

# DOLLHOUSE WIRING - A QUICKSTART GUIDE

By **Real Good Toys**

## Begin with Confidence!

- 12 volt wiring systems are safe to work on and to use
- CirKit electrical components are excellent quality
- Dollhouse wiring skills are easy to learn.
- dhbuilder.com has photos and support for your wiring project.

## Supplies:

**House Wiring Set** contains all the supplies you need for the basic wiring of a house. Choose the right size for your house with capacity for future expansion

**EL-66 electrification tool** is a superior tool for making electrical connections

## Other Supplies:

**CK-1003 Wall outlet** a tiny outlet for table and wall lamps (the *Deluxe Wiring Set* includes 8 of these)

**CK-1023-2 Large Hollow Eyelets** to make a recepticle for large-sized plugs that come pre-wired on most lamps

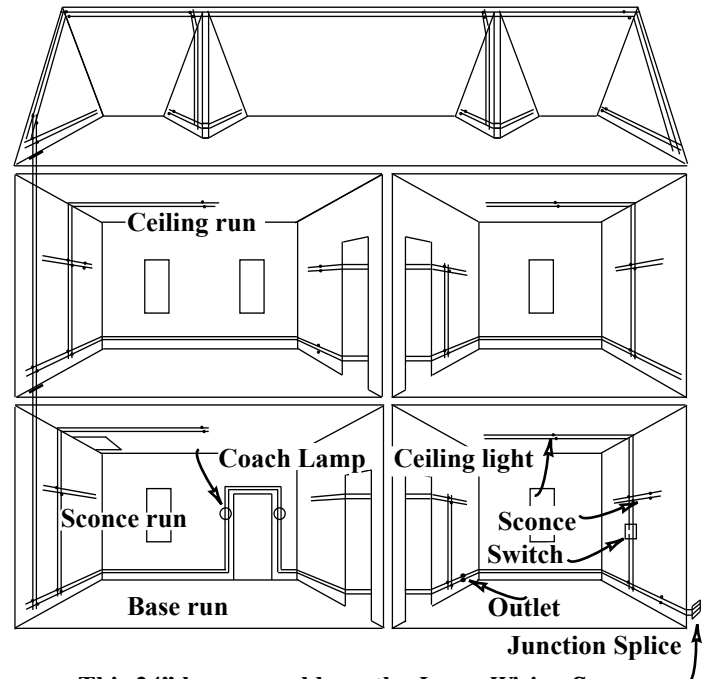
**CK-1023-6 Spring loaded Eyelets** for ceiling and sconce fixtures (included in many CirKit fixtures)

