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Metal Builder®

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RURAL BUILDER MAGAZINE SPECIAL SECTION

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GIVE HEAT A BREAK
STOP CONDUCTION COLD & KEEP STEEL BUILDINGS COMFY

COLD STEEL, WARM LENDERS
HOW CFS CAN SWEETEN YOUR INSURANCE & FINANCING DEALS

DON'T LET STEEL PRICES EAT YOUR PROFIT
SMART QUOTING THAT KEEPS YOUR MARGINS



SMALL DETAILS, BIG CURB APPEAL
ACCENTS AND EXTRAS THAT MAKE STEEL SHINE

Ham, Raccoons and the Price of Steel

There's that look the builder gets when he opens up a steel quote he got three weeks ago and realizes it's now worth about as much as a free car wash coupon. I've seen it. It's the same look my mother got that Christmas when she discovered the ham had spent the night in the garage and raccoons had broken in. Shock, then grief, then a very quiet calculation as to who was going to take the fall.

Steel prices this year have been as erratic as a squirrel crossing a county road and that's where this story begins. Our piece on quoting in a volatile market looks at escalation clauses, the shorter quote windows and how you can have the price discussion prior to the customer even signing. When it gets weird, the weird ones write the escalation clauses. No one likes that conversation. Everyone would rather have it than eat the difference.

Then there are thermal breaks which sound like something a hockey coach would say when the rink freezer goes. They're the little unspectacular bits that sit between your customer's heating bill and the cold of the outside world. Steel is a good conductor of heat (a good thing in a frying pan, a bad thing in a wall assembly). We look at where the breaks are required and what happens when someone just doesn't put one in.

Cosmetic bits get their turn as well: cupolas, wainscot, trim packs etc. you know the lot that turn a metal box into a building you actually slow down to look at. Call it lipstick if you like. Lipstick sells buildings.

We finish with insurance and financing for cold formed steel. The underwriters and lenders are still catching up with regard to what cold formed steel can do and that lag is costing your customers actual money. We look at where the gap is closing.

It's December. The roads could be all glazed over with ice, the shop heater is making that noise again and somewhere out there a chap is still waiting for his steel delivery which was promised for Halloween. Hang in there. Read this one by the stove.

Kathleen Riley
Editor

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On the cover: *Courtesy of Schweiss Doors*

Creating Thermal Breaks to Prevent Heat Conduction

Steel is one of the best structural materials in the building industry — and one of the worst insulators. A framing member that runs from the cold outdoors to the conditioned indoors acts like a metal spoon left in a hot cup of coffee: heat (or cold) travels straight through it, bypassing whatever insulation surrounds it. Engineers call this thermal bridging, and in metal buildings it happens at every purlin, girt, clip, and fastener that touches both the exterior panel and the structural frame. A thermal break interrupts that path, and getting it right is one of the simplest ways a builder can deliver a tighter, more comfortable, less complaint-prone building.



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WHY STEEL NEEDS A THERMAL BREAK

Metal conducts heat far more efficiently than the wood or masonry alternatives builders typically detail around. Cold-formed steel framing, in particular, transfers heat at a rate many times greater than comparable wood members, which is why insulation strategies that work in a stick-framed wall often underperform when the same R-value is compressed against steel.

In a typical metal building systems, roof panels attach to purlins and wall panels attach to girts. Fiberglass metal building insulation is draped over or behind those members and then compressed flat the moment panels are screwed down. At each compression point, the insulation's effective thickness—and therefore its R-value—drops sharply. Left unaddressed, that repeated compression can cut a wall or roof assembly's actual thermal performance is negatively affected &/or is reduced when fiberglass insulation is compressed beyond the thickness to allow it's intended R-value.

The consequence isn't just a higher energy bill. Steel framing members that stay in contact with cold outside air become cold spots on the interior face. When warm, humid indoor air reaches those cold spots, it condenses — and condensation on purlins, girts, and fasteners is one of the most common causes of rust, stained insulation facing, and callbacks in the metal building industry.

WHERE THERMAL BRIDGES FORM

- Clips and standing-seam attachment points, where metal-to-metal contact runs straight through the insulation layer
- Base plates, eave connections and wall-to-roof transitions, where inside and outside skins meet
- Fasteners and screws that penetrate the full assembly, each one a tiny, repeated bridge across the envelope

THERMAL SPACER BLOCKS AND THERMAL BREAK STRIPS

The most direct fix at a purlin or girt connection is a thermal spacer block — a rigid strip of extruded polystyrene or similar closed-cell foam installed between the metal panel and the framing member. Instead of panel meeting steel meeting compressed insulation, the spacer block holds a layer of low-conductivity material at the exact point where the bridge would otherwise form, preserving the insulation's loft on either side of the connection.

Industry guidance published jointly by the North American Insulation Manufacturers Association and ASHRAE calls for a minimum R-3 thermal spacer block at these connections in most conditioned metal building assemblies, with thinner thermal break strips acceptable only where continuous insulation is also present. Spacer blocks are typically installed in standard widths of about three inches and thicknesses between a half-inch and one inch, sized to the purlin or girt flange they're protecting.

