Weathered OSB air and water leakage testing
Weathered OSB air and water leakage testing
Hurricane test chamber

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- Hurricane test chambers
- Storm surge chamber
- Rosetta Stone Dynamic Vapor Permeability & Diffusive Air Movement Measurement Chamber
Weathered OSB air and water leakage testing

Prototype for exploded view
Capture / Buoyancy Device

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-- Cooling, Dehumidification and Re-Heating System.

-- The temperature and dehumidification process precisely controlled by a laptop.

-- Specimen water removal rate data logged and recorded in real time.
Weathered OSB air and water leakage testing

www.youtube.com/watch?v=E914JxndUIA&feature=youtu.be

Rosetta Stone Dynamic Vapor Permeability & Diffusive Air Movement Measurement Chamber
Builders and researchers in North America and Europe report that air can leak right through oriented strand board.

Recommendations to builders

North American OSB is not marketed as an air barrier material, and current manufacturing standards for OSB do not require OSB to resist air leakage.
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Prior to wetting, met ABAA standard 0.004 cfm/ft² at 1.57 psf (0.3 IWC) -- but just barely

Wetted with simulated one-hour heavy rain

Followed with simulated 25mph wind for 24 hours

After wetting and drying: 0.0055 cfm/ft² at 1.57 psf (0.3 IWC)

Fails the ABAA standard

37.5 % increase in air leakage

Significant water transmission
Ongoing & Future Work

Drying Quotient Ratings (DQRs)

• For structural building materials and air- and water-barrier membranes.

• A function of the drying of materials over time under varying wetting and humidity circumstances.

• DQR = % water content reduction / minutes.

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Ongoing & Future Work

Engineered Drying

• Maintain dryness and respond to catastrophic weather events
  -- Wall assembly design
  -- Building operation
    -- Increased HVAC fan pressure vs heating
      -- cost
      -- comfort
The End
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