DIVISION: 03 00 00—CONCRETE
Section: 03 24 00—Fibrous Reinforcing

REPORT HOLDER:

FORTA CORPORATION

EVALUATION SUBJECT:

FORTA® ULTRA-NET®, SUPER-NET®, ECONO-NET®, MIGHTY-MONO®, ECONO-MONO®, AND NYLO-MONO® POLYPROPYLENE AND NYLON FIBERS

1.0 EVALUATION SCOPE

Compliance with the following codes:

■ 2015, 2012 and 2009 *International Building Code®* (IBC)

■ 2015, 2012 and 2009 *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

FORTA® ULTRA-NET®, SUPER-NET®, ECONO-NET®, MIGHTY-MONO®, ECONO-MONO®, and NYLO-MONO® fibers are polypropylene and nylon fibers for use as admixtures in plain concrete for the purpose of reducing plastic shrinkage of structural plain concrete and reducing shrinkage and temperature cracking in structural plain concrete slabs on grade.

3.0 DESCRIPTION

3.1 FORTA® ULTRA-NET®:

This product consists of twisted bundles of collated, fibrillated, virgin polypropylene fibers manufactured from thin film sheets. The fibers are produced in lengths of $^3/_4$, $1^1/_2$, $2^1/_4$, and $2^1/_2$ inches (19.1, 38, 57, and 64 mm). The $2^1/_2$-inch (64 mm) length of this fiber is limited to use in concrete where the maximum aggregate size is equal to or greater than size No. 57, as determined in accordance with ASTM C33.

3.2 FORTA® SUPER-NET® and ECONO-NET®:

This product consists of straight bundles of collated, fibrillated virgin polypropylene fibers manufactured from thin film sheets. The fibers are produced in lengths of $^3/_4$ inch and $1^1/_2$ inches (19.1 mm and 38 mm).

3.3 FORTA® MIGHTY-MONO® and ECONO-MONO®:

This product consists of fine, circular-cross-section, monofilament, virgin polypropylene fibers, which are produced in a length of $^3/_4$ inch (19.1 mm).

3.4 FORTA® NYLO-MONO®:

This product consists of fine, circular-cross-section, monofilament, virgin nylon fibers which are produced in a length of $^3/_4$ inch (19.1 mm).

3.5 Structural Plain Concrete:

Structural plain concrete must comply with Section 1909 of the 2009 IBC or Section 1906 of the 2012 and 2015 IBC.

4.0 INSTALLATION

Fibers must be blended into the normal-weight concrete mix at the dosage rates indicated below, and the concrete with synthetic fibers must comply with ASTM C1116, Type III. The manufacturer's instructions for mixing must be followed to provide for adequate dispersal of fibers throughout the batch.

4.1 FORTA® ULTRA-NET®:

The fibers are blended into ready-mix concrete at a maximum rate of 1.6 lb/yd³ (0.95 kg/m³) for the applications noted in Section 3.1.

4.2 FORTA® SUPER-NET® and ECONO-NET®:

The fibers are blended into the concrete at a maximum rate of 1.5 lb/yd³ (0.89 kg/m³) for the applications noted in Section 3.3.

4.3 FORTA® MIGHTY-MONO® and ECONO-MONO®:

The fibers are blended into the concrete at a maximum rate of 1.0 lb/yd³ (0.59 kg/m³) for the applications noted in Section 3.4.

4.4 FORTA® NYLO-MONO®:

The fibers are blended into the concrete at a maximum rate of 1.0 lb/yd³ (0.59 kg/m³) for the applications noted in Section 3.4.

5.0 CONDITIONS OF USE

The FORTA® ULTRA-NET®, SUPER-NET®, ECONO-NET®, MIGHTY-MONO®, ECONO-MONO®, and NYLO-MONO® polypropylene and nylon 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 Design and construction of concrete utilizing the FORTA® fibers must be in accordance with the requirements of the applicable codes and ACI 318-08 (2009 IBC), ACI 318-11 (2012 IBC) or ACI 318-14 (2015 IBC), as applicable.

5.2 The fibers must be blended in accordance with the manufacturer's published instructions and Section 4.0 of this evaluation report. If there is a conflict between this report and the manufacturer's published installation instructions, this report governs.

5.3 The use of the fibers is limited to normal-weight concrete.

5.4 The fibers must not be used to replace any structural reinforcement. Structural reinforcement is described in Section 3.5 of ACI 318-08 or ACI 318-11 (2009 IBC or 2012 IBC, respectively), or Section 20.2 of ACI 318-14 (2015 IBC).

5.5 For structural plain concrete, control joints, as required by Section 22.3 of ACI 318-08 or ACI 318-11 (2009 IBC or 2012 IBC, respectively) or Section 26.5.7 of ACI 318-14 (2015 IBC), must be provided.

5.6 For reinforced concrete, shrinkage and temperature reinforcement must be provided in accordance with Section 7.12 of ACI 318-08 or ACI 318-11 (2009 IBC or 2012 IBC, respectively), or Section 24.4 of ACI 318-14 (2015 IBC).

5.7 Use of fibers must be approved by a registered design professional if applicable.

5.8 A batch ticket, signed by a ready-mix representative, must be available to the code official upon request. The delivery ticket must include, in addition to the items noted in ASTM C94, the type and amount of fibers added to the concrete mix.

5.9 FORTA® ULTRA-NET®, SUPER-NET®, ECONO-NET®, MIGHTY-MONO®, ECONO-MONO®, and NYLO-MONO® polypropylene and nylon fibers are manufactured by Forta Corporation in Grove City, Pennsylvania.

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

Each container of FORTA® ULTRA-NET®, SUPER-NET®, ECONO-NET®, MIGHTY-MONO®, ECONO-MONO®, and NYLO-MONO® polypropylene and nylon fibers must bear the manufacturer's name, trademark and address; the product name; and the ICC-ES evaluation report number (ESR-2720).

7.1 The report holder's contact information is the following:

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