
ARCHITECTURAL JUDO
Harnessing Hydrostatic Physics for Dynamic Flood Mitigation
info@domistat.com

THE STATIC VULNERABILITY

Traditional flood defense relies on an arms race of mass and weight. But against the relentless, compounding force of rising water, rigid barriers eventually yield.

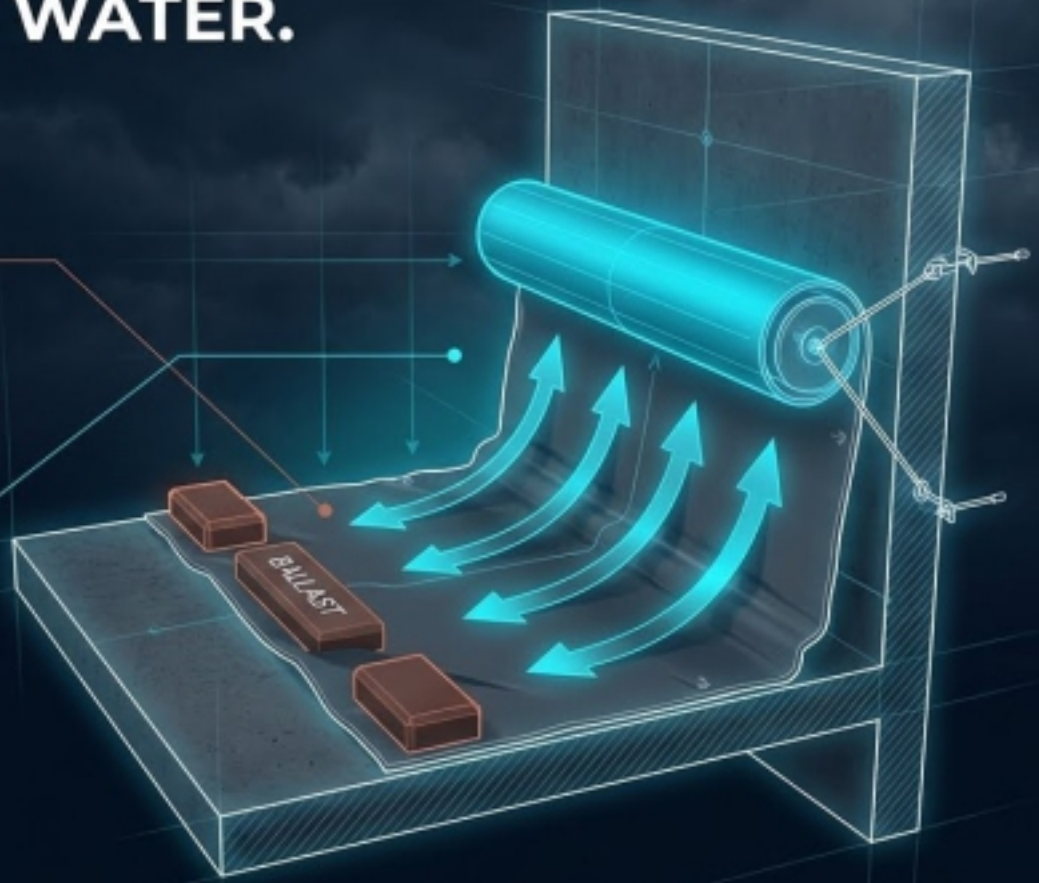
DON'T FIGHT THE WATER. HARNESS IT.

THE FLAW

Static weight is easily bypassed by dynamic fluid dynamics.

THE SHIFT

The Wall Float system allows the rising water level to physically power its own defensive barrier. As water rises, the seal strengthens.



THE TRIPARTITE ENGINE

ZONE 2:
THE BUOYANCY ELEMENT

Rises with the water to create dynamic vertical tension.

