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PUBLISHER'S NOTE

BY GARY REICHERT

Growth Continues With New Editor, Show

I have owned Shield Wall Media for almost four years now. It has been an adventure for me and the wonderful people who have chosen to come along for the ride. Like any endeavor, owning a company has its good days and its bad days. Today is a good day.



Rocky Landsverk

First, I can officially welcome a new passenger riding on the Shield Wall bus. Rocky Landsverk is now the editor of Rural Builder Magazine. He has more experience in publishing than I do, and is a great addition to our team. Learn more about him in the Editor's Note in the Metal Builder section.

Seeing new ideas progress from an idea or a sentence to reality feels like magic. The trip from "Hmmm, I wonder ..." to "Wow, look at that!" is where the fun is. Some places are known as destinations for fun; one of those is Branson, Missouri.

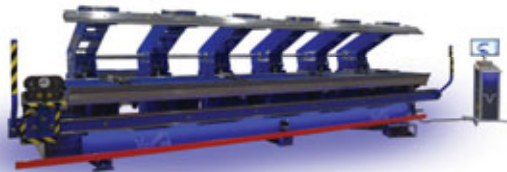
One tiny piece of fun and magic is now officially added to Branson. We official launched the Post-Frame Builder Show on

the Building Wins Live podcast February 15. The Post-Frame Builder Show will be in Branson on June 19-20, 2024.

POST-FRAME BUILDER SHOW

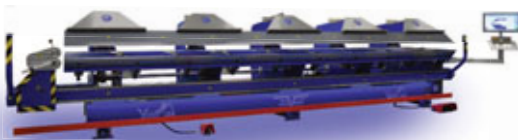
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Gary Reichert,
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Rural Builder®

Managing Editor
Rocky Landsverk
rocky@shieldwallmedia.com

Editorial Staff
Karen Knapstein, Linda Schmid, Marcus Josiger

Circulation/Subscriptions
Barb Prill
barb@shieldwallmedia.com
920-471-4846

Publisher
Gary Reichert
gary@shieldwallmedia.com
715-252-6360

Director of Sales
Missy Beyer
missy@shieldwallmedia.com
920-216-3007

Executive/Advertising Assistant
Kathy Budsberg
kathy@shieldwallmedia.com

Sales Assistant
Kathy Welk
kathyw@shieldwallmedia.com

Graphic Designers
Tom Nelsen
Kevin Ulrich

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The Kraft Riding Arena in Fort Morgan, Colorado, by Buildings by Design LLC and Chief Buildings is an incredible equestrian facility. See more on page 26.

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- Working With the DOT
- Truss Installation Guide

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Gary Reichert,
Publisher, Shield Wall Media

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Are You Ready for a Challenge?

“The Harder You Work, the More Opportunities You’ll Have!”

BY LINDA SCHMID



JACOB BOESCHEN IS DRIVEN TO succeed. He says that comes from his parents. They had six kids to raise and so they both worked hard in service industry management. Boeschen has the S.W.E.A.T. (Skill & Work Ethics Aren’t Taboo) Pledge displayed in his office. That’s the pledge that mikeroweWORKS scholarship winners must take. It talks about hard work, gratitude, self reliance, and an all-around good attitude. Boeschen wishes more people would commit to these ideals.

“It takes me back to being in school and working at the same time and makes me grateful for what I have today,” Boeschen said.

Of course, work ethic aside, youth doesn’t always have a dream job decided on after high school graduation. Boeschen took various jobs and then decided he wanted something more. He enrolled at Hawkeye Community College.

A career explorations class that he took while working on his general education credits brought construction to his attention as a viable career path for him. He enrolled in the Sustainable Construction and Design program.

“The program is recognized as one of the first-ever Zero Energy Design higher education institutions in the nation, so designated by the U.S. Department of Energy,” Boeschen said.

He explained that there has typically been a disconnect between homeowners and achievable energy efficient construction because it was seen as cost-prohibitive. However, higher quality derived from educated builders and designers along with good materials will drive costs down for better return on investment.

Boeschen stated, “It’s a comprehensive approach to building itself and the systems within that building. I learned from fantastic instructors about every phase of the residential building process from the preliminary planning to the finishing touches.”



As a result of a collaboration with mikeroweWORKS Foundation (www.mikeroweworks.org), *Rural Builder* is featuring profiles of Work Ethic Scholarship recipients in each of its issues. Over 1,500 scholarships have been awarded to trade-school students who value hard work and taking personal responsibility. *Rural Builder* applauds these students and wants to acknowledge their choice to apply their talents to skilled trades. Thank you, mikeroweWORKS Foundation, for your continuing efforts to close the skills gap and “reconnect the average American with the value of a skilled workforce.”

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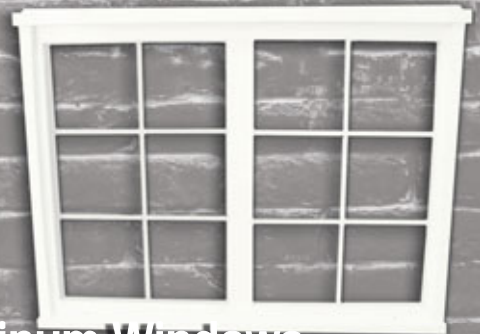
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“We went into the field and did every piece of a building, instead of replicating the work in a lab setting,” he added.

There are many great opportunities in the trades. Boeschen saw various classmates find their callings in heavy equipment, framing, design, trim, and cabinetry “We got to do all those things,” he said.

Boeschen graduated at the top of his class. Through school and after graduation he worked with a local remodeling business, Patterson Construction and Design, where he furthered his experience and knowledge in roofing, interiors, cabinetry, interior and exterior finishing ... a little bit of everything.

Now, working at Cedar Falls Utilities as an Energy Services Specialist, Boeschen finds that much of his training in construction and mechanicals at Hawkeye and in the field have assisted him with professional development. His current duties consist of energy code inspections and enforcement, conducting energy audits, assisting customers and contractors with rebates, HVAC equipment sizing and selection, and much more.”

Boeschen outlined what it takes to do his job: “I would say you need well-rounded technical knowledge of construction, building science, and principles relating to energy efficiency. The ability to analyze construction

information, remain up to date on ever-changing construction technology and the collective electrification transition is also important. A great attitude, team-oriented focus, and customer service skills are required for interaction with the public. Finally, effective communication skills and a relentless desire to

continue learning and absorbing new knowledge from others is imperative to sustained success.”

That may sound like a lot, but Boeschen says that if you enjoy a challenge and you are detail-oriented, it is worth it. Years later you will look back and appreciate where hard work can get you. He adds that with the older generation retiring, there is no shortage of work and opportunities in the trades.

Through activity with his local chapter of the Cedar Valley Home Builder’s Association, an advisory position with the Hawkeye Sustainable Construction and Design program, and volunteering opportunities with Habitat for Humanity, Boeschen spends time advocating and promoting the trades to local youth. He often encourages trade students he encounters to apply for the mikeroweWORKS Work Ethic Scholarship, just as he once did.

Boeschen’s final words: “Trust in yourself and your work ethic, The harder you work, the more opportunities you’ll have!” **RB**



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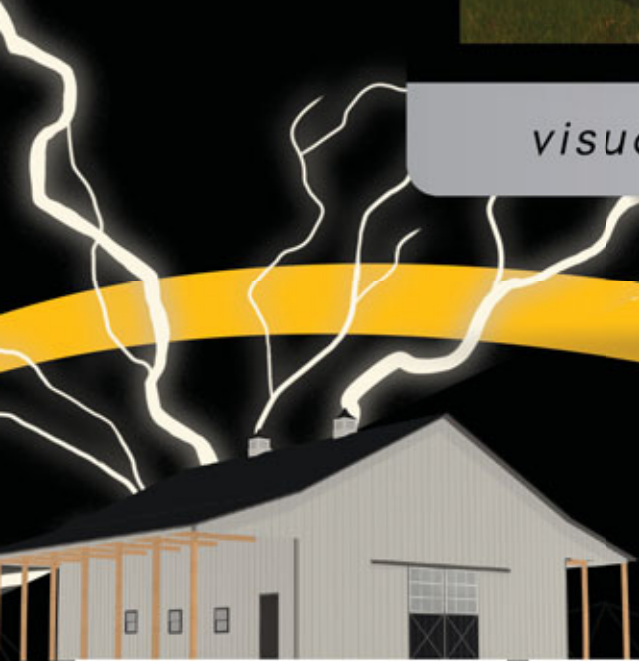
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Livestock WASTE HANDLING

Impact of Animal Waste on Soil and Groundwater

I AM NO STRANGER TO manure. As a graduate student studying soil science at Iowa State University, one of my first jobs was to collect manure samples from a variety of sources all over the state of Iowa. These were bulk samples of usually 30-50 gallon size, sometimes dry and sometimes as a slurry. Samples varied from having no included bedding to large amounts in the form of straw, grain chaff, or wood shavings. The operations that I collected samples from had various different manure management systems in place varying from lagoons to dry stack storage. I even

saw a pile of poultry manure that would dwarf modest two-story houses (complete with American flag planted in the summit!). Now that I live in Wisconsin, I have also seen lots of different manure management surrounding dairy operations, as well. Suffice it to say, I have smelled and seen them all.

