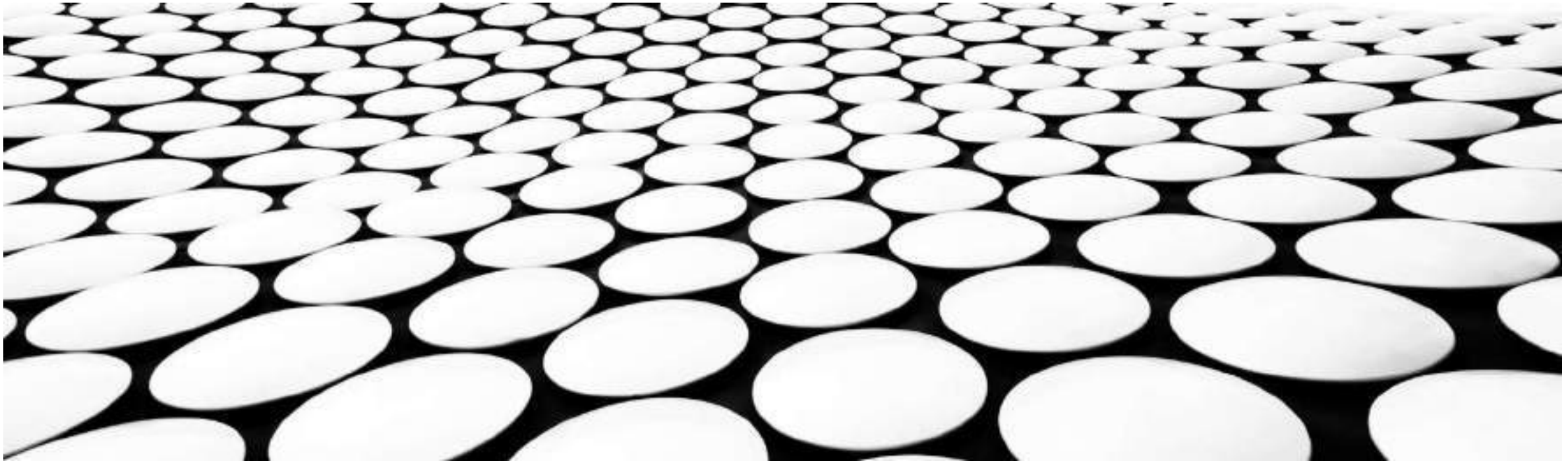
ROCK MAX

The Future of Building Sheathing



Imagine a world where buildings are not only resilient but also responsibly built to face the challenges of today and tomorrow.

It's time for ROCK MAX ~ the revolutionary building sheathing that promises to reshape the very foundation of construction.

REDEFINING STRENGTH AND SAFETY IN STRUCTURAL INTEGRITY

Vision and Mission

Offer Certified Fire-Proof Material

- Provide a structural and non-combustible building sheathing that replaces use of outdated wood and drywall, ensuring simple, efficient, and safe installation.

Improve Durability

- Offer building materials that are dimensionally stable, impact resistant, and versatile.
- Maintain performance integrity both wet and dry.

Simplify the Building Process

- Provide one building material throughout all sheathing applications.

Non-Combustible Structural Sheathing

- Offer an equivalent replacement for plywood and OSB that is non-combustible.

Environmentally Responsible

- Introduce eco-friendly building solutions that are sustainable, mold-resistant, and free from harmful VOCs.

Enhance Safety

- Develop materials that meet the highest safety standards to reduce fire hazards and other construction-related risks.

Simplified Application

Combine multiple building materials and processes...

In to one step

Structural sheathing and siding is combined in one simple application. No need for the complex mud/tape route any more... logistics are simplified by purchasing one material for all applications and costs are reduced with less labor.

