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POST-FRAME *Possibilities*

Ohio DOT project moves beyond pole barns

DOORWAYS TO THE SKIES

STORAGE FOR CORROSIVE CONDITIONS

BY SHARON THATCHER

Not just another door

There's more to plane hangar doors than what you may realize

Many people who fly for a hobby would like to take their planes home with them, and increasingly they are. Whether they're building a personal hangar on a rural piece of property, or they're part of a community airpark, the aviation hobby is alive and well, and builders who know a thing or two about the most important element of a hangar – the door – can be part of that trend.

David Coolman can offer more than a few pointers on the topic. He is a pilot himself, and a former sliding door salesman. When he saw an un-met need he launched his own company, Cool-Air Doors (soon to be renamed FoldTite Systems Inc.), Malta, N.Y. His primary source for materials is Cannonball:HNP.

"After leaving the service as a Marine in the Vietnam era, I fulfilled a lifelong dream and learned to fly," he explains.

Even better, he got a job as a salesman that allowed him to fly to meet with customers. He was also able to flex his wings in product development, seeing some of his ideas incorporated into final door designs.

The doors Coolman was selling and developing, however, were primarily for the ag market. He was always pondering how to alter them to better fit the aviation market.

One idea that caught his attention was a product called the Fold-A-Side. "It was essentially a large closet door that hinged on the column and folded out away from the building but used a top track system, and this fit the post-frame market very well," Coolman explains. "The design had drawbacks, and though it sold well in some markets, it was eventually discontinued."

Coolman would come back to that door after experiencing a tragic ending in his personal life that eventually led to a new beginning in the state of New York. He redesigned the Fold-A-Side into a manually operated hangar door for the aviation community. He called his patented design the Horizontal Bi-Fold. He launched his company and sold his first product in 2002.

For the components to build his door, he eventually turned to Cannonball:HNP. Back in the 1970s, he had worked for HNP prior to its merger with Cannonball.

"I approached Dale Armstrong of Cannonball:HNP to see if there could be an arrangement having CNB contract-manufacture and stock the components needed to make the Cool-Air Inc. doors and even sell the doors. We started working together in 2004 and have had a very good experience. They were willing to inventory all the small hardware and components as well as the structure, track and hardware to make the doors."

Trying to develop the perfect door for the aviation market is what drives Coolman. His second door, the Inside



Slider, hit the market in 2004. "I had experience with radius track systems to a degree and doors that rolled inside the building, but found that none of them worked well," he says. "With the cost of the aluminum extrusions relatively high and the general tendency to make sliding panels as wide as practical, I developed a multiple narrow panel design that needed quite a few more verticals than normal. Adding a couple of special design twists, such as spring loading the trolleys, made this door easy to operate." The first Inside Slider was shipped to Texas in late 2004 from Cannonball. "The Inside Slider has become one of our best sellers and although we sold the first in Texas, it is designed to work well in ice and snow climates moving inside away from the snow."

In looking for ways to make larger doors operable in high wind, Coolman developed a door that had a center trolley and opened half inside and half outside the building. The first Accordion Folding Door System shipped in 2006 also from Cannonball.

"Still not satisfied, I took the Inside Slider panel system and hinged it like a half accordion folding door and called this the Fold Tite Stacker," Coolman says. "We shipped the first Fold-Tite Stacker in 2007. With the ability to be installed inside the building or out, with specific guide systems that work either in warm or cold climates, this has become our most important product.

"The Fold-Tite Stacker is the safest and easiest operating manual door that I know of. We use top hung box track because it allows the tightest stacking and closest coupling between the top of the door and the bottom of the header for a tighter seal. This is a really neat operating door. We offer our concealed stayroller system in cold climates and recommend a recessed guide channel be formed in the concrete in warm climates."

In addition to Cannonball:HNP, Coolman uses A.L. Hansen of Waukegan, Ill., to source a premium lock system to work on all of his door designs. "This has an interior override that allows the locked door to be opened from the inside. They make a number of hardware parts that fit our door design better than regular sliding door hardware," Coolman says.

Marlboro Hinge of Alliance, Ohio has provided a proprietary hinge that fits the Fold-Tite Stacker and will be adapted to other doors in the line.

For small quantities and prototyping, some components are made inhouse at Cool-Air/FoldTite Systems.

Looking to help grow the business, Coolman's brother Phillip joined the enterprise three years ago. "We made it through the recession to this point and have a very positive outlook. With his help, we plan to grow our business many ways," Coolman concludes.


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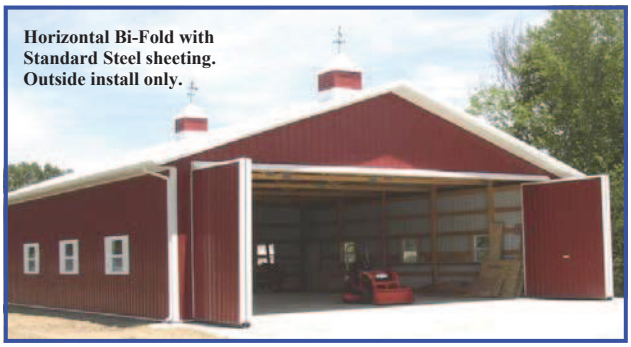
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Hangar door tips for builders

Some pointers for proper installation of plane hangar doors

Ag and aviation doors are not created equally. Builders who think that one-size-fits-all for both markets would be making a mistake. David Coolman, owner of Cool-Air/FoldTite Systems, offers pointers on how to properly install his hangar door products.

"The generally-available structural components used for slide doors for the agricultural market are made for relatively small doors such as 20 x 12 feet, 24 x 14 feet and so on," Coolman explains. "As the size demands for doors used in agriculture became larger, the general components available were not really suitable [for aviation]. The most common aviation door is 40 feet wide and 12 feet tall. We have done doors up to 80 feet wide and 30 feet tall.

