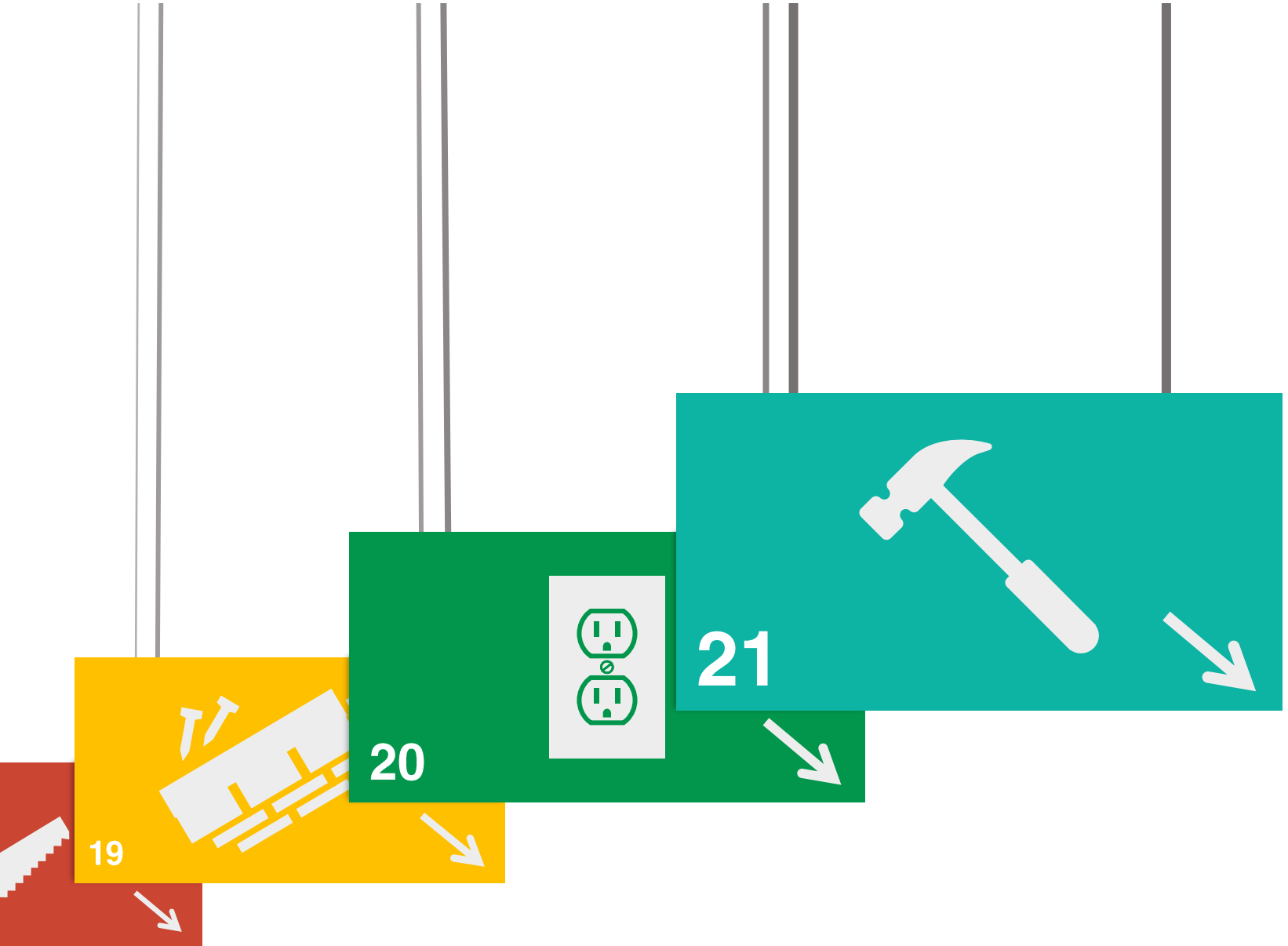


# Intro to Construction



Framing - Electrical Installations - Roofing



**Provided materials:**

- |                            |                    |
|----------------------------|--------------------|
| 1. Base x1                 | 15. Tab shingles   |
| 2. Window headers x2       | 16. Roof card      |
| 3. Studs x16               | 17. Battery box    |
| 4. Switch board x1         | 18. AA Battery     |
| 5. Ceiling board sides x2  | 19. Wire           |
| 6. Ceiling board x1        | 20. Switch         |
| 7. Wall beams x2           | 21. Scissors       |
| 8. Ridge beam x1           | 22. Screwdriver    |
| 9. Trusses x5              | 23. File           |
| 10. Screw                  | 24. Wire strippers |
| 11. Wire nuts              | 25. Stapler        |
| 12. Light bulb base        | 26. Wood glue      |
| 13. Light bulb             | 27. Super glue     |
| 14. Ridge cap shingles x12 | 28. Toothpick      |

