.86	415
2	376	1671	2.21	321
3	473	2105	2.79	405
4	441	1961	2.29	332
5	390	1734	2.12	308
		Mean:	2.46	356
		StdDev:	0.34	50
		COV:	14.03%	14.03%

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Project No: 3091486
 Technician(s): Trevor Kwasnycia, ASCT

Sample	Width (mm)			Depth (mm)					
	W1	W2	W3	D1	D2	D3	D4	D5	D6
1	102.20	101.19	102.21	40.20	40.04	39.67	40.32	40.08	40.19
2	104.49	104.45	104.52	37.51	36.58	36.62	37.16	36.95	36.46
3	102.74	102.69	102.59	40.20	40.04	40.16	39.20	39.56	39.78
4	102.50	102.57	102.54	38.29	38.39	38.48	38.19	37.97	37.28
5	102.52	102.79	102.76	37.92	38.26	38.05	37.82	38.37	39.23

Sample	Max Load	Max Load	Flexural Strength	
	(lbf)	(N)	(MPa)	(psi)
1	677	3011	3.50	508
2	620	2756	3.69	536
3	744	3310	3.87	562
4	690	3069	3.93	570
5	718	3195	4.05	587
		Mean:	3.81	552
		StdDev:	0.21	31
		COV:	5.57%	5.57%