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REQUEST FOR INFORMATION DATE: June 22, 2016 NO.: RFI-177

To: Cannon Design

Attn: Kelvin Patel

From: Paric Corporation

Requested By: Joe Voypick

Project Name: 15051-Webster University Interdisciplinary Science Building Project No.: 15051

Subject: Using rebar couplers at grade beams.

Response Required By: June 29, 2016

Drawing / Spec Reference:

Information Requested:

Due to project phasing the first phase of grade beams as shown on attached sketch, we will not be able to install full length #6 and #7 bars as shown. The concrete contractor proposes to use the attached rebar couplers at the required bulkheads.

Response:

YES, THE USE OF BAR COUPLERS ARE ACCEPTABLE AT THE LOCATIONS NOTED. PRODUCT SHALL BE ZAP SCREWLOK TYPE 2 MECHANICAL CONNECTORS PER ESR-3517. CONSTRUCTION JOINTS WILL NOT BE ALLOWED IN THE WALLS ALONG GRID 1.6 BETWEEN B.3 & C AND ALONG GRID 4.6 BETWEEN B & Z.

ARCHITECT'S RESPONSE:

This information is provided as an interpretation of the Contract Documents for implementation. It is not an authorization for change to the Contract Sum or Contract Time. If this information results in a claim for a change to the Contract, the Contractor shall notify the [Construction Manager][Architect] of a change through the change process.

Cc: Kathy Bathe, Paric Corporation

Answered By: JILL WALKER / DMA

Date: 6/23/2016

- LEVEL 01 FRAMING PLAN NOTES:**
- FLOOR CONSTRUCTION: 4 1/2" NORMAL WEIGHT CONCRETE SLAB REINFORCED WITH 6#6, W/ 2#3 W.W.F. ON 2#16 GA. GALVANNEED COMPOSITE METAL DECK BY WULFRAFT OR ENGINEER APPROVED EQUAL WITH THE FOLLOWING MINIMUM PROPERTIES: $F_y = 50 \text{ ksi}$, $S_y = 0.504 \text{ in.}$, $S_x = 0.49 \text{ in.}$, $F_u = 58 \text{ ksi}$, $S_u = 0.504 \text{ in.}$. LOCATE W.W.F. 1" CLEAR FROM TOP OF CONCRETE. WELD COMPOSITE METAL DECK TO ALL INTERIOR SUPPORTING STEEL. EDGE RIBS OF PANELS AT EACH SUPPORT AND ALONG ALL SUPPORTING PERIMETER EDGE AND SLAB EDGE STEEL WITH 5/8" DIAMETER PIGTAIL WELDS @ 12" O.C. MAXIMUM. PROVIDE #10 TIE SCREW SIDE LAP CONNECTIONS AT 36" O.C. MAXIMUM BETWEEN SUPPORTS. (TOTAL SLAB THICKNESS = 6 1/2").
 - FOR GENERAL NOTES AND TYPICAL DETAILS, SEE SHEETS S0001 THRU S0003.
 - FOR COLUMN SCHEDULE, SEE SHEETS S0500 THRU S0502.
 - COORDINATE ALL FLOOR OPENINGS WITH MECHANICAL DRAWINGS.
 - FINISHED FLOOR ELEVATION = 85'-0".
 - TOP OF STRUCTURAL STEEL ELEVATION = 85'-5 1/2" U.N.O.
 - TOP OF STRUCTURAL STEEL ELEVATION = BOTTOM OF METAL DECK ELEVATION, UNLESS NOTED THUS (XXX) ON PLAN REFERENCED FROM BOTTOM OF METAL DECK ELEVATION.
 - FOR COMPOSITE BEAM NOTES AND TYPICAL COMPOSITE BEAM DETAILS, SEE SHEETS S0002 THRU S0003.

DESIGN FLOOR LOADS:

