



**BUILDING CODE COMPLIANCE OFFICE (BCCO)  
PRODUCT CONTROL DIVISION**

**MIAMI-DADE COUNTY, FLORIDA  
METRO-DADE FLAGLER BUILDING  
140 WEST FLAGLER STREET, SUITE 1603  
MIAMI, FLORIDA 33130-1563  
(305) 375-2901 FAX (305) 375-2908**

**NOTICE OF ACCEPTANCE (NOA)**

**Powers Fasteners, Inc.  
2 Power Square.  
New Rochelle, N.Y. 10801**

**SCOPE:**

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed by Miami-Dade County Product Control Division and accepted by the Board of Rules and Appeals (BORA) to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Division (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. BORA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Division that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code including the High Velocity Hurricane Zone.

**DESCRIPTION: Adhesive Anchors**

**APPROVAL DOCUMENT:** Drawing No. **MDC-03**, Sheets 1 through 4 of 4, titled "Power-Fast Epoxy and Chem-Stud Anchor" dated 11/03/04 with last revision on 11/03/04, prepared by Powers Fasteners, Inc., signed and sealed by L. W. Mattis PE, bearing the Miami-Dade County Product Control Revision stamp with the Notice of Acceptance (NOA) number and expiration date by the Miami-Dade County Product Control Division.

**MISSILE IMPACT RATING: None**

**LABELING:** Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

**RENEWAL** of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

**TERMINATION** of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

**ADVERTISEMENT:** The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

**INSPECTION:** A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA revises NOA # 03-0311.07 consists of this page 1, evidence page as well as approval document mentioned above.

The submitted documentation was reviewed by **Candido F. Font, P.E.**

*[Signature]*  
12/09/04



**NOA No 04-0823.06  
Expiration Date: January 8, 2009  
Approval Date: December 9, 2004  
Page 1**

**Power Fasteners, Inc.**

**NOTICE OF ACCEPTANCE: EVIDENCE PAGE**

**A DRAWINGS:**

1. Drawings prepared by Powers Fasteners Inc, titled "Power-Fast Epoxy and Chem-Stud Anchor"; Drawing No. MDC-03, dated 11/03/04 with last revision on 11/03/04, sheet 1 through 4of 4, signed and sealed by L. W. Mattis PE.

**B TEST:**

	Laboratory No.	Test Report.	Date.	Signature
1.	CEL 3R118SW	ICBO AC58	10/31/03	L.W. Mattis PE
2.	CEL 3R118RS	ICBO AC58	10/31/03	L.W. Mattis PE.
3.	CEL 3R118FE	ICBO AC58	10/31/03	L.W. Mattis PE.
4.	CEL 3R118SW(4617)	ICBO AC58	06/17/04	L.W. Mattis PE
5.	CEL 3R118LW	ICBO AC58	10/31/03	L.W. Mattis PE
6	CEL 3R118Cmu	ICBO AC58	10/31/03	L.W. Mattis PE

**C CALCULATIONS:**

N/A

**D QUALITY ASSURANCE.**

1. Miami-Dade Quality Control Division.

**E MATERIAL CERTIFICATIONS:**

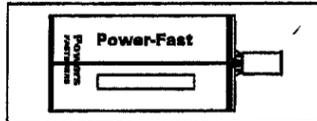
N/A

**F STATEMENTS:**

1. No change letter issued by Power Fasteners Inc on 10/12/04, signed by M. Ziegler and notarized by K. L. Fleming.
2. No interest letter issued by Powers Fasteners on 07/29/04, signed by M. Ziegler and notarized by K. L. Fleming.
3. Code compliance letter issued by CEL Consulting on 12/03/03and signed by L. Mattis PE.

  
12/09/04  
Candido F. Font, P.E.  
Senior Product Control Examiner  
NOA No 04-0823.06  
Expiration Date: January 8, 2009  
Approval Date: December 9, 2004

# POWER-FAST EPOXY



## DESCRIPTION AND MATERIALS:

Power-Fast Epoxy is a two-component structural epoxy used for installing threaded rod, or reinforcing bar into concrete, structural lightweight concrete and concrete masonry. The epoxy is a 100% solids, odorless, solvent-free, non-shrink, non-sag, premium, high strength epoxy packed in a dual-component plastic cartridge system. The base resin and hardener are mixed in a one-to-one ratio as they are dispensed through a disposable static element mixing nozzle (supplied by Powers Fasteners, Inc.).

