

Metal Deck Arc Spot Welding JHA

Worked instructional example

Work and worksite

A qualified deck welder will complete specified arc-spot, or puddle-weld, attachments between installed building-floor metal deck and steel supports. The deck is independently secured and released as the protected work surface. Current attachment and welding documents govern work through connection review and hot-work closeout, before subsequent loading. This fictional learning example describes planned controls; it records no actual inspection or work authorization.

- Current drawings identify deck, supports, weld locations and details. The lead verifies the applicable welding procedure and deck arc-spot qualification; frame-welding experience alone does not establish qualification for this operation.
- Deck stability, protected access and openings are ready. The employer resolves known coatings and fumes, required ventilation and protection, and fire exposure above, beneath and in concealed spaces.
- This is partial coverage of deck fastening 238120-10 and field welding 238120-08. Deck placement, mechanical fasteners, headed studs, frame welds, unknown coatings and controlled-decking-zone welding are excluded.

Questions before work

- Which current attachment detail and applicable procedure define this deck-to-support weld and its acceptance checks?
- Who verifies deck stability and protection, and who can inspect fire exposure beneath or beyond the weld area?
- How are actual coating and ventilation conditions resolved before welding, and what stops work if they change?

Task Hazard Control

1 Release the deck attachment operation

Hazard: Wrong weld details or an assumed welder qualification can produce unsafe attachments while exposing workers to an unstable deck.

Control: Deck lead identifies the released deck/support area, current attachment drawing and applicable procedure. Verify the required deck arc-spot welder qualification and acceptance roles. Resolve missing details or uncertain work-surface status before production welding.

Verification: Lead matches the deck area, procedure, qualification evidence and work-surface release to the attachment plan.

Reasoning: Mechanical deck attachment and ordinary frame-weld experience do not establish this operation's readiness.

2 Establish the hotwork and fall controls

Hazard: Heat or sparks passing through the deck can ignite material below, while unprotected edges expose the welder to a fall.

Control: Complete the hot-work review above, below and along concealed paths. Remove or protect combustibles, assign fire watch and prepare response equipment. Maintain edge/opening protection, access and screens; confirm known-coating, ventilation and assessed protection arrangements.

Verification: Hot-work lead and deck lead verify the upper and lower boundaries and each assigned protection role.

Reasoning: A clear upper deck does not prove that heat and sparks have a safe destination underneath.

3 Prepare equipment and weld fitup

Hazard: Damaged leads, unsuitable return contact or a gap at the support can cause shock, arcing elsewhere or an unaccepted attachment.

Control: Welder checks equipment, insulated holder, cables and grounding under actual instructions. Route leads safely and establish the specified return path. Verify deck-to-support contact and attachment details, including washers only when specified; refer gaps or changed materials before welding.

Verification: Welder records equipment and fit-up findings, and the lead resolves unaccepted attachment conditions.

Reasoning: A visible puddle cannot compensate for an unreviewed gap or a different base-material combination.

Complete the work and hand over

4 Complete the specified arcspot attachments

Hazard: Arc exposure, fume accumulation or incorrect weld formation can injure workers and leave inadequate deck attachment.

Control: Qualified welder follows the accepted welding procedure and attachment layout with screens, ventilation and fire controls operating. Maintain a protected stance and cable route; monitor actual attachment conditions. Stop for changed fit-up, burn-through, abnormal equipment response or an ineffective exposure control rather than improvising weld time or machine settings.

Verification: Welder checks completed locations against the layout and reports questionable welds to the assigned reviewer.

Reasoning: Weld formation requires the accepted deck/support procedure, not a universal current or elapsed time.

5 Review connections and resolve defects

Hazard: An incomplete attachment pattern or cosmetic repair can conceal a connection that has not met its acceptance criteria.

Control: Assigned reviewer performs required connection checks and records findings by location. Preserve area restrictions while discrepancies receive an accepted repair method. Qualified personnel complete authorized corrections under the applicable procedure and repeat required checks before handover.

Verification: Reviewer records completed, unaccepted and corrected locations and communicates any remaining hold to the deck lead.

Reasoning: Counting spots alone cannot establish the required attachment quality or authorize an improvised repair.

6 Close out welding and hand over restrictions

Hazard: Residual heat, an unattended electrode or assumed deck-load permission can create hazards after the welder leaves.

Control: Welder shuts down and secures equipment using its instructions and removes hot debris safely. Fire watch completes the site's required continuing observations and closeout, including the underside. Record connection-review status and transfer remaining load and access limits to the receiving lead; concrete placement remains a separate release.

Verification: Hot-work lead records actual monitoring closeout and deck lead confirms unresolved connection and loading restrictions.

Reasoning: Finishing the last weld does not complete fire prevention or release the deck for another operation.

Pause and reassess

- Deck security, access, fall protection or the actual attachment drawing and procedure cannot be verified for the planned area.
- Fit-up, material, coating, weld formation, equipment or ventilation differs from the accepted conditions.
- Fire watch loses access to affected areas, combustibles enter the boundary, or heat and sparks reach an uncontrolled location.

Improve the controls

Needs improvement: Use the settings from the last deck job.

More useful: Qualified welder follows the accepted procedure for this deck, support and attachment detail, with specified checks and defect disposition.

Needs improvement: All the spots are visible; send the fire watch away.

More useful: Complete the required connection review and hot-work monitoring, record actual findings and preserve separate deck-loading restrictions.

Decisions that change the analysis

Is an arc-spot weld the same as a headed shear-stud weld?

No. Arc-spot welding attaches thin deck to supports using its accepted sheet-steel procedure. Headed studs use a separate gun/ferrule process; frame welds and mechanical deck fasteners also differ. No universal washer, weld size, current or time establishes acceptance.

What must the crew record for actual use?

Record the deck area and attachment drawing, applicable welding procedure, qualification evidence, actual fit-up and equipment findings, known-coating and exposure-control basis, upper and lower hot-work boundaries and fire-watch assignments. Record connection locations, acceptance findings, repair dispositions, monitoring closeout and remaining deck-load or access restrictions.

Training needs

- Deck arc-spot qualification and procedure instruction on contact, specified washer details, weld formation, defect recognition and authorized correction.
- Hot-work instruction on underside and concealed fire exposure, screens, electrical equipment, fumes and required fire-watch and post-work monitoring duties.

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

References and adaptation

Steel Deck Institute: arc puddle welds and weld washers

<https://sdi.org/publications/publications/misc-publications/arc-puddle-welds-and-weld-washers-for-attachments-in-steel-deck-no-ww/>

OSHA 1926.351 Arc welding equipment and operating instructions

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.351>

OSHA 1926.352 Welding fire prevention

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.352>

OSHA 1926.353 Welding ventilation and protection

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.353>

OSHA 1926.760 Steel erection fall protection and controlled decking zones

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

References reviewed October 9, 2026. Use actual equipment and product instructions, project design and site requirements. This original draft supplies no fabricated inspection, signature or approval.