

TEST REPORT

REPORT NUMBER: 101206843TOR-003
ISSUE DATE: September 5, 2013

EVALUATION CENTER

Intertek Testing Services Ltd.
6225 Kenway Drive
Mississauga, Ontario L5T 2L3

RENDERED TO

Roman Columns Inc.
48 Newcastle St.
Etobicoke, Ontario M8Y 1A3

Attention: Mr. Rob Mammone

PRODUCT EVALUATED:
7 Sets of Fibreglass Columns

EVALUATION PROPERTY:
Axial Compression Load

Report of Testing for Roman Columns on seven sets of Fibreglass Columns for Axial Compression Load.

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2 Introduction

Intertek Testing Services NA Ltd. has conducted axial compression load tests for Roman Columns Inc. on seven sets of fibreglass columns with various configurations. The columns were tested to ultimate failure. Evaluation was conducted on August 29 and 30, 2013.

3 Test Samples

3.1. SAMPLE SELECTION

Samples were not independently selected for testing. The subject test specimens were submitted directly to Intertek and were received at the Mississauga evaluation Center on July 31, 2013 in new condition.

3.2. SAMPLE AND ASSEMBLY DESCRIPTION

Seven sets of fiberglass columns, having both round and square profiles with square cut ends, were submitted as follows:

- 7-1/4" Square Fibreglass, 121" long
- 7-1/4" Square Recessed Fibreglass, 121" long
- 9-3/8" Square Fibreglass, 121" long
- 9-3/8" Square Recessed Fibreglass, 121" long
- 6" nominal (Measured 5-1/2") Square Fibreglass, 120" long
- 8" Diameter Round Fibreglass, 121" long
- 9-3/8" Diameter Round Fibreglass, 121" long

4 Testing and Evaluation Methods

4.1 SPECIMEN PREPARATION

Specimens were tested in an as received condition. No specimen preparation was required.

4.2 CONDITIONING

No specific conditioning required. Tests were performed under ambient lab conditions.

4.3 PROCEDURE

Testing was not conducted in accordance with an established standard. The tests were carried out using a Forney hydraulic ram/frame assembly coupled to a digital pressure gauge. The vertical structural steel test frame measured 24" wide by 150" high. Two 1-inch thick, parallel, flat, steel bearing blocks were seated at either end of the test frame. A spherical-seated bearing block was not part of the test.

Each column in turn was placed in the column tester plumbed vertically and a gradually increasing axial compression load was applied until ultimate failure. The rate of testing was conducted so that ultimate failure was scheduled to occur between one and two minutes upon the start of the test. The maximum load achieved was recorded, as was the mode of failure.

5 Testing and Evaluation Results

Table 1. 7-1/4" Square Column

Test Number	Ultimate Load (lbf)	Failure Mode
1	27,110	Top of column split
2	23,010	Top of column split
3	25,040	Top of column split
4	22,700	Top of column split
<i>Average</i>	<i>24,470</i>	
<i>Standard Deviation</i>	<i>±2,050</i>	
<i>Measurement Uncertainty</i>	<i>8.0%</i>	

The tested values above are report-only.

Table 2. 7-1/4" Square Recessed Column

Test Number	Ultimate Load (lbf)	Failure Mode
1	55,370	Bending at Mid Height
2	55,260	Bending at Mid Height
3	55,290	Bending at Mid Height
4	55,280	Bending at Mid Height
<i>Average</i>	<i>55,300</i>	
<i>Standard Deviation</i>	<i>±50</i>	
<i>Measurement Uncertainty</i>	<i>5.3%</i>	

The tested values above are report-only.

Table 3. 9-3/8" Square Column

Test Number	Ultimate Load (lbf)	Failure Mode
1	16,250	Bending at Mid Height
2	28,490	Bending at Mid Height
3	28,070	Bending at Mid Height
4	23,340	Bending at Mid Height
<i>Average</i>	<i>24,040</i>	
<i>Standard Deviation</i>	<i>±5,690</i>	
<i>Measurement Uncertainty</i>	<i>10.2%</i>	

The tested values above are report-only.

