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Attn: Mr. Steve Haala

Report Number: ESP010867P.5
Date: August 21, 2012
Page: 1 of 6

Tension Testing of Lifting Insert/Anchor

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Engineer under the laws of the State of Minnesota.

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Registration No. 43491

Prepared By:

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INTRODUCTION:

This report presents the results of testing performed by Element Materials Technology; on Haala Industries precast concrete insert/anchor. The scope of our work was limited to the following:

1. Conduct pull out testing of the insert/anchor.
2. Prepare a report in regards to the results.

Our work was authorized by Mr. Steve Haala of Haala, Industries on July 24, 2012, and approved verbally.

CONCLUSION:

The precast concrete insert/anchor was tested on August 16, 2012. One sample was loaded to failure in accordance with the Test Procedures found below. The failure mode for sample consisted of concrete split. **The ultimate load of the sample was 31,209 pounds.**

TEST SAMPLE:

The insert/anchor samples were submitted by the client to Element Materials Technology, St. Paul, Minnesota, where they were received on August 16, 2012. A single concrete block with one embedded lifting insert/anchor was submitted. Haala Industries Insert/Anchors are used with precast concrete. The top of the insert/anchor was installed approximately 3" above the surface of the concrete. Sample drawing as received is shown below.

TEST PROCEDURES:

The tests were conducted as tension tests in accordance with the test provisions listed in ASTM E 488 - 96 "standard Test Method for Strength of Anchors in Concrete and Masonry Element". The International Accreditation Service, Inc. (IAS) issued a Certificate of Accreditation TL-217, January 12, 2012, listing Element Materials Technology as an accredited laboratory for a scope of services that includes testing to ASTM E 488.

CONCRETE:

The concrete structural member was designed and cast by others. No description of the mix design was received for this concrete. No concrete strength was determined at time of testing.


ANCHOR INSTALLATION:

The concrete insert/anchor tested in this project was pre-installed by the client. Element has no information as to the installation of the anchor in general.

EQUIPMENT:

The test load was measured with load cells, CME-SPC-406 calibration due on 05/11/13.

TEST RESULTS:

 Element Materials Technology - St. Paul Project No. ESP010867P		Sample Information Cast In Place Anchors			Tests Performed 90-Degree Tension																																																																																																		
Setup and Installation				Test Equipment		Calibration Due Date																																																																																																	
Technicians		S. Palodichuk, N. Holderbaum		System Number		CME-SPC-910																																																																																																	
Concrete Cast By		Contractor		Load Cell		CME-SPC-406																																																																																																	
Anchors Installed By		Contractor		Caliper		CME-SPC-300																																																																																																	
Test #2 Information																																																																																																							
Anchor System		CP118 2 (GREY)																																																																																																					
Anchor Material		Steel																																																																																																					
Anchor Location		Back of Block - Trowel Finish																																																																																																					
Anchor Size Before(in.)		3/4" Diameter																																																																																																					
Anchor Size After(in.)		3/4" Diameter																																																																																																					
Block Number		24H																																																																																																					
Cast Date		8/13/2012																																																																																																					
Install Depth (in.)		Unknown																																																																																																					
Confined Test		No																																																																																																					
<table border="1"> <thead> <tr> <th>Test Number</th> <th>2</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>Test Data</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Test Date</td> <td>08/16/12</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Test Time</td> <td>1:30 PM</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Install Date</td> <td>08/13/12</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Ultimate Load (lbf)</td> <td>31209</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Failure Mode</td> <td>CS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Test Duration (sec)</td> <td>92</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Test Fixture Type</td> <td>Clevis</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Test Fixture Diameter</td> <td>1.060</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Test Number	2							Test Data								Test Date	08/16/12							Test Time	1:30 PM							Install Date	08/13/12							Ultimate Load (lbf)	31209							Failure Mode	CS							Test Duration (sec)	92							Test Fixture Type	Clevis							Test Fixture Diameter	1.060																												
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Failure Mode Index		CC - Concrete Cone		SB - Steel, Body		BB - Borehole Bond																																																																																																	
PO - Anchor Pull Out		CE - Concrete Edge		ST - Steel, Threads		BE - Bond Element																																																																																																	
PT - Anchor Pull Through		CP - Concrete Pryout		SN - Steel, Neck		BA - Bond Anchor																																																																																																	
		CS - Concrete Split		TN - Mating Element		TI - Internal Thread																																																																																																	

REMARKS:

The remains of the concrete sample and insert/anchor test specimens are subject to disposal thirty days from the date of this report.

