Architectural Significance in Metal Buildings: An Educational Series

FIREHOUSE MINISTRIES SHELTER

Birmingham, AL

Created in coordination with Poole & Company Architects and Dunn Building Company, LLC

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PROJECT **DETAILS**

Building: Firehouse Ministries Shelter

Location: Birmingham, Alabama

Client/Owner: Firehouse Ministries

Building Function: Emergency and day shelter that serves the needs of homeless men, women and children

Size: 28,000 square feet

Site: 1.55 acres

Budget: $6.2 million

Completion: 2020

Metal Building Manufacturer/Supplier: Varco Pruden

Erector: Dunn Building Company, LLC

Architect: Poole & Company Architects

Structural Engineering: MBA Engineers, Inc.

Civil Engineering: CCI Planning & Engineering

Plumbing and Mechanical Engineering: RJ Mechanical, Inc.

Electrical Engineering: Hyde Engineering

Wall Framing System, Insulation and Sheeting Supplier: Varco Pruden

Siding Supplier: Metl-Span

Photo courtesy of Varco Pruden

PROJECT **DESCRIPTION**

Within Birmingham, Alabama's historic Smithfield (1) neighborhood, the Firehouse Ministries Shelter quietly serves men, women and children experiencing homelessness. From its 28,000-square-foot, emergency and day shelter, Firehouse Ministries provides permanent

Image courtesy of Poole & Company Architects

and transitional housing for an average of 135 guests each night, as well as meals, classes and medical care for approximately 3,000 people a year. The facility features partitioned sleeping quarters with 112 beds, family housing shower stalls and lockers, medical screening rooms and a heat room for sanitation. It also provides classrooms, a computer lab, a chapel, a dining room, an industrial-sized kitchen and food pantry, a large lobby and security area for check-in, and a central courtyard for relaxation and privacy.

Photo courtesy of Poole & Company Architects

History

With the downtown Birmingham skyline rising in the distance, the Firehouse Ministries Shelter sits in a community bathed in history. Landmarks central to the civil rights movement—16th Street Baptist Church (2) and historic Dynamite Hill (3)—lie within a few minutes' drive. The nonprofit's original center—and the inspiration for its current name—carries its own rich history. Built in 1905, Birmingham's old Firehouse No. 6 served the burgeoning community, with firefighters arriving on the scene of a blaze by horse and carriage. (4) In December 1983, Cooperative Downtown Ministries founded the nonprofit, Firehouse Ministries, and established its first shelter at Firehouse No. 6, where it operated until the current $6.2 million facility opened its doors in March 2020.

"By 2019, the shelter at Firehouse No. 6 was in wretched shape and grossly undersized, even for the programs Firehouse Ministries was operating at the time. The building had a number of code issues, had roof leaks and was in desperate need of replacement," said John Poole, president of Poole & Company Architects. (5)

"[It's] no exaggeration to say that it [was] crumbling in around itself," added Anne Rygiel, former executive director of Firehouse Ministries. With a capacity for just 50 beds, whether a person could stay for the night came down to the luck of the draw, she explained. Each visitor would draw a card. Those who drew a red card were allowed to stay, and unfortunately, those who got a black card were turned away. (6)

Photo courtesy of Poole & Company Architects

Land Acquisition

With its existing building in such disrepair, the nonprofit needed to either demolish and rebuild on site or find another location for the center. Since the city of Birmingham was hoping to revitalize the neighborhood where Firehouse Ministries was located, the city assisted the nonprofit in finding a piece of land nearby for the new shelter. "The property Firehouse Ministries purchased was several blocks away and even has a bus stop in front, which is a nice amenity for guests," Poole said.

'Not in My Backyard'

Even though the land acquisition for the new property was nearby, its new location in the Smithfield neighborhood prompted "not-in-my-backyard" protests. Public hearings led to outcries from residents detailing concerns that shelter activities would spill into the surrounding area. "At the original location, when it was time for meals or check-in for the night, a line would form outside that would wrap around the block. You'd see these guys with trash bags full of their belongings hanging out for hours before they were let into the shelter. The neighborhood and city didn't want to see that with the new facility," Poole said.

