PRODUCT TESTING, INC.

Street Address
111 Spring Street, Unit D
Jacksonville, Florida 32254

(904) 384-8150
FAX (904) 384-8154

Mailing Address
P.O. Box 37634
Jacksonville, Florida 32236

Minute Man Anchors, Inc.
305 West King Street
East Flat Rock, NC 28726
Attn: Mr. Albert Moreno, President

April 7, 2003
Job No. 03-4260

RE: Field Pull Testing of Three (3) Concrete Anchor Model Nos. 210PDH, 210JDH and THDHLS for Certification w/States of Florida, Alabama, Missouri and Texas

Dear Mr. Moreno:

Product Testing, Inc. was authorized by Mr. Albert Moreno, President of Minute Man Anchors, Inc., to conduct field pull testing on three (3) different concrete anchors, Model Nos. 210PDH, 210JDH, and THDHLS material certification for the States of Florida, Alabama, Missouri and Texas.

During the period of March 10 through 17, 2003, Product Testing, Inc. dug and formed a concrete foundation footer and floor slab section. Then a wet concrete mix of three thousand (3,000) psi concrete strength was poured, with the footer section being ten inches (10") thick and the floor slab section being four inches (4") thick. All three (3) of the concrete anchor models were installed according to the manufacturer's installation instructions and pull tests were conducted in sets of three (3) each, with a four inch (4") center line from the edge of the concrete.

On March 19, 2003, the field pull tests were conducted at an inward pull direction of forty-five degrees (45^0) +/- 2^0, with testing being witnessed by three (3) different state representatives. The following is a list of the people that were onsite and witnessed the field pull testing conducted: Mr. Phil Bergelt, representative for the State of Florida, Mr. Chuck Gilliland, II, representative for the State of Alabama, Mr. Gene Winn and Mr. Ron Plus, both representatives for the State of Missouri, Mr. Frank Cockman, representative for Minute Man Anchors, Mr. Mike Dalton, representative for Style Crest Products (upon invitation by Minute Man Anchors) and Mr. Bob Caudel, P.E. for Product Testing, Inc. Then on March 20, 2003, additional upward pull tests were conducted and witnessed by Mr. Chuck Gilliland, II, on Model Nos. 210PDH and 210JDH.

The field pull testing was conducted by Bob Prophet, Scott Prophet and Joe Guy, Sr., all personnel of Product Testing, Inc. Upon completion of all testing, the Model Nos. 210PDH, 210JDH, and THDHLS were all found to meet the minimum specification requirement of 4,725 pounds for the inward horizontal pull direction, and Model Nos. 210JDH and 210PDH also met the minimum requirement of 4,725 lbs for the upward vertical pull, which is in accordance with the following regulations:

* Rules of the State of Florida, Department of Highway Safety and Motor Vehicles, Chapter 15C-1, Section 1.0108 "Anchor and Anchor Component Test Specifications

* Rules of the State of Alabama Manufactured Housing Commission, Code of Alabama, Chapter 535-X-13.09 "Standards for the Manufacture of Anchor and Tiedown Devices

* Rules of the State of Missouri Public Service Commission, Department of Economic Development, Chapter 124 - Manufactured Home Tiedown Systems which adopted the standards for the Federal Manufactured Home Construction and Safety Standards (24 CFR, Part 3280).

* Administrative Rules of the Texas Department of Housing & Community Affairs, Division of Manufacturing Housing, Rule 80.62(c)(13) which adopted the standards for: Federal Manufactured Home Construction and Safety Standards (24 CFR, Part 3280) and the 2000 International Residential Code, Appendix E

Attached to this cover letter, are actual measurements of the concrete anchors, installation instructions, load vs deflection, material information, procedure, equipment calibration information, drawings and photographs. Product Testing, Inc. is appreciative of the opportunity to provide this service to your Company. If you should have any questions concerning this report, please don't hesitate to contact me at (904) 384-8150.

Respectfully submitted,
PRODUCT TESTING, INC.

R.K. Prophet,
VP & General Mgr

C.R. Caudel, P.E. #45170
Sr. Registered Engineer

PRODUCT TESTING, INC.

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Minute Man Anchors, Inc.
305 West King Street
East Flat Rock, NC 28726
Attn: Mr. David S. Moreno, Vice President

May 25, 2010

RE: Response to Installation Instructions of THDHLS Expansion Bolt From State of Florida Bureau Mobile Home & Recreational Vehicle Construction, Division Motor Vehicles

Dear Mr. Moreno:

This letter is in response to a letter you received from Mr. Wayne Jordan, Program Mgr for the Bureau of Mobile Home and Recreational Vehicle Construction Division of Motor Vehicles that was dated March 4, 2010 in regards to your THDHLS Expansion Bolt Installation Instructions.

After reading the letter and researching our test results of the Minute Man Anchors, Inc. THDHLS Expansion Bolt, specifically Job No. 03-4260 dated April 7, 2003 determined that the test results which were witnessed by Mr. Phil Bergelt, representative for the State of Florida was not tested with any reinforcement steel. Fiber mesh was used in the 3,000 psi concrete mix design for the four inch (4") thick concrete floor slab.

At the time of testing, it was an oversight that we missed the fact that rebar was shown in the installation instructions concrete drawing. Per the site information on Page 6 of the test report, it states that the Model THDHLS expansion bolt was tested using three (3) pounds of Fibermesh Inforce 6891 per yard in the concrete slab.

In summary, no re-certification is needed for this Model THDHLS expansion bolt because it was tested without rebar and you just need to submit to the State of Florida the correct installation instructions for this test report.

If there is any additional information needed, please do not hesitate to contact us at (904) 384-8150.

Respectfully submitted,
PRODUCT TESTING, INC.

R.K. Prophet,
VP & General Mgr.

C.R. Caudel, Licensed P.E. #45170
Sr. Registered Engineer

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C.R. Caudel, P.E. #45170
Sr. Registered Engineer

SECTION A

Summary of Testing

Two (2) sets of three (3) wet concrete anchors, Model Nos. 210JDH - Swivel Concrete Anchor and 210PDH Patio Concrete Anchor were tested in the forty-five degree (45^0) (+/- 2^0), inward horizontal pull from the concrete edge and also in the ninety degree (90^0) (+/- 2^0) vertical direction, for their load capacities. These two (2) anchor models were placed into a wet concrete footer section that was ten inches (10") thick, at the edge and six inches (6") wide at the bottom with a forty-five degree (45^0) angle tapered upward to reach the six inch (6") width. The concrete mix was approximately 3,000 pounds per square inch.

One (1) set of three (3) concrete anchors, Model No. THDHLS - Concrete Anchor with the use of one (1) 3.5"x5/8" diameter Kofix sleeve anchor was tested in the forty-five degree (45^0) (+/- 2^0), inward horizontal from the concrete edge for their load capacities. This anchor bolt hole was drilled to a depth of 3.5" using a 21/32" diameter drill bit. The anchor bolt, sleeve, washer and nut were placed in the hole and snugged up. Then the washer and nut were removed and the anchor head set. The washer and nut were set and the nut was tightened using a socket and ratchet. This concrete anchor was placed into a hardened concrete floor slab section that was four inches (4") thick., with the mix being approximately 3,000 psi concrete strength.

The three (3) anchor Model Nos. 210JDH, 210PDH, and THDHLS that were manufactured by Minute Man Anchors, Inc., were found to meet the inward minimum specification requirements of 4,725 pounds, without displacement exceeding two inches (2"). Also, the Model Nos. 210JDH and 210PDH were found to meet the upward minimum specification requirement of 4,725 pounds.
The minimum specification requirement is accordance with the following regulations:

* Rules of the State of Florida, Department of Highway Safety and Motor Vehicles, Chapter 15C-1, Section 1.0108 "Anchor and Anchor Component Test Specifications
* Rules of the Alabama Manufactured Housing Commission, Code of Alabama, Chapter 535-X-13.09 "Standards for the Manufacture of Anchor and Tiedown Devices"
* Rules of the State of Missouri Public Service Commission, Department of Economic Development, Chapter 124 - Manufactured Home Tiedown Systems which adopted the standards for the Federal Manufactured Home Construction and Safety Standards (24 CFR, Part 3280).
* Administrative Rules of the Texas Department of Housing & Community Affairs, Division of Manufacturing Housing, Rule 80.62(c)(13) which adopted the standards for: Federal Manufactured Home Construction and Safety Standards (24 CFR, Part 3280) and the 2000 International Residential Code, Appendix E

The field pull testing was witnessed by state representatives from Florida, Alabama, and Missouri. The testing was conducted by Bob Prophet, Scott Prophet, Joe Guy, Sr. and Bob Caudel, P.E., all personnel of Product Testing, Inc., Jacksonville, Florida.

SECTION B

Site Information - Field Pull Testing

The field pull testing was conducted at Product Testing, Inc., located at 111 Spring Street, Jacksonville, Fla. A section of the ground was selected and formed that was approximately seven feet (7') wide by twenty-eight feet (28') in length. The soil was removed from the center of the formed area and then divided into two (2) different sections. One (1) section was to be made into a seven foot (7') by twelve foot (12') foundation footer slab and the other section was made seven foot (7') by sixteen foot (16') as a floor slab section. Prior to testing, a small section remained from some original R&D testing that was conducted previously.

The foundation footer slab section was ten inches (10") thick on the edge and a minimum of six inches (6") across at the bottom. The soil was then tapered at a forty-five degree (45^0) upward angle to four inches (4") thick from the surface. This area was for the placement of the wet concrete anchor Model Nos. 210JDH and210PDH, along with two (2) No. 4 rebar that were thirty-six inches (36") in length. The remainder of the sixteen foot (16') length concrete slab was only four inches (4") thick using and consisted of three (3) pounds of Fibermesh Inforce 6891 per yard, in the concrete mix. This section was for testing of the anchor Model No. THDHLS, concrete anchor with 3.5" long Kofix 5/8" diameter sleeve anchor bolt.

Due to the dead weight of the concrete being below the 5,000 and 6,000 pounds upward load force, the anchors were installed with the head and part of the anchor shaft exposed, to help the concrete from being lifted upward during the loading. Soil ground anchors were placed in Soil Classification 3 and 4. No anchors were placed directly under the anchors tested.