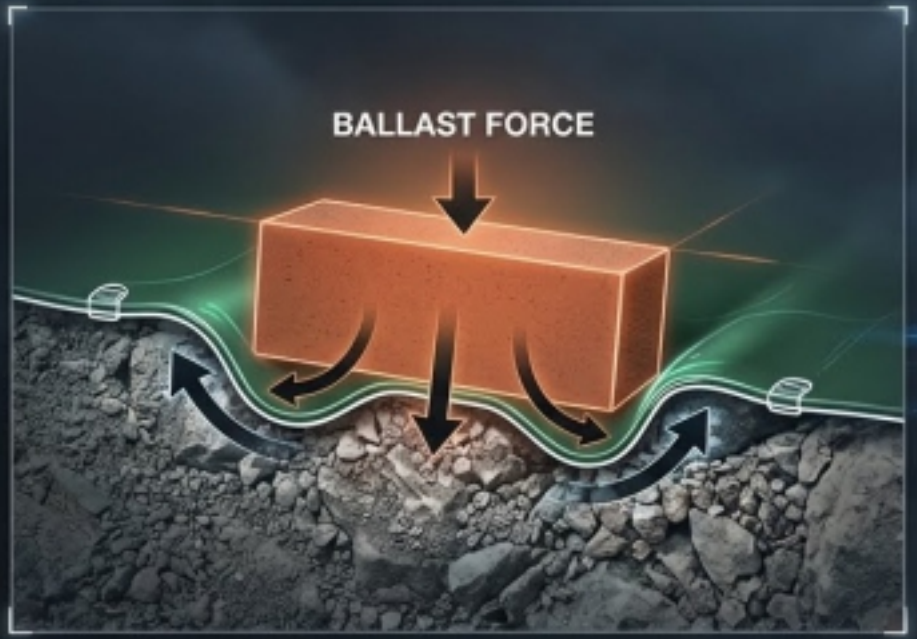
ZONE 3:
THE INITIAL BALLAST

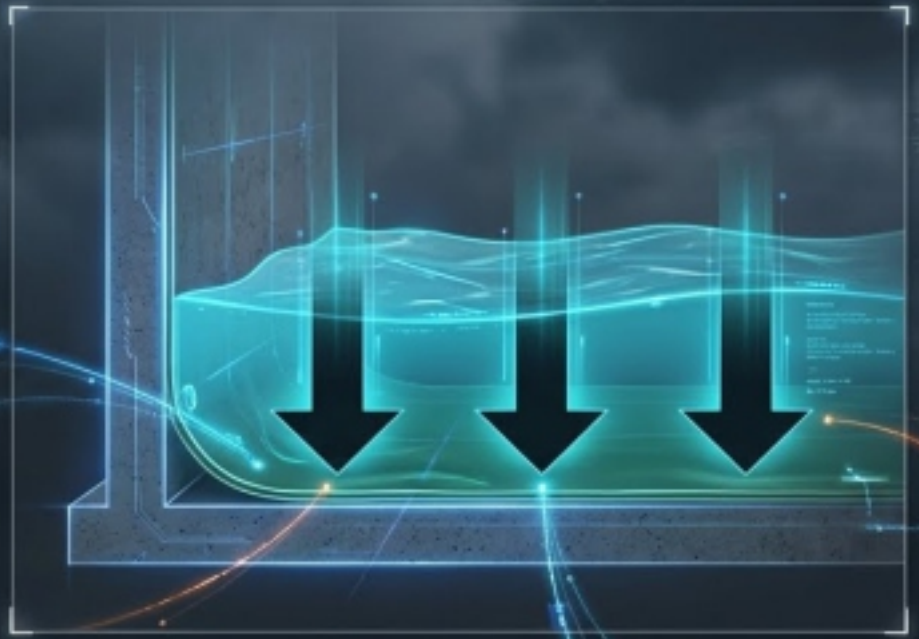
Non-floating weights that establish the foundational ground seal before water pressure takes over.

ZONE 1:
THE MEMBRANE

Flexible, waterproof tarpaulin equipped with securing eyelets.

FORCE DYNAMICS: HYDROSTATIC GROUND SEAL





UNEVEN TERRAIN

Flexible Tarp + Initial Ballast = Conforming, pressure-activated seal on irregular substrates. Water cannot tunnel underneath.

