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RESEARCH REPORT: RR 25230
(CSI # 03150)

Expires: February 1, 2009

GENERAL APPROVAL - Renewal/Clerical Modification - Power-Fast Epoxy Adhesive Anchor System.

DETAILS

The Power-Fast Epoxy Adhesive Anchor System is approved for use in normal weight concrete, structural lightweight concrete and concrete masonry with allowable loads as specified in Table 6 through 13 provided the installation of the anchor system conform to the following conditions:

1. The values in this report shall not be used in repair, retrofit and new construction of tilt-up wall anchorage (in tension) for the connection with the horizontal wood diaphragm.
2. The values in this report shall not be used in repair, retrofit and new construction of masonry buildings wall anchorage (in tension) in connection with wood horizontal diaphragm.
3. The allowable Values may be increased per section 1612.3 for duration of loads such as wind or Seismic forces.
4. Concrete shall have attained its minimum design strength prior to installation of anchors.
5. The tabulated design values are for anchors installed at 12 rod diameters for spacing and 6 rod diameters for edge distance. Such spacing and edge distance may be reduced 50 percent with an equal reduction in value. Use linear interpolation for intermediate spacing and edge distance.
6. Installations of anchors shall be in accordance with the manufacturer's instructions, except as otherwise specified herein. A copy of the installation instructions shall be provided at each job site.

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7. Special inspection is required per Section 91.1701 of the 2002 Los Angeles City Building Code during installation of anchor system.
8. Shear Values listed in Table 6 and 9 is for anchorage of steel to concrete. Shear values for anchorage of wood members shall conform to Chapter 23 of the Code.
9. The Power-Fast Anchor System cannot be used to support fire-resistive construction.
10. For bond strength reductions at elevated temperatures, refer to Figure No. 1. The curing time for Power Fast epoxy is shown in Table No. 14.

DISCUSSION

The clerical modification is to change the company address.

The approval is based on tests.

For load values used to repair, retrofit and new construction of tilt-up and masonry building all anchorage (in tension) in connection with the horizontal wood diaphragm, see Information Bulletin P/Bc 2002-003.

This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this approval have been met in the project in which it is to be used.

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.

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Attachment: 14 Load Tables and One Graph Figure (7 pages)

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TABLE 1 – APPLICATION DESCRIPTIONS

BASE MATERIAL	ADHESIVE	ANCHOR MATERIAL	SPECIFICATION DATA	LOAD DATA
Normal-weight concrete	Power-Fast	Threaded rod	Tables 2,4 & 5	Tables 6, 8, 9 and 10
		Reinforcing bar	Tables 3,4 & 5	Table 7
Lightweight concrete	Power-Fast	Threaded rod	Tables 2,4 & 5	Table 11
Hollow concrete masonry	Power-Fast	Threaded rod with screen tubes	Tables 4 & 5	Table 12
Grouted concrete masonry	Power-Fast	Threaded rod	Tables 4 & 5	Table 13

TABLE 2 – SPECIFICATIONS FOR INSTALLATION OF THREADED RODS IN CONCRETE WITH POWER-FAST EPOXY ADHESIVE

PROPERTY	THREADED ROD DIAMETER (d)						
	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
A_{so} = Tensile stress area of rod (inch ²)	0.0775	0.1419	0.2260	0.3345	0.4617	0.6057	0.9691
d_{bit} = Nominal bit diameter (inch)	7/16	9/16	5/8	7/8	1	1-1/8	1-3/8

For SI: 1 inch = 25.4 mm, 1 ft.-lb. = 1.35 N-m, 1 inch² = 645.2 mm²

TABLE 3 – SPECIFICATIONS FOR INSTALLATION OF REINFORCING BARS IN CONCRETE WITH POWER-FAST EPOXY ADHESIVE

PROPERTY	REINFORCING BAR SIZES							
	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10
d = Nominal bar diameter (inch)	3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4
d_{ef} = Effective anchor diameter (inch)	0.375	0.500	0.625	0.750	0.875	1.000	1.128	1.270
A_{br} = Nominal area of reinforcing bar (inch ²)	0.110	0.200	0.310	0.440	0.600	0.790	1.000	1.270
d_{bit} = Nominal bit diameter (inch)	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-1/2

