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Install rakers checklist: footings, thrust blocks, alignment

Install rakers with confidence using our interactive checklist covering footings, raker shoes, thrust blocks, alignment, and load paths; fully commentable and export as PDF/Excel.

Project:	
Date:	
Filled by:	

Pre-Installation Verification	
1	Review issued-for-construction drawings and calculations; confirm raker sizes, angles, shoe details, thrust block requirements, and preload criteria per approved project specifications and authority requirements. Evidence: stamped drawings, ITP, and design revision register.
2	Verify material compliance: raker sections, shoe plates, bolts/nuts/washers, grout, and concrete class. Check mill certificates, batch tickets, and delivery dockets. Evidence: certificates matched to heat/lot numbers, photos of labels.
3	Establish survey control for raker footings and thrust blocks. Set out coordinates and levels using a total station. Acceptance: position ±10 mm; level ±5 mm. Evidence: survey report with point IDs and as-setout screenshots.
4	Confirm calibration of torque wrenches, digital inclinometers, pressure gauges, load cells, and levels. Acceptance: calibration in date and traceable. Evidence: calibration certificates attached to checklist.

Footings and Raker Shoes	
5	Excavate raker footing to design depth on competent bearing. Probe base and remove soft/loose material. Acceptance: firm substrate with no pumping; bearing verified per project specs. Evidence: base photos and supervisor sign-off.
6	Prepare level bearing surface and install non-shrink grout or leveling pad beneath raker shoe. Acceptance: levelness within ±3 mm over shoe footprint. Evidence: level readings and straightedge photos.
7	Install anchors/dowels to specified embedment using a depth gauge; record adhesive anchor cure time if used. Acceptance: embedment –0/+10 mm of design; holes cleaned. Evidence: measurements, adhesive lot numbers, and photos.
8	Set raker shoe, tighten bolts to specified torque using a calibrated wrench, and apply witness marks. Acceptance: torque within spec; washers correctly oriented. Evidence: torque log with tool ID and photos.

Thrust Blocks	
9	Excavate thrust block pocket in undisturbed soil; trim sides, remove loose material, and control groundwater. Acceptance: clean, stable faces; no sloughing. Evidence: pre-pour photos with scale.
10	Check thrust block dimensions and key per drawings using tape and staff. Acceptance: dimensions within ±10 mm; key depth as designed. Evidence: measured checklist and marked photos.
11	Fix reinforcement, sleeves, and inserts per bar schedule; maintain concrete cover. Acceptance: cover 40 ±5 mm; bar spacing ±10 mm; ties secured. Evidence: rebar inspection photos and signed RFI.
12	Place concrete to approved mix; control slump and temperature. Take cylinders/cubes and protect curing. Acceptance: slump/temperature within spec; proper consolidation; no honeycombing. Evidence: batch tickets, test IDs, and pour photos.
13	Verify concrete strength before loading any raker. Acceptance: achieved f’c per design (record MPa) via test reports or maturity; surface free of cracks/voids. Evidence: strength report and close-up photos.

Alignment and Geometry	
14	Set raker angle to horizontal using a digital inclinometer. Acceptance: within ±0.5° of design. Evidence: inclinometer reading photo at mid-length.
15	Align raker centerline in plan to the connection plate position using a total station or laser. Acceptance: end offsets ≤ 5 mm. Evidence: survey shots and alignment photos.
16	Check tight bearing at shoe and connection plate; insert shim pack as needed. Acceptance: gaps under bearing plates ≤ 2 mm prior to grouting; contact ≥ 90%. Evidence: feeler gauge check and dye/blueing photo.
17	Confirm clearances to utilities, excavation face, and walkways. Acceptance: minimum clearances per project specs (record mm); no clashes. Evidence: marked photos with measurements.

Connections and Load Path	
18	Connect raker to the supported structure lug via pin/clevis. Acceptance: full pin engagement; retaining cotters/locks installed; no visible eccentricity. Evidence: close-up photos and supervisor initials.
19	Grout bearing interfaces with non-shrink grout; ensure full support under plates. Acceptance: void-free grout; thickness per spec; cure protected. Evidence: grout batch ticket, placement photos, and cure record.
20	Restore corrosion protection and install isolation pads where specified. Acceptance: coating dry film thickness meets spec (record µm); edges sealed. Evidence: DFT gauge readings and photo log.

Preloading and Handover	
21	Preload raker with hydraulic jack and load cell to design value; hold for 10 minutes. Acceptance: stable pressure; recorded deflection within allowable. Evidence: load (kN) vs time and deflection (mm) chart.
22	Lock-off the system and apply witness marks on nuts/pins. Acceptance: locknuts tight; marks aligned after release. Evidence: photos and inspector signature.
23	Install monitoring targets or gauges and record baseline readings. Acceptance: initial readings captured and filed. Evidence: monitoring sheet and target photos.
24	Complete final inspection and compile documentation: photos, torque logs, test reports, and checklists. Acceptance: all actions closed; sign-offs by contractor and engineer. Evidence: signed handover pack and QR-linked archive.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Install rakers correctly to transfer earth-retaining loads safely during excavation support. This checklist guides site engineers and inspectors through verifying raker shoes and footings, thrust blocks, alignment geometry, and continuous compressive load paths. Focused solely on raker braces (excluding walers and horizontal struts), it emphasizes foundation bearing, shoe anchorage, and thrust block capacity so compression members work without slip or eccentricity. You will confirm dimensions, levelness, torque, and angles using calibrated SI tools, document concrete strength and curing, and preload each member to design requirements. By catching misalignment, inadequate bearing, or premature loading, you avoid cracked thrust blocks, wall movement, unsafe conditions, and expensive rework. The outcome is traceable evidence that each raker can accept and sustain predicted loads with minimal deformation and corrosion risk. Use this interactive template to tick items, add comments with photos, and export records to PDF/Excel; a QR code secures shareable packages for supervisors and authority representatives.	1. Preparation: gather approved drawings, inspection/test plans, calibrated tools (total station, inclinometer, torque wrench, jack/load cell), PPE, and material certificates. 2. Create a project in the platform and assign roles (engineer, contractor, inspector). Upload drawings, specs, and templates for photos and logs. 3. Using the Interactive Checklist: start interactive mode on mobile or tablet. Tick items as you go and attach photos, readings, and tags. 4. Add comments for issues, link them to specific items, and request actions with due dates. Mention stakeholders to notify instantly. 5. Record measurements in SI units, insert torque logs and test reports, and embed survey screenshots for alignment acceptance. 6. Export: generate a commentable audit trail and export as PDF/Excel. Share the QR-secured package with supervisors and authorities. 7. Sign-Off: capture digital signatures from contractor and engineer, close out comments, archive records, and lock the checklist for traceability.