**TABLE No. 1**

ALLOWABLE TENSION LOADS FOR POWER-FAST EPOXY INSTALLED WITH THREADED ROD IN MINIMUM 2500 PSI NORMAL WEIGHT CONCRETE.

Anchor Diameter (inches)	Bit Diameter (inches)	Embedment Depth (inches)	Allowable Bond Strength (lbs) Concrete Strength, f'c		Allowable Steel Strength (lbs) Provided for reference Anchors Tested Using A 193, Grade B7 Threaded Rods.
			2500 psi	5000 psi	
3/8	7/16	1-1/2	925	1,045	4,540
		3-3/8	2,670	3,130	
		5-1/4	3,915	3,795	
1/2	9/16	2	1,340	3,615	8,085
		4-1/2	3,630	5,440	
		7	5,840	7,125	
5/8	3/4	2-1/2	1,930	2,625	12,660
		5-5/8	5,410	6,145	
		8-3/4	8,620	9,570	
3/4	7/8	3	2,635	3,515	18,230
		6-3/4	7,870	10,385	
		10-1/2	11,210	11,970	
7/8	1	3-1/2	3,050	4,455	24,790
		7-7/8	9,140	11,475	
		12-1/4	14,645	18,250	
1	1-1/8	4	3,785	5,305	32,380
		9	11,185	16,230	
		14	16,470	20,105	
1-1/4	1-3/8	5	4,690	9,695	50,610
		11-1/4	14,615	25,225	
		17-1/2	22,240	34,310	

**TABLE No. 2**

ALLOWABLE SHEAR LOADS FOR POWER-FAST EPOXY INSTALLED WITH THREADED ROD IN MINIMUM 2500 PSI NORMAL WEIGHT CONCRETE.

Anchor Diameter (inches)	Bit Diameter (inches)	Minimum Embedment Depth (inches)	Allowable Bond Strength (lbs) Concrete Strength, f'c	Allowable Steel Strength (lbs) Provided for reference Anchors Tested Using A 193, Grade B7 Threaded Rods.
			2500 psi	
3/8	7/16	1-1/2	1,145	2,340
		3-3/8	1,535	
3/4	7/8	3	3,610	9,390
		6-3/4	6,355	

- The tabulated shear and tension values are for anchors installed in normal weight concrete having reached the designated ultimate compressive strength at the time of installation.
- Spacing and edge distance shall be in accordance with Table No. 3.
- Allowable loads must be the lesser of allowable bond or allowable steel strength as shown in the table.
- The allowable loads may be increased by 33-1/3% for short-term loading due to earthquakes or wind.
- For combined tension and shear loading, use the straight line interaction formula.
- Installation shall be performed in accordance with manufacturer's published installation instructions.
- Allowable bond strength tension values in Table 1 are for the Standard Set formulation.

**TABLE No. 3**

THREADED ROD - ALLOWABLE SPACING AND EDGE DISTANCE

	DISTANCE FOR FULL ANCHOR CAPACITY (Critical Distance) <sup>1</sup>	DISTANCE FOR REDUCED ANCHOR CAPACITY (Minimum Distance) <sup>2</sup>	REDUCTION FACTOR <sup>3</sup>
SPACING BETWEEN ANCHORS	16D	8D	0.70
EDGE DISTANCE - TENSION	10D	4D	0.56
EDGE DISTANCE - SHEAR	12D	4D	0.21

**TABLE No. 4**

REINFORCING STEEL - ALLOWABLE SPACING AND EDGE DISTANCE

	DISTANCE FOR FULL ANCHOR CAPACITY (Critical Distance) <sup>1</sup>	DISTANCE FOR REDUCED ANCHOR CAPACITY (Minimum Distance) <sup>2</sup>	REDUCTION FACTOR <sup>3</sup>
SPACING BETWEEN ANCHORS	16D	8D	0.50
EDGE DISTANCE - TENSION	12D	4D	0.56
EDGE DISTANCE - SHEAR	16D	4D	0.17

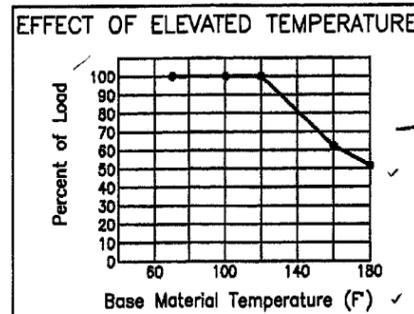
- The listed values are the minimum distances and spacing between anchors required to obtain the load values listed in Table No. 1, 2, 6 & 7. D = Anchor Diameter. When adjacent anchors are different sizes or embedments, use largest value of D.
- The listed values are the minimum distances at which the anchor can be set, when load values are adjusted appropriately.
- Load values in the tables are multiplied by the reduction factor when anchors are installed at the minimum spacing listed. Use linear interpolation for spacing between critical and minimum distances. Multiple reduction factors for more than one spacing or edge distance shall be calculated separately and multiplied.

