



MIAMI-DADE
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
www.miamidade.gov/buildingcode

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: Power-Fast Epoxy and Chem-Stud 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 06/20/05, prepared by Powers Fasteners, Inc., signed and sealed by Lee W. Mattis, P.E, 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 # **04-0823.06** and consists of this page 1, evidence page E-1, as well as approval document mentioned above.

The submitted documentation was reviewed by **Carlos M. Utrera, P.E.**



NOA No 05-0701.07
Expiration Date: January 8, 2009
Approval Date: July 19, 2007

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 06/20/05, sheet 1 through 4 of 4, signed and sealed by Lee W. Mattis, P.E.

B TEST: (Submitted under NOA # 04-0823.06)

| | 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 Building Code Compliance Office (BCCO).

E MATERIAL CERTIFICATIONS:

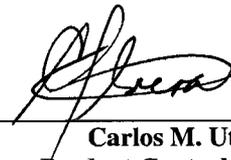
N/A

F STATEMENTS: (Submitted under NOA # 04-0823.06)

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

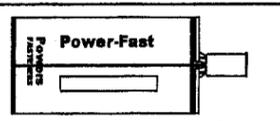
G OTHERS:

1. Letter of Compliance with Section 1621 of the 2004 Florida Building Code issued by CEL Consulting on 06/23/05, signed by Lee W. Mattis, P.E.



Carlos M. Utrera, P.E.
Product Control Examiner
NOA No 05-0701.07
Expiration Date: January 8, 2009
Approval Date: July 19, 2007

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.
- 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) ¹ | DISTANCE FOR REDUCED ANCHOR CAPACITY (Minimum Distance) ² | REDUCTION FACTOR ³ |
|-------------------------|--|--|-------------------------------|
| 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) ¹ | DISTANCE FOR REDUCED ANCHOR CAPACITY (Minimum Distance) ² | REDUCTION FACTOR ³ |
|-------------------------|--|--|-------------------------------|
| SPACING BETWEEN ANCHORS | 16D | 8D | 0.50 |
| EDGE DISTANCE - TENSION | 12D | 4D | 0.56 |
| EDGE DISTANCE - SHEAR | 16D | 4D | 0.17 |

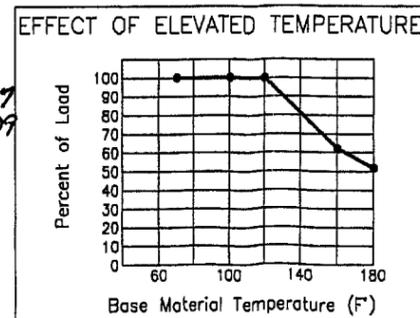
- The listed values are the minimum distances and spacing between anchors required to obtain the load values listed in Table No. 1, 2, 6 & 7. D = Anchor Diameter. When adjacent anchors are different sizes or embedments, use largest value of D.
- The listed values are the minimum distances at which the 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 Approved No. 05-0701-07 Expiration Date 01/08/2009
By: [Signature] Miami-Dade Precast 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 | ALLOWABLE STEEL STRENGTH (lbs) Provided for reference | |
|------------------|-----------------------|----------------------------|--|---|----------|
| | | | 2500 psi | 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 | ALLOWABLE STEEL STRENGTH (lbs) Provided for reference | |
|------------------|-----------------------|----------------------------|--|---|----------|
| | | | 2500 psi | 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.
- 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 |
|---|---------|
| Deleted 33-1/3% seismic/wind increase | 6/20/05 |
| 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

Lee W. Mattis 6/22/05

LEE W. MATTIS
No. 47787
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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

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 | |
| | | | | | 2500 psi | 2500 psi | |
| 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.
- 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 |
| | | | | TENSION | SHEAR | 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 adjusted by 0.85.
- 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.

| REVISION DESCRIPTION | DATE |
|---|---------|
| Deleted 33-1/3% seismic/wind increase | 6/20/05 |
| Table & note revisions for approval | 11/3/04 |
| Renumbered & table revisions for approval | 7/14/04 |

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

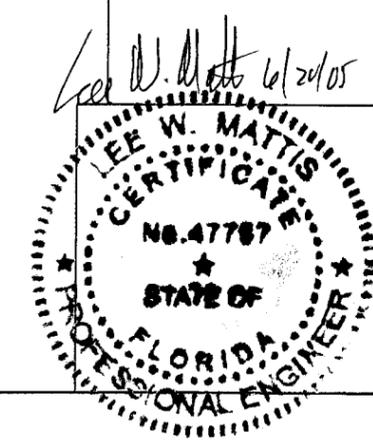
| Anchor Diameter (inches) | Bit Diameter (inches) | Minimum Embedment Depth (inches) | Minimum Edge Distance (inches) | Minimum End Distance (inches) | TENSION (pounds) | SHEAR (pounds) |
|--------------------------|-----------------------|----------------------------------|--------------------------------|-------------------------------|------------------|----------------|
| 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 | 2,425 | 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 DESIGNER
 In accordance with the Florida
 Building Code
 Approval No. 05-0701.07
 Issue Date 01/08/2009
 Lee W. Mattis
 Statewide Product Control