CONTINUOUS INSULATION: THE BELT-AND-SUSPENDERS APPROACH

Where energy codes demand more performance than a spacer block alone can deliver, continuous insulation (CI) is the industry's standard answer. ASHRAE defines continuous insulation as insulation that runs uncompressed across all structural members without thermal bridges other than fasteners and service openings — in practice, a layer of rigid board applied to the exterior face of the framing, outside the purlins and girts entirely, so the steel never has an uninterrupted path to the outdoors.

Continuous insulation systems have become more common in metal buildings over the past decade as commercial energy codes — chiefly ASHRAE 90.1 and the International Energy Conservation Code — have tightened. A rigid board system installed over the framing, combined with a compressed fiberglass layer inside, gives builders a way to meet required U-factors without relying on a single insulation layer to do all the work.

THERMAL BREAKS IN COLD-FORMED STEEL FRAMING

The same principle applies at a larger scale in cold-formed steel (CFS) buildings, where thermal strips, shims, and slotted studs are used at structural connection points to reduce metal in direct contact with heat-exposed surfaces. Cladding attachment systems—clips and girts that hold exterior panels to the frame—can become significant thermal bridges if they aren't isolated from the structure, which is why thermally broken attachment hardware has become standard detailing on well-designed CFS envelopes.

GETTING THE DETAIL RIGHT ON THE JOBSITE

- Specify the thermal break material, thickness, and R-value on the structural or insulation drawings — don't leave it to field judgment
- Install spacer blocks or thermal strips at every purlin and girt connection, not just at a sample of locations
- Avoid compressing insulation flat at fastener points; a properly seated spacer block keeps the insulation at its rated loft
- Pair thermal breaks with a continuous, sealed vapor retarder — a thermal break reduces cold spots, but it doesn't replace vapor control
- Verify assembly U-factors against ASHRAE 90.1 or IECC tables for the local climate zone before panels go up

None of this requires exotic materials or specialized labor. A thermal spacer block is inexpensive, installs in the same motion as the panel screw-down, and pays for itself the first winter the building doesn't sweat. Historically, the higher cost has come from builders not knowing the detail existed—or assuming a thick enough insulation batt would compensate for a steel frame that was never isolated from the weather in the first place. It won't. The break has to be built in. **MB**

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Quoting to Account for Steel Market Volatility

Mill prices have climbed all year and tariff rules keep changing. Metal building manufacturers and dealers are shortening how long they hold a price, and rewriting what a quote promises.

Not long ago, a quote was good for 90 days and everyone counted on it. A customer could shop a bid around, sleep on it, and the number on the page would still be the number at signing. That is getting harder to count on. Steel is one of the most exposed line items in a metal building package, and the exposure comes from two places at once: a domestic market that has climbed steadily for most of 2026, and a tariff regime that has been rewritten several times in under two years.

For manufacturers, dealers and builders, this lands in the estimating department. It shows up on the quote that goes out the door, and in the margin that either survives to closeout or gets eaten by a mill increase that arrived between bid and buyout.

WHERE STEEL PRICES STAND NOW

The picture as of early October is less a series of wild swings than a long, steady climb. Nucor raised its weekly hot-rolled coil spot price almost every week from late January through June 22, paused, then resumed. Its price reached $1,155 per short ton for the week of August 3, the third consecutive weekly increase, with the company pointing to strong demand and a significant decline in import volumes. By September 8, Steel Market Update's average hot-rolled coil price stood at $1,225 per short ton, up $20 from the prior week.

For context, one dealer forecast page put prices in the low-to-mid $800s per ton in mid-2025. Comparing the two (different sources and dates) suggests mill prices are on the order of 40 percent higher than roughly a year ago.

Long products are moving too. Gerdau Long Steel North America announced increases of $30 to $80 per short ton on

new orders from August 10, and mill lead times for hot-rolled coil were reported at three to five weeks. For quoting, the lesson is that a price held for 60 or 90 days in this market can be stale before the customer decides.

HOW WE GOT HERE: A TIMELINE OF SECTION 232

Much of the cost pressure traces to the Section 232 program, which lets the president adjust duties on imports found to threaten national security. The rules have changed repeatedly:

February 10, 2025: Proclamations expanded Section 232 coverage and ended existing exemptions, effective March 12, 2025.

June 4, 2025: Steel and aluminum tariffs doubled to 50 percent for all countries except the United Kingdom, which stayed at 25 percent.

August 2025: After the first inclusions process, Commerce added more than 400 product codes to tariff coverage.

April 6, 2026: A new proclamation applied duties to the full customs value of covered products rather than only their metal content, with tiered rates (50, 25, 15 and 10 percent) depending on the product.

June 8, 2026: A further proclamation set a temporary framework through December 31, 2027. Many Annex I-C products carry a default 25 percent duty; agricultural equipment and certain residential HVAC products moved from 25 to 15 percent; steel racks were added at 25 percent; and the U.S.-melted threshold for the 10 percent preferential rate fell from 95 to 85 percent.

The pattern matters more than any single date. This is an ongoing regulatory process that can change again, and quoting practices need to assume it will.

A TARIFF IS A TAX, AND THE BUYER PAYS IT

A tariff is a tax. It is collected by U.S. Customs and Border Protection from the importer of record when covered goods enter the country. A foreign government or foreign mill does not pay it. The U.S. company that brings the steel, or the steel-containing product, across the border does.

