2013 Building Energy Efficiency Standards Staff Workshop

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Nonresidential Air Infiltration Standard

- IECC 2012, Section 502.4.1 will have an air barrier requirement
- Building infiltration target of $\leq$ 0.40 cfm/ft^2 at a pressure differential of 0.3" w.g.
- Baseline infiltration assumption is: 1.8 cfm/ft^2 at a pressure differential of 0.3" w.g.
  - From Envelope Subcommittee of ASHRAE SSPC90.1

Nonresidential Air Infiltration Standard

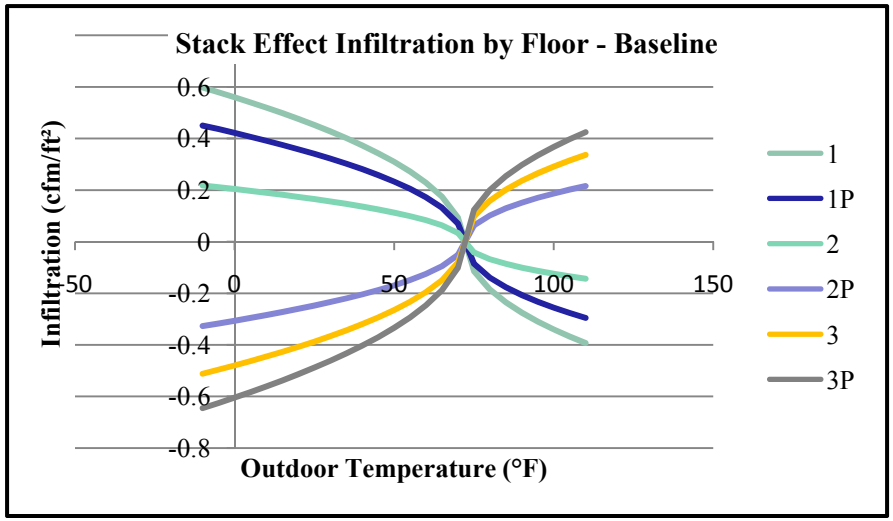
- IECC 2012 requirement not applicable to AHSRAE climate zones 1-3, covering most of California
  - Benefits of reduced air leakage usually associated with heating loads
- How much is infiltration reduced when the HVAC system is running and pressurizing the space?
  - NACM presently assumes 100%
  - PNNL study suggests 75%

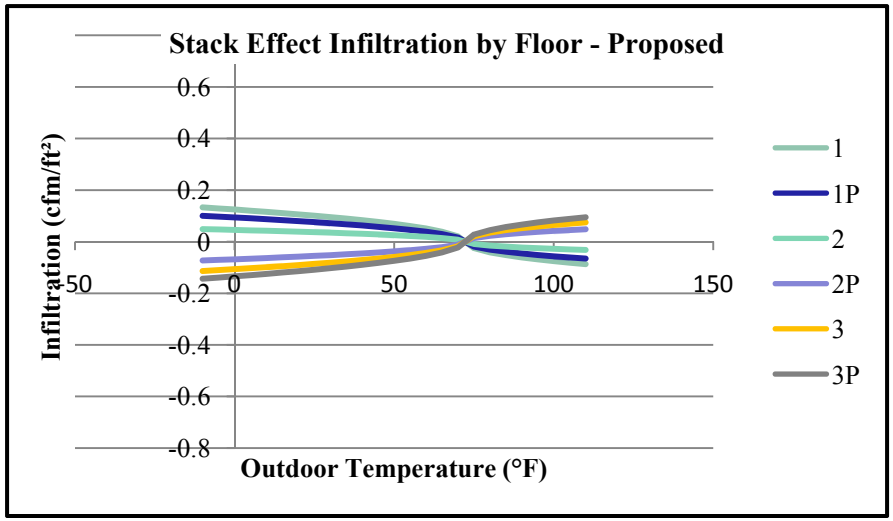
Nonresidential Air Infiltration Standard

- Two major drivers need to be modeled:
  - Wind driven infiltration
  - Stack effect
  - Both highly dependent on building height
- Rules for modeling wind driven infiltration set forth by PNNL in 2009
  - "Infiltration Modeling Guidelines for Commercial Building Energy Analysis,"

Nonresidential Air Infiltration Standard

- Stack effect to be modeled in accordance with ASHRAE Handbook - Fundamentals
  - 2009, Chapter 16, Equation 38





- We will analyze 1, 3, and 12 story office buildings

Analysis Plan

1. Run energy models to determine potential value of energy savings using 2013 LCC methodology
   - 6 representative climate zones
2. Compare modeled energy savings to existing estimates of the cost to comply with: ≤ 0.40 cfm/ft^2 at 0.3" w.g.
3. Conduct additional measure cost and feasability research if necessary

Analysis Plan

- Air sealing requirement may be dependent on:
  - Climate zone
  - Building height
  - Building type

Nonresidential Air Infiltration Standard

- Questions?
- Comments?

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