

# Scratch Building a Mountain Firehouse

MCR/DIV10 Meeting  
March 1, 2020

Bruce DeMaeyer

Versailles, Kentucky



# Throckmorton Ridge Fire Station

- In the Mountainous west, fire stations need to be close to the sources of fire.
- Small remote stations can be found anywhere in the forests
- This model is based on a remote station of the Marin County, California Fire Department

# How did I find my prototype

- I found this station on an extensive internet search for mountain fire stations and when I found it, I knew this was going to be my layout station.

# Details about the prototype

- Built in 2006/7, the station has won awards for both architectural and energy efficiency
- With solar cell electricity, geothermal HVAC, as well as green materials, the station is a model for future stations nationwide
- Situated to respond to wildland fires on the southern and western Marin County

# Services provided

- Basic Life Support Medical Services
- Wildland and Structural firefighting
- Response to traffic accidents
- Hazardous material response

# Equipment Assigned to the Station

- Type 1 Fire Engine –1585 for structural fire fighting
- Type 3 Fire Engine –1565 for mountain wildfire duty
- Utility—1535 – Carry tool, air and special equipment

# Dedication

**MARIN COUNTY FIRE DEPARTMENT  
THROCKMORTON RIDGE FIRE STATION**

**DEDICATED MAY 12, 2007**

IN MEMORY OF TAMALPAIS FOREST FIRE DISTRICT WARDEN

**CLARENCE C. GRIMM**

WHO DIED IN THE LINE OF DUTY OCTOBER 31, 1932,  
AND TO ALL FIREFIGHTERS WHO SERVE TO PROTECT  
THE SLOPES OF MT. TAMALPAIS FROM WILDFIRE.

**COUNTY OF MARIN BOARD OF SUPERVISORS**

DISTRICT 1	DISTRICT 3	DISTRICT 2
SUSAN L. ADAMS	CHARLES McGLASHAN	HAROLD C. BROWN, JR.
DISTRICT 4	DISTRICT 5	
STEVE KINSEY	CYNTHIA MURRAY	

**KENNETH MABBUCCO  
FIRE CHIEF**

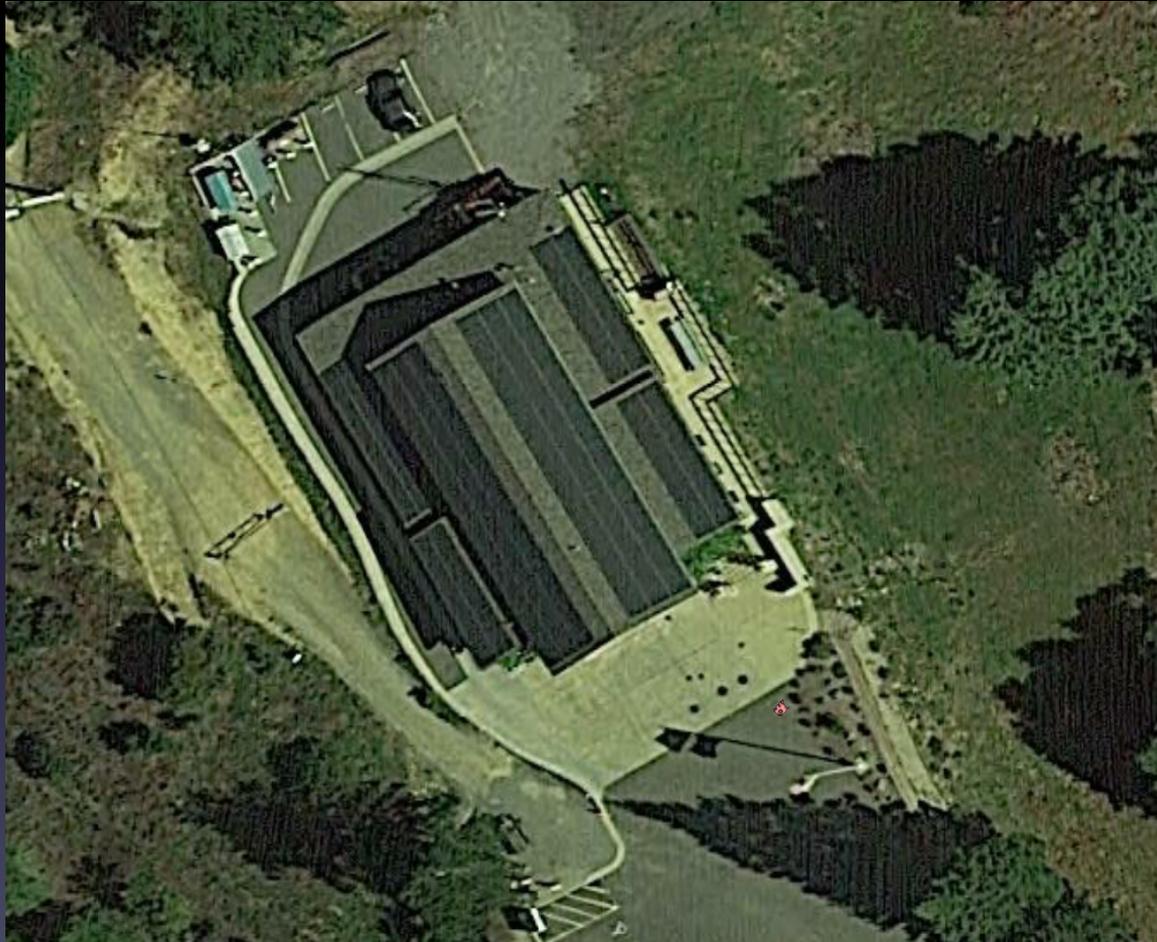
**MARK RIESENFELD  
COUNTY ADMINISTRATOR**

**FARHAD MANSOURIAN  
PUBLIC WORKS DIRECTOR**

# Sources Used to Establish Exterior Perspective

- Google Earth and a pickup truck on the ground
- Called the station and told a firefighter that I was going to build a detailed copy of his station and asked him to take outdoor photos.
- Immediate response \*\* \*\*\*\*
- Following are the pictures that he sent me

# Google Earth Pro Image



# Front Left



# Front Right



# West Side



# West Side Long Shot



# East Side from the Rear



# Rear of the Building



# Rear Perspective



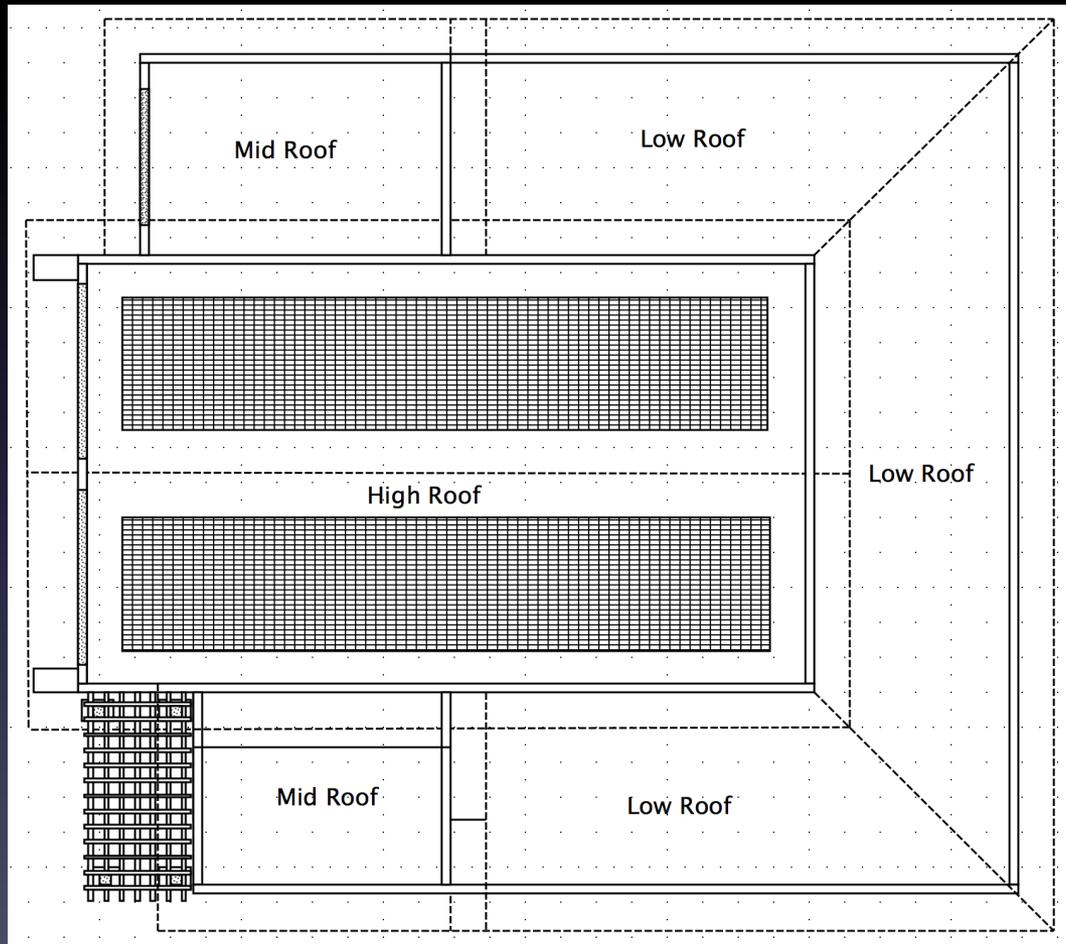
# Start the Final Build

- From 2015 when I first started on the project until the end of last year, I have built two versions of the building, each time better than the preceding version
- My success in building the Montana Flour Mill, convinced me I had to do an improved, third and final version of the fire station.