There are two paths by which that tax reaches a metal building quote.

Directly, on imported material. If a manufacturer or dealer imports coil, panels, trim, fasteners or other covered items, the duty is part of the landed cost. Since April, it is assessed on the full value of covered products, not just the steel inside them.

Indirectly, through domestic prices. Tariffs raise the cost of competing imports and cut import volumes. With less foreign steel competing, domestic mills have room to raise their own prices. The recent run of Nucor increases, reported alongside a significant drop in imports, shows how that works. A buyer who never imports a ton still pays more.

From there the cost moves through the supply chain like any input: mill, service center, fabricator, building package, customer invoice. The Tax Foundation estimates that tariffs overall amount to an average tax increase of about $900 per U.S. household in 2026. That is a figure for all tariffs across the economy, not steel alone, but it illustrates the principle: the buyer carries the cost.

This framing helps when explaining a price change. A tariff-related increase is not a markup and not a penalty paid by a foreign supplier. It is a federal tax that becomes part of the cost of steel before an estimator sees a number. Whether and how it can be passed through on a given job depends on the contract. Tariffs are assessed on imported goods, but a builder may absorb costs, change suppliers, or pass them through only when the contract allows it, and a new tariff alone does not give anyone the right to reprice a signed agreement.

WHAT VOLATILITY MEANS FOR YOUR QUOTES

Estimating and sales teams are converging on a similar set of practices.

Shorten validity. Sixty- and 90-day holds are giving way to 15 to 30 days, or to language tying the quote to a specific material purchase date. At least three 2026 industry sources describe this shift.

Add an escalation clause. Tie a defined portion of the price to an objective index, such as the Bureau of Labor Statistics Producer Price Index for steel mill products, so the price moves automatically beyond an agreed threshold instead of forcing a renegotiation.

Lock material early. A deposit that triggers an immediate ma-

What Changed in 2026

April 6: Section 232 duties now apply to the full customs value of covered products, not just metal content.

June 8: Temporary adjustments run through December 21, 2027, including a default 25% on many Annex I-C products and 15% on agricultural equipment and some residental HVAC.

Mill prices: Nucor raised hot-rolled coil spot prices nearly every week from late January through June 22, then resumed in July and August.

Lead times: Reported at three to five weeks for hot-rolled coil in August.

Quoting: Validity windows are shrinking to 15 to 30 days; escalation clauses and early material commitments are spreading.



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terials commitment can take the steel portion of a package off the table. The rules should state what is locked, for how long, and what reopens pricing, such as design changes or delivery delays.

Rebuild your contingency. One 2026 analysis recommends 15 to 20 percent earmarked for escalation on material-heavy scopes, in place of a flat 5 percent. Treat that as a data point to test against your own margins, not a standard.

Protect your takeoff. An undercounted takeoff stacks an estimating error on top of a pricing problem.

Put the contract language in order. Spell out who bears tariff changes after signing, and whether the price is fixed, indexed or subject to a surcharge.

On jobs with long delivery schedules, six months or more from bid to delivery, an escalation clause that lets the price adjust past an agreed percentage is increasingly common. Owners and general contractors who once resisted it are more willing to accept it, because the alternative is a contractor who pads every bid enough to survive the worst case.

TALKING TO CUSTOMERS ABOUT TARIFF LINE ITEMS

Transparency does more for a customer relationship than a padded number. Breaking out a tariff-related allowance or escalation amount as its own line lets customers see what they are paying for. It also gives sales staff a plain answer when a customer asks why a quote is higher than last year's: steel costs are up because mill prices are up and because tariffs, a federal tax, have raised the cost of steel in the U.S. market, and the quote reflects that.

Steel market volatility is not going away, and neither is the trade policy behind part of it. The manufacturers and dealers who protect margins through 2026 and 2027 will treat quoting as a living process, built on current index data, defined validity windows and honest conversations about where the cost comes from, rather than a single number frozen on the day it was typed.

Information current as of October 7, 2026. Tariff rules and mill prices change frequently; confirm before quoting. **MB**

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The Effect of CFS on Insurance and Financing

How cold-formed steel framing is reshaping risk assessments, premium calculations, and lending decisions for metal building projects



COURTESY OF BUILDSTEEL.ORG (STEEL FRAMING INDUSTRY ASSOCIATION)

For years, the case for cold-formed steel (CFS) in post-frame and metal building construction centered on strength, speed of erection, and resistance to pests and rot. Increasingly, though, the strongest argument may be showing up somewhere builders don't always think to look first: the insurance binder and the loan document. As underwriters and lenders sharpen their tools for pricing risk, the material a building is framed with is starting to carry real, measurable weight in what it costs to insure and finance.

FIRE RESISTANCE MOVES THE NEEDLE ON PREMIUMS

Builder's risk insurance — the policy that covers a structure while it's under



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construction — has become a growing point of leverage for steel. Because CFS is non-combustible and does not add fuel to a fire, insurers increasingly treat steel-framed projects as a lower-severity risk than comparable wood-framed ones, particularly during the vulnerable construction window before fire suppression systems are active.

