



Dressing Up a Roll-Up Door

Wooden “skins” add a classy touch to an insulated steel overhead door

by Gary Katz

I designed my new shop to look like an old horse barn, so that it would blend in with the rural area of southern Oregon where I now live. Since it’s colder here than where I used to live in California, I made sure the building was well-insulated, and even indulged in radiant slab floors to keep my toes warm. The shop also needed a 12-foot-wide by 9-foot-tall overhead door, but I couldn’t find an insulated one that was made of wood. The only roll-up unit

I could find with a decent R-value was made from steel and looked like something you’d see on a commercial building.

So I decided to build decorative carriage doors myself and apply them to an insulated steel roll-up door. My plan was to make four frame-and-panel style carriage doors using the same “Windswept” siding and trim material (tetonwest.com) I’d used for the shop. I’d glue and screw the doors to the steel roll-up panels, then

cut through them along each of the roll-up panels with a track-mounted saw.

Sizing the Carriage Doors

Before purchasing the door, I sketched out my design and met with the door-company staff to discuss my plans. We determined that modifications would have to be made to the mounting hardware to accommodate a 3¼-inch-thick door (standard track allows for a 2-inch-thick door). When they



Carriage Door Layout

delivered the roll-up panels, we reviewed the design again to make sure the installation would go smoothly after the carriage doors were applied.

To get started, I set the steel roll-up door on a heavy-duty set of sawhorses, aligning the five panels carefully and separating them from each other with pairs of 8d box nails. This would help ensure that the saw kerfs made when I cut through the wood carriage doors would close up tightly when the installed overhead door was in the closed position. Then I locked the steel door in place with blocks screwed to the horses so that the panels wouldn't move.

At 147 inches wide, the steel door panels were 3 inches wider than the inside dimension of the door jambs, which would help

