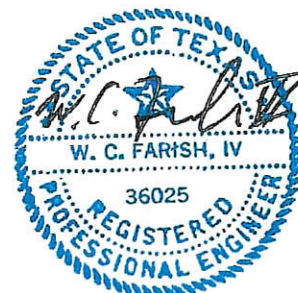


Oct 22, 2019

**RADCO TEST REPORT**  
Project No. 196133.R1

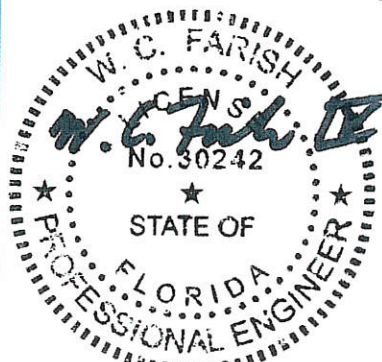
**Abs Styrene Plastic Pads**

**Evaluated for Compliance ASTM D1621-10**



Oct 22, 2019

Detail 4 Eng.  
F-15577



Oct 22, 2019

Prepared for

**TIE DOWN ENGINEERING**  
605 Stonehill Dr. SW  
Atlanta, GA. 30336

by

**TI RADCO LLP**  
DBA RADCO, A Twining Company  
Listing and Testing Division  
3220 E. 59th Street  
Long Beach, CA 90805  
Telephone: 562-272-7231  
[www.radcoinc.com](http://www.radcoinc.com)



Oct 22, 2019

Prepared by:

*Roberto Campos*  
Roberto Campos  
Senior Lab Technician

Submitted by:

*Alex Contreras*  
Alex Contreras, PE.  
Lab Director

Issued: October 18, 2019

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**RADCO TEST REPORT**  
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**Abs Styrene Plastic Pads**

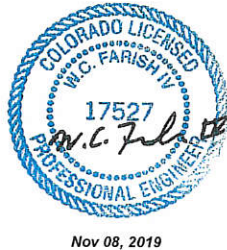
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Prepared by:

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Senior Lab Technician



Submitted by:

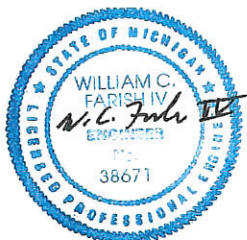
*Alex Contreras*  
Alex Contreras, PE.  
Lab Director



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Nov 08, 2019



Nov 08, 2019



Nov 08, 2019



Nov 08, 2019

Prepared by:

*Roberto Campos*  
Roberto Campos  
Senior Lab Technician

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www.radcoinc.com



Nov 08, 2019

Submitted by:

*Alex Contreras*  
Alex Contreras, PE.  
Lab Director



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## 1.0 INTRODUCTION

At the request of Tie Down Engineering, RADCO conducted the Compressive tests outlined in section 3.0 on samples of Plastic pads (ABS) material to verify compliance of ASTM D1621-10 *Standard Specification for Compressive Properties of Rigid Cellular Plastics Acceptance Criteria*.

## 2.0 MATERIAL

ABS plastic Part No. 59661: Nine (9) Pier Cap Board 7.25" x 14.5" x 1.0"

ABS plastic Part No. 59662: Eight (8) Pier Cap Board 7.25" x 14.5" x 1.5"

ABS plastic Part No. 59663: Twelve (12) Plastic Wedge 3.5" x 6.0" x 1.0"

## 2.1 CONDITIONING

Samples were conditioned for a period of not less than 40 hours at a temperature of  $73.4 \pm 4^{\circ}\text{F}$  ( $23 \pm 2^{\circ}\text{C}$ ) and a relative humidity of  $50 \pm 5\%$  unless otherwise specified in the individual standards.

## 3.0 TEST PROGRAM

### 1. Compressive Properties -

ASTM D1621



Photo No. 1 General Test Setup



#### 4.0 ASTM D1621-10, STANDARD TEST METHOD FOR COMPRESSIVE PROPERTIES OF RIGID CELLULAR PLASTICS

#### 4.1 TEST EQUIPMENT

The tests were conducted using the following equipment:

1. 30 Ton ram and automatic hydraulic pump.
2. 60k load cell and 2 LVDTs.
3. Data Acquisition system.

#### 4.2 TEST METHOD

Five (5) of each specimen described in section 2.0 were tested. Testing was conducted in accordance with ASTM D1621. The rate of crosshead movement during test was 0.2 in./min.

