NYC 9/11 Public Portal Document

Faulty Fireproofing Is Reviewed in Trade Center's Collapse

Continued From Page B1

whose work studying the disaster is being financed by the National Science Foundation. "It seems as if the fireproofing was not up to what it should have been."

The Port Authority of New York and New Jersey, the longtime owner of the buildings, reacted swiftly to Dr. Mowrer's statements, saying that it had been careful to repair damaged fireproofing whenever it was discovered in regular inspections. But it did acknowledge that problems with maintaining the fireproofing had plagued the structures.

Fireproofing in modern steel-reinforced buildings is a mixture of mineral fibers and concrete-like materials called binders. The mixture is sprayed onto columns and beams, where it dries and sticks. If a fire breaks out, the fireproofing insulates the steel to prevent it from heating to the point at which it becomes soft and unable to bear a load.

"We would obviously take note of that, and it would be part of a routine repair," said Frank Lombardi, the Port Authority's chief engineer, referring to damaged fireproofing. "We would then reapply it as part of that routine maintenance program."

Mr. Lombardi said no building could have withstood the structural damage caused by the planes' impact followed by a jet fuel fire. He also said it was far from clear how representative the photographs examined by Dr. Mowrer were of the condition of the buildings.

The photographs, which showed the state of the fireproofing at scores of floors over nearly a decade's time, were taken during inspections that resulted from lawsuits over the asbestos content of the fireproofing in the 1980's and 1990's.

Alan Reiss, a Port Authority official since 1984 who rose to director of the department in charge of day-to-day operations at the trade towers, said engineers had long been aware of difficulties in keeping some of the fireproofing, in the core of the building around the elevator shafts, on the large structural columns there.

Large areas of fireproofing are missing from the core columns in some of the photographs, and the architect who took them, Roger G. Morse, a consultant in Troy, N.Y., said his work had shown that the fireproofing did not stick properly.

But Mr. Reiss said the problems were caused by the swaying of the buildings in the wind and the impact of elevator cables against the beams. "It was an ongoing maintenance headache," he said. Although measures were repeatedly taken to prevent the problem, he said, "every March and April when you had these windstorms and the building rocked back and forth, you would still knock some of the fireproofing down."

In an interview, Mr. Morse said the problems were far more widespread than that, probably because the fireproofing had been applied improperly to rusty steel.

Mr. Morse, who at the time of his inspections was a consultant to the manufacturer of the fireproofing, said his examinations had never reached above the 78th floor in either tower, but that the nature and dimensions of the problem convinced him the failings of the fireproofing would be found on virtually all parts of the buildings. Investigators think the planes struck around the 90th to 94th floors of the north tower and the 78th to 84th floors of the south tower.

Mr. Morse said his inspections on several floors also found problems with the fireproofing of the lightweight, weblike trusses that held up the floors.

He said his inspections, which began in 1986 and continued intermittently until June 2000, showed stretches of the tubelike structural steel supporting the trusses without any fireproofing, and other areas of extremely thin fireproofing.

Port Authority officials dismissed those allegations, saying that they doubted the photographs were representative of the entire building and that fireproofing on the trusses was regularly replaced and upgraded whenever there was a major renovation or a change of tenants.

Mr. Lombardi, the Port Authority's chief engineer, said yesterday that because Mr. Morse had been a consultant to the manufacturer of the spray-on fireproofing, United States Mineral Products of Stanhope, N.J., it was not surprising that he would have made findings over the years that might require the application of additional material.

Dr. Mowrer said that early in his work he was called by Mr. Morse, who had been hired as a a consultant to United States Mineral Products during lawsuits over the asbestos content of the fireproofing.

Though the current concern over the fireproofing has little to do with any asbestos in the materials, his role in those lawsuits allowed him to inspect the buildings over a long period, taking what he said were 1,200 photographs, along with a number of videotapes and notes.

Mr. Morse said that despite his concerns about the fireproofing, he never imagined the buildings would collapse. After Sept. 11, he got in touch with not only Dr. Mowrer, but also with a member of a team investigating the collapse with the sponsorship of the American Society of Civil Engineers and the Federal Emergency Management Agency.

"We have had that information for quite a while," said Dr. W. Gene Corley, senior vice president of Construction Technologies Laboratories in Skokie, Ill., the leader of that team. "We are factoring it into our study."

Dr. Corley said that the jet fuel fire would also be likely to play a prominent role in the team's conclusions.

James Verhalen, chairman of United States Mineral Products, said the installation of the fireproofing was done by other contractors. He said he doubted that the Port Authority would have overlooked any problems in its inspections.

Dr. Mowrer said he hoped that the new information would spark a closer look at all of the potential factors in the collapse. "I don't want people to assume without complete analysis that it was inevitable that these buildings would collapse," he said.

NEW YORK TIMES, THURSDAY, DECEMBER 13, 2001

CITY_21MC100_0118342O8

NYC-WTC_000415867