**Extra Tapewire and CK-1023-4 Small Eyelets** to extend a wiring system (check transformer capacity)

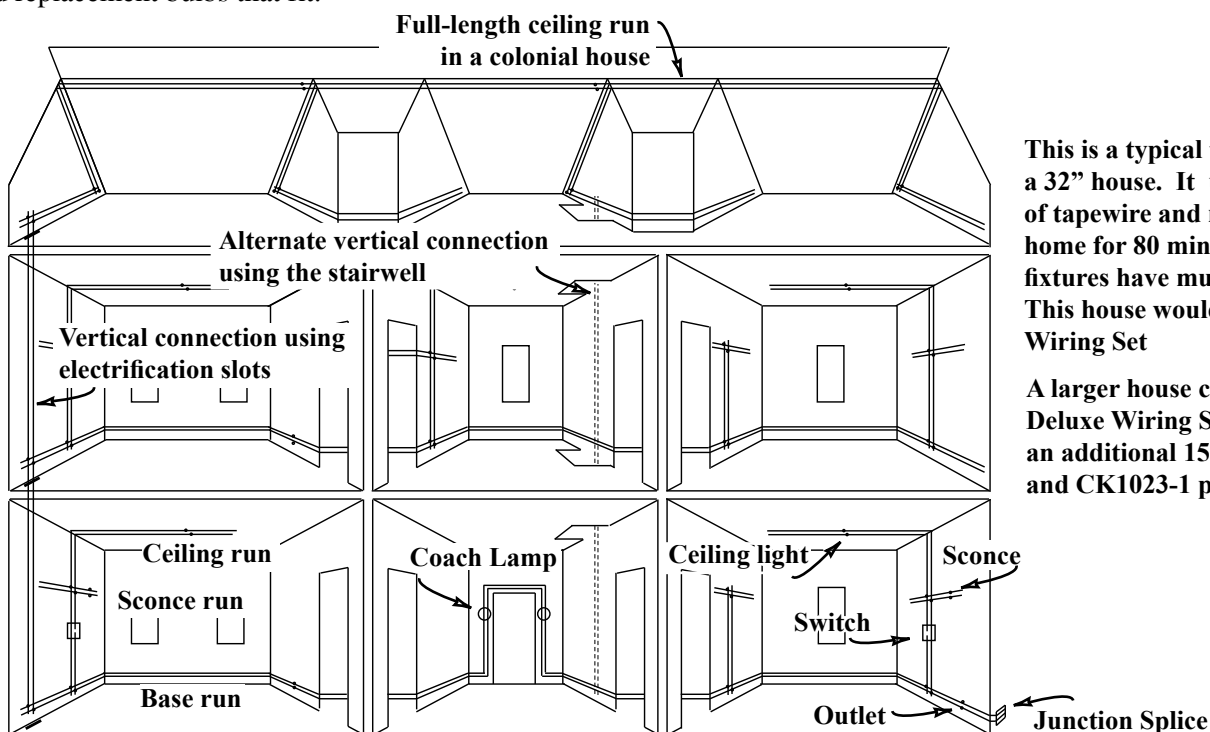
**Fixtures:** There are a great many lighting components available for your house. RGT recommends fixtures that are removable for bulb replacement and that have replaceable bulbs. As you shop for fixtures, make sure you know how they attach to your house wiring and what bulb they use - look for that information *before you buy* so you have the adapter that works and replacement bulbs that fit.

This is a typical tapewire layout for a 24" house. It uses about 25 feet of tapewire and might become the home for 50 miniature bulbs (many fixtures have multiple bulbs).

This house would use the **Large House Wiring Set**



This 24" house would use the **Large Wiring Set**



This 32" house would use the **Deluxe Wiring Set**

This is a typical tapewire layout for a 32" house. It uses about 42 feet of tapewire and might become the home for 80 miniature bulbs (many fixtures have multiple bulbs).

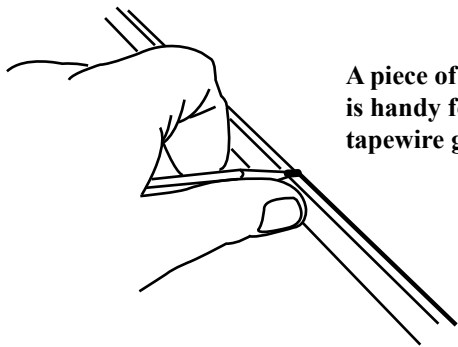
This house would use the **Deluxe Wiring Set**

A larger house can start with the **Deluxe Wiring Set**, and would use an additional 15' roll of tapewire and CK1023-1 pack of Eyelets

**PRECAUTIONS**

1. The Cir-Kit tape wire system is to be used for “low voltage” application with bulbs that are 12 or 16 volts only.
2. Miniature lights are FRAGILE... be careful.
3. Always disconnect the transformer when changing the electrical system in any way or moving the house.
4. Test all lamps prior to installing them into the system.
5. When trimming wallpaper or moldings, take care not to cut the tapewire.

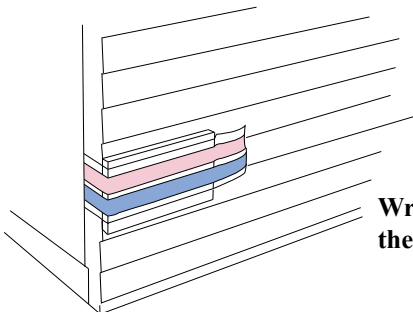
**To begin** the electrification process, remove any staircases and interior doors from your dollhouse and be sure all interior walls are securely installed (except “bathroom dividers” or other cross-dividers that hide the space behind them, and attic partitions if you will do a full-length ceiling run like in the diagram on page 1). Now draw a pencil line along each and every wall of your dollhouse  $\frac{3}{4}$  from the floor. This will be the tapewire guide and insure a straight tape run. It also allows for  $\frac{1}{2}$ ” baseboard on the wall beneath the tapewire without having to notch the baseboard for outlets.



