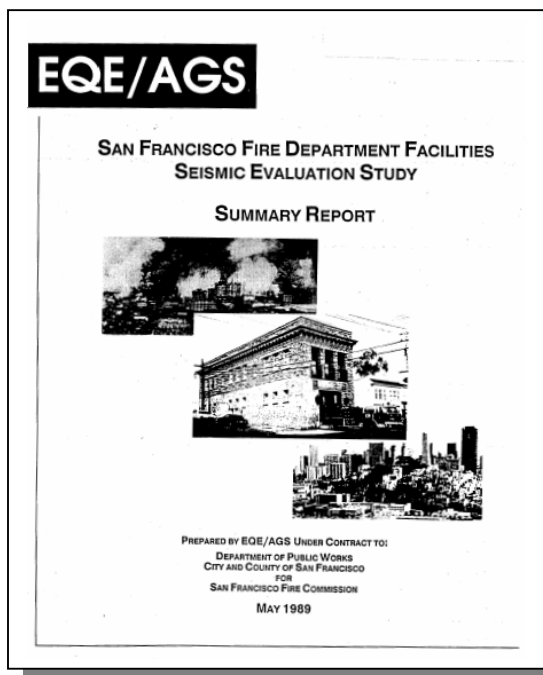


# Personal Narrative of Events related to the Marina Fire<sup>1</sup> Loma Prieta Earthquake October 17, 1989

Charles Scawthorn, S.E.<sup>2</sup>

**Background:** In 1989 the author was a Structural Engineer and Vice President with the firm of EQE International, offices at 595 Market Street, San Francisco. He was principal-in-charge of a just-completed project for the San Francisco Department of Public Works, involving an earthquake analysis of all 55 of the San Francisco Fire Department (SFFD) facilities<sup>3</sup>. The project had arisen due to concerns of the Fire Department's senior management, particularly Chief of Department Emmet Condon and Assistant Chief Frank Blackburn, regarding the ability of the City's fire department facilities to function in a major earthquake. The project had found: "...engineering evaluation for the effects of earthquakes...40 fire stations, Headquarters, all elements of the Auxiliary Water Supply System (AWSS)...indicate that eleven facilities...can...collapse in a maximum credible earthquake...thirteen facilities...extensive damage and [possible] collapse...substantial reduction of overall facility functionality and department response capability immediately following a major earthquake is very likely...strengthening would cost approximately \$20 million [1988 dollars]" (excerpts from the project's Summary Report).

As a result of that Report, and previous National Science Foundation-supported research the author had performed on the problems of fires following earthquakes in San Francisco, the author had come to know Chief Condon and other members of the San Francisco Fire Department. What follows is a narrative of the author's experience on Oct. 17.



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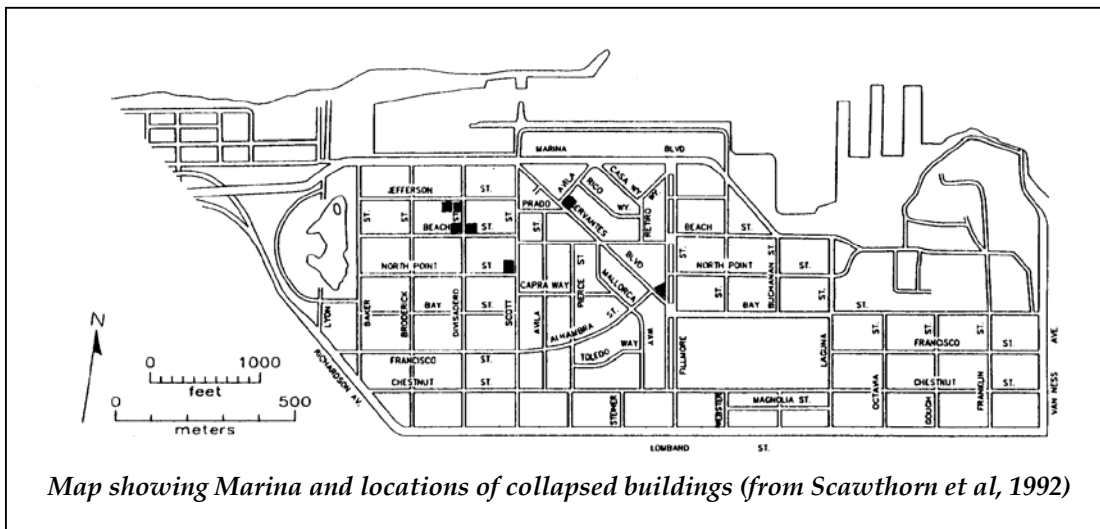
<sup>1</sup> © C. Scawthorn, 2004. Used with Permission

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<sup>3</sup> The complete study, consisting of 56 volumes, is available from the City of San Francisco, and is also available for viewing at the San Francisco Public Library, Main Branch, Call No. 352.3 Sa5234.

