

Detailing Wood Structures

Frank Markovich

April 2017

Goals for Clinic

- See prototype examples of wood – old and relatively new. Both interior and exterior in a variety of rolling stock and structures.
- See model examples of the above.
- Understand some of the techniques to achieve realistic results – not just weathering.
- Logical treatments – beyond just overall effect.
- Methods to speed things up and keep costs down!
- How to simply add:
 - Grain detail (Appropriate)
 - Peeling paint
 - Weathering – the silver gray look.
 - Interior wood –
 - Effects of elements – where you would see it – sun, water, dirt, wind etc. to your models.
 - Rotting wood – yes it does.
 - Bleached wood – from sun etc.
 - Weathering of stained wood. – different than painted wood.
 - Things that attack or attach to wood. Don't forget mold, plants, etc.
 - Where dirt, rust etc. attach to rolling stock and structures – just barely talk about that.
 - Dented wood – broken wood – burned wood.
 - Wood under water.
 - Doing all of this safely.

Overview

- Let me start by saying that 95% or more of what I am going to cover, I learned from others.
- Real wood doesn't just weather over time, there are dents, discoloration from water, wind etc., cracks, splits, rotting, attacks from plant life and fungus, paint chipping off, accidents breaking the wood etc.
- Special thanks to Mic Greenberg, the late Colin Emmerson (both close friends that showed me more than I could ever learn on my own), and the many weathering books and videos that I have taken information from.
- In all cases there are at least 2 references that I used for my techniques.
- Most of this is done before assembly of the model.
- I found what works for me but you may find what works best for you.
- Most importantly have fun!!!!!!

Study the prototype!

- Go to the location.
 - Take pictures
 - Make notes
 - Colors
 - Weathering
 - Take measurements etc.
- If not possible then use references:
 - Books
 - Photographs
 - Videos – use them more and more now.
 - Internet – User groups really have helped me. Most of the prototype photos are from this source.
 - Museums
- Even eye witnesses if you can find them.
- This part can be a hobby itself or a hobby within a hobby.

Some examples

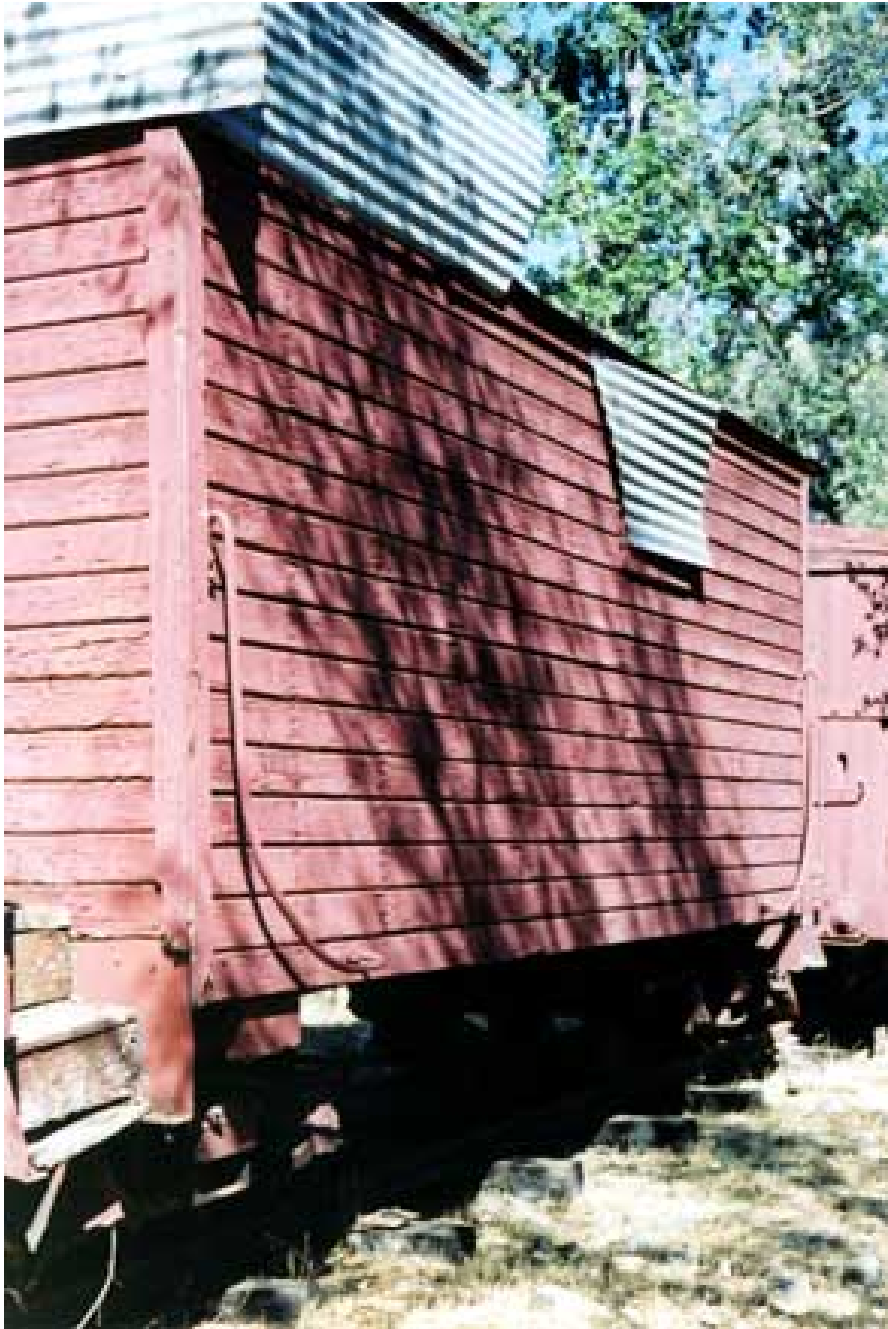
- These are from West Side Lumber Co.
- Notice the weathering over time.
- Would most likely not do as heavy but for some structures I might.
- First picture is the dispatchers office. Notice the peeling paint and how the weathering is more towards the bottom of the building.
- Will go through the next 12 slides quickly to just talk about what I look for.
- I don't model WSLC but a private line (fictional) in the same geographic area.



