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EDITOR'S NOTE //

BY KATHLEEN RILEY

A New Voice, A Familiar Mission

It is my privilege to step in as the new editor of Frame Building News, and this issue offers a strong introduction. It is packed with the practical, builder-focused content our readers rely on.

Inside, you'll find a feature on building a horse barn that balances function, durability, and the unique demands of equine facilities, plus a look at managing corrosion in animal confinement buildings—a challenge every post-frame builder eventually faces. We also cover wood-to-metal connections, including the hardware and methods that keep structures performing for decades. Randy Chaffee returns with another "Building Wins" column, sharing real stories from customers in the field.

I'm looking forward to working with our readers, contributors, and industry partners in the issues ahead. If there's a topic you'd like to see covered, a project you'd like to feature, or feedback on what we're doing right or could improve, please reach out—my inbox is open.

Thank you for reading, and welcome to this new chapter.
Warm regards,
Kathleen Riley, Editor

CONTENTS

6

18

41

DEPARTMENTS

ON THE COVER:
B&D Builders Horse Stalls
Mid-Atlantic Steel Fabrication/Blackwood Stalls. *Photo Courtesy B&D Builders*

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Designing the Horse Barn That Fits

Designing the Horse Barn That Fits Your Herd, Your Goals, and Your Land

PHOTO COURTESY OF SARA LEWIS TEMTE

By Frame Building News Staff

A builder's guide to equestrian facility design—layout fundamentals, aesthetic upgrades, and the safety essentials that protect horses and people alike.

There is a certain poetry in a well-built horse barn. The wide aisle swept clean, morning light falling across stall doors, the smell of fresh shavings and good hay—a barn built with intention is not simply a shelter. It is the daily infrastructure of a life lived alongside horses. For post-frame builders, equestrian projects represent some of the most technically demanding and personally meaningful work in the portfolio. Clients come with deep emotional investment, specific requirements rooted in animal welfare, and—increasingly—sophisticated aesthetic visions.

Whether the commission is a modest four-stall backyard barn or a sprawling training complex with an attached indoor arena, the fundamentals of good equestrian design remain constant: functional layouts that support daily workflows, ventilation and lighting that protect respiratory health, structural choices that prevent injury, and finishes that honor the land and the horses they shelter. This guide walks through the full spectrum of equestrian facility design—from the entry-level build to the elite competitive center—with an eye toward what post-frame builders and their clients need to know before breaking ground.

Part One: Starting Smart—Site Selection and Planning Principles

Every successful equestrian project begins well before a single post is set. Site selection is among the most consequential decisions in the entire process—and one of the few that cannot be easily reversed. Barns should be positioned on elevated ground with natural drainage, ideally sloping approximately five feet per hundred feet away from the building on all sides. Low-lying areas collect water, create chronic mud problems, invite fly pressure, and compromise footing around high-traffic areas like barn entrances and paddock gates.

Orientation matters too. In most North American climates, positioning the barn with its back to prevailing winds reduces drafts through stall doors and helps the building shed snow load more efficiently. Existing windbreaks—tree lines, hedgerows, or adjacent structures—should be incorporated into the site plan wherever possible. South-facing barn entrances capture winter sun while allowing natural ventilation through the prevailing summer breeze.

Before finalizing the footprint, builders and clients alike should think through the full operational picture: trailer access and turning radius, manure storage and removal logistics, future expansion potential, proximity to water and electrical service, and the relationship between the barn, paddocks, pastures, and any future arena. Circular driveways designed to accommodate a four-horse gooseneck trailer are a practical amenity that clients rarely think to request but consistently appreciate once the barn is in use.

"The best barn designs we see start with a conversation about daily workflow—how many horses, who is doing the chores, and what the owner's vision looks like five years from now. Getting that right up front saves expensive change orders later."

— Wick Buildings

Planning for growth is a discipline worth building into every equestrian project. Clients who currently have four horses frequently end up with six. Stall placement, electrical panel capacity,

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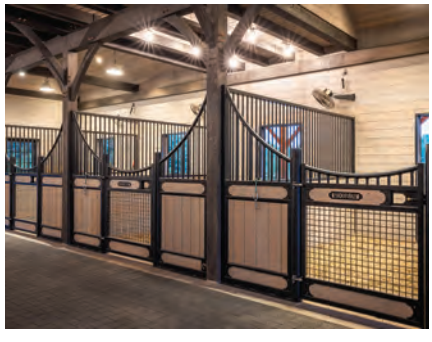
water line sizing, and septic or drainage infrastructure are all far less expensive to right-size at initial construction than to retrofit afterward. Builders who help clients think five years ahead earn referrals for decades.

Part Two: Layout Fundamentals—The Building Blocks of a Functional Barn

The Classic Center-Aisle Design

The center-aisle barn remains the most popular and practical layout for horse operations of virtually any scale. Stalls line both sides of a central corridor, creating a sheltered workspace that allows feeding, grooming, mucking, and veterinary care to proceed regardless of weather. The symmetry of the design supports efficient airflow, balances structural loads, and creates the visual appeal that many horse owners associate with a "real barn."

Aisle width deserves careful attention. Twelve feet is considered the functional minimum—enough to pass a horse and move equipment—but fourteen feet is increasingly the standard recommendation among equestrian designers. The extra two feet prevents crowding when multiple horses are being handled simultaneously, accommodates larger equipment, such as tractor-mounted manure forks, and creates a more comfortable workspace for veterinarians and farriers. In larger facilities with active lesson or training programs, sixteen-foot aisles are not uncommon.



Ceiling height should be no less than ten feet throughout the barn, and twelve feet or higher is preferable for ventilation, hay-lifting clearance, and the psychological comfort of horses. Taller

structures also provide better options for lighting placement.

Stall Sizing: Getting It Right for Your Horses

The standard horse stall measures 12 x 12 feet—an appropriate size for an average-sized light horse breed such as a Quarter Horse or Thoroughbred, provided the horse receives regular turnout for exercise. Warmbloods, drafts, and large sport horses are more comfortable in 12 x 14 or 14 x 14 stalls. Ponies can be safely housed in 10 x 10 stalls, though 12 x 12 is generally recommended for any facility offering boarding, since prospective boarders typically expect the larger size.

Foaling stalls require additional room—typically 14 x 14 or 16 x 16 feet—to allow the mare to move and the foal to nurse freely. Incorporating hinged partition walls between adjacent stalls is a cost-effective way to create convertible foaling space without dedicating permanent square footage to a single-purpose stall.

"Stall hardware is where form and function intersect most visibly. Our customers want hardware that performs flawlessly under daily use—sliding doors that don't jam, latches a horse can't open, and partition grills that let horses see each other without risking injury. The aesthetics are a bonus."

— MWI Components

Supporting Spaces: Where Efficiency Lives

The stalls are only part of the story. A well-designed equestrian facility integrates several critical support spaces that determine how efficient—and how pleasant—daily operations will be.

- Tack Room: A dedicated, lockable tack room protects leather equipment from dust, moisture, and theft. Climate-controlled tack rooms extend the life of expensive saddles and bridles considerably. Wall-mounted saddle racks, bridle hooks, and blanket bars keep the space organized. Plan for 100–150 square feet per horse for a four-horse operation; larger facilities may dedicate separate tack rooms to different disciplines or client groups.
- Feed Room: Feed storage must be horse-proof—no barn horse has ever met a grain bin it did not want to investigate. Secure, airtight containers prevent colic emergencies and deter rodents. Good ventilation prevents mold. Bright lighting helps owners read feed labels accurately. A separate, dedicated feed room is strongly preferable to grain stored in the aisle or in individual stalls.
- Wash Stall: An indoor wash stall measuring 12 x 12 feet with concrete

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flooring, proper drainage, cross-ties, and access to both hot and cold water is among the most consistently appreciated amenities in any barn. Non-slip flooring is non-negotiable. A drain with a hair trap keeps the system functional with minimal maintenance.

- Grooming Bay: In busier facilities, a dedicated grooming area separate from the wash stall reduces aisle congestion and keeps the wash stall available for bathing and veterinary treatments.
- Hay and Bedding Storage: Hay is best stored separately from the main barn structure—both for fire safety and moisture management. If an attached or internal hay loft is used, proper separation from electrical systems and adequate ventilation for newly baled hay is critical to prevent spontaneous combustion. Bedding storage should be accessible and elevated off the ground to prevent moisture absorption.
- Utility and Office Space: A small office with a desk, phone, and computer is invaluable for facilities that board horses or run lesson programs. A utility room for laundry—saddle pads, blankets, and stable bandages are washed constantly—is an amenity that quickly moves from "nice to have" to "essential" in working barns.

Part Three: Scaling Up—From the Four-Stall Family Barn to the Elite Training Complex

The Entry-Level Build: Four to Six Stalls

For the small acreage owner or first-time horse property builder, a four-to-six stall center-aisle barn represents the sweet spot between functionality and budget. A typical 36 x 36-foot footprint accommodates four 12 x 12 stalls, a modest tack room, and an aisle wide enough for comfortable daily management. Six-stall versions in the 36 x 48-foot range add space for a wash stall or a small feed room without dramatically increasing cost.

Modular and prefabricated post-frame construction is particularly well-suited to this scale. Amish-built modular barns, for example, can arrive and be assembled in days rather than weeks, with standard features like pressure-treated foundations, oak kickboards, Dutch doors, and hardware already incorporated. The modular approach also allows for future expansion—adding stalls, lean-tos, or a tack room extension as the operation grows.

Shedrow designs—open-front stalls facing a common overhang—are an even more economical option for mild climates or as a supplementary structure. Multiple shedrow units can be arranged in L- or U-configurations to create partially enclosed barnyards with natural drainage and airflow. The shedrow's inherent ventilation makes it a preferred design in humid Southern climates where respiratory health is a constant concern.

"A four-stall post-frame barn done right, with a good roof, proper drainage, and quality stall fronts, will last a lifetime and serve a small horse operation better than a larger barn thrown together without planning. Size isn't the measure—craftsmanship is."

— Starwood Rafters

The Mid-Size Operation: Eight to Sixteen Stalls

Eight to sixteen stalls mark the transition from personal-use barn to light commercial operation. At this scale, the efficiency of the daily workflow becomes a more pressing design concern: feed routes, mucking logistics, horse movement patterns, and separation of disciplines or horse groups all demand thoughtful spatial planning. Wider aisles, multiple entry and exit points, and separate tack areas for different users become increasingly important.

Barns at this scale frequently incorporate a center-aisle barn configuration with attached lean-tos for hay or equipment storage, a dedicated veterinary and farrier work area with excellent lighting and a non-slip surface, and a small rider lounge or observation area. Heated tack

rooms with individual boarder lockers are standard in colder climates. Wash stalls may be doubled—one in each wing—to prevent bottlenecks during busy lesson or show-preparation periods.

Post-frame construction excels at this scale, offering the clear-span interior space that allows flexible stall configuration without interior load-bearing columns obstructing movement. Builders should plan electrical service carefully at this stage—multiple dedicated circuits for wash stalls, clipping areas, and arena lighting systems, with adequate panel capacity for future expansion.

The Elite Training Center: Twenty or More Stalls with Indoor Arena

At the high end of the equestrian facility spectrum, the indoor arena becomes the defining element of the project. A full-service training center typically includes twenty or more stalls organized across multiple barn wings, an indoor arena of significant scale, outdoor arenas, round pens, paddocks, and extensive support infrastructure, including staff quarters, client lounges, and dedicated competition preparation facilities.

Indoor arena dimensions are discipline-driven. The American Association of Equine Practitioners recommends a minimum of 60 feet wide by 120 feet long for basic training, but serious discipline-specific work demands more space. A regulation dressage arena runs 66 x 132 feet (short arena) or 66 x 197 feet (long arena), and competitive jumper work benefits from widths of 80 feet or more to allow proper striding between fences. Reining and cutting operations may need even greater length for rundowns and sliding stops.

