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“The New Generation **GREEN** Building Material”
“Install It for Health & Safety-Install It for Life”
Providing a Complete Line of Fiber Reinforced MgO Building Materials

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MAGNUM® BOARD® Independent Evaluation, Code Compliance and Product Assurance

Understanding the IAPMO Uniform Evaluation Service Evaluation Process

Executive Summary

MBP® Products, LLC, (hereinafter MBP) was established with the objective of developing and supplying MgO-based building materials designed for demanding construction applications.

From the beginning, MBP's approach has been to develop the material chemistry, manufacturing process, physical properties, and installation requirements as an integrated building system rather than treating the board simply as a commodity panel.

An important part of that approach is independent third-party evaluation. MBP's fiber reinforced MgO building materials are evaluated through the IAPMO Uniform Evaluation Service (IAPMO UES). IAPMO UES provides Evaluation Reports that document whether a building product or system has been evaluated against applicable code requirements and referenced standards within the stated scope and conditions of use.

For MBP, this independent evaluation is documented through IAPMO UES Evaluation Report ER-986, UEL-5086 and associated product documentation.

The significance of an Evaluation Report is not simply that a manufacturer has submitted a product for review. The value is in the independent technical examination of the product, supporting test data, calculations, manufacturing controls, documentation, and applicable requirements.

IAPMO states that its UES personnel examine technical information, test reports, calculations, quality-control methods, and other supporting information when evaluating products for code compliance.

This creates an important distinction: MBP's claims about its products do not stand alone. They are supported by an independent evaluation process, documented test data, defined conditions of use, and continuing manufacturing controls.

That distinction is particularly important for architects, engineers, building officials, contractors, distributors, and owners evaluating alternative building materials.

1. Why Independent Evaluation Matters

- ✓ Building products are ultimately used in structures where performance must be predictable.
- ✓ A product may have excellent laboratory characteristics, but those characteristics alone do not necessarily establish how the product may be used in a building.
- ✓ Building officials and design professionals need answers to questions such as:
 - What product was actually evaluated?
 - What standards and requirements were used?
 - What tests were performed?
 - What performance characteristics were established?
 - What are the permitted applications?
 - What limitations or conditions apply?
 - How is manufacturing consistency controlled?

How can the code official verify that the product being installed is the product that was evaluated? An IAPMO UES Evaluation Report brings this information together in a standardized technical document.

IAPMO explains that the purpose of a Uniform Evaluation Report is to document compliance with particular codes and referenced standards. For products requiring evaluation outside directly prescribed code provisions, evaluation criteria may be developed through an established process, with the resulting report identifying the scope and conditions under which the product is recognized.

Therefore, an Evaluation Report should not be viewed simply as a marketing certificate.

It is more accurately understood as a technical bridge between product performance and code acceptance.

2. Who Is IAPMO?

The International Association of Plumbing and Mechanical Officials (IAPMO) is an established organization involved in the development of codes, standards, testing, certification, and conformity-assessment activities.

Its Uniform Evaluation Service is specifically involved in the evaluation of building products and systems.

IAPMO states that its UES program provides evaluation reports for products that have been evaluated against applicable requirements and that its certification programs provide assurance to regulators and end users that applicable requirements have been addressed.

IAPMO UES is accredited under ISO/IEC 17065, the international standard establishing requirements for organizations that operate product-certification systems. IAPMO identifies ANSI/ANAB accreditation in connection with its UES program.

This is important because ISO/IEC 17065 establishes requirements intended to support a consistent and impartial conformity-assessment process.

In practical terms, the manufacturer does not establish its own certification rules and then certify itself.

The evaluation is conducted through an established third-party conformity-assessment framework.

3. What Is an IAPMO UES Evaluation Report?

An IAPMO UES Evaluation Report (ER) is a technical document describing the results of an evaluation of a specific product, material, assembly, or system.

The report identifies such things as:

- ✓ the manufacturer;
- ✓ the product;
- ✓ the applicable building codes;
- ✓ applicable standards;
- ✓ evaluated performance characteristics;
- ✓ supporting test data;
- ✓ installation requirements;
- ✓ limitations;
- ✓ conditions of use;
- ✓ identification requirements; and
- ✓ other information necessary for code officials and design professionals.

