ASTM E06.51.11 ***Fenestration Installation***

E 2112 Standard Practice for Installation of Exterior Windows, Doors and Skylights

Norfolk Marriott West Side, 235 E. Main St. .Norfolk, VA

MINUTES **April 15-16, 2007**

April 15, 2007, 2:00 – 5:00 Guiding Principles – Group Leader Tom Murray, assisted by Chris Mathis, Phil Sumang, Jim Katsaros, Steve Johnson, Cordell Burton

Links to documents for this meeting:

http://www.section08.com/ASTM/ASTMMatrix1.xls (A wall/window type matrix)

http://www.section08.com/ASTM/Method A and A1 Window Installation Flowchart.pdf

http://www.section08.com/ASTM/Principles of Installation_040407.doc

http://www.section08.com/ASTM/Window Replacement Decision Tree.xls

http://www.section08.com/ASTM/EXYZ-2007draft1.doc

Reviewed Guiding Principles – Doc. EXYZdraft1.doc and Jim Katsaros's Principles of Installation_040407

Reviewed 7 general principles, continuity. Discussion was on level of detail desired in guiding principles vs. specific installation procedures. There is a area that is in between. It was decided that the documents under discussion are guiding principles.

Drainage path – This is a shortcoming in the current E 2112 document. Should be under the Risk section in the new version

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Testing Window-Wall System as a Complete Installation: AAMA 504 has a standard that can be referenced. Tear-down afterwards shows many things that did not appear by doing the test. Q. Who will test? A. Whoever is publishing the installation method – mfr or whomever? Window mfr? A. Does not talk about all cladding systems. Or is it the job owner asking for a mockup that will be tested? What do we recommend in the Guiding Principles doc re: risk assessment? Conditions that Promote Adhesion – see AAMA 711 committee. Suggestion: Mike Lacasse – evaluate the failure through faulty installations. Do in cold/dusty/wet environments.

Re: risk factors – see sec. 6. NRC has a moisture index for various locations. Phil Sumang suggests that people should run hygrothermal analysis to determine moisture conditions and model specific walls. Include as a reference, that more robust tools must be used to evaluate specific conditions.

Next step: Take the XYZ document and Jim Katsaros's Principles of Installation document and meld into one.

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Phil Sumang presented his flowchart on installation procedure, Method A and A1. Will also have the B and B1 procedure. Also showed a Word document, Combined Installation Method A and A1.doc. Mike Lacasse – this shows how to apply the principles and tie in with E2112.?? Discussion on performance-based vs. prescriptive documents.

For any specific topic, you will be able to find "best practices, limitations, and risks".

Shouldn't Guiding Principles cover everything (every mfr variation)? Yes. Example: Shimming is to hold the window square and support the window.

Comment: There will be overlap in General Principal Applications vs. Ancillary (See PowerPoint).

Purpose: Not to rewrite E 2112 – just restructure it.

Suggestion: That what the 2 teams started (General Principles and specific instructions) be created, plucked from E 2112.

E06.81 Building Economics Standards is an example of guiding principles and specific documents.

Team will pull out more of the Ancillary items and write those sections.

Steve Johnson reviews his matrix.. Perhaps some industries already have instructions for particular boxes.. Can adapt some portions of existing standards for similar window and wall types.

Cross-reference each document by the others (each installation-specific document references the General Principles and Ancillary Procedures, etc.)

Agreed: Jim and Chris and team will take next iteration of Guiding Principles and integrate Jim and Chris's docs. Phil's specific installation instructions are a good start and will be expanded as separate other installations.

Note: Must add doors and skylights.

Chair thanks all for a super job.

Need 2 hours at a regular meeting. Look at existing guidelines for what can be filled in on the matrix.

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Monday, April 16, 2007, 8:00 a.m. to 12:00 p.m. in Hampton Ballroom 7

8:00 Call to order
Self-Introductions
Review minutes of October 23, 2006 ASTM Committee Week meeting and January 24-25, 2007 Interim Meeting
Links to minutes:
http://www.section08.com/ASTM/Minutes E065111-2006-1023.doc
http://www.section08.com/ASTM/Minutes E065111-2007-0124-25.doc (interim meeting)

8:30 Chairman's report:
Status of E 2112-07 (published)
WK 11256 (4-inch self-adhered flashing)
WK 11259 (Design Professional: addition to scope)
Guiding Principles (see links above for Sunday meeting)

ASTM Symposium: **"Up Against the Wall: An Examination of Building Envelope Interface"**

Link to presentation titles here:

www.section08.com/ASTM/Up Against the Wall Titles.doc

Conference: **Thermal Performance of the Exterior Envelopes of Whole Buildings X International Conference** – discussion of agenda and workshops

Link: http://www.section08.com/Buildings X Abstracts - Combined.doc

9:00 Update on delayed Work Items 11252 (FMA/AAMA 100) and WK 11254 (FMA/AAMA 200) and non-Work Item FMA/WDMA 250: Report by Jim Katsaros.

