

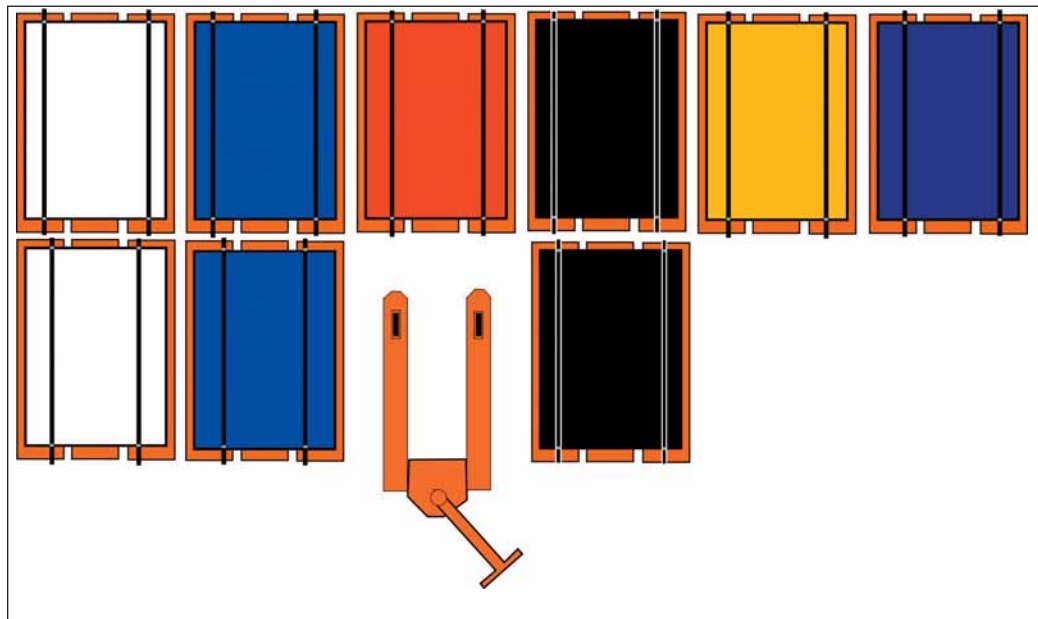
Analyzing Your Production

Part II: Mats & Mounting

By Jim Burke

Once you've analyzed your cutting and joining operations, it's time to look at the mat cutting and mounting process in your manufacturing flow. It has three main parts: storing matboard, cutting matboard into sized mats, and mounting the art to some material. It is also necessary to store mounting boards, artwork, and finished mounted pieces prior to assembly.

Most people probably don't realize when they first get into production that storage takes more floor space than actual production lines. After a year or more and with some expansion, most companies realize that this is the case. Planning for storage and movement of materials to the final production line should be of prime importance when designing a floor plan or re-designing present floor space. Materials in bulk need to be transported from the entry door to its storage area with very little interruption. The storage area should be accessible from at least one direction to load and unload any of the materials at any time. This sounds like common sense, but in reality materials are usually stored helter-skelter within a building with no thought to later access.



Access for each mat pallet must be available from an aisle if you use single-level storage of palletized matboard.

Duplicate materials can be stored more than one level deep as long as the outer storage level is readily accessible. Duplicates can also be stacked if they are packaged properly for stacking or if you have steel racks designed for pallets. Steel racks also work well for matboard in boxes if that is the way you buy them.

Matboard on pallets can require a sizable storage area if there are many colors in stock or if a job requires many pallets. The same is true for mounting board and backing board, whether that is foamboard, chipboard, or cardboard.

Here are some questions to ask when analyzing your current operation or setting up a new one:

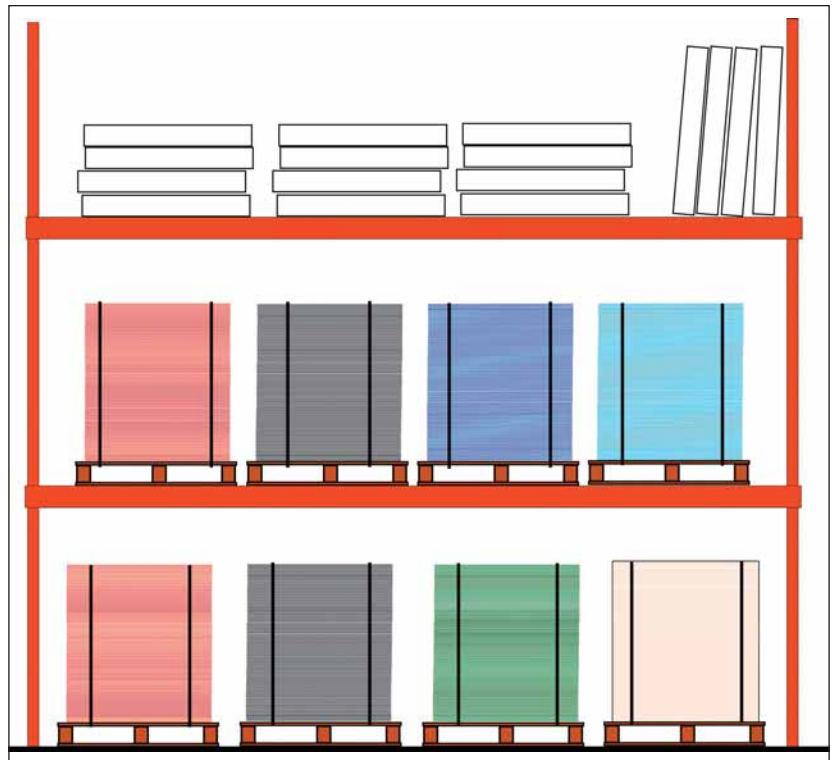
A systematic approach to analyzing your matting and mounting production can eliminate problems and make you more efficient

