



## Early Childhood Learning Center

### **Project Description and Location:**

The design of this building is currently in progress in a combined effort by AIHI team members at three universities. This project will be a LEED certified Green Building on the campus of Chief Dull Knife College, Northern Cheyenne Reservation, MT.

### **Intended Use:**

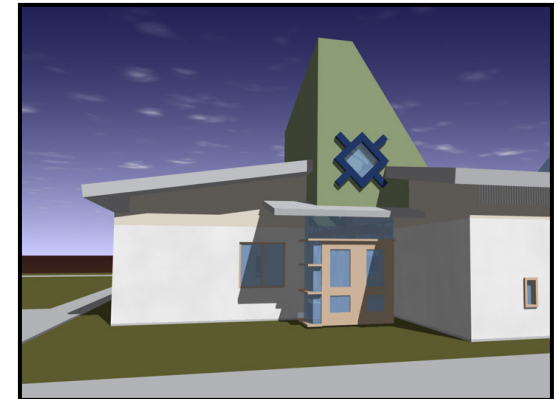
This building will provide much needed childcare space for students and staff of Chief Dull Knife College, and at the same time, a chance for young parents to learn about how to best care for their infants and toddlers.

### **Sustainable Technologies:**

The ECLC will feature a healthy and energy efficient design including maximum day lighting, floor radiant heating, and evaporative cooling.

### **Funding:**

This project will be supported by grants from Housing for Urban Development, United States Department of Agriculture



## **Background**

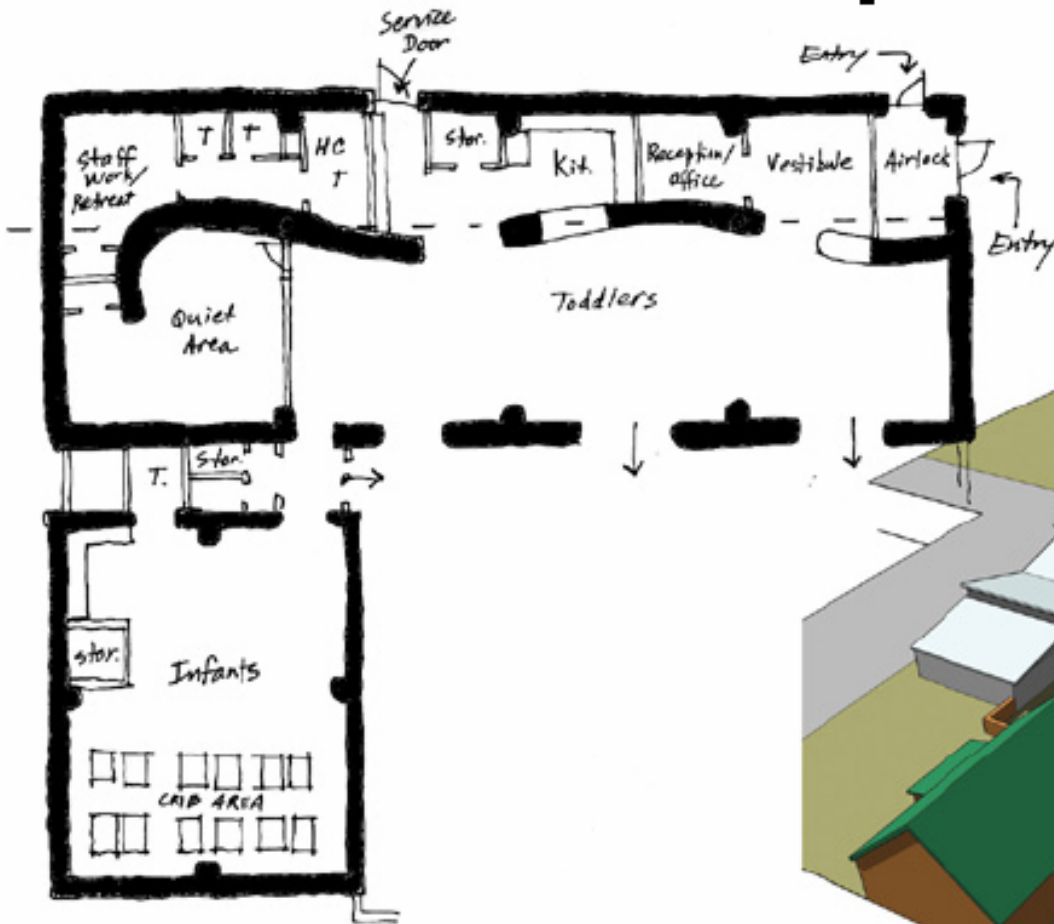
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**The Early Childhood Learning Center (ECLC)** is the seventh building to be constructed through a collaborative effort of universities and Northern Plains Indian Tribes called the American Indian Housing Initiative (**AIHI**). Each year, students and faculty at Penn State and participating universities including the University of Washington, University of Wisconsin, and most recently, the University of Texas, collaborate in the design and planning of a sustainable housing or community building. These facilities are then constructed by students in two three week blitz-build workshops during the summer. To date, four homes and three community buildings have been completed featuring strawbale construction methods and other energy and resource efficient materials and technologies.