Cost/Budget Issues

Another early challenge was raising the funds needed to create the new facility. "Historically, the center was used as a men's shelter, and one of the hardest groups to raise money for are homeless men," Poole said. "There's often not as much sympathy for a man experiencing homelessness as there is for a woman or a child."

When Poole was brought onto the project, the original design concept was too far-reaching for the modest budget. "It was too grand a plan," he said. "We started over and went back to basics, shaping the new design around the nonprofit's core mission and what was really important to them."

Design Priorities

1. **Design an Inspirational Facility**
   The metal building is both inspirational and functional. Horizontally positioned, insulated ribbed metal panels of slate gray and fire-engine red add visual interest to the sprawling building, which extends to the property line in three directions. A steep, standing-seam metal roof sits atop the center's chapel, which is located near the main entrance to greet visitors and guests. Walls of windows, sectioned off with red and white mullions, bathe the interior in light. The theme of light pervades the building, with curtain wall glazing wrapping around a large central courtyard, beckoning both light and nature into every room and offering guests a welcoming and safe outdoor space. Windows with extruded red framing add textural interest and a pop of color along three of the exterior slate gray walls.

Photo courtesy of Poole & Company Architects

2. **Create a Space to Shelter Waiting Guests**
   To ease the concerns of the neighborhood and city, Poole & Company Architects designed a lobby large enough to accommodate those waiting for meals and guests needing to check in for overnight stay. "The lobby is secured from the rest of the facility and has a metal detector that helps streamline the check-in process," said Karlos Commings, interim executive director of Firehouse Ministries.

   An innovative heat room, modeled after a shelter in Montreal, Canada, sanitizes bags and clothing for new arrivals. "The room reaches a temperature of 130 degrees to kill bed bugs and lice," Poole explained.

3. **Design Easy-to-Clean Sleeping Quarters**
The center is equipped with 112 beds in its housing unit—more than doubling the original shelter's capacity. Twin beds and bunks are sectioned off with seven-foot-high, white concrete partitions.

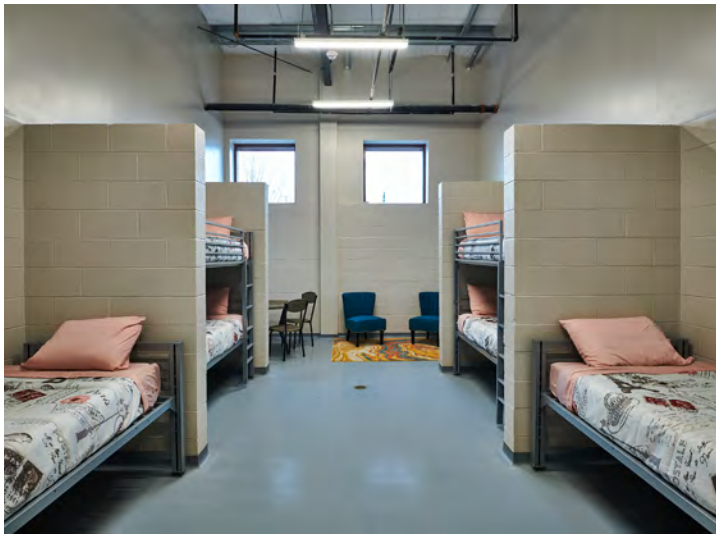
"Durability and cleanability were huge considerations for the entire facility," Poole said.

"The shelter wanted the ability to do large washdowns when needed," said Craig Fowler, project manager/estimator of Dunn Building Company. "We ended up installing floor drains in each sleeping quarter."

"The floors are a gray slab with a sealed finish that allows for easy maintenance and extended durability," Poole added. "Even the walled concrete partitions in the sleeping quarters have an epoxy coating."

4. **Create an Environment that Helps Restore Dignity**
Poole explained that the partitions in the sleeping quarters give guests a semblance of privacy. "Shelter guests earn additional privacy over time as they move through a tiered system," Poole said. "When you come in, you might be at a Tier 1, working with a case manager and assigned to certain duties, like cleaning the dining room after meals. As you stay with the program, you might gain part-time employment or become a community leader, working your way up to Tier 3, where you would have a sleeping quarter that offers additional privacy."

