

IRC 2006 – Drainage Requirements

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2006 IRC Drainage Requirement for One-Coat Stucco

The 2006 IRC, widely adopted in AZ, requires exterior wall assemblies to prevent the accumulation of water and provide a means of drainage.

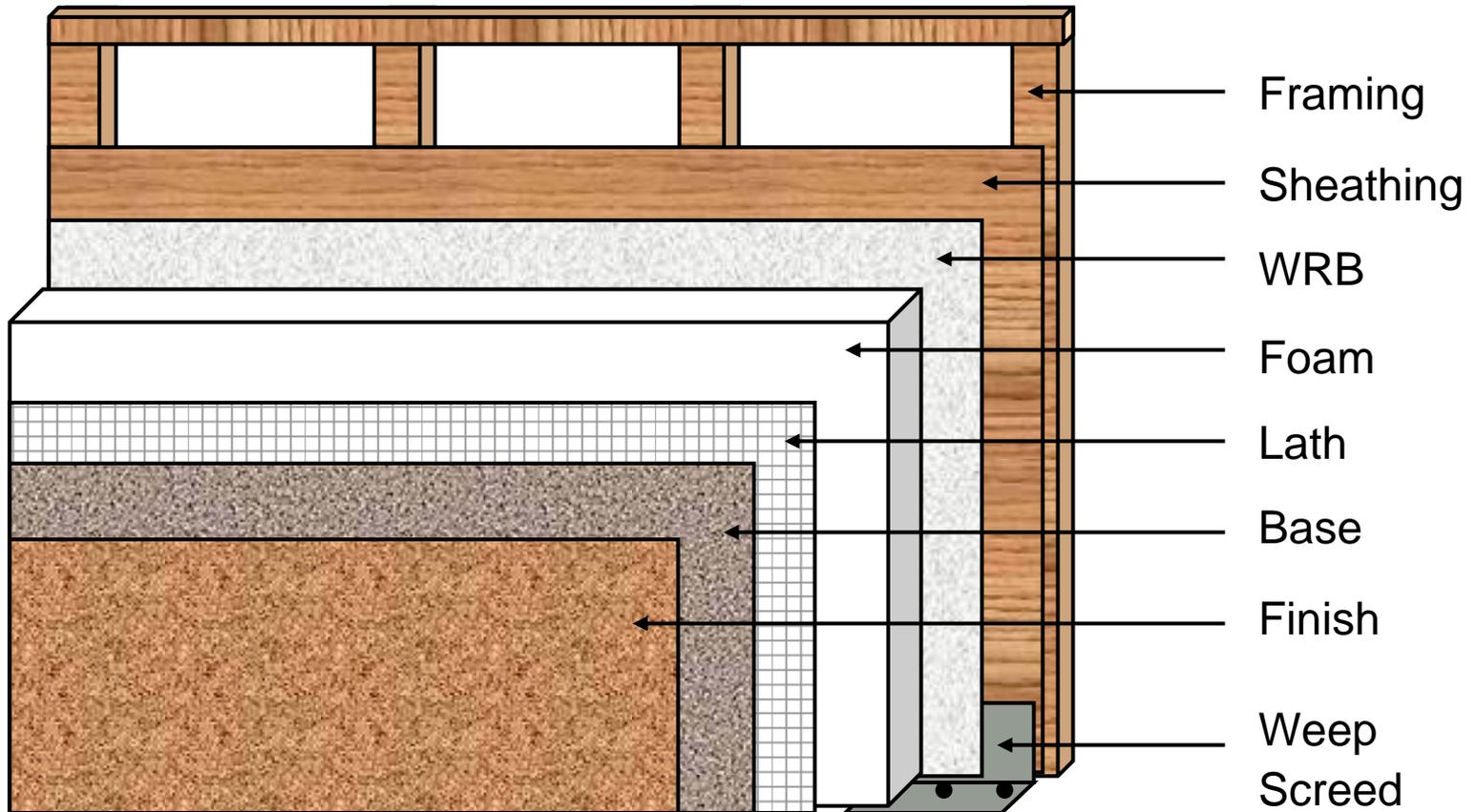
In response, the ICC-ES has recently updated the Acceptance Criteria for *Cementitious Exterior Wall Coatings* to require one-coat stucco wall assemblies to be tested for drainage performance.