The ECLC project was initiated through a partnership with Chief Dull Knife College (CDKC) on the Northern Cheyenne reservation in Montana. One of the many challenges facing tribal members and residents in this region interested in attending college is finding adequate childcare. In 2003, AIHI partners helped acquire a U.S. Housing and Urban Development (HUD) TCUP grant for a new center for early childhood learning on the campus of CDKC. This 4,000 square foot (372 m<sup>2</sup>) facility will double the current childcare capacity at the college. Due to the extreme temperatures and high energy costs in the region, and the desire to create a healthy learning environment for children, the ECLC was targeted to be a LEED Gold Certified Facility.

After initial design charrettes on the campus of CDKC in the summer of 2004, an initial schematic design was developed by a studio class at the University of Washington. The initial design was then developed further at Penn State through the integration of the project into three graduate courses and the AIHI course series.

# Schematic Design

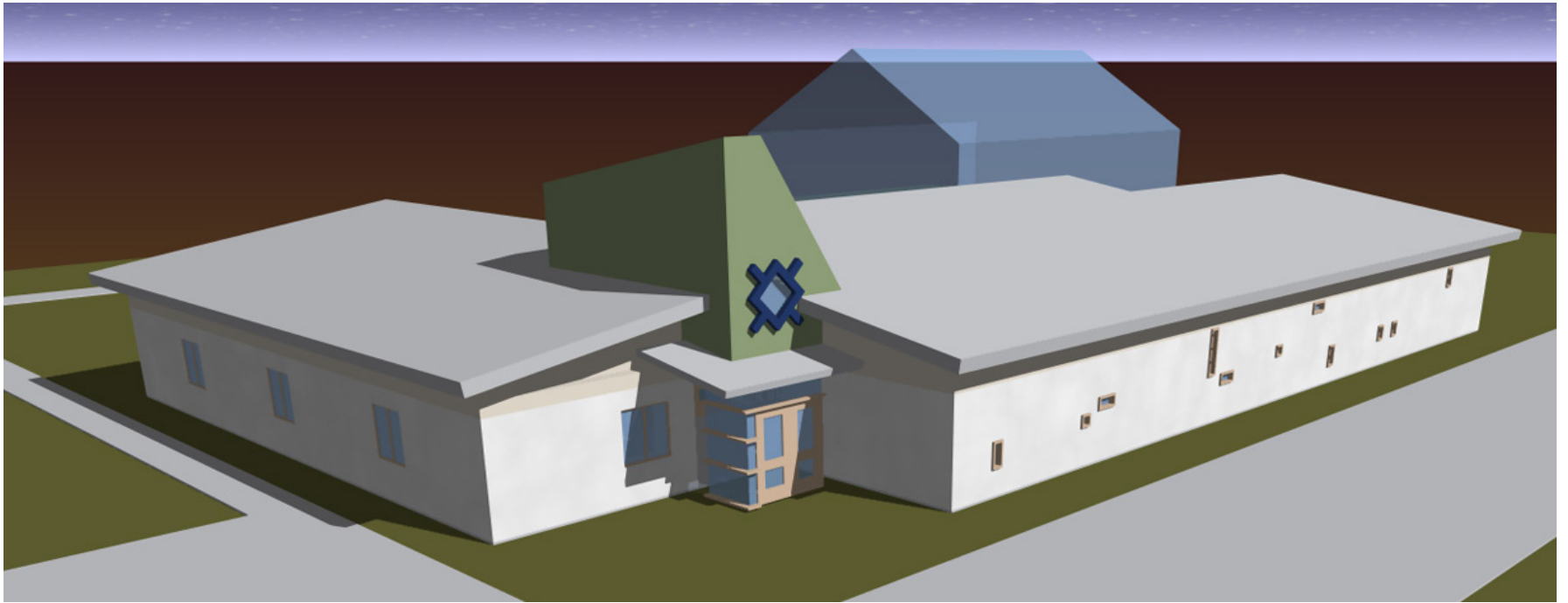


ECLC Scheme 2  
East Entry  
09.17.02

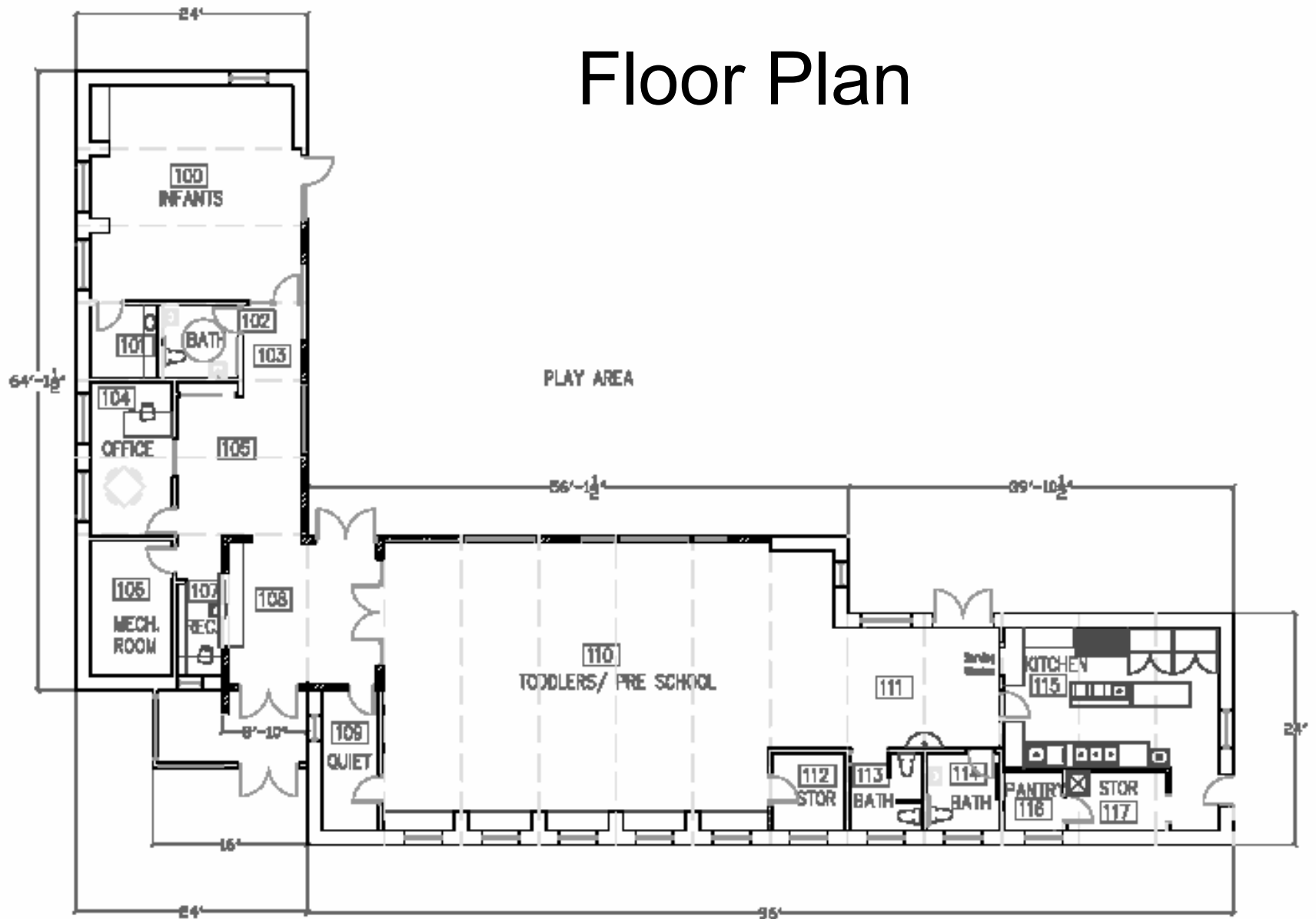


