CASE HISTORIES IN FIRE AND RESCUE STATIONS

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CASE HISTORIES IN FIRE AND RESCUE STATIONS

Small Buildings *Success Stories*

Liberty Fire Station

"The city will enjoy a huge low-cost maintenance benefit"

LIBERTY FIRE STATION

Butler Builder®
Billings Construction Company, Liberty, Missouri

Architect:
HMN Architects, Inc.; Overland Park, Kansas

Size: 5,720 square feet

Butler® Systems
Widespan™ structural framing system
Flat StylWall® II wall system
MR-24® standing seam roof system

The city of Liberty, Missouri, is growing, and with growth comes expansion of city services. Liberty's fire department was no exception.

In order to house its firefighters and meet the response times required to properly serve its citizens, the city called on Billings Construction Company, a Butler Builder® in Liberty, to build a new 5,720-square-foot firehouse. It needed both men's and women's dorms and restrooms, a dayroom, a dining room, storage space, an office, a public restroom and three equipment bays.

Although Liberty Fire Station #2 was intended to be a conventionally built facility, the cost was too high.

"The original plans came in way over budget," recalls Steve Hansen, director of public works/ development services for the city of Liberty. "Billings told us they could save money by switching to systems construction. We decided we would give it a try."

"We explored our options with Butler® systems and decided their construction products provided an excellent solution to our budget concerns without sacrificing the quality of the facility," adds Don Niemackl, chief architect for HMN Architects Inc. in Overland Park, Kansas.

"Without the economy of systems construction, the project couldn't have unfolded as well as it did. Billings gave us just what we wanted and needed to see it through."

For maximum flexibility, they chose a Widespan™ structural system for the new station. A weathertight MR-24® roof system ensured a lifetime of low maintenance costs. And a tan Flat StylWall® wall system accented with a blue StylWall® II fluted fascia system gave the building an attractive exterior. A block wall to one side serves as a memorial to fallen firefighters.

The station was completed a couple of months ahead of schedule, and since time is money, Billings saved taxpayers around $100,000. The fire station is located in an area of Liberty zoned for industrial developments. Billings also met all of the zoning requirements and left the community with a facility it considers an asset.

"The new station has all the same basics as our other fire stations, but with many extra perks," says Hansen.

"There's a lot more room in here than in some other fire stations," says Fire Chief Richard Lehman. "My team now has a comfortable facility with all the amenities we could need."

He points out that the members of the fire department were able to contribute to the construction process. "We had a great deal of input on the design. We formed committees and sat with the architect to iron out what we wanted and needed. I speak for all of us when I say our needs were definitely met."

"For the money and the needs of the city, Billings offered a great package," says Gary Trusler, former building inspector for Liberty. "The city will enjoy a huge low-cost maintenance benefit thanks to the quality of construction and the building systems used."

Steve Hansen sums it up: "Billings did an excellent job for the city. They are knowledgeable and competent, and we couldn't be more satisfied."

Staunton Fire Protection District

FRESH APPROACHES FOR COST-EFFECTIVE FIRE STATIONS

Non-traditional construction methods can help municipalities and fire protection districts get the most for their money

Galesburg Fremont Fire Station

West Peculiar Fire District

Staunton Fire Protection District

Galesburg Freemont Fire Station

The city of Galesburg, Illinois, kept an open mind when it issued a request for proposals to build a new fire station. "We said we would consider methods other than the traditional hire-an-architect and go-out-for-bid approach," says Galesburg Fire Chief John Cratty.

Cratty estimates the city received around a dozen responses. It chose Johnson Building Systems, Inc., a Butler Builder® in Galesburg, to handle the project as construction manager—consolidating the responsibility for design development, general contracting and budget management in a single source.

"We chose them for several reasons," Cratty explains: "The construction management method would improve our control over cost and quality, and it meant we only had to deal with one point of contact. Johnson Building Systems had been construction manager for a neighboring building for the Knox County Health department, and they did a good job on that. And we were familiar with the quality of Butler® building systems and liked the idea of incorporating them in the project if we could."