Find PDF versions of these instructions at: [skillsalberta.com/resources/try-a-trade-take-out](http://skillsalberta.com/resources/try-a-trade-take-out)

**Framing**

In building construction, “framing” means creating a supportive structure, generally using wood, engineered wood, or structural steel.



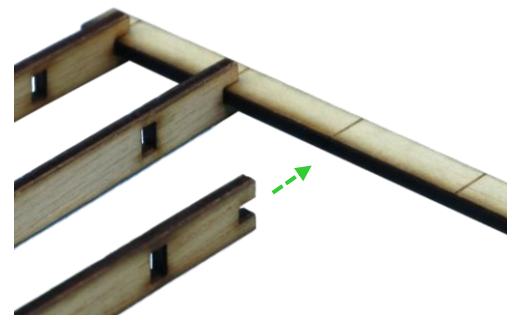
**Framing**

**Tips:**

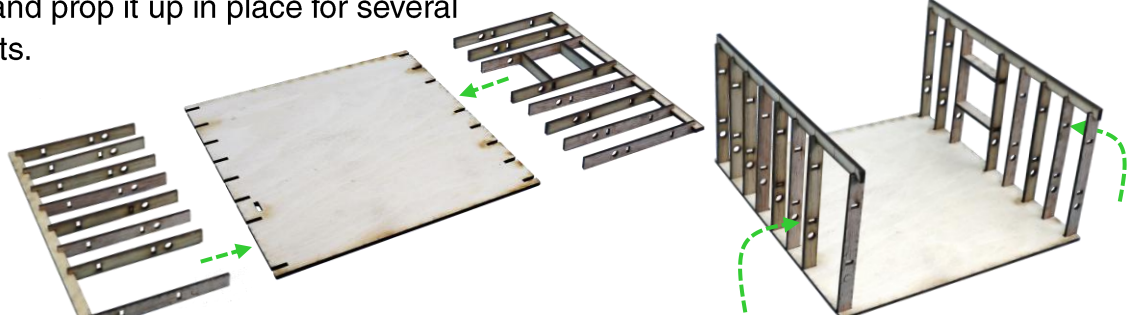
- Test fit joints before final assembly, as it may be necessary to lightly file the inside of some joints prior to assembly if they are too tight.
- During construction, carefully apply a small amount of glue to each joint with the toothpick. Work on the provided blank sheets of paper to contain the glue from your project.



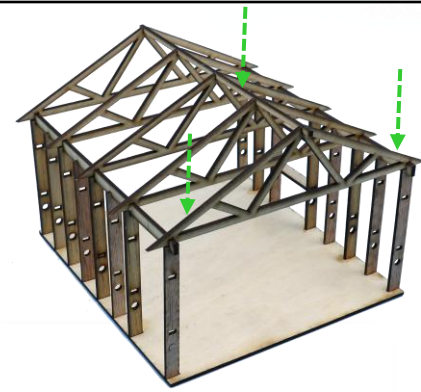
1. Install the window header pieces in the rectangular slots between a pair of studs. Attach the studs at the markings on the beams according to the two patterns shown below.



2. Slide each wall into its respective slot on the base. Proceed to rotate the wall upwards and prop it up in place for several minutes until the glue sets.