Table 4. 9-3/8" Square Recessed Column

Test Number	Ultimate Load (lbf)	Failure Mode
1	55,260	Top of column split
2	50,590	Top of column split
3	55,260	Top of column split
4	52,720	Top of column split
<i>Average</i>	<i>53,460</i>	
<i>Standard Deviation</i>	<i>±2,260</i>	
<i>Measurement Uncertainty</i>	<i>5.4%</i>	

The tested values above are report-only.

Table 5. 6" Square Column

Test Number	Ultimate Load (lbf)	Failure Mode
1	38,740	Top of column split
2	35,240	Column split at mid height
3	32,860	Bottom of column split
4	38,070	Column split at mid height
<i>Average</i>	<i>36,230</i>	
<i>Standard Deviation</i>	<i>±2,710</i>	
<i>Measurement Uncertainty</i>	<i>6.4%</i>	

The tested values above are report-only.

Table 6. 8" Diameter Round Column

Test Number	Ultimate Load (lbf)	Failure Mode
1	18,820	Bottom of column mushroomed and split
2	32,620	Bottom of column mushroomed and split
3	18,920	Bottom of column mushroomed and split
4	33,390	Bottom of column mushroomed and split
<i>Average</i>	<i>25,940</i>	
<i>Standard Deviation</i>	<i>±8,170</i>	
<i>Measurement Uncertainty</i>	<i>9.1%</i>	

The tested values above are report-only.

Table 7. 9-3/8" Diameter Round Column

Test Number	Ultimate Load (lbf)	Failure Mode
1	17,320	Top of column mushroomed and split
2	46,890	Top of column mushroomed and split
3	28,740	Top of column mushroomed and split
4	47,100	Top of column mushroomed and split
<i>Average</i>	<i>35,010</i>	
<i>Standard Deviation</i>	<i>±14,600</i>	
<i>Measurement Uncertainty</i>	<i>9.7%</i>	

6 Testing Equipment

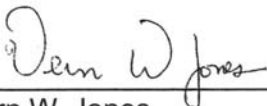
Item	Inventory Number	Calibration Due Date
Crystal Digital Pressure Gauge	273 01 1106	July 10, 2014
Column Tester	280 01 0012	March 26, 2014

7 Conclusion

Intertek tested Roman Columns' seven sets of fibreglass columns for axial compression load. The results of this test are for report only and therefore no conclusions were determined herein.

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

INTERTEK TESTING SERVICES NA LTD.