THE PROBLEM

1. Fire Hazards

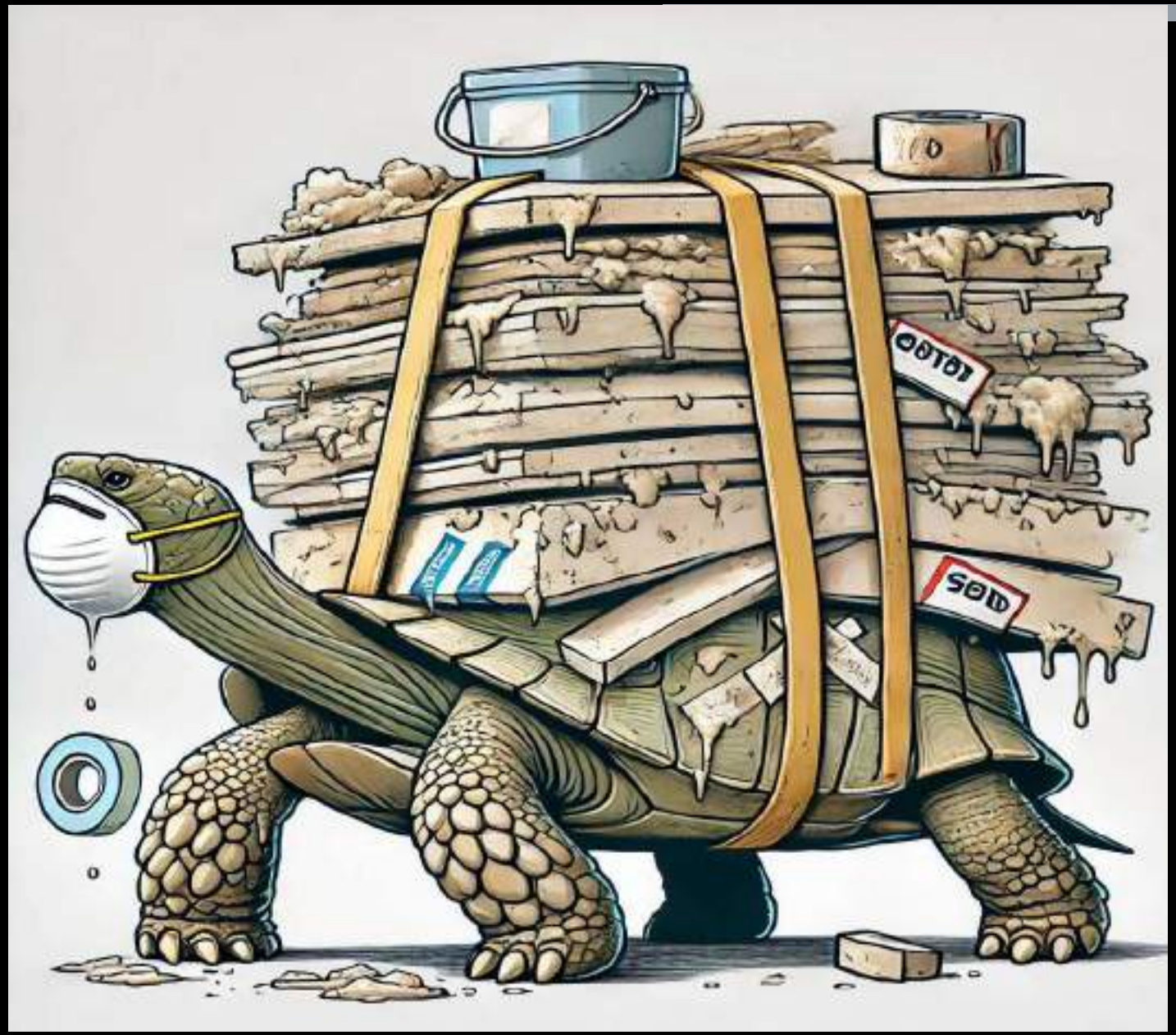
•Traditional wood sheathing is highly flammable, posing significant building risks and necessitating additional safety measures.

2. Structural Performance

•Wood sheathing loses its structural integrity when wet, degrading with mold and dry rot.

3. Moisture Issues

•Drywall cracks at joints due to moisture movement and deteriorates when exposed to water, while wood sheathing succumbs to mold and structural degradation.



THE PROBLEM (Continued)

- 4. Installation Challenges
- •Conventional materials require labor-intensive finishing processes, increasing time and $.
- 5. Durability
- •High impact strength eliminates need for corner bead and all but eliminates holes in drywall. No material integrity loss when saturated by water, eliminating costly repair and maintenance and when compared to wood sheathing it does not rot or propagate mold.
- 6. Environmental Concerns
- •Traditional building materials are organic which attract bugs, propagate mold, and easily rot with moisture and require construction adhesives containing VOCs, posing health risks.

