

Material Drying Parameter Register

Exact provisional controller settings and staged mixed-material logic

MCA-PROV-2026-07-22 | MCA-STAGE-PROV-2026-07-22

Prepared 22 July 2026

Production reference | Provisional limits

These values are MCA provisional control caps, not manufacturer-certified material damage thresholds.

Decision statement

The app can select the following plasterboard types separately:

1. Plasterboard - Standard
2. Plasterboard - Moisture Resistant
3. Plasterboard - Fire Rated

The generic Plasterboard profile is retained only to identify an incomplete selection. It blocks unattended automation until a specific subtype is chosen.

No reviewed manufacturer or restoration source publishes universal maximum ambient relative-humidity reduction rates in percentage points per hour or per 24 hours for these materials. The numeric rates below are therefore exact **MCA provisional controller settings**, not proven material damage thresholds. Manufacturer, project, specialist, conservation, contamination, salvage, and substrate requirements override them.

Coverage

This register covers all 23 active material profiles listed by the production app on 22 July 2026: 15 controlled structural profiles and 8 profiles that require specialist control or pack-out. The automated coverage test must fail if an app profile is added or renamed without a matching register entry.

What the rate means

- pp/h means percentage points of **room-air relative humidity per hour**.
- pp/24h means percentage points of room-air relative humidity over a rolling 24-hour period.
- These values do not measure material moisture loss. A fall from 80% RH to 72% RH is an 8 percentage-point fall, regardless of the starting percentage.
- The controller warns at 75% of the current staged cap, commands equipment OFF at 90%, and does not restart until rate-budget use falls below 60%.
- The hourly allowance is prorated to the available history window. At least five valid environmental readings spanning 30 minutes are required.
- Material progress is determined from linked comparative meter readings on the same scale and method as an unaffected dry-standard reading.

Staged control logic

Stage	Exact rate factor	Entry and exit rule
Assessment	50% of base cap	No linked comparative material reading exists. This stage does not advance from time alone.

Stage	Exact rate factor	Entry and exit rule
Stabilising	50% of base cap	Remains active until there are at least two linked readings at least 6 hours apart, the reading is falling, the latest reading is no more than 24 hours old, and the technician records no distress observed.
Bulk	100% of base cap	All stabilisation gates pass and more than 20% of the original excess reading remains above the entered unaffected dry standard.
Equalising	50% of base cap	More than 0% but no more than 20% of the original excess reading remains.
Ready to verify	50% of base cap	Latest linked reading is at or below the entered unaffected dry standard. This is not automatic completion.
Blocked	0% unattended control	Latest inspection records distress, or the material profile requires pack-out or specialist control.

For mixed rooms, every selected material is evaluated independently. The lowest current hourly cap and the lowest current 24-hour cap govern the room. A material in stabilisation can therefore slow another material that is already in bulk drying. Any blocked selected material blocks unattended automation for the room.

Exact controlled-material settings

Each stage cell shows hourly cap / 24-hour cap, followed by the controller's 90% OFF threshold in brackets.

