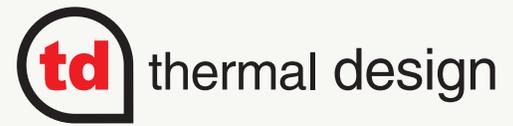


ENERGYCRAFT® INSULATION SYSTEM

Manufactured by Thermal Design



Excellent Insulation System

The EnergyCraft® Insulation System creates the uniform depth space needed for the optimum insulation thickness and delivers the maximum possible insulation performance. Properly sealed ceiling and wall systems prevent air infiltration and isolate the conductive steel structure from the conditioned space. The EnergyCraft® Insulation System provides both low U-Factors and low emissivity values, stopping over 90% of the combined three types of heat transfer.

Class A Fire Hazard Classification

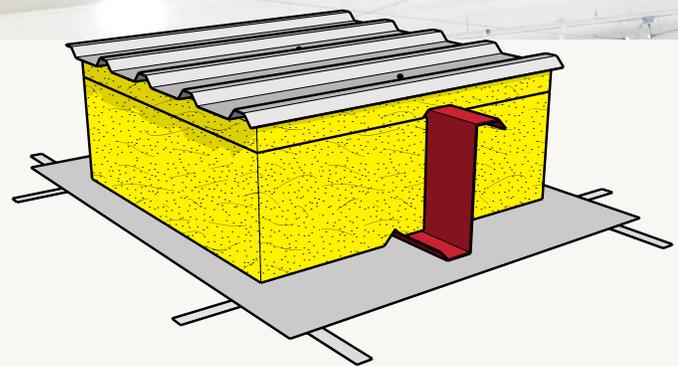
The vapor retarder fabric liner of the standard EnergyCraft® Insulation System complies with: ASTM C1136, Types I through VI; NFPA 701 Large Scale; flame spread of 25 or less per ASTM E-84 (equivalent to NFPA 255, ANSI 2.5 or UL/ULC 723).

Absorbs Sound

Provides excellent yet inexpensive acoustic finishes where conventional suspended ceilings are not appropriate or not in the budget. Standard system has 75% sound absorption (NRC 0.75). This superb by-product of the EnergyCraft® Insulation System comes free with the system. Excellent for gymnasiums, arenas, houses of worship, manufacturing, entertainment spaces and multipurpose rooms.

Finishes and Decorates

The EnergyCraft® Insulation System's clean white appearance is often used as an exposed interior finish in buildings. Purlins and girts are hidden, eliminating the cost to paint them. Various colors and strap patterns may be specified to obtain unique aesthetic appearances. The ceiling and wall surfaces are washable and easy to maintain. (Some minor wrinkles may be visible due to the large pieces of support fabric used.)



Brightens Interiors

The white, light reflective surface enhances efficiency of the lighting system. Light reflectance tests of up to 80% are achieved. Savings of lighting equipment, wiring and electricity result in substantial dollar savings for the building owner. Low ultraviolet producing light sources or UV filtered lenses are necessary to prevent UV degradation and obtain optimum service life.

Helps Prevent Condensation

The high strength EnergyCraft® fabric liner isolates the cold conductive purlin and girt surfaces from the inside conditioned air, reducing the exposed conductive purlin and girt surface areas from about 50% of the roof and wall areas to a fraction of 1%. Water vapor transmission rate is ≤ 0.02 grains per hour/sq. ft. for the standard fabric liner. Factory-made, triple extrusion welded seams are pressure resistant to assure very low vapor permeance and vapor retarder integrity as opposed to thousands of staple holes or hidden, unsealed lap joints typical with older methods of insulation.

Retrofit Application

Adding systems to existing building roof and wall structures from the inside is also possible with the EnergyCraft® Insulation System. Single directional strap systems are standard in retrofit applications. Grids patterns are available for an additional cost.