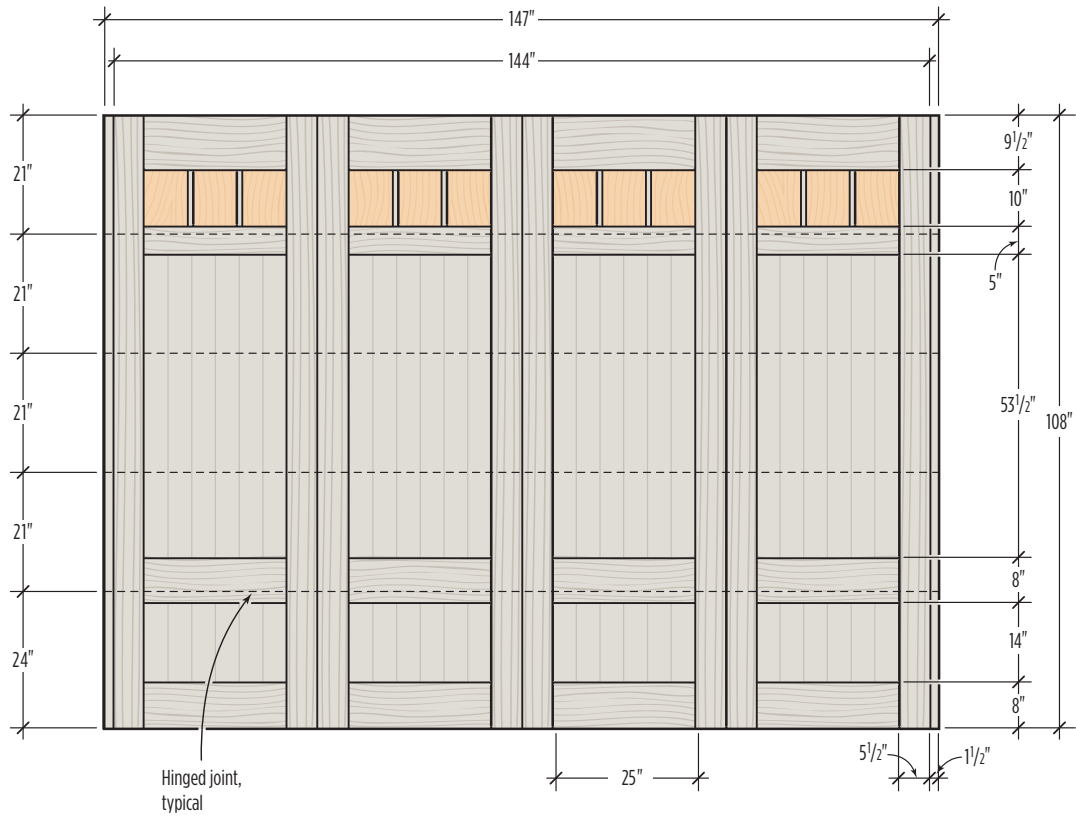


Figure 1. After locking the roll-up door's steel panels in place on saw horses, the author laid out the stiles and rails for the four identical carriage doors (photo, top), using his sketch (above) for reference. The dotted lines indicate where the author will cut through the assembled doors after they have been fastened to the steel panels.

them fit properly in their tracks. But I sized the carriage doors to fit the 144-inch-wide opening, so that the exposure on their door stiles would remain the same when the door was in the closed position, even on the two outer flanking doors (see **Figure 1**).

I laid out the carriage doors on the steel panels, subtracting 1½ inches from each side to account for the portion of the steel door that would be hidden by the jambs. Later, when I built the door, I added 1½-inch-wide rippings to the outside stiles on the two outside doors, knowing that the glue lines would be mostly hidden by the door jambs.

The door height was taller than the jambs, too. To maintain at least a 7-inch reveal on the top rails, I made them from 9½-inch-wide stock.

Panel Assembly

Once I'd determined the dimensions of each carriage door, I made the panels first, so I could glue them up and let them sit in clamps while I cut and assembled the stiles and rails. The siding is all 1-by shiplap, which doesn't make a very strong panel, so I ripped the rabbets off both sides of the panel boards and reinforced the glue joints with Festool Domino tenons (**Figure 2**). I also could have joined the boards together with dowels or biscuits, but Festool's Domino joinery system is quick and accurate, and well-suited for glue-ups like this.

Because I was installing so many tenons in a lot of boards, I made a story pole marked with the panel joints to speed up the layout and ensure that none of the tenons would land on the cut lines along the roll-up panels. I cut tight mortises for the tenons at each end of the boards, using the index pins on the Domino joiner to register the mortise locations so that the boards would be aligned flush with each other on both ends. To make it easier to assemble the panels, I cut the field mortises loosely, which allowed for some wiggle room.

Since the carriage doors would be



Figure 2. The author glued up the panels from shiplap siding, ripping the edge profile off glue joints and reinforcing them with Festool Domino tenons (left). Squeeze clamps pulled the glue-up tight to the bar clamps and helped keep the panels flat (below).



exposed to weather, I used an acid brush to thoroughly coat all the edges that were to be fastened together with a liberal amount of glue (even though the panels would get most of their strength from the Domino tenons). On this project, I used Titebond II rather than Titebond III wood glue. Titebond III is waterproof while Titebond II is only water-resistant — but I prefer it because it has a longer open time (titebond.com).

Frames

I ripped 5/4 stock to width for the stiles and rails, and again used Festool Domino joinery during assembly (**Figure 3, next page**). Since I was building multiple doors, I laid out the parts with the help of a story pole to make sure all the pieces would

fit precisely. This made the parts interchangeable, too, so I could match grain or finishes during assembly. I first marked the mortise locations on the stiles, then transferred those marks to the rails.

To cut the center mortises in the rails, I aligned the layout lines with the center mark on the Domino. To cut the mortises near the edge of the rails, I used the first index pin, placing the mortises 20 mm from the edge of the board. To cut the corresponding mortises in the stiles, I used the 20-mm offset mark on the Domino.

Laying out and cutting the mortises this way doesn't take very long, and the system is so accurate I didn't even take the time to test the joinery with a dry-fit. I glued up the mortises first, using the acid brush to coat the entire cavity. I also made sure



Figure 3. The author used 5/4-inch stock for the frames, and assembled the stiles and rails with Domino tenons (far left). The panels fit into 1/2-inch by 1/2-inch rabbets routed in the frames (left). Muntins at the top of the doors give the upper panes the look of divided lights (below).



