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Test façade anchor pull-out resistance in representative

Test façade anchor pull-out resistance in representative substrate with an interactive checklist, commentable, and export as PDF/Excel. For compliant results.

Project:	
Date:	
Filled by:	

Safety and Calibration	
1	Review approved risk assessment and method statement; brief team; wear hard hat, eye protection, gloves, and cut-resistant sleeves; record toolbox talk attendees and capture a signed briefing photo.
2	Verify pull tester calibration within the last 12 months (or per manufacturer); gauge accuracy within ±2% full scale; attach calibration certificate photo showing serial number and date.
3	Inspect hydraulic hoses, gauge, pump, and couplers for damage or leaks; pressurize to 10% FS for 60 s; no visible leakage or pressure drop >1% FS; photo evidence required.
4	Establish a 2 m exclusion zone with barriers and signage; appoint a spotter; record a wide-angle photo showing protected area and fall protection where applicable.
5	Confirm current anchor manufacturer instructions and project criteria are available; note document numbers/revisions; link digital copies within the checklist.

Substrate and Location Verification	
6	Confirm test locations represent production substrate type, thickness, and condition using cover meter/borescope; measured thickness within ±5 mm of design; record readings and photos.
7	Scan for rebar/voids with ferroscan/GPR; position test to avoid reinforcement and voids; maintain minimum edge distances per project; record nearest edge/rebar distances (mm) on marked photo.
8	Measure substrate strength where required (rebound hammer or core results); confirm within project range (e.g., concrete 25–40 MPa); record value, method, and date.
9	Verify target embedment depth and mark drill bit with a depth collar; tolerance ±2 mm; capture photo of marked bit and anchor length.
10	Record ambient and substrate temperature and humidity; ensure adhesive anchors are installed within manufacturer limits (e.g., 5–30 °C); log readings (°C, %RH).

Test Setup and Equipment	
11	Select reaction ring/bridge to ensure load is concentric and clear of façade; ring inner diameter >2× anchor head; photo of installed setup before loading.
12	Fit the correct threaded adapter to the test anchor; tighten with a torque wrench to the manufacturer’s snug torque; record torque (N·m) and adapter ID.
13	Level reaction frame and align with anchor axis using a spirit level and alignment jig; misalignment ≤2°; capture close-up level bubble photo.
14	Install a displacement gauge (LVDT or dial) independent of the hydraulic gauge; resolution ≤0.1 mm; zero the gauge and record initial reading.
15	Prepare data capture (logger or sheet) to record load and displacement at 1 s intervals; verify timestamp synchronization; attach template screenshot or first entries.

Pull-Out Test Execution	
16	Apply a 1 kN seating preload; hold 10 s; displacement during seating ≤0.5 mm; log readings at start and end of hold.
17	Increase load at a controlled rate (about 1 kN/s) to the specified proof load per project; record load and displacement each second; avoid overshoot >5%.
18	Hold at proof load for 60 s; acceptable displacement increase during hold ≤0.5 mm and load loss ≤2%; capture gauge photo at 0 s and 60 s.
19	For ultimate tests (if required), continue loading until failure; document load at failure, displacement, and failure mode (cone, bond failure, steel); stop immediately if unsafe cracking propagates.
20	Unload gradually to zero; inspect for spalling, cracking, or anchor deformation; acceptance: no visible damage beyond hairline cracks; record close-up photos.

Acceptance and Documentation	
21	Compare results to acceptance criteria per approved project specifications and authority requirements; document pass/fail with referenced criteria and engineer initials.
22	Record anchor details: type, diameter, embedment depth, installation method, adhesive batch/expiry or mechanical lot; attach label/batch photos and delivery notes.
23	Document substrate: material, thickness, strength, moisture; upload a location sketch or annotated photo with a scaled ruler and grid reference.
24	Save force–displacement curve and raw data files; filename pattern: project-location-anchorID-YYYYMMDD; back up to cloud storage; verify readability.
25	Collect digital signatures from installer, contractor QA, and consultant; include geotag and timestamp; generate a QR-authenticated report link.

Post-Test Actions	
26	If displacement exceeds limits or capacity is low, raise an NCR; propose corrective actions (greater embedment, alternate anchor, different location); note NCR number and assignee.
27	For adhesive anchors, verify cure time has elapsed before testing; acceptance: curing per manufacturer for measured substrate temperature; record start/end times.
28	Reinstate or cap test holes where anchors are removed; use compatible repair mortar; photo before/after and note material batch.
29	Update the test log: count tested, pass rate, average/characteristic capacity (kN), and failure modes; share with stakeholders.
30	Inspect and store tester, rings, and adapters; clean and note any damage; schedule maintenance; record serial numbers in equipment log.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Test façade anchor pull-out resistance in representative substrate is the critical on-site method for verifying façade fixing capacity before full installation. Also called pull-out testing, anchor proof testing, or tension tests, it confirms design assumptions, base material variability, and installer proficiency. This checklist focuses on anchors installed in genuinely representative concrete, masonry, or stone, using calibrated hydraulic testers and reaction frames to measure force–displacement response. It sets clear boundaries: one anchor type, axial tension only, and acceptance against project-specific criteria per approved project specifications and authority requirements. By following this sequence, teams reduce the risk of panel detachment, cracked substrates, and water ingress from overstressed fixings, while avoiding costly rework and delays. The outcome is a repeatable, documented demonstration of proof or ultimate capacity in situ, with traceable data, photos, and signatures suitable for quality assurance and compliance closeout. Use interactive mode to tick steps, add comments and photos, and export your record to PDF/Excel with a QR code for authentication.	1. Preparation: Gather the calibrated pull tester, reaction rings, adapters, torque wrench, displacement gauge, scanner, PPE, and project criteria. Confirm access, exclusion zones, and that anchors have cured per manufacturer limits. 2. Configure thresholds: Enter project acceptance limits for proof load, hold time, displacement tolerance, and load rate so pass/fail statuses calculate automatically during data entry. 3. Using the Interactive Checklist: Start interactive mode, tick each step as completed, add comments, attach photos and readings, and log lot numbers. Use the timer to capture hold-period timestamps. 4. Export and Share: Generate a structured report and export as PDF/Excel, including photos, signatures, and data tables. Share the QR-authenticated link with stakeholders for quick verification. 5. Sign-Off and Archive: Capture digital signatures from installer, QA, and consultant. Archive the report with project metadata and back up to cloud storage for future audits.