Most homes constructed in the Phoenix area today, would not meet the performance criteria.

Agenda:

- 1) What options are currently approved by the ICC-ES.
- 2) Share what Manufacturers are doing to meet the code requirement.
- 3) Communicate how other jurisdictions are enforcing the code.
- 4) Confirm what we are communicating to our customers is in alignment with your interpretation.

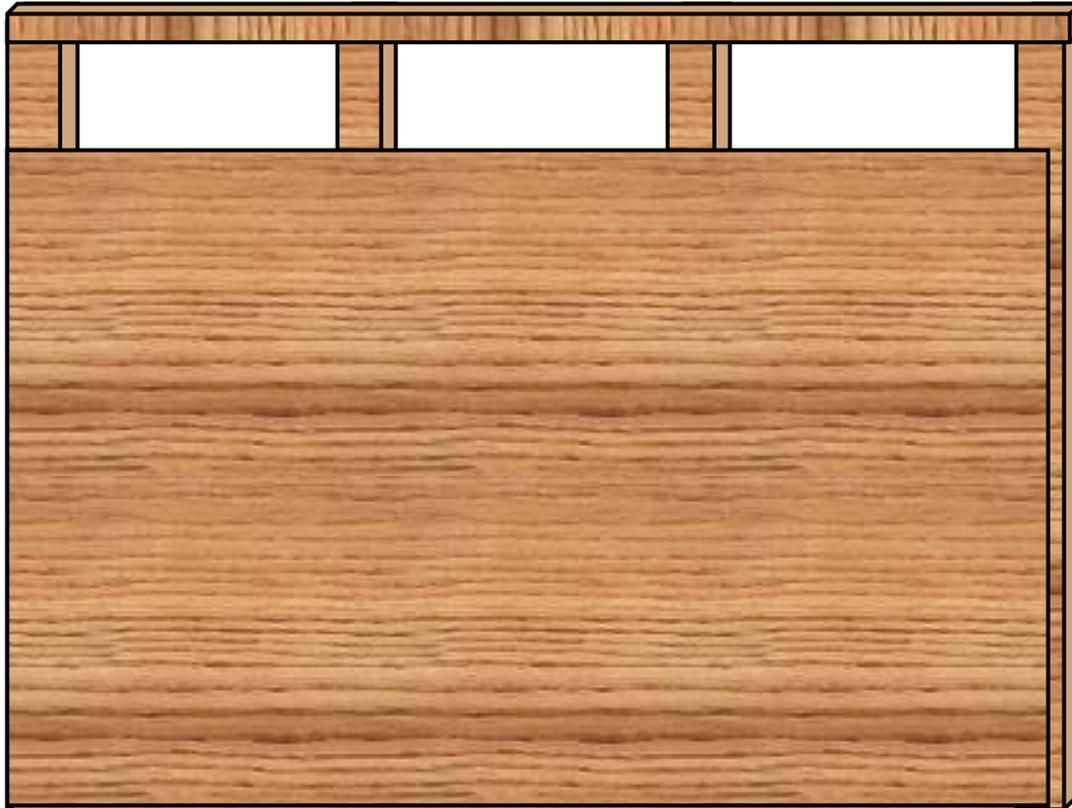
1-Coat Wall System



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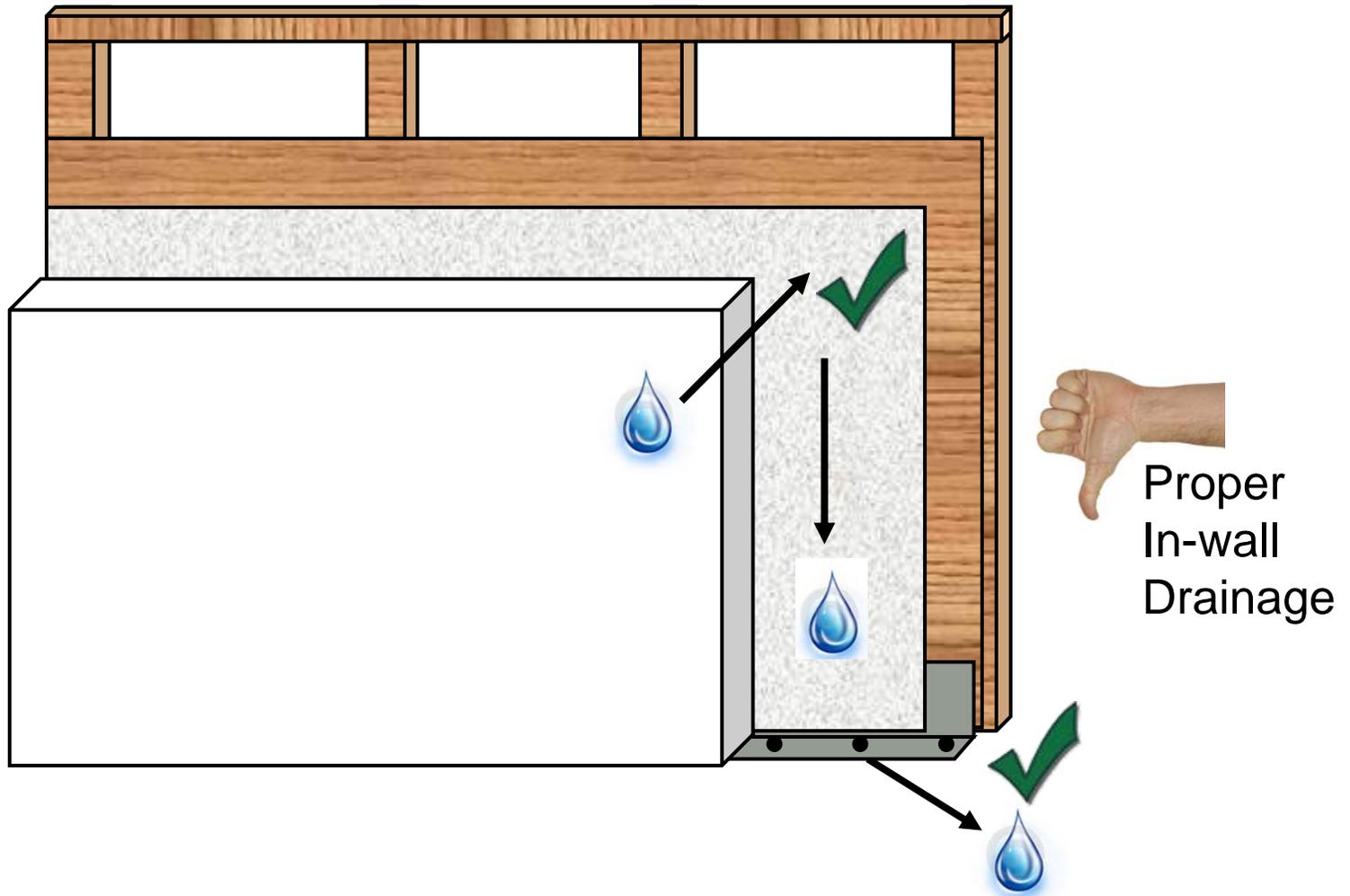
Primary Purpose?

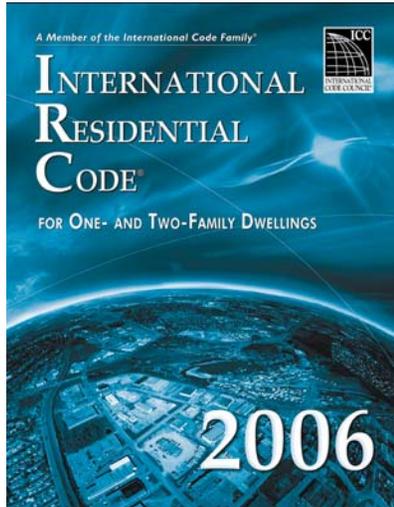
To Protect This...



Primary Purpose for IRC R703?

To Assure This...





What the codes say...

“The 2006 IRC Section 703.1 requires wall assemblies to have a means of draining water to the exterior.”

2006 INTERNATIONAL RESIDENTIAL CODE®

SECTION R703 EXTERIOR COVERING

R703.1 General. Exterior walls shall provide the building with a weather-resistant exterior wall envelope. The exterior wall envelope shall include flashing as described in Section R703.8. **The exterior wall envelope shall be designed and constructed in a manner that prevents the accumulation of water within the wall assembly by providing a water-resistant barrier behind the exterior veneer as required by Section R703.2. and a means of draining water that enters the assembly to the exterior.** Protection against condensation in the exterior wall assembly shall be provided in accordance with Chapter 11 of this code.

