



A sturdy base, good-quality casters and a customized storage rack are the keys to building a shop cart that will serve you well.

Shop Cart

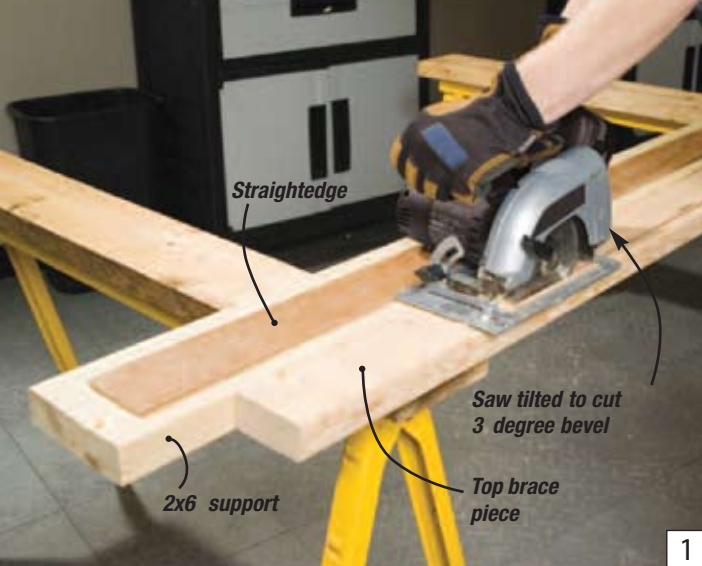
Keep materials organized and out of the way, yet easy to reach

BY DAN CARY

When you think of fun woodworking projects, a shop storage cart probably isn't at the top of the list. After all, it doesn't offer the same kind of payoff as building a piece of fine furniture or a toy for your grandchild. But this investment in your shop will help to maximize storage and minimize the time you spend sorting and moving materials, so you'll have more time for the projects that do top your list. One note of caution: Projects that improve your shop are worthwhile investments of your time, but it's easy to get carried away. If you spend too much time upgrading and tweaking your shop, you probably aren't producing many finished projects.

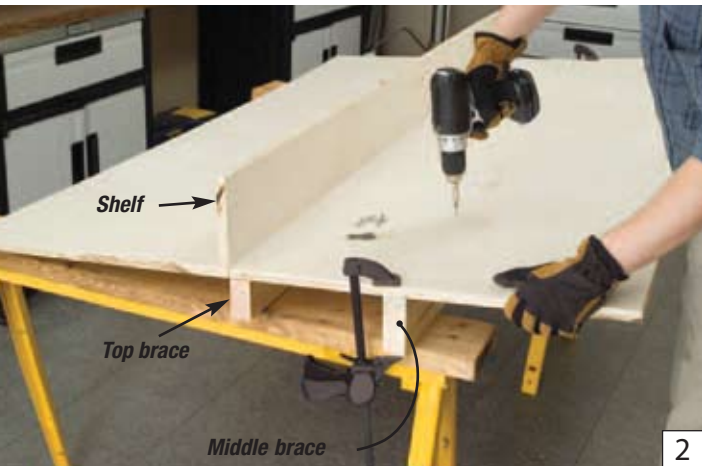
Because work carts are subject to abuse and are less refined than interior furniture, they tend to be faster to build. That's not a license to be sloppy, but it does mean easier-to-construct joints

PHOTOS BY SCOTT JACOBSON



1

If you use a circular saw to rip the three brace pieces, secure each piece to sawhorses or to a work surface, keeping the screws clear of the cut line. Use a scrap 2x6 for additional support and as a surface to attach a straightedge.



2

Attach the shelf, top brace and middle brace to one of the vertical panels with 2-in. screws. Be careful to correctly position the beveled edge on each piece.



3

Attach the end gussets to the vertical panels and shelf with 2-in. screws.

and less finish work. A beginning woodworker can build this cart with a table saw or circular saw and a drill/driver. Depending on the material you choose, it should cost between \$150 and \$200.

Design

I intentionally limited the size and storage capabilities of this cart. I designed it for a small garage shop, where it can fit against a wall and still leave room for cars. Even if you have a larger space, I don't recommend increasing the size; large carts are harder to maneuver and can be too heavy to push when fully loaded. Instead, if you have the space, use a small cart to move materials and a large stationary lumber rack for storage.

If you've ever struggled to push a cart with undersize casters or a weak base, you understand the importance of these components. The base must be rigid, so I mounted a sheet of 3/4-in. plywood on double 2x4s on the long side and 2x6s on the ends. The 2x6s provide ample surface area to mount the casters.