#### 4.3 TEST RESULTS

The following values for compressive resistance at yield or 10% deformation (whichever occurred first) were obtained from the material described in section 2.0 and is shown in the following table. Compression test Results for ABS plastic Part No. 59661

Compression test Results for ABS plastic Part No. 59662

Specimen #	Deform. (in)	Deform. (%)	Load (lbs)
1-1	0.0628	6.3%	56,768
1-2	0.0969	9.7%	54,624
1-3	0.0498	5.0%	55,461
1-4	0.1033	10.3%	51,707
1-5	0.1345	13.5%	50,733
	<i>Minimum</i>	<b>5.0%</b>	<b>50,733</b>
	<i>Maximum</i>	<b>13.5%</b>	<b>55,461</b>
	<i>Average</i>	<b>9.4%</b>	<b>52,819</b>

The 59661 1" (nominal) cap plate tested far greater than the design load of 8,000 lbs. for 1 on a single stack or 2 side by side on a double stack for 16,000 lbs.

Compression test Results for ABS plastic Part No. 59662

Specimen #	Deform. (in)	Deform. (%)	Load (lbs)
2-1	0.1454	9.7%	48,605
2-2	0.0117	0.8%	48,387
2-3	0.1031	6.9%	56,728
2-4	0.0986	6.6%	56,320
2-5	0.1211	8.1%	55,789
	<i>Minimum</i>	<b>0.8%</b>	<b>48,387</b>
	<i>Maximum</i>	<b>8.1%</b>	<b>56,728</b>
	<i>Average</i>	<b>6.1%</b>	<b>54,790</b>

The 59662 1" (nominal) cap plate tested far greater than the design load of 8,000 lbs. for 1 on a single stack or 2 side by side on a double stack for 16,000 lbs.

Compression test Results ABS plastic Part No. 59663

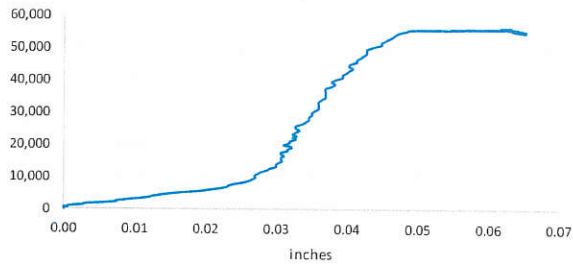
Specimen #	Deform. (in)	Deform. (%)	Load (lbs)
3-1	0.0353	3.5%	43,020
3-2	0.0925	9.3%	37,473
3-3	0.1182	11.8%	39,154
3-4	0.0852	8.5%	40,078
3-5	0.0613	6.1%	40,334
	<i>Minimum</i>	<b>3.5%</b>	<b>37,473</b>
	<i>Maximum</i>	<b>11.8%</b>	<b>40,334</b>
	<i>Average</i>	<b>8.4%</b>	<b>39,475</b>

The 59663 3.5" x 6" x 1" Shim / Wedge tested far greater than the design load of 8,000 lbs. per pair for single stack or 16,000 lbs. for 2 pair on a double stack.

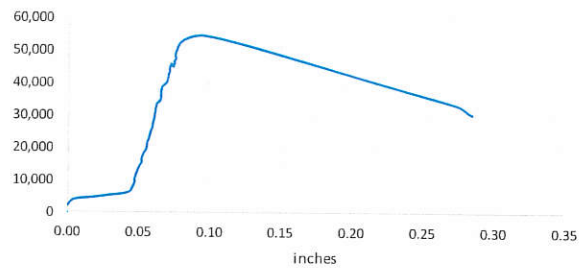
## 5.0 TEST GRAPHS

### Load (lb.) versus Deformation (in) Graphs for ABS plastic Part No. 59661

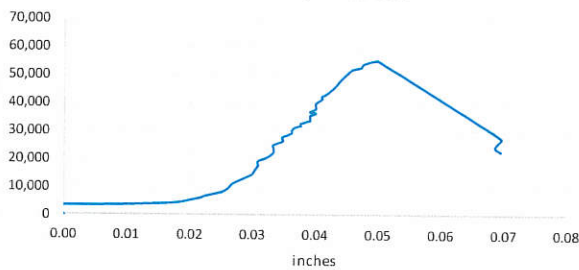
1" Pier Cap Board, Sample 1  
Load vs. Displacement



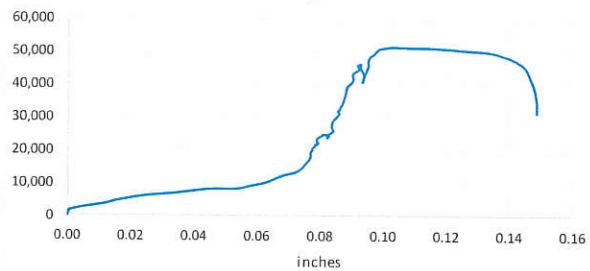
1" Pier Cap Board, Sample 2  
Load vs. Displacement



