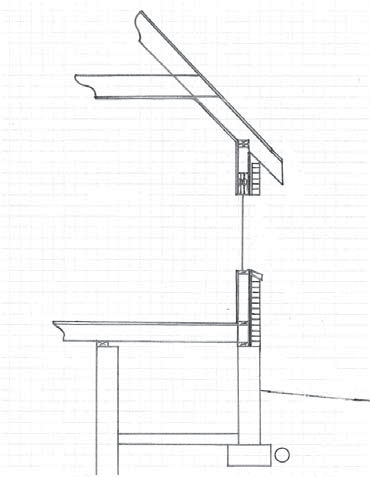
**RESIDENTIASL CASE STUDY**

**Purpose**: Apply the knowledge of Chapter 4, Residential Energy Efficiency, in a design exercise

**Directions:** You are the designer. Using the 2009 IECC, answer the following questions.

**Scenario:**  An associate brought this rough sketch for your advice. The project involves a small, standard wood framed room addition onto an existing house.

**Given:**

 Climate Zone 6

 The addition will have a crawl space, cast in place concrete.

 The existing house has a basement, cast in place concrete.

 The walls are 2x6 with brick veneer.

 The floor joists, ceiling joists, and rafters are

2x10.

 The window is a fixed pane, wood frame.

 The ceiling/ roof configuration is not negotiable due to client wishes and zoning restraints.

Please comment and provide design options regarding:

1. Compliance path and extent of compliance.
2. Ceiling without attic space
3. Ceiling with attic space.
4. Walls.
5. Windows.
6. Crawl space.
7. Basement.
8. HVAC
9. Lighting equipment
10. Air leakage testing
11. Duct leakage testing