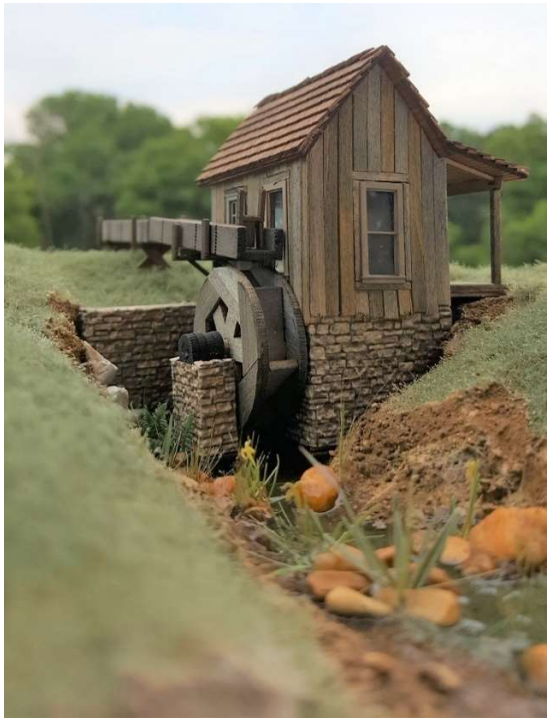
Conowingo Models

Bush's Mill



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First off, thank you very much for purchasing this kit. This is the first release from Conowingo Models. If there are any issues, please bring them to my attention. I cannot fix something if I don't know it's wrong.

This structure kit is called Bush's Mill in honor of President George H.W. Bush, who passed away during the initial design of this building. I believe at heart he was a very simple man and so is this mill.

My challenge to you is this- Make it yours. Make it funky. Make it cool. For those relatively new to the hobby, challenge yourself. While this is designed to be a basic water mill, you can do many things with it. Make it into a house. Add it to a larger mill. Add more floors. Don't be limited by my imagination. Get some more real cedar shingles from Rail-Scale Models and shingle the main level. Or contact Mark at Foggy Mountain Models and use a different style stone paper than the one provided. Make the whole building brick. Give it a slate roof and use the shingles elsewhere. It's your model. Make it yours and make yourself proud!

One of my goals with this kit is to provide a canvas that levels the playing field for all levels of modeler. Some of the instructions experienced modelers will look at and ignore. That's fine. But don't send me a nasty e-mail if you didn't follow the directions!

I have not included castings or other details with this kit. This was done to keep your costs down, prevent waste and to get a more unique end product. Scour the internet or look for details at your local hobby shop or train show. Think outside the box!

If at any point you get lost or have an idea of how to make the kit or instructions better, please let me know. I want these kits to be the best product possible. If you're lost, I'll do what I can to get you where you need to be.

I recommend beginning construction with the smaller sub-assemblies. They can be done in any order and expedite construction.

Also keep in mind that the illustrations are not to scale and may be modified to make my point.

MATERIALS YOU PROVIDE

I've been pretty happy with Aileen's Tacky Glue. It's very forgiving. However, other people like other glue products. Use what works best for you.

I'd recommend using acrylic paints such as Apple Barrel. They're also very forgiving and easy on the wallet. The more I paint, the more I like acrylics.

If you decide to use stains, I'd recommend Hunterline. I've only recently started using their products. Their stains are easy to apply and clean up, although not so forgiving.

Priming – I don't feel priming is necessary on this kit. However, if you're painting it white, I would recommend using a hobby-centric white spray paint, such as Testors Model Master. I got bit once with a non-hobby spray paint in that it went on thicker and destroyed the details.

Dullcote or other clear flat paint. You want to seal your mill, especially if you're using acrylic paints.

Medium Sanding Sponges or equivalent. You're going to need to sand a surface to a level plane.

Small, plastic clamps would be good for this kit. And some large ones too!

You will also need some small, scrap 2X4 pieces or weights to prevent warping.

A hobby knife with #11 blades. Sharp works better, prevents tears and is easier on your hands.

GETTING STARTED

1. Decide what you want to do. I usually run into an issue where I have an idea, but it's not fully formed. That's ok if you're in the same situation. You can figure out the details as you go. Look at the parts and instructions to get a grasp of the tasks ahead.

