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Test Façade Stone Cladding Anchors: Load Transfer, Restraint

Test façade stone cladding anchors for load transfer and restraint behavior with an interactive checklist that is commentable and can export as PDF/Excel.

Project:	
Date:	
Filled by:	

Pre-Test Verification	
1	Confirm anchor type, grade, diameter, and bracket model match approved drawings and submittals; cross-check manufacturer datasheets. Acceptance: 100% match to approved project specifications. Evidence: photos of markings and uploaded datasheets with revision/date.
2	Verify backup substrate strength (concrete/masonry) via recent cylinder/cores or rebound hammer where allowed. Acceptance: f’c or equivalent ≥ design value per specifications. Evidence: test reports, location map, and photos of test points.
3	Measure anchor spacing, edge distances, and embedment using tape/borescope. Acceptance: within layout ±3 mm and not less than minimums stated in approved project specifications. Evidence: dimensioned photos with scale and recorded measurements.
4	Check expansion/undercut setting or adhesive cure. For mechanical anchors, verify installation torque with a calibrated torque wrench. Acceptance: within manufacturer setting torque ±10%. Evidence: torque log with wrench serial and timestamp.

Instrumentation and Calibration	
5	Confirm pull tester/hydraulic jack and pressure gauge calibration within 6 months. Acceptance: calibration certificate uploaded; zero drift <1% full scale. Evidence: photo of calibration sticker and certificate file.
6	Install LVDT or dial gauge aligned to load axis; set resolution ≤0.01 mm and zero at seating. Acceptance: stable baseline ±0.02 mm for 30 s. Evidence: baseline screenshot and device serials.
7	Set up reaction frame or shear rig to avoid unintended bending; check alignment with laser/angle gauge. Acceptance: misalignment ≤2° from load axis. Evidence: alignment photo with gauge reading.
8	Protect stone with neoprene pads at bearing and contact points; verify no point loading. Acceptance: no visible chips, cracks, or contact scars pre-test. Evidence: close-up photos of protected zones.

Load Transfer Test (Tension/Pull-out)	
9	Attach graded shackle/loading eye to test adapter; confirm WLL ≥2× target test load. Acceptance: correct adapter engagement without eccentricity. Evidence: photo of markings and setup overview.
10	Apply seating load of 1 kN and re-zero instruments after 30 s. Acceptance: displacement stabilizes within ±0.02 mm before main loading. Evidence: seating load note and baseline reading.
11	Increase load in 10% increments of proof load at ~60 s per step; record force and displacement each increment. Acceptance: per-step displacement ≤ specified (e.g., ≤0.2 mm) with smooth curve. Evidence: force–displacement plot.
12	Hold at proof load for 60 s; monitor creep. Acceptance: creep ≤0.1 mm and no cracking/spall at stone or substrate. Evidence: hold-time readings and close-up photos.
13	If required, load to ultimate test level per approved project specifications; observe failure mode. Acceptance: no brittle stone breakout; ductile/controlled anchor yielding preferred. Evidence: failure mode description and photos.
14	Unload in steps; record residual displacement after full release and 60 s. Acceptance: residual displacement ≤0.3 mm or as specified. Evidence: unload curve and final displacement reading.

Restraint Behavior Test (Shear/Slip)	
15	Position horizontal actuator to apply in-plane shear at bracket elevation; verify plane alignment within 1°. Acceptance: actuator stroke free of binding. Evidence: setup photo with angle gauge.
16	Cycle shear load 10 times between 10–100% service level at constant rate. Acceptance: cumulative slip ≤0.2 mm post-cycling; no loosened fixings. Evidence: hysteresis plot and post-cycle readings.
17	Verify designed movement allowance: allow sliding in one direction while restraining orthogonal movement, per details. Acceptance: movement only in permitted axis; restraint effective in others. Evidence: gauge readings and detail markup.
18	Measure bracket stiffness and rotation using inclinometer/clinometer at anchor line. Acceptance: rotation ≤0.5° or per specification at service shear. Evidence: rotation log and photo of device placement.

Acceptance, Safety, and Documentation	
19	Inspect stone, anchors, and brackets post-test for cracks, deformation, or spall. Acceptance: none observed beyond hairline cosmetic. Evidence: annotated close-ups with scale.
20	Tag each tested anchor with QR-linked ID, date, and status (Pass/Action). Acceptance: label durable and scannable at 0.5 m. Evidence: scan log and tag photo.
21	Upload calibration certificates, setup photos, force–displacement curves, creep data, and approvals. Acceptance: complete record set for each anchor location. Evidence: document checklist marked complete and reviewer signature.
22	If overstressed or failed, replace/repair components per approved project specifications; re-test. Acceptance: written approval and re-verified torque within ±10%. Evidence: corrective action report and photos.
23	Remove rigs and restore façade; verify no damage to sealants or joints. Acceptance: area clean, watertight, and visually acceptable. Evidence: wide-angle and detail photos.
24	Conduct safety debrief; update method statement and risk assessment with lessons learned. Acceptance: signed minutes and revised documents uploaded with version/date. Evidence: attendance list and action tracker.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Test façade stone cladding anchors for load transfer and restraint behavior. This focused checklist guides proof load testing, pull-out assessment, and shear restraint evaluation for stone cladding fixings, ensuring anchors safely transfer panel weight and control in-plane movement. You will set up calibrated hydraulic pull testers, LVDTs, and shear rigs to measure displacement, slip, and rotation while preventing damage to stone and backup structure. The scope covers field verification of anchor capacity, bracket stiffness, and restraint functionality on completed bays or mock-ups, excluding structural design, laboratory testing, or unrelated façade systems. Following this process reduces risks such as brittle stone breakout, anchor pull-out, excessive slip, water ingress from cracked joints, and unverified substitutions. Outcomes include traceable force–displacement curves, clear acceptance decisions per approved project specifications and authority requirements, and a defensible as-tested record. Start in interactive mode to tick items, add comments, attach photos and readings, then export PDF/Excel with a QR-secured audit trail.	1. Preparation: mobilize calibrated pull tester/shear rig, LVDTs or dial gauges, torque wrench, alignment tools, neoprene pads, PPE, and approved drawings/specifications. Secure access, exclusion zones, and weather protection. Assign roles and upload calibration certificates. 2. Open the interactive checklist, select the façade zone and anchor IDs, and start interactive mode. Tick items as completed, attach photos, readings, and markups. Use comments to flag deviations and request approvals in real time. 3. During testing, log force–displacement and rotation data at each increment or cycle. Tag evidence to QR-linked IDs. Use comment threads to resolve holds, acceptance queries, or corrective actions without leaving the test area. 4. Export and share: generate PDF/Excel with embedded photos, plots, calibration certificates, and timestamps. Share with contractor, consultant, and client teams to review acceptance against approved project specifications and authority requirements. 5. Sign-off: capture digital signatures from supervisor, QA/QC, and consultant. Archive the package, lock the record, and validate authenticity via QR scan during walkthroughs and handover.