Builders could save 25 to 75 percent on risk insurance by building with steel.. That range isn't theoretical. Trade coverage has pointed to real project comparisons — one cold-formed steel hotel project carried a builder's risk premium of roughly $92,000, versus $450,000 for a similar wood-framed project, a difference of more than 75 percent. Industry sources also point to a run of high-profile construction fires on wood-framed multifamily and commercial projects in recent years as a factor pushing underwriters to re-price risk on combustible framing more aggressively, even outside catastrophe-prone regions. The Midwest the past two years have actually had the most property losses from tornados and lightning-related damage.

WIND AND HAIL PERFORMANCE FACTOR IN, TOO

Fire isn't the only performance category insurers are watching. Wind and hail losses have become one of the fastest-growing drivers of property insurance costs nationally, and roof and wall assembly performance is now a standard part of how policies get priced. The Insurance Institute for Business & Home Safety (IBHS) maintains the FORTIFIED construction standard, which several states now require insurers to offer discounts for structures built or retrofitted to meet it. In some markets, wind and hail discounts under FORTIFIED have run as high as 45 to 55 percent, depending on the insurer and the state.

Metal roofing and panel systems with a UL 2218 Class 4 impact rating—the highest hail-impact classification—have separately qualified for discounts in roughly the 10 to 35 percent range in several markets, according to insurance-industry reporting. For post-frame and metal building owners in hail-prone regions of the Midwest and Plains, that combination of non-combustible framing and impact-rated roofing is increasingly something an agent can quantify on a quote, not just a talking point in a sales pitch.

WHAT IT MEANS WHEN THE BUILDING GOES TO A LENDER

On the financing side, the picture is more nuanced. For most commercial and agricultural lenders, industry guidance is consistent: the framing material itself is rarely the deciding factor in whether a loan gets approved. What matters more is the building's use, its income-generating potential, the strength of the borrower's plans, and — critically — the as-completed appraisal.

From a lender's perspective, the building material is less important than the building's use, condition, value, and income-generating potential. That said, appraisal and comparable-sales data can still work against a project simply because fewer directly comparable metal-building sales exist in a given market, which is where relationship lending tends to matter. Farm Credit institutions and other agricultural lenders, along with local community banks, are frequently cited as the most metal-building-fluent financing sources, largely because they underwrite based on long-term durability and construction quality rather than defaulting to a generic appraisal model built around wood-framed structures.

Engineered, pre-manufactured building systems also tend to produce more predictable construction schedules than site-built framing, which several financing sources note is itself a factor lenders weigh favorably — a clearly scoped, engineered project with a defined draw schedule is simply easier to underwrite than one with more construction-phase uncertainty.

THE TAKEAWAY FOR BUILDERS AND THEIR CLIENTS

None of this means every steel-framed project automatically gets a lower insurance bill or an easier loan approval — discounts vary by state, insurer, and lender, and documentation requirements (like a verified FORTIFIED or UL 2218 rating) usually must be met before a discount applies. But the direction is clear: fire performance, wind and hail resistance, and construction predictability are all becoming line items that insurers and lenders can price, not just qualitative selling points. For builders, that means the conversation with a client's insurance agent or loan officer is worth having earlier in the process, not after the building is up.

Note: Insurance and financing terms vary significantly by state, insurer, lender, and project type. Builders and owners should confirm current discount programs and underwriting requirements directly with a licensed insurance agent and lender before relying on any figures cited here.

Request editorial topic coverage by reaching out to Kathleen Riley at kathleen@shieldwallmedia.com.

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JAMES STEIDL-STOCK.ADOBE.COM

Beyond the Bones

Cosmetic Accessories and Components That Finish the Job

Structural steel gets a building standing. Trim, fasteners, roof accents, and color details get it noticed—and that's where builders can add real margin.

A metal building's frame, panels, and fasteners do the heavy lifting. Still, the details a customer points to when they show off a new building — crisp trim lines, a color-matched fastener head, a snow guard that looks intentional instead of bolted-on — separate a commodity structure from one the owner brags about. For builders, cosmetic accessories and components are also where a modest line-item investment can translate into a noticeably higher perceived value, fewer callbacks over color mismatches, and a stronger portfolio of finished projects to show the next customer.

None of this is new information to anyone who has stood in front of a customer holding two nearly identical paint chips. What has changed is how much choice is now available in the accessory categories that used to be an afterthought: trim, fasteners, roof accents, and touch-up systems. Here's a look at where the cosmetic end of the metal building business is headed, and who's supplying it.

TRIM AND FLASHING: THE ROLL-FORMED DETAIL

Trim is the connective tissue of a metal building's exterior — it's what makes eave lines, corners, and door and window openings look finished rather than improvised. Because trim is typically produced from painted coil to match or complement a building's panel color, the equipment used to form it directly shapes how clean, tight, and consistent the finished profile looks on the wall.

Marion Manufacturing, a roll-forming equipment builder with

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more than 45 years in the industry, produces trim roll formers that can run up to five profiles from a single frame, with edge-hemming models designed to eliminate cracking at the hem and hold consistent widths from a quarter inch to a half inch. That kind of tooling precision lets a rollforming shop or manufacturer produce trim that lines up cleanly at every seam, gauge after gauge, coil after coil — the unglamorous manufacturing step behind a building's glamorous curb appeal.

