

ICC Evaluation Service, Inc.  
[www.icc-es.org](http://www.icc-es.org)

**Business/Regional Office** ■ 5360 Workman Mill Road, Whittier, California 90601 ■ (562) 699-0543  
**Regional Office** ■ 900 Montclair Road, Suite A, Birmingham, Alabama 35213 ■ (205) 599-9800  
**Regional Office** ■ 4051 West Flossmoor Road, Country Club Hills, Illinois 60478 ■ (708) 799-2305

**DIVISION: 03—CONCRETE****Section: 03151—Concrete Anchoring****REPORT HOLDER:****UNITEX**

3101 GARDNER AVENUE  
KANSAS CITY, MISSOURI 64120  
(800) 821-5846

[www.unitex-chemicals.com](http://www.unitex-chemicals.com)  
[mail@unitex-chemicals.com](mailto:mail@unitex-chemicals.com)

**EVALUATION SUBJECT:****PRO-POXY 400 ADHESIVE ANCHOR SYSTEM****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2000 *International Building Code*® (IBC)
- 2000 *International Residential Code*® (IRC)
- 1997 *Uniform Building Code*™ (UBC)

**Properties evaluated:**

Structural

**2.0 USES**

The PRO-POXY 400 adhesive anchor system is used for anchoring building components to normal-weight concrete to resist dead, live, seismic and wind loads. The anchor system is an alternative to the cast-in-place anchors described in Section 1912 of the IBC and Section 1923.1 of the UBC. The anchors may also be used where an engineered design is submitted in accordance with Section R301.1.2 of the IRC.

**3.0 DESCRIPTION****3.1 General:**

The PRO-POXY 400 adhesive anchor system is a post-installed, stud-type, adhesive anchor for use in normal-weight concrete. The anchor system consists of a two-part adhesive and threaded anchor rods or steel reinforcing bars.

**3.2 Adhesive:**

PRO-POXY 400 is a two-component epoxy acrylate adhesive, supplied in a two-component dual cartridge. The two components combine at a 10:1 ratio by volume when dispensed through a static mixing nozzle supplied by UNITEX and attached to the cartridge. The adhesive is dispensed by using either a manual or pneumatic dispensing tool. PRO-POXY 400 has a one-year shelf life when stored in the manufacturer's unopened container at temperatures between -40°F and 80°F (-40°C and 26°C).

**3.3 Threaded Rods:**

Threaded steel rods, from  $\frac{3}{8}$  inch through  $1\frac{1}{4}$  inches (9.5 mm through 31.7 mm) in diameter, shall conform to ASTM A 307, Grade C [ $F_u = 58,000$  psi (415 MPa), minimum]; ASTM A 193, Grade B7 [ $F_u = 125,000$  psi (860 MPa), minimum]; ASTM F 593, Grade F593A (Stainless Alloy Type 304) [ $F_u = 85,000$  psi (588 MPa), minimum]; or ASTM F 593, Grade F593E (Stainless Alloy Type 316) [ $F_u = 85,000$  psi (588 MPa), minimum].

**3.4 Rebar:**

Deformed reinforcement bars, from No. 3 to No. 9, shall be Grade 60 and conform to ASTM A 615, A 616, A 617 or A 706.

**3.5 Concrete:**

Normal-weight concrete shall have the minimum compressive strength noted in Tables 2, 3, 4 and 6. Concrete shall conform to Section 1903 of the IBC, Section R402.2 of the IRC, and Section 1905 of the UBC, as applicable.

**4.0 DESIGN AND INSTALLATION****4.1 Design:**

The anchor capacities in this report are allowable loads for use in allowable stress design under the IBC and the UBC. For use under the IRC, an engineered design in accordance with IRC Section R301.1.2 shall be submitted to the code official. The allowable static loads for the steel threaded rod anchors in concrete are shown in Tables 2, 3 and 4, while the allowable static loads for steel reinforcing bar anchors in concrete are shown in Table 6.

