

WHITE PAPER



Does Your MCM Actually Meet the Performance Requirements of the Code?

Metal Composite Material (MCM) suppliers, fabricators, and installers must provide assurances that both the MCM and MCM assemblies will meet the requirements defined in the applicable building code. Typically, these requirements are defined in the code through reference to established testing in the areas of structural, fire, energy, and environmental (air and water penetration) performance. The primary question is how can a designer be assured that the MCM supplied to the project meet these performance requirements?

Three common methods have been used to address this issue for many years. While each method can accomplish the task, each has its drawbacks. These methods include:

- Provide product and system specific test reports,
- Provide listing/labeling reports administered by an independent third-party service,
- Provide code official recognized Evaluation reports.

Approach to Approval	Product Assurance	Code Assurance
Supplying Test Reports		
Third-Party Listing	X	
Building Code Evaluation	X	X

Specific Test Reports

Supplying test reports to address the code defined performance requirements *may* assure the designer that the product or assembly was tested in a recognized laboratory and provides the required result. Too often, designers find that the test report provided is based on MCM that has not been manufactured in a certified and audited manufacturing process. In other circumstances, the supplier is providing test reports or certification that does not show compliance with the code. (Stating that a product is ISO 9000 does not show that the fire or structural performance of the MCM meets the building code.)

Qualifying test reports are ones where the manufactured product or assembly can be traced back to an audited program that assures the “product tested is a reasonable indicator of the product supplied in the field.” Only with test reports from an accredited lab, performed on MCM supplied from a manufacturer, with a recognized independent third-party manufacturing process, can the designer or building official judge compliance with the code. This method of product compliance validation presents at least two major challenges.

- 1) The designer must be familiar with both how the product is being used and the requirements of the applicable code. The designer must not only understand the particular product requirements, but must also understand how that product interacts with the other assemblies used in construction. For instance, the impact on fire from combining a cladding panel with styrene insulation will be quite different than the performance of the cladding without the insulation.
- 2) As stated previously, the test report identifies the performance of the MCM subjected to testing. ***The test report does not provide any assurance that the delivered MCM product is produced at the same location, using the same production process/raw materials as the tested product.*** If there have been any changes in the manufacturing site or process, the test report may not truly reflect the performance of the products being provided.

Listing/Labeling Reports

Specific test listing/labeling reports from a third-party quality assurance group can help eliminate concern about any difference between the tested and regularly produced/fabricated products. To obtain a specific listing/labeling report, the manufacturer retains an independent certified quality assurance group to inspect and document both the manufacturing process and the raw materials being used. Production is witnessed and the quality program is developed and documented. Finally, sample MCM is identified for testing.

This sample MCM is tested and a listing/labeling report is issued identifying the material performance capabilities. The report gives the manufacturer the right to apply a specific product label from the third-party quality assurance group that identifies the MCM performance in relation to code requirements. The third-party quality assurance group performs periodic audits at the production facility to ensure the process and raw materials remain in accordance with the quality program requirements. The inspection and labeling program assure the designer that the product being delivered to the project meets the same performance criteria as the product that was tested.

One potential weakness in the Listing/Labeling Report method is that the MCM used in an assembly may be listed and labeled; however, the assembly itself may not be covered by that listing. In this case, it is important that the designer understand the assembly components and the code requirements so that a final check for compliance can be made at the right stage in the construction process. There are instances where overall assemblies may be listed and labeled as such, however, often field installation issues preclude an assembly listing.

Code Evaluation Reports

Code Evaluation Reports evaluate product compliance and provide product use information to ensure that assemblies are tested and installed to meet the performance requirements of the code. To obtain a code evaluation report, the manufacturer must meet all of the same requirements as the listing/labeling report and then submit the information to an agency accredited by the International Accreditation Service (IAS) or one of their partners in compliance with ISO/IEC Standard 17020. This group reviews the product information, specific test reports, product use information, and the code requirements that apply. Engineers for the agency determine how the product/assembly fits within the structure of the code. With the materials identified and the requirements for code compliance defined, a detailed report can be issued documenting “acceptable” product use.

The Code Evaluation Report approach provides the designer with the most complete assurance possible that the product tested, often both as a material and an assembly, meets the requirements of the building code. If there are any specific limitations, the evaluation report would address those items specifically in the report.

Summary

While compliance with the performance requirements of the code can be shown using a number of different methods, a code evaluation report, is probably the most complete way for the designer to be assured that the MCM and MCM assemblies intended for use in their project have been tested and will meet the performance requirements for the project.

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