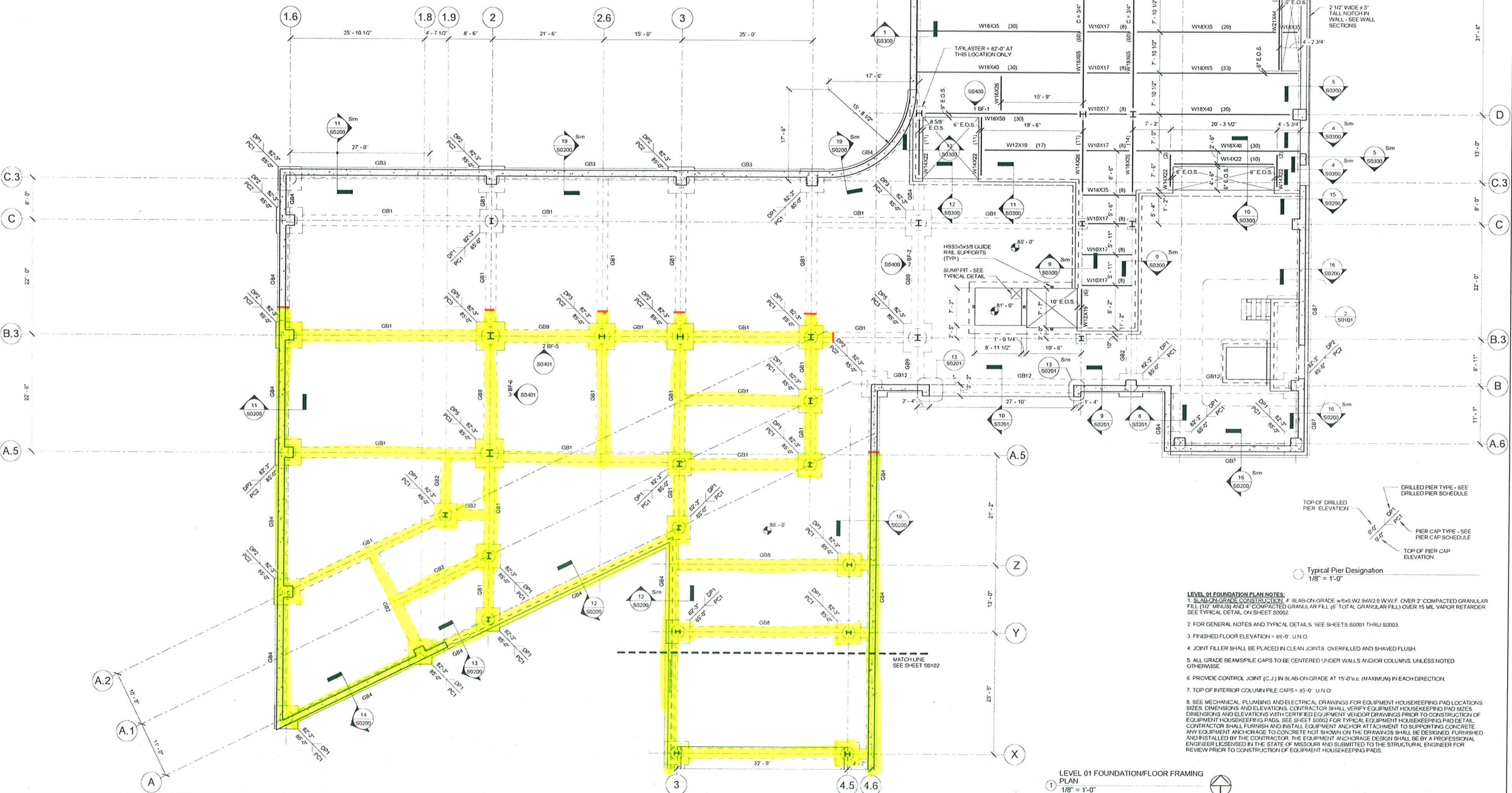
FLOOR/DECK LOADS:
 4 1/2" NORMAL WEIGHT CONCRETE SLAB ON COMPOSITE DECK (6 1/2" TOTAL THICKNESS)
 2" COMPOSITE METAL DECK
 CONCRETE OVERLAP ALLOWANCE
 MISCELLANEOUS FRAMING
 MECHANICAL/ELECTRICAL/PLUMBING/FP ALLOWANCE
 CEILING SYSTEM ALLOWANCE
 TOTAL DEAD LOAD

