

Early Days at the Disaster: The World Trade Center After Sept. 11

BY PATRICK J. MCNIERNEY, P.E.



Illustrations:

Photos show destruction caused by collapsing towers.

Picture at right shows lightning rod from top of north tower standing just above World Trade Center plaza.

Someone placed an American flag on it. Courtesy of Patrick J. McNierney.

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Ed. Note: This article recounts Patrick McNierney's participation in events at the World Trade Center site immediately following the attacks on September 11, 2001. It also deals with his connections, some through his family, with the work that went on there before and after the attacks. A briefer version of this article appeared in the on-line publication, Architecture Week, for December 5, 2001.

My paternal great-grandfather, John McNierney, was born in County Tyrone in 1861 and immigrated to Westchester County, New York, in the 1880s. My father, Edward McNierney, was born in Yonkers in 1928. He studied architecture at Columbia University and worked for several architectural firms before joining the Port Authority in 1963. He contributed to construction of the World Trade Center complex and began working there in 1972. He was responsible for tenant services, including alterations and designs. He was working there when the first terrorist attack occurred in February, 1993. He retired from the Port Authority three months later, after working on reconstruction needed as a result of the 1993 bombing.

My maternal grandfather, Patrick Fitzpatrick, was born in Glangevlin, County Cavan, in 1896. He immigrated to New York City in 1910 at age sixteen and joined the New

York City Fire Department. My maternal grandmother came to New York City from County Galway in 1905. My mother, Anne Marie Fitzpatrick McNierney, attended Holy Cross Academy in New York City on a Fire Department scholarship. She attended the College of Mt. St. Vincent and Fordham University, and is now the director of government programs for the Archdiocese of Newark.

My extended family includes several other persons who did work related to the construction industry, including a great-grand uncle, Patrick J. Murphy of Murphy Construction in New York City, the late Patrick Cunningham who was a contractor in Southampton, Long Island, and Patrick Fitzpatrick of the Cavan Development Company in Dublin. Billy Cunningham, a cousin, is an architectural photographer whose work frequently appears in *Architectural Digest*. My family visits with their Irish relatives in Dublin, Cavan, and Sligo often.

AS A STRUCTURAL ENGINEER

Like hundreds of other volunteers, I spent most of the week of September 11, 2001 at the site of the former World Trade Center, helping with rescue efforts as best I could. My particular background lent insight to some of the problems we

faced. As a structural engineer, I was familiar with the behavior of steel buildings, and because my father had been a Port Authority architect during the towers' original design and construction, I had developed since childhood a familiarity with the buildings.

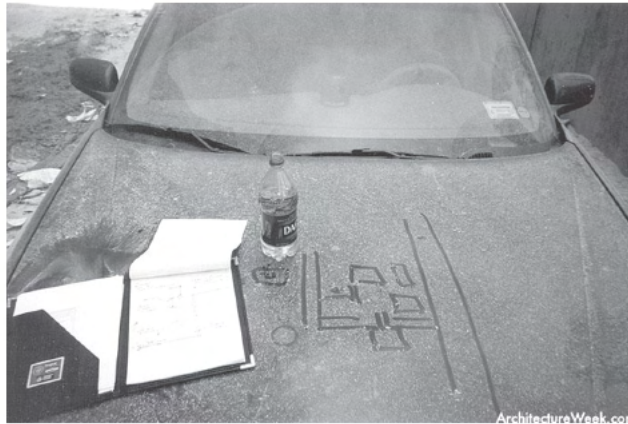
My father had shown me the World Trade Center foundations being constructed. I still remember the view from the field office into the excavation for the five-story basement. Now, some thirty-five years later, answers to questions about, for instance, underground wall locations were as accessible as a cell phone call to my father.

THE MORNING AFTER

After barely sleeping the night after the attack, I woke up at 3:30 a.m. and knew that I had to go to the World Trade Center site. An expired student identification card from Columbia University and a professional engineer stamp got me through all of the checkpoints en route.

I arrived at Church and Liberty streets in lower Manhattan at dawn. I was shocked and amazed at the unspeakable carnage. The crater made when falling debris broke through the plaza floor was more devastating than could be imagined. What I saw next was also shocking: a large front-end loader and a hundred firemen were removing debris from the sidewalk between the plaza staircase and Church Street. I knew that directly below were a subway station, a shopping concourse, escalators to commuter rail stations, and a five-level garage.

