

**Homework 6:****Large Scale Section Details Through Envelope****Question to Answer:****Select specific building products to be documented in your envelope design**

Using a resource such as Sweets or ARCAT, both available through pointers on the website find manufactured products for the following components in your envelope design

- 1 - Window and associated brick mould
- 2 - Air Barrier
- 3 - Insulation Products

**Document your compliance with thermal conductance requirements for your envelope**

Study Chapter 13 of the State Building Code for minimum performance for your building envelope regarding thermal conductance

Propose your solution, based on your selection of insulation products, for exceeding Chapter 13's requirements by at least 25%

**Account for the effects of precipitation and other forces of nature on a building envelope**

Study either Nashed's 'Forces of Nature' - summarized as an outline available on the website or Whole Building Design Guide's commentary on wall systems -

[http://www.wbdg.org/design/env\\_wall.php](http://www.wbdg.org/design/env_wall.php). Using copies your section details developed in the drawing work for this exercise, apply hand drawing graphics that point out how your design mitigates the effects of moisture and air in your building envelope. Pay attention to the following subjects:

- 1 - wind force
- 2 - gravity
- 3 - kinetic energy
- 4 - surface tension
- 5 - capillary action

**Drawing Work****Look at Building Envelope In Detail****Continue to sketch out a coordinated set of envelope details**

Use the materials from the handouts, web site, and study of typical details at Mass.gov website about building envelopes:

Incorporate the information you generated from your research about building products and their thermal conductance

- Detail of head / jamb / sill at a window on the east, street side wall of the building: 1-1/2" = 1'-0"

**Criteria for marking this homework:****General Criteria**

Homework will be marked from '4' to '0.'

Answers to questions count as 1/2 of the mark for the homework

Drawings designed count as 1/2 of the mark for the homework

### Criteria for Answers to questions

General: The response to this question is written, criteria are based on recommendations from 'Understanding by Design,' page 175

Requirements for a mark of '4' - "A clear, well developed [explanation] that deals in a sophisticated fashion with [key] components of the question.

Requirements for a mark of '3' - "Clear, developed [explanation] that deals with [key [components of the question]]."

Requirements for a mark of '2' - General [explanation] responding to all components superficially."

Requirements for a mark of '0' - "Little or no analysis."

### Criteria for quality of drawings

General:

Drawings are evaluated in terms of completeness, accuracy, and legibility

Requirements for a mark of '4' -

Work product capable of being incorporated into a project using building information management.

Requirements for a mark of '3' -

Work product could be submitted to a plans examiner. Criteria are as described by Liebling (Wiley, publisher) - BAC library reference: <http://library.the-bac.edu/vwebv/holdingsInfo?bibId=5814> and in material provided in class web site.

Requirements for a mark of '2' -

Work product could be used to present an idea to a job captain

Requirements for a mark of '0' - Minimal drawing