A piece of  $\frac{3}{4}$ ” stripwood is handy for drawing the tapewire guide

Once pencil lines are drawn, begin to lay the tapewire. Choose a starting point on either end of the house. Start by wrapping 3” of tapewire on the outside of the house, and then proceed to run the tapewire just above the pencil line. It does not matter which color is on the bottom or top. Follow the pencil line using the doorways to move from room to room.

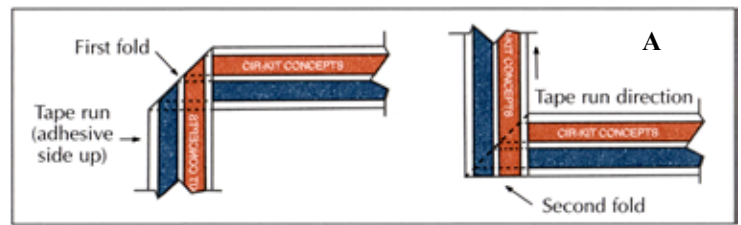
On clapboard surfaces use a pine mounting block at least  $\frac{3}{4}$  x  $1\frac{1}{4}$ ” (one is included in the EL-66 set)



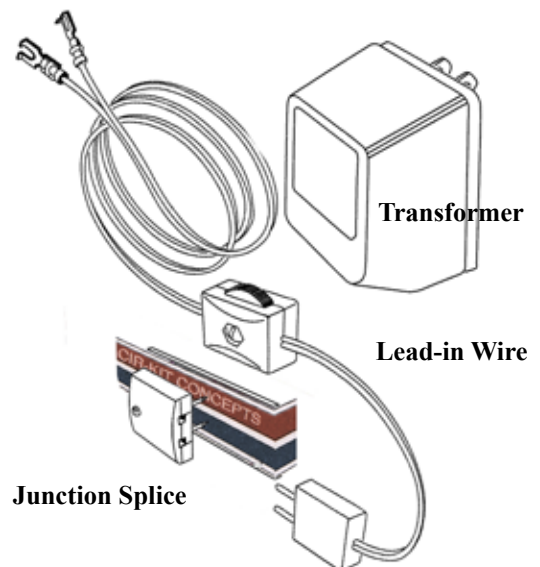
Wrap the Baserun to the outside of the house

The first obstacle will be the front door. Rather than cutting the tape, fold the corners for a continuous run.

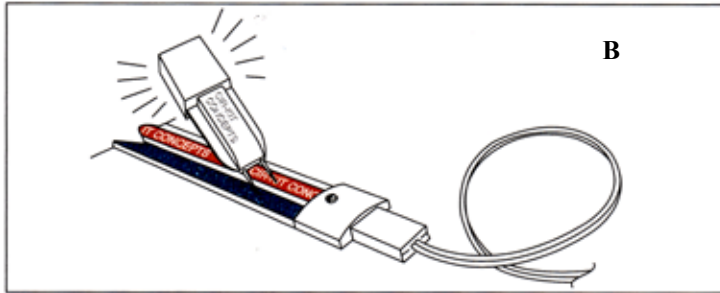
**Folded corner:** About  $\frac{3}{4}$ ” before the door, make a turn upward. To do this, fold the tape, sticky side out,  $90^\circ$  in the opposite direction from where you want to go - in this case, the first fold is *down*. Push on the tape with your finger to make a  $45^\circ$  crease and then fold the tape onto itself in the direction that you *want* to go - *up* the side of the door. (See figure A) When you hit  $\frac{3}{4}$ ” over the top of the door, once again fold the tape, sticky side out, in the opposite direction from where you want to go. Press the tape to form a crease and then fold the tape onto itself making a right angle above the door. You will do this 2 more times for the tapewire around the front door; then continue running the tape along the pencil mark on the other side of the door. When you reach the end of the first floor, cut the tapewire.



