

Formwork AHA

Completed instructional example | Edition v1.0 | October 6, 2026

Learning and planning resource. Adapt with the people doing the work, verify actual controls and follow required authorization. This document supplies no completed field inspections, signatures or work approval.

Work and worksite

Fictional teaching scenario: a formwork crew assembles and sets modular gang wall forms for an eight-foot-high concrete wall on a ground-level slab in a closed construction area. A mobile crane places preassembled panels; a separate mobile elevating work platform provides access where the designed form platform is not yet usable. This example ends at the documented handoff for a pour. Concrete placement, stripping, climbing forms, slab falsework, excavation, and work over water require their own analysis.

- The form system, panel weights, lifting points, brace forces, anchor capacity and installation sequence must come from the actual supplier instructions and project design. No generic brace spacing or wind speed is assumed.
- The slab, anchor locations and underground/embedded services need release before drilling or supporting equipment. Concrete strength and slab capacity must suit the designed anchors and imposed loads.
- The lift area is separated from pedestrians and other trades. Ground bearing, crane setup, overhead lines, delivery access and an emergency route are checked before mobilization.
- Ground assembly is preferred for compatible platform, guardrail and access components. The assembly sequence must protect workers during transitions, before the completed platform exists.
- The foreperson, SSHO, formwork designer/supplier, qualified lifting personnel and designated competent/qualified persons coordinate the AHA. Actual names, qualifications and acceptance are job-specific.

Actual project records needed: Location, crew and responsible people; equipment models and instructions; permits/releases; emergency arrangements; actual checks and approvals.

AHA identification and planned support

Activity / DFOV: Set gang wall forms through pre-pour handoff — fictional teaching scenario

Contractor / contract number: Not supplied — complete for the actual project.

Project location: Not supplied — complete for the actual project.

Preparer name / title / date: Not supplied — complete for the actual project.

Acceptance authority name / title / signature / date: Not supplied — complete for the actual project.

Required KO/COR contractual review record: Not supplied — complete for the actual project.

Overall residual RAC: H — instructional estimate only; actual site rating and acceptance are not supplied.

Equipment: Project-specific form panels, ties, braces, anchors and lifting hardware; crane and rigging per lift plan; released drill and dust-collection system; designed access/platform components or separately assessed access equipment.

Training: Form-system assembly and stability sequence; crane/operator, rigger and signal-person qualifications as applicable; silica controls; access equipment and fall protection/rescue. List actual names, written CP/QP designations and evidence.

Inspection: Design and slab/anchor release before assembly; tool and dust-system checks; lifting/rigging checks; brace hold point before unhooking; platform/access inspection before use; documented pre-pour handoff and reinspection after disturbance.

PPE: Select head, eye, foot, hand, hearing and any respiratory/fall protection for the actual exposures and equipment. Follow the applicable programs, fit requirements and rescue arrangements; PPE does not replace stability or exclusion controls.

Task | Hazard | Control | Verification

1. Release the design, work area and lift sequence

Hazard: Wrong panel weights, unsupported slab loads, incompatible components or an unplanned overhead-line exposure can cause a collapse, overturn or electrocution.

Control: The foreperson obtains the current form drawings and lift arrangements, confirms equipment capacity and setup with the responsible lifting personnel, and separates the work area. Resolve electrical-line and ground-bearing conditions before locating the crane. Do not substitute an AHA for the form design or lift plan.

Verification: Before setup, the foreperson and responsible specialists verify drawing revisions, supplier instructions, weights, support conditions and the closed work boundary. Record unresolved items as hold points.

Reasoning: The first control is a workable design and released area; instructions to be careful cannot correct an unstable system.

Residual RAC example: Teaching estimate: Catastrophic $\times$ Seldom = H. Validate the exposure and likelihood with the actual design and worksite.

2. Install released base plates and brace anchors

Hazard: Drilling can strike embedded services or reinforcement, release respirable silica, and expose the operator to bit binding, noise and flying fragments.

Control: Release anchor locations, type, depth, installation method and concrete strength with the responsible designer. For handheld or stand-mounted concrete drills, use the applicable OSHA Table 1 shroud/cowling and dust-collection arrangement, including hole cleaning, or the documented alternative exposure assessment. Follow tool, anchor and vacuum instructions; protect eyes and address noise and electrical supply.

