

ICC-ES Evaluation Report

ESR-4273

Reissued January 2024


This report also contains:

- CBC

Subject to renewal January 2026

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<p>DIVISION: 04— MASONRY</p> <p>Section: 04 05 13— Masonry Mortaring</p>	<p>REPORT HOLDER:</p> <p>FASTBRICK ENGINEERING PTY LTD</p>	<p>EVALUATION SUBJECT:</p> <p>FASTBRICK ADHESIVE</p>	
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1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

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

Properties evaluated:

- Physical
- Structural
- Durability

2.0 USES

Fastbrick Adhesive is an adhesive used in masonry construction as an alternative to the Type M, N, O, and S Portland cement/lime masonry mortar as described in Section 2103.2 of the IBC and Section R606.2.8 of the IRC. Adhesive is used to bond concrete masonry units in plain (unreinforced) and reinforced, grouted or ungrouted, non-fire-resistance-rated masonry construction. Fastbrick Adhesive can be used in the construction of bearing walls, nonload-bearing walls, retaining walls, and foundation stem walls and piers. Use of the adhesive in prestressed masonry construction, and in Seismic Design Categories other than A or B are outside the scope of this report.

3.0 DESCRIPTION

Fastbrick Adhesive is a liquid polyurethane type adhesive used in construction. Fastbrick Adhesive is supplied in 200-liter (52.8-gallon) drums. Fastbrick Adhesive has a 6-month storage life when stored in unopened containers at temperatures between 65°F and 85°F (18°C and 30°C).

4.0 DESIGN & INSTALLATION

4.1 Design:

Fastbrick Adhesive with a minimum 24-hour cure may be used as a an alternative to Type M, N, O and S Portland cement/lime masonry mortar in masonry wall construction designed in accordance with the requirements of the IBC Section 2107 (Allowable Stress Design) or IBC Section 2108 (Strength Design of Masonry), and the TMS 402-16 Building Code Requirements for Masonry Structures, or IRC Section R301.1.3, as applicable, for use under the IBC or IRC. Masonry walls constructed with Fastbrick Adhesive must be designed in accordance with applicable codes as if the adhesive is Type M, N, S or O Portland cement/lime mortar, in accordance with applicable codes, with the following exceptions:

- The modulus of rigidity (G) of concrete masonry used in calculations must be $0.1 \cdot E_m$ in lieu of the $0.4 \cdot E_m$ noted under Table 4.2.2 of TMS 402-16.
- The allowable flexural tensile stress parallel to bed joints must be zero since adhesives are applied to bed joints only.
- Use of Fastbrick Adhesive is limited to applications that do not create flexural tensile stresses due to long-term loading of the adhesive.

Shear walls with Fastbrick Adhesive are limited to Seismic Design Categories A or B only, and design must be in compliance with Chapters 8 or 9 of the TMS 402-16, as applicable, and with Table CC-7.3.2-1 of TMS 402-16 for masonry laid with Type M, N, S or O Portland cement/lime mortar.

4.2 Installation:

4.2.1 General: The adhesive must be used in the bed joints of the masonry only, with the first course of masonry set into a setting bed of code-complying mortar applied to the concrete foundation. The adhesive must be used with open and closed, hollow concrete masonry units (CMUs) complying with ASTM C 90, with precision ground bearing interfaces in accordance with the manufacturer's instructions. Walls using the Fastbrick Adhesive must be constructed with vertical control joints in accordance with TEK document 10-2B; a copy must be provided to the code official. Unless otherwise noted in this report, construction practices applicable to general masonry construction as defined by TMS 602-16 are also applicable.

4.2.2 Adhesive Application: Prior to the application of the Fastbrick Adhesive onto the face shells of the concrete masonry units, surfaces to receive the adhesive must be free of dust, grease, other contaminants and standing water at the time of installation. The surfaces of the units may be damp or dry, but any ice present must be removed prior to the application of the adhesive. Adhesive must be applied to top and bottom of each face shell of the unit. The application rate of the adhesive is to be a minimum of 2 mL per 100 mm (3.9 in.) length of face shell. Prior to the adhesive becoming tacky, the next course of units must be set into the adhesive using a running bond pattern. The adhesive is only required to be applied to one contact surface. As the unit sets, the adhesive squeezes laterally toward the edges of the face shells. Adhesive is not required to be applied at the head joints or the cross webs of the units.