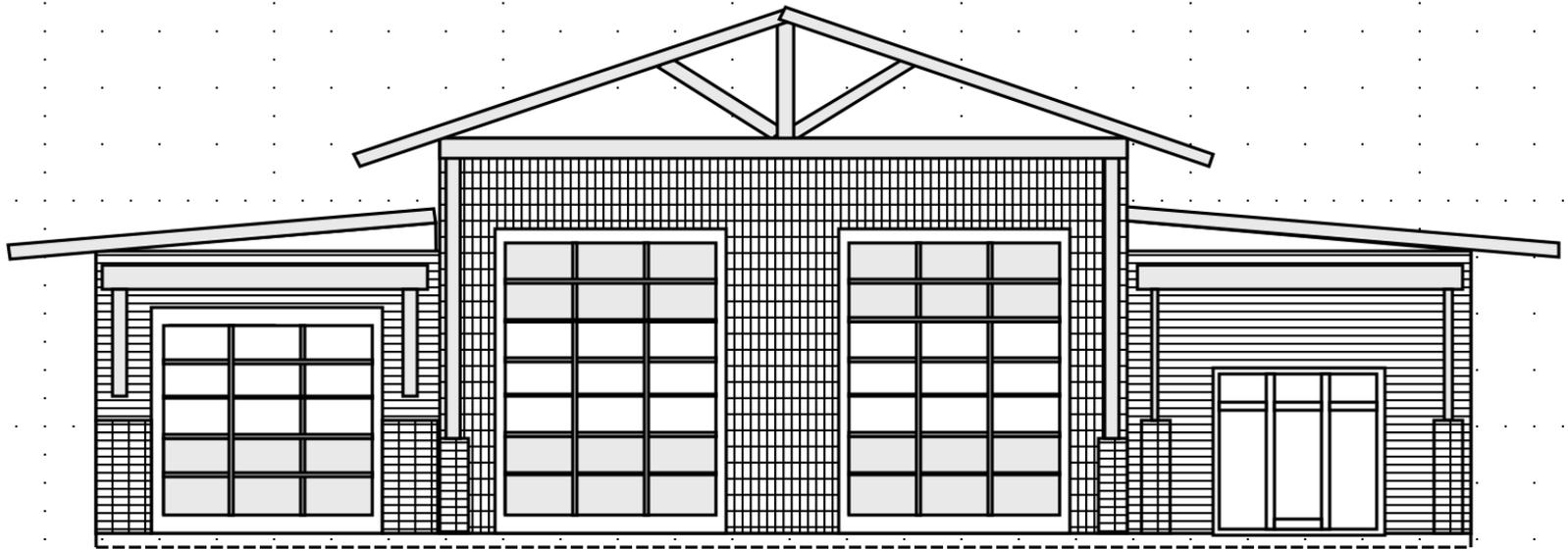
# Construction Drawings

- I began as usual, by scaling the photos and satellite image to determine exterior dimensions.
- I then converted those real dimensions into 1:1 2D drawings.
- I used MacDraft PE as my CAD drawing tool.
- I made my drawing conform to simplified scale in 1/32" increments
- This was chosen because my materials were going to be 1/32" thick.