FASTENERS THAT DISAPPEAR INTO THE PANEL

Few things undercut an otherwise sharp-looking building faster than a field of mismatched, rust-streaked fastener heads. Builders have increasingly leaned on color-matched and bonded washer systems to keep fasteners visually quiet against the panel.

Aztec Washer Company, a Poway, California-based manufacturer that has produced bonded sealing washers since 1968, notes that its Master Seal bonded washer assemblies can be painted to match the color of the panels they're fastening—a small spec detail that keeps a roofline or sidewall looking uniform instead of speckled. On the supply side, Coil Spot's Wildcat Fasteners line features multilayer paint protection and a mechanical zinc coating, designed to hold color and resist corrosion over the long haul, not just at installation.

ROOF ACCENTS: SNOW GUARDS, CUPOLAS, AND WEATHERVANES

Roof-mounted accessories have quietly become one of the more visible cosmetic upgrades a builder can offer, especially on standing seam roofs where the lines are clean enough that any add-on stands out — for better or worse. Snow guards are a good example: for years they were treated as a purely functional afterthought, clamped onto a roofline in a shape nobody chose on purpose.

Grandura, a manufacturer of stamped-aluminum snow guard systems, built its product line around that complaint, offering standard and custom snow guard designs in more than 40 powder-coated colors meant to complement a roofline rather than clutter it. Cupolas and weathervanes remain the classic finishing touch on agricultural and residential metal buildings — small-footprint. These high-visibility accessories read as craftsmanship even though they add little to the structural bill of materials.

PANEL PROFILES AND COLOR AS A DESIGN TOOL

Color and profile selection is still the single biggest lever a builder has over how a finished building reads to the customer. Board-and-batten profiles, in particular, have found a strong following on residential and light-commercial jobs where customers want a metal building that doesn't look like a warehouse.

Everlast Roofing manufactures its Everlast II panel in a board-and-batten pattern, available in a wide range of factory colors, for agricultural, industrial, and commercial siding and roofing applications where builders want a distinct, structured look alongside a full line of matching trim and accessories.



COURTESY OF J&E GRILL

KEEPING THE FINISH LOOKING FINISHED

A cosmetic upgrade is only as good as its long-term appearance, so touch-up and repair products belong in the same conversation as trim and fasteners. Field damage — a dropped tool, a scuffed corner during erection — is inevitable on any job site, and how a builder handles it afterward affects whether the customer remembers the building as flawless or as "the one with the scratch by the door."

Coil Spot, which supplies rollformers and builders with coil, cut-to-length soffit, and Wildcat Fasteners under one account, has built its growth strategy around giving fabricators a single source for the accessory categories — soffit, fasteners, sealants — that otherwise require juggling multiple vendors and lead times on a single job.

THE BOTTOM LINE FOR BUILDERS

Cosmetic accessories and components rarely show up as a dramatic line item on a bid. Still, they're disproportionately responsible for how a finished building is judged — by the customer standing in the driveway, and by the next prospect who drives past. Builders who treat trim, fasteners, roof accents, and color consistency as design decisions rather than afterthoughts tend to be the ones whose finished buildings do the marketing for them. **MB**

BY KATHLEEN RILEY

The Big-Door Business

Schweiss Doors

Mike Schweiss started with a chicken plucker and an idea he picked up at a wedding dance. Forty-six years later, his family company hangs doors on farm shops, NBA arenas and rocket hangars from a factory on the home farm in Renville County, Minnesota. Next, it wants to build the building, too.

In 1980, at a wedding dance at the Gibbon Ballroom in southern Minnesota, a man approached Mike Schweiss with a business idea. Schweiss had quit milking cows four years earlier and ran a small shop that built what farmers needed: farrowing crates, trailers, tile plows, snowblowers, and a mechanical chicken plucker that carried his name around the countryside. The man wanted to know whether he would consider building bifold doors. See me next week, he said, and we'll talk.

The meeting never happened. As Schweiss has told the story many times since, the man died of a heart attack on the dance floor later that night. The idea outlived him. About six months later Schweiss built his first door, a 14-by-14-foot bifold for a county highway department shed in Franklin, about 10 miles from his shop. "We made it wrong every which way," he said years afterward. The door is still in service.

The company that grew out of that door now runs a plant of about 350,000 square feet on the Schweiss family farm outside Hector, Minnesota, equidistant from Hector and Fairfax and two hours west of the Twin Cities. Schweiss Doors employs about 65 people and says it has delivered to every continent. Its products open farm shops across the Corn Belt, the main entrance of the Sacramento Kings' arena, and SpaceX rocket hangars at Cape Canaveral. It is privately held and family-owned, and it does not disclose sales figures.

What makes the company worth a close look is how narrow it has stayed. For more than four decades, Schweiss has sold essentially one thing: a very large door that lifts out of the way and clears the opening. Large doors are the core business, the company says, and never a sideline. That discipline is about to be tested. Schweiss is finishing a third door design, and it is developing a product that will get every reader of this magazine's attention: metal buildings.



ALL PHOTOS COURTESY OF SCHWEISS DOORS

Schweiss farm in 1960.

