Architecture 4.411
Building Technology Laboratory
Spring 2004

Assignment 1 Thermal Dynamics and Solar Energy
Lab report checklist

Introduction
Several paragraphs that motivate the report and describe its contents

Mr. Potato Head
Data - temperature plotted against time
Time constant – three methods of using data
Time constant – estimate based on physical properties

Elf House
Design and construction
drawing or photo, choice of materials, dimensions, design criteria
Indoor temperature prediction, for first test period
with description of model
Data - inside and outside temperatures plotted against time, for
two test periods
Analysis of two sets of data - average temperature difference,
measure of variation, improvements, use of simulation to
justify improvements
Simulation to determine impact of solar energy absorbed on walls
Design of full-size dwelling, using Solar Calculator 2
Matlab simulations

Conclusions
What’s been learned, how to do better with the elf house

20 points maximum