Verification: The installer and silica competent person check the drilling release, specified extraction system, filters and hole-cleaning method before work; verify anchor installation against the design.

Reasoning: A base plate is only as reliable as the substrate and anchor installation beneath it.

Residual RAC example: Teaching estimate: Critical $\times$ Seldom = M after service release and specified exposure controls; reassess each identified hazard.

3. Assemble and inspect panels on stable supports

Hazard: A panel can roll or slip during assembly; hands can be crushed by joints and workers can be cut by damaged components.

Control: Use stable supports and handling equipment suited to the panel. Assemble connections, braces, lifting points and compatible access components in the supplier sequence. Keep hands out of closing joints; remove damaged components from service and use handling tools rather than fingers for alignment.

Verification: The formwork lead checks component condition, fasteners, lifting hardware and assembly against the current system instructions before release for lifting.

Reasoning: Ground assembly reduces later exposure at height only when the ground setup is stable and the assembly remains liftable.

Residual RAC example: Teaching estimate: Critical $\times$ Seldom = M with stable supports and verified handling method.

4. Hoist and land each gang within the controlled area

Hazard: A suspended panel can swing in wind, drop from unsuitable rigging, or crush a worker against a fixed object.

Control: Qualified personnel select and inspect rigging and approved lifting points. The operator follows the lift plan, equipment limits and agreed signals. Keep unnecessary personnel outside the fall zone; receiving workers stay clear of pinch points. Use a tag or restraint line when needed to prevent hazardous rotation, with a safe position and no entanglement exposure. Stop when wind, visibility or communication defeats control.

Verification: Before every pick, the lifting team verifies the load and path, attachments, signals, exclusion area and weather against the actual equipment and form limits.

Reasoning: A form panel presents a large wind area; a universal wind number or mandatory tag line for every situation can conceal the actual problem.

Residual RAC example: Teaching estimate: Catastrophic $\times$ Seldom = H. The lifting team must justify the actual probability and controls.

5. Brace the panel before releasing the crane

Hazard: An unbraced or incorrectly anchored wall form can overturn as soon as the lifting support is removed.

Control: Install the designed braces and anchor connections in the specified sequence while maintaining the planned lifting support. Keep personnel out of the collapse zone. Release rigging only after the formwork lead confirms that the required temporary stability system is complete; never use workers to hold a panel upright.

Verification: The formwork lead verifies all specified braces, connections and anchors before giving the agreed release instruction. Record the inspection and any design change.

Reasoning: The transfer from crane support to temporary bracing is a distinct hold point, not an assumed part of landing.

Residual RAC example: Teaching estimate: Catastrophic $\times$ Seldom = H. Do not lower consequence merely because a brace has been installed.

6. Close the wall and complete protected access

Hazard: Installing ties, closing opposing forms or accessing an incomplete platform can cause a fall, pinch injury or dropped-object strike.

Control: Use the designed access and platform system; where it is incomplete, use the separately assessed access equipment and fall-protection/rescue arrangements. Install ties and connections from protected positions in the supplier sequence. Close guardrail and access openings and control the area below before releasing the platform.

Verification: The foreperson and applicable competent person inspect platform support, guardrails, access, tie installation and any personal fall-protection system before use. Verify access-equipment training and rescue readiness.

Reasoning: The completed platform cannot protect a worker during its own unprotected installation.

Residual RAC example: Teaching estimate: Catastrophic $\times$ Seldom = H where a fatal fall remains credible; reassess for the actual access method.

7. Inspect and hand off before concrete placement

Hazard: Missing ties, movement, overloading or an uncontrolled placement rate can cause a blowout or collapse during the next operation.

Control: Hold the pour until the required inspection and release confirm drawings, ties, braces, anchors, platforms and access. Communicate the design placement limits, monitoring responsibilities and stop triggers to the placement crew. Maintain bracing and access protection; recheck after disturbance or adverse weather.

Verification: The responsible formwork reviewer documents the handoff and open actions. The placement supervisor accepts the relevant limits into the separate concrete-pouring analysis before dispatching the pour.

