1. Log into the desktop computer using the “honors277” username. Mr. Redfern can give you the password if you have forgotten it.
2. Look for the “HEED” shortcut on your desktop.
3. Double click on the “HEED” shortcut and you should see the following screen appear after a time spent loading the software.

4. Examine the screen, which is the first in a series known as the “Tutorial” and then click “Next”.
5. When you have read through the introductory portion known as the “Tutorial” you will eventually come to this screen.

6. Now continue by clicking on “Quit Tutorial”.

HNRS 228 Section 002
Energy and the Environment
Laboratory Exercise #7 – High Energy Efficient Design
7. You should now see a screen in front of you which describes 5 functions that the software can perform. Summarize the five functions of the HEED software here:

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___________________________________________________________
___________________________________________________________
___________________________________________________________

8. Now click the “Next” button to continue.
9. You should now be at this screen.

10. Continue by clicking on the “Demo” choice on the above screen.
11. The next screens don’t allow for any input, but only allow for continuing with the “Next” button. As you continue, answer the questions that follow.
12. What is the “Demo” choice for “What would you like to do?”

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___________________________________________________________

13. What is the “Demo” choice for “What kind of home will it be?”

___________________________________________________________
___________________________________________________________

14. How many stories will the “Demo” home have? ___________
15. How many square feet in the “Demo” home? _________________
16. In what zipcode is the “Demo” home? ____________________________

17. Continue by clicking on “Next.”

18. Describe the garage of the “Demo” home.

________________________________________________________________________________________________________

19. Continue by clicking on “Next.”

20. Describe the plots obtained for the “Demo” home for electricity, fuel and total yearly costs.

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21. Continue by clicking “Next” and you should see another plot of data for 3 alternative designs. Pass the arrow over the bars and you should be able to fill in this chart.

<table>
<thead>
<tr>
<th>Hours During the Year</th>
<th>Home 1</th>
<th>Home 2</th>
<th>Home 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>When no heating or cooling is used.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When cooling is used.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When heating is used.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Describe in words here, the differences between the three homes.

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22. Hitting “Next” will get you to a screen that shows you a 3-D view of the home. Note that the PC’s in the lab do not have the latest version of software, so this section does not work properly.

23. Continue in the 3-D sequence until you get to a screen which (because you are in the demo mode) does not allow you to change anything.

24. Nonetheless, you should see lightly the “Frame Type” and window/frame descriptor. What are they for the “Demo” home?

__________________________________________________________________________

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__________________________________________________________________________

25. Continue by using the “Next” button.

26. What is the “Level of Insulation” and the “Radiant Barrier” for the “Demo.”
27. Continue and place the "Wall Type" here:
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___________________________________________________________

28. Continue and place the "Roof Construction" type here:
___________________________________________________________
___________________________________________________________

29. Continue and place the "Floor Construction" and "Under Floor Construction" types here:
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___________________________________________________________
___________________________________________________________

30. Continue and enter the "Weather Stripping" and "Ventilation" types here.
___________________________________________________________
___________________________________________________________
___________________________________________________________

31. Continue and place "Heating" and "Cooling" types here:
___________________________________________________________
___________________________________________________________
___________________________________________________________

32. Continue and place "Shading" type here:
___________________________________________________________

33. Continue to examine the "Demo" home results.

34. Continue to the "Economic Analysis." What are the "Annual Energy Costs" for the home that "Meets Energy Code" versus "More Energy Efficient"?
35. Continue to the “Summary Table.”
36. Now exit the HEED program and then restart the HEED program but this time instead of choosing “Demo” design a home yourself.
37. Describe the home you have chosen (include the kind of home, number of stories, number of square feet, garage, electricity, fuel and total yearly costs). Also describe how your design compared in terms of the “Annual Energy Costs” to the default design.