

CRAFTSMAN KITS 101

By Jack Ellis

Craftsman Kits, It seems like new companies spring up every day. All most any structure you can think of is being built today. We have companies that deal only with prototype structures and others that start with prototypes and add a little artistic license. When you build a structure you want the structure to tell a story, relate to the viewer the time and date of the scene, and the purpose of the structure. We will be dealing with structures in this clinic but some of the techniques can be used on other aspects of the hobby. This clinic will address the things you will need to build them, paint them and detail them. Let's start at the beginning.

Choosing A Kit To Build

As we said before the number of kits on the market are numerous, and you need to match one to your level of building skill. Most of the kit companies out there will rate their kits by degree of difficulty. Ask another builder a kit they might recommend. If you are just starting out, look for their starter or smaller kits to build. These kits will let you practice difference techniques and hone your skills for a moderate price. You don't want to start out with a \$200.00 kit learning as you go along and getting frustrated when it doesn't come out as you hoped it would. A master craftsman once said *a good builder knows how to cover their mistakes*. You learn to fix your mistakes by building kits. Try different manufacture's kits, most manufactures will include helpful hints on different techniques on building and finishing the model.



Basic Tools

There are many of good tools out there. You could go broke buying them all. Here is a list of basic tools to get you started. A second list will have some tools that are not necessary but will help you build faster.

- 1) **A Flat Working Surface:** A table or desk at a comfortable height and a good chair. Some people with bad backs will stand up when working
- 2) **Good Working Light:** If you can see well you will do a better job. I use a crane light so I can move the light to where I need it.
- 3) **A Cutting Pad:** There are a bunch on the market I like the self-healing type they will save your cutting blades
- 4) **X-Acto Knife:** I like to have two knives one with a new blade and one with an older blade. The new blade is for cutting wood and paper. The older blade is for scraping and prying.
- 5) **Extra X-acto Blades:** Buy a bulk pack of 100 #11 blades. Don't worry! You will use them up.
- 6) **Scale Rule:** Buy a scale rule in the scale you are working in. Unless you are building long Bridges, you can buy a 6inch long rule.



- 7) **Razor Saw:** For cutting larger strip wood at angles. Can also be used to put grain in strip wood.
- 8) **Tweezers:** For picking up, placing and holding small parts.
- 9) **Small Square:** For cutting and marking right angles and for checking that the building is square.
- 10) **6" Mill Bastard File:** For cleaning up pewter detail parts.
- 11) **Needles Nose Pliers:** For bending wire and holding small parts.
- 12) **Pin Vice:** To hold small drill bits. You can punch nail holes with a common pin in the pin vice
- 13) **Set of Paint Brushes:** You can find small assortment of different size brushes. These brushes don't have to be really good brushes. We will talk about the good ones later.
- 14) **Clamps:** You will need some form of clamps. There are large and small spring clamps, two sizes of bar clamps. Rubber bands will work. You can use wooden clothespins as they come or modify them. Turn the wooden pieces around and install the spring on the inside.
(See picture below)



Tip: A good place to keep your clamp close at hand is on the arm of your crane lamp.

There are other clamps out there. Ones to hold corner at right angles. They are good but won't work all the time. I like to use the bar clamps. They have a 90degree built into the end to hold the two walls square.

15) Glass Plate: A glass plate is not necessary but working on the glass plate makes sure the bottom of the structure is flat. What I did was buy a piece of window glass about 10"x10" at a glass shop and had then grind the edges smooth or you can tape up the edges its up to you.

16) The Chopper: By North West Short Line. This tool is a must when making repetitive strip wood cuts. I also cut my window glazing with it. It cuts with a single edge razor. Buy extra blades.



Sand Paper: You will need several different grits of sandpaper. A 440, 220 and 150 grit should get you started. You can glue 220 paper to a Popsicle stick for sanding in tight spaces

These are some of the basic tools you will need. There are more tools out there some better than others. I am adding a wish list of tool for future purchases.

Tools not needed but make things easier



- 17) **Drill Index:** Drill Index small drill bits to be used in your pin vise
- 18) **Colored Magic Marker:** for coloring the edge of signs and barrel stays
- 19) **Set Needle Files:** Small files for working in close spaces.
- 20) **Micro brush:** Small applicators for glues and paint.
- 21) **Pounce Wheel:** For making nail holes in walls.
- 22) **Wire Brush:** For graining wood or scratching finish paint for weathered look.
- 23) **Small Awl:** For starting small holes.
- 24) **Dental Picks:** Good for scribing plaster and wood.
- 25) **Scissors:** For cutting paper, decals, roofing material, and signs.
- 26) **Common Pins:** For layout of templates.

Here are a couple of vendors.

Michael's:

Paintbrushes, Common Pins, Cutting pads, Xacto Knife and Blades, Magic Marker and Scissors

A C Moore:

Paintbrushes, Common Pins, Cutting pads, Xacto Knife and Blades, Magic Marker and Scissors

Wal-Mart:

Paintbrushes, Common Pins, Cutting pads, Xacto Knife and Blades, Magic Marker, Clothes Pins, Sand Paper and Scissors

Local Art Store:

Paintbrushes, Common Pins, Cutting pads, Xacto Knife and Blades, Magic Marker and Scissors

Micro-Mart:

Xacto Knife and blades, Scale Ruler, Small Square, Files, Tweezers, Pin Vice, Razor Saw, Rail Nippers, Drill Bits, Pounce Wheels, Wire Brushes, Awls, Dental Picks, NWSL Chopper, Clamps, paint Brushes, Microbrushes and lots more tools and supplies.

These vendors are common in the northeast. There are many other vendors. This list will get you started



Paints

The applications will determine the paint you will use.

You can brush almost any paint. Some paints are harder to spray than others.

- 1) **Brush Painting:** Brush painting is slower and may leave brush marks but there are some effects you can only get with a brush. Dry brushing. And touch up.
- 2) **Solvent Base Paint:** Floquil, Testers Some of the Military Paints. They give off toxic fumes and must be used with adequate ventilation. Cleans up with solvents. Can be purchased at hobby stores or on line.
- 3) **Water Base Paints:** Polly S is water base paint easy clean up also a great selection of Railroad colors. Can be purchased at hobby stores or on line
- 4) **Acrylic Craft Paints:** these paints have been used in other hobbies for a long time. They are water base and are easy to clean up. Great for making washes or straight from the bottle. They are best painted over primer and sometimes need two coats. Can be purchased at any craft store or Wal-Mart

Tip: For cleaning up water base paint buy a gallon of windshield washer fluid, the blue stuff and use it straight from the bottle to clean up brushes and airbrushes.