OUT OF THE MILKING PARLOR

Schweiss graduated from high school in 1971 and went to work on the family dairy. Farm income was what it was, so he started building chicken pluckers in his





Schweiss factory/farm today.

spare time for extra money, then expanded into hog equipment, trailers, and a dozen other farm items. When drought hit the region in 1976, he already had three full-time employees. He got out of dairy and put his time into the shop, which, by the company's account, began in what had been the milking parlor.

The chicken plucker mattered more than its name suggests. Schweiss has credited it with giving the business both name recognition and its early cash flow. At least one current door customer, a farmer near Atwater, Minnesota, has said he first knew the Schweiss name from the plucker his father owned.

That farmer-to-fabricator path is common in this part of the state. Loftness Manufacturing, also in Hector, was started by a farmer in 1956, and the regional development foundation notes that manufacturing employs a larger share of workers in southwest Minnesota than it does nationally. Schweiss fit the pattern, with one difference: Once he found doors, he dropped nearly everything else.

The door business started slowly. He has said the company sold one or two doors the first year, found customers by running a newspaper ad and waiting for the phone to ring, and grew one sale at a time. Through the 1980s, nearly all of those sales were to farms. He was a farmer selling to farmers, and he understood the problem they were trying to solve.

That problem kept growing. When Schweiss began, a 20-foot-wide door was typical on a machine shed. He pushed to 24 feet, then 30, then 36. By 2015, he called a 40-by-18-foot door common on farms and reported plenty of 50-footers. Combines, sprayers and planters have kept getting wider, and every increase retires another generation of sliding doors.

THE OSHKOSH EFFECT

The second market arrived by invitation. In 1990, a friend brought Schweiss along to the Experimental Aircraft Association's annual fly-in at Oshkosh, Wisconsin. He came home having met hangar owners from around the world with the same problem his farm customers had: more expensive equipment parked behind the door. Hangar doors, he has said, moved the business up a level.

He also caught the flying bug, soloing in a Cessna 172 in 1991. And he found a sales tactic that suited him: Any prospect who wanted a hangar looked at could have his time for free by flying into the Hector airport to pick him up. He collected many airplane rides that way. One of the company's largest single aviation orders went to Bult Field, a private airfield near Chicago, which was re-equipped with 132 Schweiss liftstrap bifold T-hangar doors. In April 2024, the Minnesota Aviation Hall of Fame inducted him for the strap-lift bifold and the one-piece hydraulic hangar door.

Trucking warehouses followed in the mid-1990s, then glass-clad doors for shopping centers and restaurants. In 2015, Schweiss put the mix at about half agriculture and 30% aviation, and he was candid about why he liked a spread: When aviation softened in 2009, agriculture was picking up. The balance has since shifted toward the airport. The company now puts aviation and agriculture at 40% each, with commercial and industrial work and Designer Doors at 10% apiece.

> "I just can't stop thinking about them."
>
> *MIKE SCHWEISS, ON DOORS, IN A 2015 PROFILE*

CUTTING THE CABLE

If one product decision explains the company's position, it is the liftstrap. For decades, every bifold door on the market was raised by steel cables winding onto a shaft. Cables fray, rust, overwrap, and need adjusting; when one lets go, something valuable is usually parked

SCHWEISS DOORS AT A GLANCE

- **Founded:** 1980 (first bifold door); the shop dates to the 1970s
- **Headquarters:** Schweiss family farm in Renville County, Minnesota, equidistant from Hector and Fairfax; address: Hector, Minn.
- **Founder and owner:** Mike Schweiss
- **Ownership:** Private and family-owned; sales figures not disclosed
- **Employees:** About 65
- **Plant:** About 350,000 square feet
- **Market mix:** 40% aviation, 40% agriculture, 10% commercial and industrial, 10% Designer Doors
- **Products:** Bifold liftstrap doors, one-piece hydraulic doors, Designer Doors, cable-to-strap conversion kits; patented tilt-up door in final design; metal buildings in development
- **Size range:** 6 to 140 feet wide and up to 70 feet tall (2021); taller doors now in engineering
- **Largest bifold delivered:** 90 by 61 feet, Cape Canaveral, 2015
- **Tallest in engineering:** 68-by-74-foot clear opening, 86 feet overall
- **Website:** SchweissDoors.com

underneath. Schweiss replaced them with wide polyester straps and began the patent process in 1998.

The engineering case is simple enough to make at a trade show booth. The company rates its 3-inch strap at 29,000 pounds of tensile strength, against 7,200 pounds for a quarter-inch cable. As the strap winds onto its drum, the effective diameter grows, so the door starts slowly and gathers speed as it rises. You can inspect a strap by looking at it. Schweiss backs the system with a 10-year warranty, and it later extended the idea to the latch, replacing cables, chains, sprockets and pulleys with a strap-driven autolatch that it says has 90% fewer moving parts.

Customers voted quickly. In the company's own materials over the years, the share of Schweiss bifold buyers choosing straps climbs from 80% to 90% to 96%. The company says it now stands above 99%.

The shrewder move came in 2013, when Schweiss began selling a conversion kit that puts its straps on cable doors of any make. Every aging cable bifold in the country, including the ones competitors built, became a sales lead. It is an aftermarket business that doubles as a customer-acquisition program.