Notice more weather effects towards bottom of building.
Peeling paint.



Notice grain on end beams. Weathered grey for fence and how rough cut the fence is.



Rotting wood on stair – rough wood on the end. Shades on the wood – paint missing in spots.



Look at the grain on the end board. Also notice missing paint on the sides and end.



Look at the end of beams on the plow – black color with grain. Paint missing on the rest of the wood. Stains everywhere.



Look at the knots on the ends of this building. Also the foreground building the weathering towards the bottom.



Run down. Most likely too much for a model. But good study in effects of weather and sun.



From the inside out – ages of mis-use. See the framing and how large the framework is. Can see detail even on this wood.



Look at the color change from the top of the building to the bottom.



Water tank discoloration. You can get that with a white wash or even use bleach and a strong light source.



So much here that it would take too much time to go over everything. See the shades in the wood structure. The flatcar sags in the middle. Clutter and scraps of wood and debris everywhere.

Make notes

- I suggest you write down everything.
- Now onto adding this detail in your modeling.

Real wood

- While I have seen some very beautiful models made of other materials, for a wood structure, real wood to me still looks the best. The exception would be if you are modeling a newly built structure or rolling stock.
- Some effects cannot be accomplished easily with other materials. Such as exposed wood, broken wood, lifted boards etc.
- To me it is more fun to work with real wood.
- Lots of choices now: Strip wood, scribed siding, coffee stirrers, sheet woods. Some choices in wood also from basswood, redwood to even balsa in some structures (good to simulate foundations or piers).
- Real wood takes stains well. I know others are able to simulate with various plastics but it just isn't the same look.
- For castings such as windows and doors I always paint them first with a raw wood color. Then continue from there. Floquil CN Grey is a good choice for the base coat.

Why detail wood?

- I like to see some depth in a wood building or rolling stock.
- If it looks too smooth it loses the real look and the feel.
- Even on freshly painted structures and rolling stock, variations can be seen. Nothing stays fresh looking in nature very long!
- It is fun and adds much to a model as long as it isn't overdone! That to me can be a huge mistake. And believe me I have made it more than once.

Some examples

- Both from the YSL – (I am a member) and from my own home layout.
- On the next slide – look closely at the wood detail – grain detail – variation in the paint etc.
- Board ends are fairly even but not perfect.
- Wood is worn in many places.
- It brings the flatcar to life!

Flatcar



Shacks

- Notice different colors and textures.
- Shingles are individual.
- Nail hole detail.
- Grain detail.
- Loose board modeled.
- Framework.
- Roof not complete.
- Windows open.
- Peeling Paint
- Knot Holes – now I do knots themselves – use a wood burning set for this or even an old soldering iron. For holes use a wood carving set and gouge out the wood – distress then use black and dark browns around it.
- Broken windows.

