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Fabricate Reinforcement Cages for Piles – QA Guide

Fabricate reinforcement cages for piles with an interactive checklist. Commentable steps verify bars, splices, centralizers, lifting points, and dimensions. Export as PDF/Excel with QR traceability.

Project:	
Date:	
Filled by:	

Materials Verification	
1	Confirm rebar mill certificates and delivery dockets match bar schedule; measure sample diameters with a caliper and upload certificates and photos; accept when grade, diameter, and heats match documents per approved project specifications.
2	Inspect bars for straightness and surface condition; remove loose rust, oil, and mud; accept when bars are free of scale flakes and visible pitting; attach photo evidence of representative bundles.
3	Verify mechanical couplers, sleeves, and protective caps are approved and undamaged; check threads by trial fit; accept when full engagement to witness mark is achievable; record batch and lot numbers.
4	Confirm tie wire and any welding consumables (if welding is permitted) comply with approved project specifications; record heat/lot numbers and storage conditions; accept with photos of labels.
5	Check centralizers and spacers size and material; ensure outer diameter provides nominal cover specified on drawings; record quantity and locations; accept with photo of typical installation.

Bar Preparation	
6	Cut bars to length using a calibrated cutting bench and steel tape; verify first-off piece within ±5 mm; mark bar ID and length; attach first-off inspection record.
7	Bend bars on a set bending machine; set pin radius per bar schedule; check first 3 bends with a template; accept when angle within ±2° and leg lengths within ±5 mm; photo record.
8	Prepare splice ends: clean, de-burr, and protect threads with caps; accept when coupler spins freely by hand then engages fully to witness mark; record worker ID.
9	Tag bars and sub-assemblies with durable labels indicating diameter, mark, and cage ID; accept when tags are legible and fixed with wire; photo of tagging scheme.

Cage Assembly and Splices	
10	Lay out longitudinal bars in a straight jig; set spacing with a spacer comb; accept when spacing matches drawing within ±5 mm; photo of setup and measurement.
11	Install hoops/spirals at specified pitch using a rotating jig; check every fifth pitch with a tape; accept when pitch within ±10 mm; tie ends with double ties; photo evidence.
12	Assemble mechanical couplers with a calibrated torque wrench to manufacturer torque; mark nut and bar with paint for visual confirmation; record torque values and coupler batch.
13	Where lap splices are permitted, measure lap length per bar schedule; tie at ≤150 mm intervals; accept when lap length meets drawing; attach measurement photos and sketch.
14	If welding is permitted, use qualified welders and approved WPS; perform visual inspection for cracks/undercut; record welder ID and WPS reference; attach weld photos.

Centralizers and Spacers	
15	Fit centralizers at both ends and at 2–3 m intervals along cage length; accept when cover equals drawing requirement; record count and spacing with photos.
16	Install concrete/plastic spacers at 90° around the cage at top, mid, and bottom; tie with stainless wire; accept when spacers cannot rotate by hand; photo evidence.
17	Confirm centralizers and spacers do not obstruct tremie/casing path; verify internal clearance with a trial tube; accept when minimum clearance per drawings is achieved; record measurements.
18	Add temporary braces/stiffeners to maintain roundness during lifting; accept when cage holds shape in trial lift; tag temporary items for removal prior to placement; photo record.

Lifting Points and Handling	
19	Determine lifting point locations and capacity per cage weight and length; use certified lifting eyes/bars; accept when calculations and approvals are filed; attach tag with SWL and date.
20	Install lifting points by approved method (welded or clamped); inspect visually for defects; apply identification marks; accept with photos and inspector sign-off.
21	Conduct a controlled trial lift using a spreader beam to limit bending; monitor for kinks or permanent set; accept when no deformation and all ties remain tight; photo/video evidence.

Dimensional Checks and Documentation	
22	Measure overall cage length with a steel tape; accept when within drawing tolerance; record readings at two sides and attach photos of tape at ends.
23	Check cage diameter and roundness using a template ring or calipers at three locations; accept when out-of-round within 10 mm or project tolerance; record values.
24	Verify squareness and alignment of cage ends; use a large square and straightedge; accept when deviation within project tolerance; upload measurement photos.
25	Confirm internal clearance for tremie pipe/casing along full length; run a dummy tube and note any snags; accept when clear; record dummy tube diameter and path photos.
26	Label cage with durable plate showing pile ID, drawing revision, weight (approx.), and QR code; accept when plate is fixed and legible; photo of label in place.
27	Store completed cages on level timber cradles ≥150 mm above ground; chock to prevent rolling; cover if required; accept with storage layout photo and log entry.
28	Compile inspection records: mill certs, first-off checks, torque logs, photos, and approvals per ITP; accept when documents are complete and signed; export PDF/Excel with QR.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Fabricate reinforcement cages for piles with a rigorous, field-ready checklist that guides bar inspection, splicing, centralizer installation, lifting-point preparation, and dimensional verification. This resource supports pile reinforcement cage fabrication and rebar cage assembly for bored piles, ensuring compliance before dispatch to site. The checklist focuses on steel bars, lap or mechanical splices, bar bending, and cage bracing; it excludes concrete works such as placement, tremie operations, and pile concreting. By following these steps, teams reduce risks like splice failures, inadequate concrete cover from missing centralizers, bent or out-of-round cages, and unsafe lifting that can deform the assembly. Acceptance cues, tolerances, and evidence capture (photos, torque logs, and approvals) help you prove conformance per approved project specifications and authority requirements. Use the interactive features to tick items, add clarifying comments, and export records to PDF or Excel with a QR code for traceability.	1. Preparation: Gather bar schedules, approved drawings, ITP, calibrated tape, calipers, torque wrench, bending templates, lifting accessories records, PPE, and a camera or mobile device. 2. Set up the fabrication area: clear, level, and protected; establish a straight jig line, spacer combs, and a safe lifting zone with spreader beam available. 3. Open the interactive checklist on your device; select project, pile ID, and cage ID; start a new record linked to a QR code. 4. Work through items in sequence; tick each step when acceptable; add comments, photos, and measurements directly to the item for traceability. 5. If an item fails, log a comment with evidence, raise a corrective action, and re-check after rectification before proceeding. 6. Completion and Sign-Off: capture torque logs, measurement sheets, and approvals; obtain digital signatures from inspector and supervisor within the app. 7. Export and Archive: generate commentable reports and export as PDF/Excel; share with stakeholders; affix the QR code label to the cage for verification.