



## **R-CONTROL SIPs**

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## **STRUCTURAL INSULATED PANELS**



## Q. WHAT ARE R-CONTROL SIPs (STRUCTURAL INSULATED PANELS)?

A. An extremely strong super insulated structural panel building component used for exterior walls, roof/ceilings, and floors. R-Control SIPs are made from mold/termite resistant wood facings laminated with structural grade adhesives to termite resistant expanded polystyrene rigid insulation.

## Q. WHAT TYPE OF STRUCTURES CAN BE BUILT WITH R-CONTROL SIPs?

A. R-Control SIPs can be used in all designs: custom homes, engineered homes, restaurants, office buildings, schools, churches...the options are endless. Homeowners, builders, and designers who want to use a superior building technology can all benefit from R-Control SIPs.

## Q. WHY SHOULD I CONSIDER USING R-CONTROL SIP OVER CONVENTIONAL STICK BUILT METHODS?

A. If you plan to own or occupy the building or house, there are several excellent reasons to consider R-Control SIPs.

Comfort — One of the most exciting features of an R-Control SIP structure is the comfort benefit to the homeowner. R-Control SIPs create an inside home environment that is more easily and economically controlled. In addition to superior physical comfort, R-Control SIP structures are also very quiet and clean.

Thermal Performance — Stick built walls were originally designed to be structural, not insulated. With R-Control SIPs, the insulation is not an afterthought, but an integral part of the structure. The insulation is solid, so there is no air movement within the wall, nor are there studs acting as thermal breaks that reduce energy efficiency and homeowner comfort.

Strength — Structural testing and real world storms and earthquakes have challenged R-Control SIP strength performance. In tests of strength, R-Control SIPs have proven stronger than stick framed construction methods.

Quality — R-Control SIPs assure you of straight, flat walls with no bulging framing members. Straight walls are virtually impossible to achieve with stick framing. Attraction of dirt particles to thermal shorts caused by framing members is eliminated. A continuous wood surface provides a sound nailing base for conventional exterior finishing materials. This is also an advantage for interior finishing, as well as hanging cabinets and pictures.

Speed of Construction — R-Control SIPs are a faster method of construction. Many R-Control SIP contractor users report 30% to 50% increased productivity in their framing.

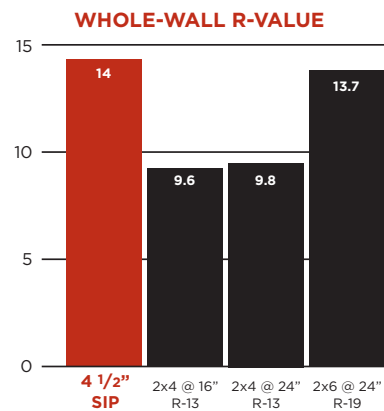
## Q. WHAT IS THE COST OF R-CONTROL COMPARED TO A CONVENTIONAL STICK BUILT STRUCTURE?

A. The cost of any home or building is significantly dependent upon design. Basically, R-Control SIPs offset small additional material costs through labor savings. However, R-Control SIPs produce significant savings to the owner over the life of the structure when lower utility bills arrive.

## Q. WHAT IS THE R-VALUE AND WHY DO R-CONTROL SIP STRUCTURES OUTPERFORM CONVENTIONALLY CONSTRUCTED BUILDINGS AND HOMES WITH THE SAME R-VALUE?

A. R-Control SIPs are manufactured in various thickness with values of R-15, R-23, R-30, R-37, and R-45.

The R-value of a material or wall assembly was not intended to be the measure of thermal efficiency of a home. R-value only measures resistance to heat loss by conduction. Other forms of heat loss are convection, radiation and especially infiltration (leakage). Conventional framing with batt insulation promotes convection, radiant and infiltration heat loss. Testing at Oak Ridge National Laboratories (ORNL) showed that R-Control SIP walls are far superior to conventional stick frame and batt insulated walls. A 4-1/2" R-Control SIP panel was 45% better than 2x4's with R-13 batt insulation and in fact was also better than 2x6's with R-19 batt insulation.

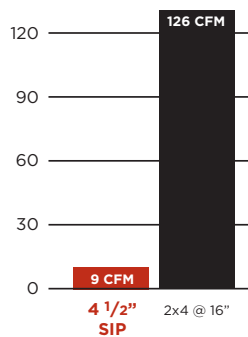


**Q. WHAT IS THE AIR LEAKAGE OF R-CONTROL SIP STRUCTURES?**

A. ORNL tested R-Control SIPs side by side with stick construction. The results were impressive - the air leakage from the R-Control SIP construction was less than 10% of the stick construction. This translates into a more comfortable structure with fewer drafts and lower utility bills.