Our Solution

1. Non-Combustible ✓

• Passes ASTM E136 test for non-combustibility, providing superior fire resistance and enhanced safety for buildings.

2. High Strength ✓

• Replaces wood sheathing both inside and outside floors, roofs, and sheer walls.

3. Moisture Resistant ✓

• Maintains structural integrity when fully saturated with water, does not propagate mold and has almost no movement with changes in humidity.

Rock Max revolutionizes construction by replacing outdated, harmful materials with a single, sustainable solution that's stronger, safer, and built to last—saving time, money, and the planet.

Our Solution (Continued)

Versatile Use and Simplified Installation ✓

- Suitable for all structural applications as well as drywall and tile backer board in both wet and dry locations, eliminating the need for multiple materials.
- Ready for tile installation directly without backer board, simplifying construction and saving time.
- No need for messy and time consuming mud and tape process. With almost no movement at joints finishing is a snap ready for paint.

Durability ✓

- Does not rot or propagate mold.
- Maintains 90% of its performance saturated with water & has very high impact strength, meaning no need for corner bead on install and no more holes like in drywall

Eco-Friendly ✓

- No VOCs.
- Sustainable and mold resistant, promoting a healthier environment.

Rock Max Process:
Exterior Wallboard Finish

Weather Barrier Over Studs	Rock Max	Joint and Screw Hole Finish	Paint
Install weather-resistant barrier over the wall framing to provide protection against the elements.	Install the Rock Max structural sheathing boards, which serve as the exterior wallboard surface.	Finish the joints and screw holes in the Rock Max boards, preparing the surface for painting.	Apply the final paint finish to the exterior wall, completing the process.

Rock Max Process:

Interior Wallboard Finish

Step 1: First coat Flexible joint putty	Step 2: Finish coat putty	Step 3: Smooth with wet sponge	Step 4: Paint
Apply the first coat of flexible joint putty to the Rock Max board.	Apply the finish coat of putty to the Rock Max board.	Use a wet sponge to smooth the surface of the putty on the Rock Max board.	Paint the finished Rock Max interior wallboard.

Rock Max Process:
Structural Flooring + Tile

Step 1: Structural Sheathing

Lay structural sheathing to support flooring and tiling.

Step 2: Tiling

Tile finish directly on Rock Max sheathing, no backer board required.

Rock Max Process:
Wall Tile

Backer Board Installation

Both ROCK MAX and drywall require a backer board to be installed as a base for the wall tile. This provides a stable and moisture-resistant surface.

Water Barrier Application

Waterproofing membrane or sealant must be applied over backer board to prevent moisture.

Tile Installation

The wall tiles are then installed directly over the water barrier, using a suitable tile adhesive or mortar.