In general, a caster with a larger diameter and a higher weight rating will operate more smoothly because it will roll over obstructions more easily and feature better components. A shop cart should use casters that are at least 4 in. dia. and rated for more weight than you plan to haul. I chose 5-in.-dia. swivel casters (see SOURCES ONLINE) that are each rated for 595 pounds, making the total capacity of the four casters just over 2,000 pounds. I used four swivel casters so the cart can move in all directions. If you plan to push the cart in one direction, such as down a hallway or driveway, use a combination of fixed and swivel casters (see "Caster Options," p. 10).

The storage rack design depends on the types of material that you plan to store or haul. Modify the rack and create your own storage features to suit your shop demands. My design is intended for general small shop use. I built a triangular central tower that is similar to a torsion box to support the other storage components. The sides of the tower tilt inward about 3 degrees to help the materials lean inward and improve stability. One side of the tower is left open for sheet goods, and the other side features adjustable heavy-duty shelf brackets for long boards, bins for small scraps and a shelf for miscellaneous materials or tools.

Construction

Begin construction by assembling the base. Attach the side rails and end rails to the base panel with glue and 2- and 3-in. screws.

SHOPPING LIST

- 3/4-in. x 4x8 plywood sheets (3)
- 2x6 x 8-ft. boards (3)
- 2x4 x 8-ft. boards (4)
- 5-in. swivel casters (4; see SOURCES ONLINE)
- 24-in. shelf standards and brackets (see SOURCES ONLINE)
- 3/8-in.-dia. x 2-1/2-in. lag screws (22)
- 3/8-in. flat washers (22)
- 5/16 x 2-in. lag screws (4)
- 5/16 x 4-in. lag screws (4)
- 5/16-in. flat washers (8)
- 1-1/4-in. galvanized screws
- 2-in. galvanized deck screws
- 3-in. galvanized deck screws
- 7 x 72-in. plastic-laminate scrap (1; optional)

