BarSplice PRODUCTS INC.

A SUBSIDIARY OF FC INDUSTRIES INC.

Zap Screwlok®

SL Series

SHEAR SCREW & WEDGE MECHANICAL CONNECTIONS FOR UNCOATED AND EPOXY COATED REINFORCING BARS

PERFORMANCE TEST DATA

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INTRODUCTION

Barsplice Products, Inc. (BPI) have conducted a series of tests on reinforcing bar mechanical splices, sizes No. 4 through No. 18. The tests have been conducted on uncoated and epoxy coated Zap Screwlok® SL Mechanical Splices. The purpose of the testing is to ensure that products are manufactured to the quality standards of BPI's ISO 9001 Quality System and are capable of exceeding strength requirements of various Building Codes.

TENSILE TEST PROCEDURE

Test specimens were loaded monotonically in tension to failure to determine the capability of the splice system. The tests were conducted in accordance with ASTM A370, "Standard Test Methods and Definitions for Mechanical Testing of Steel Products" and ASTM A1034, " Standard Test Methods for Testing Mechanical Splices for Steel Reinforcing Bars." The testing was performed to exceed the strength requirements of ACI (American Concrete Institute) 318-19, Chapter 25 using Grade 60 reinforcing bar.

All monotonic tension tests were carried out on a 600 kip Forney universal testing machine, or a 900 kip MTS universal test machine, located at the Barsplice manufacturing facility. Current calibration certificates for the test machine(s) are on file.

The reinforcing steel used in these tests conforms to the requirements of ASTM A615, Grade 60 and ASTM A706, Grade 60.

TEST RESULTS

Results of the Zap Screwlok® SL tension testing described above are summarized in Table 1 and represented in Chart 1.

SUMMARY

Tension test specimens exceeded the Type 1 strength requirements of ACI 318-19, Chapter 25, namely 125% x specified yield strength of Grade 60 rebar, specifically 75,000 psi.

TABLE 1: ZAP SCREWLOK® SL TENSILE TEST RESULTS

BAR SIZE	BAR TYPE	TEST LAB ID # & REF #		PEAK STRENGTH MAX STRESS (psi)	PEAK STRENGTH % GR. 60 SPEC. YIELD
No. 4	BLACK	4T3121	4A	105,500	176%
			4B	108,700	181%
		4T3261	4A	103,800	173%
			4B	101,200	169%
		4T3385	4A	104,650	174%
			4B	99,050	165%
	EPOXY	4T3120 *A706	4A	89,650	149%
			4B	81,650	136%
		4T3330	4A	103,900	173%
			4B	102,250	170%
		4T3393	4A	89,550	149%
			4B	99,600	166%
No. 5	BLACK	5T8334	5A	103,968	173%
			5B	97,032	162%
		5T8418	5A	95,194	159%
			5B	92,742	155%
		5T8698	5A	93,161	155%
			5B	97,839	163%
	EPOXY	5T7917 *A706	5A	90,484	151%
			5B	83,419	139%
		5T8493	5A	93,000	155%
			5B	92,355	154%
		5T8794	5A	96,161	160%
			5B	89,290	149%
No. 6	BLACK	6T5694	6A	94,955	158%
			6B	96,636	161%
		6T5844	6A	100,000	167%
			6B	103,909	173%
		6T5853	6A	92,273	154%
			6B	101,386	169%
	EPOXY	6T5448 *A706	6A	84,977	142%
			6B	83,636	139%
		6T5919	6A	91,409	152%
			6B	94,500	158%
		6T5966	6A	94,364	157%
			6B	88,273	147%

BAR SIZE	BAR TYPE	TEST LAB ID # & REF #		PEAK STRENGTH MAX STRESS (psi)	PEAK STRENGTH % GR. 60 SPEC. YIELD
No. 7	BLACK	7T2553	7A	101,533	169%
			7B	100,733	168%
		7T2717	7A	95,523	159%
			7B	92,583	154%
		7T2830	7A	101,260	169%
			7B	105,351	176%
	EPOXY	7T2661 *A706	7A	81,764	136%
			7B	83,170	139%
		7T2788	7A	93,377	156%
			7B	97,914	163%
		7T2815	7A	96,357	161%
			7B	93,252	155%
No. 8	BLACK	8T3536	8A	97,081	162%
			8B	96,567	161%
		8T3573	8A	102,368	171%
			8B	100,145	167%
		8T3732	8A	103,155	172%
			8B	100,428	167%
	EPOXY	8T3504 *A706	8A	91,018	152%
			8B	82,691	138%
		8T3633	8A	102,394	171%
			8B	100,587	168%
		8T3711	8A	90,696	151%
		8T3712	8A	87,658	146%
No. 9	BLACK	9T2321	9A	104,947	175%
			9B	100,486	167%
		9T2340	9A	102,210	170%
			9B	106,722	178%
		9T2374	9A	105,676	176%
			9B	101,078	168%
	EPOXY	9T2172	9A	91,820	153%
			9B	97,540	163%
		9T2194 *A706	9A	87,994	147%
			9B	92,077	153%
		9T2370	9A	103,600	173%
		9T2371	9A	102,270	170%

TABLE 1: ZAP SCREWLOK® SL TENSILE TEST RESULTS

BAR SIZE	BAR TYPE	TEST LAB ID # & REF #		PEAK STRENGTH MAX STRESS (psi)	PEAK STRENGTH % GR. 60 SPEC. YIELD
No. 10	BLACK	10T2030	10A	101,787	170%
			10B	100,000	167%
		10T2208	10A	102,300	171%
			10B	104,897	175%
		10T2224	10A	103,554	173%
			10B	106,888	178%
	EPOXY	10T2081 *A706	10A	89,787	150%
			10B	88,131	147%
		10T2146	10A	92,017	153%
			10B	95,644	159%
		10T2189	10A	99,935	167%
			10B	100,692	168%
No. 11	BLACK	11T3917	11A	96,616	161%
			11B	100,386	167%
		11T4181	11A	104,436	174%
			11B	109,281	182%
		11T4216	11A	101,648	169%
			11B	110,590	184%
	EPOXY	11T3895	11A	96,936	162%
			11B	103,154	172%
		11T3927 *A706	11A	86,148	144%
			11B	87,276	145%
		11T4107	11A	98,589	164%
			11B	99,901	167%

BAR SIZE	BAR TYPE	TEST LAB ID # & REF #		PEAK STRENGTH MAX STRESS (psi)	PEAK STRENGTH % GR. 60 SPEC. YIELD
No. 14	BLACK	14T1348	14A	95,731	160%
			14B	93,567	156%
		14T1394	14A	93,749	156%
			14B	98,533	164%
		14T1419	14A	92,419	154%
			14B	97,574	163%
	EPOXY	14T1321	14A	89,482	149%
		14T1322	14A	88,600	148%
		14T1334	14A	88,185	147%
			14B	87,441	146%
		14T1417	14A	93,041	155%
			14B	97,327	162%
No. 18	BLACK	18T806	18A	91,149	152%
			18B	89,120	149%
		18T861	18A	94,023	157%
			18B	89,299	149%
		18T918	18A	86,885	145%
			18B	91,975	153%
		18T929	18A	97,614	163%
			18B	94,333	157%
		18T970*	18A	83,113	139%
	EPOXY	18T863	18A	88,502	148%
			18B	86,742	145%

* Test conducted on ASTM A706 reinforcement bar

CHART 1: ZAP SCREWLOK® SL TENSILE TEST RESULTS