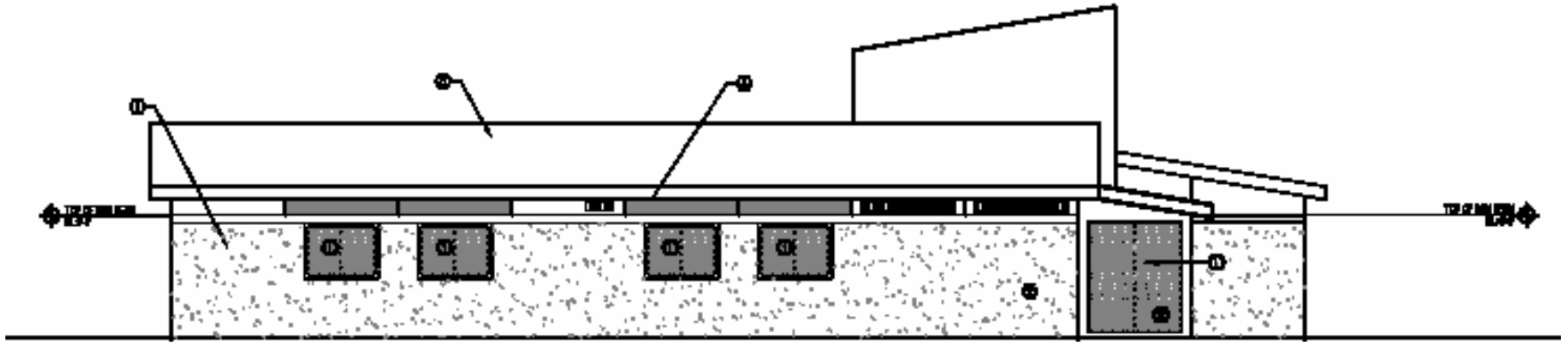
Schematic Design - UW/PSU

# Early Concept Drawing



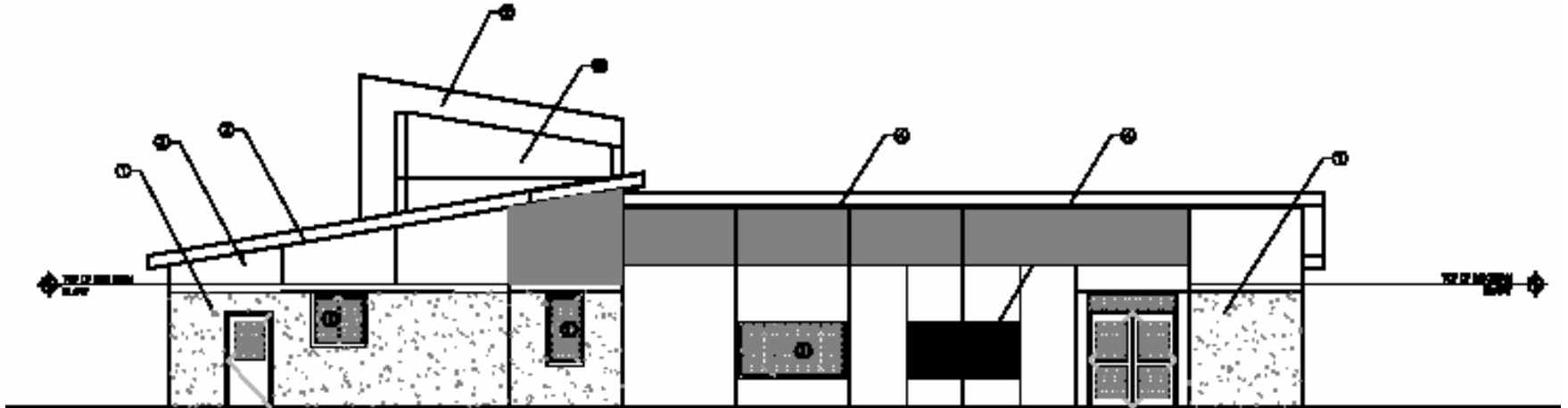
# Floor Plan





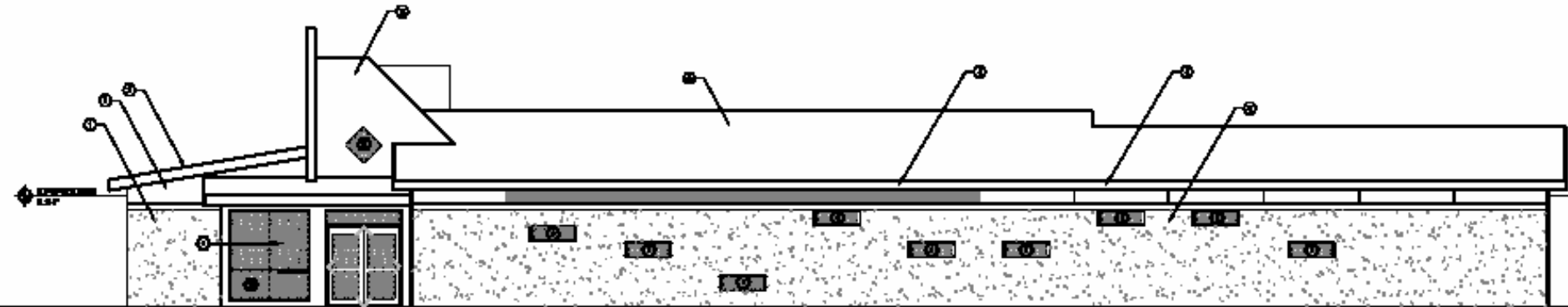
# North and South Elevations

**NORTH ELEVATION** ————— 1  
Scale: 3/32" = 1' - 0"



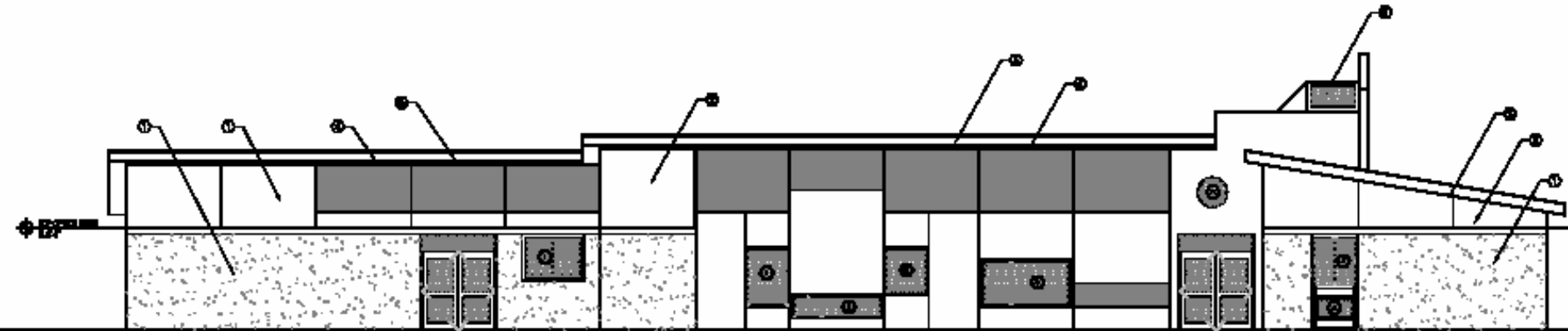