SECTION C

Concrete Information, Concrete Strength & Tensile Properties of Rebar

Concrete Information

The concrete was a uniform mix using a super plasticizer with a water reducing agent to make a concrete strength of approximately three thousand (3,000) psi, on the day of testing. At the time of the concrete pour, six (6) test cylinders of the concrete mix were obtained and compressive tests were conducted for the actual strength of the concrete. The concrete cylinders were tested in accordance with ASTM C39/C 39M - 01 Standard Test Method for Compressive Strength fo Cylindrical Concrete Specimens

Concrete Strength (in psi)

Test Cylinder No.	Breaking Load (lbs)	4x8 Cylinder Area (sq in)	Compressive Strength (psi)
1	35,000	12.57	2,780
2	33,750	12.57	2,680
3	38,000	12.57	3,020 *
4	39,000	12.57	3,100 *
5	40,750	12.57	3,240 *
6	41,250	12.57	3,280 *
* **Note:** Testing started at 3,020 psi and completion was at 3,280 psi			

Tensile Tests of Rebar

Tensile tests were conducted, on the No. 4 rebar that was placed in the concrete, in accordance with ASTM A615/A 615M - 96a Standard Specification for Deformed & Plain Billet Steel Bars for Concrete Reinforcement

Bar Type	Cross Section Area (sq in)	Yield Strength (psi)	Tensile Strength (psi)	Percent Elongation (at 8")	Type of Break Occurred
4	0.20	66,500	105,750	9.4%	Angular
4	0.20	67,130	106,000	8.9%	Angular

SECTION D

Anchor Material & Hardness Information

Description	Model No.	Part Description & Maring	Type of Steel
Wet concrete anchor	210JDH	Head / Stamped MMA42	A36 modified
Wet concrete anchor	210JDH	Rod - 5/8" diameter	A36 modified
Wet concrete anchor	210JDH	Rubber clip	N/A
Wet concrete anchor	210JDH	Plate	A36
Wet concrete anchor	210JDH	Washer	A36
Wet concrete anchor	210PDH	Head / Stamped MMA14	A36 modified
Wet concrete anchor	210PDH	Rod - 5/8" diameter	A36 modified
Hardened concrete anchor	THDHLS	Head / Stamped MMA18	A36 modified
Hardened concrete anchor	Anchor bolt	Bolt	Grade 55
Hardened concrete anchor	Anchor bolt	Nut	A194
Hardened concrete anchor	Anchor bolt	Washer	A36
Hardened concrete anchor	Anchor bolt	Shield	A36

Hardness Test - Rockwell 'B' Scale

Material Description	Model No.	Hardness Value
210JDH Anchor Head	MMA42	78.8 HRB
210PDH Anchor Head	MMA14	82.5 HRB
THDHLS Anchor Head	MMA18	87.5 HRB
210 JDH Rod	5/8" diameter	78.8 HRB
210PDH Rod	5/8" diameter	82.8 HRB
Bolt ½" diameter	Kofix	89.5 HRB
Steel Plate	210JDH	88.8 HRB
Nut	Kofix	96.3 HRB
Washer	Kofix	65.0 HRB
Shield	Kofix	58.0 HRB
Type "D" Durometer Hardness		
Rubber Washer	210JDH	16.5 D

SECTION E

Actual Measurements on Anchors & Components

Anchor Description	Model No.	Head Marking	Head Length (inches)	Head Width (o.d. inches)	Head Thickness (inches)
Wet Concrete Anchor	210JDH	MMA42	2.78	2.21	0.187
Wet Concrete Anchor	210PDH	MMA14	2.76	2.20	0.189
Hardened Concrete Anchor	THDHLS	MMA18	2.77	2.23	0.197

Model No. & Washer/Rod Connection	Rod Diameter (inches)	Rod Depth Under Head (inches)	Rod Bend at Hook (degrees)	Washer Diameter (o.d. inches)	Plate Length (inches)	Plate Width (inches)
210JDH (Welded thru washer hold and around bottom)	0.6265	9.06	177.5	1.27	3.04	1.37
	Plate Hole Diameter (inches)	**Plate Thickness (inches)**	**Rubber Clip Diameter (o.d. inches)**	**Rubber Clip Thickness (inches)**	**Type of Coating**	
	0.82	0.112	1.05	0.203	Black painted	

Model No. & Head/Rod Connection	Rod Diameter (inches)	Rod Depth Under Head (inches)	Rod Bend at Hook (degrees)	Length of Hook Bend (inches)	Type of Coating
210PDH (Welded 360^0 under head)	0.625	8.71	86.5	2.59	Red painted

Model No.	Bolt Hole Diameter (inches)	Type of Coating
THDHLS	0.660	Black painted

Description	Bolt Shank Diameter (inches)	Bolt Length (inches)	Thread Length (inches)	Thread Diameter (inches)	Nut Height (inches)	Nut Diameter at Flats (inches)
Kofix 5/8" Diameter Concrete Anchor	0.449	3.495	1.87	0.493	0.427	0.743
	Washer Diameter (o.d. inches)	**Washer Hole Diameter (inches)**	**Washer Thickness (inches)**	**Shield Diameter (inches)**	**Shield Thickness (inches)**	**Shield Length (inches)**
	1.264	0.511	0.082	0.619	0.047	2.584

SECTION F

Installation Information of Anchors Tested

Anchor Model No.	Installation Method	Date Installed	Date Pulled
210JDH	Placed in wet concrete	03-17-03	03-19-03 & 03-20-03
210PDH	Placed in wet concrete	03-17-03	03-19-03 & 03-20-03
THDHLS	Drilled hold into hardened concrete slab	03-19-03	03-19-03

Listing of Test Equipment Used

Item	Description of Equipment	Date of Calibration
A	Trailer mounted hydraulic system to applied force	N/A
B	10,000 lb Dillon Dynamometer S/N APD890701	01-27-03 / Checked 3-19-03 & 3-20-03
C	Pro-Smart Level (+/- 0.1 degree)	3-17-03
D	Johnson Magnetic Angle Locator (0.5 degrees)	Checked 3-17-03
E	Newport Digital Readout (to 0.001")	3-14-03
F	Uni-Measure Measurement Gauge (0.001" to 10.000")	01-23-03
G	Starrett Ball Micrometer (0.001" to 0.750")	01-23-03
H	Fowler Micrometer (0.0001" to 1.000")	01-23-03
I	Mitutoyo Caliper (0.0005" to 6.0005")	01-23-03
J	Tempered Ridge Ruler (0.00" to 24.00")	01-23-03
K	Model 307L Type D Durometer Hardness Tester, S/N 12082	01-23-03 Checked 4-8-03
L	Tinius Olsen Testing Machine, S/N 95800 (200K lbs)	02-17-03
M	Forney Concrete Testing Machine, S/N 87064 (400K lbs)	02-17-03
N	Wilson Rockwell Hardness Tester, S/N 4MM695	02-04-03

SECTION F - Continued

Copy of Current Calibration for Dillon Dynamometer

Product Testing, Inc.
P.O. Box 37634
Jacksonville, FL 32236-7634

Calibration of 10,000 lb Dillon Dynamometer
S/N APD890701

Date Performed:	January 27, 2003
Next Calibration Due:	**January 27, 2004**
Calibration Equipment:	Tinius Olsen Testing Machine, S/N 95800 Calibrated February 17, 2003
Capacity & Division:	10,000 lb Capacity; 50 lb Division
Calibration Standard:	Load Cell with Traceability to N.I.S.T.

Dillon 10,000 lb Dynamometer S/N APD890701 (Readings in lbs)	Readings As Found Tinius Olsen Testing Machine S/N 95800 (Readings in lbs)	Readings As Adjusted Tinius Olsen Testing Machine S/N 95800 (Readings in lbs)
0	0	0
2,000	1,950	1,990
4,000	3,950	3,995
6,000	5,950	6,000
8,000	7,900	8,025
10,000	9,900	10,050

The 10,000 lb Dillon Dynamometer, S/N APD890701 was calibrated and found to be -1.0% of full range. The unit was adjusted and re-calibrated and then found to be +/- 0.5%, of full range. The calibration was performed in accordance with ANSI/NCSL Z540-1, at a room temperature of 76^0 Fahrenheit, with a relative humidity of 58%, by Scott Prophet. If you should have any questions concerning this report, please don't hesitate to give us a call at (904) 384-8150.

SECTION G

Lbs Force Exerted on Anchor at 45 Degree Inward Angle Tension Field Pull Test Data

Load Test (Pounds)	Test No. 1 (Movement Inches)	Test No. 2 (Movement Inches)	Test No. 3 (Movement Inches)
0	0.000	0.000	0.000
1,000	0.003	0.001	0.002
1,500	0.008	0.010	0.008
2,000	0.021	0.028	0.017
2,500	0.022	0.048	0.025
3,000	0.028	0.064	0.032
3,500	0.047	0.081	0.037
4,000	0.091	0.093	0.047
4,500	0.125	0.108	0.054
4,725	0.154	0.150	0.058
5,000	0.183	0.162	0.063
5,500	-	-	-
6,000	-	-	-
Avg Load (3 tests) 5,000 lbs.	**5,000 lbs at 0.183"**	**5,000 lbs at 0.162"**	**5,000 lbs at 0.063"**
Concrete Strength (psi)	3,060	3,060	3,060
Fiber Mesh or Rebar	No. 4 Rebar	No. 4 Rebar	No. 4 Rebar
Date Installed	03-17-03	03-17-03	03-17-03
Date Pulled	03-19-03	03-19-03	03-19-03
Head Marking	MMA 42	MMA 42	MMA 42
Anchor Model	210JDH	210JDH	210JDH
Angle Pulled Inward	46.0^0	47.0^0	45.0^0

***Note:** The dead weight of the concrete must equal or exceed the load of 4,725 lbs for each anchor used.

SECTION G - Continued

Lbs Force Exerted on Anchor at 45 Degree Inward Angle Tension Field Pull Test Data

Load Test (Pounds)	Test No. 1 (Movement Inches)	Test No. 2 (Movement Inches)	Test No. 3 (Movement Inches)
0	0.000	0.000	0.000
1,000	0.000	0.001	0.001
1,500	0.000	0.006	0.001
2,000	0.001	0.007	0.001
2,500	0.002	0.009	0.002
3,000	0.003	0.011	0.004
3,500	0.004	0.012	0.007
4,000	0.004	0.014	0.011
4,500	0.006	0.015	0.014
4,725	0.006	0.015	0.017
5,000	0.007	0.015	0.018
5,500	-	-	-
6,000	-	-	-
Avg Load (3 tests) 5,000 lbs.	**5,000 lbs at 0.007"**	**5,000 lbs at 0.015"**	**5,000 lbs at 0.018"**
Concrete Strength (psi)	3,060	3,060	3,060
Fiber Mesh or Rebar	No. 4 Rebar	No. 4 Rebar	No. 4 Rebar
Date Installed	03-17-03	03-17-03	03-17-03
Date Pulled	03-19-03	03-19-03	03-19-03
Head Marking	MMA 14	MMA 14	MMA 14
Anchor Model	210PDH	210PDH	210PDH
Angle Pulled Inward	46.0^0	46.5^0	45.5^0

***Note:** The dead weight of the concrete must equal or exceed the load of 4,725 lbs for each anchor used.

SECTION G - Continued

Lbs Force Exerted on Anchor at 45 Degree Inward Angle Tension Field Pull Test Data

Load Test (Pounds)	Test No. 1 (Movement Inches)	Test No. 2 (Movement Inches)	Test No. 3 (Movement Inches)
0	0.000	0.000	0.000
1,000	0.021	0.012	0.015
1,500	0.071	0.026	0.041
2,000	0.091	0.048	0.197
2,500	0.114	0.066	0.234
3,000	0.137	0.097	0.256
3,500	0.190	0.144	0.293
4,000	0.270	0.219	0.631
4,500	0.327	0.342	0.784
4,725	0.374	0.427	0.861
5,000	0.415	0.591	1.282
5,500	-	-	-
6,000	-	-	-
Avg Load (3 tests) 5,067 lbs.	**5,000 lbs at 0.415" Uplift at 0.37"**	**5,100 lbs at 0.591" Uplift at 0.27"**	**5,100 lbs at 1.282" Uplift at 0.73"**
Concrete Strength (psi)	3,060	3,060	3,060
Fiber Mesh or Rebar	Fiber Mesh	Fiber Mesh	Fiber Mesh
Date Installed	03-19-03	03-19-03	03-19-03
Date Pulled	03-19-03	03-19-03	03-19-03
Head Marking	MMA 18	MMA 18	MMA 18
Anchor Model	THDHLS	THDHLS	THDHLS
Angle Pulled Inward	45.0^0	45.5^0	46.0^0

***Note:** Care must be taken to drill a straight and proper hole size. Also, the dead weight of the concrete must equal or exceed the load of 4,725 lbs for each anchor used.