Because of concerns about the integrity of the structural steel that supported the plaza level, I suggested to the fire captain in charge that he remove all his personnel immediately. Apparently none of them was aware of the habit-



able space below. As if to underscore my point, the front-end loader made a pass in our direction, and we felt a noticeable jolt of the plaza floor. I had been up and down that staircase many times without feeling any vibrations, so I was concerned for everyone's safety.

SKETCHING THE UNDERGROUND

I suggested to the contractor responsible for the loader that portions of the sidewalk be chopped out in order to evacuate anyone below. I drew for him a sectional view of the area, indicating the staircase and plaza above. From vivid childhood memories, I remembered a foundation wall that extended from grade level down to bedrock. But I wasn't sure of the horizontal distance between it and the towers. A call to my father assured me that it was closer to the center of the Plaza than to Church Street.

Based on my sketch, three holes, each about 8 feet (2.5 meters) square, were dug that night directly above the main corridors below, giving access for rescue workers.

THURSDAY, SEPTEMBER 13

On the next morning, on arriving at the corner of Church and Vesey Streets, I saw three pieces of equipment removing the sidewalk from the plaza area near the staircase. Two "spiders," or single-person, cable-mounted hoists, were on the plaza. They had been used the night before to lower rescue workers into the concourse and shopping levels.

I walked onto West Street and was enlisted in a line of people moving rubble piece by piece. At times like this, there's no choice but to get your hands dirty and do whatever you can. On this

Illustrations:

(Above) Sketch of the plaza drawn by author for construction workers in dust on car hood.

(Below) Test pit that was dug to explore area below the World Trade Center plaza. Courtesy of Patrick J. McNierney.

Illustration:
Anne Marie and Edward McNierney with their children in a photo taken in 1967, a year after construction of the World Trade Center started. The author, Patrick McNierney, aged six, is in front at left. Courtesy of Patrick J. McNierney.



day, I saw seven people rescued from the rubble.

Late that afternoon, I was interviewed by the Secret Service in anticipation of the president's visit the following day. I explained to them my opinion that the Port Authority did nothing wrong in the design or construction of the World Trade Center. Building codes only give us a maximum load to design for. No one ever knows the size of the next bomb that may be dropped on us. Also on Thursday, federal agencies began to establish a presence on the site. They erected white tents on Church Street directly across from the entrance to the World Trade Center plaza. Their visible presence made communications flow more efficiently.

Illustrations:
(Left) Rescue workers during the first week after attack on the World Trade Center. (Right) Sunset from a surviving building near the site of the World Trade Center. Courtesy of Patrick J. McNierney.

FRIDAY, SEPTEMBER 14

On Friday I continued a review I had begun the day before of adjacent buildings damaged by the intense heat. Starting at the northeast corner of the site is the Church Street Station post-office building. Fifteen years ago, while working for



Horst Berger Partners Consulting Engineers, I had analyzed this building and determined that it could support a ten-story addition. This fact, coupled with the structural framing type of the building, assured me that it was not dangerously affected by heat. In the 1920s, federal office buildings were typically built with steel frames encased in terra cotta, mortar, concrete, and/or granite. These materials gave the desired appearance of an imposing stone building. An added benefit of this structural system was that the stone or concrete added fire protection to the columns and beams.

I was also familiar with a few of the other perimeter buildings, and I relayed my opinions to the federal search and rescue team. I was able to assure them, for example, that the tall, slender 52-story Millennium Hotel was of reinforced concrete and therefore more fire resistant than buildings of structural steel. I saw no immediate danger of failure but recommended that the building's owner arrange for an independent assessment.

Several perimeter buildings sustained incidental damage. In the World Financial Center directly across from the south tower, every window was broken. Although extensive repairs would be required before tenants could reoccupy the building, it appeared to be structurally sound.

I was only one of hundreds of people who went to the site to offer help. In those first hours, no one told us where to go, what to do, or how to do it. One useful role I discovered was that of rumor control. It was common to hear rumors that a certain building would be the next to fall. I learned a technique to persuade other people on this matter. Once, when my engineering experience told me a building was safe despite the rumors, I walked up twenty-nine flights to the roof to photograph a sunset. To me, the photo symbolizes our resilience.