For SI: 1 inch = 25.4 mm, 1 inch² = 645.2 mm²

TABLE 4 - SPECIFICATIONS FOR MATERIAL PROPERTIES OF THREADED ROD AND REINFORCING BAR

THREADED ROD				
Steel Description (General)	Steel Specification (ASTM)	Rod Diameters (inch)	Minimum Yield Strength f_y (ksi)	Minimum Ultimate Strength f_u (ksi)
Standard carbon rod	A 36	All	36.0	58.0
	A 307 Grade C	3/8 thru 4	-	60.0
High strength carbon rod	A 193 Grade B7	3/8 thru 2-1/2	105.0	120.0
Stainless rod (Type 304 / 316 SS)	F 593 Condition CW	3/8 thru 5/8	65.0	100.0
		3/4 thru 1-1/2	45.0	85.0
REINFORCING BAR				
Steel Description (General)	Steel Specification (ASTM)	Rebar Size (No.)	Minimum Yield Strength f_y (ksi)	Minimum Ultimate Strength f_u (ksi)
Grade 40 rebar	A 615, A 616, A 617, A 706, A 767 or A 775	All	40.0	70.0
Grade 60 rebar			60.0	90.0

For SI: 1 inch = 25.4 mm, 1 ksi = 6.89 Mpa

TABLE 5 - ALLOWABLE LOAD CAPACITIES FOR THREADED ROD AND REINFORCING BAR BASED ON STEEL STRENGTH^{1,2,3}

THREADED ROD								
ANCHOR DIAMETER (inches)	Tension (pounds)				Shear (pounds)			
	Steel Specification				Steel Specification			
	ASTM A 36	ASTM A 307	ASTM A 193 B7	ASTM F 593 304 / 316 SS	ASTM A 36	ASTM A 307	ASTM A 193 B7	ASTM F 593 304 / 316 SS
3/8	2,115	2,185	4,555	3,630	1,090	1,125	2,345	1,870
1/2	3,755	3,885	8,095	6,470	1,940	2,000	4,170	3,330
5/8	5,870	6,075	12,665	10,130	3,025	3,130	6,520	5,210
3/4	8,455	8,750	18,225	12,400	4,355	4,505	9,390	6,390
7/8	11,510	11,905	24,805	16,860	5,930	6,135	12,780	8,680
1	15,035	15,550	32,400	22,020	7,745	8,010	16,690	11,340
1 1/4	23,485	24,295	50,615	34,420	12,100	12,515	26,075	17,730

REINFORCING BAR				
REBAR SIZE (No.)	Tension (pounds)		Shear (pounds)	
	Steel Specification		Steel Specification	
	ASTM A 615, A 616, A 617, A 706, A 767, or A 775		ASTM A 615, A 616, A 617, A 706, A 767, or A 775	
	Grade 40	Grade 60	Grade 40	Grade 60
3	2,200	2,640	1,310	1,680
4	4,000	4,800	2,380	3,060
5	6,200	7,440	3,690	4,740
6	8,800	10,560	5,235	6,730
7	12,000	14,400	7,140	9,180
8	15,800	18,960	9,400	12,085
9	20,000	24,000	11,900	15,300
10	25,400	30,480	15,115	19,430

For SI: 1 inch = 25.4 mm, 1 lbf = 4.48 N

¹The tabulated allowable load capacities for steel are provided for reference. These values must be compared with the corresponding allowable bond strength capacities for the Power-Fast adhesive anchors, diameter to diameter. Allowable design load must be the lesser of allowable steel strength as shown above and the allowable bond capacities as shown in Tables 6 through 13.