PRESSURE ACTIVATION

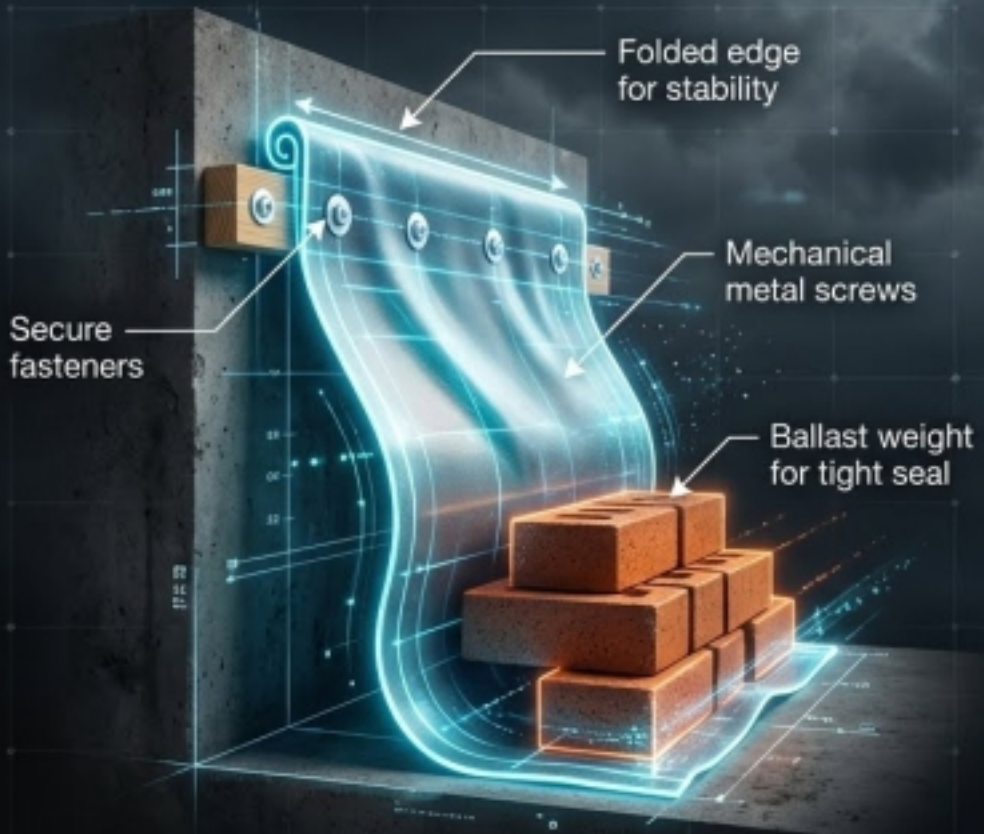
Once submerged, the immense downward weight of the floodwater takes over, locking the membrane to the earth. The higher the water, the tighter the ground seal.

FORCE DYNAMICS: BUOYANT TENSION

$$F_B > F_T$$

As hydrostatic pressure pushes horizontally against the wall, the buoyancy element (F_B) fights to float upward. Because it is tethered to the eyelets, this upward fight creates immediate, aggressive tension (F_T), pulling the tarp flush and watertight against the vertical structure.

