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Test Façade Mock-Up: Air Infiltration and Leakage Performance

Test façade mock-up for air infiltration and leakage performance with an interactive checklist. Commentable steps, attach evidence, and export as PDF/Excel with QR-secured sign-offs.

Project:	
Date:	
Filled by:	

Pre-Test Documentation and Approvals	
1	Confirm approved test plan defines target pressures (e.g., 50, 75, 150, 300 Pa), dwell times, acceptance limits (L/s·m²), and safety boundaries; upload signed plan and permit-to-test.
2	Verify mock-up drawings, materials, and interfaces match approved submittals; photograph labels and batch numbers; record any deviations with written approval per project specifications.
3	Log responsibilities and contacts for test operator, GC, façade contractor, commissioning agent; capture digital signatures acknowledging roles and communication protocol.

Mock-Up Assembly and Sealing	
4	Inspect perimeter substrate and frame alignment using laser level; document tolerance within ±3 mm over 3 m; photograph datum marks and shims.
5	Verify gaskets, sealants, and tapes are installed per manufacturer instructions; record cure times, lot numbers, and ambient conditions (°C, %RH) with photos.
6	Mask and seal non-test penetrations (service holes, unused joints) with temporary air-impermeable membranes; photo-verify continuity and note materials used.

Instrumentation and Calibration	
7	Confirm differential manometer accuracy ±1 Pa and zero drift <1 Pa; attach current calibration certificates and serial numbers to the record.
8	Check airflow measurement device accuracy ±2% full scale; document orifice/fan configuration, temperature and barometric inputs, and calibration date.
9	Install pressure taps at interior reference and exterior chamber per plan; photo each location and label tubing to avoid cross-connections.

Test Chamber Setup	
10	Build airtight chamber/plenum against exterior face using rigid panels and sealed joints; photo perimeter seals and verify no bridging gaps >3 mm.
11	Conduct pre-test leak isolation: run fan at 50 Pa, use smoke pencil to find unintended chamber leaks; patch and re-check until no visible bypass.
12	Stabilize ambient conditions: record interior/exterior temperature (°C), %RH, and wind speed (m/s); proceed only if wind ≤3 m/s or per plan.

Pressure Sequence and Measurements	
13	Depressurization series: hold at 50, 75, 150, 300 Pa for ≥60 s each; record stable ΔP (Pa) and leakage (L/s·m²) at each step with time-stamp.
14	Pressurization series: repeat sequence 50–300 Pa; document hysteresis if observed; compare to acceptance limits per approved project specifications.
15	At peak pressure, scan interfaces (frame-to-wall, mullions, seals) with smoke and IR camera; geo-tag photos/videos of leaks for remediation.
16	Check system stability: confirm pressure fluctuation ≤±2 Pa during each dwell; note corrective throttle or damper adjustments in comments.
17	Normalize leakage to test area: verify measured façade area (m²) with laser; attach marked elevation showing dimensions and calculation.

Post-Test Inspection and Reporting	
18	If leakage exceeds limit at any step, coordinate targeted sealing; document materials, locations, and cure times; schedule and record retest results.
19	Compile results table and pressure–leakage curve; include uncertainties, instrument specs, ambient data, and photos; state pass/fail per specifications.
20	Remove temporary seals without damaging the mock-up; photo restored condition; dispose of materials per site environmental requirements.
21	Obtain digital sign-offs from test operator, GC, façade contractor, and client representative; lock report with QR authentication.
22	Archive all evidence: raw data files, calibration certs, photos, approvals, and final report; export to PDF/Excel and upload to project CDE.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Test façade mock-up for air infiltration and leakage performance ensures a full-scale assembly achieves the specified air tightness before production. This checklist focuses on air leakage, air infiltration, and pressure testing of a dedicated façade mock-up—excluding water penetration and structural testing. By verifying materials, interfaces, and installation quality under controlled pressure differentials, project teams reduce risk of condensation, energy loss, drafts, and occupant discomfort. The guide outlines preparation, instrumentation calibration, chamber setup, sequence of pressures, data capture, and acceptance against project limits in SI units. It also emphasizes isolating non-test paths, documenting evidence (photos, readings, serial numbers), and recording corrective actions and retests. Use it to coordinate contractors, commissioning agents, and quality teams, ensuring the build aligns with approved drawings and specifications. Start interactive mode to tick items, add comments at each step, and export PDF/Excel; the QR code secures sign-offs and authenticates your final report.	1. Preparation: gather approved test plan, calibrated manometer and airflow device, smoke pencil, infrared camera, sealing tapes/membranes, laser measurer, PPE (gloves, eye protection, hearing protection), and ensure safe access and lighting. 2. Set up the project in the app: enter mock-up ID, test area (m²), target pressures, acceptance limits, team roles, and upload drawings and calibration certificates. 3. Using the Interactive Checklist: start interactive mode, tick each item as completed, attach photos/videos and readings, and add time-stamped comments for anomalies or approvals. 4. Export and Share: generate a structured report and export as PDF/Excel; include graphs and evidence, then circulate to stakeholders directly from the platform. 5. Sign-Off: collect digital signatures from responsible parties; lock the submission with a QR-authenticated record and archive in the project's common data environment.