BarSplice PRODUCTS INC.

FiTT®

GRADE 75 & 80

FIELD INSTALLED THREADED TERMINATION FOR GRADE 75 & GRADE 80 REINFORCEMENT

PERFORMANCE TEST DATA

JUNE 2023

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INTRODUCTION

Barsplice Products, Inc. has conducted a series of in-air tests on the FITT® (Field Installed Threaded Termination) system of reinforcing bar mechanical end anchorages, sizes No. 4 through No. 11. The purpose of this testing is to ensure that they are manufactured to the quality standards of BPI's ISO 9001 Quality System and are capable of exceeding various Building Codes strength requirements.

Two head diameter designs of the FITT® are available, depending on application requirements. Heads with a gross bearing face area exceeding 5x the rebar area (FITT5) are designated as $5A_b$ and heads with a gross bearing face area exceeding 10x the rebar area (FITT10) are designated as $10A_b$.

TENSILE TEST PROCEDURE

Test specimens were loaded monotonically in tension to failure to determine the capability of the FITT® headed bar 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." Loads were applied through the bearing area of the head. The testing was performed to exceed the mechanical anchorage strength requirements of ACI (American Concrete Institute) 318-19 Section 25.4.5.1 and ASTM A970, Class A and Class HA.

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

The reinforcing steel used in these tests conforms to the requirements of ASTM A615, Grade 75 & 80 and ASTM A706, Grade 80.

TEST RESULTS

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

SUMMARY

Tension test specimens exceeded the strength requirements of ACI 318-19*, namely 100% x specified yield strength of ASTM A615 Grade 75 & 80, and ASTM A706 Grade 80 reinforcement.

Additionally, the tension test specimens exceeded the strength requirements stated in ASTM A970, Class A and Class HA, namely the specified tensile strength of ASTM A615 Grade 75/80 bar & ASTM A706 Grade 80 bar, specifically 100,000 psi (690 MPa).

* In meeting the strength requirements of ACI-318, the FITT® system complies with IBC 2021 Section 1901.2.

TABLE 1: FITT® TENSILE TEST RESULTS

BAR SIZE	BAR GRADE	TEST LAB ID # & REF #		PEAK STRENGTH MAX STRESS (psi)	PEAK STRENGTH % SPEC. TENSILE GR. 80
No. 4	GR. 75	4T4450	4A	112,046	112%
		4T4696	4A	114,574	115%
	GR. 80	4T4772*	4A	126,178	126%
			4B	124,817	125%
		4T4785*	4C	123,895	124%
		4T4791	4A	121,748	122%
			4B	124,646	125%
		4T4880*	4C	124,931	125%
No. 5	GR. 75	5T12686	5A	119,269	119%
		5T12687	5A	132,782	133%
	GR. 80	5T12813*	5C	116,652	117%
		5T12842*	5A	111,247	111%
			5B	110,435	110%
		5T12843*	5B	110,435	110%
		5T13195*	5A	110,649	111%
		5T13395*	5B	107,464	107%
No. 6	GR. 75	6T8252	6A	123,532	124%
		6T8253	6A	127,261	127%
	GR. 80	6T8296*	6A	121,309	121%
		6T8297*	6A	119,993	120%
		6T8350*	6A	116,256	116%
			6B	116,817	117%
		6T8379*	6A	118,276	118%
			6B	118,318	118%
No. 7	GR. 75	7T4055	7A	110,511	111%
		7T4056	7A	111,354	111%
	GR. 80	7T4063*	7A	116,574	117%
		7T4085*	7A	117,178	117%
			7B	114,288	114%
		7T4089*	7A	115,327	115%
			7B	109,832	110%
		7T4171*	7C	115,354	115%
		7T4220*	7C	116,656	117%

* Test conducted on ASTM A706 reinforcement bar

BAR SIZE	BAR GRADE	TEST LAB ID # & REF #		PEAK STRENGTH MAX STRESS (psi)	PEAK STRENGTH % SPEC. TENSILE GR. 80
No. 8	GR. 75	8T5079	8A	108,000	108%
		8T5080	8A	106,688	107%
	GR. 80	8T5096*	8A	110,947	111%
		8T5118*	8C	109,198	109%
		8T5122*	8A	109,052	109%
			8B	118,865	119%
		8T5222*	8C	110,027	110%
		8T5229*	8C	111,542	112%
No. 9	GR. 80	9T3298*	9A	110,402	110%
			9A	107,320	107%
		9T3306*	9A	113,276	113%
		9T3322*	9A	106,373	106%
			9B	113,394	113%
		9T3381*	9C	111,925	112%
		9T3402	9A	115,126	115%
			9B	113,775	114%
No. 10	GR. 75	10T2789	10A	112,930	113%
		10T2789	10B	106,252	106%
	GR. 80	10T2790*	10B	112,410	112%
		10T2880*	10A	109,554	110%
		10T2888*	10A	107,692	108%
			10B	109,483	109%
		10T2894*	10C	108,962	109%
		10T2895*	10C	105,595	106%
No. 11	GR. 75	11T4848	11A	118,235	118%
	GR. 80	11T5338	11A	114,449	114%
		11T5369*	11A	107,282	107%
		11T5400*	11A	115,372	115%
			11B	117,099	117%
		11T5409*	11A	109,975	110%
			11B	110,221	110%
		11T5421*	11C	114,951	115%
		11T5470	11A	111,632	112%
		11T5470	11B	112,883	113%

CHART 1: FITT® TENSILE TEST RESULTS