

# A TV Complicates

Tips on trim details and new design tools from a big project

BY GARY M. KATZ

**B**uilding a mantelpiece—a simple one or an elaborate one—is a lot like building a house. A carpenter must visualize each layer from the foundation to the roof, or from the hearth to the attic entablature. One mistake in the shop or during installation can cost hours of additional labor and hundreds of dollars in lost material. The double mantel featured here demonstrates planning and construction techniques common to nearly every project I tackle, but it also illustrates what can go wrong. Here, we made false assumptions about the framing modifications necessary to install the big television and paid for it later.

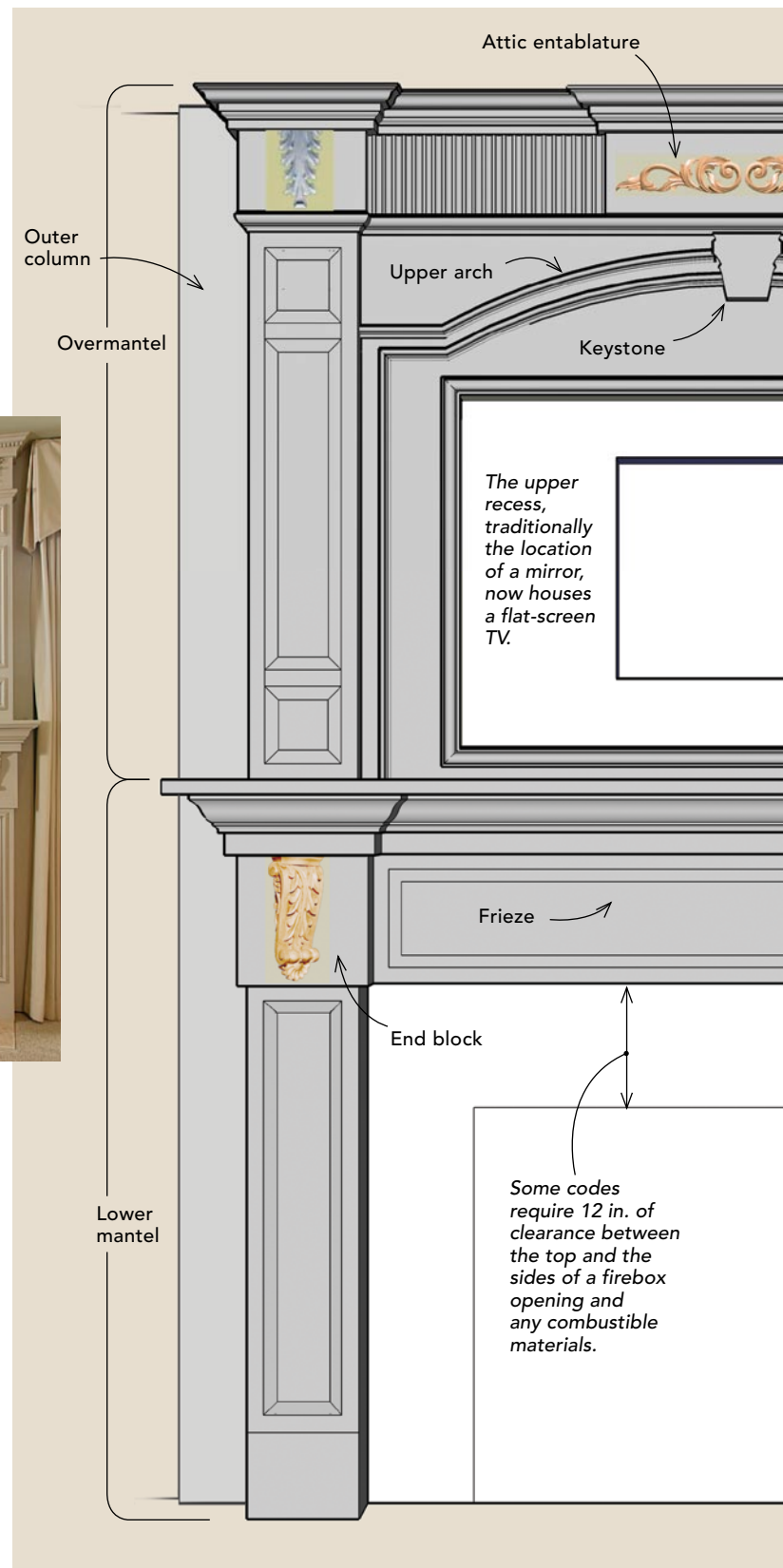
For years, I beat myself up every time I assembled two legs of casing instead of a leg and a head. Now I've learned to develop an attitude of forgiveness: After making every effort possible to prepare for the job, I forgive myself for any mistakes I'm about to commit, then start my saw. The problems and mistakes I encountered while installing this surround were common to the ones I encounter on nearly every job these days. I'll point out those problems and mistakes in case you miss them.

