



MULTIFAMILY · MIXED-USE · OFFICE · COMMERCIAL

The Huntsman D-Max Wall

Continuous insulation, sprayed from inside.

Z-bars go on the outside of the studs and the sheathing goes on over them. From inside the building, closed-cell foam fills the gap and the stud cavity in one pass. The insulation never needs the scaffold, never waits on the weather, and does three jobs at once.



One building, three trades at once: cladding on floors 1–3, foam inside on 3–4, concrete on 6–7. Photo: Huntsman Building Solutions, D-Max Wall project.

1 · SMALLER HVAC

22–62%

smaller heating plant

Average U.S. building

103 tons

Code wall, typical air barrier

50 tons

D-Max wall, tested tight

39 tons

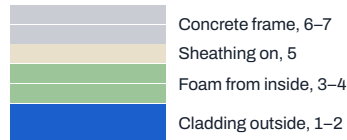
Up to **36% lower heating and cooling cost** in NIST's models of an airtight envelope; heating gas down 40%+ in cold climates.

Example: 4-story, 60,000 sq ft apartments, Erie design day. Assumptions: foam-guard.com/commercial#hvac

2 · OFF THE SCAFFOLD

3 trades

on the wall at once



The foam goes on from inside, floor by floor, while cladding follows the sheathing outside: **no scaffold, mast climber or boom lift for the insulation**, and no weather days for it.

3 · BUILDING VALUE

\$15.38

of value for every \$1 of NOI

\$1 a year saved on owner-paid energy

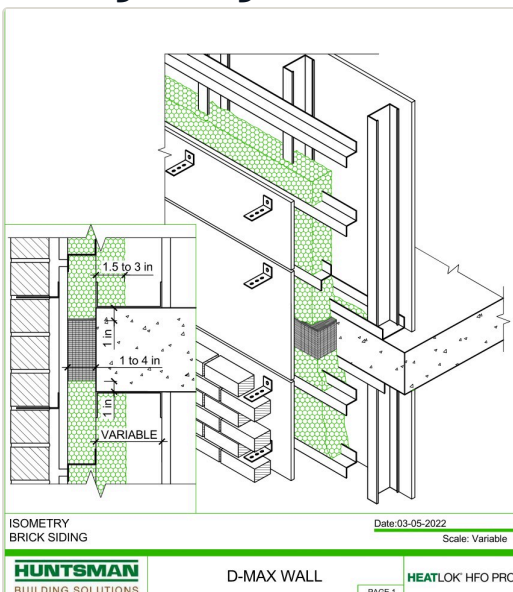
\$1

Added value at a 6.5% cap rate

\$15.38

Value = NOI ÷ cap rate. A \$40M building (\$2.6M NOI) that cuts owner-paid heating and cooling 30–40% adds \$47K–\$104K of NOI a year: **+\$720K to +\$1.6M of value.**

How it goes together



D-Max Wall with brick siding. Drawing: Huntsman Building Solutions.

Six steps on site



Studs and Z-bars
On the outside face of the studs



Sheathing
On the Z-bars; mineral wool at slab edges



Seal the face
Membranes or a full air barrier



Spray from inside
Closed-cell foam, floor by floor



Electrical
Before or after the foam



Interior finish
Gypsum board; furring optional

Step photos: Huntsman Building Solutions.

Schedule: off the scaffold

On a conventional continuous-insulation wall, an exterior trade installs board over the sheathing from the scaffold, in whatever weather comes, and the cladding waits on it. With D-Max that step moves inside.

Still from outside: the cladding and, on most buildings, the sheathing and membrane. **What comes off:** the exterior insulation step, its weather days and the cladding crew's wait. Your GC's schedule says how many weeks that is.

Thermal bridging

R-13 in 3-5/8" studs → **R-6.0**

R-19 in 6" studs → **R-7.1**

Batt rating vs effective R of the stud-and-cavity layer. ASHRAE 90.1 App. A.

PA (since Jan 1, 2026) and Ohio (since Mar 1, 2024) use the 2021 IECC / ASHRAE 90.1-2019 for commercial. Climate Zone 5 steel-framed walls: **R-13 + R-10 continuous**, or **U-0.055**.

Tested D-Max assemblies

Z-bars, 24" apart	Foam	Eff. R	U
3"	4.09"	R-19.7	0.051
3"	5.45"	R-22.4	0.045
3"	6.82"	R-25.0	0.040
2.5", ½" thermal break	5.5"	R-27.0	0.037
2.5", ½" thermal break	6.5"	R-29.1	0.034

Whole opaque wall, steel studs 16" o.c. ASTM C1363 / ASHRAE 1365-RP (Huntsman).

Air and moisture

In NIST's database, commercial buildings built with an air barrier leaked **almost 70% less** than those without. The foam is an air-barrier material (<0.02 L/s·m² at 75 Pa, ASTM E2178) and a Class II vapor retarder at 1", bonded to the back of the sheathing, so the cold surface sits outside the insulation.

Fire, code, documents

- NFPA 285 tested assembly (Huntsman; IBC 2603.5.5). Ask for the one matching your cladding.
- Fireblocking, IBC 718.2. Slab-edge firestop EJs: Hilti, 3M, STI.
- ICC-ES ESR-4073, UES ER-565 (foam). GREENGUARD Gold. AOITC 45.

Mechanical and value

Equipment is sized for the design day, and the envelope is a large share of that load. LEED v5 grades peak load at 16, 12 and 8 Btu/h·sf: on 150,000 sq ft, every 1 Btu/h·sf taken out is about **12.5 tons**.

Value = NOI ÷ cap rate. At 6.5%, every \$1 a year of owner-paid energy saved is **\$15.38** of value.

\$40M building, 6.5% cap	30% off	40% off
HVAC cost, 6–10% of NOI	\$156,000	\$260,000
NOI added / year	+\$46,800	+\$104,000
Value created	+\$720K	+\$1.6M

FoamGuard's illustration; the percentages are assumptions. Where tenants pay unit energy, savings reach the owner through common areas, all-bills-paid, RUBS and rents.

LEED, PHFA, OHFA

- LEED v4.1:** Optimize Energy (up to 18), enclosure Cx (2), thermal comfort (1), low-emitting materials, product disclosure.
- LEED v5:** Reduce Peak Thermal Loads, up to 5 points for air leakage, thermal bridging and peak load.
- PHFA:** 4+ stories must beat the code envelope by 7%, with no mechanical trade-offs.
- OHFA:** Enterprise Green, LEED Silver+ or NGBS Silver on every deal.

FOR DESIGN AND DEVELOPMENT TEAMS

A D-Max walkthrough for your team

FoamGuard walks your design or development team through the D-Max Wall: the tested numbers, fire and code documents, details at openings and slab edges, and sequencing. About 45 minutes, virtual or over lunch at your office. A technical session, not a sales call. On a project, Huntsman Building Solutions adds design detail review, a coordination meeting at the start and site inspections during the work.

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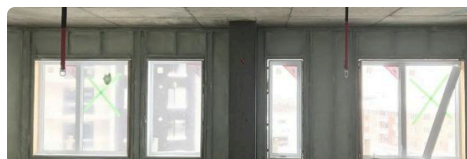
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Z-bars with thermal breaks



A foamed floor, before drywall



Nicolas Project, Quebec

Photos: Huntsman Building Solutions, D-Max Wall projects. Huntsman reports 40+ D-Max projects installed in North America (2023).