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# ICC-ES Evaluation Report

# ESR-1078

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Reissued 01/2018  
This report is subject to renewal 01/2019.

**DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES**  
**SECTION: 06 05 23—WOOD, PLASTIC, AND COMPOSITE FASTENINGS**

**REPORT HOLDER:**

**OMG, INC.**

**153 BOWLES ROAD**  
**AGAWAM, MASSACHUSETTS 01001-5008**

**EVALUATION SUBJECT:**

**FASTENMASTER® LOK SERIES STRUCTURAL WOOD SCREWS**

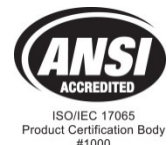


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**DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES**

**Section: 06 05 23—Wood, Plastic, and Composite Fastenings**

**REPORT HOLDER:**

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**EVALUATION SUBJECT:**

**FASTENMASTER® LOK SERIES STRUCTURAL WOOD SCREWS**

**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)<sup>†</sup>

<sup>†</sup>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:**

- Structural
- Corrosion resistance

**2.0 USES**

The FastenMaster LOK Series fasteners described in this report are alternate dowel-type threaded fasteners used for wood-to-wood connections.

The FastenMaster LOK Series fasteners described in Sections 3.1.1 through 3.1.4 may be used where fasteners

are required to exhibit corrosion resistance when exposed to adverse environmental conditions and/or in preservative-treated wood (subject to the limitations of Section 5.2), and are alternates to hot-dip-zinc galvanized fasteners with a coating weight in compliance with ASTM A153, Class D. The fasteners have been evaluated for use with wood chemically treated with waterborne alkaline copper quaternary, type D (ACQ-D).

**3.0 DESCRIPTION**

**3.1 General:**

The LOK Series fasteners described in this report are manufactured using a standard cold-forming process and are heat-treated. These fasteners depart from ANSI B18.2.1 and B18.6.1 in thread design, exceed the bending yield strengths documented in Table 5 of American Forest & Paper Association (AF&PA) Technical Report 12, and are not installed with lead holes in accordance with the ANSI/AWC National Design Specification (NDS) for Wood Construction. The LOK Series fasteners recognized in this report are described in Sections 3.1.1 through 3.1.5. Product names for fasteners sold by MiTek Industries are shown in Table 7.

**3.1.1 OlyLog and TimberLOK Fasteners:** The OlyLog and TimberLOK fasteners have a <sup>5</sup>/<sub>16</sub>-inch (7.9 mm) hex-head, rolled threads and a gimlet point. They have a proprietary corrosion-resistant coating with a lubricious clear top coat. See Table 1A for fastener dimensions and a diagram.

**3.1.2 HeadLOK Fasteners:** The HeadLOK fasteners have a proprietary #3 Spider-drive head, rolled threads and a gimlet point. They have a proprietary corrosion-resistant coating. See Table 1B for fastener dimensions and a diagram.

**3.1.3 LedgerLOK and LogHog Fasteners:** The LedgerLOK and LogHog fasteners have a <sup>5</sup>/<sub>16</sub>-inch (7.9 mm) hex-head with integral washer, rolled threads and a gimlet point. The LedgerLOK fasteners have a proprietary corrosion-resistant coating with a lubricious clear top coat. The LogHog fasteners have a proprietary corrosion-resistant coating. See Table 1C for fastener dimensions and a diagram.

**3.1.4 TrussLOK and TrussLOK-Z Fasteners:** The TrussLOK and TrussLOK-Z fasteners have a <sup>3</sup>/<sub>8</sub>-inch (9.5 mm) hex-head, rolled threads and proprietary cutting points. They have a proprietary corrosion-resistant coating with a lubricious clear top coat. See Tables 1D and 1E for fastener dimensions and a diagram.

**3.1.5 ThruLOK Fasteners:** The ThruLOK fasteners have a  $\frac{5}{16}$ -inch (7.9 mm) hex-head, rolled threads and a proprietary cutting point. The fasteners are coated with mechanically applied zinc in accordance with ASTM B695, Type I, Class 55. They are supplied with the ThruLOK washer and nut. See Table 1F for fastener dimensions and a diagram.

### 3.2 Materials:

**3.2.1 Fasteners:** The fasteners are made of carbon steel grade 1022 or 10B21 wire, conforming to the report holder's material specifications, and have a proprietary finish. Minimum bending yield strengths of the fasteners are listed in Tables 1A through 1F of this report.