THE TRADITIONAL METHOD: STATIC DEFENSE

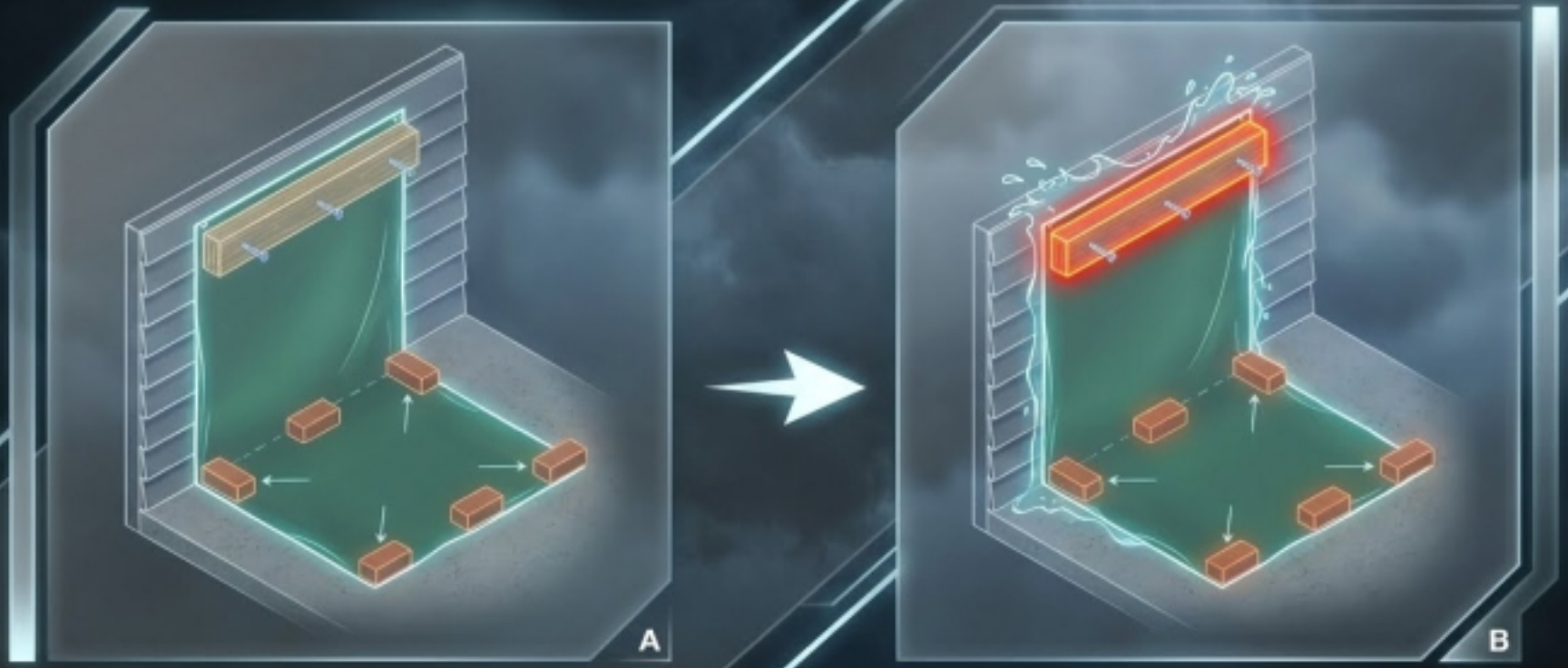


1	2	3
Waterproof Membrane	Heavy Ballast Weights	Mechanical Wall Fixation Kit

THE MECHANISM:

- Requires physically penetrating the home's exterior to secure the top edge above the anticipated waterline.
- Relies entirely on distributed dead weight for the ground seal.

THE FLAW OF RIGID FIXATION



THE SETUP

Nailing or screwing tarpaulins in place demands perfect foresight of the peak water level.

THE FAILURE

If water tops the fixed line, or structural damage occurs at the fixation points, the static seal breaks entirely. It cannot adapt; it can only fail.

DIAGNOSTIC MATRIX: STATIC VS. DYNAMIC

	STATIC BALLAST METHOD	DYNAMIC WALL FLOAT
INSTALLATION SPEED	✗ Slow, requires tools	✓ Rapid, tool-less deployment
STRUCTURAL IMPACT	✗ High damage: drilling, anchors	✓ Zero damage: purely tension-based
SEAL INTEGRITY	✗ Rigid, vulnerable to shifting	✓ Self-healing, strengthens with rising water
TERRAIN ADAPTABILITY	✗ Requires flat surfaces	✓ Conforms to slopes and irregular ground

BATTLEGROUND 1: THE FLUSH ENTRY

Defending Single Doorways

STEP 1: UNROLL & POSITION

Lay the tarpaulin flat against the threshold.