Minimum clear height in an indoor arena should be 14 feet for general riding,

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16 to 18 feet where jumping is the primary discipline, and as much as 20 feet for facilities that host international-level competition. Inadequate ceiling height is one of the most difficult and expensive problems to correct after construction.

"When we design indoor arenas, we think first about the clear span—no interior columns that could injure a horse or restrict movement. Post-frame and hybrid construction give us the engineering flexibility to achieve those spans while staying within budget."

— Horizon Structures

Footing is the single most important factor in arena performance and horse health. The ideal indoor surface provides consistent cushioning to protect joints, adequate grip to prevent slipping, and enough firmness to allow clean footfalls and energy return during athletic movements. Sand-based footing with additives such as rubber crumb, fiber, or textile material is the current standard in most disciplines. Footing systems require regular dragging and moisture management—dust control through water or polymer additives should be incorporated into the building's infrastructure from the start.

Attached barn-arena combinations, where a stall block connects directly to the arena through an interior breezeway, are increasingly popular for training operations. This configuration allows horses to be moved from stall to arena without exposure to weather, reduces the distance staff travel during busy training days, and creates a more cohesive facility aesthetic. Careful planning of the connection point—including door dimensions wide enough to move equipment—and the transition between arena and barn flooring surfaces is essential.

Part Four: Aesthetics and Upgrades—Designing a Barn That Turns Heads

Cupolas, Weathervanes, and Roofline Character

Few architectural elements define the equestrian aesthetic more immediately than the cupola. Perched at the barn's roofline peak, the cupola serves dual purposes: it is a functional ventilation element that draws warm air and moisture up and out of the structure, and it is the visual signature that distinguishes a purpose-built horse barn from a generic agricultural outbuilding. Paired with a handcrafted weathervane—a galloping horse, a rooster, or a custom design—a well-proportioned cupola creates a roofline silhouette visible across the entire property.

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Ventilated cupolas work best when sized proportionally to the barn's total square footage and paired with ridge, gable, and soffit vents to create a complete passive airflow system. Electric fans installed within the cupola can augment natural convection during still, humid summer weather. Wire screening should always be installed to prevent birds from nesting inside the ventilation system.

Dormers, extended overhangs, and board-and-batten exterior siding are additional roofline and exterior treatments that signal intentional design. Metal roofing—which sheds snow more effectively than shingles and reduces long-term maintenance—has become the preferred choice for equestrian facilities in most climates, particularly in combination with quality insulation to manage condensation and reduce interior noise during rain.

Doors: The First Impression

Barn doors are the highest-visibility exterior element in any equestrian facility. The large sliding entry doors at each gable end of a center-aisle barn, the Dutch doors on individual stalls, and the decorative or functional doors of the tack room and wash area collectively define the building's character from the driveway. This is where aesthetic investment pays immediate dividends.


CHRISTOPHER BOSWELL-STOCK.ADOBE.COM

Cross-buck barn doors with X-pattern hardware are a perennial equestrian favorite, delivering rustic appeal with structural integrity. Arched entry doors with glass-panel tops admit natural light while providing a European polish that sets premium facilities apart. Dutch doors—split horizontally to allow the horse to extend its head into the aisle while the lower half remains closed—are both practical and visually characteristic; the additional light and airflow they admit measurably improve stall air quality.

Sliding door hardware should be specified with operational longevity in mind. Heavy-duty track-and-roller systems prevent jamming that turns a practical door into a daily frustration and a safety hazard. All exterior door hardware should be flush-mounted or recessed wherever possible—protruding bolt hardware on a stall door is a laceration waiting to happen.

"Sliding doors with quality track systems and decorative grillwork are consistently what clients point to when they show visitors their barn. The doors are the face of the building. They deserve the investment."

— MWI Components

Stall Fronts and Interior Hardware

Inside the barn, stall fronts and hardware carry the exterior aesthetic into the horses' daily living space. Standard powder-coated steel stall

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fronts offer durability and clean lines that photograph well and age gracefully. Custom upgrades—arched stall front tops with brass or bronze finials, V-yoke doors, European-style low-cut fronts that allow horses to observe aisle activity and interact socially—move a barn from functional to genuinely beautiful.

Interior hardware selection is as much a safety decision as an aesthetic one. Latches and stall bolts should be horse-proof: many horses learn to slide a simple bolt within days of discovering it. A top bolt with a kick-over bolt at the base is the standard secure arrangement for Dutch doors. Padlocks on stall doors should be avoided—they dramatically slow emergency evacuation. Bridle hooks, fold-down blanket bars, saddle racks, and halter hooks mounted at consistent heights throughout the barn improve organization and reduce clutter.

Kickboards—typically 48-inch-high pressure-treated boards or oak planking along the base of stall walls and partitions—protect the building structure from pawing horses and provide a visible chew-resistant surface. Heavy-gauge metal chew guards on exposed wood edges of Dutch doors and stall fronts are a maintenance investment that pays for itself quickly.

Lighting: LEDs and the Well-Lit Barn

Lighting in equestrian facilities has improved dramatically with the adoption of LED technology. LED fixtures consume a fraction of the energy of their fluorescent predecessors, produce a higher-quality light that more closely approximates natural daylight, generate significantly less heat (reducing fire risk), and last many times longer without requiring replacement.

Stalls should receive a minimum of 50 foot-candles of illumination at horse-head height for routine care. Veterinary and farrier work areas benefit from 100 foot-candles or more. Indoor arenas require careful lighting design to eliminate shadows and hotspots that startle horses or create depth perception problems—uniform, high-bay LED

fixtures distributed across the ceiling at regular intervals are the current standard. The United States Equestrian Federation recommends lighting that simulates natural daylight for competition arenas.

All lighting fixtures in a barn environment must be rated for agricultural use: dust- and moisture-resistant housings, protective cages over bulbs, and installation in weatherproof junction boxes. This is not an area to value-engineer. The corrosive environment of a horse barn—ammonia, moisture, dust—rapidly degrades standard residential fixtures, creating both a maintenance burden and a fire risk.

Natural light should be maximized wherever possible through windows, skylights, and translucent roof or wall panels. Natural light reduces operating costs, supports the horses' circadian rhythms, manages bacterial growth in stalls, and creates the warm, inviting atmosphere that distinguishes a great barn from a merely functional one.

"We specify LED agricultural-rated fixtures on every equestrian project. The energy savings are significant, but what really matters is the light quality—horses are calmer in evenly lit, shadow-free environments, and the people working in the barn appreciate the difference immediately."

— Horizon Structures

Part Five: Safety and Health—Building a Barn That Protects

Fire Safety: The Non-Negotiable Priority

Horse barns are among the most fire-vulnerable agricultural structures, combining large quantities of combustible hay and bedding with electrical systems operating in dusty, moisture-rich environments. The consequences of a barn fire are catastrophic—not merely financial, but deeply personal. Fire safety in equestrian facilities must be treated as a design priority from the earliest planning conversations, not an afterthought addressed during the final inspection.

NFPA 150: Fire and Life Safety in Animal Housing Facilities establishes the code framework for equestrian facilities. At minimum, every barn should incorporate ABC-type fire extinguishers mounted at regular intervals in the aisle, smoke detectors in all enclosed spaces, a dedicated master electrical shutoff accessible from outside the barn, and separation of hay and bedding storage from the main stall block. Automatic fire suppression systems are increasingly standard in facilities with significant horse valuations, and builders working on commercial equestrian properties should familiarize themselves with local requirements under the International Fire Code.

"Every stall door in a horse barn is also an emergency exit. That's how we design them—no padlocks, hardware that opens in one motion, and a clear path to the outside from every stall. When seconds matter, a barn that was designed for evacuation saves horses."

— Starwood Rafters

Electrical systems in equestrian facilities demand particularly rigorous specification. All wiring should be enclosed in conduit—PVC is preferred over metal in wet barn environments—both to protect against rodent damage (horses and rodents share a taste for the sweet compounds in wire insulation) and to contain any arc faults before they reach combustible materials. Outlet and switch boxes should be weatherproof and positioned out of reach of horses. Every piece of electrical equipment should carry

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a UL rating for agricultural or wet-location use.

Extension cords have no permanent place in a horse barn. They are a fire hazard, a tripping hazard, and a maintenance failure waiting to happen. Plan adequate fixed outlet locations at the design stage and build the electrical infrastructure to eliminate the need for extension cords in routine operations.

Hay storage management deserves special emphasis. Newly baled hay can reach internal temperatures sufficient for spontaneous combustion if baled with excess moisture. Hay stored within the main barn structure should be kept well away from all electrical components, ventilated adequately for initial drying, and monitored with a temperature probe in the days following delivery. Separate hay storage buildings are the preferred solution in facilities with significant hay inventories.

Ventilation: The Foundation of Respiratory Health

Horses are obligate nose-breathers with respiratory systems significantly more sensitive than those of most other large mammals. The two primary airborne hazards in horse barns—ammonia from urine decomposition and respirable dust from hay and bedding—accumulate quickly in poorly ventilated structures and contribute directly to heaves, recurrent airway obstruction, inflammatory airway disease, and a range of other respiratory conditions that compromise performance and shorten working careers.

The simple test of barn ventilation is also the most reliable: if you can smell ammonia inside the barn, the ventilation is inadequate. Horses, whose noses are constantly at stall level, are exposed to concentrations far higher than any human standing in the aisle ever perceives. Builders should design for cross-ventilation from the outset—windows and vents positioned on opposing walls, ridge vents that exhaust warm air from the peak, and cupolas or ventilated overhangs that complete the passive airflow system.


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Industrial ceiling fans sized appropriately for the barn's square footage—sometimes called "Big Ass Fans" in the trade—move air more effectively through a large barn than conventional ventilation alone. Individual stall fans improve local airflow at the horse level. All fans must be rated for agricultural use and plugged into properly grounded, weatherproof outlets.

Stall-level ventilation is frequently overlooked in barn design. Ventilation focused on the aisle, and the roofline does not necessarily reach the lower portion of the stall where horses eat, rest, and stand—and where ammonia concentrations are highest. Dutch doors providing individual stall access to the exterior meaningfully improve stall-level ventilation while also serving as an emergency exit point.

SOURCES & RESOURCES

- Horizon Structures (Dave Zook): www.horizonstructures.com
- MWI Components: www.mwicomponents.com
- Starwood Rafters: www.starwoodrafters.com
- Wick Buildings: www.wickbuildings.com
- Morton Buildings www.mortonbuildings.com
- Conowingo Builders www.conowingobuilders.com
- Five Star Ranch www.fivestarranch.com
- Sterling Equine www.sterling-equine.com
- Lighthoof www.lighthoof.com
- Bit & Bridle (Horse Stable Design Guide): www.thebitandbridle.com
- Cowgirl Magazine (Barn Design and Western Decor): www.cowgirlmagazine.com
- Plaid Horse Magazine: www.plaidhorse.com
- Western Horseman—Maximizing the Design of Your New Horse Barn: westernhorseman.com

Flooring: Protecting Limbs and Joints

Flooring decisions in a horse barn balance comfort, traction, drainage, and maintenance burden. Dirt floors are the most natural surface and provide reasonable cushioning, but they require frequent maintenance to address low spots and paw-created holes, and they can become problematic in wet climates. Concrete is extremely durable and easy to clean, but it is hard on horses' joints and legs when unmatted and becomes dangerously slippery when wet. The most effective solution in most contemporary barns combines a well-compacted base with dense rubber mats at least half an inch thick over the stall floor.

Aisle surfaces should prioritize traction above all else. Textured concrete—finished with a broom or exposed aggregate rather than a smooth trowel—provides adequate grip in most conditions. Non-slip rubber pavers or rubber matting in high-traffic zones, particularly wash stalls and grooming areas, reduces the risk of falls for both horses and handlers. All sloped surfaces should drain away from areas where horses stand.

The University of Kentucky's Equine Programs recommends a coefficient of friction of at least 0.6 for barn flooring to ensure adequate grip for horses moving at various gaits. Wash stall concrete should slope at two percent toward drains, with hair traps installed to prevent clogging.

