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# ICC-ES Report

## ESR-3748

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Issued 05/2016

This report is subject to renewal 05/2017.

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

**SECTION: 06 53 00—PLASTIC DECKING**

**REPORT HOLDER:**

**SILCA SYSTEM**

**14600 COMMERCE STREET  
ALLIANCE, OHIO 44601**

**EVALUATION SUBJECT:**

**SILCA GRATE**



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**ICC-ES Evaluation Report****ESR-3748**

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**DIVISION: 06 00 00—WOOD, PLASTICS AND  
COMPOSITES****Section: 06 53 00—Plastic Decking****REPORT HOLDER:****SILCA SYSTEM**  
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[bastuchell@silcasystem.com](mailto:bastuchell@silcasystem.com)**EVALUATION SUBJECT:****SILCA GRATE****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2015 and 2012 *International Building Code*® (IBC)
- 2015 and 2012 *International Residential Code*® (IRC)

**Properties evaluated:**

- Structural
- Durability
- Surface-burning characteristics

**2.0 USES**

The Silca Grate is used to span between floor framing members to support flooring materials for exterior decks, balconies, porches and stair treads of Type V-B (IBC) construction and structures constructed in accordance with the IRC.

**3.0 DESCRIPTION****3.1 General:**

Silca Grate is an injection molded plastic panel with a honeycomb structure nominal 16 inches by 18<sup>1</sup>/<sub>4</sub> inches by 1<sup>1</sup>/<sub>2</sub> inches (406 mm x 464 mm x 38 mm) for the deck panel, refer to Figure 1 for actual dimensions. Stair treads are cut in the field from the panel and have nominal 16 inches by 11 inches (406 mm x 279 mm). The panels have holes for screws that are used to attach the panels to deck joists and stair stringers.

**3.2 Durability:**

Silca Grate when subjected to temperature effects, ultraviolet (UV) resistance and freeze-thaw resistance for durability.

**3.3 Surface-burning Characteristics:**

When tested in accordance with ASTM E84, Silca Grate has a flame-spread index of no greater than 200.

**4.0 DESIGN AND INSTALLATION****4.1 General:**

Installation of the Silca Grate panel and stair tread must comply with this report and the manufacturer's published installation instructions. The manufacturer's published installation instructions must be available on the jobsite at all times during installation.

**4.2 Design:**

The Silca Grate panels, when used to span between floor framing, has an allowable capacity (span ratings) as shown in Table 1.

The Silca Grate when used as stair treads, are satisfactory to resist the code-prescribed concentrated load of 300 lbf (1.34 kN) when installed at a maximum center-to-center spacing of the supporting construction as shown in Table 2.

**4.3 Installation:**

The Silca Grate panels, when used to span between floor framing or stair treads, are installed on 2 x wood members spaced according to Tables 1 or 2 using wood screws, corrosion resistant #9 3 inches long (76 mm), located in the screw holes in the panel.

Floor coverings not supplied by Silca System are installed over the panels. Floor coverings may consist of natural stone or manufactured pavers.

**5.0 CONDITIONS OF USE**

The Silca Grate described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** This product is limited to exterior deck, balconies, porches and stair treads of Type V-B (IBC) construction and structures constructed in accordance with the IRC.
- 5.2** Installation must comply with this report, the manufacturer's published instructions and the applicable code. When the manufacturer's published installation instructions differ from this report, this report governs.
- 5.3** The use of Silca Grate as a component of a fire-resistance-rated assembly is outside the scope of this report.

- 5.4 Only those fasteners and fastener configurations described in this report have been evaluated for the installation of the Silca Grate panels. The compatibility of the fasteners with the supporting construction, including chemically treated wood, is outside the scope of this report.
- 5.5 Silca Grate panels must be directly fastened to the supporting construction. Where required by the code official, engineering calculations and construction documents consistent with this report must be submitted for approval. The calculations must verify that the supporting construction complies with the applicable building code requirements and is adequate to resist the loads imparted upon it from the products and systems described in this report. The documents must contain details of the attachment to the supporting structure consistent with the requirements of this report. The documents must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.6 Anchoring of the flooring materials over the Silca Grate is outside the scope of this report. The determination of wind uplift and other loads applicable to the flooring materials must be determined by a design professional.
- 5.7 A solid floor covering must be installed over the Silca Grate.
- 5.8 Anchoring of flooring over the Silca Grate System is not part of this report. The determination of wind uplift and other loads applicable to the flooring system must be determined by a design professional.

**6.0 EVIDENCE SUBMITTED**

- 6.1 Testing in accordance with ASTM D7032 for flexure, temperature effects, and freeze thaw resistance, flame spread, creep-recovery, and mechanical holding.
- 6.2 Testing in accordance with AC38 Section 4.1.2 for Ultraviolet light weathering.
- 6.3 Testing in accordance with ASTM D7031 for duration of load.
- 6.4 Testing in accordance with ASTM E84 for surface burning characteristics, flame spread index.

**7.0 IDENTIFICATION**

The Silca Grate panels described in the report must be identified on each panel with the name of the manufacturer (Silca System), product name Silca Grate, the allowable span and allowable load for the panel and the stair tread, and the evaluation report number (ESR-3748).