Spray Painting:

There are two ways to spray paint one with spray cans and one with Airbrushes.

With any spray paint always use adequate Ventilation. If spray painting indoors a spray booth is a must.

Air Brushes:

- 5) **Floquil** is solvent based, great paint, and great color selections but gives off toxic fumes and must be sprayed outside or in a paint booth. Wear a respirator. Floquil needs to be thinned to be sprayed at a ratio of
- 6) **Polly S** is water base paint easy clean up also a great selection of Railroad colors. Polly s spray very well. Can be thinned with water. I spray it straight from the bottle with out any problems.
- 7) **Acrylic Craft Paint** I have not tried spraying Craft Paints. I am told it can be done with higher air pressure and thinning it with windshield fluid. Easy clean up with water and windshield fluid.
- 8) **Spray Cans:** There are many different can spray paint company out there. I happen to like the Wal Mart brand for two reasons. One the cost about \$1.00 a can and two the cheaper paint seem to have less pigments in them and seem not to hide the details and dry much quicker. Try to use the flat or satin paint so you don't have to kill the shine with dull coat. Some modelers like to prime their wood structures first. A gray primer works best.
- 9) **Clear Acrylic Sealer Spray (Matte) or Dulcote:** Spray to seal ink jet copied printed signs or hiding the shine on objects.
- 10) **Weathering Powers:** Weathering Powers are not paint but they are used on the finish of the model. Weathering powder may be applied dry or alcohol by brush.

Washes:

Washes can be made with almost any paint. Modelers have been using dirty De-sol as a stain for wood for years. A wash is pigment with a greater amount of thinner. I like to use craft acrylic paints thinned with water to and applied in layers so the object is not one uniform color.

Ink and alcohol: Makes a great wash for bring out the details and darkening and aging wood. *2 teaspoon of waterproof India ink added to 1pint of plain 90% rubbing alcohol.* They make 70% rubbing alcohol the other 20% percent is water. The less water with wood the better.

Tip: I have three small bottles with three difference strengths of I&A washes on my workbench at all times. Always start with lighter and work to the darker.



Adhesives: Lots of adhesives on the market. The application will determine the type of adhesive you will use.

- 1) **Yellow Carpenters Glue:** glue for wood and paper. Sold in craft stores and most hardware stores.
- 2) **Aleen's Tacky Glue:** Will glue wood, metal and plastic. Aleen's sells difference types fast grab, fast dry and clear. Sold in most craft stores and Wal-Mart.
- 3) **White Glue:** Use as additive with paint to make colored glue and gluing signs to the sides of buildings.
- 4) **Canopy Glue:** A clear glue used to secure window glazing or used for window glazing. Sold in hobby store.
- 5) **Testors Plastic Cement:** Solvent cement that melts plastic together. I like Testors because the glue is not too aggressive. Used for joining plastic parts and applying window glazing.
- 6) **ACC (Crazy Glue):** There are different types of acc on the market. There is regular, gap filling, fast set, and slow set. You can even buy an accelerant for an instant bond. I like to use Gorilla Gel Glue. I have found that with time the acc becomes brittle. The Gorilla glue has an additive to keep it flexible over time. The bottle tip doesn't get clogged up over time. Sold in Wal-Mart and Hardware Stores.
- 7) **Contact Cement:** A solvent base cement. Works well with paper, wood, corrugated metal roofing. Apply to both surfaces wait till tacky and press together. Once pressed together it's hard to get apart. So get it right the first time. Made by Weldwood and sold in small bottle in most hardware stores.

- 8) **Walthers Goo:** A type of contact cement comes in a tube. Apply a small amount and squeeze together. When applied can make long fibers from the dab of glue and will get on everything in the way. Good with wood, plastic and metal.
- 9) **Rubber Cement:** Good with paper. There are two ways to apply rubber cement. One, spread the cement on both surfaces and with the glue still wet, place the two surfaces together. Applying this way will let you pull up the paper at a later date with out ripping it. Second is to spread the glue on both surfaces, let day till tacky and press the two surfaces together. This will give you a permanent bond. Rubber cement can be bought in most art supply stores and Wal-Mart.
- 10) **3M Transfer Tape:** A thin layer of permanent adhesive that comes on a roll. Good to apply tarpaper, shingles, even strip wood and some use it to apply signs.

Tip: When using glues it's hard to get a small amount on to the parts you wish to glue together. Keep a pad of Post It on your bench and put a small amount on the paper and apply with a toothpick. When the glue dries tear off the top sheet and start fresh.

Start the build: Now we have our tools, paint, adhesive and have picked a kit for our ability. Let's start the build. Start by opening the box and looking through the parts. Take out the directions and read them through. Some kits need to go together in a specific order. When you don't go in the correct order it will make more work for you. These tips and hints are not meant to replace the kit's instructions they are to be used with the instructions. Sometimes it helps if you make a copy of the instructions to work from.

Tip: If the kit comes with more than one building, buy a couple of small Tupper Ware containers and put each building in it's own container. This will keep you from mixing the parts together.

Hopefully by now you have decided the paint scheme for the building. Paint schemes for buildings can be hard to decide. What colors go with what colors? The best examples are right outside your window. Look around at the houses and factories in your town and pick the ones you like. There are exceptions to this rule. Different parts of the country sometimes use colors unique to their region. New England likes to paint their buildings white because white wash was cheap.

I like to make color charts with the colors I will be using on buildings. They are color swatches on pieces of white cardboard with the manufacture's name and number and the name of the color. Each piece of cardboard will have about ten color swatches: all greens, one with reds one blacks one with white and so on. This way I can lay one color swatch over an other and see how they go together. Just remember not to pick shiny and bright colors. Shiny color tends to give the model a toy like appearance.