Hardware Safety and Horse-Proofing

Horses are curious, intelligent, and often destructive. A well-designed barn anticipates the behaviors of confined horses and builds proactive protection into every element. All hardware—latches, hinges, bolts, stall front grillwork—should be evaluated for entrapment hazards. The question to ask is simple: Is there

any projection, gap, or loop that a horse could catch a shoe, halter ring, or lower jaw on? If so, it is a hazard.

Seamless welds on all metal stall components prevent sharp edges from developing as welds stress and crack. Compatible metals should be used throughout—welding aluminum mesh to an iron frame, for example, creates a mechanical failure point at the weld that a single kick will expose, with potentially serious consequences for the horse. Kickboards and lower stall walls should be constructed from materials that can withstand repeated blows from shod hooves without cracking, splintering, or delaminating.

Part Six: The Design Conversation—What to Ask Before You Build

The most successful equestrian construction projects share a common characteristic: the builder and client invested meaningful time in the design conversation before construction began. The following questions are worth raising with every equestrian client, regardless of project scale.

How many horses do you have now, and how many do you expect to have in five years? Designing for current needs without accommodating likely growth is among the most common and expensive mistakes in equestrian construction.

Who handles the daily care, and what is that routine like? Understanding the physical workflow—where feed is stored relative to stalls, where the hose is relative to the wash stall, how manure is removed, and where it goes—allows the builder to create a layout that reduces daily labor rather than adding to it.


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What disciplines are practiced, and is competition in the picture? A dressage barn and a western ranch operation have different spatial requirements, different flooring preferences, and different hardware standards. A client who plans to host clinics or schooling shows needs spectator space, adequate trailer parking, and an indoor arena designed with auditors in mind.

What does the property look like in ten years? Barns built in isolation—without consideration for future arena siting, paddock layout, or residential integration—can create costly logistical problems as the property evolves. A few hours of site planning early in the process can eliminate years of workarounds later.

What is the budget, and where is the flexibility? Equestrian clients often have strong opinions about specific elements—custom stall fronts, a heated tack room, a particular roofing material—while being open to cost-saving alternatives in less visible areas. Understanding the client's priorities allows the builder to deliver maximum value within real financial constraints.

"The horse owners we build for care deeply about getting it right. They will live with this barn every day for the rest of their time on the property. Our job is to make sure that every morning they walk in, the building works the way they imagined it would."

— Horizon Structures

Conclusion: Building for the Horse, Designing for the Dream

The best horse barns are not simply enclosures. They are expressions of a philosophy—that the animals in our care deserve thoughtful spaces, that the people who tend them deserve efficient and beautiful workplaces, and that buildings can honor the land they stand on while serving the practical purposes of a working agricultural life.

For post-frame builders, equestrian work offers the opportunity to build structures that clients will love with an intensity rarely matched in residential or commercial construction. A horse barn done right becomes a daily joy. It is the backdrop of early mornings, the shelter for animals of profound beauty and value, the architecture of a life built around a deep human-animal bond.

The technical demands are real. Ventilation, fire safety, drainage, stall hardware, and arena sizing all require specific knowledge that general contractors may not bring to the table. But builders who invest in that expertise—who learn to ask the right questions about workflow and disciplines and future plans—will find that equestrian clients are among the most loyal, referral-generating relationships in the business.

From four stalls to forty, the principles are the same: build for the horse, plan for the rider, design for the long life of the building—and never underestimate the power of a well-proportioned cupola on a roofline at sunrise. ***FBN***

TECHNICAL & SAFETY STANDARDS

- NFPA 150: Fire and Life Safety in Animal Housing Facilities: www.nfpa.org
- American Association of Equine Practitioners (AAEP)—Arena and Facility Guidelines: www.aaep.org
- United States Equestrian Federation (USEF)—Facility Standards: www.usef.org
- Penn State Extension—Fire Safety in Horse Stables: extension.psu.edu
- Rutgers Equine Science Center—Fire Prevention on the Farm: esc.rutgers.edu
- SDSU Extension—Electrical Safety in the Barn: extension.sdstate.edu
- University of Kentucky Equine Programs—Barn Flooring Guidelines: uky.edu/equine

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Built to Withstand the Worst

Corrosion-Resistant Materials for Animal Confinement Buildings

Animal waste is one of the most corrosive forces a post-frame building can face. From foundation posts to roofing fasteners, no component is immune. Here's what industry experience and the companies serving agricultural builders tell us about selecting materials that hold up over time.

Walk into a working hog confinement barn, a dairy facility, or a cattle feeding operation, and you'll understand immediately why builders who specialize in agricultural post-frame construction consider corrosion resistance one of their most critical design criteria. The combination of animal waste, decomposing organic matter, biogases, ammonia, high humidity, and the wash-water used to clean these environments creates one of the harshest conditions any building material will ever face.

According to U.S. Steel research cited widely in the post-frame industry, animal waste produces sulfites, ureas, amines, and other corrosive agents. Bacteria in the waste oxidize organic material into organic acids that readily attack aluminum, iron, and zinc. Add in the near-constant high humidity from animal respiration and cleaning cycles, and you have an environment that will accelerate the degradation of unprotected steel, wood, and concrete alike.

Material science in the post-frame sector has advanced considerably, and the products available to agricultural builders today reflect a much deeper understanding of what it takes to survive a confinement environment. This article examines the

major material categories — from posts and foundations to panels, fasteners, and liners — and draws on input from suppliers with significant experience in agricultural projects.

The Foundation Challenge: Keeping Wood Out of Harm's Way

In any post-frame building, the most vulnerable point is where the structure meets the ground — and in an animal confinement facility, that vulnerability is magnified dramatically. Manure and liquid waste migrate toward the base of walls and columns, creating a persistent chemical attack that, over time, can compromise even pressure-treated lumber.

"If there is animal waste around that post, it's going to be compromised. Post Protector is simply a physical barrier so that there isn't direct contact."
— Post Protector

One approach addresses the problem through physical isolation: an HDPE sleeve — fabricated from the same high-density polyethylene used in landfill liners — wraps the embedded portion of the column and prevents direct contact between the wood and surrounding soil, concrete, or waste. The material resists animal waste, manure liquids, and the acidic compounds produced during fermentation.

The sleeve protects against post decay from moisture, insect infestation, animal waste, concrete encasement, and varied soil conditions. Because it fits over the post before installation, the system requires no changes to standard "post-in-ground" construction methods.

Precast concrete columns take a different approach to the same problem: eliminating all wood-to-ground contact. These columns are cast at 10,000 PSI — roughly three times the strength of standard concrete — and reinforced with high-strength rebar. A powder-coated steel U-bracket tops the column and connects it to the wood post above ground, keeping the wood out of the corrosive zone. Additionally, the wood column connected to the column can easily be replaced when damaged by the animals through force like kicking, or animal waste.

Anchor bracket systems extend this same philosophy to slab-on-grade applications, connecting posts to a concrete foundation rather than embedding them in soil. According to a National Frame Building Association survey, builders' use of wood in the ground was projected to fall 31% over a five-year period, while use of precast concrete columns was expected to grow 43%.

Molded HDPE post covers offer another barrier option. A one-piece cover with an enclosed bottom prevents soil contact while allowing ventilation, and is available in sizes to fit standard post dimensions. Because the wood never contacts the ground, performance is independent of changes in preservative treatment chemistry over time.

Steel Panels: The Zinc and Paint Equation

The steel panels that clad post-frame agricultural buildings have improved dramatically over the past two decades, but animal confinement remains a uniquely demanding environment. Biogases concentrate on interior surfaces. Ammonia from urine attacks zinc coatings. Dust carries corrosive bacteria to every corner of the building. Direct contact with liquid waste will rapidly perforate unprotected steel.

Some post-frame building manufacturers with significant agricultural project histories specify G-90 galvanized steel for all exterior surfaces — providing 50% more zinc coating than G-60 steel. At that specification level, a high-performance paint system such as AkzoNobel Ceram-a-Star 1050 can carry a 40-year warranty against chipping and cracking.

"The combination of high-quality paint systems and protective substrate coatings allows panel manufacturers to offer 40-year warranties against red rust corrosion — especially important where agricultural building environments like animal confinement present challenges to those coatings and paint systems."
— David Quehl, Director of Sales & Marketing, Direct Metals Inc.

The same paint platform appears across multiple post-frame building lines serving the agricultural market. The consistent specification reflects an industry-wide recognition that long-term field performance in corrosive environments depends on coating quality, not just substrate grade.

For the most extreme interior environments, some builders

INDUSTRY ORGANIZATIONS

- National Frame Building Association (NFBA) — nfba.org — Standards, education, and industry research for post-frame construction
- American Iron and Steel Institute (AISI) — steel.org — Technical standards for steel construction, including corrosion protection

COMPANY RESOURCES

- Wick Buildings — wickbuildings.com — Agricultural building systems, planning guides, animal confinement design
- Post Protector — postprotector.com — HDPE post barrier sleeves for post-frame foundations
- Perma-Column® — permacolumn.com — Precast concrete columns and Sturdi-Wall® anchor brackets
- Graber Post Buildings — graberpost.com — Post-frame building supply, including Ag-Tuf® PVC liner panels
- Plasti-Sleeve — plastisleeve.com — Molded HDPE plastic sleeves for protection of Post Frame columns.
- Maze Nails — mazenails.com — Stainless steel and hot-dipped galvanized nails for agricultural construction
- DR!PSTOP / FILC USA — dripstop.com — Condensation barrier for metal roof panels in animal confinement

are turning away from painted steel entirely on interior surfaces. The question of which base material — galvanized, Galvalume, or aluminum — performs best in a given confinement application deserves careful thought. Galvalume (a continuous hot-dip aluminum-zinc alloy coating, typically 55% aluminum and 45% zinc) provides strong overall corrosion resistance, but standard galvanized G-90 or higher is generally preferred on interior walls of livestock buildings because the zinc layer sacrifices itself to protect the steel substrate at cut edges and scratches. Aluminum panels can offer excellent corrosion resistance but require special consideration when selecting fasteners, as discussed below.

Fasteners: The Small Component That Causes Big Problems

Fasteners are the most underappreciated component in an agricultural building — right up until they fail. In a corrosive animal confinement environment, an undersized zinc coating on a screw or nail can corrode completely before the panel it holds has shown any sign of wear. That failure doesn't just mean a loose panel; it can mean water infiltration, structural compromise, and costly call-backs.

Stainless steel fastener manufacturers have documented why their products outperform standard zinc-plated alternatives in livestock environments.

"Since animal sweat and waste can be particularly corrosive, hog confinement buildings and other livestock areas are ideal projects for using this rugged material. The alloy itself 'work-hardens' during the nail making process — so these fasteners tend to be very durable and bend-resistant during pounding."
— Roelif Loveland, President, Maze Nails

Stainless steel's corrosion resistance comes from a passive chromium oxide layer that reforms even after scratching. Type 304 stainless steel (a chromium-nickel alloy) handles most agricultural environments; Type 316 (which adds molybdenum) is the appropriate choice for the most severe or marine-adjacent conditions. Both types are available in plain-shank and ring-shank configurations for hand-driven and pneumatic tools.

The International Residential Code (Section R317.3.1) and the 2018 International Building Code (Section 2304.10.5.1) both specify that fasteners in contact with preservative-treated wood must be hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze, or copper. Commercial-grade zinc plating — as little as 4 microns — is explicitly insufficient for extreme environments. The installation process itself is part of the problem: the stress from an impact driver on fastener threads can compromise thin coatings at the moment of application.

For builders using aluminum panels on interior surfaces, an important note: the default choice of 304 stainless steel fasteners can cause galvanic corrosion, depending on the specific aluminum alloy. Dissimilar metal contact causes the aluminum to sacrifice itself to protect the fastener — the opposite of the intended outcome. Consulting with the panel supplier before specifying fasteners is essential.

PVC Liner Panels: Chemical Resistance for Interior Surfaces

For the interior walls and ceilings of animal confinement buildings, PVC liner panels are widely used due to their resistance to chemical environments. Unlike steel or wood, PVC does not rust, rot, chip, or peel, and it is chemically resistant to the ammonia and organic acids produced by the decomposition of animal waste.

