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# ICC-ES Report

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# ESR-3748

Reissued 05/2017  
This report is subject to renewal 05/2018.

**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**

Reissued May 2017

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

**Section: 06 53 00—Plastic Decking**

**REPORT HOLDER:**

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**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 dimension of 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:

The evaluation of Silca Grate durability when subjected to temperature effects, ultraviolet (UV) resistance and freeze-thaw resistance is addressed in this report.

### 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, the manufacturer's published installation instructions and the applicable code. 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 #9, corrosion resistant wood screws, 3 inches long (76 mm), located in each of the screw holes of 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** Installation must comply with this report, the manufacturer's published instructions and the applicable code. When there is a conflict between this

report and the manufacturer’s published installation instructions, this report governs.

- 5.2 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.
- 5.3 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 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, engineering calculations and construction documents consistent with this report must be submitted to the code official 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 of the panels 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 following ASTM D7032 provisions: Section 4.4 for flexure resistance, Section 4.5 for temperature effects, Section 4.7 for freeze thaw resistance, Section 5.4 for creep-recovery, and Section 5.5 for mechanical fastener resistance.
- 6.2 Testing in accordance with AC38 Section 4.1.2 for Ultraviolet light weathering.
- 6.3 Testing in accordance with ASTM D7031 Section 5.10.2 for duration of load (or creep-rupture resistance).
- 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, the allowable span for 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 includes adjustment for durability, described in Section 3.2. No further increases are permitted.

<sup>3</sup>The allowable capacity must be equal to or greater than the total applied loads based on applicable load combinations prescribed in the applicable code.

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

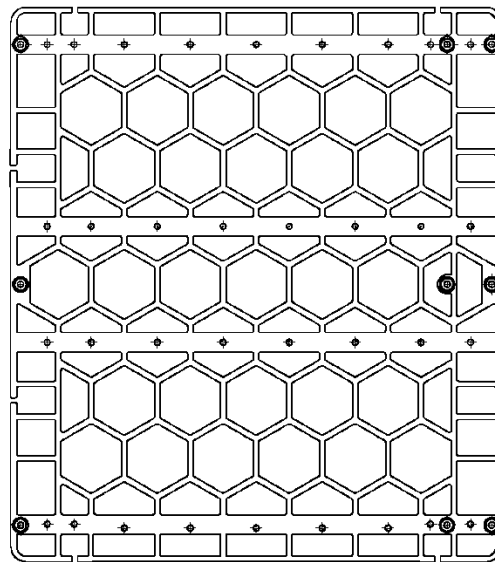
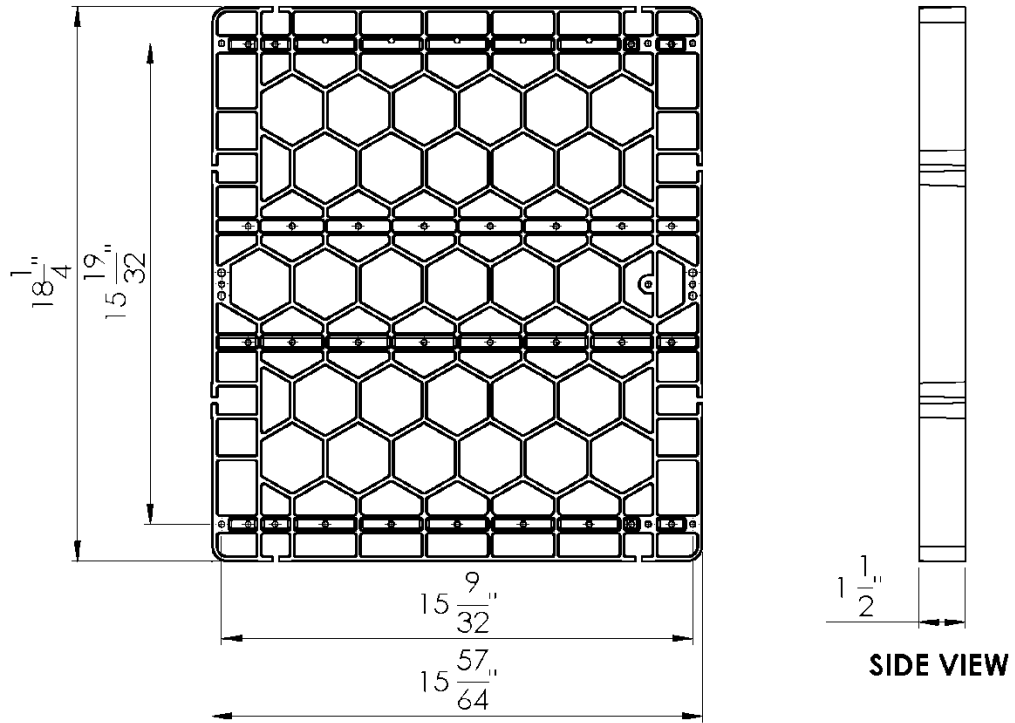
PRODUCT NAME	MAXIMUM SPAN <sup>1</sup> (inches)
Silca Grate Stair tread	Supported on all four sides, 16 X 8 <sup>3</sup> / <sub>4</sub>