You have picked your colors for the body and the trim of the building. I like to paint all the windows and doors first and prime all my casting and allow them to dry at least overnight. If the kit comes with laser cut windows it's easier to paint



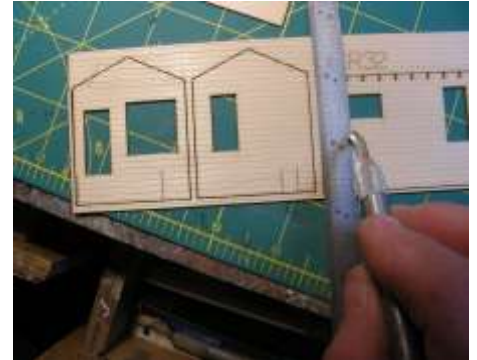
them right on the sheet. You can spray or you can brush them by hand. Spraying is much faster. After they are dry cut them from the sheet and assemble each window. If the window needs a little paint touchup, now is the time. If you are using plastic windows, cut them from the spur. Cut a piece of masking tape, roll the tape in a circle sticky side out, and stick the tape to a piece of cardboard. Press the windows on the tape. This will hold them in place when spray painting the windows. Remember to spray light coats instead of one heavy coat. We don't want to cover the details on the window. After the paint has dried, dry brush the window with white or gray for a peeling paint look. A little ink & alcohol wash will dirty up the color.

Tip: Dry Brushing. Dry brushing is a technique where you dip a stiff square tipped brush into the paint and wipe most of the paint off on a paper towel. Brush across the object with light strokes hitting just the tops of the details. Great for bringing out the details.



The next step will be the wall of the building. There are different ways to do this step. If you are going grain and add nail holes in your siding, it's easier to do it now before you remove the walls from their sheets. To grain the walls you will need a wire brush (#22) to scratch the grain into the wood. For heavy grain I like to use a file card. File card is a stiff brush used to clean files. Drag the brush along the boards of the wall end to end.

Now is the time to add nail holes. You will need a pounce wheel (#21) and a metal scale ruler (#6). A small square (#9) is a great help to keep the rows of nail holes straight. Start near the end of the wall. Run a line of nail holes from the bottom to the top. Then run other lines bottom to top two scale feet apart to the other end of the wall. Cut some board joints at the nail hole lines with a X-acto knife (#4) with a #11 blade.



You can add a little distress to your wall by lifting boards on your walls. After you have cut some board joints, use a new #11 blade in your X-acto knife, place it up against the bottom edge of the boards at an acute angle, and slice along the bottom edge and gently lift up. This will make the board end look like it's has come loose. You may want to keep in mind where you are going to

place signs on the walls and not lift the board where the signs will be applied.



Now is the time to cut the walls from the sheets. Some modelers like to paint the walls before putting the bracing on the back of the walls. I like to use water base paints and lots of ink and alcohol so I need to brace the walls before I paint them to keep them from warping. Follow the directions for the location of the bracing. Yellow glue the bracing and clamps till the glue dries. I like to add bracing around the bottom of the walls. This will allow me to add gussets in the corners to straighten and keep the corner square.

We will go over two ways to paint walls. One way is to prime the wall first with a gray spray paint. This seals the wood and keeps the wood from warping. Next paint the wall color over the primer. You can spray or brush the paint on. After the paint dries take a wire brush or fine sandpaper and lightly scratch some of the wall paint off revealing the primer below for that peeling paint look.



Tip: I happen to like the Wal Mart brand of spray paint for two reasons. One the cost about \$1.00 a can and two the cheaper paint seems to have less pigments in them and seem not to hide the details and dry much quicker.

The second way is to do a heavy dry brushing of the wall color. Cover most of the bare wood but leaving little bit without paint. Let it dry about ten minutes then cover with Ink and Alcohol. This will stain the bit of bare wood and dissolve some of the thin paint. This will darken the wall paint color and stain the bare wood a gray color. The corner boards and strip wood can be grained and colored in the same way.



Tip: If the walls warp when painting or staining. To flatten the wall out paint or stain the other side with the same amount of paint or stain

Wood without paint: After you have added nail holes and grained your wood wall I like to use the ink and alcohol wash to stain the wood. Start light and add coats till you get it as dark as you want. Add more to the ends of boards and where the wall meets the ground. The wash brings out the details you have added to the walls.





Stucco:

A low maintenance exterior wall covering made with Portland cement and sand and color pigment. Stucco was troweled on over brick, block and wood walls.

There are several ways to represent stucco walls. I have used **Rock Hard Water Putty** mixed with water and white glue. Brush on the water putty with ¼” paint brush in small swirling motions. I read on one of the forums about a product called **Sand Stone** by **Deco Art**. A paste with a very fine sand mixed in and stippled on with a ¼” stencil brush. I found **Sand Stone** on the Internet. There are a couple of things

I like to do before I apply the Sand Stone. I like to put the walls together before I apply the stucco. I apply **Squadron Putty** on the corner and sand it smooth to hide the corner seams. You can now apply the stucco and then scrape it off around the windows and vents. I did find an easier way to recess the windows and doors. Apply blue painter’s tape over the window opening and cut out the opening. Place the window in the



opening and cut the tape with a hobby knife with new blade around the outside of the window.

Peel the tape outside the window frame leaving a strip of tape around the window opening. After applying the Sand Stone remove the tape. This will leave a recess for the window or door. To

add some trim built in to the stucco cut some strips of thin card stock and glue it to the building walls. Then stipple the stucco paste over the entire wall (photo at the top shows the trim on the bottom with out stucco and on the trim on the top stuccoed over). I like to spray paint the stuccoed walls. Color for the wall mostly depends on the part of the country you are modeling. Small drips of I&A under the windows and doors will complete the look



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Brick:

Brick buildings were built to help stop the fires that were plaguing the inner cities

Raw bricks come in many colors. The brick color comes from the color of the clay used to make the brick. Different parts of the country have different colors of brick due to color of the clay used in the brick. A single building may have two different color bricks. They would use a higher price bricks on the front and a cheaper bricks on the rear walls.

There are many different materials to represent bricks. There are styrene kits, plaster, resin, sheet plastic and printed-paper. If the Craftsman kit comes with one of these, you will have to paint and weather them (not the printed paper).

Painting Brick:

Bricks come in many colors from orange to reds to tans and the brick can be painted. You need to choose the basic color you think will represent the building you are building. If you are using Ink & Alcohol to weather the brick, pick a lighter color for the brick. The I&A will darken the overall color. Some kits come with brick walls with the window and doors cast in. I like to paint the wall my brick color and then go back and paint the doors and windows. I then go back and touch-up the brick color around the doors and windows. With the wall painted with the basic color I will go back and paint individual brick with darker reds, tans and browns at random.