IAPMO specifically describes its Evaluation Reports as providing code officials with a concise summary of a product's attributes and documentation relating to code compliance. This makes the report useful to several different groups.

Architects and Engineers: The Evaluation Report provides a documented technical reference that can be incorporated into project specifications and product submittals.

Building Officials: The report provides a concise technical document that can be reviewed when determining whether the product falls within the applicable code-recognition pathway.

Contractors: The report establishes the product, application, and conditions under which the material has been evaluated.

Owners: The report provides independent documentation beyond the manufacturer's own product literature.

Manufacturers: The evaluation process establishes a documented framework for maintaining conformity between the evaluated product and production product.

4. How the IAPMO Evaluation Process Works

The process is fundamentally based on documentation, testing, technical evaluation, and verification. A simplified representation is:

Manufacturer/Product → Application to IAPMO UES → Technical Documentation →

Independent Testing / Test Reports → Engineering Review → Evaluation Against Applicable Requirements → Manufacturing / Quality-Control Review → IAPMO UES Evaluation Report → Defined Conditions of Use → Ongoing Compliance / Verification

IAPMO's application documentation states that applicants are required to furnish drawings, test data, laboratory reports, and product samples as required by UES personnel.

The evaluation therefore does not depend upon a single laboratory test. Instead, the available technical evidence is considered as a complete body of information.

5. Testing Is Only One Part of the Process

A common misunderstanding is that a product receives an Evaluation Report simply because it "passed a test." That is an incomplete description. Testing establishes particular performance characteristics. The Evaluation Report then places those results into a broader technical and code-compliance framework. Depending upon the product, the supporting documentation can include:

- ✓ physical-property testing;
- ✓ structural testing;
- ✓ fire testing;
- ✓ water-resistance testing;
- ✓ moisture-related testing;
- ✓ dimensional stability testing;
- ✓ durability testing;
- ✓ engineering calculations;
- ✓ laboratory reports;
- ✓ product identification;
- ✓ manufacturing information;
- ✓ quality-control documentation; and
- ✓ installation requirements.

Actual requirements vary according to the product and its intended application.

IAPMO Evaluation Reports demonstrate this approach. Published reports commonly identify the test reports, calculations, manufacturer documentation, quality-control documentation, and other technical information used as substantiating data.

Consequently, a responsible evaluation should always be read as a complete technical document, rather than focusing on a single test result.

6. The Importance of Published Criteria

For established building products, applicable standards may already provide the technical requirements necessary for evaluation. New or innovative products can present a different situation. A product may perform differently from traditional materials while still providing an acceptable level of performance.

IAPMO's published description of the UES process recognizes this situation. Where requirements for a new product are not directly contained within the code, products may be evaluated through the applicable alternate-material provisions and, where appropriate, evaluation criteria developed through an established process.

This is particularly relevant to innovative building materials. It allows the technical evaluation to focus on the actual performance characteristics of the product rather than requiring the product to be artificially classified as an existing conventional material.

The important point is that the requirements used for evaluation are documented and become part of the technical basis for the resulting report.

7. What ER-986 Means for MBP

MBP's current technical documentation identifies:

- ✓ IAPMO UES Evaluation Report: ER-986, and
- ✓ IAPMO UES Listing Report: UEL-5068.

The significance of ER-986 is not simply the report number. The significance is that the product covered by the report has been subjected to an independent evaluation within the scope defined by the report.

That distinction is important. An Evaluation Report does not mean that every possible application of a product has been evaluated. Instead, the report establishes a defined scope and defined conditions of use. Therefore, the correct way to interpret ER-986 is:

Magnum Board® Products covered by the report have been independently evaluated for the applications, performance characteristics, and conditions of use identified in the IAPMO UES Evaluation Report.

This is more precise—and ultimately more credible—than making a broad statement that a product is simply "approved for everything."