9:30 Call for ASTM official readers for "Up Against the Wall" papers.

9:45 Report on Guiding Principles meeting of April 15 – Tom Murray.

10:00 BREAK

1015 Debate: Reforming ASTM E06.51.11 from a task group to a subcommittee:

- Discuss mission statement and subcommittee objectives; review Mark Bomberg's white paper/rationale. Link: http://www.section08.com/ASTM/E065111 to Subcommittee.doc

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- List possible task groups.
- Meeting schedule: Same as current E06.51.11 task group?
- Form exploratory group to investigate feasibility through ASTM staff.

11:15 New Business:

- To be determined.

Minutes
E06.51.11 Norfolk, VA April 16, 2007

8:00 Call to order and self-introductions.

Ackerman negative was withdrawn.

Robert Bateman withdrew negative.

John Edgar withdrew negative, which was non-responsive to the ballot. Tom Remmele is the same thing, wanting all water to drain to the outside of the building.

WK11256 negative by Larry Livermore re: flashing width – had withdrawn because the AAMA document goes by "2 inches past the critical interface".

Chair phoned Aaron Phillip, who withdrew his negative because of the AAMA 711 self-adhering standard.

Dave Moyer points out that the AAMA 711 document is not finished yet, and does not yet address installation conditions such as dirt, etc. Leonard Dorin, who chairs AAMA 711 committee, says that Part 2 is the installation part, which is now approved and there will be another meeting next month. Issues to be addressed are a section on surface preparation, and clarifying sequencing.

Comment – Valerie Block – WRB should be defined as Water-resistive barrier instead of weather resistive barrier.. Explain WRB as water-resistive barrier. Agree. Is also in definitions.

Comments – Monte - Issues in these comments are being handled by AAMA 711. Monte – if we move down to the 4-inch we need to make sure the other steps are done well; e.g., air seal and sealant behind the nail fin. Makes the 4-inch a backup to the other seals. Requires no change to the document.

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Leonard Dorin Affirmative with comment – clarifies – 5.12.3.1.1. Tom Murray says his is similar. Current wording is insufficient. Add a caution "Do not use sealants that contain components that adversely affect the performance of adjacent materials." Committee agrees.

Jim Katsaros 5.12.3.1.1 Jim says there should be a caution about cold and wet conditions. Dave Moyer also says we need to add dirt to the list. We hope that the work in AAMA 711 will address all these issues. Modified WK11256 accordingly.

Daniel McNicoll comment – would add another bead of sealant to the edge of the flashing. There is some question as to which edge he is talking about. Looks like he is addressing water getting into fishmouths or wrinkles in the SAF. Sounds like a remedial thing if not properly rolled on. Larry – in the application of self-adhering flashing it must be rolled on, and if there are fishmouths, show how to remediate. This would be done in AAMA 711. John Swink sees adhesives rarely sticking. Believes in always shingling to drain, as a backup, and to use a sealant. Comment: in commercial work Mr. McNicoll's idea is a good practice.

Comment from John Muncaster: Jim K – What he describes is in Method A, but calls for a second layer of SAF. But AAMA 711 will address this, and it is out of the scope of E 2112.

Tom Murray: DP 20 is not in 8.1.1.1.4 or 9.1.1.2.2 in E 2112-07. WK11256 adds a reference of "in excess of DP 20" in door section, but DP 30 in window section. Consensus: Remove reference to DPs. See markup of WK11256.

Carl Wagus comment - OK, changed "must" to "shall".

Motion: By Jim Katsaros with a second by Monte Wood, to forward this edited version to main committee ballot.

WK11259 Design Professional - John Brough withdrew his negative. He had been under the impression that we were eliminating the role of the design professional, but in fact we are adding it.

Monte moves and Jim seconds that we move ballot to main committee. Agreed.