²Allowable tension loads for threaded rod equal $0.33 \times A_{nom} \times f_u$. Allowable shear loads for threaded rod equal $0.17 \times A_{nom} \times f_u$.

³Allowable steel strength for reinforcing bars are based on the tensile stresses listed in Section 1923.2 of the UBC, applied to the cross-sectional area of the rebar. Allowable shear loads for reinforcing bar equal $0.17 \times A_{br} \times f_u$.

**** TABLE 6 – ALLOWABLE TENSION AND SHEAR LOAD CAPACITIES FOR POWER-FAST EPOXY ADHESIVE INSTALLED WITH THREADED ROD IN CONCRETE^{1,2}**

ROD DIAMETER <i>d</i> (inches)	MINIMUM EMBEDMENT <i>h_v</i> (inches)	ALLOWABLE TENSION LOAD (pounds)			ALLOWABLE SHEAR LOAD (pounds) <i>f'_c ≥ 2000 psi</i>
		<i>f'_c = 2000 psi</i>	<i>f'_c = 2500 psi</i>	<i>f'_c = 5000 psi</i>	
3/8	1 1/2	-	925 500	1,045 500	1,100
	3	1,000	2,320 1000	2,740 1000	
	3 3/8	-	2,670 1000	3,130 1000	1,535
	5 1/4	-	3,915 1200	3,795 1200	
1/2	2	-	1,340 950	2,615 950	-
	4	1,900	2,955 1900	4,075 1900	1,250
	4 1/2	-	3,360 1900	5,440 1900	
	7	-	5,840 2280	7,125 2280	
2 1/2	-	1,930 1500	2,625 1500	-	
5/8	4 1/2	2,560	4,155 3000	4,875 3000	2,750
	5 5/8	3,000	5,410 3000	6,145 3000	
	8 3/4	-	6,620 3600	9,570 3600	
	3	-	2,635 2250	3,515 2250	
5	3,800	5,425 4500	7,175 4500		
6 3/4	4,500	7,870 4500	10,365 4500		
10 1/2	-	11,210 5400	11,970 5400		
3/4	3 1/2	-	3,950 2550	4,455 2550	-
	6	3,780	6,530 5100	8,465 5100	3,350
	7 7/8	5,100	9,140 5100	11,475 5100	
	12 1/4	-	14,645 6120	18,250 6120	
5	-	3,785 2850	5,395 2850	-	
1	7	4,650	6,150 5700	8,800 5700	3,750
	9	5,700	11,185 5700	16,230 5700	
	14	-	16,470 6840	20,106 6840	
	5	-	4,690 4000	6,695 4000	
11 1/4	-	11,615 8000	25,225 8000		
17 1/2	-	22,240 9600	34,340 9600		

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

¹Tabulated load values are for anchors installed in concrete that has reached the minimum designated ultimate compressive strength at the time of installation. Linear interpolation may be used for concrete strengths between those listed.

²Linear interpolation for allowable loads for anchors may be used for intermediate embedment depths between those listed.

**** TABLE 7 – ALLOWABLE TENSION AND SHEAR LOAD CAPACITIES FOR POWER-FAST EPOXY ADHESIVE INSTALLED WITH REINFORCING BAR IN CONCRETE¹**

REINFORCING BAR SIZE <i>d</i> (No.)	MINIMUM EMBEDMENT <i>h_v</i> (inches)	ALLOWABLE TENSION LOAD (pounds)	ALLOWABLE SHEAR LOAD (pounds)
		<i>f'_c ≥ 2000 psi</i>	<i>f'_c ≥ 2000 psi</i>
No. 3	3 3/8	2,785 1000	2,875 1100
No. 4	4 1/2	3,810 1900	3,765 1250
No. 5	5 5/8	5,030 3000	6,560 2750
No. 6	6 3/4	6,580 4500	6,730 2940
No. 7	7 7/8	8,330 5100	12,395 3350
No. 8	9	12,865 5700	14,785 3750
No. 9	10 1/8	13,930 6800	20,115 4750
No. 10	11 1/4	18,515 8000	21,875 5800

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

¹Tabulated load values are for anchors installed in concrete that has reached the minimum designated ultimate compressive strength at the time of installation.

