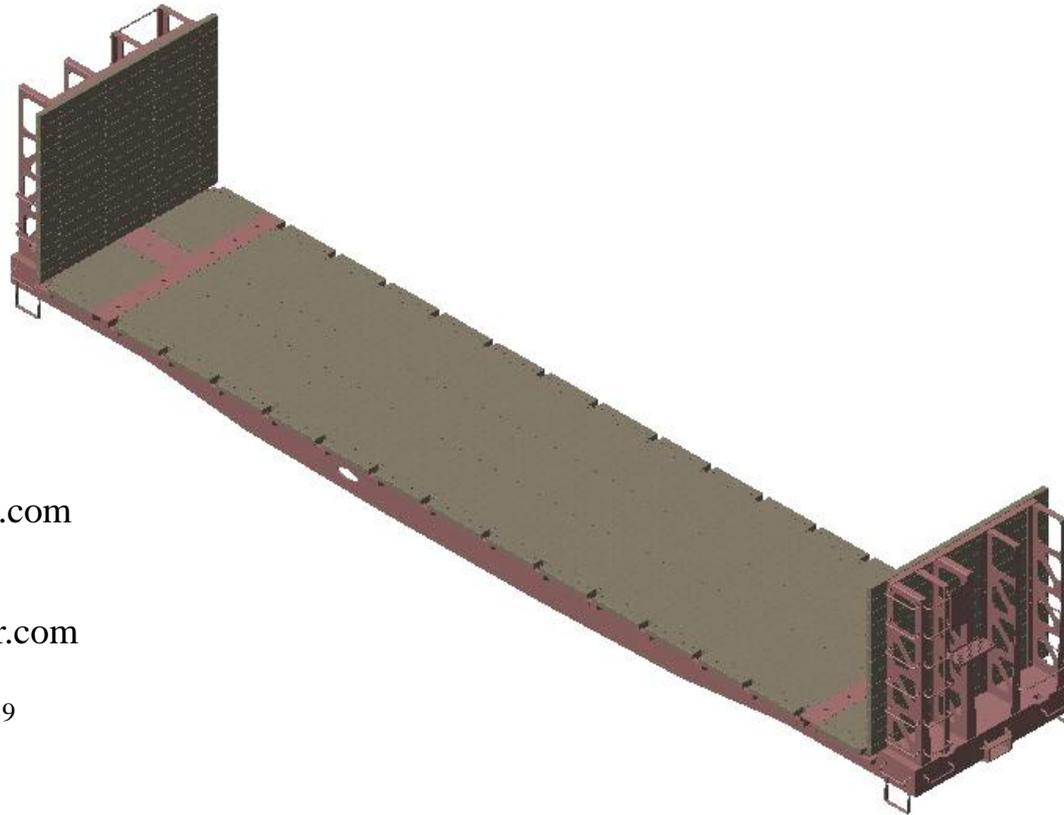


Precision Steel Car's 53 ½Ft. GSC Flat Car With and without Bulkheads



Precision Steel Car

Website:

www.precisionsteelcar.com

E-mail:

info@precisionsteelcar.com

Paul Vernon: (513) 571-5739

Revised 5/22/2013

Recommended Assembly Techniques

- Follow Instruction Steps.
- Assemble pieces without welding, to see how the kit goes together.
- **Tack weld steps 2-10, when applying the final welds the longer pieces will shrink about a 3/32” over the entire length.** Finish welding from one end to the other to avoid warping.
- It is easier to undo a tack weld than a bead.
- Plan your welds, 95% of the welds can be hidden, the bulkheads should be the only visible welds on the top, sides, and ends.
- Skip weld, continuous welding will cause extreme warping and twisting.
- Keep the assembly square when welding.
- Add any extras, such as provisions for safety chains, as early as possible. It's easier to modify a piece before it is welded to the assembly.
- The large deck frames in the newer models have had the stringers removed. See step 8 for details.

Items to be Supplied by Buyer

Tools Needed

- Welder
- Welding Clamps
- 4-40 Taps
- #43 and #32 Drill Bit
- Cordless Drill (suggested)
- 1/16", 3/32" Allen Keys

Fasteners Needed

- 4-40 x 3/8" Socket Head Cap Screws Qty. 450 (3/32" Allen Key)
- 4-40 x 3/16" Button Head Cap Screws Qty. 100 (1/16" Allen Key)

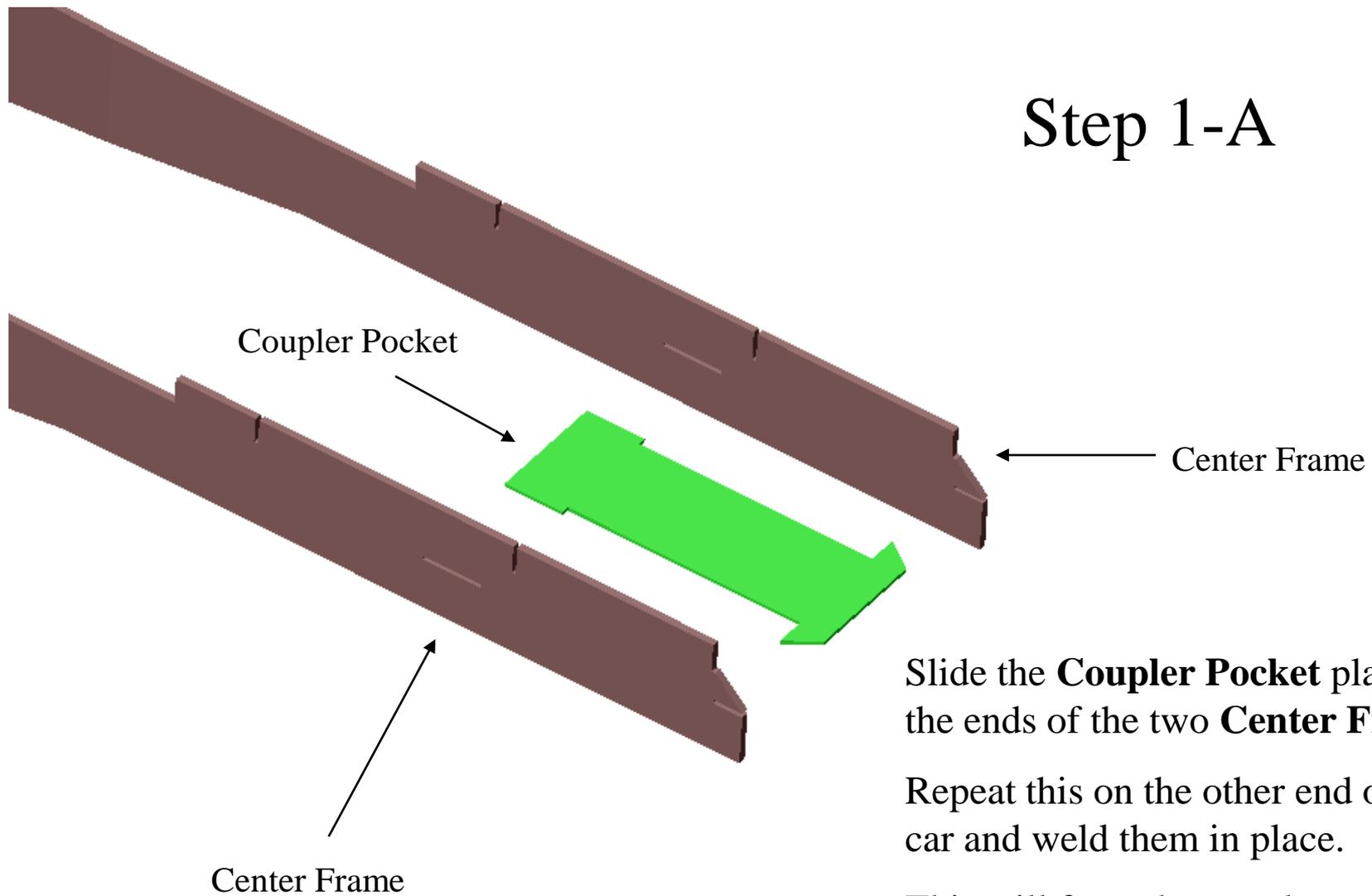
Couplers and Trucks are not included with this kit.

Mounting of the trucks is to be determined by the buyer. This includes making adapter plates for mounting the trucks. The buyer is responsible for creating any additional parts needed to mount trucks or couplers. When creating these parts the buyer must calculate and modify the adapters, trucks, or kit for side bearing heights and coupler heights.

Suggested provisions for mounting Mountain Car couplers are laid out in Step 1-B. Truck mounting Step 9-B

Precision Steel Car is not responsible for defects resulting from poor assembly or careless handling. Replacement parts may be available to purchase.

Step 1-A

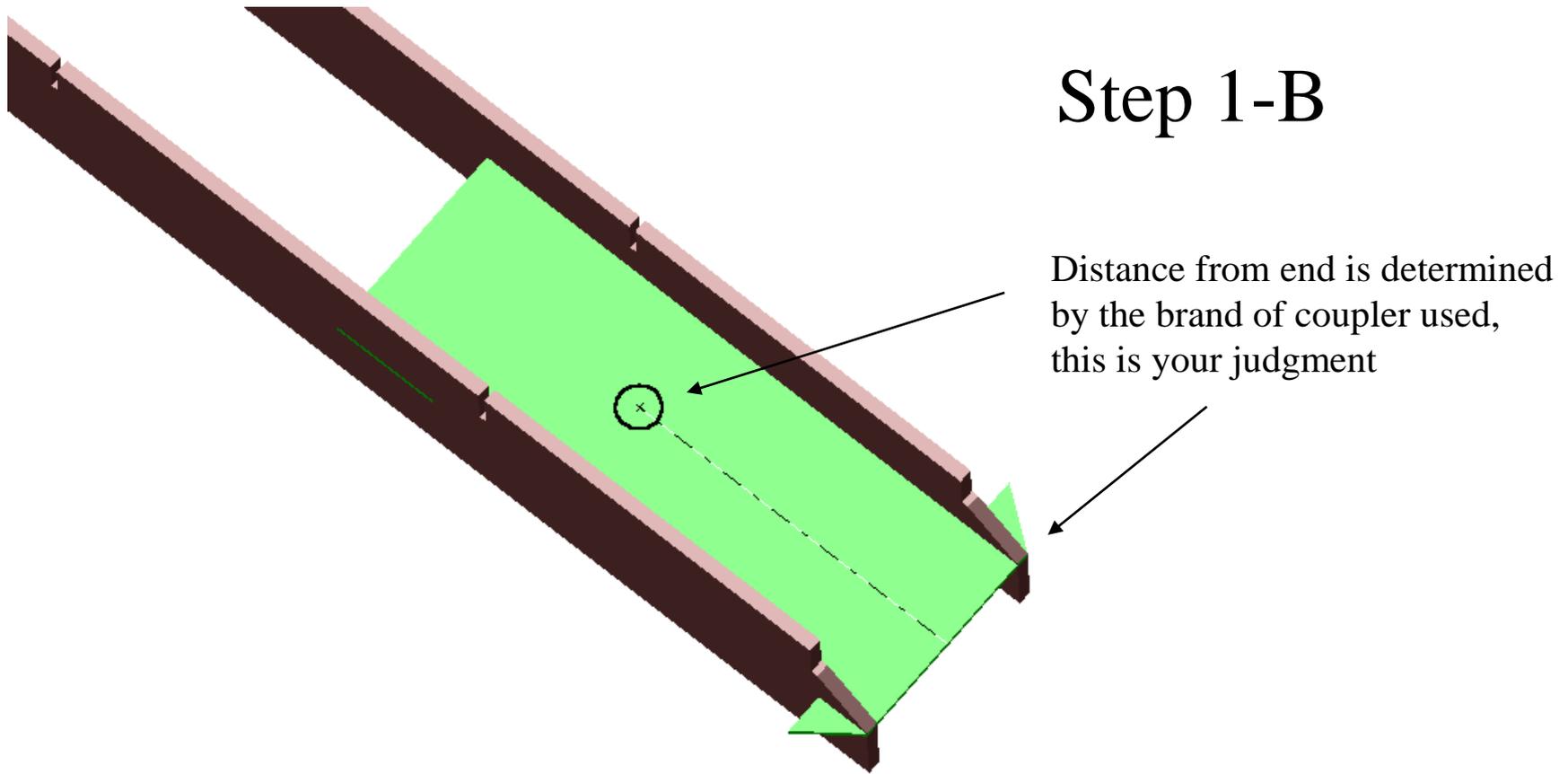


Slide the **Coupler Pocket** plate into the ends of the two **Center Frames**.

Repeat this on the other end of the car and weld them in place.

This will form the coupler pockets at each end of the car.

Step 1-B



Distance from end is determined by the brand of coupler used, this is your judgment

Suggested Provisions for mounting the couplers.

