



ASTM F2659 Moisture Meter Checklist

Preliminary Evaluation of Comparative Moisture Condition

– Concrete & Floor Slabs

(Based on ASTM F2659 Guide)

It is highly recommended that you obtain your own copy of ASTM F2659 at

<https://store.astm.org/f2659-10r15.html>

1. Instrument Verification

- ☐ Select an electronic, non-destructive moisture meter designed for concrete slabs.
- ☐ Confirm that the meter and method **conform to ASTM F2659 principles** (non-destructive electronic impedance or similar).

2. Calibration & Evaluation of Measurement Conditions

- ☐ Verify manufacturer **calibration documentation** is available.
- ☐ Ensure moisture **meter is calibrated** per manufacturer and ASTM guidance.
- ☐ Conduct a **pre-use functional check** (zero/standard reference or dry surface comparison).
- ☐ Meter must be allowed to **equilibrate to jobsite environment**.
- ☐ Note any conditions that may **skew meter response** (metallic objects, rebar proximity, chemical additives, surface texture).

3. Ambient and Site Conditions

- ☐ Slab and occupied air space at service conditions ≥ 48 hours
- ☐ **Artificial drying equipment** turned off ≥ 96 hours
- ☐ Measure and record **ambient air temperature**.
- ☐ Measure and record **ambient relative humidity**.
- ☐ Measure and record **dew point temperature**.
- ☐ Measure and record slab surface temperature **within 8 in. (200 mm)** of test areas.

4. Test Area Preparation

- ☐ Ensure testing is not conducted in direct sunlight or near heat sources.
- ☐ Identify and document test **locations across slab surface**.
- ☐ Map grid or targeted points (wet/dry transitions) with distances (e.g., meters/ft).
- ☐ Clean and prep slab surface where meter contacts are needed.

NOTE: ASTM F2659 requires a **minimum number of test locations:**

- 8 tests per first 1,000 ft²
- 5 additional tests per additional 1,000 ft²
- Distribute tests across the slab, including near exterior walls and central areas.

5. Comparative Moisture Measurements

Perform measurements systematically across the slab:

- ☐ Place meter on slab surface **according to manufacturer's instructions**.
- ☐ Hold or sweep consistently (time, pressure, position).
- ☐ Allow readings to **stabilize** before recording.
- ☐ Take **multiple readings** per location (3–5 readings per location; record the **highest reading**).
- ☐ Record required information **in the charts below**.

(NOTE: ASTM F2659 targets relative moisture comparison in the upper 1.0 inch of the slab.)

6. Data Recording & Comparative Analysis

- ☐ Use a **site diagram or grid map** (shown below) to plot moisture values.
- ☐ **Identify highest** relative moisture “hotspots.”
- ☐ Consider **relative trends** (higher vs lower moisture) rather than absolute criteria.

7. Report Preparation

- ☐ Compile a complete moisture evaluation report **using the charts below**.

8. Interpretive Notes and Recommended Documentation:

ASTM F2659 is a **preliminary, comparative evaluation** and requires interpretation.

- ☐ Confirm that moisture readings are **comparative** in nature and **do not** represent absolute moisture content.

NOTE: ASTM F2659 does not establish pass/fail criteria; however, **some flooring manufacturers** permit non-destructive moisture meter readings to be used for installation approval under their own specifications.

- ☐ Prioritize **highest** readings and identify areas of significant variation that may indicate elevated moisture conditions.
- ☐ Recognize that acceptable surface readings **do not** ensure acceptable moisture conditions **deeper within the slab**.
- ☐ Use **comparative moisture patterns** to determine whether additional quantitative testing is warranted, including ASTM F2170 in situ relative humidity probes and ASTM F1869 calcium chloride test.
- ☐ Document the rationale for recommending further testing based on observed moisture trends.
- ☐ Attach site diagrams, photographs, or sketches to support interpretation and documentation where applicable.

9. Final Review & Storage

- ☐ Ensure testing is not conducted in direct sunlight or near heat sources.
 - ☐ Identify and document test locations across slab surface.
 - ☐ Map grid or targeted points (wet/dry transitions) with distances (e.g., meters/ft).
 - ☐ Clean and prep slab surface where meter contacts are needed.
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Comparative Moisture Testing of Concrete Floor Slab Using Non-Destructive Moisture Meter Method

Test Location ID	Location Description (Grid / Room / Area)	# of Readings Taken (3–5)	Highest Comparative Moisture Reading (%)	Slab Surface Temp (°F / °C)	Air Temp (°F / °C)	Air RH (%)	Dew Point (°F / °C)	Notes / Observations

Instrument Used

Make, Model, Serial Number	Date of Last Calibration

Tests Performed By

Company, Name, Address

ASTM Reminder:

Record the **highest reading** from each test location. Multiple readings (3–5) should be taken within approximately **1 ft²** at each location.

[illegible]

Slab & Site Observations

(Required by ASTM F2659)

Observation	Notes
Slab Thickness (if known)	
Approximate Slab Age	
Evidence of Standing Water	☐ Yes ☐ No
Evidence of Condensation	☐ Yes ☐ No
Evidence of Flooding or Water Damage	☐ Yes ☐ No
Vapor Retarder Present	☐ Yes ☐ No ☐ Unknown
HVAC Operating During Test	☐ Yes ☐ No
Weather Conditions (if relevant)	
Presence of Rebar / Metallic Objects	☐ Yes ☐ No
Chlorides, Additives, or Special Mixes Noted	☐ Yes ☐ No
Service Conditions Verified (48 hours prior to testing)	☐ Yes ☐ No
Artificial Drying Turned Off at Least 96 Hours Prior to Testing	☐ Yes ☐ No
Vapor Retarder Present	☐ Yes ☐ No ☐ Unknown

Interpretation & Next-Step Actions

Item	Indication
Areas of Elevated Comparative Moisture Identified	☐ Yes ☐ No
Areas Flagged for Additional Quantitative Testing (F2170 RH probes or F1869 CaCl tests)	☐ Yes ☐ No
Recommended Follow-Up Quantitative Testing	☐ ASTM F2170 ☐ ASTM F1869 ☐ Other
Notes on Moisture Distribution	

NOTE: ASTM F2659 is a *guide* for non-destructive comparative moisture evaluation using a properly calibrated electronic moisture meter. It *does not provide quantitative pass/fail criteria* for slab readiness; that requires further testing methods unless specifically noted as acceptable by manufacturer (e.g., F1869, F2170).

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