



A rendering of what the South River Fire Station will look like.

Mitchell Associates Architects has perfected a way to build fire houses that are not only operationally effective, efficient and firematically correct, but designed with features to protect firefighter health and safety.

■ BY MITCHELL KRUGEL

Firematically correct design of a new station house used to be a matter of putting vehicles and equipment back in order for the next event quickly and efficiently. But firematically correct design now also focuses on health and safety issues, and creating a healthy house only begins with acknowledging that highly toxic and carcinogenic materials come back to the station with firefighters after battling a blaze, as well as potentially fatal pathogens. Modern-day design should also address the need for responders to be physically fit and to think about how the station design can improve the firefighter's ability to psychologically decompress and to get the best possible sleep.

But firematically effective and efficient design also expands to a broad range of ways to enhance firefighter and fire station health and safety with such objectives as:

- Eliminating trip hazards by considering the pathways firefighters travel through the house, and assessing the coefficient of the friction of the floor in the apparatus bay. (There should be nothing on the apparatus bay floor except tires and feet.)
- Ensuring carcinogenic materials won't migrate from the bay to the living spaces by effectively sealing all openings and making the air pressure in the bay lower than in the living spaces.
- Fully understanding the pathway PPE and other gear travels from the time of initial contamination through Decon and back into service.
- Controlling the relative humidity and ventilation rate for turnout gear storage for both elimination of carcinogens and to prevent creating a growth environ-

ment for pathogens.

- Eliminating the risks associated with back-in bays by providing aprons deep and wide enough to minimize the time that firefighters are standing in traffic, or better yet, using drive-through bays.
- Putting the bunk room on a quiet corridor and controlling the alerting system to not awaken unnecessary personnel.

Building a firehouse with Mitchell Associates Architects becomes a study in outfitting the facility operationally, pragmatically and firematically to achieve a level of health and safety that only begins to differentiate what this uniquely qualified firm strives for with each project. The first sitting with award-winning architect Bob Mitchell and his team to plan a new or renovated fire house can include a look at more than 200 individual room floor plans, a virtual tour to show how to make a station that will meet the department's needs for today, tomorrow and many years from now.

The client engagement and two-way education/evolution Mitchell Associates has put into more than 150 fire station projects has been a huge factor in the facility the firm is currently working on with the South River Fire Department. The mid-size, residentially-centric borough in Middlesex County has found a pathway through working with Mitchell to build a highly functional facility that will add acute value to its community.

"Of all the architects we interviewed, Bob Mitchell was the most knowledgeable when it came to the construction of fire houses," confirmed South River Fire Marshal Art Londensky, the head of the borough's new firehouse construction committee. "Anybody who sees the building when it is finished will see his attention to

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detail. His design encompasses everything that is going to make us a safer firehouse.”

With more than 20 years of experience collaborating with municipalities and fire departments to develop cost-effective, durable, state-of-the-art facilities, Mitchell Associates has built a practice of evaluating, designing, constructing and renovating emergency service facilities through dedication to its core principles:

- Knowledge-based service: Critical thinking that creates cost-effective, innovative designs suited to department’s needs.
- Comprehensive service: Leading clients through a complete design process, including feasibility studies, financial planning, programming, project design, probable construction-cost estimating, value engineering, financial analysis, public approval process, bidding, contract negotiations and construction administration.
- Individualized service: A one-on-one consultative approach assures a facility is an accurate reflection of a department’s needs and wishes, and that the ideas expressed from the beginning are incorporated.