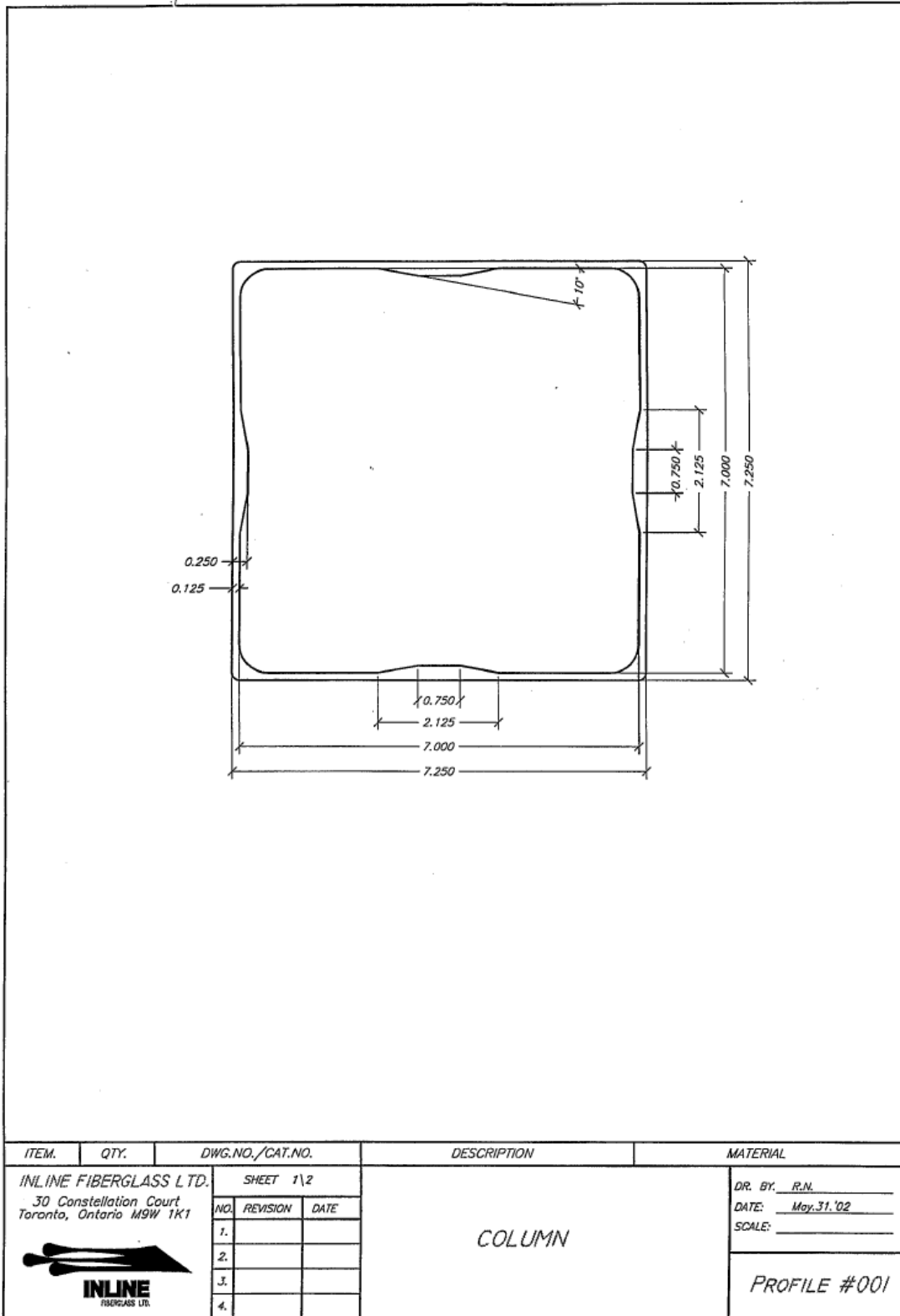
Tested and
Reported by: 
Vern W. Jones
Technologist, Building Products

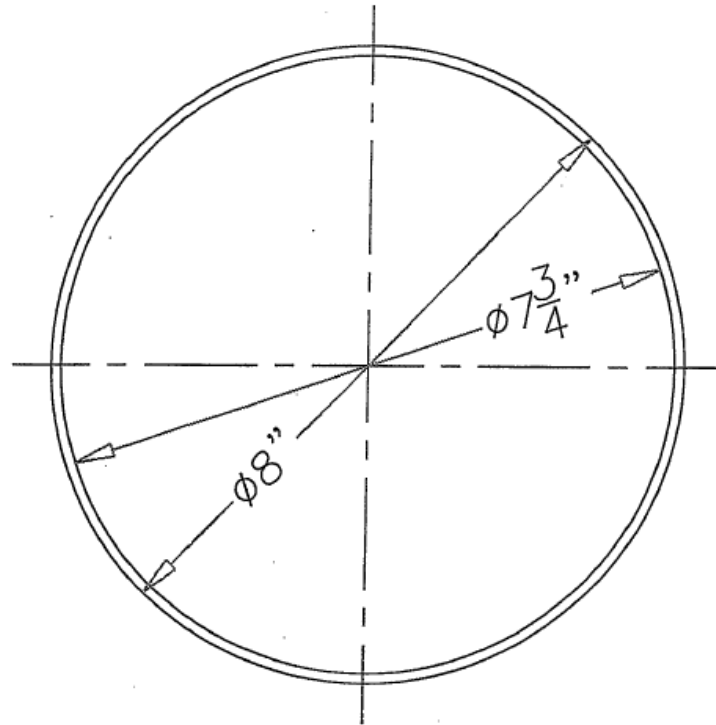
Reviewed by: 
Robert Giona
Manager, Building Products