**3.2.2 Wood Members:** Wood members must be solid-sawn lumber having a minimum assigned specific gravity as indicated in Tables 2, 3 and 4. Assigned specific gravity for solid-sawn lumber must be determined in accordance with Table 12.3.3A of the 2015 NDS (Table 11.3.3A of NDS-12 for the 2012 IBC, Table 11.3.2A of NDS-05 for the 2009 and 2006 IBC).

## 4.0 DESIGN AND INSTALLATION

### 4.1 Design:

Reference withdrawal design values are given in Table 2 of this report. Reference head pull-through design values are given in Table 3 of this report. Reference lateral design values for wood-to-wood connections loaded parallel and perpendicular to the grain, are given in Table 4.

The reference design values given in Tables 2 through 4 must be multiplied by all adjustment factors applicable to wood screws, in accordance with the NDS, including the wet service factor,  $C_M$ , where applicable. Reference head pull-through design values must be adjusted using the NDS adjustment factors applicable to withdrawal for wood screws.

The allowable load for a single-screw connection in which the screw is subject to tension must be taken as the least of: (a) the reference withdrawal design value given in Table 2, adjusted by all applicable adjustment factors; (b) the reference head pull-through design value given in Table 3, adjusted by all applicable adjustment factors; and (c) the allowable screw tension strength given in Tables 1A through 1F.

The allowable lateral load for a single-screw connection must be taken as the lesser of: (a) the reference lateral design value given in Table 4, adjusted by all applicable adjustment factors, and (b) the allowable screw shear strength given in Tables 1A through 1F.

When designing a connection, the structural members must be checked for load-carrying capacity in accordance with Section 11.2.3 of NDS-15 (Section 10.1.2 of NDS-12 and NDS-05 for the 2012, 2009 and 2006 IBC), and local stresses within multiple-fastener connections must be checked against Appendix E of the NDS to ensure the capacity of the connection and fastener group. Connections containing multiple screws must also be designed in accordance with Sections 11.2.2 and 12.6 of NDS-15 (Sections 10.2.2 and 11.6 of NDS-12 and NDS-05 for the 2012, 2009 and 2006 IBC).

Where the screws are subjected to combined lateral and withdrawal loads, connections shall be designed in accordance with Section 12.4.1 of the NDS-15 (Section

11.4.1 of NDS-12 and NDS-05 for the 2012, 2009 and 2006 IBC).

The FastenMaster LOK Series fasteners described in Sections 3.1.1 through 3.1.4 are recognized for use in wood chemically treated with waterborne alkaline copper quaternary, type D (ACQ-D), with a maximum retention of 0.40 pcf ( $6.4 \text{ kg/m}^3$ ). These fasteners must be limited to use in typical applications and limitations defined in Table 6.

### 4.2 Installation:

The fasteners must be installed with a  $\frac{1}{2}$ -inch (12.7 mm), low RPM/high torque electric drill (450 rpm) using the driver bit included in each box. Lead holes are not required. Fasteners must be installed at the minimum end and edge distances listed in Table 5 of this report.

The ThruLOK fastener must be installed with the ThruLOK washer and nut (supplied with the fastener). The ThruLOK fastener must penetrate through the opposite face of the main member a sufficient distance to allow the nut to be tightened snugly against the main member, with at least  $\frac{1}{2}$  inch (12.7 mm) of the threaded portion of the shank engaging the internal threads of the nut.

## 5.0 CONDITIONS OF USE

The fasteners 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 installation of connections with FastenMaster LOK Series fasteners must comply with this report, the manufacturer's published instructions and the applicable code. In the event of a conflict between the manufacturer's published installation instructions and this report, the more restrictive governs.

**5.2** Use of the fasteners in locations exposed to saltwater or saltwater spray is outside the scope of this evaluation report.

## 6.0 EVIDENCE SUBMITTED

**6.1** Data in accordance with the ICC-ES Acceptance Criteria for Alternate Dowel-type Threaded Fasteners (AC233), dated April 2015.

**6.2** Data in accordance with the ICC-ES Acceptance Criteria for Corrosion-resistant Fasteners and Evaluation of Corrosion Effects of Wood Treatment Chemicals (AC257), dated October 2009 (editorially revised May 2015).

## 7.0 IDENTIFICATION

Packages of fasteners are identified by the company name (OMG or MiTek), one of the product names shown in Table 7, the fastener size and the evaluation report number (ESR-1078). Head markings on the fasteners indicate fastener length and are applied as noted in Tables 1A through 1F.

