DUCERE CONSTRUCTION SERVICES — TECHNICAL BRIEF

Basement Waterproofing: The 5-Layer System

Why most basement leaks start at one seam — and the five layers that stop them

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THE 5-LAYER SYSTEM AT A GLANCE

① **Seal the footing joint** — interior waterproofing where the wall meets the footing, before framing.

② **Coat the exterior wall** — a continuous membrane barrier before backfill.

③ **Slope the grade away** — 6" of fall over the first 10 feet.

④ **Manage gutters** — sized right, discharging 5–10 ft clear of the foundation.

⑤ **Control humidity** — dehumidification tied into the HVAC system, holding ~50% RH.

The most common — and easiest to fix — entry point for basement water is the seam where the foundation wall sits on the footing. Most homeowners assume a leaky basement means a cracked wall. In practice, the majority of water intrusion traces back to that one joint, and it's also the easiest place to protect correctly — if it's addressed before the walls are framed and finished.

Basement waterproofing is a system, not a product. Five layers work together: interior sealing at the footing joint, exterior wall coating, site grading, gutter and drainage management, and long-term humidity control. Skip any one layer and the others are working overtime to compensate. Below, we walk through each layer using photos from an active Ducere foundation.

1. Where Water Actually Gets In: The Wall-to-Footing Joint

A foundation wall sits on a separately poured footing, and that seam — called a cold joint — is a natural crack plane. **It sits at the lowest point of the foundation, exactly where hydrostatic pressure from groundwater is highest.** Water follows the path of least resistance, and this joint is that path.

Fig. 1 — Interior wall-to-footing joint sealed with a cementitious waterproof coating before framing begins, carried up the wall and out across the footing so no seam is exposed. **Why it matters: this joint is where most basement leaks start — sealing it while the walls are open is the single highest-value waterproofing step in the entire build.**

Before any framing goes in, Ducere crews apply a cementitious waterproof coating as a continuous cove that laps both surfaces — up the wall and out across the footing — leaving no exposed seam anywhere along the perimeter. **This has to happen while the joint is fully accessible.** Once framing, insulation, and finishes go up, the seam is permanently hidden — which is exactly why it's the step that gets skipped on lower-quality builds.

Fig. 2 — A Ducere crew member brushing the cementitious cove coating up from the slab, applying it in the same continuous pass described above so the wall and floor surfaces lap without a gap. **Why it matters: hand-brushing the cove, rather than rolling it on flat, is what actually gets full coverage into the corner where the wall meets the floor — the exact spot Fig. 1 shows finished.**

Why Timing Matters

Waterproofing the footing joint is a **"now or never" step.** There is no retrofit that performs as well once walls are closed in. Every basement finishing schedule should treat it as a hard prerequisite, not an optional add-on.

> **The cost of getting it wrong:** fixing water intrusion after a basement is finished means tearing out drywall, flooring, and trim to reach the seam — a repair that commonly runs into five figures once finishes and contents are damaged. Sealing the joint while the walls are open costs a small fraction of that, which is why Ducere treats it as baseline, not an upgrade.

2. Waterproofing the Exterior Wall

The exterior face of the foundation wall does the bulk of the day-to-day work: keeping bulk water out **before it ever reaches the wall.** A fully coated exterior wall — parged, primed, and finished with a waterproof membrane — forms a continuous barrier against soil moisture for the life of the structure.

Fig. 3 — Exterior CMU foundation wall fully coated with a waterproof membrane, photographed before backfill and framing. **Why it matters: once soil goes against this wall, the coating is on duty with zero margin for missed spots — Ducere applies it while every square foot is exposed and inspectable.**

The coating is applied while the wall is fully exposed and **before backfill goes against it.** Combined with a footing drain and gravel or drain-board system where soil conditions call for it, this exterior layer is the primary defense against hydrostatic pressure pushing water toward the house.

3. Grade the Site to Move Water Away

No coating outperforms gravity working against you. If the finished grade slopes toward the house, water pools at the foundation and stays there — under constant pressure against every seam, coated or not.

- • Final grade should fall away from the foundation at a minimum of **6 inches of drop over the first 10 feet** (roughly a 5% slope).
- • Backfill must be compacted properly — loose backfill settles and can reverse the slope over time.
- • Landscaping beds and mulch against the foundation should never trap water against the wall.

4. Gutters and Downspout Discharge

A roof without functioning gutters dumps its entire rainfall collection in a concentrated line right at the foundation — often the single largest volume of water a foundation sees in any storm. Gutters aren't cosmetic; they're part of the waterproofing system.

• Gutters must be sized for the roof area and kept clear of debris.

• Downspouts should discharge **at least 5–10 feet away from the foundation** — not onto splash blocks that just relocate the puddle.

• On flat sites, tie downspouts into a piped drainage system that carries water to a daylight discharge point or dry well.

5. Humidity Control: The Layer Everyone Skips

MYTH A waterproofed basement is a dry basement — no dehumidifier needed.

REALITY Concrete is porous and continues releasing moisture for years, and below-grade spaces condense water out of the air even with zero leaks. Dehumidification isn't optional — it's the fifth layer of a correctly designed system.

Even a flawless bulk-water system can still develop mold, musty odors, and moisture damage. Below-grade spaces run cooler than the rest of the house, and cooler air holds less moisture before it condenses — right on your framing, insulation, and drywall.

The fix: Ducere specifies a dedicated dehumidifier tied into the basement's HVAC ductwork (or a standalone ducted unit sized to the space), set to hold relative humidity around **50%**. This addresses the moisture that bulk-water waterproofing was never designed to handle.

The Five-Layer Basement Waterproofing System

1. **Interior wall-to-footing joint sealed** with a cementitious waterproof coating, before framing.
2. **Exterior wall fully coated** with a waterproof membrane before backfill, paired with footing drainage where soil conditions require it.
3. **Finish grade sloped away** from the foundation — minimum 6" of fall over the first 10 feet.
4. **Gutters and downspouts** sized correctly and discharging well clear of the foundation.
5. **Dedicated dehumidification** tied into the HVAC system, maintaining basement relative humidity near 50%.

What About an Existing Finished Basement That's Leaking?

If your basement is already finished and taking on water, not all is lost — but the fix is more invasive than doing it right the first time. Ducere also performs targeted retrofits, including interior perimeter drainage, sump pump systems, and wall vapor barriers. **The earlier the intervention, the less finish work has to come out.** Contact us for an assessment before the problem compounds.

Any one of these layers can fail quietly for years before the damage shows up as a wet carpet, a musty smell, or an efflorescence stain on a finished wall. **Ducere builds all five into every foundation from the**

start — not as an upsell after a problem appears, but as the baseline standard for how a basement should be built.

Built Right the First Time

Planning a basement build or finishing project? Get the five-layer system designed in from day one.

Call (404) 565-0631 · Email Ducere · www.koredeakinbami.com

Foundations That Last.
Ducere Construction Services, Inc.
5925 Mulberry Street, Austell, GA 30168
(404) 565-0631 | www.koredeakinbami.com