

# ASTM E06.51.11 Fenestration Installation

E2112 Standard Practice for Installation of Exterior Windows, Doors and Skylights

## MINUTES

April 24, 2006

Toronto, Ottawa, Canada

The meeting was called to order at 8:00 a.m. by chairman Barry Hardman.

Self-introductions were made.

The Chair reported on the status of the current ballot (all ballots with comments have been reviewed; ready to give to ASTM staff).

The Chair reported on the Heat Transfer Symposium held yesterday.

The Chair opened the floor on the new work item on self-adhered flashings. ASTM staff asked that we separate the timing on the current ballot versus the new items. The new proposed wording will go forward to ballot as a separate work item.

After brief discussion concerning the tasks assigned to Tom Murray and Chris Mathis concerning the future direction of E2112, the minutes of the San Diego meeting were approved.

Tom Murray and Chris Mathis made a presentation on “Where do we go from here?” regarding E2112. Their presentation is attached to these minutes.

Discussion ensued and the following concepts were discussed:

1. We need to improve the flow logic of the document
2. Replacement is different! Should stand alone.
3. We have multiple wall types – many new ones.
  - a. Masonry, Frame, SIPS, Foam, etc.
4. We have multiple window types
  - a. Flanged, non-flanged, inset, replacement frames, etc.
5. The installer was intended to be our first customer.
6. We should have a prescriptive encyclopedia where a user goes to the specific situation they face for guidance
7. Is this a standard, a guide, a practice?
8. We need a standard test method by which we can evaluate the performance of each proposal
9. Do we need multiple documents or one giant document?
10. Lab is different than field
11. Barrier versus drainage method is different in the lab versus in the field
  - a. Our experience led us here
  - b. Performance testing is not a reliable predictor!
12. Yes to Guiding Principles document
13. We need to identify risks in the document
14. How long should the installation perform?
  - a. Different for different building types
15. What are our test metrics?
16. Will one test work for each situation?
17. Different wall systems have different water sensitivities
18. Is E2112 the bible or “ten commandments” and all progeny based on its command?
19. Should we increase our focus on technical papers upon which we base our recommendations?



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20. Should we have sub-documents that have a regional focus? Climate focus?
21. We need a principles document then have an appendix with all of the specifics.
  - a. Should each appendix be a stand alone document?
  - b. Principles address the science and boundary conditions.
22. Interior conditions vary too, which impacts the end performance of each installation
23. The life expectancy of the building impacts the decisions about installation techniques and QC.
  - a. Home versus cathedral versus school
  - b. So TIME is a variable
24. Life-cycle costing then comes into play
25. Reorganize this subcommittee
  - a. Have smaller, more rapid response task groups
26. Need a flow chart with conceptual bubbles first
  - a. Don't try to put all of the 2112 text in from the start
27. Steve Johnson will head the effort to list wall variations and options
  - a. 80/20 rule
  - b. Helping him will be Robert Bateman
  - c. May need to group wall recommendations by how they handle water
    - i. Barrier versus drainage
28. Robert identified a third option whereby these "children of E2112" become appendices
  - a. Principles, Wall types, testing, etc.
  - b. Also identify WHO is going to work on each appendix
29. Tom, Robert and Chris will develop a flow chart straw man
30. Steve, Jim, Leonard, Kevin, Cordell and Budd will work on window and wall option lists
31. Jim, Chris, Phillip, Kevin and Ben will outline Principles document
32. Larry – we need to identify what we "know" versus what we "believe"
  - a. Our recommendations will invite new wall types
  - b. We won't ever cover all options
  - c. Don't try to identify all wall types
33. Appendices on:
  - a. Sealant joint design
  - b. Surface prep
  - c. Flashing principles
  - d. Performance criteria
  - e. Prescriptive guides
    - i. Workmanship issues
34. New test procedures? Existing ones?
35. Standing group focused on symposia
  - a. Papers, data, peer review
36. Window tests versus wall system tests
  - a. Who will test?
  - b. Do we provide test guidance and principles?
  - c. Field? Lab?
37. Define all functional layers
38. Much of our testing is based on our 50+ years of practical experience
39. Tom - More developers doing field tests
  - a. Good direction to go
  - b. Give them guidance