TABLE 1A—FASTENER SPECIFICATIONS: OLYLOG AND TIMBERLOK FASTENERS

OLYLOG®/ TIMBERLOK® FASTENER DESIGNATION	HEAD MARKING	OVERALL LENGTH <sup>1</sup> (inches)	LENGTH OF THREAD <sup>2</sup> (inches)	UNTHREADED SHANK DIAMETER (inch)	MINOR THREAD (ROOT) DIAMETER (inch)	BENDING YIELD <sup>3</sup> (F <sub>yb</sub> , psi)	ALLOWABLE FASTENER STRENGTH	
							Tensile (lbf)	Shear <sup>4</sup> (lbf)
TLOK212 or LOG212	F2.5	2 1/2	1 1/4	0.189	0.172	167,300	1,300	940
TLOK04 or LOG004	F4.0	4	2					
TLOK06 or LOG006	F6.0	6	2					
TLOK08 or LOG008	F8.0	8	2					
LOG009	F9.0	9	2			190,600	1,145	800
TLOK10 or LOG010	F10.0	10	2					
LOG012	F12.0	12	2					
LOG014	F14.0	14	2					
LOG016	F16.0	16	2					

For SI: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 psi = 6.895 kPa.

<sup>1</sup>For purposes of measuring overall fastener length, fasteners must be measured from the underside of head to bottom of tip.

<sup>2</sup>Length of thread includes tip. See detailed illustration.

<sup>3</sup>Bending yield strength determined per methods specified in ASTM F1575 and based on the minor thread diameter.

<sup>4</sup>Allowable shear strength values apply only to shearing in the unthreaded shank portion of the fastener.

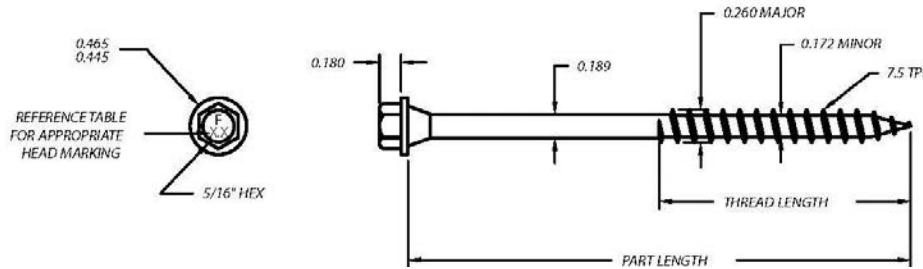


TABLE 1B—FASTENER SPECIFICATIONS: HEADLOK FASTENERS

HEADLOK® FASTENER DESIGNATION	HEAD MARKING	OVERALL LENGTH <sup>1</sup> (inches)	LENGTH OF THREAD <sup>2</sup> (inches)	UNTHREADED SHANK DIAMETER (inch)	MINOR THREAD (ROOT) DIAMETER (inch)	BENDING YIELD <sup>3</sup> (F <sub>yb</sub> , psi)	ALLOWABLE FASTENER STRENGTH	
							Tensile (lbf)	Shear <sup>4</sup> (lbf)
HLGM278	F2.9HL	2 7/8	2	0.191	0.172	187,300	1,215	965
HLGM412	F4.5HL	4 1/2	2					
HLGM6	F6.0HL	6	2					
HLGM8	F8.0HL	8	2					
HLGM10	F10HL	10	2					

For SI: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 psi = 6.895 kPa.

<sup>1</sup>For purposes of measuring overall fastener length, fasteners must be measured from the underside of head to bottom of tip.

<sup>2</sup>Length of thread includes tip. See detailed illustration.

<sup>3</sup>Bending yield strength determined per methods specified in ASTM F1575 and based on the minor thread diameter.

<sup>4</sup>Allowable shear strength values apply only to shearing in the unthreaded shank portion of the fastener.