RockMax~Excellence in Fire Safety

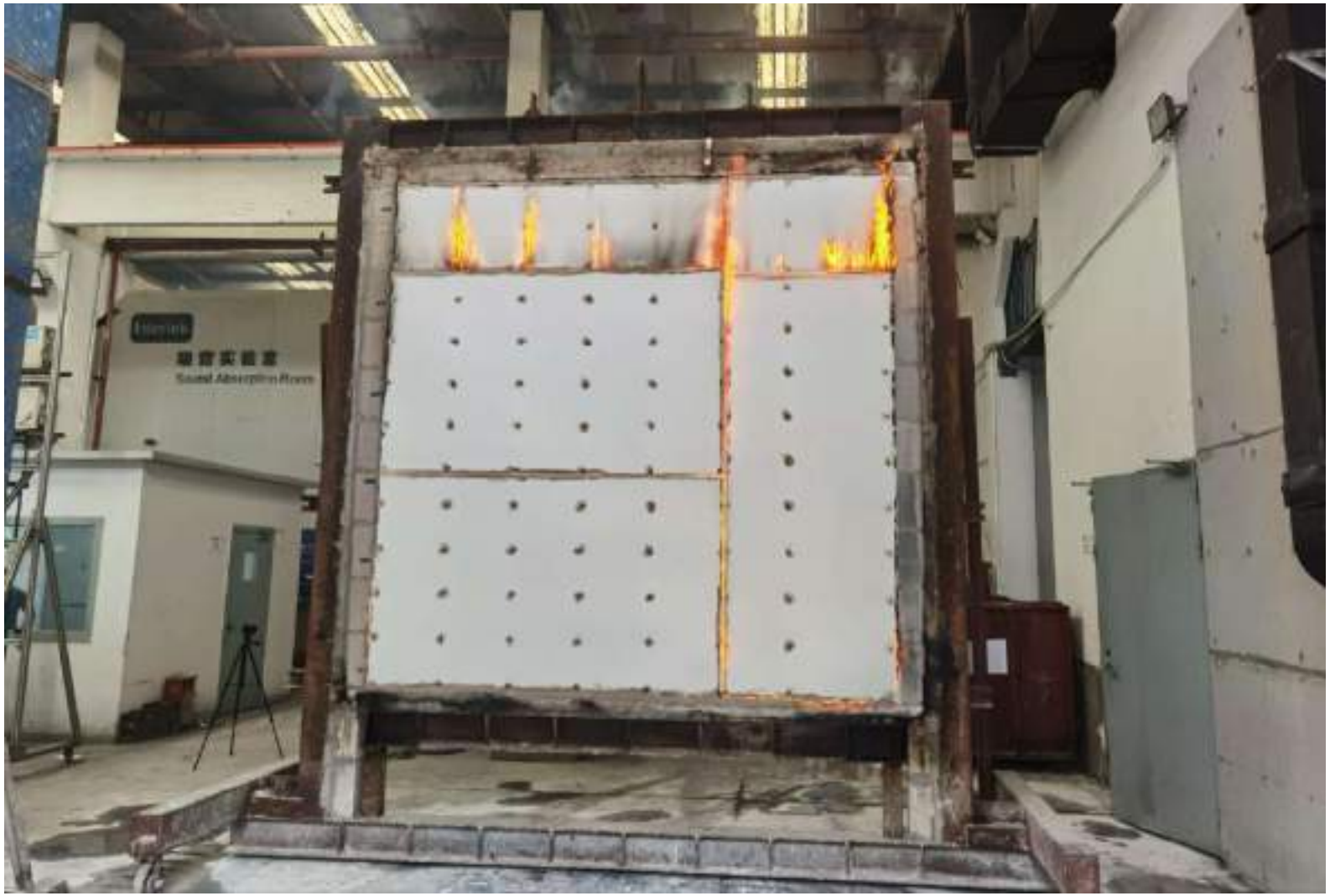
Rock Max Passing
- ✓ ASTM E119Test
- ✓ ASTM E136 Test

1. **ASTM E119: Fire Resistance**

- **Purpose**: Tests the ability of the wall assembly to withstand fire exposure while maintaining structural integrity.
- **Rock Max Results: 60-minute fire endurance. Prevented flame/gas penetration.**
- **Significance**: *Ensures safety during fire emergencies.*

2. **ASTM E136: Combustibility of Materials**

- **Purpose**: Verifies that materials used in construction are known non-combustible under high temperatures.
- **Rock Max Results: Passed the combustibility test, confirming the non-combustible nature of its MgO boards.**
- **Significance**: *Confirms non-combustibility, preventing ignition and fire spread.*



DOCUMENTATION OVERVIEW FOR ASTM E136 TEST

intertek
Total Quality. Assured.

Test Report

Issue Date: 2024-01-31 Intertek Report No. 201218010SHF-002

Test Items, Method and Results:

Test method: ASTM E136-19a Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C, Option A

1.1 Sample and Assembly Description

Approximately 38mm long × 38mm wide × 53mm thick "MGO BOARD WALL ASSEMBLY" was provided by the applicant.

1.2 Test Criteria

Report the material as passing the test if at least three of the four test specimens tested meet the individual test specimen criteria detailed in 1.2.1 or 1.2.2. The three test specimens do not need to meet the same individual test specimen criteria.

