



Test façade condensation risk zones, project conditions

Test façade condensation risk zones under project operating conditions with an interactive checklist that is commentable and export as PDF/Excel. Reliable QA.

Project:

Date:

Filled by:

Pre-Test Planning

1	Confirm test scope, elevations, and interior zones per latest drawings; acceptance: complete location matrix with gridlines/room IDs; evidence: approved test plan with signatures and date stamp.
2	Verify operating conditions align with project setpoints and occupancy; method: review BMS trend logs (24 h); acceptance: within setpoint ± 2 °C, RH 40–60%; evidence: screenshots.
3	Identify likely thermal bridges (mullions, slab edges, anchors) using shop drawings; acceptance: prioritized inspection list; evidence: annotated details highlighting high-risk nodes.
4	Secure permits and access per approved project specifications and authority requirements; acceptance: permits valid for test window; evidence: uploaded approvals and toolbox talk attendance.

Instrument Calibration and Setup

5	Calibrate infrared camera with reference source; set emissivity per material (e.g., painted gypsum 0.90 ± 0.02); acceptance: calibration certificate current; evidence: photo of settings and serial.
6	Verify surface temperature probe using ice-water bath (0 °C ± 0.3 °C); acceptance: deviation ≤ 0.3 K; evidence: photo of reading and log entry.
7	Deploy indoor RH/T data loggers at 1.1 m height, ≥ 0.5 m from façades; acceptance: accuracy $\pm 2\%$ RH, ± 0.3 °C; evidence: placement photos with IDs.
8	Configure logger interval 1–5 min and synchronize device clocks; acceptance: timestamps within ± 1 min across devices; evidence: time sync screenshot.
9	Set up shaded outdoor RH/T sensor at 1.5–2.0 m and anemometer; acceptance: secure mounting, no direct sun or rain; evidence: location photo with GPS tag.
10	Confirm IR camera spot size ratio suits distance; acceptance: pixel footprint ≤ 10 mm at target; evidence: distance note and lens spec.

On-Site Environmental Stabilization	
11	Maintain HVAC setpoints (e.g., 21 ± 2 °C; 40–60% RH) for ≥ 4 h pre-test; acceptance: drift $\leq \pm 0.5$ K and $\pm 2\%$ RH in last hour; evidence: BMS/logger trends.
12	Confirm indoor–outdoor temperature difference ≥ 10 K for thermography; if < 10 K, plan contact probe emphasis or reschedule; evidence: contemporaneous indoor/outdoor readings.
13	Shut operable windows/vents and typical internal doors as per operations; acceptance: steady-state airflow documented; evidence: photos and note of deviations.
14	Avoid direct solar gain or wet façades; defer sunlit/rain-affected elevations for ≥ 24 h drying; evidence: weather log and façade condition photos.

Measurement and Mapping	
15	Log indoor RH/T every 5 min throughout testing; acceptance: drift $\leq \pm 2\%$ RH and ± 0.5 K; evidence: exported CSV and logger screenshots.
16	Measure interior surface temperatures at corners, slab edges, and mullions on 1 m grid; acceptance: ≥ 5 points per bay; evidence: point list with coordinates.
17	Capture paired visual and IR images per façade bay; include spot and isotherm overlays; acceptance: focus and scale marker visible; evidence: image IDs tied to locations.
18	Check air leakage at joints using smoke pencil under normal operation; acceptance: no sustained inward smoke stream; evidence: short video clip and notes.
19	Scan glazing edges and spandrels for cold stripes; acceptance: anomalous ΔT patterns documented; evidence: IR thermograms with temperature scale bar.
20	Measure surface moisture with pinless meter at suspect zones; acceptance: $\leq 15\%$ wood-equivalent or within material baseline; evidence: readings and photos.
21	Record any visible condensation, fogging, or dripping and timestamp; acceptance: correlate with RH/T at that minute; evidence: photos and event note.

Analysis and Reporting	
22	Compute indoor dew point from RH/T and compare to surface temperatures; acceptance: surface temp $\geq$ dew point + 2 K; evidence: calc sheet and screenshots.
23	Calculate surface temperature factor $f_{Rsi} = (T_{si} - T_e) / (T_i - T_e)$ at cold spots; acceptance: meets specified threshold (target ≥ 0.75 if unspecified); evidence: table with inputs.
24	Map risk zones on elevation drawings with severity codes and actions; acceptance: every bay classified and signed off; evidence: annotated PDF and action log.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Test façade condensation risk zones under project operating conditions ensures your building envelope performs safely during real HVAC setpoints, occupancy, and weather. This in-situ façade condensation assessment blends thermal imaging, surface temperature testing, and hygrothermal analysis to locate and rank dew-prone areas before damage occurs. The checklist focuses on interior-facing façade elements only: glazing, frames, spandrels, slab edges, and junctions. It excludes roof assemblies, below-grade walls, and laboratory-only methods. By controlling environmental variables and capturing defensible evidence, you prevent mold growth, finishes deterioration, and warranty disputes. You will learn how to stabilize conditions, select instruments, capture RH/temperature data, compute dew point margins, and map risk zones clearly on drawings. The outcome is a repeatable method that ties measured surface temperatures and indoor psychrometrics to actionable pass/fail criteria, per approved project specifications and authority requirements. Use this interactive checklist now: tick items, add comments, and export PDF/Excel with a secure QR for sign-off.	1. Preparation: Gather IR camera, calibrated surface probes, RH/T loggers, smoke pencil, moisture meter, tripod, and PPE. Coordinate access, confirm HVAC setpoints, and review drawings to prioritize high-risk façade zones. 2. Verify Conditions: Confirm indoor–outdoor ΔT, stabilize RH/temperature, and check for sun or rain on façades. Synchronize device clocks and set logging intervals before starting measurements. 3. Start Interactive Mode: Open the checklist, tick each step as completed, and attach photos, readings, and documents to the relevant item. Use comments to record deviations and approvals. 4. Record Measurements: Log RH/T, capture paired IR and visual images, take contact surface readings, and map locations by gridline/room ID. Note observed condensation or air leakage with timestamps. 5. Analyze and Export: Calculate dew point margins and fRsi, classify risk zones, and generate the summary. Export the full, commentable report as PDF/Excel directly from the checklist. 6. Sign-Off: Collect digital signatures from contractor, QA, and client. Distribute the QR-authenticated package and archive raw data, calibration records, and annotated drawings for traceability.