SECTION G - Continued

Lbs Force Exerted on Anchor at 90 Degree Upward Angle Tension Field Pull Test Data

Load Test (Pounds)	Test No. 1 (Movement Inches)	Test No. 2 (Movement Inches)	Test No. 3 (Movement Inches)
0	0.000	0.000	0.000
1,000	0.031	0.026	0.019
1,500	0.041	0.046	0.043
2,000	0.062	0.068	0.073
2,500	0.081	0.084	0.095
3,000	0.105	0.103	0.120
3,500	0.132	0.123	0.144
4,000	0.158	0.143	0.163
4,500	0.184	0.168	0.181
4,725	0.194	0.183	0.203
5,000	0.210	0.198	0.218
5,500	0.241	0.222	0.247
6,000	0.263	0.267	0.277
Avg Load (3 tests) 6,000 lbs.	**6,000 lbs Uplift at 0.263"**	**6,000 lbs Uplift at 0.267"**	**6,000 lbs Uplift at 0.277"**
Concrete Strength (psi)	3,260 / 3,300	3,260 / 3,300	3,260 / 3,300
Fiber Mesh or Rebar	No. 4 Rebar	No. 4 Rebar	No. 4 Rebar
Date Installed	03-17-03	03-17-03	03-17-03
Date Pulled	03-20-03	03-20-03	03-20-03
Head Marking	MMA 42	MMA 42	MMA 42
Anchor Model	210JDH	210JDH	210JDH
Angle Pulled Upward	90.0^0	89.0^0	89.5^0

***Note:** The dead weight of the concrete must equal or exceed the load of 4,725 lbs for each anchor used.

SECTION G - Continued

Lbs Force Exerted on Anchor at 90 Degree Upward Angle Tension Field Pull Test Data

Load Test (Pounds)	Test No. 1 (Movement Inches)	Test No. 2 (Movement Inches)	Test No. 3 (Movement Inches)
0	0.000	0.000	0.000
1,000	0.033	0.020	0.019
1,500	0.035	0.039	0.037
2,000	0.051	0.085	0.081
2,500	0.061	0.099	0.111
3,000	0.072	0.122	0.127
3,500	0.084	0.133	0.147
4,000	0.098	0.149	0.161
4,500	0.112	0.162	0.181
4,725	0.122	0.168	0.197
5,000	0.133	0.173	0.205
5,500	0.149	0.186	0.237
6,000	0.183	0.204	0.251
Avg Load (3 tests) 6,000 lbs.	**6,000 lbs Uplift at 0.183"**	**6,000 lbs Uplift at 0.204"**	**6,000 lbs Uplift at 0.251"**
Concrete Strength (psi)	3,260 / 3,300	3,260 / 3,300	3,260 / 3,300
Fiber Mesh or Rebar	No. 4 Rebar	No. 4 Rebar	No. 4 Rebar
Date Installed	03-17-03	03-17-03	03-17-03
Date Pulled	03-20-03	03-20-03	03-20-03
Head Marking	MMA 14	MMA 14	MMA 14
Anchor Model	210PDH	210PDH	210PDH
Angle Pulled Upward	90.0^0	90.0^0	90.0^0

***Note:** The dead weight of the concrete must equal or exceed the load of 4,725 lbs for each anchor used.

SECTION H

Manufacturer's Installation Instructions

CONCRETE ANCHOR INSTALLATION INSTRUCTIONS

NOTE:

Your set must be designed by a Registered Professional Engineer if the location is within 1500 feet of the coastline.

The maximum allowable working load on concrete anchor models 210 PDH, THDHLS, and 210 JDH is 3,150 pounds vertical for single or double ties in 3,000 PSI concrete. There must be a minimum 4" of distance from the edge of the concrete to the center of the anchor shaft.

NC
1.
2.
3.
4.

Minute Man Anchors, Inc.
Job No. 03-4260
April 7, 2003
Page No. 18

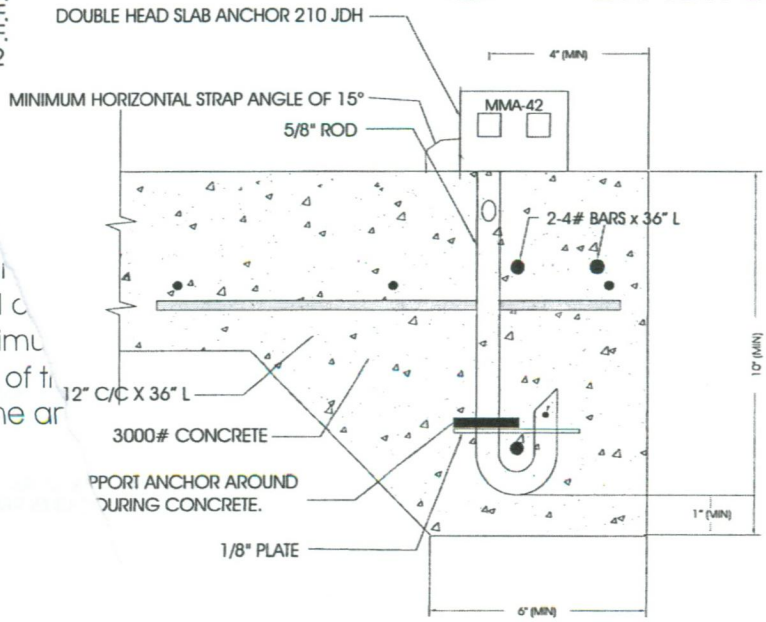
NORTH CAROLINA PROFESSIONAL 4672 ENGINEER RODERICK M. HUDGINS, JR.

MUM ANCHOR EMBEDMENT = 6"
MUM LOAD PER ANCHOR = 4750 lb.
UM SLAB PER ANCHOR:
AB = 95 S.F.
B = 65 S.F.
B = 48 S.F.
MMA 42

NOTE:
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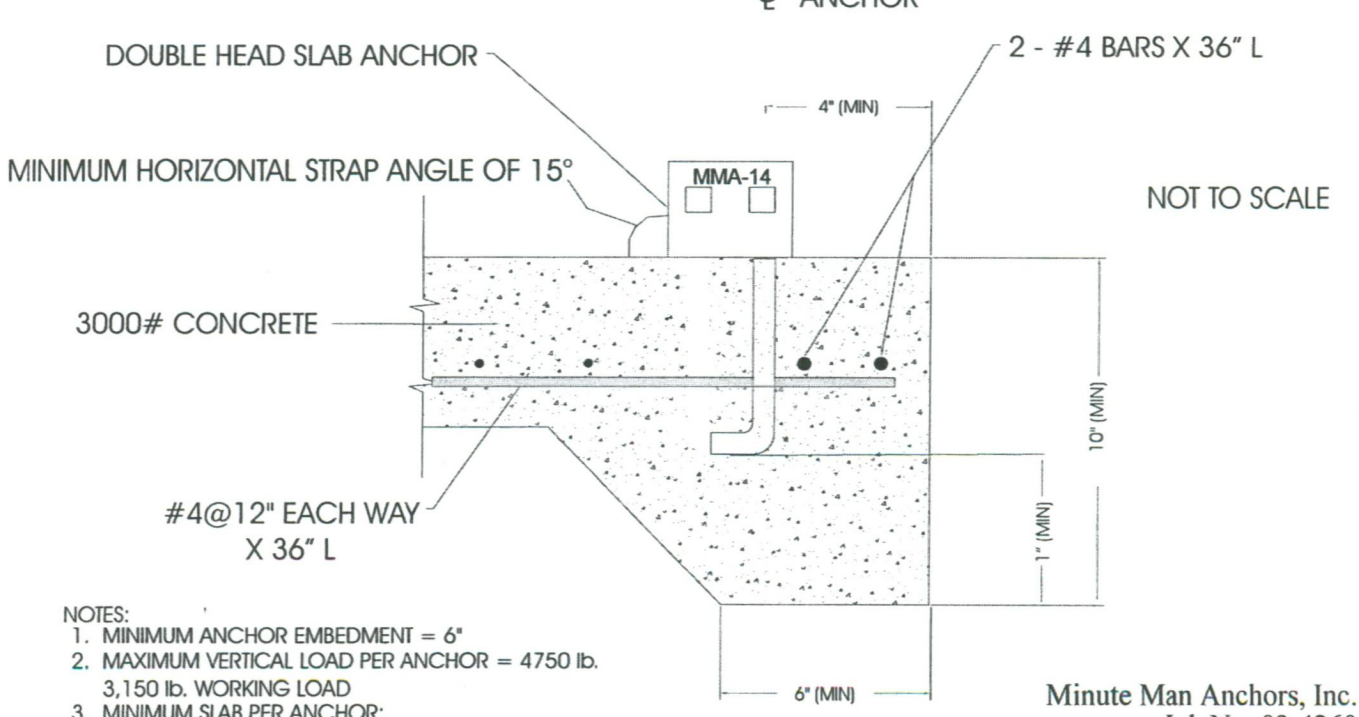
210 JDH CONCRETE ANCHOR