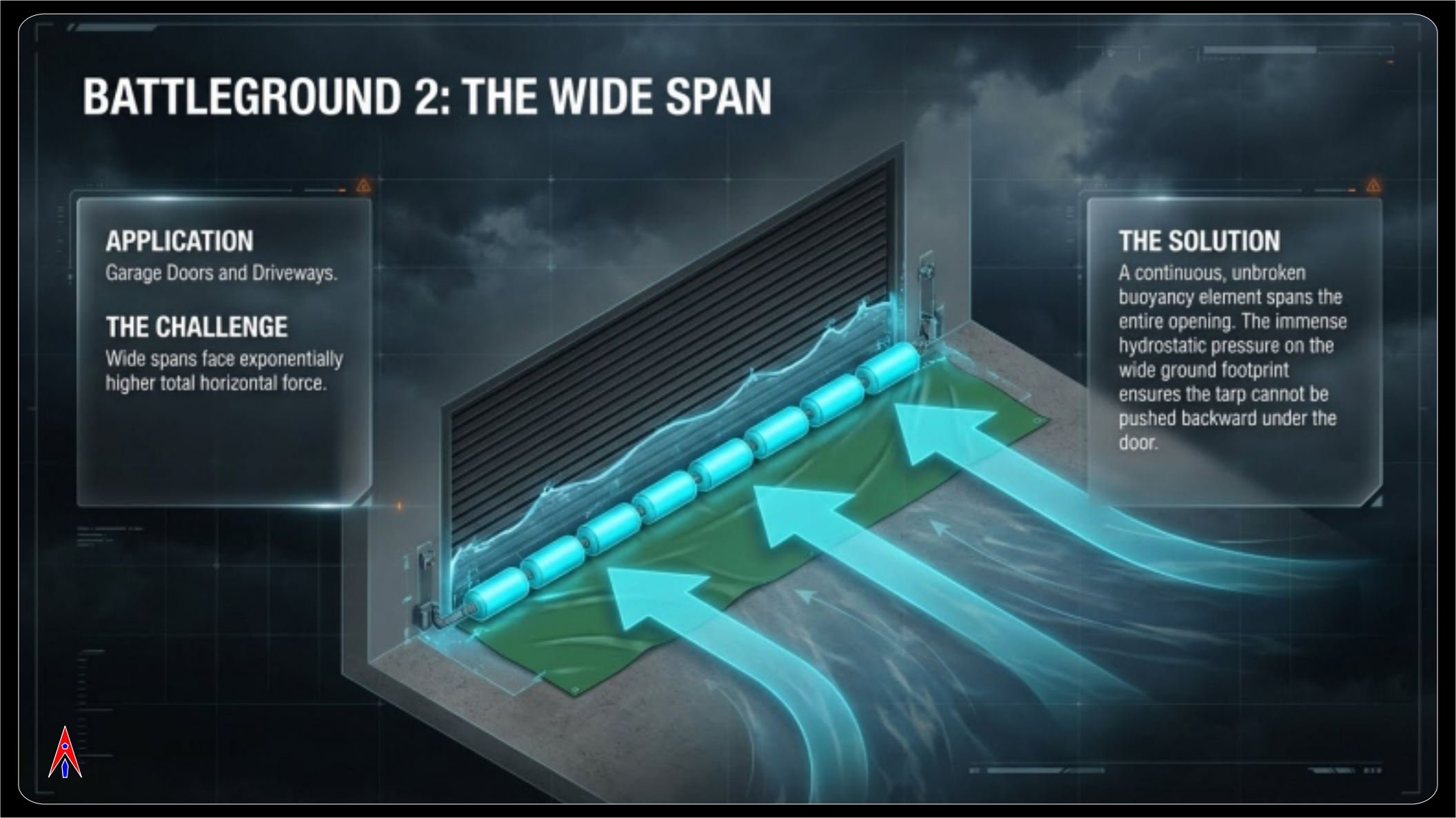
STEP 2: BALLAST THE PERIMETER

Secure the edges with non-floating objects to establish the initial dry seal.