4.2.3 Curing Conditions: The adhesive must be cured for minimum of 24 hours at a temperature between 40°F and 100°F (4°C and 38°C). The minimum and maximum service condition temperatures evaluated for the Fastbrick Adhesive are -20°F (-29°C) and 130°F (54°C), respectively. The assembly temperature for masonry construction with Fastbrick Adhesive must be between 40°F and 100°F (4°C and 38°C). The relative humidity range for masonry construction with Fastbrick Adhesive must be between 20 percent and 90 percent. The assembly time for Fastbrick Adhesive is 15 minutes at 50 percent relative humidity. The assembly time can be adjusted ± 5 minutes depending on the humidity percentage; the higher the relative humidity, the lower the assembly time in accordance with the manufacturer's published installation instructions.

4.3 Special Inspection:

Periodic special inspection is required. A statement of special inspection in accordance with IBC Sections 1704 and 1705 must be provided. Special inspection must include the following:

- a. Verification that the adhesive is labeled in accordance with the requirements of the evaluation report.
- b. Verification that the adhesive is used within its storage life and assembly time.
- c. Verification that the adhesive is dispensed as specified by the adhesive manufacturer.
- d. Observation that the adhesive bead is being applied per the manufacturer's recommended installation instructions, including the following:
 1. Moisture content of block
 2. Cleanliness of block
 3. Adhesive bead size
 4. Adhesive bead location
- e. Verification that bed joints meet the manufacturer's requirements for maximum allowable joint width.
- f. Verification that control joints are placed in compliance with the National Concrete Masonry Association (NCMA) TEK document: TEK 10-2B.
- g. All applicable items in Section 1705.4 of the IBC.

5.0 CONDITIONS OF USE:

The Fastbrick Adhesive 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 and design must comply with the manufacturer's published installation instructions and this report. In case of a conflict, this report governs.
- 5.2 The maximum block-to-block joint width at the bed joints must not exceed 0.03 inch (0.76 mm).
- 5.3 Use of masonry with Fastbrick Adhesive is limited to unreinforced or reinforced masonry wall construction in Seismic Design Categories A or B only. Use of adhesive in prestressed masonry construction is outside the scope of this report.
- 5.4 Use of joint reinforcement and anchors installed in the bed joints is outside the scope of this evaluation report.
- 5.5 Masonry walls constructed using Fastbrick Adhesive are limited to non-fire-resistance-rated construction.
- 5.6 Masonry walls with Fastbrick Adhesive must be constructed in compliance with the cold and hot weather requirements of the TMS 602 Article 1.8C and 1.8D, respectively, Section 4.2.3 of this report, and manufacturer's published instructions.
- 5.7 Masonry wall construction using Fastbrick Adhesive is limited to locations where the in-service ambient temperature is between -20°F and 130°F (-28.9°C and 54°C).
- 5.8 The finished assembly must be covered with a weather-resistant exterior wall envelope complying with the IBC or IRC.
- 5.9 Special inspection must be provided for installations under the IBC and IRC that conform to Section 4.3 of this report.
- 5.10 Use of Fastbrick Adhesive in unreinforced lintels is outside the scope of this report. Because the adhesive is applied to masonry bed joints only, reinforced concrete or masonry lintels must comply with applicable codes.
- 5.11 Use of adhesives applied only in the bed joints of masonry construction is limited to running bond pattern.
- 5.12 Fastbrick Adhesive masonry adhesive is manufactured by Fastbrick Engineering in accordance with a quality documentation.

6.0 EVIDENCE SUBMITTED

Data in accordance with the [ICC-ES Acceptance Criteria for Adhesives for Masonry Construction \(AC362\)](#), dated June 2019 (editorially revised May 2022).

7.0 IDENTIFICATION

- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-4273) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.
- 7.2 In addition, the label also includes the batch number, manufacturing date and the drum fill weight.
- 7.3 The report holder's contact information is the following:

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Section: 04 05 13—Masonry Mortaring

REPORT HOLDER:

FASTBRICK ENGINEERING PTY LTD

EVALUATION SUBJECT:

FASTBRICK ADHESIVE

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that Fastbrick Adhesive, described in ICC-ES evaluation report [ESR-4273](#), has also been evaluated for compliance with the codes noted below.

Applicable code edition(s):

- 2022 *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.

- 2022 *California Residential Code* (CRC)

2.0 CONCLUSIONS**2.1 CBC:**

The Fastbrick Adhesive, described in Sections 2.0 through 7.0 of the evaluation report [ESR-4273](#), complies with CBC Chapter 21, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 16 and 17, as applicable.

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 Fastbrick Adhesive, described in Sections 2.0 through 7.0 of the evaluation report [ESR-4273](#), complies with CRC Chapter 6, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report and the additional requirements of CRC Chapter 3, as applicable.

This supplement expires concurrently with the evaluation report, reissued January 2024.