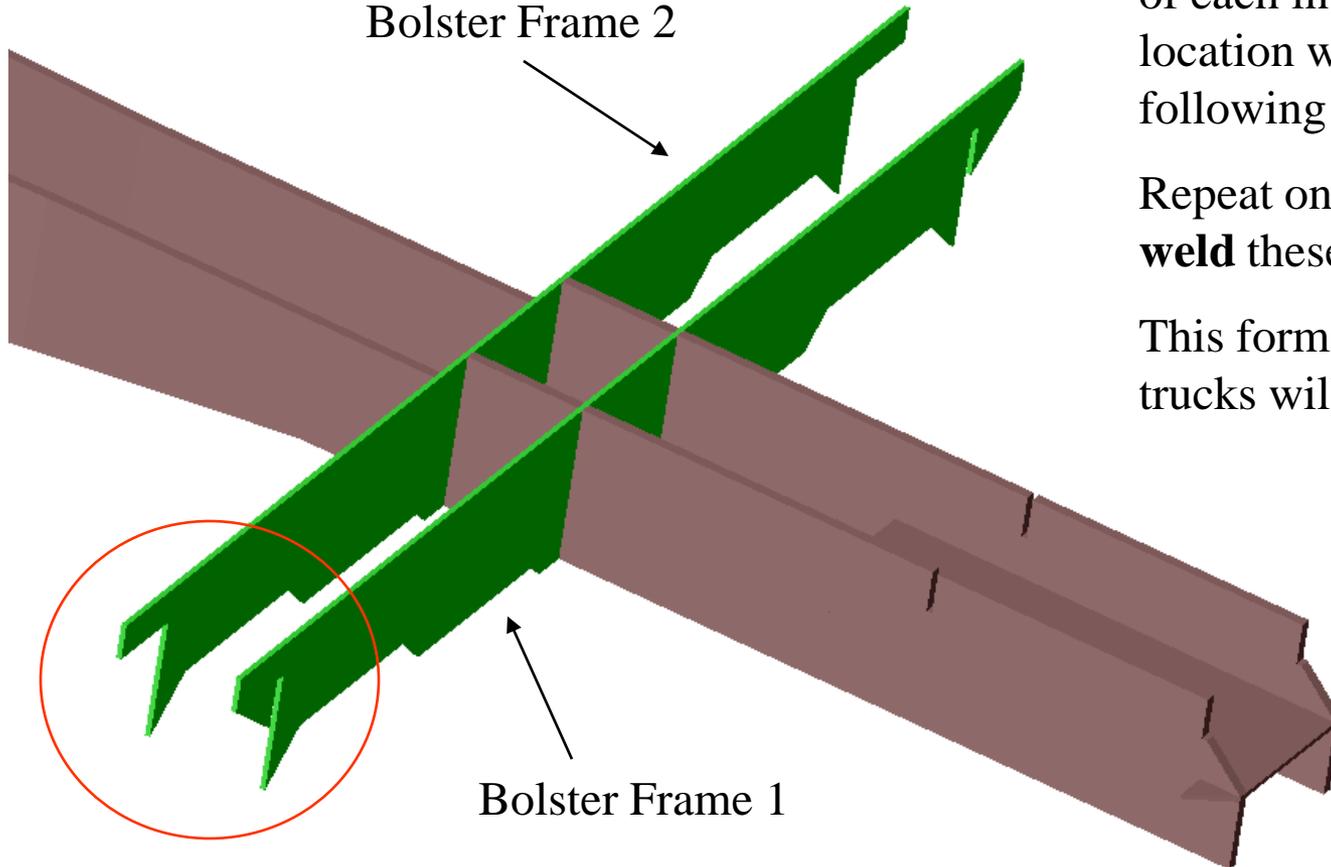
For Mountain Car couplers, locate the center of the Coupler Pocket between the frame beams. Calculate how far into the frame the mounting holes for the couplers need to be. Drill the appropriate hole.

I suggest welding a nut to Coupler Pocket on the side shown, allowing the couplers to be bolted in from the bottom of the car.

Step 2

Only use tack welds until
step 10!!!

Bolster Frame 2



Bolster Frame 1

Slide **Bolster Frame 1** and
Bolster Frame 2 into the frame
assembly.

Pay close attention to the location
of each in this picture. Incorrect
location will cause problems in
following steps.

Repeat on the other end and **tack
weld** these in place.

This forms the framing where the
trucks will mount.

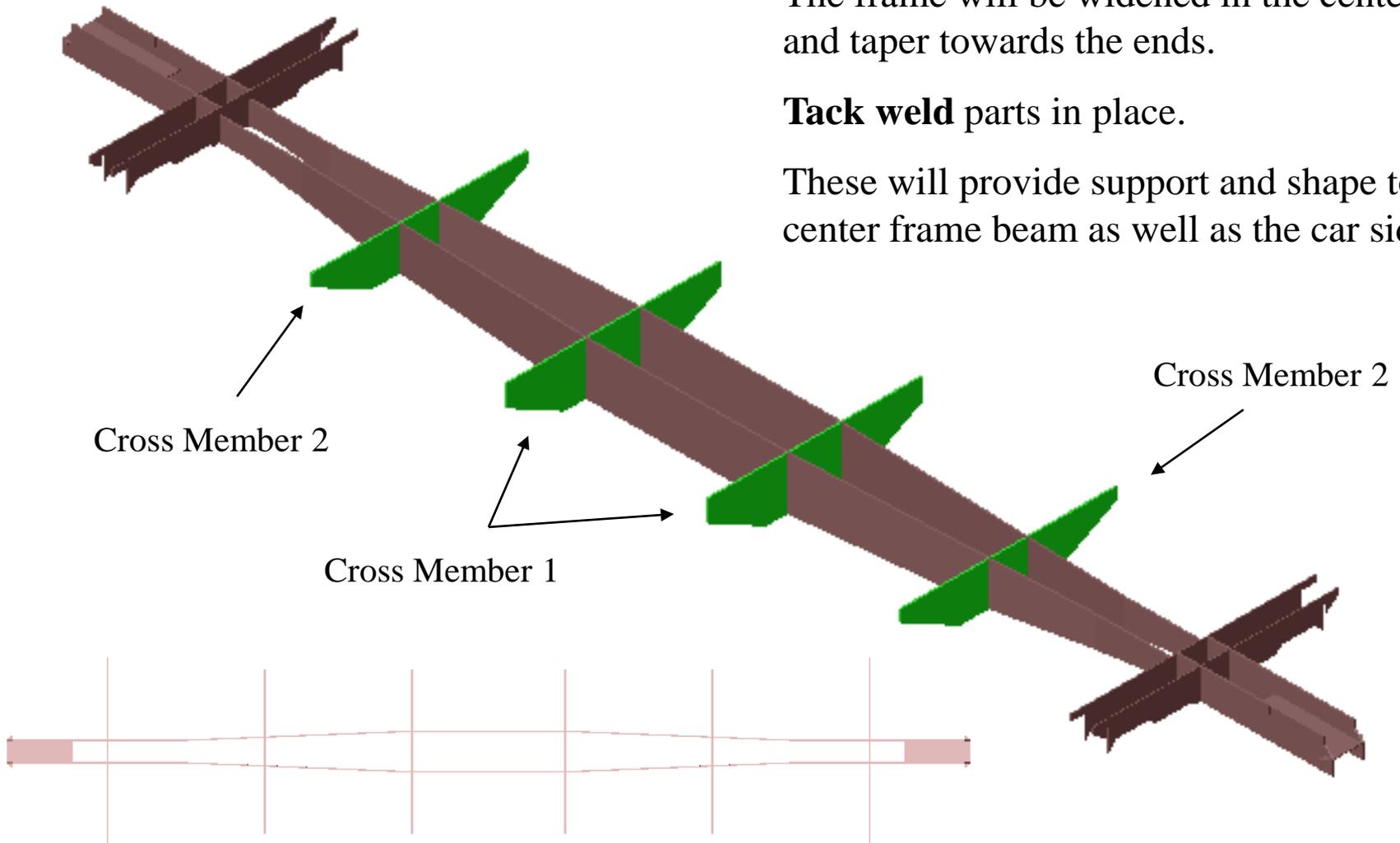
Step 3

Slide **Cross Members 1** and **Cross Members 2** into the slots of the Center Frame parts.

The frame will be widened in the center and taper towards the ends.

Tack weld parts in place.

These will provide support and shape to the center frame beam as well as the car sides.

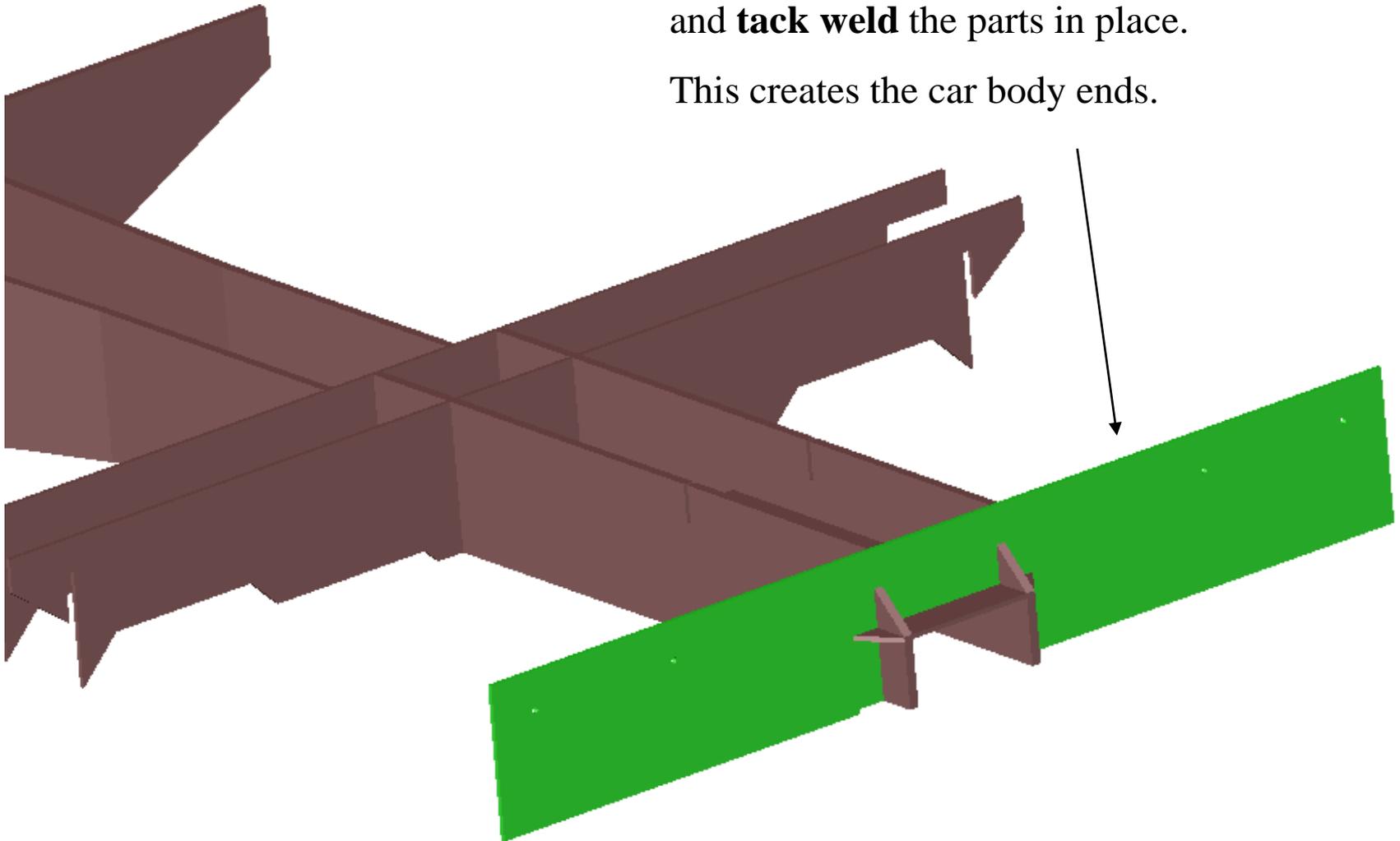


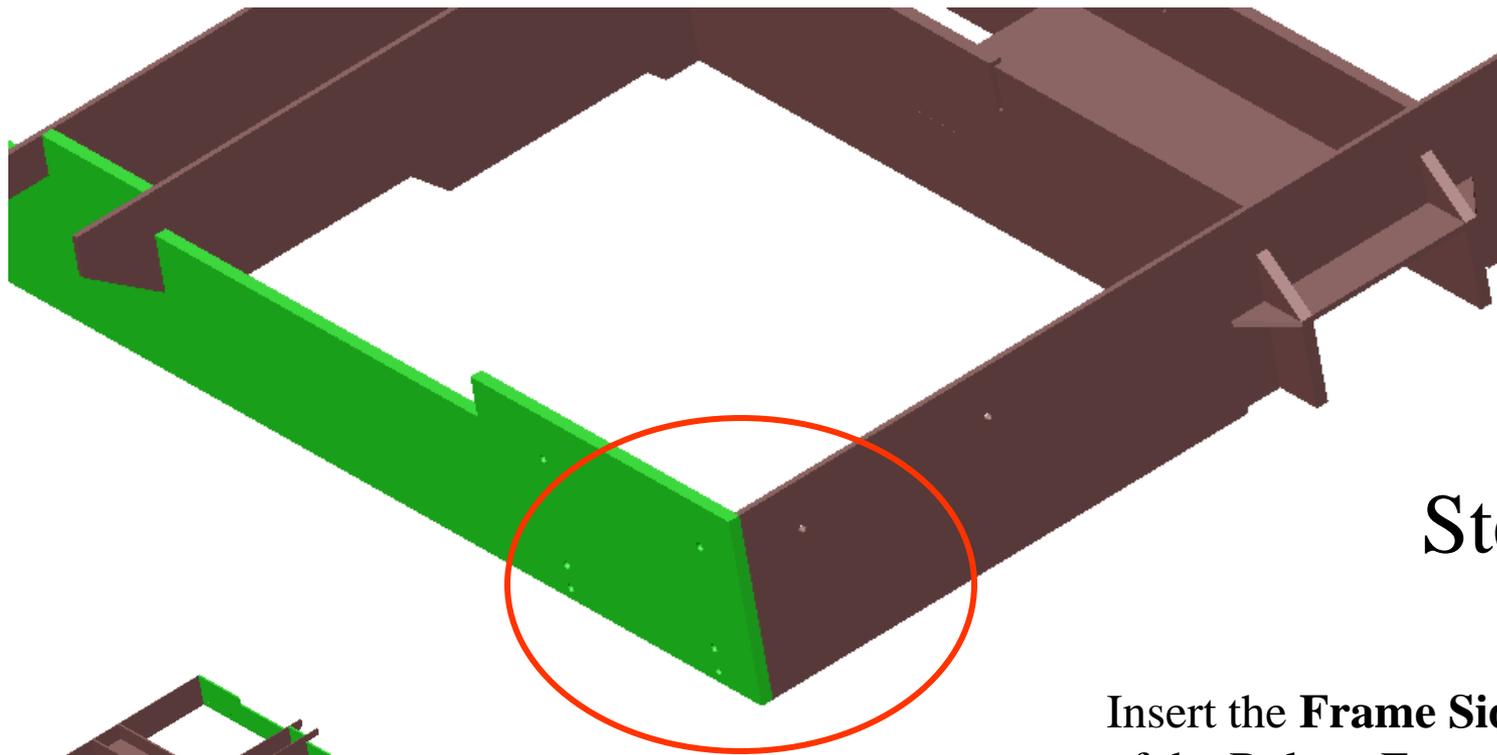
Step 4

Slide the **Frame End** over the end of the frame assembly.