**TABLE No. 5**

MANUFACTURER'S RECOMMENDED CURE TIME FOR POWER-FAST EPOXY ADHESIVE

BASE MATERIAL TEMP. (F°)	MAXIMUM GEL TIME (minutes)		MINIMUM CURING TIME (hours)		FULL CURING TIME (hours)	
	FAST SET	SLOW SET	FAST SET	SLOW SET	FAST SET	SLOW SET
40	30	60	8	16	36	48
60	20	45	3	7	24	36
75	15	35	2	6	24	24
90	10	20	1-1/2	4	16	24

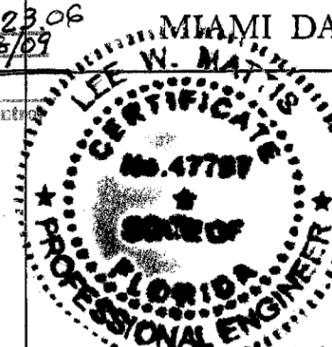
**CHART No. 1**



PRODUCT REVISED

as complying with the Florida Building Code  
Amendment No. 04-0823.06  
Effective Date 01/08/09

By: [Signature]  
Miami Dade Product Control Division



**TABLE No. 6**

ALLOWABLE TENSION LOADS FOR REINFORCING STEEL PER ASTM A615 INSTALLED IN MINIMUM 2500 PSI NORMAL WEIGHT CONCRETE.

REINFORCING SIZE	BIT DIAMETER (Inches)	MINIMUM EMBEDMENT (Inches)	Allowable Bond Strength (lbs) Concrete Strength, f'c 2500 psi	ALLOWABLE STEEL STRENGTH (lbs) Provided for reference	
				GRADE 40	GRADE 60
#3	1/2	3-3/8	2,495	2,200	2,640
#4	5/8	4-1/2	3,610	4,000	4,800
#5	3/4	5-5/8	5,025	6,200	7,440
#6	7/8	6-3/4	6,575	8,800	10,560
#7	1-1/8	7-7/8	8,325	12,000	14,400
#8	1-1/4	9	12,080	15,800	18,960
#9	1-1/8	10-1/8	13,925	20,000	24,000
#10	1-1/2	11-1/4	18,515	25,400	30,480

**TABLE No. 7**

ALLOWABLE SHEAR LOADS FOR REINFORCING STEEL PER ASTM A615 INSTALLED IN MINIMUM 2500 PSI NORMAL WEIGHT CONCRETE.

REINFORCING SIZE	BIT DIAMETER (Inches)	MINIMUM EMBEDMENT (Inches)	Allowable Bond Strength (lbs) Concrete Strength, f'c 2500 psi	ALLOWABLE STEEL STRENGTH (lbs) Provided for reference	
				GRADE 40	GRADE 60
#3	1/2	3-3/8	2,085	1,310	1,680
#4	5/8	4-1/2	3,705	2,380	3,060
#5	3/4	5-5/8	6,560	3,690	4,740
#6	7/8	6-3/4	8,675	5,240	6,730
#7	1	7-7/8	12,305	7,140	9,180
#8	1-1/8	9	14,785	9,400	12,085
#9	1-1/4	10-1/8	20,115	11,900	15,300
#10	1-1/2	11-1/4	21,075	15,115	19,430

- The tabulated shear and tension values are for anchors installed in normal weight concrete having reached the designated ultimate compressive strength at the time of installation.
- Spacing and edge distance shall be in accordance with Table No. 4.
- Allowable loads must be the lesser of allowable bond or allowable steel strength as shown in the table.
- The allowable loads may be increased by 33-1/3% for short-term loading due to earthquakes or wind.
- For combined tension and shear loading, use the straight line interaction formula.
- Installation shall be performed in accordance with manufacturer's published installation instructions.
- Allowable bond strength tension values in Table 6 are for the Standard Set formulation.