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- c. Good risk management practice
- d. Solves many on-site problems
  - i. Like open joints at mulls
- 40. New materials and systems
  - a. Legal implications
  - b. Consensus organization implications
- 41. Need more concentrated focus – fewer meetings
- 42. Need to promote to customers
- 43. “ASTM” is synonymous with “slow”

### FURTHER DISCUSSIONS:

Steve Johnson – regional differences can affect choice of methods based on risk, e.g., installation in a dry climate with in a building with large overhangs – could choose a more “risky” method that you would not choose in a different climate. Kevin Knight – does E2112 address the occupied space conditions, which affects the moisture of the building? No.

Barry – this committee really acts like a subcommittee – maybe we should reconsider, become a subcommittee, and break down the different issues and sections into task groups.

Barry – we need to get to a common testing protocol for the window in the wall. Also essential to have regular symposiums to share data.

Steve Johnson – all window manufacturers test the windows by themselves (not as part of a wall). Walls are not tested, and with all the different types of walls, that adds many tests, gets into different cladding types. Robert – we have not identified who is responsible for the wall test – may not be the window manufacturer who tests, but the 100 wall users who test the window in their wall. Chris – need another group to determine types of tests to be done.

Kevin finds lack of definition of where on the window frame one must joint the various layers of the wall. Asks window manufacturers to identify.

Larry – AAMA did develop a test method for windows in the wall. Leonard cites regional differences in types of tests done. Lab tests must be supplemented by practical field tests. Tom Butt – re testing – sees on west coast that more developers of apartments or condos are doing field testing these days. Tests are being done on a building with or without cladding. Test the window-wall assembly at the water resistance rating of the window. People feel it is good value and good risk management. So we should add field testing criteria to E 2112. Field tests would pick up errors in mulling windows together. Barry – When using new materials for walls and putting the windows into it, people are safer legally if they use ASTM consensus standards – it shows that you care. Mark Daniels – wants a better understanding on how we are going to be able to deal with regional issues.

**FMA 100 AND FMA 200 NEW STANDARDS:** This task group is requested by FMA (Fenestration Manufacturers Association, from Florida) to put these 2 new documents through the ASTM consensus process. Will this be a “child” of ASTM E 2112 or a stand-alone ASTM



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document? Tomorrow (Tuesday) there is a meeting between 9:00 and 3:00 to develop details for wooden finned windows in masonry openings. Larry is in favor, so they can include in their training program. Jim Krahn – this can be an appendix in E 2112, along with similar documents. Barry – should run documents like this through consensus process before they are adopted by training programs. Larry points out that doors are installed entirely differently in Florida and the coastal regions. We need to find out differences and what works by going through this process. Larry envisions having a binder relative to window installation, with a suite of documents that comprise E 2112. Barry – On the back of FMA 100 & 200, there will be a tear-out section that has photographs and details with text explanation. Asks everyone to critique these documents. Tom Murray – how does this fit the format of the new direction of E 2112? Mark Daniels says St. Johns County and one other in Florida have adopted E 2112, but there is nothing about installing into masonry – and the code folks asked FMA to fill the gap. Frank Nunes says the masonry folks there are starting to do extensive testing, including the permeability.

Dave Meadows suggests we add this as an addendum or appendix to E 2112, so we can incorporate the “Principles” of the existing E 2112. This is a short-term solution to address the needs of FMA. When we figure out the format of E 2112 we can separate accordingly.

Motion to put though the two FMA standards as work items for review and consideration as subcommittee ballots – can be adopted by E 2112 afterwards. Will ballot as if they were new draft ASTM documents. May later be incorporated into E 2112. Vote: 2 abstentions, no negatives, balance unanimously in favor.

Barry reports that Florida folks will do round robin testing. Will put the 2 FMA standards into ASTM format and re-send to the task group.

**CODE-READY E 2112 DOCUMENT:** Robert Bateman reports that at a prior meeting, we determined to put forth an entirely new standard, separate from the current E 2112.

