



I. General

- A. This building newsletter describes requirements for approval of the installation of reinforcing dowels, threaded rods or anchor bolts in existing concrete or masonry by placing the dowel, rod or bolt in a drilled hole filled with epoxy resin adhesive, drypack, or grout.
- B. Note that epoxy and similar resin adhesives may not be suitable for support of fire-resistive construction, pullout in overhead installations or support of vibratory loads.
- C. The epoxy resin adhesive, drypack or non-shrink grout must be authorized by the design engineer or architect of record for its intended use.

II. Qualification

There are two methods of qualifying a connection:

A. **Method A** Product is approved by a recognized listing agency

1. The use of epoxy resin adhesive, drypack or non-shrink grout is approved when such product has a current approval from a recognized listing agency. Such recognized listing agencies are International Conference of Building Officials (ICBO), National Evaluation Research (NER).
2. Special Inspection – Special inspection is not required for connections qualified by Method (A) unless specified in the ICBO report or reports of other recognized listing agencies.
3. Load Testing of Field Installations – When the connection has been qualified by Method (A), load testing of field installations is not required unless specified in the ICBO report or report of other recognized listing agencies.
4. If special inspection and/or field testing is required by the listing agency's report, special inspector and the testing agency must be certified by the Field Inspection Services Division of the Development Services Department.

B. **Method B** Product is **not** approved by a recognized listing agency

1. The engineer or architect for the project must submit the following information to the Development Services Department plan review engineer or the Field Inspection Services.
 - a. The brand name and manufacturer's identification number of the epoxy resin adhesive or grout to be used.
 - b. Technical data, including qualifying laboratory load test results, showing that the ep-

oxy resin adhesive or grout to be used will be satisfactory. When the load test results are listed as ultimate values, an appropriate factor of safety must be used to determine the actual design load.

- c. The manufacturer's recommendation for the use of the epoxy resin adhesive or grout must be shown on the plans.
 - d. Details showing preparation and installation procedures including the diameter and depth of hole, edge distance, method of drilling and cleaning the hole, and the size of dowel or bolt for each installation. Mixing method of placing and curing requirements should be included on the plans.
2. Special Inspection – Special inspection is required for all installations qualified by Method (B). The complete installation of each dowel, rod or bolt in the epoxy or grout must be observed by a special inspector, certified by the office of Field Inspection Services, to inspect reinforced concrete and/or structural masonry.
 3. Load Testing of Field Installation
 - a. When the connection has been qualified by Method (B) and resist axial load alone or combined with shear forces, load testing is required.
 - b. Load testing must be conducted by a testing agency approved by the office of Field Inspection Services, under the direction of the engineer or architect of record. A list of approved testing laboratories or agencies is available upon request.
 - c. The field test procedure and the location of tests must be submitted by the engineer or architect of record to this department for review and approval before testing commences.
 - d. The required number of tests and the test loads must be shown on the plans. A minimum of 10 percent but not less than two dowels, rods or bolts must be field-tested to 2.0 times the actual design load.
 - e. Test results must be submitted to the engineer or architect of record and the office of Field Inspection Services for review and approval.
 - f. If ten percent or more of the dowels, rods or bolts tested fail the field test, additional testing shall be conducted as directed by the engineer or architect of record and the building official.

III. Un-Inspected/Un-Approved Installation

- A. If anchors have not be installed with qualification by Method (A) or (B) or if required special inspection during installation has not been provided, the anchors shall be abandoned or removed and reinstalled as specified above.
- B. As an alternative the engineer or architect of record may, however, submit a program of extensive load testing to justify acceptance to this department for review and approval. The number and type of field tests will be determined on a case-by-case basis. Contact the office of Field Inspection Services for additional information and requirements.

IV. Acceptance Of Reports

- A. The special inspection report and any required field test results must be submitted to the engineer or architect of record and the office of Field Inspection Services for review and approval.
- B. Such reports must indicate that the installation was performed in accordance with the recommendations of the manufacturer and the engineer or architect of record.

V. Tabular Summary

The qualification, special inspection and load testing requirements for qualifying a connection by Method A or Method B as discussed in this building newsletter is summarized in Table no. (1).

Table 1/Summary of Bolt/Dowel Installation Requirements		
	Method (A)	Method (B)
I. Qualification	Submit ICBO report or report by other approved listing to plan review engineer or Field Inspection Services.	Submit tests and other data to plan review engineer or Field Inspection Services.
II. Special Inspection	Required only if so specified in ICBO report or report by other approved listing.	Always required
III. Load Testing of Field Installations	Required only if so specified in ICBO report or report by other approved listing.	Always required for axial load alone or combined with shear forces. <u>Not</u> required for shear forces alone.

Notes:

- 1. Special Inspection must be performed by a special inspector certified by the Field Inspection Services Division of the Development Services Department, to inspect reinforced concrete and/or structural masonry. A list of certified Special Inspectors is available for review in the office of Field Inspection Services.
- 2. Load testing of field installations must be conducted by a testing laboratory or agency approved by the Field Inspection Services Division of the Development Services Department. A list of approved testing laboratories or agencies is available upon request.