Galesburg has a population of 33,706, including 14,133 households, and a paid fire department of 49 full-time members. The new, 8,000-square-foot station would replace a historic building in the city center dating from 1907—the days of horse-drawn fire apparatus. The city had acquired a new site that would improve response time—enabling the fire department, which includes two other stations and covers an area of 6.9 square miles—to reach an emergency anywhere in the city from any of its stations within four minutes.

To ensure the new station met as many present and future needs as possible, the city looked at a number of new and existing fire stations in the region for ideas. "We first examined our other two stations, and asked what—if we could redesign them—we want to have," says Cratty. "We were looking not only from an operational standpoint, but

"The construction management method would improve our control over cost and quality"

CHIEF JOHN CRATTY

also from a livability and maintenance standpoint."

The new station had to house an average of four people around the clock, with room for modest growth in the future. It also had to be easy to clean. "Our people maintain all our facilities—we don't hire a janitorial service," Cratty says. "We work 24 hours on, 48 hours off, so we had to incorporate comfortable living quarters that afforded personal privacy—including facilities for women, although we presently have no female firefighters."

Another major consideration was a large, state-of-the-art kitchen. "The kitchen is always a main gathering point at shift change, and we wanted to accommodate that," Cratty observes. "Also, in the event of a disaster in the community, we wanted to have a facility that an organization like the Red Cross could use to prepare meals." Operational considerations included building in space to centralize the department's HAZMAT (hazardous materials) equipment in one location, and constructing bays large enough for the department's largest apparatus—a 100-foot ladder unit. Other features included systems such as heat pump climate control for the living and administrative areas and in-floor hydroponic heating loops for the apparatus bays and other areas. High-intensity fluorescent light fixtures in the bay have a 15,000-hour life rating and instant on/off controls linked to the alarm and a timer.

To provide flexible interior space as well as an architecturally interesting exterior, Johnson used a Skyline™ structural system for the building. The steel truss system, which assembles quickly and

GALESBURG FREMONT FIRE STATION

Butler Builder®: Johnson Building Systems, Inc. Galesburg, Illinois
Architect: George P. Kelly, Morton, Illinois
Size: 8,990 square feet
Butler® Systems:
Skyline™ structural system
VSR™ architectural standing seam roof system

A large, state-of-the-art commercial kitchen was important for several reasons: A gathering place at shift change, it is also capable of serving meals in case of a community disaster.

"Galesburg has a building maintenance and replacement fund. . . when you don't need to tap that money for roof repairs, you can put it towards other things"

CHIEF JOHN CRATTY

precisely, both supported the structure and framed its gabled VSR™ architectural standing seam roof system. Capable of single spans up to 65 feet, it also provided the column-free space necessary for the apparatus bays.

The station's exterior walls are brick. Combined with the attractive dark green roof system, they make a smart-looking building with plenty of curb appeal. In a bow to history, the signature stone from the old station was inset in one of the entries, and a portion of its brass pole was used as a decorative element inside.

Before construction, the city evaluated all the station's building and operational systems carefully.

"We looked for building components that had a long life expectancy, and would cost little to keep up," Cratty recalls. He notes that the longevity of the VSR™ standing seam roof system was especially pleasing. "Galesburg has a building maintenance and replacement fund. We set aside money in our budgets annually to pay for things like roof replacement. When you don't need to tap that money for roof repairs, you can put it towards other things.

"We made every effort to build a station that will meet our needs now and well into the foreseeable future," he adds. "We are not a rapidly expanding community, and we wanted a station that would last at least 50 years or more."

The station was completed in five months, and cost $1.5 million—with about $330,000 of that figure for land and infrastructure improvements.

Cratty says that the city is very pleased with the new station, and also with its choice of construction management and construction manager. "I could not believe how simple and smooth the process was for this project," he says.

"Johnson Building Systems sat down with our station committee members and worked through everything. As an administrator, I liked the construction management approach because we had only one point of contact for decisions regarding any changes. We didn't have to deal with different subs who couldn't depart from a set of rigid specs.

"Johnson Building Systems also gave us a timeline, and they met that timeline. They were very professional, and they did a very good job for us."

