

Concrete Drilling and Chipping JHA

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

This fictional example covers drilling approved anchor holes and removing small nonstructural surface projections from conventional concrete at ground level inside an unfinished room. Battery or electric rotary-hammer tools are used with compatible dust controls. The work excludes post-tensioned concrete, structural demolition, overhead breaking, unknown coatings, and core drilling through floors. The supervisor must first establish that the proposed penetration and removal are permitted. The example does not supply a drilling permit, structural clearance, or an anchor installation design.

- Identify concrete construction, embedded services, reinforcement, any tendons, coatings, and the space beyond the surface. Uncertain information is a reason to stop and investigate.
- Record the hole locations, diameter and depth, removal limits, actual tool, work duration, and whether the space is enclosed. These details affect both service-strike and silica-control decisions.
- Coordinate with occupants and other trades, establish a controlled work area, and identify power supplies, ventilation, and dust-container disposal routes.
- The employer's silica competent person implements the written exposure-control plan. Select the applicable Table 1 method or the alternative exposure-assessment route for each task.

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

Task | Hazard | Control | Verification

Verify the intended penetration or removal

Hazard: A drill or chisel can strike electricity, plumbing, a tendon, or structural reinforcement, causing shock, release of energy, flooding, or structural damage.

Control: The responsible project personnel reconcile drawings, surveys, scanning where appropriate, and field conditions before releasing marked work locations. Identify the other side of the surface and establish exclusion there if needed. Do not treat one scan as a guarantee that every service has been found; resolve uncertainty before drilling.

Verification: Match marked locations and depth limits to the actual clearance information and responsible authorization.

Reasoning: Dust controls do not address the potentially greater consequence of penetrating an unknown service or structural element.

Choose separate dust controls for drilling and chipping

Hazard: Both tasks can release respirable silica, but one tool's control arrangement may not satisfy the requirements for the other.

Control: For Table 1 handheld drilling, use the specified shroud or cowl and dust collector with required airflow, filtration, and filter cleaning; use a HEPA vacuum for hole cleaning. For chipping, select the applicable water-delivery or shroud-and-extraction arrangement. Indoor or enclosed Table 1 chipping requires APF 10 respiratory protection for either duration category.

Verification: The silica competent person verifies the task row, equipment, and ventilation. Required respirators need an employer program, including medical evaluation and appropriate fit testing, before use.

Reasoning: A shop vacuum and an optional nuisance mask do not establish a compliant exposure-control method.

Inspect and set up tools and the work area

Hazard: A damaged lead, loose bit, missing handle, or unstable stance can cause shock, ejected parts, or loss of control.

Control: Follow tool instructions for bit selection, retention, auxiliary handles, guards, and power supply. Remove damaged equipment from service. Route cords and hoses away from travel and water, use the site's required electrical protection, and provide a stable working position. Separate bystanders from chips and tool movement.

Verification: Confirm the bit is retained, handles are secure, extraction operates, and the intended stance avoids overreaching.

Reasoning: Inspection should lead to a usable setup, not simply a check mark beside the tool's name.

Drill the approved holes

Hazard: A binding bit can rotate the tool suddenly; flying fragments, sustained force, noise, and vibration can injure workers.

Control: Maintain the manufacturer's grip and stance, use compatible reaction-control features, and apply only the force needed for the tool to cut. Keep the dust shroud effective as depth changes. Use assessed eye, hearing, and other protection. Stop for binding, unexpected resistance, changed material, or breakthrough outside the approved limit.

Verification: Confirm dust capture remains effective and the operator is not compensating for a worn bit with excessive force.

Reasoning: The response to a change in resistance is investigation, not simply a harder push.

Chip within the approved surface-removal limits

Hazard: Fragments can strike people; an uncontrolled chisel can remove unintended material, and repeated vibration can affect hands and arms.

Control: Use a tool and bit appropriate to the limited removal, maintain the selected dust system, and direct fragments away from people. Keep the tool supported and avoid forcing it from an awkward posture. Select lower-vibration methods where practical and plan exposure reduction using actual equipment and duration; do not rely on anti-vibration gloves alone.

Verification: Confirm the removal boundary, tool condition, respiratory controls, and opportunities to reduce continuous trigger time.

Reasoning: Moving one operator to another dusty task may not meaningfully reduce either vibration or inhalation exposure.

Clear holes and change bits or collection containers

Hazard: Unexpected tool operation can cut or entangle a worker; hot bits and released dust create additional exposure.

Control: Disconnect or otherwise isolate the tool under its instructions before bit changes and maintenance, allow hot parts to cool, and use the specified handling method. Clean holes using the required HEPA vacuum arrangement and applicable anchor instructions. Empty dust containers by the manufacturer's controlled method; avoid blowing dust into the room.

Verification: Confirm isolation, compatible replacement parts, and a container-change method that maintains exposure controls.

Reasoning: Maintenance and hole cleaning can bypass the controls that protected the worker during drilling.

Clean and hand over the finished work

Hazard: Settled dust can become airborne; fragments and unprotected penetrations can affect the next trade.

Control: Use HEPA vacuuming or suitable wet cleaning. Do not dry sweep or use compressed air where it could contribute to silica exposure except under the standard's limited permitted conditions. Remove fragments, protect new openings, and report unexpected voids or service discoveries. Obtain separate verification for the actual anchor installation or structural work.

Verification: Confirm residue, waste, openings, and unresolved findings are addressed before reopening the area.

Reasoning: A clean-looking tool does not demonstrate that the room or newly drilled connection is ready for use.

Pause and reassess

- Pause for unknown reinforcement, suspected tendons, services, voids, unexpected coatings, or a changed penetration depth.
- Reassess a different tool, indoor versus outdoor location, work duration, failed extraction, or dust affecting another crew.
- Use a separate analysis for overhead breaking, core drilling, structural removal, confined spaces, or elevated access.

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

Improve the control

Needs improvement: Silica: provide dust masks.

More useful: Identify the drilling or chipping Table 1 row, verify the compatible control equipment, and implement the required respiratory program where respirators are specified.

Needs improvement: Hidden services: scan the wall.

More useful: Combine appropriate locating information with drawings and field checks, identify limits and authorization, and stop where uncertainty remains.

Decisions that change the analysis

The drill's vacuum fails but only two holes remain. May work continue with a mask?

Stop the dust-producing work. Restore the selected control method or have the employer establish another valid method before continuing; a mask alone does not replace failed engineering controls.

Can the same respiratory decision be copied from drilling to indoor chipping?

No. Table 1 treats these as different tasks. Verify each row, including the indoor chipping respiratory requirement and the employer's respiratory-protection program.

References and adaptation

OSHA 1926.1153 — Silica Table 1, drilling and chipping

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.1153>

OSHA — Jackhammers or Handheld Powered Chipping Tools

https://www.osha.gov/sites/default/files/publications/OSHA_FS-3629.pdf

OSHA 1926.302 — Power-operated hand tools

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.302>

NIOSH — Simple Solutions: Ergonomics for Construction Workers

<https://www.cdc.gov/niosh/publications/numbered/2007-122.html>

OSHA 1926.416 — Electrical hazard identification and protection

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.416>

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/concrete-drilling-chipping-jha>