Graduated Drawers

A little arithmetic is all it takes to enliven the proportions and increase the utility of a case, a cabinet or a built-in

BY CHRIS BECKSVOORT

A CASE WITH AN EVEN NUMBER OF DRAWERS

The formulas for the example here—a four-drawer chest with 1-in. graduations—can be used for any chest with an even number of drawers.

To get the usable drawer height, subtract the dimensions of the top (1½ in.), base (5¼ in.), and drawer dividers (3 x ¾ in. = 2¼ in.) from the chest's total height (36 in.):

$$36 - (\mathbf{1\tfrac{1}{2}} + \mathbf{5\tfrac{1}{4}} + \mathbf{2\tfrac{1}{4}}) = 27$$

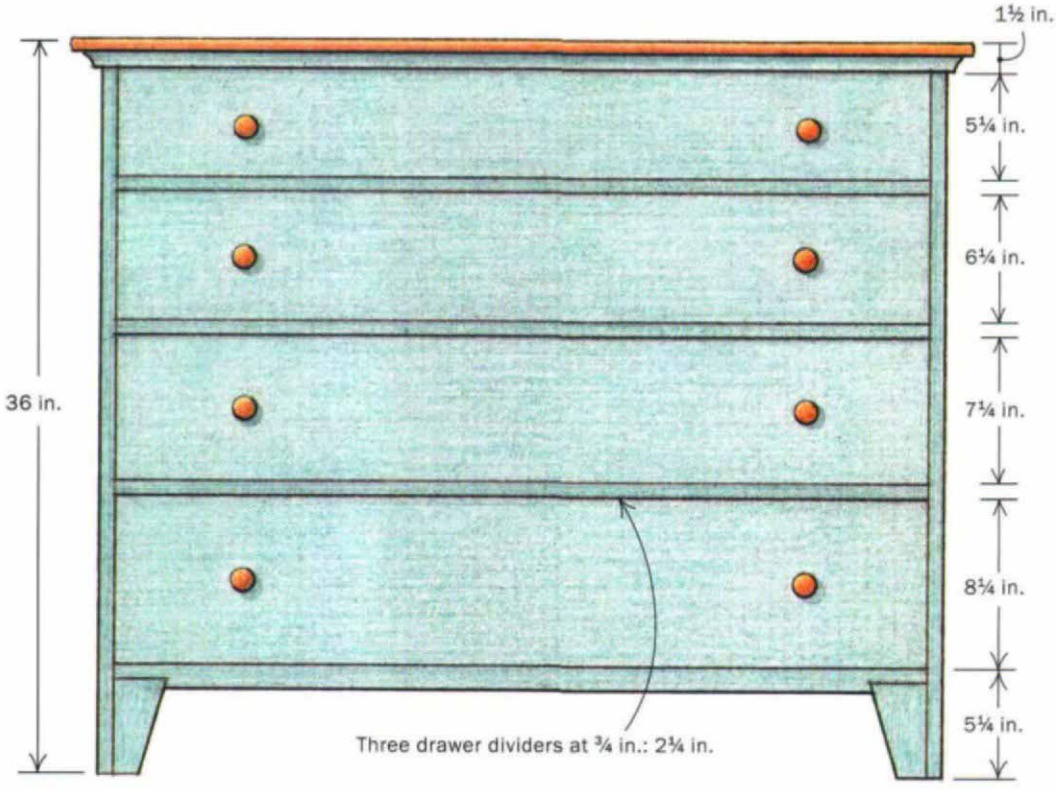
To find the average drawer height, divide the usable drawer height (27 in.) by the number of drawers (4):

$$\mathbf{27 \div 4 = 6\tfrac{3}{4}}$$

To find the height of the drawer below the middle divider, add one-half the graduation increment—½ in.—to the average drawer height (6¾ in.):

$$\mathbf{\tfrac{1}{2} + 6\tfrac{3}{4} = 7\tfrac{1}{4}}$$

Add 1 in. to the drawer height below and subtract 1 in. from the two above.



The Shakers were among the primary proponents (and practitioners) of graduated drawers, although there are lots of cases—Chippendale, Federal and Queen Anne—that have graduated drawers. Under the dictum "a place for everything and everything in its place," the Shakers built drawers to house specific items. There is no reason for a drawer that will hold cassette tapes to be as deep as one that holds CDs, or for your underwear drawer to be as high as your sweater drawer.

