

# Strength & Inside Edition FAQ

The following article covers Strength & Inside Edition FAQ.



Above is the 22' dome linked to 34' dome that were under construction when Inside Edition Visited

These Domes Went Through Hurricane Jeanne and Frances with no damage.

While the roof was blown off the house across the street

**Q: When the reporter from *Inside Edition* visited, what dome advantage did they zero in on?**

**A: The theme of the segment revolved around the super strength of American Ingenuity's prefab concrete domes and how the Ai domes withstand hurricane forces. The reporter and two man**

camera crew first went to Miami, Florida and interviewed the owners of an *American Ingenuity* dome that survived a direct hit from hurricane Andrew. Views of the Menendezes' beautiful interior were shown but the inspiring stories of the horse trailer and tornado slamming the dome got edited. To view the Inside Edition video, view [Inside Edition](#). Once you are on the page, scroll down and click on the second video which is the Inside Edition video.

They then drove up to our corporate offices. The segment went on to show our five dome complex including the component panels being made in the factory.

The next stop was to view our domes under construction in Melbourne, Florida, a 34' dome linked to a 22' garage. Also of interest was the interior metal framing and metal floor joists.

The program director had previously asked us for a way to illustrate the domes' ability to withstand hurricane force winds. Short of calling up a 200 mph wind and filming the real thing, the next best option is a computer finite analysis. The computer simulated a force equal to 230 mph winds. Our dome stood rock solid. In fact, to see the movement in the dome, the deflection had to be magnified 50 times. A square structure was also modeled but it collapsed with 150 mph winds.

A completed dome home was the next stop. After videoing the house and the dog dome, the reporter, Stephen Gendel, asked for an egg. While on screen he took his best shot at squeezing it to death. They departed shortly thereafter knowing that they had a good story and I can tell you with certainty, they were impressed.

About a week after the program aired we got a call from the New York office. They specifically called to tell us that they had received a flood of calls from people trying to get in

touch with us. For viewers to call us directly they had to figure out the city and area code on their own. One lady reported that the long distance information operator knew our number by heart.

**Q: Does American Ingenuity have an engineering statement about your dome panels that can be submitted to my building department?**

A: Yes, to view the statement click on [Engineering](#).

**Q: What wind loads will the dome withstand?**

A: Because the structure of our dome is steel reinforced concrete it is incredibly strong and easily enhanced to accommodate unusual requirements. The standard design will accommodate up to 225 mph. winds and category 4 tornadoes. To view information summarizing Ai dome and hurricanes, view [Hurricane Recap](#).

Two of American Ingenuity's domes in Hawaii went through a 6.6 earthquake in 2006 and suffered no structural damage. To learn more about the earthquake, view [ABC News Link](#) and on [MSNBC News Link](#).

The Ai dome design has proved itself by withstanding Hurricane Andrew's 165 – 200 mph winds, a tornado that rolled up a steel horse trailer and slammed it against the Menendez dome, four hurricanes in 2004, 6.6 earthquake in 2006, sub-zero temperatures and heavy snow loads of the Northwest Territory of Canada, a 30" in diameter [115 foot tall hickory tree impact](#), a lighting strike and many other conditions since 1976.

**More about steel horse trailer impact:** American Ingenuity warranties their concrete domes against 225 mph winds and F4 tornadoes. Since our dome kit manufacturing business started, Ai has sold 800 kits into 47 states and thirteen foreign areas. Since then Ai has not had any of our clients domes have any damage due to hurricanes or tornadoes except for one dome during Hurricane Andrew. During Andrew a tornado slammed a two

wide metal horse trailer against a 45' American Ingenuity Dome. A riser wall of the dome ended up with a hairline crack and a missing chunk of concrete. The dome owner caulked the crack and mixed up fiber concrete and filled area where the concrete was broken and painted over the area.

**More about the tree impact:** There was no damage to the Brack's 48' dome after winds in excess of 75 mph hit North Carolina in July of 1996. The real test came when a 115' high, 30" in diameter hickory tree was blown over and fell on their dome. The impact broke a 10" diameter branch. The tree slid off and landed on a deck post driving it and it's 16" square concrete footer 6" further into the ground. The insurance agent who inspected the damage to the deck conveyed his amazement about the dome's strength with this comment, "If that had been a frame house the tree would have ended up in the basement!"

**More about the lightning strike:** *American Ingenuity's* 45' office dome withstood another one of nature's most powerful forces, a LIGHTNING STRIKE. The lightning hit the outer edge of an entryway and the only damage it did to the dome was to knock off a handful of concrete at the point of impact! A couple of our computers have not been the same since, but the cost to repair the dome did not exceed \$30 in materials and labor.

**More about heavy snow loads:** In 1995 Howard and Mary Carroll visited Robens and Tom Napolitan's dome. Robens was enthusiastic, but Tom was not. Tom explained to the Carroll's, "its all HER idea, I didn't want a dome." Mary Carroll phoned the Napolitans in 1996. Mrs. Carroll said you couldn't keep Tom quiet this time. He had nothing but wonderful things to say about the dome and had completely turned around about the wonders of living in an American Ingenuity dome....**ROOFS HAD COLLAPSED in their area under several feet of snow**, but NOT HIS DOME! Tom's turnaround sold Mary and her husband on an Ai dome.

**Q: Have you performed a load test on your panel? To view the load test file, view [Load Test](#).**

**A:** Yes, in October 2000 Ai performed a load test on one of its 48' dome building kit's component panels. The test was performed on our largest house panel using the standard 7" thick E.P.S. insulation, 3/4" thick concrete exterior reinforced with steel mesh and fiber reinforced plaster on the interior. The strength of the component panel can be best be determined by measuring the deflection of the panel as a load (weight) is applied in increments. The panel was placed horizontally. Its weight and the weight of everything placed on it was only supported along the outer edge of the panel. The loading of the panel was done by adding sand in 470 lb. increments. Plywood sides were attached to the panel edges so the sand could be spread evenly, providing a uniform load.

The deflection was measured in the center and six other locations. At all the measured points a steel ruler was attached to the panel extending high enough to be visible when the panel was fully loaded with the sand. A surveyor's transit allowed us to measure the deflection.

After 3,783 lbs. of sand was dumped on the panel its center had deflected less than 1/16 inch. Three days later the deflections had only increased to 3/32 inch. Our own amazement at the strength made us even more brave; so we cut through the interior plaster on the bottom of the panel. Even then the deflection was less than 3/16 inch.

We had not expected this exceptional strength. We could not mound the sand any higher so we set a pallet of 40 cement bags on top of the sand thinking, "This could do the panel in." That doubled the weight on the panel and the center deflection increased to less than 3/8 inch. The grand total deflection of less than 3/8 inch with almost four tons of weight was astonishing to us.

A 120-mph wind will exert a pressure of 30 lbs. per sq.ft. on

a vertical wall and a snow load exceeding 50 lbs. per sq.ft. is rare. Our panel withstood 170 lbs. per sq.ft.

**Q: The prefabricated panel concrete is not that thick, why is *American Ingenuity's* dome so strong?**

**A:** The panel concrete does not need to be thick because the strength comes from the triangle shape and the steel reinforced concreted seams which are about 5" wide and 3" deep averaging two thick concrete. Engineers tell us the seams act like steel beams and transfer any stress all over the dome instead of containing the stress in one spot.