Revised 3-14-07

CONCRETE ANCHOR INSTALLATION INSTRUCTIONS

210 PDH CONCRETE ANCHOR

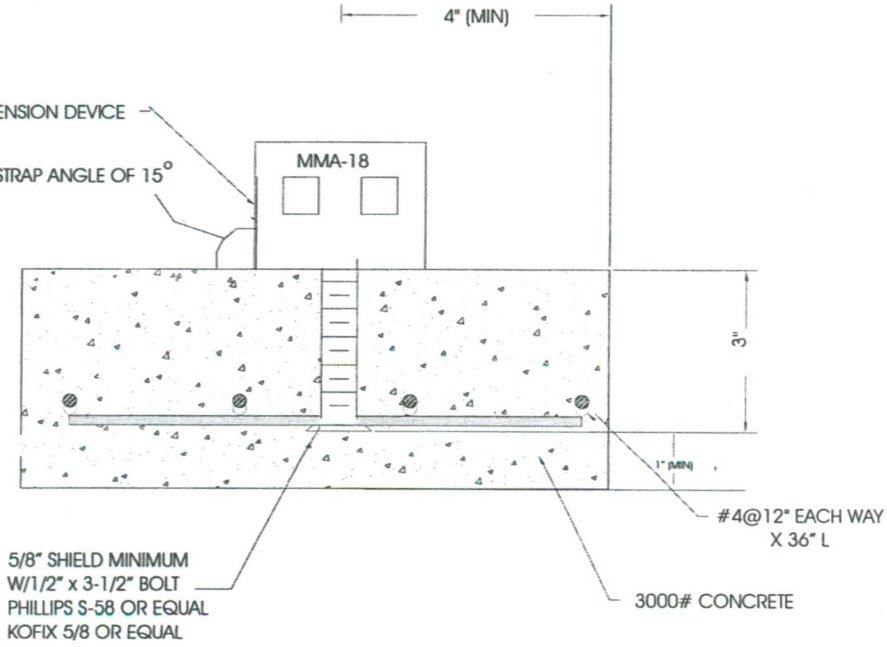


NOTES:
1. MINIMUM ANCHOR EMBEDMENT = 6"
2. MAXIMUM VERTICAL LOAD PER ANCHOR = 4750 lb.
   3,150 lb. WORKING LOAD
3. MINIMUM SLAB PER ANCHOR:
   4" SLAB = 95 S.F.
   6" SLAB = 65 S.F.
   8" SLAB = 48 S.F.
4. MARK: MMA-14

Minute Man Anchors, Inc.
Job No. 03-4260
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THDHLS CONCRETE ANCHOR



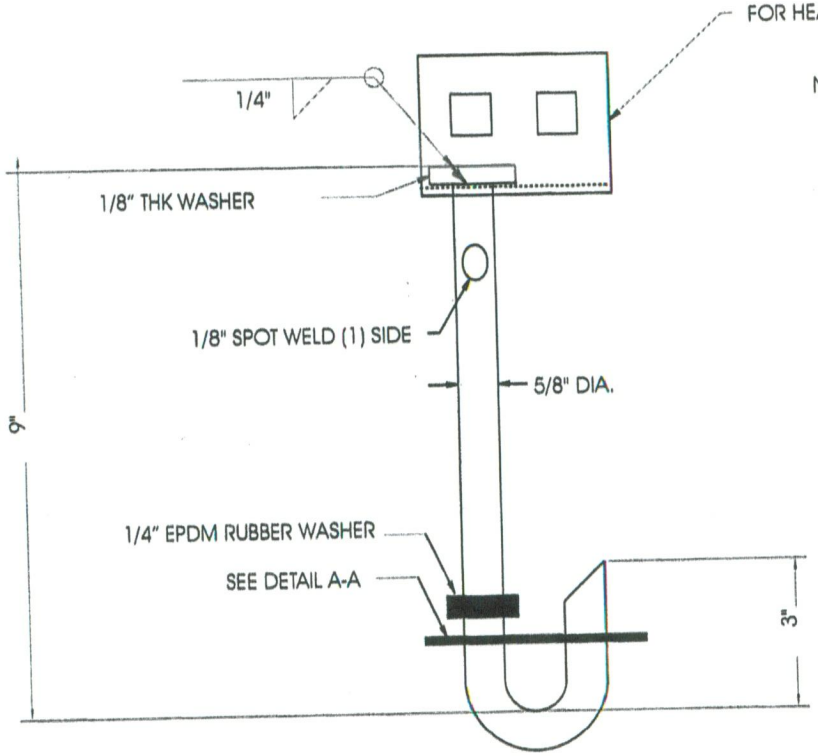
1. MAXIMUM VERTICAL LOAD PER ANCHOR = 4750lb
   3,150 lbs. WORKING LOAD.
2. MINIMUM SLAB AREA PER BOLT
   4" SLAB = 95 S.F.
   6" SLAB = 65 S.F.
   8" SLAB = 48 S.F.
3. MARK: MMA 18

INSTALLATION NOTE

1. DRILL 21/32" DIAM. HOLE MINIMUM OF 4" FROM EDGE OF SLAB AND INSERT 5/8 DIAM. SHIELD PER SHIELD MANUFATURER'S INSTRUCTIONS.
2. PLACE TENSION HEAD ON SLAB AND INSTALL 1/2" X 3-1/2" BOLT. TORQUE BOLT PER SHIELD'S MANUFACTURER'S INSTRUCTIONS.

SECTION I

Manufacturer's Drawings

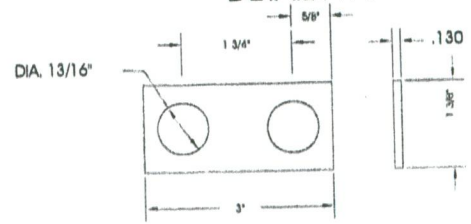


NOTES:

1. ALL STEEL CONFORM TO ASTM A-36 M1020
2. MARK: MMA 42
3. PAINT LOW GLOSS WATER REDUCIBLE BLACK DIP ENAMEL 8897255

NORTH CAROLINA PROFESSIONAL 4672 ENGINEER RODERICK M. HUDGINS, JR.

DETAIL A-A

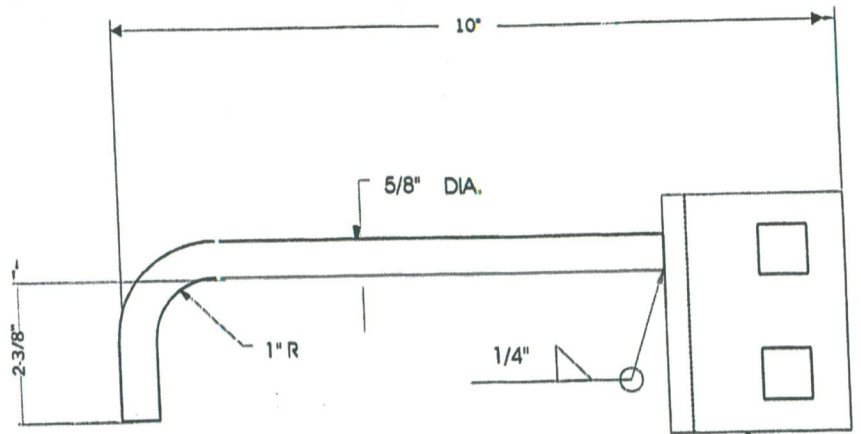


MINUTE MAN ANCHORS, INC.
305 WEST KING STREET
EAST FLAT ROCK, NC 28726
PHONE: (828) 692-0256
FAX: (828) 692-0258

TITLE: DOUBLE HEAD SLAB ANCHOR

DATE : 2/20/94

MODEL: 210 JDH MMA 42



FOR HEAD DETAIL SEE DWG MMA-DH

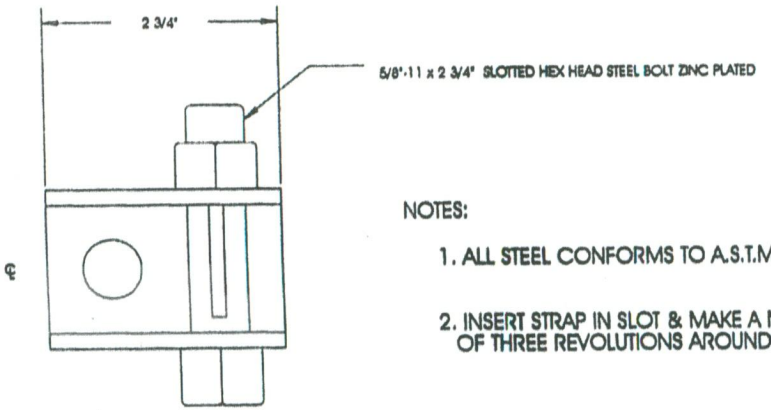
NOTES:

1. ALL STEEL USED IN ANCHOR ASSEMBLY CONFORMS TO A.S.T.M. M1020
2. MARK: MMA-14
3. PAINT LOW GLOSS WATER REDUCIBLE BLACK DIP ENAMEL 8897255

NORTH CAROLINA PROFESSIONAL 4672 4/22/94 ENGINEER RODERICK M. HUDGINS, JR.

MINUTE MAN ANCHORS, INC.
305 WEST KING STREET
EAST FLAT ROCK, NC 28726
PHONE: (828) 692-0256
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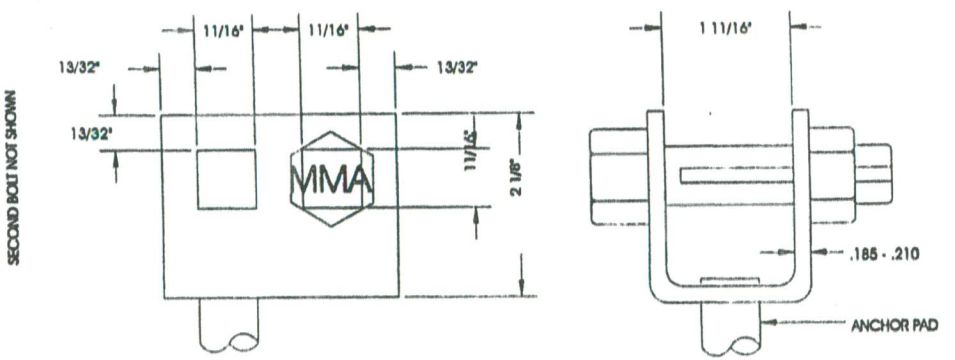
TITLE: DOUBLE HEAD PATIO SLAB ANCHOR		DATE: 2/20/94
MODEL: 210 - PDH	MMA 14	Drawn By: M.G.



NOTES:

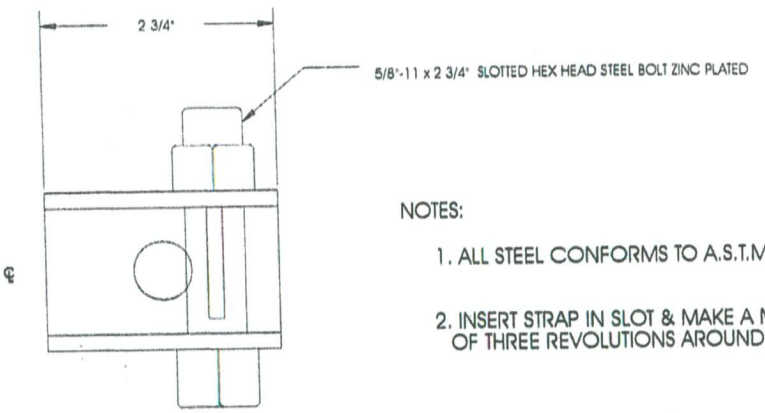
1. ALL STEEL CONFORMS TO A.S.T.M. A-36 M1020

2. INSERT STRAP IN SLOT & MAKE A MINIMUM OF THREE REVOLUTIONS AROUND BOLT.



MINUTE MAN ANCHORS, INC.
305 WEST KING STREET
EAST FLAT ROCK, NC 28726
PHONE: (704) 692-0256
FAX: (704) 692-0258

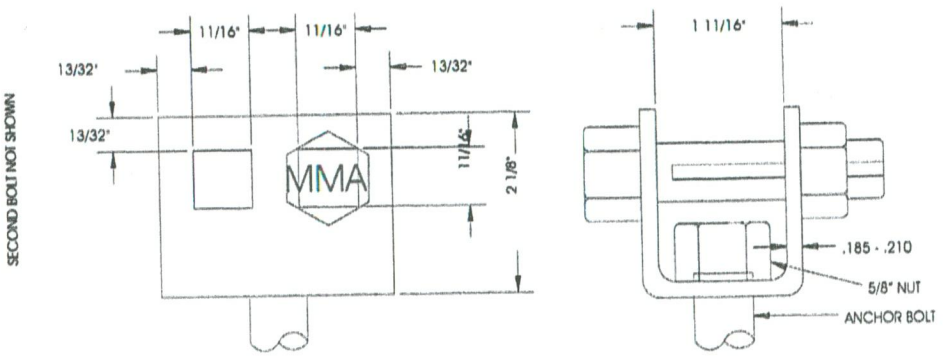
TITLE: DOUBLE HEAD TENSIONING DEVICE	DATE: 12/20/94
MODEL: MMA - DH	Drawn By: M.G.



