

ICC-ES Evaluation Report

ESR-4077

Reissued September 2023


This report also contains:

- CBC and CRC Supplement

Subject to renewal September 2024

ICC-ES Evaluation Reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.

Copyright © 2023 ICC Evaluation Service, LLC. All rights reserved.

<p>DIVISION: 31 00 00 — EARTHWORK</p> <p>Section: 31 60 00 — Special Foundations and Load-Bearing Elements</p>	<p>REPORT HOLDER: ROYAL ADHESIVES & SEALANTS CANADA LTD., A WHOLLY OWNED SUBSIDIARY OF H. B. FULLER</p>	<p>EVALUATION SUBJECT: FAST 2K DECK POST ANCHOR</p>	
--	--	--	---

1.0 EVALUATION SCOPE

Compliance with the following codes:

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

Properties evaluated:

- Structural
- Durability

2.0 USES

The Fast 2K Deck Post Anchor material is used as stabilizing backfill material around embedded posts, as an alternate to the concrete described in IBC Section 1807.3.3. The Fast 2K Deck Post Anchor is also be used as a footing, to transfer downward axial load from the embedded post to the soil. For structures regulated under the IRC, the Fast 2K Deck Post Anchor may be used when an engineered design is performed in accordance with IRC Section R301.1.3.

3.0 DESCRIPTION

3.1 Fast 2K Deck Post Anchor:

The Fast 2K Deck Post Anchor is a field-mixed, two-part polyurethane foam. The two components are designated Component A and Component B. These components are packaged together in divided bags or separately in larger containers. The two components are mixed together in the field to produce the backfill material. After mixing, the resulting liquid is poured into the hole and allowed to expand, resulting in a solid foam. After expansion, the installed foam has a nominal density of 4.3 pcf (70 kg/m³).

3.2 Wood Posts:

Wood post material and size must comply with the IBC and the wood must be treated in accordance IBC Section 1807.3.1.

3.3 Applicable Soil Types:

The Fast 2K Deck Post Anchor may be used in any of the soil materials addressed in rows 3, 4 or 5 of IBC Table 1806.2.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 General: The posts must be embedded a minimum of 6 inches (152 mm) below the frost depth. The elevation of the top of the backfill material must allow for 3 to 6 inches (76 to 152 mm) of soil to be placed over the backfill material, to prevent exposure to fire.

The diameter of the Fast 2K Deck Post Anchor must not be less than the diameter required by IBC Section 1807.3.3. The backfill material must have a minimum height of 12 inches (305 mm).

The capacity of the wood post is outside the scope of this evaluation and must be determined in accordance with the IBC.

4.1.2 Engineered Footing Design: The Fast 2K Deck Post Anchor has an allowable bearing pressure of 3,470 psf (166 kPa). The required height of the foam plastic must be determined using an allowable (ASD) shear bond strength between the wood and the foam plastic of 6 psi (41 kPa). Footing designs for select conditions are shown in [Table 1](#). The expected settlement due to compression of the anchor can be determined as follows:

$$\Delta = \frac{PH}{AE}$$

where:

P = Applied load, lbf (N)

H = Height of the anchor, inches (mm)

A = Cross sectional area of the anchor, in² (mm²)

E = Modulus of elasticity in compression,
= 1,735 psi (12 MPa)

4.2 Installation:

4.2.1 General: The Fast 2K Deck Post Anchor must be installed in accordance with this report and the manufacturer's published installation instructions. A copy of these instructions must be available on the jobsite at all times during installation.

4.2.2 Conditioning: The Fast 2K Deck Post Anchor must be conditioned to a temperature between 65°F and 80°F (18°C and 27°C) for a minimum of one hour prior to application.

4.2.3 Hole Preparation and Post Installation: The hole for the embedded post must be prepared in accordance with the manufacturer's installation instructions. The presence of water in the hole must be addressed in accordance with the manufacturer's installation instructions. The post must be installed in the hole and held in place vertically and kept plumb during placement of the backfill material, in accordance with the manufacturer's installation instructions.