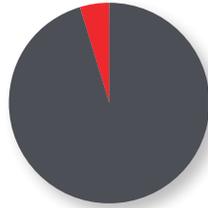
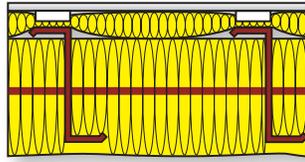
Performance Comparisons of R-30 Systems

Values are based on insulation assemblies in a 5' purlin space with a standing seam roof and thermal block. The hot box tested assemblies were tested in the horizontal position with vertical upward heat flow. Performance will vary with structural spacing and assembly orientation. Visit www.thermaldesign.com for more information.

A. ASTM-C 1363 hot box tests, Oak Ridge National Laboratory

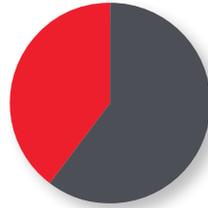
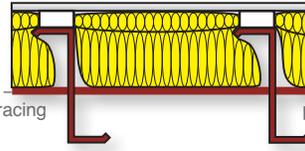
B. Finite Element Modeling, NAIMA MB304 (8/06), System 3

EnergyCraft® "Liner System"



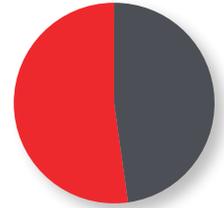
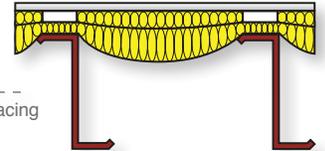
4.7% loss

Long Tab System "Filled Cavity"



39.7% loss

Sag & Bag "Double Layer"



47.0% loss

Pre-Installed R-value: R-30 (R19+R11)

U-Factor: U-0.035 ^A

Installed R-value: R-28.6

Exposed Purlin/Girt Area: 0%

R-29 (R19+R10)

U-0.057 ^B

R-17.5

41.7%

R-30 (R19+R11)

U-0.063 ^A

R-15.9

41.7%

The EnergyCraft® Insulation System is a fabric liner system that minimizes insulation compression and isolates the conductive purlins and girts from the inside conditioned air.

The EnergyCraft® fabric liner system is custom made for each order and the Syseal® fabric liner typically spans the entire bay's width and length in one piece. It is simply pulled out of a special pleated fold, over a grid platform of tensioned steel straps installed below the purlins or joists. This creates the required space for full designed insulation thickness and performance between the structural members. In multi-layer systems the upper layer of insulation may be installed over the structural members with minimal compression.

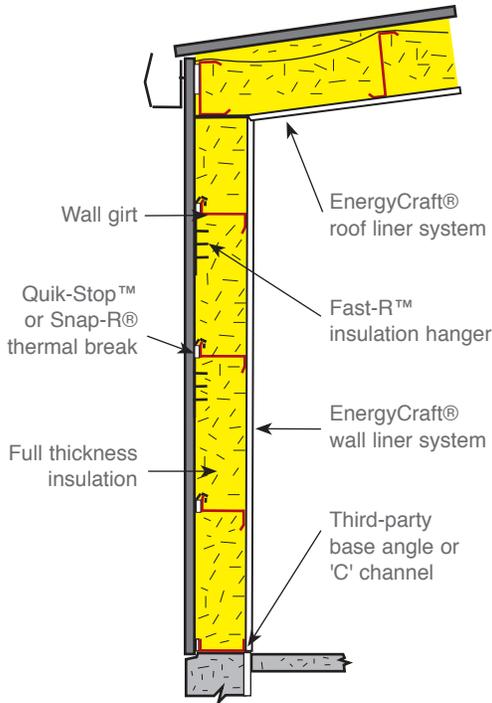
EnergyCraft® Insulation Roof Systems		
Pre-installed R-value	Lower Layer(s)	Upper Layer(s)
R-19	6"	-
R-25	8"	-
R-29	6"	3"
R-30	9"	-
R-30	6"	3 1/2"
R-32	6"	4"
R-35	8"	3"
R-38	8"	4"
R-43	9"	4"
R-49	9"	6"
R-49	12"	3 1/2"
R-51	12"	4"
R-57	12"	6"
R-60	9"	9"
R-68	12"	9"
R-76	12"	12"

Multiple layers and appropriate space is required for any of these systems. Contact technical support for thermal performance most representative of your specific project.