** modified by City of Los Angeles

**** TABLE 8 – ALLOWABLE TENSION LOAD CAPACITIES FOR POWER-FAST EPOXY ADHESIVE INSTALLED WITH THREADED ROD IN CONCRETE FOR SILL PLATE AND OTHER ATTACHMENTS^{1,2}**

ROD DIAMETER <i>d</i> (inches)	MINIMUM EDGE DIST. (inches)	MINIMUM END DISTANCE (inches)	MINIMUM EMBEDMENT <i>h_v</i> (inches)	ALLOWABLE TENSION LOAD (pounds)			
				<i>f'_c</i> = 2000 psi	<i>f'_c</i> = 3000 psi	<i>f'_c</i> = 4000 psi	<i>f'_c</i> = 5000 psi
1/2	1 3/4	7	4 1/2	2,150 950	2,530 950	2,915 950	3,295 950
			5	2,405 950	2,790 950	3,170 950	3,555 950
			5 1/2	2,660 950	3,045 950	3,430 950	3,815 950
			6	2,915 950	3,305 950	3,690 950	4,080 950
			6 1/2	3,175 950	3,565 950	3,950 950	4,340 950
			7	3,430 950	3,820 950	4,210 950	4,600 950
5/8	1 3/4	8 3/4	5 5/8	2,615 1500	3,260 1500	3,905 1500	4,550 1500
			6 1/4	3,010 1500	3,690 1500	4,375 1500	5,055 1500
			6 7/8	3,405 1500	4,125 1500	4,840 1500	5,560 1500
			7 1/2	3,805 1500	4,560 1500	5,310 1500	6,065 1500
			8 1/8	4,200 1500	4,990 1500	5,780 1500	6,570 1500
			8 3/4	4,595 1500	5,420 1500	6,250 1500	7,075 1500
7/8	1 3/4	12 1/4	7 7/8	5,055 2550	5,415 2250	5,775 2250	6,135 2250
			8 3/4	5,585 2550	6,045 2250	6,500 2250	6,960 2250
			9 5/8	6,120 2550	6,675 2250	7,230 2250	7,785 2250
			10 1/2	6,650 2550	7,300 2250	7,955 2250	8,605 2250
			11 3/8	7,185 2550	7,935 2250	8,600 2250	9,430 2250
			12 1/4	7,715 2550	8,560 2250	9,410 2250	10,255 2250

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

¹Tabulated load values are for anchors installed in concrete that has reached the minimum designated ultimate compressive strength at the time of installation. Linear interpolation may be used for concrete strengths between those listed.

²Linear interpolation for allowable loads for anchors may be used for intermediate embedment depths between those listed.

**** TABLE 9 – ALLOWABLE SHEAR LOAD CAPACITIES FOR POWER-FAST EPOXY ADHESIVE INSTALLED WITH THREADED ROD IN CONCRETE FOR SILL PLATE AND OTHER ATTACHMENTS¹**

ROD DIAMETER <i>d</i> (inches)	MINIMUM EDGE DIST. (inches)	MINIMUM END DISTANCE (inches)	MINIMUM EMBEDMENT <i>h_v</i> (inches)	ALLOWABLE SHEAR LOAD (pounds)	
				Parallel to the Free Edge	Towards the Free Edge
				<i>f'_c</i> ≥ 2500 psi	<i>f'_c</i> ≥ 2500 psi
1/2	1 3/4	7	4 1/2	1,680 2550	620
5/8	1 3/4	8 3/4	5 5/8	2,260 2550	680
7/8	1 3/4	12 1/4	7 7/8	2,910 2550	1,020

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

¹Tabulated load values are for anchors installed in concrete that has reached the minimum designated ultimate compressive strength at the time of installation.