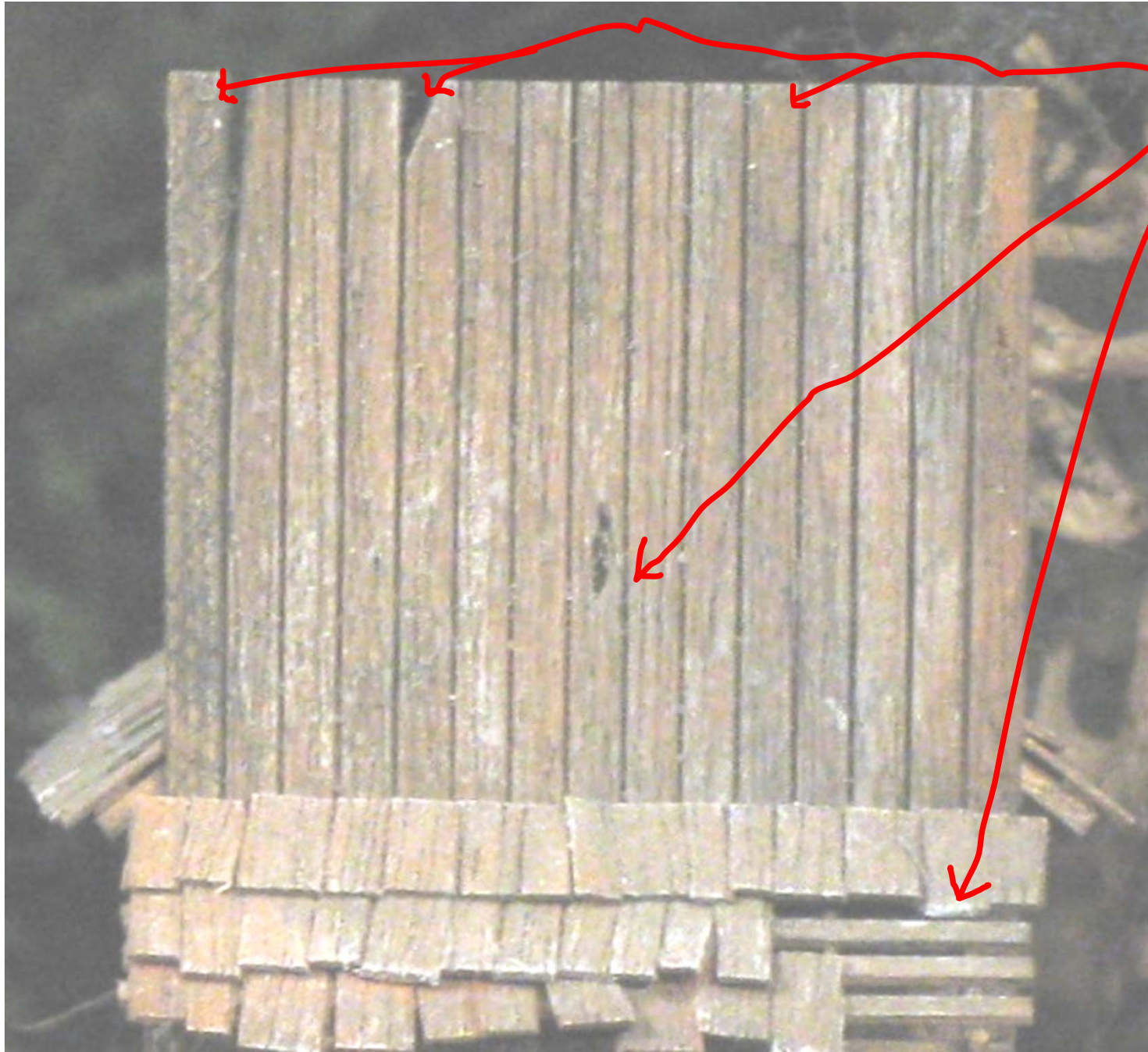


Open window and doors – peeling paint – These windows and doors work and are built of individual pieces.





Overall effect of
rundown cabin.
Broken glass.
Interior framing
Broken boards.



See splits.
Knot hole
Missing shingles
Lots of detail in
the wood and
texture. This is
an HO model.



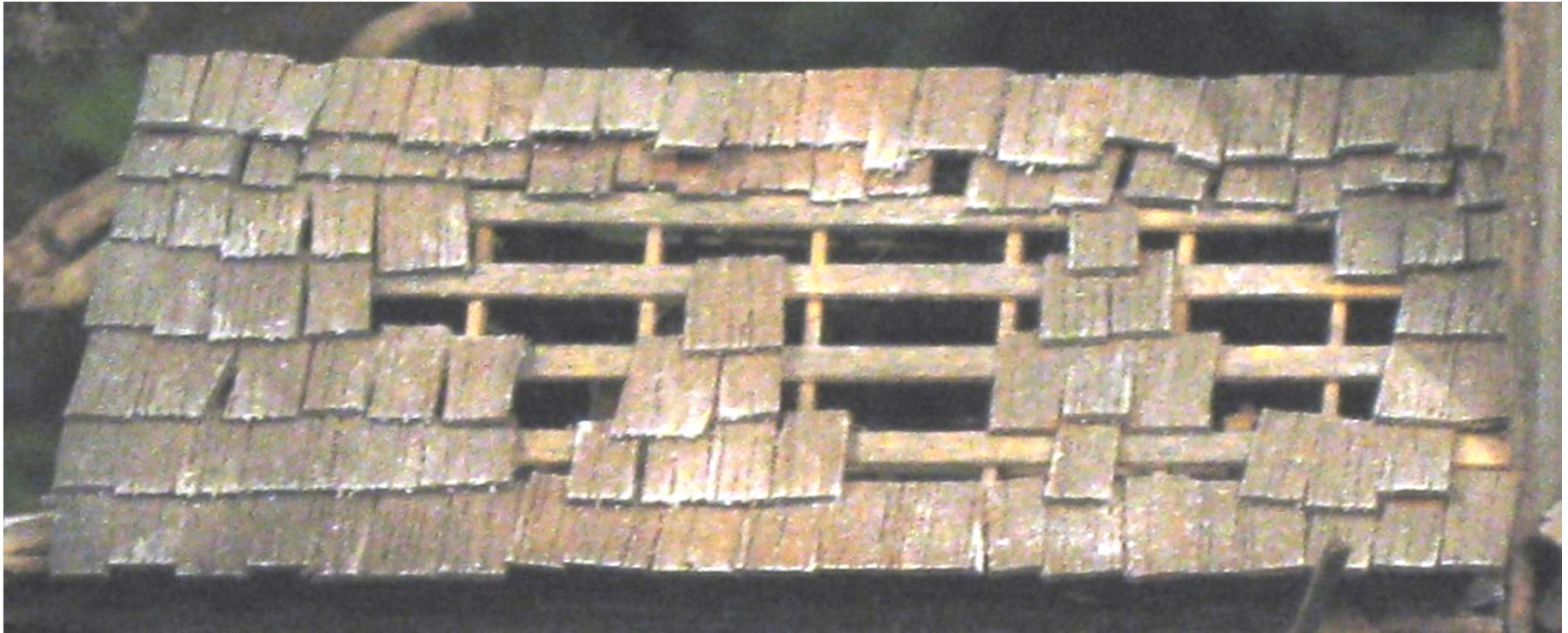
Even nail holes.