MANAGING MANURE

Managing livestock waste or manure is a necessary part of any animal operation. There are a variety of tools and methods for managing manure and the option that

is best varies from one farm to the next. The variables that should be considered when selecting the best manure management strategy include the number and type of animals, the land base of the operation, the climate where the operation is located, and the soil and water resources in the area.

I am by no means unbiased in suggesting that there is a “best” strategy in each scenario and circumstance, and you as the reader certainly do not have to agree with me. But I think we can agree on several things.



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1. Animal health and welfare is a very important part of manure management.
2. Manure management has to be financially sustainable.
3. The negative effects that an operation's manure management might have on soil and water resources that affect your neighbors should be minimized.

Within this framework, there are many different ways to manage livestock manure with each one having a different set of challenges and impacts on soil, surface water, and groundwater.

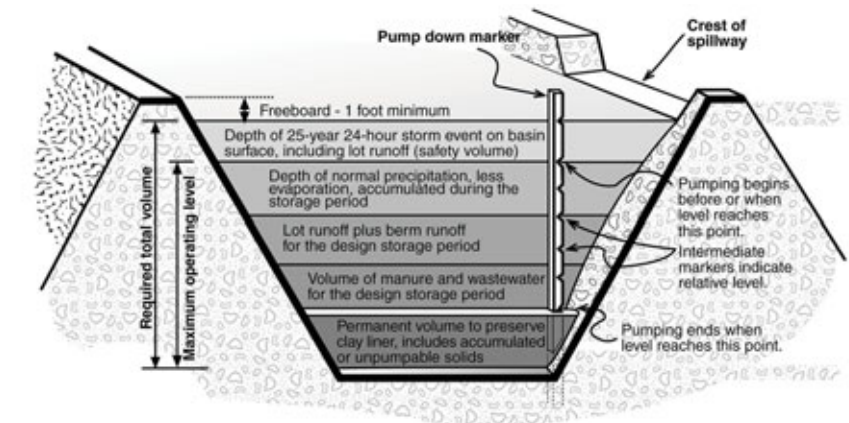
A simple approach I often take when trying to understand something is to exaggerate it and evaluate it. Using that approach, a pretty simple result is that gigantic piles or lagoons full of manure are not a winning strategy. I don't mean to say that we shouldn't use piles (also called stacks or stacking) and lagoons (or impoundments), but instead to say that they have a scale issue. Simply put, as they grow in size, so do the infrastructure costs, transportation costs, and soil and water impacts. And ultimately, they can get too big to function in the framework of economics and impacts on your neighbors.

So let's start with the simplest manure management strategy, (from an infrastructure standpoint) and evaluate from there.

ANIMALS ON PASTURE

Animals on pasture *all the time* is the lowest infrastructure manure management strategy. Make no mistake, though, you can really screw this one up, just like you can any other waste-handling strategy. The manure management here hinges on one type of infrastructure and the animals themselves. Essentially your fencing is your management structure and the animals will do the spreading for you with no bedding required.

Proper management of forage in this scenario will lead to improved soil and great water quality. The limitation is that you may not be producing as many ani-



Graphic courtesy of University of Missouri Extension from its publication "Lagoon Design Picture Earthen Pits (Basins) for Liquid Livestock Manure," available at extension.missouri.edu/eq388.

mals per land area as some other strategies, but you will maximize your profits with really low inputs if you do this right.

The strategy I am suggesting here is Managed Intensive Grazing (or "rotational grazing") with multiple paddocks (20 to 30+ depending on climate and soils), not continuous grazing (one big pasture or even several large pastures). Animals on pasture, done wrong with too many animals, off-site feed, and constant access to *all* areas of the pasture *all* the time can lead to some of the most devastating impacts on soil and water resources and your neighbors that can be imagined.

Do it right, though, and you have a winning strategy of livestock production, economic sustainability, and environmental improvement.

Yes, I get a little enthusiastic about this topic, but only because it is how cheeseburgers, fried chicken, and eggs can make the world better when produced with the right management.

WHEN TO GET A STRUCTURE

Using a rotational strategy may not always work and may not be the choice that you make for your operation. Instead, it may be that climate or the products you are producing dictate something a little different. Typically, that means that you choose to use buildings in your livestock

production.

Some kind of structure may be required for dairy or poultry animals (among others) for all or part of your production. If this is the case, then you will need to handle manure and likely store it for some length of time before land-applying it. This approach, like any other, can be done well or poorly.

Manure storage structures vary from impoundments (lined compacted earthen basins), to dry stacks (with covers or roofs), or even metal storage tanks. How you store manure depends on the type of livestock you have, the bedding you use, and your available land, materials, and capital. Each of these structures can function very well to contain manure until you are ready and able to land apply it. If you have shallow groundwater, then the impoundments are usually not an option. But you may be able to still use a constructed tank if you are handling a manure slurry.

If you are using organic bedding, then most likely you are going to handle your manure as a solid and you will be "dry" stacking it. Whichever storage structure type you decide to use, there are requirements to mitigate losses of both runoff and leaching of manure as well as siting requirements for the structure itself. Impoundments require extra capacity so

they don't overflow, and structures for stacking require runoff capture and often a cover of some type.

YOUR BEDDING CHOICE

While a bedding choice for your animals affects your storage options, it is also a really important factor in animal health and welfare as well as nutrient availability and water quality impacts. Some choices here such as sand may be quite economical (they are reusable) and very hygienic for dairy animals, but they lack an ability to stabilize nutrients, namely nitrogen.

If your choice is sand bedding, you are likely to be handling manure as a slurry and you are much more likely to have some issues with nitrate leaching in your fields and potentially with runoff, as well. In contrast, if you choose to use an organic bedding such as straw or wood shav-

ings, there is an added benefit of retaining more nitrogen from the manure and urine of your animals, but a trade-off in that you have to find a source for the material all the time (reusing it is tricky), and you have a material that has greater bulk that you have to deal with now (you can't pump or spread it quite as easily). The organic bedding mixed with manure is less likely to cause runoff and leaching issues and will have a bonus in that the nutrients available in it will slowly become plant-available throughout the growing season as your crops need them. Basically, the carbon in your shavings or straw will get bound up with nitrogen and phosphorus via microorganisms, making both less likely to be in a dissolved form where runoff or leaching could occur.

All of that said, it isn't at all uncommon to use different bedding and storage strat-

egies within an operation. For example, sand for the dairy cows (for the hygiene factor) and organic bedding for calves and beef animals in the same operation.

WHERE TO PUT MANURE

Once your storage is designed and installed, and you are maintaining it well, the other variable is application of that manure to yours or the acres of others. Manure application is where most potential negative impacts on soil and water (the stuff that can affect your neighbors) occur.

Some simple things to do here can really help mitigate these issues.

1. **The right rate.** You always want to be applying your manure at a rate (gallons/acre, tons/acre, etc.) that doesn't exceed what your crops need to grow and yield well.



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2. **The right time.** Applying manure at the right time is critical to both the health and nourishment of your crops as well as reducing runoff losses and leaching of valuable nutrients to groundwater.
3. **The right place.** This means putting manure where you need it and avoiding areas where there is a high risk of loss of nutrients to lakes, rivers, streams, or groundwater.
4. **The right source.** You already have it. Manure is a fantastic source of nutrients for fertilizing crops. But it can be made more effective via composting, using organic bedding, and proper storage. Together these tips are called the 4 “R”s of nutrient management.



Manure stacking is demonstrated in this photo by Brandon O'Connor of the Indiana NRCS, used by permission from his online article "Indiana NRCS Helps Solve Waste Storage Issues on Farm."

WATER QUALITY

Most issues created by livestock waste handling are water quality issues. These arise from either runoff and erosion (water moving over the land surface and carrying with it dissolved or suspended manure and soil) or leaching (water carrying dissolved nutrients downward through soil to shallow groundwater).

Properly constructed and maintained manure storage structures seldomly create problems in these categories outside of storms that only happen on the scale of every 50 to 100 years. Instead, most of the issues occur with manure application and the soil conditions. Some land management may lead to compaction of soils or other surface conditions (crusting) that reduce water infiltration (water entering the soil). If that occurs, then it is much more likely that there will be runoff and that any applied manure may be lost along with that runoff and end up in a stream. This is more likely to occur where slopes are steeper and soils are finer in texture (more clayey).

In contrast, leaching issues are more likely on flat ground with coarser textured (sandier) soils. One of the worst-case scenarios for water quality impacts comes from spreading manure on frozen ground. This should be avoided whenever possible. It isn't hard to imagine what happens when the thaw comes if there is manure on frozen ground with any kind of slope.

