

## CASE STUDY

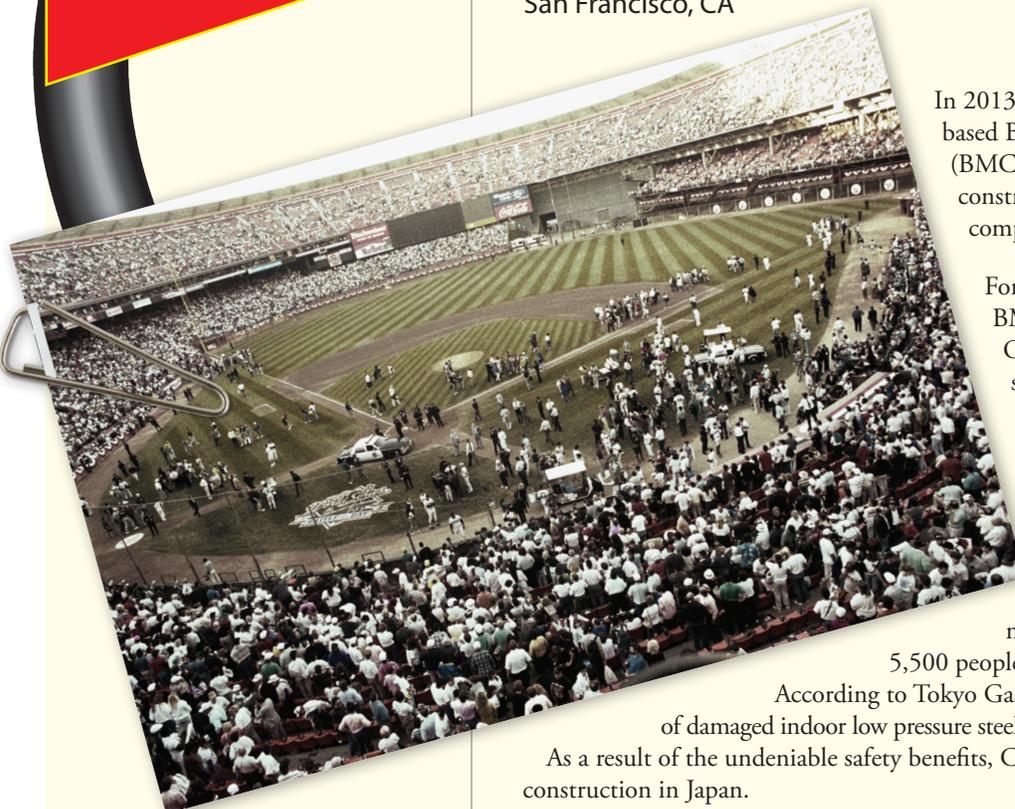
### Enhanced Seismic Performance for FREE

TracPipe® CounterStrike® FGP-CS-500 Pat. 7044167 B2 224

- Save Lives
- Save Money
- Faster Installation

**Product:**  
CounterStrike® Flexible Gas Piping in Multi-Family Applications

**Location:**  
San Francisco, CA



In 2013 OmegaFlex teamed up with Bay Area-based Broadway Mechanical-Contractors, Inc. (BMC) to install gas piping in the newly-constructed Candlestick Heights apartment complex in San Francisco.

For the Candlestick Heights 198-unit complex, BMC chose to install TracPipe CounterStrike, OmegaFlex's premier corrugated stainless steel tubing (CSST) product because it provided vastly superior safety performance in earthquakes and ease of installation while ultimately costing less than traditional black iron pipe.

CSST tubing was widely adopted following the 1995 Kobe, Japan 7.2 magnitude earthquake, which killed over 5,500 people and destroyed over 300,000 homes.

According to Tokyo Gas Company, there were over 11,000 reports of damaged indoor low pressure steel gas pipes compared to just eight for CSST.

As a result of the undeniable safety benefits, CSST is now used almost exclusively in new construction in Japan.

*On October 17, 1989 at 5:04 P.M., the World Series earthquake struck Candlestick Park.*



*Overlooking Candlestick Park, the Candlestick Heights development, offers generously sized and well-appointed one, two, three and four bedroom apartment homes all with gas stoves.*

Closer to home the Whittier Narrows 5.9 magnitude earthquake of 1987 resulted in approximately 2,000 gas leaks of which over 500 were houseline piping. As this was prior to the introduction of CSST in California, one assumes that these were predominately black iron pipe failures!

OmegaFlex's product safety track record in earthquakes and other natural disasters made it ideally suited for use in the Candlestick Heights construction. Candlestick Heights is located adjacent to San Francisco's Candlestick Park, the site of the 1989 "World Series Earthquake" which shook the stadium with a 6.9 magnitude quake and halted play for 10 days.

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*(continued from front)*



*Recent UC San Diego earthquake testing proved that black iron pipe fractured and leaks while the CounterStrike CSST remained leak free.*

OmegaFlex's TracPipe CounterStrike gas piping is manufactured in the USA and is listed by Factory Mutual for seismic resistance. In contrast, most rigid pipe is imported with little or no quality control and is not tested or listed to any national gas piping standards.

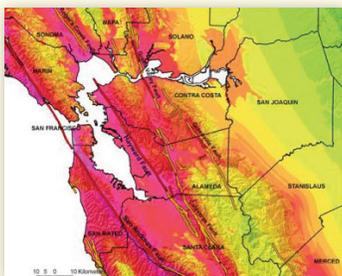
Additional natural gas seismic safety features at Candlestick Heights included the installation of a seismic shutoff valve at the meter and a seismic expansion loop at the gas boiler.

In 2012, the University of California, San Diego's Englekirk Structural Engineering Center simulated some of the largest recorded earthquakes on a hospital structure piped with CSST and traditional black iron pipe. The results were very clear – CSST withstood the tests without any failures, while the black iron pipe fractured. Ultimately, OmegaFlex's TracPipe CounterStrike provides these safety features at less cost than black iron pipe because of the ease of installation.

According to Robert Isom, BMC's Director of Procurement "CounterStrike not only provided a substantial cost savings but allowed us to finish this project 30 days faster than it would have taken if we had used black iron".

BMC is a family-owned company with over 100 years of service to San Francisco and the Bay Area. Since 1906, just a couple of months after the San Francisco earthquake, four generations of the Nurisso family have been providing leading plumbing, piping, and HVAC mechanical services to valued customers throughout the Bay Area.

Over the last 20 years there have been over 750 million feet of CSST made and installed in the United States. While Candlestick Heights marks OmegaFlex's first San Francisco CSST installation, it certainly won't be the last because TracPipe CounterStrike's superior safety record and cost-effective installation make it a natural fit for the Bay Area.



*Earthquake shaking potential for San Francisco metropolitan area considering local site effects.*



*3/4" 1" and 1 1/4" CounterStrike CSST was installed to provide natural gas to each apartment.*