



# Review dynamic façade fail-safe positions: wind, rain

Review dynamic façade fail-safe positions with an interactive checklist that's commentable and export as PDF/Excel. Verify wind, rain, and outage behavior with measurable, auditable evidence.

Project:

Date:

Filled by:

## Documentation & Pre-Checks

|   |                                                                                                                                                                                                                                                                            |
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| 1 | Confirm approved fail-safe positions for each façade element type and zone against drawings and per approved project specifications and authority requirements; record target angles/closures and responsible approvals; capture marked elevations and signature evidence. |
| 2 | Verify calibration of test instruments: anemometer ( $\pm 0.5$ m/s), rain rig flowmeter ( $\pm 2\%$ ), data logger time sync ( $\pm 1$ s); photograph certificates and log serial numbers before testing.                                                                  |
| 3 | Define test zones prioritizing edges, corners, and highest elevations; select representative samples per risk; annotate plans and obtain façade engineer concurrence; upload the approved test plan.                                                                       |
| 4 | Conduct a toolbox talk covering wind equipment, water control, electrical isolation, and drop zones; obtain signed JSA/permit-to-work and attendance sheet; photograph posted permits.                                                                                     |

## Sensors & Setpoints

|   |                                                                                                                                                                                              |
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| 5 | Inspect wind sensor mounting height, orientation, and plumb; ensure clear exposure above parapet $\geq 1.5$ m; level within $\pm 5^\circ$ ; record photos and inclinometer readings.         |
| 6 | Validate fixed anemometer against calibrated handheld at 8–12 m/s; acceptance $\pm 0.5$ m/s agreement over 60 s average; store side-by-side photos and comparison log.                       |
| 7 | Function-test rain sensor using spray at 2–4 L/min-m <sup>2</sup> ; verify 'wet' within 10 s and 'dry' reset within 5 min; capture BMS trend and video evidence.                             |
| 8 | Confirm BMS setpoints and hysteresis for wind and rain alarms per approved project specifications and authority requirements; screenshot parameters with timestamps and user acknowledgment. |

## Mechanisms & Power

|    |                                                                                                                                                                                                  |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9  | Inspect actuators, linkages, hinges, and seals; manually cycle each sample; acceptance: smooth travel, no binding or scraping noises; record torque/current draw within nameplate; upload video. |
| 10 | Verify mechanical end-stops and safe-position limiters; measure closed gap $\leq 3$ mm and specified louvre angle with digital gauges; document three units per elevation with photos.           |
| 11 | Test UPS/battery autonomy for controls; simulate mains off while controls remain powered; acceptance: comms stable $\geq 15$ min with alarms logged; attach load/battery readings.               |
| 12 | Confirm manual override tools accessible, labeled, and operable; acceptance: reach height $\leq 2.0$ m or pole provided; show label and storage photo evidence.                                  |

| Fail-Safe Validation: Wind |                                                                                                                                                                                        |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13                         | Induce or await wind at threshold using calibrated fan or natural event; upon threshold, verify movement to wind-safe position within 30 s; store timestamped video and BMS event log. |
| 14                         | Measure achieved safe angle with digital inclinometer at three points; acceptance: target $\pm 3^\circ$ across tested units; input readings and attach instrument photos.              |
| 15                         | Verify reversion: when wind drops below hysteresis for 10 min, units return to normal within 60 s without oscillation; attach trend graph showing stable state.                        |

| Fail-Safe Validation: Rain |                                                                                                                                                                         |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16                         | Apply uniform spray at 2–4 L/min·m <sup>2</sup> over sensor and panels; confirm movement to rain-safe position within 45 s; capture video and BMS alarm acknowledgment. |
| 17                         | Inspect interiors for ingress during spray; use absorbent pads and rulers; acceptance: no standing water; damp spread $\leq 100$ mm from sill; photograph measurements. |

| Fail-Safe Validation: Power Loss & Handover |                                                                                                                                                                                   |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 18                                          | Isolate actuator power at dedicated breaker with lockout/tagout; acceptance: elements move to fail-safe via spring/weight within 60 s; document breaker tag and video.            |
| 19                                          | Restore power and verify automatic recovery to normal control without manual reset; acceptance: recovery $\leq 120$ s; no persistent faults; attach BMS alarm history screenshot. |
| 20                                          | Test combined case: exceed wind threshold then cut power; acceptance: fail-safe position still achieved by passive means; record side-by-side sensor and breaker event logs.      |
| 21                                          | Compile as-built fail-safe table by zone: sensor IDs, setpoints, positions, response times; obtain façade engineer review and signature; upload signed table to CDE.              |
| 22                                          | Archive evidence: calibrated readings, photos, videos, permits, and approvals with zone/date filenames; confirm CDE upload receipt; distribute to stakeholders.                   |

## Comments:

Filled by:

Signature:

| Introduction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | How to use this checklist                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| Review dynamic façade fail-safe positions under wind, rain, or power loss is a targeted verification process for operable façades. This checklist focuses on dynamic façade systems—such as operable louvres, shading fins, and vent panels—confirming their default safe positions when environmental loads spike or electrical power is interrupted. By validating wind sensor calibration, rain sensor response, actuator condition, and control logic, teams reduce risks like panel damage, water ingress, and occupant hazard. The scope excludes unrelated fire-alarm smoke control modes and routine cleaning; it concentrates on environmental and outage-driven fail-safe behavior and recovery. Field-proven methods specify SI-based thresholds, response times, and tolerances with clear acceptance cues. The outcome is a defensible record: traceable readings, photos, BMS screenshots, and signed approvals aligned with approved project specifications and authority requirements. Use this interactive checklist to tick items, add comments, attach evidence, and export results to PDF/Excel, secured and retrievable via a project QR. | 1. Preparation: assemble calibrated anemometer, metered spray rig, digital angle/gap gauges, LOTO kit, camera, and mobile device. Confirm access equipment, permits, and safe weather window for controlled testing. 2. Site setup: define test zones on drawings, brief the team, isolate areas below façades, and stage evidence folders in your common data environment for quick uploads. 3. Using the Interactive Checklist: start interactive mode, tick items as you proceed, and add comments noting locations, instrument IDs, and readings for each elevation and sample. 4. Attach evidence: upload photos, videos, BMS screenshots, and calibration certificates directly to each item. Use timestamps and consistent filenames including zone and date. 5. Export and share: generate a report and export as PDF/Excel, including item statuses, comments, and media links for review by the façade engineer and construction manager. 6. Sign-off and archive: apply digital signatures, circulate to stakeholders, store in the CDE, and secure authenticity with the project QR for future audits. |