Repeat on the other end of the frame assembly, and **tack weld** the parts in place.

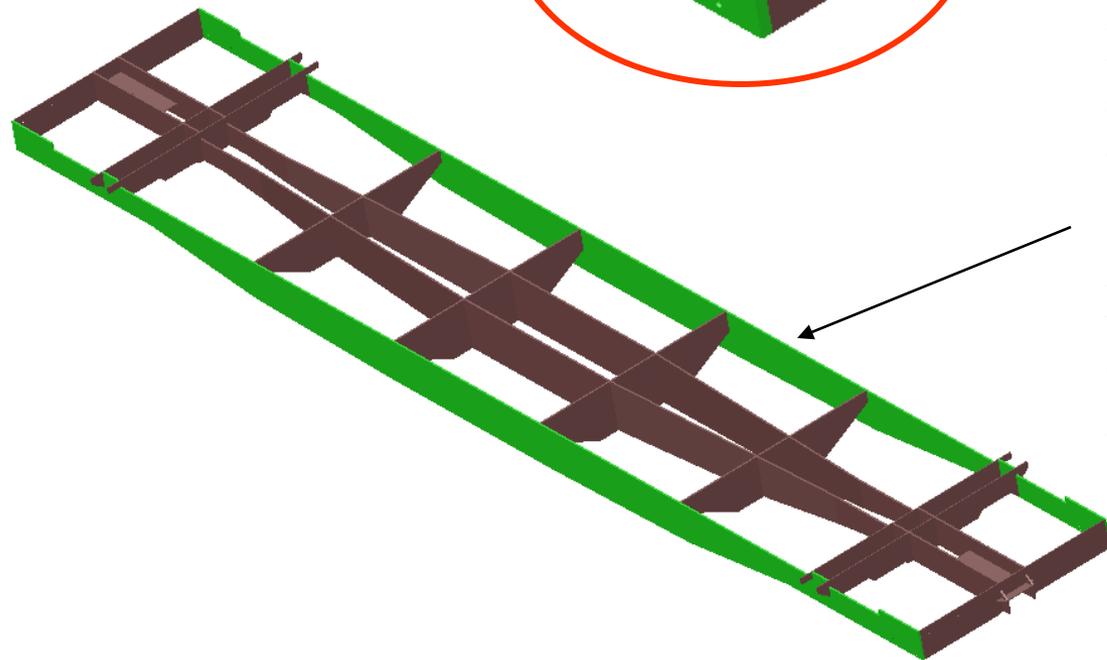
This creates the car body ends.





Step 5

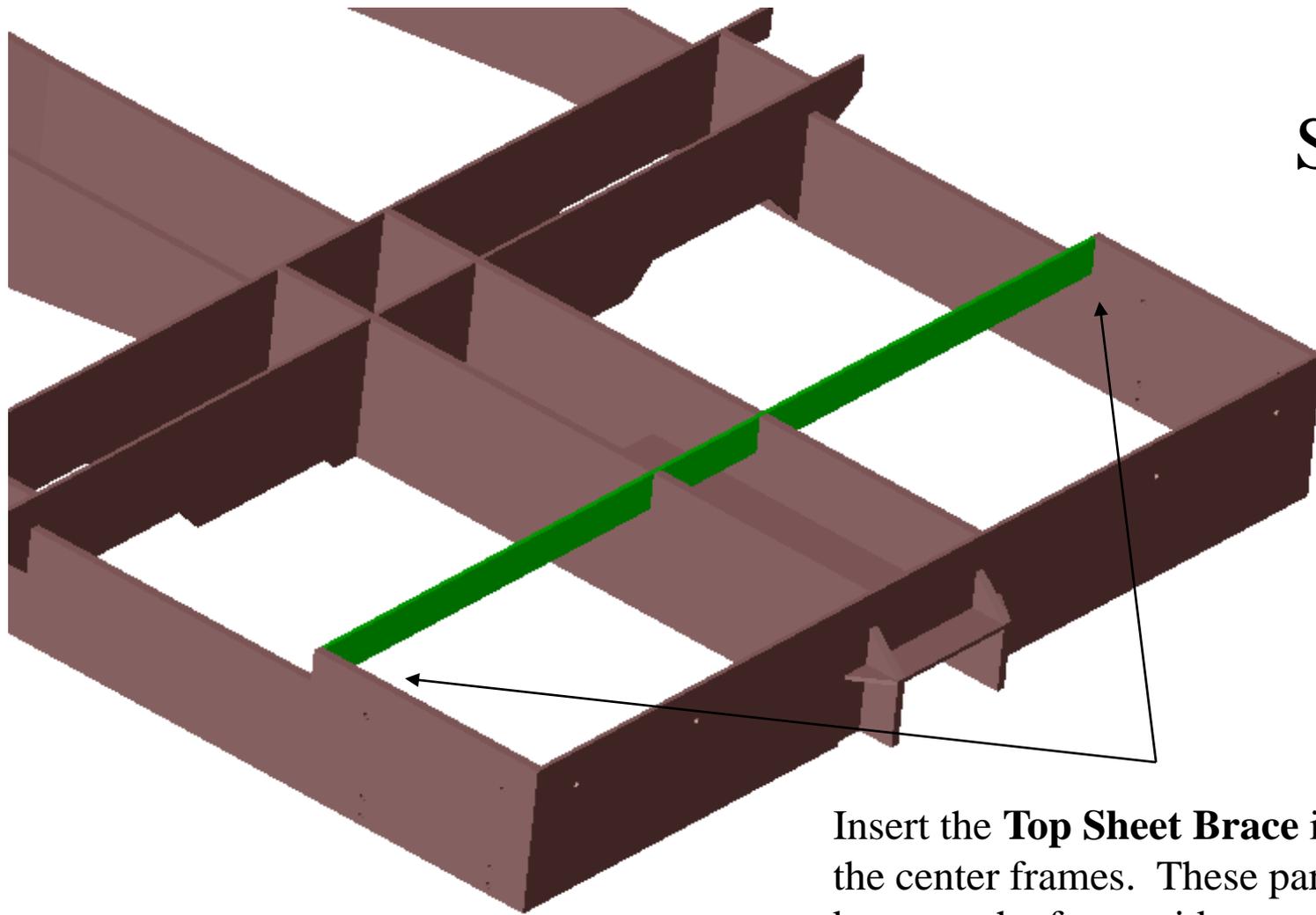
Insert the **Frame Side** into the slots of the Bolster Frames. Be sure that the ends of the frame side meet the frame end as highlighted.



Repeat on the other side of the car, and **tack weld** in place.

These create the car body sides.

Step 6

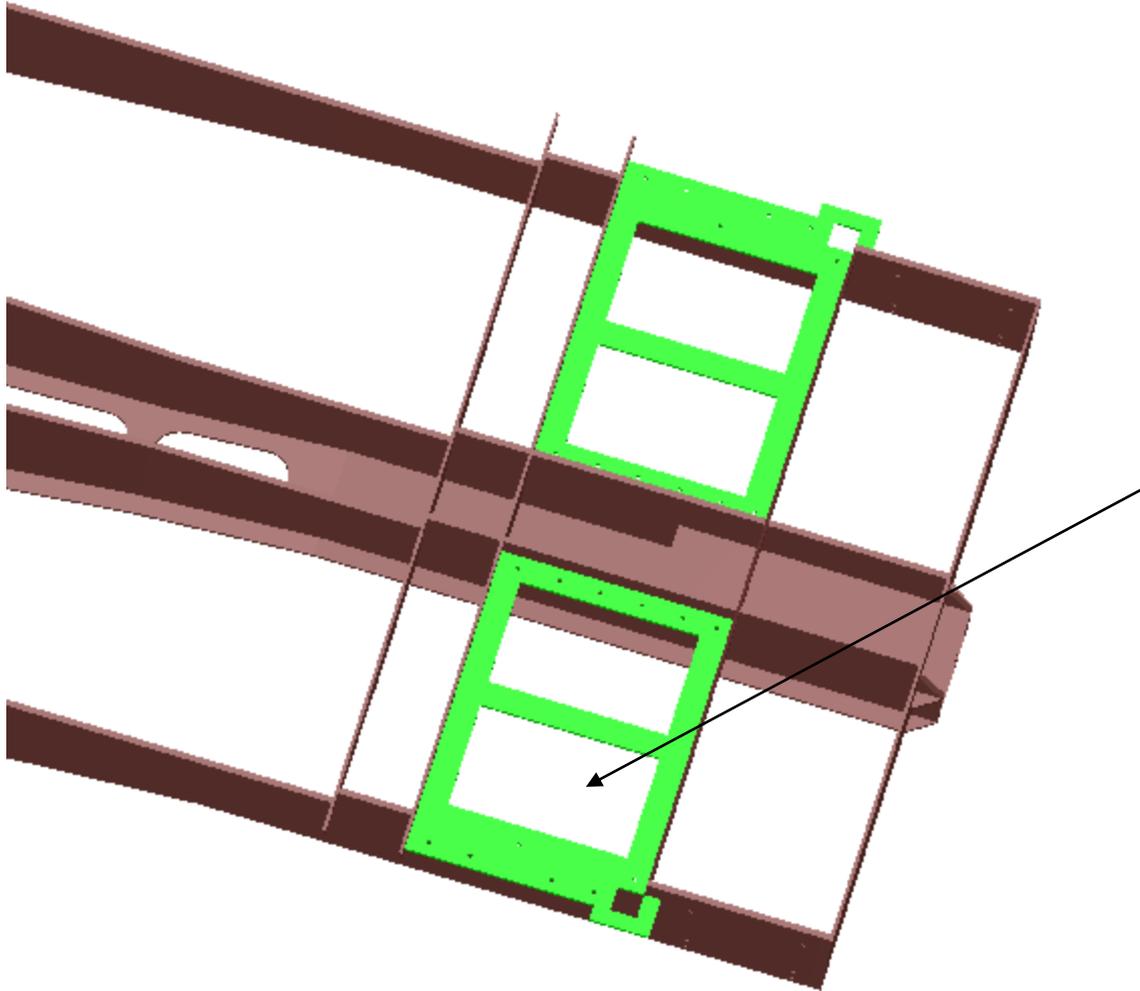


Insert the **Top Sheet Brace** into the slots of the center frames. These parts will fit in between the frame sides.

Repeat on the other end, and **tack weld** in place.

These will support the top sheet.

Step 7



Insert the **Small Deck Frames** into each side of the frame assembly end.

!!! These parts holds the frame assembly square !!!

Make sure all the edges of the **Small Deck Frames** are parallel to the bolster frame and top sheet brace.

Repeat on the other end, **tack weld** in place.

Tap all holes on the **Small Deck Frames** for decking. (Widen holes with a #43 drill bit if necessary)

These provide framing for the decking.

Step 8

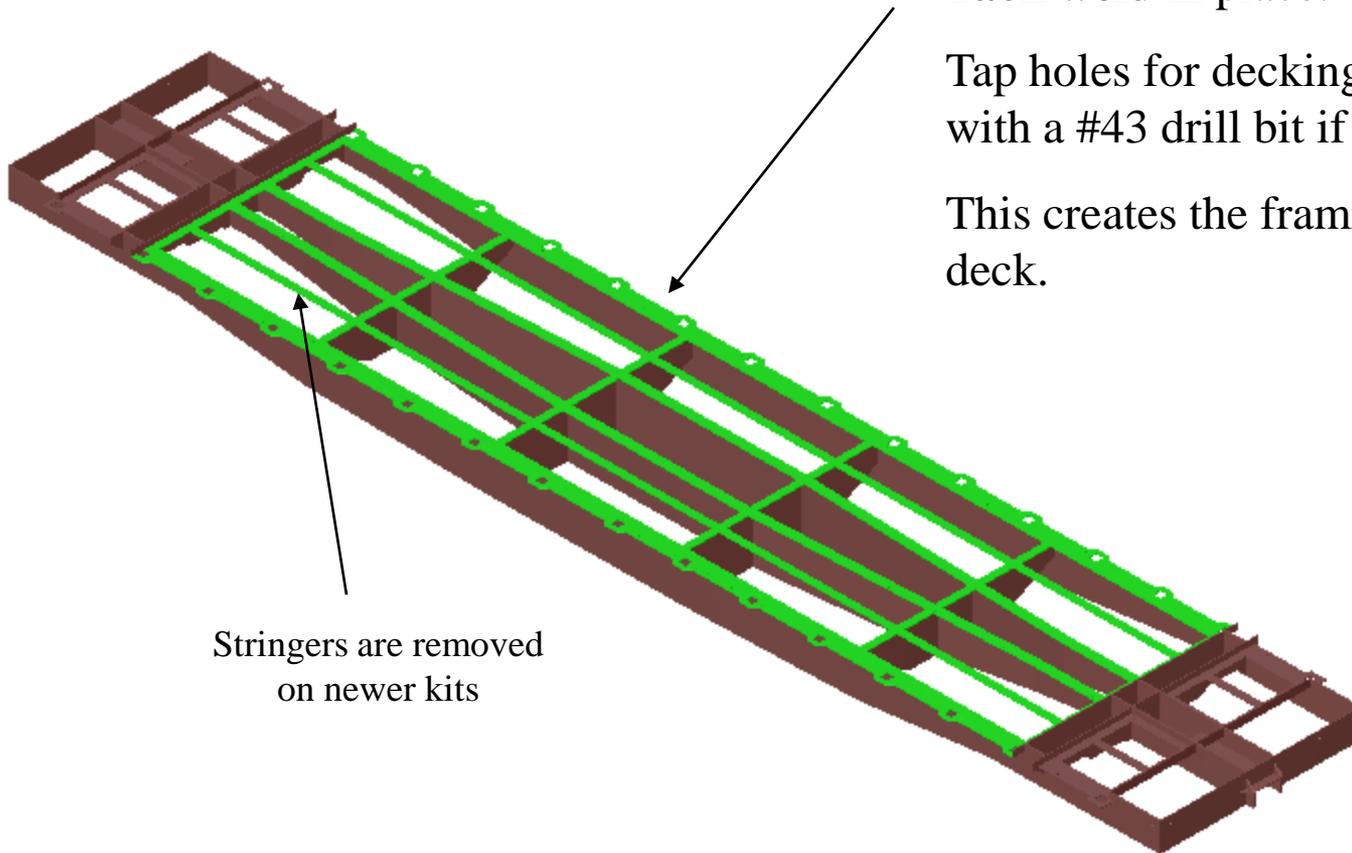
Fit the **Large Deck Frame** onto the frame assembly.