One mistake I don't make anymore is starting a project—even a simple bookcase—without a drawing. The drawing for this mantelpiece allowed me to organize the job into sections, moving one piece at a time, and provided me with the confidence that each finished piece of the puzzle would fit together perfectly in the end.

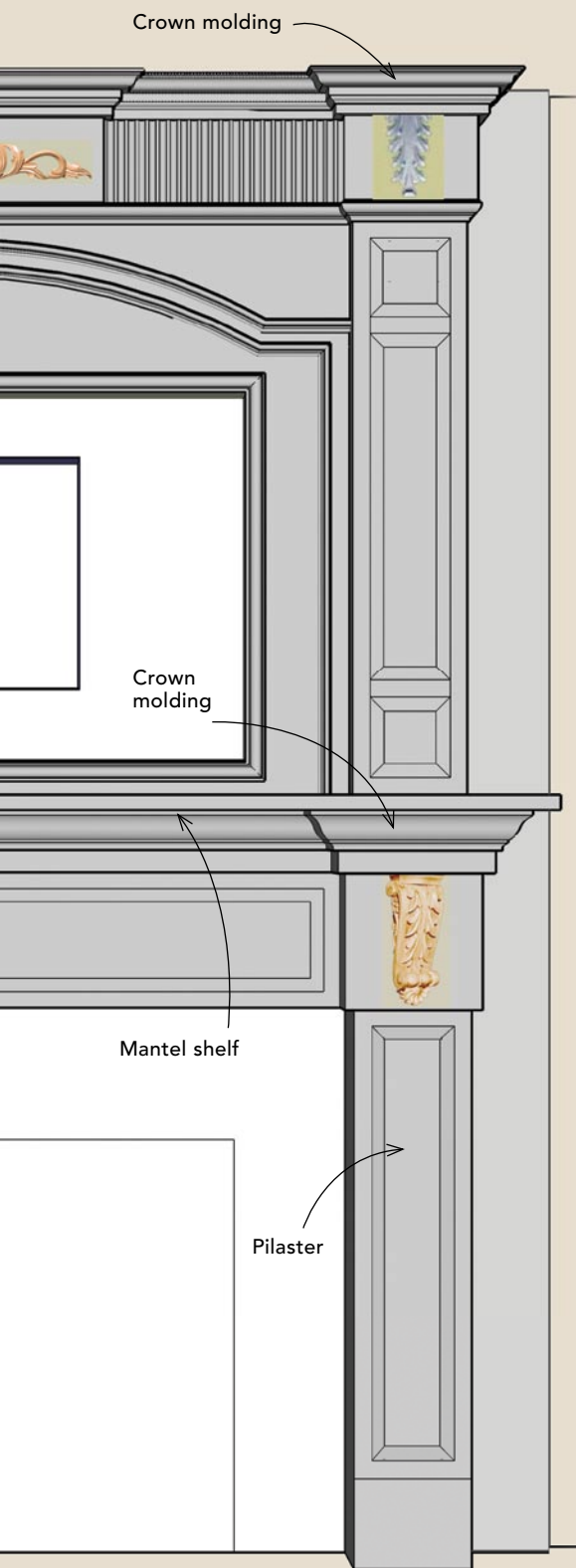
Contributing editor Gary M. Katz ([www.garymkatz.com](http://www.garymkatz.com)) lives in Reseda, Calif. Photos and drawings by the author.

**FineHomebuilding.com**

Want to see more? Check out **3-D animation** of Gary M. Katz's mantel drawings.



