



BUILDINGS 2021-016 BULLETIN TECHNICAL

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ISSUER: Alan Price, P.E.
Director, Office of Technical Certification and Research

PURPOSE: This Bulletin clarifies design, inspection, use, adjustment, maintenance, and repair for cast-in-place threaded anchors (J-bolts with exposed threaded ends) used for unenclosed perimeter protection in accordance with the NYC Building Code.

SUBJECT(S): Innovation Challenge, Cast-in-place Threaded Anchors, Unenclosed Perimeter Protection

RELATED CODE SECTIONS: AC 28-113, BC 1704.14, BC 1911, BC 1912, BC 3308

I. INNOVATION CHALLENGE COMPETITION

In 2020 the Department of Buildings launched the **Hack the Building Code Innovation Challenge** competition. The competition sought ideas for modernizing the construction process by improving buildings and keeping construction workers and the public safe. The Department's website provides a [list of the winning technologies](#).

One of the competition's winning technologies uses cast-in-place threaded anchors as anchoring points for unenclosed perimeter applications. This Bulletin establishes acceptance criteria for cast-in-place threaded anchors used for unenclosed perimeter protection.

II. BACKGROUND

Building Code section 1912 requires strength of J-bolts cast in concrete, such as cast-in-place threaded anchors be designed in accordance with Appendix D of ACI 318 as modified by Sections 1908.1.9 and 1908.1.10. Pursuant to AC 28-113.2, materials specifically prescribed by this Code or Department rules may be used as prescribed without the prior approval of the Commissioner. Additionally, Building Code section 3308.9 prescribes requirements for the inspection, use, adjustment, maintenance, and repair for the protection of unenclosed perimeters. This Bulletin clarifies that cast-in-place threaded anchors when used for the protection of unenclosed perimeters (leading edge protection) are subject to the requirements of BC1912 and BC 3308.9.

III. DESCRIPTION

Cast-in-place threaded anchors, which are J-bolts with exposed threaded ends, are embedded anchor points that are installed into concrete formwork and cast in the concrete to become a permanent part of the superstructure of the building. The cast-in-place threaded anchor may be of varying design but will typically be composed of metal J-bolts, plastic nailing plates, plastic nuts and plastic escutcheons. The installed anchor sits flush with concrete base materials, thereby avoiding tripping hazards and/or protrusions. Anchoring accessories are threaded onto cast-in-place threaded anchors.

IV. USES

Cast-in-place threaded anchors are used as anchoring points for unenclosed perimeter applications in accordance with BC 3308.9. Additional uses of cast-in-place threaded anchors not included in this

Bulletin include MEP (Mechanical, Electrical and Plumbing) anchoring points, and for personal fall protection. Cast-in-place threaded anchors eliminate silica dust, noise pollution, and other negative effects associated with concrete drilling procedures and post-installed anchors.

V. EVALUATION SCOPE

NYC Construction Codes

VI. APPLICABLE CODE PROVISIONS

Cast-in-place threaded anchors used as unenclosed perimeter protection must be designed, inspected, used, adjusted, maintained and repaired in accordance with BC 1912 and BC 3308.8.1 as provided below:

- A. BC 3308.8.1, Item #1.** The registered design professional shall prepare plans including the manufacturer of the cast-in-place threaded anchors and reference to this Buildings Bulletin.
- B. BC 3308.8.1, Item #3.** Cast-in-place threaded anchors shall be designed in accordance with BC 1912 or have a Code compliance report issued by a product certification agency. The anchoring system shall meet or exceed the level of safety afforded to the public and property by safety netting systems and guardrail systems installed in accordance with this section.
- C. BC 3308.8.1, Item #6.** Inspection of cast-in-place threaded anchors shall be performed in accordance with inspection requirements prescribed in the Code compliance report and the recommendations of the manufacturer. The duties of this special inspection shall include periodic inspection frequency and inspections performed in accordance with Manufacturer's specifications and installation instructions.
- D. BC 3308.9.** Cast-in-place threaded anchors systems authorized under Section 3308.8 shall be inspected, used, adjusted, maintained, repaired, and replaced in accordance with the design drawings, manufacturer recommendations, and the requirements of this Buildings Bulletin.
- E. BC 3308.9.1.** Cast-in-place threaded anchor systems shall be maintained in a safe condition and used in a manner that eliminates hazards to the public and property. Any hazardous conditions or defects discovered with such shall immediately be brought to the attention of the responsible permit holder.
- F. BC 3308.9.3.** Cast-in-place threaded anchor systems shall be inspected for compliance with this Buildings Bulletin and required drawings daily, as well as after each impact loading event. The inspection shall be performed by the site safety manager or coordinator, and a written record of such inspection maintained as part of the site safety log. Where the job does not require a site safety manager or coordinator, the inspection shall be performed by a competent person designated by the permit holder in accordance with Section 3308.4, with a record of such inspection prepared, initialed, and dated by such competent person.
- G. BC 3308.9.4.** Cast-in-place threaded anchor systems, showing signs of, corrosion, wear, breaks, damage, or deterioration that may substantially affect the strength of such shall be immediately removed from service.