SHOP CART

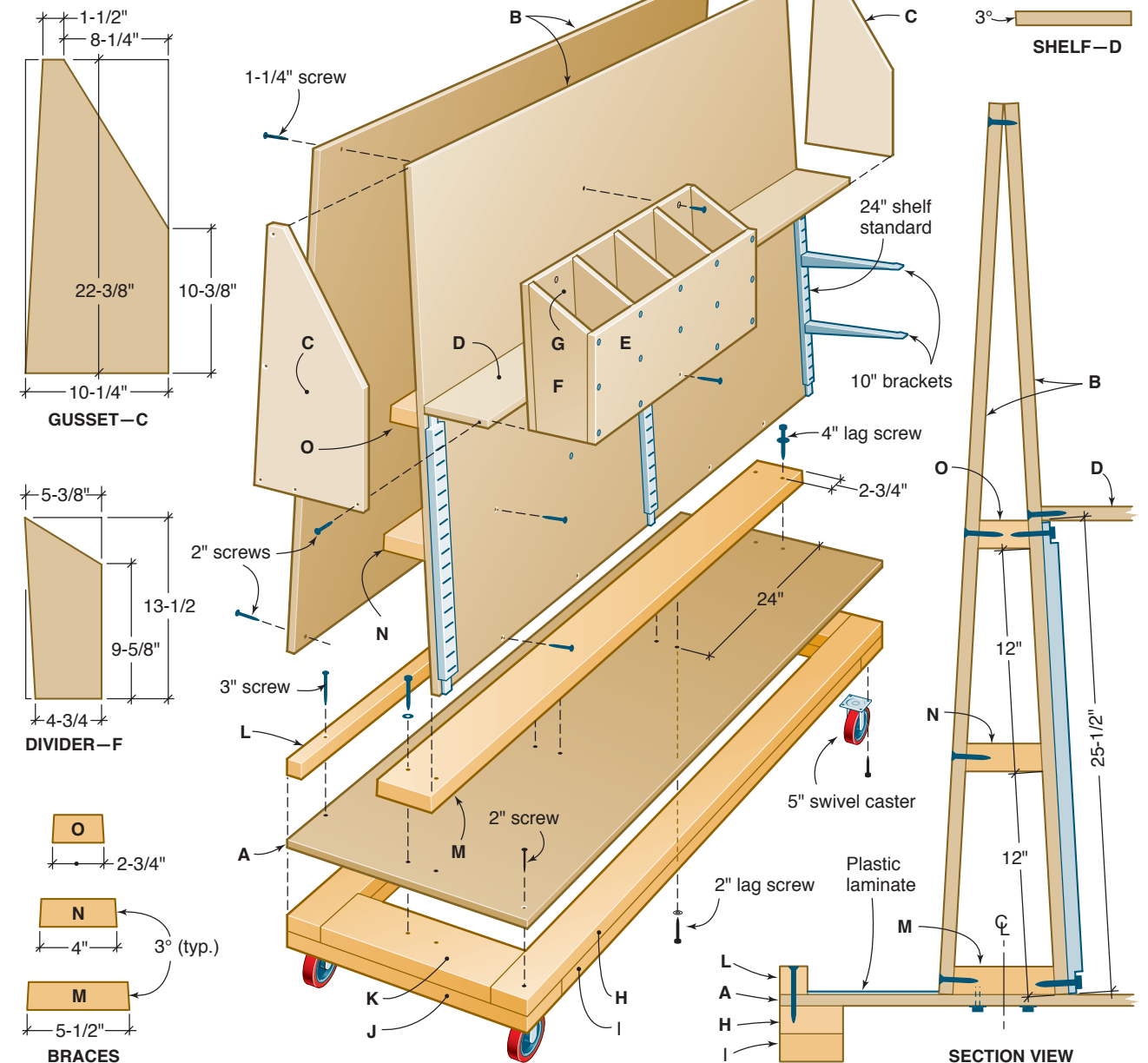
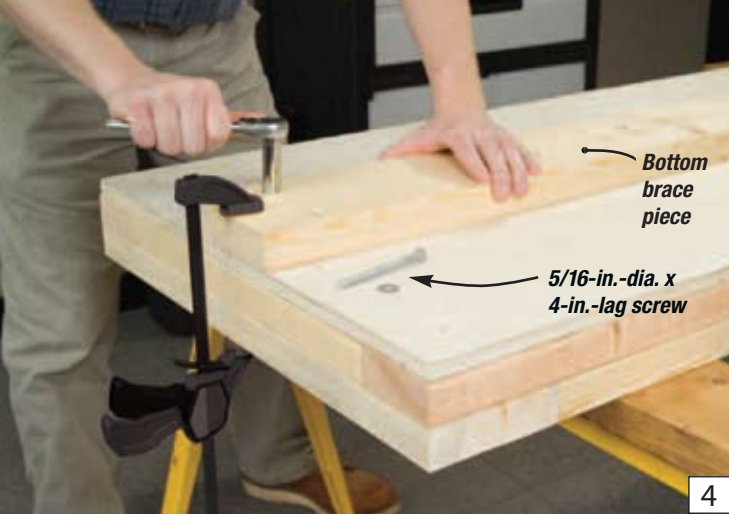


ILLUSTRATION BY GABRIEL GRAPHICS

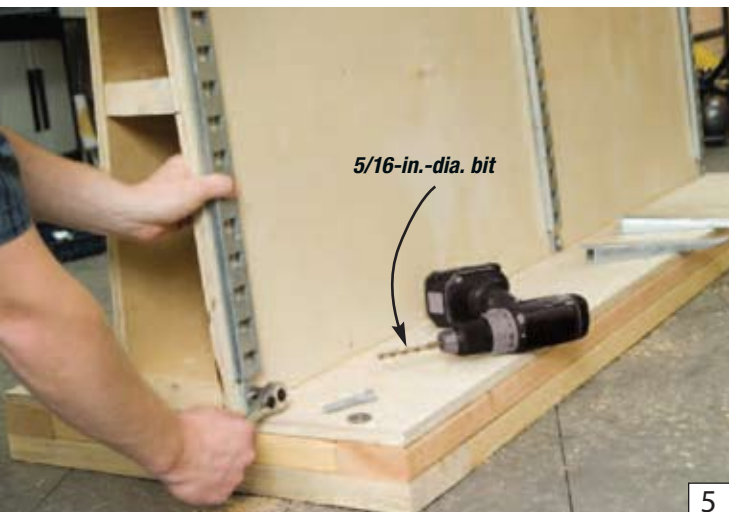
KEY	NO.	DESCRIPTION	SIZE
3/4-in. plywood			
A	1	Base panel	3/4 x 24 x 72 in.
B	2	Vertical panels	3/4 x 48 x 72 in.
C	2	End gussets	3/4 x 10-1/4 x 22-3/8 in.
D	1	Shelf	3/4 x 6-1/16 x 72 in.
E	1	Bin front	3/4 x 9-5/8 x 29 in.
F	5	Bin dividers	3/4 x 5-3/8 x 13-1/2 in.
G	1	Bin back	3/4 x 13 x 29 in.

