



# Review façade thermal bridge mitigation: brackets, slabs, penetrations

Review façade thermal bridge mitigation with an interactive checklist. Commentable steps ensure accuracy and let teams export as PDF/Excel for sign-off.

Project:
Date:
Filled by:

## Pre-Construction Review

1	Confirm approved thermal modeling outputs for brackets, slab edges, and penetrations; verify $\Psi$ -values and U-values meet project targets; attach signed calculation sheets and reviewer approval.
2	Check submittals for thermal break products (pads, sleeves, balcony connectors): verify thickness, $\lambda$ -value, compressive capacity, fire classification; record manufacturer, product code, and lot numbers with photos.
3	Review coordinated shop drawings: confirm thermal break thicknesses, anchor edge distances, and insulation continuity; acceptance $\pm 2$ mm for pad thickness and $\pm 5$ mm for anchor positioning; upload stamped drawings.
4	Hold interface coordination meeting (façade, structural, MEP, fire-stopping): agree on sequencing, temporary works, and inspection hold points; upload signed minutes and attendance list.

## Brackets and Anchors

5	Install thermal break pads fully bearing under brackets; use feeler gauge to confirm no voids $> 1$ mm; pad thickness within $\pm 2$ mm of design; photo showing gauge location and pad label.
6	Tighten anchors with a calibrated torque wrench; record torque values within manufacturer range (log ID and wrench calibration date); photograph each bracket tag with torque reading.
7	Ensure no metal-to-metal bypass around pads: verify isolating washers/sleeves installed; inspect with borescope where concealed; acceptance: zero direct contact points; attach close-up photos.
8	Use non-conductive shims only ( $\lambda \leq 0.3$ W/m·K); limit total shim stack to design allowance ( $\pm 1$ mm); document shim material certificate and final bracket plumbness within 2 mm/m.

## Slab Edges and Balconies

9	Install structural thermal break connectors at slab edges per layout; verify element type/orientation against drawings; capture serial numbers and location gridlines in photos.
10	Maintain continuous insulation over slab edge: measure with tape; acceptance: no gaps $> 5$ mm; seal minor gaps with compatible insulation or tape; before/after photos required.
11	After concrete pour, confirm thermal break alignment remained flush with façade line; check with straightedge (2 m) and feeler gauge; acceptance: deviation $\leq 3$ mm; document with dated photos.
12	Verify air/water barrier continuity at balcony connectors: apply smoke pencil along seals; acceptance: no visible smoke leakage; record test video and annotate locations.

Penetrations and Services	
13	Insulate metal pipe/conduit penetrations with specified thickness; measure wrap thickness at four quadrants; acceptance: within $-0/+5$ mm of design; photo with tape measure and product label.
14	Install airtight grommets/tapes on penetrations; perform $90^\circ$ peel test on a sample strip; acceptance: $\geq 2$ N/25 mm at $23^\circ\text{C}$ ; record batch number and test photo.
15	Fit thermal break bushings on through-bolts/rods; verify continuous sleeve length equals substrate thickness; borescope check; acceptance: no exposed metal contact; torque log attached.
16	Confirm weather seals do not compress insulation below 90% nominal thickness; measure with depth probe; acceptance: $\geq 90\%$ residual; photo before and after sealant application.

Inspection, Testing, and Records	
17	Conduct IR thermography with $\geq 10$ K indoor–outdoor gradient and low wind; acceptance: anomaly $\Delta T \leq 2$ K at inspected details; upload calibrated images with emissivity settings.
18	Measure surface temperature and RH at critical points; compute dew point; acceptance: surface temperature $\geq$ dew point $+3$ K; attach hygrometer readings and calculation sheet.
19	Geo-tag and QR-label all bracket groups, slab edges, and penetrations; upload as-built photos and markups cross-referenced to gridlines; acceptance: 100% locations documented.
20	Compile closeout: approvals per approved project specifications and authority requirements; include datasheets, torque logs, IR report, and signatures; acceptance: consultant and contractor sign-off completed.

**Comments:**

Filled by:

Signature:

Introduction	How to use this checklist
<p>Review façade thermal bridge mitigation at brackets, slabs, and penetrations focuses site teams on the highest-risk interfaces where conductive shortcuts defeat envelope performance. This checklist targets thermal break verification, linear thermal transmittance control, and airtight continuity at façade anchorage, slab edges, and service penetrations. It excludes window glazing performance, roof assemblies, and interior MEP balancing. By standardizing inspection and documentation, you avoid cold bridges that drive energy penalties, localized condensation, mold growth, corrosion, and occupant discomfort. The outcome is a verifiable, buildable façade connection strategy that aligns with the approved project specifications and authority requirements, maintains designed <math>\Psi</math>-values, and preserves continuous insulation and air/water barriers. Use the steps to confirm correct product selection, precise installation, and objective testing using IR thermography and dew point checks. Capture evidence with geo-tagged photos, torque logs, and material lot records. Start in interactive mode to tick items, add comments, and export a secure PDF/Excel report with a QR for authentication.</p>	<p>1. Preparation: bring approved drawings, thermal calculations, manufacturer datasheets, calibrated torque wrench, feeler gauges, borescope, IR camera, hygrometer, smoke pencil, PPE, and QR labels. Confirm access and safe work areas are established. 2. Open the checklist in interactive mode. Select the façade zone, gridlines, and detail type (bracket, slab edge, penetration). Preload relevant submittals for quick reference during inspection. 3. During inspection, tick each item as completed, enter measured values (mm, N·m, <math>^\circ\text{C}</math>, %RH), and attach annotated photos or short videos. Add comments tagging responsible trades for follow-up. 4. For testing steps, record instrument models, calibration dates, and settings (emissivity, <math>\Delta T</math> targets). Link observations to QR-labeled locations to maintain traceable records. 5. Export the checklist as PDF/Excel for review. Route to contractor, consultant, and client for digital signatures. Confirm the QR code validates the final, non-editable report version. 6. Archive the signed package with calculations, submittals, torque logs, and IR report. Update the project commissioning tracker and close the façade thermal bridge mitigation hold point.</p>