**Install the junction splice** by pushing the 2 prongs into the 2 separate tapewire colors at the point on the 1st floor where the tapewire wraps around the outside of the house. You can use the eyelet insertion tool to help you make the holes for the junction prongs. Be sure that the junction is VERY tight to the house as 99% of the time when your dollhouse does not light, it is because the junction is not tight enough. Install the supplied screw to hold the Junction Splice tight to the tapewire.

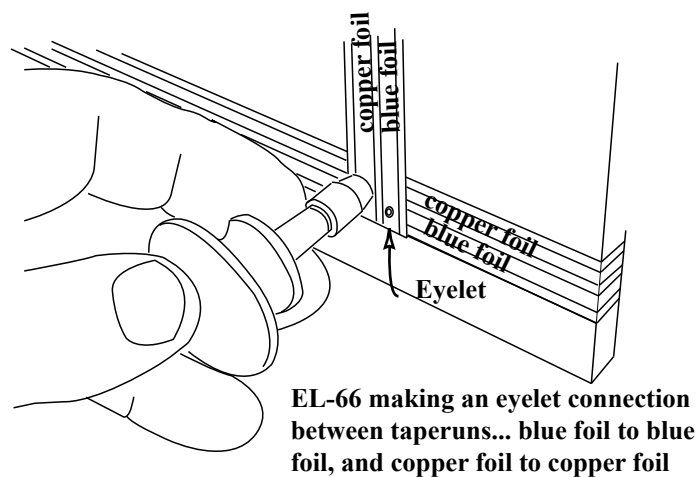


Connect the lead-in wire to your transformer and plug the other end into the junction splice. Now is the time to use your tester and test the area near the junction splice and at the end of 1<sup>st</sup> floor. Remove the cap and insert the prongs into the tapewire next to the junction splice (See figure B). If the light in the tester lights up, all is fine. If nothing lights up, check your house outlet and be certain that your lead in wire switch is turned on, then check the junction splice again.



Proceed to the 2<sup>nd</sup> floor and begin your run on one end of the house. No need to wrap the tape onto the outside of your house on the 2<sup>nd</sup> or 3<sup>rd</sup> floor. When you reach the end of the last wall on the 2<sup>nd</sup> floor, cut the tapewire. Continue the process on the 3<sup>rd</sup> floor as well.

When all 3 floors are independently wired, run a vertical length of tapewire up through the electrification slots (if available - see the illustrations on page 1) or the stair hole, beginning on the 1<sup>st</sup> floor and ending just above the tapewire on the 3<sup>rd</sup> floor. Use the eyelet insertion tool loaded with an eyelet to connect the tapewires where they overlap. There will be 2 eyelets per connection. Be sure to connect blue to blue and copper to copper at all times (See figure C). If the wall is too hard, make a starter hole with just the insertion tool and push in the eyelet in a separate step.



EL-66 making an eyelet connection between taperuns... blue foil to blue foil, and copper foil to copper foil

Now is a perfect time to test the tape wire on each floor. Use your tester at the beginning and end of each tape run. Make sure that your tester lights up. If nothing lights up, check your transformer, lead in wire switch, and Junction Splice. If you do have power *before* a connection but do not *after* the connection, add a brad or eyelet to each color foil at that connection.



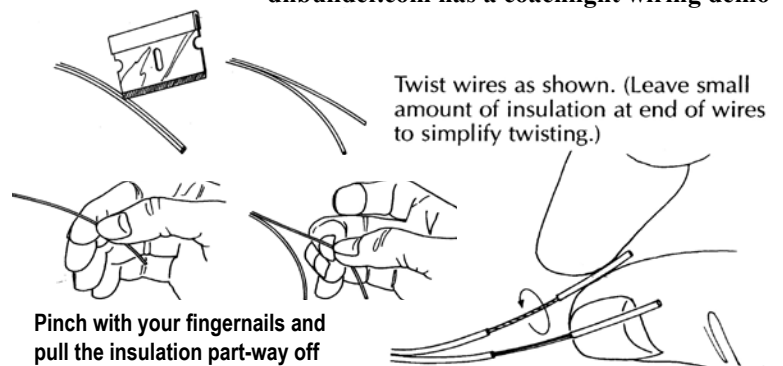
**The Ceiling Run:** Begin at the base run of the desired room and run up the wall and across the ceiling. Attach this new run to the baserun with 2 eyelets. An adapter will be used to attach the ceiling light to the tapewire at a later time. Lightly spackle and paint or cover with a ceiling paper.