Dry brush white as a final step. Did add in some chalks to highlight.



Picture rubbed into the side. Sanded on the back and worked in with knife and dental tool. Also missing boards and shingles show the interior framing. Offset boards to simulate too much use. Nail holes.



Shingles are wood veneer – real wood again. Treated similarly but then dry brushed with white.







Paint is there but more of a wash. Distressed quite a bit, nail holes, washes of thinned grimy black then dry brushing. All the detail adds to the effect even if viewers don't see it at first.



Don't forget the back of the structure. If placed properly on the layout it can be viewed also.



Old Yorke kit. Similar approach.





Next 4 slides

- Not my models but others and good examples.
- Notice peeling paint.
- White works well. Mic Greenberg used it quite a bit. One reason is that it shows up well.



Look at the broken boards. Your eyes go to that immediately. While this can be overdone on a door it looks right. Also lots of variation of the boards and grain detail.





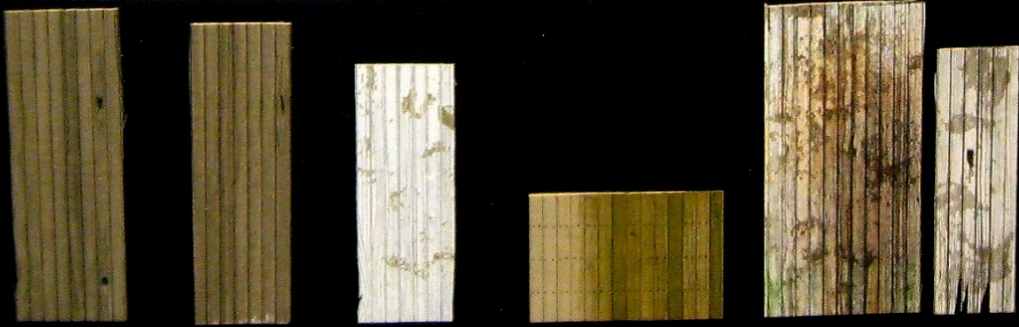




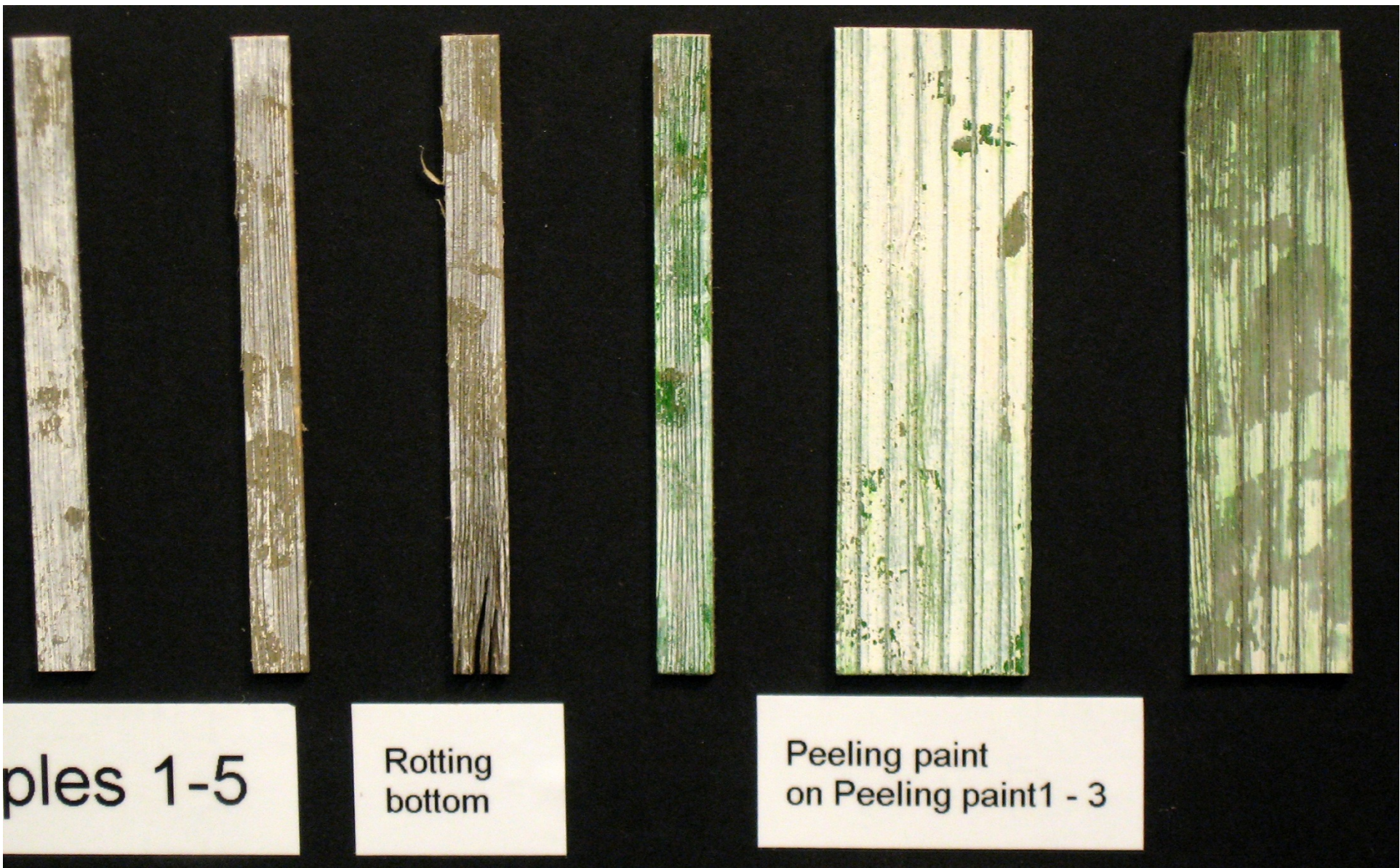
Raw Wood Distressed Wood Knot Hole 1 Wood Knot Hole 2 Wood Interior Wood Interior Rotted Black Dye Leather Brown Dye Leather India Ink Dye Dirt Rubbed In with Chalks



Peeling Paint Examples 1-5 Rotting bottom Peeling paint on Peeling paint 1 - 3



Distressed Siding Siding Peeling Paint Nail Holes Siding - Peeling paint on distressed - dirt and chalks rubbed in



ples 1-5

Rotting
bottom

Peeling paint
on Peeling paint1 - 3

Questions before starting

- Even with a kit there are a number of questions that need to be answered before starting your model.
 - New
 - Old –
 - Is it in disrepair?
 - How long has it been in use or service?
 - Has it been taken care of?
 - Era
 - Location (where prototype is located)
 - Climate (where prototype is located)
 - What is the purpose it was used for – rolling stock is obvious usually but buildings may not be. Make sure if you are building a structure that it fits your goals.
 - Will there be an interior – plan it right out. Much easier than later.
 - Framing – 16 inch or 24 inch centers for buildings.

Before starting

- Examine the wood.
- If necessary sand it smooth – unless a rough cut is desired.
- Quality of wood is important – Kappler or Mt. Albert are two of the best brands.
- Could also use scraps of wood.
- Or even coffee stirrers.