REVISION DESCRIPTION	DATE
Note revisions for approval	11/3/04
Added data in table #7 for approval	7/14/04
Table & note revisions for approval	12/1/03
Renumbered & table revisions for approval	9/24/03

MIAMI DADE COUNTY - PRODUCT APPROVAL

TITLE: POWER-FAST EPOXY  
2 Powers Square  
Powers Fasteners, Inc. New Rochelle, N.Y. 10801

DATE OF ISSUE: 11/3/04  
SHEET No. 1 OF 4  
DRAWING No. MDC-03

Lee W. Matulis 11/3/04

TABLE No. 8

ALLOWABLE TENSION LOADS FOR POWER-FAST EPOXY INSTALLED WITH THREADED ROD IN MINIMUM 2500 PSI NORMAL WEIGHT CONCRETE FOR SILL PLATE AND OTHER ATTACHMENTS.

Anchor Diameter (inches)	Bit Diameter (inches)	Minimum Edge Distance (inches)	Minimum End Distance (inches)	Minimum Embedment Depth (inches)	Allowable Bond Strength (lbs) Concrete Strength, f'c		Allowable Steel Strength (lbs) Provided for reference Anchors Tested Using A 193, Grade B7 Threaded Rods.
					2500 psi	5000 psi	
1/2	9/16	1-3/4	7	4-1/2	2,150	3,295	8,085
				7	3,430	4,600	
5/8	3/4	1-3/4	8-3/4	5-5/8	2,615	4,550	12,660
				8-3/4	4,595	7,075	
7/8	1	1-3/4	12-1/4	7-7/8	5,055	6,135	24,790
				12-1/4	7,715	10,255	

TABLE No. 9

ALLOWABLE SHEAR LOADS FOR POWER-FAST EPOXY INSTALLED WITH THREADED ROD IN MINIMUM 2500 PSI NORMAL WEIGHT CONCRETE FOR SILL PLATE AND OTHER ATTACHMENTS.

Anchor Diameter (inches)	Bit Diameter (inches)	Minimum Edge Distance (inches)	Minimum End Distance (inches)	Minimum Embedment Depth (inches)	Allowable Bond Strength (lbs) Concrete Strength, f'c		Allowable Steel Strength (lbs) Provided for reference Anchors Tested Using A 193, Grade B7 Threaded Rods.
					Parallel to Free Edge	Towards Free Edge	
1/2	9/16	1-3/4	7	4-1/2	1,600	620	4,170
5/8	3/4	1-3/4	8-3/4	5-5/8	2,260	680	6,520
7/8	1	1-3/4	12-1/4	7-7/8	2,910	1,020	12,780

TABLE No. 10

ALLOWABLE TENSION LOADS FOR POWER-FAST EPOXY INSTALLED WITH THREADED ROD IN MINIMUM 2500 PSI NORMAL WEIGHT CONCRETE FOR SILL PLATE AND OTHER ATTACHMENTS.

Anchor Diameter (inches)	Bit Diameter (inches)	Minimum Edge Distance (inches)	Wall Width (inches)	Minimum End Distance (inches)	Minimum Embedment Depth (inches)	Allowable Bond Strength (lbs) Concrete Strength, f'c		Allowable Steel Strength (lbs) Provided for reference Anchors Tested Using A 193, Grade B7 Threaded Rods.
						2500 psi	5000 psi	
1/2	9/16	1-3/4	6	5	7	2,830		8,085
					8-3/4	3,675		
5/8	3/4	1-3/4	6	10	10	3,915		12,660
					12-1/2	3,835		
3/4	7/8	1-3/4	6	5	12-1/2	4,055		18,230
					12-1/4	4,890		
7/8	1	1-3/4	8	10	15	6,565		24,790
					17-1/2	6,110		

- The tabulated shear and tension values are for anchors installed in normal weight concrete having reached the designated ultimate compressive strength at the time of installation.
- Spacing shall be in accordance with Table No. 3.
- Allowable loads must be the lesser of allowable bond or allowable steel strength as shown in the table.
- The allowable loads may be increased by 33-1/3% for short-term loading due to earthquakes or wind.
- For combined tension and shear loading, use the straight line interaction formula.
- Installation shall be performed in accordance with manufacturer's published installation instructions.
- Allowable bond strength tension values in Table 8 and Table 10 are for the Standard Set formulation.