Chief John Cratty (above left) and Paul Johnson, of Johnson Building Systems, worked together to get the most from the city's construction budget.

The station's three apparatus bays and its fitness and turnout gear room have an in-floor hydroponic heating system. The bays' high-intensity lights have instant on/off controls linked to the alarm and a timer.

"We were primarily concerned with the station's size, functionality and cost"
CHIEF JIM TOONE

West Peculiar Fire District

The West Peculiar Fire District began the design process for its new EMS/fire station the traditional way—by hiring an architect and putting the plans out for bid. But it soon found itself short of money and running out of time.

The project had been voted $975,000 in funding from a recent bond issue. When the original plan for the new station was put out for bid, the district discovered the design far exceeded its budget. In the meantime, a buyer had been found for the old fire station, and the firefighters were looking at a 12-month deadline to turn it over to the new owners. "We'd lost a lot of time developing a design and the only bid we received ran more than $1 million over the bond issue," says District Fire Chief Jim Toone.

WEST PECULIAR FIRE DISTRICT

Size: 13,790 square feet

Butler® Systems:
Widespan™ structural system
Butlerib® II wall system
MR-24® standing seam roof system

The district canceled the contract with the original architect and put aside $100,000 of the remaining money to cover unforeseen change orders or additions. Then, for maximum accountability, it chose a construction manager—the Black & Veatch Special Projects Group, which is devoted to handling government projects. "We realized that for quality control and budget oversight, we needed to hire some experts," says Sue Wheeler, president of the fire district's three-member board of directors.

To establish a firm price, Black & Veatch developed performance specs and 35 percent of the redesign for the 13,700-square-foot station, then looked for a sub-contractor who would "do a good, smooth job of execution," says Jan Dekker, project manager for Black & Veatch. They chose a Butler Builder®. Working with a modified design/build contract with the fire district under Black & Veatch supervision, the Butler Builder provided the Butler® building systems and finished the final architectural, structural, civil, mechanical and electrical design for the station.

This time around, everything proceeded like clockwork. "We handle a lot of construction, and this project went very smoothly," says Jan Dekker. "Everybody on the team had the necessary experience to do things right the first time."

"The new design was so good we didn't make many changes," Toone says. The district did, however make some additions—the most noteworthy of which were a 27KW generator for essential backup power and a retention pond to recycle runoff. Around 60 feet in diameter, the pond has an average depth of 15 feet and holds an ample supply of water that the firemen use for training exercises.

The new station was needed urgently because the fire district's old building had become extremely overcrowded. Designated "West" Peculiar after the name of its township, the district encompasses the city of Peculiar, Missouri, and 47

When bids on their station's original plan exceeded the budget by more than $1 million, Chief Jim Toone and the fire district board turned to a construction manager and systems construction.

"Many fire stations have center columns that get hit by the drivers—and fire engines are expensive"

JAN DEKKER

square miles of surrounding Cass County—the most rapidly growing county in the vicinity of Kansas City. The fire department, all-volunteer until recently, now has a staff of 43 paid members and volunteers. It protects a population of around 7,000—or 1,500 to 2,000 homes.

The new building, about three times larger than the old one, was designed to provide a number of amenities absent in the former station, such as adequate sleeping areas, accommodations for women, more office space and sufficient room for equipment. The station presently has four people on duty around the clock, but will be able to accommodate as many as 10. Its nine equipment bays (four doubles and a single) can accommodate 12 vehicles.

"We were primarily concerned with the station's size, functionality and cost," Toone says. "Cost was the driving force behind everything." Systems construction, notes Dekker, was the most flexible and economical way to provide everything the fire district needed—particularly the column-free clearspans for the pull-through equipment bays. "Many fire stations have center columns that get hit by the drivers—and fire engines are expensive!"

The proven long-term performance of the station's MR-24® standing seam roof system was also a plus, and the white Butlerib® II wall system will require little maintenance.

The fire district was very appreciative of the exemplary performance of Black & Veatch, the Butler Builder, and all the members of the construction team. From the time Black & Veatch took over, the redesign and construction took just six months, and the Butler Builder completed the construction itself in just four months—a little more than two months ahead of schedule. The completed cost was just $71 per square foot.