STEP 3: ATTACH BUOYANCY

Thread the float across the doorway to activate the dynamic tension seal as water rises.

BATTLEGROUND 2: THE WIDE SPAN



APPLICATION

Garage Doors and Driveways.

THE CHALLENGE

Wide spans face exponentially higher total horizontal force.

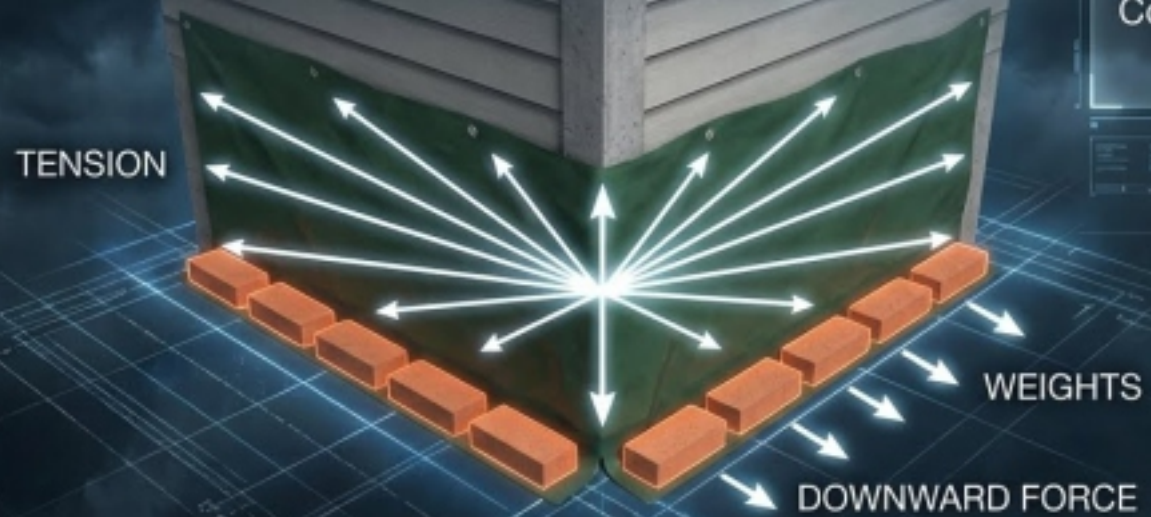
THE SOLUTION

A continuous, unbroken buoyancy element spans the entire opening. The immense hydrostatic pressure on the wide ground footprint ensures the tarp cannot be pushed backward under the door.

BATTLEGROUND 3: COMPLEX GEOMETRY

APPLICATION

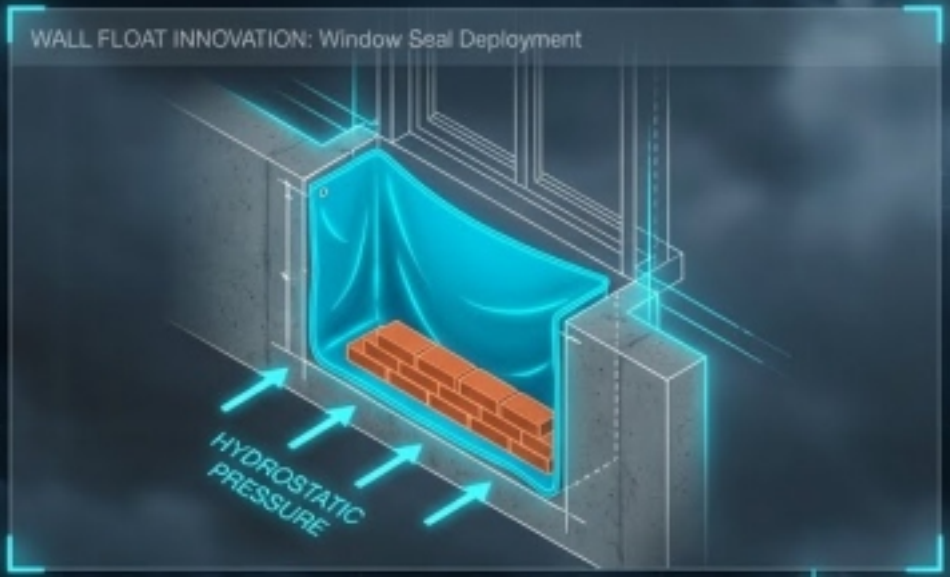
Wrapping External Corners.