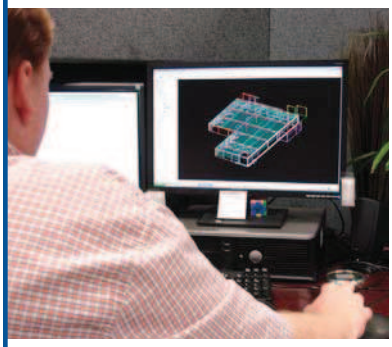
"Our designs are focused on doors that are economical, can reasonably be operated by a person and are safe and strong enough for the specific application," he continues. "Safe is important, as typical sliding doors for ag building are often difficult to control as there is no continuous guide systems. It is not unusual for sliding doors on agricultural buildings to be blown off in high winds. People with airplanes find this unacceptable. We often reinforce the aluminum vertical and use diagonal braces in our panel design to increase the strength and wind load ability."

Take climate into consideration

"Our bottom guide systems work well in hangars and are critical and probably the most important concept to our door operation. We have designs that work

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well in snow and ice climates and a different design that is preferred in warm climates.

"Using the Narrow Panel design, we have been able to have a professional engineer endorse and stamp our plans for Florida wind loads of 130 mph.

"In addition to the bottom guide system, we have focused on the ability to seal our door designs. This is typically difficult on standard slide doors and generally just overlooked. Hangar people want to reduce the snow, dust and sand blowing into their buildings as well as keep birds and rodents out as much as possible. We currently offer a built-in seal holder in our bottom rail, offer standard vinyl seals to fit this bottom rail and offer optional brush seals. The brush lasts longer but is more expensive. Recently we started offering a smaller brush top seal and holder. Multi-panel doors get foam seals for the joints and an astragal at the center."

Choice of sheeting

"Our statement that the door is designed for the northern climate is focused more on the ability to open to the interior (Fold-Tite Stacker and the Inside Slider) and the design of the guide system. We use a Concealed Stay Roller system in the North that does not freeze up or fill up with ice. A recessed guide is recommend for warm climates.

"Poly is specified when the owner wants light or heat or both in the building. An un-insulated building in the North, facing west can gain a lot of solar heat on a sunny day. Steel sheeting such as typical post-frame steel sheeting is the normal. Steel is used when fear of break-in is present or the owner wants to insulate the door. Poly is lighter, in essence, easier rolling, but is slightly more expensive and needs more door structure as Poly does not offer the diaphragm strength of steel. Steel has a wider range of color options.

"Color is the 'in' thing today and there are too many colors out there to try to match. Steel does not ship well in small quantities so we let the customer source this locally. We recommend the standard names in the industry. Track cover typically matches the steel so we supply

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a print to have that made locally as it too does not ship well in small quantities."

Easier installation

"First, the sheeting on the end wall or the wall that the door is to be installed on needs to be left off until the door is installed. This is the same for a powered door installation. The framed opening needs to be relatively square and the face of the surface the door is to install on needs the same vertical plane on the header as the side column.

"The door is currently assembled in the field and an assembly table should be built to ease the panel assembly and insure square.

"After the installation, the installer just needs to make sure that jamb nuts are in place and tight on all trolleys as most of our doors rotate on the trolley rather than just slide. A loose nut causes trolley binding."

Installation mistakes to avoid

"Probably, the biggest mistake installers make is not reading the instructions. They are generally accustomed to building and installing slide doors and don't realize the additional complexity included in our designs. Little parts misplaced or not used make a critical difference in the operation and even safety of the door. Incorrectly placed trolleys or the components included with the trolleys can cause the door to bind or rub and push hard.

"The only doors that I have had to go out [to the site] to find out what was wrong, had track unlevel or parts not installed. Generally, we can answer most install problems over the phone.

Hangar door selling points

"The greatest selling point for the post-frame builder who is selling our door with his building is the ability to utilize a larger opening than regular slide doors at a similar price; thus he can give the customer a bigger opening, not necessarily a bigger building.

"The builder generally needs to know the weight of our door but seldom needs to do anything more to the structure than he would with a regular slide door: usually one truss for the building loads and one for the door."

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Building allowances

"Each door has a slightly different checklist. The Inside Slider on a post-frame building needs to have an extension added below the truss at the opening to make room for a side wall track board under the interior trusses. The Fold-Tite Stacker needs an allowance for the stack dimension, generally 24 inches on a typical hangar door, so a 42-foot framed opening is needed for a 40-foot operational opening. The Horizontal Bi-Fold is limited to 40 x 12 sizes and the builder needs to know the importance of a lock or tie-down for the open panel – this usually sticks 9 feet straight away from the building. Today we strongly recommend the Fold-Tite stacker in place of the Horizontal Bi-Fold in new construction as accommodation of the stack dimension can be incorporated into the building plan."



Project Spotlight

South Carolina hangar

Bob Kudwa is a retired U.S. Marine, recently active in Afghanistan, who decided to build his house at Lake Wylie in South Carolina just outside Charlotte. He actually built the hangar first, then a garage and workshop and is now working on his home just yards from the hangar. The photos of the hangar show a 44 x 44-foot building with a widow's watch set at the edge of the lake. Kudwa chose the Fold-Tite Stacker for a number of reasons: strength, cost, non-electrical and simplicity of use. He chose the Palram Polycarbonate supplied by Cannonball:HNP shipped with the door package in soft white to give the hangar maximum but diffused light without harsh shadows.

For information from Cannonball: HNP Circle 160.

For information from Palram Circle 161.







Photos supplied by Cool-Air Doors/FoldTite Systems