"The builder was fabulous to work with," Toone says. "They were so responsive, and their foreman was great. Like Black & Veatch, they had someone on site that we could talk to every day."

"The new station is a Taj Mahal compared to the old one. There are private administrative offices. People have room to do their jobs. It has improved morale greatly," says Sue Wheeler.

The new station has column free, pull-through apparatus bays—easily accommodated by the building's Widespan™ structural framing system. The diesel exhaust removal hoses automatically disconnect as the vehicles leave the building.

"In this area, hail damage and high winds can be pretty bad—but a little hail isn't going to hurt our metal roof system"

CHIEF RICK HAASE

Staunton Fire Protection District

The Staunton Fire Protection District planned for the construction of its new $1.3 million fire station very carefully. And part of that plan was to specify a design/build contract.

"We wanted to make sure that we had everything we wanted—and we did not want to first have to hire and pay an architect," says Bill Knop, president of the district's board of trustees. "We also wanted our volunteers to be actively involved in the design of their building," adds Staunton Fire Chief Rick Haase.

The district has an all-volunteer fire department with 45 active members, and it encompasses an area of around 32 square miles. It includes a population of about 7,500 in and around the city of Staunton in southwestern Illinois. After careful consideration, the district's board of trustees chose a Butler Builder® in Carlinville, Illinois, to build its new station.

They had built stations for a number of other fire districts in the area. "They also had a detailed plan for us before we let our contract out," says Knop. "They were very good people to work with."

"The Staunton Fire Protection District was one of the best-prepared fire districts we've ever dealt with," cites the project manager for the job.

Chief Haase, who is also fire chief for international integrated energy company ConocoPhillips at its largest refinery in Roxana, Illinois, was the state's Volunteer Fire Chief of the Year in 2001. "He keeps our department very organized," says