**** TABLE 10 – ALLOWABLE TENSION LOAD CAPACITIES FOR POWER-FAST EPOXY ADHESIVE INSTALLED WITH THREADED ROD IN CONCRETE STEM WALLS FOR SILL PLATE AND OTHER ATTACHMENTS^{1,2}**

ROD DIAMETER <i>d</i> (inches)	MINIMUM EDGE DISTANCE (inches)	MINIMUM END DISTANCE (inches)	MINIMUM WALL WIDTH (inches)	MINIMUM EMBEDMENT <i>h_v</i> (inches)	ALLOWABLE TENSION LOAD (pounds)
					<i>f'_c</i> ≥ 2500 psi
1/2	1 3/4	5	6	7	2,830 2550
				8 3/4	3,675 2550
5/8	1 3/4	5	6	10	3,730 2550
				10	3,915 2550
				12 1/2	3,835 2550
				12 1/2	4,055 2550
3/4	1 3/4	5	6	12 1/4	4,890 2550
				15	5,530 2550
				15	6,565 2550
				17 1/2	6,110 2550

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

¹Tabulated load values are for anchors installed in concrete that has reached the minimum designated ultimate compressive strength at the time of installation.

²Linear interpolation for allowable loads for anchors may be used for intermediate embedment depths between those listed.

TABLE 11 – ALLOWABLE TENSION AND SHEAR LOAD CAPACITIES FOR POWER-FAST EPOXY ADHESIVE INSTALLED WITH THREADED ROD IN STRUCTURAL LIGHTWEIGHT CONCRETE^{1,2}

ROD DIAMETER <i>d</i> (inches)	SPACING <i>s_c</i> (inches)	EDGE DISTANCE <i>c_c</i> (inches)	MINIMUM EMBEDMENT <i>h_v</i> (inches)	ALLOWABLE TENSION LOAD (pounds)		ALLOWABLE SHEAR LOAD (pounds)	
				<i>f'c</i> ≥ 3000 psi		<i>f'c</i> ≥ 3000 psi	
3/8	6	3 3/4	1 1/2	820	500	1,290	935
			1 7/8	1,075	500	1,305	935
			2 1/4	1,325	500	1,325	935
			2 5/8	1,580	500	1,340	935
			3	1,830	850	1,360	
			3 3/8	2,085	850	1,375	
1/2	8	5	2	1,275	950	2,005	1250
			2 1/2	1,665	950	2,000	1650
			3	2,095	1140	2,155	1650
			3 1/2	2,510	1140	2,235	1650
			4	2,920	2380	2,310	
			4 1/2	3,330	2380	2,385	
5/8	10	6 1/4	2 1/2	1,720	1275	2,660	2750
			3 1/8	2,145	1275	3,040	2750
			3 3/4	2,570	1742	3,160	
			4 3/8	3,000		3,310	
			5	3,425		3,460	
			5 5/8	3,850		3,610	

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

¹Tabulated load values are for anchors installed in structural lightweight concrete that has reached the minimum designated ultimate compressive strength at the time of installation. Linear interpolation may be used for concrete strengths between those listed.

²Linear interpolation for allowable loads may be used for anchors at intermediate embedment depths between those listed.