PVC liner panel systems are available through post-frame building suppliers and are suited to animal confinement buildings, car washes, and food processing facilities — environments where moisture, chemicals, and abrasion are ongoing concerns. Impact-resistant formulations are common, and manufacturer warranties typically range from 5 to 10 years, depending on UV exposure requirements.

Condensation barriers applied to the underside of metal roof panels take a different approach to protecting interior steel. If your condensation barrier uses a rubber-based adhesive, this adds an additional layer of protection from all of the corrosive elements mentioned above. Additionally, the fleece-like material prevents moisture — and theThe fleece-like material prevents moisture — and the corrosive gases dissolved in that moisture — from contacting the steel substrate. Laboratory testing using microscopic cross-section analysis has confirmed that a well-adhered condensation barrier layer creates a chemical barrier from the acidic environment, prolonging the service life of the steel.

"PVC will not rust or corrode from ammonia and other harmful compounds commonly found in animal waste and its off-gassing, and offers some noise-dampening qualities, keeping livestock calmer."
— Referenced in Frame Building News, "Post-Frame Ag Buildings – Built to Last."

Rigid corrugated PVC panels are another option suited to ceiling applications in agricultural buildings. They withstand high-pressure water cleaning, are non-flammable, and are rated for use in fertilizer and salt storage buildings as well as livestock facilities. Builders should note that PVC panels require pre-drilling to allow for expansion and contraction, and that ceiling applications have a maximum recommended span of 24 inches.

Concrete Floors: Getting the Mix Right

Concrete floors in livestock buildings are exposed to continuous chemical attack from urine, manure, and organic acids. When the concrete mix isn't right, or the rebar is too close to the surface, the results can include accelerated corrosion of the reinforcement and slab spalling.

Agricultural engineers working in livestock facility design consistently emphasize two points: adequate concrete cover over the rebar, and a concrete mix with sufficient density to resist acid penetration. Precast concrete column products address this by incorporating microsilica, which enhances compressive strength and erosion resistance, and corrosion inhibitors that protect

embedded rebar and steel brackets from chemical attack. The same principles apply to poured concrete foundations and slabs in confinement facilities.

Floor type selection also has long-term implications for how waste is managed — and therefore how aggressively the building is attacked. Solid concrete floors (grooved or roughened for traction) are warmer in cold months and easier to manage for composted pack bedding systems, but they hold manure for extended periods. Slatted floors over pits allow waste to drop away from animals and from the building's interior surfaces, but require a minimum of six months of below-floor manure storage and demand careful attention to the corrosion resistance of the concrete and any embedded metal components in the pit area.

Ventilation: The First Line of Defense

No discussion of corrosion resistance in animal confinement buildings is complete without addressing ventilation. The biogases generated in a livestock facility — hydrogen sulfide, ammonia, carbon dioxide, and methane, chief among them — are not only hazardous to animal and human health but are directly corrosive to the building's structural and surface materials.

Agricultural engineers have long noted that ventilation effectiveness can be estimated simply by smell: a well-ventilated building smells better because the corrosive gases are being continuously diluted and expelled. Any reduction in the concentration of those gases reduces their corrosive impact on metal surfaces, coatings, and concrete.

Post-frame agricultural building systems designed for confinement operations incorporate ventilation as a core element, offering options ranging from natural ventilation with ridge vents and sidewall openings to mechanically assisted tunnel ventilation for high-density operations. Ventilation choices directly affect both animal health and building longevity.

Building orientation and roofline design also play a role. A monoslope barn, open on one side, naturally disperses corrosive fumes away from the structure more effectively than a fully enclosed building. For enclosed designs, discharge tube stacks that vent exhaust gases above and away from the roof surface significantly reduce exterior panel corrosion.

Putting It All Together: A Systems Approach

The most important takeaway for post-frame builders working in agricultural markets is that corrosion resistance is a system, not a product. A G-90 galvanized panel is undermined by a commercial-grade fastener. A premium stainless-steel fastener is wasted if the post it secures is rotting underground. Perma-Column® piers protect the foundation, but only if the concrete floor above them is properly designed. PVC liner panels protect the wall framing, but only if the ventilation system is removing the corrosive air from the building.

Manufacturers and suppliers with significant agricultural project histories have integrated this systems thinking into their product specifications and planning tools. Working with suppliers who understand the full building environment — not just individual product categories — helps builders avoid

specification gaps that can compromise performance across the whole structure.

The same principle holds on the supply side. Post-frame building suppliers with deep agricultural market experience consistently note that material choices made at the specification stage — foundation type, panel grade, fastener alloy, liner material — are the primary determinants of how a building performs a decade or more after construction.

For post-frame builders working in agricultural markets, the practical implication is straightforward: premature failure — whether from post rot, panel perforation, or fastener corrosion — generates call-backs, repair costs, and potential structural liability. Specifying corrosion-resistant materials from the outset is both a technical requirement and a long-term cost consideration.

Corrosion-Resistance Checklist for Agricultural Post-Frame Builds

- Foundation: Specify precast concrete piers or a full HDPE barrier sleeve to prevent wood-to-ground or wood-to-waste contact.
- Steel panels (exterior): G-90 galvanized minimum; consider G-115 or higher for the most corrosive environments. Verify paint system warranty (minimum 40 years).
- Steel panels (interior): Use PVC liner panels instead of steel on interior walls and ceilings in animal confinement spaces.
- Condensation barrier: Apply a fleece-backed condensation barrier to interior roof steel surfaces to prevent corrosive condensate from contacting the substrate.
- Fasteners: Specify 304 or 316 stainless steel screws and nails for animal confinement applications. Avoid commercial-grade zinc-plated fasteners. Match the fastener warranty to the panel warranty.
- Concrete: Ensure adequate rebar cover depth. Specify microsilica-enhanced concrete for pits and slabs in high-waste areas.
- Ventilation: Design for continuous airflow to dilute biogases. Specify ridge vents, curtain walls, or tunnel ventilation appropriate to species and stocking density.
- Floors: Select floor type (solid vs. slatted) based on waste management plan, and ensure all embedded components meet the corrosion requirements of the environment. ***FBN***

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Lean Lessons

How One Truss Manufacturer Is Changing the Mode

The construction industry is in the midst of a transformation. Faced with rising material costs, persistent labor shortages, and ongoing supply chain challenges, builders and suppliers alike are rethinking traditional practices. Increasingly, they are turning to lean manufacturing principles and prefabricated solutions to improve reliability, reduce waste, and deliver projects more efficiently.

Lean manufacturing, a concept long embraced in sectors like automotive and aerospace, is now making deeper inroads into construction. The approach emphasizes streamlined workflows, just-in-time delivery, and continuous improvement, with the goal of eliminating inefficiencies that drive up costs and slow down schedules. For builders, the payoff is clear: more predictable timelines, lower labor requirements, and fewer expensive surprises on the jobsite.

One company applying this philosophy is Hitek Truss, a Florida-based truss manufacturer that has built its operations around lean principles. Founded in 2004 by a group of custom homebuilders who were frustrated with inefficiencies in the supply chain, Hitek was created to bring greater precision and reliability to structural component manufacturing.

"Lean isn't just about running an efficient plant, it's about helping builders complete their projects faster and with fewer headaches," says Ronald Guzman, general manager at Hitek Truss. "If a truss shows up late or doesn't fit as designed, the entire schedule can unravel. Our process eliminates those disruptions."

The company's emphasis on precision-engineered components and right-on-time delivery reflects a broader industry trend: builders increasingly want prefabricated solutions that can be installed quickly, with minimal on-site modification. This shift has gained momentum as skilled labor has become harder to find. Pre-fabricated trusses, wall panels, and floor systems require fewer hands on site, helping contractors keep projects moving even with smaller crews.

PHOTO COURTESY OF HITEK TRUSS

The company's recent expansion into wall panels, and its plans to eventually offer loose lumber alongside trusses, aligns with a growing movement toward providing builders with comprehensive component packages. For contractors, sourcing multiple structural elements from a single manufacturer not only simplifies logistics but also helps ensure consistency across an entire project.

Hitek's evolution has been supported by its ownership under Ambassador Supply, which has invested in expanding capacity and improving efficiencies. But industry observers note that the company is far from alone. Across the country, more manufacturers are exploring lean practices as a way to deliver predictability in a market defined by volatility.

"Lean thinking is about creating value for the customer by cutting out anything that doesn't add to the final product," says Marty Stiffler, vice president of business development at Ambassador Supply. "That's something our industry needs more than ever as we adapt to ongoing challenges."

Beyond production efficiencies, lean principles are also influencing how companies communicate with builders. Clear, proactive communication reduces uncertainty and keeps projects on track. For many contractors, that level of reliability is as important as the products themselves.

The rise of lean manufacturing in construction reflects a broader reality: traditional approaches are no longer sufficient to meet today's demands. By focusing on efficiency, consistency, and value, companies like Hitek Truss are showing how manufacturers can help builders navigate labor shortages, cost pressures, and supply chain disruptions, while laying the foundation for smarter, more resilient building practices nationwide. **FBN**

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Attica Lumber Company, Attica, Ohio. *PHOTOS COURTESY OF ATTICA LUMBER.*

A Century of Service

Attica Lumber Company Marks 100 Years in Business

■ By Karen Knapstein

Attica Lumber Company, based in Attica, Ohio, is celebrating a major milestone—100 years of serving builders, farmers, and homeowners. The family-owned lumberyard and post-frame construction supplier has been "building the dreams of homeowners for over a hundred years," and its longevity speaks to a combination of adaptability, hard work, and strong community ties.

Founded in 1925 by R.F. Cook, Attica Lumber is one of the oldest lumberyards in Seneca County. The business got its start thanks in part to rail access in Attica, which made it easier to bring in materials and distribute products across the region.

Attica Lumber's History

1925 – Founded after World War I by R.F. Cook with his passion for lumber and buildings.

1954 – After returning home from World War II, Fritz and Marjorie Miller (R.F.'s daughter) continued the family business.

1976 – Marjorie Miller retired, and Steve Stanek (son-in-law) managed and grew the business during high inflation times.

2008 – Steve's son Josh joined the family business during the economic recession of 2008. Josh established the company's online business and billboard slogan, and has continued to grow the business.

In its early days, the company supplied a wide range of essentials, including coal, lumber, hardware, hog coops, and even portable housing.

"The 1920s were a booming time, and there was a real need for lumber supplies," said Josh Stanek, the company's current owner. That early demand helped lay the foundation for what would become a multigenerational business.

After World War II, leadership transitioned to Fritz and Marjorie Miller, Cook's daughter and son-in-law. In 1976, Steve Stanek took over operations, continuing to grow the company and strengthen its presence in the region.

Steve brought a forward-thinking mindset to the business—one that extended beyond traditional lumber sales and post-frame construction. By the 1990s, he was actively involved in residential development, recognizing the increasing demand for efficient, well-built housing options across northwest Ohio. Steve played a key role not only in growing Attica Lumber but also in shaping local communities through condo development.

His work in condo development reflected the same values that defined Attica Lumber: quality craftsmanship, practical design, and long-term durability. These projects helped provide attainable housing solutions while contributing to the growth and modernization of local communities.

Steve's background in building materials gave him a unique advantage—he understood construction from the ground up. This allowed him to approach development projects with both a builder's eye and a business owner's discipline, ensuring projects were completed efficiently and built to last.

Today, the business is led by Josh Stanek, Steve's son and the fourth-generation

Attica Lumber's Mission

Attica Lumber's top goal is to provide excellent post-frame workmanship and to construct a building that will last for years. "We believe in treating our customers the way we would like to be treated. Our mission is to provide honest, reliable service, and we only hire builders who are willing to abide by our principles and uphold our commitment to integrity, respect, and dependability."

owner, who joined the company in 2009 during the economic downturn following the subprime housing crisis.