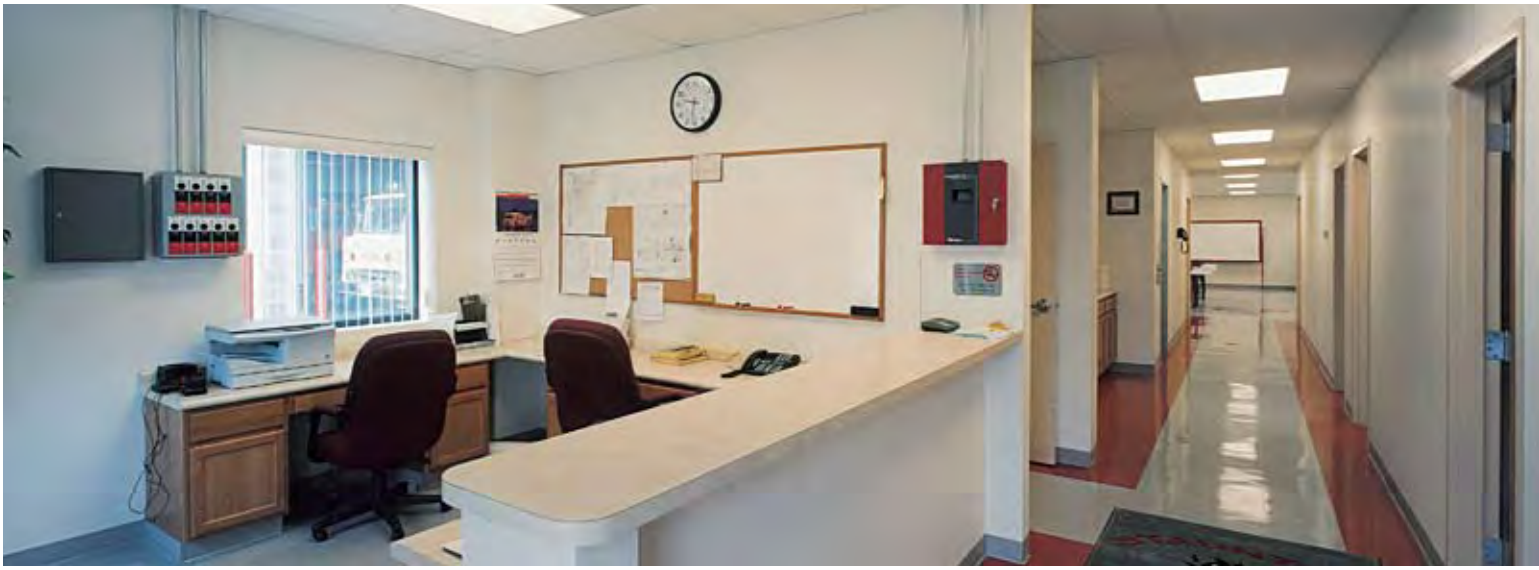
STAUNTON FIRE PROTECTION DISTRICT

Architect: Mitch Hensen, Edwardsville, Illinois

Size: 11,000 square feet

Butler® Systems:
Widespan™ structural system
Texture-Cote™ finish system
MR-24® standing seam roof system

An all-volunteer department, Staunton needed a well-planned, maintenance-free facility. Its design-build contractor gave them an attractive, efficient building with plenty of what they needed most—space for present and future needs.



> ***"Our old bays were so crowded that when we opened the doors on one of our vehicles, we hit one of the others"***
>
> ***CHIEF RICK HAASE***

Bill Knop.

Knop's board of trustees also keeps all its ducks in a row. In order to free itself from all debt and ensure that it had the budget to back up the project, the district applied for and received a state grant to pay off the purchase of its newest fire engine. The district also issued investment bonds to help cover construction costs.

The board of trustees appointed a five-member building committee from among its volunteers to draw up a rough plan for the department's present and future needs. For on-site observation and inspection, the district chose two retired individuals who were experienced in construction. "We had one of them on site every day," says Chief Haase.

The department was pleased with predictable performance of the Butler® systems. "With a Butler building, you know exactly what you're getting before it goes up," Haase says. "You can feel comfortable that you're getting a quality building."

"We wanted something as maintenance-free as possible," he continues. "Since we're all volunteers, we don't have much time for upkeep. For example, there's nothing outside on the station that we need to paint. And we surrounded it with concrete. There's not even any grass to cut."

For a low-maintenance exterior, the walls of the two-story station are block and brick, with a factory-insulated wall panel finished with the Butler® Texture-Cote™ finish system. And the building is topped by a long-lasting, weathertight MR-24® standing seam roof system. "In this area of southwest Illinois, hail damage and high winds can be pretty bad. But a little hail isn't going to hurt our metal roof system," Haase adds.

The department's most urgent need, however, was more space. "We had outgrown our old station, and were storing some of our equipment in other places," Haase says. "Our old bays were so crowded that when we opened the doors on one of our vehicles, we hit one of the others. And our new pumper had a 2-inch overhead clearance when we drove it into the station." To provide a flexible interior and plenty of maneuvering space, the new building has a Widespan™ structural system, and nine equipment bays versus the old station's six. The station also has ample room for future growth, separate facilities for female firefighters, and plenty of office and training space.

Chief Rick Haase now has room for his department to expand, separate facilities for male and female firefighters, ample meeting and training space, a commercial kitchen and laundry room, and upstairs and downstairs offices.

Another primary concern was energy conservation. "We answer about 130 calls a year, and when we're not here, we don't want to pay for utilities," Haase says. The station has radiant heaters, and ceiling fans in the equipment bays. The balance of the building is controlled by programmable thermostats and ceiling fans to maintain a constant temperature and reduce the load on the HVAC system. It also has a powerful 100KW generator capable of running the entire building—including the kitchen appliances—in the event of a power outage or other emergency.

When the department had a grand opening for the new station, representatives from the neighboring fire districts who attended were amazed and envious. "They all wished they had one like it," Knop says.

The district was delighted with their design/build experience, and pleased with their volunteers' hands-on participation in the construction process.

"It is a well-built building—it's everything we wanted," says Knop. "It meets all our needs and should meet all our future needs. In fact, the only thing we don't like about it is where we decided to put one upstairs light switch!"

TO THE RESCUE!

