

William F. Baker (engineer)

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William Frazier Baker, also known as **Bill Baker**, (born October 9, 1953, Fulton, Missouri) is an American structural engineer known for engineering the Burj Khalifa,^[1] the world's tallest building/manmade structure.

After obtaining a bachelor's degree in civil engineering from the University of Missouri, Baker held a brief tenure with ExxonMobil and later completed his master's degree at the University of Illinois. He then joined the prestigious architecture and engineering firm of Skidmore, Owings and Merrill (SOM) in Chicago in 1981, eventually becoming a partner (1996). While widely regarded for his work on supertall buildings, Baker's expertise also extends to a wide variety of structures like the Broadgate-Exchange House (London, 1990), the GM Renaissance Center Entry Pavilion (Detroit, 2005), and Millennium Park's Jay Pritzker Pavilion and BP Pedestrian Bridge (Chicago, 2004). He is further known for his work on long span roof structures, such as the McCormick Place North Building Expansion (Chicago, 1986), the Korean Air Lines Operations Center (Seoul, 1995), the Korea World Trade Center Expansion (Seoul, 2000), and the Virginia Beach Convention Center (Virginia Beach, 2007). Baker's career has also been marked by various collaborations with artists such as Jamie Carpenter (Raspberry Island-Schubert Club Band Shell, 2002), Iñigo Manglano-Ovalle (Gravity is a Force to be Reckoned With, 2010), and James Turrell (Roden Crater, expected opening in 2011).

Baker's many skyscraper projects include the AT&T Corporate Center (Chicago, 1989), Trump International Hotel and Tower (Chicago, 2008), Infinity Tower (Dubai, 2009), Pearl River Tower (Guangzhou, 2009), Nanjing Greenland Financial Center (Nanjing, 2009), and the unbuilt 7 South Dearborn (Chicago, 2003), although he is best known as the engineer of Burj Khalifa (Dubai, 2009), the world's tallest manmade structure. To support the tower's record heights, he developed the "buttressed core"^[2] structural system, consisting of a hexagonal core reinforced by three buttresses that form a Y shape. This innovative system allows the structure to support itself both laterally and torsionally. It also eliminates the need for column transfers, and moves loads in a smooth path from the tower's spire into its foundations.

Baker is a Fellow of both the American Society of Civil Engineers (ASCE) and the Institution of Structural

William F. Baker



Born	1953 Fulton, Missouri, U.S.
Nationality	American
Education	University of Missouri, University of Illinois
Work	
Engineering Discipline	Structural engineer, Civil Engineer
Institution memberships	IStructE, ACSE, ACI, AISC, CTBUH, NCEES, IABSE, EERI, SEAIO
Practice name	Skidmore, Owings & Merrill LLP
Significant projects	Burj Khalifa, Trump International Hotel and Tower, Infinity Tower
Significant design	Burj Khalifa
Significant awards	IStructE Gold Medal, Fritz Leonhardt Prize, Fazlur Kahn Lifetime Achievement Medal

Engineers (IStructE), and frequently lectures on a variety of structural engineering topics within the US and abroad.

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Awards

Bill Baker will be the recipient of a 2011 ASCE Outstanding Projects and Leaders (OPAL) Lifetime Award for Design.^[3] On May 13, 2010, The Institution of Structural Engineers, awarded Baker with the Gold Medal, the Institution's highest accolade.^[4] Baker was the first American to be awarded the Fritz Leonhardt Prize For Achievement in Structural Engineering on July 11, 2009.^[5] On November 20, 2008, Baker received the Fazlur Rahman Khan Medal from the Council on Tall Buildings and Urban Habitat.^[6]