4.2.4 Backfill Application: The two components of the backfill material must be mixed in accordance with the manufacturer's published installation instructions. The resulting liquid is poured into the hole, wetting all sides of the wood post. Adjustments needed to plumb the post are only allowed during the first 10 seconds after backfill material placement. If more than one bag of backfill material is required, the first application must be allowed to expand and cure for a minimum of 5 minutes prior to application of the next bag. After the final application has been allowed to cure for a minimum of 15 minutes, excess foam above the desired height may be mechanically removed (cut away).

5.0 CONDITIONS OF USE:

The Fast 2K Deck Post Anchor 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** The Fast 2K Deck Post Anchor must be installed in accordance with this report and the manufacturer's published installation instructions. In the case of a conflict between the published installation instructions and this report, the more restrictive requirements govern.
- 5.2** The Fast 2K Deck Post Anchor is manufactured in Toronto, Ontario, Canada, under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

- 6.1 Reports of testing of the physical properties and durability of the foam plastic, including compressive strength and resistance to thermal and humid aging.
- 6.2 Report of shear bond testing and compressive creep testing.
- 6.3 A geotechnical analysis addressing suitability of the Fast 2K Deck Post Anchor for use as backfill material.
- 6.4 Quality documentation in accordance with the [ICC-ES Acceptance Criteria for Quality Documentation \(AC10\)](#), dated January 2019

7.0 IDENTIFICATION

- 7.1 Containers of Fast 2K Deck Post Anchor material are identified with the manufacturer's name and address, the product name, the component identification (A or B), a batch number and the evaluation report number (ESR-4077).
- 7.2 The report holder's contact information is the following:

**ROYAL ADHESIVES & SEALANTS CANADA LTD.,
A WHOLLY OWNED SUBSIDIARY OF H. B. FULLER
266 HUMBERLINE DRIVE
TORONTO, ONTARIO M9W 5X1
CANADA
(416) 679-5676
www.Fast2K.com**

TABLE 1—REQUIRED FAST 2K DECK POST ANCHOR DIMENSIONS

APPLIED LOAD, lbf	MINIMUM REQUIRED FOOTING DIAMETER ¹ (inches)			MINIMUM REQUIRED FOOTING HEIGHT ² (inches)			
	Soil Bearing Pressure (psf)			Nominal Post Size (inches)			
	1,500	2,000	3,000	4 x 4	4 x 6	6 x 6	8 x 8
1,000	12	10	8	12	12	12	12
1,500	14	12	10	18	14	12	12
2,000	16	14	12	24	19	16	12
2,500	18	16	13	30	24	19	15
3,000	20	17	14	36	28	23	18
4,000	23	20	16	48	38	31	23
5,000	25	22	18	60	47	38	29
6,000	28	24	20	72	56	46	35
7,000	30	26	21	84	65	54	41
8,000	32	28	23	96	75	61	46

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psf = 47.9 Pa.

¹The footing diameter must be as needed to comply with IBC Section 1807.3.3 or as tabulated, whichever is larger.

²The footing must extend a minimum of 6 inches below the frost depth or to a depth equal to the sum of the tabulated footing height and the required soil cover distance described in Section 4.1.1, whichever is greater.

DIVISION: 31 00 00—EARTHWORK

Section: 31 60 00—Special Foundations and Load-Bearing Elements

REPORT HOLDER:

ROYAL ADHESIVES & SEALANTS CANADA, LTD., A WHOLLY OWNED SUBSIDIARY OF H. B. FULLER

EVALUATION SUBJECT:

FAST 2K DECK POST ANCHOR

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Fast 2K Deck Post Anchor, described in ICC-ES evaluation report ESR-4077, have also been evaluated for compliance with the code noted below.

Applicable code edition:

- 2019 *California Building Code* (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) aka: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2019 *California Residential Code* (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The Fast 2K Deck Post Anchor, described in Sections 2.0 through 7.0 of the evaluation report ESR-4077, complies with CBC Chapter 18, provided the design and installation are in accordance with the 2018 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapter 18.

2.1.1 OSHPD:

The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The Fast 2K Deck Post Anchor, described in Sections 2.0 through 7.0 of the evaluation report ESR-4077, complies with CRC Chapter 3, provided the design and installation are in accordance with the 2018 *International Residential Code*® (IRC) provisions noted in the evaluation report.

This supplement expires concurrently with the evaluation report, reissued September 2023.