

**ARCH 3630 ADVANCE DETAILING
PROFESSOR APTEKAR
SPRING 2014
SOLAR COLLECTOR FAÇADE MODEL**

TEAM MEMBERS

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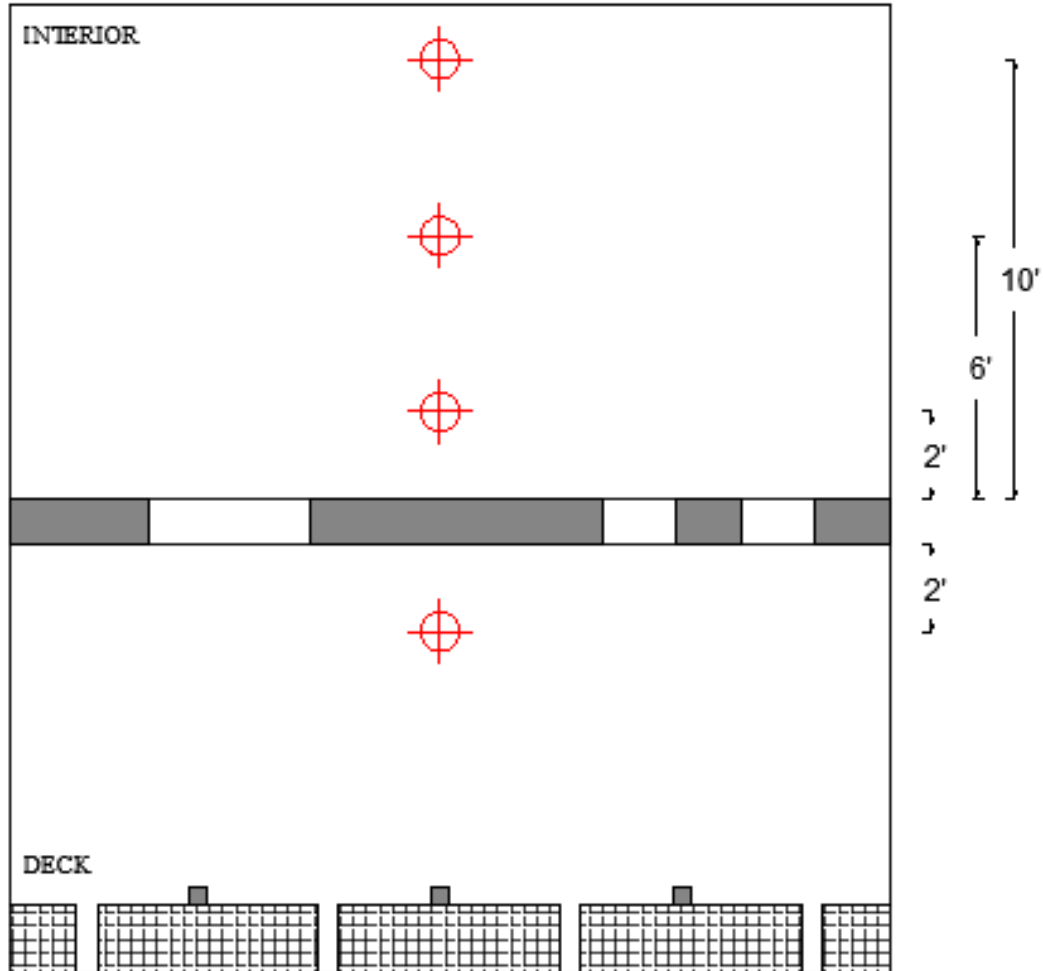
AMAL HASHEM

Introduction

First we started by constructing an 1" = 1'-0" scale section model of the proposed Solar Decathlon DURA House. The model consist of a typical wall detail including the framing, window openings, and the solar collector façade located on the south side of the house. To ensure even light reflection within the model interior we used a single material (chipboard) to construct all of the wall components. The light studies were executed using day light with the model solar façade facing south. Readings were taking using a light meter and data was recorded in foot candles units.

