SIMPSON GUMPERTZ & HEGER
Celebrating 60 Years
I vividly recall my job interview with Frank Heger forty-two years ago, when I was a fresh engineering grad looking for my first job. I was captivated by Dr. Heger’s passionate description of the firm’s interesting, challenging projects. His enthusiasm was infectious. And that such an important person would devote so much time with a junior engineer made a powerful impression. I returned home after the interview and told my wife that Simpson Gumpertz & Heger was the only place I wanted to work. I was thrilled when Dr. Heger called me a week later and offered me the job.

The promise that interview held for me unfolded wonderfully over the succeeding decades, as it has for countless other SGH professionals. SGH’s history is filled with stories like mine.

Please enjoy these reflections on SGH’s most inspiring qualities.

Glenn R. Bell
Our People

“\textit{I always try to hire people smarter than myself.}”
Frank Heger
At Simpson Gumpertz & Heger, we hire the best and brightest people in the industry. But that is only part of our story. Our diverse capabilities, unwavering character, and ongoing commitment to each other make us extraordinary today and will make us stronger tomorrow. We work tirelessly to be at the forefront of our fields, bringing pride and passion to everything we do. We learn the importance of these traits on Day One and share them with every person who joins our team.

Together, we are Simpson Gumpertz & Heger.
Capabilities

“I fully realized our collective talent as a firm after one of the darkest moments in U.S. history. Following the terrorist attacks on the World Trade Center towers on 9/11, the National Institute of Standards and Technology (NIST) selected us to conduct a progressive collapse analysis of how and why the buildings failed. When I asked why they had chosen us, NIST told me, ‘We were looking for the very best experts in high-end finite element analysis. Your competitors have maybe one or two people we would consider. You have two dozen.’

This project posed enormous challenges that stretched the limits of computational modeling and analytics at the time. We had to invent new forms of finite elements, modify computer programs, and develop new underlying code along the way. In the end, this work advanced the state of the art in the industry and formed the basis of revisions to international building and fire codes and standards.”
Character

"I remember when we received a small fine from the Occupational Safety and Health Administration (OSHA) for an incident for which we were not responsible. At the time, OSHA was trying to hold engineers responsible for construction site safety and used a construction accident on one of our projects as a test balloon for the profession. The fine was only for a small amount, but we decided to take the fight to court. We weren't looking to save the money – in fact it cost us a lot more in legal and expert time – but we decided to take a stand on behalf of our industry. Ultimately we won the case, which was a victory not only for SGH but for the profession of structural engineering. The engineering community rallied around us and thanked us for not giving in."
Apprenticeship

“I’ve been here close to forty years, and the things that I learned my very first days on the job are still at the core of what I do and what I aim to pass along. Frank Heger and others taught me three common values to working at SGH: work hard, commit to a life of continuous learning, and be ethical and honest. I make sure that I embody these values every day. I give everything I can to a project to show the people on my team that they should push themselves. I always learn as much as possible (maybe more than my team knows) to set an example. And I always look at the big picture when making a decision – stressing to my team how critical that is to being an engineer. Now, the people I’ve mentored have passed those same values on to the next generation of engineers.”
“I am proud of the professional attitude and performance of the next generations: their willingness to go the extra mile and their uncompromising pursuit of professional excellence.”

Werner Gumpertz

Our Work
Our firm thrives on two things: passion and excellence. Together, we enthusiastically take on new challenges and deliver exceptional results. We seek bold solutions anchored by quality and collaboration. Our clients come to us asking for more than technical responses — they expect holistic answers and steadfast effort to address their most daunting problems.

We strive to be outstanding in everything we do.
Quality

“SGH is willing to assess the pros and cons of each solution. They do exhaustive research, testing, and analysis before making their recommendations. I have never been disappointed by anything they’ve ever done.”  

—— owner client

“I saw SGH’s commitment to quality firsthand as a young engineer. I was in Frank Heger’s office when an Associate stopped in to talk. Frank allowed me to stay and listen while the Associate told him that we were Starting to lose money on a project. He suggested that he might have to take some shortcuts to address the budget problems. Frank – who was a fairly mild-mannered guy and did not get mad often – was irate. He asked, ‘When has SGH ever sacrificed or compromised quality for our budget problems? It just isn’t done here!’ That lesson stuck with me for my whole career. It told me everything I needed to know about the company’s commitment to quality. The Associate seemed rattled by the interaction (and to be honest, I was, too), but he went back and finished the project without sacrificing anything.”
Perseverance