Mortar:

Mortar can be represented with many materials. There are a couple of mortar pastes on the market. You can use spackling compound, watered down white acrylic paint and even Ink & Alcohol. I like to use 50/50 water and white Acrylic paint wash. Mix enough wash to do the whole building. I like to put the wall together before applying the mortar wash. I apply the wash with the wall section facing up. With a brush, apply the wash over the whole wall. Allow the first coat to dry and if the wall needs a second coat apply a second coat and more coats until you get the result you want. With a wet sponge you can wipe some of the white wash off the surface of the bricks. Next apply I&A under the windows in the corners and drips under the eaves. If you are applying mortar over a tan or yellow brick, use a wash of I&A. Don't forget you can use brick printed-paper on buildings not close to the viewer.

Tip: All buildings are built on a foundation, so if the kit didn't come with one, build one. Brick, stone or Concrete



Stone Walls:

There were two reasons they made the wall from stone. One was that stone was fireproof and the other was it was local material.

There are some limitations with stone you can only build so high and most walls needed some kind of reinforcement.

There are many different materials to represent Stone. There are styrene kits, plaster, resin, sheet plastic and printed-paper. If The Craftsman kit comes with one of these you will have to paint and weather them (not the printed paper).

I am going to break them into two categories. One is Styrene and Resin the other is Plaster. Some of the steps are the same. Each starts out a little different.

Plaster:

To seal or not to seal that is the question. I like not to seal the plaster the colors are more like earth tones. I like to use water base washes made with acrylic paints. I make up four washes with **Apple Barrel** Craft Paints **Dolphin Gray** (20781), **Territorial Beige** (20558), **Goose Feather** (20777) and **Black** (20504). These are semi-transparent washes more water than paint. You want to build up layer a little at a time. With water base washes I like to spray the casting with wet water, a couple drops of dishwashing liquid in water. I start with the lightest wash and stained about a third of the stones at random around each wall section. Then I started adding the other two colors now and then allowing the colors to run into each other, creating other shades. Mortar lines are added with a wash of black paint. I use a small pointed brush dipped into the black wash, touch the point to the mortar joint, and the wash will be pulled into the joint. Repeat until the entire wall mortar joints are covered. Repeat if the mortar joints are not dark enough. Add a little gray wash in the mortar joint for variety. I like my mortar joints dark so the each stones stick out. Add some run-off streaks and rust stains.

Styrene and Resins:

I like to use water base washes made with acrylic paints but water based washes don't stick well to plastic and resins. So I primed the castings with white paint. By priming the casting white, this makes the staining process repeatable and the paint will give the washes something to stick to. I make up four washes with **Apple Barrel** Craft Paints **Dolphin Gray** (20781), **Territorial Beige** (20558), **Goose Feather** (20777) and **Black** (20504). These are semi-transparent washes more water than paint. You want to build up layer a little at a time. With water base washes I like to spray the casting with wet water, a couple drops of dishwashing liquid in water. I start with the lightest wash and stained about a third of the stones at random around each wall section. Then I started adding the other two colors now and then allowing the colors to run into each other, creating other shades. Mortar lines are added with a wash of black paint. I use a small pointed brush dipped into the black wash, touch the point to the mortar joint, and the wash will be pulled into the joint. Repeat until the entire wall mortar joints are covered. Repeat if the mortar joints are not dark enough. Add a little **Gray** (20781) wash in the mortar joint for variety. I like my mortar joints dark so the each stones stick out. Add some run-off streaks and rust stains.

Stone retaining walls can be painted and weathered the same way.



Tip: Don't forget the mold and mildew at the base of the wall where it meets the ground.

Signs: Tell the purpose and the era of the building

Signs add a lot to our models. Signs help to tell the story of the structure. They will date the structure, tell the purpose of the structure, can give directions add color. There are different types of signs, Billboards, signs that stand-alone, paper poster signs, and signs painted on the sides of buildings. Signs will help define the era you are modeling. Pick appropriate signs for your era. If you are modeling the forties don't use signs for auto from the sixties. A lot of the early signs were made out of paper and put up like wallpaper so all your signs don't have to be in perfect shape. The signs peeled and faded and had new signs stuck over old ones.



Tip: Signs: Take the originals from the kit and copy them on a color copier and put the originals in a binder for later use. If you use an ink jet copier you will need to seal the signs with a clear acrylic spray.



It's easier to apply signs to the walls when they are lying flat. If you want the signs to look like they are painted on the building, there are two ways to get that look. Both ways rely on the paper sign to be as thin as possible. One way to thin out the sign is to sand the back of the sign. Place a piece of masking tape on the back in the middle of the sign. Start by lightly sanding & thinning your paper sign from it's back. Start in the middle and work out toward the edges. The edges need to be the thinnest part of the sign. Use a sharp #11 blade to cut it away from its surrounding paper and apply white glue to it's entire back. Cover the sign with a piece of wax paper and press and burnish onto the wall. I use the rounded back of my tweezers to burnish the sign into the cracks in the wall.

The next technique I learned from Mark Doyon. Start by copying the sign on a plain piece of copier paper. Take a piece of tissue paper (the kind used to wrap shirts and gifts) and cut a piece big enough to cover the copied sign. Tape the edges of the tissue paper down to the copier paper. Now run the paper back thru the copier so it prints on the tissue paper over the copied sign. When the tissue sign dries the sign needs to be sealed so the ink won't run. A clear acrylic spray will seal the sign. Spray two light coats on both sides of the signs. Use an X-acto knife with a new #11 blade to cut the sign as close as possible from its surrounding paper and apply diluted white glue to it's entire back. Cover the sign with a piece of wax paper and press and burnish onto the wall.

Sign printed on plain copier paper



Sign printed on tissue paper



After the signs have dried you may want to weather the sign. A light wash of light Ink and Alcohol brushed on from the top to the bottom will age the sign. A little white weathering powder brushed over the sign will fade the colors on the sign but don't over do it. Dry brushing over the sign lightly from top to bottom with the building color will help make the sign appear painted on.