# the Mantelpiece



## Google's SketchUp comes to the rescue as a job-site design tool

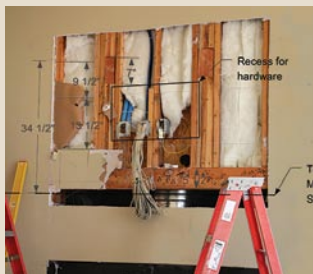


Photo imported into SketchUp

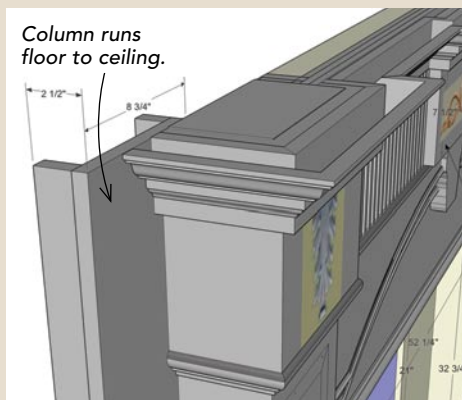
The plans for this home included an elevation drawing of the mantelpiece with a few dimensions, but no details. I used a software program called SketchUp to draw the mantel. A user-friendly program, SketchUp is available as a free download (<http://sketchup.google.com/download.html>). The program has a slight learning curve, but after two or three days and a few trips to the SketchUp forum, most new users will be old hands.

The building plans for this project called for a framed niche for the flat-screen television above the fireplace. When we opened the wall to install the header, we discovered structural framing that supported the exterior chimney; it couldn't be moved. I took a few photographs, then went home to ponder a solution. SketchUp made it easy. I resized one of the photographs to fit my computer screen and resolution, then imported the photograph into a SketchUp drawing (photo above). Using the Scale tool, I was able to adjust the drawing by tracing over a 4x6 header, which I knew was 5½ in. tall. From there, designing a new niche for the flat-screen hardware was easy, and I didn't need to go back to the job site for field measurements.



### One drawing, multiple views

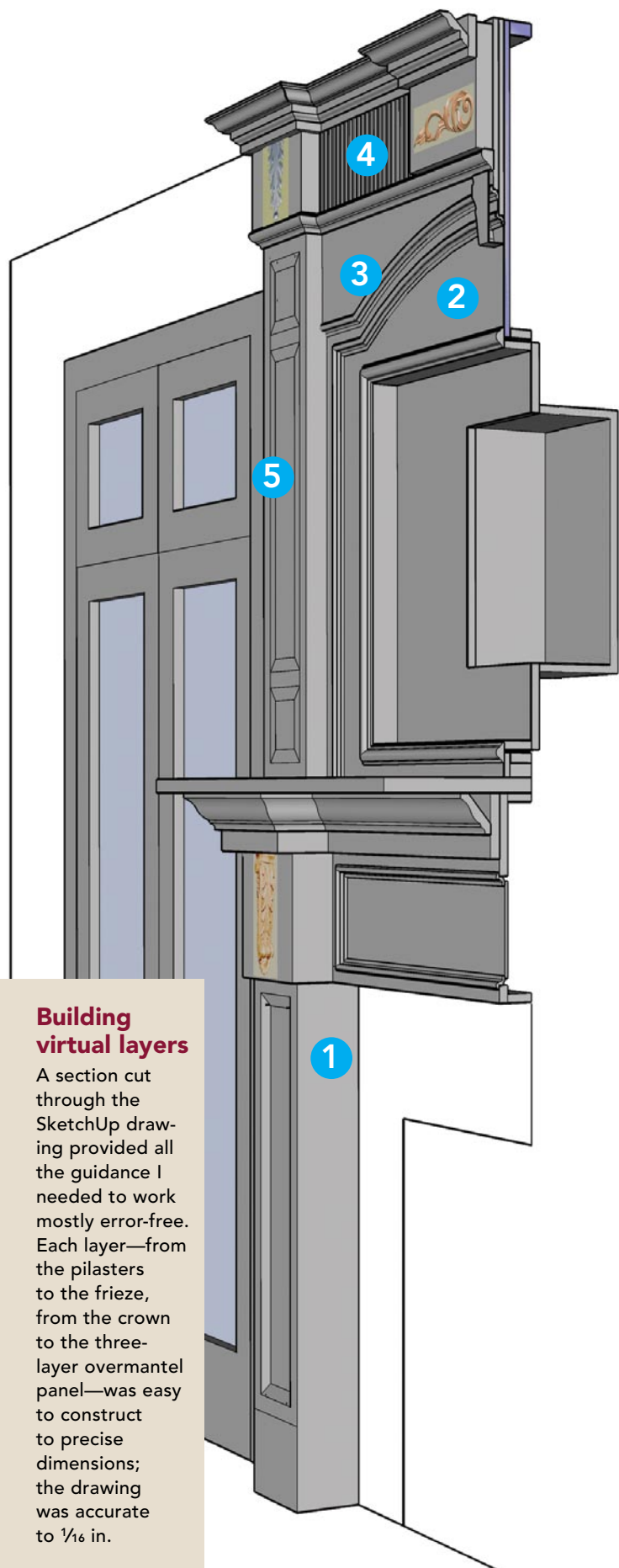
In SketchUp, you create one drawing, then rotate it to see other views (from the back, the top, the sides, etc.). Once I discovered the framing problems, I was able to draw outer columns on each side of the surround that increased the clearance for the television by 2½ in.