- I even like siding – can work great – board by board can be better looking if done right but scribed siding can be just as good with some work. In some cases it looks more realistic.

Scale

- Plays a big role in this – smaller scales require much less detail.
 - Wood grain in Z would never be seen.
 - Wood grain in G scale would not only be seen but would look unrealistic if it were not there.
 - O scale, S scale would require a little more than HO scale.
 - But even N scale can use some to add character.

Must look real

- In order to do this, you must study to some extent rolling stock, structures etc. to get the correct effects that you want.
- While characterization might be ok for some it is not for me. That being said John Allen's work was superb.
- Just like in the movies or theater though you might want to exaggerate a little in order to bring out effects.
- Must fit into layout. For structures – work in real dirt and plants.

Planning

- Most important part.
- Answer the previous questions.
- Write out as much as you can for reference and to set a direction.
- Do not skip this step – even if building a kit.

Here is my latest project

- Just first couple of pages.
- Plans following – done with Visio

Example of Planning

Tool shed goals

1. Must fit in a space no bigger than 4" by 6" – front long side. Includes any part of footprint. This includes deck etc.
2. Age – old 20 years or more. Very weather worn. Paint is beginning to wear out. Wood underneath split and showing lots of grain detail etc.
3. Board by board – with a full frame interior and floor. Floor will be scribed. Much easier and will look fine. Also unpainted but fully weathered – more weathered by the door.
4. Inside – no paint – will stain with walnut. Wipe stain.
5. Roof will be shingles – individual shingles. No gutters!
6. Windows and doors will be scratch-built. Large enough to see in.
7. Double wide doors – open – swing open not slide. Make them work.
8. Windows are double hung. Not working.
9. Outside color will be similar to West Side yellow with white trim. All peeling paint. More towards bottom of walls.
10. Peak on side.
11. Nails will show. 24 inch centers for studs.
12. Prototype built out of pine or fir. So knots are present.
13. Make roof removable.
14. Interior with work benches etc. To be added after building is complete.
15. Framing 2 by 4's.
16. Siding 1 by 12's. Siding is horizontal.
17. Plans drawn in Visio.