With all of that in mind, most of the best management practices are available from State Extension and the Natural Resources

Tips on Waste Management Builds From the Field

When building a barn, it's important to plan for the waste since livestock creates a lot of it. Usually the client will know exactly where they want the barn, but it's best to make sure that they have considered where the waste will go when it is scraped or pumped out of the building. You will want to ensure that it is handy to the barn and easily accessed by waste management vehicles, according to Noah Oberholtzer of Hixwood.

Oberholtzer has seen that many of the dairy farms in Wisconsin use sand for bedding. In that case, you will want to plan a space for a sand separator so the sand can be reused. Meanwhile the manure pit may be unenclosed. This will be a big concrete pit that will likely freeze over the winter and can be emptied in spring. This works well, since spraying over snow is frowned upon because it can lead to runoff when the snow melts. It can also be difficult to get equipment out into the fields through a couple feet of snow.

When planning the size of the barn, the number of animals to be housed must be considered. This is not only so they have enough space, it is also about ensuring the temperature inside the barn. While cows can handle some pretty cold temperatures, the waste will be hard to remove if it freezes. If the number of cows is appropriate to the size of the barn with a good ventilation system, there should be no problem. Insulation can be used to help ensure a warm enough temperature, and the ventilation becomes even more important to maintain a healthy herd.

Warren Bott of WorldWide Steel said that waste management structures can be built like any other ag structures with the difference that they require concrete interiors to withstand the highly acidic effect of animal waste. The exterior can be steel clad, if desired.

Regulations regarding waste management are not found in the building code. The EPA, DNR, and other government agencies may be involved, and depending on who is funding the project, the rules can change. For example, a barn funded by the FSA (USDA Farm Service Agency), will have to meet their specific requirements including building site, concrete, and slope specifications. The good thing is that reputable concrete companies should know what is needed in that location.

Bott notes that agricultural buildings that require waste management bring with them the challenges of specialized equipment which can require more shipping time and a place to store it when it arrives; there is more planning involved. He adds that a good rule of thumb is to protect the equipment that will likely cost more than the building. **RB**

Conservation Service through either an Extension Agent or your local Soil Conservationist. They can point you to storage design requirements and nutrient application guidelines that will include soil types, soil tests, slopes, crop type, tillage, manure nutrient analysis, and often setbacks from lakes, rivers, and streams.

Following those guidelines should put you in pretty good shape as that is the industry standard. Doing a little better than that is probably a good idea for more than a couple reasons, though. One, the regulations are likely to tighten up and then you will likely be ready. And two, who doesn't want to do better than their competition (and simultaneously have a smaller impact on their neighbors)? **RB**



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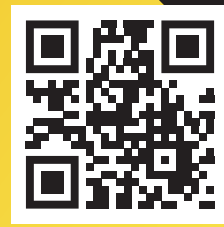


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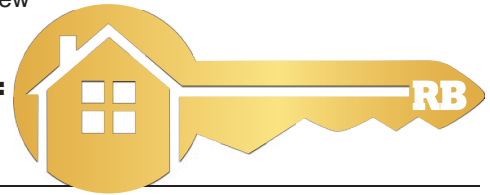
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Then nominate up to three suppliers in the spaces provided below.

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Building a Business

Find Your Niche; Do The Right Thing.



IN 2003, JOE COVER WAS working a full-time job at the water treatment plant and he built decks on the side. By 2005, he quit his job and started building full time. His first job was dismantling, moving, and recreating a building for his brother-in-law. He did decks, remodels, whatever came his way, but he knew he wanted to build pole barns.

It didn't take long to build his business because Cover had set his mind to a segment of the industry where he saw opportunity. He says that there were all the big name builders building pole barns: Morton, Cleary, and Wick, but there were no smaller builders who could do custom work.

Cover believes another reason the company grew was word of mouth. People found that they could trust him; he built a good product at a fair price, and if he said

Spotlight On: Cover's Construction



he would be there at a certain time, he would be there.

Now he has a thriving business in pole barn construction. In fact, almost all of his business is post-frame, mainly steel with steel roofing and wood frames. A lot of farm shops are completed with steel interiors. In houses they do drywall and sometimes car siding or stucco, lap siding, or other alternatives as the customer wishes, possibly with some stonework for fireplaces. Shops are completed with steel interiors or OSB or plywood so they have somewhere to hang tools.

What market he gets most of his work in depends. One year it's agricultural buildings; the next it's smaller sheds for boat and RV storage. Then it's houses. It just depends which segment of the economy is strongest at the moment.

Cover works with just a few suppliers, including Menards, Midwest Construction & Supply, and Delta Metals of Iowa. Windows and walk doors are from Plyco and they use local contractors for plumbing and electrical.

The company is located in Dallas County, Iowa, and the majority of his work is there and in surrounding areas.

Winter is harsh with below freezing temperatures and recently strong winds as well. Posts have to be sunk 48" in the ground due to frost. Cover says that is not unusual, but it is important in cold climates.

Cold weather does not preclude the company from doing its

job and doing it well. They layer their clothes; if needed they take breaks in the truck or in a building to get warm.

The summer is hot, but that does not bother the workers or the equipment like the cold does.

They have faced many of the same challenges as others in the past few years. Supply chain issues made completing jobs difficult; garage doors could take up to 15 weeks. He also faced difficulties finding help. Cover is hopeful that those times are over.

Cover says he resolved his employee shortage through two tactics: higher pay and prayer for the right people to apply.

He has a good, hardworking crew of seven employees now. They work well together; they have breakfast meetings weekly and getaways over the holidays.

Cover now orders supplies much earlier in a job than he used to. At one time he ordered garage doors, windows, and other components for a job when he put the posts in the ground. Now he orders a minimum of eight weeks in advance. It's not as important with lumber and steel; they're not as difficult to get.

Some great things have happened through the business' journey.

"We've built some cool buildings," Cover said. "We've been published in Rural Builder three times, once for our 3 Sisters Barn. For a small company, that's pretty exciting. And we have an A+ rating with the Better Business Bureau, which is kind of unheard of in construction."

'Founded on honesty; Growing with integrity' is the company slogan and Cover says that will forever be their plan. "We will always operate that way. Even if it costs us, we will do the right thing." **RB**



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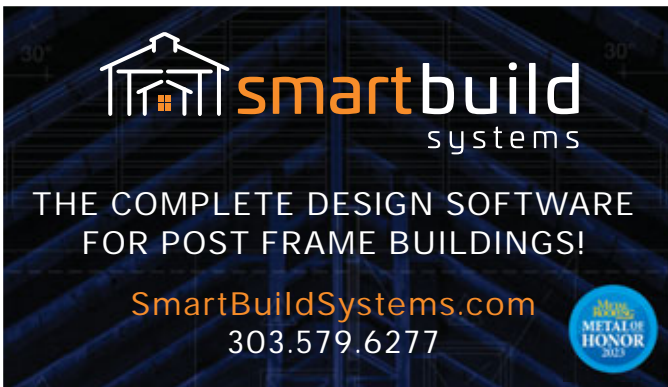

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Best Practices.

AGRICULTURAL EQUIPMENT STORAGE IS PRETTY important. As Warren Bott, Vice President of Sales and Marketing at WorldWide Steel Buildings said, “Combines can cost a few million dollars; they’re worth putting inside.” Of course, even if it wasn’t quite that expensive, it’s well worth protecting the equipment farmers rely on.

Bott says that most of their big ag projects involve buildings that are 75’-100’ wide; they’re bigger than they were a few years back because the machinery is getting bigger.

Joe Cover, owner of Cover’s Construction (see page 17), builds a lot of pole barns. Most recently the company built a 72’ x 144’ x 18’ building with a 40’ x 18’ hydraulic door for farming equipment storage. The challenges with these bigger buildings are that they take more manpower and time, though the time depends largely on the complexity, Cover notes. He estimates that an 80’ x 153’ building with overhangs could take from 2 to 4 weeks.

The wide, free span trusses are another challenge. It takes extra care to get them positioned and set. Cover’s crew uses a telehandler to lift them and sometimes they have to rig temporary bracing or use a spreader bar if the trusses are too long.

If you are looking for the “sweet spot” for a storage building size, Cover recommends 60’ wide buildings. He says over that you run into the “big building challenges” which can mean more building time and more dollars spent. Noah Oberholtzer of Hixwood says it is optimum to keep buildings at 64’ and under; their most popular sizes are 60’ and 64’ wide. He also advises



PHOTO COURTESY OF WORLDWIDE STEEL BUILDINGS

that making a builder longer rather than wider is the way to go, saying that a customer would be better off building a 64’ x 120’ rather than 72’ x 100’ because even though it’s bigger, it’s more cost effective.

“Of course if you need a 72’ x 100’ for your equipment, that’s what you build,” Oberholtzer added.

It used to be common for farmers to build their own buildings; now they more often find a contractor, according to Bott. The

process, he said is that the customer indicates what they want, his team does the preliminary plan, the customer approves it, and then the engineer reviews and approves the plan, and the building is delivered to the site.

