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Review Façade Sealant Joint Design: Movement, Adhesion, Life

Review façade sealant joint design with an interactive checklist. Ensure movement, adhesion, and service life. Fully commentable and export as PDF/Excel with QR authentication.

Project:
Date:
Filled by:

Design Criteria Verification

1	Confirm project temperature design range (°C) for façade zones and compute thermal movement using substrate coefficients; document ΔL per metre between minimum and maximum design temperatures; upload signed calculations and mark affected joint types on drawings.
2	Verify wind-induced frame deflection adjacent to joints and confirm predicted movement remains within sealant capability; record maximum deflection in mm and movement envelope; attach structural engineer confirmation and annotated elevations.
3	Check specified sealant movement rating meets or exceeds calculated requirement; acceptance: sealant capability \geq design movement +10% margin; capture product datasheet highlighting movement rating and include manufacturer email approval.
4	Validate service environment (UV, rainfall, pollution, temperature cycles) and select sealant chemistry accordingly; acceptance: rationale recorded and manufacturer concurrence obtained; upload exposure summary and selection note.

Movement Analysis and Calculations

5	Determine nominal joint width from panel module and total movement; acceptance: width sized so movement $\leq \pm 25\%$ of width or per specification; show required width in mm on details and upload calc sheet.
6	Confirm interstorey drift joints at slab edges accommodate lateral drift without substrate contact; acceptance: clearances demonstrated in mm; attach drift calculations and a redlined section.
7	Account for differential movement of dissimilar materials (e.g., aluminium–concrete), including shrinkage and creep; tabulate combined movement in mm and mitigation measures; upload summary table to the CDE.

Joint Geometry and Detailing	
8	Specify width-to-depth ratio nominally 2:1 with minimum sealant depth 6 mm; acceptance: ratio within $\pm 10\%$; annotate detail sections and attach a dimensioned sketch.
9	Size closed-cell backer rod 25–50% larger than joint width to prevent three-sided adhesion; record supplier and lot number; attach sample photo and product data.
10	Detail bond-breaker tape where backer rod is impractical; acceptance: continuous, unwrinkled tape providing 100% coverage; include compatibility note and mock-up photo.
11	Define sealant surface profile: concave finish with tooling radius 3–6 mm unless drainage bevel is specified; acceptance: profile note added to drawings; upload tooling specification.
12	Ensure drainage paths and drips avoid ponding on sealant; acceptance: adjacent surfaces sloped $\geq 1:20$ with weeps where needed; attach detail cut and calculation/check record.

Substrate and Material Compatibility	
13	List all substrates (e.g., anodized aluminium, coated steel, GRC, stone, concrete) and obtain manufacturer compatibility letters; acceptance: written approval per substrate; upload correspondence to the CDE.
14	Specify primer type and application rate by substrate; acceptance: primer identified with consumption rate (mL/m) and cure time; attach technical data sheet extracts.
15	Define surface preparation per substrate (abrasion grade, solvent type, dwell time); acceptance: preparation method stated and safe-use noted; upload method statement and safety datasheets.
16	Plan field adhesion tests on representative mock-ups before production; acceptance: cohesive failure in sealant with no adhesive loss; record photos, batch numbers, ambient conditions ($^{\circ}\text{C}$, %RH), and results.
17	Check adjacent coatings and membranes will not inhibit cure or stain substrates; acceptance: manufacturer confirmation of non-staining and compatibility; upload statements and any lab test summaries.

Durability and Service Life	
18	Set target design service life (e.g., 20 years) and define inspection/maintenance intervals; acceptance: O&M; plan includes inspection frequency and reseal triggers; attach draft to handover documents.
19	Assign exposure class by elevation (UV index, rainfall, temperature cycles) and select sealant with proven weathering history; acceptance: third-party weathering data provided; upload report and selection summary.
20	Require movement capability retention after aging; acceptance: manufacturer statement of retained properties over time; attach declaration and reference case studies.

Documentation and Quality Assurance	
21	Establish submittal list: sealant, primers, backer rod, mock-up plan, and method statements; acceptance: all approved before procurement; upload approvals and maintain a register.
22	Define inspection hold points: mock-up sign-off, first-area inspection, periodic audits; acceptance: digital checklists with time-stamped photos and signatures; archive in the project CDE with revision control.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
<p>Review façade sealant joint design for movement, adhesion, and service life is a focused preconstruction process that validates joint performance before any sealant is ordered or installed. This checklist helps envelope engineers and designers confirm movement capability, adhesion and compatibility, and expected service life across typical façade joints. It concentrates on joint width and depth geometry, backer rod or bond-breaker detailing, substrate preparation requirements, and environmental exposure assumptions, while excluding installation procedures and test standards beyond approved project specifications and authority requirements. By resolving thermal, structural, and differential movement early, teams avoid adhesive failure, three-sided bonding, ponding, premature cracking, and costly reseal cycles. The outcome is a documented, defensible design basis aligned with manufacturer guidance and practical site constraints, with clear hold points for mock-ups and first-area inspections. Use this interactive page to tick items, leave comments, upload evidence, and export your review as PDF or Excel with a scannable QR for stakeholders.</p>	<ol style="list-style-type: none">1. Preparation: Gather facade drawings, movement calculations, substrate lists, sealant and primer datasheets, backer rod samples, and manufacturer contacts. Ensure access to the project CDE and equip a field kit for mock-ups.2. Set site conditions: Confirm environmental assumptions (temperature range, UV, rainfall) and structural inputs (deflection and drift) with the facade and structural engineers.3. Start interactive mode: Tick each item, add comments with location references, and upload evidence such as annotated drawings, photos, and calculation sheets.4. Coordinate: Tag responsible parties (designer, manufacturer, contractor) in comments, request clarifications, and attach manufacturer approvals for compatibility and movement capability.5. Review and reconcile: Resolve open comments, record decisions, and lock approved joint geometries and materials to prevent uncontrolled changes.6. Export: Generate a commentable record and export as PDF/Excel with embedded QR code for field verification and submittals.7. Sign-Off: Capture digital signatures from stakeholders, distribute to the project team, and archive the final, QR-authenticated pack in the CDE.