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Install mechanical couplers at pile heads: QA inspection

Install mechanical couplers at pile heads with an interactive checklist. Commentable steps verify engagement, torque, and markings; export as PDF/Excel for records and compliance.

Project:	
Date:	
Filled by:	

Pre-Installation Verification	
1	Confirm latest method statement and manufacturer datasheets are approved; attach approvals to the lot file. Acceptance: current revision numbers recorded and signed by responsible parties.
2	Brief crew on coupler model, torque value, engagement marks, and hold points; conduct a toolbox talk. Evidence: attendance sheet with date, time, and signatures.
3	Verify torque wrench calibration certificate is valid; perform a mid-scale functional check on a test rig. Acceptance: deviation within ±4% of setpoint; certificate ID logged.
4	Confirm environmental readiness: threads and components dry; provide shelter if raining. Evidence: photo of clean, dry assembly area before work begins.

Materials and Handling	
5	Verify coupler size matches bar diameter and thread type using a thread gauge. Acceptance: part/model numbers and bar size recorded; any mismatch triggers NCR.
6	Inspect coupler and bar threads; clean with wire brush, approved solvent, and lint-free cloth. Acceptance: no burrs, rust scale, or debris; macro photos captured.
7	Stage components on clean, raised trays; keep end caps fitted until assembly. Evidence: storage photo showing protection from dirt and moisture.

Pile Head Preparation	
8	Check bar projection and alignment against setting-out using a jig/template. Acceptance: offset ≤ 3 mm from intended centerline; projection per drawings recorded.
9	Dress bar ends square; remove laitance around steel using hand tools and vacuum. Acceptance: clean, bright steel; surrounding concrete remains undamaged; photo evidence.
10	Mark engagement witness lines on bars per manufacturer requirement using a paint marker. Evidence: measured distance in mm recorded; photo with scale included.

Coupler Installation	
11	Apply manufacturer-approved thread lubricant lightly; avoid excess that traps grit. Acceptance: continuous thin film; lubricant batch/lot recorded in log.
12	Hand-start the coupler onto the first bar; ensure free rotation without cross-threading. Acceptance: smooth hand engagement achieved; start-condition photo saved.
13	Use a backup wrench to restrain the bar while tightening with a torque wrench on the coupler. Acceptance: no bar rotation or movement of adjacent reinforcement.
14	Join the mating bar (extension) and tighten to the positive stop or alignment marks as specified. Acceptance: witness marks coincide/stop engaged; zero visible threads.
15	Check axial alignment using a 300 mm straightedge or laser. Acceptance: deviation ≤ 2 mm over 300 mm; measurement recorded with location reference.

Torque and Engagement Verification	
16	Apply final torque per manufacturer datasheet with the calibrated torque wrench. Acceptance: achieved torque within ±5% of required N·m; reading recorded with tool ID.
17	Measure thread engagement length with a depth gauge or calipers. Acceptance: engagement ≥ required value; actual mm recorded in splice log.
18	Apply paint matchmarks across bar–coupler–bar after torquing to detect movement. Evidence: close-up photos showing continuous matchmarks.
19	Recheck a sample of connections for torque retention after 15–30 minutes. Acceptance: readings within ±5% of initial; results logged and exceptions escalated.

Markings, Records, and Protection	
20	Record coupler identification: manufacturer, size, model, and heat/lot codes. Evidence: clear photos and entries in the splice register.
21	Label the connection with grid/elevation ID and apply a QR tag linking records. Acceptance: tag scannable; digital link verified on a mobile device.
22	Ensure no reinforcing bars remain exposed; install end caps or corrosion tape until casting. Acceptance: zero bare steel or threads visible; photo verification before handover.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Install mechanical couplers at pile heads using this concise, field-proven process to control engagement length, torque verification, and identification markings while preventing exposed bars. The checklist supports mechanical splice installation, rebar couplers, and pile head coupler inspection for cast-in-place foundations and similar works. By standardizing thread cleanliness, bar alignment, and calibrated torque application, you reduce risks of slippage, misalignment, and corrosion that compromise capacity and durability. The scope covers the interface from prepared pile reinforcement to completed coupler connection and temporary protection prior to capping or casting; it excludes unrelated pile trimming or cap concreting procedures. Acceptance cues reference manufacturer data and are to be applied per approved project specifications and authority requirements. Use it to log N·m readings, engagement measurements, markings, and photo evidence, all tied to location IDs. Start interactive mode to tick items, add comments, and export PDF/Excel with a QR-secured record.	1. Preparation: gather manufacturer datasheets, approved method statement, calibrated torque wrench, backup wrench, thread gauge, depth gauge/calipers, wire brush, solvent, paint marker, end caps/tape, and PPE. 2. Preparation: verify coupler type/size matches bar diameter and thread type; stage components clean and protected from moisture and debris. 3. Preparation: set up a dry, safe work area; protect adjacent reinforcement and concrete from debris; confirm hold points with stakeholders. 4. Using the Interactive Checklist: open the checklist, enable interactive mode, and select the pile location to start logging. 5. Using the Interactive Checklist: tick items as completed, scan or enter IDs, attach photos, and record torque and engagement measurements. 6. Using the Interactive Checklist: use comments to capture issues or NCRs; mention responsible persons and set due dates. 7. Export: generate PDF/Excel with photos and readings; share via QR-secured link with site and office stakeholders. 8. Sign-Off: obtain digital signatures from the inspector, contractor, and engineer; archive records per approved project specifications and authority requirements.