Drainage language from 2003 IBC
added to 2006 IRC.

2006 INTERNATIONAL RESIDENTIAL CODE[®]

R703.2 Water-resistive barrier. One layer of No. 15 asphalt felt, free from holes and breaks, complying with ASTM D 226 for Type 1 felt or other approved water-resistive barrier shall be applied over studs or sheathing of all exterior walls. Such felt or material shall be applied horizontally, with the upper layer lapped over the lower layer not less than 2 inches (51 mm). Where joints occur, felt shall be lapped not less than 6 inches (152 mm). The felt or other approved material shall be continuous to the top of walls and terminated at penetrations and building appendages in a manner to meet the requirements of the exterior wall envelope as described in Section R703.1.

“ICC Evaluation Services has recently updated the Acceptance Criteria for Cementitious Exterior Wall Coatings (AC11) to require one-coat stucco wall assemblies to be tested for drainage performance.

And also references the ICC-ES Acceptance Criteria for EIFS Clad Drainage Wall Assemblies (AC235).”



Ensuring that building products meet code requirements.



ACCEPTANCE CRITERIA FOR CEMENTITIOUS EXTERIOR WALL COATINGS

AC11

3.2.10 Weather-resistive Considerations: A water-resistive barrier complying with Sections 3.1.13 and 3.2.7 of this criteria is required under the exterior wall coating, except where coating system has been specifically recognized without barrier. The water-resistive barrier shall not be installed over the foam insulation board.

Details shall be submitted of a drainage system based on drainage performance testing. The applicant must submit a testing proposal to ICC-ES prior to testing. Precedent for a testing procedure can be found in the ICC-ES Acceptance Criteria for EIFS Clad Drainage Wall Assemblies (AC235), Section 4.10.



Ensuring that building products meet code requirements.