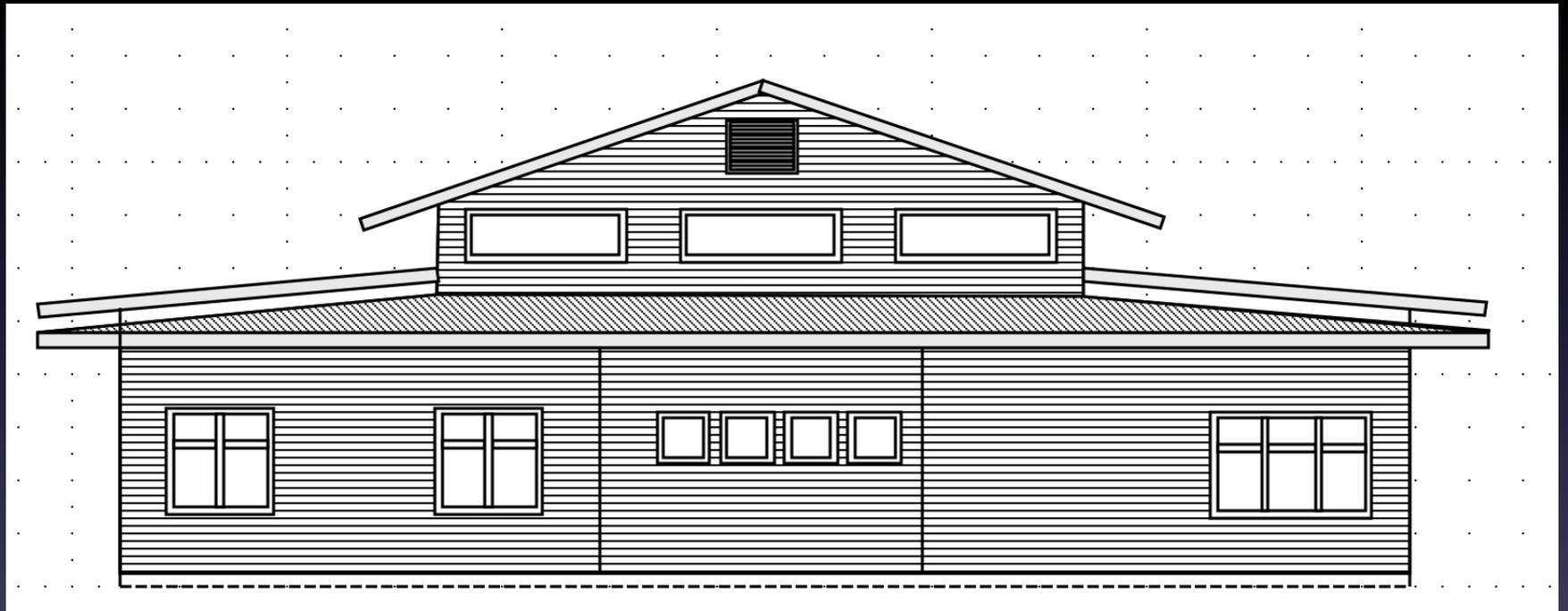
# Floor and Reflected Roof Plan



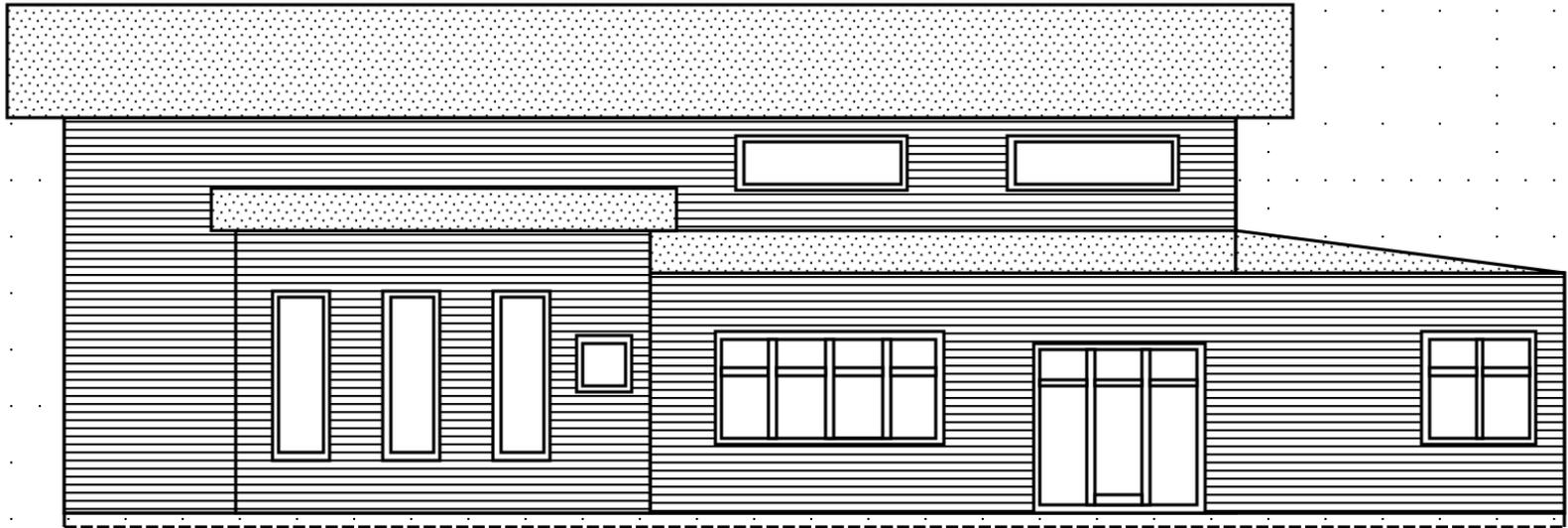
# Front Perspective



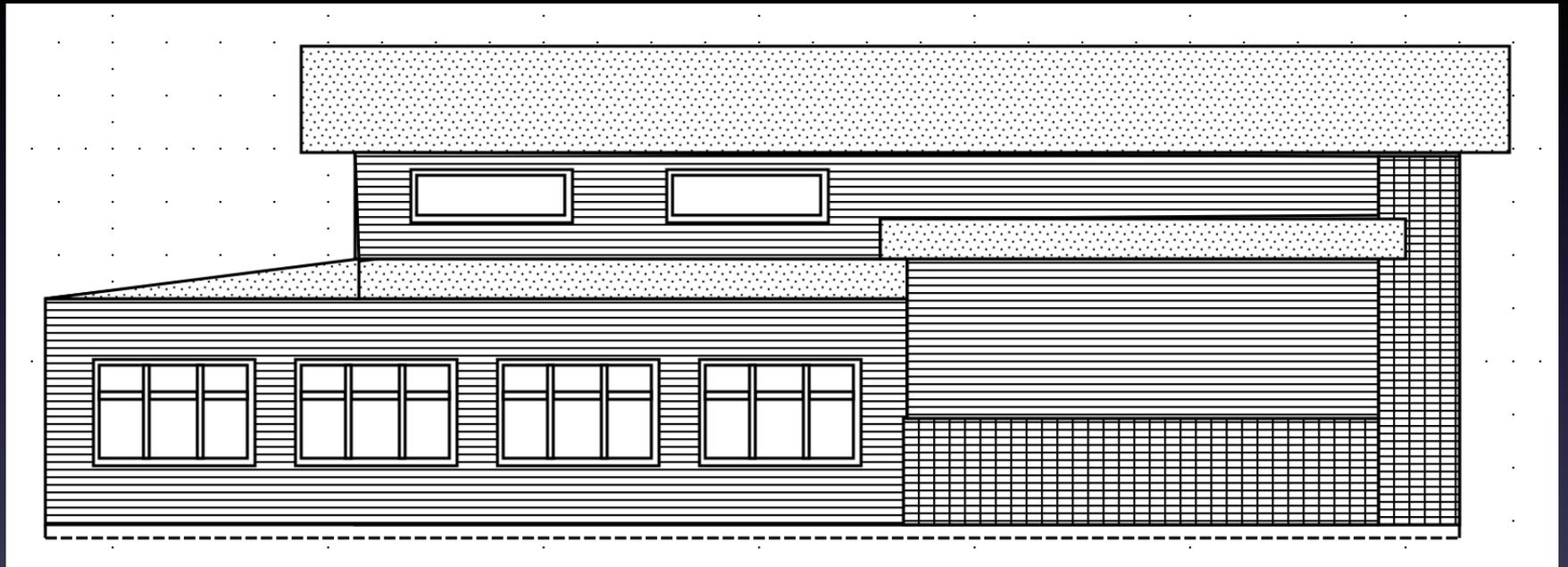
# Rear Perspective



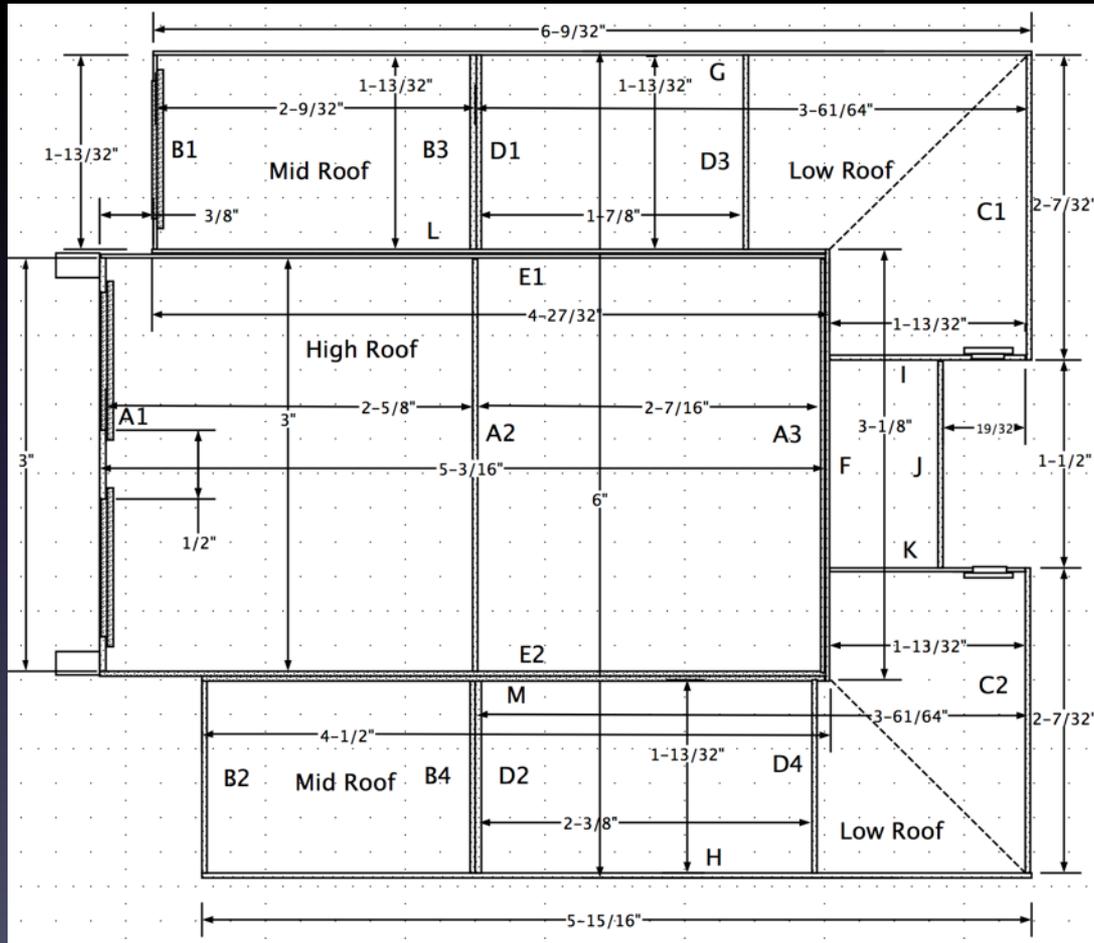
# East Perspective



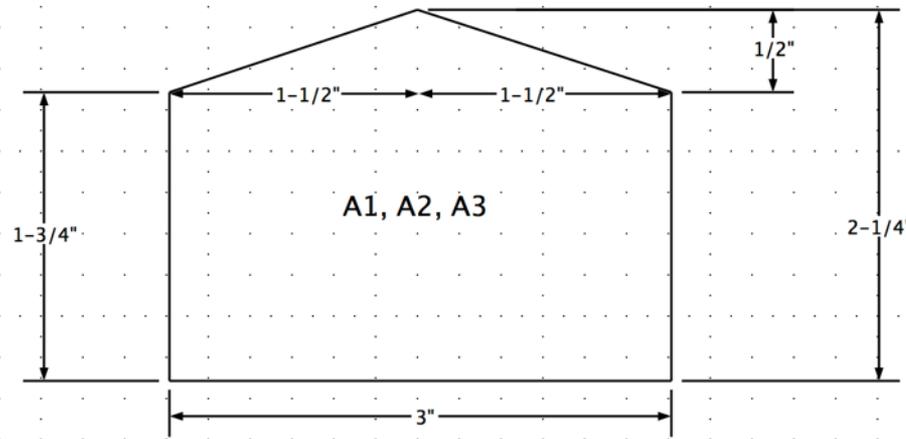
# West Perspective



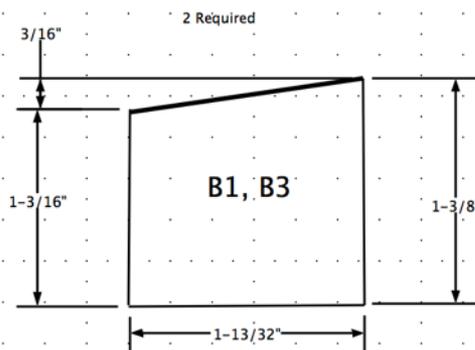
# Floor Plan Dimensioned Drawing



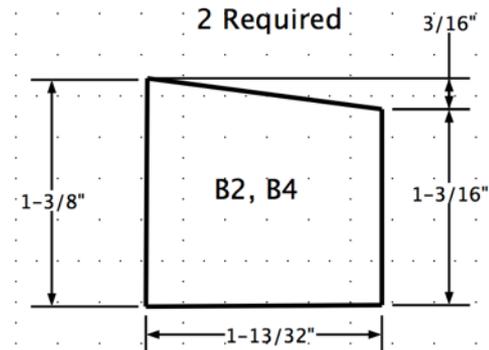
# Example of Basswood Interior Wall Drawings