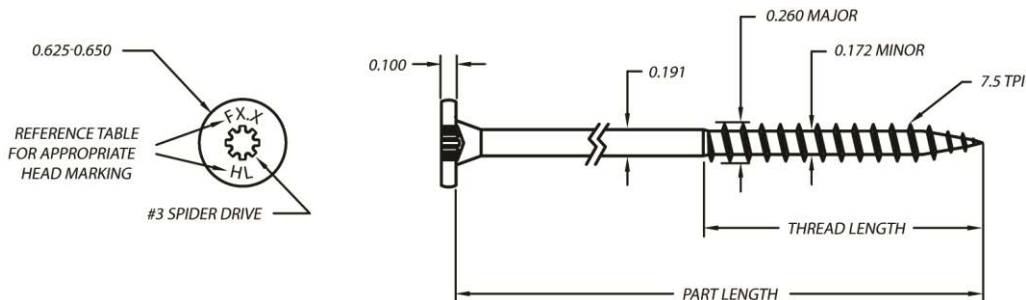


TABLE 1C—FASTENER SPECIFICATIONS: LEDGERLOK AND LOGHOG FASTENERS

LEDGERLOK®/ LOGHOG® FASTENER DESIGNATION	HEAD MARKING	OVERALL LENGTH <sup>1</sup> (inches)	LENGTH OF THREAD <sup>2</sup> (inches)	UNTHREADED SHANK DIAMETER (inch)	MINOR THREAD (ROOT) DIAMETER (inch)	BENDING YIELD <sup>3</sup> (F <sub>yb</sub> , psi)	ALLOWABLE FASTENER STRENGTH	
							Tensile (lbf)	Shear <sup>4</sup> (lbf)
LL358	F3.6	3 <sup>5</sup> / <sub>8</sub>	2	0.228	0.202	200,700	1,833	1,235
LL005	F5.0	5	3					
LHOG009	F9.0	9	3					
LHOG011	F11.0	11	3			183,200	1,335	890
LHOG013	F13.0	13	3					
LHOG015	F15.0	15	3					

For SI: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 psi = 6.895 kPa.

<sup>1</sup>For purposes of measuring overall fastener length, fasteners must be measured from the underside of head to bottom of tip.

<sup>2</sup>Length of thread includes tip. See detailed illustration.

<sup>3</sup>Bending yield strength determined per methods specified in ASTM F1575 and based on the minor thread diameter.

<sup>4</sup>Allowable shear strength values apply only to shearing in the unthreaded shank portion of the fastener.

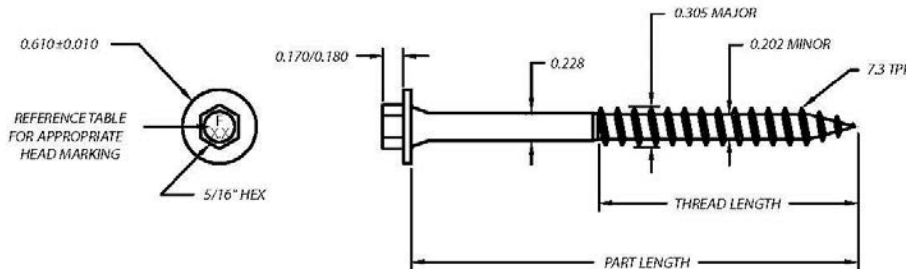


TABLE 1D—FASTENER SPECIFICATIONS: TRUSSLOK FASTENERS

TRUSSLOK® FASTENER DESIGNATION	HEAD MARKING	OVERALL LENGTH <sup>1</sup> (inches)	LENGTH OF THREAD <sup>2</sup> (inches)	UNTHREADED SHANK DIAMETER (inch)	MINOR THREAD (ROOT) DIAMETER (inch)	BENDING YIELD <sup>3</sup> (F <sub>yb</sub> , psi)	ALLOWABLE FASTENER STRENGTH	
							Tensile (lbf)	Shear <sup>4</sup> (lbf)
EWS338	F3.3	3 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	0.228	0.215	218,400	1,833	1,235
EWS005	F5.0	5						
EWS670	F6.7	6 <sup>7</sup> / <sub>10</sub>						

For SI: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 psi = 6.895 kPa.

<sup>1</sup>For purposes of measuring overall fastener length, fasteners must be measured from the underside of head to bottom of tip.

<sup>2</sup>Length of thread includes tip. See detailed illustration.

<sup>3</sup>Bending yield strength determined per methods specified in ASTM F1575 and based on the minor thread diameter.

<sup>4</sup>Allowable shear strength values apply only to shearing in the unthreaded shank portion of the fastener.

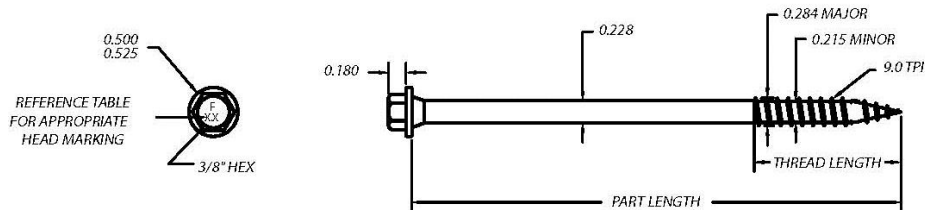


TABLE 1E—FASTENER SPECIFICATIONS: TRUSSLOK-Z FASTENERS

TRUSSLOK-Z® FASTENER DESIGNATION	HEAD MARKING	OVERALL LENGTH <sup>1</sup> (inches)	LENGTH OF THREAD <sup>2</sup> (inches)	UNTHREADED SHANK DIAMETER (inch)	MINOR THREAD (ROOT) DIAMETER (inch)	BENDING YIELD <sup>3</sup> (F <sub>yb</sub> , psi)	ALLOWABLE FASTENER STRENGTH	
							Tensile (lbf)	Shear <sup>4</sup> (lbf)
TSLZ278	F2.8	2 <sup>7</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	0.228	0.202	218,400	1,833	1,235
TSLZ412	F4.5	4 <sup>1</sup> / <sub>2</sub>						
TSLZ006	F6.0	6						

For SI: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 psi = 6.895 kPa.