Line up the inside edges that follow the center beam profile.

Tack weld in place.

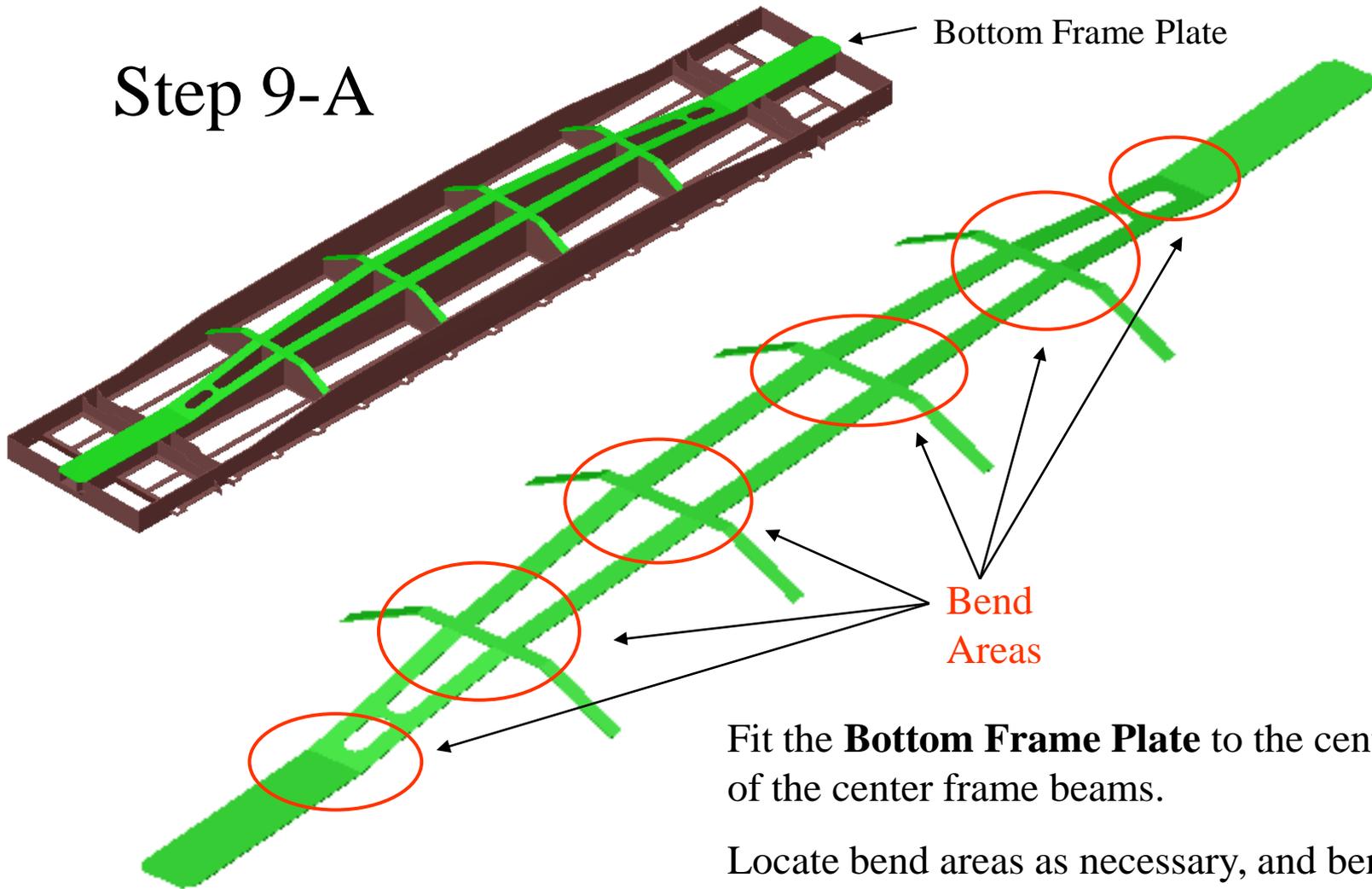
Tap holes for decking. (Widen holes with a #43 drill bit if necessary)

This creates the framing for the main deck.



Stringers are removed
on newer kits

Step 9-A



Bottom Frame Plate

Bend Areas

Fit the **Bottom Frame Plate** to the center section of the center frame beams.

Locate bend areas as necessary, and bend parts over an edge. (i.e. a table edge)

Carefully bend the piece, pay special attention to the contouring of the main center beam.

Tack weld in place.

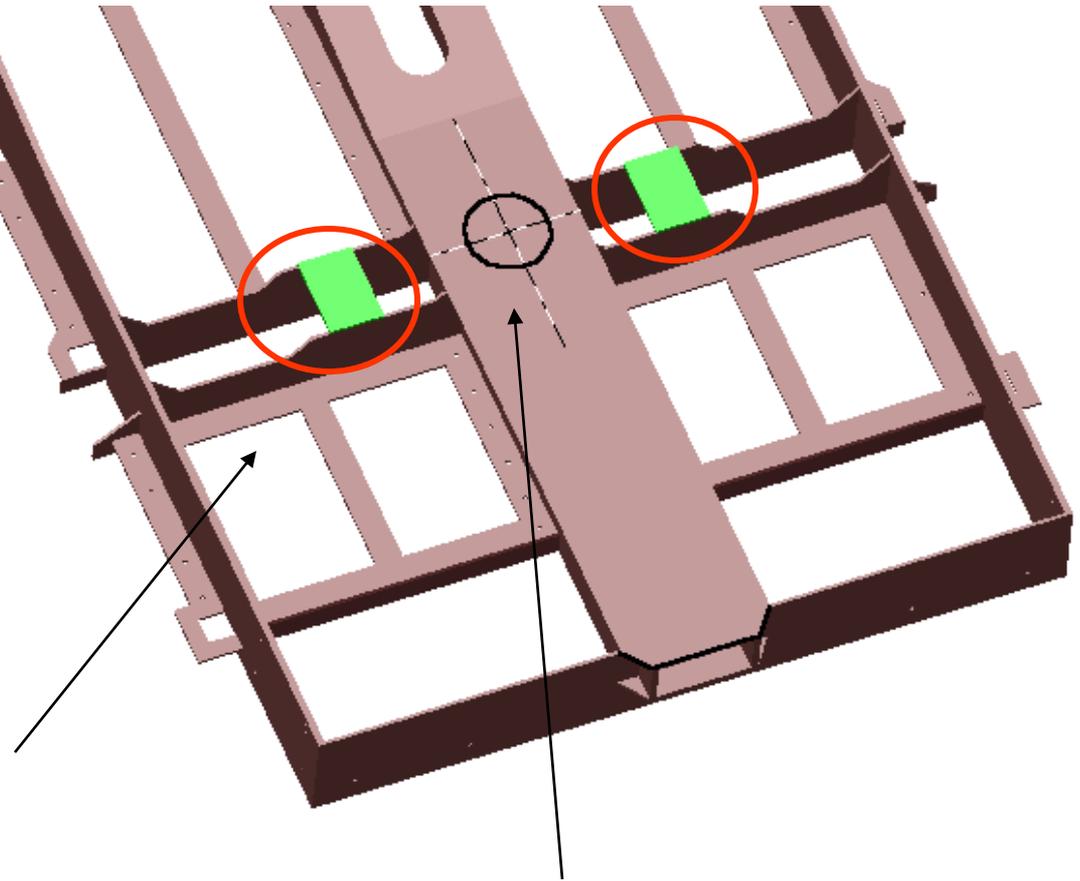
Step 9-B

At this point you must figure out how to mount your trucks.

Use a measurement taken from the side bearing posts on your trucks to locate the **Side Bearings** on the bolster frames.

When the trucks are in place, these plates contact the side bearings on the trucks controlling side to side motion.

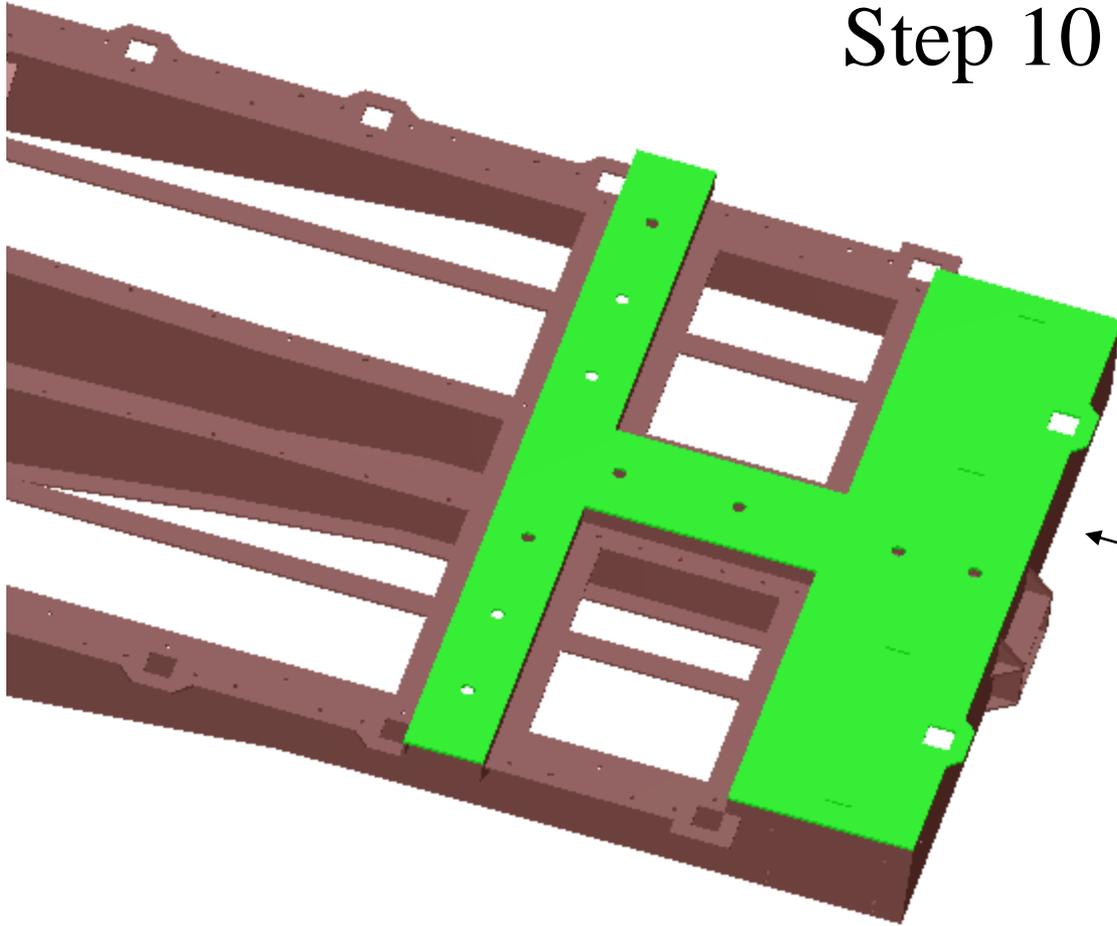
Adjust your trucks or the car to meet the side bearing requirements/limits of your club.



The location of the pivot of the trucks is shown above, it is centered between the bolster frames and on the bottom plate.

Determine and attach any hardware necessary to mount your trucks.

Step 10



Fit the **Top Sheet** onto the end of the frame assembly.

Before welding make sure any issues regarding couplers and trucks has been resolved.

Also apply final welds underneath the top sheet before making them inaccessible.

These create the metal portion of the deck.

Apply all final welds to the assembly!!!

!!! Be sure everything is in place underneath this part before welding !!!

!!Don't forget about your couplers/trucks!!