Significant projects

- Burj Khalifa Dubai, United Arab Emirates SOM.com (http://www.som.com/content.cfm/burj_khalifa)
- Pearl River Tower, Guangzhou, China SOM.com (http://www.som.com/content.cfm/pearl_river_tower)
- Infinity Tower, Dubai, United Arab Emirates SOM.com (http://www.som.com/content.cfm/infinity_tower)
- Trump International Hotel and Tower, Chicago, Illinois SOM.com (http://www.som.com/content.cfm/trump_international_hotel_and_tower)
- Raspberry Island – Schubert Club Band Shell, St. Paul, Minnesota SOM.com (http://www.som.com/content.cfm/raspberry_island_schubert_club_bandshell)
- Broadgate – Exchange House, London, United Kingdom SOM.com (http://www.som.com/content.cfm/broadgate_exchange_house)
- Korean Air Lines Operations Center, Seoul, South Korea SOM.com (http://www.som.com/content.cfm/korean_air_lines_operations_center)
- Millennium Park – BP Pedestrian Bridge, Chicago, Illinois SOM.com (http://www.som.com/content.cfm/korean_air_lines_operations_center)
- NATO Headquarters, Brussels, Belgium SOM.com (http://www.som.com/content.cfm/nato_headquarters)
- GM Renaissance Center – North Lobby, Detroit, Michigan SOM.com (http://www.som.com/content.cfm/general_motors_renaissance_center_north_entry_pavilion)

Education

- University of Illinois, Master of Science in Civil Engineering, 1980
- University of Missouri, Bachelor of Science in Civil Engineering, 1975

Professional associations

- Fellow, American Society of Civil Engineers (ASCE)
- Fellow, Institution of Structural Engineers (IStructE)
- American Concrete Institute (ACI)
- Committee on Specifications, American Institute of Steel Construction (AISC)
- Council on Tall Buildings and Urban Habitat (CTBUH)
- Earthquake Engineering Research Institute (EERI)
- International Association for Shell and Spatial Structures (IASS)
- International Association for Bridge and Structural Engineering (IABSE)
- National Academy of Engineering (NAE) [7]
- National Council of Examiners for Engineering and Surveying (NCEES)
- Structural Engineers Association of Illinois (SEAOI)
- Structural Engineers Association of Northern California (SEAONC)
- Structural Engineers Association of New York (SEAONY)
- Certified in the Practice of Structural Engineering by the Structural Engineering Certification Board (SECB)
- University of Illinois President's Council



General Motors Renaissance Center – North Lobby, Detroit, Michigan



Broadgate – Exchange House, London, United Kingdom

External links

- Official SOM Biography (http://www.som.com/content.cfm/william_f_baker)
- Burj Khalifa (<http://www.burjkhalifa.ae>)

See also

- Skidmore, Owings & Merrill
- George J. Efstathiou (architect)
- Ross Wimer
- Roger Duffy
- T.J. Gottesdiener
- Craig W. Hartman
- David Childs

References

1. ^ The Skyscraper Museum lecture: Supertallest: Designing Structure – The Burj Dubai (http://www.skyscraper.org/PROGRAMS/BURJ_DUBAI_LECTURES/bd_intro.htm)

2. ^ Engineer Bill Baker Is the King of Superstable 150-Story Structures (http://www.wired.com/culture/design/magazine/15-12/mf_baker) , Wired.com
3. ^ "Outstanding Projects And Leaders (OPAL) Awards" (<http://www.asce.org/Content.aspx?id=2147488985>) . American Society of Civil Engineers. <http://www.asce.org/Content.aspx?id=2147488985>.
4. ^ "William F. Baker, PE, CE, SE, FStructE, FASCE is to receive the Institution's highest accolade, the Gold Medal, for his work as an internationally acclaimed structural engineer" (http://www.istructe.org/news/Pages/100225_gold_medal.aspx) . http://www.istructe.org/news/Pages/100225_gold_medal.aspx.
5. ^ Fritz Leonhardt Prize, "Biografie, William F. Baker" (<http://www.ingkbw.de/FLP/Biografie-Baker.pdf>) , July 2009
6. ^ "2008 Fazlur Rahman Khan Medal Winner: William F. Baker Skidmore, Owings & Merrill LLP" (http://www.ctbuh.org/Events/Awards/FazlurKhanAward/08_WilliamFBaker/tabid/1047/language/en-GB/Default.aspx) . http://www.ctbuh.org/Events/Awards/FazlurKhanAward/08_WilliamFBaker/tabid/1047/language/en-GB/Default.aspx.
7. ^ "NAE Elects 68 Members and Nine Foreign Associates" (<http://www.nae.edu/Activities/MediaRoom/20095/42133.aspx>) . February 8, 2011. <http://www.nae.edu/Activities/MediaRoom/20095/42133.aspx>.

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