**October 17, 1989 - Personal Narrative of Charles Scawthorn:** "At 5:04 pm on October 17, I was in my office in a corner of the 21<sup>st</sup> floor of 595 Market Street, which had a good view of the Bay Bridge and the south of Market area. When the shaking started I of course had some concerns but stepped to the windows to see if I could observe dust clouds, which would be signs of falling building parapets. Very quickly, I observed several such dust clouds in the south of Market area but the shaking then grew in intensity such that I thought it prudent to move away from the large windows. By the time I'd walked through the door of my office into the larger design room, the shaking quieted, and one of my younger engineers remarked (looking at his watch) "*gee, 30 seconds - pretty good!*", which I thought was remarkably cool behavior. While it had been a good shake, it hadn't really concerned us much, none of our furniture was disturbed (cabinets were bolted to the walls, for earthquake safety), and I was ready to return to my desk when one of my colleagues began getting radio reports of the collapse of the Cypress Freeway, and the Bay Bridge. We could see the Bay Bridge, and that it was still standing, so we thought these reports greatly exaggerated, until we noticed people walking off the San Francisco end of the Bay Bridge! At that point, I immediately called my family and confirmed their safety, and let them know I was also quite safe.

"As more reports came over the radio, we realized this was a significant earthquake and, since our firm was one of the leading structural engineering firms in the City, specializing in earthquake safety, we began to organize ourselves for purposes of assisting local government and our clients. Within a few moments, however, we noticed a large black column of smoke rising from the direction of the Marina and, since I had worked closely with the San Francisco and other fire departments, I and a colleague (Steven P. Harris) immediately departed for the fire. To do this, we literally ran down the 21 flights of stairs to the ground, retrieved my car from a nearby parking lot, and



drove as quickly as possible in the direction of the smoke column. Electric power had failed throughout the city, so traffic lights were not working, but drivers slowed down and alternated at intersections, and otherwise I was surprised at the minimum of disruption as we sped towards the fire, particularly as we passed evident signs of damage, such as a collapsed building at California and Front streets.

“At about 5:25pm we arrived at the corner of Bay and Fillmore – since further progress was blocked by a collapsed building on that corner, we parked the car and ran down Cervantes to Beach and then west on Beach to Divisadero. As I arrived at that corner, I observed a major fire on the northwest corner, a collapsed building at the northeast corner, a heavily damaged building at the southeast corner, and more damaged buildings to the north on Divisadero. I also saw Chief Harry Brophy, who I knew, standing in the middle of Divisadero, commanding firefighters and the scene. At this point, the fire was not recognizable as a building, but rather was a very large mass of solid flame, extending about 75 feet north on Divisadero from Beach, and similarly along Beach to the west, with flames also about 75 feet high. The fire was spreading rapidly to the adjoining buildings, and I noted only a couple of very weak hose streams being directed on the fire, and on exposed buildings on the east side of Divisadero immediately opposite the fire. At that time I did not actually see the fireboat *Pheonix* (as it was a good 250 yards to the north) but did observe civilians dragging hose towards the fire, from which I surmised that the fireboat *Pheonix* had just arrived. The hose and portable hydrants were being dragged and carried from the Marina Green towards the PWSS hose tender at the corner of Beach and Divisadero.

“I approached Chief Brophy and inquired if there was anything I could do to assist. He was glad for the offer and, knowing me to be a structural engineer, asked if I would assist firefighters in search and rescue. I therefore accompanied several firefighters (whose names I never learned) to a large white wood framed building on the southeast corner of Divisadero and Jefferson, which had been a four story building, but whose ground floor had pancaked, see Figure 2. The issue was whether to enter the building or not? Structural engineers are trained to analyze buildings for which they



*Fig 1: Photo corner of Beach and Divisadero  
(author in foreground)*

have a lot of information, but now I was confronted with a building I knew nothing about, which now was heavily damaged so that no one knew what parts of its structural system were still functional, and where lives were in the balance - lives of those persons who might still be in the building, and the lives of the firefighters ready to enter the building. And,