To create visual warmth within the sleeping quarters, the designers used color and texture in the bedding and partition curtains. "Those simple details help to warm it up, while maintaining the ability to easily clean the space," Poole said.



Photos courtesy of Varco Pruden

"The wide-open spaces are a huge benefit, allowing us to pivot when needed and be more creative in the services we provide. We can serve more and do more to break the cycle of homelessness, empowering people to achieve their highest potential."

— Karlos Commings, Interim Executive Director, Firehouse Ministries

Every sleeping quarter includes a locker for belongings, and the housing area features individual showers, for both overnight guests and day visitors. "We have a timeframe where we allow day visitors to take showers and wash clothes. We didn't have the capacity to do that in our old facility," Commings said.

When on a tour of the newly completed building with a few shelter guests, Rygiel noted that the men remained composed until they saw the showers. "They held it together pretty good through the housing, but when they got [to the] showers, two of them started crying." She explained that the individual shower stalls offer privacy, which can be a luxury for the homeless. (5)

5. **Design Flexible Spaces**
"A metal building made a lot of sense from a programming perspective," Poole said. "Every component of a metal building is the most efficient it can be in terms of pounds per feet of steel—you're not using more than you need. If we had chosen a system with load-bearing concrete walls, you're stuck with all that infrastructure."

Unencumbered by the large structural beams of a conventional steel structure, the metal building enables a high degree of flexibility, so spaces can be transformed as programming needs evolve.

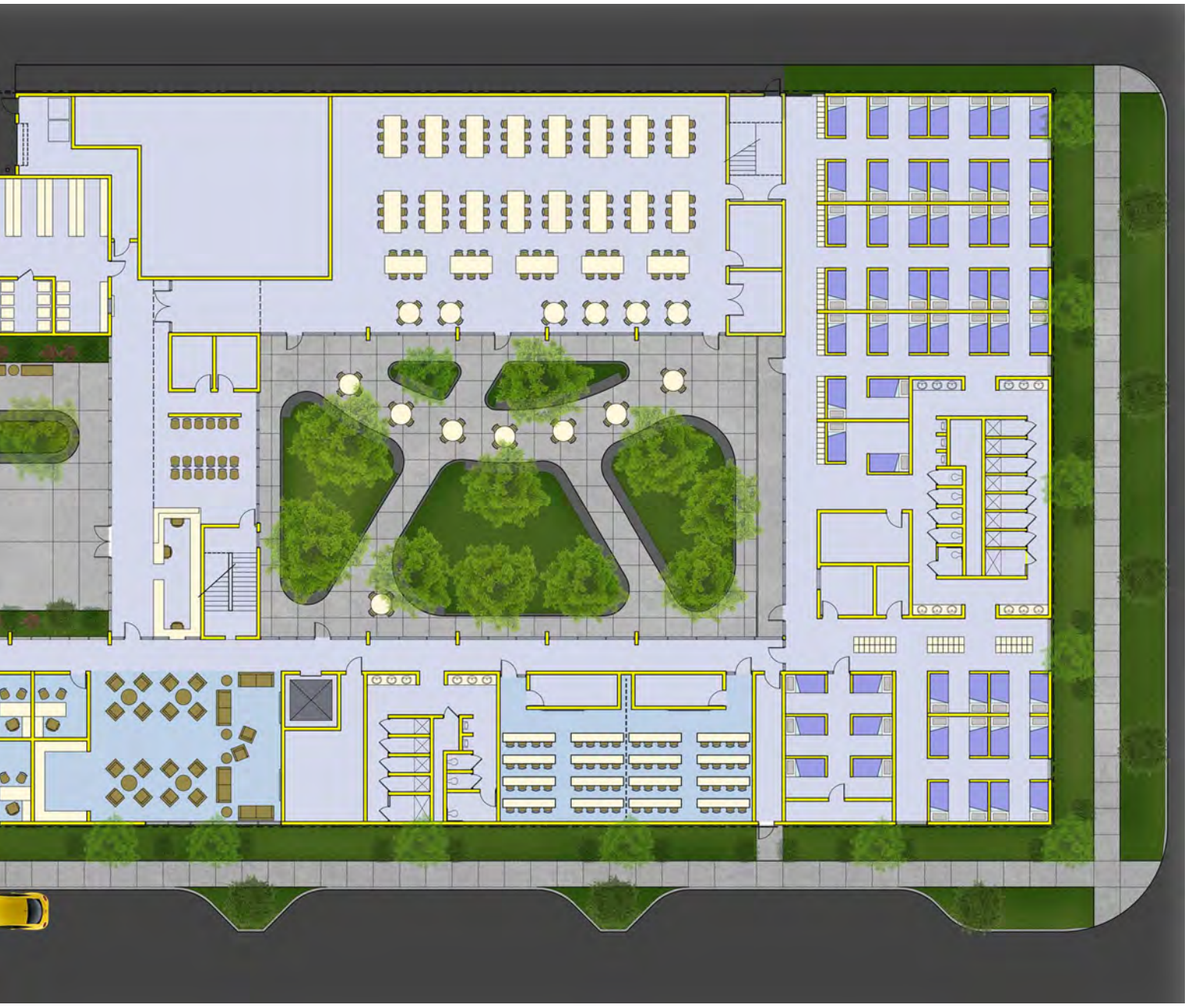
When inclement weather hits and additional housing needs arise, the center can quickly convert the chapel and dining area into emergency housing. "We can add cots pretty quickly, taking our capacity from 112 on up to 150 guests," Commings said.

