

ICC-ES Evaluation Report

ESR-5032



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DIVISION: 04 00 00— MASONRY Section: 04 05 19.16— Masonry Anchors DIVISION: 05 00 00— METALS Section: 05 05 23— Metal Fastenings DIVISION: 09 00 00— FINISHES Section: 09 22 16.23— Fasteners	REPORT HOLDER: AEROSMITH FASTENING SYSTEMS 	EVALUATION SUBJECT: SUREPIN® PNEUMATIC FASTENERS	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018, 2015, and 2012 [International Building Code® \(IBC\)](#)
- 2021, 2018, 2015, and 2012 [International Residential Code® \(IRC\)](#)

Property evaluated:

- Structural

2.0 USES

The SurePin® Pneumatic Fasteners are pneumatically driven fasteners used to attach building components such as fiber-cement siding and sheathing materials directly to concrete masonry units (CMUs). The fasteners are used as alternatives to the embedded anchors described in Section 8.1.3 of TMS 402 referenced in Section 2107 of the IBC (Section 2.1.4 of TMS 402 referenced in Section 2107 of the 2012 IBC). For structures regulated under the IRC, the fasteners may also be used where an engineered design is submitted in accordance with IRC Section R301.1.3.

3.0 DESCRIPTION

3.1 SurePin® Pneumatic Fasteners: The SurePin® Pneumatic Fasteners are manufactured from AISI 1060 steel, heat treated to a Rockwell C hardness between 52 - 55 for the core and a R45N surface hardness between 39 - 50 for the surface, and have a minimum tensile strength of 65,000 psi (448 MPa). The pins are zinc electro-plated with a chromate rinse, are mechanically zinc plated, or use a nickel alloy electro-plate. The SurePin® Pneumatic Fasteners are designed with a smooth shank profile and a ballistic end point. See [Table 1](#) for fastener dimensions. See [Figure 1](#) for fastener images. Fasteners are collated for use in a power fastening tool as shown in [Figure 2](#).

3.2 Concrete Masonry Units (CMUs): CMUs must be minimum 8-inch-thick normal weight blocks conforming to ASTM C90.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 General: Selection of fasteners must take into consideration the length of the fastener. For installation into concrete masonry base materials, the minimum length shown in [Table 1](#) must equal or exceed the sum of the thickness of the attached material and the minimum embedment depth shown in [Table 2](#), as applicable.

4.1.2 Allowable Loads: The applicable allowable tension load for the fasteners must be determined by referencing [Table 1](#). The most critical applied loads must not exceed the allowable loads described in this section.

The allowable shear and tension (pullout) values in the tables of this report are for use in allowable stress design (ASD). The allowable loads apply to the interaction between the fasteners and the specified base materials only, and limit states such as pull-over and lateral bearing, which are governed by the properties of attached materials, are outside the scope of this report. Design of the connection to the attached material must comply with the applicable requirements of the IBC. The stress increases and load reductions described in IBC Section 1605.3 are not allowed.

4.2 Installation:

4.2.1 General: The fasteners must be installed in accordance with this report and the Aerosmith Fastening Systems published installation instructions. A copy of these instructions must be available on the jobsite at all times during installation.

The fasteners are installed with a power fastening tool in accordance with Aerosmith Fastening Systems recommendations. The fastener penetration, spacing and edge distances must be as noted in the tables of this report.

5.0 CONDITIONS OF USE:

The SurePin[®] Pneumatic 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** The fasteners must be manufactured and identified in accordance with this report.
- 5.2** Fastener installation must comply with this report and Aerosmith Fastening Systems' published installation instructions. In the event of a conflict between this report and the Aerosmith Fastening Systems published installation instructions, the more restrictive requirements govern.
- 5.3** Calculations demonstrating that the applied loads are less than the allowable loads described in this report must be submitted to the code official. The 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.
- 5.4** The SurePin[®] Pneumatic Fasteners are limited to use in resisting negative wind forces.
- 5.5** Installation must be limited to dry interior environments, which include exterior walls which are protected by an exterior wall envelope.
- 5.6** The use of fasteners in contact with preservative-treated or fire-retardant-treated wood is outside the scope of this report.
- 5.7** The fasteners are manufactured under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the [ICC-ES Acceptance Criteria for Power-actuated Fasteners Driven into Concrete, Steel, and Masonry Elements \(AC70\)](#), dated December 2019, editorially revised January 2021.

7.0 IDENTIFICATION

- 7.1** The containers of the fasteners must be labeled with the report holder's name (Aerosmith Fastening Systems), address or website, the product name (SurePIN[®]), fastener designation, catalog number, lot number and manufacturing plant identification/traceability and the evaluation report number (ESR-5032). In addition, the fasteners are identified by the logo symbol stamped into the fastener head as shown in [Figure 1](#).

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

AEROSMITH FASTENING SYSTEMS

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INDIANAPOLIS, INDIANA 46241

(800) 528-8183

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info@aerosmithfastening.com

TABLE 1—AEROSMITH SUREPIN[®] SERIES FASTENERS

FASTENER	SHANK TYPE	SHANK DIAMETER (inch)	HEAD DIAMETER (inch)	LENGTH (inch)	FASTENER COATING
5193	Smooth	0.145	0.300	0.750	Zinc
5253	Smooth	0.145	0.300	1.000	Zinc
5323	Smooth	0.145	0.300	1.250	Zinc
5383	Smooth	0.145	0.300	1.500	Zinc
5453	Smooth	0.145	0.300	1.750	Zinc
5503	Smooth	0.145	0.300	2.000	Zinc
5573	Smooth	0.145	0.300	2.250	Zinc
5633	Smooth	0.145	0.300	2.500	Zinc

For SI: 1 inch = 25.4 mm.

TABLE 2— ALLOWABLE TENSION VALUE FOR AEROSMITH SUREPIN[®] FASTENERS INSTALLED IN HOLLOW CONCRETE MASONRY UNITS (CMUs) (lbf)²

FASTENER	NOMINAL SHANK DIAMETER (inch)	MINIMUM EMBEDMENT DEPTH (inch)	ALLOWABLE LOAD (lbf)
SurePin Smooth Fastener	0.145	³ / ₄	199

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N.

¹Ultimate Load is based on installation of the fastener embedded into CMU at the center of the web.

²Only one fastener may be installed in each cell.

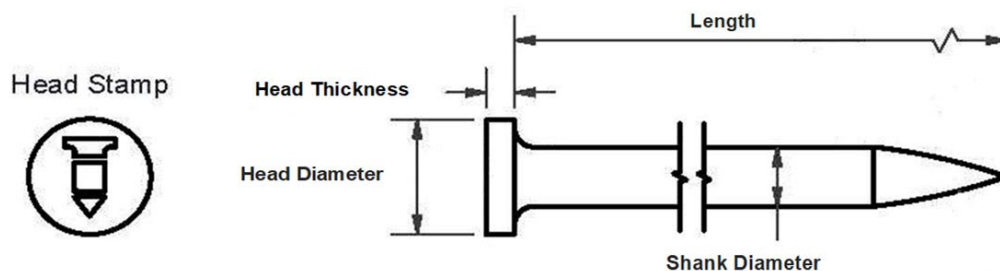


FIGURE 1—AEROSMITH SUREPIN[®] SMOOTH SERIES FASTENERS



FIGURE 2—AEROSMITH SUREPIN[®] FASTENER PLASTIC COLLATED FORM