2. Decide which colors you want to use. There are certain points where I recommend painting things because I feel it's important and certain points where I don't mention it. You'll need to decide which is best for what you're doing. If in doubt, paint it ahead of time. There's nothing like seeing a spot you should have painted after assembly is complete and can't really get to without destroying your work. You can always go back and do touch-ups later.

3. I did not include places to add details. Depending on what you decide to do with this mill, you'll hopefully figure out where and when to deviate from the instructions.

4. Be careful when you remove the pieces from the sheets because some pieces are brittle. I've tried to protect the more brittle pieces by making some wider and some have extra laser cuts around them, but by no means is this a guarantee.

PAINTING

With this particular kit, I think it may be more beneficial to do a majority of your painting/staining after the sub-assemblies are constructed.

In this particular kit there is bracing as part of the construction. In the event that you feel you need more bracing, please read ahead and make sure that it will not cause clearance issues. Also, one thought that people often overlook is that additional bracing can be made from the leftover pieces of the basswood sheets. Unless the bracing will be visible, there is no reason to use strip wood for that bracing.

Some parts will need temporary bracing in order to be painted/stained. I tried two different things.

For the first, apply a quick-drying stain to one side, let it sit for five minutes, (it will start to warp) then use clamps and flat wood (I used 2x4 scraps) (or some good weights) to flatten the wood. This technique will cause some discoloration. Allow it to set up for 24 hours before removing the clamps. If you remove the clamps early it will warp. If you're staining both sides (recommended), repeat.

The second technique requires you to apply clamps to flat wood that has been placed across the structure. Paint/stain and let set up. This should allow you to do parts of both sides. Allow it to set up for 24 hours, then move the clamps and flat wood to prevent warping and repeat painting/staining.

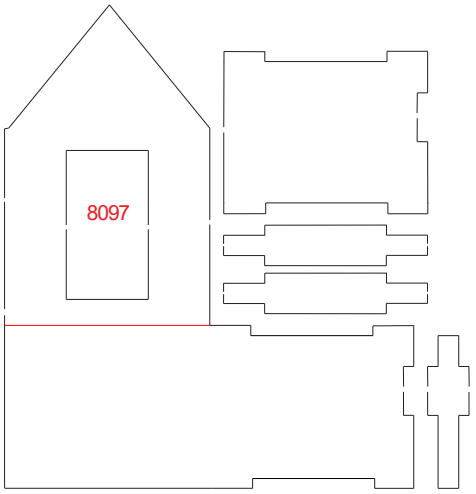
PAINTING/STAINING

Painting/staining is the best place to start.

1. I would recommend painting/staining the basswood external pieces the same color as the stripwood. This is so that any imperfections/ expansion/contraction of the stripwood on your external layer won't show through.

2. The inside pieces should be painted/stained as well. I've included a floor and make this recommendation because the windows are big and a mill wouldn't have curtains. Therefore, the inside would be somewhat visible from the outside.
3. The 2X8 stripwood and 1/16 stripwood should most likely be stained in variations of color. Don't make it all the same unless your building is brand new.
4. The sluices and sluiceways should also be stained.

HEAD WALL

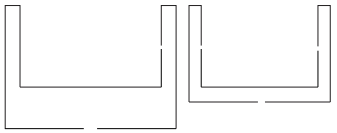


The head wall is an area where you may want to consider reworking so that it is the reservoir wall with a cut in it for the sluice. This presents its' own set of challenges, which is why I didn't include it in the production version of this kit. Food for thought.

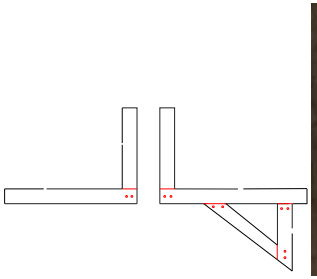
1. Locate the external building wall with the head wall attached. There are four pieces that attach to it.
2. They can be glued together in any order. However, I suggest the top and bottom pieces first, the larger piece next and the end piece can be added last. Ensure it is nice and square.
3. If you are going to use stripwood on the outside of the building, it is recommended that you stain/paint the upper portion of the building a grey color so gaps in the stripwood don't show.

SLUICE SUPPORTS

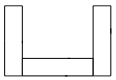
In researching this topic, I found more questions than answers. What I decided to do was include the supports for the sluices themselves and let you figure out how to support them.



