



BUILDINGS BULLETIN 2014-012
OTCR

Supersedes: None

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Purpose: This document establishes alternative acceptance criteria for post-installed expansion, undercut and adhesive anchors installed in concrete elements as prescribed in the NYC Construction Codes.

Related Code Section(s): BC 1912
BC 1704.32

Subject(s): Concrete, anchors, expansion anchors; Concrete, anchors, undercut anchors; Concrete, post-installed anchors

Background: Post-installed expansion, undercut and adhesive anchors installed in concrete elements are designed in accordance with ACI 318¹ Appendix D as modified by sections BC 1908.1.9 and 1908.1.10. Subsequently, Appendix D requires post-installed expansion, and undercut anchors to be qualified in accordance with ACI 308.2² and adhesive anchors to be qualified in accordance with ACI 308.4³. This bulletin establishes alternative qualification criteria for post-installed expansion and undercut anchors in concrete.

Description: Expansion, undercut and adhesive anchors are defined in ACI 318 Appendix D Section D.1.

Evaluation Scope: NYC Construction Codes

Evaluation Criteria: Pursuant to section AC 28-113, the Office of Technical Certification and Research (OTCR) recognizes:

- Expansion and undercut anchors tested and evaluated in accordance with ICC-ES AC193 "Acceptance Criteria for Mechanical Anchors in Concrete Elements"⁴.
- Adhesive anchors tested and evaluated in accordance with ICC-ES AC 308 "Post-installed Adhesive Anchors in Concrete Elements"⁵.

Acceptable expansion, undercut and adhesive anchors shall have an evaluation report issued in accordance applicable ICC-ES Acceptance Criteria and shall comply with the conditions of this bulletin.

Uses: Expansion, undercut and adhesive anchors are used to transmit structural loads from one connected element to the other. The evaluation report issued in accordance with ICC-ES AC193 or AC 308 (as applicable) provides qualification criteria for each loading condition.

Conditions of Acceptance: Expansion, undercut and adhesive anchors evaluated in accordance with this bulletin shall be designed and installed in accordance with the NYC Construction Codes and the following:

A. Design

1. Expansion, undercut and adhesive anchors shall be designed in accordance with ACI 318 Appendix D.

B. Installation Requirements

1. Expansion, undercut and adhesive anchors shall be installed in accordance with ACI 318 Appendix D Section D.9, the manufacturer's instructions, the evaluation report issued in accordance with ICC-ES AC 193 or AC 308 (as applicable), and the conditions of this bulletin.
2. Expansion, undercut and adhesive anchors shall be labeled in accordance with 28-113.4 and ICC-ES AC193 Section 2.1.3.

C. Special Inspection

1. The installation of expansion, undercut and adhesive anchors shall be subject to special inspection pursuant to section BC 1704.32, 1 RCNY Section 101-06, ACI 318 Appendix D Section D.9 and the evaluation report issued in accordance with ICC-ES AC 193 or AC 308 (as applicable).

- Reference Standards:**
1. ACI 318–11 “*Building Code Requirements for Structural Concrete*” (www.concrete.org)
 2. ACI 355.2 “*Qualification of Post-installed Mechanical Anchors in Concrete*” (www.concrete.org)
 3. ACI 355.4 “*Qualification of Adhesive Anchors in Concrete*” (www.concrete.org)
 4. ICC-ES AC 193 “*Acceptance Criteria for Mechanical Anchors in Concrete Elements*” (www.icc-es.org)
 5. ICC-ES AC 308 “*Post-installed Adhesive Anchors in Concrete Elements*” (www.icc-es.org)