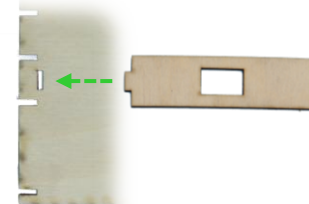


3. Once the walls are properly adhered to the base, attach the trusses on every second marking on the wall beams.
4. Once they are installed correctly, place the ridge beam through the slots in the top of all the trusses and allow the glue to set.

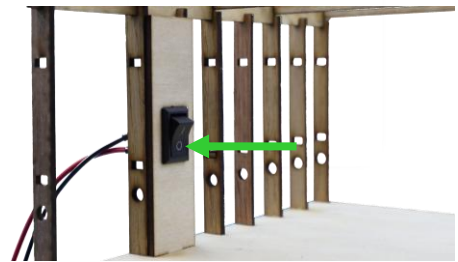


## Electrical Installations

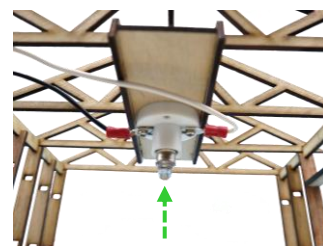
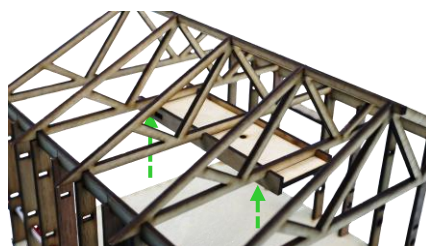
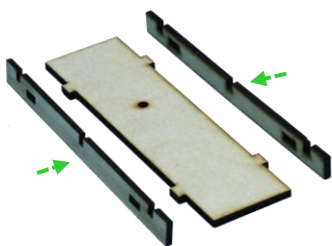
1. Install the switch board into the slot in base beside the doorway opening. Apply glue between the switch board and the stud it rests against. Allow the glue to set before proceeding.
2. Once the glue has set, push the switch through the board such that the wires run to the outside of the building, and the “I” marking on the switch face is on the top.



3. Screw the lightbulb into the light base. Using the screwdriver, loosen (but do not remove) the screws on the light base. Slide the fork connector on the black wire from the switch under the screw on the side with the larger metal tab and tighten the screw. Repeat with the white wire on the opposite side.



4. Apply a drop of glue to all joints before assembly. Attach the sides to the ceiling board, then use the notches in the sides to install it spanning the 3 centremost trusses as shown. Once the glue has set, bring the light base to the bottom of the ceiling board, such that the wires run ovetop of the wall beam. Affix the light base to the board using the provided screw. Do not overtighten.



### Wire nuts

“Wire nuts” are twist-on wire connectors. They consist of an insulated plastic cover over a tapered coiled metal insert that conducts electricity. Twisting the connector onto the stripped ends of wires pulls the wires into the insert and squeezes them together so they contact each other and the metal insert. In Canada, wire nuts are also known as “Marrettes”, named after William Marr, who invented wire nuts in the early 1930s after being injured by the former method of connecting wires by dipping them into a pot of molten metal.

