

ESTE Gypsum Board Vendor Meeting
RTI International, RTP NC
May 25, 2006

RTI International (RTI) held a meeting to discuss an EPA-sponsored testing program with vendors of mold-resistant gypsum board.

Debbie Franke (RTI) welcomed the participants and discussed procedures associated with EPA's Environmental Technology Verification Program. EPA established the Program in 1995 to accelerate the entrance of new environmental technologies into the domestic and international marketplace by developing testing protocols and verifying the performance of innovative technologies. Stakeholder groups, including vendors, buyers, permittees, etc., provide input into the test methods used for the Program. Non-profit research organizations partner with EPA to run the ETV centers in water, air, monitoring and pollution prevention. The partners must all implement quality systems that comply with ETV Quality Management Plan, which is compatible with both American and internationally accepted quality standards. For this program, RTI will convene vendor and stakeholder meetings to obtain input on testing, then develop a test method and run the testing program. EPA will fund the stakeholder process and testing, while the vendors are being asked to fund the test method development.

Bob Thompson (EPA) welcomed the group on behalf of EPA. He talked about the U.S. Green Building Council and their LEED (Leadership in Energy and Environmental Design) Green Building Rating System. <http://www.usgbc.org/DisplayPage.aspx?CategoryID=19>. He also discussed how testing products can lead to better products and a continuous improvement of test methods.

Timothy Dean (EPA) discussed EPA's Environmental and Sustainable Technology Evaluations (ESTE) program that is part of ETV. While in the base ETV program, technologies are selected with input from stakeholders, in ESTE, EPA chooses the technologies to be included. EPA is planning to include three indoor-air-quality tests in the ESTE program for mold-resistant gypsum board: mold resistance, water resistance, and emissions of volatile organic compounds (VOCs).

Teresa Harten, head of the ETV program, provided more information on the ETV program:

- ETV operates to provide complete transparency to the process; the test plans and reports are posted on the EPA website (www.epa.gov/etv).
- more than 350 technologies (products) have been verified to date,
- there are no performance standards for ETV testing, therefore no pass-fail and no ratings,
- ETV uses existing test methods where available,
- Vendors are able to use the ETV logo to advertise their products, following requirements set up by EPA.

There is a new document, ETV Program Case Studies: Demonstrating Program Outcomes (available at www.epa.gov/etv). The case studies highlight the potential benefits and outcomes for technologies that have been verified under ETV. One of the technologies is diesel engine retrofits, a program operated by RTI. Another is the Eductor Vapor Recovery Unit (EVRU), in a greenhouse gas ETV center operated by Southern Research Institute.

The meeting was primarily a general discussion of what the industry is doing now, including standards and what the ESTE program is. The discussion has been grouped by topic and is not presented by time orientation.

Current testing and standards

The following standards are from the American Society for Testing and Materials (ASTM) www.astm.org. They are not all specifically focused on gypsum board, but can be used for testing the products. There are other gypsum related standards that are concerned with other physical properties of the products. There is an ASTM committee on gypsum, C11, Gypsum and Related Building Materials and Systems, however, some of the standards listed below come from other committees. RTI expects to use these standards as a starting point for the ESTE test methods. If it is deemed that any current standard meets EPA QA/QC requirements and the needs of vendors and stakeholders, then the standard method will be included (or referenced) in the ESTE test method.

Mold resistance

- D6329-98(2003) Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers,
- D3273-00(2005) Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber,

VOC emissions

- D5116-90, Standard Guide for Small Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products,
- D6670-01 (2001) Standard Practice for Full-Scale Chamber Determination of Volatile Organic Emissions from Indoor Materials/Products,

Water resistance

- C473-05 Standard Test Methods for Physical Testing of Gypsum Panel Products. This includes C473.20, Water Resistance of Core-Treated Water-Repellant Gypsum Panel Products and C473.21, Surface Water Resistance of Gypsum Panel Products with Water-Repellant Surfaces.
- D3285-93(2005) Standard Test Method for Water Absorptiveness of Nonbibulous Paper and Paperboard (Cobb Test)

The gypsum vendors are working as part of ASTM subcommittee D.01.28, Biodeterioration, to develop WK8681, New Standard Test Method for Resistance to Mold Growth on Interior Coated Building Products in an Environmental Chamber.

Karin Foarde from RTI is a member of D22.05 Indoor Air. She is currently working on a test method focused for antimicrobials based on the standard guide D6329. As a guide, D6329 does not provide scoring or give interpretation of the results. D22.05 is also working on another standard for VOCs: WK2617 New Standard Practice for Environmental Chamber Determinations of Indoor-Relevant Emissions of Volatile Organic Compounds and Aldehydes from Small Samples of Building Products.

