

BBC · Built by Chemistry

SITE QC CHECKLIST

Tile Adhesive Site QC Checklist

15 checks a specifier verifies before signing off — from goods inward and EN 12004 classification to slip, open time and coverage under real site conditions.



INDEPENDENT
NO BRAND
AFFILIATIONS

Section 1 — On delivery & substrate (5 checks)

☐ 1. Goods inward — accept the material before it becomes your problem.

Check the **product on the delivery note matches the specified class** (EN 12004 / IS 15477), record the **batch / lot number and manufacturing date**, inspect bags for damage, damp or caking, and confirm the material is **within shelf life**. **Weigh a bag**: under the average-quantity system used by both the EU ("e" mark, Dir. 76/211/EEC) and India (Legal Metrology Packaged Commodities Rules, based on OIML R87), the **batch average must meet the declared net weight** and a bag over 15 kg may be under by at most **1 %** — a pallet running consistently light is a loss you paid for and a red flag worth logging. **Keep one sealed bag from each batch on site until sign-off**.

► Why this is check #1: once the adhesive is on the wall, a factory defect and an application defect look identical. With no retained bag and no reception record, the fault defaults to the site. Spain's CTE Art. 7.2 already requires documented reception control of products — this check is that, on one line.

☐ 2. Right class for the job, per the standard — not the cheaper one.

Confirm the class matches the tile, the substrate and the exposure under **EN 12004-1 / IS 15477** and the national code (**BS 5385**, **NF DTU 52**, **UNE 138002**, CTE). "Wrong but cheaper" is a specification failure, not a saving.

☐ 3. Substrate sound and clean — the field test.

No dust, no laitance, no bond-breakers. A pull-off tester is almost never on site, so use these field screens (a guide, not a lab test): **scratch** a cross-hatch with a hard steel point — a sound surface stays coherent, a weak one powders or flakes; **tap or drag a chain** — a dull or hollow sound means a debonded screed or render; **wipe with a dark rag** — heavy dust transfer means the surface needs mechanical preparation first. If any fails, prepare or do not tile.

☐ 4. Substrate dry enough — the field test.

Almost no one has a moisture meter on site, so run the **plastic-sheet test (ASTM D4263)**: tape a ~45 × 45 cm clear polyethylene sheet to the surface, seal all four edges, and leave it **≥ 16 hours**. Condensation under the sheet, or darkening of the substrate, means it is too wet to tile. It is a screen, not a number — the definitive limits are **≤ 2,0 % CM** for cement screed and **≤ 0,5 % CM** for anhydrite (calcium-carbide method) — but the plastic sheet catches the obvious failure for the price of a bin bag and a roll of tape.

☐ 5. Substrate cured and stable — give it the days.

Concrete slab ≥ 28 days (structural cure plus early shrinkage). Sand-cement screed as a drying rule of thumb **~1 day per mm of thickness** (a 40 mm screed $\approx$ 6 weeks in good conditions; BS 8203 / BS 5385). Render and plaster backgrounds fully set before tiling. Surface temperature **5–30 °C**, stable for 24 h. Datasheet figures assume **23 °C** — always ask what conditioning the number was measured at.

Section 2 — Adhesive class matches the job (5 checks)

☐ 6. Tile absorption vs the C-class — and the water-drop field test.

Classify the tile per **EN 14411** (absorption measured to **EN ISO 10545-3**): porcelain (**Group Bla, $\leq 0,5$ %**) has almost no suction and typically needs **C2**, not C1. Quick field check: place a few **drops of water** on the tile back — soaked in seconds means high suction; beading and sitting means a dense, low-suction tile that needs the polymer of a C2 to grip.

☐ 7. C1 vs C2 — bond strength.

Is $\geq 1,0$ N/mm² (C2) actually required, or is **C1 ($\geq 0,5$ N/mm², EN 1348)** enough? Cost out the over-spec — and never under-spec a heavy or large tile.

☐ 8. T — reduced slip ($\leq 0,5$ mm, EN 1308).

Any vertical / wall work, and increasingly critical as tile size grows.

☐ 9. E — extended open time ($\geq 0,5$ N/mm² at ≥ 30 min, EN 1346).

Wherever the site can exceed ~ 25 – 30 °C. Heat collapses open time first.

☐ 10. S1 vs S2 — deformability (EN 12002).

S1 (2,5–5 mm) for large-format on stable substrates; **S2 (> 5 mm)** for pools, exterior façades, heated screeds or substrates still shrinking. Match to movement, not to price. In India, write the **IS 15477 Type** equivalent — the tests differ (27 °C, tensile *and* shear).

Section 3 — During application (5 checks)

☐ 11. The bed achieves coverage, not just a notch.

The notch (≈ 6 mm small tile, 10–12 mm medium-to-large) is only a means; on any unevenness use a larger notch or level the substrate first. The requirement is the coverage in check 15, not the trowel.

☐ 12. Double buttering above $\sim 30 \times 30$ cm or on any uneven substrate.

Combed bed on the substrate **plus** a skim burned into the tile back. Mandatory for large-format under **EN 12004-1 / BS 5385 / NF DTU**.

☐ 13. Open time not exceeded.

Bed a tile and lift it: if fresh adhesive transfers wet across the full back, open time still holds; if the ribs have skinned over, the bed is dead — scrape, re-comb, re-lay. Tie the window to the datasheet open time, and remember direct sun at 35 °C shortens it drastically.

☐ 14. Adjustment time respected.

Reposition a placed tile only within the datasheet **adjustment-time** window (typically ~ 15 – 20 min). Beyond it, lift and re-bed — never nudge a tile whose bond has begun to set.

☐ 15. Coverage verified by lifting one tile per ~ 20 m².

≥ 80 % contact for interior dry areas; ≥ 95 % with no significant voids for wet areas, exteriors, pools and all natural stone (BS 5385 · TCNA Handbook · ANSI A108.5). Photograph and log. Every void is a fragile point — where a floor tile cracks under a dropped object, or a façade tile lets go under condensation.

*You cannot verify resin content or chemistry on site without a lab. So do the cheap, decisive thing instead: **mix one bag the moment it arrives** and check the consistency, colour, smell and stiffening against what you expect. An anomaly caught now is a supplier conversation. Caught after the wall is tiled, it is your problem.*

*The datasheet class is not a promise about your wall. It is a promise about a **23 °C conditioning room** — India's IS 15477 tests warmer, at **27 °C**, and grades shear as well as tensile. Always ask which conditions the number was measured at.*

If the applicator cannot answer 8 of these 15 in real time, escalate. This is a screening tool, not a scoring rubric.

*Fifteen editions of Built by Chemistry stand behind this list. Full technical context, standards decoded, and case studies at **builtbychemistry.com**.*

Weekly newsletter — one technical breakdown, no marketing filler

The next edition, **The Four Clocks** (open time, setting time, pot life, adjustment time), lands Thursday.

builtbychemistry.com/subscribe

BBC · Built by Chemistry · builtbychemistry.com · Independent construction chemistry newsletter · No brand affiliations