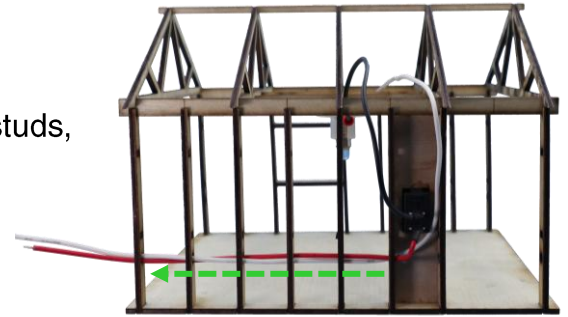
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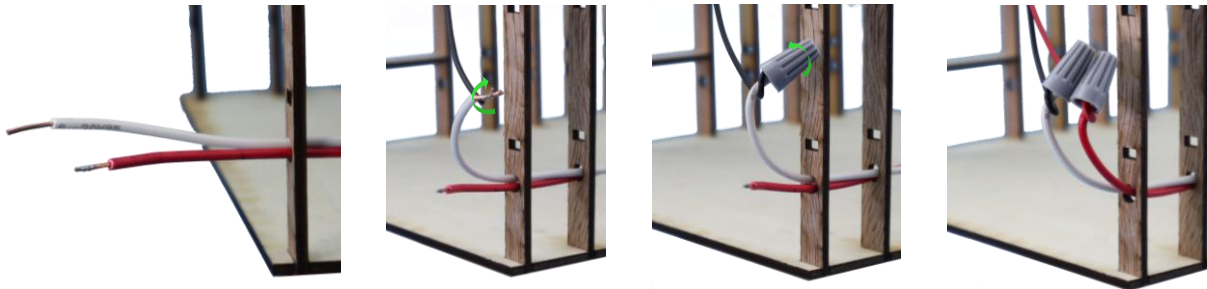
### Try-A-Trade® Takeout Program

Activity: Construction Intro	V5
Skill Area: Framing, Electrical Installations, Roofing	
CTS Cluster: TMT	

- Pull the loose red and white wires through the round holes in the studs, until they are free of the last stud.



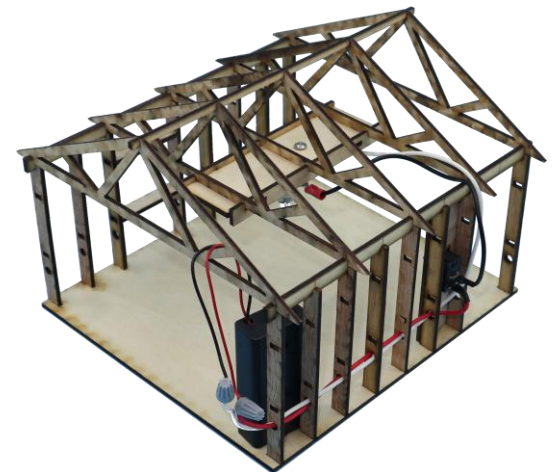
- Strip  $\frac{1}{4}$ " from the end of both wires running through the studs. Strip the same length from the end of the battery box wires. By hand, partially twist together the stripped ends of the black battery box wire and the white wire coming from the light base. Screw a wire nut onto the twisted pair in a clockwise direction until the wires begin to wind over each other. Repeat this process for the red battery box wire and the red wire from the light switch.



- Insert two AA batteries into the battery box and use the double-sided tape to attach the box to the baseplate. Test your circuit before moving on.

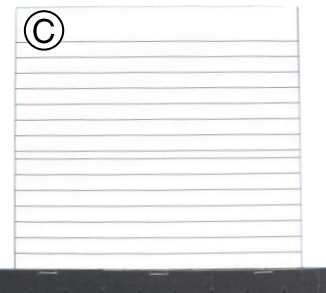
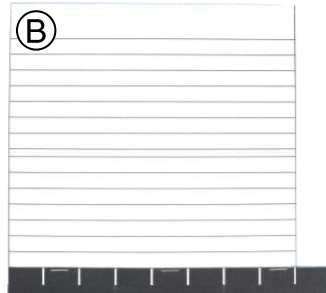
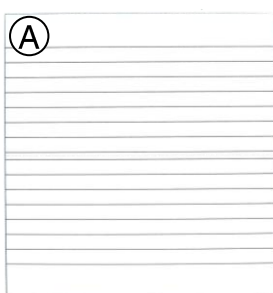
*Troubleshooting:*

- Is your light switch in the "on" position?
- Are your wires making contact inside the wire nut?
- Are your light base screw terminals tight?
- Are your wires connected to the correct terminals on the light battery box?