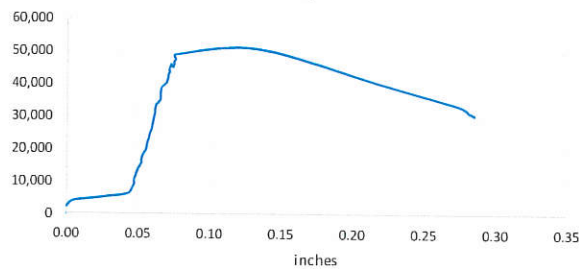
1" Pier Cap Board, Sample 3  
Load vs. Displacement



1" Pier Cap Board, Sample 4  
Load vs. Displacement

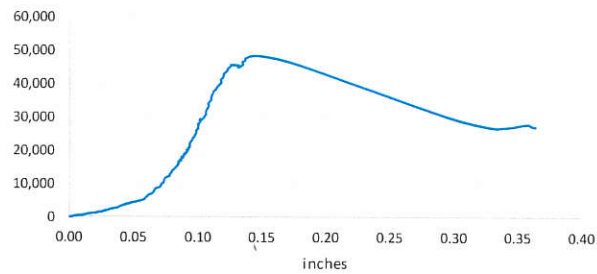


1" Pier Cap Board, Sample 5  
Load vs. Displacement

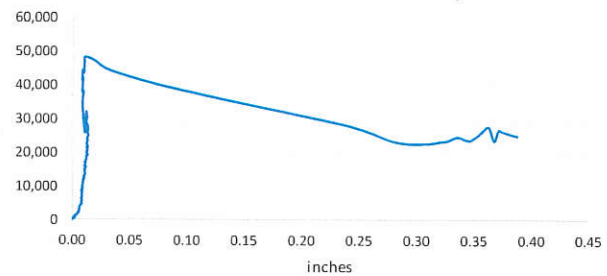


## Load (lb.) versus Deformation (in) Graphs for ABS plastic Part No. 59662

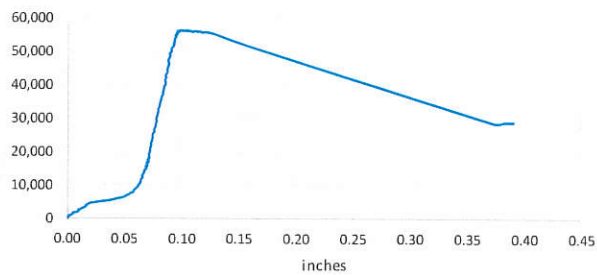
2" Pier Cap Board, Sample 1  
Load vs. Displacement



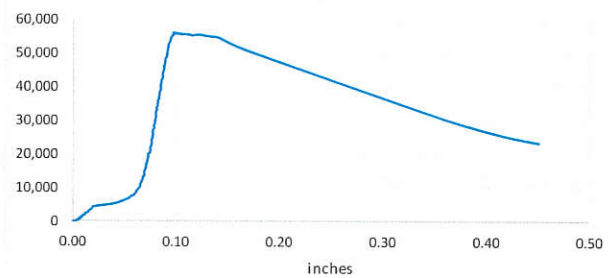
2" Pier Cap Board, Sample 2  
Load vs. Displacement



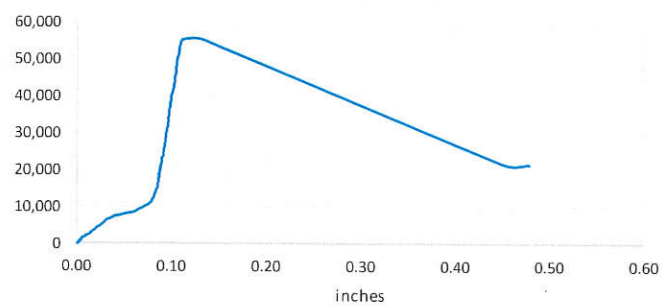
2" Pier Cap Board, Sample 3  
Load vs. Displacement