8. Conditions of Use Matter

One of the most important sections of any Evaluation Report is the Conditions of Use. A technically responsible product evaluation must define not only what a product can do, but also the circumstances under which the evaluation applies. For example, a report may establish requirements relating to:

- ✓ product thickness;
- ✓ framing;
- ✓ fasteners;
- ✓ spacing;
- ✓ substrate;
- ✓ installation method;
- ✓ exposure;
- ✓ weather conditions;

- ✓ fire-rated assemblies;
- ✓ structural loading;
- ✓ joint treatment;
- ✓ permitted applications; and
- ✓ other limitations.

These requirements are not administrative details. They are part of the technical basis upon which the product is recognized.

IAPMO expressly states that the recommendation for code approval represented by a UES report is contingent upon the scope of evaluation and conditions of use contained in the report. For that reason, MBP specifications and installation instructions should always be used together with the applicable IAPMO documentation.

9. Factory Quality Control

Independent testing establishes product performance, but construction products must also be manufactured consistently. A laboratory test performed on one sample cannot, by itself, demonstrate that every production board will have identical characteristics. This is why manufacturing quality control is an important component of product evaluation.

IAPMO identifies quality-control methods and related manufacturing information among the materials considered in its evaluation process. For MBP, this principle is particularly important because the product is a manufactured composite material. Consistency depends upon control of factors such as:

- ✓ raw-material specifications;
- ✓ material proportions;
- ✓ mixing;
- ✓ forming;
- ✓ curing;
- ✓ density;
- ✓ thickness;
- ✓ dimensional tolerances;
- ✓ reinforcement;
- ✓ surface characteristics;
- ✓ moisture condition; and
- ✓ final-product inspection.

The objective is straightforward: The production material must remain consistent with the material that was evaluated.

10. Independent Evaluation Versus Manufacturer Claims

There is an important difference between a manufacturer's product claim and an independently evaluated performance characteristic.

A manufacturer can state:

"Our product performs this way."

An independent evaluation provides a different level of documentation:

"The product has been evaluated against identified requirements, based on specified technical evidence, and is recognized within the scope and conditions stated in the evaluation report."

That distinction is one reason third-party evaluation is valuable to the construction industry.

IAPMO itself describes UES Evaluation Reports as providing technical information and documentation that can be used by building officials, designers, specifiers, and other industry participants.

MBP therefore does not need to rely exclusively on promotional statements about product performance. The technical documentation can be examined directly.

11. How Architects, Engineers and Building Officials Should Read ER-986

A useful way to review an Evaluation Report is to proceed in a defined order.

Step 1 — Identify the Product - Confirm:

- ✓ manufacturer;
- ✓ product name;
- ✓ product type;
- ✓ product designation;
- ✓ thickness;
- ✓ dimensions; and
- ✓ identification markings.

Step 2 — Review the Scope: Determine exactly which products and applications are covered.

Step 3 — Review the Applicable Codes: Identify the editions and provisions referenced by the report.

Step 4 — Review the Performance Requirements: Determine which characteristics have been evaluated.

Step 5 — Review the Conditions of Use: This is critical.

Determine how the product must be installed and what limitations apply.

Step 6 — Review Installation Requirements: Confirm:

- ✓ fasteners;
- ✓ spacing;
- ✓ framing;
- ✓ joints;
- ✓ substrates;
- ✓ accessories; and
- ✓ other installation requirements.

Step 7 — Confirm Product Identification: Verify that the material being installed corresponds to the evaluated product.

Step 8 — Compare the Project Application With the Report: The final question is not simply: "Does MBP have an Evaluation Report?"

The correct question is: "Does the proposed MBP application fall within the scope and conditions of the applicable IAPMO UES Evaluation Report?"

That is the technically appropriate way to use an Evaluation Report.

12. Why This Matters to the Construction Industry

The construction industry increasingly uses innovative materials that do not fit neatly into traditional product categories.

Architects, engineers, contractors, owners, and code officials therefore need a reliable mechanism for evaluating products based upon documented performance.

Independent evaluation provides that mechanism.