**WORK ITEM ON CONVERSION OF AC148 (ACCEPTANCE CRITERIA FOR SELF-ADHERING FLASHING) TO AN ASTM DOCUMENT:** Mark Williams and Dale Ackerman both sent in documents. Jim Katsaros is working with them, and reports. Next code hearing is June 1. Dave Olson of Fortifiber is proposing that they add mechanically attached flashing. Jim Katsaros recommends that they also reflect current best thinking and practices of AAMA 711 in the current AC148. The code will be improved while we wait to get this through the ASTM process. Theresa reminds us that the Acceptance Criteria documents can only deal with what is already in the code.

**DESIGN PROFESSIONAL INITIATIVE:** Robert Bateman reports on the Design Professional issue. Was approved to pursue. Now the approach will be affected by the new direction of E 2112. Robert believes it fits in with any of the options we have discussed re: future E 2112. This fixes a loose end of E 2112, even if we break up the document later. Put into the scope or significance and use of E 2112. Put in disclaimers. Chris – each meeting we talk about items that are not yet covered by the standard but that we want to insert into the next one. We need to keep a list of what we don’t cover but will work on. Steve Johnson comments that is even more important than the guiding principles section – task group needs to look at the scope we have to clarify or add to it, and to list what we cover and what we don’t. Chris Mathis speaks about dividing the document into easier chunks to work on. Robert says the design professional issue is



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ready for balloting, and can go on at the same time as the Main society balloting. Motion to move it forward for ballot. Will be separately from the flashing proposal. Seconded by Theresa Weston. Motion: to move forward the Design Professional definition on a separate ballot. Opposed: none, 2 abstain, all other affirmative.

**EQUIVALENCY TESTING INITIATIVE:** Robert Bateman speaks of the equivalency testing initiative. It is set aside to consider later.

**NEXT MEETING:** Next interim meeting will be Wednesday and Thursday, July 12-13, 2006. Thanks to Mark Daniels of Sika Corporation, we will meet in the conference room of Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071. Mark Daniels will contact us soon with hotel availability and a group discount. Mark mentioned that their facility is centrally located to many areas of interest in the evenings and will email some suggestions. The nearest airport is Newark, New Jersey.

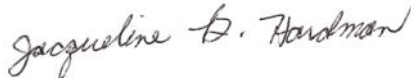
Chris will finish the organization of E 2112 and we will work on it at the meeting.

**ADDITIONAL MEETING:** Tomorrow (Tuesday), for those interested, there is a meeting in room 2929 from 1:00 to 3:00 regarding a new standard and details for finned windows in CMU/Masonry construction.

**ADJOURNMENT:** Meeting adjourned 11:51 a.m.

Many thanks to Chris Mathis for providing his bulleted list above.

Respectfully submitted,



List of attendees follows.



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### ATTENDEES:

Barry G. Hardman	National Building Science Corp.
Jacqueline B. Hardman	National Building Science Corp.
Chris Mathis	MC <sup>2</sup>
Tom Murray	W.R. Grace Co.
Joel Williamson	Simonton Windows
Ben Cross	Tyco Adhesive
Jim Katsaros	DuPont
Doug Bibee	Dow Chemical
Kate Johnson	Dow Chemical
Donnie Hunter	Kawneer Co.
Budd Beatty	Jeld-Wen, Inc.
Brian Faith	Raths, Raths & Johnson
Doug McDougall	Profine
Leonard Dorin	Fortifiber
Mark Daniels	Sika Corporation
Chad Elbert	Jeld-Wen
Bob Braun	Dow Chemical
Larry Livermore	AAMA
Philip Sumang	Engineering Diagnostics Inc.
Cordell Burton	Pella
Rick Perry	WDMA
Steve Johnson	Andersen Window
Jim Krahn	Marvin Window
Tim Stoll	Marvin Window
Lucas Turner	PGT Industries
Charlie Carll	US Forest Products Lab
David Moyer	Architectural Testing, Inc.
Robert Bateman	Simpson, Gumpertz & Heger
Kevin Knight	Retro Specs / KTA
Tom Butt	Interactive Resources
Monte Jones	84 Lumber
Frank Nunes	Lath-Plaster Institute
Theresa Weston	DuPont