**SOUTH ELEVATION** ————— 2

# East and West Elevations



**WEST ELEVATION**  
Scale: 3/32" = 1' - 0"

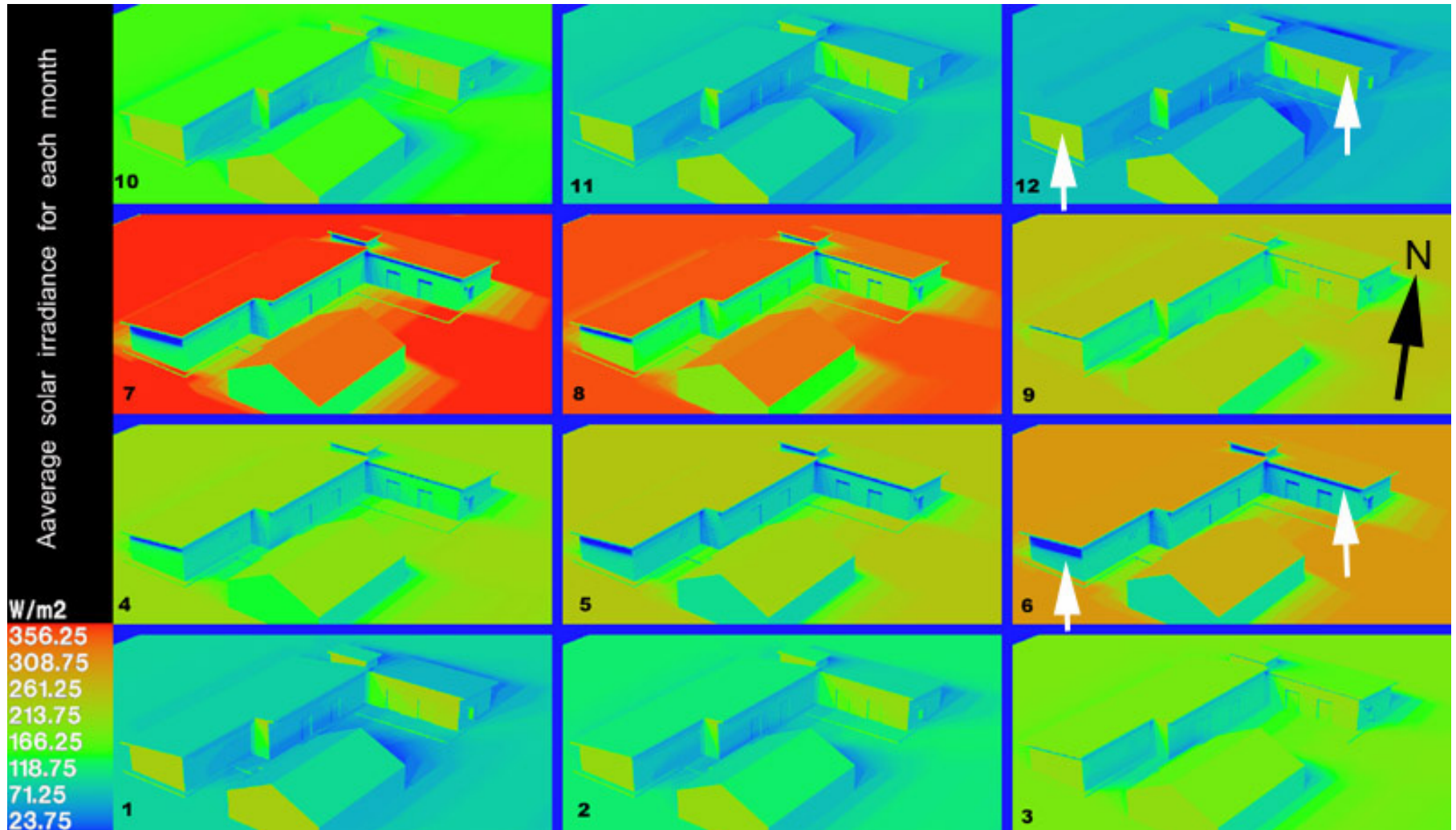
1



**EAST ELEVATION**  
Scale: 3/32" = 1' - 0"

2

# Solar Radiance Study





# Revit Model



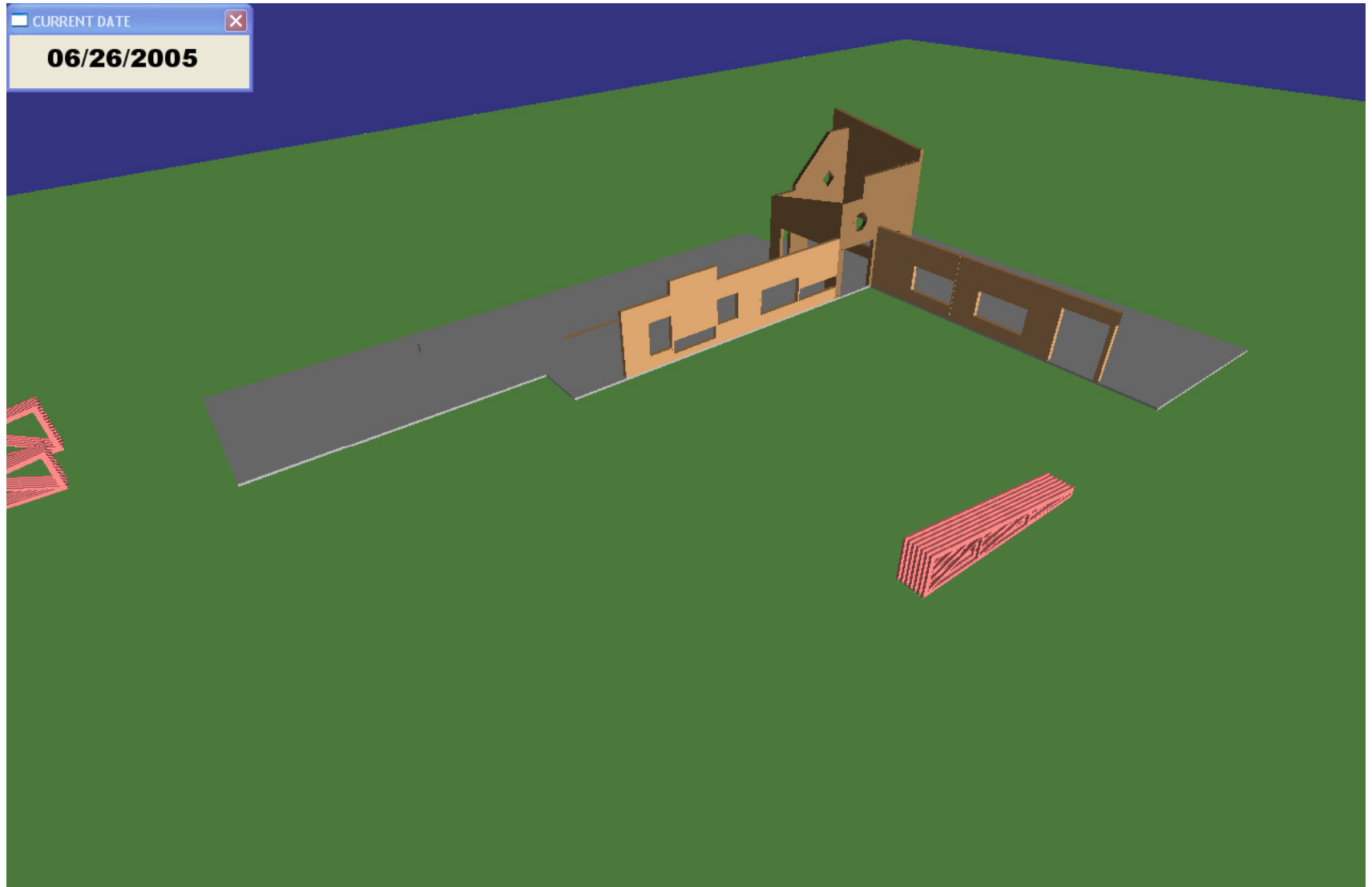