“I love the story of ‘Howard Simpson vs. the computer.’ Howard was leading a structural analysis for the Vehicle Assembly Building in Cape Canaveral – a massive effort that involved running a structural analysis program on a mainframe computer. He was hand-checking the computer’s answers, and they weren’t making sense to him. Eventually, he started manual calculations to reproduce the computer’s mathematics – inverting a stiffness matrix – which is tedious work. *After all this, Howard still couldn’t get to the same results.* Finally, he approached the computer vendor and said, ‘I think there’s something wrong with the way your computer does calculations.’ The vendor insisted that computers do not make mistakes, but agreed to inspect it. He found a transistor with a little red dot on it … which meant it had failed quality control during manufacturing and should have been replaced. We lost three weeks on the project because of that issue, but resolved it because Howard wouldn’t give up.”

“SGH goes through an extensive analysis to arrive at an answer. Focusing on a particular problem, they leave no stone unturned. I get the sense that every possibility has been explored, every test run, and they are confident that they have arrived at the right answer.”

owner client
“Spaceship Earth at Epcot is an iconic symbol, recognizable around the world. It is also a terrific example of how we came together as a firm to deliver a remarkable solution. Disney asked SGH to develop the signature structure for its new park. It was an ambitious project that engaged the firm’s breadth of expertise across divisions and from all parts of the country. We served as structural engineer for the first large-scale complete geodesic sphere ever built. We also conducted a materials assessment and recommended Alucobond panels for the attraction’s exterior, a first-of-its-kind installation for a relatively unknown material at the time. As the building enclosure consultant, we developed an internal gutter and drainage system that eliminated all exterior runoff. I remember the day we topped off Spaceship Earth. Frank Heger came to me and said, ‘This is the greatest day in our history. I don’t think there is anything we can’t do.’”

“I get a depth of knowledge from people at SGH. They are extremely well trained and offer knowledge I don’t find other places. This is not just at the Principal level, but right down the ranks.”

architect client
SGH goes beyond normal boilerplate designs. They come up with better ones. They go into uncharted territory with confidence.

When I first saw the winning design for the Bahá’í Temple of South America in Chile, I knew that we would need to bring a lot of creativity to the table. What I didn’t know at the time was that the project would challenge every aspect of our structural, building technology, and materials capabilities. We joined the project team as a facade consultant and quickly took on a larger structural role due to the importance of integrating the cladding with the temple’s structure, which gives visitors a sense of looking up through a canopy of trees toward the heavens. We also had to bring a good deal of expertise in materials science. It was important that the temple let in light during the day and appear to glow in the evening. We worked with the project team to develop a new form of borosilicate glass cladding. We also helped to convince the project team that the original interior alabaster cladding would degrade in time under high temperatures, requiring unsustainable levels of air conditioning. We found that marble would provide the same fundamental translucency with better performance. I’m proud that our efforts translated into a structure that represents the Bahá’í tenets of light and openness in such a compelling and lasting way.

“SGH goes beyond normal boilerplate designs. They come up with better ones. They go into uncharted territory with confidence.”

contractor client
"We have a drive to be the best in the industry, to contribute to our profession, and to acquire the reputation as experts – and often leaders – in an ever-increasing number of fields."

Howard Simpson

Our Contributions
As highly capable and passionate professionals, we embrace an obligation to share our knowledge and energy outside of SGH by actively participating in industry organizations and our communities. In our industry, we define and advance the state of the art. In our communities, we contribute significant time and resources to enhance the neighborhoods where we live and work. We also mentor bright young minds who may become the engineers of the future.

Giving back is our responsibility.
Industry

“SGH’s association with ASTM International dates back to the 1950s, when Werner Gumpertz was an assistant professor at MIT. Werner’s mentor, Professor Walter Voss, told him that if he was serious about pursuing roofing technology, he should get involved in standards development through ASTM. In doing so, Werner built a name for SGH in this nascent field—learning who was who and whom he could rely on. The relationships and reputation built through ASTM helped make roofing technology an early foundation of SGH. A couple decades later, Werner gave me the same advice: ‘Join ASTM if you want to make a name for yourself, learn who you can rely on in your industry, and contribute to advancing your profession.’ And that’s how it worked out. My interest in glass and glazing led me to standards development in the field of building enclosures, which substantially helped to advance our Building Enclosures practice. SGH and ASTM both value quality of work, staff development, and ethical behavior beyond reproach. What an honor it has been to have had leadership roles in both of these great organizations.”