Oberholtzer said that his main job at Hixwood is to see what the farmer wants and help them plan and design the building that will work best for them. He starts with a scratch pad and once he has the fundamentals, it goes into SmartBuild for design and price.

The site for an ag equipment storage building should be level and everything will be easier if you're not building on rock, Bott said. Oberholtzer adds that it should be well-drained and have good access for the equipment. Oberholtzer says farmers have usually thought about that.

Gravel floors are the norm, though if the customer asks for a concrete foundation, the building will usually have a ladder frame which they may later insulate. Then the storage shed may become a shop where equipment can be repaired and maintained as well as stored.

Usually trusses are set 4' on center in these buildings, Oberholtzer said. They need to meet snow loading codes, and they require bracing because the larger spans can catch a lot of wind. Wind bracing is accomplished with cross bracing and bracing in trusses. Cross bracing in walls can be done with 2' x 4's or steel strapping. Knee bracing can also be used, and angle braces are helpful at the corners, though they can eat up a couple feet of wall space.

Overhangs are important to keep rain and snow away from the foundation, and they are aesthetically pleasing. Because storage buildings often do not have electricity, Oberholtzer also suggests using daylighting high up on the wall instead of windows so that people cannot see the equipment inside. If the building is insulated, then insulated skylights like Daystar could work.

For ease of access to equipment in a big building, anything over 120' long, you may want to advise your client to add another big door in the middle of one side. Oberholtzer advises that split sliders with tracks going both ways look nice, and it's easier to push half the door at once. Anything over a 24' split needs steel

frame, he added.

One of the problems most cited with equipment storage is condensation. Cover says this can be avoided by using panels with Dr!pstop applied, spraying foam under the steel, or creating an attic space in the building with good ventilation. You can also choose to use house-wrap, but that can take more time. Basically, insulating the exterior of the building will keep condensation from forming.

Bott sees changes in the types of doors being installed. His customers are choosing more bi-fold doors. These are higher tech, automatic hydraulic doors that run \$10,000 and up, he said. The doorways are getting bigger due to the size of today's machines.

He noted that people can underestimate the door size they need for these big buildings. "While a 16' door may accommodate what they have now, what about the equipment they may have in 5 years?"

Sometimes people haven't measured the equipment they already have, Bott continued, so it's best to ask them for measurements before you put in a 12' door for 13' wide equipment.

Customers will often come back and say that they didn't build their machine shed big enough, and they are usually referring to the height of the doorway, according to Oberholtzer. Of course, it can only go so high, he says. Overhead doors need two feet of header space and it's the same for





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a sliding door on the eave side of the building. On the ends, a sliding door can go nearly to the height of the building

Cover hears the complaint: "It's not big enough," but customers are usually referring to the amount of storage space inside the building. "Everyone thinks they will have all kinds of room, but these buildings fill fast," Cover said.

Cover recommends resolving this problem by introducing your clients to a computer program that helps create the building

layout, then lets you drop "virtual items" in the layout to see how it all fits. Another solution is to measure the equipment you want to house, do the math, and maybe leave a little space for new items. It also helps to have the customer look at a lot of buildings and note what they do and do not like to make designing the building easier, Cover added.

Bott's final piece of advice: make sure you are dealing with companies that will stand behind their buildings. **RB**

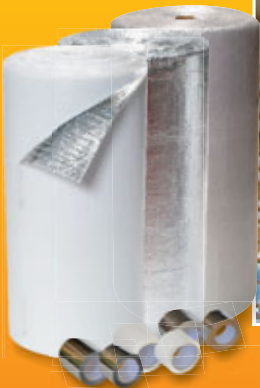
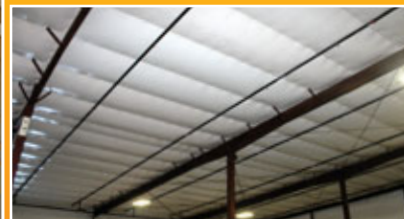


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MANY OF US RECOGNIZE THE need for storage—storing vehicles and personal items in sheds, garages, barns, and storage units. However, many of us take for granted our storage buildings and the components that make those buildings function. Doors often are overlooked. Customers frequently focus on square footage, ceiling height, and other features. Yet doors play a large part in moving property out of storage. Roll-up units are a viable option and are extremely popular. Offering numerous possibilities, roll-up doors are excellent all-purpose doors.

SPACE SAVER

Roll-up doors are great for cramped spaces. Compact and lightweight, these doors only occupy space directly above the door opening. Commercial storage units frequently pair up with rental companies for this reason, providing clients with more bang for their buck. Compact closing mechanisms are additional space-savers and prevent objects from getting snagged while moving in and out of the unit. The price per unit is another factor when pairing with storage facilities. This goal is to make the unit as cost-effective as possible, while still maximizing

your storage profit. Typically, lower prices associated with roll-up doors keep unit costs down, maintaining higher profit margins. Furthermore, roll-up doors have smaller profiles; installation generally is more accessible due to lighter, less cumbersome parts.

FLEXIBILITY

One of the greatest assets roll-up doors offer is flexibility. Roll-ups can fill a need and are compatible with many different climates. From the Caribbean to Canada, units can be seen everywhere. They are capable of withstanding winds up to 100+

mph, according to many manufacturers. Add-ons such as nylon “pucks” can be attached, which cuts down on door shaking. Other flexible features include a variety of locking mechanisms. Frequently used locks include padlocks and latches. Placed on hinges, padlocks can be easily secured, while latches have a mechanical device connecting the door to the wall. Key cylinders (that looks like a small barrel) are also highly requested.





Size is a concern for every storage unit. Boats, trucks, and farm equipment must fit into their containers. Roll-up doors can accommodate those needs, with doors spanning 16'+ in length, offering a tremendous level of versatility for users. However, due to weight constraints, doors of these sizes will need more than a pulley system. Manufactur-





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ers recommend that large doors be fitted with automatic door openers. Smaller units can open with pulley systems as the axle at the top of the door mount reels in the door.

Coated springs enable doors without mo-

tors to be easily opened. Large doors over 12' will have a dead axle, meaning the axle stays in place while the drum that stores the door rotates around it. Units under 12' will operate with a live axle. The difference be-

tween the two is simple. A live axle, unlike the dead, has its axle rotate with the door.

THE DOWNSIDE

Despite roll-ups doors being compact, squeezing a hand between the ceiling and the drum can be difficult because of tight spaces. Furthermore, roll-up doors are thin with foil insulation placed inside the door, dampening the effects of the temperature. During winter months, insulation provides a slight barrier, maintaining a moderate level of heat inside. Homeowner Associations (HOAs) and other regulatory groups may require garage panel doors.



Other issues associated with roll-up doors are jams. Problems occur when the roll-up door wheels become misaligned and run off the track. A jam effectively eliminates the opening or closing of the door. Lastly, painting roll-ups doors can be difficult due to movable panels and all the spaces in between.

CONCLUSION

Before purchasing roll-up doors in any climate, be sure to weigh the benefits and concerns. No product is perfect. However, roll-up doors offer a reasonable solution to getting in and out of storage facilities, especially if space concerns your customers. Options like insulation can make the roll-up door viable in any climate. **RB**

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INDUSTRY UPDATE

BY RANDY SHACKELFORD
SIMPSON STRONG-TIE
MANAGER OF CODES AND COMPLIANCE



2021 IRC Analysis

Part 1: Top Structural and Wood-Related Changes

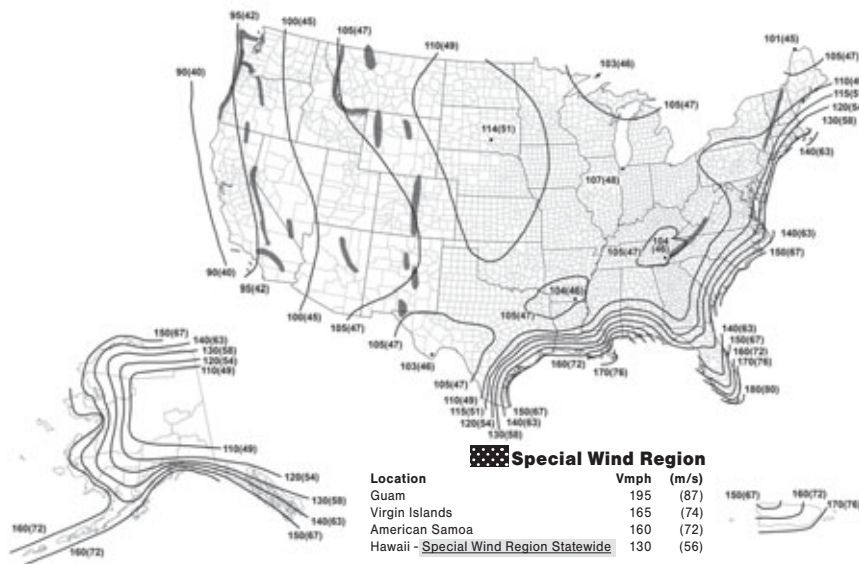


Figure R301.2(2): Ultimate Design Wind Speeds

The ICC code change cycle for the 2024 International Codes is near completion, with only the certification by the Validation Committee and confirmation by the ICC Board of Group B results outstanding. However, many jurisdictions may just now be adopting the 2021 International Codes. This is the first of three articles that will discuss the primary structural and wood-related changes in the 2021 International Residential Code and International Building Code. This article covers changes to IRC chapters 3 and 4, organized by subject.