When using the basic load combinations in accordance with IBC Section 1605.3.1.1 or UBC Section 1612.3.1, allowable loads are not permitted to be increased for wind or earthquake loading. When using the alternative basic load combinations in IBC Section 1605.3.2 or UBC Section 1612.3.2 that include wind or seismic loads, the allowable shear and tension loads for anchors installed in normal-weight concrete are permitted to be increased by  $33\frac{1}{3}$  percent. Alternatively, the basic load combinations may be reduced by a factor of 0.75 when using IBC Section 1605.3.2.

The allowable loads for the adhesive shall be adjusted for in-service temperatures exceeding 110°F (43.3°C), in accordance with Figure 1. The allowable loads shall be adjusted for anchor spacing and edge effects in accordance with Tables 5 and 7, as applicable. The spacing between anchors shall be at least four times the anchor embedment. Allowable loads for anchors subjected to combined shear and tension forces are determined by the following equation:

$$(P_s/P_t) + (V_s/V_t) \leq 1$$

where:

$P_s$  = Applied service tension load.

$P_t$  = Allowable service tension load.

$V_s$  = Applied service shear load.

$V_t$  = Allowable service shear load.

#### 4.2 Installation:

The anchors shall be installed in accordance with the manufacturer's published installation instructions and the requirements of this report. Anchor holes are drilled into the concrete using a rotary drill or a rotary hammer drill in the "rotation only" mode, using carbide-tipped drill bits conforming to ANSI B212.15-1994. The drill bit diameters are specified in Tables 2, 3, 4 and 6. The hole depth, measured from the concrete surface to the bottom edge of the hole, shall be equal to, or greater than, the anchor embedment specified in the tables. The anchor hole shall be cleaned with oil-free compressed air before and after the hole has been cleaned with a nylon brush. The anchor rod shall be free of oil, grease, scale and rust. Prior to injection of the adhesive into the holes, the adhesive shall be dispensed through the mixing nozzle until the mixed adhesive is a uniform gray color. The initial amount of adhesive is discarded. The nozzle shall be inserted to the bottom of the hole and the mixed adhesive injected into the hole. Sufficient adhesive shall be injected into the hole such that the adhesive is flush with the concrete surface after insertion of the anchor. The threaded rod or steel reinforcing bar shall be turned slightly while being inserted to the bottom of the hole. The anchor shall be inserted into the hole until it has reached the anchor embedment specified in Tables 2, 3, 4 and 6. The anchor rod shall not be disturbed until the adhesive fully cures. See Table 1 for the manufacturer's recommended adhesive curing times.

#### 4.3 Special Inspection:

Adhesive anchor installations require special inspection in accordance with IBC Section 1704 or UBC Section 1701. Special inspection in accordance with Section 1704 of the IBC shall be provided for installations under the IRC. The code official shall receive a report from an approved special inspector that includes the following details:

1. Adhesive anchor description, including the adhesive product name, expiration date, and mixing procedure.
2. Anchor bolt or rod material, grade, diameter, length and cleanliness.
3. Hole description, including verification of carbide-tipped drill bit compliance with ANSI B212.15-1994, hole depth and cleanliness. If diamond-core drill bits are used for drilling anchor holes in normal-weight concrete, the drill bit diameters shall be those specified in the tables of this report, and shall conform with the same tolerance limits set forth in ANSI B212.15-1994.
4. Installation description, including verification of concrete compressive strength by ASTM C 42 methods, when required; verification of physical properties of the concrete masonry wall construction components; substrate temperature at time of anchor installation; actual gel time when installed anchors are not disturbed; and verification of anchor installation and location (spacing and edge distance) in accordance with the published installation instructions and this report.

#### 5.0 CONDITIONS OF USE

The PRO-POXY 400 adhesive anchor system described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The anchors shall be installed in accordance with the manufacturer's installation instructions and this report.

- 5.2 Anchors shall be installed in holes predrilled into concrete using a carbide-tipped drill bit manufactured within the maximum and minimum drill tip dimensions specified in ANSI B212.15-1994.

- 5.3 Calculations justifying that the applied loads comply with this report shall be submitted to the code official for approval. The calculations shall be prepared by a registered design professional where required by statutes of the jurisdiction in which the project is to be constructed. Details showing the location of anchors and compliance with this report shall be submitted to the code official for approval.