<sup>1</sup>For purposes of measuring overall fastener length, fasteners must be measured from the underside of head to bottom of tip.

<sup>2</sup>Length of thread includes tip. See detailed illustration.

<sup>3</sup>Bending yield strength determined per methods specified in ASTM F1575 and based on the minor thread diameter.

<sup>4</sup>Allowable shear strength values apply only to shearing in the unthreaded shank portion of the fastener.

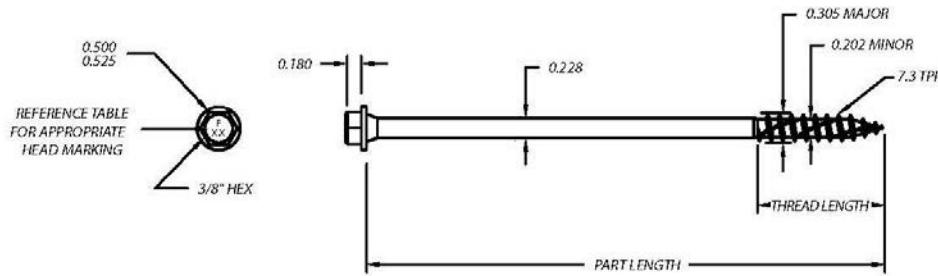


TABLE 1F—FASTENER SPECIFICATIONS: THRULOK FASTENERS<sup>6</sup>

THRULOK® FASTENER DESIGNATION	HEAD MARKING	OVERALL LENGTH <sup>1</sup> (inches)	LENGTH OF THREAD <sup>2,4</sup> (inches)		UNTHREADED SHANK DIAMETER (inch)	MINOR THREAD (ROOT) DIAMETER (inch)	BENDING YIELD <sup>3</sup> (F <sub>yb</sub> , psi)	ALLOWABLE FASTENER STRENGTH	
			A	B				Tensile (lbf)	Shear <sup>5</sup> (lbf)
THR614	FT6.2	6 <sup>1</sup> / <sub>4</sub>	5/9	1 <sup>2</sup> / <sub>10</sub>	0.228	0.201	218,400	1,970	1,235
THR007	FT7.0	7							
THR008	FT8.0	8							
THR912	FT9.5	9 <sup>1</sup> / <sub>2</sub>							

For SI: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 psi = 6.895 kPa.

<sup>1</sup>For purposes of measuring overall fastener length, fasteners must be measured from the underside of head to bottom of tip.

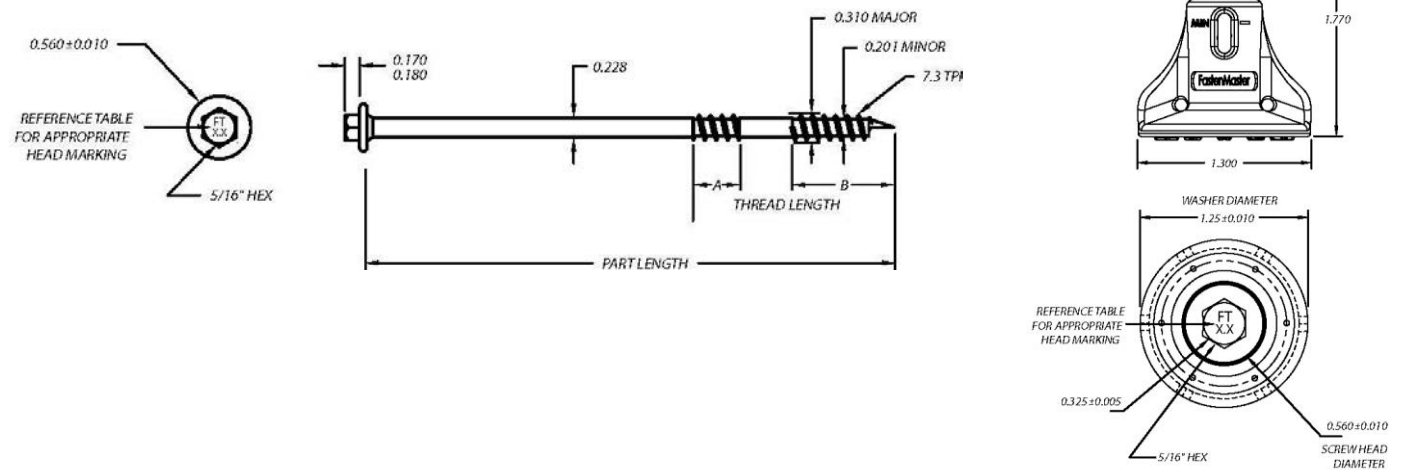
<sup>2</sup>Length of thread includes tip. See detailed illustration.