“[SGH] has made significant contributions through leadership roles in publications, standards, and other technical efforts, particularly in developing our vision for the future.”

industry representative
Community

“None of us volunteer looking for awards or recognition. We mentor to create an impact for young students and look forward to what they will accomplish in the industry. As we work together to guide and teach these students, we benefit by inspiring the next generation of potential engineers and scientists. We also learn powerful lessons from our students: to ask questions and to accept new ideas. Helping each other now and improving our industry for the future is a powerful part of what makes SGH great.”

“No task is too small or too big for SGH volunteers. They care passionately about student success and the pursuit of careers in the design and structural industry.” mentor program representative
Looking Toward the Future

Passion for our profession and commitment to excellence, each other, and our clients underpin the greatness we achieved over the past sixty years. Our continued vigilance to these tenets and the incredible talent assembled throughout the firm position us for a future in which we will write our most vivid and inspiring stories – ones that honor our legacy and our dedication to driving positive and impactful societal change. I am immensely proud of who we are, and eager to continue our journey together as we attain success once unimaginable.

Charles J. Russo
1950s–1970s
1980s–1990s
2000s–2010s
Photos

Front cover: Worcester Polytechnic Institute, Sports & Recreation Center; Worcester, MA. Page 1: Werner Gumpertz, Howard Simpson, and Frank Heger; Arlington, MA. Page 2: Spaceship Earth, Epcot Center, Walt Disney World; Lake Buena Vista, FL. Page 3: Glenn Bell. Page 4: The Cooper Gallery; Cambridge, MA. Page 5 (top vellum): Frank Heger. Page 7: SGH at work. Page 8 (top): World Trade Center Towers “Tribute in Light,” stock image; New York, NY. Page 10: SGH models; Prudential Center Tunnel; Boston, MA. Page 11: Southampton Pilings; Colstrip, MT. Pages 12 and 13: SGH at work. Pages 14 and 15: City of Boston Facade Inspection; Boston, MA. Page 16: John Muir Medical Center; Walnut Creek, CA. Page 17 (top vellum): Werner Gumpertz. Page 19 (clockwise, l. to r.): New York State Capitol Building; Albany, NY. Compact Range Reflector; Fort Huachuca, AZ. University of Arizona, Health Science Education Building; Phoenix, AZ; photo by Bill Timmerman. The Broad museum; Los Angeles, CA; photo by Blake Marvin. Page 20: Seabrook Station Nuclear Power Plant; Seabrook, NH. Page 21 (clockwise, l. to r.): SGH at work; photos 1, 3, 5, and 7. Navy Pier elevator; Chicago, IL; photo 2. Boston Harbor Islands Pavilion; Boston, MA; photo 4. Mount St. Mary’s College, Doheny Mansion; Los Angeles, CA; photo 6. Page 22: Mainframe computer, stock image. Page 23: NASA Vehicle Assembly Building; Cape Canaveral, FL. Pages 24 and 25: Spaceship Earth, Epcot Center, Walt Disney World; Lake Buena Vista, FL. Page 26 (top): Bahá’í Temple of South America; Santiago, Chile; photo courtesy of Hariri Pontarini Architects [bottom, l. to r.]: SGH in-house lab; SGH at work on the Bahá’í Temple; Bahá’í Temple interior, photo by Daniela Galdames Garcia; Bahá’í Temple, photo by Daniela Galdames Garcia. Page 27: Bahá’í Temple; SGH drawing. Pages 28 and 29: University of Maryland, Physical Sciences Complex; College Park, MD; photo by Dan Schwalm. Page 30: Precision structure. Page 31 (top vellum): Howard Simpson. Page 33 (top): Joe Schuster [bottom, l. to r.]: SGH Chicago office volunteers; Nik Vigenov; SGH Los Angeles office volunteers. Page 34 (l. to r.): Glenn Bell; Susan Knack-Brown (center); Joe Zona, photo courtesy of SEAMASS. Page 35: Werner Gumpertz and Tom Schwartz. Pages 36 and 37 (top, l. to r.): SGH San Francisco office volunteers; Taryn Williams, photo courtesy of Iridescent; SGH Boston office volunteers; Lucy Wang and Mike Tecchi [bottom]: SGH Boston office Engineering Day. Page 