1. Glue the support pieces together. I've included two types (4 of each total) for you to choose from. Pick and choose what you want.
2. Once dry, use the left over 2X8 stripwood or your own version thereof to build the appropriate supports for your sluiceway.



3. The above supports (2 each) can be glued together. Again, you may wish to clean up the laser burn. These are the supports that attach to the building.



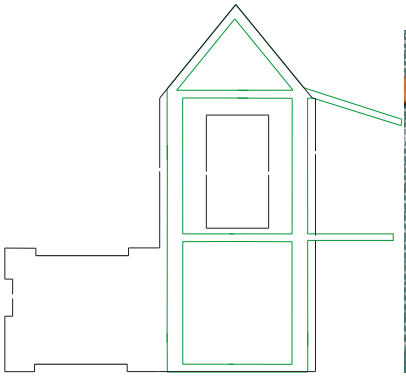
SLUICE

1. There are two sluice sections. They should be easy to fabricate should you require more for your use. There are three pieces to each.
2. Lay the bottom piece(s) flat.
3. Glue the sides to the long ends of the bottom piece(s). Ensure they are positioned so that the completed piece(s) form a U.
4. While the glue is still wet, locate the two pieces that form Hs, along with the rectangle with a small cut out in it. These control water flow. The two Hs are guides for the gate.
5. Before you glue these three pieces together, you have a decision to make. If your sluice is going to be shown with water flowing, you'll want to raise the gate. The guides belong on either side of the gate.
6. Glue the guides and gate into one end of the sluice. The guides should be squarely in the sluice with the bottoms of the Hs at the bottom. The

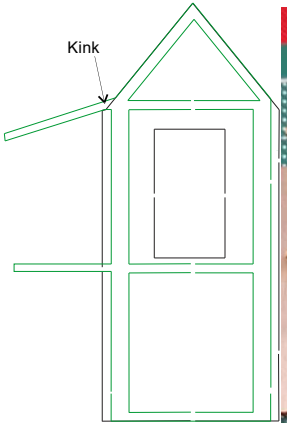
gate should be positioned so that the bottom is no higher than the top of the sides of the sluice in a position of your choosing.

7. Paint/stain as appropriate including the sluice supports.

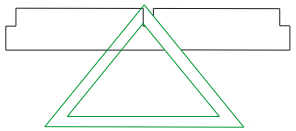
BUILDING FRAMEWORK



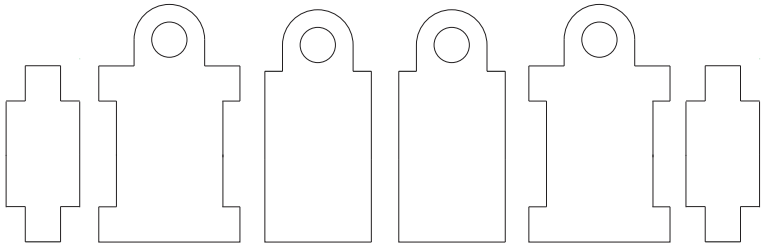
1. Locate the external building wall with the head wall on it. If you've already built the wall, you're good as long as it isn't wet and malleable. You'll also need two of the internal framing walls. You will also need to locate the opposite wall.
2. Starting with the head wall piece, glue on one of the internal framing walls (shown in green). Match up the roof ends, ensuring the frame piece is square. With the head wall on your left, the porch roof support needs to aim to the right. Set aside to dry.



3. Position the opposite wall so that the roof is at the top, with the laser-cut cheater line on the table. There should also be a kinked roofline on the left. Glue the second internal framing piece to it so that the porch roof support is on the left. Again, ensure that you have matched up the roof ends and that the framing is square on the outside wall. Set aside to dry.

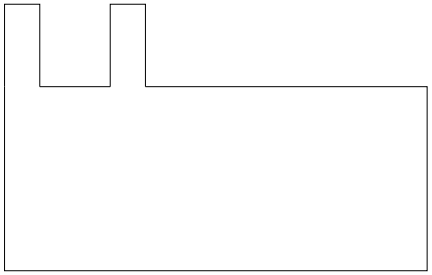


4. (Optional) Glue the last internal framing piece (It looks like the one in step 2. Illustrated here with a triangle) into the middle notch on the roof ridge piece at a 90° angle. (Not like the illustration) You will need to support this so that the roof ridge is level and the internal framing piece is square and level. If you need assistance, you can glue small pieces of wood (provided they have a 90° angle on them) to each side of the ridge/frame intersection, ensuring that it doesn't protrude beyond the roof line.



