

GENERAL GUIDELINES

Temperature and Humidity of Construction Materials

This guide shares recommended temperature, relative humidity, and moisture content ranges to support proper material performance during construction. Guidelines are for general reference only, as conditions and requirements vary by project.

RECOMMENDED TEMPERATURE & HUMIDITY BY CONSTRUCTION PHASE

Construction Phase	Temperature	Relative Humidity	Notes
Site Prep & Foundation	Ambient (monitor extremes)	N/A	Ensure proper drainage; avoid water accumulation.
Structural Framing	50°F-90°F	< 60%	Protect timber and framing materials from warping or mold.
Enclosure & Envelope	60°F-80°F	40%-60%	Seal building envelope; install vapor barriers and flashing.
Interior Build-Out	65°F-75°F	40%-55%	Stable conditions for drywall, flooring, cabinetry.
MEP Systems Installation	65°F-75°F	40%-55%	HVAC systems must be tested under controlled conditions.
Finishes & Furnishings	68°F-72°F	40%-55%	Critical for paint, adhesives, and medical-grade finishes.
Commissioning	68°F-72°F	40%-55%	Simulate operational conditions; verify HVAC and infection control.

TYPICAL RANGES BY SUBSTRATE

Substrate	Temperature	Relative Humidity
Dry wall	50 - 60 F	50% - 40%
Concrete	50 - 70 F	50% - 70%
Gyprete	70 - 80 F	40% - 60%
Finishes	65 - 75 F	35% - 55%

PRO TIP

Always consult manufacturer and specification requirements for recommended conditions for all products before you start the project and especially before enclosure, coating, or finish installation.

MOISTURE CONTENT

Material	Moisture Content	Notes
Mass Timber (CLT, Glulam, NLT)	12% -16% WMC	
Wood Blocking, Framing, or Millwork	6 - 10% WMC 60° - 90°F Temp 30% - 55% RH	Wood Institute 06-2ND AWS Section 2
Concrete Slabs & Substrates	75% RH or lower, ASTM F2170 (drill a hole, cap it, measure cavity)	Older test method: Calcium chloride test range 3-5lbs, ASTMF1869
Structural Steel (Surface Prep)	Dew point spread of min 5°F	Using surface probe ISO 8502-4

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TYPICAL RANGES BY INTERIOR FINISH

Interior Finish	Temperature (°F)	Relative Humidity (%)	Notes
Millwork / Casework	60°F – 80°F	30% – 50%	AWI 200 standard; RH must remain within range for no more than 24 hrs outside limits.
Wood Veneer Panels	60°F – 80°F	30% – 50%	Sensitive to RH fluctuations; prone to warping.
Solid Wood Trim	60°F – 80°F	30% – 50%	Moisture content must be stable before install.
Laminate Surfaces	60°F – 90°F	30% – 55%	Substrate (often wood) still sensitive to RH changes.
Acoustic Ceiling Panels	60°F – 85°F	30% – 60%	RH affects sagging and dimensional stability.
Gypsum Wallboard	≥ 55°F	≤ 60% during drying phase	Lower RH accelerates drying; avoid below 30% to prevent cracking.
Flooring (Wood)	60°F – 80°F	35% – 55%	Acclimatize flooring to site conditions before install.
Flooring (Resilient/Vinyl)	≥ 65°F	≤ 75%	Manufacturer specs vary; consult product data sheets.
Carpet (Broadloom/Tile)	≥ 65°F	40% – 60%	RH affects adhesive curing and backing stability.
Wallcoverings (Vinyl/Textile)	≥ 60°F	40% – 60%	RH affects adhesion and dimensional stability.
Paint & Coatings	≥ 50°F	≤ 70%	RH affects drying time and finish quality.
Tile (Ceramic/Porcelain)	≥ 50°F	≤ 70%	RH affects mortar and grout curing.
Glass Partitions	No strict temp range	≤ 60%	RH affects sealant and adhesive performance.
Metal Panels / Trim	No strict temp range	≤ 60%	RH affects corrosion risk and adhesive bonding.

REFERENCES:

- [Armstrong Ceilings – Installation Guidelines](#)
- [AWI 200](#)
- [AWI QCP – Temperature & Humidity Standards](#)
- [NWFA – Wood Flooring](#)
- [USG – Gypsum Board Technical Guide](#)
- [Wood Institute](#)

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