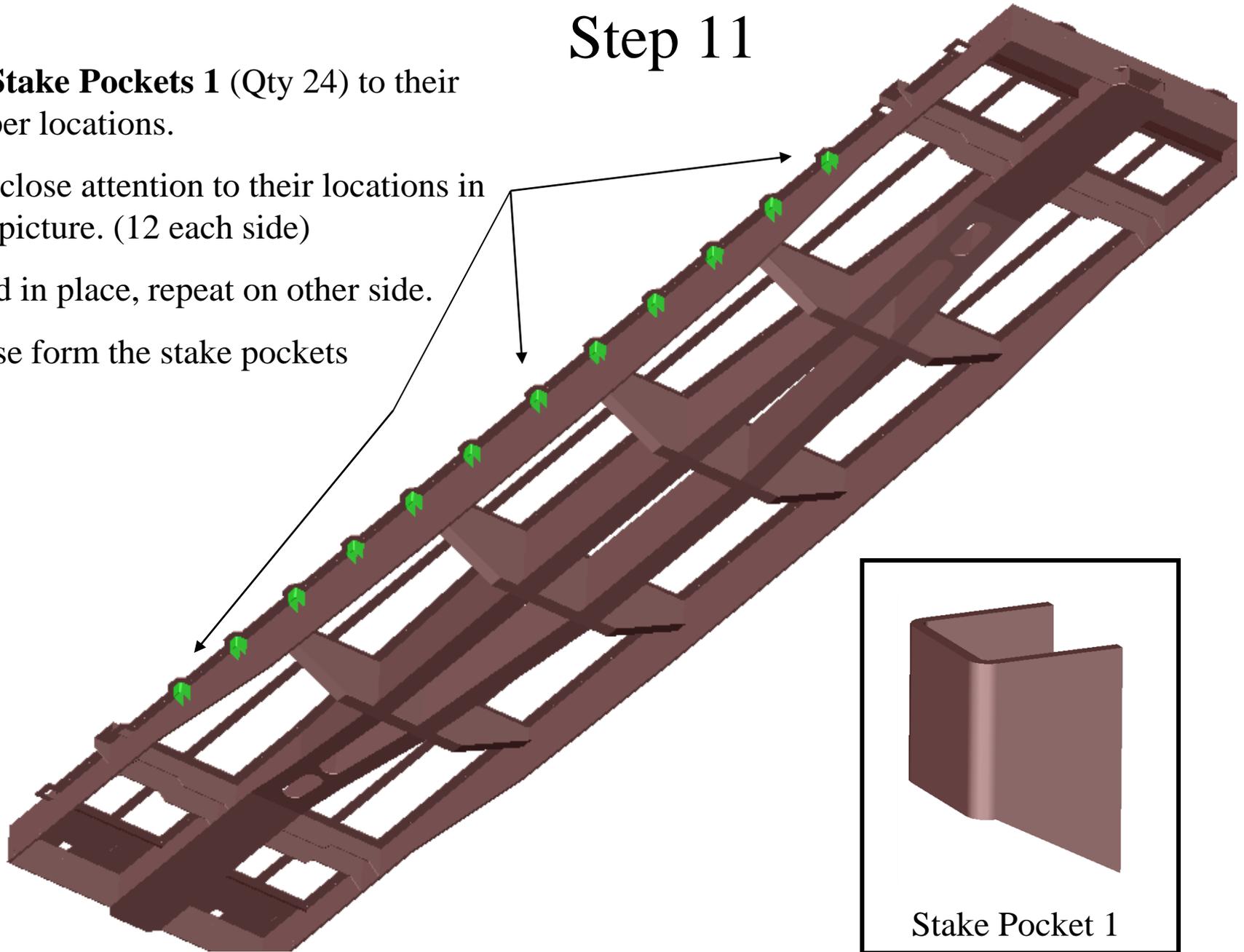
Step 11

Fit **Stake Pockets 1** (Qty 24) to their proper locations.

Pay close attention to their locations in this picture. (12 each side)

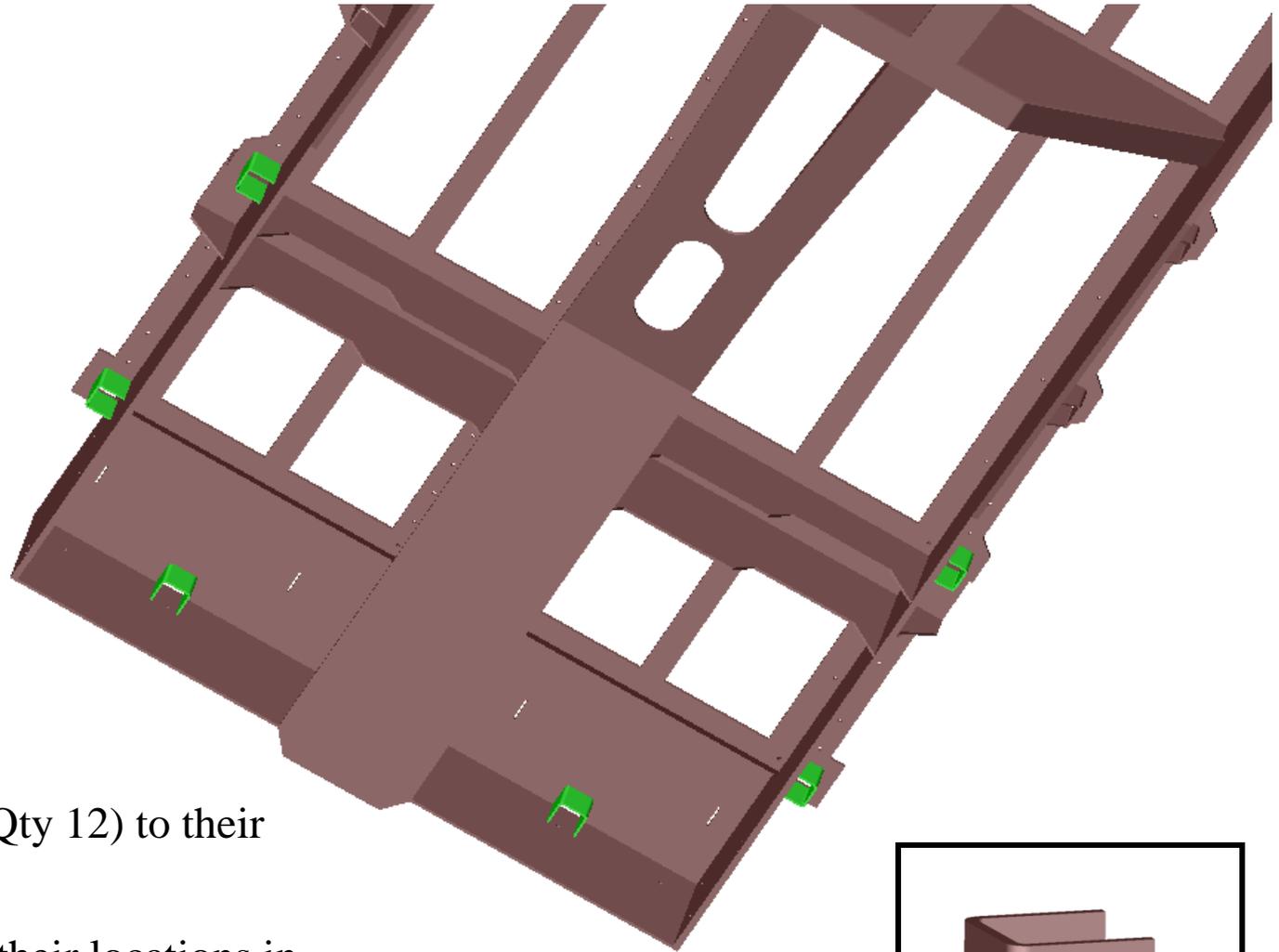
Weld in place, repeat on other side.

These form the stake pockets



Stake Pocket 1

Step 12

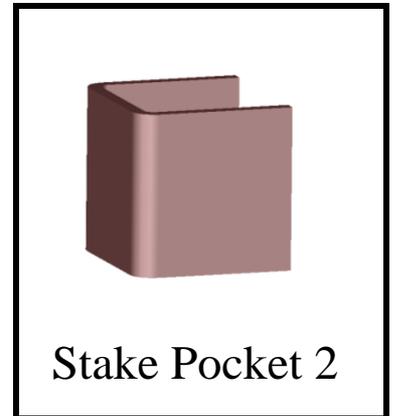


Fit **Stake Pockets 2** (Qty 12) to their proper locations.

Pay close attention to their locations in this picture. (6 each end)

Weld in place, repeat on other end.

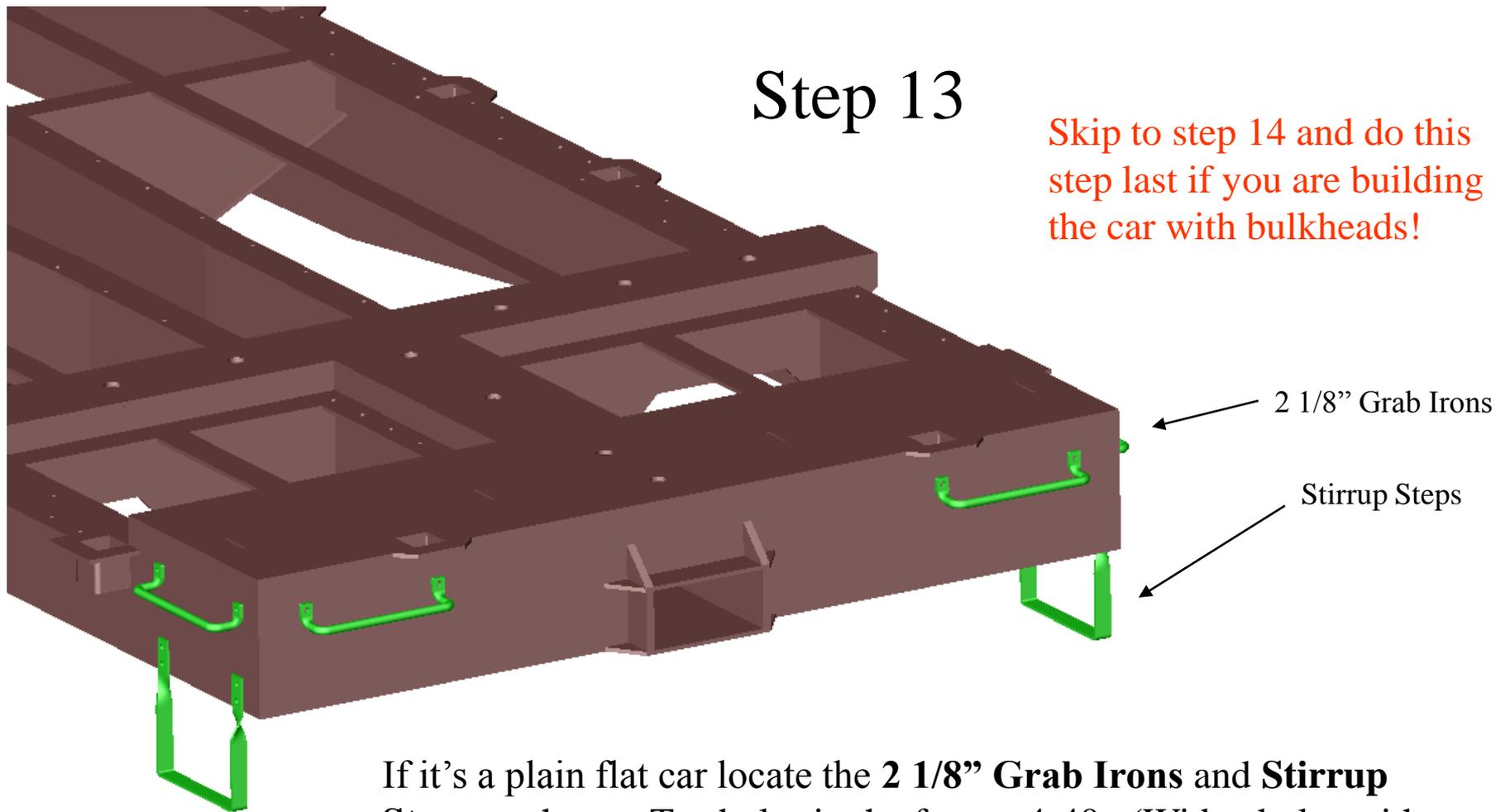
These form the stake pockets



Stake Pocket 2

Step 13

Skip to step 14 and do this step last if you are building the car with bulkheads!



If it's a plain flat car locate the **2 1/8" Grab Irons** and **Stirrup Steps** as shown. Tap holes in the frame, 4-40. (Widen holes with a #43 drill bit if necessary)

Repeat on both ends and sides, attach with 4-40 machine screws.

Skip to Step 21-A/B to attach decking

Step 14-A

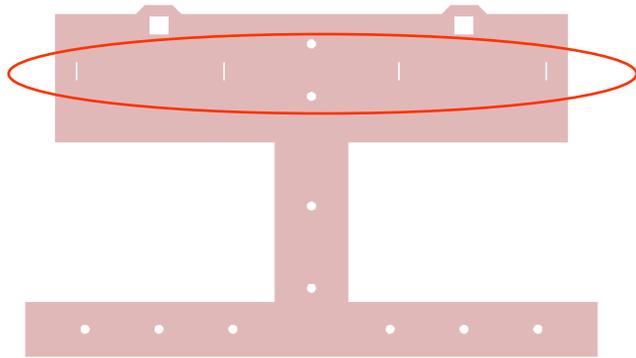
Pick one end for the brake end bulkhead.

Fit the **Bulkheads 1,2,3,4** as shown. Mark locations of each.

