



**DESIGN**



**INVESTIGATE**



**REHABILITATE**

Recent projects featuring Simpson Gumpertz & Heger's structural and building enclosure rehabilitation capabilities.

**National September 11 Museum | New York, NY**

*Structural rehabilitation enables existing slurry wall to be integrated into new museum space.*

The "bathtub" slurry wall at the World Trade Center (WTC) site survived when the WTC towers collapsed. Consequently, the wall became a symbol of endurance; and WTC site redevelopers called for a section of the wall to be incorporated and remain exposed within the National September 11 Museum. For this wall section, SGH designed a system of concrete counterforts and infill walls, placed on the backside (soil side) of the slurry wall, to provide permanent support.



[more \(PDF\)](#)

*In collaboration with Davis Brody Bond Aedas (architect) and Guy Nordenson and Associates (structural engineer). Rendering by Squared Design Lab.*

**225 Bush Street | San Francisco, CA**

*Building enclosure rehabilitation rejuvenates historic landmark.*

Constructed in 1922, the former home of the Standard Oil Corporation is listed as a local historic landmark. SGH surveyed and evaluated the building envelope and designed repairs for this twenty-two-story building. As the designer and engineer of record for the \$10 million restoration, SGH carefully coordinated repair reviews with local preservation planning officials. SGH is currently leading the second of three construction administration phases to repair waterproofing and replace clay tile roofs and more than 400 terra-cotta blocks.

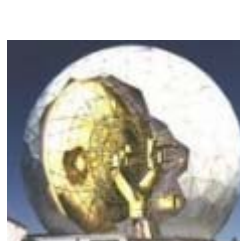


*In collaboration with Jones Lang LaSalle (property manager).*

**Haystack Radio Telescope | Westford, MA**

*Periodic structural upgrades enhance performance capabilities.*

In the early 1960s, SGH performed computer analyses to verify the performance of the new Haystack 37 m steerable radio/radar telescope to operate at 8 - 10 GHz. Over the years, SGH participated in various upgrades. Notably, in 1993, SGH designed a deformable subreflector and readjusted the surface of the antenna using holography to allow operations at 115 GHz as a radio telescope. SGH recently designed a new elevation structure that replaced the previous elevation structure and is supported by the existing yoke and tower.



**Thousand Oaks Civic Arts Plaza | Thousand Oaks, CA**

*Building enclosure rehabilitation keeps critical offices open.*

Thousand Oaks Civic Arts Plaza is a significant work of contemporary architecture that includes a theater and offices. Various areas required repairs and upgrades due to water intrusion, but the complex had to remain operational during investigation and remediation. SGH investigated the roof, plaza decks, water fountains, building expansion joints, curtain walls, and exterior cladding without interrupting critical client operations. SGH also considered reliability, ease of maintenance, life cycle costs, and LEED guidelines to develop, analyze, and recommend alternative repair approaches.



*In collaboration with the City of Thousand Oaks (owner).*

**Milwaukee City Hall | Milwaukee, WI**

*Comprehensive building enclosure and structural rehabilitation revives national landmark.*

Milwaukee City Hall was built in 1896 in the German Renaissance Revival style by architects H.C. Koch & Company and is a registered national landmark. Over the years, the nine-story building experienced numerous problems, including structural through-cracks at the clock tower and north elevation, persistent leakage, corroded steel framing, cracked and deteriorated terra-cotta, efflorescence, and spalled brick masonry. SGH conducted a comprehensive investigation and prepared stabilization and restoration documents with a local architect to repair brick and terra-cotta elements; existing windows; and slate, copper, and membrane roofing.



[more \(PDF\)](#)

*In collaboration with Engberg Anderson (architect). Image © Eric Oxendorf.*

**Cholla Power Plant | Joseph City, AZ**

*Fast-track structural rehabilitation targets at-risk pipes.*

SGH performed a condition assessment, failure risk analysis, repair design, and construction monitoring of the Unit 3 Circulating Water Pipeline in Arizona Public Service's (APS) Cholla Power Plant. SGH evaluated previous electromagnetic inspection results, performed internal and external inspections and laboratory analysis, and identified pipes that required emergency repair. SGH then designed carbon fiber reinforced polymer (CFRP) and post-tensioning repair alternatives, helped develop a repair schedule so repairs could be completed during a scheduled outage, and provided continuous engineering field support during construction. SGH also developed an asset management plan for future pipeline operation and repairs.