WIND-RESISTANT CONSTRUCTION

The biggest change for wind was an update of IRC wind design to use ASCE 7-16. The ultimate design wind speed map (Figure R301.2(2), left) was updated to use the wind speed map from ASCE 7-16. This can result in a reduction in wind

speed for much of the country. The 2018 IRC map had a design wind speed of 115 mph for most of the country (areas located away from hurricane coastlines), with a wind speed of 110 mph for California, Oregon, and Washington. The new map has significantly lower wind speeds in parts of the country, with even lower wind speeds for the western US. The tradeoff is that the simplicity of the old map is lost.

Due to the new map, many of the wind-related tables of the IRC were revised to insert entries for these lower wind speeds. The affected tables included the tables for topographic wind effects, braced wall line spacing, bracing lengths based on wind speed, tension strap capacity for portal frames resisting wind pressures, wind speed limits for siding attachment using Table R703.3.2 (not shown in this article), and design wind pressures for screen enclosure framing.

The IRC Table R301.2(2), which lists component and cladding loads for roofs and walls of buildings, had to be updated to reflect the higher roof component and cladding loads in the ASCE Standard. There was also a new loading diagram added for gable and flat roofs with a roof pitch less than or equal to 7 degrees.

Figure R301.2(5)B is a map showing areas where wind design is required [Ed. Note: Other figures and maps referenced in this article are not pictured here]. This map was updated to remove all wind speed contour lines away from the hurricane coastline and to remove the wind speed labels on the hurricane coastline contours. Additionally, it removes the design wind speed that was listed for Guam, Virgin Islands, American Samoa, and Hawaii, indicating that wind design is required everywhere on these islands.

The IRC Committee declined to update the IRC to ASCE 7-16 wind design in the 2016-2017 cycle, which created a conflict with the IBC, which *was* updated. For the 2021 editions, the IRC and IBC will have consistent wind design requirements again.



House after an earthquake.

SEISMIC-RESISTANT CONSTRUCTION

There were three changes to the IRC seismic construction requirements proposed by the FEMA/ATC Seismic Code Support Committee. The first added new Seismic Design Category maps for Guam, the Northern Mariana Islands, and American Samoa, similar to how requirements for these islands were added to the wind speed maps.

The second change added certain situations of “Hillside Light-Frame Construction” to the list of situations causing a structure to be considered as an irregular building. Hillside buildings are frequently only directly connected to the foundation at one edge and therefore do not act like typical IRC buildings, so they need more engineering attention.

The third change added language in

Section R301.2.2.7 Height Limitations that wood-framed buildings with a height exceeding two stories that are located in Seismic Design Category D2 “shall be designed for wind and seismic loads in accordance with accepted engineering practice.” It’s interesting that being in SDC D2 would also trigger an engineered wind-resisting system. Several changes to the wall bracing section are related to this one and are discussed further on in this blog.

GENERAL CONSTRUCTION

The IRC is trying to address new types of construction outside of traditional light-frame and masonry. New appendices containing requirements for cob construction and 3D-printed construction were added. Appendices are nonmandatory unless specifically adopted.

On the other hand, structures con-

feet in length.

In the 2018 IRC, an exception to the limit of 10 feet was added to allow studs up to 12 feet in length provided they met certain limits. These limits are that the building is located in Exposure B, with a roof live load not exceeding 20 psf and a ground snow load not exceeding 30 psf, and that the studs have a minimum grade of Number 2. Studs also are required to meet the specifications in a new Table R602.3(6), which includes an enhanced connection at the top and bottom of the stud consisting of a connector with a 300 lb. lateral capacity when the design wind speed exceeds 115 miles per hour.

Finally, in the 2021 IRC, an exception was added to the 11 feet 7 inches story height limit to allow a story height up to 13 feet 7 inches provided the stud clear

height does not exceed 12 feet and the studs meet the previously mentioned requirements, or if “an engineered design is provided for the wall framing members.”

A couple of changes were made to Table R301.5 (not shown in this article), Minimum Uniformly Distributed Live Loads. One change separated the single column of loads into two columns, one for uniform loads, and one for concentrated loads. This should reduce confusion and make the table easier to use. A second change separated the single entry for Guards and Handrails into two separate table rows, since they do not have the same function.

Further, it added “footnote d” that states, “Where the top of a guard system is not required to serve as a handrail, the

single concentrated load shall be applied at any point along the top, in the vertical downward direction and in the horizontal direction away from the walking surface. Where the top of a guard is also serving as the handrail, a single concentrated load shall be applied in any direction at any point along the top. Concentrated load shall not be applied concurrently.”

This is to address the true intent of a guard, which is to prevent a person from falling from a raised surface to a lower surface. In that case the load of a person would primarily be in the outward and downward direction. This simplifies the evaluation of guard systems, and makes the IRC requirements consistent with ICC-ES Acceptance Criteria and ASTM standards related to the performance of guards.



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Also related to guards, another change simply added “floors” to the list of raised walking surfaces that require guards in Section R312.1.1.

Additional requirements were added for Storm Shelters to ensure that they will provide the occupant protection that is expected of them. A definition of “Storm Shelter” was added to clarify exactly what types of structures are addressed by these requirements. A new Section R106.1.5 was added under Submittal Documents requiring that “Construction documents for storm shelters shall include the information required in ICC 500”, which is the ICC Standard for the Design and Construction of Storm Shelters. Lastly, a new Section R323.1.1 was added which required that the “construction documents for all structural components and

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impact protective systems of the storm shelter shall be prepared and sealed by a registered design professional indicating that the design meets the criteria of ICC 500." An exception was added to allow construction without sealed documents where storm shelters, structural components, and impact-protective systems are listed and labeled to ICC 500.

FOUNDATIONS

A couple of significant structural changes were made to the Foundation Chapter. First, Table R403.1(1), Table R403.1(2), and Table R403.1(3), tables that specify the minimum width and thickness of concrete footings for light-frame construction, light-frame construction with brick veneer or lath and plaster, and partially grouted masonry walls, were

revised. Many entries had reduced widths, and some had reduced depths. Revisions were due to a review of the spreadsheet that was used to develop the 2015 and 2018 IRC footing tables, which found that some overly conservative assumptions had been made.

Section R403.1.6 was revised to allow anchor bolts to be placed "while the concrete is still plastic." It adds the statement that "Where anchor bolts resist placement or the consolidation of concrete around anchor bolts is impeded, the concrete shall be vibrated to ensure full contact between the anchor bolts and concrete." **RB**

Part 2 of the IRC changes will be published in the May edition of Rural Builder.

Randy Shackelford is the Manager of Codes and Compliance for Simpson Strong-Tie, where he has been employed since 1994. He monitors building codes and construction standards nationwide, and manages the ICC code development process for Simpson Strong-Tie. He also serves on several code-referenced standards writing bodies, including the ASCE 7 Main Committee and Wind Load Subcommittee, the American Wood Council Wood Design Standards Committee, and several ASTM D07 Committees. He provides technical assistance and training on building codes, wind and earthquake resistant construction, and the use of Simpson Strong-Tie connectors to builders, designers, consumers, and building officials throughout the country.

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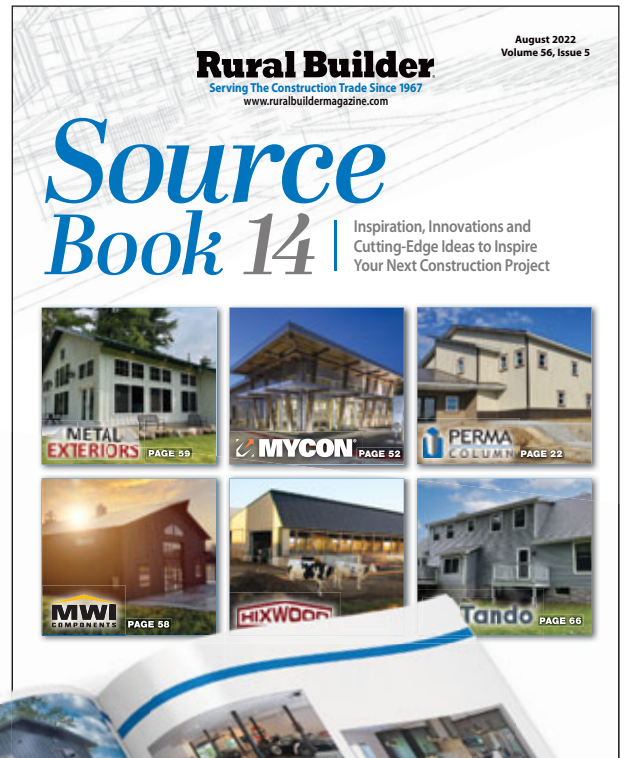
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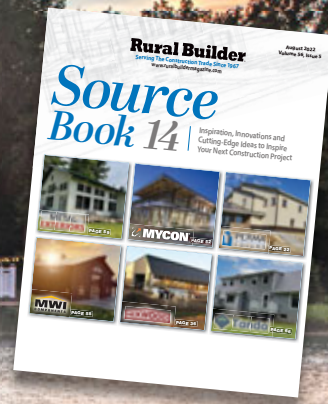


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General description of the project: <i>(Please include a couple of paragraphs including what the customer wanted; what special elements set it apart)</i>
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DESCRIPTION



The Farm Building News March/April cover of 1975.