67 PSF
 2 PSF
 5 PSF
 8 PSF
 2 PSF
 89 PSF + STEEL FRAMING WT.

LIVE LOAD:
 TYPICAL FLOOR
 CORRIDOR AT ENTRY LEVELS
 MECHANICAL/ELECTRICAL ROOM

100 PSF
 80 PSF
 150 PSF

2 ENLARGED PLAN OF LOADING DOCK
 1/4" = 1'-0"



- LEVEL 01 FOUNDATION PLAN NOTES:**
- SLAB-ON-GRADE CONSTRUCTION: 4" SLAB-ON-GRADE W/ 6#6 W2 9W W.F. OVER 2" COMPACTED GRANULAR FILL (12" MINUS) AND 4" COMPACTED GRANULAR FILL (6" TOTAL GRANULAR FILL) OVER 15 MIL VAPOR RETARDER. SEE TYPICAL DETAIL ON SHEET S0002.
 - FOR GENERAL NOTES AND TYPICAL DETAILS, SEE SHEETS S0001 THRU S0003.
 - FINISHED FLOOR ELEVATION = 85'-0" U.N.O.
 - JOINT FILLER SHALL BE PLACED IN CLEAN JOINTS, OVERFILLED AND SHAVED FLUSH.
 - ALL GRADE BEAM/PILE CAPS TO BE CENTERED UNDER WALLS AND/OR COLUMNS, UNLESS NOTED OTHERWISE.
 - PROVIDE CONTROL JOINT (C.J.) IN SLAB-ON-GRADE AT 15'-0" O.C. (MAXIMUM) IN EACH DIRECTION.
 - TOP OF INTERIOR COLUMN/PILE CAPS = 45'-0" U.N.O.
 - SEE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR EQUIPMENT HOUSEKEEPING PAD LOCATIONS, SIZES, DIMENSIONS AND ELEVATIONS. CONTRACTOR SHALL VERIFY EQUIPMENT HOUSEKEEPING PAD SIZES, DIMENSIONS AND ELEVATIONS WITH CERTIFIED EQUIPMENT VENDOR DRAWINGS PRIOR TO CONSTRUCTION OF EQUIPMENT HOUSEKEEPING PADS. SEE SHEET S0002 FOR TYPICAL EQUIPMENT HOUSEKEEPING PAD DETAIL. CONTRACTOR SHALL FURNISH AND INSTALL EQUIPMENT ANCHOR ATTACHMENT TO SUPPORTING CONCRETE. ANY EQUIPMENT ANCHORAGE TO CONCRETE NOT SHOWN ON THE DRAWINGS SHALL BE DESIGNED, FURNISHED AND INSTALLED BY THE CONTRACTOR. THE EQUIPMENT ANCHORAGE DESIGN SHALL BE BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MISSOURI AND SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION OF EQUIPMENT HOUSEKEEPING PADS.

Webster UNIVERSITY

Webster University
 Interdisciplinary Science
 Building

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ISSUED FOR CONSTRUCTION (BPI) 15 JAN 2016

No. Description Date

Drawing Title

**LEVEL 01
 FOUNDATION/FLOOR
 FRAMING PLAN**

Project No. 04561.01 Checked by

S0101

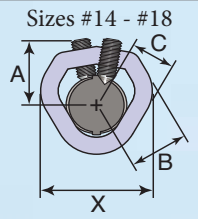
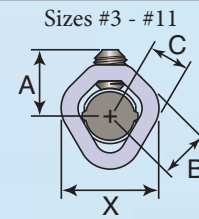
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ZAP SCREWLOK® DATA SHEET

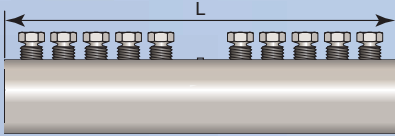
Dimensions & Data

[inch-pound units]

END VIEW
(AFTER ASSEMBLY)

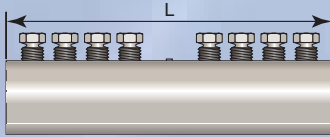


ZAP SCREWLOK TYPE 2 / EPOXY



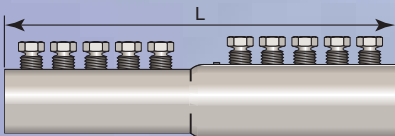
REBAR SIZE	PRODUCT CODE		COUPLER WEIGHT (LB)	LENGTH 'L' (IN)	'A' (IN)	'B' (IN)	'C' (IN)	'X' (IN)	NUMBER SCREWS PER BAR	AVERAGE SCREW TORQUE (FT-LB)	MIN. IMPACT WRENCH RATING (FT-LB)
	TYPE 2	EPOXY									
3	03ZBA	03ZEA	1.0	5	13/16	5/8	7/16	1 1/8	2	60	250
4	04ZBA	04ZEA	2.2	7	1 1/16	11/16	1/2	1 3/8	3		
5	05ZBA	05ZEA	3.4	9	1 1/8	3/4	5/8	1 5/8	4		
6	06ZBA	06ZEA	4.7	11	1 3/16	15/16	11/16	1 3/4	5	105	500
7	07ZBA	07ZEA	7.6	13	1 1/4	1 1/16	13/16	2 1/16	5		
8	08ZBA	08ZEA	10.9	15 1/4	1 5/16	1 1/16	7/8	2 1/4	6		
9	09ZBA	09ZEA	17.6	16 3/4	1 5/8	1 1/4	1 1/16	2 5/8	6	215	750
10	10ZBA	10ZEA	21.4	19 1/8	1 11/16	1 7/16	1 1/8	2 3/4	7		
11	11ZBA	11ZEA	25.4	21 1/2	1 13/16	1 1/2	1 1/4	2 15/16	8		
14	14ZBA	14ZEA	37.2	18	2 5/16	1 3/4	1 1/2	3 3/4	10	350	1000
18	18ZBA	18ZEA	74.0	29 1/2	2 1/2	2 1/4	1 13/16	4 3/8	21		

