

Custom commercial mat systems are one of those things that look simple until you have to install them. Then you find out whether the person who measured treated the job like a spreadsheet or like a real floor. Every building has quirks: slopes, warped transitions, roll-up doors that are never quite square, chair rails that snag, and HVAC grilles that eat into the corner of a “perfect” rectangle.

When you measure for a custom mat system, the goal is not just accuracy. The goal is repeatable accuracy, meaning the numbers you send can be used to fabricate and install the mat with minimal field correction. In practice, that means capturing the actual walking surface dimensions, the exact layout constraints, and the way the mat will interact with trims, doors, and drainage. If you’ve ever watched an installer fight a few millimeters of mismatch while everyone stands there with coffee and impatience, you know why this matters.

Below is how I measure, what I double-check, and the small decisions that prevent problems later. I’ll write it for commercial settings where mats are custom-made to fit, including work entrances, lobbies, labs, retail service counters, and manufacturing areas. I’ll also mention how mats inc. (and similar custom manufacturers) typically interpret measurements, so you can communicate in a way that reduces back-and-forth.

Start with the site, not the drawing

Most measurement errors come from assuming the CAD plan equals the real world. Plans are great for space planning. Floors are where tolerances show up.

The first thing I do is stand at the intended mat location and decide what “edge” means. Are you measuring to the face of an existing tile border? To the inside corner of a base shoe? To a painted line? To the edge of a recess? If there is a threshold or a lip, the “edge” you choose affects whether the mat fits cleanly or binds at install.

If the area is busy, I’ll mark the edges with removable painter’s tape and then step back to check the line visually. This sounds basic, but it catches the cases where the tape follows a shadow line instead of the actual boundary. I also make sure I’m measuring the walking route, not the decorative border that people never step on.

A detail I learned the hard way: some entrances look perfectly square, but they are slightly skewed because of how the frame was installed. A mat that’s cut to match the “square” of the door opening might still be wrong once it’s centered on the actual traffic path. For custom systems, that’s the difference between an installation that slides into place and one that needs stretching, trimming, or aggressive persuasion.

Define the mat type before you measure

Not every custom mat is treated the same way in fabrication. The measurements you give for a flat rubber mat can differ from what you give for a carpet tile system, a moisture-collection mat, or a framed walkway with an integrated support structure.

Even if you already know you want a mat system, you still need to confirm whether it is:

- a direct-fit surface that sits on an existing floor,
- a recessed mat that sits in a cutout or framed opening,
- a framed system with a raised border,
- or a modular system where individual sections must align with seams.

The mat type affects how tight the tolerances should be and whether clearance is needed around walls or door hardware. It also affects which measurements are critical. For example, recessed applications often require depth

and clearance checks in addition to length and width. Framed systems often require accurate measurements of the opening for trim and anchoring.

If you're working with mats inc. Or another supplier, ask early how they want the "final size" defined: do they manufacture to an outer dimension, a cutout dimension, or an overall dimension including edging? You don't need to interrogate them, but you do need to remove ambiguity from the request.

Measure the critical dimensions, then prove them with a second pass

For most commercial custom mat systems, you will provide a length and width, but the floor rarely stays that simple. I measure in a way that identifies variation across the opening.

I typically do two passes:

1. First pass: establish the overall rectangle and identify any irregularities.
2. Second pass: verify the corners and diagonals so I know whether the opening is truly rectangular or slightly parallelogram-shaped.

Here's what "verify" means in the real world. If you measure length at the top and bottom and they differ, the opening is not square. If you measure width at the left and right and it varies, the walls are not parallel. Then you measure diagonals, because diagonals tell you whether the shape is consistent or twisted.

If your measurements show variation within a small tolerance, you can usually represent the mat with a single nominal size. If the variation is large enough, you may need a tapered or custom cut. That's where the supplier will either ask for more details or will request a template. Either way, your second pass gives you the clarity to avoid a "guessing game."

A quick measurement checklist I rely on

- Measure length and width at the top and bottom, left and right
- Measure diagonals corner to corner
- Confirm the "edge reference" you are using (face, inside corner, or recess line)
- Record any known slopes, lips, or transitions near the perimeter
- Photograph the area with a reference marker in frame

This list saves time, because it forces you to capture the information that most often causes rework.

