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ICC-ES Evaluation Report

ESR-3132

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DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
SECTION: 06 05 23.13—NAILS

REPORT HOLDER:

MID CONTINENT NAIL CORPORATION
A DIVISION OF MID CONTINENT STEEL AND WIRE
2700 CENTRAL AVENUE
POPLAR BLUFF, MISSOURI 63901

EVALUATION SUBJECT:

MAGNUM PNEUMATICALLY, MECHANICALLY AND MANUALLY DRIVEN
ROUND-HEAD AND MODIFIED ROUND-HEAD NAILS



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DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES

Section: 06 05 23.13—Nails

REPORT HOLDER:

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(573) 778-1211
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EVALUATION SUBJECT:

MAGNUM PNEUMATICALLY, MECHANICALLY AND MANUALLY DRIVEN ROUND-HEAD AND MODIFIED ROUND-HEAD NAILS

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)

For evaluation for compliance with codes adopted by the Los Angeles Department of Building and Safety (LADBS), see [ESR-3132 LABC and LARC Supplement](#).

Properties evaluated:

- Bending yield strength
- Compliance with material requirements, dimensions, and tolerances of ASTM F1667
- Compliance with the prescriptive requirements of the IBC and IRC
- Use in diaphragms, shear walls and braced walls

2.0 USES

The Magnum nails are used for engineered and prescriptive structural connections between wood members.

3.0 DESCRIPTION

3.1 General:

The Magnum nails are formed from carbon steel wire, with either full round heads or modified round heads. See

Table 1 for nail designations, dimensions and additional information, including specified bending yield strength. Dimensional tolerances conform to ASTM F1667. Nails are assembled in strips or coils, or are in bulk form. The nails have smooth, ring (annularly threaded) or screw (helically threaded) shanks. The nails have diamond points or chisel points.

3.2 Finish:

The nails are supplied either bright (nongalvanized), with zinc coatings, or with a thin film of plastic polymer (vinyl coating). The zinc-coated nails are available with a hot dip galvanized coating complying with ASTM A153, Class D (1.0 oz/ft²); zinc coatings complying with ASTM A641, Class 1 or Class 2 coating weights; or ASTM B633, Type II, with a 5-micrometer coating thickness.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 Engineered Structural Connections: The Magnum nails comply with the requirements of IBC Section 2303.6 and may be used in connections designed in accordance with the NDS, using the specified bending yield strengths and diameters shown in Table 1.

4.1.2 Engineered Diaphragms and Shear Walls and Prescribed Structural Connections, Diaphragms and Braced Walls: The Magnum nails listed in Table 2 comply with the requirements of IBC Section 2303.6 and may be used where the listed size of nail is prescribed in the IBC or IRC for framing connections. Select Magnum nails listed in Table 2 may also be used in engineered diaphragms and shear walls and prescriptive diaphragms and braced walls prescribed in the IBC, IRC and the Special Design Provisions for Wind and Seismic (SDPWS) referenced in the IBC, as indicated in Table 2.

4.2 Installation:

The nails must be installed in accordance with this report, the report holder's published installation instructions, the approved plans, if applicable, and the applicable prescriptions in the code.

The nails prescribed in this report are packaged for use in power tools recommended by the report holder. Individual nails may be manually driven.

Edge distances, end distances, and spacings must be sufficient to prevent splitting of the wood. Installation must be in accordance with the applicable requirements of Section 12.1.6 of the NDS (11.1.6 for the 2012 IBC and 11.1.5 for the 2009 and 2006 IBC).

5.0 CONDITIONS OF USE

The Magnum nails 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 Use of the nails must be in accordance with this report, the report holder's published installation instructions, the approved plans, if applicable; and the applicable provisions of the code. In the event of a conflict amongst these documents, the most restrictive requirements govern.
- 5.2 Magnum nails, having a minimum hot-dipped galvanization conforming to ASTM A153 Class D (1 oz/sq ft), may be used with pressure-preservative-treated wood and fire-retardant-treated wood, in accordance with Section 2304.10.5 of the IBC (Section 2304.9.5 of the 2012, 2009, and 2006 IBC); and 2015, 2012 and 2009 IRC Section R317.3 (2006 IRC Section R319.3). Nails with a bright finish must not be used in preservative-treated or fire-retardant-treated wood. Use of other Magnum nails in chemically treated wood, such as pressure-preservative- or fire-retardant-treated wood, or in exterior or exposed conditions, is outside the scope of this report.

- 5.3 When required by the code official, calculations demonstrating that the applied loads are less than the design values derived in accordance with Section 4.1 of this report must be submitted for approval. Calculations must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

6.0 EVIDENCE SUBMITTED

Data in accordance with the Acceptance Criteria for Nails and Spikes (AC116), dated June 2014 (editorially revised April 2015).

