

# DOMES

HOW VADA WORKS  
PERFECTLY ON DOMES

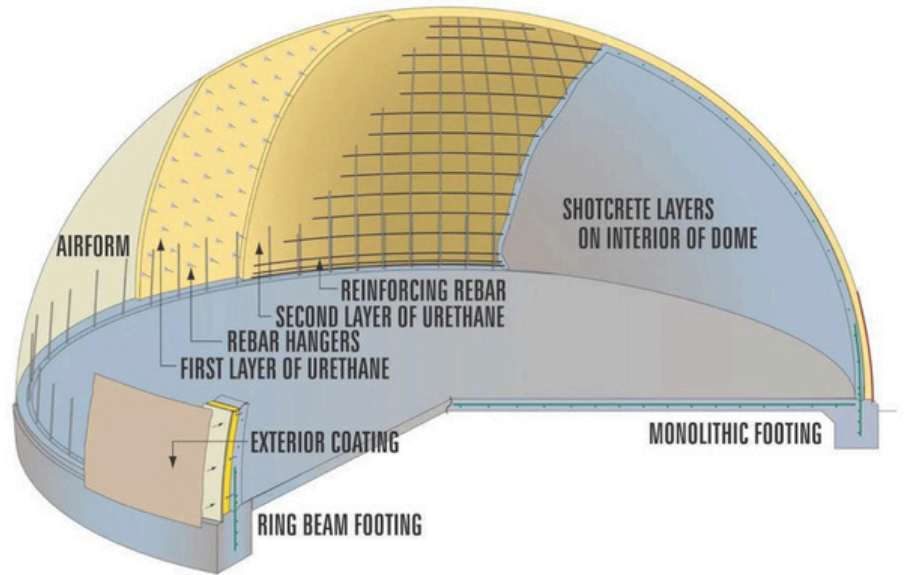


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In 1977, the late David South patented a technique for constructing monolithic domes. The process consisted of a concrete foundation, a PVC membrane “air form,” sprayed-in-place urethane foam, rebar, and 5,000 PSI shotcrete. This combination created a steel-reinforced concrete geodesic dome. South’s company Monolithic Constructors built domes across the United States and trained others to do so.



One such dome in northern Indiana served as an auditorium for a large church congregation. The dome was over 200 feet wide at the base and 8 stories tall. The dome’s base was located approximately 30 feet below ground level. Above ground, the dome was surrounded by a one-story, 80,000 square foot office complex. Then, the “halo” area acted as a circular walkway around the dome. The dome height was eighty feet above the “Halo”. The circumference of the dome at the “Halo” was 440 feet.

After 30 plus years, the PVC “air form” material was aging and leaks occurred inside the dome. Auditorium personnel discovered that no one knew exactly how to attach new membrane to the dome. Some roofers wanted to pre-drill thousands of holes into the steel-reinforced shotcrete. That solution created a list of potential problems. Other roofers looked at the project, drove off and never called back. The few proposals that were submitted were cost-prohibitive.

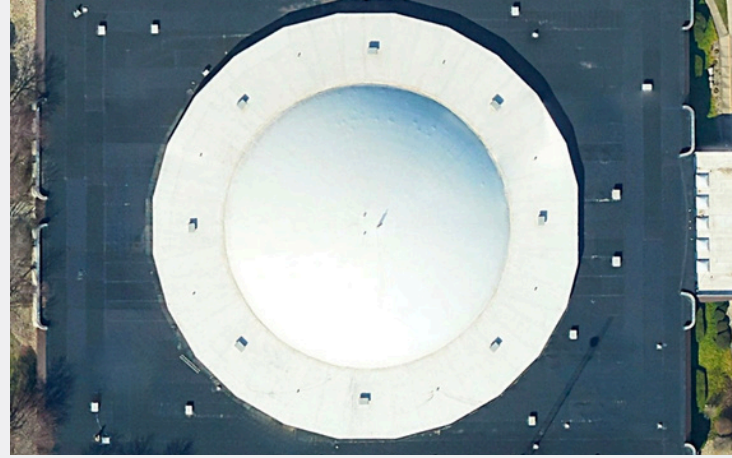
Finally, the Building personnel contacted VADA Vented Roofs. VADA determined that neutralizing wind uplift pressure differentials would work on a dome. The same physics that held VADA Vented Roof membranes on flat roofs would work on a dome. An agreement was reached and work began.



# VADA

## GETS TO WORK

The contractor brought a crew of three: Two roof mechanics and a supervisor to install the roof. VADA’s patented attachment method was employed at the base of the dome, at the peak of the dome and at the perimeter of the “Halo” circular walkway.



How does one make a flat membrane contour to a curved dome? Decades of experience were called upon to calculate the exact pieces needed to install the roof. The first pieces were cut, brought to the roof and installed. And they were completely wrong. Back to the drawing board. Finally, through trial and error, the pieces were cut, loaded and installed. The three-man crew marched around the dome.



The Carlisle SynTec Systems 60-mil Sure-Weld® TPO APEEL™ Protective Film was the membrane of choice for its weathering longevity. Also, after installation, the APEEL Protective Film could be removed. This provided a pristine finished product. The dome membrane was adhered and attached at the base of the dome. Two VADA Vents at the top of the dome neutralize uplift pressures. On the "Halo," eight VADA Vents were used. The project was completed without the need to drill into the reinforced concrete.

After installation, a 69 mile-per-hour windstorm hit the building. The Building personnel were curious to see how the new membrane would react. They were delighted to see absolutely no movement in the new membrane in a near hurricane force wind.

**THE PROJECT IS NOW 5 YEARS OLD.  
NO ISSUES HAVE BEEN REPORTED.  
VADA IS PERFORMING PERFECTLY!**