

Castlebrook Barns

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Castlebrook Assembly Instructions

Recommended tools needed for barn installation:

1. Drill with a 5/16" and a 3/8" socket (for tek screws)
2. Ratchet with a 3/8" drive and a 9/16" socket (to tighten nuts)
3. Level (to check if parts are level)
4. Ladder (to reach the roof)
5. Rubber mallet (for adjustments and driving down lumber)
6. Straps (to hold the barn square before it is anchored)
7. Roto-hammer with 1/2" bit (to predrill holes for wedge anchors)
8. Hammer (to apply wedge anchors)
9. Clamps (to assist in the attachment of the hat and Z perlins)
10. String (to align roof & intermediate Z perlins)

Assembly Instructions:

1. Use the enclosed **post and tube layout** for your specific barn. The **post and tube layout** is drawn in color. The part number for each post is typically red. The part number for each tube is typically blue. The quantity and size of lumber is typically purple. The roofing components are typically green. Each component piece for your barn is labeled to match the post and tube layout. The upper right-hand corner of the post and tube layout has the barn footprint, total length of roofing and the overhang of your roofing. This dimension will be used when the roofing is installed.
2. Read the assembly instruction thoroughly before beginning construction. Position all posts and tubes on the ground in the areas, where they are to be installed.
3. It is easier to **slide the tubes into the posts** while the posts are lying on their back side rather than while the posts are in an upright position. While the posts are on their back, slide the designated tube into or over the sleeve on the post for the stall fronts and stall rears. Assemble 2 to 4 stalls at the same time. Tilt the stall front panels into an upright position with the side tubes attached. Then tilt the rear stall wall upright and slide the side tubes into place to form the stall's framework. Attach all tubes to posts with 3/8" X 2 1/2"- 4" bolts and hand tighten nuts.



Typical installation photo.
Additional color photos in full
instruction manual.

4. Attach all **“40” posts** on the inside of the stall with (2) 2½” bolts and nuts. Attach all **“40E” posts** on the inside of the stall with 3” bolts on the top and 2 ½” bolts on the bottom with nuts.

5. The **x-bracing** is the lateral support for the barn. Their locations are specified on your post and tube layout. Install over the post legs or tubes using the existing bolthole, forming an “X” on the wall. Each x-bracing connection must have a grade 5, 3/8” X 3-4” high-strength bolt. These bolts can be identified by the 3 notches on the head of the bolt. Use (4) #14x1½” tek screws to fasten bracket securely to post in the holes provided at all 4 x-brace connection points.

6. Attach an anchoring **“L”** bracket to the bottom bolt of each post or tube on the inside of the stall. The small hole in the anchoring **“L”** attaches to the post and the larger hole lays flat on the concrete foundation. Use the existing bolts to attach the brackets to the posts. Later you will attach the anchoring **“L”** to the foundation using wedge anchor bolts. It is important to have an **“L”** clip wherever a bottom tube has a bolt connection. This includes all 40 and 40E door posts.

7. Installing the **20 posts** on shedrow barns should be done now. The posts are mounted to the foundation with (4) ½”x7” wedge anchors. This method will also be similar for Breezeway porches.

8. Attach the **door guides** to the outside base of the **“40”** and **“40E”** posts using the same bolt which is connecting it to the bottom tube. The door guide is **“U”** shaped with a hole on one side. (Note: For breezeway barns there will also be **aisle door guides**. They are also **“U”** shaped, 6” long and have two holes to allow them to be universal. They are installed as you enter the breezeway on the bottom right and left corners.)

9. Before the lumber is dropped between the channels to form the walls, place an **“H”** onto the center of the bottom tube of each stall wall. The **“H”** helps the bottom board of the stall wall to remain level and prevents bowing.

10. Insert the **lumber** into the channels in the posts with the groove side down and the tongue side up. Whenever possible, the 45-degree notch on the board should be to the exterior of the wall, and the flat portion of the board should be on the inside of the stalls. The post and tube layout will note how many pieces go in each wall. The lumber will need to be pulled down to ensure a tight fit. An “F” tool is provided with the barn to tighten the lumber. Place the “F” tool between the top tube and the top of the lumber and pull down until there are no gaps between boards.

11. For shedrow barns place **risers** on the framework over the stall fronts. The plate on the risers will support the hat perlines. The riser attaches to the piece of angle welded to the top of each post along the stall front. Use (2) 3/8”x3” bolts with a nut and washer. Be sure the washer is used, as the bolt protrudes thru the riser connection.

12. The roof structure for a breezeway barn works off of **trusses**. The end trusses have a decorative siding on them and are to be installed at either end of your barn with the siding to the exterior. The middle trusses do not have siding on them and are to be installed in the center of the barn. If a forklift was used to unload the truck upon delivery and is still available at the job site, it is easiest to use the forklift to lift the trusses into position above the posts. Align them with the piece of angle welded on top of the posts and bolt with (4) 3/8x3” bolts per truss and tighten nuts. Be sure a washer is used on the bolt as it protrudes through the truss connection. The nut of the bolt should be on the breezeway side of the truss.