**The Sconce Run:** Draw a sconce-run guideline 5 1/2" high. Add a horizontal run above the guideline and connect it to the baserun with a vertical piece of tapewire. Use the eyelets to connect all new runs of tape. Sconce adapters will be used to make the final installation of the sconce after wallpapering.

**Coach Lights:** Drill a 1/16" hole on either side of your front door at the exact location you wish your coach light to be. Feed the coach light wire through the hole into the house and secure the light to the house with glue. On the interior, cut the coach light wire leaving 3" extra, and separate each pair of wires. Strip the insulation part way off the end of the wire, and twist the strands using the insulation as a knob (the wire is so thin that it's nearly impossible to twist it once the insulation is pulled the whole way off). When the strands are twisted into a single wire, cut off all but 1/4" of exposed copper.

Using your eyelet insertion tool, make two holes into the tapewire on each side of the door. Insert the wires from each coach lamp into the holes, one wire into each color foil. Secure the wire into the hole with an eyelet.

**dhbuilder.com has a coachlight wiring demo**



Now you can add the cross dividers and attic partitions that were left out for access to other parts of the house. They can be wired and connected to the existing wire runs.

**Your dollhouse is electrified!** Feel free to add additional lengths of tapewire where needed and connect each new length with eyelets. Remember to always test each new addition of tapewire as installed.

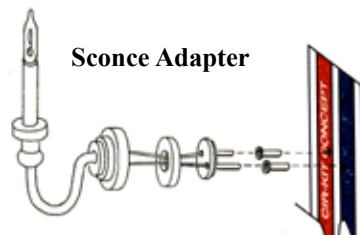
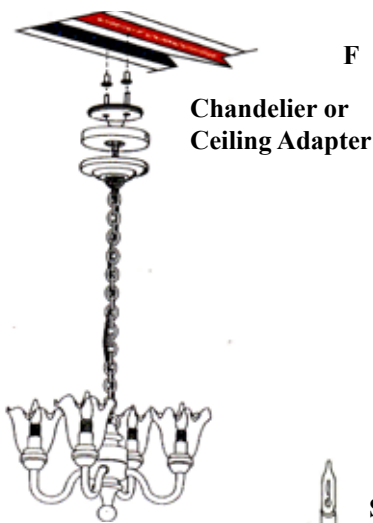
This is a perfect time to make a written record of your tapewire runs. Draw an electrical schematic of your dollhouse for future reference. Photos are also helpful. Once wallpaper is installed, it won't be as easy to see the *exact* position of the tapewire (although you can still find it by poking your tester through the wallpaper).

**Finishing:** A thin coat of lite spackle on the ceiling and a coat of paint will leave the tapewire 'findable' but not obvious in the decorated house. Wallpaper will also cover the tapewire with no other preparation. If you are painting the walls over tapewire, you may wish to apply 'liner paper' (a paint store product) before painting.

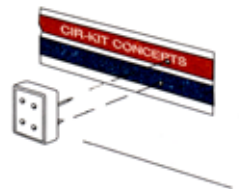
**Fixtures** of all types may be installed into the tapewire system using either a Chandelier adapter (figure F), a Ceiling Canopy adapter, or a Sconce adapter. The type of fixture to be mounted will dictate the type of adapter. Whenever you are shopping for a fixture, pay attention to how it is mounted and what kind of bulb it uses. Always select fixtures that can be removed for bulb replacement and have replaceable bulbs, and that *list what kind of adapter they use* (some come with the appropriate adapter). Although one adapter may work with more than one fixture, there are no "standard adapters"... make sure you know which one will work with *your* fixture.

**Outlets:** Floor and table lamps can be installed in any room. You must first install an outlet into your tapewire. This will allow you to insert a plug from the lamp to be illuminated.