WHEEL DERRICK

1. Locate the six pieces that make up the wheel derrick and the axle.
2. Glue the two smaller pieces with the hole in them together. Use the axle to ensure proper alignment.
3. Glue the two larger pieces on either side of the first two. Again, use the axle to ensure proper alignment.
4. Attach the end pieces.
5. When dry, sand the round part so that it is even. This part would traditionally be a single piece of metal or perhaps a metal assembly. I'd recommend painting it black when the opportunity arises.

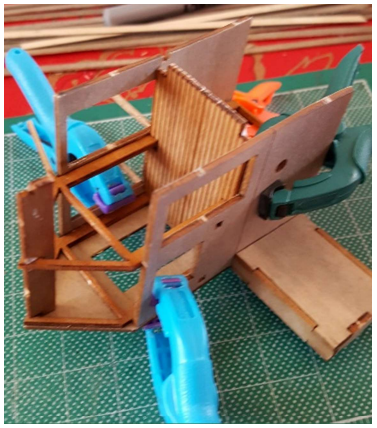


6. You may also add the paper stone. I'd recommend a single piece beginning and ending on the corner of the derrick nearest where the head wall and building meet. If this is your first time using the paper stone, this is a good place to practice because it's the smallest spot.

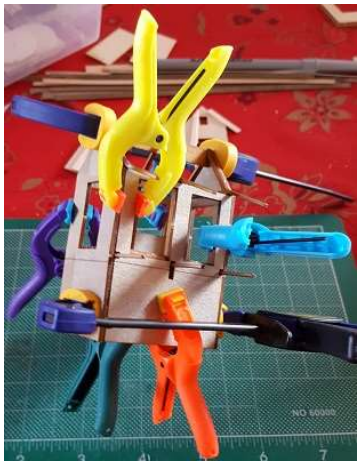
BUILDING ASSEMBLY

1. Gather the door-side piece and the center support assembly. Put some glue on the outside of the support on the porch side. You can do the same for the opposite side.

2. "Hook" the top porch support (of the center support assembly) over the top of the door-side piece and rotate so the bottom porch support slides neatly through the elongated hole on the door-side piece.
3. Take the wheel-side piece and glue it against the little pocket between the head wall piece and the support on it.
4. Put some glue on the two notches of the roof ridge piece.
5. Do the same for the door-side piece, ensuring the roof ridge piece fits neatly against the apex of the roof.



6. The remaining wall can now be glued into place, ensuring again that the roof ridge piece fits against the apex of the roof and that all the walls fit nicely together and are square.
7. Right now, you're thinking "I should put the roof on next, right?" Not this time. It'll make things complicated. I like to do things the simple way.



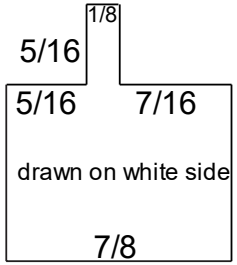
8. Using your best judgement, apply clamps where need be to hold the building together while the glue dries.

EXTERNAL

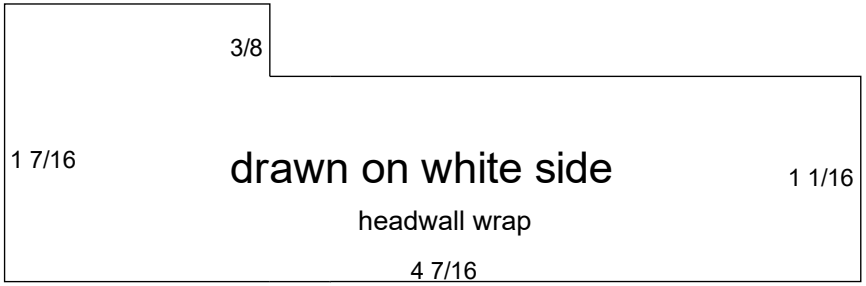
FOUNDATION

Using the rock paper, you will now wrap your building. It is important to do this first, before you add your stripwood siding because you want the siding to overlap the stone foundation.