<sup>3</sup>Bending yield strength determined per methods specified in ASTM F1575 and based on the minor thread diameter.

<sup>4</sup>The thread lengths given for the ThruLOK are for zones A and B, as depicted in the diagram below.

<sup>5</sup>Allowable shear strength values apply only to shearing in the unthreaded shank portion of the fastener.

<sup>6</sup>The ThruLOK fastener must be used with the ThruLOK washer and nut (supplied with the fastener).



THRULOK NUT (TOP) AND WASHER (BOTTOM)

**TABLE 2—REFERENCE WITHDRAWAL DESIGN VALUES (*W*)<sup>1,2,3</sup>**  
 [Reference withdrawal design values (*W*) are in pounds per inch of thread penetration into side grain of main member]

FASTENER	THREAD LENGTH, <i>L</i> <sup>4</sup> (inches)	<i>W</i> (lb./in.) FOR SPECIFIC GRAVITIES OF:					
		0.57	0.55	0.5	0.46	0.43	0.42
OlyLog/ TimberLOK	1.25 or 2.0	270	260	220	200	180	170
HeadLOK	2.0	290	270	230	200	180	170
LedgerLOK/ LogHog	2.0 or 3.0	330	310	270	240	220	210
TrussLOK	1½	—	—	180	—	—	—
TrussLOK-Z	1¼	290	270	220	180	160	150
ThruLOK <sup>(5)</sup>	NA <sup>(6)</sup>	1140 <sup>(6)</sup>	1060 <sup>(6)</sup>	900 <sup>(6)</sup>	780 <sup>(6)</sup>	700 <sup>(6)</sup>	680 <sup>(6)</sup>

For SI: 1 inch = 25.4 mm, 1 lbf/in = 175 N/m.

<sup>1</sup>Tabulated reference withdrawal design values, *W*, apply to fasteners driven into the side grain of the main member, such that the screws are oriented perpendicular to the grain and loaded in direct withdrawal.

<sup>2</sup>Reference withdrawal design values must be multiplied by all applicable adjustment factors, in accordance with Section 4.1.

<sup>3</sup>Reference withdrawal design values are to be multiplied by the length of thread penetration into the main member, but must not exceed the head pull-through design values given in Table 3. Threaded length includes the tapered tip.

<sup>4</sup>See Tables 1A through 1F for thread lengths corresponding to specific fastener model numbers.

<sup>5</sup>The ThruLOK must be used with the ThruLOK washer and nut (supplied with the fastener). The nut must be installed such that it is snug against the main member, and at least ½ inch of the threaded portion of the shank (not including the tip) is within the nut.

<sup>6</sup>Tabulated withdrawal values for the ThruLOK are based on the head pull-through design values given in Table 3, as these values will govern designs in which the screw is subject to axial tension, where the ThruLOK is properly installed with the ThruLOK washer and nut (see footnote 5 above).

**TABLE 3—REFERENCE HEAD PULL-THROUGH DESIGN VALUES (*P*)<sup>1,2</sup>**

FASTENER	MINIMUM SIDE MEMBER THICKNESS (inches)	<i>P</i> (lbf) FOR SPECIFIC GRAVITIES OF:					
		0.57	0.55	0.5	0.46	0.43	0.42
OlyLog/ TimberLOK	1.5	220	200	160	130	110	110
HeadLOK	1.5	630	600	520	460	410	400
LedgerLOK/ LogHog	1.5	320	290	240	200	180	170
TrussLOK	1.5	—	—	260	—	—	—
TrussLOK-Z	1.5	370	330	250	200	170	160
ThruLOK <sup>(3)</sup>	1.5	1140 <sup>(3)</sup>	1060 <sup>(3)</sup>	900 <sup>(3)</sup>	780 <sup>(3)</sup>	700 <sup>(3)</sup>	680 <sup>(3)</sup>

For SI: 1 inch = 25.4 mm, 1 pound = 4.448 kPa.

<sup>1</sup>Reference head pull-through design values, *P*, must be multiplied by all applicable adjustment factors, in accordance with Section 4.1.

