

Passive House DC

Bethesda, Maryland, USA



Washington, DC area home cuts heating and cooling cost by 90 percent with the Insulspan SIP System

For two years, architect David Peabody wanted to build a Passive House. The advanced European building standard is both challenging and extremely pragmatic, using one-tenth of the energy required to heat and cool an average home for an incremental cost of less than 10 percent. When Peabody's long-time colleague Brendan O'Neill Jr. of Maryland-based O'Neill Development acquired a suitable property in Bethesda, Maryland, the two teamed up to build the first certified Passive House in the Washington, DC metro area.

Passive homes use a super-insulated building envelope to make heating and cooling loads virtually nonexistent. Instead of filling the home with expensive high tech systems, like solar panels or geothermal heat pumps, the elements of a passive house are simple: lots of insulation and lots of sealants.

"In Passive House design, the building envelope is really 90 percent of the ball game," said Peabody. "The key is to reduce energy demand by eliminating air infiltration and thermal bridging to the point that traditional mechanical systems become irrelevant."

Peabody and O'Neill worked with Insulspan Authorized Dealer **PanelWrights** to install the **Insulspan® Structural Insulating Panel (SIP) System** for the above grade walls and roof of the home.



With a solid core of expanded polystyrene insulation and minimal framing, the Insulspan SIP System greatly reduced both thermal bridging and air leakage. To meet the Passive House certification, homes must have air infiltration less than 0.6 ACH50, as confirmed by a blower door test.

"There is very little thermal bridging with a SIP envelope, and where there is thermal bridging, it is easy to manage," said Peabody. "PanelWrights actually guaranteed they would meet the air change requirement for Passive House certification."

"It is a fun and exciting project for us," said O'Neill. "I'm very impressed with the speed of the SIP installation and the quality of workmanship."