A first-class emergency

The Millville, New Jersey, Rescue Squad needed some help itself.

"Our previous building was an aging car dealership that was converted in 1973. It was run down and far too small to accommodate our growth, " recalls John Redden, the rescue squad chief. "We were forced to keep units at several different locations."

The Rescue Squad, a private organization that serves the 26,000-resident community of Millville as well as its surrounding communities in southern New Jersey's Cumberland County, has a transport contract with the South Jersey Health System. Local growth called for a first-class facility. So the squad turned to local Butler Builder® Stanker & Galetto, Inc., of Vineland, New Jersey, to build a $3.8 million, 60,000-square-foot facility. The two-story structure, completed and on-line in 28 weeks, has many features that have made it a showpiece for rescue squads in other states and counties.

The speed and smooth execution of the construction didn't surprise Redden. "Stanker & Galetto was chosen for its reputation in our community as a quality builder and professional operation," he says.

Changing Times, High-Tech Needs

Folks from the 1950s remember when the Rescue Squad housed its lone ambulance behind the American Legion Hall. Today, the squad boasts more than 40 vehicles that respond

response building for a growing area

to a minimum of 3,000 emergency and non-emergency calls each month—or roughly 100 calls per day. Originally a volunteer-based organization, the squad now employs about 130 trained EMT staff and also depends on dozens of community volunteers.

The facility includes a high-tech dispatch center that serves as the heartbeat of the operations. A cutting-edge data center is the hub for all electronic and computer resources. Both have full-power back-up from a natural gas generator. Fifty cameras digitally record activity to enhance facility security—a must in a large rural building whose doors remain open night and day.

A significant feature of the new facility is a Community & Emergency Service Training Academy that accommodates up to 125 students. This allows the squad to provide Emergency Medical Technician (EMT) training as well as community education programs—from first aid and CPR to child passenger safety.

The facility also has many amenities for its emergency teams, including a kitchen, game room and workout facility. But the greatest attention-

MILLVILLE RESCUE SQUAD

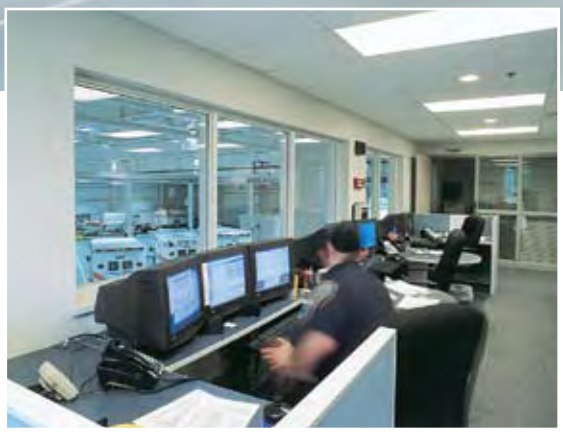
Butler Builder®: Stanker & Galetto, Inc., Vineland, New Jersey
Architect: David Manders, Manders/Merighi Associates, Vineland, New Jersey
Size: 60,000 square feet
Butler® Systems:
Widespan™ structural system
Butlerib® II wall system
Shadowall™ fascia system
MR-24® standing seam roof system
Butler Lite*Panl® skylight system

The Millville Rescue Squad is a private organization serving a 26,000-resident community and its surrounding communities. Chief John Redden (left, inset above) and David Pasley, Stanker & Galetto project manager, are proud of the efficient new building, which includes an EMT training academy.

TO THE RESCUE

"There truly is no comparison to our former building"

CHIEF JOHN REDDEN



The building's spacious garage wing (above) can hold 60 vehicles and features a skylight system to help reduce energy consumption.

The call center (top right) responds to a minimum of 3,000 calls a month. The new facility also includes amenities such as this state-of-the-art kitchen (right).

getter is the building's bright blue sliding board—a 21st century version of the traditional fire department pole. The two-story plastic slide shuttles emergency teams to the street level vehicle garage in a mere five seconds.

"There truly is no comparison to our former building," says Redden. "Our new facility has brought all our departments and vehicles under one roof."