Like many companies with a long history, Attica Lumber has weathered its share of challenges. High inflation in the 1980s and the housing crisis of 2008–2009 both tested the business. "It hasn't been easy," Josh said. "Each generation has faced its own set of challenges—but here we are, 100 years later."

Josh has played a key role in modernizing the company while staying true to its roots. One of his early initiatives was building an online presence, helping Attica Lumber connect with a broader audience and better serve today's customers. He also spearheaded a regional billboard campaign that many in northwest Ohio now recognize. The first slogan—"Hey… Trusses!"—didn't quite hit the mark, but the follow-up, "Hey Pole Barns!" caught on and significantly boosted brand recognition.

Post-frame construction has been central to Attica Lumber's growth. While the reference to 1925 as the year of the "first pole barn" may be more symbolic than literal, there's no question the company has fully embraced the post-frame market. Today, Attica Lumber serves customers across 20 counties in northwest Ohio, specializing in lumber, trusses, hardware, and complete building packages.

The company is particularly well known for its truss manufacturing and its ability to supply quality materials efficiently. In addition to lumber and hardware, Attica Lumber provides tools, components, and jobsite essentials, along with local delivery to keep projects moving. Over the years, the company has supplied materials for and helped construct more than 30,000 post-frame buildings, including agricultural structures, commercial buildings, garages, and hobby shops.

For post-frame professionals, that kind of experience matters. It means working with a supplier that understands the demands of the jobsite—tight timelines, material consistency, and reliable service.

Attica Lumber is focused on continuing to improve the customer experience while planning for growth.

When asked about current trends, Josh pointed to a shift in customer expectations. "People want service, they want convenience, they want an experience, and they want value," he said. "And we work hard to deliver on all of those."

That focus on service has been a constant throughout the company's history. Despite its growth, Attica Lumber has remained rooted in its community and committed to maintaining a personal, relationship-driven approach. The company continues to operate as a family business, and that mindset extends to how it treats both customers and employees.

"We value relationships," Josh said. "Our employees are treated like family." That culture has helped create a loyal team and a strong reputation across the region.

Over the years, Attica Lumber has also expanded its product offerings to meet the evolving needs of builders. Today, it supplies a range of trusted products, including Perma-Columns, Hampton

Lumber, GRK fasteners, and Clopay overhead doors. These partnerships allow the company to provide reliable, high-quality materials that post-frame builders can count on.

At the core of Attica Lumber's success is a straightforward business philosophy: work hard, stay persistent, and maintain a hands-on, owner-driven mindset. Josh describes it as a "first in and last out" approach—one that emphasizes accountability and a willingness to do whatever it takes to get the job done.

That philosophy also shapes how the company approaches pricing and operations. Attica Lumber has intentionally built its business to strike a balance—keeping overhead low with a local, efficient team while still operating at a scale that allows it to purchase materials at wholesale prices and maintain strong supplier relationships. The result is a

model that delivers competitive pricing without sacrificing quality.

Looking ahead, Attica Lumber is focused on continuing to improve the customer experience while planning for growth. Expanding its e-commerce capabilities is a key priority, giving customers more ways to browse products, place orders, and stay connected. The company is also exploring the addition of another distribution center to better serve its growing footprint.

Reaching 100 years in business is no small feat—especially for a family-run company in a rural village of fewer than 1,000 people. It's a milestone that reflects not only the dedication of four generations but also the trust and support of the community it serves.

For post-frame construction professionals, Attica Lumber's story is a reminder of what it takes to build something that lasts: strong relationships, a willingness to adapt, and a commitment to doing the job right. After a century in business, Attica Lumber isn't just looking back—it's continuing to build forward. ***FBN***

BY MIKE MOMB, HANSEN POLE BUILDINGS

When the Weather Shows Up, the Design Gets Tested

Welcome, gentle readers, to Summer. It is now July, grass is turning green, birds are chirping, clients are ordering buildings and memories of tragically bad weather from January (when this is being written) are beginning to fade.

Now I had already penned an article, ready to go to this magazine's editors, when a weather system crossed much of our country this past week. This major Winter storm brought historic ice and snow impacts, followed by an extreme cold snap. This period was marked by dangerous conditions, widespread power outages and (sadly) buildings collapsing.

To quote the infamous Captain Jack Sparrow in Pirates of the Caribbean, "The problem is not the problem. The problem is your attitude about the problem". In response to these collapses a builder with 20+ years of experience had made a lengthy post in Facebook's Building Barndominiums group on January 25. While his post was specifically regarding light gauge steel weld-up truss buildings, some points were applicable to any structural building system.

He felt there was one weak point. Snow load. In his opinion, "Steel A frame trusses on 10-12' center with 2x6 purlins should not be allowed via universal building code and hence should be illegal." His explanation of why, is most probably off base, "Each purlin is held by a #9 1-1/2" hex head screw. Even if the screw was bigger there are only two screws holding your entire roof system and once they shear or tear the board. Boom. If you live in one, you're under it. If your animals are in it they will be mortally wounded.

Imagine working in a shop in a snowstorm of 6 measly inches. Don't give me that "our area isn't prepared for it with our building types" what???"

While this purlin-to-truss connection may prove inadequate for resisting wind uplift (depending upon design wind speed, wind exposure and building enclosure), it is not why snow load failures have occurred. More than likely, failures were a resultant of one or more of quality control in truss fabrication and/or lack of an engineered permanent bracing system.

Now I have personally been involved in design and manufacturing of wood trusses since 1977. This industry has done an outstanding job in self-policing.

Wood truss fabricators must adhere to specific quality control standards to ensure safety and structural integrity. These standards are primarily guided by ANSI/TPI 1, outlining requirements for metal plate connected wood truss construction. Here are key aspects of these standards:

Inspection Requirements

- A minimum of three inspections must be conducted per week for each setup location and shift.
- At least one critical joint must be inspected on average for all trusses inspected.

Quality Control Programs

- Fabricators are required to maintain a quality control program including random quarterly inspections performed by accredited third-party agencies.
- This program should provide a quantifiable method for assessing compliance with latest standards.

Documentation and Compliance

- Proper documentation of inspections and quality checks is essential to demonstrate compliance with industry standards.
- Regular training and updates

on quality control practices are recommended to ensure all staff are informed of current standards and procedures.

Wood truss manufacturers must adhere to specific requirements for stamping trusses. These requirements ensure compliance with building codes and safety standards.

Stamping Requirements

- Identification: Each truss must have a stamp including manufacturer's name, truss design number, and date of manufacture. This helps in tracking and verifying truss's origin and design specifications.
- Certification: Manufacturers must be licensed and certified according to state regulations, ensuring they meet standards set by Codes.
- Design Compliance: Trusses must

be designed and fabricated in accordance with applicable codes, including load requirements and material specifications. This is crucial for ensuring structural integrity.

- Quality Control: Manufacturers are required to implement quality control measures to ensure each truss

meets specified design criteria and safety standards before stamping.

Importance of Stamping

- Stamping provides a means of accountability and traceability, this is essential for inspections and future modifications.
- It also assures builders and homeowners trusses meet necessary safety and performance standards.

Fail to adhere to these standards and a third-party agency inspector can literally 'pull your stamp', putting a wood truss fabricator out of business.

When I owned my first post-frame business, M & W Building Supply in Canby, Oregon, I hired a gentleman named Stanley Floyd as a salesman. Stan's dad had fabricated light steel truss frame buildings in Arkansas and Stan was interested in developing this concept in Oregon and Washington. With my blessing Stan founded Web Steel Structures in Sandy, Oregon and found out things weren't quite like they had been in Arkansas – where building permits, if even required, were issued far more liberally. Northwest jurisdictions required engineering for both frames and buildings, as well as a need for a higher degree of control over both quality control and welder competency.

In recent years, Hansen Pole Buildings has had clients interested in post-frame buildings utilizing these light gauge steel weld-up trusses. In researching, it appears quality control systems applicable to wood trusses are generally not carried forward to, or are mostly ignored, by some of these steel truss fabricators.

Prefabricated trusses are inanimate, not creatures. They have no feelings to be hurt by how far apart they are placed and will perform admirably as long as appropriate climactic loads are applied to match with their spacing, and they are installed properly to specifications outlined on site specific engineer sealed drawings.

Leading us to – "An Argument for Fully Engineered Post-Frame Buildings" (an article in *Frame Builder* magazine VOL 6 No 5 by Dr. David Bohnhoff. P.E.) with these quoted excerpts:

> "Companies that erect non-engineered buildings generally try to emulate designs they have seen elsewhere. This creates a myriad of problems.
>
> Simply copying, altering and/or scaling up an existing design completely ignores the fast that loads like wind and snow are highly dependent on the size, shape, orientation and location of a building as well as characteristics of the local topography and the size shape and orientation of attached and surrounding structures. Additionally, snow, wind and other structural loads act in a variety of combinations and a building must be designed to handle all load combinations to which it would be subjected. Total ignorance of applicable loads and load combinations is a hallmark of non-engineered building design."
>
> "Extremely weak connections between components is another hallmark of non-engineered structures. The stresses that surround mechanical fasteners (bolts, screws, nails) are complex and control fastener size, spacing and placement relative to the ends and edges of the components they connect."
>
> "Improperly assembled connections trigger and/ or contribute to many building failures."

But, engineering is expensive!

Engineering is an investment, not an expense. My experience is a good engineer will often reduce costs of construction, by more than what he or she was paid.

From Dr. Bohnhoff, "Non-engineered structures generally contain components that are either not needed or are larger than needed and this unnecessarily drives up building costs. At the same time, non-engineered structures are frequently missing critical components and/or have numerous under-designed components and this places building occupants in grave danger."

Allstate® Insurance had a TV commercial a few years ago featuring actor Dennis Haysbert. Haysbert sits in an open field and questions why there have been 26 "once in 500 years storms" in last decade, when this term alone implies they should only happen every 500 years.

Modern Building Codes (IBC – International Building Code and IRC – International Residential Code) establish minimum requirements for non-engineered buildings, including design wind and snow loads.

IBC Section 1604.5 establishes risk categories based upon a building's nature of occupancy. "Each building and structure shall be assigned a risk category in accordance with Table 1604.5".

Most often we are familiar with Risk Category I and II

buildings. Risk Category I is "buildings and other structures that represent a low hazard to human life in the event of failure." Pure agricultural buildings may fit this description. Risk Category II encompasses one and two family residences and their ancillary structures. Category III is buildings representing a substantial hazard to human life if they fail and IV is essential facilities.

Statistically, under 2021 Codes, Risk Category I buildings are generally designed for a 25-year mean recurrence interval. This corresponds to a 4% annual probability of exceedance of design loads. Risk Category II would be a 50-year mean recurrence interval and a 2% annual probability of design loads being exceeded. ASCE 7-22 standards (reflected in 2024 Code versions) have shifted towards reliability-target maps, rather than a uniform mean recurrence interval. Under it, Risk Category III buildings correspond to a 100-year to 500-year event and IV buildings 500-year or higher.

Using the free ASCE Hazard Tool (www.ASCEHazardTool.Org), I looked up my own address to see what loads would be for each Risk Category. Respectively I through IV design wind speeds (Vult) were 105/111/120/125 mph and ground snow loads (Pg asd) were 42/59.5/71.4/85.4 psf (keep in mind, I live in "The Great White North" aka NE South Dakota).

I had recently done some cost comparisons using a 42' x 60' x 20' building. Beginning with Pg of 20 psf, doubling to 40 psf added only 3.4% to overall building cost and tripling to 60 psf 8.1%.

In summation (and in my opinion): Light gauge steel weld-up truss manufacturers should be held to similar quality control standards as wood truss manufacturers are. This would eliminate a plethora of potential failures.

Every structural building system, not specifically outlined within specific prescriptive requirements of Code books, should be required to be fully engineered (not just trusses). Insurance companies could assist, by refusing to insure those buildings built without full engineering.