ONE PIECE, FEWER PARTS

The other half of the catalog arrived in the late 1990s: the one-piece hydraulic door, a single rigid frame that swings out and up on two cylinders and forms a canopy when open. Builders and owners choose it for its clean appearance, large clear opening, relatively small number of moving components, and the fact that it needs less headroom than a bifold.

Since 2012 Schweiss has reworked the design one component at a time, and the sequence shows how the company thinks about product improvement: as a manufacturing exercise before it is a marketing one. A redesigned pump unit, branded Red Power, arrived that year. Larger cylinders ride on spherical bearings so they do not bind as the frame flexes. A wrap-around hinge with grease fittings followed in 2016. A vertical pump layout introduced in 2024 puts the motor, filter, gauges, and backup fittings within easier reach.

The most consequential change for metal builders came in 2021 with a freestanding header frame. The door carries its own structure on a three-leg frame that sends the load to footings, so the building no longer needs a truss or header engineered to hold the door. Schweiss showcased the idea in 2023 on a new weld shop at its own plant, fitted with three such doors, the largest 37 feet 7 inches wide. In hindsight, it was also an early sign of where the company was heading.

SAFETY IS NOT AN OPTION PACKAGE

A large door is a heavy object suspended over people, aircraft, and machinery, and Schweiss treats that as a design premise. Velocity fuses on both cylinders are standard on every hydraulic door; if a hose or line fails, they lock the door where it is. Tractor-hydraulic backup fittings are standard too so that a door can be raised or lowered without electricity. On the bifold side, the company cites a 5-to-1 safety factor on its straps and double chains on its gearboxes.

None of this is sold as an upgrade. The company says redundancy belongs in the base price. Its literature is blunt about competing designs that rely on flow restrictors alone, which it argues will not stop a door after a line rupture.

EVERYTHING UNDER ONE ROOF

Schweiss builds its doors at one site and builds nothing else there. Mike Schweiss argues that a shop making a few doors alongside another business never gets good at them, and that manufacturers who farm out welding leave owners stranded when the weld shop closes. "We like to brag about the quality of our doors," he told Midwest Flyer in 2022.

The capital spending follows the argument. A 20,000-square-foot electrical and assembly building opened in 2015, attached to the existing plant so the whole operation sits under one roof. A 2023 addition brought six welders and custom hoists for moving frames. Longtime employees started out cutting parts with chop saws and band saws; those gave way to plasma. Over the past four to five years, the company has put what it calls substantial money into equipment, moving from plasma to laser cutting and adding a high-end CNC turning lathe.

"The laser allows us to dial in on exact, precise measurements, and the quality of our production parts has increased immensely," the company said in written responses to Metal Builder. The lathe lets Schweiss machine door parts in-house, which it says makes them smarter and cheaper to produce and cuts the long lead times that came with buying them outside. The bigger payoff, the company says, is room to innovate: designs it could not attempt without in-house capability are now on the table.

In-house programmers wrote software that itemizes each door down to the hinges and bolts and turns out a quote and CAD drawings in minutes. In 2022, the company was citing two-to-three-week

WHERE THE DOORS GO

- **Agricultural:** Clear width and height for combines, sprayers, planters, and semis as equipment keeps growing.
- **Aviation:** Private hangars, FBOs, corporate flight departments, maintenance facilities, and museums.
- **Commercial:** Storefronts and dealerships where security and appearance both count; frames accept nearly any exterior material.
- **Industrial:** Manufacturing plants, loading areas and equipment bays with heavy, frequent use.
- **Marine:** Some of the tallest openings in the business, for yacht construction, storage and repair.
- **Residential:** Garage doors clad to match the house, so the opening blends into the exterior.



turnarounds.

Factory control also makes the service promise credible. A door is a decades-long purchase, and Schweiss supports old ones with replacement parts and with upgrades as designs change. Keith Peterson, a fourth-generation farmer at Hector who has known Schweiss since middle school, still has a cable door from the company's earliest Quonset production. When he put up an 80-by-180-foot shed, he went back to Schweiss.

ROCKETS, ARENAS AND 228 GARAGES IN DUBAI

The marquee projects are what Twin Cities television station WCCO had in mind when it titled a 2017 segment on the company "Small Town Minnesota Door Business Goes Galactic." Schweiss has supplied SpaceX since 2008 at Cape Canaveral in Texas and at Vandenberg in California. A bifold shipped to the Cape in 2015 measured 90 feet wide by 61 feet tall, weighed about 53,000 pounds once sheeted and insulated, and needed four bottom-drive motors and 31 liftstraps to raise it. It was rated for 150-mph wind. Its companion on the same shipment was only 40 feet wide but 69 feet tall.

Those records are about to fall. Schweiss has an order through engineering for four doors, awaiting the customer's approval of drawings before production starts. Two are what the company calls "normal" at 50 by 25 feet. The other two are the tallest it has engineered. One will have a clear opening of 68 feet wide by 69 feet tall, in an 80-foot-tall door overall. The other will clear 68 by 74 feet, with a total door height of 86 feet.

The architectural work, which the company runs as its Designer Door division, depends on the same heavy frame. It will carry glass, wood, metal panel, or nearly any other cladding, so a door can match a façade or vanish into it. Five bifold doors, roughly 29 by 41.5 feet, form the main entrance of the Kings' Golden 1 Center. Others hang at the Guthrie Theater in Minneapolis, Yankee Stadium, and the Under Armour headquarters in Baltimore.