- 5.4 Special inspection in accordance with Section 4.3 of this report shall be provided for all anchor installations.

- 5.5 Since an ICC-ES acceptance criteria for evaluating the performance of anchors in cracked concrete is unavailable at this time, the use of the anchors shall be limited to installation in uncracked concrete. Cracking occurs when  $f_t > f_r$  due to service loads or deformations.

- 5.6 Since an ICC-ES acceptance criteria for evaluating the performance of adhesive anchors subjected to fatigue or vibratory or shock loads, such as those encountered by supports for reciprocating engines and crane rails, is unavailable at this time, the use of these adhesive anchors under these conditions is outside the scope of this report.

- 5.7 Anchors shall be not permitted for use in conjunction with fire-resistive construction. Exceptions are:

- Anchors resist wind or seismic loading only.
- For other than wind or seismic loading, special consideration is given to fire exposure conditions.

- 5.8 Adhesive anchors may be used to resist tension and shear forces in overhead or wall installations only if consideration is given to the effects of elevated temperature conditions on anchor performance. Figure 1 describes load reduction factors for elevated temperatures.

- 5.9 Maximum allowable tension and shear loads are as set forth in this report. Allowable loads shall be adjusted for in-service temperatures greater than 110°F (43.3°C).

- 5.10 The use of the anchors in concrete for seismic loads shall be in accordance with Section 4.1 of this report.

- 5.11 Anchors are limited to interior use, except that installation in severe, moderate or negligible exterior weather locations in accordance with Figure 21-1-1 of UBC Standard 21-1 or Figure 1 of ASTM C 62-97a (IBC or IRC), shall be permitted when stainless steel threaded rods are installed.

- 5.12 Anchors may be installed in dry, damp, or water-filled holes.

- 5.13 The PRO-POXY 400 adhesive is manufactured at the Unitex facility in Kansas City, Missouri, under a quality control program with inspections conducted by CEL Consulting (AA-639)

#### 6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the ICC-ES Acceptance Criteria for Adhesive Anchors in Concrete and Masonry (AC58), dated November 2001, including the following optional test series: effects of edge distance on tension performance (Test Series 4 and 5); effects of spacing on tension performance (Test Series 8 and 9); effects of

edge distance on shear performance (Test Series 13 and 14); creep (Test Series 17); damp and water-filled holes (Test Series 19); freeze/thaw (Test Series 20); and seismic investigations in concrete construction (Test Series 21).

## 6.2 A quality control manual.

## 7.0 IDENTIFICATION

The adhesive is identified by packaging bearing the name and address of Unitex, the product name, the lot number traceable to a production date, shelf life, installation instructions, and the evaluation report number (ESR-1884).

**TABLE 1—UNITEX RECOMMENDED GEL TIME AND CURE TIME FOR UNITEX PRO-POXY 400**

MINIMUM SUBSTRATE TEMPERATURE	GEL TIME <sup>1</sup>	MINIMUM CURE TIME <sup>2</sup>
65°F	8 min	45 min
70°F	7 min	35 min
80°F	6 min	30 min
100°F	5 min	25 min

For SI: 1°F = 1.8 °C + 32.

<sup>1</sup>Gel time per ASTM C 881. Gel time is the interval between the beginning of mixing and the formation of the gelatinous mass.

<sup>2</sup>Minimum cure time required before the design or allowable load may be applied. Anchors are to be undisturbed during the minimum cure time.

**TABLE 2—PRO-POXY 400 ADHESIVE ANCHORS ALLOWABLE TENSION VALUES FOR THREADED ROD IN NORMAL-WEIGHT CONCRETE<sup>1,2,3,4,5,6,7,8</sup>**