Every legitimate builder or building provider should commit to selling only fully engineered buildings AND should be setting their own standards for design wind and snow loads to be greater than Code minimums or those available on ASCE lookup tool. **FBN**

Mike Momb *has been Technical Director for Hansen Pole Buildings, LLC of Browns Valley, Minnesota for more than 20 years. His daily post-frame blog, as well as his weekly "The Pole Barn Guru" column can be followed at the company website, www.hansenpolebuildings.com/blog/.*

Defense in Depth

Protecting Wood Components with Chemical Treatments and Barrier Products

■ By Frame Building News Staff

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From pressure-treated lumber to physical barrier wraps, today's post-frame industry offers builders multiple lines of defense against the silent destroyer beneath the soil line.

Post-frame construction is built on a deceptively simple premise: sink sturdy columns into the ground and let them carry the load. But that strength comes with a vulnerability. The moment wood meets soil, a race begins between the structure and the biological forces that want to break it down. Moisture, oxygen, temperature, and microorganisms combine into a relentless assault on wood fibers — one that can undermine a building's foundation long before the roofline shows a single sign of trouble.

The good news is that the post-frame industry has never had more tools at its disposal to fight back. Chemical preservatives, physical barrier systems, and hybrid approaches give builders and their customers real options for extending the life of wood components. The challenge isn't finding a solution — it's understanding what each solution actually does, when to use it, and how different approaches can be layered for maximum protection.

This report walks through the science of wood decay, the chemistry behind today's preservative treatments, and the growing family of barrier products designed to keep biological threats away from the wood altogether.

Why Wood Rots: Understanding the Enemy

Effective wood protection begins with understanding the causes of decay. In post-frame applications, moisture acts as a catalyst, but the primary threat is wood-destroying organisms such as decay fungi and subterranean insects like termites.

Three conditions must exist simultaneously for decay to occur: moisture, oxygen, and a suitable temperature range (generally between 40°F and 100°F). Remove any one of these factors, and biological decay stops. That understanding underpins every wood protection strategy used in post-frame construction today.

The ground line poses the highest risk for decay. Soil retains moisture, oxygen is available near the surface, and temperatures often support biological activity. Even in dry regions, soil rarely becomes dry enough to fully prevent decay.

> *"The challenge with non-treated posts in the ground is finding naturally durable species. In most areas of North America, we have seen non-treated posts in-ground lasting eight years and less."*
> ***— Barry Hoffman, President, Planet Saver Industries / GreenPost***

Another concern below ground is heartwood content. Faster-growing, younger trees used in commercial lumber have a higher proportion of sapwood, which absorbs treatments more readily than heartwood. This shift makes preservative penetration both more important and sometimes more challenging.

Chemical Treatments: The First Line of Defense

Pressure-treated lumber has long been central to post-frame protection. This process infuses preservative chemicals deep into the wood, creating a treated zone that resists decay and insect damage throughout the structure's expected lifespan.

The American Wood Protection Association (AWPA) establishes standards governing treatment retention levels and penetration depths for different use categories. For vertical posts in post-frame applications, the relevant specification is UC4B: Ground Contact, Heavy Duty — a category designed for posts in severe environments, high-deterioration-risk climates, or critically important structural components. This standard is referenced directly in both the International Building

Code (IBC) and the International Residential Code (IRC).

Transition from CCA to Modern Copper-Based Systems

For most of the 20th century, chromated copper arsenate (CCA) was the dominant preservative for pressure-treated lumber in residential and agricultural applications. Its effectiveness was well established, and it became the industry standard for ground-contact applications, including post-frame construction.

In January 2004, CCA was phased out for most residential uses in the United States due to concerns about arsenic, a known carcinogen, in its formulation. This led to the adoption of new copper-based preservatives, primarily alkaline copper quaternary (ACQ) and copper azole (CA).

Both ACQ and copper azole use copper as the main fungicidal and insecticidal agent, without arsenic. Their water-based formulations leave wood surfaces dry and paintable after drying. These treatments are approved for lumber, fence posts, building poles, utility poles, decking, and other structural uses.

"Koppers Performance Chemicals is a global leader in the development of progressive wood preservative systems and technologies. CCA provides protection from termites, fungal decay, and is one of the most effective wood preservatives available."
— Koppers Performance Chemicals

Builders should note that modern copper-based preservatives are more corrosive to metal fasteners and hardware than CCA. Hot-dipped galvanized steel, stainless steel, or other corrosion-resistant fasteners are required for ACQ- or copper azole-treated lumber. Bare aluminum in contact with copper-treated wood can corrode quickly, so a barrier material may be necessary at metal-to-wood interfaces such as door and window jambs.

Micronized Copper: A More Uniform Distribution

Micronized copper technology refines the standard copper-based approach by grinding copper particles to a very fine size before adding them to the treatment solution. Micronized copper azole (MCA) distributes more evenly throughout the wood, reaching areas where liquid uptake may be inconsistent.

Supporters of micronized formulations claim they achieve better penetration in difficult wood species and heartwood, which are more common in younger timber. The smaller particle size also reduces surface color variation, resulting in a more uniform appearance.

The Importance of Retention Levels and End-Cut Treatment

Pressure-treated lumber varies by retention level, which is the amount of preservative in the wood, measured in pounds per cubic foot. UC4B specifications require higher retention than above-ground treatments to address harsher underground conditions.

Cutting treated lumber on-site exposes untreated interior wood. Applying a field-applied preservative to these cuts is standard practice and recommended by manufacturers and standards bodies. Brush-on copper naphthenate is commonly used and should be applied wherever raw wood is exposed by cutting or drilling.

Builders should inspect treated lumber before installation. Look for a treatment stamp indicating type and retention level. Consistent color suggests even treatment; uneven coloration or a different hue at the core may indicate poor penetration. Splits or checks exposing untreated wood are also a concern, as they allow moisture and organisms to reach unprotected fibers.

"Micro-organisms are feeding on the filet mignon — the center of the post that never got chemical protection. Splits expose internal, untreated material, and the microorganisms can pounce on it. That's when you get core decay."
— David Gruhlke, Plasti-Sleeve

Barrier Products: The Second Line of Defense

Chemical treatments protect wood by making it toxic or unappealing to wood-destroying organisms. Barrier systems, in contrast, physically separate wood from the environment that causes decay. Eliminating soil-to-wood contact removes the primary access point for decay organisms.

Physical barriers have advanced significantly over the past three decades, evolving from simple plastic wraps to factory-engineered systems with proven performance and code recognition. Today, barriers are used both as standalone protection and as a complementary layer to extend the life of chemical treatments.

Polyethylene Sleeve Systems

The initial barrier concept for post-frame construction involves encasing the below-ground portion of the post in a polyethylene sleeve to prevent direct wood-to-soil contact. Plasti-Sleeve, introduced in 1994, pioneered this product category.

HDPE (high-density polyethylene) sleeves are installed over the below-grade section of posts before placement. Polyethylene is chemically inert in soil and has a much longer in-ground service life than wood, ensuring the protective layer remains effective. The sleeve blocks soil microorganisms from reaching the wood, preventing decay.

"Post Protector separates the post from ground contact and the micro-organisms that dwell within. The micro-organisms can never get to the wood."
— Post Protector product description.

These sleeves are effective because decay requires organisms to physically access wood fibers, in addition to moisture, oxygen, and suitable temperature. A well-fitted sleeve eliminates soil-to-wood contact, blocking decay fungi and insects. While chemical treatments may degrade over time, a properly installed physical barrier remains effective.

Sleeve products come in various sizes for common post dimensions such as 4×4 and 6×6. Builders should ensure a snug fit with no gaps and pay special attention to the grade-level fit, as the soil-to-air transition zone is often the most aggressive decay environment.

Dual-Layer Heat-Sealed Systems

A more advanced barrier approach uses multiple layers and factory-applied coatings for a stronger, more consistent seal.

This method offers several advantages. Factory application ensures consistent coverage, while the bituminous inner layer seals against moisture at the wood-barrier interface, addressing a vulnerability in simpler sleeves. The system also retains preservative chemicals within the post, preventing leaching and maintaining treatment effectiveness.

Time-Release Chemical Remediation

For existing posts with early decay or as a supplement for new installations, time-release preservative systems provide another option. Products like Post ProServative are inserted into the post and deliver preservative from the inside out, creating a "tough barrier system" that blocks soil-to-wood and concrete-to-wood contact pathways.

These products use technology first developed for utility pole maintenance, where in-service re-treatment is valuable due to the high cost of replacement. With over 25 years of use in utility applications, they have a strong field performance record.

Laminated Columns: Engineered Posts with Built-In Protection Advantages

While solid-sawn 6×6 posts are still common, glue-laminated (glulam) and nail-laminated columns are increasingly used in post-frame foundations. These engineered products are typically straighter, lighter, and stronger than solid-sawn posts, but require specific wood protection considerations.

Laminated columns are made from individual boards that can be treated before assembly, allowing preservative to penetrate the full cross-section of each piece. This addresses the heartwood penetration challenge found in large solid-sawn timbers, where interior areas may receive limited treatment.

"Years ago, we recognized post decay happens, and we've taken on a couple of different products that will help you."
— Richland Laminated Columns

Many laminated column suppliers now offer integrated barrier protection. For example, Richland Laminated Columns provides factory-applied GreenPost wraps on laminated posts, delivering them ready for installation with dual-layer protection. This approach eliminates a field installation step and ensures consistent coverage.

Combining laminated construction, which allows better treatment penetration, with factory-applied barrier protection is considered best practice for post foundation longevity. This approach addresses both chemical and physical aspects of decay protection in one product.

Choosing the Right Approach for Your Projects

With many products and approaches available, builders should consider several key factors when selecting wood protection for their projects:

Site and Climate Considerations

Geography plays a major role in wood protection. The AWPA's Use Category system and Decay Hazard Map show that biological risk varies across North America. High-moisture, warm climates,

SOURCES & RESOURCES

Industry Organizations & Standards

- American Wood Protection Association (AWPA) www.awpa.com
- U.S. Environmental Protection Agency www.epa.gov/ingredients-used-pesticide-products/overview-wood-preservative-chemicals
- American Wood Council (AWC) — National Design Specification (NDS) for Wood Construction www.awc.org

Companies Referenced in This Article

- Koppers Performance Chemicals www.koppersperformancechemicals.com
- Planet Saver Industries GreenPost www.planetsaverind.com
- Post Protector www.postprotector.com
- Plasti-Sleeve www.plastisleeve.com
- Richland Laminated Columns www.richlandcolumns.com

such as the Southeast, have more aggressive decay conditions than drier, cooler regions. Regional requirements may mandate higher retention levels in high-hazard zones.

Soil chemistry is also important. Some soils retain more moisture and support higher concentrations of wood-destroying organisms. Sites with poor drainage, high organic content, or a history of wood decay require extra protection.

Building Use and Expected Service Life

Different building types have varying service life and maintenance expectations. As post-frame buildings are used for more applications, including residences and commercial structures, protection strategies should match the importance and use of the building.

Combining barrier systems with chemical treatments is a complementary approach. Chemical treatments protect wood from biological attack, while barriers prevent organisms from reaching the wood and reduce chemical leaching. Together, they provide greater durability than either method alone.

Hardware and Fastener Compatibility

When specifying chemical treatments, builders must ensure that hardware, fasteners, and adjacent metal components are compatible with the preservative. Modern copper-based treatments are more corrosive than CCA, so hot-dipped galvanized or stainless steel fasteners are required for ACQ- and copper azole-treated wood. All hardware should meet the same corrosion-resistance standard.

When using barrier wraps, ensure that any penetrations for fasteners are properly sealed to maintain the integrity of the protective barrier.

Regulatory and Code Compliance

AWPA standards are referenced in both the IBC and IRC, making compliance with AWPA Use Category specifications a building code requirement. Builders should confirm that specified treated lumber meets UC4B retention requirements for ground-contact use and that treatment stamps are present and legible.

Barrier products with third-party testing and certification offer documentation for inspectors and building officials. For example, GreenPost has a TER (Technical Evaluation Report) certification for its structural and protective performance.

Looking Ahead: Trends in Wood Protection

The wood protection industry is evolving, with ongoing research into new preservative chemistries, biocide combinations, and treatment methods. The shift to faster-growing timber with different heartwood-to-sapwood ratios increases the value of complementary barrier systems, even when chemical treatments are properly applied.