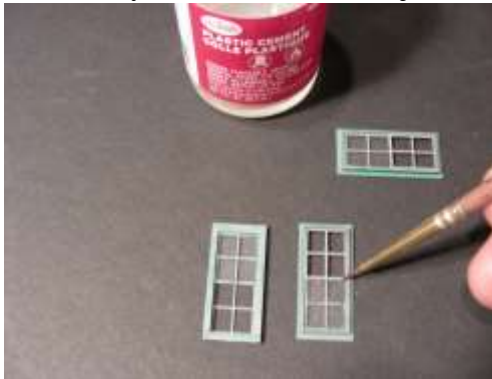


A lot of signs were paper poster just pasted on the side of building, new poster stuck over old ones. Corners curl up, ripped and faded. The Moxie sign was hand painted then washed out with a wash of thinner. If you have to hand paint a sign trace it on tracing paper and rub the side of the point of a pencil on the back of the tracing paper. Then place the sign where you want it to go. Trace over the front of the tracing of the sign with a pencil. This will leave a light outline of the sign. With a fine brush, paint the sign.



Windows:

After you have painted the windows the trim color of the building and paint has dried, lightly dry brush the windows with white or gray paint. This will give the appearance of peeling and faded paint. If you want your plastic windows to look like raw wood spray with Polly Scale Earth then washed with coats of Ink and Alcohol Now it's time to add window glazing (window glass). I like to use Evergreen clear sheet styrene sheet .005" thick as my window glass. It cuts with a X-acto knife and glue with liquid plastic cement. I like to use Testors Liquid Cement because it doesn't craze the clear styrene. If you want the windows to look dirty spray a little Testors Dull Cote on the back of the sheet of clear styrene, not too much, just a light haze. Cut a strip off the sheet as wide enough to drop in the



back of the windows. If you are doing a double hung window, cut separate panes for the top and bottom. If you are doing a lot of the same window, cut your strips of the clear styrene. I cut the height of the window sashes on my North West Short Line Copper. I chop enough window sashes to complete all the windows. With a pair tweezers place a widow glass into the upper sash. Dip a 00 paintbrush into the liquid plastic cement, pick up a small amount of cement and touch it to the corner of the window glass. Through capillary action, the glue will creep under the styrene and glue the styrene to the mullion of the windows. If you didn't use too much glue, you

will not see the glue. When to install the windows. Before you assemble the four walls or after you finish the roof. Both way have their advantages. I like to install them after I finish the roof. I don't like to handle the model too much with the windows in place.

Tip: The clear styrene can be cut to look like broken windows.

Wall assembly:

When assembling the walls it is very important that the walls are square and flat. If the walls are out of square the roof will not fit right or won't sit flat on the ground. Take a little time to get the walls flat and square. Work on a piece of glass or a flat surface.

After attaching the corner boards to the walls it's time to attach two walls together. I will start with two walls and glue them into an L shape using my square to keep the corner of the building square. Using two bar clamps to hold the walls square till they dry, I cut four 90-degree triangles from cardboard about $\frac{3}{4}$ of an inch. Cut a notch on angle to fit around the corner brace and glue in place. The corner gusset will strengthen the corner and keep it square. As the first two walls are drying I glue up the other two walls the same as the first two. With the two L shape walls dry, it's time to glue them into a rectangle or square. If you have kept the two L shaped walls in square when you put them together the rectangle will be square. Glue the two L shape wall sections together. Work on a piece of glass to keep the bottom of the building flat. In the last two corners, I add the corner gussets and now we have a very strong box.

I like to paint the inside of the building flat black. This does a couple of things. If you are going to light the inside of the building the light won't show through the walls, and two when you look through the windows, the black paint hides the inside of the building.

Corner Bracing



Gluing and clamping



Paint inside black



Roof Assembly:

The roof is a very important part of the building. People who view a model railroad view it from above so the first thing you see is the roof. There are a lot of details you can put on the roof. There are a lot of roof coverings. Slate, Asphalt, Metal, Shakes and Tarpaper just to name a few. Most of the coverings come in many different colors. I am going to group together the Slate, Asphalt three tab shingles and shakes. All three are installed in a very similar manor. We will also go over Metal, gravel and tarpaper

The sub roofs are made of cardboard or wood. Which ever is used we can treat then the same way. If the sub roof doesn't come with alignment line for the shingles, you need to add them. The first alignment line is the height of the shingle strip. The rest of the lines are the height of the exposed shingle. Draw the lines with a pencil. After the lines are on the sub roof, turn the roof



over and paint the edges the color of the trim or body of the building about ¼ inch in all the way around the sub roof.

Tip: When shingling the roof you need to apply a starter strip under the first row of shingles. The starter strip will allow the second row of shingles to lay flat.

Applying shingles:

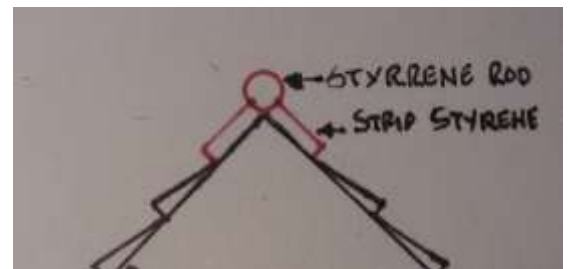
Asphalt three tab shingles, Slate shingles and wood shakes are all installed basically the same way. If the roof is a simple roof with no valleys, you can lay the sub roof flat and shingle it that way. Start with a starter strip the same color as the shingles under the first strip of shingles. The starter strip is half the width of one course of shingles. The starter strip will allow the second row of shingles to lay flat.

With three tab shingles and slate shingles you need to stagger the joint. Offset the next row by a half tab and align the rest of the rows the same way all the way to the top. Allow the rows of shingles to extend over the ends of the sub roof. Cut them off with a X-acto knife with a new #11 blade.



If the roof has a valley in it I like to assemble the roof and then apply the shingles. You can cut each row of shingles to the angles of the roof valley. Work from the valley to the edge of the roof. It is a little harder to do it this way but you get a tighter seam in your valley. Don't forget to stagger the shingles. Valleys can be done with copper flashing. Cut your shingles back about 1/16" from the center of the valley on both sides. Add your flashing. I like to use copper tape or Alum duck tape.

To cap a slate roof you can cut a scale foot piece of flashing material and bend it over the cap. Paint with Ceramcoat Green Sea Dry brush white and wash with Ink & Alcohol. For a fancier cap glue a 3/64 Styrene rod to the top of the roof peak. Then add a .015-.060 Strip styrene on either side on the peak of the roof. Paint with Ceramcoat Green Sea Dry brush white and wash with Ink & Alcohol.



Tip: When slate shingling a roof and you are in a rush to get it done, Northeastern Scale Lumber makes sheet of slate shingles all lay up in a sheet. Just cut to the size of the roof and glue down.