PHOTOGRAPHS:

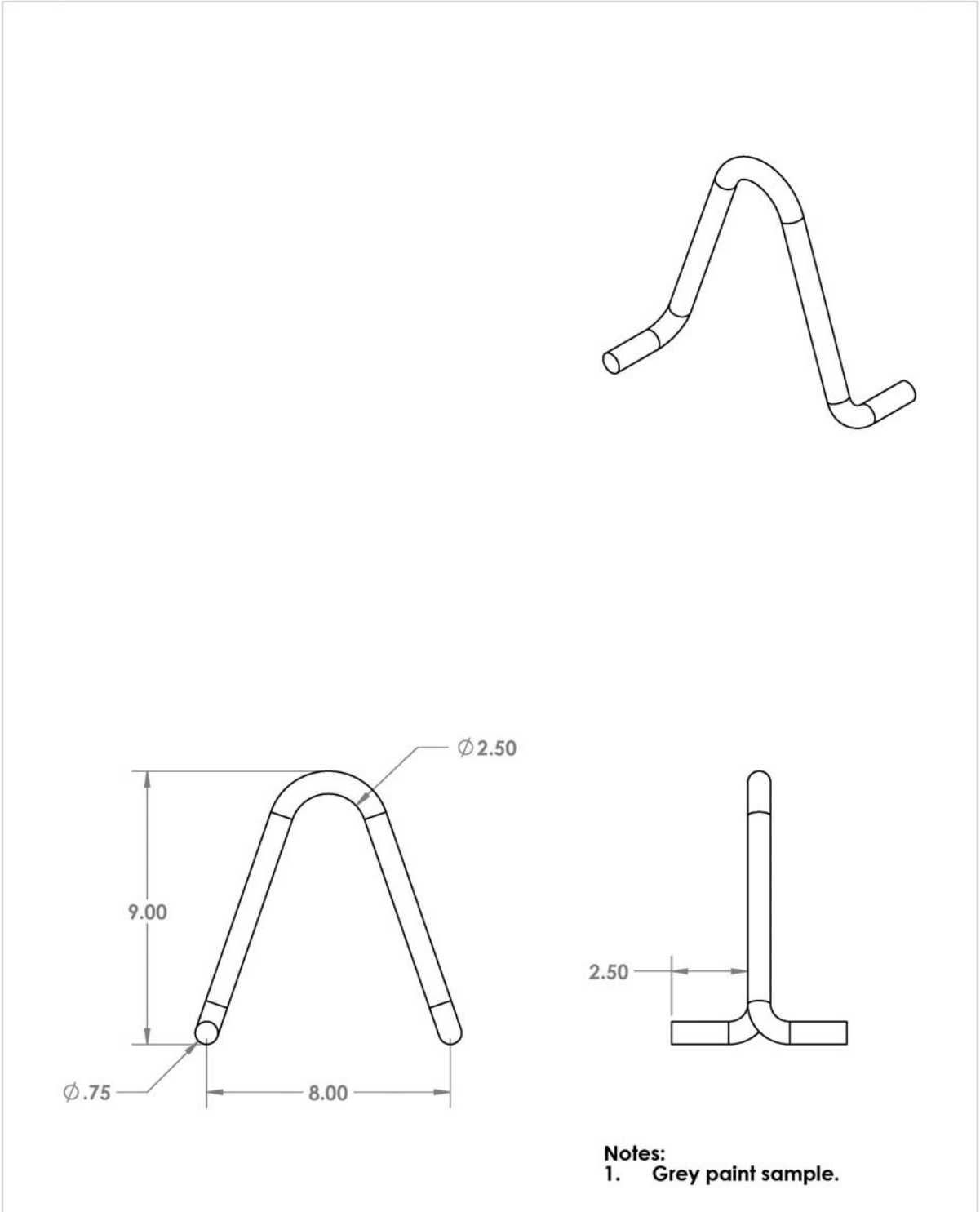


Figure 1 – 90-degree Tension Test Set-up



Figure 2 – Tension Failure Mode

PRODUCT DRAWING:



- Notes:**
1. Grey paint sample.



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MATERIAL: ASTM A36 Steel	Part # CP118	*DIMENSIONS ARE IN INCHES	
WEIGHT: 3.01	Desc. 3/4"x9" lift bar	DRAWN BY: Caleb S.	8/10/2012
FINISH: xxx	REVISED: caleb	8/10/2012	REV: 1+
		Title: CP118 2	
		*DO NOT SCALE DRAWING SHEET 1 OF 1	