Environmental factors are influencing product development. The move from CCA to copper-based treatments was driven by regulatory concerns about arsenic, and future changes may further alter preservative chemistry. Non-toxic physical barriers are gaining popularity as they protect wood without chemical leaching.

For builders, wood protection in post-frame construction requires a tailored approach and should not be minimized. Posts are the foundation, and selecting appropriate chemical treatments and barrier systems for the site, climate, and application is a critical decision for every project. ***FBN***

BY Rachel Duran - Editorial Assistant

NFBA & Partners Build the 'Ultimate Learning Site'

APRIL 2000 FLASHBACK

Ruth Fried had a dream and $10,000. What she didn't have, the post-frame industry provided. The flashback feature revisit the Sally Butler Memorial City Slicker Barn – built by NFPA members for at risk youth – and the unlikely friendships, donated lumber, and community spirit that made it possible. From a determined Director's persistence to a contractor who traveled 80 miles twice a week, discover how one industry turned to modest grant into a lasting legacy.

Ruth Fried had $10,000 and a dream. She wanted the children of the Connecticut area City Slickers program to have an eight-to-12-stall horse barn with a classroom to call their own.

Somehow, she found the National Frame Builders Association, and one year later, through the efforts of many dedicated post-frame industry companies, her dream for these children became a reality.

Fried is the director of City Slickers, a program serving 152 children ages 11-17 from the inner cities of Hartford and Waterbury, Conn., and from the cities of Bristol, Wolcott, and Terryville, Conn. The purpose of the program is to provide underprivileged and abused children with character-building and life skills that promote critical thinking, teamwork, problem-solving, and cooperative learning through the different areas of the equine industry. The program offers the children a positive alternative to their daily exposure to gangs, violence, and drugs.

The older children participate in job training and career awareness components. The program uses Hillside Equestrian Meadows, a 50-acre donated site in Wolcott that is home to about 100 horses, for instruction. The City Slickers program wanted a barn of its own, enabling the organization to train students interested in pursuing careers in farm or barn management.

Fried isn't sure how her path led to NFBA, but it did. "I told Tom Knight that I had little money and asked him if there was some way he could foresee City Slickers getting the barn built in a meaningful way," Fried said. "After visiting with association members, Tom contacted me and said the group was willing to help the City Slicker barn project any way it could. I call Tom Knight my angel."

Brescia Buildings crew members hang the siding for the barn in February. The barn would have been finished earlier in 2000, but winter storms held up construction.

"The horse world is a multi-million-dollar industry, and Connecticut is filled with equestrians seeking boarding, training, horseshoeing, grooming, and other equine-related necessities," Fried says.

"We were helping City Slickers create a structured learning/working environment that would address some of those needs and prepare interested youngsters for trades and jobs in the equine world," said Knight, president of NFBA.

So, with only the $10,000 Sally Butler

Doug Higinson and Ruth Fried take a break during the City Slickers Barn construction.

After holes for the columns were drilled in December, framing for the 36-ft. x 72-ft., 10-stall horse barn was finished, thanks to lumber donations from many Connecticut lumber companies and Brescia Buildings.

Memorial grant from St. John's Episcopal Church in West Hartford, NFBA began networking. Industry suppliers and a contractor were found for the project.

Long-time NFBA member and horse barn specialist Brescia Buildings Corp. in Montgomery, N.Y., was named the contractor for the project. "I put my lead crew on the job," said Vince Brescia, president of Brescia Buildings Corp. "It took a while to gather and schedule all the materials, so we didn't start building until December. We would work on the project two days a week, traveling 80 miles to get to the site at Hillside Equestrian Meadows. "Vince's company was very reliable and professional," Fried said. "What they said they were going to do, they did. If they said they needed 10 of something, they used 10 of something. They did the work well and congenially; they blended beautifully with our staff."

Brescia Buildings designed and built a 36-ft. x 72-ft., 10-stall horse barn to house City Slickers' three horses and its boarders. The barn has hay racks, a tack room, a wash stall, and a bathroom. Unfortunately, a classroom area didn't make it into the finished barn.

Coordination of the materials delivery was a group effort. "Brescia Buildings worked with NFBA to ensure the timely delivery of the donated building materials to the site," said Mary Edmondson, vice president of NFBA. Brescia handled delivery setup with local lumber sources. Brescia handled all the framing and stall work for the barn, and Fried lined up another company for the turnkey work needed for the barn.

Given the nature of the project, there were some challenges along the way. "It was a challenge to get donated wood products," Brescia said. "I needed the poles, trusses, and framing members. I am a former lumber dealer, so I got in touch with the president of the Connecticut Lumber Dealers Association, Mike Laureno of Stevenson-Laureno Lumber in Stevenson, Conn. From my contact and through Ruth Fried's correspondence, his association's members came through with the lumber for us."

Fried said NFBA's effort will improve the lives of many youngsters who need a safe place to go and a positive learning environment. "We believe that vocational education is a very important part of our future," Fried said. "Through the efforts of NFBA and City Slickers, we have just created the ultimate learning site, a 'magnet school,' if you will, that will provide the training, knowledge, and technology for the kids interested in these careers."

Fried pointed out two success stories of the many yet to come from the City Slickers program. "We have two students

"She's a very determined lady, not bashful," Vince Brescia says of Fried.

going to Wellington, Fla., in mid-February to compete in the Winter Equestrian Festival, which is an A-rated circuit competition, featuring some of the top riders in the country," Fried said. "These are two inner-city kids, riding borrowed horses, who have worked hard and stayed on task. Your association's outreach will help kids like this reach for the stars."

Industry contributors to the City Slickers Barn Project:

- Brescia Buildings Corp. Montgomery, N.Y.
- Cannon Ball: HNP Beloit, Wis.
- Classic Equine Equipment Inc. Trenton, Mo.
- Deniston Company Alsip, Ill.
- General American Door Company, Montgomery, Ill.
- H & H Metal Products Inc. Charlestown, Ind.
- MWI Components Spencer, Iowa
- McElroy Metal Inc., Bossier City La
- National Manufacturing Co. Sterling, Ill.
- Pactiv Building Products (formerly Tenneco Building Products) Smyrna, Ga.
- Plyco Corporation, Elkhart Lake, Wis.

Others who offered services not used:

- Atlas Bolt & Screw Company, Ashland, Ohio
- Closure Vent, Inc., Spring, Texas
- Construction Fasteners, Inc. Wyomissing, Pa. **FBN**

Dear Members Of the NFBA:

More than a year ago, I applied to St. John's Episcopal Church in West Hartford, Conn., for the Sally Butler Memorial Grant, an annual outreach award given to an inner-city youth enrichment program.

Winning the award was a long shot for City Slickers, given that so many worthy nonprofit programs applied. But in December of 1998, City Slickers received the $10,000 Sally Butler grant. At that point, I had enough to buy a small barn that would serve as an educational learning site for inner-city and suburban youngsters who wanted to learn horse-related skills and trades.

However, realistically, to maximize learning opportunities for students, the program needed a larger barn, and ideally, I needed an "angel" to make it happen. Well, that angel appeared: His name is Tom Knight, and he represents the many angel members of your National Frame Builders Association.

And today, thanks to the NFBA and its members, we have a beautiful barn that will teach and train many at-risk youngsters the skills they'll need to enter the equestrian job market.

Our original City Slicker, Luis Recess, 20, is an apprentice farrier working in Connecticut and New York. Now, Luis will also shoe horses in the City Slicker barn and help train others who want to learn his trade.

I am currently applying for a grant from Bank Boston. that funds "job creation and employment training, school-to-work and summer jobs for inner-city and at-risk youth." With our excellent track record of attracting foundation support, we hope to secure sufficient funds to target otherwise idle "at-risk" inner-city youngsters and put them to work at the City Slicker barn this summer.

To construct the barn, Tom Knight recommended Brescia Buildings Corp., an association member from New York who blended perfectly with the City Slicker staff. Both Vince Brescia and Doug Higinson are to be commended for their expertise in so accurately converting our wish list into a beautifully constructed masterpiece. Doug headed the Brescia team of skilled workers, and thankfully, the building process went well — no problems, no worries, no hassles.

There are no words to express my deepest gratitude to the National Frame Builders Association for the generosity, kindness, and support shown to our barn project. I have met some wonderful people through the construction process; you are in my thoughts and prayers.

A commemorative plaque at the barn entrance will read, "The Sally Butler Memorial City Slicker Barn, built through the generosity of St. John's Episcopal Church, the National Frame Builders Association and Brescia Buildings Corp." I extend an open invitation — to stop by if you are ever in the Waterbury, Conn., area. Come and watch children learn, train, and reap the rewards of your outreach gesture. If you call ahead, I'll have a batch of Doug's favorite chocolate chip cookies on hand.

God bless you all.
Sincerely,
Ruth Fried
Executive Director
City Slickers

FBN

Post-Frame Builder Show

Scenes From Around the Show

By Kathleen Riley

A certain kind of crowd forms when a session hits a nerve — folding chairs dragged in from the hallway, people standing three deep along the back wall, phones out not to check email but to snap a slide. That was the scene Thursday morning at the third annual Post-Frame Builder Show in York, Pennsylvania, when the Barndominium Business Panel opened the day.

By 8:50 a.m. — ten minutes before the scheduled start — the room was already standing-room only. For a session slotted before the show floor even opened, that's not a scheduling accident. It's a signal: barndominiums aren't a side conversation in post-frame anymore. They're the conversation.

Randy Chaffee of Source One Marketing kept the panel moving through the questions builders actually came to ask

United Steel Supply team.

Graber Post Buildings.

Attendees browsing the aisles and finding solutions to their questions.

ASCO Machines giving equipment demonstrations at their booth.

Registration was e breeze with helpful staff from Shield Wall Media.

— financing hurdles, code gray areas, and how to price a residential job when your crew has spent 20 years pricing pole barns. Panelists Cole Wolford of Graber Post Buildings, Todd Palmer of Rigidply Rafters, Chris Miller of First Federal Bank of Kansas City, and Joe Shimp of Construction Conestoga didn't always agree on the particulars, but they agreed on the trajectory: the demand is real, it's growing, and the builders who figure out the financing and code questions now will own the category later. That momentum carried naturally onto the floor.

ASC Machine Tools.

Wednesday had already set the tone for that kind of engagement. Attendees fueled up on a complimentary continental breakfast each morning of the show before the sessions even started, and the early rooms filled fast — a preview of the standing-room crowd Thursday's panel would draw. Wednesday evening carried the hospitality further with a complimentary dinner, giving builders, suppliers, and exhibitors a chance to keep the day's conversations going over a meal instead of scattering back to hotel rooms.

Once the doors opened, exhibitors worked a floor that felt busy rather than sprawling — the kind of show where

The ASTA America team.

AceClamp - Mary-Jean Wasley and Sadie, Chief Morale Officer.

Acu-Form Rollforming Equipment.

Ken McDonald of Post Protector giving in booth education.

you can actually finish a conversation without someone tapping your shoulder for the next appointment. That's by design. The show has always aimed for a qualified audience over sheer foot traffic, and this year's floor reflected it; fewer wasted conversations, more attendees who showed up with specific ideas and specific problems to solve. The energy matched the morning's packed sessions and carried through both days, from Wednesday's steady foot traffic and dinner-table networking to Thursday's after-panel rush, when more than one exhibitor reported their best booth conversations of the show happening.

One of the most enjoyable parts of the show was presenting the Gold Key Award of Excellence and the Metal of Honor awards, closing the show on a fitting note. It's a moment that pulls the whole event into focus - a reminder that behind the booths and sessions are companies that have spent years, in some cases, decades, earning the industry's trust one job at a time.

Mark your calendars: the fourth annual Post-Frame Builder Show heads to the Midwest next year, taking place June 23-24, 2027, at the Century Center in South Bend, Indiana. ***FBN***

Barndominium Panel.

Powerlift Hydraulic Doors.

