

# NRGY 235: Building Energy Efficiency

## Week 7 Quiz



1. What barrier is recommended under siding and over sheathing in most climate locations to protect the wall assembly?
  - a) Vapor Barrier
  - b) Vapor Retarder
  - c) Air Barrier
  - d) Weather Resistive Barrier
2. Among the options below, which is the most effective way of reducing indoor humidity?
  - a) Install vapor barriers near the inside and outside surfaces of your wall assembly
  - b) Provide adequate ventilation rates, ventilate according to ASHRAE 62.2 or 62.1
  - c) Reduce showering times to less than 15 minutes per shower, or take baths instead of showering
  - d) Reduce the number of house plants kept indoors, and do not over-water them
3. What is the most important factor in determining Vapor Control Layer placement?
  - a) The types of humidity sources inside the building
  - b) Year-round outdoor climate description
  - c) Whether there will be an Air Conditioning system operating in the building
  - d) Indoor relative humidity on cold days when condensation could occur within the wall assembly
4. Choose the product below that would likely have the highest Perm rating
  - a) Zip panel coated sheathing
  - b) Polyethylene sheet material
  - c) Roofing underlayment tar felt
  - d) Tyvek WRB
5. Which among the following is NOT a material commonly used as or considered to be an air barrier within a wall assembly?
  - a) XPS or EPS foam board sheathing
  - b) Interior plaster or gypsum panel finish
  - c) Plywood or OSB sheathing

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- d) Polyethylene
6. Which combination of outside and inside conditions (drybulb temp and RH) would result in the greatest potential rate of vapor diffusion through a wall assembly?
- a) Inside: 70F, 60% RH  
Outside: 50F, 10% RH
  - b) Inside: 50F, 10% RH  
Outside: 35F, 50% RH
  - c) Inside: 80F, 20% RH  
Outside: 35F, 50% RH
  - d) Inside: 80F, 20% RH  
Outside: 50F, 10% RH
7. Which of the following scenarios would be the most concerning with regard to potential year-round moisture accumulation in a wall that could lead to growth of mold or bacteria?
- a) Moderate indoor RH year round, vapor retarder applied on outside of exterior sheathing, super insulated R-35 wall, cold climate
  - b) High indoor RH year round, no vapor retarder, old wood framed construction with little to no insulation, cold climate
  - c) Indoor swimming pool, highly humid and warm indoor conditions, vapor retarder applied behind interior finish, code-compliant wall insulation, moderate climate
  - d) Central A/C system with code minimum ventilation, moderate year round indoor humidity, vapor retarder near indoor surface of wall assembly, code-compliant wall insulation, hot & humid climate
8. Which among the most abundant molecules in are within Earth's atmosphere is the smallest and thus most likely to transfer through building envelopes?
- a) Oxygen: O<sub>2</sub>
  - b) Argon: Ar
  - c) Nitrogen: N<sub>2</sub>
  - d) Water: H<sub>2</sub>O

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9. Which among the options below does NOT describe a common mode of transfer of moisture through a concrete foundation wall?
- a) Seepage of ground water through solid concrete driven by capillary suction
  - b) Leakage of ground water through cracks and holes in the foundation wall
  - c) Sublimation driving water through the foundation floor
  - d) Vapor diffusion of water vapor in the ground through the micro-pores in the solid concrete wall
10. What is the primary intended function of a rain screen?
- a) To decrease infiltration and exfiltration through the wall assembly
  - b) To prevent moisture from getting past the exterior finish (e.g. siding)
  - c) To increase vapor diffusion through the wall assembly
  - d) To provide a drainage plan, and an air gap where evaporation may take place, both of which help to keep any moisture that gets into the wall assembly from accumulating and developing dangerously high moisture levels in the materials