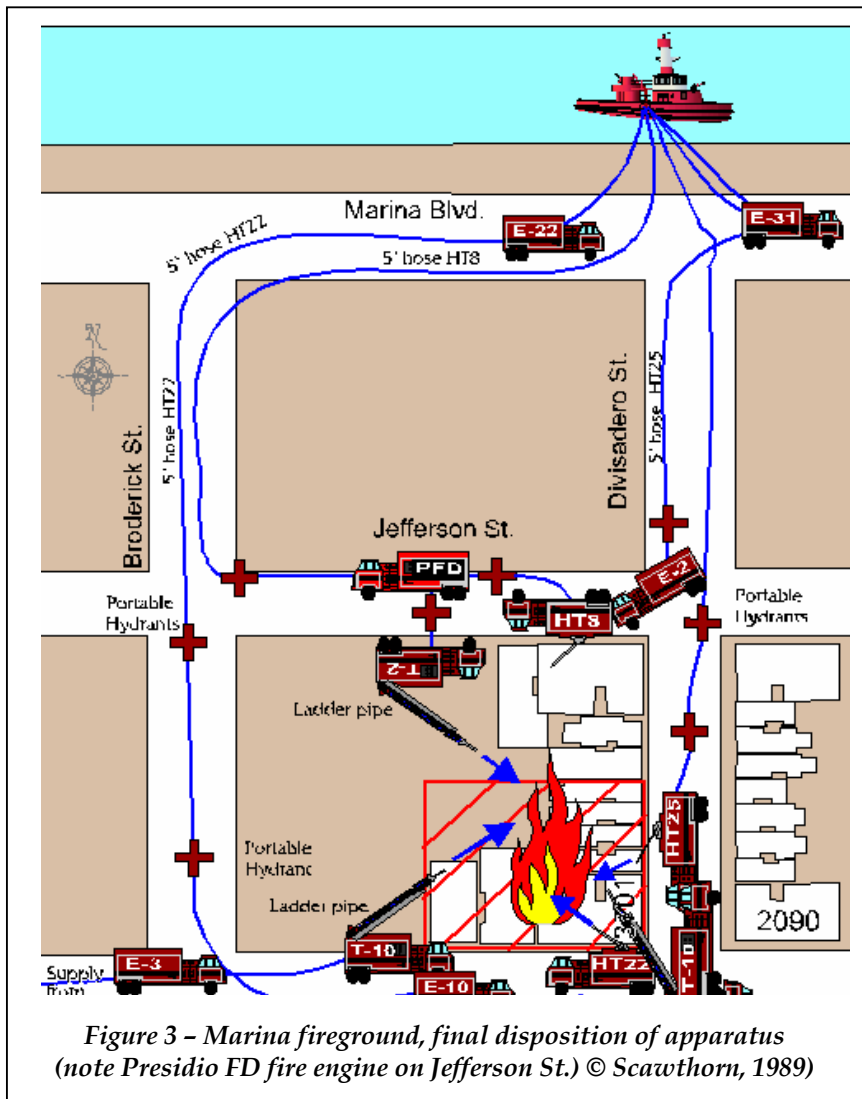
*Figure 2 - Collapse building SE corner Jefferson and Divisadero, next day (Photo: Scawthorn, 1989)*

an aftershock might happen any moment. I pondered this a moment, and told the firefighters *“I really can’t be sure, but I think the building is stable enough for a quick search, and I’ll back up what I say by going in with you”*. This didn’t seem to give them much confidence, and they conducted their search by yelling in through the broken windows, asking if anyone was there. Hearing no response, we moved on to the neighboring buildings, until all the buildings had been ‘checked’. I didn’t know then, and don’t know now, whether entry to the upper floors should have been made at that time. However, based on later reports, I understand that all occupants had already left these buildings by the time we were ‘searching’ them. I also now know that at this same time, Gerry Shannon and other firefighters were under the wreckage of the collapsed building at the northeast corner of Beach and Divisadero, rescuing Sherra Cox.

*“By the time we’d checked all the buildings, the Phoenix (which had come right to the seawall, intentionally grounding herself in order to do so) had passed multiple 3 inch lines across to the shore, and was pumping from the Marina (clogging her sea chests in the process) through her manifold into the 3 inch lines to gated wyes onshore, then into 5 inch lines which ran two blocks south to the PWSS hose tenders and fire engines, which then directed master streams onto the fire and exposures. By this Phoenix-PWSS (portable water supply system) combination, the master streams had a goodly supply of water such that the fire was soon under control, and the excitement dying down. It was quite obvious to me at the time that, while this fire was only about 250 yards from the shore and thus could have been supplied by more conventional fire hose-engine relays, if the fire had been a few more blocks further from the shore, only the PWSS would have been able to convey the water in adequate supply. Figure 1 shows the scene at about this time, with the buildings across the street brightly lit by the still burning (but under control) fire, while Figure 3 shows the arrangement of the Phoenix and equipment at about this time.*

“In discussing with Chief Brophy what to do next, I learned that he’d initially expected to have to fall back to Union Street (ie, he had feared that the entire Marina would be lost), and that it was only due to the unusually calm wind conditions, for which he was very grateful, that this had not occurred. There being now nothing more for me to do at the scene, I went next to the Fire Department’s EOC (ie, the Communications Center, on Turk Street) to offer my assistance. This was gratefully accepted, and I spent the remainder of the night inspecting fire stations for damage (of which, there was very little). During my rounds of the City that night, I had many interesting observations, but those are unrelated to the Marina, so I shall stop this narrative at this point.”

For those interested in more information on the Marina fire, and the Loma Prieta earthquake, the publications in the Bibliography section may be of interest.



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