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Inspect dynamic façade sensors for sun, wind and rain

Inspect dynamic façade sensors for sun, wind, and rain response with an interactive checklist that is commentable and can export as PDF/Excel for traceable commissioning.

Project:	
Date:	
Filled by:	

Pre-Inspection Setup	
1	Confirm latest sensor schedule, drawings, and BMS point list are on hand; acceptance: documents match current IFC/approved revisions; evidence: file names, revision dates, and reviewer initials logged.
2	Place façade actuators in maintenance/safe mode via BMS to prevent movement; acceptance: no automatic shade/vent commands issued; evidence: BMS screenshot showing inhibited outputs.
3	Verify availability and calibration of reference instruments (pyranometer, handheld anemometer, calibrated thermometer, multimeter); acceptance: valid certificates within 12 months; evidence: attach certificates.

Visual Condition & Mounting	
4	Inspect sensor housings and lenses for cracks, UV chalking, corrosion, or moisture ingress; acceptance: no damage, seals intact; evidence: close-up photos of each unit.
5	Check mounting orientation/tilt per manufacturer; tool: digital inclinometer; tolerance: within ±2° of specified tilt; evidence: inclinometer photo and reading.
6	Verify azimuth for sun sensors; tool: compass or GNSS-enabled device; tolerance: ±5° from design azimuth; evidence: compass screenshot/photo and marked direction.
7	Confirm clear sky view and wind exposure free of obstructions ≥10 m radius or as specified; tool: site walk, laser rangefinder; acceptance: unobstructed hemisphere; evidence: context photos.
8	Verify cable glands, gaskets, and drain paths; tool: visual/torque check; acceptance: glands tight, IP rating per spec (e.g., IP65+) maintained; evidence: photos and torque notes.

Electrical & Communication	
9	Measure supply voltage at sensor terminals; tool: multimeter; tolerance: within manufacturer range (e.g., 24 V DC ±10%); evidence: recorded volts and photo of probes in place.
10	Verify output signal type and baseline (4–20 mA, 0–10 V, or dry contact) at rest; tool: loop calibrator/multimeter; acceptance: stable baseline within spec; evidence: reading logged.
11	Check earth/bond continuity from sensor body to building ground; tool: continuity tester; tolerance: resistance ≤1.0 Ω; evidence: measured ohms recorded.
12	Validate BMS communications and point mapping; tool: laptop with BMS client; acceptance: correct names, units, engineering ranges; evidence: annotated BMS screenshots.

Calibration & Functional Tests – Sun	
13	Co-locate calibrated pyranometer adjacent to sun sensor; record 10-minute averages; acceptance: sensor reading within ±10% of reference at ≥200 W/m²; evidence: data table and photo.
14	Verify glare/irradiance threshold logic without moving actuators; tool: maintenance mode + BMS trending; acceptance: setpoint trip at programmed value (per spec); evidence: trend showing state change.
15	Assess signal stability under steady sun; tool: 10-minute trend; acceptance: standard deviation ≤5% of mean; evidence: exported trend plot.

Functional Tests – Wind	
16	Check anemometer spins freely; tool: gentle manual rotation; acceptance: no rubbing or stiction; evidence: short video and notes.
17	Simulate wind using calibrated fan; measure airspeed beside sensor with handheld anemometer; acceptance: sensor output within ±0.5 m/s or ±10% (greater applies); evidence: paired readings.
18	If directional, verify wind vane angle; tool: protractor reference vs BMS direction; tolerance: ±10°; evidence: photo and BMS readout.
19	Confirm high-wind alarm and inhibit logic; tool: simulated input or setpoint override; acceptance: alarm and safe-state flags within 5 s; evidence: screenshot with timestamps.

Functional Tests – Rain	
20	Clean rain sensor surface; tool: lint-free cloth and distilled water; acceptance: debris removed, surface intact; evidence: before/after photos.
21	Simulate rain using fine spray; control rate to wet surface uniformly; acceptance: wet status within 30 s and clears within 3 min when dry; evidence: BMS trend with timestamps.
22	Verify rain sensor heater (if fitted); tool: clamp ammeter or IR thermometer; acceptance: current draw per spec or surface temperature rise ≥10 °C in 5 min; evidence: readings logged.

Integration & Alarms	
23	Verify units and scaling (W/m², m/s, mm/h, wet/dry) across BMS, graphics, and logs; acceptance: consistent units and limits; evidence: screenshots and unit list.
24	Test sensor power loss/fault; tool: remove fuse or disconnect; acceptance: BMS fault within 60 s and safe-state enforced; evidence: alarms screenshot.
25	Validate redundancy/averaging logic for multiple sensors; tool: simulated different inputs; acceptance: median/majority logic per approved project specifications; evidence: logic diagram snapshot.
26	Confirm time synchronisation for accurate trends; tool: NTP check; tolerance: drift ≤2 s vs site time; evidence: time sync screenshot.

Documentation & Handover	
27	Attach calibration certificates, photos, and measured data; acceptance: complete set per device; evidence: files linked to checklist items.
28	Export signed report; tool: interactive checklist export; acceptance: PDF/Excel with QR code and digital signatures; evidence: stored in project archive.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Inspect dynamic façade sensors for sun, wind, and rain response is a focused checklist for commissioning agents, facility managers, and façade specialists. It targets solar irradiance sensors, anemometers, and rain detectors that drive dynamic shading, operable façades, and weather protection logic. By systematically checking mounting orientation, exposure, wiring, signal ranges, calibration, and BMS integration, you minimize risks such as glass or cladding damage from high winds, uncontrolled glare and heat gain, and nuisance rain responses. The scope covers field inspection and functional testing of weather sensors and their mapped points within the building management system; actuator sequencing and mechanical adjustment of shades are excluded. Practical methods—reference pyranometer comparisons, handheld anemometry, and controlled spray tests—verify accuracy, stability, and setpoints per approved project specifications and authority requirements. Use this interactive checklist to tick tasks, add comments, attach photos and logs, and export results to PDF/Excel with a secure QR code for records.	1. Preparation: Gather calibrated pyranometer, handheld anemometer, IR thermometer, multimeter, laptop with BMS access, PPE, and latest drawings/point lists. Place façade systems in maintenance mode and brief stakeholders on test boundaries. 2. Using the Interactive Checklist: Start interactive mode, tick each step as completed, attach photos, readings, and BMS screenshots, and log comments for deviations. Use timestamps for trends and note instrument serials. 3. Export and Share: Generate an export to PDF/Excel including attachments, measured data, and trend plots. The report embeds a QR code for authentication and can be shared with commissioning, operations, and design teams. 4. Sign-Off: Collect digital signatures from the inspector, integrator, and owner’s representative. Archive the signed package in the project common data environment and schedule follow-up actions where required.