Comments: Inside wood and exterior different. Wipe them to get the effect.

Following slides are my directions for the project.

- I write these out.
- Not afraid to modify them as needed.
- Many times I get ideas as I go along.
- But this gives me a direction.
- Without a direction, how will I know how to get there and what I intend.

Cutting - staining – painting – assembling etc.

Start with plan on building. If scratch-building do as if you wrote kit instructions.

Order

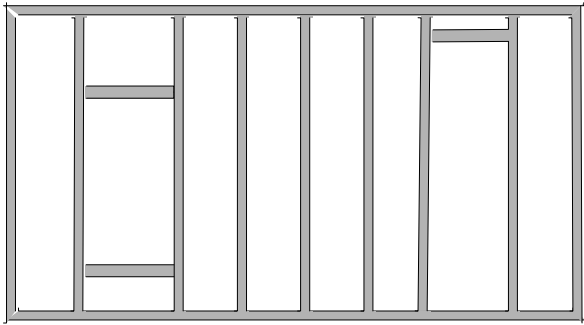
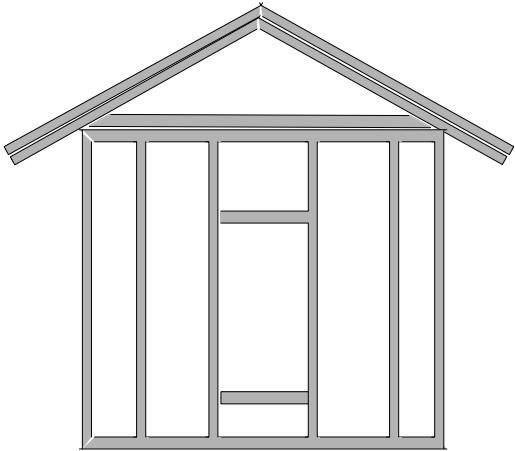
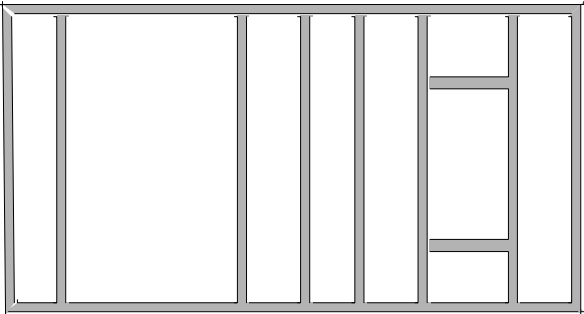
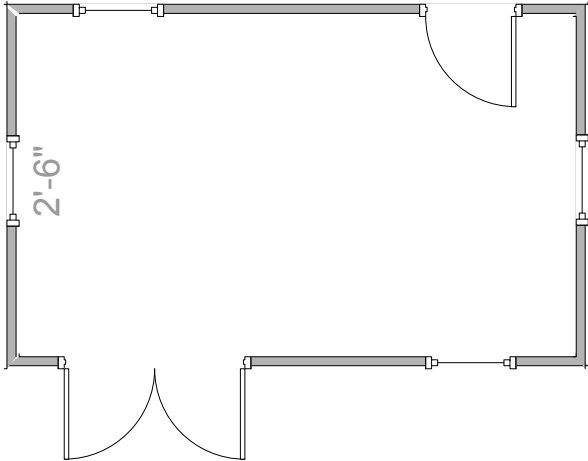
1. Build jig for framework – do over framing plan. Build from plastic so wood glue won't stick to the frame.
2. Stain the framing. Wipe on Walnut – thinned down a bit. 2 days. This to include the roof rafters and the roof stringers – Model furring strips for the roof.
3. Stain the floor – let it dry 2 days.
4. Stain rest of wood. Start with the Walnut. Wipe on with rag. Let dry 2 days.
5. For exterior of wood – start with silver grey stain – driftwood or India Ink formula. Let dry 1 week!!!
6. Do the framing with the pre-stained wood. Use Carpenters Glue with small glue applicator.
7. Put knots in with wood burner.
8. Use #11 knife to add in detail around knot holes. Distress the floor – rest of the floor. Use distress tool.
9. Do a wash of grimy black on the floor. Make area by door a heavier wash.
10. Make cuts in scribed wood to indicate different board lengths.
11. Dry brush with Earth, Mud, and some Roof Brown Poly S the boards to vary the color. Do to board ends? Do not overdo. Use very little paint.
12. Add in nail holes to the floor with a drafting pencil. Run down a few boards' sides to show cracks in flooring.
13. Rub in various chalks to indicate wear and dirt on floor. Use earth colors.
14. Assemble the siding on the framing for each wall.
15. On to exterior walls put knots in with wood burner.
16. Use #11 knife to add in detail around knot holes. Distress the sides – rest of the sides. Use distress tool.
- 17.

framing is located.