Decide how to handle clearance around walls and trims

One of the most common complaints I hear from installers is, "It fits everywhere except at this one side." That usually comes down to clearance decisions, not fabrication quality.

Commercial installations are not always forgiving. A mat system may need space for:

- expansion and contraction,
- cleaning equipment clearance,
- door swing and threshold tolerances,
- baseboard gaps or uneven caulk lines,
- cable covers, conduit crossings, or ledges.

So when you measure, you should also observe how the mat will sit. Is it intended to be flush to a wall? Is there an expectation of a small gap for caulk or finishing? Are there transitions to adjacent flooring that must remain visible for safety markings?

If you have edging or a border that will be installed over an opening, you may also need to measure the opening's actual depth or the height of adjacent flooring. A mat that is correct in length and width can still fail if it is too high for a door sweep or too low to seal properly against a threshold.

A practical way to think about clearance is to define the "no interference zone." For doors, that zone is where the door sweep would scrape. For chair traffic, it's where a mat edge might catch a wheel. For mop basins or wet-cleaning workflows, it's where water needs to roll or drain without catching at the perimeter.

Capture depth, recess details, and any height constraints

If the mat system is recessed or framed, the depth matters. Even for surface-mounted systems, the height can matter because of transitions and adjacent flooring.

When I'm measuring for recessed applications, I look for:

- the depth of the recess,
- any undercut or lip that the mat frame must clear,
- and the floor level around the opening.

If the opening has a step down, you need to consider how the mat frame seats, whether it must sit above the floor or below it, and whether there are drainage expectations. If the opening is shallow, you might still install a mat system, but the supplier might recommend a different design, or you might need shimming or finishing around the perimeter.

For height constraints, pay attention to door thresholds, especially at entrances where people wheel carts, use strollers, or run equipment. A quarter inch can be the difference between smooth travel and a constant bump that eventually leads someone to kick the edge or trip a wheel.

Account for doorways, roll-up doors, and moving obstructions

Doors introduce two measurement problems: access during installation and interference after installation.

First, if you're measuring a mat inside a doorway or near a swing door, you need to understand the door position when closed. The clearance requirements differ between a mat that sits outside the door opening and one that sits under the threshold zone.

Second, if there is a roll-up door or frequent access point, you need to check whether the mat interferes with the floor tracking or guide rails. Those rails often have base brackets that can sit in places that feel "outside the mat area" on a plan.

I don't try to guess. I stand where the mat will be and simulate the traffic: open the door, roll the door, and walk through with a cart. Then I measure the interference points and record them clearly.

If the supplier needs to fabricate custom edging or cutouts for a door stop or hinge, you want those locations identified in your measurement notes. That's the difference between "close enough" and "install tomorrow, no drama."

Watch for floor irregularities and transitions

Floors rarely stay flat. Even a subtle change in elevation near an entrance can affect installation and long-term wear. If you have transitions to carpet, tile, epoxy, or metal thresholds, the mat system must manage that change.

I look for:

- loose tile edges,
- cracked grout lines that indicate movement,
- uneven transitions where the mat edge could lift,
- and surface debris or old adhesive ridges that might prevent seating.

If the mat system is intended to be a seal, unevenness can cause leaks at the perimeter in wet areas. If it's purely an entry mat for scraping and moisture control, unevenness can still cause premature edge wear because the load distribution is uneven.

Also, there is a difference between an opening that is "off by a little" and an opening that's "off in a way that matters." If you measure and find one corner is different by, say, a fraction, you may handle it with normal installation tolerances. If it's more dramatic, the supplier may require a template or a field-fit strategy. That's why your second pass and your photos matter.

Use photos and notes like they're part of the measurement

Numbers are essential, but photos prevent misinterpretation. When I send measurements, I include:

- a wide shot showing the mat location in context,
- a close shot of each corner or any irregular feature,
- and a shot with a reference object, such as a tape measure line or a marked board.

Then I add notes that explain what the photo shows: "Inside corner is rounded" or "baseboard is not straight, follow this inside face" or "threshold lip is 1/4 inch higher at left."