ANCHOR DIAMETER (inches)	BIT DIAMETER (inches)	EMBEDMENT (inches)	ALLOWABLE TENSION LOADS BASED ON BOND STRENGTH (lbs)		ALLOWABLE TENSION LOADS BASED ON STEEL STRENGTH <sup>9</sup>		
			Concrete Strength, $f'_c$		ASTM A 307	ASTM A 193 Grade B7	ASTM F 593 SS304 or SS316
			2,300 psi	4,250 psi			
3/8	7/16	1 11/16	880	1,335	2,110	4,550	3,630
		3 3/8	2,670	2,695			
1/2	9/16	2 1/4	1,610	2,445	3,750	8,100	6,470
		4 1/2	3,850	4,995			
5/8	3/4	2 13/16	2,650	4,330	5,870	12,655	10,130
		5 5/8	7,365	8,185			
3/4	7/8	3 3/8	3,945	6,070	8,460	18,220	12,400
		6 3/4	7,250	10,865			
7/8	1	3 15/16	4,355	7,930	11,500	24,800	16,860
		7 7/8	10,060	14,215			
1	1 1/8	4 1/2	5,745	8,850	15,020	32,400	22,020
		9	13,680	13,735			
1 1/4	1 3/8	5 5/8	8,305	13,555	23,480	50,610	34,420
		11 1/4	18,530	20,045			

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.89 kPa.

<sup>1</sup>Allowable load shall be the lesser of the bond strength and steel strength loads.

<sup>2</sup>The allowable tension capacities for anchors listed in the table may be increased for duration of load in accordance with Section 4.1 of this report.

<sup>3</sup>The tabulated values are for anchors installed with the critical anchor spacing,  $s_{cr}$ , and critical edge distance,  $c_{cr}$ , specified in this table and Table 5 for reduced edge distances and spacing. The reduction factors in Table 5 shall be applied to the allowable loads tabulated for tension load based on bond strength.

<sup>4</sup>The tabulated values are for anchors installed in concrete having the designated compressive strength, or a higher strength, at the time of anchor installation.

<sup>5</sup>Adhesive anchors experience a reduction in tensile capacity with increased ambient temperatures. The load factors noted in Figure 1 must be applied to the values noted in Table 2 when the anchors are installed in locations in which the ambient temperatures may exceed 110°F (43.3°C).

<sup>6</sup>Special inspection in accordance with Section 4.3 shall be provided for all anchor installations.

<sup>7</sup>Bond strength loads are based on a safety factor of 4.0.

<sup>8</sup>Minimum member or slab thickness is 1.5  $h_v$ , where  $h_v$  is the anchor embedment.

<sup>9</sup>Steel strength values are based on the following equation:

$$T = 0.33 \times F_u \times A_{nom}$$

where:

$T$  = Allowable tension load (pounds).

$F_u$  = Minimum tensile stress of threaded rod (psi) specified in the referenced standard:

= 58 ksi for A 307, Grade C, steel.

= 125 ksi for A 193, Grade B7, steel.

= 100 ksi (3/8 to 5/8 inch) or 85 ksi (3/4 to 1 1/4 inch) F 593, Grade F593A (A304 SS).

= 100 ksi (3/8 to 5/8 inch) or 85 ksi (3/4 to 1 1/4 inch) F 593, Grade F593E (A316 SS).

$A_{nom}$  = Tabulated nominal cross-sectional area of threaded rod (square inches).

**TABLE 3—PRO-POXY 400 ADHESIVE ANCHORS ALLOWABLE SHEAR VALUES (PERPENDICULAR TO SUBSTRATE EDGE) FOR THREADED ROD INSTALLED IN MINIMUM 2500 psi NORMAL-WEIGHT CONCRETE<sup>1,2,3,4,5,6,7</sup>**

ANCHOR DIAMETER (inches)	DRILL BIT DIAMETER (inches)	ANCHOR EMBEDMENT DEPTH (inches)	ALLOWABLE SHEAR LOAD BASED ON BOND STRENGTH (lbs)	ALLOWABLE SHEAR LOAD BASED ON STEEL STRENGTH <sup>8</sup> (lbs)		
				ASTM A 307	ASTM A 193 Grade B7	ASTM F 593 SS304 or SS316
3/8	7/16	1 11/16	1,285	1,085	2,340	1,870
		3 3/8	1,320			
3/4	7/8	3 3/8	5,550	4,360	9,390	6,390
		6 3/4	6,220			
1 1/4	1 3/8	5 5/8	12,095	12,100	18,910	17,730
		11 1/4	13,075			

For **SI**: 1 inch = 25.4 mm, 1 psi = 6.89 kPa, 1 lbf = 4.48 N.