**Large Front & Rear Basic Build – 3 req'd**

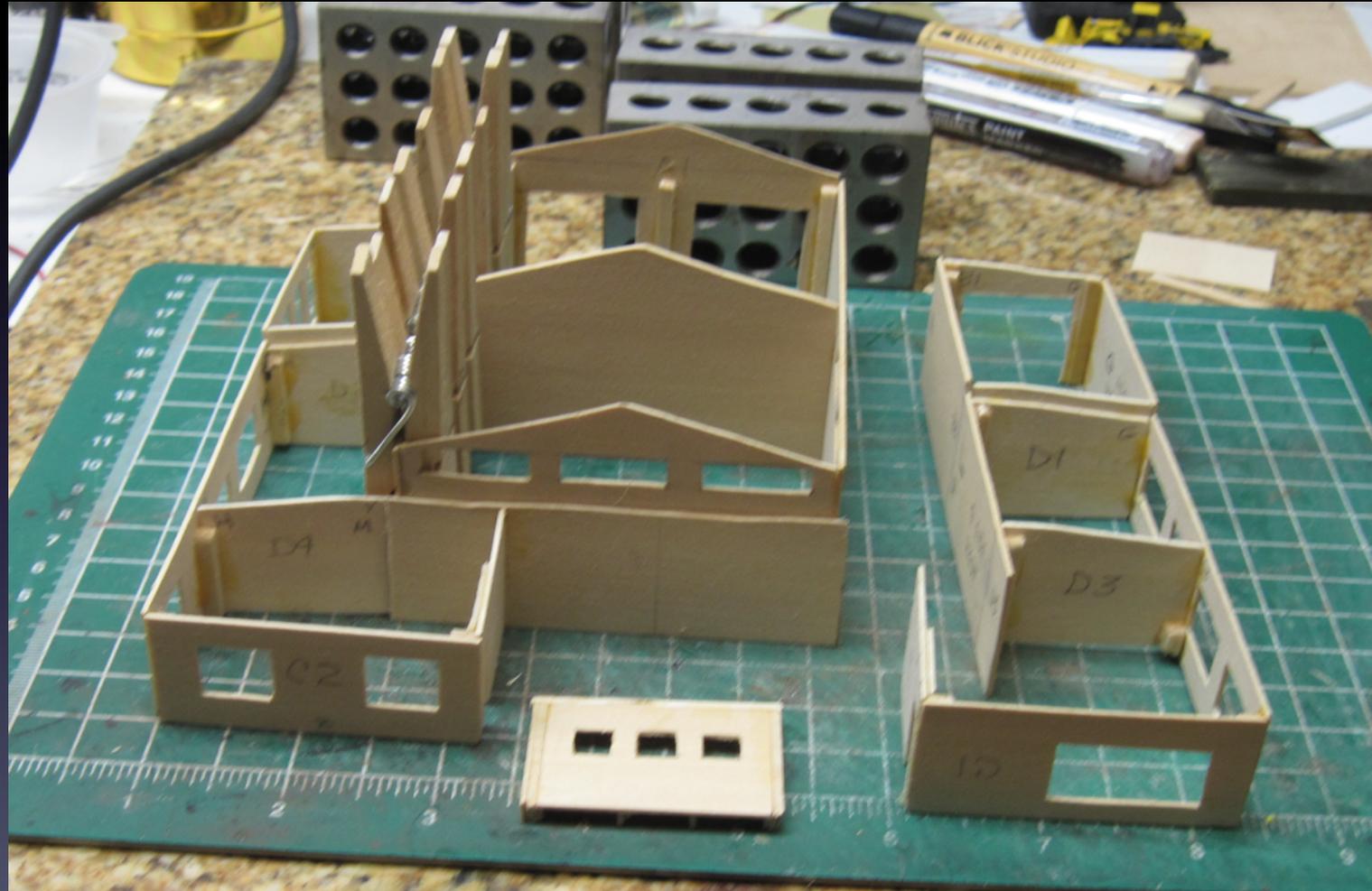


2 Required

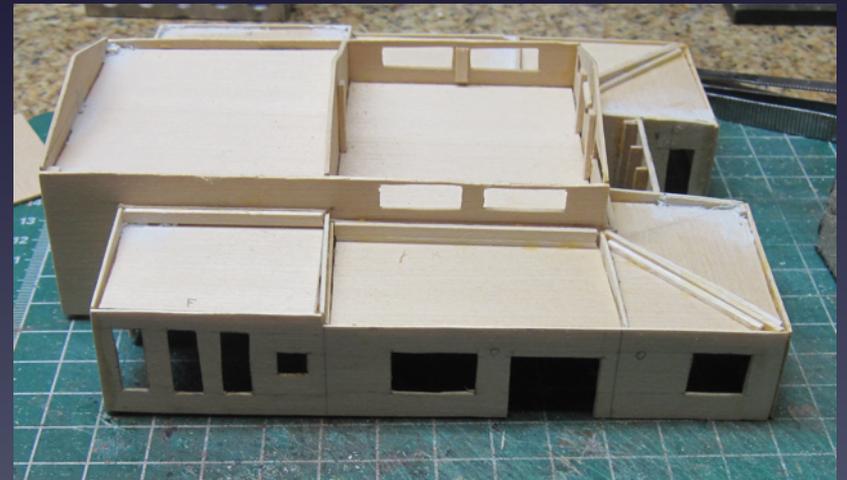


2 Required

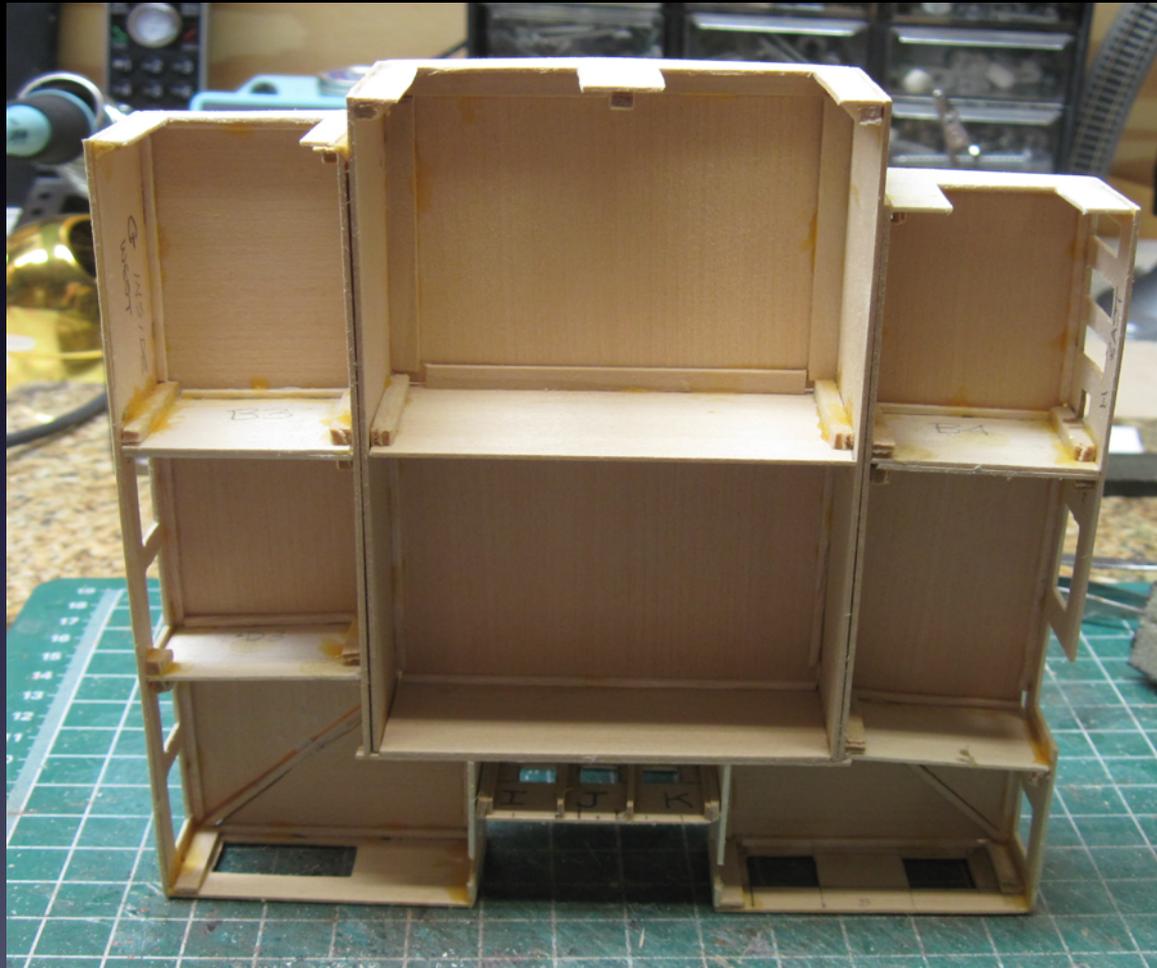
# Frame Construction



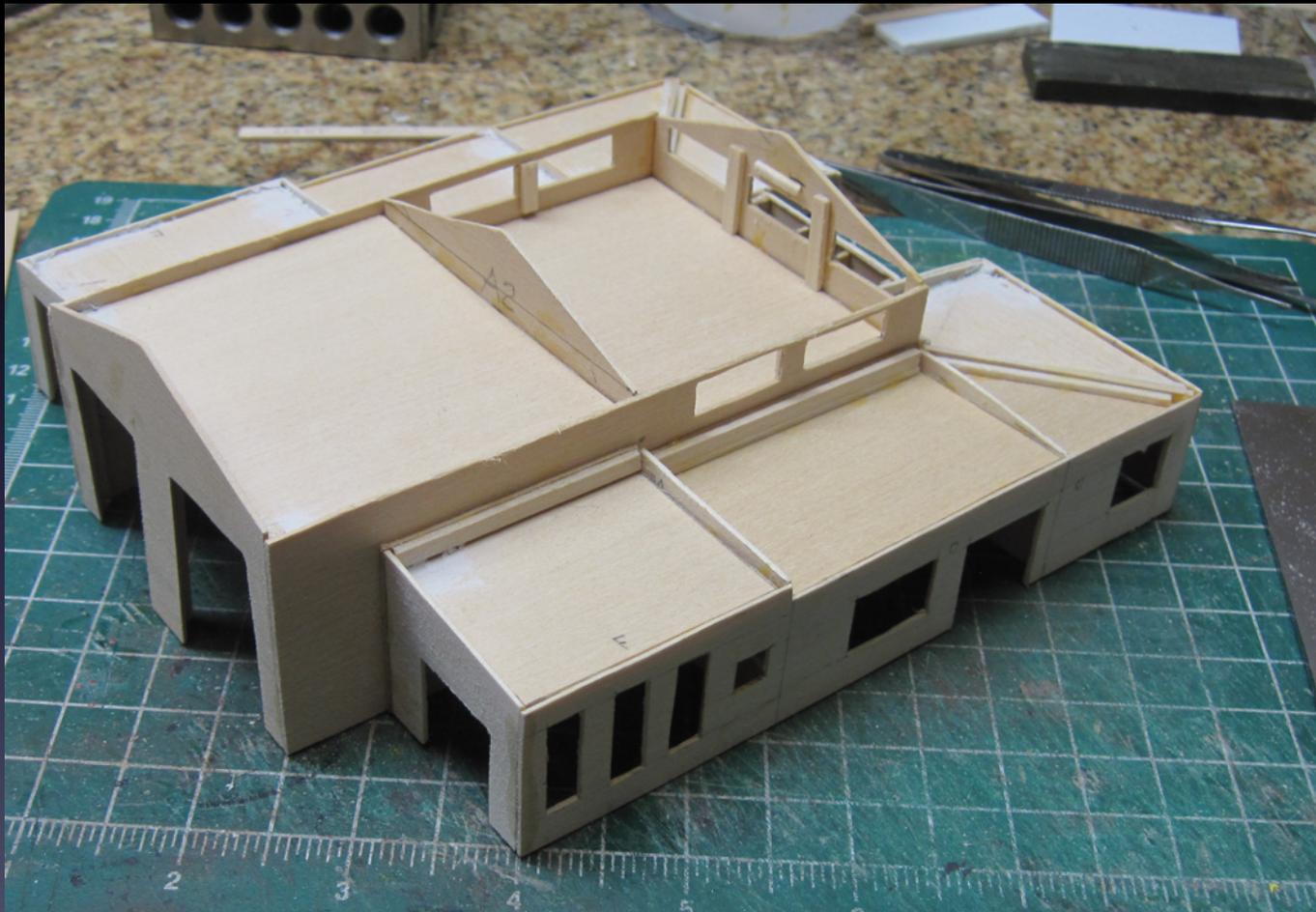