### Code and proportion affect the design

The original plans provided a rough idea of design and proportion, but code requirements pushed the mantel shelf higher than I would have liked and pressed the pilasters close to the flanking door casing. Proportions on a mantel are fairly simple to gauge: The lower pilasters should look as if they're supporting a reasonable amount of weight. To lighten the look of the lower entablature, I recessed the frieze and broke the crown molding around the end blocks. The overmantel size was determined by the television dimensions. To make everything fit, I squeezed the upper arches and the keystone right against the attic entablature. Not only did the three-dimensional drawing provide shop dimensions, but it also ensured that all the proportions were acceptable to everyone involved, especially the homeowner and the general contractor.

## LEG AND HEADER SUBASSEMBLIES ARE BUILT IN THE SHOP



### Building virtual layers

A section cut through the SketchUp drawing provided all the guidance I needed to work mostly error-free. Each layer—from the pilasters to the frieze, from the crown to the three-layer overmantel panel—was easy to construct to precise dimensions; the drawing was accurate to  $\frac{1}{16}$  in.



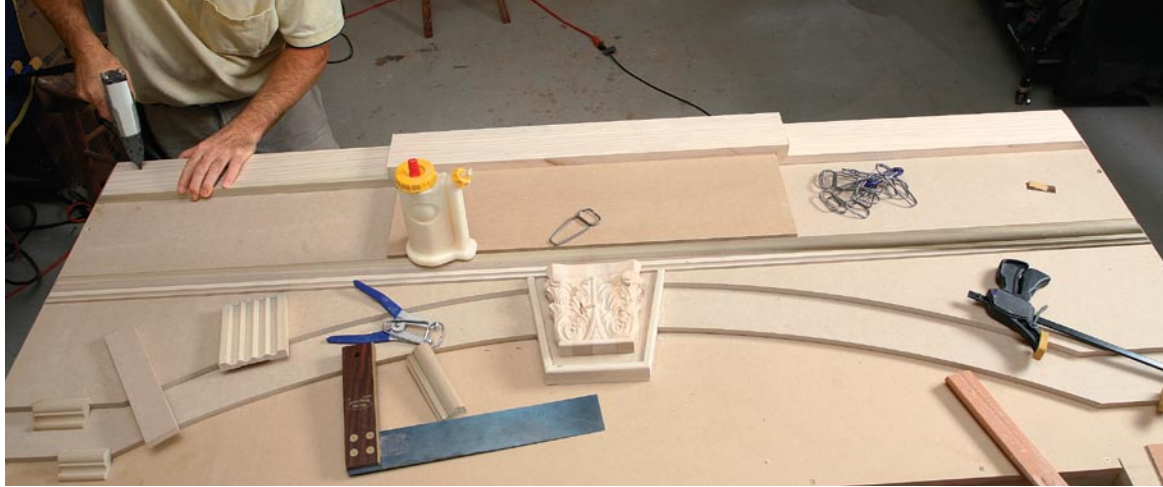
### Pocket screws are the majority fastener

Pilaster sides **1** were fastened to their face frames with butt joints reinforced with pocket screws and glue. My crew and I clamped everything to a worktable during assembly so that one carpenter could work efficiently. We've discovered that as pocket screws are driven in, they tend to push the workpiece beyond its intended location. We now leave the face frames proud of the sides by a fingernail's thickness, then use a laminate trimmer and a flush-trim bit to even the joints after the glue has dried.



### Make MDF the foundation of the overmantel

I cut the basic shape (the first layer) of the overmantel **2** from a sheet of  $\frac{1}{2}$ -in. medium-density fiberboard (MDF), using a plunge-cutting saw and guide. The center panel was taller than 48 in. and more than 6 ft. wide, so I used biscuits to splice an additional piece to the top. Both panels were nailed and glued to a 2-in.-deep frame. To create the layered arches **3**, I added two more pieces of  $\frac{1}{2}$ -in. MDF. A long scrap served as a trammel arm, allowing me to scribe two arches that I then cut with a jigsaw. The arches were faired with a random-orbit sander. One mistake I made was cutting both arches the same radius. Fortunately, I caught the error before permanently attaching those layers.



