

[Ai Dome Engineering Statement](#)

Please scroll down the page to read Ai Dome Engineering Statement. Domes are three-dimensional structures using stable triangles approximating spheres to create multiple load carrying paths from point of load to point of support. The triangle is the only arrangement of structural members that is stable within itself without requiring additional connections at the intersection points to prevent warping of the geometry. In other words, apply pressure to one edge of a triangle, and that force is evenly distributed to the other two sides, which then transmit pressure to adjacent triangles. That cascading distribution of pressure is how geodesic domes efficiently distribute stress along the entire structure, much like the shell of an egg.

For over forty years, American Ingenuity's dome design has proved itself by withstanding the following acts of nature with no structural damage: Hurricane Andrew's 165-212 mph winds, a tornado that rolled up a steel horse trailer and slammed it against the Miami Fl dome, four hurricanes in 2004, Hurricane Katrina, 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. To view recap of acts of Nature click on [Disaster Resistant](#).

The American Ingenuity dome is designed to be as safe and fireproof as possible, the dome exterior is entirely noncombustible concrete. Fire resistant concrete exterior: to view info about American Ingenuity's concrete dome versus the Monolithic Concrete Dome and to view a YouTube Video of fire going over Monolithic concrete dome, please click on [Fire Resistant Concrete Exterior](#).



40' in diameter dome kit when finished has three bedrooms & two baths on two floors. Small third floor loft under cupola. Garage dome on the left.

Engineering Statement for American Ingenuity Dome Building Kits. Geodesic domes are “an extremely efficient use of materials resulting in a maximization of interior spaces while minimizing exterior surface area and therefore creating a materially and energy efficient structure.” However because the dome is not very common, building codes do not cover dome construction. However within all building codes is a section that allows for alternative materials and methods for residential home construction per section 104.11 which covers the American Ingenuity dome. As a result an engineering statement can be submitted to your building department stating American Ingenuity’s component panels comply with section 104.11.

An engineering statement and your building plans can be sealed by an independent Professional Engineer (PE) licensed for

your state if required by your building department. The fee for the engineer seal on your building plans depends on the number of domes in your plans and the type foundation. For example the engineer seal fee for one dome built on a monolithic slab is \$600; one dome on a basement is \$900. This fee is for all size domes. (Just to clarify these engineer seal fees are low versus Ai utilizing an engineering firm or architectural firm whose fees can be \$1,500 to \$3,000 to seal a set of residential new home building plans)

American Ingenuity utilizes a Professional Engineer (P.E.) to seal its dome building plans when required by your building department. The following two engineering statements are provided by Thomas Mixter, P.E., one of the two engineers that Ai utilizes to seal its building plans. Mr. Mixter has a license to seal residential building plans for 47 USA states.

Engineering Statement One:

To Whom It May Concern:

This letter is submitted as an engineering statement in regards to the panel composition of the geodesic dome buildings manufactured by American Ingenuity, Inc., 8777 Holiday Springs Road, Rockledge Fl.

The panel composition of the geodesic dome buildings are certified by me as being designed in accordance with and conforms to the intent of the 2012 International Residential Building Code, California Building Code and Florida 2014 Building Code 5th Edition as allowed alternative materials and methods for residential construction per section R104.11. Georgia-Pacific's DensArmor Plus High Performance Interior $\frac{1}{2}$ " Gypsum Wallboard/drywall used as the interior face of the panels which meets the thermal barrier requirements of R316.4 as shown by third party testing.

I certify that as the evaluating engineer, I am independent of the manufacturer, American Ingenuity, Inc.

Thomas Mixter

Engineering Statement Two. The above statement was revised for a California Building Department to produce the statement below.

To Whom It May Concern:

I have been designing geodesic style domes with various materials for 19 years. I have designed domes fabricated with steel, wood, aluminum and concrete with spans up to 390 feet in diameter. There has never been a failure on any completed dome that I have designed in the several thousand that I have stamped throughout the United States and in many foreign countries.

The geodesic dome by its very design is an extremely efficient use of materials resulting in a maximization of interior spaces while minimizing exterior surface area and therefore creating a materially and energy efficient structure. But this configuration is not very common and therefore not considered by most components of the building codes.

In my opinion the dome referenced above (American Ingenuity Dome for specific California site address) meets the intent of the minimum steel provisions of ACI 318-11 section 10.5 and CBC 104.11 for alternative materials and provides a comparable or higher level of quality, strength, effectiveness, fire resistance, durability and safety. The inherent strength of the geodesic dome configuration creates a minimalistic combination of materials that is less than the more common building materials and configurations considered by the building codes. This style of dome has been successfully installed in many locations throughout the United States.

Thomas Mixter PE Licensed for California & 46 other USA states