MATERIALS AND CUTTING LIST

KEY	NO.	DESCRIPTION	SIZE
2x4 and 2x6 framing lumber			
H	2	Long side rails	1-1/2 x 3-1/2 x 72 in.
I	2	Short side rails	1-1/2 x 3-1/2 x 61 in.
J	2	Long end rails	1-1/2 x 5-1/2 x 24 in.
K	2	Short end rails	1-1/2 x 5-1/2 x 17 in.
L	1	Sheet-goods rail	1-1/2 x 1-1/2 x 72 in.
M	1	Bottom brace	1-1/2 x 5-1/2 x 72 in.
N	1	Middle brace	1-1/2 x 4 x 72 in.
O	1	Top brace	1-1/2 x 2-13/16 x 72 in.



Attach the bottom brace to the base panel. Drive four 2-in. lag screws through the bottom of the base panel, and drive four 4-in. lag screws through the top of the bottom brace near the ends.



These heavy-duty shelf brackets are designed to hold lumber. Drill 5/16-in.-dia. x 2-1/2-in.-deep pilot holes and fasten the shelf-bracket standards with 3/8-in.-dia. x 2-1/2-in. lag screws.

Then attach the sheet-goods rail with 3-in. screws.

Next, assemble the storage rack with 2-in. screws. It is important to assemble the parts in sequence or you may not be able to access all of the necessary screw locations. Drill 1/8-in.-dia. x 2-in.-deep countersunk pilot holes before driving each screw to avoid separating the plywood layers.

It is easier to use a table saw to rip the beveled edge on the shelf and brace pieces, but you can also use a circular saw (photo 1, p. 8). Position the shelf on one of the vertical panels with the shelf's beveled edge against the panel. Make sure the bevel is oriented so that the shelf will be level when the cart is assembled. Attach the shelf with screws; then attach the top and middle braces to the inside face of the same vertical panel, again making sure the bevels are oriented correctly (photo 2). Next, attach the second vertical panel to the top and middle braces.

Use Detail C in the drawing, p. 9, to lay out the end gussets. Cut out the gussets and then attach them to the vertical panels and top brace (photo 3).

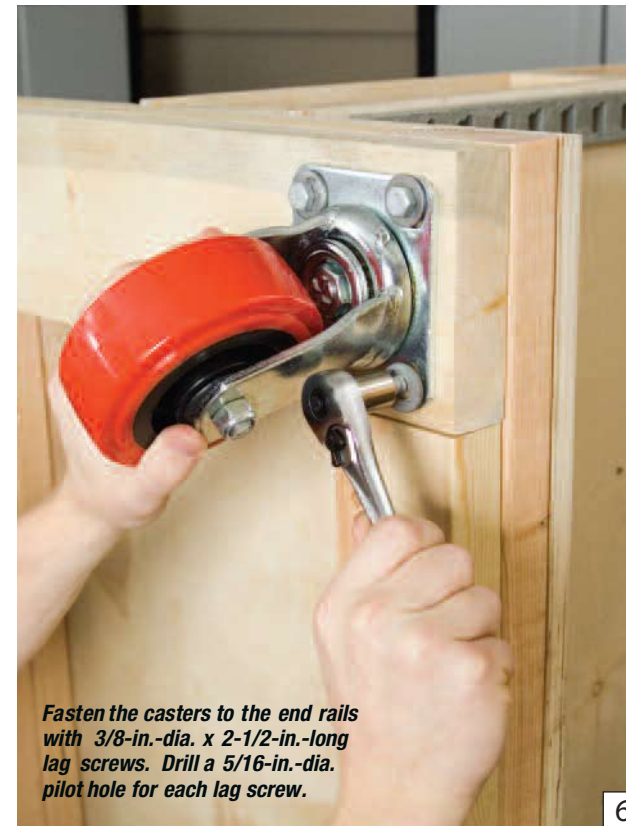
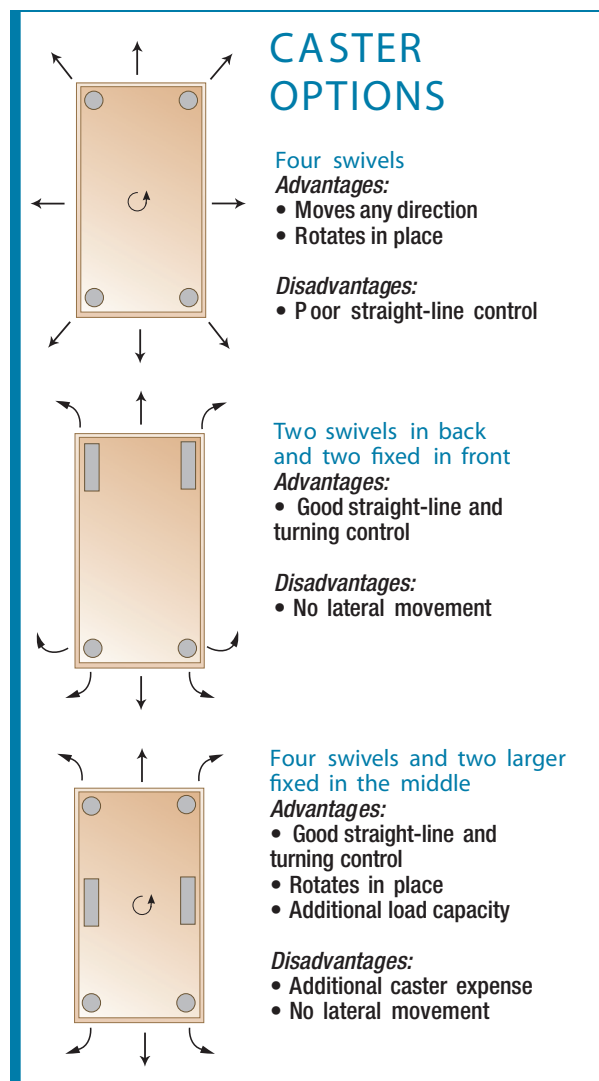
The small scrap bin is built separately so that it can be positioned anywhere along the shelf or removed. Use Detail F to lay out the bin dividers. Cut out the dividers and then attach them to