Material selected in app	Temperature and RH control	Assessment / stabilising	Bulk drying	Equalising / verify
Solid Hardwood	27 C max; 35% floor; 40% target; 45% restart	1.0 / 5.0 (OFF 0.9 / 4.5)	2.0 / 10.0 (OFF 1.8 / 9.0)	1.0 / 5.0 (OFF 0.9 / 4.5)
Engineered Timber	30 C max; 35% floor; 40% target; 45% restart	1.0 / 5.0 (OFF 0.9 / 4.5)	2.0 / 10.0 (OFF 1.8 / 9.0)	1.0 / 5.0 (OFF 0.9 / 4.5)
Carpet & Underlay	32 C max; 30% floor; 35% target; 45% restart	2.5 / 10.0 (OFF 2.25 / 9.0)	5.0 / 20.0 (OFF 4.5 / 18.0)	2.5 / 10.0 (OFF 2.25 / 9.0)
Carpet - Synthetic	38 C max; 30% floor; 35% target; 45% restart	4.0 / 15.0 (OFF 3.6 / 13.5)	8.0 / 30.0 (OFF 7.2 / 27.0)	4.0 / 15.0 (OFF 3.6 / 13.5)
Vinyl / LVT	35 C max; 35% floor; 40% target; 48% restart	2.5 / 10.0 (OFF 2.25 / 9.0)	5.0 / 20.0 (OFF 4.5 / 18.0)	2.5 / 10.0 (OFF 2.25 / 9.0)
Concrete Slab	45 C max; 30% floor; 35% target; 45% restart	2.5 / 10.0 (OFF 2.25 / 9.0)	5.0 / 20.0 (OFF 4.5 / 18.0)	2.5 / 10.0 (OFF 2.25 / 9.0)
Concrete - Bare	45 C max; 25% floor; 35% target; 45% restart	4.0 / 15.0 (OFF 3.6 / 13.5)	8.0 / 30.0 (OFF 7.2 / 27.0)	4.0 / 15.0 (OFF 3.6 / 13.5)
Tiles / Grout	40 C max; 30% floor; 35% target; 45% restart	4.0 / 15.0 (OFF 3.6 / 13.5)	8.0 / 30.0 (OFF 7.2 / 27.0)	4.0 / 15.0 (OFF 3.6 / 13.5)
Plasterboard - Standard	38 C max; 25% floor; 28% target; 35% restart	4.0 / 15.0 (OFF 3.6 / 13.5)	8.0 / 30.0 (OFF 7.2 / 27.0)	4.0 / 15.0 (OFF 3.6 / 13.5)
Plasterboard - Moisture Resistant	38 C max; 25% floor; 28% target; 35% restart	5.0 / 17.5 (OFF 4.5 / 15.75)	10.0 / 35.0 (OFF 9.0 / 31.5)	5.0 / 17.5 (OFF 4.5 / 15.75)

Material selected in app	Temperature and RH control	Assessment / stabilising	Bulk drying	Equalising / verify
Plasterboard - Fire Rated	35 C max; 25% floor; 28% target; 35% restart	3.0 / 12.5 (OFF 2.7 / 11.25)	6.0 / 25.0 (OFF 5.4 / 22.5)	3.0 / 12.5 (OFF 2.7 / 11.25)
Timber Frame	32 C max; 30% floor; 35% target; 45% restart	2.5 / 10.0 (OFF 2.25 / 9.0)	5.0 / 20.0 (OFF 4.5 / 18.0)	2.5 / 10.0 (OFF 2.25 / 9.0)
Brick - Modern Fired	40 C max; 35% floor; 40% target; 48% restart	2.5 / 9.0 (OFF 2.25 / 8.1)	5.0 / 18.0 (OFF 4.5 / 16.2)	2.5 / 9.0 (OFF 2.25 / 8.1)
Render - Cement	35 C max; 40% floor; 43% target; 50% restart	2.5 / 9.0 (OFF 2.25 / 8.1)	5.0 / 18.0 (OFF 4.5 / 16.2)	2.5 / 9.0 (OFF 2.25 / 8.1)
Plaster - Decorative	30 C max; 40% floor; 43% target; 50% restart	1.0 / 4.0 (OFF 0.9 / 3.6)	2.0 / 8.0 (OFF 1.8 / 7.2)	1.0 / 4.0 (OFF 0.9 / 3.6)