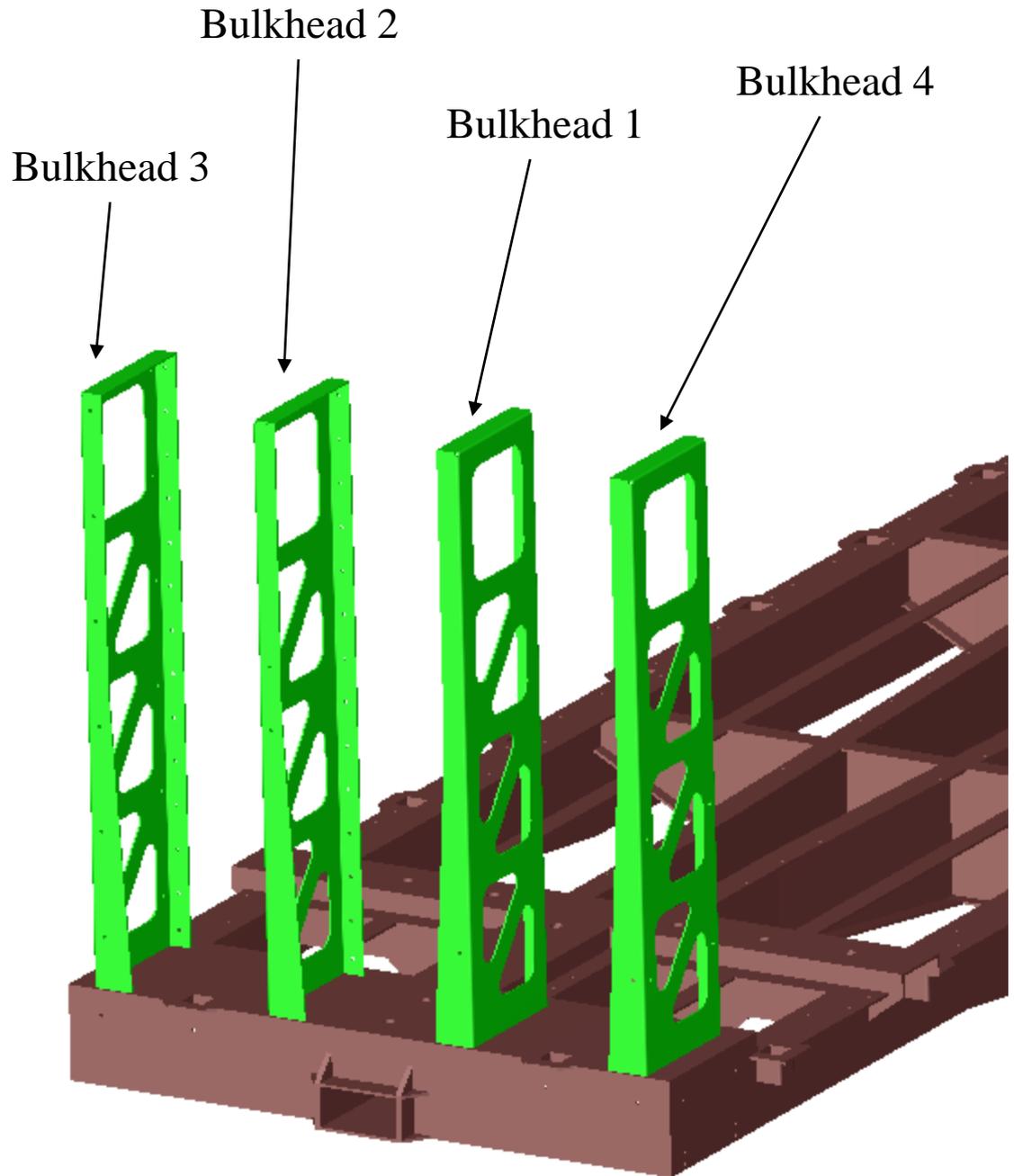
They will fit in the end sheet slots, as pictured below.

Do NOT weld yet!!!

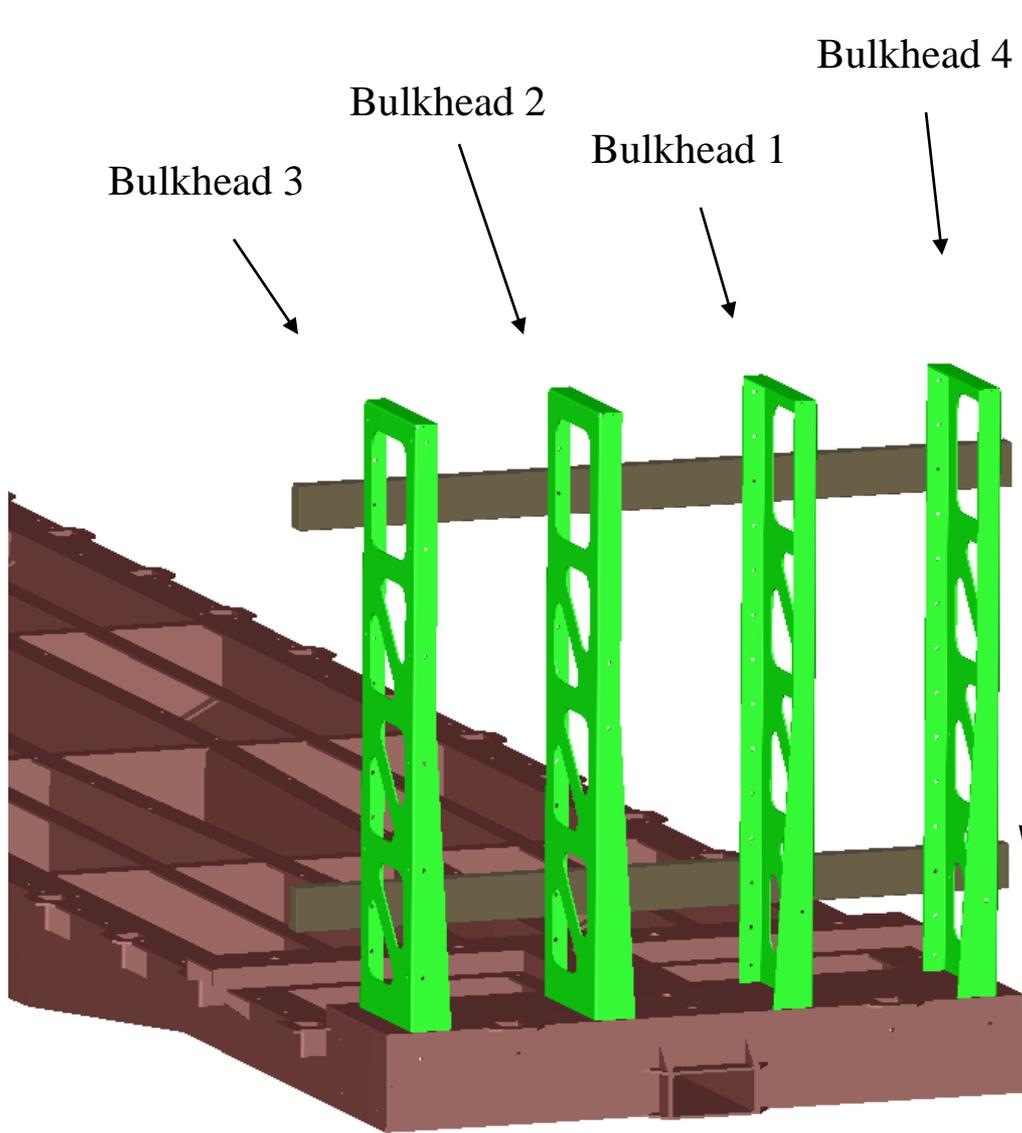
Turn page for step 14-B



End Sheet



Step 14-B



Tap holes in the **Bulkheads** before welding, 4-40.

(Widen holes with a #43 drill bit if necessary)

Use some of the bulkhead decking to properly distance the bulkheads.

Check the fit between the **Bulkheads** and the End Sheet.

Make adjustments if necessary to fit the bulkheads to the end sheet. Keep them square to the edges of the car.

Weld in place.

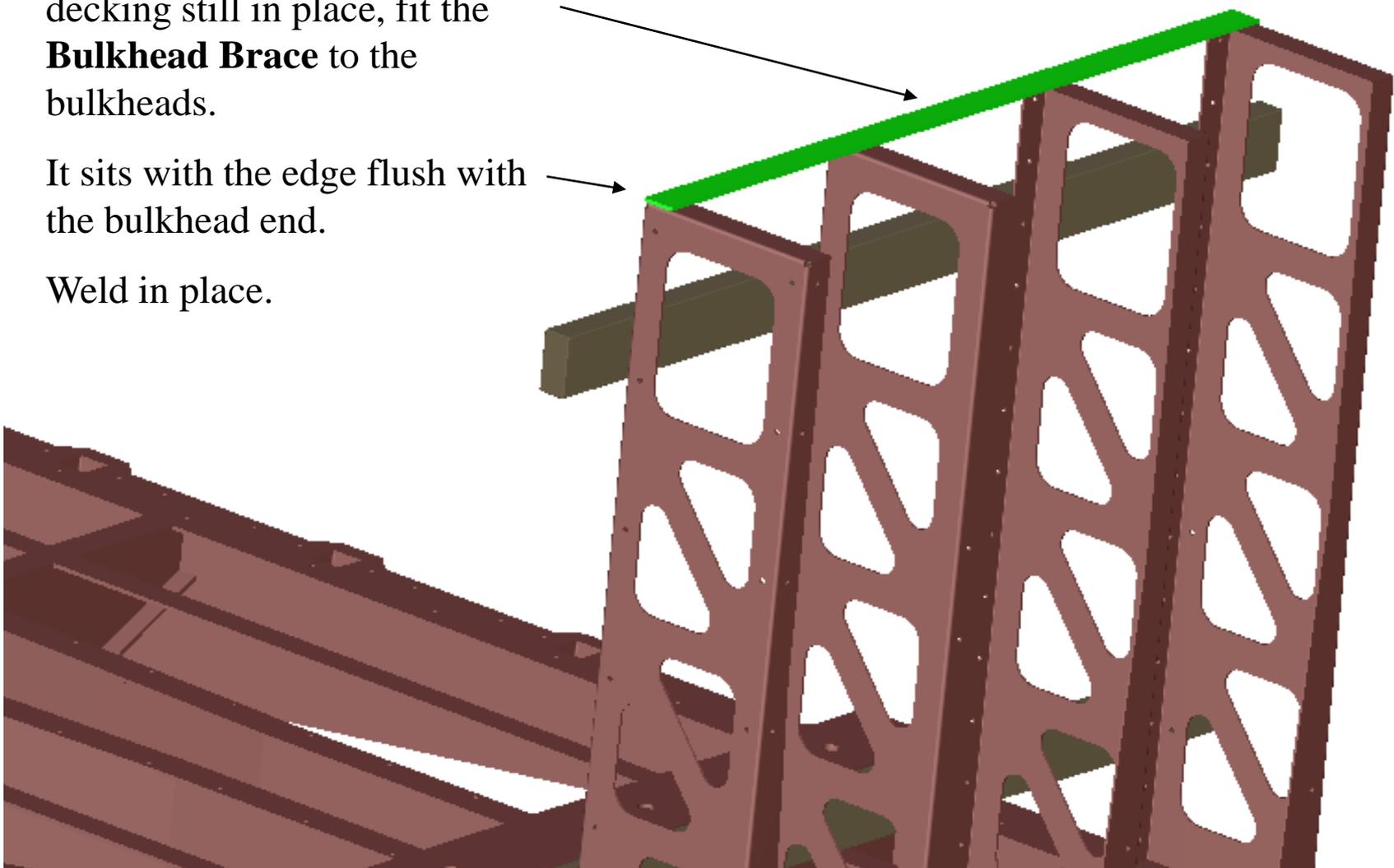
This forms the framing for the brake end bulkhead.

Step 15

With some of the bulkhead decking still in place, fit the **Bulkhead Brace** to the bulkheads.

It sits with the edge flush with the bulkhead end.

Weld in place.

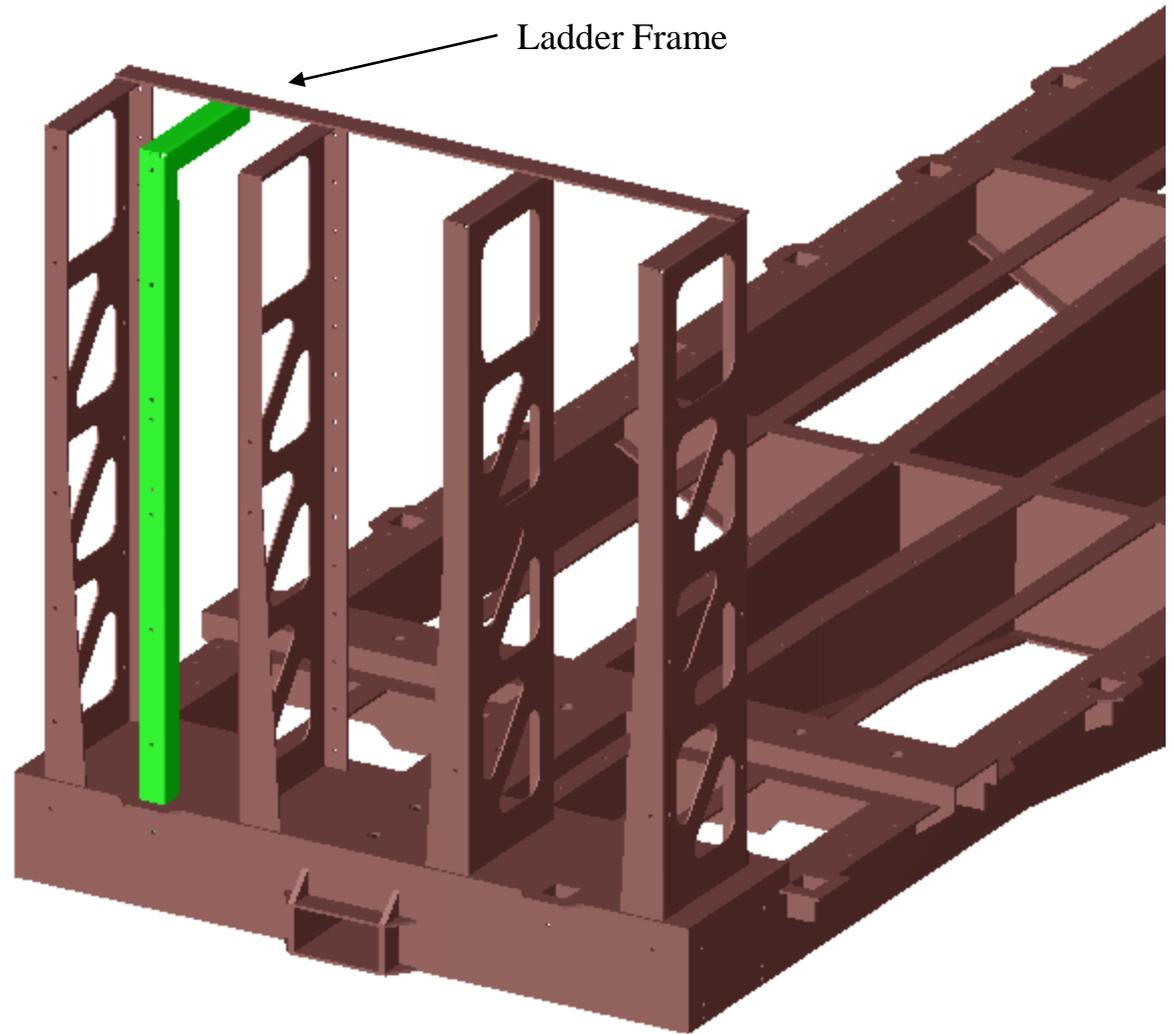


Step 16

Insert the **Ladder Frame** into the stake pocket.