NOTES:

1. ALL STEEL CONFORMS TO A.S.T.M. A-36 M1020

2. INSERT STRAP IN SLOT & MAKE A MINIMUM OF THREE REVOLUTIONS AROUND BOLT.



MINUTE MAN ANCHORS, INC.
305 WEST KING STREET
EAST FLAT ROCK, NC 28726
PHONE: (704) 692-0256
FAX: (704) 692-0258

TITLE: DOUBLE HEAD TENSIONING DEVICE

DATE: 12/20/94

MODEL: MMA - THDHLS

Drawn By: M.G.

SECTION J

Photographs w/Descriptions

Top: Overall view of formed area for concrete pad pour showing previous R&D testing pad
Bottom: View showing formed 10" thick depth for concrete footer area



Top: Another view showing the 10" thick footer section depth
Bottom: View showing where the soil starts to taper upward at 6"



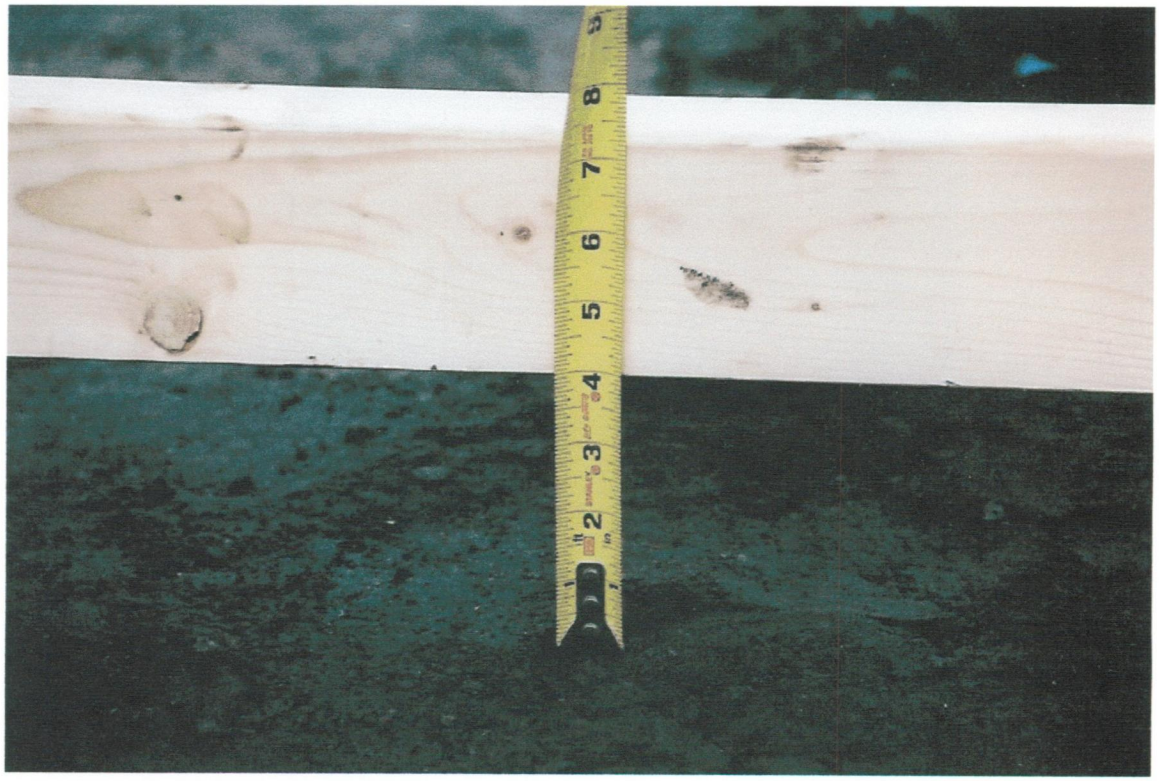


Top: Another view showing the 10" deep concrete footer section
Bottom: View showing the 4" thick area for the floor slab section





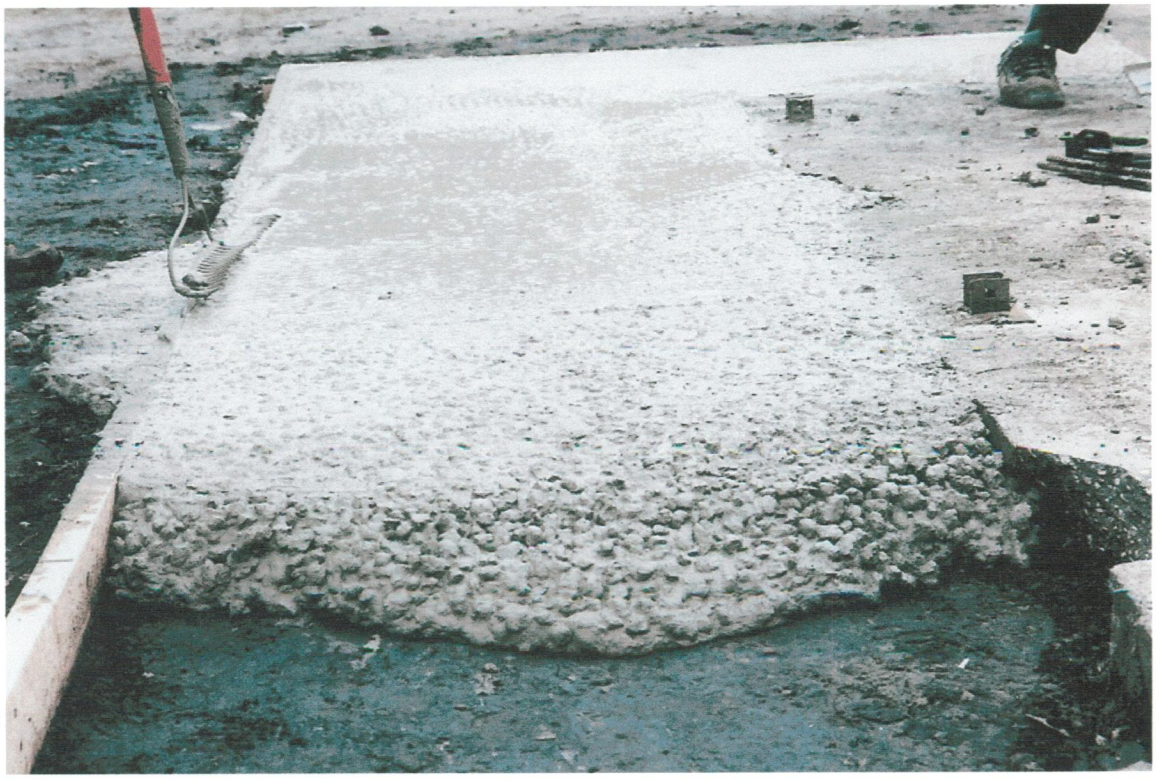
Top: View showing 4" depth from form to concrete floor slab area
Bottom: View showing middle floor slab area will be 4" deep





Top: View of concrete mix being placed in formed area
Bottom: View of concrete mix being spread in floor slab section





Top: View of Model No. 210JDH swivel concrete anchor
Bottom: Close up view of head marking of MMA42 on 210JDH anchor



