

# Annual Energy Performance Subcommittee

Tuesday, November 7, 2006

Chair: *Tom Culp, Birch Point Consulting, LLC*

Vice-Chair: *Jim Larsen, Cardinal Glass Industries, Inc.*

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1. Tom Culp (chair) called the meeting to order @ 5 pm
2. Ray McGowan (Staff) appointed recording secretary
3. July 2006 meeting (Minneapolis, MN) minutes approved as presented
4. Agenda reviewed and approved
5. New Business

Reviewed ballot results and previously received comments on draft NFRC 901 “Guidelines to Estimate Fenestration Annual Energy Performance in Single Family Residences”.

The issues are broken down into 18 questions for discussion and for vote by subcommittee. Results will be used for next draft and ballot of NFRC 901.

- a. Question 1: Insulation Values
  - i. Allow user to input insulation values for specific house or use defaults, or
  - ii. only use fixed default values
    - Results: 22-4, i prevails
- b. Question 2: Window Area
  - i. 15% for both new and existing house defaults,
  - ii. 18% for new and existing house defaults, or
  - iii. 15% for existing and 18% for new defaults
    - Results: 0-1-majority, option iii prevails
- c. Question 3: Window Orientation
  - i. Windows equally distributed on all house sides,
  - ii. Variable window distribution (predominantly E/W, N/S), or
  - iii. User input
    - Results: 0-12-14, iii prevails
- d. Question 4: Area Weighting
  - i. Allow multiple windows per orientation, or
  - ii. One average window input per orientation
    - Results: 0-14, ii prevails
- e. Question 5: for lower heating in default home, heating setpoint at:
  - i. 68 F, or
  - ii. 70 F
    - Results: 14-11, i prevails
- f. Question 5b: for higher heating in default house, heating setpoint at:
  - i. 72 F, or
  - ii. 75 F
    - Results: 14-16, ii prevails

- g. Question 6: for lower cooling, cooling setpoint at:
  - i. 78 F, or
  - ii. 80 F
  - Results: 25 – 0, i prevails
- h. Question 6b: for higher cooling, cooling setpoint at:
  - i. 75 F
  - ii. 76 F
  - iii. 74 F
  - iv. 72 F
  - v. 70 F
  - Results: 2-1-2-22-7, iv (72 F) prevails
- i. Question 7, basement:
  - i. Partially conditioned, or
  - ii. Fully conditioned
  - 16-7, i. prevails
- j. Question 8: Dynamic Windows, for higher heating / higher cooling:
  - i. SHGC fixed at intermediate position year-round
  - ii. SHGC variable in non-ideal manner (low SHGC in winter, high in summer)
  - Results: 0-majority, ii prevails
- k. Question 9, External Shading for default house:
  - i. Average external shading, or
  - ii. No external shading
  - Results: 7-14, ii prevails
- l. Question 9b, External Shading for specific house:
  - i. Use 0.1 SHGC multiplier reduction, or
  - ii. Don't use 0.1 SHGC multiplier reduction
  - Results: 6-11
- m. Question 10: Internal Shading, for higher heating / higher cooling:
  - i. Internal blinds fixed at intermediate position year-round
  - ii. Internal blinds used in non ideal manner (low SHGC in winter, high in summer)
  - Results: 2-16, ii prevails
  - Note: suggestion to re-check what SHGC multiplier should be based on average blind, rather than just accept current values.
- n. Question 11: Internal shading, in specific house:
  - i. Voted for to include option for specific house with internal blinds used in non ideal manner (low SHGC in winter, high in summer). To be consistent with result of Question 10. Voice vote.
- o. Question 12, gas furnace efficiency:
  - i. 0.78 in all zones,
  - ii. 0.82 in all zones, or
  - iii. 0.80 in zones 1-3, 0.90 in zones 4-8
  - Results: 0-3-13, iii prevails

- p. Question 13, Natural Ventilation
    - i. Include window ventilation as an operational variable, or
    - ii. Assume windows always closed
      - Results: 7-16, ii prevails
  - q. Question 14, NFRC Procedures
    - i. Allow only NFRC 100, 200, 400
    - ii. Also allow AAMA/WDMA/CSA 101/I.S.2/A440 for air leakage
    - iii. Allow NFRC 100, 200, 400, as well as other equivalent procedures
      - Results: 0-21-2, ii prevails
  - r. Question 14b: account for solar incident angle for SHGC and local climate data for U-factor
    - i. Yes
    - ii. No
      - Results: 3-1, i. prevails
  - s. Question 15: Include Source Energy in Reporting?
    - i. Yes
    - ii. No
      - Results: 11-5, i prevails
  - t. Question 16: Wording throughout document:
    - i. "Annual Energy Performance",
    - ii. "Heating and Cooling Consumption", or
    - iii. "Annual Heating and Cooling Consumption"
      - Results: 5-15-2, ii prevails
  - u. Question 17: Wording throughout document:
    - i. "Reference house", or
    - ii. "Default house"
      - Results: voice vote for "reference house"
  - v. Question 18: Wording in foreword and disclaimer:  
"Users should be cautioned that estimated energy consumption is only one of many parameters that should be considered in selecting a fenestration product. For example, this estimated energy consumption analysis does not factor in issues such as comfort, durability, visible light transmission and condensation."
    - i. Yes
    - ii. No
      - Results: i. received majority
6. New task group formed to start examining methods for calculating fenestration annual energy performance in commercial buildings.
- a. Mahabir Bhandari (chair), Chris Mathis, Steve Selkowitz, Tom Culp
7. Meeting adjourned @ 6.30 pm