Storage

1. Do you have a forklift available for stacking pallets on metal racks?
2. Do you use a pallet jack only, which requires a single level of storage?
3. How far is matboard stored from the mat cutting machines?
4. Do you have a direct movement of material from storage to cutting?
5. Who is responsible for transporting matboard to the cutters, the CMC operator or another person?

Cutting

1. Once a board is cut to size (either backing board or mats), it has to be stored and moved to the final assembly area. Is this done with wagons, carts, or by hand?
2. How do you discard the dropouts? Are they used for cutting standard sizes or are they thrown away?
3. Does a recycling company pay you for your scrap, or do you pay to have the scrap removed from your property?
4. Do you have more than one CMC? If so, does one operator run two machines or is there one operator for each machine? Depending on stripping time, one person can run two CMCs.
5. If cutting double mats, do you cut each layer individually and join them afterwards, or do you cut them in place as a double mat in two operations? Try it each way and time the operation. Depending on your CMC, it might be quicker to cut as two separate mats and join later.
6. If your mat production quantity is very large, do you let the CMC size the mat or do you have a hydraulic cutting machine to size the mats after they are cut? Sizing a mat with a CMC is actually wasteful of the machine's time for large quantities. With multiple CMC machines, a hydraulic paper-cutting machine could cost less than another CMC and add as much production.
7. Can backing board or mounting board move easily from storage to cutting to final fit area?



Smaller quantities of matboards in boxes can be stacked with a forklift above pallets on steel racks.

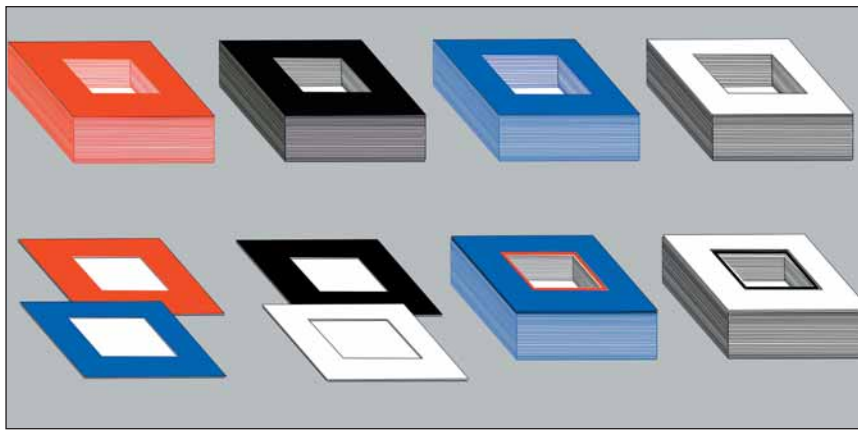
Mounting

Production mounting can be done in many ways, depending on your customers' needs or your cost requirements. Sometimes mounting involves nothing more than taping an image to the back of a mat. Sometimes it includes taping an image to a backing board. Or at the most extravagant, it involves dry mounting, wet mounting, or heat mounting to a mounting board.

Today, cold vacuum dry mounting is not very con-



Hydraulic-electric paper and board cutters can do large-quantity sizing of matboard or mounting boards before or after the mat opening is cut.



Mats can be cut individually and then stacked until the top and bottom mats are assembled prior to fitting.

ductive to production framing. Mounting multiple pieces in a heat press is still used when required by quality jobs. Wet mounting using roller glue applicators or heat mounting using heated roller laminators work better for large volume mounting jobs that require the actual mounting to be done to a backing board. Depending on your volume, you need to decide which method will work best for your operation. If large-volume jobs will be on the increase in the future, you might want to check out wet glue machines or heated roller laminators. If all jobs are low cost, you might stick with taping the image to the mat. In either case, the mounting usually takes place off line and is brought to the fitting stations in stacks or piles.

Questions to Ask About Mounting

1. How far is the mounting operation from the fitting stations or assembly line?
2. Is there adequate storage for the mounting/backing board prior to mounting?
3. Is there ample room for pieces already mounted, ready for fitting?
4. Who does the mounting? Many people for taping or one person for rollers?
5. Who moves finished pieces to the fitting area? The mounting person or someone else?
6. Are supplies for mounting kept at a close proximity to the mounting area? Who is in charge of materials to be ordered and for keeping them organized?

