Advanced Building Science **Name: _____**

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BBE 4414/5414 **Huelman**

Department of Bioproducts & Biosystems Engineering **University of Minnesota**

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Assignment 1. Thermal Profile (5 Points)

1. Select a wall system that you think would work for the DOE RTZ Zero Energy Ready Home. Specify all materials, thickness, and R-value for all components and layers.

2. Find the average monthly outdoor temperatures along with the summer and winter design temperatures for the St. Paul, MN

3. Assume an indoor temperature for each month as well as the design conditions from ASHRAE.

4. Calculate the temperature profile for your wall for each month and the two design temperature conditions. Repeat the calculations for the framing component.

5. Identify and discuss the condensation potential for your wall system. Do you think this calculation fairly represents the real world – why or why not?