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

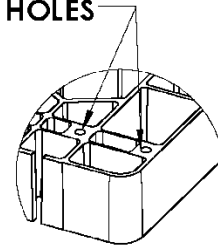
<sup>1</sup>Maximum span is measured center-to-center of the supporting construction.

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

# SILCA GRATE DRAWING



**SCREW HOLES**



**BOTTOM VIEW**

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

## ICC-ES Evaluation Report

## ESR-3748 CBC and CRC Supplement

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### EVALUATION SUBJECT:

#### SILCA GRATE

#### 1.0 REPORT PURPOSE AND SCOPE

##### Purpose:

The purpose of this evaluation report supplement is to indicate that Silca Grate, recognized in ICC-ES master evaluation report ESR-3748, has also been evaluated for compliance with the codes noted below.

##### Applicable code editions:

- 2013 *California Building Code* (CBC)
- 2013 *California Residential Code* (CRC)

#### 2.0 CONCLUSIONS

##### 2.1 CBC:

The Silca Grate, described in Sections 2.0 through 7.0 of the master evaluation report ESR-3748, complies with CBC Chapters 7 and 14 provided the design and installation are in accordance with the 2012 *International Building Code*® (IBC) provisions noted in the master report, and additional requirements in the CBC, as applicable.

The product recognized in this supplement has not been evaluated under CBC Chapter 7A for use in the exterior design and construction of new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland–Urban Interface Fire Area.

##### 2.2 CRC:

The Silca Grate, described in Sections 2.0 through 7.0 of the master evaluation report ESR-3748, complies with CRC Chapter 3, provided the design and installation are in accordance with the 2012 *International Residential Code*® (IRC) provisions noted in the master report.

The product recognized in this supplement has not been evaluated under CRC Section R327 for use in the exterior design and construction of new buildings located within any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland–Urban Interface Fire Area.

The product recognized in this supplement has not been evaluated for compliance with the *International Wildland–Urban Interface Code*®.

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

## ICC-ES Evaluation Report

## ESR-3748 FBC Supplement

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### EVALUATION SUBJECT:

#### SILCA GRATE

#### 1.0 REPORT PURPOSE AND SCOPE

##### Purpose:

The purpose of this evaluation report supplement is to indicate that Silca Grate, recognized in ICC-ES master evaluation report ESR-3748, has 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 Silca Grate, described in Sections 2.0 through 7.0 of the master evaluation report ESR-3748, complies with the *Florida Building Code—Building* and the *Florida Building Code—Residential*, provided the design and installation are in accordance with the *International Building Code*® (IBC) provisions noted in the master report.

Use of the Silca Grate for compliance with the High-Velocity Hurricane Zone provisions of the 2014 *Florida Building Code—Building* and the 2014 *Florida Building Code—Residential* has not been evaluated, and is outside the scope of this supplemental 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 May 2017.