TABLE 12 – ALLOWABLE TENSION AND SHEAR LOAD CAPACITIES FOR POWER-FAST EPOXY ADHESIVE INSTALLED WITH THREADED ROD AND SCREEN TUBES IN HOLLOW CONCRETE MASONRY UNITS^{1,2,3}

ROD DIAMETER (inches)	DRILL BIT DIAMETER (inches)	MINIMUM EMBEDMENT (inches)	EDGE DISTANCE (inches)	END DISTANCE (inches)	TENSION LOAD (pounds)	SHEAR LOAD (pounds)
1/2	5/8	3 1/2	3 3/4	3 3/4	135	315
5/8	3/4	3 1/2	3 3/4	3 3/4	135	375

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

¹ Tabulated load values are for anchors installed in minimum 8-inch wide, Type II, Grade N, lightweight, medium weight, or normal weight concrete masonry units conforming to UBC Standard 21-4 or ASTM C 90. Masonry prism compressive strength, tested in accordance with ASTM E 447 (UBC Standard 21-17), must be at least 1500 psi at the time of anchor installation.

² Anchors may be installed at any location in the face shell. A maximum of one anchor per cell is allowed.

³ Embedment depth is the minimum screen tube length as measured from the outside surface of the masonry unit.

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**** TABLE 13 – ALLOWABLE TENSION AND SHEAR LOAD CAPACITIES FOR POWER-FAST EPOXY ADHESIVE INSTALLED WITH THREADED ROD IN GROUT-FILLED CONCRETE MASONRY^{1,2}**

ANCHOR INSTALLED THROUGH FACE SHELL							
ROD DIAMETER (inches)	DRILL BIT DIAMETER (inches)	MINIMUM EMBEDMENT (inches)	EDGE DISTANCE (inches)	END DISTANCE (inches)	TENSION LOAD (pounds)	SHEAR LOAD (pounds)	
3/8	7/16	3 1/2	3 3/4	12	1,890 760	1,210 480	
			12	12	1,160 760	1,255 480	
1/2	9/16	4 1/4	3 3/4	12	1,585 1107	1,710 850	
			12	12	1,900 1107	2,015 850	
5/8	3/4	5	3 3/4	12	1,800 1520	1,710 1330	
			12	12	2,225 1520	2,425 1330	
ANCHOR INSTALLED IN JOINT							
ROD DIAMETER (inches)	DRILL BIT DIAMETER (inches)	MINIMUM EMBEDMENT (inches)	EDGE DISTANCE (inches)	END DISTANCE (inches)	TENSION LOAD (pounds)	SHEAR LOAD (pounds)	
3/8	7/16	3 1/2	8	8	1,200 760	-	
			16	8	1,200 760	1,205 480	
1/2	9/16	4 1/4	8	8	1,655 1107	-	
			16	8	1,655 1107	2,205 850	
5/8	3/4	5	8	8	2,160 1520	-	
			16	8	2,160 1520	2,860 1330	
ANCHOR INSTALLED IN CELL OPENING (TOP OF WALL) FOR SILL PLATE AND OTHER ATTACHMENTS							
ROD DIAMETER (inches)	DRILL BIT DIAMETER (inches)	MINIMUM EMBEDMENT (inches)	EDGE DISTANCE (inches)	END DISTANCE (inches)	TENSION LOAD (pounds)	SHEAR LOAD (pounds)	
						Parallel to the Edge	Towards the Edge
1/2	9/16	4 1/4	1 3/4	10 3/4	4,200 1107	810	315
5/8	3/4	5	1 3/4	10 3/4	4,990 1520	810	400

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

¹ Tabulated load values are for anchors installed in minimum 8-inch wide, Type II, Grade N, lightweight, medium weight, or normal weight concrete masonry units conforming to UBC Standard 21-4 or ASTM C 90. Masonry prism compressive strength, tested in accordance with ASTM E 447 (UBC Standard 21-17), must be at least 1500 psi at the time of anchor installation. The masonry units must be fully grouted with grout complying with UBC Section 2103.4. Mortar must be minimum Type N prepared in accordance with Section 2103.3 of the UBC and UBC Standard 21-15.

² Allowable shear loads for anchor installations into the face shell or joint may be applied in any direction except upward vertically. If a minimum of two full courses are available above the anchor location the shear loads may be applied in any direction.