ZAP SCREWLOK SL



REBAR SIZE	PRODUCT CODE SL	COUPLER WEIGHT (LB)	LENGTH 'L' (IN)	'A' (IN)	'B' (IN)	'C' (IN)	'X' (IN)	NUMBER SCREWS PER BAR	AVERAGE SCREW TORQUE (FT-LB)	MIN. IMPACT WRENCH RATING (FT-LB)
4	04SZBA	1.5	5	1 1/16	11/16	1/2	1 3/8	2	60	250
5	05SZBA	2.6	7	1 1/8	3/4	5/8	1 5/8	3		
6	06SZBA	3.8	9	1 3/16	15/16	11/16	1 3/4	4		
7	07SZBA	6.2	10 3/4	1 1/4	1 1/16	13/16	2 1/16	4	105	500
8	08SZBA	9.3	13	1 5/16	1 1/16	7/8	2 1/4	5		
9	09SZBA	14.3	13 7/8	1 5/8	1 1/4	1 1/16	2 5/8	4		
10	10SZBA	18.2	16 1/2	1 11/16	1 7/16	1 1/8	2 3/4	5	215	750
11	11SZBA	22.3	19 1/8	1 13/16	1 1/2	1 1/4	2 15/16	6		
14	14SZBA	26.0	13	2 5/16	1 3/4	1 1/2	3 3/4	7		
18	18SZBA	58.4	23 1/2	2 1/2	2 1/4	1 13/16	4 3/8	16	350	1000

ZAP SCREWLOK TRANSITION

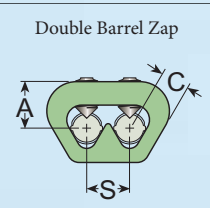
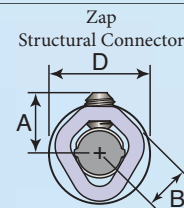


REBAR SIZE	PRODUCT CODE TRANSITION	COUPLER WEIGHT (LB)	LENGTH 'L' (IN)	'A' (IN)	'B' (IN)	'C' (IN)	'X' (IN)	NUMBER SCREWS PER BAR	AVERAGE SCREW TORQUE (FT-LB)	MIN. IMPACT WRENCH RATING (FT-LB)
5/4	05/04ZBA	3.0	8	1 1/8	3/4	5/8	1 5/8	3	60	250
6/4	06/04ZBA	4.3	10	1 3/16	15/16	11/16	1 3/4	4		
6/5	06/05ZBA							4		
7/5	07/05ZBA	6.8	12	1 1/4	1 1/16	13/16	2 1/16	4	105	500
7/6	07/06ZBA							4		
8/5	08/05ZBA							4		
8/6	08/06ZBA	9.9	14 1/8	1 5/16	1 1/8	7/8	2 1/4	5	215	750
8/7	08/07ZBA							5		
9/6	09/06ZBA							5		
9/7	09/07ZBA	16.2	15 9/16	1 5/8	1 1/4	1 1/16	2 5/8	5	215	750
9/8	09/08ZBA							5		
10/7	10/07ZBA							5		
10/8	10/08ZBA	20.1	17 15/16	1 11/16	1 7/16	1 1/8	2 3/4	6	215	750
10/9	10/09ZBA							6		
11/7	11/07ZBA							6		
11/8	11/08ZBA	20.1	17 15/16	1 13/16	1 1/2	1 1/4	2 13/16	6	215	750
11/9	11/09ZBA							6		
11/10	11/10ZBA							6		
14/10	14/10ZBA	34.3	15 3/8	2 5/16	1 3/4	1 1/2	3 3/4	8	350	1000
14/11	14/11ZBA							8		
18/11	18/11ZBA							8		
18/14	18/14ZBA	53.2	18 9/16	2 1/2	2 1/4	1 13/16	4 3/8	12	350	1000

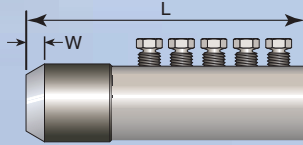
ZAP SCREWLOK® DATA SHEET

Dimensions & Data (page 2)
[inch-pound units]

END VIEW
(AFTER ASSEMBLY)

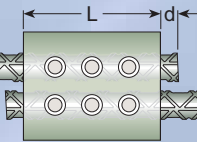


ZAP STRUCTURAL CONNECTOR



REBAR SIZE	PRODUCT CODE Structural Conn	CONNECTOR WEIGHT (LB)	LENGTH 'L' (IN)	'A' (IN)	'B' (IN)	'D' (IN)	'W' (IN)	NUMBER SCREWS PER BAR	AVERAGE SCREW TORQUE (FT-LB)	MIN. IMPACT WRENCH RATING (FT-LB)
4	04SZSC	0.9	3 1/8	1 1/16	1 1/16	1 7/16	3/16	2	60	250
5	05SZSC	1.5	4 1/8	1 1/8	3/4	1 11/16	1/4	3		
6	06SZSC	2.3	5 3/8	1 3/16	15/16	1 7/8	1/4	4		
7	07SZSC	3.6	6 3/8	1 1/4	1 1/16	2 1/8	5/16	4	105	500
8	08SZSC	5.5	7 7/8	1 5/16	1 1/16	2 5/16	3/8	5		
9	09SZSC	7.6	8	1 5/8	1 1/4	2 11/16	7/16	4		
10	10SZSC	9.6	9 1/2	1 11/16	1 7/16	2 7/8	1/2	5	215	750
11	11SZSC	12.1	11 1/8	1 13/16	1 1/2	3	9/16	6		
14	14SZSC	18.0	8 7/8	2 5/16	1 3/4	3 13/16	11/16	7		
18	18SZSC	37.5	15 3/8	2 1/2	2 1/4	4 1/2	7/8	16	350	1000

