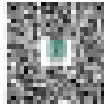


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ICC-ES Evaluation Report ESR-3433

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DIVISION: 03 00 00—CONCRETE
Section: 03 21 00—Reinforcement Bars

REPORT HOLDER:

SPLICE SLEEVE NORTH AMERICA, INC.

EVALUATION SUBJECT

NMB SPLICE-SLEEVE® TYPE U-X AND A11W SYSTEMS FOR CONNECTING STEEL REINFORCING BARS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018, 2015, 2012 and 2009 International Building Code® (IBC)
- 2021, 2018, 2015, 2012 and 2009 International Residential Code® (IRC)
- 2013 Abu Dhabi International Building Code (ADIBC)¹

¹The ADIBC is based on the 2009 IBC, 2009 IRC code sections referenced in this report and the same sections in the ADIBC.

For evaluation for compliance with codes adopted by Los Angeles Department of Building and Safety (LADBS), see [ESR-3433 LABC and LABC Supplement](#).

Property evaluated:

Structural

1.1 UOMS

The Splice Sleeve North America, Inc. (SSNA), NMB Splice-Sleeve Type U-X and A11W systems are used as mechanical splices of deformed steel reinforcing bars in reinforced concrete construction.

The NMB Splice-Sleeve Type U-X and A11W systems comply with Section 18.3.1.1 of ACI 318-19 for the 2021 IBC and ACI 318-18 for the 2018 and 2015 IBC, and Section 12.14.3.2 of ACI 318 (-11 and -08) for the 2012 and 2009 IBC, respectively, as ACI 318 is referenced in IBC Section 1801.2, for use as tension and compression mechanical connections of deformed steel reinforcing bars.

The NMB Splice-Sleeve Type U-X and A11W connectors are used with SS Mortar to splice ASTM A615 Grade 60 or

ASTM A706 Grade 60, deformed bars, forming NMB Splice-Sleeve Type U-X and A11W systems, respectively.

The NMB Splice-Sleeve Type U-X and A11W systems comply with the Type 1 and Type 2 mechanical splice requirements of Section 18.3.1.1 of ACI 318-19 for the 2021 IBC and ACI 318-18 for the 2018 and 2015 IBC, Section 12.14.3.2 of ACI 318 (-11 and -08) for the 2012 and 2009 IBC, respectively, for use where Type 1 mechanical splices are specified by the IBC and ACI 318.

The NMB Splice-Sleeve Type U-X in sizes 6U-X, 8U-X, 10U-X, 12U-X and the A11W system, may be used as Type 2-B mechanical splices ("HB" denotes "High Stain" described in AC108). The Type 2-B splice is a mechanical splice intended for use in seismic applications with reinforcing bars conforming to ACI 318-19 Section 18.2.1.3(a) for the 2021 IBC.

The Splice Sleeve North America, Inc. (SSNA), NMB Splice-Sleeve Type U-X and A11W systems are permitted to be used in structures regulated in the IRC, provided an engineering design is submitted in accordance with IRC Section R301.1.3.

1.2 DESCRIPTION

1.2.1 NMB Splice-Sleeve Type U-X Connectors:

The Type U-X NMB Splice-Sleeve connectors consist of half-straight and half-tapered steel cylinders, with multiple internal ridges. The Type U-X NMB Splice-Sleeve connectors have two unequal inside-diameter and unequal outside-diameter ends (wide end and narrow end), and are used to splice two uncoated, equal-diameter, deformed steel reinforcing bars. The midsection of the interior of the sleeve is provided with a rebar stop that establishes the proper embedment length of the reinforcing bars. As an optional feature, the sleeves are also available with a set screw located on the side of the narrow end of the sleeve.

The set screw temporarily attaches the sleeve to the rebar inserted in the narrow end of the sleeve prior to the installation of the grout.

The Type U-X sleeves are iron castings conforming to a proprietary specification, which is based on ASTM A508-04 (2008), with a Grade of 60-60-04 (minimum yield and tensile strengths of 60,000 and 85,000 psi [414 and 586 MPa], respectively) for all sleeve sizes greater than No. 6, and a Grade of 60-60-12 (minimum yield and tensile strengths of 60,000 and 85,000 psi [414 and

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