13. Make sure the framework is completely square and level. It is suggested that straps be used to make sure the framework is completely plumb. Attach the straps from a high corner to a low corner on each stall wall as necessary and tighten until all posts are plumb. Upon plumbing the structure, tighten all of the bolts. Keep the straps on to ensure no future movement until later when the roof is completely installed, at that time the straps may be removed. With the straps still in place, drill through the ‘L’ bracket into the concrete with a 1/2” drill bit and install the expansion anchors.

14. For shedrow barns the **Z perlins** will be attached to the “**20” posts** for the overhang. The Z perlins will overlap each other 2” to make a stronger connection. Use the short pieces of Z perlin as extensions to extend out beyond the face of the framework for your barn the same distance as your roof overhang. For **breezeway roof extensions** (porches) using “20” posts, the connection is very similar to the description above for the shedrow overhang. It is helpful to clamp the Z perlins to the attached member before tek screwing.

15. For breezeway barns the **Z perlins** rest on the top of the 6” or 8” pieces of tube steel that are welded to the side of the trusses. Use (5) #14x $\frac{3}{4}$ ” tek screws to attach Z perlins to trusses. These Z perlins also overlap each other 2”.

16. **Snowload Z perlins** or intermediate Z perlins for tile roof barns must be set after the upper and lower Z perlins or hat perlins are installed. After the upper and lower perlins are set, then pull a string between these perlins to determine the final height of the intermediate perlins. After the string is run between the upper and lower perlins, you can install the intermediate perlins by letting the top of the perlins touch the bottom of the string. **DO NOT** simply rest intermediate Z perlins on the risers and expect the roofing to attach without dips or bumps. To ensure a flat, dip-free roof, a string must be used. This will also alleviate any problems caused from an unlevelled pad or deviation in the concrete. (Note: If you have a snowload, it is easier to install the filler panels before the roof is attached. This is the case for filler panels on the outside walls as well interior filler panels, see step #23.)

17. The hat perlin is placed on the riser plate at the roof peak over the stall fronts on the shedrow barn or over the center of the breezeway on a breezeway barn. It is helpful to clamp the hat perlins to the riser plate before tek screwing. Use (4) #14x1 $\frac{1}{2}$ ” tek screws at each connection. The hat perlin should extend beyond the face of the sides of the barn the same distance as your predetermined roof overhang.

18. The top of the **doors** has two nuts welded on the top. Insert a 7/16” x 3” bolt through the door **trolley** then thread into the nut at the top of the door. Lift the door and slide the door trolleys into the door track. Line the door staple up to the door latch and tek screw door latch to the barn framework with (4) #14x $\frac{3}{4}$ ” tek screws. After the doors have been hung, use (4) #14x1 $\frac{1}{2}$ ” tek screws on the underside of the door track, across from each other, to act as **doorstops** for the trolleys.

20. The drop ceiling consists of 4 different types of joist hangers. The joist hangers are mounted to the stall walls with #12 X 1¼" Phillips head screws at each joist bracket. The 4X4's sit in the joist hanger, and the ceiling material is mounted on top of the 4X4's with 8d X 2½" nails. (Note: The joist hangers must not be connected to the posts. They must be mounted below the notch in the post to allow the ceiling to shrink with the lumber in the walls. Drop ceilings must be installed prior to any roofing being placed.

21. Typically, each **roofing** sheet is 3' wide. The roofing lengths vary according to the barn style. The sheets attach to the brim of the hat perlin for metal roof barns (or on top of the hat for plywood roofs) and extend from the peak of the roof and run across to the rear tube of the stall on the shedrow barns. The breezeway barn roofing will run from the hat perlin to the Z perlin on the truss, then from the truss to the top tube on the back of the stall. The roofing will overhang the sides of the barn a designated length, as shown on the post and tube layout. The metal roof has a lap system. As you attach each new sheet it should overlap the last sheet one small ridge. Apply the roofing with the painted side up, white side down. Use the tek screws with the washers for all roofing material. Tek screw the roof at each "valley" that is supported by a tube or Z perlin and every foot at the seams where they overlap each other.

23. The **filler panels** should be installed after the roofing to assure a good fit. The filler panel brackets have predrilled holes and connect to the top tube of the stall and the adjacent risers. Upon completion of installation you will note that various areas of the structural framework paint have been rubbed off and/or nicked due to shipment and/or construction handling. This is normal and completely treatable. Castlebrook Barns has supplied touch-up paint with brushes contained within the hardware boxes. Simply lightly sand any a braised areas so that all loose paint, rust or dirt is removed and touch up the affected areas so that all raw steel is coated with the factory paint.

Thank you for choosing Castlebrook Barns. You have purchased a top quality barn, which will last for many years.