TABLE No. 11

ALLOWABLE TENSION & SHEAR LOADS FOR POWER-FAST EPOXY INSTALLED WITH THREADED ROD IN MINIMUM 3000 PSI LIGHTWEIGHT AGGREGATE CONCRETE.

Anchor Diameter (inches)	Bit Diameter (inches)	Minimum Edge Distance (inches)	Minimum Embedment Depth (inches)	Allowable Bond Strength (lbs) Concrete Strength, f'c		Allowable Steel Strength (lbs) Provided for reference Anchors Tested Using A 193, Grade B7 Threaded Rods.	
				3000 psi		TENSION	SHEAR
3/8	7/16	3-3/4	1-1/2	820	1,290	4,540	2,340
			3-3/8	2,085	1,375		
1/2	9/16	5	2	1,275	2,005	8,085	4,170
			4-1/2	3,330	2,385		
5/8	3/4	6-1/4	2-1/2	1,720	2,860	12,660	6,520
			5-5/8	3,850	3,610		

- The tabulated shear and tension values are for anchors installed in lightweight aggregate concrete having reached the designated ultimate compressive strength at the time of installation.
- Spacing shall be in accordance with Table No. 3 with values divided by 0.70.
- Allowable loads must be the lesser of allowable bond or allowable steel strength as shown in the table.
- For combined tension and shear loading, use the straight line interaction formula.
- Installation shall be performed in accordance with manufacturer's published installation instructions.
- Allowable bond strength tension values in Table are for the Standard Set formulation.

TABLE No. 12

ALLOWABLE TENSION & SHEAR LOADS FOR POWER-FAST EPOXY INSTALLED WITH THREADED ROD AND SCREEN TUBES IN ASTM C90 HOLLOW CONCRETE MASONRY UNITS.

Anchor Diameter (inches)	Bit Diameter (inches)	Minimum Edge Distance (inches)	Minimum End Distance (inches)	Minimum Embedment Depth (inches)	TENSION (pounds)	SHEAR (pounds)
1/2	5/8	3-3/4	3-3/4	3-1/2	135	315
5/8	3/4	3-3/4	3-3/4	3-1/2	135	375

- The tabulated shear and tension values are for anchors installed in minimum 8 inch wide, Type II, Grade N, lightweight, medium weight, or normal weight concrete masonry units. Masonry prism compressive strength, tested in accordance with ASTM E 447 and must be at least 1500 psi at the time of anchor installation.
- Anchors may be installed at any location in face shell. A maximum of one anchor per cell is allowed.
- Embedment depth is the minimum screen tube length as measured from the outside face of the masonry unit.
- Installation shall be performed in accordance with manufacturer's published installation instructions.
- Allowable bond strength tension values in Table are for the Standard Set formulation.

Table & note revisions for approval	11/3/04
Renumbered & table revisions for approval	7/14/04
REVISION DESCRIPTION	DATE

MIAMI DADE COUNTY - PRODUCT APPROVAL

TABLE No. 13

ALLOWABLE TENSION & SHEAR LOADS FOR POWER-FAST EPOXY INSTALLED WITH THREADED ROD IN ASTM C90 GROUT-FILLED CONCRETE MASONRY UNITS.

ANCHOR INSTALLED THROUGH FACE SHELL

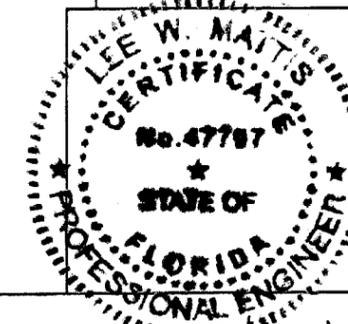
Anchor Diameter (inches)	Bit Diameter (inches)	Minimum Embedment Depth (inches)	Minimum Edge Distance (inches)	Minimum End Distance (inches)	TENSION (pounds)	SHEAR (pounds)
3/8	7/16	3-1/2	3-3/4	12	1,090	1,210
			12	12	1,160	1,255
1/2	9/16	4-1/4	3-3/4	12	1,585	1,710
			12	12	1,980	2,015
5/8	3/4	5	3-3/4	12	1,880	1,710
			12	12	1,880	2,425

ANCHOR INSTALLED IN JOINT

Anchor Diameter (inches)	Bit Diameter (inches)	Minimum Embedment Depth (inches)	Minimum Edge Distance (inches)	Minimum End Distance (inches)	TENSION (pounds)	SHEAR (pounds)
3/8	7/16	3-1/2	16	8	-	1,285
1/2	9/16	4-1/4	8	8	1,655	-
			16	8	1,655	2,285
5/8	3/4	5	16	8	-	2,860

