



WoodSyn

WoodSyn OptimBoard™
Product Guide





WoodSyn offers WWCB as part of its OptimWall™ system, adapting proven European technology for U.S. needs.

Suitable as a replacement for OSB, plywood, fiber cement & gypsum sheathing, these panels deliver:

- Healthy Indoor Environments
- Lower labor requirements on site
- A sustainable, long-lasting alternative for fire-prone regions.

OptimBoard™ brings proven European performance to U.S. builders, offering a practical pathway to fire-resilient, energy-efficient, and durable construction.

Certifications & Sustainability

- Declaration of Performance (DOP): EN 13168 verified.
- EPD (Environmental Product Declaration): Verified under ISO 14025 and EN 15804.
- BREEAM Compliance: VOC/TVOC and formaldehyde levels meet stringent health benchmarks. - Durability: 100+ years demonstrated use in Europe.



WoodSyn OptimBoard™

WoodSyn OptimBoard™ wood wool cement boards (WWCB) are high-performance building panels manufactured in Latvia under

EN 13168:2012+A1:2015.

They combine mineralized wood fibers with Portland cement, producing panels that are durable, fire-resistant, moisture-tolerant, and thermally stable.

Panels are available in thicknesses from 15 mm to 100 mm, standard size 2400 × 600 mm, and are designed for a wide range of building applications.

Property	ASTM Designation	U.S. Code Use Notes	EN Standard Equivalent
<u>Thermal Conductivity</u>	ASTM C518	R-values of 2.2 per inch thickness	EN 13168 $\lambda = 0.063\text{--}0.066 \text{ W/m}\cdot\text{K}$
<u>Vapor Permeance</u>	ASTM E96 (perm rating, permeance class)	Classified as permeable (≤ 10 perms); favorable for wall drying.	$\mu = 5\text{--}7$ (EN 12086)
<u>Water Absorption</u>	ASTM C272 (water absorption)	Low absorption; resilient against short-term wetting events.	$WS3 \leq 3.0 \text{ kg/m}^2$ (EN 1609)
<u>Moisture Storage</u>	ASTM C1498 (sorption/adsorption, moisture cycling)	Acts as humidity buffer; aligns with IAQ requirements.	$2\text{--}3.5 \text{ L/m}^2$ storage; dim. change 0.005%
<u>Fungi/Mold Resistance</u>	ASTM D3273 (mold resistance)	Inherently mold resistant; suitable for humid zones.	High pH > 11.5; resistant (no EN ref)
<u>Fire Classification</u>	ASTM E84 & ASTM E2768-11 Class A 0/0 extended duration (30 min Tunnel Test)	Meets NFPA Class A; suitable for exterior sheathing in WUI.	Euroclass B-s1,d0 (EN 13501-1)
<u>Acoustic Absorption</u>	ASTM C423 (NRC rating, absorption coeffs)	High absorption as finish; reduced if plastered. NRC for exposed WWC: typically 0.60–0.95 depending on thickness	α_w up to 0.90 (EN ISO 354 with gap/wool)
<u>Acoustic Insulation</u>	ASTM E90 / ASTM E413 (STC rating)	Adequate with assemblies; stucco/plaster improves STC.	35–55 dB with stucco (typical)
<u>Bending Strength</u>	ASTM C293/C1185 (flexural strength)	Meets ICC ES acceptance for sheathing boards.	$\geq 1700\text{--}700 \text{ kPa}$ (EN 12089, thickness dependent)
<u>Compressive Strength</u>	ASTM C109/C165 (compressive strength)	Comparable to light concrete/masonry infill panels.	$\geq 300\text{--}200 \text{ kPa}$ (EN 826, thickness dependent)

Thermal Conductivity

ASTM C518 (Steady-State Thermal Transmission Properties)

How it works:

OptimBoard™ wood wool cement panels combine mineralized wood fibers with cement, resulting in a material that slows heat transfer. Certified testing under EN 13168:2012+A1:2015 shows a declared thermal conductivity of 0.063 W/m·K across all thicknesses.

In practice:

- Panels achieve thermal resistance (R-values) from **R-1.1 (15 mm / 0.6")** up to **R-8.8 (100 mm / 4")**.
- This performance is comparable to common sheathing + batt insulation assemblies but with added fire resistance and moisture durability.
- Panels maintain their insulating value even in damp conditions, unlike fiberglass batts or OSB that degrade when wet.

