

Bonded Building Tendon Duct Grouting JHA

Worked instructional example

Work and worksite

A qualified specialist crew will grout an identified bonded tendon duct in a building floor or beam after accepted stressing and anchorage work. The actual system method governs material, ports, vents, quality and completion evidence. This operation includes no stressing or invasive tendon investigation. This fictional learning example describes planned controls; it records no actual inspection or work authorization.

- The identified tendon has actual stressing and anchorage acceptance. Responsible authorities establish port and vent readiness and fill-completion evidence through the current bonded building-system method.
- Specified material, qualified personnel and accepted equipment are available. Quality limits, interruption response and protection come from the actual method; no universal mix, pressure, vent sequence or cure value is supplied.
- The grouting link 238110-20 is partial: initial grouting of a released bonded building tendon duct only. Unbonded systems, active stressing, jack operation, bridges or Heavy/Civil 237 work, drilling into tendons, void investigation and remedial injection require separate analyses.

Questions before work

- Which records identify this bonded tendon and release completed stressing and anchorage work for grouting?
- Who controls the exact port and vent method and verifies the specified material and fill-completion evidence?
- What is the accepted response to an interrupted fill, and who holds later structural work until disposition?

Task Hazard Control

1 Establish the tendon-specific grouting release

Hazard: Confusing a duct, using incomplete stressing records or interfering with an anchorage can conceal an unready structural system and expose workers.

Control: Specialist lead identifies the tendon and obtains current drawings, accepted stressing and anchorage records and the actual grouting method. Resolve the port map, vent access and responsible technical hold points with the system authority. Keep active stressing and any investigation or correction of a disputed tendon outside this operation.

Verification: Lead verifies tendon identity and actual system release evidence.

Reasoning: A generic grout plan cannot release an identified duct.

2 Prepare protected ports equipment and containment

Hazard: Unprotected access, misconnected hoses or an exposed discharge point can cause falls, hose movement or cementitious splash during filling.

Control: Crew prepares the accepted mixing and pumping location, protected access to designated ports and vents, controlled hose routing and collection at intended outlets. Complete the actual equipment and connection checks and set exclusion and communication arrangements. Keep hands and bodies away from anticipated discharge paths; do not drill or create replacement ports without responsible design direction.

Verification: Lead checks mapped connections, access and outlet collection before batching.

Reasoning: Protected mapped outlets must be ready before material flows.

3 Prepare and verify the specified grout batch

Hazard: Wrong material, uncontrolled added water or omitted quality checks can produce an unsuitable fill while dry powder and wet grout expose the mixing crew.

Control: Qualified crew confirms the specified product, lot and condition and batches through the accepted procedure using the required equipment. Apply the task's dust, skin and eye controls and perform assigned grout-quality checks. Keep unaccepted material held; document only permitted adjustments and obtain the responsible disposition for a failed batch.

Verification: Assigned quality personnel record required batch results before use.

Reasoning: Pumpability alone does not establish accepted grout quality.

Complete the work and hand over

4 Fill through the accepted duct and vent method

Hazard: An improvised pressure or vent sequence can expose workers, leave an incomplete duct fill or damage the designated system.

Control: Qualified operator pumps through the identified inlet and follows the actual system's controlled filling and vent procedure with assigned observers. Monitor only the indicators and limits specified for this tendon, maintain communication and collect the designated outlets. Stop for unexpected response, leakage or lost communication and keep the affected duct held for the accepted interruption decision.

Verification: Observers report the actual required flow and vent findings.

Reasoning: The enclosed duct requires actual system fill evidence.

5 Verify completion and protect the accepted fill

Hazard: Premature closure, undocumented interruptions or disturbance of connections can conceal incomplete corrosion protection or an unready structural condition.

Control: Specialist lead obtains the required completion and material evidence under the accepted method, including any prescribed closure and protection actions. Record anomalies and obtain responsible technical disposition rather than assuming a successful fill. Maintain the required protection and load restrictions; further checks or remedial work are separately planned if the evidence is incomplete.

Verification: Responsible personnel review completion evidence before releasing the hold.

Reasoning: Cycle completion and accepted tendon fill are separate decisions.

6 Shut down and transfer the tendon record

Hazard: Residual line energy, loose waste or an unclear structural handover can injure cleanup personnel and transfer a hidden fill concern to later work.

Control: Operator follows the equipment's actual safe shutdown and routine cleaning method with pressure and energy conditions verified before permitted access. Capture grout and washwater and secure ports as required. Transfer the tendon identity, batch and fill records, interruptions, accepted dispositions and continuing restrictions to the receiving structural lead; keep unresolved work identified and held.

Verification: Lead confirms shutdown and outstanding actions with the receiving authority.

Reasoning: The handover preserves unresolved fill and structural restrictions.

Pause and reassess

- Tendon identity, completed stressing and anchorage acceptance or the current bonded-system method cannot be confirmed.
- Batch results, flow, vent response, pressure behavior or leakage differ from the accepted procedure, or communication is lost.
- A port, access condition, interruption or suspected void requires unplanned modification, investigation or remedial work.

Improve the controls

Needs improvement: Use the baseplate grout sequence; it is the same bag.

More useful: Identify the bonded duct, required grout acceptance, specific inlet and vent method and tendon fill-completion evidence before use.

Needs improvement: Grout reached one outlet, so the tendon is accepted.

More useful: Assigned personnel record every required completion finding and obtain the responsible disposition for interruptions and unresolved conditions.

Decisions that change the analysis

Can a crew drill a new outlet when the expected vent does not respond?

No. Stop through the accepted system procedure and maintain the affected tendon's hold. Obtain direction from the responsible structural and system authorities; drilling can intersect reinforcement, the duct or stressed steel and is outside this initial grouting operation. An improvised outlet or higher pump pressure cannot replace the actual interruption and investigation method.

What must the crew record for actual use?

Record tendon, duct and procedure identity, stressing and anchorage release basis, assigned qualified roles, actual connection and batch results and required fill findings. Document interruptions, dispositions, closure, protection and structural handover restrictions; identify the accepting authority and unresolved work without prefilled acceptance.

Training needs

- System-specific instruction for qualified grouting personnel on identified ports and vents, accepted batch-quality checks, controlled pumping and the designated interruption procedure.
- Instruction on cementitious exposure, pressure-line hazards, safe port access, communication and protecting the completed tendon without drilling or disturbing anchorage work.

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

References and adaptation

SikaGrout Cable PT: bonded post-tensioning duct grout requirements

<https://gcc.sika.com/en/construction/refurbishment/grouting/cementitious-grouts/sikagrout-cable-pt.html>

The Concrete Society Grouting of post-tensioned tendons

<https://www.concrete.org.uk/fingertips/grouting-of-post-tensioned-tendons/>

OSHA 1926.701 General concrete construction requirements

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.701>

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.