Wood shakes are applied the same as three tab and slate shingles. The alignment is different with wood shakes. They are random width. When you align the rows, try not to align shingles with the adjacent rows. Wood shingles were also used on the walls of the buildings. Treat the walls the same as the roof starting shingle strips at the bottom and working your way up. Don't forget to draw the guideline on the walls. When finished, trim the sides of the walls with a X-acto knife with a sharp blade. Sand the end of the wall with 220 grit sandpaper to make the shingles flush. This will make the corner boards easier to apply. For a well worn look start by scribing lines on the sub wall and painting it with a light tan and when dry, hit it with some ink and alcohol so it looks like old boards. Add some torn tarpaper. Next cut some individual singles from a strip and glue them on one at a time in a random pattern to look like they are falling off. About 1/3 of the way up the wall, start installing whole rows of shingles to the top of the wall. Trim the singles with a knife and sand the edge flush. Glue on the corner boards.



Tip: When applying laser cut shingles you need to apply a thin bead of yellow glue along the top edge of the shingle strips. Squeeze a line of yellow glue on a piece of paper as long as the shingle strips. Dip the top edge of the strip into the glue then apply to the roof.

Coloring Shingles:

Shingles that come Bark Brown or white may be weathered to a gray weathered look. For the gray weathered look we used washes. We used water based **Apple Barrel Craft Paint** mix with water to make a transparent wash. Lay the sheets of shingles on a paper towel on a flat surface. We bought a pallet tray and three colors of **Apple Barrel Craft Paint, Dolphin Gray, Pewter Gray and Goose Feather** and 1/4" round brush. Fill three cups on the pallet tray with water. Put three full brush loads of paint from one color into one cup and mix with the water. Repeat with the other two colors. Now you have three difference color washes. Dip the brush into the lightest wash and paint random stripes up and down the whole sheet of shingles. Leave some of the brown color of the shingles. If the washes are too light you may add paint to the washes to darken them up but not too dark to cover the lines printed on the shingles. Next paint random stripes with the other two colors. You may add strips of paint straight from the bottle but don't over do it. Don't worry about the stripes. The



shingles strips will not line up when applied to the roof and walls. The sheets of shingles will bend and twist when wet but when glued down, will lay flat. If you are in a hurry you may use a hair dryer to dry the sheets. For the roof shingles we used **Golden Brown** instead of the **Dolphin Gray**, so the roof would have a little contrast from the walls. Cut the wall strips from the sheets and mix the strips together. Apply the strips of shingles to the wall on the lines provided. If lines are not provided draw them on the wall yourself. We used yellow glue to apply the shingles. Squeeze a line of glue on a



piece of paper and dip just the top edge of the strip of shingles into the glue and apply to the roof or wall. When the glue has dried turn the wall section over and cut out the door and window openings and along the edges with a sharp knife. With a piece of 220 grit sandpaper on a flat surface, sand the sides of the wall lightly so they will fit tight against the corner posts. With the wall completely shingled dry brush the wall with white paint. A flat brush works best. Dip the brush into the paint and wipe most of the paint off on a paper towel. Then lightly brush the wall from bottom to top. You should apply a very little paint to the edge of the shingles but don't over do it. The dry

brushing will lighten the overall appearance of the building.

The last steps are to use a wash of Ink and Alcohol applied from the top to the bottom of the wall and add a little more I&A wash under the windows. Add a little green caulk to the bottom of the wall to simulate mold where the wall meets the ground.

Tip: If you are shingling the whole building and the roof, stain the roof shingles a light brown so the roof will have some contrast with the walls.

Tarpaper:

Tarpaper is an under lament for shingles. What you see on roofs is roll roofing 3ft wide and 40ft long made from the same material as asphalt shingles. Tarpaper was used when hot tarring a flat roof.



Rolled roofing comes in red, black, green and tan. The kit will come with it's own Tarpaper and you may use it. I like to make my own I use **Charcoal Sketchpad Paper**. You can buy it at any art store and one pad will last lifetime. Cut a piece from the pad big enough to cover the roof of the building. Lightly sand the paper with 220 sandpaper in one direction. This will rough up the surface of the paper and give the paper some texture. Paint the paper with brush from top to bottom the brush will give an uneven color to the paper. Let the paper dry over night then cut the sheet into scale 3ft strips with a X-acto knife and a straight edge.

Draw guide lines about 2 and $\frac{3}{4}$ scale ft apart across the roof for each row of tarpaper. Start at the bottom of the roof and glue down the first strip with white glue. 3M Transfer tape may also be used to old down tarpaper. Cut the tape in strips long enough to cover the sub roof from side to side. Place the

stripes across the roof one at a time in row from top to bottom and trim the side flush with roof sides. Peel back the backing from just the bottom stripe of tape. You will be able to see the guidelines through the tape. Hang the tarpaper over the bottom edge of the roof about 1/32". Use the lines as guides to place each row to the top of the roof. After you have covered the bottom row of tape with tarpaper then peel off the next row of tape and cover it with tarpaper. Working your way to the top of the roof each row of tape at a time. For the cap on the roof cut a strip about 2-scale ft wide long enough to go across the top of the roof. Mark the strip and fold it down the middle and glue over the peak of the roof. To highlight the edges of the tarpaper strips, use a marker the same color as the shingles and run the marker along the bottom of the strip. If the building is old add some patches or tears in the tarpaper. If you want you can add battens over the tarpaper to hold it down in the wind. Lightly sprinkle weathering powders over the roof and brush from top to bottom. Use Black, gray and white weathering powders. This will leave streaks from top to bottom

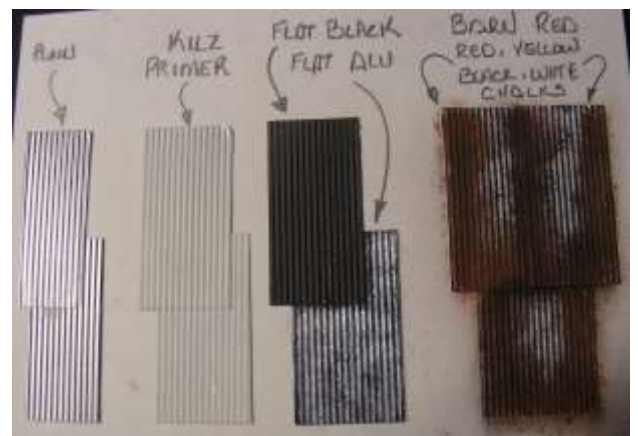
Metal roofing:

I use two types of metal roofing, corrugated and standing seam roofing. It doesn't matter what you use to represent the metal roof but nothing look like metal.