This approach reduces the chance that the supplier assumes a reference line that isn't correct. It also helps installers because they can visualize the geometry without translating everything into their own mental model.

If you're working with mats inc. And similar suppliers, clarifying the reference edges and any required clearances often reduces measurement cycles. Nobody wants to measure twice, especially on a busy site.

Decide how to represent non-rectangular openings

Sometimes the opening isn't a rectangle. It might be a curve, a chamfer, or a doorway niche.

If the shape is irregular, don't force it into a box unless the supplier explicitly says it can. Instead, capture the geometry in a way they can use. For example, if the opening has a rounded corner, measure the straight segments and note the radius or approximate curve. If there is a notch, measure the notch depth and the location from a reference corner.

The key is consistency. Use the same reference corner for all distances. In a busy commercial environment, there's a lot of confusion between left and right, and between "from the wall" and "from the inside face." Consistency reduces that.

When the geometry is too complex to describe cleanly with measurements, ask the supplier whether they prefer a template. A template may be as simple as a provided form with cut lines. The goal is to avoid guessing at a curve or taper that the fabricator could get exactly right if you give them the outline.

Provide a dimensioning standard in your submission

A big part of measuring well is how you communicate. I've seen great measurements rejected or misread because the written notes were ambiguous.

In your measurement submittal, keep these practices:

- label each dimension by direction and reference corner,
- specify whether dimensions are inside-to-inside, outside-to-outside, or face-to-face,
- and note any cutouts, trims, or obstructions.

If you are sending a single "overall size," also say what it means. For example: "overall length measured [Mats Inc](#) along the inside face of the recess" rather than "length is 72 inches." If the supplier thinks the measurement means wall-to-wall, they might manufacture a mat that either binds or leaves an unacceptable gap.

If you can, include the diagonal measurements too. Even if the supplier does not require them, they provide confidence and help catch transcription errors.

Allow for installation reality, not just fabrication math

Even when measurements are correct, install conditions affect the final outcome. Consider:

- whether the floor is level enough for a snug fit,
- whether adhesive or fasteners are involved,
- and whether the perimeter will be finished with trim, caulk, or edge strips.

For example, a framed system might be designed to cover minor floor gaps, but it may not be intended to "bridge" a significant unevenness. A rubber mat might accept small irregularities better than a rigid framed insert, but rigid systems can still work with the right edge finishing.

Another reality check is what happens when the mat is loaded. In a wet entry, people walk onto the mat with traction and moisture. That load can slightly shift edges if the mat isn't properly seated, especially at corners. If your measurements don't account for seating tolerance, the edges may lift over time.

This is where I recommend treating the measurement process as part of the install plan, even if you are not the installer. Your notes should anticipate where the install team will struggle.

Where people make mistakes, and how to prevent them

Mistakes often come in predictable patterns, and if you recognize them, you can avoid them quickly.

One common error is measuring from a "best guess line" instead of the actual surface that will contact the mat system. Another error is neglecting to re-measure after taping out the perimeter. Taping changes what you consider an edge, especially around rounded corners or baseboard transitions.

A third error is not noting thickness and height constraints when the design includes a frame or recess. A mat that is the right length and width can still fail if a door sweep or adjacent transition creates interference.

Finally, many measurement mistakes are simple transcription errors: the installer reads “71-1/2” as “71-5/8,” a left-right swap happens, or someone records “inside width” when the supplier expects “outside width.” These are avoidable with clear labeling, consistent reference corners, and a quick final review before submission.

If you take nothing else from this, take this: write down what you measured, and write down what the supplier should build. Those are not always the same thing unless you specify it.

A practical way to structure your measurement notes

You don’t need a fancy form, but you do need a submission that the fabricator can interpret without asking five clarifying questions.

Here is a tight format that works well for most custom commercial mat projects, including recesses and framed systems:

What to include in your measurement packet

- Overall dimensions (and whether they are inside, outside, or face measurements)
- Length and width measured at multiple points to reveal variation
- Diagonal measurements (when feasible)
- Clearance notes for doors, thresholds, or baseboards
- Photos showing corners, transitions, and any cutouts

Keep your language direct. If you’re unsure about a reference edge, say so, and explain what you can see. The supplier can then decide whether to use your numbers as-is or whether they need a template.