The value is particularly apparent when a product offers a combination of characteristics that may not be represented by a single conventional material standard.

Rather than asking the marketplace to rely solely upon manufacturer statements, the evaluation process provides: Defined requirements

- ✓ Independent technical review
- ✓ Laboratory testing
- ✓ Engineering analysis
- ✓ Manufacturing controls
- ✓ Documented conditions of use

= A documented technical basis for product acceptance. This is the framework within which MBP should be understood.

13. MBP's Approach

Magnum Board® Products, LLC has focused on the development of MgO-based building materials intended to provide a durable and practical alternative for a range of construction applications. The company has invested in:

- ✓ material chemistry;
- ✓ product development;
- ✓ manufacturing;
- ✓ physical and performance testing;
- ✓ product documentation;
- ✓ installation procedures;
- ✓ quality control; and
- ✓ independent third-party evaluation.

The resulting product documentation is intended to provide the construction industry with something more useful than a list of product claims. It provides a documented technical basis for evaluating and specifying the product. That distinction is important.

14. A More Reliable Way to Evaluate Building Materials

The construction industry should not have to choose between innovation and documentation. A new material should be capable of being evaluated using objective criteria. A responsible evaluation process should answer five fundamental questions:

1. What is the product? The material must be clearly identified.
2. What does it need to accomplish? Performance requirements must be established.
3. How was that performance demonstrated? Testing, calculations, engineering analysis, and other supporting evidence must be documented.
4. How is production controlled? Manufacturing must be capable of consistently producing the evaluated product.
5. Where can the product be used? The scope and conditions of use must be clearly defined.

IAPMO's UES process addresses these fundamental issues through its evaluation and conformity-assessment framework.

Conclusion

The strongest evidence supporting a building product is not a manufacturer's advertising claim. It is a transparent technical record showing:

- ✓ what was evaluated;
- ✓ who evaluated it;
- ✓ what requirements were applied;
- ✓ what testing and technical evidence were considered;
- ✓ how manufacturing quality is controlled; and
- ✓ under what conditions the product may be used.

For MBP, that record includes the IAPMO Uniform Evaluation Service Evaluation Report ER-986, UEL-5068 together with the applicable product documentation and conditions of use.

IAPMO's UES program provides an established third-party framework for evaluating building products and documenting their relationship to applicable codes and standards. The program operates within an accreditation framework based on ISO/IEC 17065.

The result is a more useful form of product documentation—one intended not merely to promote a building material, but to give the people responsible for designing, specifying, approving, installing, and owning buildings a technical basis upon which to evaluate it.

MBP's position is therefore straightforward:

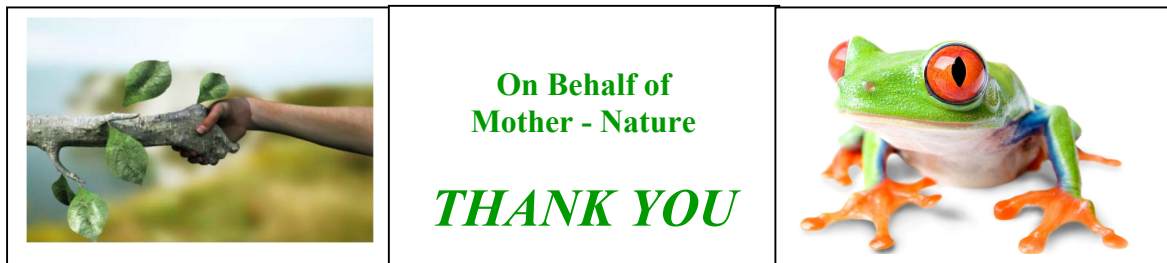
Evaluate the product. Review the testing. Read the report. Understand the conditions of use. Then make the decision based upon the documented technical evidence.

That approach puts the emphasis where it belongs—on independent evaluation, documented performance, manufacturing consistency, and proper application.

Additional questions? Please contact your Magnum Dealer or call us direct.

Attachments:

1. Evaluation Report ER-986
2. Evaluation Report UEL-5068



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