

Report of Threaded Rod Shear Test

Client: Bonstone Material Corporation
Project No.: 0611892

Report No.: 902317
Date of Service: June 30, 2006

Stone Type: Concrete (approximately 4000 psi)
Adhesive: Bonstone Clear Gel Epoxy

Test Method: ASTM C 1354, Standard Test Method for Strength of Individual Stone
Anchorages in Dimension Stone

Calculation: Anchorage system load = Test machine load

Loading: Constant rate of loading at 600 lbs./minute until failure

Anchor Description: 1/4" diameter threaded rod with nominal 1" embedment

Nominal Dimensions:

Length (inches)	Width (inches)	Thickness (inches)
12	12	2.00

Conditioning: Tested in an "as is" condition

Finish: Honed

Sample Number	Failure Mode	Anchorage System Load (lbf.)
1	Bolt sheared	3,092
2	Anchor pullout	2,762
3	Bolt sheared	2,866
4	Bolt sheared	2,973
5	Bolt sheared	2,908
Average Anchorage System Load:		2,920
Standard Deviation:		123
Variance (percent):		4.21



Report of Threaded Rod Anchor Pullout Test

Client: Bonstone Material Corporation **Report No.:** 902317
Project No.: 0611892 **Date of Service:** June 30, 2006

Stone Type: Concrete (approximately 4000 psi)
Adhesive: Bonstone Clear Gel Epoxy

Test Method: ASTM C 1354, Standard Test Method for Strength of Individual Stone
Anchorages in Dimension Stone

Calculation: Anchorage system load = Test machine load

Loading: Constant rate of loading at 600 lbs./minute until failure

Anchor Description: 1/4" diameter threaded rod with nominal 1" embedment

Nominal Dimensions:

Length (inches)	Width (inches)	Thickness (inches)
12	12	2.00

Conditioning: Tested in an "as is" condition

Finish: Honed

Sample Number	Failure Mode	Anchorage System Load (lbf.)
1	4.5" cone	2,077
2	7" cone	1,770
3	4" cone	1,955
4	3" cone	2,047
5	7" cone	1,941
Average Anchorage System Load:		1,958
Standard Deviation:		120
Variance (percent):		6.13

LIMITATIONS: The test results presented herein were prepared based upon the specific samples provided for testing. We assume no responsibility for variation in quality (composition, appearance, performance, etc) or any other feature of similar subject matter provided by persons or conditions over which we have no control. Our letters and reports are for the exclusive use of the clients to whom they are addressed and shall not be reproduced except in full without the written approval of Rone Engineering Services, Ltd.



Report of Threaded Rod Shear Test

Client: Bonstone Material Corporation
Project No.: 0611892

Report No.: 902317
Date of Service: June 30, 2006

Stone Type: Cold Spring Granite
Adhesive: Bonstone Clear Gel Epoxy

Test Method: ASTM C 1354, Standard Test Method for Strength of Individual Stone Anchorages in Dimension Stone

Calculation: Anchorage system load = Test machine load

Loading: Constant rate of loading at 600 lbs./minute until failure

Anchor Description: 1/4" diameter threaded rod with nominal 1" embedment

Nominal Dimensions:

Length (inches)	Width (inches)	Thickness (inches)
12	12	2.00

Conditioning: Tested in an "as is" condition

Finish: Honed

Sample Number	Failure Mode	Anchorage System Load (lbf.)
1	Bolt sheared	2,743
2	Bolt sheared	2,618
3	Bolt sheared	2,783
4	Bolt sheared	2,791
5	Bolt sheared	2,976
Average Anchorage System Load:		2,782
Standard Deviation:		129
Variance (percent):		4.64



Report of Threaded Rod Anchor Pullout Test

Client: Bonstone Material Corporation
Project No.: 0611892

Report No.: 902317
Date of Service: June 30, 2006

Stone Type: Cold Spring Granite
Adhesive: Bonstone Clear Gel Epoxy

Test Method: ASTM C 1354, Standard Test Method for Strength of Individual Stone Anchorages in Dimension Stone

Calculation: Anchorage system load = Test machine load

Loading: Constant rate of loading at 600 lbs./minute until failure

Anchor Description: 1/4" diameter threaded rod with nominal 1" embedment

Nominal Dimensions:

Length (inches)	Width (inches)	Thickness (inches)
12	12	2.00

Conditioning: Tested in an "as is" condition

Finish: Honed

Sample Number	Failure Mode	Anchorage System Load (lbf.)
1	Stone fracture through anchor	3,517
2	Anchor pullout, 1" cone	2,344
3	Anchor pullout, 1.5" cone	2,511
4	Anchor pullout, 1.5" cone	2,421
5	Anchor pullout, 1.5" cone	2,805
Average Anchorage System Load:		2,720
Standard Deviation:		479
Variance (percent):		17.61

Report of Threaded Rod Shear Test

Client: Bonstone Material Corporation
Project No.: 0611892

Report No.: 902317
Date of Service: June 30, 2006

Stone Type: Indiana Limestone
Adhesive: Bonstone Clear Gel Epoxy

Test Method: ASTM C 1354, Standard Test Method for Strength of Individual Stone
Anchorages in Dimension Stone

Calculation: Anchorage system load = Test machine load

Loading: Constant rate of loading at 600 lbs./minute until failure

Anchor Description: 1/4" diameter threaded rod with nominal 1" embedment

Nominal Dimensions:

Length (inches)	Width (inches)	Thickness (inches)
12	12	2.00

Conditioning: Tested in an "as is" condition

Finish: Honed

Sample Number	Failure Mode	Anchorage System Load (lbf.)
1	Anchor pullout, 4.5" cone	2,887
2	Bolt sheared	3,166
3	Bolt sheared	3,323
4	Bolt sheared	3,021
5	Bolt sheared	2,791
Average Anchorage System Load:		3,038
Standard Deviation:		213
Variance (percent):		7.01

Report of Threaded Rod Anchor Pullout Test

Client: Bonstone Material Corporation
Project No.: 0611892

Report No.: 902317
Date of Service: June 30, 2006

Stone Type: Indiana Limestone
Adhesive: Bonstone Clear Gel Epoxy

Test Method: ASTM C 1354, Standard Test Method for Strength of Individual Stone Anchorages in Dimension Stone

Calculation: Anchorage system load = Test machine load

Loading: Constant rate of loading at 600 lbs./minute until failure

Anchor Description: 1/4" diameter threaded rod with nominal 1" embedment

Nominal Dimensions:

Length (inches)	Width (inches)	Thickness (inches)
12	12	2.00

Conditioning: Tested in an "as is" condition

Finish: Honed

Sample Number	Failure Mode	Anchorage System Load (lbf.)
1	6" cone	1,641
2	Stone fracture through anchor	1,655
3	3" cone	1,704
4	4.5" cone	1,932
5	2" cone	1,623
Average Anchorage System Load:		1,711
Standard Deviation:		127
Variance (percent):		7.42