38: Massachusetts Institute of Technology, International Design Center, Tectonics of Transparency: The Wall; Cambridge, MA; photo courtesy of Cristina Parreño Architecture. Page 39: Charles Russo. Pages 40 and 41: Massachusetts Institute of Technology, Building 10 Great Dome; Cambridge, MA. Pages 42 and 43 (top, l. to r.): Monsanto House of the Future; Anaheim, CA. Catholic Cathedral of St. Louis; St. Louis, MO. U.S. Pavilion, Expo ’67; Montreal, Quebec [middle, l. to r.]: North Shore Music Theatre; Beverly, MA. Brazos River Bridge; Brazos, TX [bottom, l. to r.]: Old Joslin Building; Brookline, MA. 280 Park Avenue; New York, NY. Monsanto House of the Future; Anaheim, CA. Page 44 (clockwise, l. to r.): F-111 Fighter Jets. 2000 Commonwealth Avenue; Brighton, MA. Liquid Natural Gas Tank. Page 45 (clockwise, l. to r.): Smithsonian Institution, Multiple Mirror Telescope; Mount Hopkins, AZ. SGH staff collecting roof sample. Massachusetts Institute of Technology, Haystack Observatory; Westford, MA. Plastic Parasols at the American National Exhibition; Moscow, Russia. SOHIO Operations Center; Prudhoe Bay, AK. Harvard University, Holyoke Center; Cambridge, MA. Page 46: Polk County Courthouse; Bartow, FL. Page 47 (clockwise, l. to r.): Hyatt Regency Hotel; Kansas City, MO. Procter & Gamble Building; Kobe, Japan. Deer Island Wastewater Treatment Plant; Winthrop, MA. Aga Khan Hospital & Medical College; Karachi, Pakistan. 303 Congress Street; Boston, MA. North Coast Superaqueduct; Arecibo to San Juan, PR. Grand Central Terminal; New York, NY. Pages 48 and 49 (clockwise, l. to r.): John Muir Medical Center; Berkeley, CA. L’Ambiance Apartment Building; Bridgeport, CT. Pacific Park Plaza; Emeryville, CA. Storrow Drive Tunnel; Boston, MA. Keck Submillimeter Array Telescope; Mauna Kea, HI. New Jersey Performing Arts Center; Newark, NJ. Page 50 (top, l. to r.): Massachusetts Institute of Technology, Simmons Hall; Cambridge, MA; photo by Paul Warchol. Thule Air Base; Greenland [middle, l. to r.]: Boston Convention and Exhibition Center; Boston, MA; photo by John Horner. National September 11 Memorial and Museum; New York, NY [bottom]: de Young Museum; San Francisco, CA. Page 51: Contemporary Jewish Museum; San Francisco, CA. Page 52 (top): War Memorial Veterans Building; San Francisco, CA; photo by Joel Puliatti [bottom, l. to r.]: New Museum of Contemporary Art; New York, NY; photo by Andrew Lynch. Brown County Courthouse; Green Bay, WI. Diablo Canyon Power Plant; Avila Beach, CA. Page 53 (clockwise, l. to r.): Boston Landing Building; Brighton, MA. Clinton National Airport; Little Rock, AR; photo by Timothy Hursley. Massachusetts Institute of Technology, Kresge Auditorium; Cambridge, MA. Prudential Center Tunnel, Massachusetts Turnpike; Boston, MA. 140 New Montgomery; San Francisco, CA; photo by Henrik Kam. Page 54 (clockwise, l. to r.): Jet Propulsion Laboratory; Pasadena, CA. Union Station Transit Center; Chicago, IL; photo by Jim Zorn/Cupules. Yale University, Beinecke Rare Book and Manuscript Library; New Haven, CT. Tysons Corner Center; Tysons Corner, VA; photo by Alan Karchmer. Macallen Building Condominiums; Boston, MA; photo by John Horner. Chapel Bell Tower, Bowdoin College; Brunswick, ME. Wilshire Boulevard Temple; Los Angeles, CA; photo by Chris Gray. China Basin Landing; San Francisco, CA. Page 55 (top): Museum of Fine Arts; Boston, MA; photo by Chuck Choi [bottom]: National Missile Defense, Sea-Based X-Band Radar; offshore United States. Back cover: Bahá’í Temple of South America; Santiago, Chile; photo by Daniela Galdames Garcia.

We extend a special thank you to all SGH photographers who have documented our work and people over the years. Most recently, we acknowledge Cory Brett, Alan Humphreys, John Gilleeny, Adrian Montanez, and Glenn Nevill, whose photos appear throughout this book.


Adrian Montanez: Page 7 (clockwise, l. to r.): photo 5. Page 13 (clockwise, l. to r.): photo 3. Page 33 (clockwise, l. to r.): photos 1 and 3. Page 34 (l. to r.): photo 1.