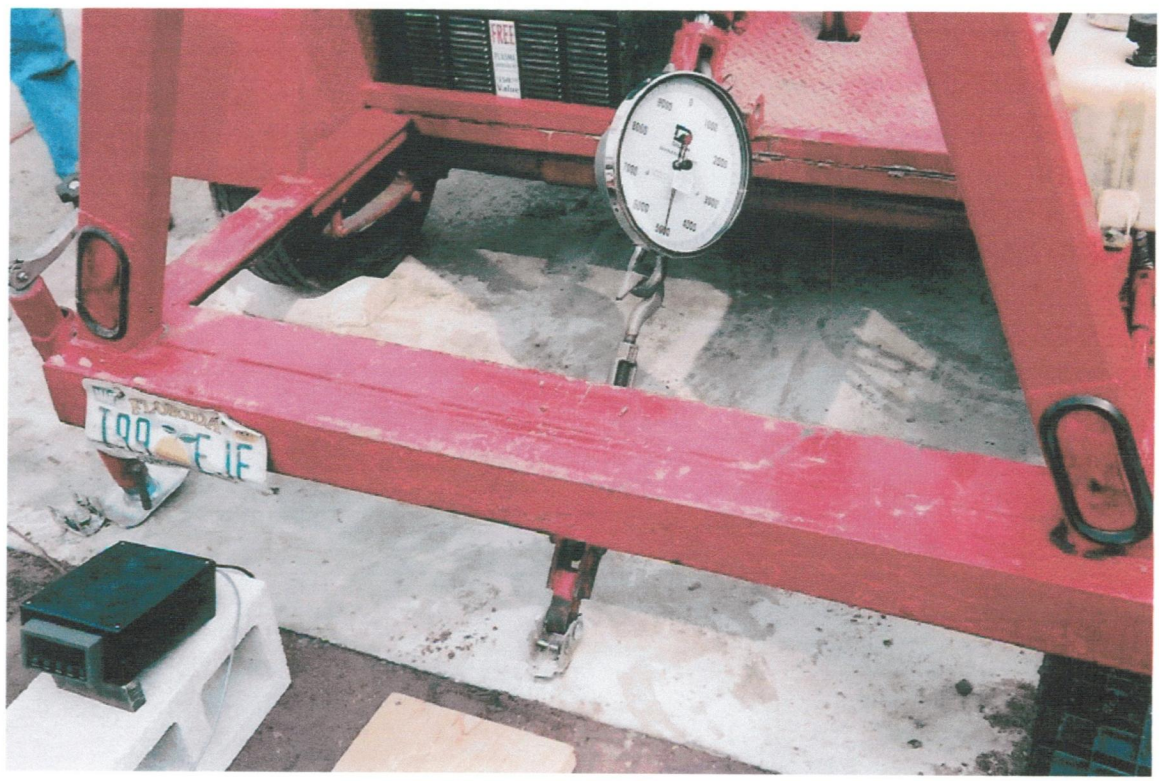


Center: View of 36" long No. 4 rebar that were used with 210JDH & 210PDH anchors

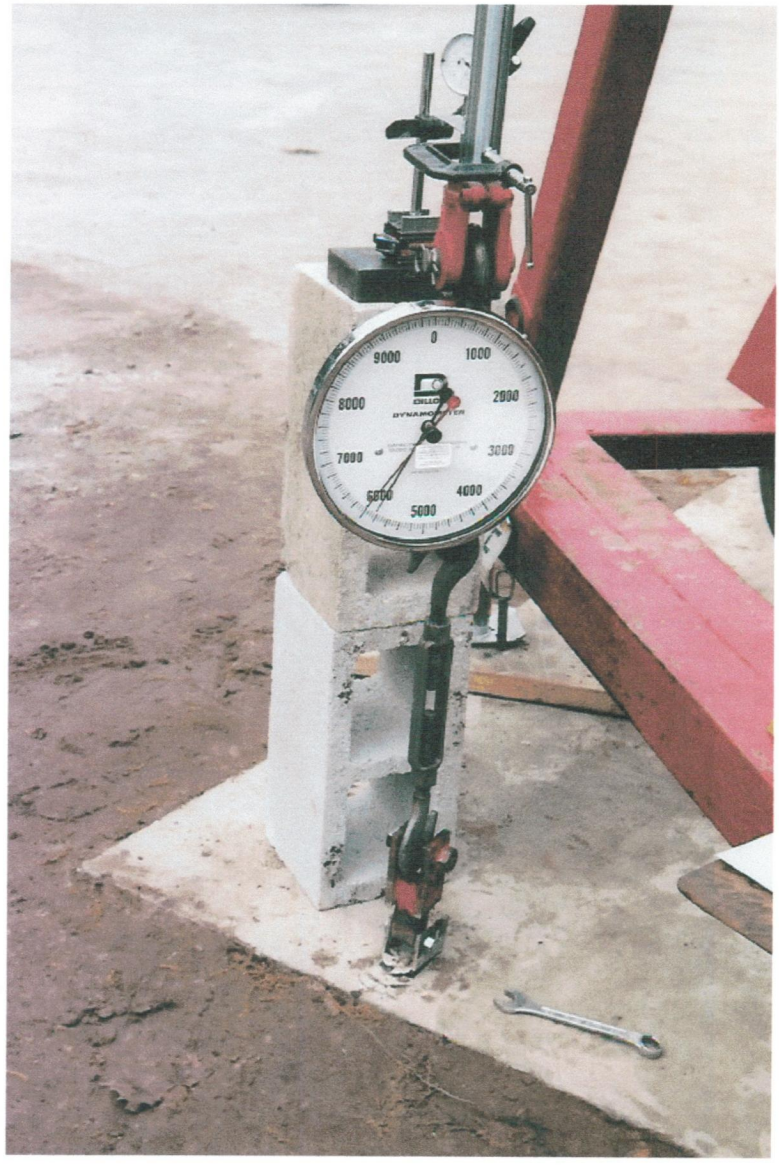


Top: Overall view of 45^0 inward pull test setup of Model No. 210JDH
Bottom: Close up view of 210JDH test setup under load

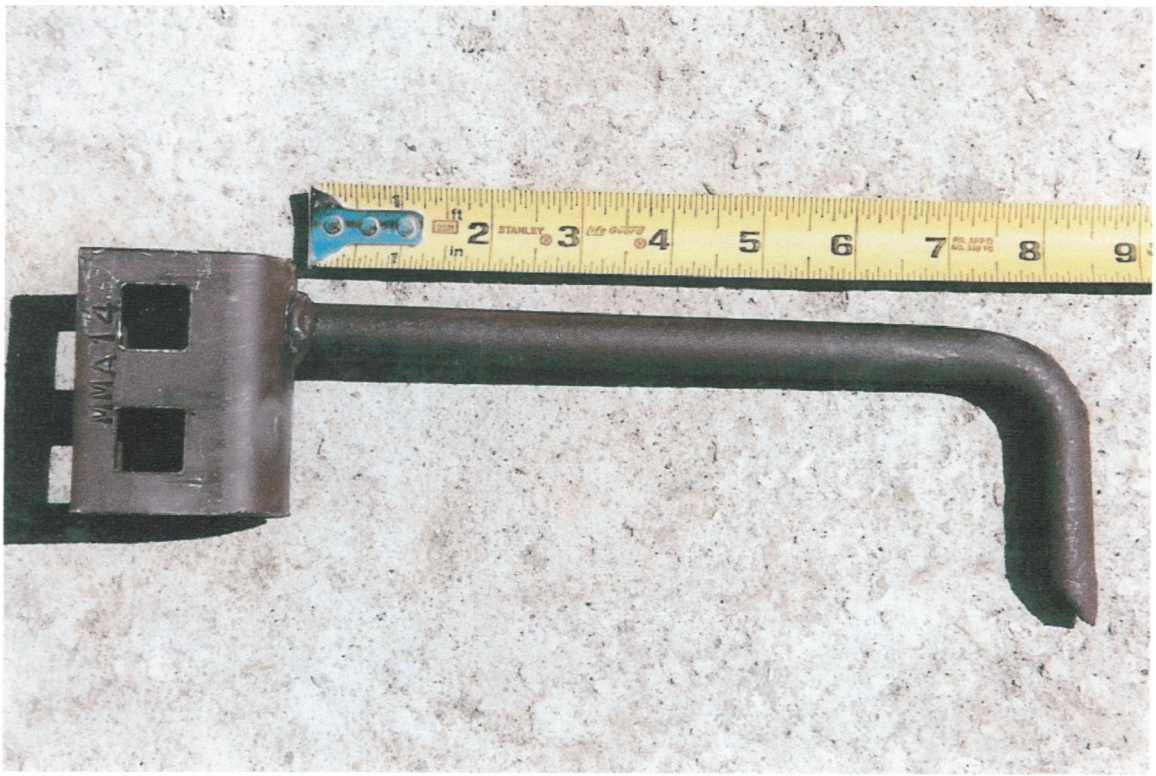


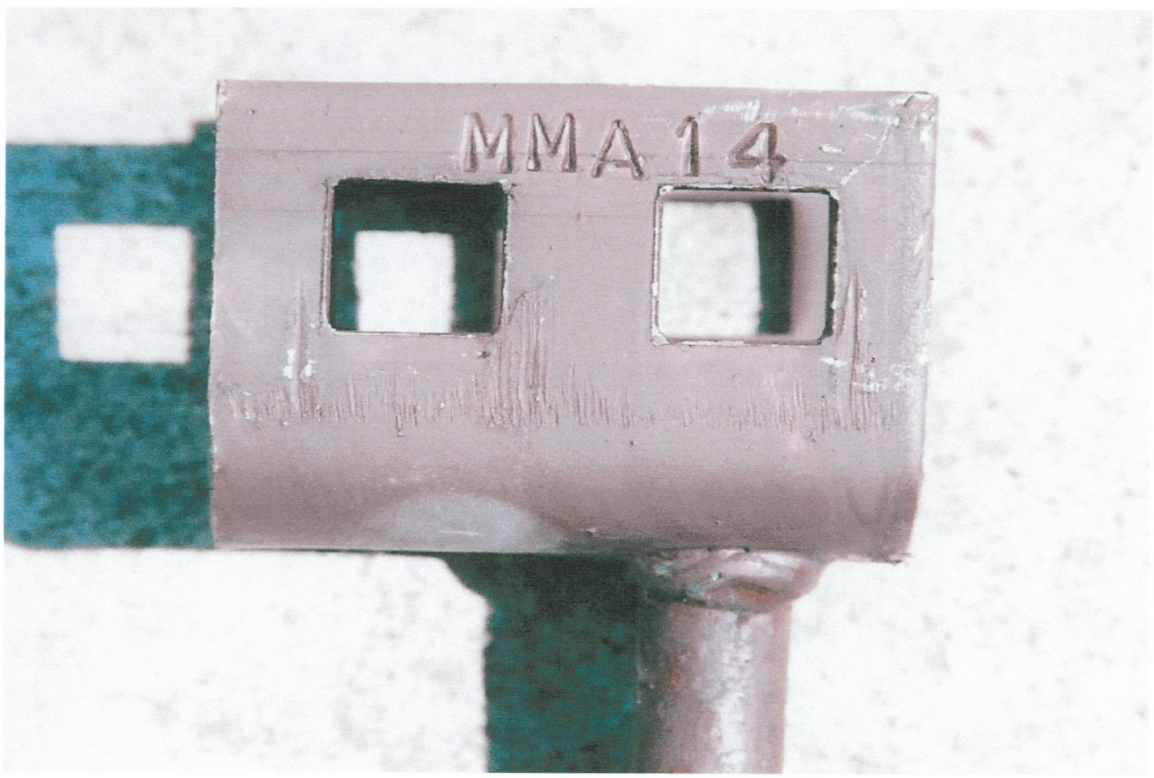


Center: View of Model No. 210JDH being tested in 90^0 vertical pull under load



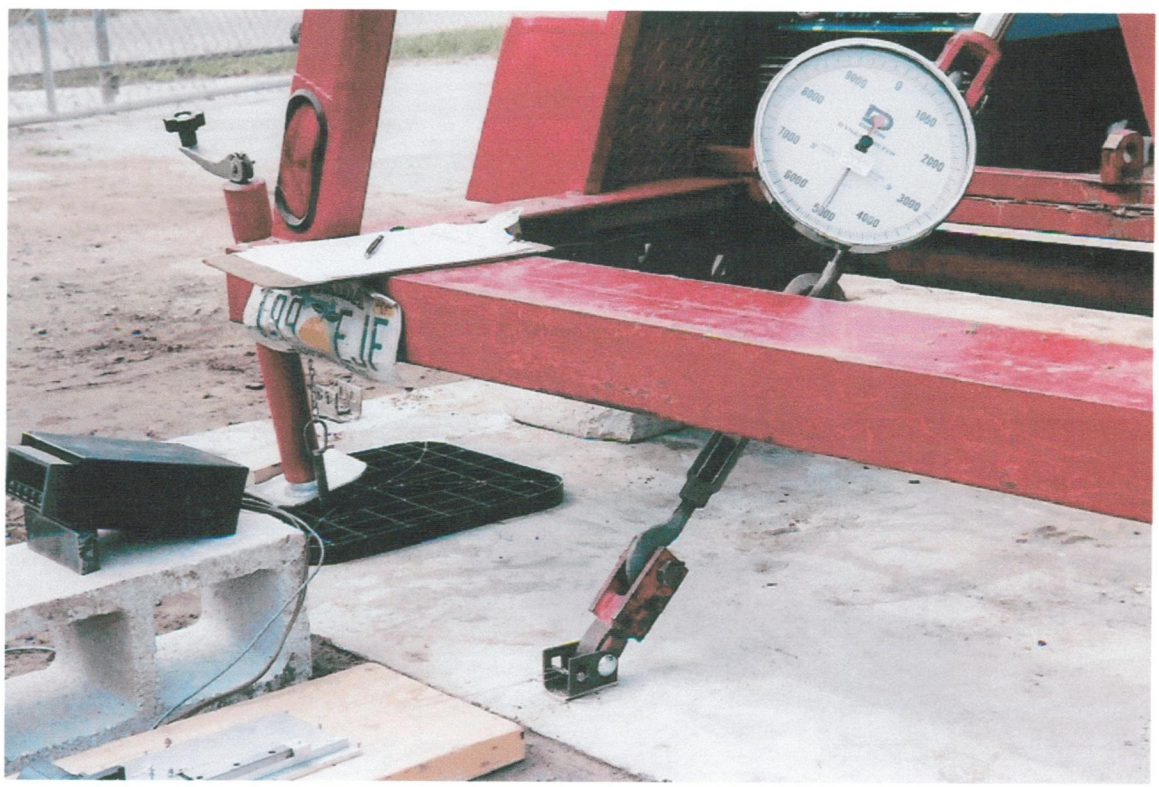
Top: View of Model No. 210PDH patio concrete anchor to be tested
Bottom: Close up view of head marking of MMA14 on 210PDH anchor