7.0 IDENTIFICATION

Packages of nails are identified with the report holder's name (Mid Continent Nail), the brand name (Magnum), an image of the nail, the nail length and diameter, and the evaluation report number ESR-3132.

TABLE 1—MAGNUM BRAND NAIL DESCRIPTIONS



NOMINAL DIAMETER (inch)	LENGTH (inches)	NOMINAL HEAD DIAMETER (inch)	SHANK TYPE	FINISH/ COATING	SPECIFIED F_{yb} (psi)
 <p>FULL ROUND HEADS</p>					
0.099	1 ¹ / ₂	0.250	S, R, SC	Br, EG, HD	100,000
0.099	1 ³ / ₄	0.250	S, R, SC	Br, EG, HD	100,000
0.099	1 ⁷ / ₈	0.250	S, R, SC	Br, EG, HD	100,000
0.099	2	0.250	S, R, SC	Br, EG, HD	100,000
0.099	2 ¹ / ₄	0.250	S, R, SC	Br, EG, HD	100,000
0.099	2 ³ / ₈	0.250	S, R, SC	Br, EG, HD	100,000
0.113	2	0.270	S, R, SC	Br, EG, HD	100,000
0.113	2 ¹ / ₄	0.270	S, R, SC	Br, EG, HD	100,000
0.113	2 ³ / ₈	0.270	S, R, SC	Br, EG, HD	100,000
0.113	2 ¹ / ₂	0.270	S, R, SC	Br, EG, HD	100,000
0.120	2 ⁷ / ₈	0.270	S, R, SC	Br, EG, HD	100,000
0.120	3	0.270	S, R, SC	Br, EG, HD	100,000
0.120	3 ¹ / ₄	0.270	S, R, SC	BR, EG, HD	100,000
0.131	1 ¹ / ₂	0.280	S, R, SC	Br, EG, HD	100,000
0.131	2 ¹ / ₈	0.280	S, R, SC	Br, EG, HD	100,000
0.131	2 ¹ / ₄	0.280	S, R, SC	Br, EG, HD	100,000
0.131	2 ³ / ₈	0.280	S, R, SC	Br, EG, HD	100,000
0.131	2 ¹ / ₂	0.280	S, R, SC	Br, EG, HD	100,000
0.131	3	0.280	S, R, SC	Br, EG, HD	100,000
0.131	3 ¹ / ₄	0.280	S, R, SC	Br, EG, HD	100,000
0.131	3 ¹ / ₂	0.280	S, R, SC	Br, EG, HD	100,000
0.135	3 ¹ / ₂	0.280	S, R, SC	Br, EG, HD	100,000
0.148	1 ¹ / ₂	0.288	S, R, SC	Br, EG, HD	90,000
0.148	2 ¹ / ₈	0.288	S, R, SC	Br, EG, HD	90,000
0.148	2 ¹ / ₄	0.288	S, R, SC	Br, EG, HD	90,000
0.148	2 ³ / ₈	0.288	S, R, SC	Br, EG, HD	90,000
0.148	2 ¹ / ₂	0.288	S, R, SC	Br, EG, HD	90,000
0.148	3	0.288	S, R, SC	Br, EG, HD	90,000
0.148	3 ¹ / ₄	0.288	S, R, SC	Br, EG, HD	90,000
0.148	4	0.288	S, R, SC	Br, EG, HD	90,000
0.148	4 ¹ / ₂	0.288	S, R, SC	Br, EG, HD	90,000
0.162	2 ¹ / ₂	0.288	S, R, SC	Br, EG, HD	90,000
0.162	3 ¹ / ₄	0.288	S, R, SC	Br, EG, HD	90,000
0.162	3 ¹ / ₂	0.288	S, R, SC	Br, EG, HD	90,000
0.162	4	0.288	S, R, SC	Br, EG, HD	90,000
0.162	4 ¹ / ₂	0.288	S, R, SC	Br, EG, HD	90,000

TABLE 1—MAGNUM BRAND NAIL DESCRIPTIONS (Continued)

NOMINAL DIAMETER (inch)	LENGTH (inches)	NOMINAL HEAD DIAMETER (inch)	SHANK TYPE	FINISH/COATING	SPECIFIED F_{yb} (psi)
 MODIFIED FULL ROUND HEADS					
0.113	2	0.270	S, R	Br, HD	100,000
0.113	2 ³ / ₈	0.270	S, R	Br, HD	100,000
0.120	3	0.270	S, R	Br, HD	100,000
0.120	3 ¹ / ₄	0.270	S, R	Br, HD	100,000
0.131	2 ¹ / ₂	0.280	S, R	Br, HD	100,000
0.131	3	0.280	S, R	Br, HD	100,000
0.131	3 ¹ / ₄	0.280	S, R	Br, HD	100,000
0.131	3 ¹ / ₂	0.280	S, R	Br, HD	100,000

For SI: 1 inch = 25.4 mm, 1 psi = 6.89 kPa.