DOUBLE BARREL ZAP



REBAR SIZE	PRODUCT CODE Double Barrel	COUPLER WEIGHT (LB)	LENGTH 'L' (IN)	'A' (IN)	'C' (IN)	'S' (IN)	'd' (IN)	NUMBER SCREWS PER BAR	AVERAGE SCREW TORQUE (FT-LB)	MIN.IMPACT WRENCH RATING (FT-LB)
3	03DBZA	1.3	2 1/8	1 1/8	3/8	15/16	3/8	2	60	250
4	04DBZA	1.3	2 1/8	1 1/16	1/2	15/16	1/2	2		
4/3	04/03DBZA									
5	05DBZA	2.3	3	1 1/8	5/8	15/16	5/8	3		
5/4	05/04DBZA									
6	06DBZA	3.2	3 7/8	1 3/16	3/4	15/16	3/4	4		
6/4	06/04DBZA									
6/5	06/05DBZA									
7	07DBZA	7.1	5 3/8	1 5/16	7/8	1 3/8	7/8	4	105	500
7/5	07/05DBZA									
7/6	07/06DBZA									
8	08DBZA	10.7	6 1/2	1 3/4	1	1 1/8	1	5		
8/7	08/07DBZA									

ZAP SCREWLOK® Mechanical Splices and Connectors for Reinforcing Bars - Review...

ZAP SCREWLOK® mechanical splices and connectors are compatible with reinforcing bars that comply with ASTM A615, ASTM A706, ASTM A996, or equal and consist of smooth, shaped, steel sleeves with converging sides. A series of cone-pointed hex-head screws are arranged along the longitudinal axes in one or two rows. In the case of butt splices, reinforcing bars are inserted from each end to a center stop. No special bar-end preparation is required, so ends can be sheared, sawed, or flame-cut. *Installation instructions are normally supplied with orders and are also available at www.barsplice.com.*

During mechanical splice assembly, the screws are tightened and embed themselves into the rebar surface whereupon the heads twist off at a prescribed tightening torque. Forces from the screws cause rebar deformations to interlock within the coupling wedge. This DUAL mechanical action, results in a full positive connection for transferring tension or compression forces from bar-to-bar. Screws can be tightened using suitable impact wrenches. Linear alignment is preserved across the splice by using reinforcing bars with straight ends and securing the continuation bar in the desired position at the time of assembly.

When making splices between fixed points, a coupler sleeve without a center stop can be slipped entirely onto one bar and subsequently repositioned over the two bar ends being spliced.

Mechanical butt splices and connectors are available for reinforcing bar sizes No. 3 through 18 (Ø10 through 57 mm) per BPI's **Dimensions & Data** charts. Transition splices are used to connect rebars of different sizes.

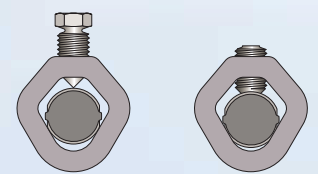
Mechanical lap splices are available for bar sizes No. 3 through 8 (Ø10 through 25 mm).

Epoxy-coated steel reinforcing bars that comply with ASTM A775 can be spliced by means of Epoxy-coated Zap Screwlok® coupling sleeves without shielding or removing the epoxy coating from the bar. Zinc-coated (galvanized) bars can be mechanically spliced by means of galvanized Zap Screwlok® coupling sleeves.

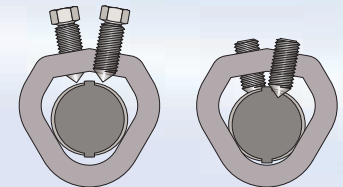
ZAP SCREWLOK® is an engineered mechanical splice system whose strength is independent of the concrete which surrounds it, thereby providing true structural continuity. Applications include new construction, field repair of reinforcement, splicing of column steel, beam reinforcement, concrete piles and deck steel, and splicing of older types of reinforcing bars. The Zap Screwlok® system is used for rehab and retrofit projects, strengthening and up-grading concrete elements, extending deck steel to widen bridges, highway patch and repair projects, splicing of bars across closure pours. Zap Screwlok® Type 2 splices are used for mechanically splicing reinforcement in members resisting earthquake induced forces. Benefits of Zap Screwlok® include a field installed splice with easy visual inspection, no specialized equipment, minimal clearance requirements, a positive rebar center-stop and no rebar end preparation.