*In collaboration with Arizona Public Service (owner).*

**Harvard Business School, Gallatin Hall | Boston, MA**

*Structural rehabilitation helps preserve historic building and achieve LEED-NC Gold rating.*

Gallatin Hall is a landmarked McKim Mead and White-designed dormitory at Harvard Business School. SGH developed design schemes to preserve the existing structure while improving air circulation, adding a new elevator, and adding new duct shafts integrated with reconstructed chimneys. In addition, SGH designed structural repairs for deteriorated concrete and masonry structures and mitigated seismic hazards.



*In collaboration with Shepley Bulfinch (architect).*

**UPCOMING EVENTS**

**Transformations: Re-using, Renovating, and Expanding Existing Buildings**

| Harvard University Graduate School of Design  
5 - 6 August 2010  
Harvard University, Gund Hall, Cambridge, MA  
Click [here](#) for more information.

**Symposium on Condensation in Exterior Building Wall Systems | ASTM International**

10 - 11 October 2010  
Grand Hyatt San Antonio, San Antonio, TX  
Click [here](#) for more information.

**Building Envelope Technology Symposium | RCI, Inc.**

8 - 9 November 2010  
Hyatt Regency, San Antonio, TX  
Click [here](#) for more information.

**Build Boston | Boston Society of Architects**

17 - 19 November 2010  
Seaport World Trade Center, Boston, MA  
Click [here](#) for more information.

**TECHNICAL BRIEF**

**Advanced Preservation Considerations for Sustainability |**

By John A. Fidler, RIBA, FRICS, Intl. Assoc. AIA

The "greening" of existing buildings is an increasingly popular initiative. Historic buildings play a part in achieving energy efficiency and ecological equilibrium, and should be analyzed using whole-life costing.

[more \(PDF\)](#)



**FIRM NEWS & NOTES**

• **James Shetterly** and **Michael Waite** recently became **Certified Energy Managers (CEM)** through the Association of Energy Engineers (AEE). According to the AEE, the CEM certification "has gained industry-wide use as the standard for qualifying energy professionals both in the United States and abroad." The certification is recognized by many federal, state, and private sector clients.

• SGH hosted "**The Roofing & Waterproofing Symposium**" on 14 April 2010 in San Jose, CA. Speakers addressed topics such as below-grade waterproofing, plaza waterproofing, low-slope roofing, and specialized roofing.

• SGH and the Department of Architecture at California State Polytechnic University, Pomona, hosted the "**BESS2010: High-Performance Building Enclosures - Practical Sustainability Symposium**" on 30 April and 1 May 2010 in Pomona, CA. The event was a peer-reviewed technical symposium that explored state-of-the-art professional and academic techniques related to building enclosure design.

• Senior Principal **Tim McGrath** traveled to Uganda as part of the Northeastern University chapter of **Engineers Without Borders**. Tim mentored a team of students that traveled to the village of Ebanda, participated in constructing a village water system, and helped establish a Water Board that will oversee the system's operation and maintenance.

• *Engineering News-Record (ENR)* released its **Top 500 Design Firms** of 2010 and SGH ranked 134 out of the largest engineering, architectural, and environmental design firms in the United States.

**ABOUT SGH**

Simpson Gumpertz & Heger (SGH) is a national, award-winning engineering firm that designs, investigates, and rehabilitates structures and building enclosures. Our work encompasses building, transportation, water/wastewater, nuclear, and science/defense projects throughout the United States and in more than thirty other countries.

For more information, please visit [www.sgh.com](http://www.sgh.com).

Named #1 "Best Firm To Work For" by Structural Engineer and #1 among large civil engineering firms by CE News.



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