1.2.1 If the weight loss of the test specimen is 50% or less, the following criteria must be met:

a. The recorded temperatures of the surface and interior thermocouples do not at anytime during the test rise more than 30°C (54°F) above the stabilized furnace temperature measured at T2 prior to the test.

b. There is no flaming from the test specimen after the first 30 s.

1.2.2 If the weight loss of the test specimen exceeds 50%, the following criteria must be met:

a. The recorded temperature of the surface and interior thermocouples do not, at any time during the test, rise above the stabilized furnace temperature measured at T2 prior to the test.

b. No flaming from the test specimen is observed at any time during the test.

1.3 Results and Observations

Specimen #	Observations
1	Sample did not smoke or flame.
2	Sample did not smoke or flame.
3	Sample did not smoke or flame.
4	Sample did not smoke or flame.

Specimen Number	Initial Wt. (g)	Final Wt. (g)	Wt. Loss(%)	Stabilized Furnace Temperature (T2) (°C)	Max Surface (T4) (°C)	Max Surface Difference (°C)	Max Interior Temp. (T3) (°C)	Max Interior Difference (°C)
1	110.73	83.21	24.9	749.3	743.9	-5.4	744.8	-4.5
2	108.65	81.29	25.2	750.4	758.2	7.8	756.2	5.8
3	109.90	83.34	24.2	750.3	744.0	-6.3	747.5	-2.8
4	110.19	83.15	24.5	750.2	753.8	3.6	755.4	5.2
Average	109.87	82.75	24.7	750.1	750.0	-0.1	751.0	0.9

Note: The final temperature reading shall be recorded as the maximum temperature as per Clause 8.7.3.

2 Conclusion

The test specimens met the requirement of ASTM E136-19a.

Rock Max Passing
✓ ASTM E2226 Test
✓ ASTM E119 Test

- 1. **ASTM E119: Load-Bearing Under Fire**
- **Purpose**: Assesses structural integrity under fire exposure with a load of 6,370.8 lbs.
- **Rock Max Results**: **Maintained load without collapse or deformation.**
- **Significance**: *Guarantees structural reliability under extreme conditions.*
- 2. **ASTM E2226: Hose Stream Test**
- **Purpose**: Tests durability under high-pressure water after fire exposure.
- **Rock Max Results**: **Withstood 207 kPa water stream for 60 seconds with no damage or through openings.**
- **Significance**: *Ensures resilience to firefighting efforts and thermal shock.*

Rock Max~Strength Under Pressure

DOCUMENTATION OVERVIEW FOR ASTM E119 TEST

intertek
Total Quality. Assured.

Intertek Testing Services Shenzhen Ltd. Shanghai Fengxian Branch
Plant 5, No. 6958 Daye Road, Fengxian District,
Shanghai, China
Tel: +86 21-61136116 Fax: 021-61189921
Website: www.intertek.com

TEST REPORT

Issue Date: 2023-10-12 Intertek Report No.: 20121801CSHF-001

SECTION 2
SUMMARY OF TEST RESULTS

Wall System: MgO Board Wall Assembly

Test Results
The wall assembly described and tested in this report met the Conditions of Acceptance of ASTM E119-22 for a fire endurance period of 60 minutes with hose stream under total load of 6370.8 lbs. Construction summary of the full assembly is located in Section 4 of this test report. The test result only applies to situations where the side without backing bridging is exposed to heating conditions of the test.

SECTION 3
TEST METHODS

The assembly was evaluated in accordance with the following:

ASTM E119-22, *Standard Test Methods for Fire Tests of Building Construction and Materials*

ASTM E2226-15b(R2019), *Standard Practice for Application of Hose Stream*

Test was conducted in accordance with the applicable requirement of ASTM E119-22 Standard Test Methods for Fire Tests of Building Construction and Materials, Section 8.2 Tests of Loadbearing Walls and Partitions

Rock Max Passes ✓ ASTM E386 Test

- 1. **ASTM E386**
- **Purpose**: To evaluate compliance of *All Clad* magnesium-oxide sheets with ICC-ES AC 386 and ASTM standards.
- **Rock Max Results**: Maximum flexural strength recorded at 3143 psi (6 mm), nail-head pull-through strength at 122 lbf (pound force), and no damage in impact tests.
- **Significance**:
- ✓ *Demonstrates product suitability for construction applications with validated structural, durability, and fire-resistant properties.*

E386 Compliance: Proven Performance & Reliability

intertek
Total Quality. Assured.

