

Structural Steel Plumbing and Temporary Bracing JHA

Worked instructional example

Work and worksite

An erection crew will plumb a partially erected building bay using designed plumbing cables and adjustment equipment from protected access. The bay remains under its temporary stability plan throughout adjustment. This fictional learning example describes planned controls; it records no actual inspection or work authorization.

- Attachment locations, force path, permitted adjustment sequence and removal conditions come from the erection design.
- Required plumbing equipment is installed before construction materials load the frame.
- Initial beam connecting, final bolting, foundation-anchor alteration and permanent connection acceptance are separate activities.

Questions before work

- Where are the designed cable attachments and anchor reactions carried?
- Who controls adjustment and access to tensioned-line paths?
- What approval is required before plumbing equipment is removed?

Task Hazard Control

1 Release the adjustment scheme

Hazard: An improvised pull can overload a member, anchor or unstable bay.

Control: Erection lead confirms the designed plumbing arrangement, sequence and current frame state. Do not substitute attachment points or remove existing stability measures without the required design review.

Verification: Lead compares equipment locations with the current erection documents.

Reasoning: Alignment forces must travel through a known structural path.

2 Inspect and attach equipment

Hazard: A damaged cable, attachment or adjustment device can fail under tension.

Control: Assigned personnel inspect rated plumbing gear and install attachments at specified locations from protected access. Keep people out of unsupported frame areas and tension paths.

Verification: Lead verifies attachments and gear before loading the system.

Reasoning: A convenient connection is not necessarily a designed plumbing attachment.

3 Establish the tension boundary

Hazard: Cable recoil or a moving member can strike workers and survey personnel.

Control: Define the full line-of-fire area for cables, anchors and frame movement. Position the survey team outside it; agree one adjustment leader and stop signals before tension is applied.

Verification: Adjustment leader checks all affected positions and communication.

Reasoning: The survey task must not place someone in the adjustment force path.

Complete the work and hand over

4 Adjust in the planned sequence

Hazard: Uneven pulls or overcorrection can destabilize the frame.

Control: Apply adjustment only in the designed sequence and limits, with survey feedback between increments. Stop for unexpected movement, anchor distress or abnormal equipment response; never release a loaded line casually.

Verification: Lead compares measured alignment and equipment response at each planned hold point.

Reasoning: Incremental observation catches changes before they become a larger release.

5 Secure the accepted position

Hazard: Removing a tensioned device before permanent restraint is ready can let the bay move.

Control: Complete the specified restraint and connection handover while maintaining required temporary support. Plumbing equipment removal requires competent-person approval and the project's applicable release conditions.

Verification: Lead records support status and removal approval before unloading gear.

Reasoning: Aligned does not automatically mean self-supporting.

6 Remove and hand over equipment

Hazard: Stored tension or unidentified unfinished work can expose the next crew.

Control: Unload and remove equipment in the released sequence from protected positions. Inspect for damage and communicate remaining bracing, loading limits and unfinished connections.

Verification: Foreperson confirms the bay restrictions with the receiving trade.

Reasoning: The next crew must know which temporary measures remain necessary.

Pause and reassess

- Anchor distress, cable damage or unexpected frame movement.
- Design, force limits or survey communication is unresolved.
- Temporary support must change or removal approval is absent.

Improve the controls

Needs improvement: Work carefully and wear PPE.

More useful: Define the full line-of-fire area for cables, anchors and frame movement. Position the survey team outside it; agree one adjustment leader and stop signals before tension is applied.

Needs improvement: Check that everything is ready.

More useful: Erection lead confirms the designed plumbing arrangement, sequence and current frame state. Do not substitute attachment points or remove existing stability measures without the required design review.

Decisions that change the analysis

May an aligned bay's plumbing cables be removed immediately?

No. Alignment is a measurement, not the support-removal release. Confirm completed restraint and obtain the required competent-person approval before removing plumbing equipment.

What must the crew record for actual use?

Identify the actual equipment and work boundaries, responsible people, applicable criteria, inspection findings and open actions. Resolve changes with affected crews and obtain required project authorization before work.

Training needs

- Actual designed plumbing sequence and control of stored tension.
- Applicable steel-erection fall training, designated competent-person and survey/adjustment roles.

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

<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>

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.