<sup>2</sup>Design values apply to connections with minimum side member thicknesses, *t<sub>s</sub>*, as given above.

<sup>3</sup>The ThruLOK must be used with the ThruLOK washer and nut (supplied with the fastener). The nut must be installed such that it is snug against the main member, and at least ½ inch of the threaded portion of the shank (not including the tip) is within the nut.

**TABLE 4—REFERENCE LATERAL DESIGN VALUES (Z) FOR SINGLE SHEAR (TWO-MEMBER) WOOD-TO-WOOD CONNECTIONS LOADED PARALLEL (Z<sub>||</sub>) OR PERPENDICULAR (Z<sub>⊥</sub>) TO THE GRAIN<sup>1,2</sup>**

FASTENER		MINIMUM SIDE MEMBER THICKNESS <sup>3</sup> , t <sub>s</sub> (inches)	MINIMUM MAIN MEMBER PENETRATION <sup>4</sup>		Z (lbf) FOR MINIMUM SPECIFIC GRAVITIES OF:					
Designation	Length (inches)		p	p	0.5		0.46		0.42	
					Z <sub>  </sub>	Z <sub>⊥</sub>	Z <sub>  </sub>	Z <sub>⊥</sub>	Z <sub>  </sub>	Z <sub>⊥</sub>
OlyLog/ TimberLOK	2 <sup>1</sup> / <sub>2</sub> <sup>6</sup>	1 <sup>1</sup> / <sub>2</sub>	1		240	220	220	200	200	180
	4 & longer	1 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>		280	260	260	230	240	210
	6 & longer	2 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>		290	270	270	250	250	230
	8 & longer	3	5		290	270	260	250	240	230
HeadLOK	2 <sup>7</sup> / <sub>8</sub> <sup>6</sup>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>8</sub>		240	210	220	180	210	150
	4 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	3		280	260	260	240	250	220
	6 & longer	1 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub>		290	270	270	250	250	230
	6 & longer	2 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>		300	280	280	260	270	240
	8 & longer	3	5		290	280	280	260	260	230
LedgerLOK	3 <sup>5</sup> / <sub>8</sub> <sup>9</sup>	1 <sup>1</sup> / <sub>2</sub> <sup>7</sup>	1 <sup>8</sup>		—	300	—	—	—	—
	3 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub> <sup>8</sup>		—	260	—	220	—	220
	3 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>8</sub>		310	310	290	280	270	250
	5	1 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>		320	300	300	280	280	260
LogHog	9 & longer	6	3		310	300	290	280	270	260
TrussLOK	3 <sup>3</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	1 <sup>5</sup> / <sub>8</sub>		320	290	300	270	280	260
	5	1 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>4</sub>		330	300	310	270	290	250
	6 <sup>3</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>4</sub>	5		330	310	310	290	290	270
TrussLOK-Z	2 <sup>7</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>8</sub>		310	290	300	270	280	240
	4 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	3		320	290	300	270	290	250
	6	1 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub>		330	300	310	280	290	250
FASTENER		MINIMUM SIDE MEMBER THICKNESS <sup>3</sup> , t <sub>s</sub> (inches)	MAIN MEMBER THICKNESS <sup>5</sup> (inches)		Z (lbf) FOR MINIMUM SPECIFIC GRAVITIES OF:					
Designation	Length (inches)		Min	Max	0.5		0.46		0.42	
					Z <sub>  </sub>	Z <sub>⊥</sub>	Z <sub>  </sub>	Z <sub>⊥</sub>	Z <sub>  </sub>	Z <sub>⊥</sub>
ThruLOK <sup>(5)</sup>	6 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>4</sub>	350	320	320	300	300	270
	7	1 <sup>1</sup> / <sub>2</sub>	4	5	350	330	320	300	300	270
	8	3	3 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub>	350	330	320	300	300	270
	9 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	350	330	320	300	300	270

For SI: 1 inch = 25.4 mm, 1 pound = 4.448 kPa.

<sup>1</sup>Tabulated reference lateral design values, Z, apply to single shear (two-member) connections with wood main and side members having specific gravity as shown, in which the screw is oriented perpendicular to the grain and loaded laterally either parallel or perpendicular to the grain. For connections in which the main and side members have different specific gravities, use the lower of the two. Gaps are not permitted between the main and side members.

<sup>2</sup>Values must be multiplied by all applicable adjustment factors, in accordance with Section 4.1.

<sup>3</sup>Unless otherwise noted, side members with thicknesses greater than the tabulated minimum side member thickness may be used, provided the corresponding tabulated minimum main member penetration is still achieved for the given screw length.