the bin back and bin front. Position the bin on the shelf and attach it by driving a few 1-1/4-in. screws through the bin back and up through the bottom of the shelf.

The bottom brace connects the storage rack to the base panel. Clamp the bottom brace to the base panel and attach it by driving two pairs of 5/16-in.-dia. x 2-in. lag screws through the bottom of the base panel into the bottom brace. Then drive two pairs of 5/16-in.-dia. x 4-in. lag screws through the top of the bottom brace (photo 4, left). Locate these holes 2-3/4 in. from each end of the bottom brace. Drill a 1/4-in.-dia. pilot hole for each lag screw. I chose not to reinforce this joint with glue because I wanted to have the option to remove the storage rack and modify the cart in the future.

Place the base on the floor and fit the storage rack over the bottom brace. Attach the storage rack to the base with 3-in. screws driven every 12 in. along the bottom of the vertical panels.

To make it easier to slide sheet goods on and off of the cart, I attached a piece of plastic laminate to the base panel on the sheet-goods side of the cart. (You shouldn't need to purchase a full sheet of laminate to cover this small area;



Fasten the casters to the end rails with 3/8-in.-dia. x 2-1/2-in.-long lag screws. Drill a 5/16-in.-dia. pilot hole for each lag screw.

laminated distributors and cabinet shops often give away waste or damaged scraps that can't be used for a finished surface.) Attach the laminate to the base with contact cement.

Fasten the shelf-bracket standards to the vertical panel with 3/8-in.-dia. x 2-1/2-in. lag screws. The top and bottom braces are positioned behind the vertical panel to provide solid material to anchor the lag screws (photo 5).

The final step is to fasten the casters to the base. Hold each caster in position and mark the fastener hole locations. Drill pilot holes and fasten the casters with lag screws and washers (photo 6, left).

Once the cart is assembled, all that's left is load it up. Although it can greatly enhance your organization and productivity, it only works if you stock and maintain it carefully. Place the largest and heaviest boards on the lowest brackets to aid stability and avoid burying smaller stock. If the cart becomes overloaded with materials, give away or discard the excess — or better yet, build more projects to use it up. ♦

SOURCES ONLINE

For online information, go to www.HandymanClub.com and click on SOURCES ONLINE.

Lee Valley Tools Ltd. (2-4-in. wall straps, No. 17K2.0.02, and 10-in. shelf brackets, No. 17K2.0.05), www.leevalley.com, 800-8 71-815 8

Northern Tool and Equipment (5-in. swivel casters, No. 1893.43) www.northerntool.com, 800-2 21-05 16