Top: Overall view of 45^0 inward pull test setup of Model No. 210PDH
Bottom: Close up view of 210PDH test setup under load

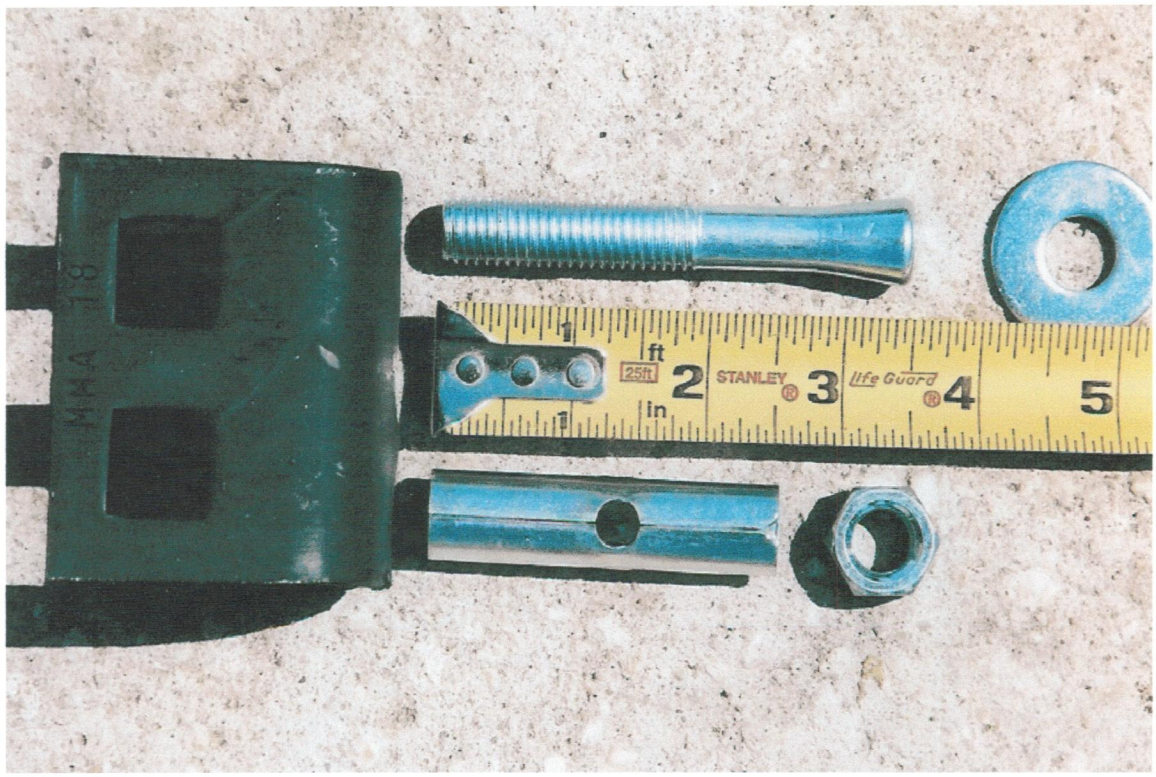


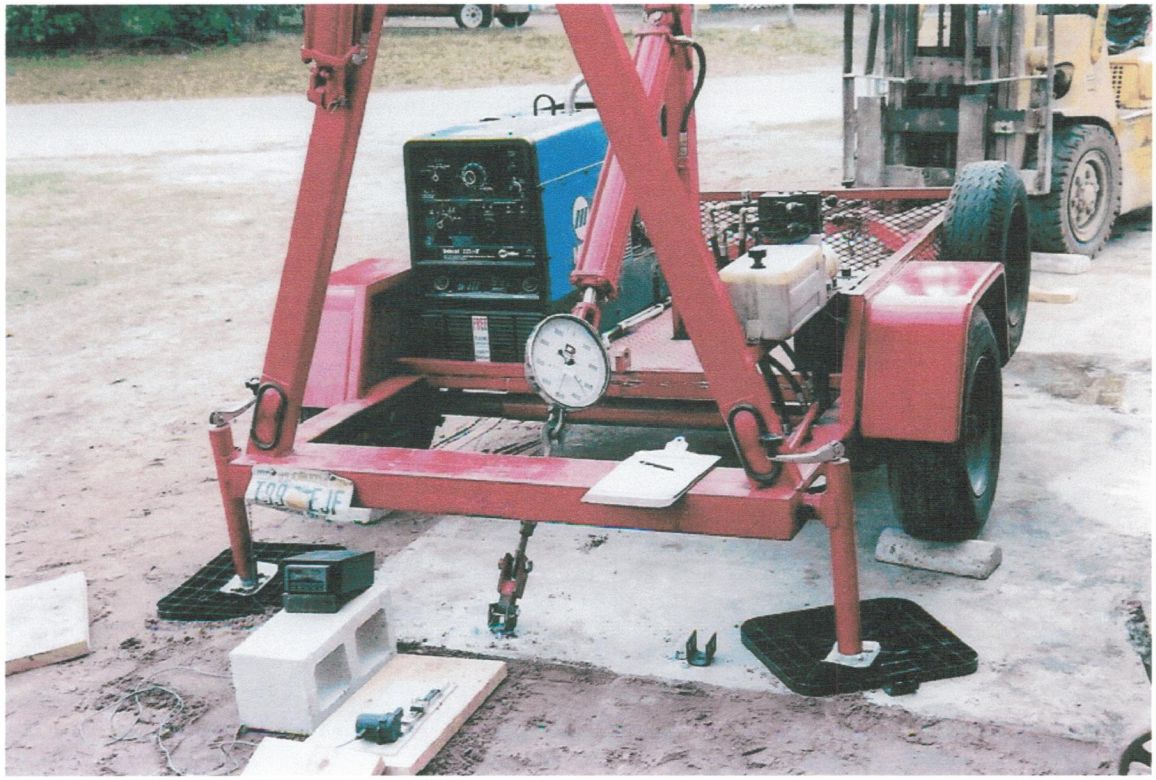


Center: View of Model No. 210PDH being tested in 90^0 vertical pull under load

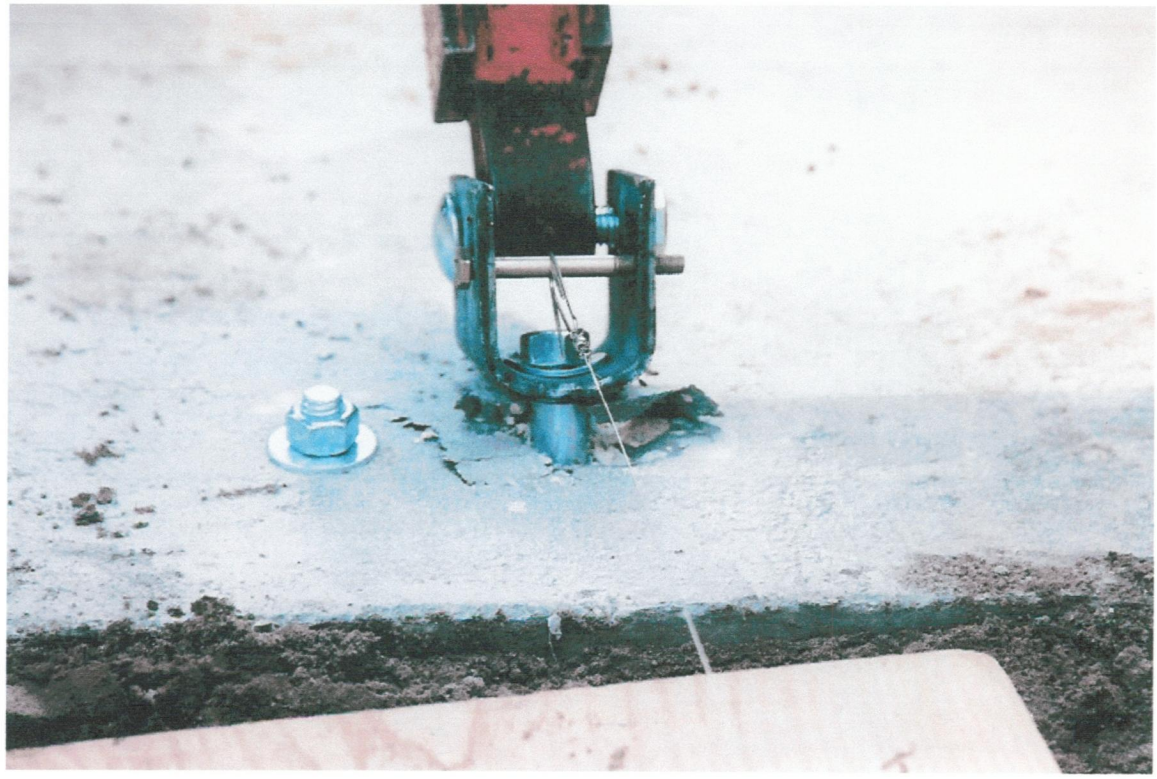


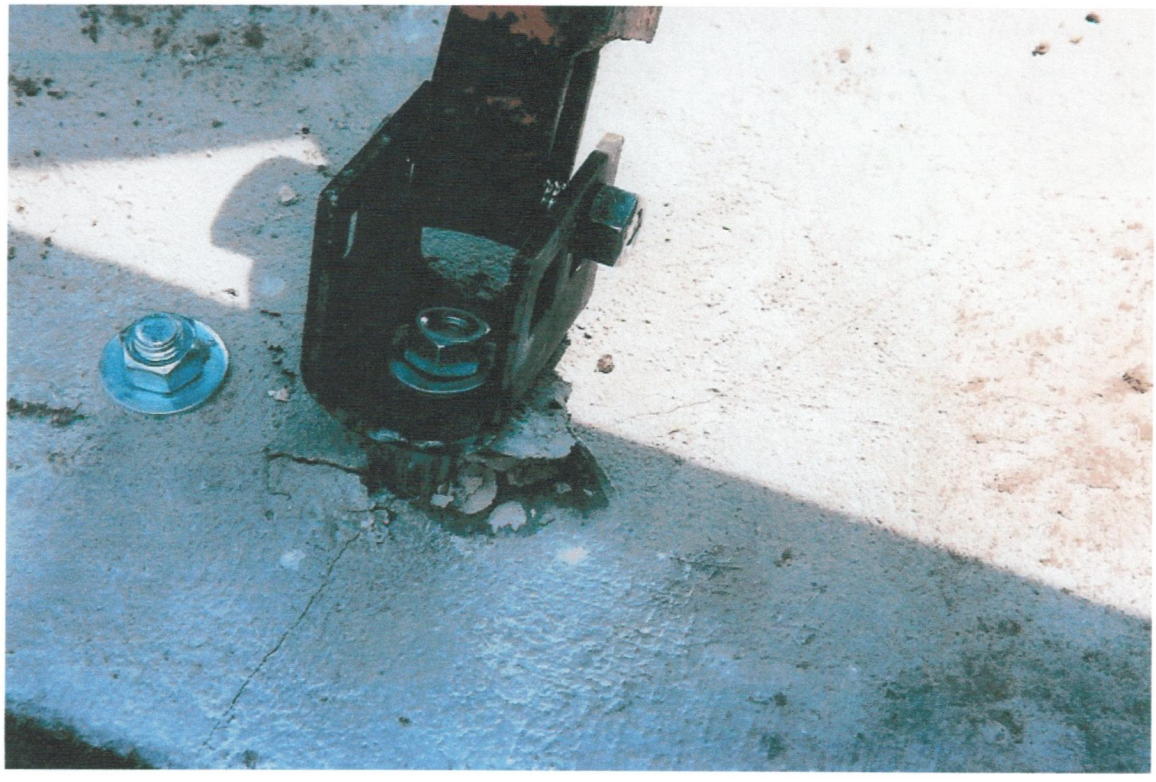
Top: View of Model No. THDHLS concrete anchor with head marking of MMA18
Bottom: Overall view of 45^0 inward pull test setup of Model No. THDHLS anchor under load



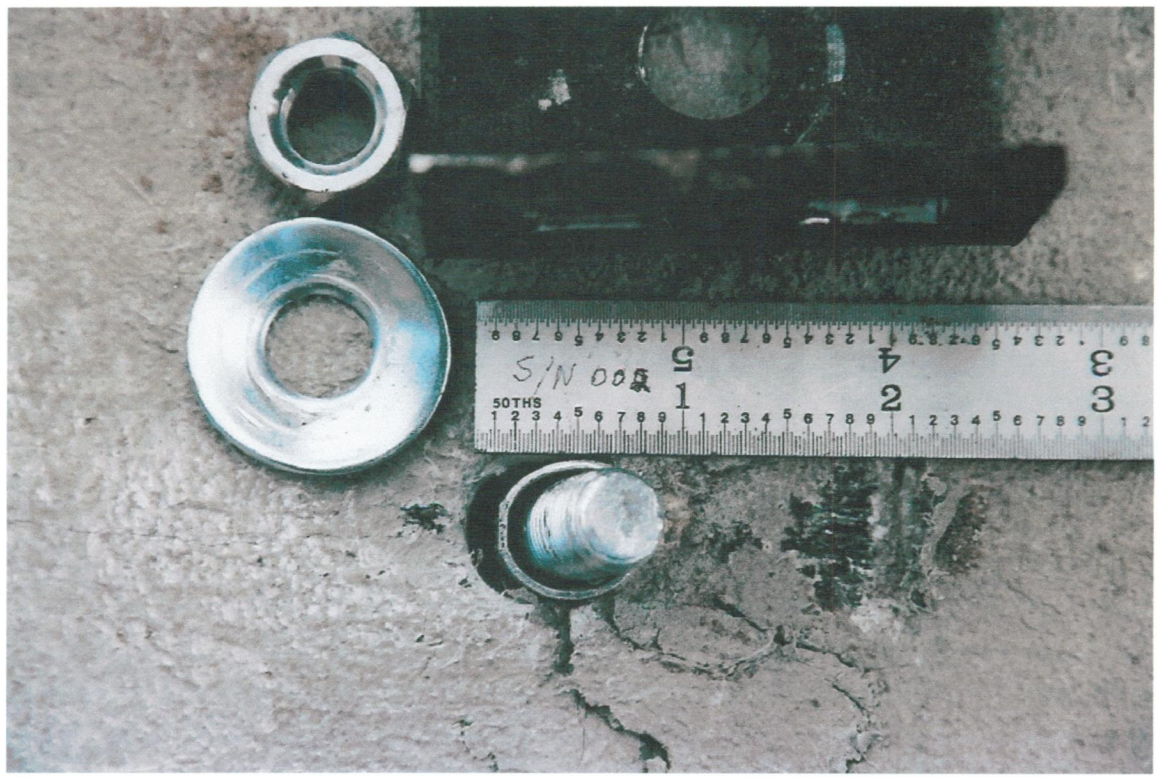


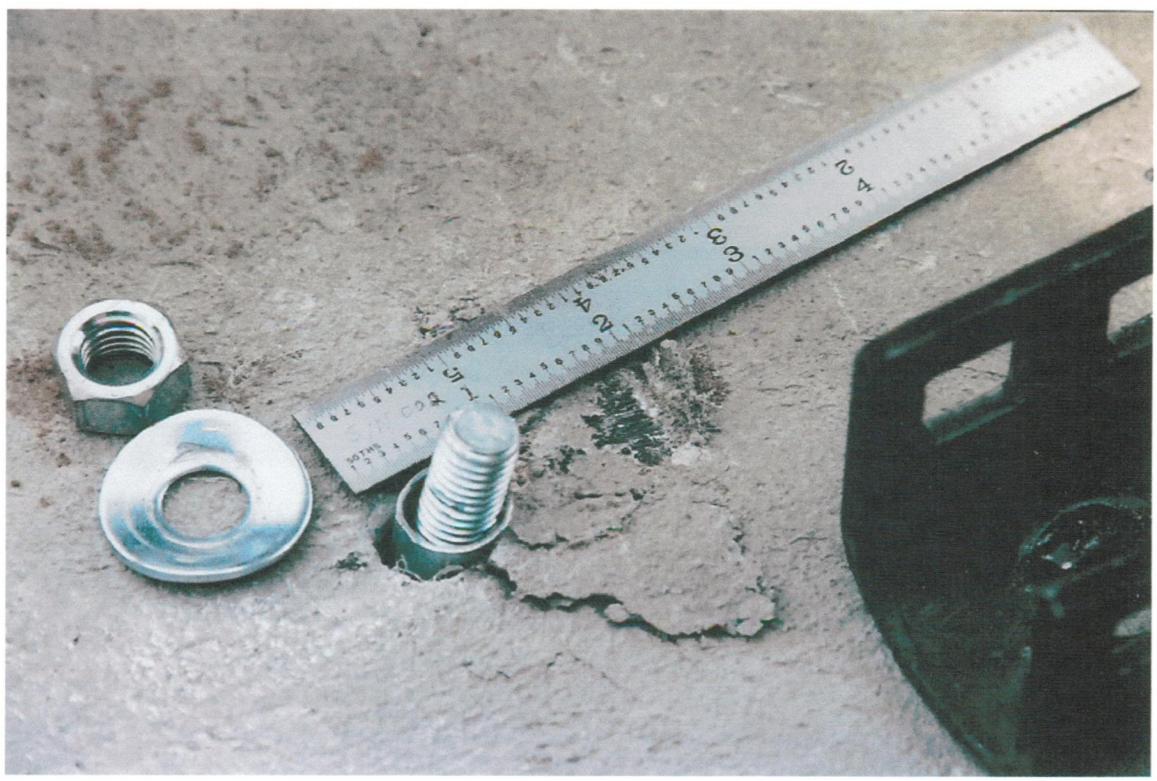
Top: View of THDHLS anchor bolt under load
Bottom: View of THDHLS after testing where concrete pad cracked under load





Top: View of THDHLS anchor bolt after testing showing bent components & concrete spalling
Bottom: Another view from a different angle showing the anchor bolt components after testing





Top: View of Model No. THDHLS still under load after testing
Bottom: Another view showing the bent components of THDHLS after testing





Minute Man Products®, inc.

"Specializing in Anchoring Earth Bound Objects"

Certification Report for Minute Man Anchors, Inc. Concrete Anchors models THDHLS, 210 PDH, and 210 JDH.

Supplemental Certification Report Number	1-13-03B
For Previously Submitted Report Number	1-13-03B
Issue Date:	1-13-03
Report Expiration Date:	1-13-13

Product Testing, Inc.
P.O. Box 37634
Jacksonville, FL 32236
Phone: (904)384-8150
Fax: (904)384-8154

Rod M. Hudgins, Jr., P.E.
P.O. Box 5070
Asheville, NC 28813-5070
Phone: (828)274-9244
Fax: (828)274-9525

This report is certified to meet the Federal Manufactured Home Construction and Safety Standards as existed on 1-13-2003.

Contents of Certification Report:

1. Test Report from Product Testing #03-4260 45° Pull of models THDHLS, 210 PDH, and 210 JDH.