Standing Seam Roofing is a flat metal sheet with ribs about every 2ft. If you want to replace the roof that comes with the kit Evergreen Styrene makes a standing seam roofing material. It comes in 6x12" sheets with strip styrene for the ribs. It can be cut to fit your model. Another way is to glue scale 2x4s as ribs from the bottom to the peak of the roof about 4-scale ft apart on the roof that comes with the kit. They make a thin aluminum metal duck tape. Don't get the aluminum Mylar duck tape. Cut the tape into strips about 4-1/2-scale ft. Lay the tape strip over the roof with the ribs align the tape edge with the edge of the roof. With a wooden craft stick burnish the tape down slowly around the ribs keep the tap rinkle free. The metal tape will stretch a little around the rib. Trim the bottom and edges with a sharp knife. For the ridge cap, cut a piece of tape 3-scale ft wide and long enough to go across the roof. Fold in half, peel off the backing and carefully apply to the peak of the roof and trim. We will paint and weather the standing seam and corrugated the same and will discuss this later.



Corrugated Roofing: There are many companies that make metal corrugated roofing material. Any of them will do. Most corrugated roofing material comes in strips 8-scale ft. high. Cut the strip into piece 3-scale ft. wide. Cut enough pieces to cover the roof. Scissors are the best tool to cut the pieces. Cut a piece of masking tape roll the tape in a circle sticky side out and stick the tape to a piece of cardboard and press the pieces of roofing on the tape. This will hold them in place when spray painting. Remember to spray light coats instead of one heavy coat. We don't want to fill in the



corrugations. Buy a Spray can of white Kilz Primer- Sealer Stainblocker. This primer will stick to the aluminum and won't rub off. Coat the pieces of roofing with two light coats of the Kilz Primer. When they are dry spray two light coats of flat black. Let the pieces dry overnight. Next dry brush the roofing strips with Polly Scale Flat Aluminum with a flat brush. Put on enough paint to turn the roofing silver but not completely covering up all the black. Stipple on Apple Barrel acrylic paint along the edges and the bottom of the roofing. Stippling is like dry brushing. Stippling is technique where you dip a stiff square tipped brush into the paint and wipe most of the paint off on a paper towel. Stab the brush on the object with light stroke. Great for putting blotchy paint on the object. Let the paint dry for about a minute. Then apply weathering power. I like to use the red color. Dip a 2/0 brush into ink and alcohol then into the red weather power then go over the red paint you have already put on. Apply a little more Ink and alcohol and rub the weathering powers in. Last add a little dry orange powder, next black and last a little white powers. Walters Goo is a good glue to use on the metal roofing. Lay a bead of Goo along the top edge of the walls and any cross bracing. Lay the pieces along the bottom edge of the roof side by side overlapping about 3 corrugations till you complete the row. You may have to trim a piece to fit the roof. Lay up the next row as you did the first row overlapping the row below about 1/8 of an inch. Repeat laying up rows till you complete the roof. If you have trimmed the roofing on



the edges you will need to touch-up the edges with paint and weathering powers.

Tip: New product corrugated paper roofing material may be painted and weathered the same way as metal but you don't have to prime it white first. Cut and tear the edges to simulate eaten away roofing

Rusted and eaten away corrugated roofing This can be achieved if you have a source of P C Board Etchant from Radio Shack that is no longer sold. This is great look but takes some time and practice.

WARNING: The etchant is acid and need to be treated with care. Use only in well ventilated areas. Wear gloves and safety glasses. If you have a spray booth, do the etching in the booth with the blower on. If spilled the etchant will stain.

Cut the strip into piece 3-scale ft. wide. Cut enough pieces to cover the roof. Scissors are the best tool to cut the pieces. You will need two glass containers one to hold the etchant and one for the water. Use a pair of tweezers to dip one end of a piece of roofing into the etchant and watch for the bubbles and smoke. As soon as you see the smoke take the pieces out of the etchant and swish it in the water. Don't be slow or the pieces will be eaten away. If you like the affect leave it in the water and do another piece. If it needs more, repeat the etchant step till you get the affect you like. When done rinse the pieces with fresh water. When dry, paint and weather as you would unetch material as described above.



Tip: Try using alcohol as a carrier for your weathering powders. Dip a 2/0 brush into ink and alcohol then into the weathering powders and paint small drip on your building.

Detail parts:

Most kits come with some detail parts. Metal and resin castings relating to the kit. Chimneys, vents, tires, gas pumps, full shelves, desks, work benches, oil drum, barrels, fire hydrants, tanks, boxes, crates, junk piles and larger resin casting like stone and brick walls, loading docks and tanks just to name a few.

Painting small castings:

The problem with small parts is holding them while you paint them. Glue them to a wood craft stick with a small amount of white glue. The bottom of the casting will not get painted but when you glue it



to the model you won't see the bottom. I like to prime the castings with white paint first. I like to use acrylic craft paint. Two reasons one is price two it make washes with just water. We used water based Apple Barrel craft paint mix with water to make a transparent wash. For detail parts

that look like they are made wood I use brown washes. We bought a paint pallet tray and two colors of **Apple Barrel Craft Paint, Golden Brown (20524) and Burnt Umber (20512)** and 1/4" round brush. Fill two cups on the pallet tray with water. Put three full brush loads of paint from one color into one cup and mix with the water. Repeat with the other color.

Now you have two difference color washes. Dip the brush into the **Golden Brown** wash and paint the detail part all over. Don't worry about sections that are not representing wood. Painting the parts will cover the wash easily. Next dip the brush into the **Burnt Umber** wash and paint over the **Golden Brown** wash. The darker wash will bring out the wood grain. Repeat if needed. Now paint the part of the casting that doesn't represent wood with straight acrylic paint with the appropriate color. A couple of good small brushes a 0, 2/0 and 3/0 will do the job. Wash the whole casting with ink and alcohol to dull the colors. If the casting is representing metal, first paint it black. Then dry brush with silver paint then add some rust color weather powders over the silver. Sometimes a light dry brushing of white will bring out more of the details.