<sup>4</sup>Minimum main member penetration is the minimum length of the screw (including threaded, unthreaded and tip length) that must be embedded within the main member. The entire threaded portion of the screw must be embedded in the main member, unless otherwise noted.

<sup>5</sup>The ThruLOK must be installed with the washer and nut, and must penetrate through the opposite face of the main member a sufficient distance to allow the nut to be tightened snugly against the main member, with at least 1/2 inch, and no more than 1 1/2 inches of the ThruLOK screw engaged within the nut.

<sup>6</sup>Full embedment of the threaded portion of the screw in the main member is not required.

<sup>7</sup>Side member thickness must not be increased.

<sup>8</sup>Thickness of main member. Fastener must penetrate through the main member.

<sup>9</sup>For connection of 1 1/2 inch wood side member with specific gravity of 0.50 to minimum 1 inch thick rimboard. Rimboard consists of laminated strand lumber (LSL) with an equivalent specific gravity of 0.50. Fastener must penetrate through the rimboard.



**TABLE 5—CONNECTION GEOMETRY REQUIREMENTS<sup>1</sup>**

CONDITION		MINIMUM DISTANCE OR SPACING (inches)		
		TimberLOK, OlyLog and HeadLOK	LedgerLOK, LogHog, TrussLOK and TrussLOK-Z	ThruLOK
End distance	Loading toward end	3	3 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>
	Loading away from end	2	2 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>
	Loading perpendicular to grain	2	2 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>
Edge distance	Any load direction	1 <sup>3</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>4</sub>	2
Spacing between fasteners in a row	Loading parallel to grain	2 <sup>7</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>
	Loading perpendicular to grain	2	2 <sup>3</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>
Spacing between rows	In-line rows	1	1 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>4</sub>
	Staggered rows <sup>2</sup>	1 <sup>1</sup> / <sub>2</sub>	5 <sup>5</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>

For SI: 1 inch = 25.4 mm.

<sup>1</sup>End distances, edge distances and screw spacing must be sufficient to prevent splitting of the wood, or as required by this table, whichever is more restrictive.

<sup>2</sup>Values for spacing between staggered rows apply where screws in adjacent rows are offset by half of the spacing between screws in a row.

**TABLE 6—RECOGNIZED EXPOSURE CONDITIONS FOR COATED FASTENMASTER LOK SERIES FASTENERS<sup>1</sup>**

EXPOSURE CONDITION	TYPICAL APPLICATIONS	RECOGNITION LIMITATIONS
1	Treated wood in dry use applications	Limited to use where equilibrium moisture content of the chemically treated wood meets the dry service conditions as described in the NDS.
3	General construction	Limited to freshwater and chemically treated wood exposure, e.g., no saltwater exposure.

<sup>1</sup>Recognized exposure conditions apply only to FastenMaster LOK Series fasteners having the recognized proprietary corrosion-resistant coating with a lubricious clear top coat.

**TABLE 7—PRODUCT NAME CORRELATION**

OMG PRODUCT NAME	CORRESPONDING NAME FOR MITEK INDUSTRIES
TimberLOK/OlyLog	-
HeadLOK	-
LedgerLOK	-
LogHog	-
TrussLOK	TrussLOK-EWP
TrussLOK-Z	TrussLOK-Girder
ThruLOK	-

## ICC-ES Evaluation Report

## ESR-1078 FBC Supplement

Reissued January 2018

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**DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES**  
**Section: 06 05 23—Wood, Plastic, and Composite Fastenings**

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### EVALUATION SUBJECT:

**FASTENMASTER® LOK SERIES STRUCTURAL WOOD SCREWS**

### 1.0 REPORT PURPOSE AND SCOPE

#### Purpose:

The purpose of this evaluation report supplement is to indicate that FastenMaster LOK Series fasteners, recognized in ICC-ES master report ESR-1078, have also been evaluated for compliance with the codes noted below.

#### Applicable code editions:

- 2014 *Florida Building Code—Building*
- 2014 *Florida Building Code—Residential*

### 2.0 CONCLUSIONS

The FastenMaster LOK Series fasteners, described in Sections 2.0 through 7.0 of the master evaluation report ESR-1078, comply with the *Florida Building Code—Building* and the *Florida Building Code—Residential*, provided the design and installation are in accordance with the 2012 *International Building Code*® provisions noted in the master report.

Use of the FastenMaster LOK Series fasteners for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *Florida Building Code—Residential* has not been evaluated, and is outside the scope of this evaluation report.

For products falling under Florida Rule 9N-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the master report, reissued January 2018.