**TABLE 1—DECK PANEL SPAN RATINGS**

PRODUCT NAME	MAXIMUM SPAN <sup>1</sup> (inches)	ALLOWABLE CAPACITY CONSIDERING A DEFLECTION LIMIT OF SPAN/180 <sup>2,3</sup> (lb/ft <sup>2</sup> )
Silca Grate	16	100

For SI: 1 inch = 25.4 mm, 1 lb/ft<sup>2</sup> = 47.9 Pa

<sup>1</sup>Maximum span is measured center-to-center of the supporting construction.

<sup>2</sup>Maximum allowable capacity is adjusted for durability. No further increases are permitted.

<sup>3</sup>The allowable capacity must be reduced by the live load prescribed by the code, with the maximum live load considered due to deflection is 60 psf, and the weight of flooring materials installed over the panel.

**TABLE 2—MAXIMUM STAIR TREAD SPANS<sup>2</sup>**

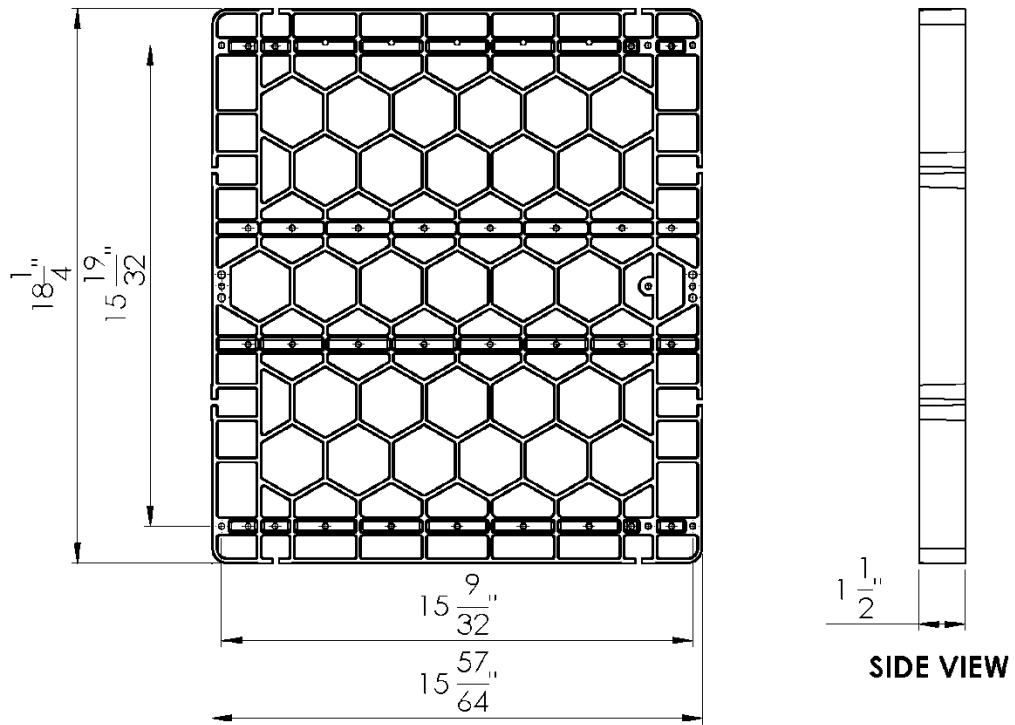
PRODUCT NAME	MAXIMUM SPAN <sup>1</sup> (inches)
Silca Grate Stair tread	Supported on all four sides, 16 X 8 <sup>3</sup> / <sub>4</sub>

For SI: 1 inch = 25.4 mm, 1 lb/ft<sup>2</sup> = 47.9 Pa

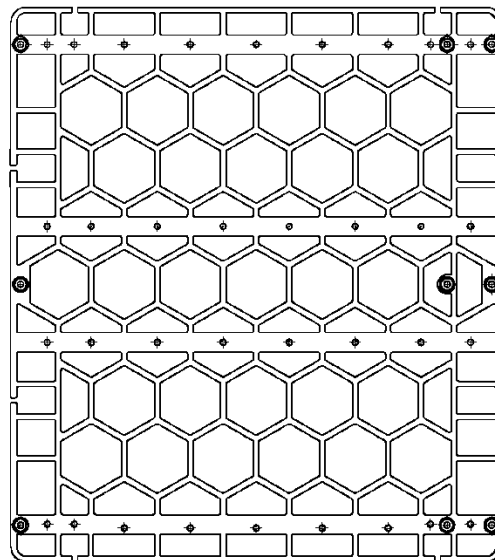
<sup>1</sup>Maximum span is measured center-to-center of the supporting construction.

<sup>2</sup>Maximum span is based on a concentrated load of 300 lb (1.34 kN).

# SILCA GRATE DRAWING



TOP VIEW



BOTTOM VIEW

SCREW HOLES

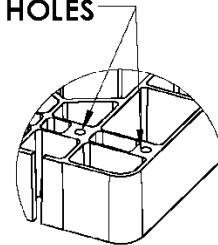


FIGURE 1—SILCA GRATE  
(SI Units; 1 inch = 25.4 mm)