# Completed Frame Building



# Resulting Interior Rooms



# Finished Frame Building

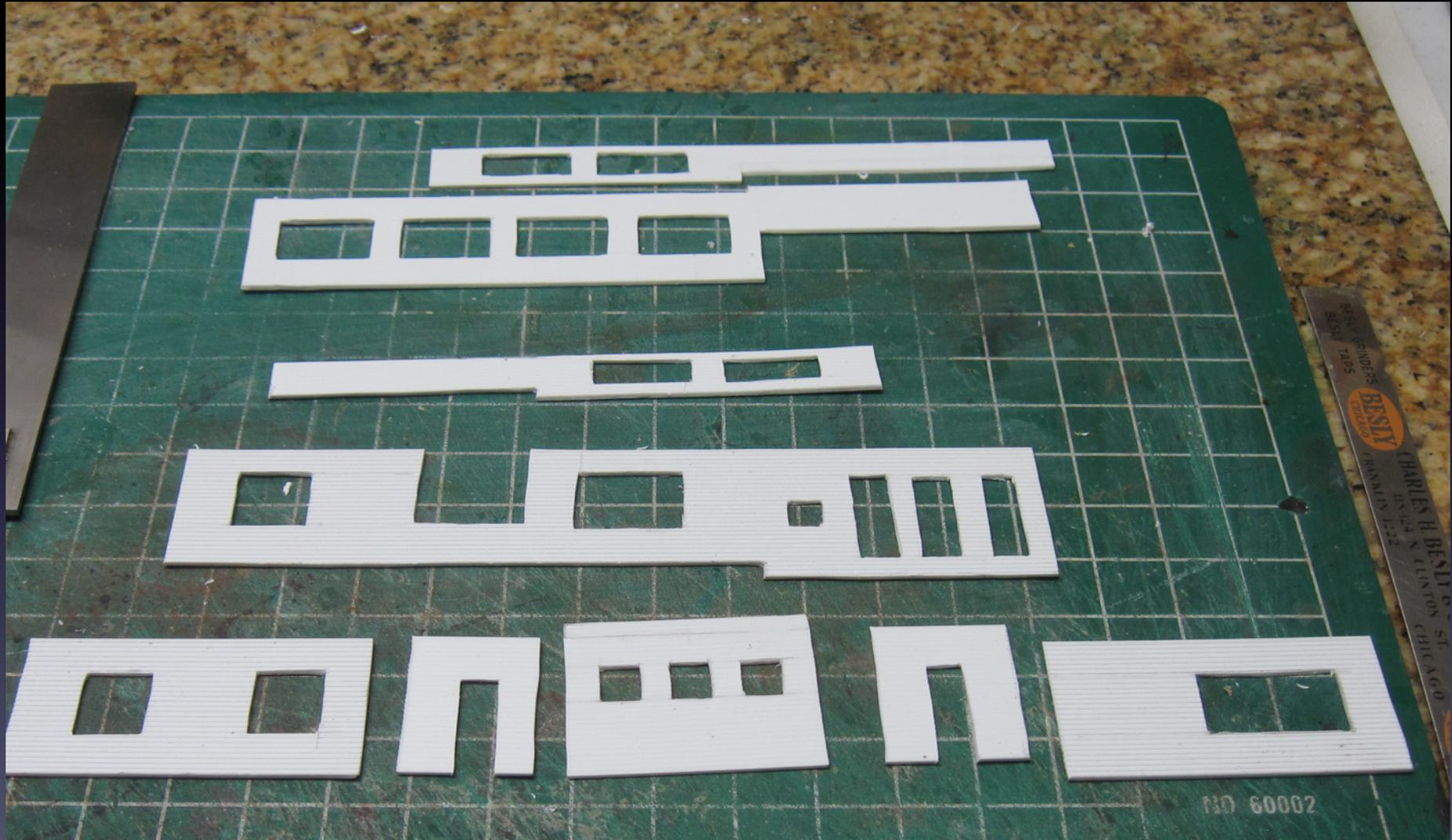


# Windows and Doors



Windows and doors were made by a friend who has a CNC router. I gave him the software data prepared on my computer.