After you have finished wallpapering your dollhouse, arrange your furniture in your favorite position. Determine where you will need light and find your tapewire by using your tester. Once you have found the proper placement, insert your outlet. There are two primary types of plugs and outlets. Make sure that your plugs match your outlets in size and style.

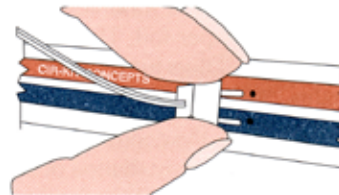


**CK1003 wall outlet works with CK-1004 and CK-1004-2 plugs**

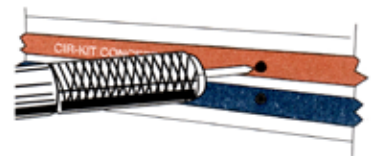


**CK1004-3 plug Receptacle using CK1023-2 eyelets**  
(the CK1023-2 eyelet is called "large Eyelet" and is not the one supplied in the House Wiring Set)

Step 1. Use pins on plug to make indentation marks in copper foils at desired location.



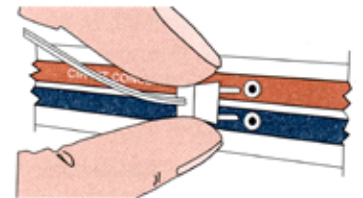
Step 2. Drill a 1.5mm hole deeper than the length of the plug's pin



Step 3. Insert pin into eyelets and push in.



Step 4. Eyelets are now ready for insertion of CK1004-3 plug.



**Acknowledgements:**

- "Dollhouse Wiring" by the Dollhouse Builder's Workshop
- "Dollhouse Electrification" by Taylor Jade Miniatures
- "Tapewire Instruction Book" by CirKit Concepts inc

### Addendum: Layout diagrams

It is useful to do a layout diagram for your house before beginning the wiring... it helps to figure out the easiest way to get everywhere with the least number of connections. This style diagram lets you see all the surfaces and is commonly used by dollhouse electricians

If I know in advance that I will be wiring a dollhouse, I do the “up-and-over” runs (up the wall, over the ceiling) before I install the dividers so they can be continuous from one side of the house to the other (see the dotted lines)