From the building's classrooms, men and women receive job training and GED classes, giving them the skills needed to enter the workforce. Substance abuse and mental health groups run five days a week from the chapel, and the nonprofit partners with local health care agencies to provide medical testing, dental services and flu and COVID-19 vaccinations from a medical wing of the facility.

"We opened the new shelter in March 2020, right as the pandemic was starting to escalate, "Commings said. "We never could have anticipated how useful the new building would be in our response." The center was able to section off large areas of the building to set up a quarantine area for those who tested positive for COVID-19. In time, Firehouse Ministries set up a medical respite program for those needing additional care following a hospital stay. "Local hospitals have used emergency shelters as hospital dumps. They load guys into a taxi, oftentimes still in their hospital gowns, and send them to an emergency shelter like ours," he said. "Today we work with local hospitals so we can get a heads-up before a patient gets dropped off on our doorstep, and we have a 10-bed respite program to help these people get back on their feet. We're very proud of this program."

The larger facility has also enabled a more robust volunteer program and food pantry. "We can bring in more volunteers to help with things like cooking and serving meals since the kitchen is so much larger than before," Commings said. "And we have the flexible space to store and receive more donations. The wide-open spaces are a huge benefit, allowing us to pivot when needed and be more creative in the services we provide. We can serve more and do more to break the cycle of homelessness, empowering people to achieve their highest potential."

Images courtesy of Poole & Company Architects



PROJECT **CHALLENGES, GOALS & OBJECTIVES**

Budget Constraints

With a long wish list of amenities, working within the extremely limited budget was an early and ever-present consideration. "One of the biggest obstacles to this project from beginning to end was the budget. A metal building was one of the ways we were able to keep costs low. It costs less than a conventional steel structure, and you can design it in such a way that it's still a great looking building," Fowler said. (5)

Maximizing Space

Creating a 28,000-square-foot building was a challenge in the space provided. "Another large obstacle to this project was the fact that this building touches the property line on three sides. We had very little lay-down area to work with during construction," Fowler said. "We had to schedule items to arrive on site as they were needed for installation and avoid having too much stored material.. We also stacked materials as we didn't have the room to spread them out." (7)

Installation Challenges

Seventeen days of rain in the project's first 35 days resulted in wet, fatty, clay soil, which did not percolate well. Though an added expense, the project team had no choice but to bring in sandy clay for the foundation. (7)

Fowler explained that, because the metal wall panels were laid horizontally, the metal building required additional framing. "We also had to be diligent with our layout to ensure that all the lines and architectural features hit in the exact locations." (7)