THE MECHANISM

By overlapping the membrane at external vertices and extending the ballast line outward, the buoyancy element creates a unified, unbroken tension seal that grips the corner of the structure from both sides simultaneously.

BATTLEGROUND 4: THE RECESSED TRAP

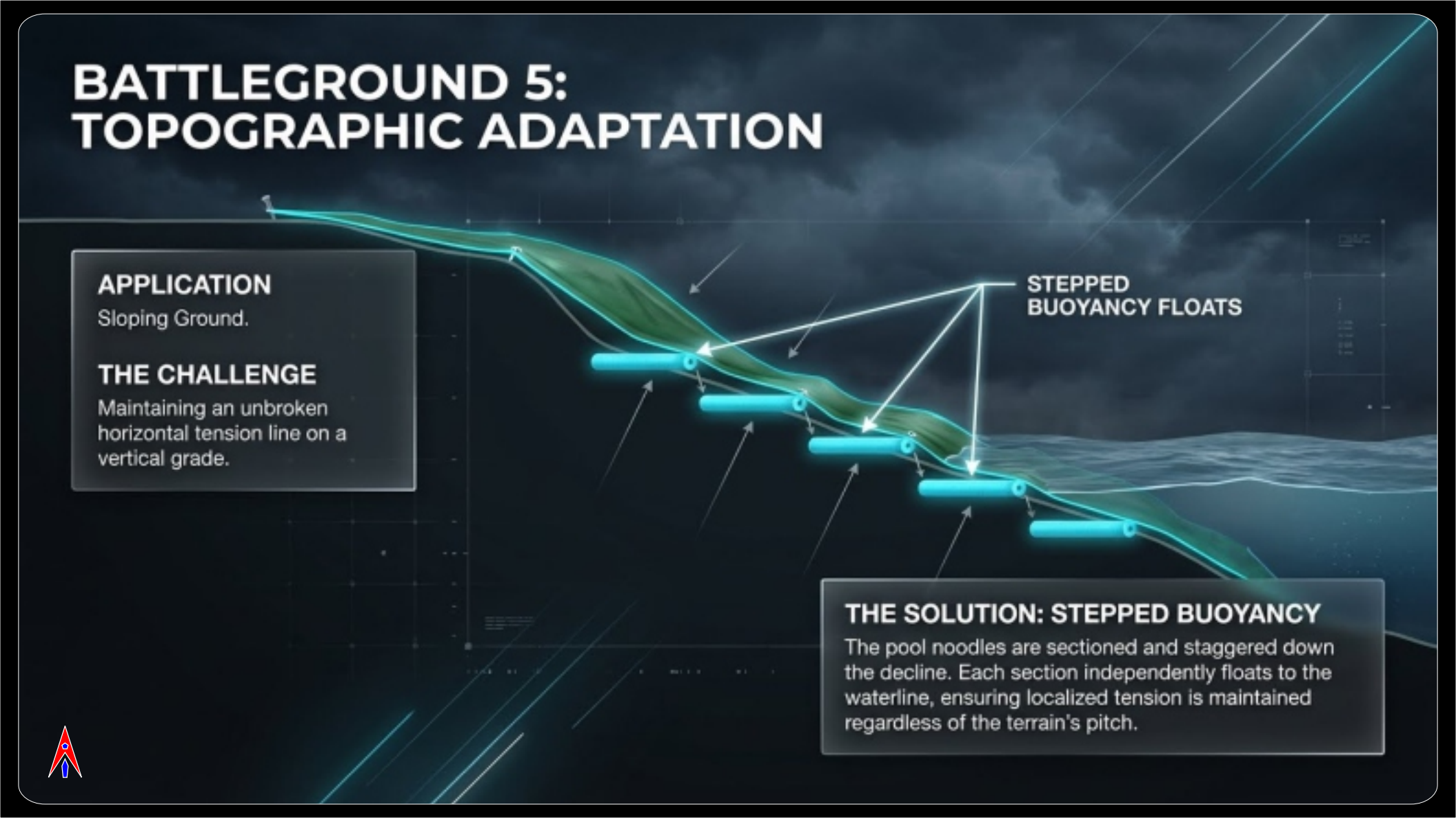


DEPLOYMENT:
The flexible membrane drops deeply into the recessed area. The ground ballast is placed on the lower floor of the well, turning the entire window cavity into a self-sealing hydrostatic pocket.

APPLICATION:
Basement Windows and Submerged Wells.

CRITICAL PROTECTION:
Submerged openings face the highest immediate hydrostatic pressure.

BATTLEGROUND 5: TOPOGRAPHIC ADAPTATION



APPLICATION

Sloping Ground.

THE CHALLENGE

Maintaining an unbroken horizontal tension line on a vertical grade.

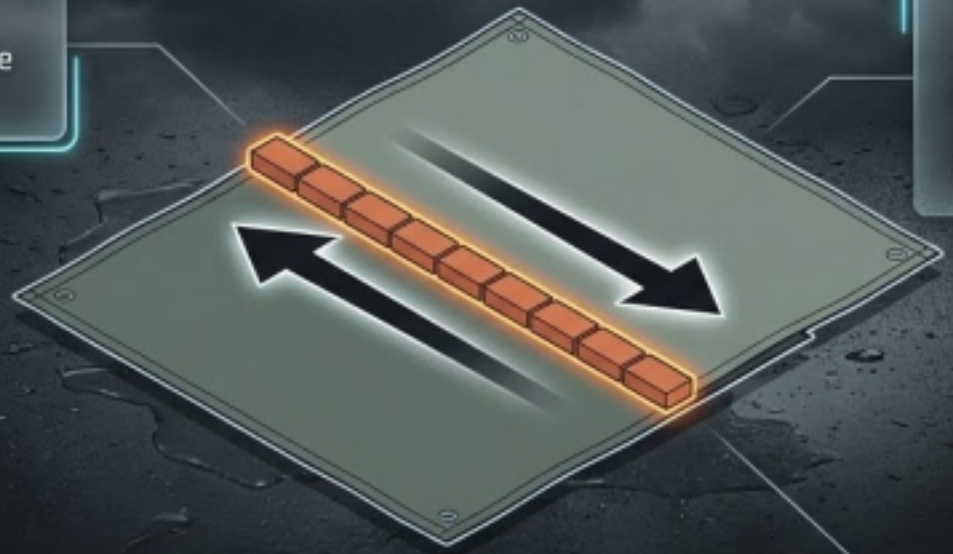
THE SOLUTION: STEPPED BUOYANCY

The pool noodles are sectioned and staggered down the decline. Each section independently floats to the waterline, ensuring localized tension is maintained regardless of the terrain's pitch.

INFINITE SCALING: THE OVERLAP PROTOCOL

MECHANISM

The system is not limited by the length of a single tarp.



THE RULE OF FLOW

Always place the top tarpaulin (water side) over the bottom tarpaulin (dry side) relative to the expected current.

THE WEIGHTED SEAM

A dense line of ballast on the overlap creates a friction-locked, watertight joint powered by the water's downward pressure.

ENGINEERED PHYSICS. ACCESSIBLE MATERIALS.

THE PROMISE: The Wall Float system relies on universal physics, not proprietary hardware.

Wall Float System →

BALLAST ALTERNATIVES

House bricks, natural river rocks, or sandbags.

HIGH BUOYANCY ALTERNATIVES

Taped bundles of recycled plastic bottles or sealed 1/2 gallon juice bottles.

STANDARD BUOYANCY

Commercial foam pipe insulation or standard pool noodles.


PREPARED FOR
THE SURGE
True resilience isn't about building an immovable wall. It is about architectural judo—designing systems so elegant that the floodwater itself itself becomes the architect of your defense.