20. Dry brush with Earth, Mud, and some Roof Brown Poly S the boards to very the color. Do not overdo. Use very little paint.
21. Distress and add wood grain, knots etc. on the exterior walls. This is a first pass. Will do more later on.
22. Treat outside walls with thin wash of grimy black to get the distressing to show. Don't worry if some gets on inside as cracks etc. in the structure will show through.
23. Cover the framing – leave the openings for the doors and windows.
24. For each wall – Pat rubber cement on the walls. Do more towards the bottom of the walls and less to none towards the top of the walls.

25. Spray paint yellow (West Side color) on walls. Not full coverage!
26. When dry to the touch rub rubber cement pickup over the walls to reveal peeling paint. Let it dry 1 week.
27. Use a #11 blade to scrape off some of the paint – again more towards the bottom of the walls.
28. Distress lower parts of wall with #11 blade.
29. Lift up 1 or 2 boards in the middle – may have to cut through. Put grain on the ends.
30. Wash walls with grimy black or India Ink – rub off – only want in distressed parts.
31. Let it dry for a few days minimum.
32. Use some chinks to add in weathering. Bragdon chinks – rub into the sides.
33. Do similar for the doors and windows being built but the paint step should be white rather than yellow. Also for outside corner trim.
34. Corner trim, doors and windows should be built in place. Do pre-stain weather, peeling paint parts before cutting and assembling.
35. Next assemble the walls on the scribed base using Carpenters Glue. Be sure to use weights and squares to ensure that structure is square.
36. Once completely set – again I allow at least 1 full day. Start the roof. Use jigs like for the framing. Build them up 1 at a time. Make sure that the roof is removable.

Plans – reduced for presentation.



Tools

- Most important tool for me is the X-Acto knife with a #11 blade. I get them by the box.
- File cleaner – for doing grain on large amounts of wood at one time.
- Wire brush for the same.
- A tool – will show you that puts a number of X-Acto blades (5 to 7) in at once. Easy to make. I have a number of these.
- Pounce tool (used in sewing) – also called tracing wheel.
- I use a drafting pencil for nail holes.
- Can make nail hole tools – will show.
- Various good paint brushes – and some inexpensive ones for dry brushing and other techniques that seem to eat brushes.
 - Good inexpensive collections can be had from Michael's Craft stores or Aaron Brothers. Get on both companies Email lists for sales and specials.
 - Even inexpensive foam brushes can be used.
- Hobby ruler.
- Old T-Shirts – one way to apply paint quickly.
- Scales, squares, weights.
- Ruling pen – for applying super glue – drafting supply stores have this.
- T-pins for holding parts down.
- Glue applicators – work well.

Other materials & tools continued.

- Rubber cement
- Rubber cement pickup
- Chalks
- ACC – I use this very little but others use it quite a bit.
- For wood I prefer using carpenters glue or even white glue.
- Epoxy, Goo, etc. can be used for special needs.
- Palettes for many items. I use tops of cottage cheese containers and other items. It is a type of recycling.
- Masking tape – can be used in place of rubber cement pickup.
- Blue tape for masking – don't use much but it does help
- Cutting mat – large one makes it easier. Good surface helps.

Paints etc.

- 99% Isopropyl alcohol with ~2 ounces of India Ink. Could also use 70% Isopropyl alcohol – I prefer 99% as less chance of warping the wood. Can vary this and I do.
- For interior wood use the same Isopropyl alcohol with brown India Ink (I found this recently – it works really well). The alcohol – India Ink mixture is really inexpensive - \$7 a pint. Goes a long way.
- If you can find it Floquil Driftwood stain – I have 2 pints left. Like gold to me.
- There are formulas for making it. Some better than others. My favorite is CN Gray with 2.5 parts thinner.
- Rubbing alcohol and leather dye. I have also used this – prefer India Ink.
- Various stains – I like maple, oak, etc. Can buy larger amounts of MinWax stains. Much less expensive than hobby stains – what Floquil used and rebottled.
- Floquil weathered black, cherry, maple, concrete, mud, etc.
- Grimy black – Floquil – thinned out considerably.

Acrylics

- The usual suspects are needed – some listed below:
 - Burnt Sienna
 - Raw Sienna
 - Burnt Umber
 - Raw Umber
 - Various yellows, greens etc.
 - White

You can buy sets of these from Michael's crafts – watch for sales and get on their email list.
- Floquil Poly S:
 - Earth
 - Dirt
 - Mud
 - Others as needed.

Safety

- Wear safety glasses whenever working with tools, or with adhesives and paints.
- Work in a well ventilated area! A vented booth when spray painting. A mask at the very least!
- Wear gloves with any paints, solvents, glues etc.
- Keep cutters sharp! Dull blades are more dangerous than sharp ones. Discard worn blades properly.
- Cut away from you – not towards you.
- Work in a clean organized space. Use a healing mat to work on.
- Above all use common sense. If something doesn't feel or look right it probably isn't!