Profiles that block unattended structural-room control

Material selected in app	App disposition	Numeric review parameter	Required action
Plasterboard	Specialist required	None	Select Standard, Moisture Resistant, or Fire Rated and assess salvageability.
Brick / Masonry	Specialist required	None	Select modern fired brick or obtain a masonry/heritage assessment.
Plaster / Render	Specialist required	None	Identify cement render, decorative plaster, or lime/heritage construction.
Brick - Heritage Soft	Specialist required	1.5 pp/h and 5 pp/24h for review only	Obtain an approved heritage drying plan. App remains blocked.
Plaster - Lime / Heritage	Specialist required	1.0 pp/h and 4 pp/24h for review only	Obtain an approved conservation drying plan. App remains blocked.
Upholstery / Fabric	Pack-out required	5 pp/24h review parameter only	Pack out or isolate; fabric, foam and leather cannot share one structural-room rate.
Paper / Documents	Pack-out required	5 pp/24h review parameter only	Air-dry a manageable quantity correctly, freeze/freeze-dry as appropriate, or use a preservation specialist.
Artwork / Canvas	Specialist required	3 pp/24h review parameter only	Isolate and obtain conservator direction. Do not direct room-drying airflow at artwork.

Plasterboard-specific operating decision

Plasterboard is not automatically salvageable. CSR Gyprock generally recommends replacing substantially wet plasterboard. Minor exposure may be dried and then inspected for deterioration or warping. GIB guidance says remediation must also consider water category, physical damage, wet

insulation and underlying framing; framing should be verified at 18% moisture content or less before repair or replacement work.

The app therefore does not accelerate plasterboard because a timer expires. It only changes Standard, Moisture Resistant, or Fire Rated board from the 50% stabilisation cap to the full bulk cap when:

1. The exact subtype is saved.
2. A linked baseline and unaffected comparative reading are recorded on the same meter scale.
3. A second linked reading is taken at least 6 hours later.
4. The material reading is falling.
5. The latest inspection records no distress.
6. No other selected material imposes a slower current cap.

The app returns to the 50% equalisation cap when no more than 20% of the original excess reading remains. It does not mark the material complete automatically.

Evidence and limitations

The primary sources support prompt extraction, dehumidification, ventilation, material inspection, comparative material readings, substrate testing, salvage/replacement decisions, and controlled treatment of sensitive contents. They do **not** validate the MCA percentage-point-per-hour values as universal damage limits.

1. [CSR Gyprock - Plasterboard Maintenance](#): substantially wet board is generally replaced; minor exposure must dry and be inspected.
2. [GIB - Assessing and Remediating Water Damage to Plasterboard Linings](#): assessment, removal and drying guidance; underlying timber framing at 18% moisture content or less before repair/relining.
3. [US EPA - Water Damage Cleanup and Mold Prevention](#): material-specific response within 24-48 hours; wallboard may dry in place only when swelling is absent and seams remain intact.
4. [AS-IICRC S500 publication notice](#): confirms the Australian standard covers building/material science, psychrometry and drying technology. The full standard must be consulted for formal work.
5. [US Forest Service - Drying and Control of Moisture Content](#): wood schedules change by species, thickness and measured moisture stage; kiln schedules are not transferable as universal room-restoration RH rates.
6. [ARDEX Australia - Moisture Barrier Systems](#): concrete moisture must be tested and interpreted for the intended flooring system; apparent surface dryness is insufficient.
7. [AICCM - Flood Recovery Guidelines](#): sensitive collections require item-specific air drying, support, isolation or specialist treatment; direct heat and direct fan exposure can damage items.
8. [US National Archives - Wet Records](#): cool air drying for manageable quantities; avoid high heat/harsh sunlight and freeze or refer quantities that cannot be handled within 48 hours.

9. [Canadian Conservation Institute - Environmental Guidelines for Paintings](#): paintings require controlled, gradual environmental change and material-specific conservation judgment.

Field-use approval and deployment record

Before unattended field use:

1. MCA's nominated restoration specialist must approve or replace every provisional base cap and staged factor.
2. Migrations `0006_history_aware_drying.sql` and `0007_material_drying_stages.sql` were applied before production deployment on 22 July 2026; their schema checks remain part of release verification.
3. The controller must run in shadow mode against recorded jobs, followed by supervised field canaries.
4. Equipment power-state confirmation, sensor freshness, distress observations and drying-stage changes must be reviewed in the per-job drying log.
5. Any manufacturer, project or specialist limit entered for a job overrides this register.