Monte asks about the January 2007 meeting, where we discussed a second bead of caulking on top of mechanically attached flashing. See section 8.

Tom Murray gave a report on Sunday's meeting on Guiding Principles. Have had teams create a Guiding Principles document for fenestration installation, specifics of details like flashing, anchoring, installing, etc., and a decision tree or matrix that defines wall types and window types.

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Jim Katsaros reports on FMA Installation Committee (Fenestration Manufacturers Association from Florida), particularly dealing with Florida installations. Formed in mid-2005. AAMA has joined the effort for the aluminum systems, and WDMA for wood systems. All the large window mfrs have been participating. Initial push was to develop methods for inclusion in building codes for water management. Second objective is to include these guidelines for training in installation. Works in the matrix discussed yesterday. Unique considerations: extreme / coastal exposure –See PowerPoint on FMA Installation Committee: http://www.section08.com/ASTM/FMA Installation committee_ASTM041607.pdf

Other standards under development:
FMA/WDMA 250: Non-frontal Flanged Wood windows in surface barrier CMU.
FMA/AAMA 300: Sliding Glass Doors in Wood Frame.
FMA/AAMA 400: Sliding Glass Doors in Surface Barrier CMU.

Radical idea: Do wall testing of these installations. Establish criteria of what is acceptable. Testing to DP 80, 12 psf to simulate extreme exposure conditions. Are debating on whether it should be DP 15. Questions from this task group on where criteria (DP) came from. A. They are going to test and evaluate results, but this is not a pass/fail for windows. Barry – Re: DP - this is one level below hurricane, is top gale force. The INSTALLATION, not the window, is what is being tested. The installation is expected to work well, and the windows are expected to leak at DP80. Purpose is not to specify anything. Requires a sill pan in every application. High levels chosen to prove water performance of the installation to others. Discussion: Wall type should pass at least the same as the window and the interface. This will prompt change in wall types in Florida. Example is of porous stucco and CMU walls.

Jim – FMA 100 – wood frame wall test – one based on SAF and one based on mechanically attached flashing. Doing backer rod with sealant, and foam. Will be thermal cycled for 7 days, 4 cycles/day. Passed 12 psf provided there was a good seal. Foam system passed 12 psf initially. When moved up to 15 psf there were small leaks in both. Note: there were pans, and sills were open for drainage. Learning: Must have good adhesion. Both passed. Air seals performed with a pure polyurethane sealant, but not with a hybrid sealant. Sealant should not be able to pull off the flashing. Have not torn down the specimens yet. Used caulk on jambs and head, sealing to the WRB (A1 method). There was no cladding. Will tear down after thermal cycling to see if any leakage into the cavity. Visually there was no leakage.

FMA 200 – Surface barrier CMU – In August 2006 they did a full coat on the block wall. Specified 9-inch coverage around the opening. Block being very porous, they did complete coverage. Blocked off window flange – tested the buck interface with the block wall. Leak on the buck at 6 – 9 psf. Water came from mortar joint, between the wall and the buck. Tested to 40 psf. Conclusion: Joint may have been damaged by high exposure.

Stucco folks claim the stucco does not leak, but they tested without pressure.

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Will complete testing on the 100 and 200 documents, then ballot. Will test the other installations, fine-tune the documents, then turn over to this task group. These docs fill out some of the matrix we looked at in Sunday's meeting.

Barry – Up Against the Wall symposium to be held November 1, 2007 – Showed titles of accepted abstracts. Papers will be submitted by May 1. DuPont will supply hors d'oeuvres at a reception afterwards.

ASTM Readers for the papers: Volunteers: Barry, Charlie, and Theresa as chairs will be automatic readers, but need as many more as possible. This is a double-blind peer review. Any papers that are not submitted and reviewed will not be presented.

Subcommittee vs. task group – if this task group becomes a subcommittee it can then have task groups on each item in the matrix. Pros can cons are discussed – Con: Lucas - we are not sure how some of the ancillary items in the standard will come together without overlap of sub-task groups, so this may be premature, complicate communication between groups. Pro: The entire subcommittee could still meet in the same place and time as they would if they were a task group. Much of this work will be done electronically, either by a task group or a subcommittee. At sub level, task groups just report and leave. Theresa – a subcommittee has to have a chair with additional responsibilities. Would the subcommittee have a wider scope than, and a different title from the current task group? Barry – Is there a better opportunity to bring in the air barrier groups and wall groups to contribute if we were a subcommittee? Theresa - We need to think through what a subcommittee entails. Right now when we want feedback on a subcommittee ballot, we can ask staff to send out a courtesy note to other subcommittees to get them involved.