Reviewed by: 
Claudio Sacilotto, P.Eng
Senior Project Engineer, Building Products




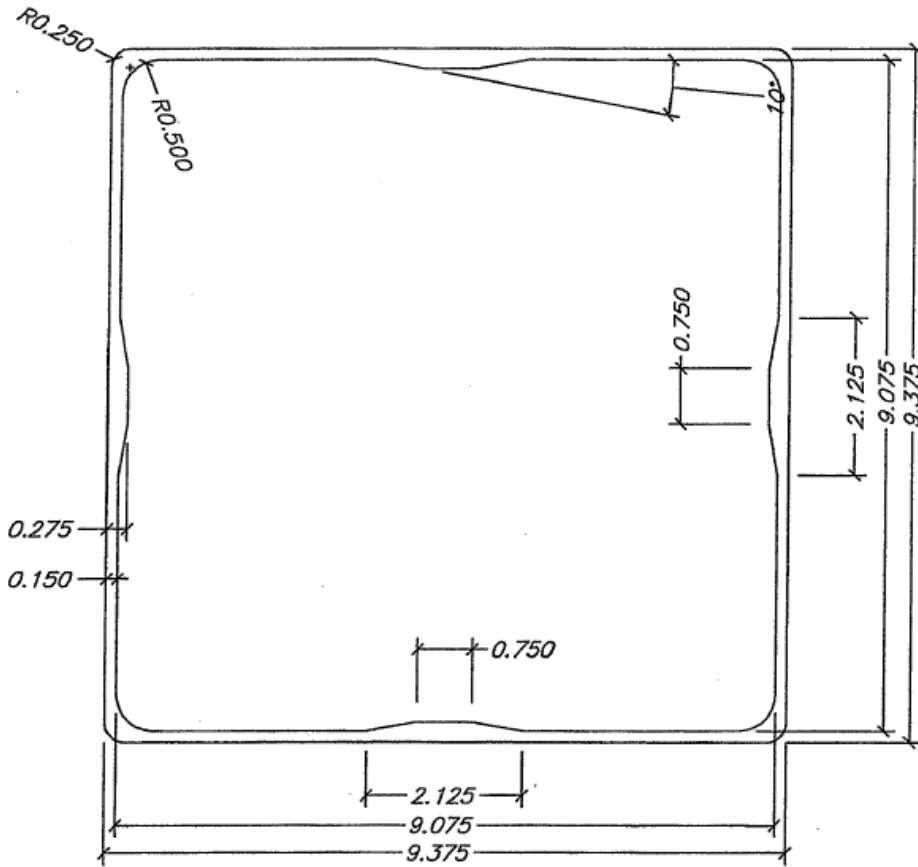
8 Appendix A Drawings




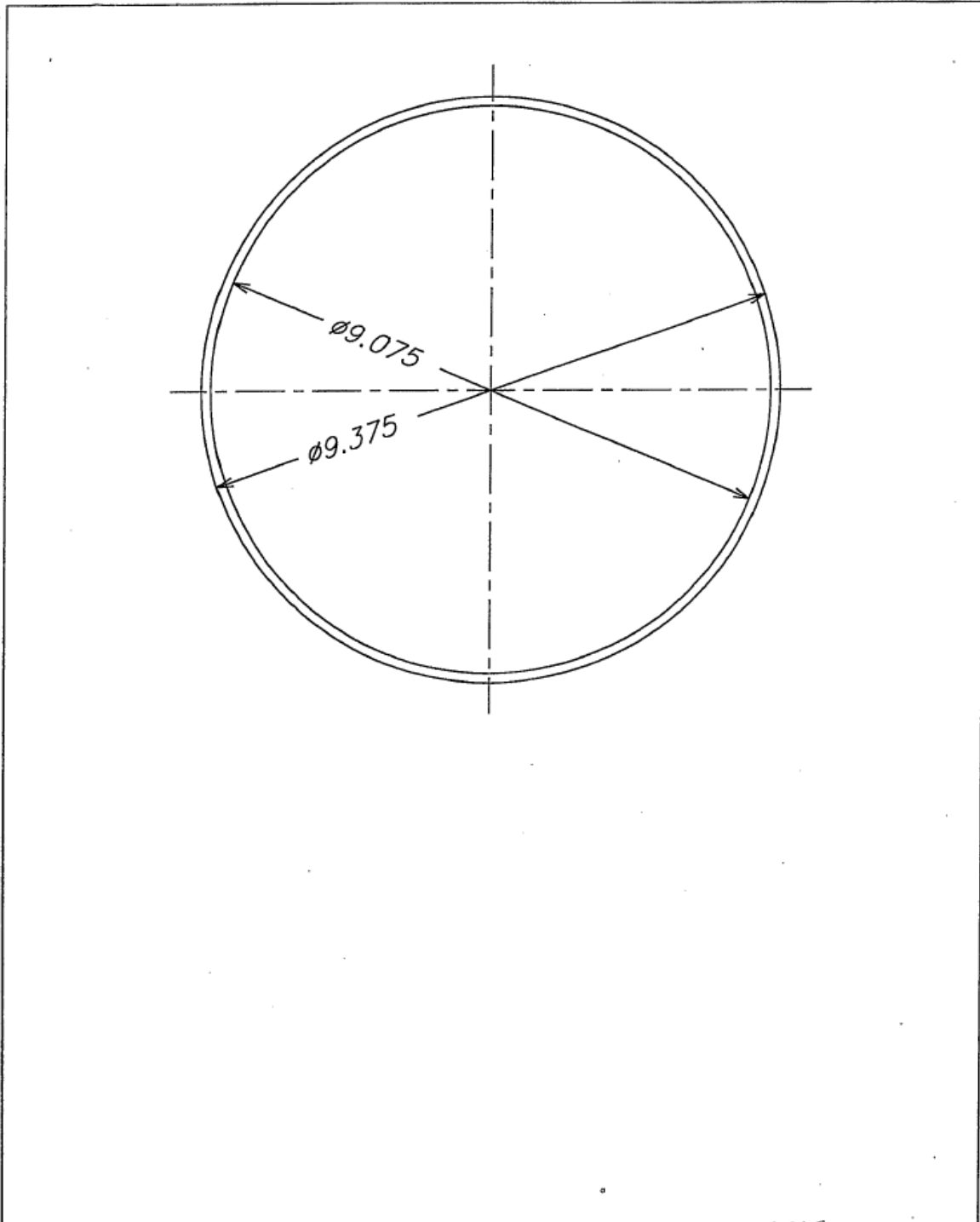



Approved By Roman Columns

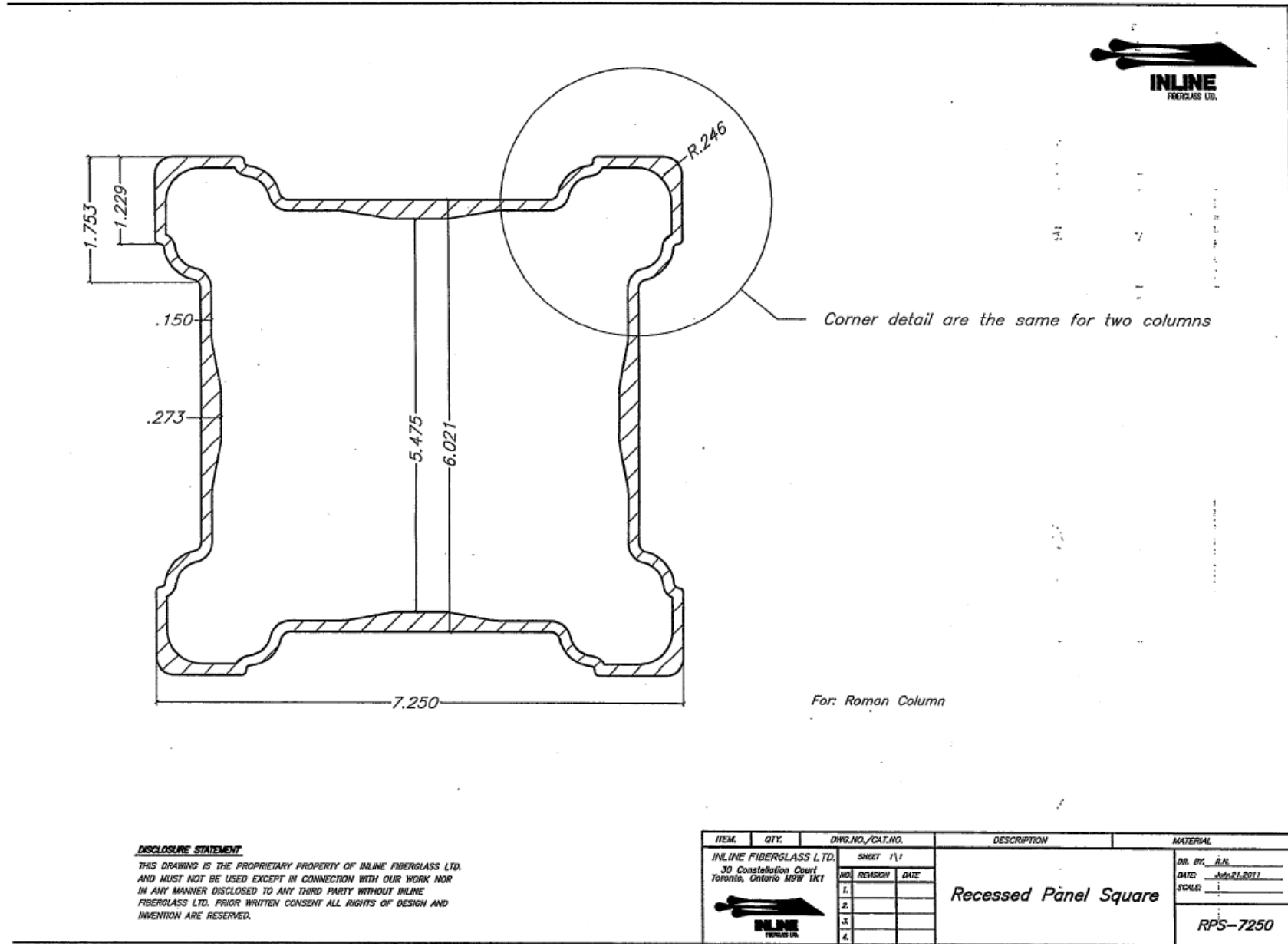