Reasoning: A handoff connects two analyses so that limits do not disappear when the crew changes.

Residual RAC example: Teaching estimate: Catastrophic × Seldom = H for collapse exposure. Actual overall risk remains subject to the project review.

Pause and reassess

- Stop for missing or damaged braces, unexpected anchor behavior, panel movement or a drawing/supplier mismatch.
- Pause for changes in panel size, weight, rigging, access method, crane location or ground support.
- Stop when wind, visibility, nearby operations, overhead-line conditions or communication invalidate the planned controls.
- Revise the AHA for changed conditions or required personnel; communicate the revision to every involved worker and obtain required acceptance before restarting.

Correct the condition, revise the analysis, communicate the change and obtain required authorization before restarting.

Improve the control

Needs improvement: Forms — use PPE.

More useful: Verify the designed brace and anchor system before releasing the crane; name the person who gives the release instruction.

Needs improvement: All residual risks are low.

More useful: Assess remaining consequence and likelihood for each step. Keep the highest step rating as the overall RAC and route it through the correct acceptance process.

Needs improvement: Use the completed platform for access.

More useful: Explain how workers are protected while the platform and guardrails are still being assembled.

Decisions that change the analysis

What makes this an AHA rather than a renamed three-column JHA?

For contractor work under EM 385-1-1 (15 March 2024), paragraph 2-6 calls for project/contract identification, preparer and acceptance authority, detailed steps and hazards, controls, residual step RACs and an overall RAC, equipment, training and inspections, designated competent/qualified persons, and employee review. Additional activity chapters and the contract can add requirements. ENG Form 6206 is a non-mandatory outline; equivalent JHA/JSA formats still need the required information.

Who accepts contractor risk?

The prime contractor establishes its internal acceptance authority by residual risk level in the Accident Prevention Plan. Required contractor acceptance and signature precede work, and accepted AHAs go to the KO or COR for contractual review and acceptance. USACE does not accept contractor risk. Do not copy the USACE employee command-acceptance table into a contractor approval process.

How should the teaching risk ratings be used?

The example ratings illustrate matrix lookup, not evidence of site risk. Several steps retain H because a fatal collapse, suspended-load event or fall remains credible. Do not average ratings or reduce severity just because PPE is present. The actual

team must assess every hazard, justify likelihood after controls, strengthen controls where needed and obtain the required risk acceptance.

USACE RAC lookup

Severity / probability	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Source: USACE RMS Contractor Mode manual v5.1, printed page 145. E = Extremely high; H = High; M = Medium (Moderate in the RMS legend); L = Low. Use the project method and definitions. Rate remaining severity and probability after controls. Overall RAC must be at least the highest step RAC; do not average. Example ratings are estimates for teaching, not site evidence.

Employee review and revision record

Employee name	Occupation / CP or QP designation	Signature	Review date
To be completed for actual work			

Revision / reason / affected steps / acceptance and communication: To be completed for actual work.

References and adaptation

USACE EM 385-1-1, effective 15 March 2024 — especially contractor AHA paragraph 2-6 and applicable activity chapters
https://www.publications.usace.army.mil/Portals/76/EM%20385-1-1%20_EFFECTIVE%2015%20March%202024.pdf

USACE Engineer Forms — ENG 6206, Activity Hazard Analysis (September 2024)
<https://www.publications.usace.army.mil/usace-publications/engineer-forms/u43543q/36323036/>

USACE RMS Contractor Mode manual v5.1 — AHA matrix and ENG 6206 workflow, printed pages 145–150
https://rms.usace.army.mil/datafiles/rms_manuals/rms_manual_cm_v5.1.pdf

OSHA 1926.703 — Cast-in-place concrete and formwork
<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.703>

OSHA 1926.1425 — Keeping clear of the load
<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.1425>

OSHA 1926.1153 — Respirable crystalline silica
<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.1153>

This original walkthrough was informed by review of uploaded examples, then rewritten for the stated fictional scenario using current primary references. It does not reproduce a source document or its approval record.

Walkthrough and draft builder: <https://www.toddjeromejenkins.com/jha-jsa-examples/formwork-aha>