<sup>1</sup>The allowable load shall be the lesser of the loads based on bond and steel strength.

<sup>2</sup>The allowable shear capacities for anchors listed in the table may be increased for duration of load in accordance with Section 4.1 of this report.

<sup>3</sup>The tabulated values are for anchors installed in normal-weight concrete having reached the designated ultimate compressive strength at time of anchor installation.

<sup>4</sup>The tabulated values are for anchors installed with the critical anchor spacing,  $s_{cr}$ , and critical edge distance,  $c_{cr}$ , specified in Table 5. The reduction factors in Table 5 must be applied to the allowable loads tabulated for the shear load based on bond strength.

<sup>5</sup>Adhesive anchors experience a reduction in shear capacity with increased ambient temperatures. The load factors noted in Figure 1 shall be applied to the values noted Table 3 when the anchors are installed in locations in which the ambient temperatures may exceed 110°F (43.3°C).

<sup>6</sup>Minimum concrete thickness shall be 1.5 times  $h_v$ .

<sup>7</sup>Bond strength values are based on a safety factor of 4.0.

<sup>8</sup>Steel shear strength values are based on the equation:

$$V = 0.17 \times F_u \times A_{nom}$$

where:

$T$  = Allowable tension load (pounds).

$F_u$  = Minimum tensile stress of threaded rod (psi) specified in the referenced standard:

= 58 ksi for A 307, Grade C, steel.

= 125 ksi for A 193, Grade B7, steel.

= 100 ksi (3/8 to 5/8 inch) or 85 ksi (3/4 to 1 1/4 inch) F 593, Grade F593A (A304 SS).

= 100 ksi (3/8 to 5/8 inch) or 85 ksi (3/4 to 1 1/4 inch) F 593, Grade F593E (A316 SS).

$A_{nom}$  = Tabulated nominal cross-sectional area of threaded rod (square inches).

**TABLE 4—PRO-POXY 400 ADHESIVE ANCHORS ALLOWABLE SHEAR VALUES (PARALLEL TO SUBSTRATE EDGE) FOR THREADED ROD INSTALLED IN MINIMUM 2500 psi NORMAL-WEIGHT CONCRETE<sup>1,2,3,4,5,6</sup>**

ANCHOR DIAMETER (inch)	DRILL BIT DIAMETER (inch)	ANCHOR EMBEDMENT DEPTH (inches)	ALLOWABLE SHEAR LOAD BASED ON BOND STRENGTH (lbs)	ALLOWABLE SHEAR LOAD BASED ON STEEL STRENGTH (lbs)		
				ASTM A 307	ASTM A 193 Grade B7	ASTM F 593 SS 304 or SS 316
3/8	7/16	3 3/8	825	1,085	2,340	1,870
1/2	9/16	4 1/2	1,070	1,930	4,160	3,330
5/8	3/4	5 5/8	1,650	3,025	6,520	5,220
3/4	7/8	6 3/4	1,900	4,360	9,390	6,390

For **SI**: 1 inch = 25.4 mm, 1 psi = 6.89 kPa, 1 lbf = 4.48 N.

<sup>1</sup>The allowable load shall be the lesser of the loads based on bond and steel strength.

<sup>2</sup>The tabulated values are for anchors installed in normal-weight concrete having reached the designated ultimate compressive strength at time of anchor installation.

<sup>3</sup>The tabulated values are for anchors installed with the critical anchor spacing,  $s_{cr}$ , and the critical edge distance,  $c_{cr}$ , specified in Table 5. The critical edge distance parallel to the shear load direction is as specified in Table 5.

<sup>4</sup>Adhesive anchors experience a reduction in shear capacity with increased ambient temperatures. The load factors noted in Figure 1 must be applied to the values noted Table 4 when the anchors are installed in locations in which the ambient temperatures may exceed 110°F (43.3°C).

<sup>5</sup>Minimum concrete thickness shall be 1.5 times  $h_v$ .

<sup>6</sup>Bond strength values are based on a safety factor of 4.0.

<sup>7</sup>Steel shear strength values are based on the equation:

$$V = 0.17 \times F_u \times A_{nom}$$

where:

$T$  = Allowable tension load (pounds).