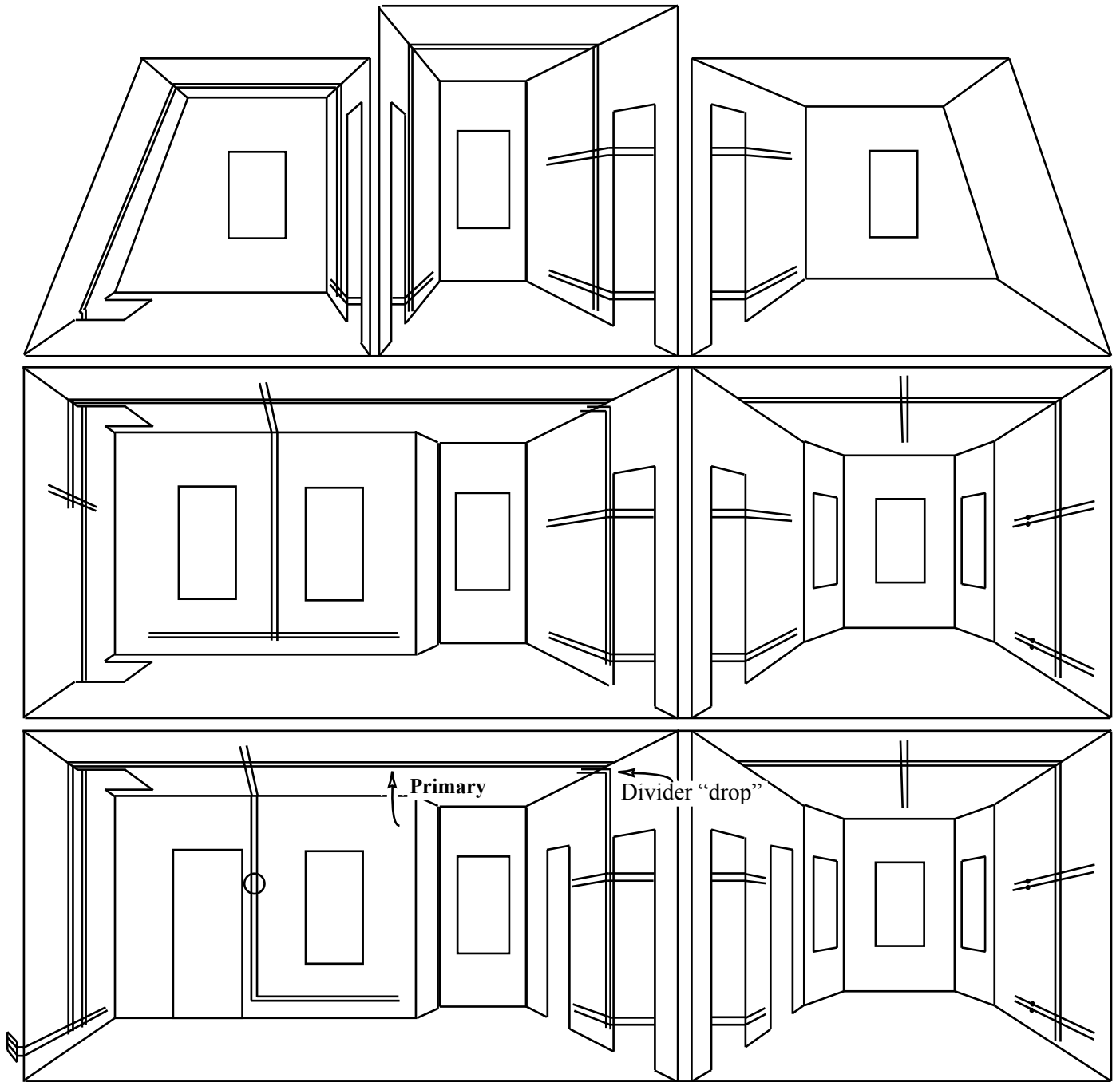


#### Wiring the Painted Lady

Here's a basic wiring pattern. Modify the exact positioning of the ceiling runs of tapewire based on your interior plan. The vertical drop will go up all the stair-holes and still miss the door in the first-floor divider if it is close to the edges. The drop can go up to the roof and across the peak in one run. It is just-possible to fit tapewire on the Kneewall, but plan ahead for the juxtaposition of outlets and baseboard.

It may be easiest to wire the Tower Ceiling with it un-glued so you can put it on and take it off several times while you mark where the tapewire goes when it is folded.

Batrie style houses use connectors to join the walls. These connectors interfere with horizontal tape-runs on the walls, so the easiest primary run is across the ceiling before the Dividers are installed.



#### DH-71K

Run a continuous taperun at the back edge of the stair hole up the side, across the ceiling, and down the other side before the Dividers are installed. A vertical run thru the stairholes, across the attic ceiling, and down the Tower Side joins the floors. Run the horizontal tapewire for the Junction Splice before attaching the End Cap.