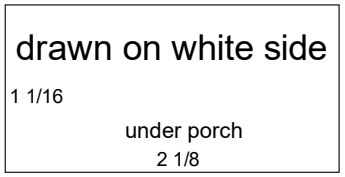
These directions assume that your mill will be displayed with the water wheel being the most visible part of the model. The object is to hide the seams from "public" view or at least put them in a spot where they are easily and plausibly covered up. I've included dimensions that worked for me. You may want to measure the building before you cut and determine what will work best for you.

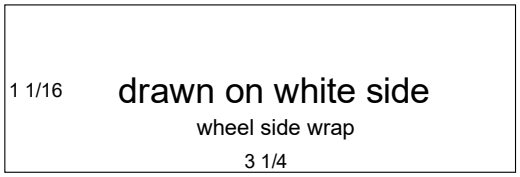


1. Begin by covering the wheel derrick. This is to help you get used to working with the paper. You will need to do this twice.



1. Start with the head wall (building on your left), start the wall with the seam on the left. Wrap the wall around to where the wall meets the building. On the building cut it even with the laser cut guide line. Allow that line to continue until it wraps around the corner. Don't cut it off.
2. Glue that side of the wall down and apply pressure until it's dry.
3. Bend the paper to neatly cover the corner. You may consider gluing it, applying pressure again and letting it dry, but that's a judgement call. Continue to allow it to be one piece.
4. Cover the front side of the wall and top, so the top edge meets the opposite side of the head wall. Letting judgement be your guide, determine whether you should cut the paper here or continue. Either way, it should be glued and pressure applied.
5. Use the laser cut guide lines to determine where to apply the paper as you continue to glue it down, apply pressure and let it dry. Don't forget to cut the hole for the axle.





6. Repeat until all four sides of the building are done. I cut the two remaining pieces separately, but in hindsight it wasn't necessary.

SIDING

Before proceeding, apply your favorite techniques for aging, etc. to your 2X8 stripwood, 1/16 stripwood and the three roof supports. If you don't have any, try any of the following techniques-

1. Cut grooves, knot holes, edges using a hobby knife into the wood.
2. Using a ponce wheel, apply nail holes to the ends.
3. Use a rough sanding block or steel brush to groove the wood.
4. Use india ink/alcohol solution, grey stain or grey paint
5. After step 4, apply a light coat of paint and remove with masking tape before it dries. Light sanding works as well.

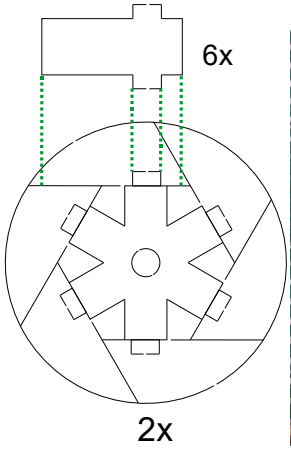
1. Cut the 1/16 stripwood to frame out the sides of the door and window holes. Obviously, the door only needs three pieces, where the windows need four. Use a piece of 2X8 to determine how far out it should come. You may need to cut some pieces to shim the windows and doors in place.
2. Picking a corner to start with, cut-to-fit and glue the stripwood into place vertically. Do not cover up the 1/16 stripwood you just put in. Trim around those pieces as necessary. One interesting technique I found is that if some of the stripwood ends are rough, put them on the bottom and make your trim cut on the top. It adds character. Also, leave room for the sluice supports. If you want to adjust their locations, now is the time.

   Don't throw away your scraps just yet!
3. Add the two sluice supports that attach to the building.

