**SPOKANE HOSPITAL EXPANSION**

*Presents Fireproofing Challenges and Opportunities*

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**O**ccupying a critical spot on the building construction timeline, the application of fireproofing to structural steel must be completed before other subcontractors can undertake their respective jobs. As a result, factors affecting the fireproofing contractor’s timely and efficient performance, along with related costs, are an important consideration in the selection of fireproofing for a given project. As projects become larger and more complex, the fireproofing decision can have proportionately greater impact on both schedules and project costs.

A major expansion and new construction project currently underway at the Sacred Heart Medical Center in Spokane, Washington, is by any measure large and complex. The $26 million project will significantly expand a parking garage and add 152,000 sq ft of space for doctors’ offices. For the West Building phase of the project, the addition of four garage floors and two floors of doctors’ offices on top of an existing, three-floor concrete garage required additional structural support in the form of steel columns that were punched down to the foundation. The adjacent, all-new East Building consists of a basement, a ground-level lobby and medical offices, four parking levels above, and three floors of doctors’ offices on top. When complete, the office space on the top two floors of both towers will connect. The structural steel was topped off in late summer, 1992, and construction is scheduled for completion in mid-1993.

When Performance Contracting, Inc. was awarded the fireproofing contract for the Sacred Heart project, Terry Smith, the company’s Spokane Branch Manager, saw both challenges and opportunities in the complexities of the fireproofing requirements for the job. A particular concern for neatness and cleanliness in the application of fireproofing...
The fireproofing was easily applied by using a pole-gun and spraying from floor level.

ing material, combined with the necessity of acquiring additional application equipment to satisfy the stipulated time schedule, prompted Mr. Smith to consider alternatives to the cementitious product originally specified for the project. By recommending Isolatex’s BLAZESHIELD® II sprayed fireproofing, Mr. Smith was able to offer comparable physical properties, performance and appearance at significantly lower cost, along with the benefits of much greater application ease, convenience and, especially, neatness.

The finished surface is smooth, tight, durable and aesthetically pleasing because the ready-to-apply material has been processed to a uniform mix; this was an important consideration for the Sacred Heart project because much of the structural steel in the parking garage will remain exposed. Yet, sprayed fireproofing provides all the application ease and convenience of the original. Pneumatically applied, it requires comparatively little water—which is added only at the spray nozzle—and dries quickly.

Mr. Smith’s recommendation was supported by the Bouten Construction Company, based in Spokane. Bouten specializes in commercial and institutional construction. Bouten serves as Construction Manager for Sacred Heart Medical Center as well as General Contractor for the expansion project. Functioning as advocate for the hospital’s interests, part of Bouten’s role was to research thoroughly and recommend compatible products.

Upon approval of the substituted fireproofing product by both the building owner and architect—Rick Ullman of Seattle-based Mills, John & Rigdon Architects, AIA—Mr. Smith was able to rent two spray units for simultaneous operation and one back-up. The ready availability of rental equipment represented a substantial savings for Mr. Smith, who explains, “The ‘Tommie Gun’ cement pumps that we needed for applying the cementitious product are difficult to rent and cost about $40,000 each to purchase. We own one unit but needed two more for the job; so the change in fireproofing definitely saved us some money in terms of equipment costs.”

Fireproofing the puncheddown columns with the existing garage in full operation meant “special handling” to ensure no spattering or damage to parked cars. To protect cars parked in close proximity to application areas, Mr. Smith’s team erected temporary barricades of lightweight framing and plastic around each column as it was sprayed. In addition to columns, the exposed steel beams in the new garage levels had to be fireproofed, and equal care was required in consideration of concrete garage floors that were to remain exposed. Noting the slight overspray produced when the product fans out from the spray nozzle, Mr. Smith initially planned to tarp the floors out of concern for these exposed areas, but, he explains, “After two floors, I realized the tarp wasn’t necessary. The fireproofing doesn’t adhere to the floor, making it easy to sweep up. And it doesn’t discolor the surface. Eliminating the tarp has turned out to be a major benefit of using the product.”

This benefit extended as well to the upper levels. Although the floors of the doctors’ offices are to be covered and carpeted, tarping would still be necessary to protect the floor from the wet slurry overspill of the cementitious application. “Floor layers want a clean floor in order to avoid later problems such as curling due to cement adhering to the tiles,” Mr. Smith observes.

The ability to use pneumatic equipment for application afforded more opportunities for saving time and lowering costs, according to Mr. Smith. “We have been able to spray from the floor using eight foot poles to reach 13 to 14 ft high beams,” he explains. “We would otherwise need six-ft high scaffolding to support the heavier hoses carrying a wet cementitious slurry mix. The only areas where we have needed to erect scaffolding, in order to be close enough to monitor the application thickness, are the 19-ft high sections between the uppermost parking levels and the office floors.”

Particularly stringent fireproofing requirements for this hospital project, established in accordance with city fire codes, added to the complexity of planning and implementing the application of fireproofing material. A four-hour fire rating is required for perimeter beams and...
The material for sprayed fireproofing is dumped straight from the bag into the hopper, with no mixing required. Water is added only at the spray nozzle.

columns; three hours for primary beams and columns; and two hours for secondary beams and decking—each requiring a different thickness of fireproofing. In addition, steel members of varying sizes require application of fireproofing in different thicknesses to achieve a specified fire rating. For example, a W10 x 12 beam may need three inches of fireproofing while a nearby W21 x 44 would need less to achieve the same rating because it is a heavier beam.

Because of the size and complexity of this project, Mr. Smith employed a “light duty” worker to record all unit thicknesses on each floor and coordinate the spraying. The ability to apply the sprayed fireproofing product to any required thickness in a single pass proved to be invaluable. “With a cementitious project,” he notes, “you an only apply an inch or so at one pass because it is so much heavier and wetter. Multiple passes are necessary, with sufficient time inbetween for each layer to dry. When you have so many different size members in such close proximity, along with varying fire-rating requirements, this obviously complicates the process enormously. With this product, we just start at one end of the floor and finish as we go.”

With spraying almost complete in the West Building, and the East Building well underway, all parties are satisfied with progress to date. Mr. Morrison of Bouten Construction comments that he is “basically quite pleased with the way the fireproofing is proceeding,” and praises in particular the durability of the material, most of which was still exposed during severe late-summer rainstorms yet sustained no damage.

For Mr. Smith and Performance Contracting, the fireproofing’s performance to date has fully affirmed his choice. He concludes, “We expect this job to end up somewhere between 30,000 and 40,000 bags of fireproofing. With a significant cost differential between this product and the cementitious product originally specified, both per bag and per board-foot, we are passing along a big savings. And we couldn’t be more pleased with the performance. The sprayed fireproofing applies easily and cleanly, and looks great. I’ll definitely use it again.”

The sprayed fireproofing dried to a pleasing, light color that is attractive on exposed beams and columns.

The $26 million Sacred Heart project required between 30,000 and 40,000 bags of fireproofing.

About the Authors:
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