Aesthetic Appeal

Stanker & Galetto led the project's design/build team, with Manders/Merighi Associates of Vineland, New Jersey, as the architect. The building's aesthetic appeal was a primary consideration, says David Manders, AIA, a partner with Manders/Merighi.

He notes the garage portion was designed using the Butlerib® II wall system and Shadowall™ fascial system. A Butler Lite•Panl® skylight system provides natural daylight, reducing energy consumption, and a Widespan™ structural system

"You can do anything with pre-engineered building systems that you can do with conventional construction"

DAVID MANDERS, AIA

provides design flexibility with a minimal use of columns, thereby increasing the vehicle parking area.

"We needed to minimize the mass of a garage that can hold 60 vehicles and accentuate the relatively small office area attached to it," Manders says. "By using split-faced block on the front, and alternating with smooth, painted masonry, we could break up the mass of the building to give it attractive lines and detail."

His firm has designed many Butler® buildings. "We take the structure of the frame and columns and let the facade weave in and out, so the columns become interior and exterior. This creates very attractive facilities, while benefiting from the economics and speed this process allows."

Manders likes systems construction. "We are more involved in early discussions of the structure than with a typical building. Some people think of these buildings as boxes, but you can do anything with pre-engineered building systems that you can do with conventional construction. The aesthetic possibilities are endless, provided you understand how everything goes together."

The design/build process played a major part in the timely completion of the new facility. "Efficiency was a big issue," says Manders. "The advantage for us was that we could set parameters of the building and with the plans just 30 percent complete, order the systems. Everything came in on-time and on-budget."

Chief Redden was also pleased. "The design/build process allowed for easy solutions to hurdles during the construction process," he recalls.

Innovative Engineering

The building site was originally a gravel pit. Frank Lorito, Stanker & Galetto's project development manager, says the facility was designed to take advantage of site issues—such as placing the building into the side of a hill. "it was especially complicated in terms of foundations and retaining walls. The 12-foot-high retaining walls were built right into the building," he says.

Another innovation was the heating system for the garage area. To minimize energy loss and keep garaged ambulances warm at all times, heating tubes were placed above each vehicle stall to provide an economical and efficient heat source.

The building also needed a reliable roof system. "The roof on our former building was a nightmare," Redden recalls. He applauded the choice of a weathertight MR-24® roof system for the facility's nearly 40,000 square feet of garage because it is specifically designed to accommodate roof movement and to save energy.

Redden ranks the new building "outstanding," and found the building process outstanding, also. "Stanker & Galetto was excellent to work with, and their entire team was extremely helpful and professional," he says.

He adds that when the Rescue Squad staff moved in, they were amazed and very excited by their new quarters, and the reaction from Millville was extremely positive as well. "They have taken an instant pride in our new building," he says. "To date, every person who has visited the new facility—from our community or outside it—has admired it."

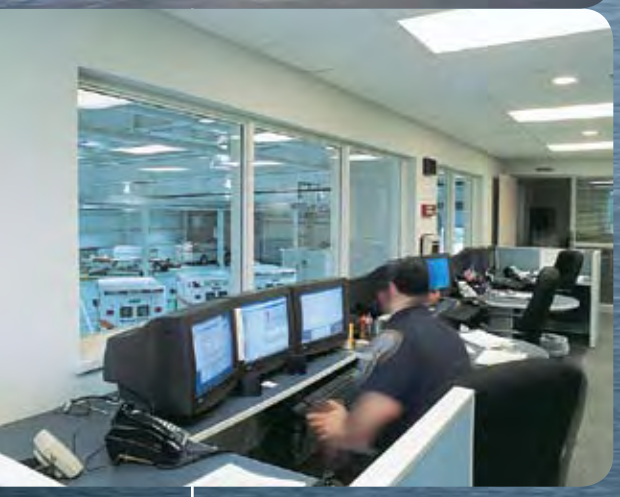
FAST FACTS

Over 40 vehicles are housed in the 60-stall garage.

The building has been constructed to withstand winds greater than 100 mph.

The facility occupies three acres on a 10-acre site.

Construction and move-in were completed with no interruption to emergency services.



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