$F_u$  = Minimum tensile stress of threaded rod (psi) specified in the referenced standard:

= 58 ksi for A 307, Grade C, steel.

= 125 ksi for A 193, Grade B7, steel.

= 100 ksi (3/8 to 5/8 inch) or 85 ksi (3/4 to 1 1/4 inch) F 593, Grade F593A (A304 SS).

= 100 ksi (3/8 to 5/8 inch) or 85 ksi (3/4 to 1 1/4 inch) F 593, Grade F593E (A316 SS).

$A_{nom}$  = Tabulated nominal cross-sectional area of threaded rod (square inches).

**TABLE 5—PRO-POXY 400 ADHESIVE ANCHORS ALLOWABLE SPACING AND  
EDGE DISTANCE FOR THREADED ROD IN CONCRETE**

DIMENSION/LOAD TYPE	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	$s_{cr} = 4 h_v$	$s_{min} = 4D$	0.89
Edge distance—tension loads	$c_{cr} = 12D$	$c_{min} = 4D$	0.62
Edge distance—shear loads perpendicular to substrate edge	$c_{cr} = 12D$	$c_{min} = 4D$	0.24

<sup>1</sup>The listed values shall be the minimum distances required to obtain the load values listed in Tables 2, 3 and 4. D = anchor diameter,  $h_v$  = anchor embedment depth. When adjacent anchors are different sizes or have different embedments, use largest values for D and  $h_v$ .

<sup>2</sup>The listed values shall be the minimum distances at which the anchor can be installed, when load values are adjusted appropriately.

<sup>3</sup>Load values in the tables shall be multiplied by the reduction factor when anchors are installed at the minimum distance listed. Linear interpolation applies for location between critical and minimum distances. Multiple reduction factors for more than one spacing or edge distance are calculated separately and multiplied.

**TABLE 6—PRO-POXY 400 ALLOWABLE TENSION VALUES FOR REINFORCING STEEL  
IN NORMAL-WEIGHT CONCRETE<sup>1,2,3,4,5,6,7</sup>**

ANCHOR SIZE	BIT DIAMETER (inches)	ANCHOR EMBEDMENT DEPTH (inches)	ALLOWABLE TENSION LOADS BASED ON BOND OR CONCRETE	ALLOWABLE TENSION LOADS BASED ON STEEL STRENGTH <sup>8</sup>
			$f'_c = 2,000$ psi	A 615 Gr. 60
#3	$\frac{7}{16}$	$3\frac{3}{8}$	1,555	2,640
#4	$\frac{5}{8}$	$4\frac{1}{2}$	4,110	4,800
#5	$\frac{3}{4}$	$5\frac{5}{8}$	5,830	7,440
#6	$\frac{7}{8}$	$6\frac{3}{4}$	7,785	10,560
#7	1	$7\frac{7}{8}$	9,245	14,440
#8	$1\frac{1}{8}$	9	10,830	18,720
#9	$1\frac{3}{8}$	$11\frac{1}{4}$	15,335	24,000

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.89 kPa.

<sup>1</sup>Allowable load shall be the lesser of the bond strength and steel strength loads.

<sup>2</sup>The tabulated values shall be for anchors installed with the critical anchor spacing,  $s_{cr}$ , and critical edge distance,  $c_{cr}$ , specified in Table 7. The reduction factors in Table 7 must be applied to the allowable loads tabulated for tension load based on bond strength.

<sup>3</sup>The tabulated values shall be for anchors installed in concrete having the designated compressive strength or higher at the time of anchor installation.

<sup>4</sup>Adhesive anchors experience a reduction in tensile capacity with increased ambient temperatures. The load factors noted in Figure 1 shall be applied to the values noted in Table 6 when the anchors are installed in locations in which the ambient temperatures may exceed 110°F.

<sup>5</sup>Special inspection in accordance with Section 2.5 shall be provided for all anchor installations.

<sup>6</sup>Bond strength loads are based on a safety factor of 4.0.

<sup>7</sup>Minimum member or slab thickness is  $1.5 h_v$ , where  $h_v$  is the anchor embedment.