While the information contained in this document is believed to be accurate at the time of publication, BPI reserves the right to make changes, design modifications, corrections and other revisions as it sees fit, without notice. All products described herein are supplied in accordance with BPI's standard Terms and Conditions of Sale. This document is of a promotional nature only. Aspects of structural design, evaluation of product fitness for use, suitability or similar attributes are the responsibility of others.

Single Row
#3 - #11
BEFORE
AND
AFTER
ASSEMBLY



Double Row
#14 - #18
BEFORE
AND
AFTER
ASSEMBLY



ICC-ES Evaluation Report**ESR-3517**

Reissued October 2014

This report is subject to renewal October 2016.www.icc-es.org | (800) 423-6587 | (562) 699-0543*A Subsidiary of the International Code Council®***DIVISION: 03 00 00—CONCRETE**
Section: 03 21 00—Reinforcing Steel**REPORT HOLDER:****BARSPLICE PRODUCTS INC.**
4900 WEBSTER STREET
DAYTON, OHIO 45414-4831
(937) 275-8700
www.barsplice.com**EVALUATION SUBJECT:****ZAP SCREWLOK® TYPE 2 MECHANICAL CONNECTOR
SYSTEM FOR SPLICING STEEL REINFORCING BARS****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2012 *International Building Code*® (IBC)
- Other Codes (see Section 8.0)

Property evaluated:

Structural

2.0 USES

The Zap Screwlok® Type 2 Mechanical Connector System is used to mechanically butt-splice deformed steel reinforcing bars in reinforced concrete construction. The system complies with Section 12.14.3.2 of ACI 318 (ACI 318 as referenced in Section 1901.2 of the IBC) for use as tension and compression mechanical connections of ASTM A615 Grades 40, 60 and 75 or ASTM A706 Grade 60 deformed steel reinforcing bars. The system used to splice ASTM A615 Grade 40 and 60 bars and ASTM A706 Grade 60 bars complies with Type 2 mechanical splice requirements of Section 21.1.6.1 of ACI 318 for use where Type 1 or Type 2 mechanical splices are specified by the IBC and ACI 318.

3.0 DESCRIPTION**3.1 General:**

The Zap Screwlok® Type 2 Mechanical Connector System is available in two types: Standard and Transition. The Standard coupler is used to splice reinforcing bars of equal size up to No. 11 with a single row of screws and to splice No. 14 and No. 18 equal size bars using double rows of screws (see Table 1). The Transition coupler is used to splice reinforcing bars of two different sizes (see Table 2).

3.2 Materials:

The Zap Screwlok® Type 2 Mechanical Connector System (coupler) consists of a shaped steel sleeve with converging sides, a central stop pin, and a series of steel screws with cone-shaped points. The sleeve is produced from ASTM A519 Grades 1018 to 1026 steel with minimum yield strength of 36,000 psi (248 MPa) and a minimum tensile strength of 60,000 psi (420 MPa). The screws are produced from ASTM A322 Grade 4140 steel. The system is used for splicing two deformed reinforcing bars having either equal or unequal diameters and having yield strength of 40 ksi (300 MPa), 60 ksi (420 MPa) or 75 ksi (520 MPa). These deformed reinforcing bars must comply with ASTM A615 or A706. The reinforcing bars, except for #14 and #18, may be coated in accordance with A767 (zinc-coated) or A775 (epoxy-coated). Dimensional data is presented in Tables 1 and 2. Couplers are illustrated in Figure 1.

4.0 DESIGN AND INSTALLATION**4.1 General:**

The Zap Screwlok® Type 2 Mechanical Connector System (couplers) is installed at the jobsite. A reinforcing bar is inserted into one coupler end to the center stop. The screws are then tightened from the coupler end inward towards the center of the coupler and the reinforcing bar is engaged to the coupler by indenting the bar surface and wedging the bar into the converging sleeve sides through tightening of the screws. Screws must be tightened to the torque value shown in Tables 1 and 2, as applicable, at which point the screw heads shear off. After the first bar is secured, the other reinforcement bar is inserted into the opposite coupler end to the center stop. The screws are then tightened in the same manner as for the first bar.

All measurements pertaining to minimum bar spacing distance and concrete coverage requirements described in the IBC and ACI 318, must be measured from the outside of the sleeves.

As Type 2 splices, the couplers may be installed in any location within a member, for all seismic design categories, provided the reinforcing bars are limited to Grade 40 and 60 reinforcing bars and comply with Section 21.1.5.2 of ACI 318.

4.2 Special Inspection:

Special inspection must be provided at the jobsite as required by Section 1705 of the IBC. In addition to verifying placement of steel reinforcing bar splices, the special inspector must verify the grade and size of reinforcing

bars; reinforcing bar embedment; coupler identification; field preparation of components; and assembly of the components resulting in the spliced bars.