# External Wall Veneer



# Special Tools



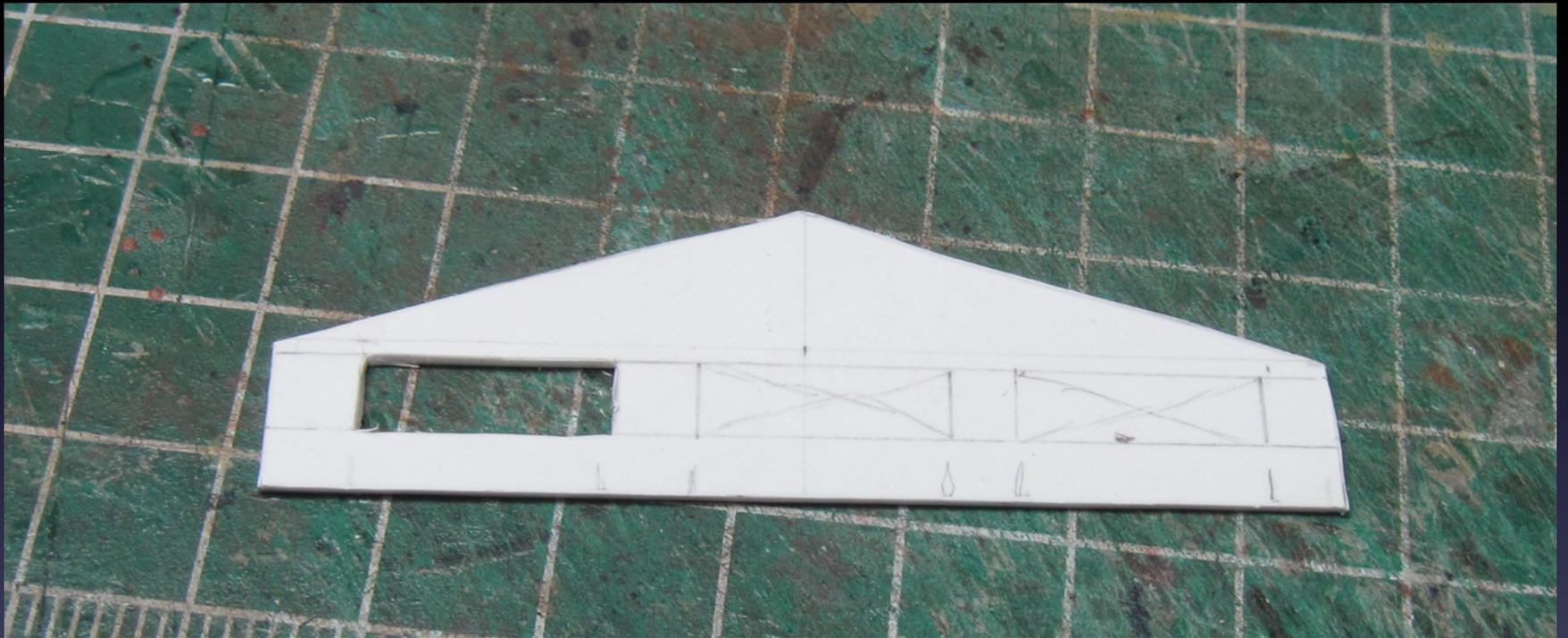
Mini Manicure File 80/80

Fiberglass Scratch Knife

Thin Beam Square

Fiskars Fingertip Knife

# Styrene Cutting



# Recommended CA Glue

## Medium Gap Filling



# Exterior Veneer and Windows Installed on Building



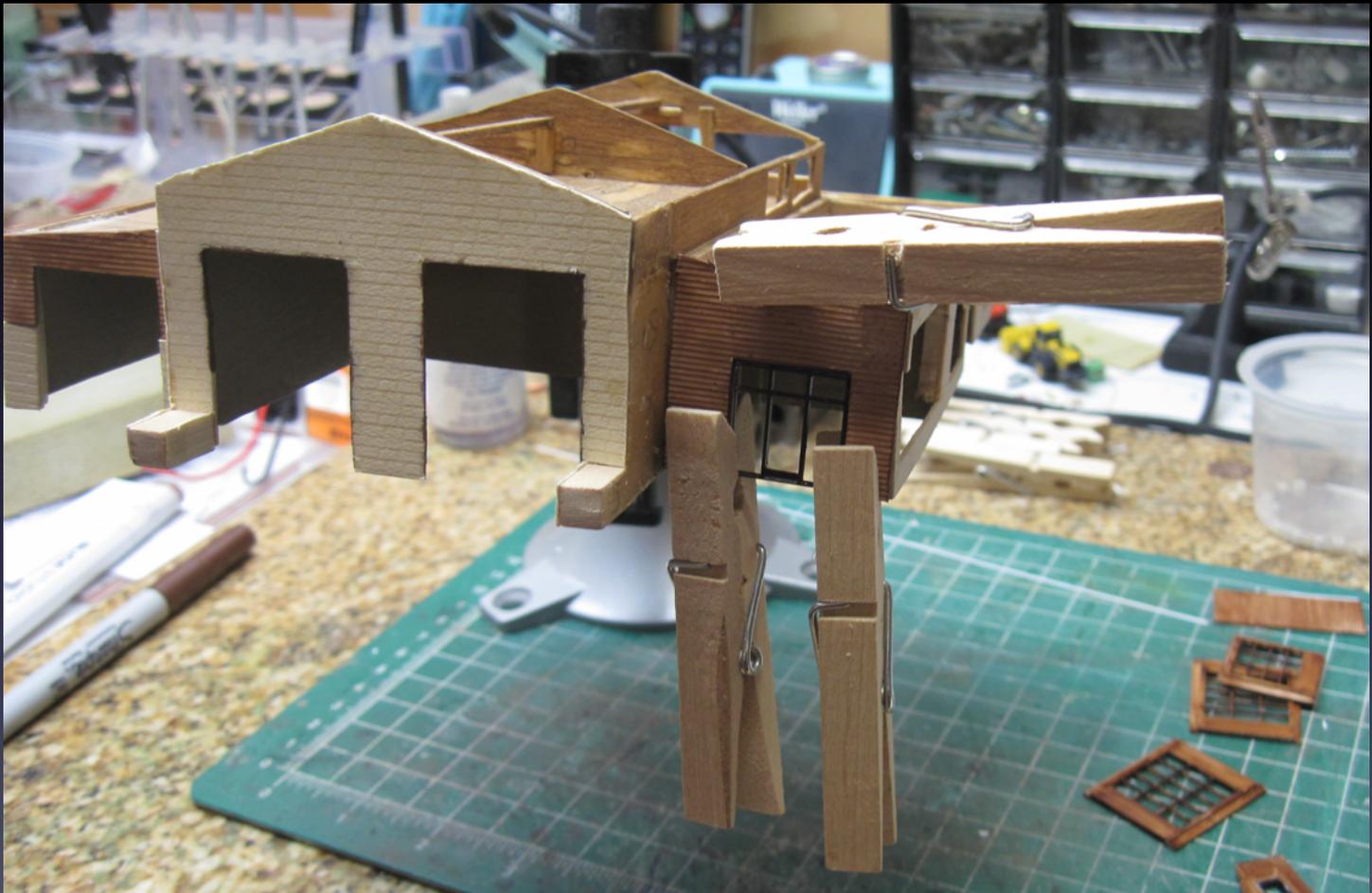
# A word about the Glass Windows



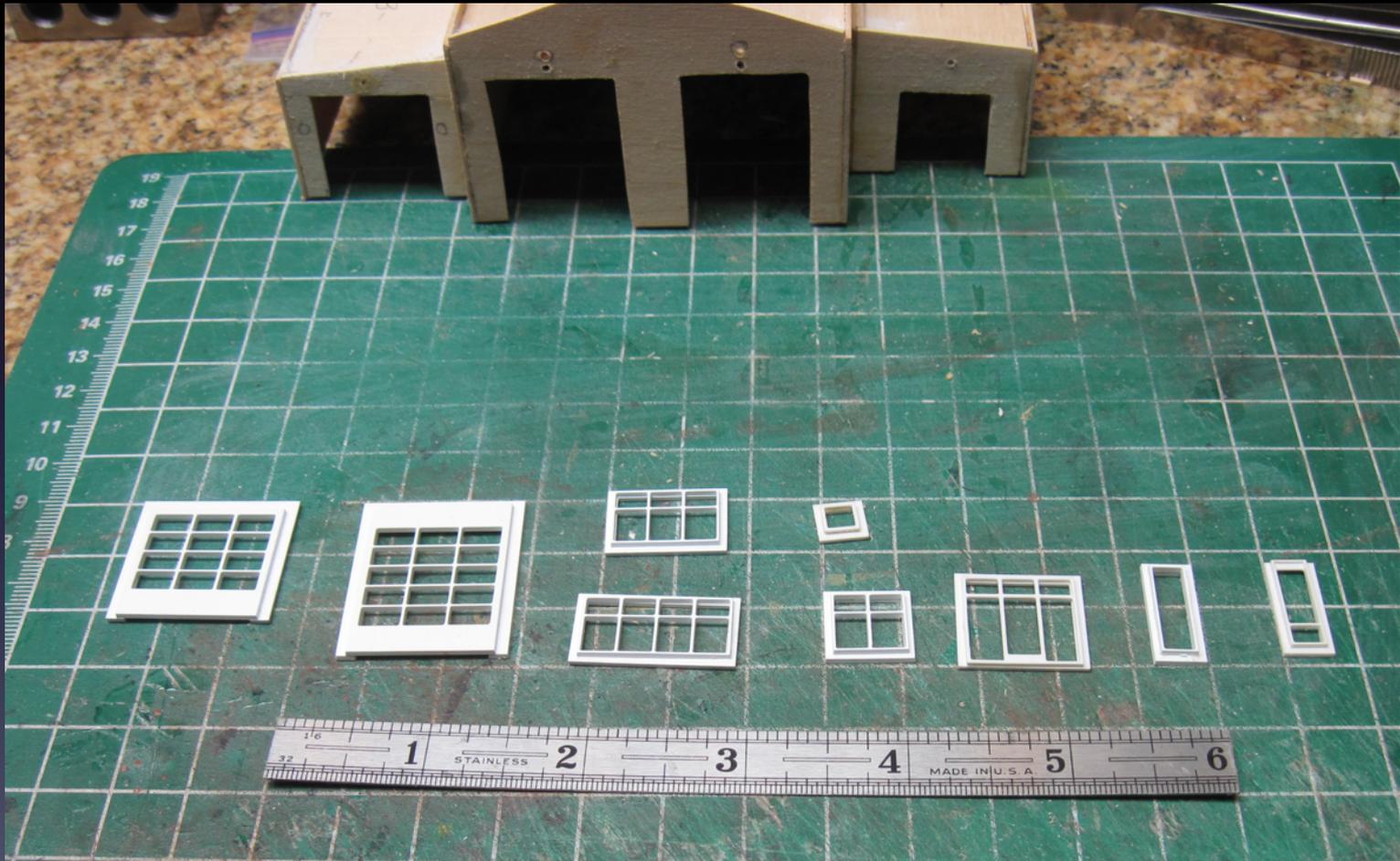
# Source of Plastic for Windows



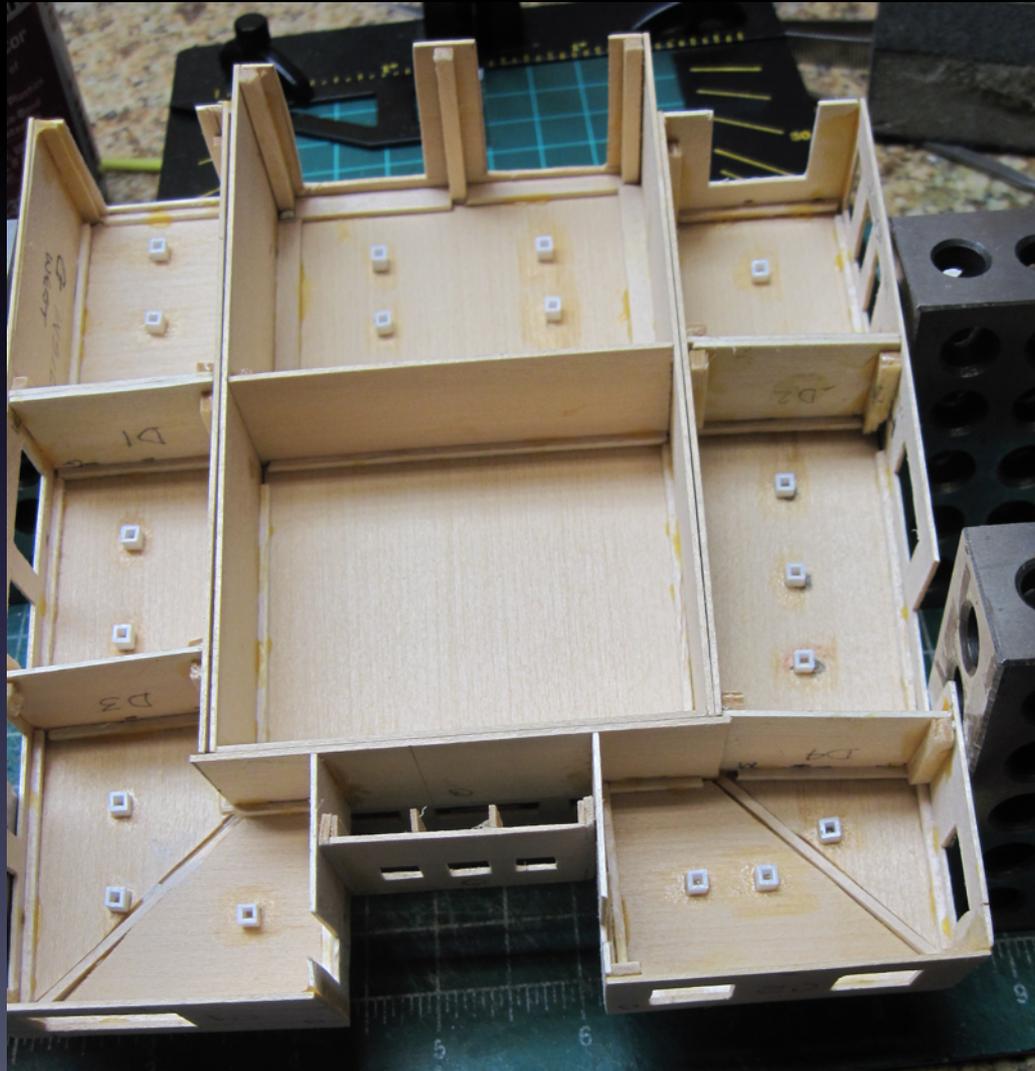
