

Structural Steel Final Bolting JHA

Worked instructional example

Work and worksite

A bolting crew will complete specified bolted connections on a stabilized building frame using powered tightening tools from protected access platforms. Initial erection connections remain under the erector's control. This fictional learning example records planned controls; it supplies no actual inspections or work authorization.

- Current connection drawings and the specified installation and inspection method are available.
- The erection supervisor releases the work area and confirms temporary stability and protected access.
- This excludes initial connecting under a suspended load, field welding and alteration of existing loaded connections.

Questions before work

- Which connection and installation method is specified?
- Who confirms stability and controls any bolt removal?
- What tool setup and inspection evidence does this connection require?

Task Hazard Control

1 Accept the connection work area

Hazard: Removing a temporary bolt or loading an incomplete frame can cause instability.

Control: Erection supervisor identifies connections released for final bolting and support that must remain. Crew holds any proposed bolt removal or alignment change for the designated authority.

Verification: Compare released connection marks and temporary support with the erection plan.

Reasoning: Final bolting is not authority to change erection stability.

2 Establish protected access

Hazard: Workers or tools can fall from the platform or through openings.

Control: Use the approved access and fall protection for the actual steel erection activity. Separate people below and arrange tools and materials against falling.

Verification: Supervisor checks access, opening protection and the applicable fall-system inspection before entry.

Reasoning: Access protection must suit the erection phase and role.

3 Check bolts and tightening equipment

Hazard: Wrong assemblies or uncontrolled tool reaction can cause connection defects or hand injuries.

Control: Identify the specified bolt assemblies and tool setup. Inspect sockets, drives and reaction arrangements; establish a hand position outside the reaction path.

Verification: Bolting lead matches assemblies and tool settings to the connection procedure.

Reasoning: A familiar wrench does not establish the correct installation method.

Complete the work and hand over

4 Install and tighten the released connection

Hazard: Torque reaction, pinch points and awkward reach can injure the operator.

Control: Follow the specified installation sequence from stable access. Keep fingers out of aligned holes and reaction zones; use appropriate alignment tools without unapproved connection changes.

Verification: Lead checks the first connection against the installation procedure and monitors tool reaction.

Reasoning: The connection procedure supplies acceptance criteria; the JHA controls exposure.

5 Resolve a misfit or defective assembly

Hazard: Forcing a fit or substituting a bolt can damage the connection and expose workers to sudden movement.

Control: Stop the affected connection, identify it and seek the required erection or design disposition. Stop and secure the tool before changing accessories.

Verification: Lead records the affected connection and confirms disposition before rework.

Reasoning: Misfit is a changed condition rather than permission to improvise.

6 Inspect and hand over

Hazard: An unrecorded incomplete connection can mislead the next crew.

Control: Keep required installation and inspection records, identify open connections and retain access restrictions until the designated release. Secure tools and loose materials.

Verification: Supervisor reconciles completed and open connection marks with the receiving crew.

Reasoning: Handover communicates actual status, not assumed completion.

Pause and reassess

- Support or connection release is uncertain.
- Assemblies, installation method or access changes.
- Misfit, damaged threads or uncontrolled tool reaction occurs.

Improve the controls

Needs improvement: Be careful around the equipment.

More useful: Identify the specified bolt assemblies and tool setup. Inspect sockets, drives and reaction arrangements; establish a hand position outside the reaction path.

Needs improvement: Check the area before starting.

More useful: Erection supervisor identifies connections released for final bolting and support that must remain. Crew holds any proposed bolt removal or alignment change for the designated authority.

Decisions that change the analysis

Does this example specify a universal bolt torque?

No. Use the project's specified connection and installation method with its inspection criteria. A generic torque value could be wrong for the assembly and method.

What must be recorded before this example is used on a job?

Replace the scenario with the actual work, identify additional hazards with the crew, and record the applicable instructions, responsible people, inspection findings, unresolved actions and required authorization. A planned verification is not an inspection result.

Training needs

- Actual bolting method and safe handling of tool reaction.
- Steel erection fall training for the assigned role under 1926.761.

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

References and adaptation

OSHA 1926.754 Structural steel assembly and metal decking

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.754>

OSHA 1926.760 Steel erection fall protection

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.760>

OSHA 1926.761 Steel erection training

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.761>

OSHA 1926.300 Hand and power tools

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.300>

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.