FOR 50+ YEARS RURAL BUILDER has been providing the news, trends and resources builders need. Prior to the January 1974 edition, "Farm Building News," as it was called, was in newspaper form. However, those old papers are not to be found in our Shield Wall library. We would love to see some of them... it's our lost heritage! If you have one/some of them please drop a line to rocky@shieldwallmedia.com.

Some Practical Ideas to Lengthen the Life of Grain Bins

BIN BUILDERS CAN PASS ON to their farmer-customers some practical ideas for lengthening the useful life of on-farm storage facilities.

From Clayton & Lambert, veterans in the business, here are some sound recommendations:

- With good treatment, the average life of a galvanized steel grain bin is about 30 years. Farmers have sometimes extended this durability 20 more years by a yearly application of raw linseed oil to the bin's interior walls.

- To compensate for less capacity in bins with drying floors, bins with steep slope roofs will hold more grain, and a center fill type will allow more even filling. In the drying floor, insist on heavy-duty galvanized steel with a perforated design that maximizes air penetration without grain leaking or plugging.

- Where expanded capacity is needed, but not enough to warrant the purchase of an additional bin, investigate the "add-a-ring" feature offered by some manufacturers. Here, one or more full circles of extra steel side wall can be added to the bottom of existing bins.

- In high moisture storage, use a sweep-action grain tender if farmer wishes to keep stored grain level, to break up chunks and prevent clogging of the unloader. Sometimes, use of a stirring device can cause extra stresses on the walls and floor of a drying bin.

Be sure floor supports and sidewall stiffeners are adequate.

- After grain is dried to a safe moisture level for prolonged storage, it is still



essential to aerate the grain to prevent convection air currents and resulting moisture migration, which will spoil it. For safe storage, grain should be kept at a uniform temperature from center to outside, and as cool as possible.

Aeration is not necessary when the grain mass gets uniformly down to 40°F, but the aeration fan (or the drying fan on a dryer) must be run if you suspect hot spots or moisture migration

- Although leaks seldom occur in high moisture bins if the structure is erected, used and cared for properly, they can be caused by two practices: putting in material with a moisture content of over 65%, and clogging of the top breather valve.

This valve must be kept free of debris so that it can open or shut as differences in interior and exterior pressure require. It's advisable to check the valve occasionally to verify that it's functioning correctly. At least once a year, when a tank is empty or nearly so, the bottom doors should be left open to facilitate a complete drying-out. **RB**



PHOTO COURTESY OF JAY CARPENTER

Grain Bin Advice Today

The preceding grain bin tips were published in 1975, and they were good advice, but some things have changed in the industry.

While everyone wants to make the most of grain bin capacity, it is important not to over-fill according to Jay Carpenter, a 40-year veteran of the grain bin industry. Grain bin roofs are built to handle snow loads, not pressure from the inside pushing up. Therefore, grain pressure can damage them, so don't overfill a grain bin. Also, be careful that the load is not off-center to avoid uneven pressure.

High moisture in grain storage can be problematic. Handling moisture is not just about keeping the grain from rotting. If moisture is left in the bin for too long, it will corrode Galvalume bins. Therefore, the fans need to run long enough to make sure the grain is cool and the moisture is off the walls. For example, if it takes three days for the corn to cool, it will likely take another day or two of aeration to ensure that there is no trapped moisture. Further, once you have a spot in the bin where molding has begun, you can't keep the fans running long enough.

Movement of grain is hard on a storage bin. This is why some farmers use "working bins" and storage bins. Working bins are drying bins or surge bins, and surge bins feed the dryer bins. However, this method of drying is less common now. Most grain bins are vented to handle moisture. Further, the manufacturer may have specific instructions regarding high moisture grain storage.

Finally, many storage bins are destroyed because they were not properly anchored. In high winds, a few anchors can come loose, thereby placing more stress on the remaining anchors. Then when all the anchors on the bin give way and the bin blows off its foundation, it is likely to bang into the next bin, breaking that one loose. The domino effect can take over and many bins can be lost in one storm.

Proper anchoring can help to avoid losing bins to storms. Ensure that the recommended number of anchors are used. Embed the concrete anchor 8 to 10", not just 3 to 4". A little extra time and money can avoid a lot of devastation.

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Hello From Your New Editor

Growth instigates change, and as Rural Builder and Metal Builder continue to grow, it has necessitated change in the form of the addition of another editor on the Shield Wall Media staff.

That was a first-person sentence, because that new editor is me. I'm thrilled and honored to have rejoined my friends and colleagues after having gone to another magazine company for the past few years. Both an editor and a website manager, I used to run the websites for Rural Builder and the other construction brands, but this return to the brands now makes this my first stint with the magazine group itself.

I've been a writer and editor my entire career with the only exception being a short stint in sales for Leafguard (the Englert-supplied gutters). I won't pretend that made me a construction expert by any means; most of my personal experience in that regard comes from having just gone through the process of planning the building of our retirement home.

From a personal standpoint, my wife Angie (also an editor, but at a different company) and I live in the Shield Wall Media hometown of Waupaca, Wisconsin, having built our age-in-place retirement house in the fall of 2021. I will be able to chronicle that build, and the things we've learned that could benefit you and your business, in the coming months and years.

We've certainly learned enough tough lessons in our first 18 months, including why your mechanical room door needs an alarm, why you shouldn't adjust your radiant heat temperature too low when it's minus-10 degrees F outside, and what to do when your new driveway buckles into the corner of your garage.

We have no (serious) complaints, however. The open concept



The editor's new "age-in-place" home features in-floor radiant heat and a metal roof.

features a single level of hardwood floors (luxury vinyl but you get the point), with half the house consisting of an enormous great room. The insulation quality borders on ridiculous (our first-year monthly heat bill average was \$50, which is now our budget, absurd in Wisconsin in 2023), and the metal roof tops off what is pretty much a no-maintenance building. Lastly to the right of our house is a delightful three-season room.

It's that experience that I hope to bring into my role, which I consider one of curation, not creation. To that end, I will be building an advisory board of industry professionals in each topic vertical (that's part of my process for any magazine I've managed) so feel free to email me at rocky@shieldwallmedia.com and introduce yourself. I look forward to meeting you in person at an industry event, too.



—Rocky Landsverk

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Stuart Yacht Basin by Vulcan Steel

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Fire Prevention Equals Cost Savings

Why Insurance Influences Placement

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On the cover: The amazing boatyard facility in Florida was created by Vulcan Steel Structures of Georgia.

Activating the Fifth Facade:

Enhancing Rooftop Design with High-Performance Materials

As urbanization continues to increase, housing prices soar. As a result, outdoor gathering spaces are often sacrificed to make way for more housing units. At the same time, post-pandemic life has shown us the many health, community, and wellness benefits to outdoor spaces, making them a highly sought-after amenity.

With a lack of available space, developing the rooftop, or “fifth façade,” has become more important than ever before. Facility managers and construction specifiers tasked with building and renovating office buildings, schools, and healthcare facilities are prioritizing health and flexible design while noting the role outdoor space plays on increasing concentration, productivity, healing, and overall occupant well-being and satisfaction.

SAFETY AND PRIVACY

Engineered to withstand prolonged tension, impact, and heavy loads, the material provides reliable fall protection when specified as railing infill and balustrades, and partitions. Additionally, metal fabric partitions can define spaces and establish privacy.

NOISE MITIGATION

Mesh materials can be used as acoustic absorption to help block exterior noise pollution from nearby highways, railway in-



frastructure, or ground activity. Weave patterns can be specified to dampen sound without compromising airflow or sight lines.

EQUIPMENT SCREENING

Metal fabric partitions can create attractive screening systems for critical rooftop equipment such as HVAC systems, air handlers, or communication technology. The open weave enables air flow and maintenance access while protecting and shielding equipment from occupant view.

SOLAR MANAGEMENT

Without the presence of a treetop canopy, rooftops have the potential for high sun exposure, which translates to occupant discomfort and higher heat gain for the building. Metal fabric provides effective sunshading and passive cooling when specified as a canopy or open-weave wall.