Randy Chaffee teaching builders to rethink what they're selling.

Building Wins

Common Customer Complaints and How to Handle Them

By Randy Chaffee

Most customer complaints don't start with a mistake. They start when expectations and reality stop matching up. After more than four decades working with builders, suppliers, and customers throughout the post-frame industry, I've become convinced that many of the complaints we encounter have less to do with construction issues and more to do with communication.

What some people may not realize is that before I spent those decades on the supplier side of the business, I was a builder myself. Like most builders, I learned some lessons the hard way, and one of those lessons had nothing to do with construction techniques, engineering, or building materials. It had everything to do with communication.

One project in particular still sticks with me. When the customer signed the contract, I told him we would likely be starting construction in a couple of weeks. At the time, that was my best estimate. Unfortunately, we began experiencing some supply issues getting trusses, and the schedule started slipping. The delay itself wasn't the problem. The problem was that I never picked up the phone. As the two-week mark approached, I knew we were running behind and that the customer was expecting to see activity soon. What I failed to do was make a simple phone call and explain what was happening.

Eventually, the customer called me, frustrated and wanting to know what was going on. Looking back, I don't blame him. In his mind, two weeks had come and gone, and he hadn't heard a word. The reality is that a thirty-second phone call probably would have prevented the entire issue: "Hey, we're getting close to the timeline I originally gave you. We're dealing with a truss delay, and it looks like we'll be delayed another 3 to 5 days. I'll keep you updated." That simple conversation would have changed everything.

The lesson has stayed with me for years. The problem wasn't the delay; the problem was allowing the customer to fill the silence with their own assumptions. Certainly, mistakes happen. Materials get damaged. Deliveries get delayed. Weather creates challenges. Customers change their minds. Every builder reading this article has dealt with those situations. But the companies that consistently create loyal customers aren't the ones that avoid every problem. They're the ones who manage expectations before, during, and after the project.

Before the Build: Set Expectations Early

The easiest complaint to solve is the one that never happens. Many customer frustrations begin long before the first post goes into the ground. A customer signs a contract and immediately begins building expectations in their mind, imagining timelines, construction schedules, delivery dates, and finished results. The challenge is that many of those expectations were never actually discussed.

A builder may say, "We'll probably get started in a few weeks." The customer hears, "Construction begins exactly three weeks from today." A builder may say, "Weather can impact scheduling." The customer hears, "The weather won't affect my project." Nobody is intentionally misleading anyone; they're simply hearing different things.

Many disputes also begin with assumptions about scope. The customer assumes something is included. The builder assumes it isn't. Neither side intentionally creates the misunderstanding, but if expectations aren't clearly discussed and documented, frustration often follows. A few extra minutes spent reviewing responsibilities, scope, and expectations can prevent hours of headaches later.

This is why communication before construction starts is so important. Talk about timelines, permitting, weather delays, material availability, and site preparation responsibilities. Talk about what happens if schedules change. Most importantly, explain what the customer should expect throughout the process. Customers can handle uncertainty far better when they know uncertainty exists; what they struggle with is surprise. One lesson I've learned over the years is that customers can handle bad news much better than they can handle surprise news. The sooner they know what's happening, the better everyone will be.

During the Build: Communication Matters More Than You Think

Once construction begins, communication becomes even more important. Many customer complaints during construction have very little to do with craftsmanship. Instead, they sound like this: "Nobody called me back." "I don't know what's going on." "Why wasn't anyone here today?" "Why does it seem like nothing is happening?"

Notice something — most of those complaints aren't about construction. They're about information. Customers want to know what's happening with their project. That's reasonable, after all, they've invested significant money and trust into the process. When communication stops, uncertainty takes over. Silence creates uncertainty, and uncertainty creates frustration.

Many builders avoid difficult conversations because they don't want to upset the customer. The reality is that by the time you're debating whether to make the call, the customer is often already frustrated. Delaying the conversation doesn't reduce irritation; it increases it. If a project is running behind, call. If materials are delayed, call. If the weather creates scheduling issues, call. If there is no major update at all, call anyway. A short update is almost always better than no update. Customers appreciate knowing where things stand, even when the news isn't what they hoped to hear. Today's customers also have more ways than ever to share their experiences. A concern that might once have remained a private conversation can now be discussed publicly within minutes, which makes communication and responsiveness even more important.

Handling Issues During Construction

Let's be honest — every project has challenges. No matter how experienced the builder, no matter how detailed the planning process, something unexpected eventually happens. A delivery arrives late. A change order appears. The customer wants something different. A scheduling conflict develops. A minor issue arises on the job site.

When these situations occur, the response matters more than the problem itself. One of the biggest mistakes contractors make is becoming defensive. Instead of listening, they start explaining. Instead of understanding the concern, they start assigning blame. But customers don't care whose fault the issue is. They care about who owns the solution.

Listen first. Ask questions. Make sure you fully understand the concern. Then focus on what can be done moving forward. In many cases, customers simply want to know that someone is taking their concern seriously. That doesn't mean every complaint is valid, but it does mean every complaint deserves attention. A customer who feels heard is far easier to work with than a customer who feels ignored.

After the Build: Don't Disappear

This may be the most overlooked stage of the customer experience. The project is complete. The final invoice is paid. The crew has moved on. The builder is focused on the next project. Meanwhile, the customer lives in the building every day.

Questions arise. Minor adjustments may be needed. Warranty concerns occasionally surface. Punch-list items sometimes remain. This is where many companies unintentionally damage otherwise positive relationships. Customers who were thrilled during construction suddenly feel abandoned after completion.

A quick response goes a long way. A follow-up call goes a long way. A simple check-in a few weeks after completion goes a long way. The last impression often becomes the lasting impression. Customers remember how the relationship ended, so make sure that ending reflects the professionalism you demonstrated throughout the project.

A Quick Word for Suppliers

While this article is aimed primarily at builders, the same principles apply to suppliers as well. Builders become customers the moment they place an order. They want communication. They want realistic timelines. They want updates when conditions change. They want follow-through. Whether you're dealing with a building owner or a builder, people want information, honesty, and communication. The fundamentals don't change.

Turning Good Projects Into Great Referrals

The best builders understand something important: customers don't expect perfection. They expect professionalism. They expect communication. They expect responsiveness. When expectations are managed properly, complaints decrease. When problems arise, they get resolved faster. When customers feel informed and respected throughout the process, they become more than satisfied customers. They become advocates who tell friends and neighbors and recommend your company long after the final invoice has been paid.

Some of the strongest customer relationships are built because challenges were handled properly when they appeared. I've seen customers forget mistakes. I've rarely seen them forget being ignored.

Customers rarely expect perfection. Most understand that weather, schedules, deliveries, and unforeseen issues are part of construction. What they do expect is honesty, communication, and follow-through. Every project eventually ends. The reputation you leave behind doesn't. ***FBN***

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The Cyclist's Sanctuary

A Crossville, Tennessee cyclist built more than a pole barn — he built a home for his passion, his bikes, and his community.

Some riders are content with a bike hook in the garage and a patch kit tucked under the stairs, our client is not that kind of rider.

A lifelong cyclist and dedicated member of the Crab Orchard Cycling Club in Crossville, Tennessee, he's logged miles across the Cumberland Plateau. He knows every climb on the ridge, every descent into the valley, every road that rewards patience with a view that stops you mid-pedal. What he didn't have — until recently — was a proper place to honor the machines that carry him through all of it.

That changed when he commissioned Troyer Post Buildings to construct a 30' × 40' × 14' post-frame building with a custom 12' × 20' lean-to on his rural Crossville property. The result is part workshop, part gallery, and entirely purpose-built for a cyclist whose identity is woven into every spoke and saddle.

From Passion Project to Pole Barn

The bicycle collection had outgrown the spare bedroom years ago. Road bikes, a gravel rig, a vintage steel frame restored over a winter, tools organized into trays and wall racks — it all needed more room than the house could offer, and more dignity than a drafty carport could provide.

The client wanted a real space where bikes could hang properly, work on them in the winter without freezing, and maybe have club members over after a ride. A place that respected what cycling means to him.

He'd seen Troyer Post Buildings' work around Cumberland County — tight corners, clean lines, buildings that sat well on the land without looking temporary. He reached out, and the two sides quickly found a shared vision: a structure that would feel permanent, look sharp against the Tennessee hillside, and hold up to decades of wrenches, chain lube, and wet kits hung out to dry.

Built on Solid Ground

The foundation starts at the base and works up. The building sits on a full concrete slab, with Perma-Column brackets used to mount the posts—a system that eliminates direct wood-to-soil contact and significantly extends the structure's service life. The posts themselves are #1-grade yellow pine sourced from Kauffman's in Clarkrange, Tennessee, a regional supplier with deep roots in the timber trade.

Clear-span trusses by Buffalo River Truss carry the 6/12-pitch roof with 18-inch overhangs, finished with soffit and fascia that give the building a polished, residential-grade profile. Simpson Strong-Tie fasteners are used throughout the framing, a detail that matters in a region where storms off the plateau can arrive fast and hard.

A Color Story in Metal

The building is a two-tone metal panel scheme that draws the eye and rewards a second look.

Both the roof and wall panels are 29-gauge steel from Plateau Metals, finished with Sherwin-Williams WeatherXL paint. The roof runs in Buckskin, a warm neutral that reads tan in full sun and almost golden at dusk. The walls go dark red—a deep, saturated tone that references classic Tennessee barns without borrowing too literally. A three-foot Buckskin wainscot band ties the base of the walls back to the roofline, creating a visual frame that unifies the whole composition.

The overhead doors are Plateau Garage Doors; the walk doors are Champion Doors of Tennessee — both chosen for their durability and clean fit with the overall aesthetic.

The building looks like it belongs on this land. That was the whole point.

Ventilation and the Fine Details

Two 36-inch decorative cupolas crown the roofline, each fitted with a 24-inch eagle weathervane that matches the building's pitch and colorway. They're functional — providing passive ventilation for a space that sees heat in the summer and condensation risk in the colder months — but they're also the detail that makes the building feel finished rather than just functional.

Thermaguard insulation with an R-9 value covers both the roof and walls, a spec choice that makes the space genuinely usable year-round. For a cyclist who does his most serious mechanical work in the off-season, that matters more than almost anything else.

The lean-to, framed in custom wood rafters, extends the footprint by another 12 × 20 feet and gives Harrington covered outdoor space — useful for washing bikes, staging gear before a ride, or hosting the informal post-ride gatherings the Crab Orchard club has made a tradition. That's the thing about building a space like this. It was supposed to be about the bikes. It turned out to be about the people, too — and that may be the best part of all. ***FBN***

PROJECT DETAILS

BUILDER: Troyer Post Buildings
LOCATION: Crossville, Tennessee
PROJECT & SIZE: 30x40x14 w/ 12x20 Lean-To
PRIMARY SUPPLIER: Xx
ROOF PITCH: 6/12
FOUNDATION: Built on concrete slab w/ permacolumn brackets to mount posts
TRUSSES: 6/12 Pitch, clear span Trusses by Buffalo River Truss with 18'' overhangs, soffit and fascia
ROOF: 29 GA by Plateau Metals, Sherwin Williams Weather XL Paint in Buckskin colorway
WALL PANELS: 29 GA by Plateau Metals, Sherwin Williams Weather XL Paint in Dark Red Colorway, along with 3' Plateau Metals wainscoting in Sherwin Williams WeatherXL paint in Buckskin colorway
FASTENERS: Simpson Strong Tie
OVERHEAD DOORS: Plateau Garage Doors
WALK DOORS: Champion Doors of Tennessee
POSTS: #1 grade material yellow pine from Kauffman's in Clarkrange, TN
VENTILATION: 2 - 36" decorative cupolas with 24'' eagle weathervanes in the same pitch and colorways as the building
INSULATION: Thermaguard insulation (R-9) on roof and walls
MISCELLANEOUS: 2 - 36" decorative cupolas with 24'' eagle weathervains in the same pitch and colorways as the building, custom wood rafter lean-to

www.troyerpostbuildings.com

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