**WHOLE-ROOM AIR INFILTRATION, ORNL TESTING**

Lower cfm = higher comfort + lower energy cost



**Q. SINCE R-CONTROL STRUCTURES ARE SO AIR TIGHT, DO THEY REQUIRE ADDITIONAL HVAC CONSIDERATIONS?**

A. Yes. The increased R-value and lower air leakage means that heating and cooling equipment must be designed for a high performance structure. This translates into lower capacity heating and cooling units and most importantly lower cost units. Since R-Control SIP structures are so air tight, air exchangers are required as part of the HVAC system to bring fresh air into the structure while simultaneously exhausting air from the structure to ensure optimum indoor air quality. Comfort to the occupants is unparalleled.

**Q. HOW DO R-CONTROL SIPs HELP THE ENVIRONMENT?**

A. Many ways! The raw materials in R-Control SIPs have low energy requirements to make them. The structural facings of R-Control SIPs are made from renewable controlled growth wood resources. For years and years R-Control SIP structures will save fuel used for heating and cooling. The resulting pollutants from burning fuels like natural gas, oil and coal are dramatically reduced. The environment is then spared the contributing "green house" effect of burning additional fuels that conventionally built structures require.

**Q. CAN R-CONTROL SIPs BE USED FOR GREEN BUILDING INITIATIVES?**

A. Yes. R-Control SIPs have been used to build many homes and office buildings that achieve EPA's ENERGY STAR Ratings or USGBC's LEED Certification. And SIPs are a main component used in ORNL's NetZero Energy homes as well as the building system of choice by many leading universities for the Solar Decathlon Design competition.

**Q. HOW DO R-CONTROL SIPs RESIST TERMITES, MOLD, MILDEW, AND DECAY?**

A. R-Control SIPs are no more susceptible to insect infestation than other forms of construction. However, R-Control has identified and thoroughly researched two products to provide protection of your investment. First, the insulation core of an R-Control SIP is R-Control EPS with Perform Guard®. R-Control EPS with Perform Guard is manufactured with an additive to provide termite resistance and is recognized as meeting ICC-ES requirements for termite resistance.



R-Control SIPs are protected with FrameGuard™. FrameGuard coating protects the OSB facings from termites, mold, mildew, and decay. Most importantly, this includes a 20 year warranty.



**Q. HAVE R-CONTROL SIPs BEEN THOROUGHLY TESTED, AND DOES IT HAVE BUILDING CODE ACCEPTANCE?**

A. Yes. Extensive testing has been performed by many independent laboratories. R-Control SIPs have been evaluated by the International Code Council Evaluation Service (ICC-ES) and conform to the requirements of the International Building Code (IBC) and International Residential Code (IRC).



**Q. DO R-CONTROL SIPs MEET FIRE CODES?**

A. Yes. R-Control SIPs have been fully tested for surface burning characteristics and smoke development, corner room fire test, thermal barrier, and hourly fire tests on wall, ceiling and roof assemblies. All results are in compliance with building code requirements.

**Q. HAVE R-CONTROL SIPs BEEN PROVEN STRUCTURALLY IN EARTHQUAKES AND STORMS?**

A. Yes. R-Control SIPs have exceptional strength to resist seismic activity and high winds. R-Control has documentation of homes which used R-Control SIP's that withstood the 7.2-magnitude earthquake in Kobe, Japan in January 1995. These homes were located just miles from the quake's epicenter and stood solidly against the tremendous force of the earthquake. R-Control SIP structures have also withstood tornados in Tennessee and straight line winds and tree trunks crashing into them in Michigan.

**Q. HOW ARE WINDOWS AND DOORS INSTALLED IN R-CONTROL SIPs?**

A. Openings for windows and doors can be built right into the R-Control SIP at the factory, or cut in during field construction. Boundary framing is then installed and the window or door is conventionally set. The R-Control SIP Construction Manual is available with complete construction details.

**Q. WHAT EXTERIOR OR INTERIOR FINISH CAN BE USED WITH R-CONTROL SIPs?**

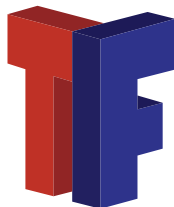
A. All types of sidings, claddings and roofing materials can be applied to R-Control SIPs. The continuous wood facing of R-Control SIPs provides an excellent nailing base and eliminates stud searching.

**Q. HOW IS ELECTRICAL WIRING INSTALLED IN R-CONTROL SIPs?**

A. Vertical and horizontal electrical chases can be provided in the foam core making electrical installation simple. Wiring is pushed through chases during construction. Electrical boxes screw mount to the face of the R-Control SIP.

**Ready to take control? Start here.**

If you're wondering how R-Control SIPs can work on your next project, just contact ThermaFoam R-Control. They'll be happy to collaborate on design, walk you through R-Control SIP installation, provide test data, pricing, and answers to all your questions.



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