Figure 4. The panel edges were profiled with a raised panel cutter mounted on a router table (above). While fastening the panels to the frames, the author used his story pole to avoid placing screws where the doors would be cut (above right). The upper panels were made of Douglas fir, which the author stained before installation (right).



Figure 5. Once the carriage doors were assembled, the author spread construction adhesive on the steel door panels (left), then clamped the carriage doors in place (below). Dozens of 3-inch self-tapping coated screws driven through the backs of the roll-up panels into the stiles and rails of the carriage doors join the wood and steel door sections together.

all the end grain was painted thoroughly with glue, so it wouldn't wick moisture and swell up and potentially rot. Clamping one stile to my workbench made it easy to insert the 12-mm-by-100-mm tenons, assemble the frames, and then smack the stiles and rails together with a mallet.

I left the four frames in bar clamps overnight, then went at each opening with a router and rabbeting bit the next day. I cut a 1/2-inch-deep by 1/2-inch-wide rabbet to accept the panels, squaring up the corners with a sharp chisel.

Next I sealed all the bare wood and installed the muntin bars for the top panels. I re-sawed the muntins so that they'd be flush to the face of the door and flush with the rabbet, then fastened them in place with pocket screws.

Installing the Panels

With all the routing done in the door frames, I was ready to cut and install the panels. But before starting, I checked the moisture content of the panels and the stiles and rails. Since the panels were fairly dry at about 8% MC, I knew they would expand about 1/8 inch in width once the doors were installed outside and reached about 12% MC. Meanwhile, the stiles and rails were already at 11% MC, so I knew they wouldn't swell much at all. When I cut the panels to size, I measured from the top of each rabbet and subtracted 3/8 inch, adding a little extra for swelling



Figure 6. The author cut through the carriage doors using a track-mounted saw for accuracy (above). The blade was set with a slight 2-degree bevel for drainage (left).



Figure 7. The door company used special track-mounting hardware to accommodate the $3\frac{1}{4}$ -inch-thick door (above). Each of the five roll-up panels weighs 120 pounds (above right), but the assembled door (right) is easily operated by one person, thanks to the commercial-style coil spring counter-weight mechanism.

and wiggle room; after all, $\frac{1}{2}$ -inch-wide rabbets are pretty forgiving.

Next I ran the panels through a Shaker-style raised-panel bit mounted in my router table, which both rabbeted the outer edges of the $\frac{3}{4}$ -inch-thick panels and cut a bevel around the inner edge of each rabbet (**Figure 4, page 68**). I made the panels for the upper “lights” exactly the same way, except with Douglas fir, then mounted all the panels into the backs of the carriage doors. The rabbeted panels lay flat and flush with the rabbeted doors.

A few screws is all it took to secure the panels. To make sure I didn’t hit a case-hardened screw while cutting through the carriage doors, I kept my story pole handy while driving those screws. After

flipping the doors over, I cleaned off any glue squeeze-out with a scraper.

Installing the Carriage Doors

After all the careful layout and woodwork, the rest of the job was pretty easy. For each carriage door, I applied about two tubes of PL Premium Advanced construction adhesive to the front of the steel door panel (**Figure 5, previous page**). Then I set the wooden doors down in the wet adhesive and positioned clamps wherever I could. Once all the doors were in place, I crawled around under the sawhorses (thanking myself for using tall ones) and drove a few hundred 3-inch self-tapping coated screws through the backs of the roll-up panels into the stiles and rails of

the carriage doors. In a few places, where a roll-up panel broke across the $\frac{3}{4}$ -inch wooden panel, I used shorter screws.

I let the adhesive dry for two days before cutting through the doors (**Figure 6, previous page**). I set the saw at a 2-degree bevel so that the panel edges would shed water. I positioned the guide rail by eye, centering each kerf in the space between the roll-up panels. The rest of the job was even easier. The door company came out and installed the track and door, then adjusted the commercial-style coiled spring until the 600-pound assembly slid weightlessly (**Figure 7**). I don’t even need an opener to operate it.

Gary Katz is a presenter at JLC Live and a frequent contributor to JLC.