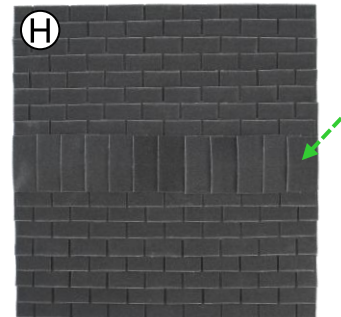
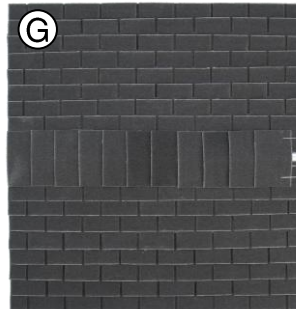
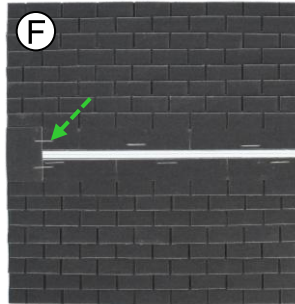
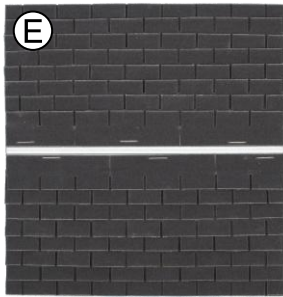


## Roofing

- Follow the instructions on the roof card to staple the shingles correctly. The shingles should be aligned with their 'top' (the long edge without the slots) against each line, working upwards from the edges to the centreline. The first row requires a "starter" row, which is a row of shingles installed upside down (B). The next layer will be installed directly over the starter row, with the slots facing downwards (away from the roof centreline), offset to one side by  $\frac{1}{2}$  a tab length (C). All subsequent rows should be offset from their previous row by  $\frac{1}{2}$  tab as well (D). This offset ensures that the slots in one row do not align with the lots in the next row, thus keeping the roof fully covered and protected from the elements.

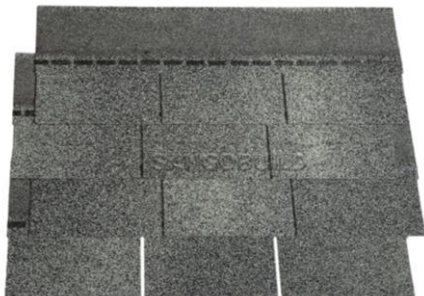


2. Repeat on both sides of the roof ((E)).
3. Staple the smaller ridge cap shingles to the top of the roof. Fold and gently crease the shingles on the long edge before installation. Only 1/2 of each staple should be on each ridge cap shingle ((F)).
4. Overlap the subsequent ridge cap shingles just enough to cover the previous shingles' staples ((G)).
5. Use a few drops of the provided super glue to attach the final ridge cap shingle to the roof, holding it in place for 5 minutes to cure. These steps should ensure there are no exposed staples which could otherwise be points for water entry ((H)).



### 3 Tab Shingles

3-tab shingles are a type of asphalt shingle. The tabs are cut into the bottom of a longer shingle to give the appearance of three shingles for each shingle installed. Although developed in 1935, their popularity has endured because they are relatively affordable, durable, and easy to install.



Find PDF versions of these instructions at:  
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#### Try-A-Trade® Takeout Program

Activity: Construction Intro

V5

Skill Area: Framing, Electrical Installations, Roofing

CTS Cluster: TMT

# Intro to Construction

# Construction Trades

## Project

Frame a miniature house, rough-in electrical components, and shingle a roof in this introductory activity representing three residential & commercial construction trades.



## Schooling

- Schooling requirements vary. Start early with the Registered Apprenticeship Program (RAP) or explore options available through Career and Technology Studies (CTS).

## Jobs

### Roofer:

- Install and maintain roof coverings
  - Average salary: \$64,664.00 year
- ### Carpenter / Framer:
- Assemble & repair wooden structures
  - Average salary: \$76,478.00 year

### Electrician:

- Diagnose, service, & install residential & commercial wiring systems.
- Average salary: \$81,919.00 year

## Find your trade:

Or visit:

[tradesecrets.alberta.ca](https://tradesecrets.alberta.ca)



## Plan your career:

Or visit:

[alis.alberta.ca](https://alis.alberta.ca)



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