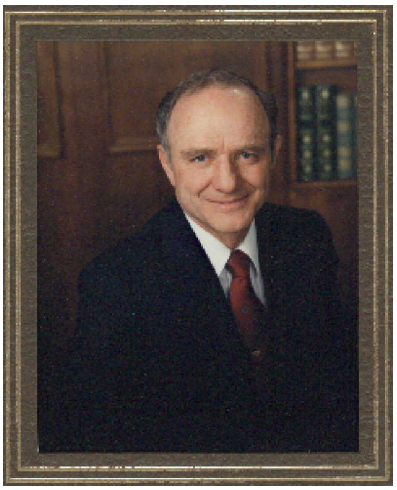
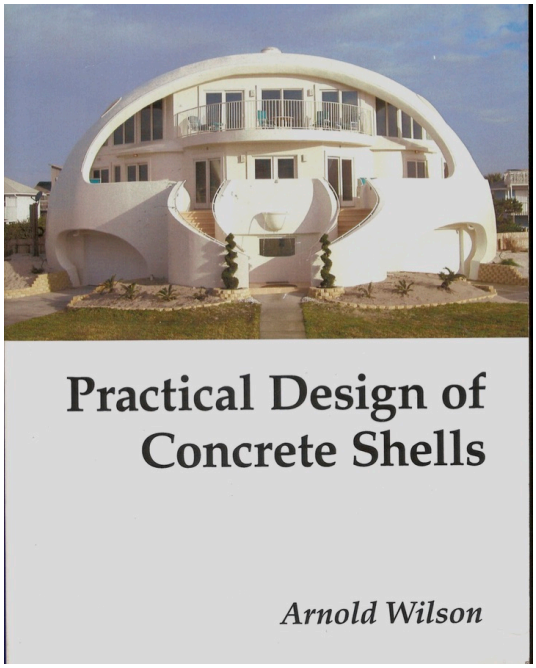


Professor Arnold Wilson



Arnold Wilson, Practical Design of Concrete Shells, Monolithic Dome Institute, 2005, 398 pages

See:
http://www.monolithic.org/round2it/dr-arnold-wilson-a-pioneer-heads-for-retirement

Professor Emeritus
Dept. of Civil Engineering
Brigham Young University, Utah

Founder of Monolithic Dome Institute

Biography:
For the occasion of the retirement of Professor Arnold Wilson, Frieda Parker writes (May, 2010):
"As a student at BYU, Wilson got to know Harry Hodson, a professor of engineering, who gave Wilson some articles on thin shell domes. 'I was immediately absorbed and fascinated,' Wilson recalled, 'and eventually asked Professor Hodson if I could do my master's thesis on thin shell domes, and he said yes. That really marked the start of my working with domes.'"
"By 1975, Wilson had patented a form, much like a collapsible umbrella, over which a dome could be built. 'But then,' Wilson said, 'I met David South and he had a better idea and patent than mine — the Airform.' That meeting marked the beginning of a personally and professionally rewarding relationship for both. Like parents who may love their children equally but remember their first-born with more excitement and in greater detail, Wilson still thinks of one of his first, air-formed dome projects as the most challenging and exciting. He said, 'I was the structural engineer for an ongoing project that involved building three huge domes in three different states. They would all be used for the storing of coal and limestone that eventually would be burned to generate electricity. They were huge — 260 feet in diameter and 130 feet in height. It was my job, as structural engineer, to determine how much concrete and steel were needed and where it had to be placed. Many people had their doubts. Some were absolutely sure a dome that size would never work. I always expected it to work — and it

did!' According to Wilson, when building a Crenosphere Dome, a cable net placed over the outside of the Airform prevents these gigantic expanses of fabric from tearing, and concrete ribs on the inside of the Crenosphere make its increased diameter possible. He explained, 'A Crenosphere differs from a Monolithic Dome in two important ways — one on the outside and one on the inside. On the outside, a steel cable net is secured to the dome's foundation, over the Airform, before inflating begins. When the Airform is inflated, the fabric pillows out between the cables, forming a series of connected smaller domes — like a spherical quilt. On the inside, the Crenosphere is first sprayed with foam, then crisscrossed with rebar ribs, and sprayed with concrete. Those ribs give the Crenosphere more depth but not weight, and create row upon row of small domes — thus eliminating the problem of snap-through buckling.'"

"'I believe Arnold has engineered more thin shells than anyone else, living or dead,' Monolithic's president, David South said. 'Those projects include more than 1500 thin shells located throughout the United States and in 40 other countries.'"

"It took a long, hard, persistent time for David South and others at Monolithic to get Dr. Wilson to put his expertise into a text for engineers, architects, builders and students of civil engineering. In 2005, Wilson finally did it. He wrote Practical Design of Concrete Shells – 398 pages of domes designed as commercial, public or private facilities. They include unique residences as well as huge domes with diameters of 1000 feet, airplane hangars and water tanks. This book is available online."

Selected Publications:

Arnold Wilson, Practical Design of Concrete Shells, Monolithic Dome Institute, 2005, 398 pages