GREEN WALL INTEGRATION

This popular design feature is used to enhance the rooftop experience through biophilic design. Woven metal walls provide the ideal substrate for climbing plants or rooftop gardening. The highly durable material is resistant to the natural elements, supports watering and plant maintenance and maintains an attractive design when plants are out of season. **MB**



FROM FORM TO FUNCTION



■ MBMA 2022 ANNUAL REPORT DETAILS RECORD GROWTH

The Metal Building Manufacturers Association (MBMA) has released its 2022 annual report, “From Form to Function,” which detailed the growth of the industry last year and revealed that the organization added a record number of new members.

“2022 has seen tremendous growth in the industry despite ongoing supply chain, labor, and pricing challenges,” MBMA Chair Tom Boal said. “With the need for metal building systems growing, MBMA continues to lead the industry through advocacy, working with building officials and steel suppliers, and providing educational resources.”

The 2022 MBMA Annual Report includes:

- Expert insights about factors influencing the metal building systems industry
- An architect’s perspective on educating architecture and engineering students about metal building technology
- Overview of the inaugural MBMA Design Competition for architectural students
- Year-end reports on MBMA initiatives spanning accreditation, fire protection, sustainability, workplace safety and industry statistics, and other areas
- Educational and technical resources available from MBMA

Founded in 1956, MBMA serves manufacturers and suppliers as it works to promote the metal building systems industry. The full report is available for free download at www.mbma.com/Annual_Reports.html.

■ QUALITY METAL STAMPING GROWS IN SIZE AND CAPABILITIES

Quality Metal Stamping or QMS, a fourth-generation family-

owned stamping and fabricating business is expanding. Their primary production facility is located in Henderson, Tennessee, where it has been since 1960. Their second location is in Humboldt, Tennessee.

The company is expanding their fabrication footprint with a new Mitsubishi Laser. The company now has over 90,000 square feet of manufacturing space with capabilities including stamping, fabrication, welding, powder coating, tool and die, assembly and more. They provide services to a variety of markets including metal roofing, metal building systems, steel framing, mini-storage, and residential construction.

■ REIBUS ADDS RED METALS TO MARKETPLACE

Reibus International, the independent digital marketplace for industrial metals, expanded its product offering to include red metals — copper, brass, and bronze — which are key ingredients in the electrical, metal roofing, and pipe manufacturing processes. In a recent report by S&P Global, copper demand alone is projected to nearly double by 2035, and market opportunities are emerging for copper product recycling.

“Red metals, especially copper, are in high demand, and current market conditions make it very difficult to locate and purchase inventory,” said John Armstrong, founder and CEO. “This product expansion will enable global manufacturers and service centers to buy, sell, finance and transport copper, brass and bronze, reducing supply chain friction and improving cash flow.”

■ CFSEI SHOW SET FOR MAY 8-10 IN NEW ORLEANS

The Cold-Formed Steel Engineers Institute (CFSEI) will host the 2023 CFSEI Expo on May 8-10 at the Hilton New Orleans Riverside hotel. The CFSEI Expo will include several educational sessions; announcements of the CFSEI Design Excellence and Creative Detail Award winners and the John P. Matsen Distinguished Service Award winner; and an exposition featuring state-of-the-art innovations, technologies and principles in cold-formed steel framing. A preliminary list of Expo speakers/technical sessions and details on hotel room reservations and registration are available at www.cfsei.org/2023-cfsei-expo.

The CFSEI Expo is designed for architects, builders/contractors, and engineers and is geared toward both skilled cold-formed steel framing professionals and newcomers. The technical sessions will provide more than 10 continuing education credits. CFSEI is offering a stipend program for young engineers and instructors. A limited number of \$1,200 stipends are available to engineers under 35 years old and to instructors at universities with civil and structural engineering programs. **RB**

Stuart Yacht Basin Soil, Site and Super-Sized Buildings Pose Challenges for Boatyard Facility

Grand Banks Yachts, Ltd., a well-known and respected brand in the motor yachts industry, wanted to make a real splash in the nautical world when planning the design and construction of its Stuart Yacht Basin, a full-service boatyard facility in Stuart, Florida, which also serves as the company's U.S. headquarters.

Hank Compton, managing director of Grand Banks Yachts, desired to create the type of service and sales facility that yacht owners would expect because of the kind of luxury vessels they owned.

"We planned this to be one of the most state-of-the-art service facilities for our region on the East Coast. We want to wrap our arms around our customers and give them an unrivaled experience," says Compton. "It needed to be a facility that's in line with the vessels they had purchased."

He conceived the new facility would offer sales, storage, slips and a full-service boatyard for after-sale service, maintenance and upgrades.

To begin, Grand Banks Yachts purchased an existing 12,000-square-foot boatyard that needed some major upgrades. About the same time, Compton hired general contractor Leighton Construction, LLC, and subcontractor Bayview Construction Services LLC, which is an authorized dealer of metal buildings for Vulcan Steel Structures.

COMPLEXITY & COMPLICATION

The multi-phased project called for removing some old structures, building a new connected building, erecting a structure over a 50-ton boat crane site and installing an angled edge roof to improve drainage.



John Leighton, owner of Leighton Construction, notes that planning for the yacht basin project took nearly a year because of the project's complexity. Adding to the challenge was the need to remove and replace existing facilities in a certain order so that Grand Banks Yachts could remain operational throughout construction.

Leighton says one of the first major challenges the team faced was the need to improve the geotechnics of the site, which involved using various technologies to help correct geological issues.

"The soil was terrible, and we needed to drill down to deep, solid soil before pumping concrete and inserting steel in the holes. We then poured a new concrete slab capable of supporting the planned number of metal buildings," Leighton says. "Our team took a multifaceted approach in planning that involved the general contractor, structural engineer, and building manufacturer. It was also critical

that the manufacturer needed to know the engineering constraints of the site so that the buildings could be designed properly.

"The facilities were designed to adhere to Florida's building restrictions that are drastically different from other areas of the country. The state's building codes are written to ensure that structures can withstand heavy wind loads."

Metal buildings were the recommended choice for this project. In addition to being rust and corrosion resistant, metal buildings are virtually maintenance-free for a longer period than conventional buildings. Vulcan provided 24-gauge Silicone Polyester Polar White coating on the roof and 26 gauge Silicone Polyester Polar White on the walls.

"Metal buildings are economical, quick to install, and engineered to withstand extreme weather," says Ken Ringe, owner of Bayview Construction Services. "In addition, metal buildings can provide a clear interior span that's wider than other types

of structures—an attribute that was very important in this project.”

CHALLENGES RANKED “A 10 ON A 10-POINT SCALE”

Ringe says, “The construction challenges faced in this project made it rank about a 10 on a 10-point scale. The size and shape of the triangular-shaped port was truly unusual,” he says. “Stuart Yacht Basin’s new facilities occupy the same footprint as the original boatyard.”

Leighton adds that the construction site itself posed its own challenges.

“There was only one tiny road, meaning it was sometimes difficult to bring materials and equipment onto the site. And, given that the facility is adjacent to the water, we were constantly battling tidal issues,” he said.

Leighton Construction required its construction supervisor to be on the project site every day throughout construction to help coordinate the flow of work.

“Everybody worked hand in hand to deal with all the challenges we had. Grand Banks Yachts worked closely with us, too,” Leighton says.

Leighton Construction is well versed in meeting these types of construction challenges, and the company has constructed numerous industrial plants, power plants and other major facilities.

“We’ve also developed entire neighborhoods, so we’ve done some considerably complicated projects. But this must be

one of the most unique projects we’ve ever done,” he notes.

Ringe adds, “We feel fortunate to have been part of the team. Vulcan is a well-respected manufacturer and Grand Banks Yachts is a major corporate player in the marine industry.”

ABOUT THE YACHTS

Compton says that Grand Banks Yachts’ customers purchase yachts ranging from about 42 feet—at a cost of approximately \$1.6 million—to about 85 feet, which may cost as much as \$10 million.

Grand Banks Yachts was founded as American Marine in Hong Kong by Robert Newton and his sons, John and Whit more, than 70 years ago. The company moved to Junk Bay, Hong Kong, in 1962 where it was building heavy sailboats and large motor yachts.

The company’s reputation grew and it began attracting prominent marine architects. About five years after the boat factory was moved to Singapore in 1968, the company decided to make all their vessels hulls out of fiberglass not wood. Fiberglass vessels positively impacted the industry because of the material’s strength, weight, durability and ease of maintenance.

Grand Banks Yachts moved its production facility to Malaysia in 1995. Its expanded and revamped factory now uses some of the most sophisticated systems and technology in the boat-building industry.

THE DETAILS:

Metal Building Manufacturer

Vulcan Steel Structures, Inc.

Metal Building Erector

Bayview Construction Services LLC / Commercial Metal Building Services Corporation

Auger Cast Piles

Bodax Foundations, Inc.

Structural Concrete

Coastal Building Contractors, LLC

Electric

Stryker Electrical Contracting, Inc.