<sup>8</sup>Rebar steel strength values are based on the following equation:

$$T = f_s \times A_{nom}$$

where:

T = Allowable tension load (pounds).

$f_s$  = Minimum specified tensile stress of deformed rebar (psi) from Appendix A, Section A.3.2, of ACI 318-99.

= 24 ksi for Grades 60 reinforcement.

$A_{nom}$  = Tabulated nominal cross-sectional area of threaded rod (square inches).

**TABLE 7—PRO-POXY 400 ADHESIVE ANCHORS ALLOWABLE SPACING AND  
EDGE DISTANCE FOR REINFORCING STEEL IN CONCRETE**

DIMENSION/LOAD TYPE	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	$s_{cr} = 4 h_v$	$s_{min} = 4D$	0.50
Edge distance—tension Loads	$c_{cr} = 12D$	$c_{min} = 4D$	0.62

<sup>1</sup>The listed values are the minimum distances required to obtain the load values listed in Table 6. D = anchor diameter,  $h_v$  = anchor embedment depth. When adjacent anchors are different sizes or have different embedments, use largest values for D and  $h_v$ .

<sup>2</sup>The listed values are the minimum distances at which the anchor can be installed, when load values are adjusted appropriately.

<sup>3</sup>Load values in the tables are multiplied by the reduction factor when anchors are installed at the minimum distance listed. Use linear interpolation for spacing between critical and minimum distances. Multiple reduction factors for more than one spacing or edge distance are calculated separately and multiplied.

Load Capacity of Pro-Poxy 400 Based on In-Service Temperature

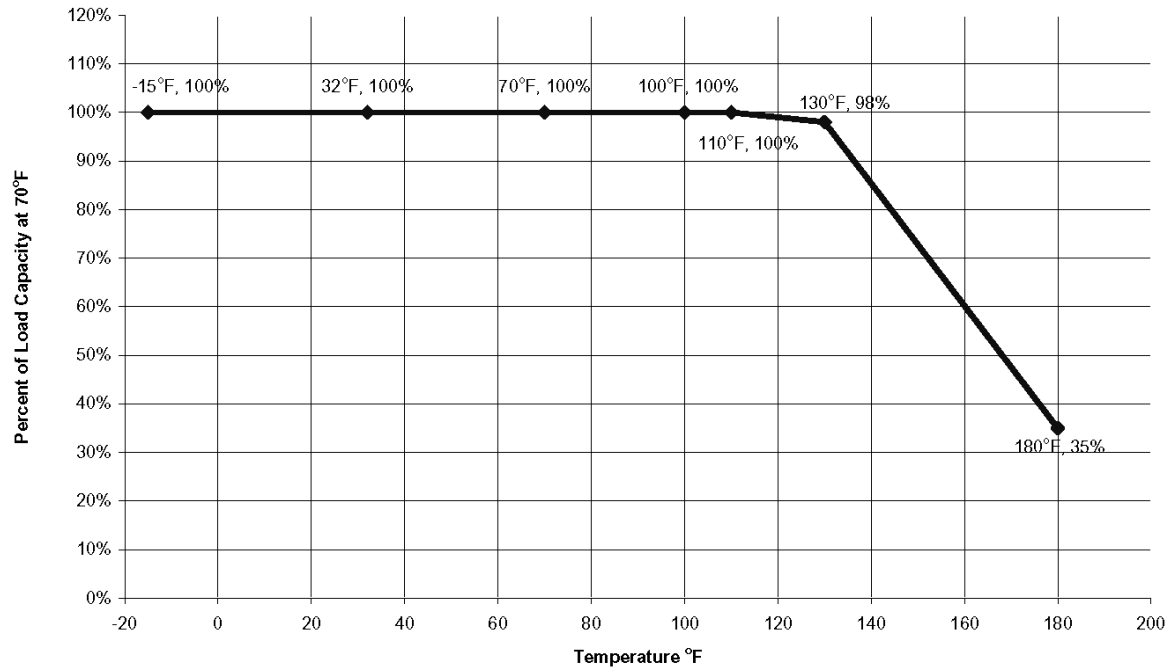


FIGURE 1—LOAD CAPACITY BASED ON IN-SERVICE TEMPERATURE