Tip: If you have barrels with metal hoops you can color them with a fine tip black permanent marker but be careful with the ink and alcohol. It may run the marker.



Tip: When painting straight from the paint bottle use the bottle top as a paint cup. This way you don't get too much paint on the brush.

The last step in painting detail parts is a light dry brushing with white or light gray. Just don't over do it. To paint metal like trashcans with ribbed sides, paint it silver and then wash it with ink and alcohol and dry brush with white paint.

Staining Strip wood:

There are a couple of ways to stain strip wood. Stain the wood all at once in a dish or stain individual pieces. I like to stain each piece individually so no two pieces look the same. This takes a little bit longer but I think it looks better.



If you want to grain your strip wood, you will need a wire brush to scratch the grain into the wood. For heavy grain, I like to use a file card. File card is a stiff brush used to clean files. Drag the brush along the boards of the wall end to end. Sand the strips with a piece of 440 grit to sand the fuzz off.

I like to use a wash of ink and alcohol to stain strip wood. It's easy to control how dark the color will be. 2 teaspoons of waterproof India ink added to 1 pint of plain 90% rubbing alcohol. I have three small bottles with three different strengths of I&A washes on my workbench at all times. Always start with lighter and work to the darker.

Decks and Piers:

There are two ways to make decks and piers. One is with a piece of scribed siding for the decking and laying up the support timbers underneath the deck. One concern with scribe siding can be large grain in the wood. It is harder to get the individual stained look. The second is laying up the decking board by board. Cut your boards 14 ft long and cover the deck, butting the joints over the support timbers. Over each timber, add nail holes. You will need a pounce wheel and a metal scale ruler. A small square is a great help to keep the rows of nail holes straight. At the board joints, add a little stain and let the end grain soak up the stain. This will highlight the joints. Do the same to the ends of the boards on the edges of the deck.



Jigs:

There will be times when you will need to make a jig. A simple jig is building the part over a drawing from the plans. You will need a piece of material soft enough so that pins will stick in and big enough for the assembly. I like to use ceiling tiles they are soft and light and they come 2ft by 4ft and cut easily. Place the drawing on the board and cover the plan with wax paper. Use pushpins to hold them both down. As you build use common pins to hold the pieces in place till the glue dries. After the glue dries, carefully pry up the assembly with your knife and clean up any glue blobs.



Tip: If you are building over a drawing from the plans, make a photocopy of the drawing. This way you don't have to cut up the plans.

Bases:

You need to build your model on a base. Whether you are going to put on your layout or build a diorama. You can use plywood, masinite, blue foam and Gate board. Plywood can be heavy. Masinite will warp with too much water. Blue foam works well for models with different elevations. I like 1/2 inch Gate board. Gate board is rigid foam sandwiched between two resin impregnated paper sheets.

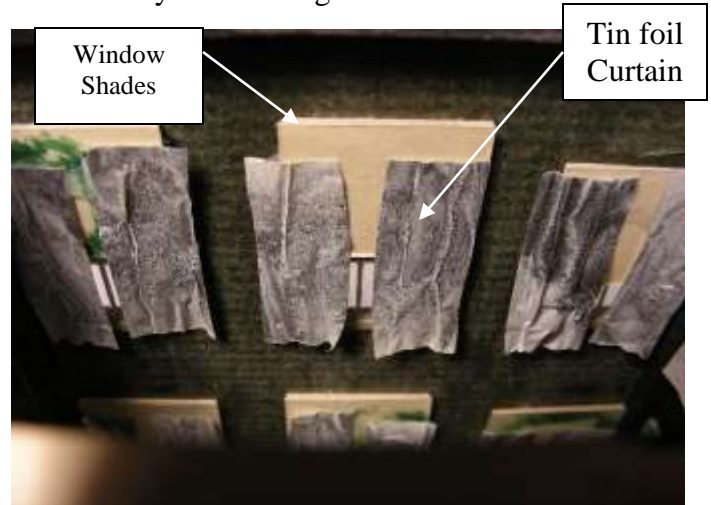
It's strong light and won't warp with water. The surface paints and holds glue well. The gate board will be easy to install on the layout.

Extras:

The little thing you can add to the model to add details. Signs, window shades, Fire escapes, roof details, sky lights, roof access, sheds, gutters, down spouts, roof and wall vents, clotheslines, lights (working or nonworking), people and detail parts



Window curtains will add another level of detail. I like to make my window curtains out of kitchen tin foil. It easy to cut, shape and paint. Cut a few strips of tin foil a little taller then the window you are going to place the shades in. Paint the strip before you fold/crumple the tin foil. White, off white or light gray seem to work the best for curtains colors but most light color will do. After you paint the strip let then dry overnight before you fold/crumple them. Lay a strip of tin foil flat and work from one end fold/crumple the strip trying to crate vertical folds. They don't have to be uniform they can have some waver in them. It takes a few try at folding/crumpling to get to look like hanging curtains. Now cut your strip into ¼ wide curtains. To install the curtain in the window apply a dab Aleene's Tacky Glue to the top of the curtains where it will not show through the window. If you have installed window shades the curtains can be attach to the top of the shade. If you have some open windows on your model let the curtains stick out the open window like they are blowing in the wind.



Tin foil also makes great tarps over crates and machinery. Cut a piece of tin foil to cover the pile of stuff you want to cover. Paint it white or a light tan and let it dry over night. Place the center of the tin foil over the center of the pile of stuff and press it over the pile to the bottom of the pile. It will fold and crease like a tarp would. The tin foil will hold its shape and a little Aleene's Tacky Glue to hold it in place. Hit with a little Ink & alcohol to bring out the folds and creases. You don't have to use detail part as your pile to cover. A few blocks of strip wood and other shape will do no one will know.

Curtains and window shades give the appearance that there is something inside your building. Another trick is to open a window or a door with a little detail inside. Makes the building look lived in. You will have to add a little floor space inside the door. Large open door gives you an opportunity to add some interior detail.



This is a quick over view of craftsman kit construction. Remember this is to be used with the instructions that come with the kit. If the kits suggest a technique but you don't want to do it on that particular model, try it on a scrap of wood and see how it works. You may use it on a future model. Don't be afraid to experiment with different techniques. All the skills you have learned building kits can be used in scratch building your own structures. After you have built a number of craftsman kits try one where you change it around or add story and make it your own. This is the first step to scratch building you own models. The more you build the better you get, and don't forget to have fun with it!