Make sure it is parallel to the bulkheads and weld in place.

This will form the framing for the brake end ladder and walkway.



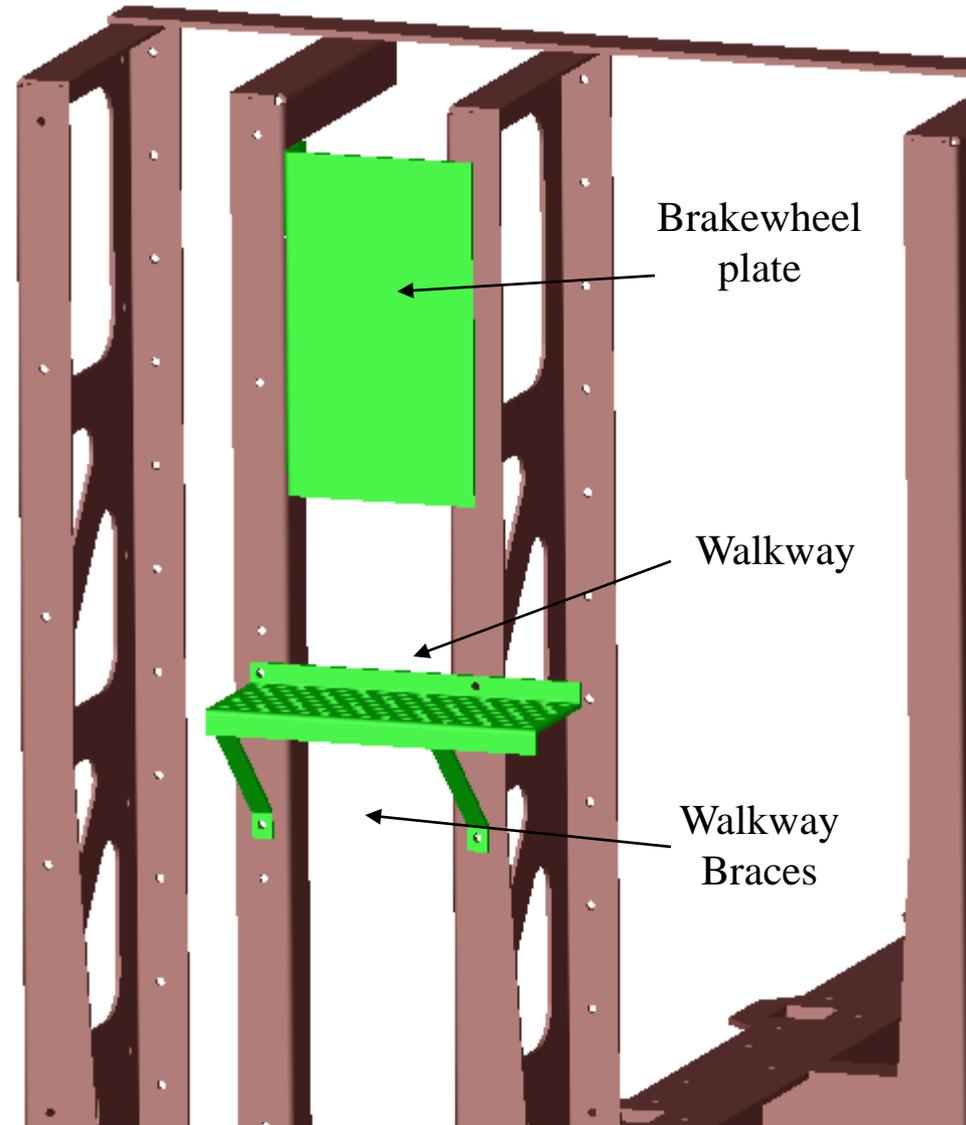
Step 17

Place the **Brakewheel Plate** in its location. The top should be $\frac{1}{2}$ inch below the top of the bulkheads.

Weld the **Brakewheel Plate** in place.

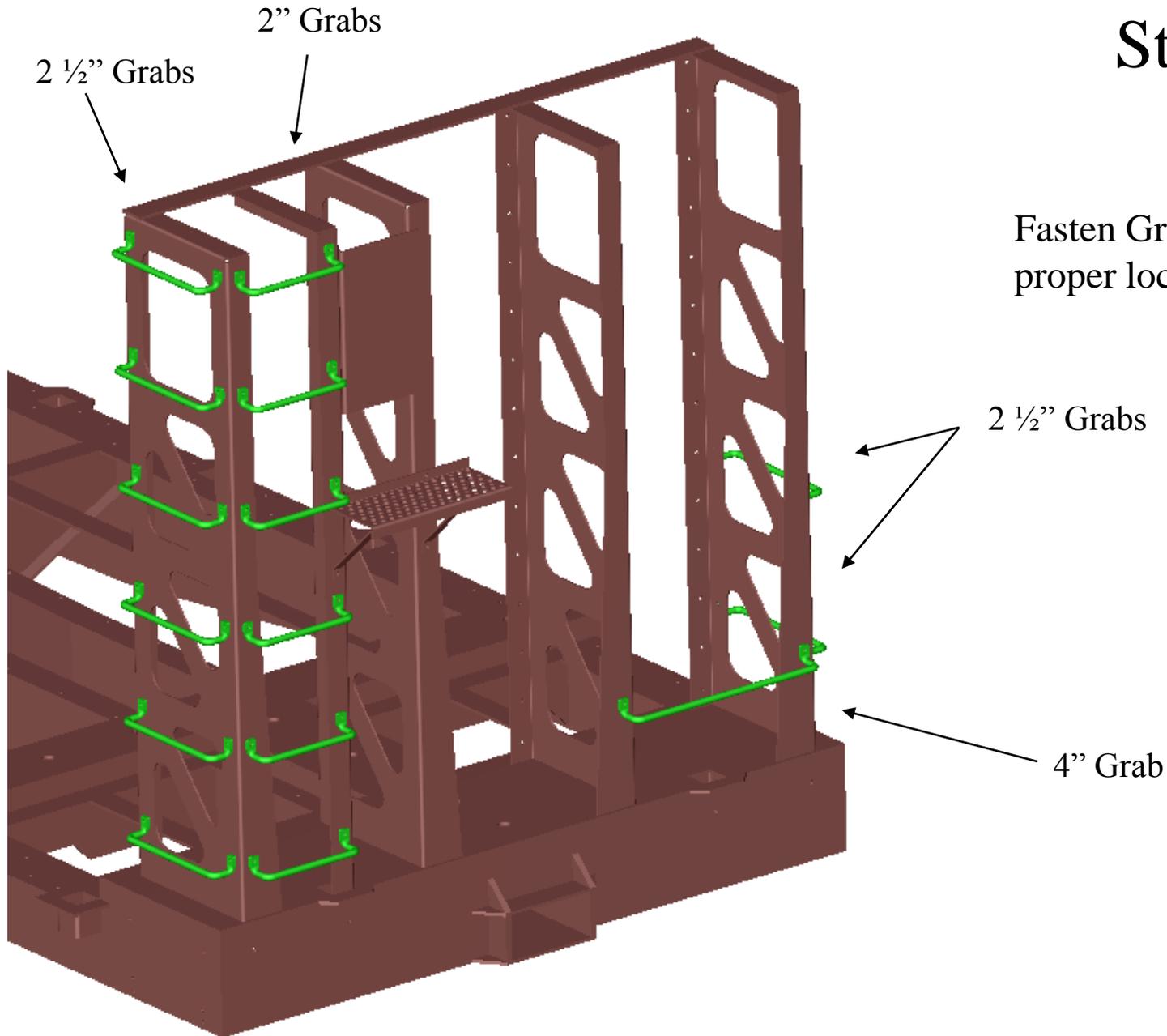
Next fit the Walkway and Walkway Braces to the bulkhead and ladder frame, fasten with machine screws.

Pay special attention to the hole locations.

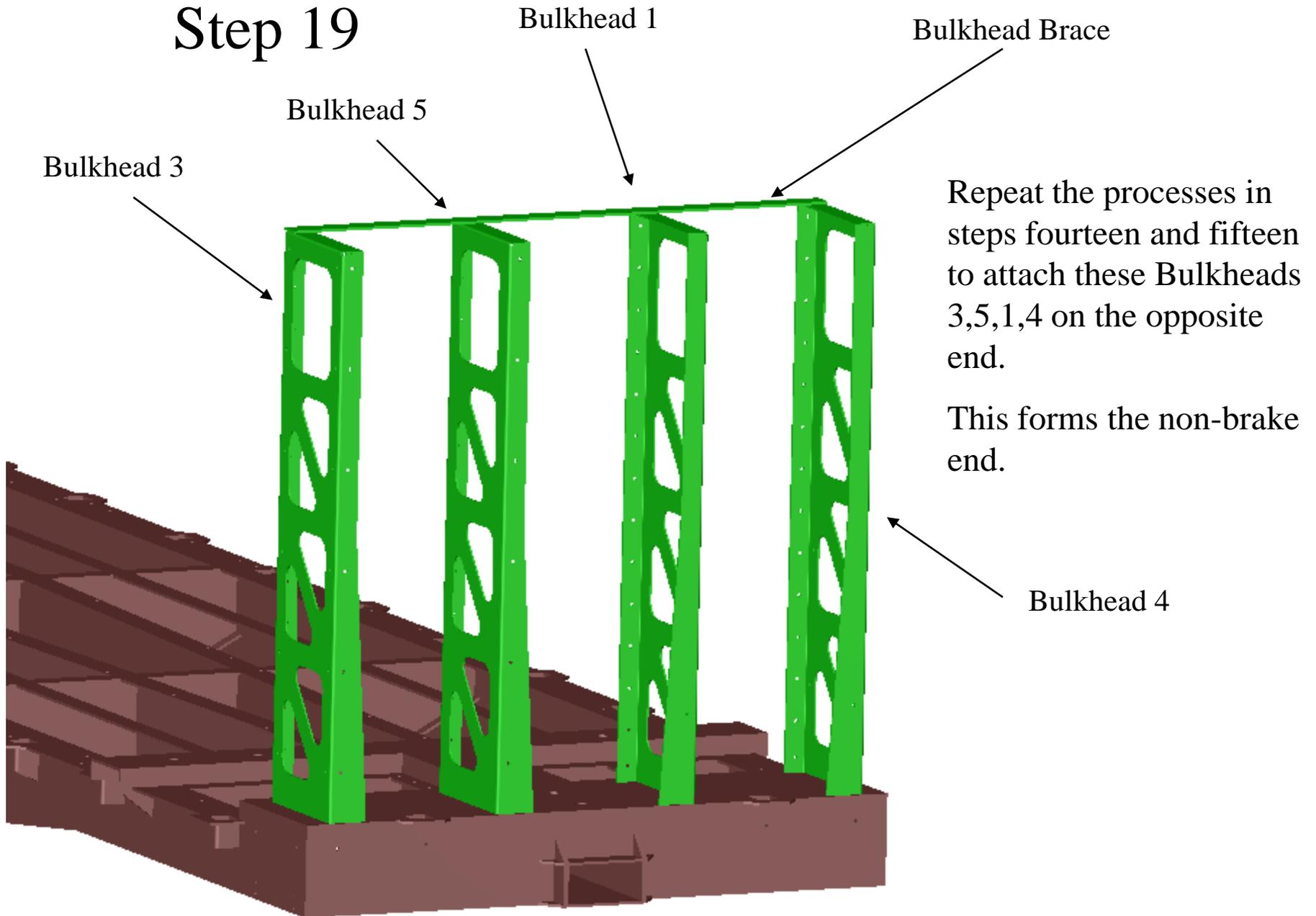


Step 18

Fasten Grab irons into their proper locations.



Step 19

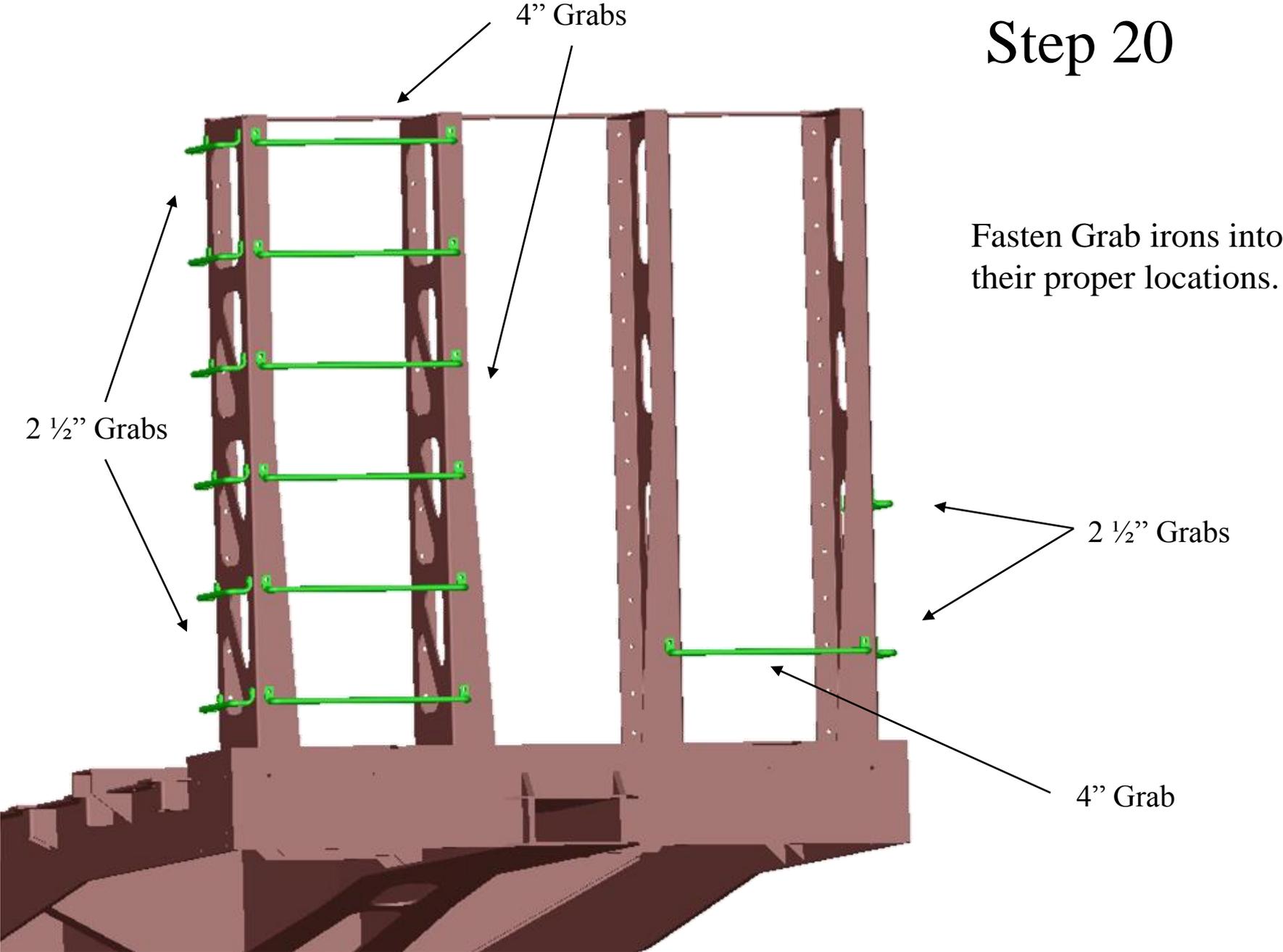


Repeat the processes in steps fourteen and fifteen to attach these Bulkheads 3,5,1,4 on the opposite end.

