

Adhesive Rebar Dowel Installation JHA

Worked instructional example

Work and worksite

A repair crew will install engineer-specified reinforcing starter bars into already drilled and released horizontal holes in a ground-level concrete foundation face. The selected adhesive system and installation records govern hole preparation, placement and cure restrictions. This fictional learning example describes planned controls; it records no actual inspection or work authorization.

- The actual bar schedule, embedment, concrete condition and adhesive approval must be established by the project design.
- Hole drilling and structural penetration clearance are complete and separately documented; receiving a hole does not prove it meets adhesive installation criteria.
- This is partial coverage of drilling and dowel installation. New drilling, overhead bars, crack injection, pull testing and loading before authorized release are excluded.

Questions before work

- Which design and adhesive instructions apply to this bar, hole method and concrete condition?
- How will installers control dust during the permitted cleaning process and chemical exposure during dispensing?
- Who records substrate temperature, installation time, cure restrictions and the subsequent loading release?

Task Hazard Control

1 Accept the connection design

Hazard: Wrong bars, embedment or an unsuitable base material can create a fastening that later fails under load.

Control: Installation lead compares the released bar and hole schedule with the actual concrete and approved adhesive system. Obtain the required inspection arrangements; hold undocumented holes or conditions outside the design and product approval.

Verification: Lead checks hole identification, schedule and supporting release before preparation.

Reasoning: A structural adhesive connection needs more than a convenient drilled hole.

2 Prepare the installation station

Hazard: Adhesive contact, splash or unexpected movement of long bars can injure nearby workers.

Control: Arrange labeled products, current SDS, washing supplies and specified hand and eye protection. Support the bars, separate the work from passersby and establish a controlled dispensing/waste area with product-required ventilation.

Verification: Foreperson checks chemical controls and bar-handling space before packs are opened.

Reasoning: Exposure control and bar support must exist before dispensing begins.

3 Verify and clean receiving holes

Hazard: Dust or unsuitable hole condition can impair bonding; cleaning can expose the crew to airborne silica.

Control: Installer verifies the specified hole dimensions and condition, then uses the actual system's approved cleaning tools and method. Assess silica exposure for that method; do not substitute a quick air blast or assume vacuuming alone satisfies the product instructions.

Verification: Installer records the accepted hole condition and cleaning method for the installation review.

Reasoning: Both bond reliability and worker exposure depend on how cleaning is performed.

Complete the work and hand over

4 Prepare and dispense adhesive

Hazard: Expired material, incorrect mixing or chemical leakage can harm people and leave an unreliable connection.

Control: Check product identity, storage condition, expiration, dispenser and mixing nozzle against instructions. Follow the specified initial discard and filling method while controlling splash and waste; stop for damage or inconsistent material.

Verification: Installer verifies pack identity and dispensing readiness before filling each released hole.

Reasoning: A full-looking hole does not establish a correctly mixed adhesive system.

5 Insert bars and protect the cure

Hazard: A displaced bar or early load can disturb the adhesive; exposed ends can create impalement exposure.

Control: Mark the specified embedment and install bars by the approved method within actual working limits. Maintain required bar support and movement restrictions throughout the product-specific cure; guard fall-onto protruding steel exposures.

Verification: Installer records bar position, substrate conditions and installation times; lead checks protection.

Reasoning: Cure limits come from the selected system and conditions, not a universal waiting time.

6 Record and hand over restrictions

Hazard: Another crew can use an unaccepted dowel as a handle or load an incompletely cured connection.

Control: Mark unreleased connections and transfer installation records, cure restrictions and unresolved findings to the responsible reviewer. Loading or further connection work proceeds only after its required acceptance and release; dispose of waste under product and site arrangements.

Verification: Lead confirms the receiving crew understands the marked restrictions and outstanding review.

Reasoning: Installation completion and permission to load are separate decisions.

Pause and reassess

- Hole size, concrete condition or drilling method differs from the released system.
- Adhesive condition, mixing, temperature or working/cure limit is outside the product criteria.
- A bar moves during cure or impalement guarding and installation records are lost.

Improve the controls

Needs improvement: Blow out the hole and epoxy the bar.

More useful: Installer uses the selected system's approved cleaning method with assessed silica controls, then records hole acceptance and installation conditions.

Needs improvement: Wait until the epoxy looks hard.

More useful: Installer records actual substrate conditions and installation times; the responsible reviewer applies the system-specific cure and loading criteria before release.

Decisions that change the analysis

Can any cleaned hole accept any rebar adhesive?

No. Hole formation, dimensions, base condition, bar and cleaning method must match the design and selected system. This example begins with released drilled holes but still requires installation-condition acceptance.

What must the crew record for actual use?

Record the design revision, hole and bar identification, product/lot and expiration, approved preparation method, actual substrate conditions and installation times, embedment findings, cure restrictions, inspection actions and loading release.

Training needs

- Instruction and any required qualification for the selected adhesive rebar system, cleaning accessories, dispensing and cure limits.
- Hazard-communication and exposure-control instruction for the adhesive, hole-cleaning dust and protruding bar protection.

Confirm applicable qualifications and actual training evidence for the people assigned. Related toolbox talks support discussion; they do not establish competence.

References and adaptation

Hilti USA Adhesive anchors and product instructions

https://www.hilti.com/c/CLS_FASTENER_7135/CLS_CHEMICAL_ANCHORS_7135

Hilti USA Approved hole-cleaning methods

<https://www.hilti.com/engineering/question/manual-cleaning-for-hit-re-500-v3/bsuwry>

OSHA 1910.1200 Hazard communication

<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1200>

References reviewed October 9, 2026. Use actual equipment and product instructions, project design and site requirements. This instructional example supplies no actual inspection results, signatures or work approval.