### Modify existing profiles for a custom look

To create the wide fluted sections on each side of the ornamental scrolls [4](#), I ripped flat profiles from standard fluted casing. Each mating side of the fluted pieces was back-planed, then glued and nailed in place. Packed side by side, the pieces blend together seamlessly.



### ORNAMENTAL-MOLDING SOURCES

All the ornaments used on this mantelpiece are available from White River Hardwoods ([www.mouldings.com](http://www.mouldings.com)). White River's Web site is a virtual catalog; electronic photos of moldings can be copied from the site and imported into SketchUp drawings (see the corbels and scrolls in the drawing on pp. 86-87). I also purchased the panel molding and the fluted casing from White River. The two crown profiles and the astragal molding around the television are available from many molding suppliers.



### Preassembled trim means tighter joints

When dealing with panel molding of any kind, it's easier and cleaner to assemble the frames [5](#), the panel molding (White River PM #505), and the panels ahead of time. I used Collins Spring Clamps ([www.collinstool.com](http://www.collinstool.com)) to secure the panel-molding miters, then fastened them with 1-in., 23-ga. brads. Once the frame is fastened together, I glue and staple the 1/4-in. panel onto the back, then clean up any glue squeeze-out with a wet toothbrush.



## AFTER LOWER AND UPPER SURROUNDS ARE ASSEMBLED, MOLDING AND MOUNTING HARDWARE ARE ADDED

### Don't forget to back up the panels

Assembling the pilasters and the frieze is easy if you clamp them together before driving any fasteners. If you have to disassemble the mantel for transportation, remember to draw registration lines across the backs of the pilasters and the frieze. Once the panels are installed and tacked to the face frames, turn the assembly around and apply 1/4-in. MDF behind the panels to prevent them from being dislodged accidentally from the front. The backing is secured only to the face frames.



### Attach blocking to secure the columns and mantels

Because the mantels were to be padded out with shallow columns (drawing bottom right, p. 87), we used nails and/or screws, and construction adhesive to attach 1x solid-wood blocking to the walls, then mounted the columns. Next, the lower pilaster blocking (also solid 1x stock) was screwed to the columns; once the lower mantel was installed, we attached the upper pilaster blocking, followed by the overmantel. Picking up the heavy assemblies, especially the overmantel, was the hardest part.





www.finhomebuilding.com



### Dentil-detailing tip

When cutting dentil crown, I always align the outside corners and let the inside corners resolve themselves. Spring clamps and 23-ga. pins make it easy to assemble even the most delicate crown profiles.



### Mitering curves made easier

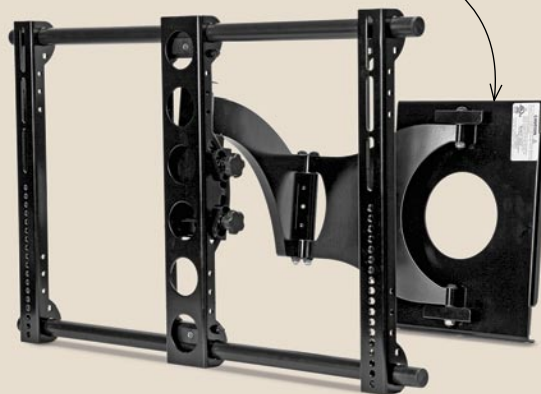
There's only one foolproof way I know to miter arched moldings: Lay a short piece of molding across the corner in both directions, then trace lines across the top and bottom. Next, transfer the intersecting points to one leg of the molding, marking the long point and the short points of the miter. After cutting the first piece, trace the freshly cut miter, and transfer those final layout marks onto the second piece.

## Trim carpenters wear many hats

These days, it seems as if finish carpenters have to choreograph a lot of details in addition to installing trim. The audio-visual subcontractor sent us the television specifications so that we'd be sure the recess was sized correctly for adequate air circulation. The hardware manufacturer provided specifications for sizing the deeper niche and the required hardware modifications. Because the standard mounting plate was too wide for the niche, we had to drill bolt holes in the transfer plate and bolt the hardware to the blocking. Using the manufacturer's specs, we were able to locate wiring conduit before inserting the two-stepped MDF box into the framing. We pulled the entire conduit through the box, then secured the recess box to the over-mantel and to the wall framing.



Transfer plate (mounting plate not shown)



### TV-HARDWARE SOURCES

Articulating wall mounts like the one above (a Sanus VMAA26) often are designed for a particular make of television, so be sure you have the right one when ordering.

#### Sanus Systems

www.sanus.com

#### Plasma TV Accessories

www.plasmatvaccessories.com