Intertek Testing Services Shenzhen Ltd. Shanghai Fengxian Branch
Plant 5, No. 6958 Daye Road, Fengxian District, Shanghai, China
Tel: 021-61136116 Fax: 021-61189921
Website: www.intertek.com

TEST REPORT

Issue Date: 2024-04-17 Intertek Report No.: 2012180109HF-003

SECTION 5
TEST RESULTS

The product test results, with the physical property requirements of any use in accordance with ICC-ES-AC 386 are summarized in Table below. The detailed data refers to Section 7.

Table 1 Physical Properties (AC 386 Section 3.1)-6 mm thickness sheet

Property	Test standard	Result	Requirement	Verdict
Density	ASTM C1185	Mean: 75 lbf/ft³	As reported	N/A
Flexural Strength	ASTM C1185	Mean: Dry: 2350 psi Wet: 2057 psi	≥ 580 psi	Pass
Freeze/Thaw Cycling	ASTM C666	The test samples showed no disintegration following 25 cycles	The test samples shall show no disintegration following 25 cycles	Pass
Dimensions and Tolerances	ASTM C1185	Length: 96.02 in Max. variation: 0.04 in	96 ± 0.48 in. Max. variation ±1/4 in.	Pass
		Width:48.00 in Max. variation: 0.02 in	48 ± 0.24 in. Max. variation ±1/4 in.	Pass
		Thickness: 6.1 mm Variation within sheet<1.3%	6 ± 1.0 mm Variation within sheet<15%	Pass
		Squareness ≤ 0.003 in./ft	Tolerance: ≤ 1/32 in./ft	Pass
		Straightness ≤ 0.001 in./ft	Tolerance: ≤ 1/32 in./ft	Pass
Moisture Movement	ASTM C1185	Mean Linear change 0.07% (Machine Direction) 0.08% (Cross Direction)	As Reported	N/A
Water Absorption	ASTM C1185	Mean: 25.1 % by mass	As Reported	N/A
Compression Indentation	ASTM D2394	Max.: 0.035 in.	<0.05 in.	Pass
Nail-Head Pull Through	ASTM D1037	Min: 109 lbf	≥ 90 lbf	Pass
Falling Ball Impact	ASTM D1037	No damage at a 12-inch drop	No damage at a 12-inch drop	Pass
Shear Bond Strength Dry-Set Portland Cement	ANSI A 118.1	Min: 96 psi	≥ 50 psi	Pass

Rock Max Passing ☑ ASTM E376 Test

- 1. **ASTM E376**
- • **Purpose:** Evaluate All Clad boards for compliance with industry standards and certification.
- • **Rock Max Results:** Dry walls outperformed wet walls in load capacity and structural integrity.
- • **Significance:** *Ensures compliance, certification, and market acceptance of the product.*

Rock Solid Results ☑

intertek
Total Quality. Assured.

Intertek Testing Services Shenzhen Ltd. Shanghai Fengxian Branch
Plant 5, No. 6958 Daye Road, Fengxian District,
Shanghai, China
Tel: 021-61136116 Fax: 021-61189921
Website: www.intertek.com

TEST REPORT

Issue Date: 2024-08-06 Intertek Report No.: 201218010SHF-004

SECTION 6
CONCLUSION

The All Clad board identified in this report have been tested physical properties in accordance with ICC-ES AC 386 Section 3.2.3 and ICC-ES AC 376. The products test results are presented in Section 5 of this report.

The conclusions of this test report may be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

COMPREHENSIVE LINK TO ENTIRE TEST REPORTS AND MSDS

- https://onedrive.live.com/?authkey=%21AMwPGPTDk8fdgxE&id=DA4A07048807BC12%2156715&cid=DA4A07048807BC12

Market Opportunity

Global Market Size

The global market for wood and cement-based panels is valued at $204 billion in 2023, indicating a sizable opportunity for innovative building materials.