Barry emphasizes that this will be an electronic document, and we need to be thinking about how to make it user-friendly and how to bring in other subcommittees. Tom M – this task group is expected to actually do work, while subcommittees may only report and vote with no work being done. Barry – must be Internet-based, not just CDs and DVDs which will soon be out of date. Leonard – Many of us go to 3 – 6 meetings, so we get a coordination effect with other committees. Lucas – there are already competing meetings, and if we meet separately as task groups, the communication will suffer. Monte – if we do this in committees of 30-40 people, we will never get the matrix filled out. We need just a few specialists in each area work on these. Tom M – we already have that. Jim K – just talked about the FMA effort that relates to one section of this matrix. This is a model; this task group does not need to do all the work from scratch, but can focus on the wall that are most important and look for existing documents. Steve J – we need to get the wall people into this group to add their knowledge on the particulars of the different wall types.

Barry – we have 200 possibilities in our matrix. Look at the two balloted work items we are working on now. If we have a document for each item in the matrix, we could never get through the balloting.

Barry – this discussion is to encourage debate, to think about how to most efficiently get all these instructions to the end user.

Tom Butt – thinks it is a good idea to be a subcommittee. Monte points out the success of FMA because it is a specific region. There are not groups like FMA in other areas such as California, that know about their specific problems and can be brought in to the larger group.

Next meeting – interim meeting or wait until ASTM Committee Week in October? Barry feels we cannot do all our tasks in 4 hours in Tampa. Tom – next event is Phil's, Jim and Chris's work to combine their two documents – can set an electronic meeting in July. Feeling is that a half-day meeting is needed for work as we did on Sunday. Then the remaining half-day can be for the committee as a whole. Chris Mathis proposes that the task groups arrange their get-togethers, whether electronic of face-to-face, before any other face-to-face meetings. Example: NFRC has done some good electronic meetings as an example. Barry will send out a to-be-corrected agenda of tasks to be completed, with a deadline for arranging an electronic meeting. Then we can meet a couple times before a face-to-face meeting. With ASTM you can set up a web meeting, and ASTM will notify everyone you want.

Agenda – Chris & Jim will combine their documents.

- Phil's team will take 2 more of the installation instructions as they did for the first one.
- Critique the matrix. In next iteration we will ask folks to fill in boxes on the matrix. Steve Johnson wants feedback on the window and wall types before we go forward. Block out ones that never happen, such as a brick mold window in a wood frame. Mark others as "Same as XXX". Then the task may be simpler. Send Barry an e-mail (barrygh@section08.com) on items to add to the matrix.

An E06.51.19 Committee is meeting Tuesday at 8:30 a.m. in Marriott Ballroom 1. WK5219: Practice for Mounting Fenestration Products for Laboratory Air, Water, and Structural Testing is a new standard by a committee recently formed to get testing done on wall-window-interface testing and make a standard.

Other New Business: None.

Adjournment: Tom Murray moved and Charlie Carll seconded that we adjourn. Adjourned at 11:45 a.m.

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ATTENDEES OF APRIL 16, 2007 (APRIL 15 SIGN-IN LOST)

Bob Braun	Dow Chemical
Wayne Breighner	MW Windows
Charlie Carll	US Forest Products Lab
Rex Cyphers	WDPA
Leonard Dorin	Fortifiber
Barry G. Hardman	National Building Science Corp.
Jacqueline B. Hardman	National Building Science Corp.
Steve Johnson	Andersen Corp.
Monte Jones	84 Lumber
Jim Katsaros	DuPont
Michael Lacasse	National Research Council, Canada
Sheldon J. Leavitt	Leavitt Associates
Roger LeBrun	Velux
Larry Livermore	AAMA
Steve Marshall	Gale Associates
R. Christopher Mathis	MC^2
David Moyer	Architectural Testing
Tom Murray	WR Grace Co.
Rick Perry	WDMA
Dudley Ruppel	Jeld-Wen
Tim Stoll	Marvin Window
Michael Stremmel	Architectural Testing
Philip Sumang	Engineering Diagnostics
Roland Temple	PGT Industries
Lucas Turner	PGT Industries
Theresa Weston	DuPont