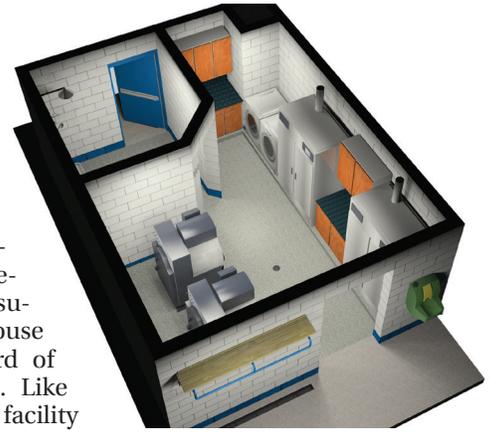
“Some people have the mistaken impression that a fire station is a simple structure, just a garage,” Mitchell dissertates. “I tell them it’s a specialty, so it’s like if you need work done on your knees, you go to a doctor who specializes in knees.”

Indeed a short chat with Mitchell will lead to the same conclusion Londensky reached: that his approach to designing a fire house is scientific and acute, a true specialty.

“We try to focus on all aspects of what makes a fire station function correctly and how it can benefit the department and the community,” Mitchell continues. “I don’t want to take for granted that we want to make a nice-looking fire station, because we do. But from the designer’s point of view, we commit to many things of

paramount importance and put in many, many hours before giving thought to the outside of the building.”

Many of those hours go into establishing client engagement, resulting in visualizing the station house before the first yard of concrete is poured. Like many public safety facility architects, Mitchell begins the data collection with a needs assessment questionnaire. Unlike many public safety architects, the Mitchell survey lists every kind of room the firm has ever designed into any fire station.



An example of the design study Mitchell Associates provides for its clients.

“When we talk about a radio room, we show them photographs and floor plans of similar space. Then, we talk about what will happen in the radio room, the relationship with the apparatus bay or the apron,” Mitchell explains. “The process takes 30 to 40 hours.”

At the end of the process, the Mitchell team delivers a report of each room in the proposed station, complete with the specs for the room size, a diagram and a true sense of the purpose of each room. Then it’s time to begin drawing floor plans, and this is where the process escalates to something really innovative.

Using the South River project as an example, Mitchell’s technologically advanced, scientific approach includes a video walkthrough. (To see an example, pause for a moment here and go to this link: <http://www.mitchell-architects.com/visualizing-a-fire-station-before-its-built/>)

The planning and development process also features a “Design Study,” a 3-D model to help the department to understand the design. (Again, pause for a moment to see the rendering of the South River decontamination room above.)

“When you have to face the public, the municipality and the naysayers in the department – and there’s at least one in every department – you have to have the ability to look them in the eye and say, ‘This is why this is the way it is,’” Mitchell articulates about the documentation his firm provides. “The only way to do that is if you have delved in to know the reason to do everything.”

So there is a reason for locating the icemaker to be immediately accessible for hydration but also is in a spot that is not contaminated by the activities in the bay, as well as to protect members who might want to get ice for a party. There is a reason to have laundry facilities for decontamination of gear after the fire that would be on the dirty side, but also to provide laundry equipment in the bunking area so sheets and linens won’t be washed with contaminated pieces. There is a reason for intermediary spaces between the bay and the clean side, so members won’t track whatever is on their boots to the clean side.

Clearly, the process works, which was not only confirmed when Mitchell Associates received national recognition by winning a Bronze Prize in Firehouse’s 2016 Station Design Awards for renovation of a 1950s fire station in upstate New York. The reaction from South River also seems to validate the successful outcome.

“There’s not much that wasn’t on their plans when we finalized the design,” Londensky notes. “I think our firehouse will be an example of what a modern fire station should be. We have covered everything that should be in there.”

A measurement of success for Mitchell Associates comes when the department confirms how well things are going and when they go to the ribbon-cutting for the fire station opening to see

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Public Safety Architecture

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Firematically correct from concept to completion

Examples of Fire Station projects from Mitchell Associates



the expressions of what it means to the members and the community. And there's additional value that comes from visiting the station a few years later to see how things are working and to help refine some of the details, a learning event that can be applied to a future project.

"That's our responsibility to the firefighter," Mitchell concludes. "We are asking them to go into harm's way for our benefit, so this is the right thing to do."

For more information about Mitchell Associates Architects, visit www.Mitchell-Architects.com