

[BLOCK BITE]

MOISTURE CONTROL

for Concrete Masonry Wall Construction

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Effective moisture control in concrete masonry unit (CMU) walls requires the integration of quality materials, precise detailing and proper workmanship. The coordinated use of Integral Water Repellents (IWR) in both block and mortar, along with flashing, weeps, joint tooling, and breathable coatings, prevents water intrusion, promotes drying and ensures long-term durability.

Moisture management is not a single product but a system that must be specified and constructed correctly.

WHY MOISTURE CONTROL MATTERS

Moisture control is a critical part of every wall system. Moisture by itself has no detrimental impact on concrete masonry; however, excessive moisture that is allowed to accumulate within a masonry assembly can cause issues.

Proper moisture control leads to:

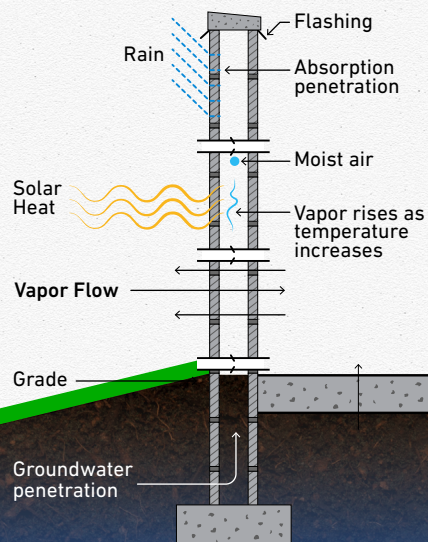
- ✓ Less maintenance
- ✓ Consistent aesthetics
- ✓ Long-term durability

CONCRETE MASONRY STRUCTURES PERFORM BEST
WHEN THEY ARE ALLOWED TO BREATHE.

SOURCES OF MOISTURE INCLUDE:

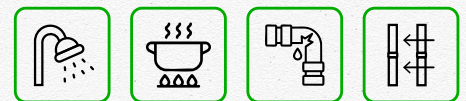
Exterior:

Rain penetration, leakage at penetrations or fenestrations, roof or transition leaks, groundwater exposure, and vapor drive.

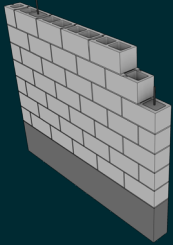


Interior:

Everyday activities (cooking, showering), plumbing/mechanical leaks, and interior-to-exterior vapor drive.



KEY MOISTURE CONTROL STRATEGIES



1. Single-Wythe Systems

Detailed either as:

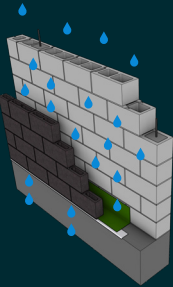
Barrier wall: Solid grouted assemblies preventing air and water flow through the wall.

Rely on wall thickness, Integral Water Repellent (IWR) and vapor-permeable coatings.

When IWR is needed, it should always be specified in both the block AND the mortar, ensuring uniform performance.

OR

Drainage wall: Incorporate flashing and weeps to redirect moisture outward.



2. Multi-Wythe Systems

Cavity Design: Typically 1–2 inches wide air space (not including insulation) and unobstructed space for water flow.

Weeps: Essential for drainage; must remain free of mortar debris.

Includes drainage cavities that are detailed to collect and divert moisture to the exterior.

Vents: Promote drying by increasing air circulation within the cavity.

Flashing: Captures moisture traveling down the drainage space and directs it outward.

FOR EXTERIOR SURFACES, ALWAYS USE BREATHABLE SURFACE TREATMENTS TO ALLOW ANY MOISTURE ON THE INSIDE OF THE WALL TO EVAPORATE.

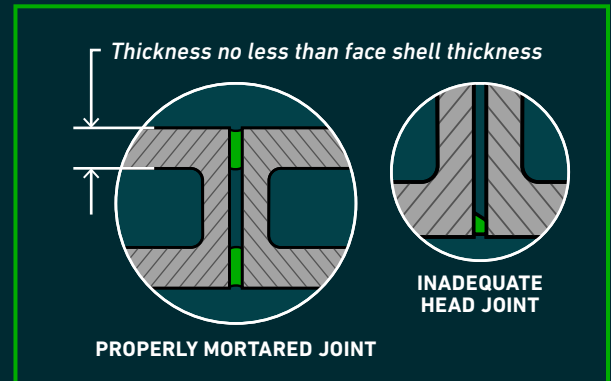
WORKMANSHIP CONSIDERATIONS

Quality installation is as important as design. Common failures stem from poor execution.

Joint Tooling: Concave or V-shaped profiles compact mortar, reduce porosity and resist water penetration.

Mortar Stops: Prevent clogging of weeps by catching debris, allowing other moisture control features to operate as intended.

Mortar Coverage: Mortar bed and head joints should cover the entire area of the face shell thickness. Incomplete mortar joints create pathways for water to enter the wall system.



BEST PRACTICE FOR CMU MOISTURE CONTROL:

Do not add unnecessary membranes (WRB, air barrier, vapor barrier, finishes, etc.) or finishes, as too many layers can trap moisture within the assembly.

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References:

CMHA TEK 19-01: Water Repellents for Concrete Masonry Walls
CMHA TEK 19-02B: Details for Concrete Masonry Walls
CMHA TEK 19-07: Characteristics of CMUs with Integral Water Repellent
CMHA TEK 06-17B: Condensation Control in Concrete Masonry Walls
CMHA TEK 19-03B: Preventing Water Penetration in Below-Grade CM Walls
CMHA TEK 19-04A: Flashing Strategies for CM Walls
CMHA TEK 19-05A: Flashing Details for CM Walls
CMHA TEK 19-06A: Design for Moisture Resistance in CM Assemblies

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