- The tabulated shear and tension values are for anchors installed in minimum 8-inch wide, Type II, Grade N, lightweight, medium weight, or normal weight concrete masonry units. Masonry prism compressive strength, tested in accordance with ASTM E 447 and must be at least 1500 psi at the time of anchor installation. The masonry units shall be fully grouted and mortar must be minimum Type N.
- Embedment depth is the minimum length as measured from the outside surface of the masonry unit.
- Installation shall be performed in accordance with manufacturer's published installation instructions.
- For anchor installations in the face shell or joint, shear loads may be applied in any direction except upward vertically. If a minimum of two full courses are available above the anchor location shear loads may be applied in any direction.
- Allowable bond strength tension values in Table are for the Standard Set formulation.

PRODUCT REVISED  
 as complying with the Florida  
 Building Code  
 Amendment No. 04-0823.06  
 Adoption Date 01/08/09  
 by  
 Miami Dade Product Control  
 Division



Lee W. Maitis 11/3/04

TITLE	POWER-FAST EPOXY	
	2 Powers Square Powers Fasteners, Inc. New Rochelle, N.Y. 10801	
DATE OF ISSUE:	SHEET No.	DRAWING No.
11/3/04	2 OF 4	MDC-03

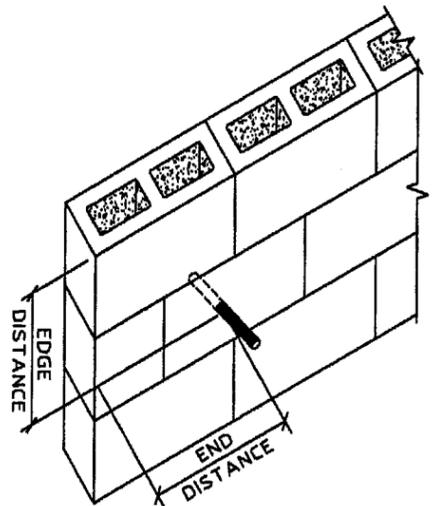
**TABLE No. 14**

**SPECIFICATIONS FOR INSTALLATION OF THREADED RODS IN CONCRETE WITH POWER-FAST EPOXY ADHESIVE<sup>1</sup>**

PROPERTY	THREADED ROD DIAMETER						
	3/8 inch	1/2 inch	5/8 inch	3/4 inch	7/8 inch	1 inch	1-1/4 inch
$A_{nom}$ = Nominal area of threaded rod (in <sup>2</sup> )	0.1105	0.1963	0.3068	0.4418	0.6013	0.7854	1.2272
$D_{bit}$ = Nominal bit diameter (in)	7/16	9/16	5/8	7/8	1	1-1/8	1-3/8
$T_{inst}$ = Maximum tightening torque (ft.-lbs.)	15-20	30-40	70-90	120-160	150-200	225-300	450-600

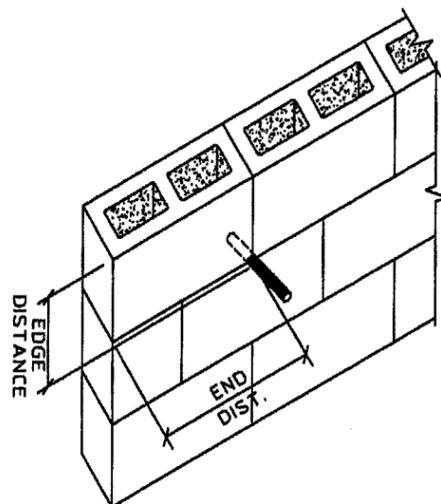
1. The fixture may be positioned after the minimum curing times listed in accordance with Table No. 5. Torque must not be applied to anchors until after the full curing time.

