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Inspect Aluminum Composite Panel Flatness & Oil-Canning

Inspect aluminum composite panel flatness and oil-canning tolerance with an interactive checklist. Fully commentable, and you can export as PDF/Excel for QA sign-off.

Project:

Date:

Filled by:

Pre-Inspection Conditions

1	Stabilize environmental and site conditions before measuring flatness or assessing visual distortion.
2	Verify ambient temperature 15–30 °C with $\leq \pm 2$ °C change over 1 h using an IR thermometer; acceptance: within range; evidence: time-stamped log.
3	Confirm panels are clean, dry, and acclimated ≥ 24 h; acceptance: no condensation or surface moisture; evidence: photos of representative panels.
4	Check subframe alignment before panel checks using a laser line; acceptance: deviation ≤ 2 mm over 2 m or per specs; evidence: laser readings and photos.
5	Verify fixing torque with a calibrated torque wrench; acceptance: within manufacturer/project specification; evidence: torque log with tool serial and date.

Tools Calibration & Setup

6	Confirm 2 m straightedge is true and labeled; acceptance: calibration in date; evidence: photo of certificate/sticker.
7	Check feeler gauges 0.5–3.0 mm are complete and legible; acceptance: clean blades within tolerance; evidence: photo and kit ID.
8	Verify digital level/laser accuracy $\leq \pm 0.2$ mm/m; acceptance: current certificate; evidence: upload calibration record.
9	Prepare a panel grid map and numbering scheme on elevations; acceptance: unique ID per panel; evidence: marked-up drawings.

Panel Surface Flatness Measurements

10	Measure horizontal flatness at mid-height using 2 m straightedge and feeler gauges; acceptance: max gap ≤ 2.0 mm or per specs; evidence: close-up photo with gauge size visible.
11	Measure vertical flatness at mid-width with 2 m straightedge; acceptance: max gap ≤ 2.0 mm or per specs; evidence: reading recorded in log.
12	Measure diagonal flatness corner-to-corner (2 m span where possible); acceptance: max gap ≤ 3.0 mm or per specs; evidence: photos and values.
13	Check local planarity 100 mm offset from fixings; acceptance: local deviation ≤ 1.0 mm; evidence: location-marked photo.
14	Span across panel joint with straightedge to assess step; acceptance: level difference across joint ≤ 1.0 mm; evidence: gauge photo at joint.
15	Complete a 3×3 measurement grid per panel (H/V/Diag at nine points); acceptance: no reading exceeds criteria; evidence: filled log and grid sketch.
16	Sample rate: inspect $\geq 10\%$ of installed panels per elevation, minimum 5; acceptance: sampling achieved; evidence: sampling plan and list of IDs.

Oil-Canning Visual Assessment

17	Assess from 5–10 m in raking light 15–30° to surface; acceptance: no persistent quilting visible at 10 m; evidence: context photos showing observer position.
18	Repeat observation in diffuse light to separate true waviness from reflections; acceptance: minimal distortion under diffuse light; evidence: comparative photos.
19	Inspect near corners and fixings for dish-shaped dimples; acceptance: no localized deformation beyond flatness limits; evidence: annotated close-ups.
20	Classify visual severity (A: not noticeable, B: slight, C: pronounced); acceptance: A or B per project specs; evidence: severity code in log with photos.
21	Compare suspect panels with a known-acceptable control panel under the same light; acceptance: equal or better appearance; evidence: side-by-side images.

Framing & Fixings Influences

22	Check subframe flatness behind nonconforming panels with 2 m straightedge; acceptance: ≤ 2.0 mm over 2 m; evidence: readings and location notes.
23	Verify fastener pattern and spacing against shop drawings; acceptance: within ± 10 mm of specified spacing; evidence: tape-measure photos and markup.
24	Confirm expansion clearances at perimeters and joints (e.g., 10–15 mm or per specs); acceptance: unobstructed movement gap; evidence: scale-in-frame photo.
25	Check insulation/air-barrier for high spots telegraphing through; acceptance: compressions/irregularities ≤ 2.0 mm; evidence: marked photos and notes.

Documentation & Approvals

26	Record panel data: ID, location, size, thickness, coating, core type, batch/lot; acceptance: fields complete; evidence: photo of panel labels and entries.
27	Upload elevation markups showing all measured points and nonconformities; acceptance: clear references; evidence: updated drawings in report.
28	Note acceptance basis: measured values within limits per approved project specifications and authority requirements; evidence: signed QA review.
29	Export compiled report with photos, readings, calibration certs, and signatures; acceptance: PDF/Excel generated with QR link; evidence: file names and link.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Inspect aluminum composite panel flatness and oil-canning tolerance to protect facade aesthetics and performance. This checklist focuses on ACP planarity measurement, oil canning assessment, and documentation for exterior cladding, guiding installers, site engineers, and QA inspectors. You will use a 2 m straightedge, feeler gauges, laser level, and controlled viewing conditions to quantify panel waviness and identify visual distortion. The scope excludes structural capacity, fire classification, sealant continuity, and water/air testing, but flags support irregularities and fixing practices that commonly trigger visible rippling. By enforcing consistent methods—diffuse light for flatness, raking light for distortion—you avoid disputes, rework, and warranty exposure while delivering predictable, repeatable acceptance decisions per approved project specifications and authority requirements. Follow the steps to gather calibrated measurements, categorize visual effects, and archive evidence with traceable panel IDs and elevations. Start in interactive mode to tick items, leave comments for nonconformities, and export your sign-off as PDF/Excel with a QR-secured audit trail.	1. Preparation: Gather a 2 m straightedge, feeler gauges, laser/digital level, IR thermometer, torque wrench, PPE, and marked-up elevations. Confirm calibration certificates are current and accessible on your device. 2. Project setup: Create or open the elevation, assign panel IDs, and upload drawings. Enable interactive mode so each checklist item can be ticked and commented with photos and measurement values. 3. Run flatness measurements: Follow the items in order. Enter readings in millimetres, attach close-up photos with gauges visible, and flag any nonconformities with location notes and suspected cause. 4. Assess oil-canning: Record viewing distance, light angle, severity rating, and comparison to a control panel. Add wide shots showing observer position and any relevant environmental conditions. 5. Export and share: Generate a consolidated PDF/Excel including photos, calibration certs, and markups. Use the QR-secured link to verify authenticity in meetings and site walks. 6. Sign-off: Collect digital signatures from installer, QA, and consultant. Archive the report with panel IDs and elevations for future reference and maintenance handover.