5.0 CONDITIONS OF USE

The Zap Screwlok® Type 2 Mechanical Connector System for splicing reinforcing steel bars, as described in this report, complies with, or is a suitable alternative to what is specified in, the code indicated in Section 1.0 of this report, subject to the following conditions:

- 5.1 The couplers must be identified and installed in accordance with the applicable code, the manufacturer's instructions and this report. In the event of conflict between this report and the manufacturer's instructions, this report governs.
- 5.2 Special inspection must be provided in accordance with Section 4.2 of this report.
- 5.3 The minimum concrete cover must be in accordance with the IBC and must be measured from the outer surface of the coupler.
- 5.4 Splice locations must comply with the applicable IBC requirements and must be noted on plans approved by the code official.
- 5.5 For structures regulated by Chapter 21 of ACI 318 (as required by IBC Section 1905.1), to splice reinforcing bars resisting earthquake-induced flexure, axial force, or both, in special moment frames, special structural walls, and all components of special structural walls including coupling beams and wall piers, with the Zap Screwlok® Type 2 Mechanical Coupler System, mill certificates for reinforcing bars must be submitted to the code official as evidence that the steel reinforcing bars comply with ACI 318-11 Section 21.1.5.2.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Mechanical Connector Systems for Steel Reinforcing Bars (AC133), dated December 2012.

7.0 IDENTIFICATION

The couplers, including the screws, are packaged in containers labeled with the name and address of Barsplice Products Inc., product name and size, heat lot number, and the ICC-ES evaluation report number (ESR-3517) and an identification code. The Zap Screwlok® Type 2 couplers are identified with the Barsplice name, the Zap Screwlok® name, the designation "Type 2", the part code designation, and a material lot code.

8.0 OTHER CODES

8.1 Evaluation Scope:

In addition to the code referenced in Section 1.0, the products described in this report were evaluated for compliance with the requirements of the 2009 *International Building Code*® (2009 IBC) and the 2006 *International Building Code*® (2006 IBC). The Zap Screwlok® Type 2 Mechanical Coupler System, as described in this report, complies with, or is a suitable alternative to what is

specified in, the 2009 and 2006 IBC, subject to the provisions of Sections 8.2 to 8.7.

8.2 Uses:

See Section 2.0 except as follows:

The system complies with Section 21.1.6.1 of ACI 318-08 (2009 IBC) and Section 21.2.6.1 of ACI 318-05 (2006 IBC), for use as tension and compression mechanical connections of ASTM A615 Grades 40, 60 and 75 or ASTM A706 Grade 60 deformed steel reinforcing bars. The system used to splice ASTM A615 Grade 40 and 60 bars and ASTM A706 Grade 60 bars meets requirements for Type 2 mechanical splices for use where Type 1 or Type 2 mechanical splices are specified by the IBC and ACI 318.

8.3 Description:

See Section 3.0

8.4 Design and Installation:

See Section 4.0 except as follows:

As Type 2 splices, the couplers may be installed in any location within a member, for all seismic design categories, provided the reinforcing bars are limited to Grade 40 and Grade 60 and comply with Section 21.1.5.2 of ACI 318-08 (2009 IBC) or Section 21.2.5 of ACI 318-05 (2006 IBC).

Special inspection must be provided at the jobsite as required by Section 1704 of the 2009 or 2006 IBC, as applicable. In addition to verifying placement of steel reinforcing bar splices, the special inspector must verify the grade and size of reinforcing bars; reinforcement bar embedment; coupler identification; field preparation of components; and assembly of the components resulting in the spliced bars.

8.5 Conditions of Use:

See Section 5.0 except as follows:

Under the 2009 IBC and 2006 IBC, for structures regulated by Chapter 21 of ACI 318 (as required by IBC Section 1908.1), to splice reinforcing bars resisting earthquake-induced flexural and axial forces in special moment frame members, special structural walls and coupling beams, with the Zap Screwlok® Type 2 Mechanical Coupler System, mill certificates for reinforcing bars must be submitted to the code official as evidence that the steel reinforcing bars comply with ACI 318-08 Section 21.1.5.2 under the 2009 IBC [ACI 318-05 Section 21.2.5 under the 2006 IBC (denoted as ACI 318 Section 21.2.5.1 in the 2006 IBC Section 1908.1.5)].

8.6 Evidence Submitted:

Data in accordance with the ICC-ES Acceptance Criteria for Mechanical Connector Systems for Steel Reinforcing Bars (AC133) dated December 2012 (for the 2009 IBC) and dated May 2008 (for the 2006 IBC).

8.7 Identification:

See Section 7.0.