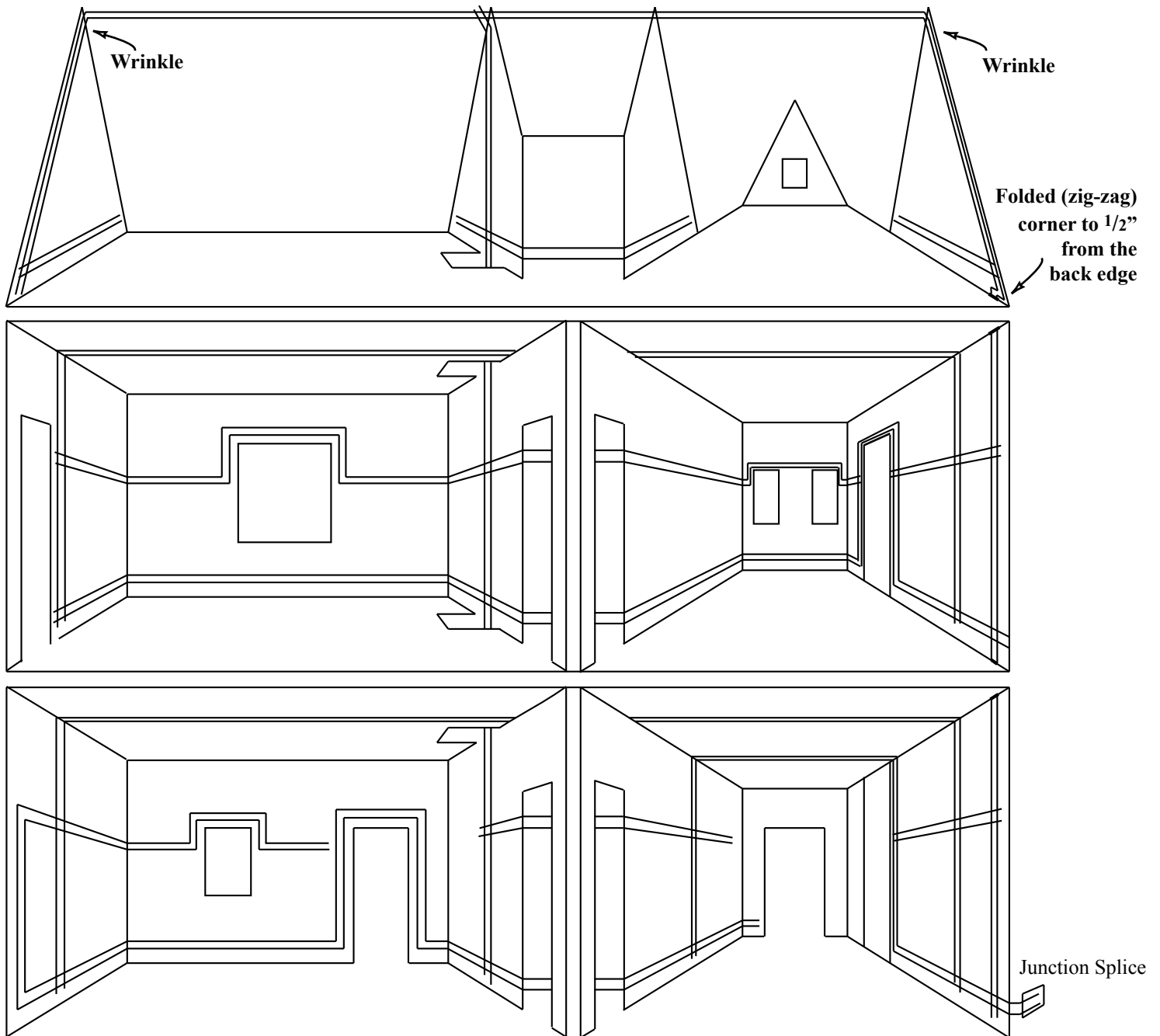
Note that the drops for the Dividers (one Divider is not shown) connect to the primary (ceiling) run with a short overlap of tapewire that is connected to the primary with eyelets

## JM-1065 Layout

This diagram shows an attic ceiling run that was installed before the Rear Roof or Attic Partition and “up-and-over” runs in the first and second floors that were installed before the Dividers were put in. Each of these can be done in the normal way after the Dividers are installed, but doing these runs first saves connections (always good!). Notice that there are redundant connections (more than one pathway) in this wir-

ing plan. This adds security in that there are multiple ways a given run can be supplied. It does take a little more tapewire and a little more time, and it makes it **absolutely necessary** to only connect copper-to-copper and blue-to-blue.

The attic ceiling run will not be accessible for wiring ceiling fixtures after the Rear Roof is attached unless it is run  $1\frac{3}{8}$  down from the top of the Front Roof, or a custom ceiling is installed (this is what I do when I wire a JM-1065)



The run thru the Electrification Slots was made from the top down (a craft knife is needed to coax the tapewire thru the E-Slot on the Top Floor), then a folded corner just above the floor on the Attic Endwall brings the tapewire to  $\frac{1}{2}$ " from the back edge and changes angle without needing a connection (which would interfere with the connection to the attic

floor run)

To change from the Attic Endwall to the Front Froof, lift a wrinkle in the Tapewire with the blunt back of a craft knife (like a folded corner, but the change in direction is so small, only a little wrinkle is needed). Press the wrinkle to the top corner where it will be completely hidden by the Rear Roof.