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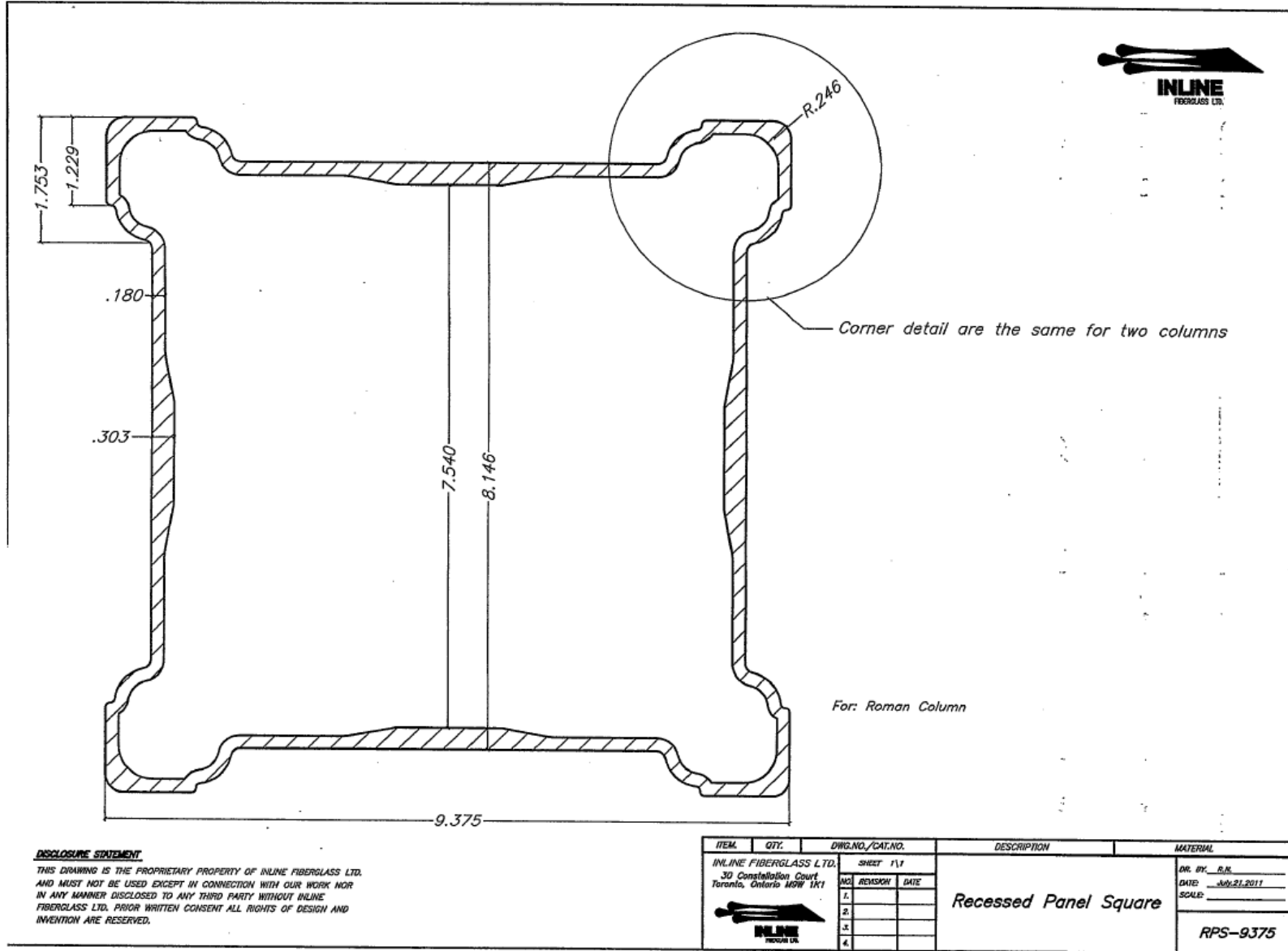


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ITEM	QTY.	DWG. NO./CAT. NO.	DESCRIPTION	MATERIAL
INLINE FIBERGLASS LTD.		SHEET 1/1	<i>Recessed Panel Square</i>	DR. BY: R.M.
3D Constellation Court Toronto, Ontario M9W 1K1		REV. REVISION DATE		DATE: July 21, 2011
INLINE FIBERGLASS LTD.		1.		SCALE:
		2.		
		3.		
		4.		RPS-9375

9 Appendix B Photographs



7-1/4 " Square Column Following Fracture



9-3/8 " Recessed Square Column Following Fracture



Base of 8" Diameter Round Column Following Fracture

10 Revision Page

Revision No.	Date	Changes	Author	Reviewer
0	September 5, 2013	First issue	Vern Jones	Robert Giona Claudio Sacilotto

END OF DOCUMENT