Greenguard (www.greenguard.org)

The GREENGUARD program was mentioned. The GREENGUARD Certification Program provides third party verification for low emitting interior products and materials. Air Quality Sciences has recently announced a rating system for mold-resistant building products. GREENGUARD has a pilot program for mold resistant products.

LEED (Leadership in Energy and Environmental Design)

The LEED ratings include use of low-VOC materials, but they do not include use of mold-resistant or moisture-resistant products.

ETV/ESTE

Quality Assurance/Quality Control

The vendors said that they were very interested in repeatable results, especially when a product is tested at different laboratories. They have used the D3273 test method which has the microorganisms grown in soil in the chamber through inoculation of an unknown amount of organisms in a known amount of liquid. The test samples are then exposed to the soil in the chamber (airborne deposition) and rated for mold growth visually.

Karin Foarde (RTI) said that a test method based on D6329 would have the test samples directly inoculated with a known amount of microorganisms in a known amount of liquid. The samples are then rated quantitatively by (get good description from Karin). The test method would specify time and organisms to be used since D6329 does not.

RTI has included quality controls into our ETV test methods and test plans. This will facilitate good quality being built into ASTM or other standards based on the RTI test methods.

Vendor Funded Test Method Development

The vendors would like to have a workshop as part of the development process. The workshop would provide information on microbial testing, including information on the various ways to provide the microorganisms (inoculate the samples), and score the results. As the vendors would pay for this part of the program, it is certainly possible to have a workshop.

The vendors would like to test for both bacteria and fungi because with flooding (as in Katrina) and other disasters, people ask about bacteria. This is technically not a problem, but it should be understood that the testing will look at the products under normal conditions – including pipes breaking, but not flooding where a house is in water for days or weeks. Vendors would like to know how long it can be wet before mold grows.

The current moisture absorption tests are for physical integrity. The samples are weighed, then immersed in water for a specified period of time and then weighed again to determine weight gain. While this is certainly a valid test method, there was a question raised of a standard that implies a product will survive immersion in a Katrina-like event.

It was stated that wallboard has been tested and most of it does not emit VOCs. EPA has done sink effect tests. The product is heated during the manufacturing process, which should mean that VOC emissions occur then, not when it is installed in a building. EPA would still like to have the VOC emission tests, even if it only shows that there are no VOCs.

RTI would prefer to keep the three tests as separate methods for the ETV process, although all three would be required.

Vendors would like a round robin to show reproducibility that included RTI commercial laboratories and their own laboratories.

Beyond ETV/ESTE

The vendors said that their primary interest was to have a rating system. Timothy Dean and Marc Menetrez (EPA) explained that while ETV does not develop ratings or provide certification, after the products have completed the ETV process, EPA does plan to provide ratings and certifications for the products. EPA would not do the product testing and would consider the Energy Star model of self-reporting test results.

The ETV test method could become an ASTM standard even without ratings. Ratings for testing could be a separate standard for ASTM.

Next Steps:

1. RTI will write the minutes and distribute to the attendees for review. Once comments have been received, the minutes will be finalized and re-distributed. The vendor meeting minutes will be made available to the stakeholders.
2. RTI will provide the vendors with financial information on the ESTE gypsum board program. This information will show the three program steps with funding level and who will be paying for the step:
 - vendor and stakeholder input,
 - test method development and
 - testing and report.

The information will be provided to vendors as soon as possible, probably in mid June.

3. A stakeholder meeting will be held July 14, 2006 at RTI. EPA and RTI will ask the stakeholders what they would like to see in an IAQ-oriented gypsum board testing program. Stakeholders from government, industry, trade associations, etc. will be invited. Vendors are welcome to suggest people or organizations to invite to the meeting.
4. Minutes from the stakeholder meeting will be handled like for the vendor meeting. Draft minutes will be distributed to the attendees, then comments returned will be used to finalize the minutes, which will be distributed to stakeholders and vendors.
5. Bob Thompson mentioned a conference that will be held in Durham, NC July 17-19, 2006. The title is Indoor Environmental Quality: Problems, Research and Solutions. Air and Waste Management Association (AWMA) and EPA are co-sponsors of the meeting. Further information can be found on the AWMA website
<http://www.awma.org/events/confs/IAQ%202006/default.asp>

Attendees:

Robert Bell, USG Corporation
Leo Bissonnette, Georgia-Pacific Gypsum Corporation
Charles Byers, USG Corporation
Kendall Clark, Georgia-Pacific Gypsum Corporation
John College, BPB America
Michael Danks, American Gypsum
Timothy Dean, US EPA
David Drummond, National Gypsum
Karin Foarde, RTI International
Debbie Franke, RTI International
Teresa Harten, US EPA
Laura Kolb, US EPA
Marc Menetrez, US EPA
Jessica Noggle, Georgia-Pacific Gypsum Corporation
Paul Shipp, USG Corporation
Bob Thompson, US EPA
Rick Weir, National Gypsum
Wayne Wilson, Lafarge