A recent big order points somewhere new. Beginning in July 2024, Schweiss built 228 liftstrap bifolds for Nad Al Sheba Gardens, a luxury residential development in Dubai, under contract to Dosteen Doors and Engineering Services. These are garage doors, 18 to nearly 25 feet wide and 8 to 10 feet tall, loaded into containers in Minnesota, sent to an East Coast port, shipped to Oman and clad on site in ribbed aluminum. A company known for enormous doors spent more than a year building comparatively small

ones, sold on finish and reliability.

Schweiss enjoys the distance. At his Hall of Fame induction, he recalled asking an installer to supervise a job in Dubai. The man asked where that was. "I told him it was on the other side of Minneapolis!"

A FOUNDER'S COMPANY, A FAMILY'S COMPANY

Schweiss is now in his 70s and remains the owner. His brother Dave has been there from the start and is the company's face at farm and aviation shows and its troubleshooter by phone. His wife, Julie, has long handled quoting and customers. Daughter Brook Schweiss Mead has spent about two decades in sales and shipping, and daughter Lark Schweiss now works in marketing and management. When Schweiss accepted his Hall of Fame plaque, he brought a granddaughter on stage and mentioned that his grandchildren are at the plant with him every day.

For a company built on one inventor's instincts, the obvious question is who carries product development forward. The company's answer is a bench, not a single heir. "Mike has structured and surrounded his company with very talented employees and engineers," it said, "along with his daughter, who has been groomed and trained to keep the innovation going for years."

NEXT: A THIRD DOOR, AND THE BUILDING AROUND IT

Two projects will define the next chapter.

The first is a tilt-up door, a design distinct from both the bifold and the outward-swinging hydraulic. An active Schweiss patent covers its linkage arms, and the company says the design is about 75% complete, with the door expected to be available shortly. Schweiss describes a robust pivot shaft, a heavy-duty hydraulic system, and a structural frame that eliminates the exterior truss on doors up to 50 feet wide. It has no cam rollers or tracks.

The differences from the hydraulic door are mostly structural. With no hinges, the tilt-up pivots into the building rather than swinging out from the wall, so it does not hang as far outside when open. It also puts less load on the structure. Most of the forces go to the footings, the company said, which lets building manufacturers design "a completely different endwall that they seem to like."

The second project is bigger, and older than it looks. About 20 years ago Schweiss manufactured seven steel buildings. Door sales were climbing, the company ran short of people to do both, and it set buildings aside to concentrate on doors. Buildings are now back in development, with no launch date set. The aim is to sell the door and the building envelope as a package.

The company is candid that timing depends on the core business. If door sales ever level off and it goes looking for another product line, "it would be buildings," it said. "Time will only tell."

The logic is easy to follow. On a hangar or a big farm shop, the opening is the hardest part of the structure to engineer, and the door maker already knows the loads. The freestanding header moved some of that responsibility from the building supplier to Schweiss five years ago, and the tilt-up moves more of it to the footings. A package extends single-source accountability from the door to everything it hangs on.

The obvious risk is channel conflict. Schweiss doors reach the market partly through builders and steel building companies, and a door maker selling buildings could see them as a new competitor. The company sees it differently. "We work with everyone from steel building companies to end users," it said, and a package would be "a convenient option for all of our customers who are not in the building business." It also notes that many steel building companies do not manufacture their own buildings; for them, Schweiss would be one more manufacturer to buy from.

Metal building manufacturing is still a scale business with entrenched suppliers, and a company of 65 people will again be choosing where to spend its factory time, as it did 20 years ago. This time it has a much bigger plant to work with.

The 14-by-14 in Franklin, the one its builder says he got wrong in every respect, still goes up and down. Schweiss is betting that the next time a customer asks for a big door, he can sell them the building around it as well. **MB**

TIMELINE

- **1971:** Mike Schweiss graduates from high school and goes to work on the family dairy.
- **1976 Drought year:** With three employees in the shop, he leaves dairying to manufacture full time.
- **1980:** A conversation at a wedding dance leads to the first Schweiss bifold, a 14-by-14 for a county highway shed in Franklin.
- **1990:** A trip to the EAA fly-in at Oshkosh opens the aviation market.
- **Late 1990s:** One-piece hydraulic door added.
- **1998:** Schweiss begins the liftstrap patent.
- **Mid-2000s**: Schweiss builds seven steel buildings, then sets buildings aside to keep up with door demand.
- **2008:** First doors for SpaceX.
- **2012:** Red Power hydraulic pump introduced.
- **2013:** Liftstrap conversion kit offered for cable doors of any make.
- **2015:** 20,000-square-foot electrical building opens; 90-by-61-foot bifold ships to Cape Canaveral.
- **2021:** Freestanding, self-supporting header frame for hydraulic doors.
- **2023:** New weld shop opens at the plant, showcasing freestanding doors.
- **2024:** Schweiss inducted into the Minnesota Aviation Hall of Fame; production begins on 228 doors for Dubai.
- **2026:** Tilt-up door design about 75% complete; tallest doors to date in engineering; metal buildings in development.

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