S = Smooth shank nail

R = Ring shank nail

SC = Screw shank nail

Br = Bright finish (no coating)

EG = Electrogalvanized, complying with ASTM A641 Class 1 and ASTM B633

HD = Hot-dipped galvanized, complying with ASTM A153 Class D

TABLE 2—MAGNUM NAILS FOR PRESCRIPTIVE USE UNDER THE IBC, IRC, AND SDPWS¹

NAIL TYPE AND SIZE PRESCRIBED IN THE CODE	MAGNUM NAIL LENGTH (inches) AND TYPE						
	2	2 ¹ / ₄	2 ³ / ₈	2 ¹ / ₂	3	3 ¹ / ₄	3 ¹ / ₂
6d common (2" x 0.113")	0.113 S, FR ² 0.113 S, MFR	0.113 S, FR ²	0.113 S, FR ² 0.113 S, MFR	0.113 S, FR ²	-	-	-
6d deformed (2" x 0.113")	0.113 R/SC, FR 0.113 R, MFR	0.113 R/SC, FR	0.113 R/SC, FR 0.113 R, MFR	0.113 R/SC, FR	-	-	-
2 ³ / ₈ " x 0.113"	-	-	0.113 S, FR 0.113 S, MFR	0.113 S, FR	-	-	-
8d common (2 ¹ / ₂ " x 0.131")	-	-	-	0.131 S, FR ³ 0.131 S, MFR	0.131 S, FR ³ 0.131 S, MFR	-	-
8d deformed (2 ¹ / ₂ " x 0.131")	-	-	-	0.131 R/SC, FR 0.131 R, MFR	0.131 R/SC, FR 0.131 R, MFR	-	-
3" x 0.131" or 3" x 0.128"	-	-	-	-	0.131 S, FR 0.131 S, MFR	0.131 S, FR 0.131 S, MFR 0.135 S, FR	0.131 S, FR 0.131 S, MFR
10d common (3" x 0.148")	-	-	-	-	0.148 S, FR ⁴	0.148 S, FR ⁴	-
10d deformed (3" x 0.148")	-	-	-	-	0.148 R/SC, FR	0.148 R/SC, FR	-
16d common (3 ¹ / ₂ " x 0.162")	-	-	-	-	-	-	0.162 S, FR

For SI: 1 inch = 25.4 mm.

S = Smooth shank nail

R = Ring shank nail

SC = Screw shank nail

FR = Full Round Head

MFR = Modified Full Round Head

¹Nails are recognized for use in prescriptive framing connections only, unless otherwise noted.

²Recognized for use as a 6d common nail prescribed in the IBC, IRC and SDPWS for diaphragms, shear walls and braced walls.

³Recognized for use as an 8d common nail prescribed in the IBC, IRC and SDPWS for diaphragms, shear walls and braced walls.

⁴Recognized for use as a 10d common nail prescribed in the IBC, IRC, and SDPWS for diaphragms, shear walls, and braced walls.

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1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Magnum Pneumatically, Mechanically and Manually Driven Round-Head and Modified Round-Head Nails, described in ICC-ES master evaluation report [ESR-3132](#), have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2017 *City of Los Angeles Building Code* (LABC)
- 2017 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The Magnum Pneumatically, Mechanically and Manually Driven Round-Head and Modified Round-Head Nails, described in Sections 2.0 through 7.0 of the master evaluation report [ESR-3132](#), comply with the LABC Chapter 23, and the LARC, and are subjected to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The Magnum Pneumatically, Mechanically and Manually Driven Round-Head and Modified Round-Head Nails described in this evaluation report must comply with all of the following conditions:

- All applicable sections in the master evaluation report [ESR-3132](#).
- The design, installation, conditions of use and identification of the nails are in accordance with the 2015 *International Building Code*® (2015 IBC) provisions noted in the master evaluation report [ESR-3132](#).
- The design, installation and inspection are in accordance with additional requirements of the LABC Chapters 16 and 17, Sections 2305, 2306 and 2308, as applicable.
- The nails must not be used in exterior or exposed conditions.
- The hillside building provisions in LABC Section 2301.1 are excluded from this supplement report.

This supplement expires concurrently with the master report, reissued October 2017.