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

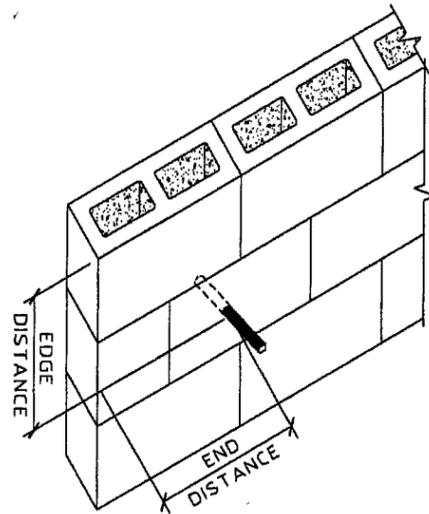
TABLE No. 14

SPECIFICATIONS FOR INSTALLATION OF THREADED RODS IN CONCRETE WITH POWER-FAST EPOXY ADHESIVE¹

| 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 (inch ²) | 0.1105 | 0.1963 | 0.3068 | 0.4418 | 0.6013 | 0.7854 | 1.2272 |
| D _{bit} = Nominal bit diameter (inch) | 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 |

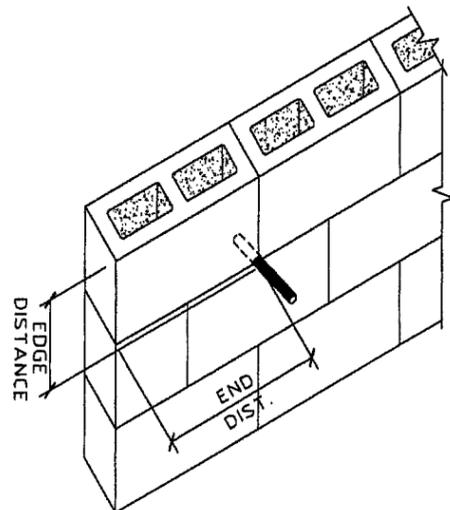
1. The fixture may be positioned after the minimum curing times listed in accordance with Table No. 5. Torque must not be applied to anchors until after the full curing time.

FIGURE No. 1



INSTALLATION IN FACE SHELL

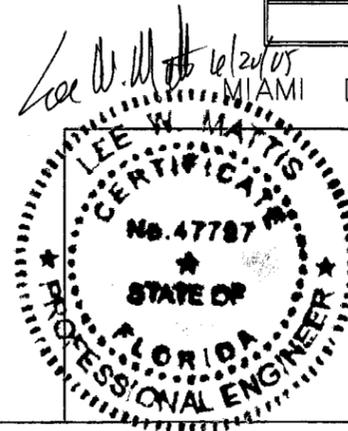
FIGURE No. 2



INSTALLATION IN JOINT

PRODUCT REVISED
 in compliance with the Florida
 Building Code
 Acceptance No. 05-0701.07
 Expiration Date 01/08/2009
 By: [Signature]
 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: 11/3/04 | SHEET No. 3 OF 4 | DRAWING No. MDC-03 |

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

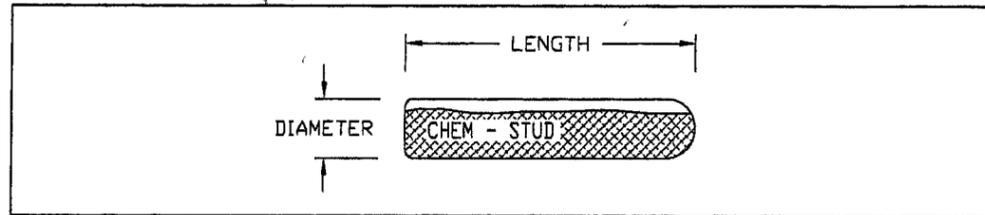


TABLE No. 1

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.
- 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) ¹ | DISTANCE FOR REDUCED ANCHOR CAPACITY (Minimum Distance) ² | REDUCTION FACTOR ³ |
|-------------------------|--|--|-------------------------------|
| 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.
- 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 ADHESIVE¹

| 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 _{nom} = Nominal area of threaded rod (inch ²) | 0.1105 | 0.1963 | 0.3068 | 0.4418 | 0.6013 | 0.7854 | 1.2272 |
| D _{bit} = Nominal bit diameter (Inch) | 7/16 | 9/16 | 11/16 | 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 | 375-500 |

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

TABLE No. 5

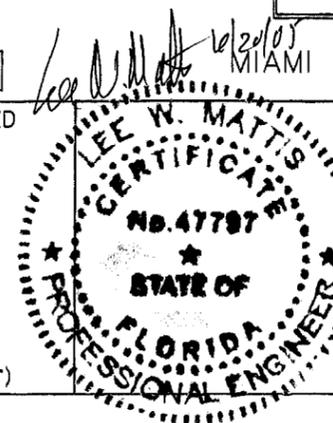
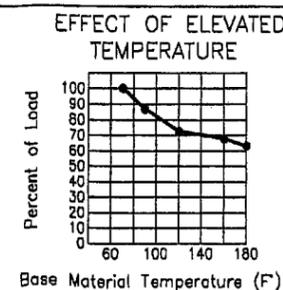
CHEM-STUD RECOMMENDED CURING TIME

| 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 to comply with the Florida Building Code
 Approval No. 05-0701.07
 Expiration Date 01/08/2009
 By: [Signature]
 Miami Code Product Control Division

| | |
|---|---------|
| Deleted 33-1/3% seismic/wind increase | 6/20/05 |
| 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 | | |
| Powers Fasteners, Inc. 2 Powers Square New Rochelle, N.Y. 10801 | | |
| DATE OF ISSUE: | SHEET No. | DRAWING No. |
| 11/3/04 | 4 OF 4 | MDC-03 |