TABLE 1 - DESCRIPTIVE DATA FOR ZAP SCREWLOK TYPE 2 COUPLERS

INCH SYSTEM							SI UNITS SYSTEM						
Coupler Size	Nominal Coupler Wt. (lbs.)	Coupler Length (in.)	Ave. Dimension "A" (in.)	Dimension "B" (in.)	Number of Screws per Bar	Torque (Ave.) (ft-lbs)	Bar Size	Nominal Coupler Wt. (kg)	Coupler Length (mm)	Ave. Dimension "A" (mm)	Dimension "B" (mm)	Number of Screws per Bar	Torque (Ave.) (N-m)
#4	2.2	7	1 1/16	11/16	3	50	#13	1.00	178	27	17	3	70
#5	3.4	9	1 1/8	3/4	4	50	#16	1.54	229	29	19	4	70
#6	4.7	11	1 3/16	15/16	5	50	#19	2.13	280	30	24	5	70
#7	7.6	13	1 1/4	1 1/16	5	100	#22	3.45	330	32	27	5	140
#8	10.9	15 1/4	1 5/16	1 1/16	6	100	#25	4.94	388	33	27	6	140
#9	17.6	16 3/4	1 5/8	1 1/4	6	200	#29	7.98	426	41	32	6	280
#10	21.4	19 1/8	1 11/16	1 7/16	7	200	#32	9.71	486	43	37	7	280
#11	25.4	21 1/2	1 13/16	1 1/2	8	200	#36	11.50	546	46	38	8	280
#14	31.7	15 3/8	2 5/16	1 3/4	9	350	#43	14.40	391	59	44	9	475
#18	74.0	29 1/2	2 1/2	2 1/4	21	350	#57	33.60	749	64	57	21	475

TABLE 2 - DESCRIPTIVE DATA FOR ZAP SCREWLOK TRANSITION COUPLERS

INCH SYSTEM							SI UNITS SYSTEM						
Coupler Size	Nominal Coupler Wt. (lbs.)	Coupler Length (in.)	Ave. Dimension "A" (in.)	Dimension "B" (in.)	Number of Screws per Bar	Torque (Ave.) (ft-lbs)	Bar Size	Nominal Coupler Wt. (kg)	Coupler Length (mm)	Ave. Dimension "A" (mm)	Dimension "B" (mm)	Number of Screws per Bar	Torque (Ave.) (N-m)
# 5/4	3	8	1 1/8	3/4	3	50	#16/13	1.36	203	29	19	3	70
# 6/5	4.3	10	1 3/16	15/16	4	50	#19/16	1.95	254	30	24	4	70
# 7/6	6.8	12	1 1/4	1 1/16	4	100	#22/19	3.08	305	32	27	4	140
# 8/7	9.9	14 1/8	1 5/16	1 1/8	5	100	#25/22	4.49	359	33	29	5	140
# 9/8	16.2	15 9/16	1 5/8	1 1/4	5	200	#29/25	7.35	395	41	32	5	280
# 10/9	20.1	17 15/16	1 11/16	1 7/16	6	200	#32/29	9.12	456	43	37	6	280
# 11/9	20.1	17 15/16	1 13/16	1 1/2	6	200	#36/29	9.12	456	46	38	6	280
# 11/10	22.8	20 5/16	1 13/16	1 1/2	7	200	#36/32	10.3	516	46	38	7	280

Tables 1 and 2 Note: Refer to Figure 1 for coupler Length (L), and Dimensions "A" and "B".

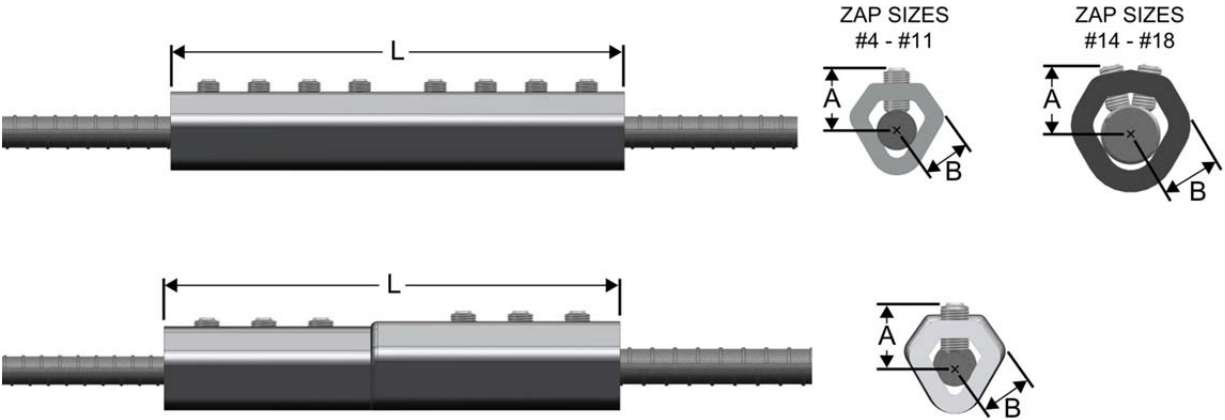


FIGURE 1—Illustration of ZAP™ Screwlok Type 2 Standard and Transition Couplers