Experiment

- I am not the final expert.
- Try the various techniques, stains, paints etc. and find what works for you!
- Watch clinics on this topic. Lots of good DVD's out there on this. They will give you other ideas also. Darryl Huffington's are good as a start but also Paul Scoles etc.

Distressing tools

- I could go on for pages but here is a brief list:
 - Hobby knife with #11 Blades – other blades can be used for special effects.
 - Wood Distressor – how to build on next slides.
 - Dental Tools – dental picks can really work well.
 - Wood burning set with different points – great for knots.
 - File Cleaner – for files to take out the small filed items in the grooves.
 - Wire brush – don't go to cheap here.
 - BBQ brush – clean unused one.
 - Fine Toothed modelers saw blade – in handle.
 - Coarse sandpaper or emery board.
 - Other knives etc. I look for all sorts of unusual items.
 - Wood carving tools – I use these to gouge out for knot holes.

Wood Wrecker

- Have built one years ago. All use #11 blades.
- First experiment was to chuck 5 blades in a vice grip. This worked well as long as the grip was tightened up significantly.
- Then did something similar with 5 blades – bolted them together – epoxy over the non- blade end. Modified a handle – wood handle drilled out to the size just over the end of the blades. Epoxy on the blades to handle.
- Used this for years – did every tie on my home layout with this.
- Handle was great as it allowed me to work very fast.
- Note – use safety glasses when doing this technique.
- I finally broke a blade – after doing the entire layout when working on an individual module.
- I have also modified an hobby knife tool to do the same. My son did this in school for a class invention project.
- Whatever you do dip the handle in something to provide a grip.
- The Maple Leaf Mafia Narrow Gauge modeling group in the Toronto area came up with a neat tool for scribing and distressing wood for structures and for railway ties. A description with my modifications is on the next slide.

Wood Wrecker pt. 2

BUILD YOUR OWN WOOD WRECKER –

Start with a 6 to 8 inch length of rectangular brass tubing by K&S or Special Shapes Co. It needs to measure 5/32" x 5/16" outside dimensions. Use #11 X-Acto knife blades. Some recommend using old blades – I have found that new blades really work best. You can buy blades in large quantities.

The shafts of exactly 6 blades will be an extremely tight fit inside the opening of the rectangular tubing. Use a block of wood or masonite to force the blades inside the tubing, until they are firmly seated. I tape the ends together (point side). Be extremely careful - those blades are still sharp!! They can go flying so wear safety glasses when doing this!!!!

If you are nervous about the blades coming out, use a couple drops of ACC or epoxy to freeze them in the shaft. Now wrap the tubing with something to prevent the edges from hurting your hands. I dipped the handle in the rubber goop they sell at Home Depot for tool handles. To use the tool, simply scribe in the direction of the grain. Because of the six blades, one pass will 'grain' an On3 tie, and the lines are perfectly parallel. Swerve the tool, or make a curved pass to get some variety. Around knot holes make sure that you swerve it appropriately.

Cutting Tools

- NWSL Choppers – I have and use all 3.
- Hobby knife #11 blade.
- NWSL True Sander.
- Dremel or similar 3 to 5 inch power disk sander.
- Cut off saw – Ron Kolo uses this effectively – I use it with the coffee stirrers.
- NWSL Dupli-cutter – good for scribed siding.
- Signal edge razor blades – give great cuts and very inexpensive!!

Modify windows and doors

- If using castings – you can add lots of interest by modifying windows and doors.
- Have them open or cut out mullions.
- Even better scratch build doors and windows. I did this on the shack in the earlier picture. The windows and doors actually open and close. Subject of a NGSL article I did a few years ago

Bottom of walls

- Use the alcohol shoe dye starting at the bottom. Brown black mixture.
- Wet stiff brush – start at the bottom and work your way up the structure – be very random!
- Dry brush – well almost.
- Can then use chalks – again starting at the bottom.
- Start with a gray chalk (Bragdon Enterprises).
- Then a rust or similar and lastly a black or brown
- I use a fan brush for this.
- Above anywhere that a engine would be running brush with mainly black going up.

Dry Brushing

- I use this quite a bit – really a lot on trees – will show 1 tree trunk.
- Get just a little paint on the brush. Rub most of it off on any porous surface – I use scrap paper and or a scrap rag.
- With most of the paint off go over the wood lightly getting just the highlights.
- Use mainly a white and then earth colors for this. White brings out detail on edges.

Other sources

- Magazines – NGSL Gazette is my favorite but Model Railroader, Railroad Model Craftsman, and other outside MR such as Finescale Modeler.
- Books – Kalmbach and others.
- DVD's lots here, from Greenfrog, Darryl Huffman, Paul Scoles etc.
- Magazines on railroading and structures – I even like to go through National Geographic.
- Use time while waiting in doctors and dentist offices etc. to go through magazines.
- Clinics
- Other modelers – my best source.