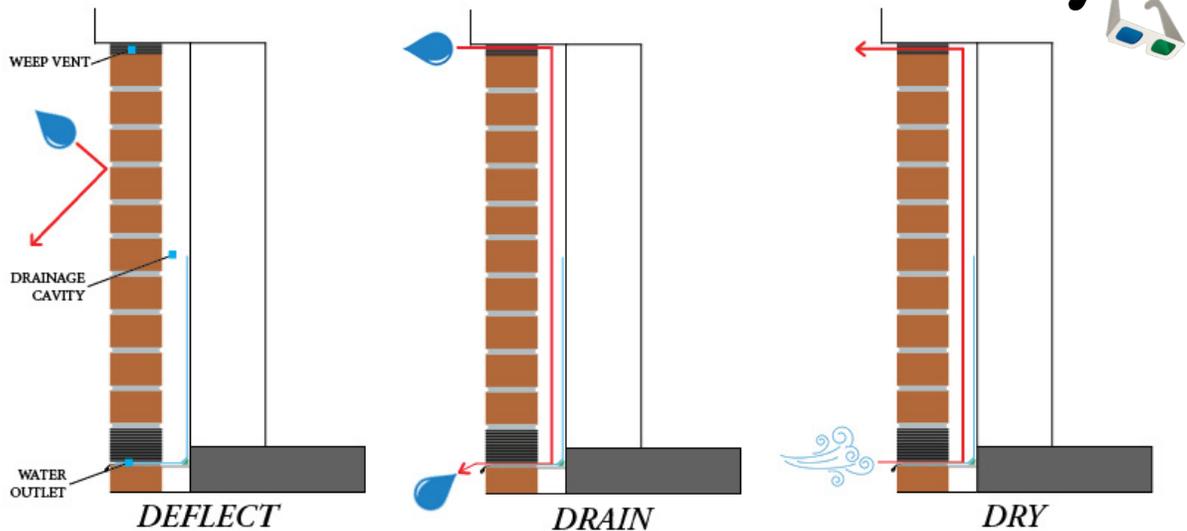


3D's: Deflect, Drain, Dry



Since the 1920s, masonry cavity walls have been used to save money and speed construction compared to building mass masonry walls. The cavity walls utilize the 3-D system for moisture management. Deflect, Drain, and Dry:

Deflect

Brick masonry veneers play a crucial role in protecting buildings from water infiltration, serving as the first line of defense against bulk water penetration by deflecting bulk water away from the interior of the structure. Properly grouted joints and careful detailing around penetrations will significantly enhance the effectiveness of this veneer system in keeping water out.

Drain

If water penetrates the veneer, the cavity wall is engineered to provide a designated space for the water to descend until it reaches the flashing.

Through-wall flashing catches the water in the wall and directs it to the exterior through weep vents.

Dry

An air cavity with weep vents to use the air flow to dry the cavity. Properly placed weep vents are essential for allowing water trapped in the cavity wall to escape. A mortar collection device is necessary to collect any excess mortar droppings that could potentially cause issues inside the cavity wall.

Cavity walls utilize the 3-D system effectively, helping us maintain a dry interior in our buildings. Things that we can do to help:

- **Design:** Utilize brick ledges and drip edges to get bulk water draining away from the wall. Inset fenestrations to minimize exposure to bulk water.

- **Longevity:** Using flashings that will perform as intended and last the life of the wall is a critical design decision.

- **Clean cavity:** Minimize mortar droppings and utilize mortar deflection nettings to help keep the water flowing down and the air flowing to remove residual moisture.



Understanding the Different Types of Masonry Weeps: Benefits and Limitations

In the construction of cavity walls, a crucial aspect is the evacuation of water that infiltrates the walls. Masonry cavity walls employ "weeps," a variety of devices designed to drain water. Choosing the right weep can significantly impact the integrity and functionality of a wall. All weeps should be placed directly on the masonry flashing to promote drainage; there should be a slight mortar bed to help the water flow to the weep, and weeps should always be at least six inches above grade.

Here's an overview of the different types of weeps available, along with their advantages and drawbacks:

Open Joint: By omitting mortar between bricks over 24 inches, the method allows water to exit freely, and it's cost-effective since it involves no additional materials. However, it has the significant downside of permitting entry to small animals such as mice, bats and squirrels, which can nest within the wall and potentially invade the building.

Rope Wicks: Utilizing cotton rope (poly and nylon ropes are not allowed) to absorb and expel water at intervals of 16 inches, rope wicks were once more common but have seen less use over the last two decades. The main concern with rope wicks are the lack of air circulation, leading to a non-vented cavity and the eventual perforation of the cotton, which stops the wicking action and creates a water dam effect.

Weep Tubes: These are plastic tubes inserted through the mortar to channel water outside, typically placed every 16 inches. Weep tubes generally provide minimal airflow and are prone to clogging, often becoming blocked before construction is completed. Some weep tubes include cotton rope liners to prevent clogging, but these too can perish over time, halting drainage and not supporting wall drying.



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