**FIGURE No. 1**



**INSTALLATION IN FACE SHELL**

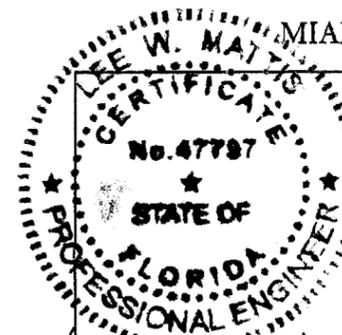
**FIGURE No. 2**



**INSTALLATION IN JOINT**

PRODUCT REVISED  
 as complying with the Florida  
 Building Code  
 Acceptance No. 04-0823 OF  
 Expiration Date: 01/08/09  
 By:   
 Miami Dade Product Control  
 Division

Added sheet	11/3/04
Renumbered sheet	7/14/04
Table revisions for approval	12/1/03
Renumbered & table revisions for approval	9/24/03
REVISION DESCRIPTION	DATE



MIAMI DADE COUNTY - PRODUCT APPROVAL

TITLE		
POWER-FAST EPOXY		
2 Powers Square Powers Fasteners, Inc. New Rochelle, N.Y. 10801		
DATE OF ISSUE:	SHEET No.	DRAWING No.
11/3/04	3 OF 4	MDC-03

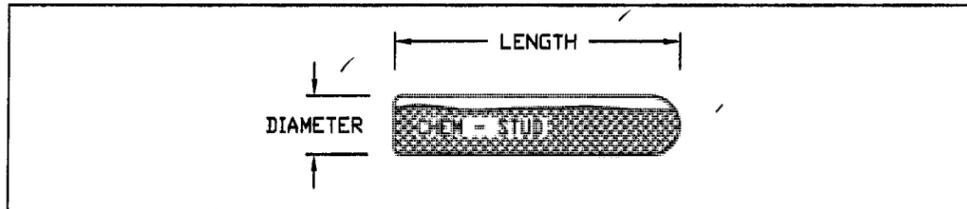
*Lee W. Matys 11/3/04*

**DESCRIPTION AND MATERIALS:**

The Chem-Stud Anchor System consists of a two-part resin capsule that is used to bond chisel-pointed threaded rods in predrilled holes in normal-weight, stone-aggregate concrete.

The Chem-Stud capsule contains premeasured amounts of resin and hardener in two sealed glass tubes. The outer glass tube is filled with vinyl ester resin and quartz aggregate. A smaller sealed glass tube is suspended in the resin and is filled with a hardening catalyst. The adhesive components are mixed by spinning a chisel-pointed anchor rod into the capsule, using a rotary hammer. A specific capsule size is provided for each anchor diameter of anchor rod.

**CHEM-STUD ANCHOR**



**TABLE No. 1**

**ALLOWABLE TENSION LOADS FOR THREADED ROD INSTALLED IN MINIMUM 2500 PSI NORMAL WEIGHT CONCRETE**

Anchor Diameter (inches)	Bit Diameter (inches)	Embedment Depth (inches)	Allowable Bond Strength (lbs) Concrete Strength, f'c		Allowable Steel Strength (lbs) Provided for reference Anchors Tested Using A 193, Grade B7 Threaded Rods.
			2500 psi	5500 psi	
3/8	7/16	3-1/2	1,730	2,720	4,540
1/2	9/16	4-1/4	2,935	4,595	8,085
5/8	11/16	5	4,055	6,290	12,660
3/4	7/8	6-5/8	6,525	9,255	18,230
7/8	1	7	6,875	11,195	24,790
1	1-1/8	8-1/4	9,475	16,504	32,380
1-1/4	1-1/2	10-1/4	15,965	22,105	50,610

- The tabulated tension values are for anchors installed in normal weight concrete having reached the designated ultimate compressive strength at the time of installation. Linear interpolation may be used for concrete strengths between those listed.
- Spacing and edge distance shall be in accordance with Table No. 2.
- Allowable loads must be the lesser of allowable bond or allowable steel strength as shown in the table.
- The allowable loads may be increased by 33-1/3% for short-term loading due to earthquakes or wind.
- For combined tension and shear loading, use the straight line interaction formula.
- Installation shall be performed in accordance with manufacturer's published installation instructions.

**TABLE No. 2**

**THREADED ROD - ALLOWABLE SPACING AND EDGE DISTANCE**

	DISTANCE FOR FULL ANCHOR CAPACITY (Critical Distance) <sup>1</sup>	DISTANCE FOR REDUCED ANCHOR CAPACITY (Minimum Distance) <sup>2</sup>	REDUCTION FACTOR <sup>3</sup>
SPACING BETWEEN ANCHORS	16D	8D	0.64
EDGE DISTANCE - TENSION	10D	4D	0.64
EDGE DISTANCE - SHEAR	12D	4D	0.22

- The listed values are the minimum distances required to obtain the load values listed in Table No. 1. D = Anchor Diameter. When adjacent anchors are different sizes or embedments, use largest value of D.
- The listed values are the minimum distances at which the anchor can be set, when load values are adjusted appropriately.
- Load values in the table are multiplied by the reduction factor when anchors are installed at the minimum distances listed. Use linear interpolation for spacing between critical and minimum distances. Multiple reduction factors for more than one spacing or edge distance shall be calculated separately and multiplied.