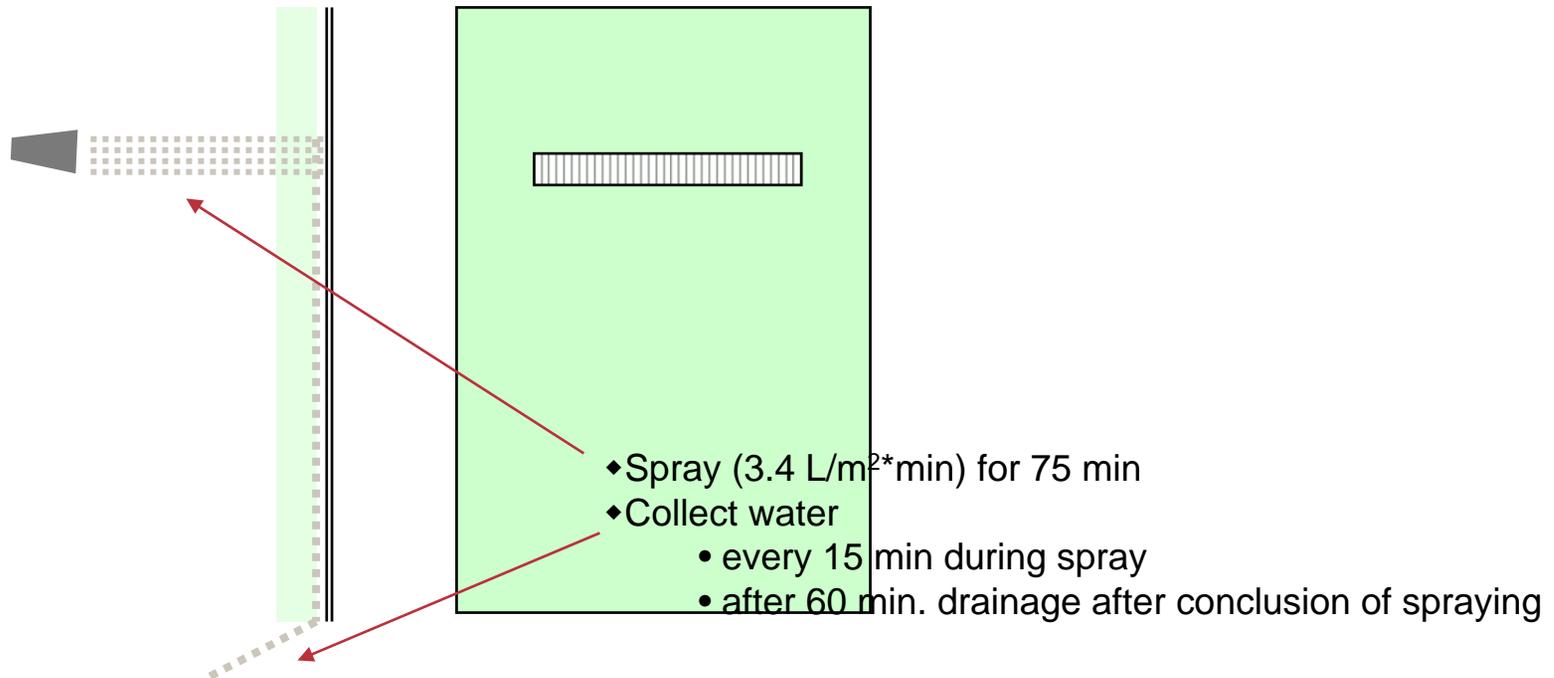
ACCEPTANCE CRITERIA FOR EIFS CLAD DRAINAGE WALL ASSEMBLIES

AC235

4.10 Drainage Test:

4.10.1 Testing must be performed in accordance with ASTM E 2273. Three samples are required. Each sample panel shall be a minimum of 4 feet by 8 feet (1219 mm by 2438 mm) in size, with a slot fault measuring 2 inches by 24 inches (50 mm by 610 mm) positioned 12 inches (305 mm) from the top of the panel, exposing the water-resistive barrier. The sample shall be tested for 75 minutes minimum.

4.10.2 Conditions of Acceptance: The assemblies shall be capable of draining water, and the assemblies shall have an average minimum drainage efficiency of 90 percent, except that a minimum of 75 percent may be accepted, with proper justification, for wall assemblies having cementitious backer units complying with Section 2.1.1.5, used as a sheathing to the exterior of the water-resistive barrier.



“The Condition of Acceptance signifying that the assembly is capable of draining water is to have an average drainage efficiency of 90% when tested in accordance with ASTM E2273.”

What the Manufacturers are saying...



EAGLE BUILDING MATERIALS



SACRAMENTO STUCCO CO.

WESTERN STUCCO CO.



Stucco Manufacturers obtain ICC-ES evaluation reports to ensure that their building products meet the drainage requirements specified in the 2006 IRC.

Manufacturer	ES Report	Drainable Foam	Drainable WRB
Eagle	ESR – 2772 Issued 8/1/08	When installed over solid sheathing, the insulations boards must have ¼ inch-wide-by 1/8 inch-deep vertical grooves spaced at 12 inches on the back face of the boards.	When Tyvek® StuccoWrap® is used as the water-resistive barrier, grooved insulation board described in Section 3.2.3.1 is not required.
Omega	ESR – 1194 Issued 11/1/08	When installed over solid sheathing, the insulations boards must have ¼ inch-wide-by 1/8 inch-deep vertical grooves spaced at 12 inches on the back face of the boards. As an alternate to the vertical grooves on the foam plastic board, installation of flat-faced boards over a solid sheathing may incorporate the Tyvek® StuccoWrap® water-resistive barrier.	When an optional layer of foam board is used, either Tyvek® StuccoWrap® must be used as the water-resistive barrier, or grooved foamed as described in Section 3.2.3.1 of this report must be used.
Western	ESR – 1607 Issued 9/1/08	When installed over solid sheathing, the insulations boards must have ¼ inch-wide-by 1/8 inch-deep vertical grooves spaced at 12 inches on the back face of the boards.	DuPont™ StuccoWrap® is approved for use as a combination drainage mat / weather barrier behind foam boards without drainage channels. (submitted 12/08)
DuPont	ESR – 2375 Issued 9/1/08	N/A	DuPont™ Tyvek® StuccoWrap® may be used as components of an EIFS or one-coat stucco drainage system. The assembly complies with Section 4.10 of the ICC-ES Acceptance Criteria for EIFS Clad Drainage Wall Assemblies (AC235) and Section 3.2.10 of the ICC-ES Acceptance Criteria for Cementitious Exterior Wall Coatings (AC11)

Approved Stucco Manufacturer's ES Reports include the following two acceptable methods for meeting the drainage requirements specified in the 2006 IRC:



Drainable Foam*



Drainable WRB*

* Note: There is no provision for ungrooved foam with black paper or flat housewrap over sheathing.