# Early Construction Planning Model



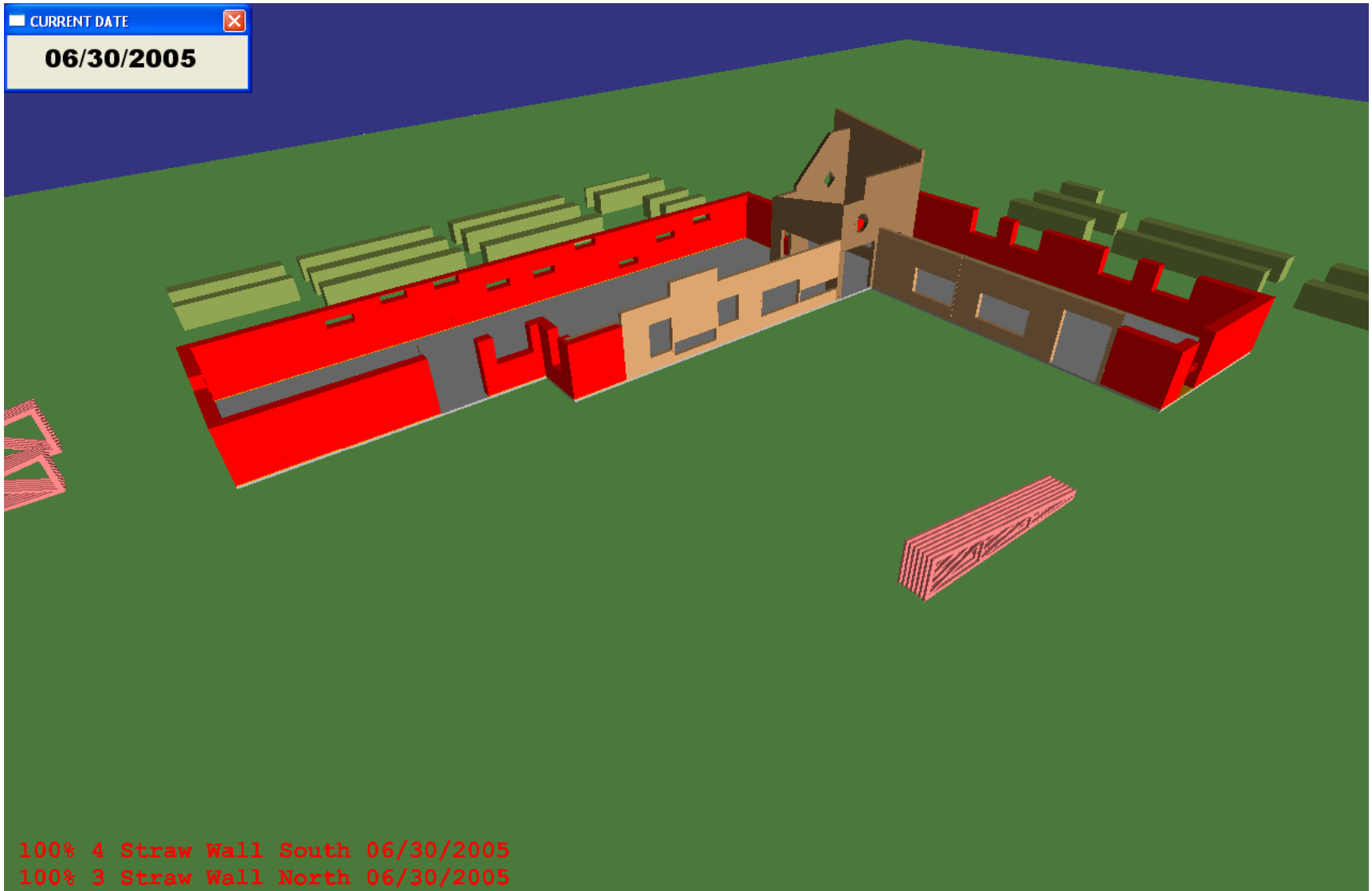
# VRML Day Lighting Model



# Construction Sequence 1



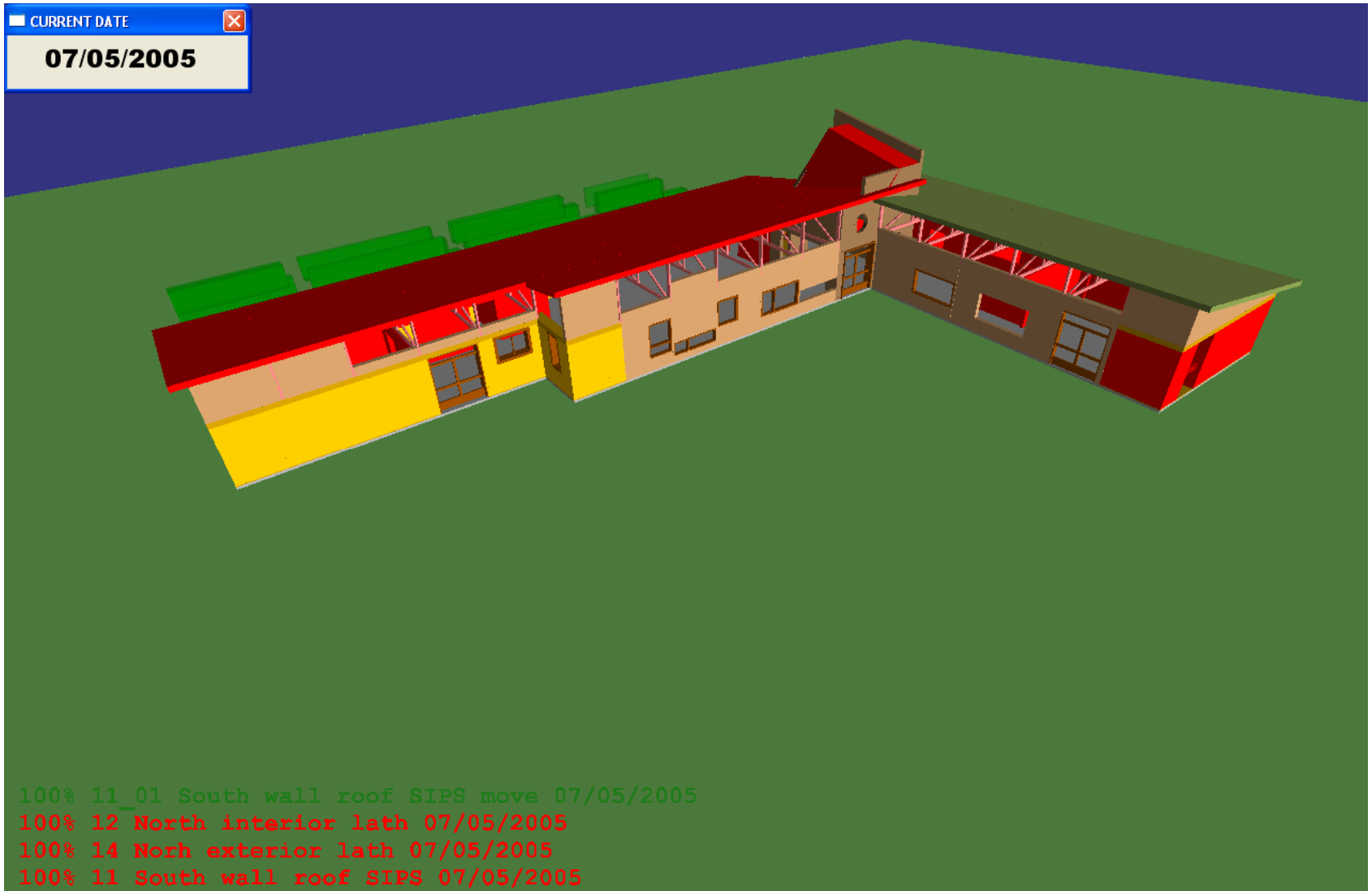
# Construction Sequence 2



# Construction Sequence 3



# Construction Sequence 4





# Digital fabrication of planning model