LIGHT READING

05/19/2014



10 AM

INTERIOR

Distance	2'	6'	10'
Foot Candles	0.81	25.1	34.4

EXTERIOR

Distance	2'
Foot Candles	844

3 PM

INTERIOR

Distance	2'	6'	10'
Foot Candles	30.5	50.8	63.6

EXTERIOR

Distance	2'
Foot Candles	953

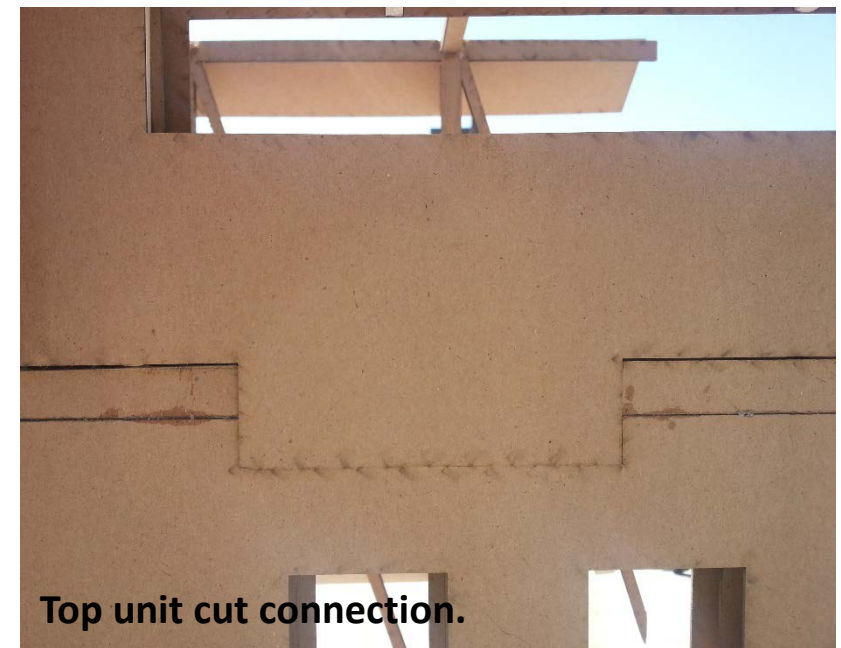
MODEL PHOTOGRAPHS

1. Interior view of the wood stud at 18" O.C. and the top modular unit connection cut.

2. Solar Panel design and the framing.

3. Detail view of the exterior rigid insulation, 2" by 6" wood stud and 6" spray on foam insulation on both wall and roof.

4. Steel I-beam (8").

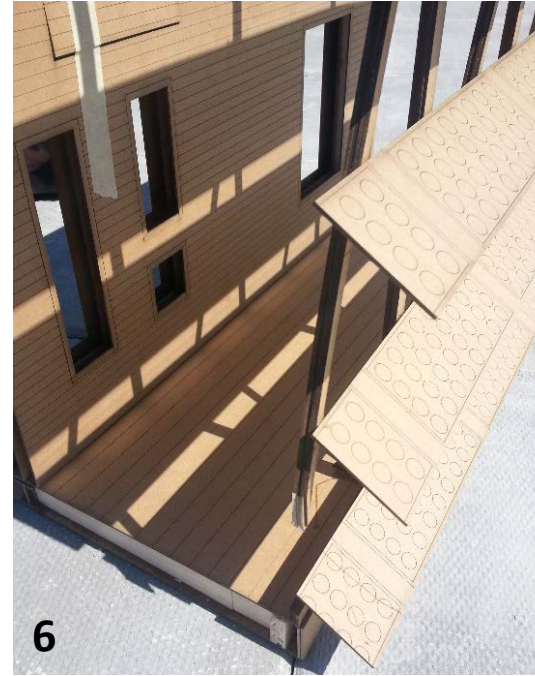


MODEL PHOTOGRAPHS

5. Overall view of the typical wall detail with the solar panel connection framing.



6. Perspective view of the solar panel and the sun hitting the south façade, leaving a shadow.



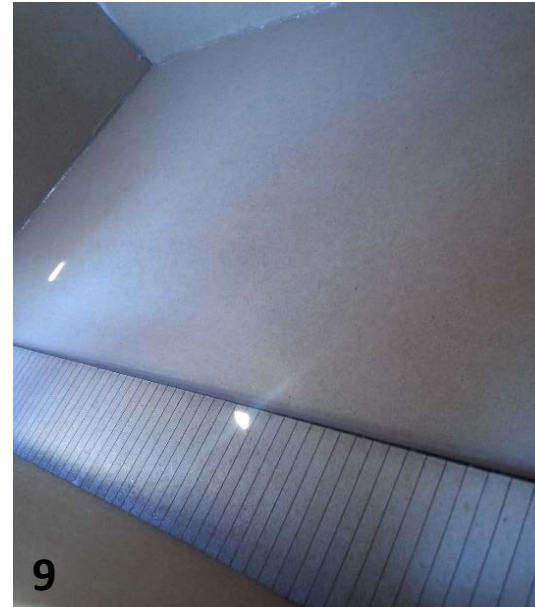
7. Close up view of the solar panel detail.



8. Perspective close up view of the south façade material, which is a hardwood rainscreen and the window openings.



9. Interior view of the sun ray and where it hits the interior floor.



10. Interior view.