Design advantages:

- **Energy code alignment:** Clear R-values allow architects to integrate panels directly into U.S. IECC/ASHRAE compliance strategies.
- **Resilience with efficiency:** Provides insulation, fire safety, and moisture durability in one product, simplifying assemblies.
- **Flexibility:** Multiple thicknesses give designers options to meet project-specific thermal goals without redesigning wall systems.





Vapor Permeance

ASTM E96 (perm rating, permeance class)

Why It Matters for Design

OptimBoard™ wood wool cement boards are designed to “breathe,” meaning they allow water vapor to pass through while maintaining their structural integrity. This prevents trapped moisture, which can lead to mold, rot, or material degradation in conventional wall assemblies.

Technical Note:

•Very low vapor resistance, comparable to familiar U.S. building materials.

What It Means in Practice

- Moisture Control** – Regulates indoor humidity, supports healthy indoor air quality.
- Durability** – Dries quickly if exposed to dampness, preventing long-term damage.
- Flexibility** – Tested at 25 & 50 mm; 100 mm results pending.

Design Advantages

- Reliable choice for mixed-humid and wildfire-prone climates.
- Delivers breathable, resilient wall systems that outperform OSB or gypsum.

Moisture Storage

ASTM C1498 (sorption/adsorption, moisture cycling)

Moisture Buffering – Built-in Indoor Climate Control

OptimBoard™ wood wool cement boards help regulate indoor air by naturally absorbing and releasing moisture.

How It Works

- Absorbs excess indoor moisture when humidity is high.
- Releases stored moisture when air is dry.
- Creates a **stable, healthier indoor environment** without mechanical systems.

What It Means in Practice

- Dimensional stability:** Panels show almost no movement ($\approx 0.005\%$ per 1% humidity change).
- Practical benefits:**
 - Reduces strain on HVAC systems.
 - Lowers energy use.
 - Supports healthy air quality.

Design Advantages

- Ideal for **schools, multifamily housing, and community facilities** where indoor comfort and resilience matter most.



Water Absorption

ASTM C272 (water absorption)

Durable in Damp Conditions

Unlike OSB/plywood, OptimBoard™ resists swelling, mold, and decay. Verified asbestos-free and with chloride content <0.15% to protect fasteners and steel frames. Designed for long lifecycle performance with reduced maintenance costs.



Tested Performance

- **European EN 1609 (partial immersion):** WS 3 classification.
- Absorption \leq **0.6 lbs/ft²** (\approx 3.0 kg/m²) under test conditions.
- Accredited results confirmed for **25 mm (1")**, with **2" and 4" boards** pending.

What It Means in Practice

- **Minimal absorption:** Panels resist soaking, unlike OSB or gypsum.
- **Self-drying:** Any water taken in quickly evaporates without damage.
- **Reliable in damp spaces:** Suitable for basements, bathrooms, and community facilities.

Design Advantages

OptimBoard™ provides U.S. designers a **durable, fire-resistant, and fast-installation alternative** to OSB, gypsum, or fiber cement—ideal where **moisture resilience** is critical.

Fungi/Mold Resistance

ASTM D3273 (mold resistance)

Built for Healthy, Durable Spaces

OptimBoard™ panels are naturally resistant to mold and fungal growth.

How It Works

- Cement binder creates a **highly alkaline environment (pH >11.5)** hostile to mold and fungi.
- Boards contain **no organic food source**, preventing microbial growth.

What It Means in Practice

- No mold in damp areas:** Proven performance in pools, spas, locker rooms.
- Improved indoor air quality:** Reduced risk of mold makes it ideal for schools, multifamily, and healthcare.
- Termite resistance:** Independent testing confirms termites do not infest or damage boards.

Design Advantages

OptimBoard™ delivers **durability, health, and low maintenance** without chemical additives—trusted across Europe and North America, now ready for U.S. projects.



