

ICC-ES Evaluation Report


ESR-2942

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<p>DIVISION: 03 00 00— CONCRETE</p> <p>Section: 03 24 00— Fibrous Reinforcing</p>	<p>REPORT HOLDER:</p> <p>GCP APPLIED TECHNOLOGIES, INC.</p>	<p>EVALUATION SUBJECT:</p> <p>STRUX® 90/40 SYNTHETIC FIBERS</p>	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2015, 2012, 2009, and 2006 [International Building Code® \(IBC\)](#)
- 2015, 2012, 2009, and 2006 [International Residential Code® \(IRC\)](#)
- 2013 *Abu Dhabi International Building Code (ADIBC)*†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Durability
- Crack control in concrete

2.0 USES

STRUX® 90/40 synthetic fibers are an additive for use in normal-weight concrete to aid in the reduction of plastic shrinkage cracking of reinforced concrete and structural plain concrete, and to reduce shrinkage and temperature cracking in structural plain concrete slabs on grade. The additive can also be used to reduce shrinkage and temperature cracking in normal-weight concrete used in composite steel deck construction.

3.0 DESCRIPTION

STRUX® 90/40 synthetic structural fiber reinforcement is designed specifically for use in concrete and is manufactured from a blend of polypropylene and polyethylene resins. The fibers have a denier equal to 1210. The fibers are available in 1-pound (0.45 kg) and 5-pound (2.27 kg) paper bags.

4.0 DESIGN AND INSTALLATION

STRUX® 90/40 synthetic fibers must be blended into the concrete mix in accordance with ASTM C1116 and the manufacturer's published instructions. A copy of these instructions must be available at all times on the jobsite during installation. The fibers can be added directly to the concrete mixer drum, central mixer, or pan mixer at any point during the batching or mixing process at a dosage rate of 4 pounds per cubic yard (2.4 kg/m³). The mixing time required to ensure adequate dispersion must be a minimum of five minutes or 70 revolutions at mixing speed.

5.0 CONDITIONS OF USE:

The STRUX[®] 90/40 synthetic fibers described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The fibers must be blended in accordance with the manufacturer's published instructions and Section 4.0 of this report. If there is a conflict between this report and the manufacturer's published installation instructions, this report governs.
- 5.2 Design and construction with concrete utilizing Strux[®] 90/40 fibers must be in accordance with the requirements of the applicable code and ACI 318. The fibers are regarded as an admixture and must not be used as a replacement for any structural reinforcement described in Chapter 20 of 2014 ACI 318 (Section 3.5 of 2011, 2008, and 2005 ACI 318). Structural and temperature reinforcements are to be provided as required by the applicable code and ACI 318.
- 5.3 Use of the fibers is limited to normal-weight concrete.
- 5.4 Use of the fibers must be approved by the registered design professional, if applicable.
- 5.5 For structural plain concrete, control joints must be provided in accordance with Section 1909.3 of the 2009 and 2006 IBC, and 2014 ACI 318 Section 14.3.4 (2011, 2008, and 2005 ACI 318 Section 22.3).
- 5.6 For reinforced concrete, structural reinforcement and shrinkage and temperature reinforcement must be provided in accordance with Section 1907.12 of the 2009 and 2006 IBC, and 2014 ACI 318 Section 24.4 (2011, 2008, and 2005 ACI 318 Section 7.12).
- 5.7 A batch or delivery ticket, signed by the weigh master, must be available to the code official upon request. The delivery ticket must include, in addition to the items noted in Section 14.1 of ASTM C94, the type and amount of fibers added to the concrete mix.

6.0 EVIDENCE SUBMITTED

Data in accordance with the [ICC-ES Acceptance Criteria for Concrete with Synthetic Fibers \(AC32\)](#), dated October 2003 (editorially revised March 2015).

7.0 IDENTIFICATION

- 7.1 Each container of STRUX[®] 90/40 is identified with the manufacturer's name (GCP Applied Technologies, Inc.) and/or trademark, address, and telephone number; the product trade name (STRUX[®] 90/40); use instructions; and the evaluation report number (ESR-2942).
- 7.2 The report holder's contact information is the following:

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FIGURE 1—PRODUCT TRADEMARK AND LOGO