TABLE 14 – MANUFACTURER'S RECOMMENDED CURE TIME FOR POWER-FAST EPOXY ADHESIVE

BASE MATERIAL TEMPERATURE (°F)	MAXIMUM GEL TIME ¹ (minutes)		MINIMUM CURING TIME ² (hours)		FULL CURING TIME ³ (hours)	
	Fast Set	Standard Set	Fast Set	Standard Set	Fast Set	Standard 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

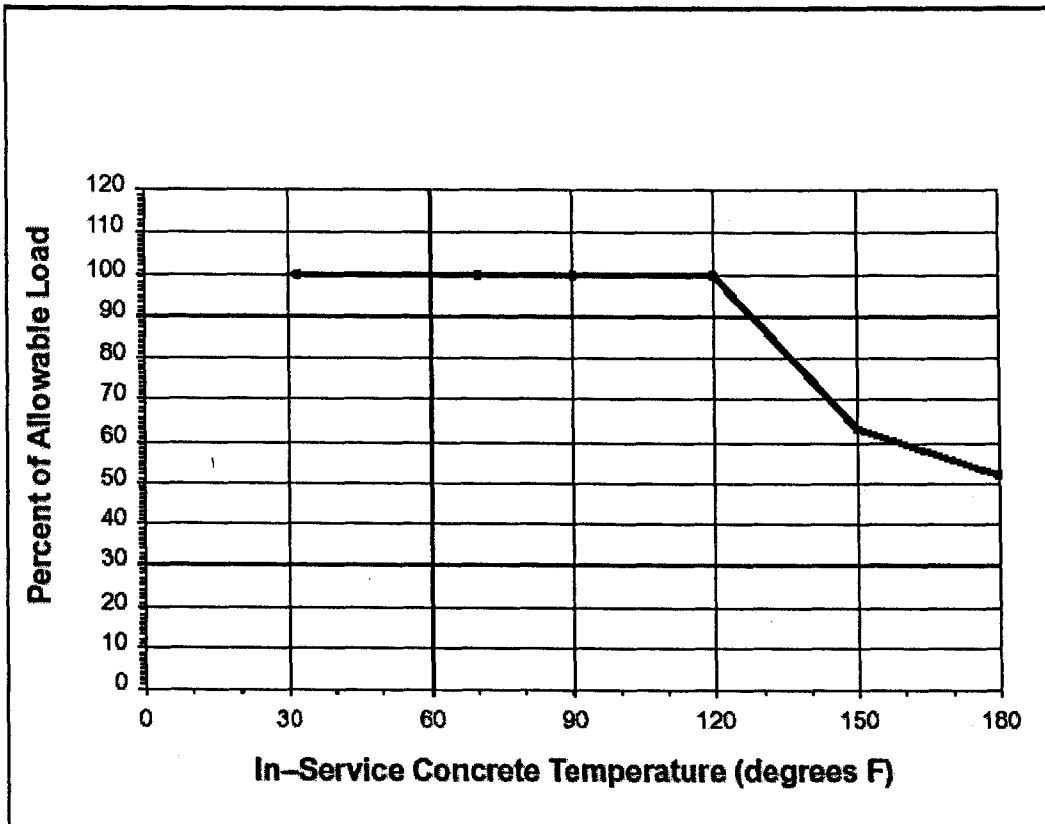
For SI: 1°C = 5/9(1°F - 32).

¹ The gel time is the maximum time during which the epoxy can be dispensed before it begins to set.

² Anchors must not be disturbed before the minimum curing time occurs. When the minimum cure time is achieved, the fixture can be positioned.

³ The full curing time is the minimum time required for the epoxy to achieve its published load capacities.

** modified by City of Los Angeles



**FIGURE 1—ALLOWABLE LOAD BOND STRENGTH REDUCTION
BASED ON IN-SERVICE TEMPERATURE FOR THE POWER-FAST EPOXY ADHESIVE**