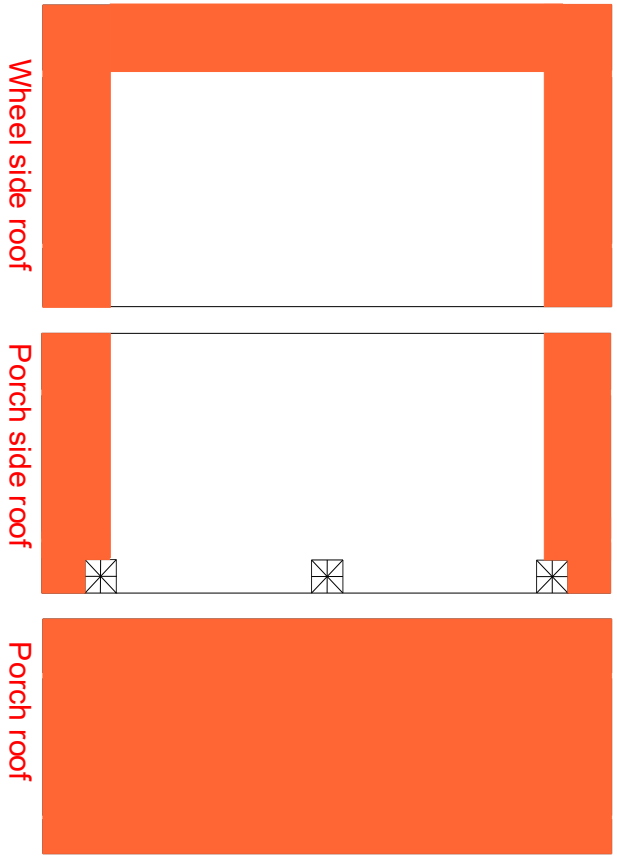
WINDOWS AND DOORS

1. Cut out the windows and door from their sprues, taking note as to their location on the building.
2. Paint the windows and add acetate as appropriate.
3. When dry, glue them into place.

WATER WHEEL



1. Locate the two halves and six paddles.
2. Arrange the two wheels so they are right next to each other and will align easily. You will have one with the laser-cut cheater lines on the inside and one on the outside. This helps when it comes to putting them together.
3. Practice fit the paddles into the rectangular notches on one wheel (See above for a guide). Once you've got it figured out, glue them into place. Be sure to add glue to both notches.
4. Put the unused wheel onto the top of the wheel with paddles. You may want it to dry before proceeding to the next step, depending on how well your glue sets up.
5. If you're into adding nail holes, you will want to add them to your strip wood as you proceed with the next step.
6. Remember that scrap stripwood I told you not to throw away? Using the laser-cut cheater lines as a guide, measure, cut and glue that stripwood to the side of the wheel that will be visible. Start from the guide and move up, placing the strips horizontally. Cover the rectangle, but not the triangle. **Do not** cover up the guide line to the upper right. Repeat five more times. Should you desire, you can also cover the spokes from inward to outward.
7. Once completely dry, it is recommended that you sand the edges so it looks nice and round. Paint/stain as appropriate.



ROOFING

1. Paint/stain the three pieces on the scribe side as shown above. I used Hunterline Raw Umber. Or leave it alone if you want it au natural. You might want to sand the edges to remove any laser burn that may exist.
2. Glue on the porch side roof first. Ensure the scribe side is down and that the piece is centered side to side.
3. Glue on the wheel side roof next. This piece needs to butt against the porch side roof to form the ridge cap. Again, ensure the piece is scribe side down and centered side to side.
4. Lastly, the porch roof can be added. It should butt against the porch side roof, of course ensuring the scribe side is down and centered side to side.
5. Apply shingles. Be sure to put down the starter piece on both sides and shingle away! Finish up with the ridge cap. Don't use too little or too much! The material is sticky and slightly challenging, but don't let it frustrate you. It'll be worth it!

FINAL ASSEMBLY

1. Install the sluice supports, followed by the sluice(s).
2. Slide the axle through the derrick, water wheel and into the mill. I recommend gluing the axle to the derrick, but not to the other two items.
3. Glue down the porch floor. If you still have 2X8 stripwood, consider using it for the porch floor.

4. Lastly, glue in the roof support beam. Or make your own out of the 1/16 if you have any left. When I put the building in the diorama, the sides were a little too tight and I accidentially crushed the support beams. The final photos were done using the 1/16 method.

I hope you've enjoyed building this little model. Hopefully, if all goes well you will be seeing more models from me.

Once your model is complete, please send me photos! I really want to see your work! Hopefully you will see your models posted on the website and facebook page!

I'd like to thank Jeff Grove (Carolina Craftsman Kits) https://carolinacraftsmankits.com/, Steve Milley (Rail Scale Models) https://www.rail-scale-models.com/ and Mark Schreier (Foggy Mountain Models) https://foggymountainmodels.com/ for their guidance, support, encouragement, putting up with my crazy ideas, etc… Thanks guys!

Thanks again!

Chris Coarse