1-Coat Stucco with Full Sheathing

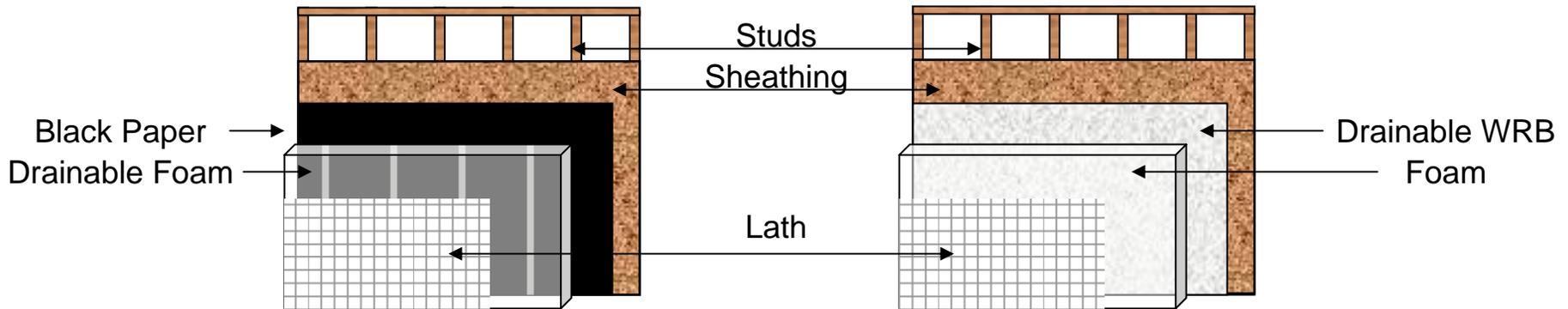


Drainable Foam

OR



Drainable WRB



1-Coat Stucco with Partial Sheathing

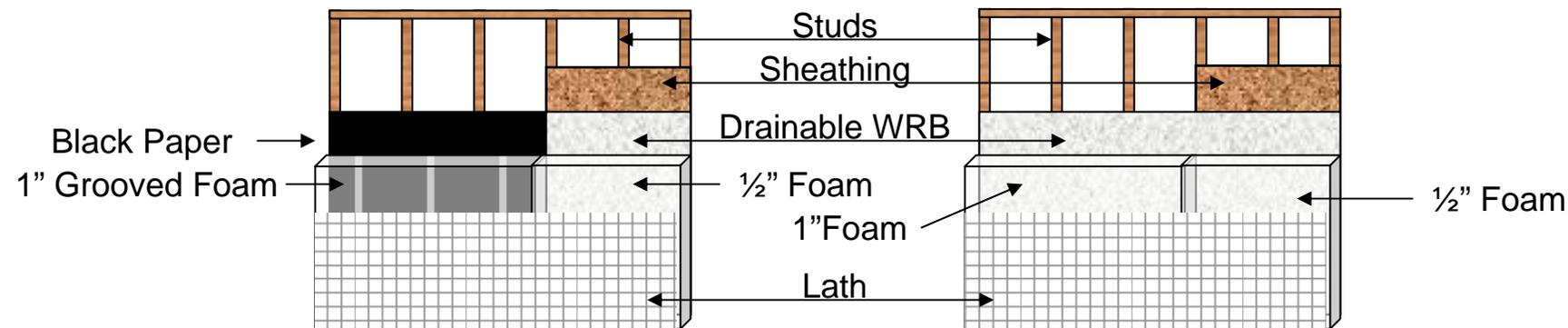


Grooved Foam

OR



Drainable WRB



Grooved foam with approved WRB or ungrooved foam with Drainable WRB are two approved & documented drainage systems to meet the requirements of the 2006 IRC.

SUMMARY

- ✓ Codes are driving drainage
- ✓ Manufacturers are on board
- ✓ Other Jurisdictions are beginning to enforce in N. AZ

Questions?

Thank You for Your Attention!