**TABLE No. 3**

**ALLOWABLE SHEAR LOADS FOR THREADED ROD INSTALLED IN MINIMUM 2500 PSI NORMAL WEIGHT CONCRETE**

Anchor Diameter (inches)	Bit Diameter (inches)	Embedment Depth (inches)	Allowable Bond Strength (lbs) Concrete Strength, f'c	Allowable Steel Strength (lbs) Provided for reference
			2500 psi	Anchors Tested Using A 193, Grade B7 Threaded Rods.
3/8	7/16	3-1/2	1,665	2,340
3/4	7/8	6-5/8	7,515	9,390

- The tabulated shear values are for anchors installed in normal weight concrete having reached the designated ultimate compressive strength at the time of installation. Linear interpolation may be used for concrete strengths between those listed.
- Spacing and edge distance shall be in accordance with Table No. 2.
- Allowable loads must be the lesser of allowable bond or allowable steel strength as shown in the table.
- The allowable loads may be increased by 33-1/3% for short-term loading due to earthquakes or wind.
- For combined tension and shear loading, use the straight line interaction formula.
- Installation shall be performed in accordance with manufacturer's published installation instructions.

**TABLE No. 4**

**SPECIFICATIONS FOR INSTALLATION OF THREADED RODS IN CONCRETE WITH CHEM-STUD ADHESIVE<sup>1</sup>**

PROPERTY	ROD DIAMETER						
	3/8 inch	1/2 inch	5/8 inch	3/4 inch	7/8 inch	1 inch	1-1/4 inch
A <sub>nom</sub> = Nominal area of threaded rod (in <sup>2</sup> )	0.1105	0.1963	0.3068	0.4418	0.6013	0.7854	1.2272
D <sub>bit</sub> = Nominal bit diameter (in)	7/16	9/16	11/16	7/8	1	1-1/8	1-3/8
T <sub>inst</sub> = Maximum tightening torque (ft.-lbs.)	15-20	30-40	70-90	120-160	150-200	225-300	375-500

- Torque must not be applied to anchors until after the full curing time in accordance with Table No. 5.

**TABLE No. 5**

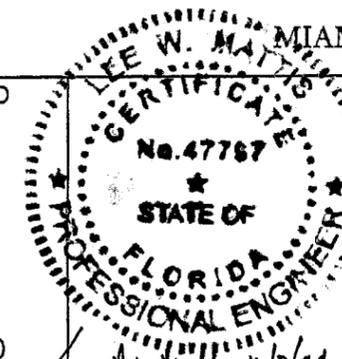
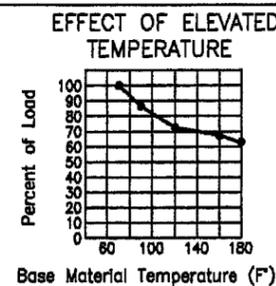
**CHEM-STUD RECOMMENDED CURING TIME**

BASE MATERIAL TEMPERATURE	FULL CURING TIME
68° F. & over	20 minutes
50° F. to 68° F.	30 minutes
32° F. to 50° F.	1 hour
23° F. to 32° F.	5 hours
14° F. to 23° F.	10 hours
5° F. to 14° F.	18 hours
0° F. to 5° F.	24 hours

PRODUCT REVISED  
 in compliance with the Florida Building Code  
 Acceptance No. 04-0823.06  
 Expiration Date 01/08/09  
 By: [Signature]  
 Minimum Standards Product Control Division

Table & note revisions for approval	11/3/04
Renumbered sheet	7/14/04
Table revisions for approval	12/1/03
Renumbered & table revisions for approval	9/24/03
REVISION DESCRIPTION	DATE

**CHART No. 1**



MIAMI DADE COUNTY - PRODUCT APPROVAL

TITLE		
CHEM-STUD ANCHOR		
2 Powers Square Powers Fasteners, Inc. New Rochelle, N.Y. 10801		
DATE OF ISSUE:	SHEET No.	DRAWING No.
11/3/04	4 OF 4	MDC-03