# Inexpensive N Scale Gluing Clamps



# Windows and Doors



# Interior Lighting Canopies



# LED Tester

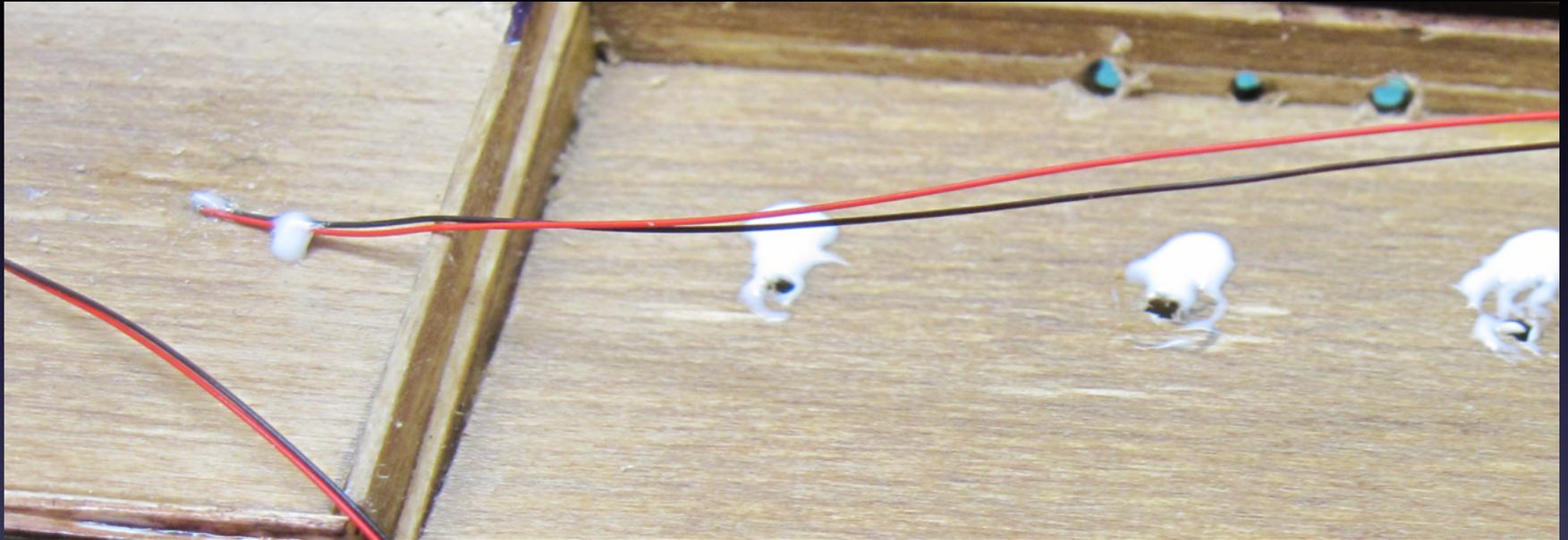
## Direct Attachment



# LED Glue



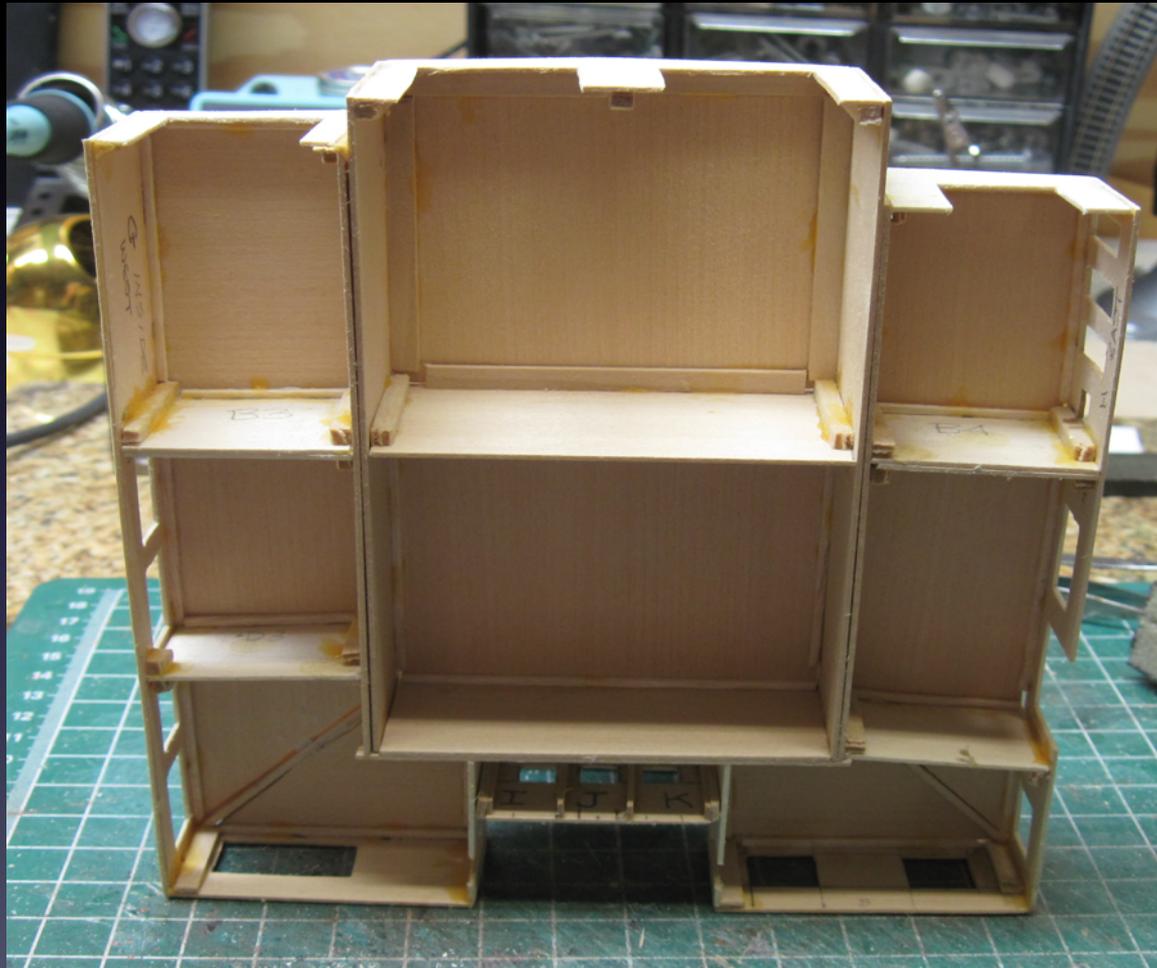
# Attaching LEDs to the Ceiling



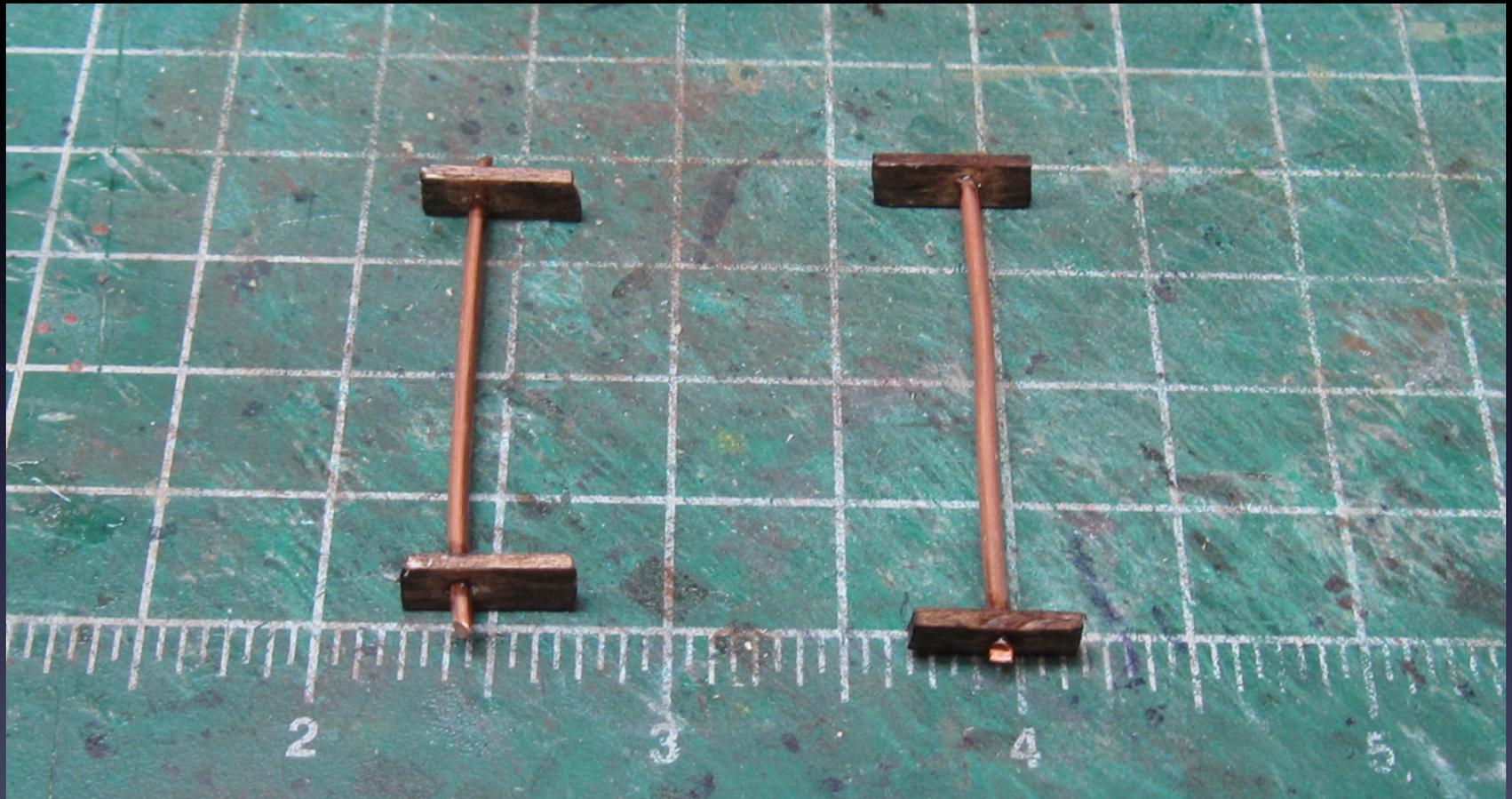
# LED Interior Wiring



# Utility Room



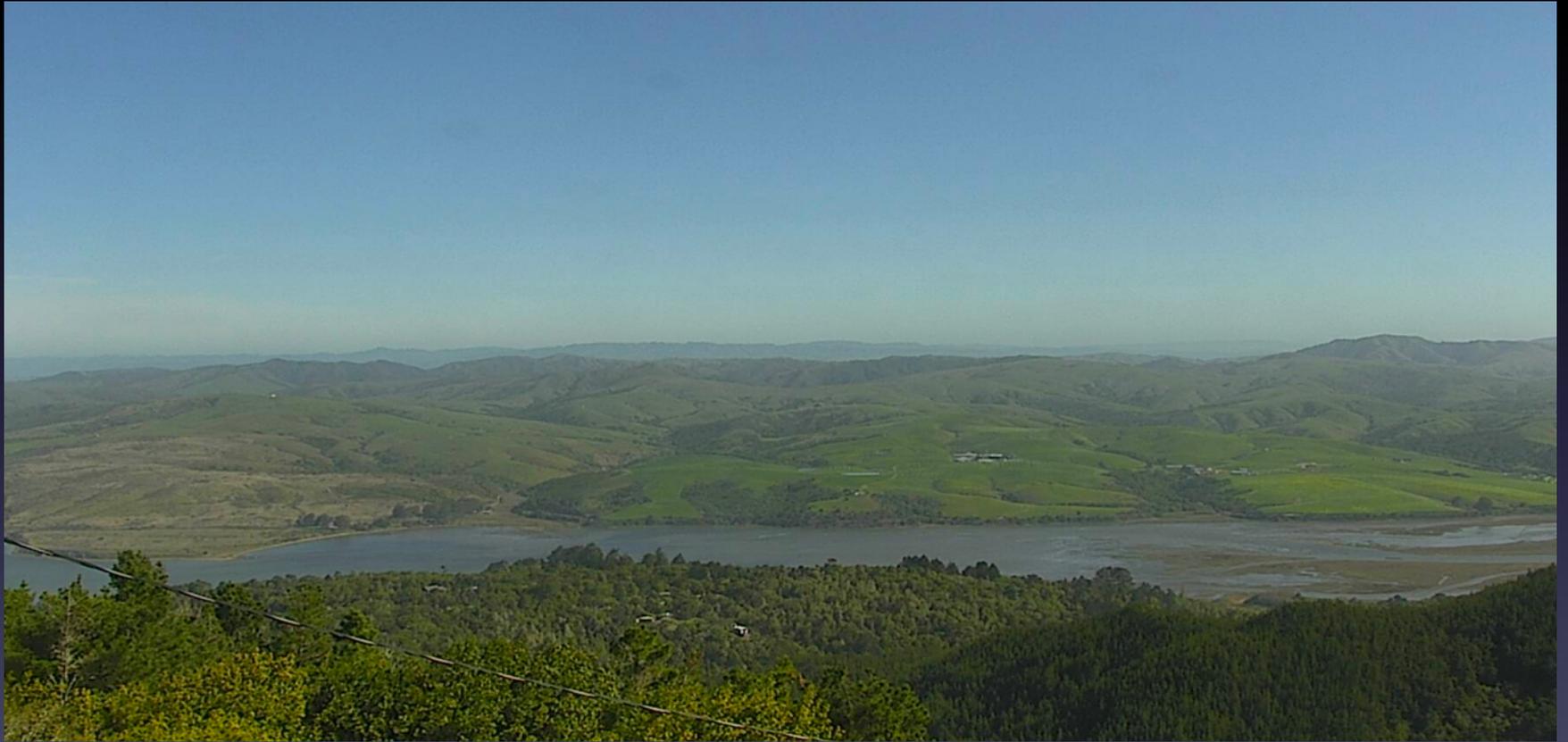
# Bus Bars



# Exterior Downlight Canopies



# Observation PTZ Cameras Radio Tower



# Left to Finish

- Install the exterior LED downlights
- Build the roofs (magnets)
- Shingle the roofs, install the solar panels
- Build the three fire engines
- Install the flooring
- Equip the interior of the open-door section
- Install the curbing and entrance pad around the building
- Build and install the radio tower

# Copy on Division Webpage

- For a copy of this presentation, go to the Division Webpage:
- <https://nmramcrdiv10.yolasite.com/Modeling>



# Wrap Up

- Any Questions?