Example scenarios that show how measurements change

To make this concrete, here are a few common commercial setups and the measurement details that matter.

Example 1: Office building entrance with a recessed mat tray

In a recessed entrance tray, you need depth and opening dimensions. The opening may not be perfectly rectangular because the recess was cut around framing or older tile. When I measure this, I take length and width at both ends and I measure diagonals, then I note if one corner is slightly rounded. I also photograph the depth and any under-lip that the frame needs to clear.

If the supplier asks for the “net opening,” I clarify whether that net opening is inside-to-inside or whether it includes a lip. The difference can be the difference between a clean drop-in and a jam at the last corner.

Example 2: Retail service counter where chair wheels roll onto the mat

In a retail environment, the mat might be surface-mounted with edging that must withstand chair wheels. Measurements here include clearance to baseboards and any protruding hardware. Even if the mat is rectangular, the corner details are critical because chair wheels love to catch at raised edges. I measure edge-to-edge distance for seating fixtures and confirm whether the mat edge will sit under a rail.

If the mat has a visible edge, I will also note how close it needs to be to painted lines for a “finished” look without creating a trip hazard.

Example 3: Manufacturing entrance with wet cleaning and a moisture-control mat system

In wet cleaning areas, water management matters. The mat system may be intended to pull moisture away from the building interior, so the perimeter fit needs to allow cleaning without water pooling at the edges. Here, I measure the transitions to adjacent floor types and note any slope. A flat mat over a slightly sloped floor can behave differently than you expect, because the water will find the low spot.

If the entrance has a threshold lip, I note its height and location. The fabricator can then design edging or adjust fit so water does not bridge in a way that leads to persistent pooling.

When to ask for a template instead of forcing measurements

Sometimes measuring is not the best option, and that's not a failure. It's good judgment.

Ask for a template if:

- the opening is highly irregular,
- there are multiple layers of trim and transitions that create ambiguity,
- the building geometry has shifted over time,
- or the supplier needs a level of precision that field measurements cannot guarantee.

A template can be as simple as tracing the outline and providing key reference points. The benefit is that it captures the real shape instead of relying on imperfect assumptions. If you're dealing with a complex commercial lobby entrance, a template can be cheaper than paying for re-fabrication.

Final checks before you submit

Before you send your measurements, do a quick final validation. This is the last chance to catch a mistake that would otherwise cost time and disrupt installation scheduling.

I do a "logic check":

- Do the length and width make sense relative to the site?
- Are the diagonals consistent with the corner distances?
- Did I swap inside and outside references anywhere?
- Are the clearance notes written clearly enough that an installer will not have to guess?

If possible, walk the perimeter once more with your marked reference edges. Your eyes are excellent at noticing misalignment, even when numbers look correct.

Also, check your units. I've seen more trouble from inconsistent units than from actual geometry errors. If you use inches, commit to inches everywhere. If you use fractions, keep them consistent. If you use decimals, use decimals consistently and avoid mixing formats.

What happens after you measure

Once you send measurements, the supplier will typically confirm the design, validate references, and sometimes request photos or clarification. If everything is clear, fabrication proceeds using your provided dimensions and specifications. If something is ambiguous, the supplier might propose adjustments, which is better than finding problems at install time.

This is where good measurement notes pay off. When you define references clearly and include photos, the supplier can make fabrication decisions with confidence. That reduces lead time and reduces the likelihood of an install that requires on-site modification.

If you work with mats inc. Or a similar manufacturer, you'll likely see how they incorporate measurement conventions into their process. The more you align with their expectations, the smoother the project moves. Your job is to make their job easy with the information you provide.

Measuring is part of the quality system

Custom mat systems are one of the few products that people physically interact with every day, often without thinking about how well it was fit. When a mat fits cleanly, it feels obvious and effortless. When it does not, the issues show up quickly as edge lift, uneven transitions, or visual gaps.

Measuring well is not just accuracy, it's anticipation. It's accounting for floor realities, installation constraints, and the little details that turn a mat into a system that works. If you treat measurement as a communication tool between the site and the fabricator, the result is a custom mat system that looks right, installs correctly, and holds up under real traffic.

And that is what you want the first time, because the second attempt is always more expensive than the careful first one.