Residential Targets

Residential areas prone to natural disasters like wildfires and hurricanes present a key target market for non-combustible, durable building solutions.

Commercial Opportunities

Commercial buildings requiring Class A materials, which offer superior fire resistance and durability, are another prime target for the Rock Max product line.

With a sizable global market, targeted residential and commercial segments, and a strategy to leverage existing supply chains, Rock Max is well-positioned to capitalize on the growing demand for innovative, high-performance building materials.

UNIQUE PRODUCT FEATURES

Superior Fire Resistance

- Passes the ASTM E136 test, providing superior fire resistance compared to traditional combustible materials.

Structural Load-Bearing

- Meets the ASTM E119 and AC 376 standards for one hour fire-rated structural load-bearing, allowing it to replace OSB/plywood as a sheer wall and floor sheathing material.

Dimensional Stability

- Demonstrates less than .08% change in dimension underwater saturation, providing superior stability compared to traditional drywall, eliminating laborious joint finishing installation processes.

Versatility in Wet and Dry Areas

- Compatible with tile installation in both wet and dry areas, eliminating the need for separate backer board products.
- Capable of being used for both shear wall finishing and siding, combining them in to one.

Simplified Installation and Finishing

- Requires no mudding, taping, or corner beads, streamlining the installation process and reducing labor cost compared to drywall.

Eco-Friendly

- No VOCs.
- Does not propagate mold.

Market Traction

Initial Focus

Targeting residential and commercial sectors in fire disaster and hurricane disaster prone areas to leverage demand for sustainable building materials.

Strategic Partnerships

Collaborating with modular home builders and small to mid-sized contractors to streamline installation and drive rapid market share growth.

Streamlined Installation

Offering a simplified building process that reduces labor and material costs compared to traditional methods.

Environmental Benefits

Providing a non-combustible, mold-resistant, and sustainable building solution that appeals to eco-conscious customers.

By focusing on disaster-prone areas and leveraging strategic partnerships, Rock Max is poised for rapid market share growth by delivering a streamlined, environmentally-friendly building solution.

Market Disruption

Creating a Strong Foothold in Evolving Markets

Rock Max has a potential foothold in markets with rising demand for sustainable building materials, such as residential and commercial sectors in disaster-prone areas.

Strategic Manufacturing Locations

Rock Max will leverage strategic manufacturing locations in India and Mexico to reduce costs and improve efficiency while maintaining high-quality standards.

Anticipated Expansion

Rock Max is positioned for anticipated expansion into new markets and applications, capitalizing on the growing demand for sustainable and versatile building solutions.

Streamlined Installation & Environmental Benefits

Rock Max's unique product features, including non-combustibility, high strength, and dimensional stability, position the company for rapid market share growth with streamlined installation and superior environmental benefits.

TEAM EXECUTIVE CAPABILITY

Greg Nickels~ Founder, CEO, and Director of Technology Development

Beginning his career with the development of multiple patented products in the music industry, Greg manufactured and supplied original equipment to the industry and consulted with various leading manufacturers on the innovation of their product and production lines. Turning his attention to the building industry, Greg created the first site-built SIP panel project in Washington state, a 26,000SF music studio facility featuring 60 fully sound-attenuated rehearsal spaces. Greg designed and certified APEX BTI's light gauge steel framed automated building system which includes its Rock Max building sheathing.

Now a sought after building technologist and manufacturing process expert, Greg is contracted by the globes largest brands in HP, Verizon and Intel to produce a rapidly deployable modular health facility (unidoctor.com), a production designed and exclusively manufactured by Greg's wholly owned manufacturing facility. Apex is now beginning its delivery on its building technology for housing and commercial buildings with projects in Lake Tahoe and Orange County with sights on reconstruction in Los Angeles and beyond.

TEAM EXECUTIVE CAPABILITY

Frank Lin ~ Director of Factory operations, Formulation and Production

Frank started his career working in the formulation division of a large cement manufacturing plant. Later he took his knowledge of formulation and developed a line of Magnesium Oxide based sheathing products as a partner in a new manufacturing production line. Thus, Frank and Greg joined to develop their innovation to the MGO sheathing product with their non-combustible sheathing product Rock Max. Frank is currently director of sales and operations at his production facility.