



Test façade glass for optical distortion: reflection quality

Test façade glass for optical distortion and reflected image quality with an interactive checklist—commentable and export as PDF/Excel—ensuring consistent, documented acceptance on site.

Project:

Date:

Filled by:

Pre-Test Conditions

1	Confirm test area glazing is fully installed, cleaned, and safely accessible; schedule during diffuse daylight or uniform artificial lighting with minimal glare. Acceptance: consistent, shadow-free façade surface. Evidence: wide-angle context photos and weather/lighting log.
2	Verify glass make-up, heat treatment, and coating orientation against approved submittals; label each panel with a temporary ID visible in photos. Acceptance: matches approved project specifications and authority requirements. Evidence: label close-ups and submittal cross-reference.
3	Control nearby lighting that induces stray reflections; switch off adjacent luminaires or shield them temporarily. Acceptance: uniform luminance across test field. Evidence: luminance readings at nine points and photos before/after control.
4	Re-clean suspect lites with isopropyl alcohol and lint-free cloths to eliminate streaks that mimic distortion. Acceptance: no visible streaks at 3 m. Evidence: cleaning log and post-clean close-up photos.

Instruments and Calibration

5	Zero and verify optical distortion meter or digital angle gauge using a flat reference per manufacturer instructions. Acceptance: within manufacturer tolerance at zero (document value). Evidence: calibration photo and record.
6	Prepare a rigid, plumb checkerboard/line grid (e.g., 50 mm squares), confirm dimensions with a steel tape. Acceptance: grid variance $\leq$ manufacturer tolerance. Evidence: measurement photo with tape and plumb confirmation.
7	Mount a camera on tripod with 50 mm full-frame equivalent lens; set RAW capture, fixed ISO, and white balance using a grey card. Acceptance: stable, repeatable imaging setup. Evidence: equipment settings screenshot and setup photos.
8	Fit a circular polarizing filter and have polarized sunglasses available to reveal anisotropy patterns. Acceptance: polarizer effect verified on a known sample. Evidence: quick validation images of reference glass.

Direct View Distortion Checks	
9	From 3 m at normal incidence, scan each lite horizontally and vertically for ripples, roller wave, and edge kinks. Acceptance: no abrupt kinks; waviness within project criteria. Evidence: annotated photos with observed zones circled.
10	Use a 1.2 m straightedge reflected in the glass to detect curvature; observe gap changes while moving across the lite. Acceptance: reflection deviation within project limit. Evidence: reflection photos with ruler overlay and notes.
11	Position the checkerboard target 3–6 m in front of the façade; observe reflected grid for bending or warping. Acceptance: maximum grid line deviation within specification. Evidence: reflection photos and measured offsets in mm.
12	At a 30° oblique view, look for S-curve effects near edges and corners which can amplify distortion. Acceptance: no localized S-curve exceeding project thresholds. Evidence: oblique-view images with angle noted.
13	Under polarized viewing (filter engaged), check for anisotropy or leopard-spot patterns typical of heat-treated glass. Acceptance: patterns subtle and uniform per mock-up benchmark. Evidence: polarized images under open-sky illumination.

Reflected Image Quality Checks	
14	Set an ISO 12233/Siemens star target at 3–6 m; capture the reflected image at normal incidence. Acceptance: smallest resolvable detail meets specification. Evidence: photo plus calculated resolution metric.
15	Assess reflected straightness of nearby building control lines; compare angles using a digital angle finder or software overlay. Acceptance: angular deviation within project limit. Evidence: annotated comparison images with angle readings.
16	Check for ghosting/double reflections on laminated units using a small flashlight reflection at night or shaded conditions. Acceptance: no perceivable double image beyond project criteria. Evidence: close-up reflection photos and notes.
17	Measure reflected luminance uniformity across a nine-point grid with a luminance meter. Acceptance: max/min ratio within specified limit. Evidence: logged readings and heatmap screenshot if available.
18	Compare reflected color against a neutral grey card to detect tint shift; compute ΔE using a calibrated app or spectro. Acceptance: ΔE within project limit. Evidence: color readings and side-by-side imagery.

Documentation and Sign-Off	
19	Log panel ID, gridline location, orientation, time, sky condition, and observer distance for each test. Acceptance: complete dataset per panel. Evidence: filled checklist fields and GPS-tagged photos.
20	Mark defects on elevation drawings with unique tags and severity; issue a punch-list to the contractor. Acceptance: punch-list acknowledged with target dates. Evidence: tagged drawings and acknowledgement records.
21	Escalate panels exceeding criteria to the manufacturer/consultant for disposition (clean, adjust, replace). Acceptance: approved corrective action plan. Evidence: written disposition and approvals attached.
22	Retest affected panels after corrective work using the same setup and distances; compare before/after metrics. Acceptance: results meet specifications and mock-up benchmark. Evidence: paired image set and updated readings.
23	Secure digital signatures from inspector, GC, and façade contractor; export report as PDF/Excel with embedded QR code. Acceptance: all sign-offs complete and QR validates. Evidence: final exported files and audit log.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Test façade glass for optical distortion and reflected image quality is a focused site procedure for installed glazing. This checklist supports façade reflection testing and glass distortion assessment by standardizing viewing distances, lighting, and documentation so results are consistent and defensible. The scope covers visual and instrumental methods for identifying roller wave, edge kink, anisotropy, ghosting, and straightness errors visible in direct view and reflected imagery. It excludes structural capacity, impact resistance, and thermal-stress modeling, which must be verified separately per approved project specifications and authority requirements. By aligning with the approved mock-up and submittals, you reduce rework, prevent owner complaints about “funhouse” reflections, and protect the building’s streetscape appearance. Use this interactive tool to plan tests, capture calibrated photos, quantify deviation against acceptance criteria, and secure sign-off without ambiguity. Start in interactive mode to tick items, add comments, attach evidence, and export your record as PDF/Excel with a QR code for authentication.	1. Preparation: Gather grid target, straightedge, polarizing filter, luminance meter, calibrated camera/tripod, cleaning supplies, permits, and access equipment. Brief the team on safety and roles. 2. Site setup: Choose diffuse daylight or uniform lighting, control stray luminaires, and establish 3–6 m target distances with marked observer positions. 3. Create a panel register with IDs, gridlines, elevations, and glass make-up from approved submittals to anchor every observation. 4. Using the Interactive Checklist: Start interactive mode, open the relevant elevation, and tick items as you proceed panel by panel. 5. Attach evidence: Add annotated photos, calibration records, and measured deviations; comment on anomalies and tag responsible parties. 6. Resolve findings: Generate a punch-list, assign actions, and schedule retests; maintain the same methods for comparability. 7. Sign-Off: Capture digital signatures from inspector, GC, and façade contractor to confirm acceptance or required remediation. 8. Export and share: Export the commentable record as PDF/Excel with embedded QR code; distribute to stakeholders and archive securely.