Plumbing

Stuart Plumbing, Inc.

Site Work

Pav-Co Contracting, Inc.

Building Materials

(doors/trim/hardware)
East Coast Lumber & Supply Company

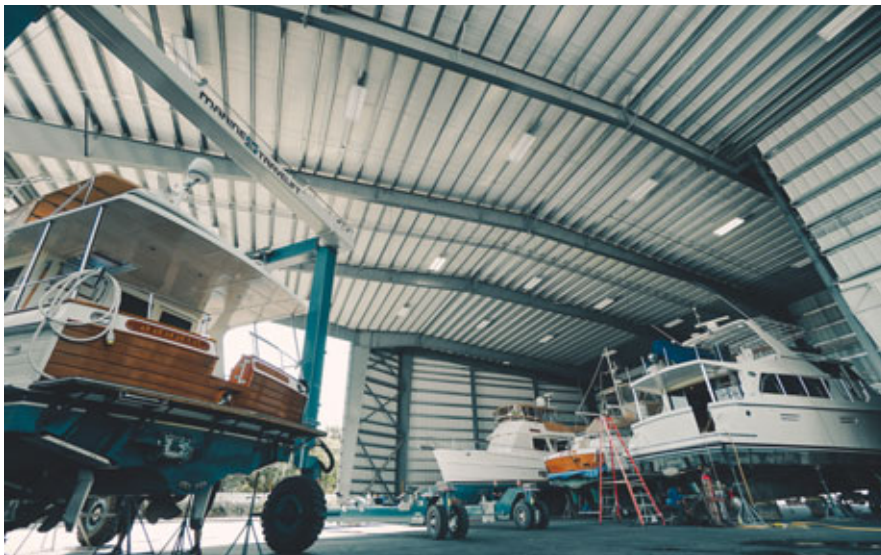
Compton says he’s quite pleased with his significantly improved boatyard facility.

“Primarily, what we’ve done is weatherproof the facility and place the entire property under cover. As a result, we’ve obtained more usable space,” he says. “We gave the facility an updated look and added an electric gate, new signage, and superior landscaping. We also rebuilt all the docks, changed out all the electrical components and we’re dredging the area around the boatyard, so we’ll have an 8-foot water depth,” he adds.

Typically, Grand Banks Yachts’ customers purchase their vessels from the company’s production facility in Malaysia and bring them to Stuart Yacht Basin for commissioning.

“We hope customers will be pleased enough with our service and operational facility to bring their yachts back to us for all their maintenance and upgrades,” Compton adds. **MB**

Steve Browning is President/Owner of Vulcan Steel Structures in Adel, Georgia. Steve is very active in the leadership of the metal building systems industry, as is a former Chairman of the Metal Building Manufacturers Association (MBMA).



Fire Prevention Equals Cost Savings

Why to Consider Insurance When Planning Structure Placement

Submitted by the MBMA

If a building is isolated with no surrounding structures and it burns, the fire typically started in that building. On the other hand, if there are neighboring structures or vegetation that can catch fire, the fire may have spread to the building. The tendency of fire to spread from one structure to another is recognized in fire insurance rates, as historically, fire was the first hazard that insurance addressed. To insurers, the nature of the other structures surrounding a building can be as important as the building itself.

The closer together buildings are, the greater the fire peril. The density of buildings in an area can also create firefighting challenges. Therefore, the greater the distance between buildings, the lower the risk. The greater the combustibility of the construction of either the insured structure or the neighboring buildings, the higher the insurance premium will need to be to cover the potential risk. Exposure data on adjacent buildings, such as walls, hazards, construction, and distance, will affect underwriting decisions and rates.

Insurance rate modifications are made by considering the kind and degree of exposure hazard. Exposure hazards are anything that occur off-site that may put the insured building at risk such as other buildings, hazardous operations, or natural hazards. Exposure hazards include adjacent structures. For example, a property next to a storage tank containing flammable liquids can present a serious risk, which an insurer may deem unacceptable.



EVOLVING TECHNOLOGY

While the fire risk remains key, insurers also consider multiple location characteristics when determining rates, not just the proximity to another structure. As the insurance industry evolves and adopts new technologies, there is an increasing amount of sophisticated data available to accurately quantify risk at a specific street address.

Figure 1 (on the top right of the next page) is an example of interactive maps that provide specific information on adjacent buildings including construction class, exposure risk characteristics (such as distance to fault lines) and types of occupancy. National advisory organizations,

such as ISO and the American Association of Insurance Services (AAIS), and state rating bureaus such as the Washington Surveying and Rating Bureau (WSRB), supply location risk data to insurers.

ISO AND SCOPES

ISO utilizes its proprietary Specific Commercial Property Evaluation Schedule (SCOPES) to analyze the specifically rated properties it surveys. WSRB offers an online tool to assist insurers in determining distances to, and types of, external exposures. Read that insurance bulletin at www.mbma.com/Insurance.html (look for Bulletin 2).

What is important to remember about



external exposure hazards is that they are, by definition, outside of the control of a building's designer and owner. Often little can be done from a design standpoint to reduce or mitigate the impact of hazards existing in the adjacent environment. It is always recommended to evaluate properties that neighbor any proposed site.

- Options for mitigating the risk that a building designer can undertake include:
- Maintaining adequate clear space between buildings
- Fire walls (especially increasing the rating of exterior walls) with appropriately rated openings (as allowed by applicable codes)
- The addition of a complete fire-suppression system (if not already required).

PREMISES EXPOSURE

Premises Exposure refers to the hazards within the structure. Storage areas, balconies, stairs, handrails, lighting, fire escapes, and elevators can play a significant role in underwriting decisions. Critically important is if, and how, a building is divided into multiple tenant spaces. Insurers develop ratings based on the types of occupancies planned for the structure. They will re-evaluate the rate as tenants change if there appears to be a higher risk

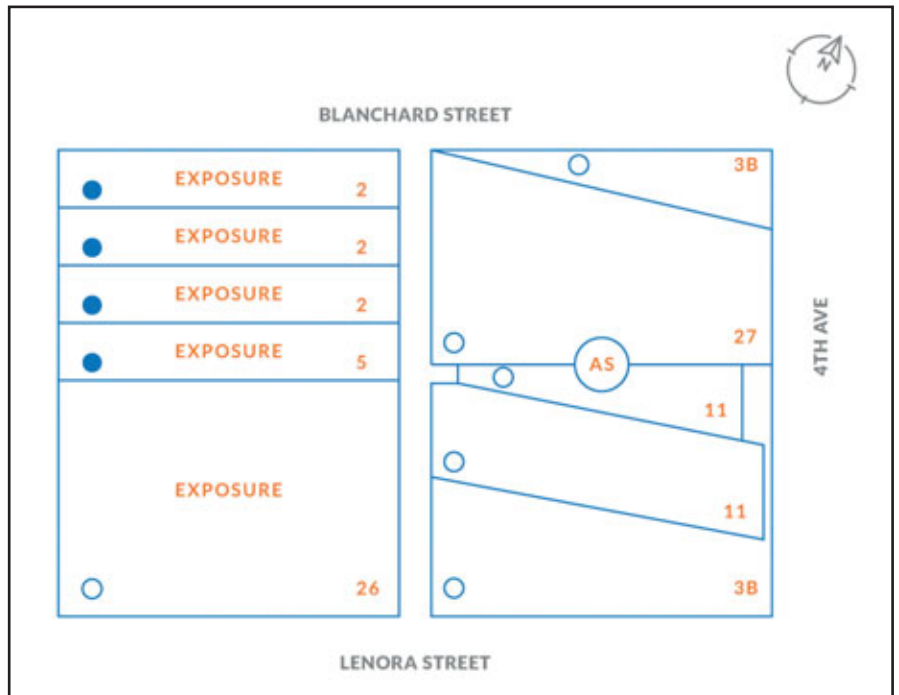


Figure 1: Example of the interactive maps that provide information on adjacent buildings. Copyright 2020, Washington Surveying and Rating Bureau. All rights reserved. Used with permission.

of fire or other type of loss. As an example, a clothing store in a strip mall presents a different fire hazard than a neighboring restaurant. A paint spray booth or an office area within a manufacturing facility also represent different levels of hazard. Proper separations with appropriate fire-rated wall assemblies can help to mitigate the negative impact of higher hazard areas within a structure.

Besides physical exposures (to other buildings), insurers consider additional exposures, including local wildfire risk, the possibility of damaging winds and water (hurricanes and storm surge), severe thunderstorms (wind and hail), flooding and earthquakes. For more information on wind and earthquakes risks, see MBMA insurance bulletins Nos. 5 and 6 (again available at <https://www.mbma.com/Insurance.html>). **MB**

The Metal Building Manufacturers Association (MBMA) provides these insurance bulletins as informational guides

for MBMA members. The information contained in these bulletins is general in nature and is not intended to serve as legal advice. Members are advised to consult with their own counsel and/or insurance broker on matters specific to them. Learn more at www.mbma.com/Insurance.html.

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