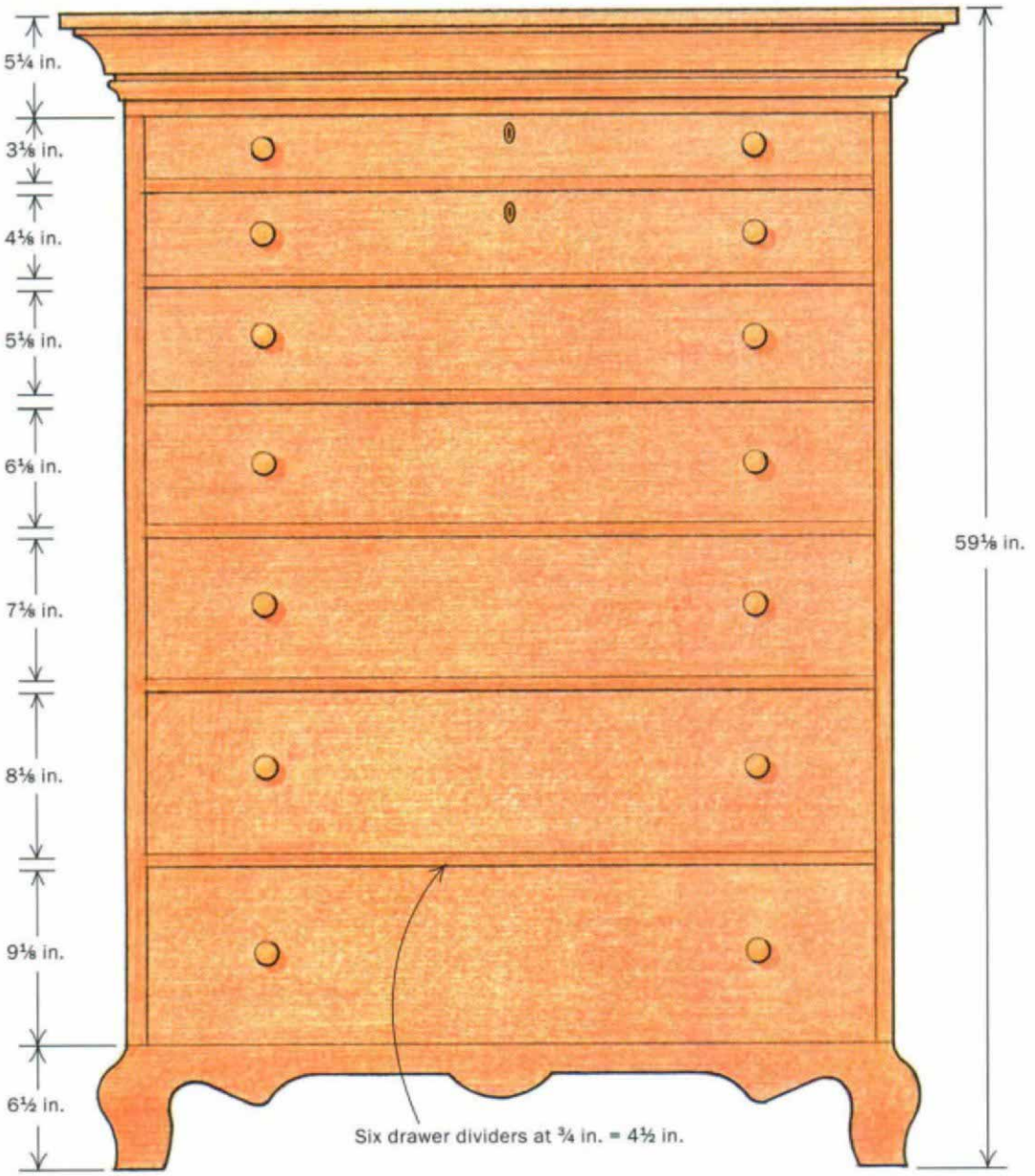
Also, I never build solid wood drawers much more than 9 in. high. Because of seasonal wood movement, anything higher will leave too wide a gap in midwinter (even with overlay drawers), and the drawer could bind in summer.

Another consideration is overall proportion. Small drawers in desks or in a collector's cabinet may graduate in only ¼-in. to ⅝-in. increments. In bureaus used for clothing, on the other hand, the drawers can be graduated in ¾-in. or 1-in. increments. If you are a stickler for detail, you may also want to consider graduating the size of the knobs or drawer pulls as well.

Find the usable drawer height, then figure the average drawer height

Once you know the height of the case and the number of drawers in the case, laying out graduated drawers is straightforward. To get the available drawer space, subtract from the total height the dimensions of the top, bottom and all of the dividers. The number of dividers in a case will always be one less than the number of drawers: e.g., a five-drawer case will have four dividers. Dividing the available drawer space by the number of drawers will give you the average drawer height. Regardless of whether you're building a case with an odd number or even number of drawers, the average drawer height is the most important dimension.

If you have an odd number of drawers, the middle drawer will



A CASE **WITH AN ODD NUMBER OF DRAWERS**

A case with an odd number of drawers has a middle drawer with an equal number of drawers above and below it. The method of determining the average drawer height is the same as for a case with an even number of drawers. The formulas for the example here—a seven-drawer chest with 1-in. graduations—can be used for any chest with an odd number of drawers.

To get the usable drawer height, subtract the dimensions of the top (5¼ in.), base (6½ in.) and drawer dividers (6 × ¾ in. = 4½ in.) from the chest's total height (59⅛ in.):

59⅛ – (5¼ + 6½ +4½) = 42⅞

To find the average drawer height, divide the usable drawer height (42⅞ in.) by the number of drawers (7):

42⅞ ÷ 7 = 6⅛

For the drawers below the middle drawer, increase the drawer heights in 1-in. increments. For the drawers above the middle drawer, decrease the drawer heights in 1-in. increments.

be equal to the average drawer height. For the drawers above, simply subtract the amount by which you want the drawers to get smaller—the graduation interval—and add this amount to the drawers below the middle one.

When figuring drawer graduations for a case with an even number of drawers, you still need to find the amount of available drawer space and calculate the average drawer height. However, there will be no average-height drawer in the case when you are through; the average drawer height is just the starting point in your calculations. Determine an average drawer height, then add or subtract one-half the graduation increment to or from that average height to get started. Then proceed by full graduations.

Always remember that you have some flexibility. If needed, you can add a fraction of an inch to the top molding or remove a fraction of an inch from the base to make the numbers work in a simple way (making your life a lot easier) without compromising the chest. You probably can't change the dimensions of your dividers, though, which have to be a specific size if they are to fit into dovetails or dadoes cut with a standard router bit.

The illustrations above are examples of how to graduate the drawers for a case with an even number of drawers and for one with an odd number of drawers. Here's an important thing to keep in mind: You can graduate drawers by any increment—1 in., 2 in., 3 in., even fractional inches—as long as you subtract the increment from the drawers above the average-height drawer and add the increment to the same number of drawers below the average-height drawer. The formulas can be used for any number of drawers, from the smallest case with three drawers to a floor-to-ceiling built-in with 16. □

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Drawings: Vince Babak