During the roof installation, several roof penetrations were needed for rooftop HVAC units, exhaust fans and kitchen freezer condensers and fans. These required roof curbs. "The greatest challenge was coordinating between all these items. This required working closely with the roof curb supplier and the building manufacturer to make sure all the opening sizes were correct and the framing was in the proper location," Fowler said. (7)

Photo courtesy of Dunn Building Company

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— Craig Fowler, Project Manager/Estimator,
Dunn Building Company

RELEVANCE FOR STUDENTS

Photo courtesy of Poole & Company Architects

Poole admitted that the words "metal building" and "high-end design" might strike students as a contradiction of terms, but he encouraged open-mindedness. "There is so much flexibility to this type of system; it provides a great deal of room for creativity and innovation," he said. Poole directed students to study the work of American architect Marlon Blackwell for inspiration. "Blackwell plays around with geometry, color and light to make his metal buildings come alive."

He explained that by working hand in hand with the metal building contractor, the architect can tailor and finetune the design. "If you wanted to introduce glass to the exterior or add a brick veneer, the metal building contractor can easily model the effect of these various loads on the framework so you can work together to find the sweet spot on the design you're trying to achieve."

As architecture and engineering students graduate and enter the workforce, Poole cautioned them to understand that their education has just begun. "During those five years or so that you're in school, you don't get too far past conceptual design. When you start to work on real-world projects, you gain a whole new learning and understanding," he said.

"There's so much to the practice of architecture. One of my mentors described the focused and in-depth knowledge of an engineer as one-inch wide and a mile deep. He said that as architects, our knowledge is a mile wide and an inch deep," Poole noted. "An architect is like a conductor in an orchestra. It's not necessary for that conductor to understand how to play each and every instrument. Instead, the architect's job is to bring that orchestra together in a way that creates beautiful music."

PRACTICAL APPLICATION

1. What are several ways the architect brought light into Firehouse Ministries Shelter? Brainstorm additional ways the team could have carried the theme of light throughout the facility.
2. Research adding curtain wall glazing onto a metal building. How does the weight of the glass compare to the weight of a metal wall? How would the modeler adjust the design of the framing to compensate for the different weight?
3. How did the architect exhibit flexibility in the design of Firehouse Ministries Shelter, giving the owner the ability to transform spaces as programming needs evolve?
4. Why did the team bring in sandy clay for the foundation? What could have happened without this intervention?
5. Research the work of American architect Marlon Blackwell for inspiration in metal building design. Which of his buildings are your favorite and why? How does Blackwell use geometry, color and light to make his metal buildings come alive?
6. To create visual warmth within the sleeping quarters, the project team used color and texture in the bedding and curtains. What are other ways the team could have added warmth while maintaining the shelter's ability to easily clean the space?
7. What did John Poole mean by the need for an architect's knowledge to be a mile wide and an inch deep? Do you agree or disagree, and why?
8. What were the key advantages of a metal building for Firehouse Ministries? What other advantages could a metal building offer a nonprofit shelter?

"A metal building made a lot of sense from a programming perspective. Every component of a metal building is the most efficient it can be in terms of pounds per feet of steel—you're not using more than you need. If we had chosen a system with load-bearing concrete walls, you're stuck with all that infrastructure."

— John Poole, President,
Poole & Company Architects

Photos courtesy of Poole & Company Architects

RESOURCES/RELATED READING

Related Reading

- Building Solutions: Educational
- Case Study: Educational Campus Facilities

Video Resources

Over 50 videos highlighting metal building architecture, engineering, design and application can be accessed at mbmamedia. We recommend you begin your educational process with the following programs:

- How It's Made: Metal Building Innovations Are Revolutionizing Low-Rise Commercial Construction
- How It's Built: Metal Building Construction Raises the Bar for Low-Rise Commercial Structures
- An Introduction to Metal Building Systems
- Metal Building Systems 101
- How Do I Know a Metal Building is Right for My Project?
- What Do You Know About Metal Buildings?
- Metal Building Nomenclature

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