Fire Classification

ASTM E84 (Class A flame spread, smoke index)

*OptimBoard™ is engineered for **high fire resistance, certified to ASTM E84 Class A and ASTM E2768 (30-minute tunnel)**. Resists exterior wildfire exposure for elements like siding, windows, and vents, and adds valuable minutes in fire events, reducing insurance risk and increasing homeowner peace of mind.*



Tested & Certified

ASTM E84 (extended 20-minute exposure per IBC §2303.2)

ASTM E2768-11(2018) (30-minute tunnel)

UBC No. 8-1 and **SFM 12-7A-5** (CA Building Code Chapter 7A)

What This Means in Practice

- **Non-combustible alternative** to OSB or plywood.
- Maintains structural integrity under fire exposure.
- Provides **peace of mind for builders, insurers, and occupants.**

Design Advantages

- **Higher fire safety** than wood-based sheathing.
- **Installation speed** to conventional panels.
- **Better thermal performance** than standard sheathing materials.

Acoustic Absorption

ASTM C423 (NRC rating, absorption coeffs)

*OptimBoard™ panels can act as an **acoustic absorber** when left as an exposed finish (untreated surface). In this role, they help dampen echoes and improve sound quality in interior spaces such as classrooms, offices, and community centers.*

How it Works

- Natural porous structure absorbs sound.
- Enhanced absorption with air gap or mineral wool backing.

What This Means in Practice

- **Exposed finish:** Improves acoustic comfort in schools, gyms, and community spaces by reducing echo and reverberation.
- **Covered assemblies:** Contributes to airborne sound insulation in wall systems with stucco, plaster, or drywall.

Design Advantages

- Dual role: Absorption (when exposed) + Insulation (when covered).
- Proven in European projects and adaptable to U.S. design metrics (NRC/STC/IIC).
- Supports healthier, more comfortable environments in residential, multifamily, and public facilities.
- Reduces reliance on additional acoustic treatments



Acoustic Insulation

ASTM E90 / ASTM E413 (STC rating)

How it Works

- Boards absorb sound on their own; insulation improves when paired with dense finishes (stucco, plaster, drywall) that add mass.

What This Means in Practice

- Assemblies achieve **STC 35–55** depending on thickness and detailing.
- Untreated = absorption; treated = insulation.
- Flexible performance tailored to project needs.

Design Advantages

- One product supports both absorption and insulation.
- Effective for residential, multifamily, and commercial noise control.
- Integrates with mineral wool, air gaps, and layered finishes.
- European data validates performance; ASTM/ICC tests forthcoming.



Bending Strength

ASTM C293/C1185 (flexural strength)

OptimBoard™ demonstrates reliable bending and flexural strength, making them suitable for use as exterior sheathing in wall assemblies.

How it Works

- **Bending strength:** Ranges from **44–247 psi** depending on thickness, verified under EN 12089 testing.
- **Classification:** Equivalent to ASTM C1185/C293 non-structural sheathing standards, ensuring reliable stiffness and resistance to deflection.

What This Means in Practice

- Provides lateral rigidity, nail-holding, and durability comparable to plywood/OSB.
- Retains flexural strength under cyclic humidity—**no delamination.**
- Installs with standard carpentry tools and familiar methods.

Design Advantages

- Moisture-resistant, unlike OSB/plywood.
- Stable, predictable performance for cladding support, air/weather barriers, and composite walls.
- Reduces callbacks, improves reliability, and speeds up project delivery.



Compressive Strength

ASTM C109/C165 (compressive strength)

OptimBoard™ exhibits strong compressive performance, ensuring durability and stability when used as wall sheathing or in other non-loadbearing applications.



How it Works

- Compressive strength: 29–44 psi, comparable to ASTM C165 rigid insulation ratings — resists crushing or creep under normal service loads.
- Applications: Reliable as non-structural wall sheathing, delivering long-term stability and performance in building envelopes.

In Practice

- Withstands handling, fastening, and installation pressures without deformation.
- Unlike gypsum (crumbles) or OSB (delaminates in moisture), OptimBoard™ maintains **dimensional stability**.
- Prevents crushing under nails, screws, and cladding attachments.

Design Advantages

- Provides a **durable, pressure-resistant substrate** for siding, air/weather barriers, or finishes.
- Adds racking strength to wall assemblies when fastened to framing.
- Extends building lifespan by resisting point-load failures and moisture-related breakdowns.

WoodSyn

BUILDING FOR THE NEXT CENTURY.



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