This forms the non-brake end.

Step 20

Fasten Grab irons into their proper locations.



Step 21-A

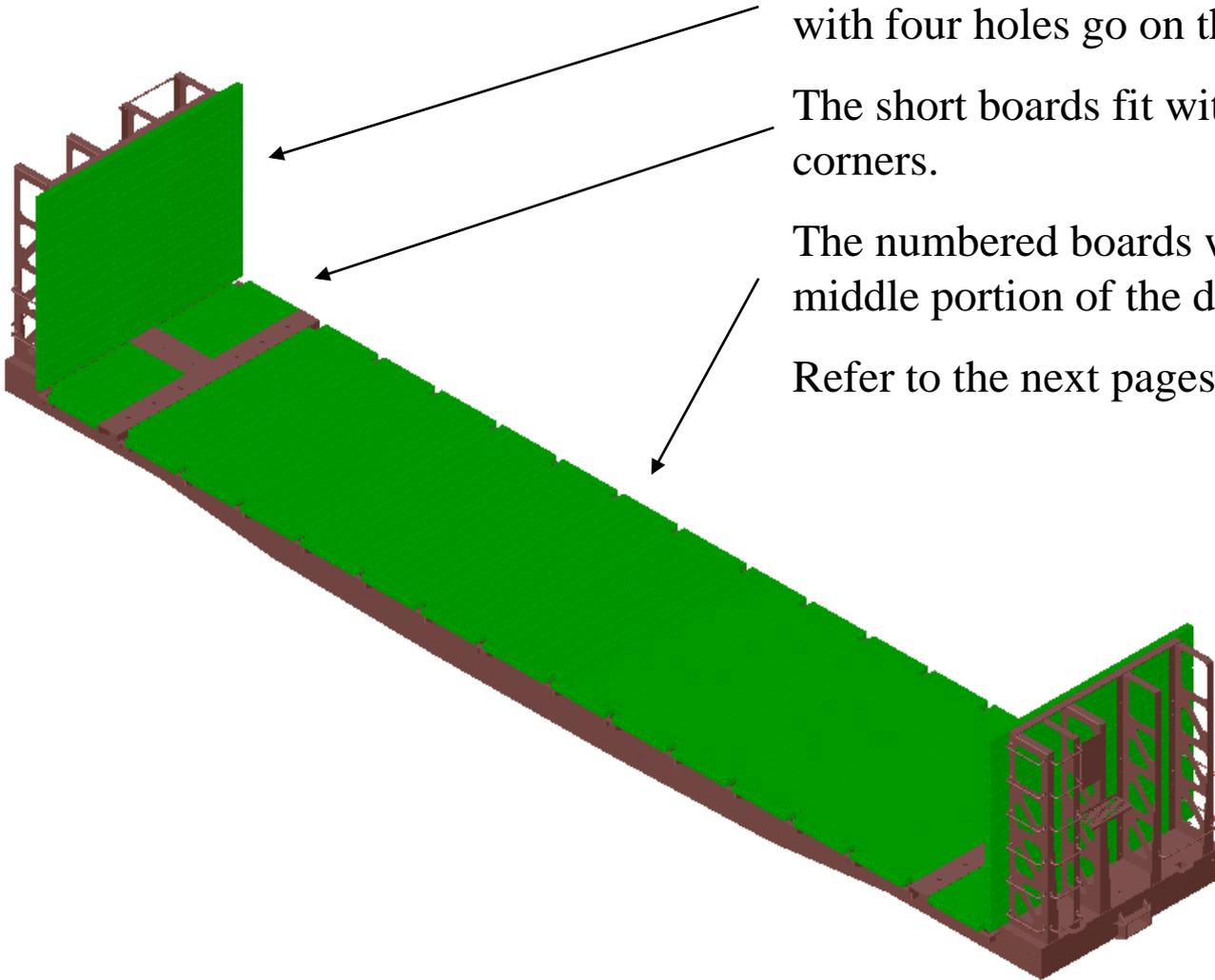
I suggest using 4-40
socket cap screws.

Now it is time for decking. All of the boards with four holes go on the bulkheads.

The short boards fit within the main deck corners.

The numbered boards with three holes span the middle portion of the deck.

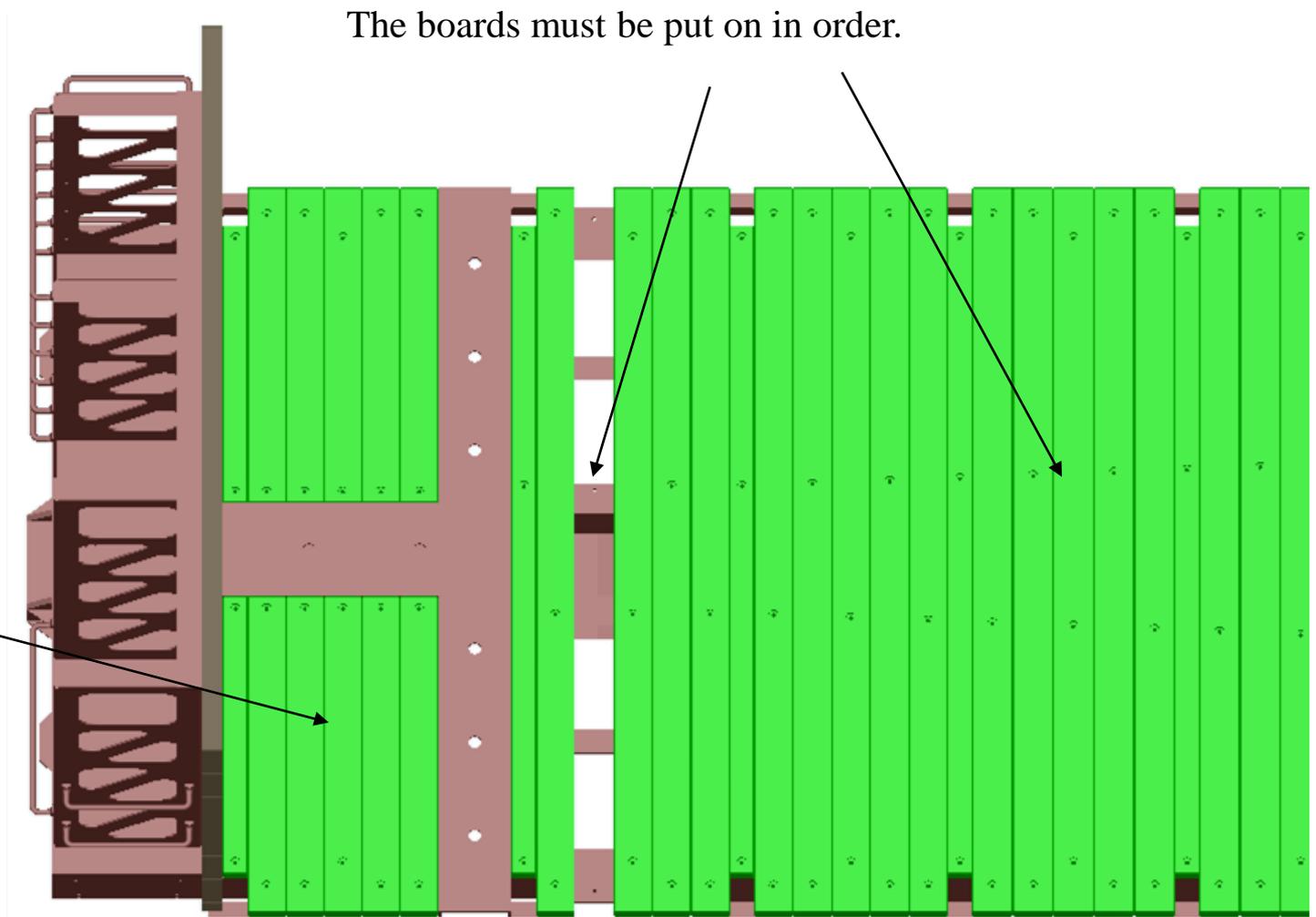
Refer to the next pages for details.



Step 21-B

For the main deck, the numbers go from 1 to 79. Match up the holes with those in the large deck frame. Start at one end, work towards the other.

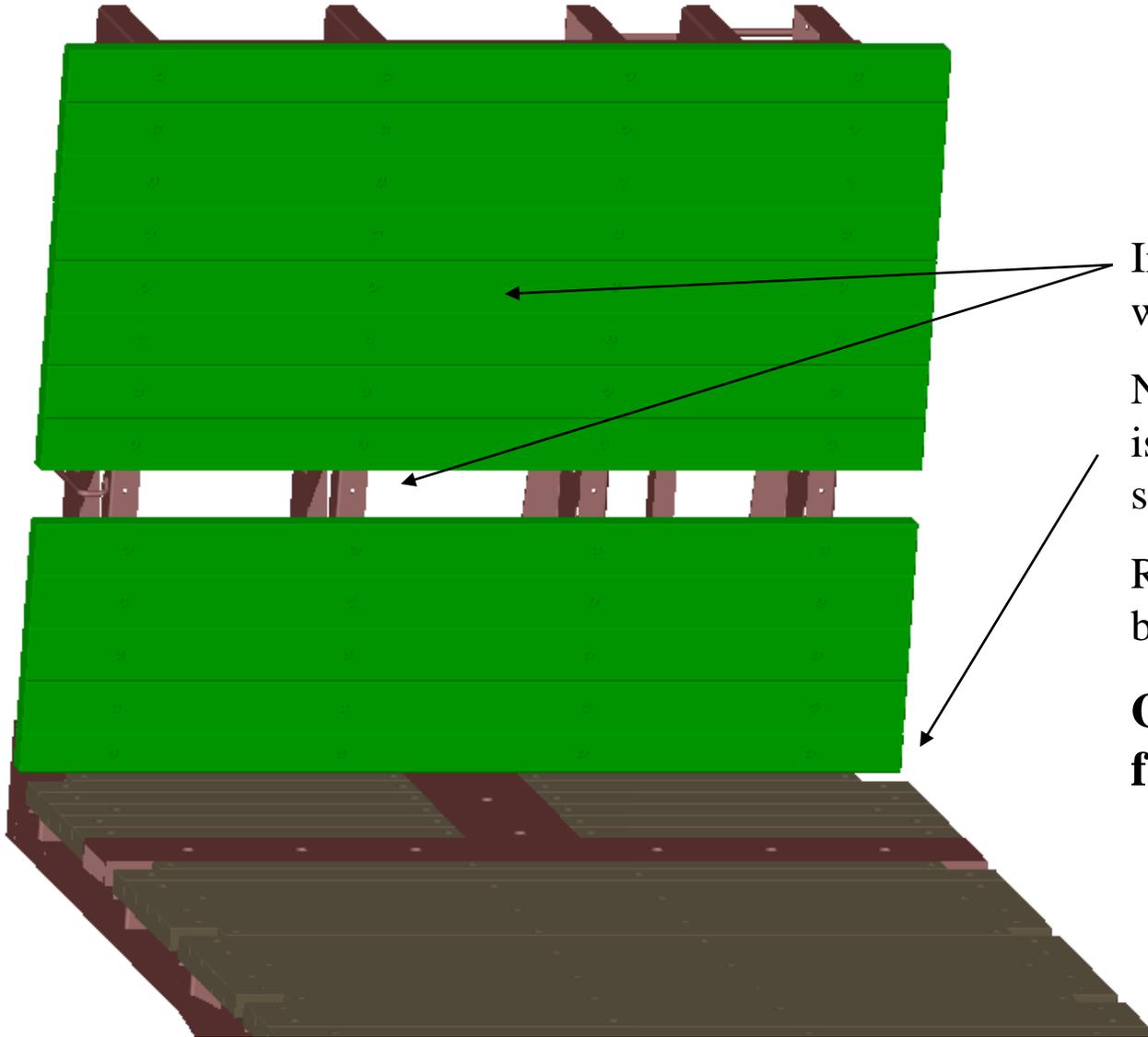
Note the offsetting hole pattern and the fishbelly shape. The boards must be put on in order.



Attach the short boards. Pay special attention and follow the pattern shown in the picture.

Repeat at the other three corner sections.

Step 21-C



Install the bulkhead decking with four holes.

Notice that the narrow board is the bottom board of the set.

Repeat on the other bulkhead.

Go back to step 13 to finish the kit.