Assembly

From mat cutting and mounting, materials are then moved to assembly. Assembly or “fitting” as it is usually called can be done in-line (with frame and glass) or can be assembled as a separate in-line or batch operation to create a package or insert to be added to the frame and glass later. Some companies actually tape the total glass and matted and mounted parts together to form a complete insert that can be handled easily for fitting into the frame.

This works well when used in-line with the frame cutting and joining operation. Fitters don't have to

assemble the glass and components, nor do they have to clean glass, which slows down the fitting operation. A separate production line is created that cleans the glass and assembles it with the mounted art, mat(s), and backing (if used). Then the components are side-taped into a package. This can also seal the package from dust before it gets inserted into a frame if it's taped on all four sides.

In contrast, normal assembly or fitting is done in a batch-mode operation similar to custom framing. All individual components of a frame job are brought to a fitting station and assembled by one person. For large pieces, two people can sometimes be grouped to make handling components easier.

The assembly person cleans glass, puts it into the frame, places any mats and art onto the glass, and uses staples, points, or flex points to hold everything into the frame. Further fitting might include papering the back, taping the back, and/or attaching hangers or wire to the frame. Corner protectors might be part of the assembly as well or could be a separate operation after the fitting is done.

Examine all aspects of your mat cutting and mounting operations as well as assembly techniques. Don't be afraid to try something different to see if it's faster than what you do now. There are many suggestions here that might speed up your production. The more efficient you



A heated vacuum press can be used when quality mounting is required and total volume isn't critical.



Roller gluers, along with companion rotary presses, can speed up mounting when doing a large quantity of backing boards.

already are will determine how these suggestions will help. If you are in a mixed production situation, you might adapt some of these suggestions to handle the higher production requirements. For high-quality, low-volume framing, you'll probably continue as before.

Benchmarks

Setting benchmarks for matting or mounting is more difficult than for cutting and joining moulding. Each CMC has its own cutting rate, and total production depends on the size of the mats being cut. If you optimize the mat dropout by cutting standard sizes inside the mat you want to use, it will slow down the rate for that day.

You can test the speeds of your CMC by cutting sixteen 8"x10" mats inside and outside dimensions and record the time. Then cut the same number of 8"x10" mats with just the inside openings and record the time. Using a hydraulic or electric shear machine could offset the difference in time. If the mats are stacked 4" to 5" high and cut at one time in a hydraulic cutter (75 to 80 sheets), the outside cut time would be a lot less than for a CMC. Assuming 30 seconds per sheet difference, it would take 40 minutes to cut these mats on a CMC and about 5 to 10 minutes on a big cutter, saving 30 minutes per stack. In some cases it would double the CMC's rate.

If your CMC can't cut 8"x10" mats because of side clamps, then run the test on 11"x14" mats. You can cut six mats from a standard 32"x40" sheet of matboard. Cut the outsides with a wall cutter on the second test. Assume the wall cutter takes a little longer, but you won't waste those six mats.

When evaluating your CMC, be sure to time the

tests from start to finish. This includes stripping the cut mats from the machine and restarting another mat. Averaging this time over 5 to 10 complete cycles will give you a better indicator of units per minute or per hour. Better yet, let the test run for 15 minutes. Have all the mats that are cut stacked in one pile for counting. Multiply that time by four for an hourly rate for that mat size.

To make for faster mat cutting, use two under sheets. While one is cutting, set up the mat and undersheet #2. Remove the cut mat and undersheet #1 together. Insert the new mat and undersheet #2. Start the cutting process. Strip the previous mat just cut. Put a new matboard on the undersheet #1, and continue the cycle. Stripping mats and scrap while there are on the machine wastes time. Every second a machine isn't cutting mats, it costs you money. To maximize your production when it's needed, try this method.

Benchmarks for mounting are also difficult unless you're using roller gluers or heated roller laminators. These machines have an average throughput that the manufacturer can provide.

Do the metrics on your present systems to have a baseline for future reference. Whatever method you now use can be tested over a period of time to check for hourly rates. If you need 1,000 pieces a week and can only produce 750, something has to change. Adding more people isn't always the answer because it might make your total costs too high for the job. Look at new equipment that will fit your needs.

New equipment should be considered an investment in your future, not just a cost. It could significantly increase your productivity with the same number of people you now employ, or it might help you reduce that number in the future. ■



Heated roller laminators can mount art continuously to substrates using heat-activated film.

Jim Burke owns Machines Etc., a sales and consulting company based in New Bedford, MA. He started in the picture framing industry with Arquati Moulding in Cleveland as general manager. For the past 25 years he has sold and serviced all types of machinery for cutting and joining frames and cutting mats. He has also sold web control machinery to paper mills, tire cord manufacturing, textiles, plastic film extrusion, and paper converting companies throughout the Midwest.