2" Pier Cap Board, Sample 4  
Load vs. Displacement

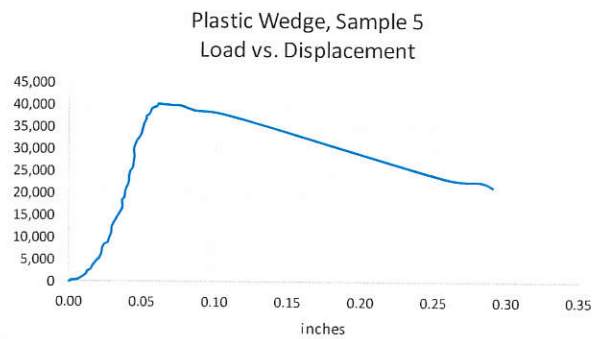
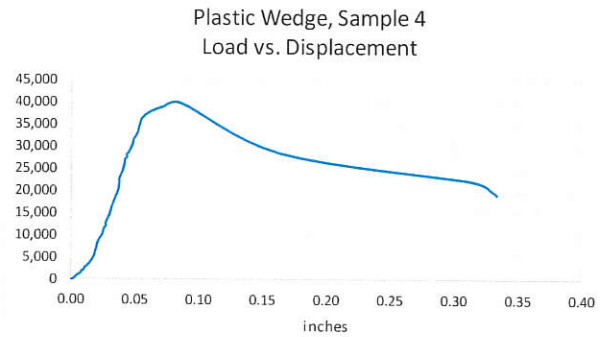
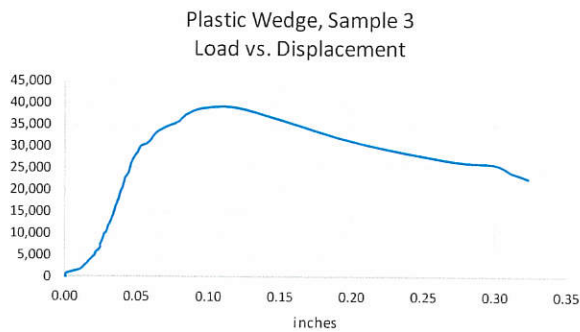
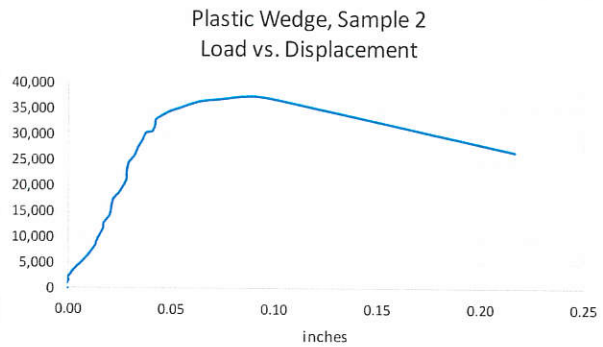
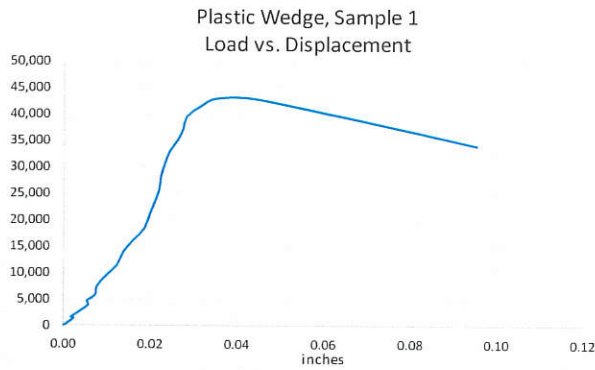


2" Pier Cap Board, Sample 5  
Load vs. Displacement





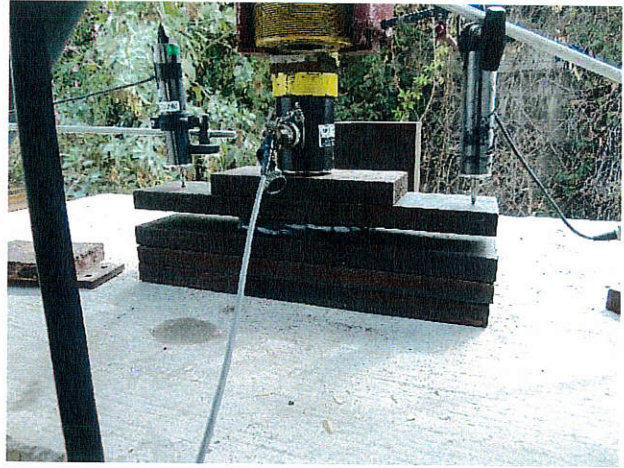
## Load (lb.) versus Deformation (in) Graphs for ABS plastic Part No. 59663



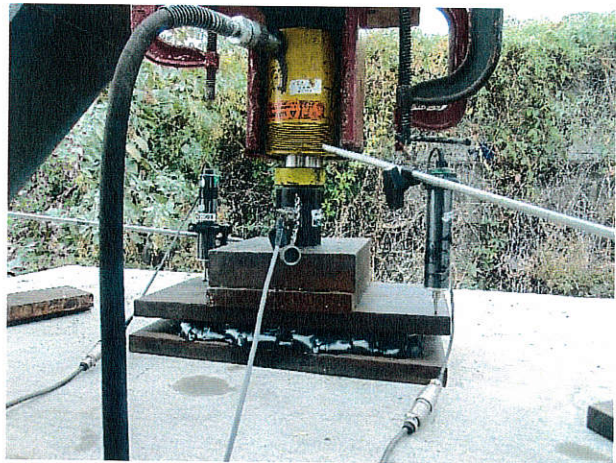


## 6.0 TEST PICTURES

Part No. 59661



Part No. 59662



Part No. 59663



\*\*\*\*\*END OF REPORT\*\*\*