PRODUCT TESTING, INC.

Street Address
111 Spring Street, Unit D
Jacksonville, Florida 32254

(904) 384-8150
FAX (904) 384-8154

Mailing Address
P.O. Box 37634
Jacksonville, Florida 32236

Certification Report: Model Nos. 210JDH, 210PDH & THDHLS Concrete Anchors

Job Report No: Job No. 03-4260
Issue Date: April 7, 2003

Expiration Date: April 7, 2013

Manufactured By: Minute Man Anchors, Inc.
305 West King Street
East Flat Rock, North Carolina 28726

Contact Person: Mr. Albert Moreno, President
Phone: (828) 692-0256
Toll Free: (800) 438-7277
Fax: (828) 692-0258

Product Testing, Inc. certifies that the three (3) concrete anchors, Model Nos. 210JDH, 210PDH, and THDHLS meets the criteria of the Federal Manufactured Home Construction and Safety Standards (24 CFR, Part 3280) and the 2000 International Building Code, Appendix E, Section AE 604.1, as adopted and required by the Texas Manufactured Housing Standards Act (Texas Revised Civil Status, Article 5221), Texas Department of Housing & Community Affairs, Chapter 80, Administrative Rule 80.62(c)(13).

Product Testing, Inc. gives authorization to the the Texas Department of Housing & Community Affairs the right to reproduce this certification report to as many copies as required.

At the request of Minute Man Anchors, Inc., please accept this Certification Report Job No. 03-4260 dated April 7, 2003, for product approval with the State of Texas for a period of ten (10) years, expiring on April 7, 2013. If there is any further questions, don't hesitate to contact us at (904) 384-8150 or Minute Man Anchors, Inc. at (800) 438-7277.

Respectfully submitted,
PRODUCT TESTING, INC.

J.L. Prophet, President
Certificate of Authorization #6775

R.K. Prophet
VP & General Mgr.

C.R. Caudel, P.E. FL #45170
Secy & Sr. Registered Engineer