	Simple Saver System®	MBI Safety Liner System™	EnergyCraft® Insulation System
Thermal Performance	✓	✓	✓
Aesthetics	✓	✓	✓
Fall Protection	✓	✓	
Synergy Design sm	✓	✓	
Indoor Air Quality	✓		
Limited Material Warranty	10 Year	10 Year	1Year*

*extended warranty available

Metal Building Wall Detail



EnergyCraft® Metal Building Wall System

The EnergyCraft® wall insulation system is installed completely from the inside, out of the wind and weather. Unfaced insulation lengths are simply cut to fit the girt spacings and then impaled onto the pre-formed Fast-R® insulation hangers. These prevent the fiber glass from sagging. The fabric liner is then installed on the inside plane of the wall to isolate the insulation and conductive girts from the conditioned air. This also provides a clean, bright, finished appearance.

Filling The Full Girt Depth Is Required

Single layer systems help speed the wall sheeting process and a thick single layer of unfaced insulation is preferred to two layers of compressed laminated insulation in walls. The EnergyCraft® single layer liner systems prevent bulging and dimpling of the metal wall panels which is common with laminated insulation compressed between the panels and through-fastened to the sub-structure.

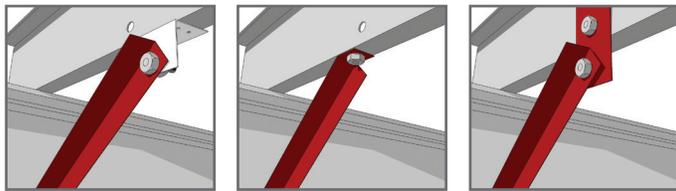
The full depth should be filled to minimize loss of thermal performance caused by convection currents. Wall panel laps, trim and flashing should be sealed per codes to prevent air infiltration into the insulation. Syseal Building Wrap™ is also available for the ultimate in air leakage resistance.

The EnergyCraft® Insulation System installs in virtually any wall structure type to make any building envelope energy efficient.

Items to consider when ordering buildings.

Standardized Purlin Spacings

Custom made insulation widths are available, however by simply specifying standardized purlin spaces from the building manufacturer, you will increase your installation productivity, reduce waste and shorten lead times for delivery. **Specify 2', 3', 4', 5' and 6' purlin and girt spacings from your building manufacturer that match standard insulation widths. Generally there should not be no more than one non-standard width spacing on each side of the ridge of any building.**

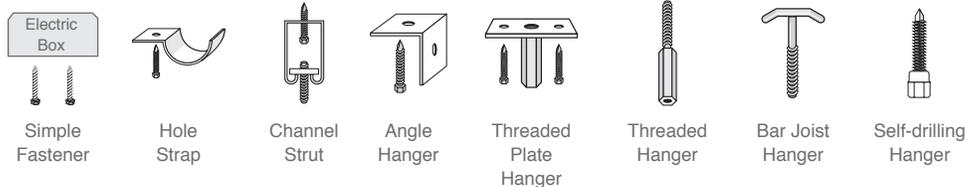


Rafter Brace Clips

The design of the rafter brace attachment to the bottom plane of the purlin speeds installation of the liner system and provides superior vapor seal. **Specify one of these common details when ordering your building.**

Hanging Methods

These are some of the many common hangers that can be used with the EnergyCraft® Insulation System without the need to cut the fabric liner. Compression seals or caulk type sealants may be used with any hanger type. Contact Thermal Design at **800-255-0776** for additional hanger details and products.



EnergyCraft® Insulation Wall Systems	
Preinstalled R-Value	Thickness
R-10	3"
R-11	3 1/2"
R-13	4"
R-19	6"
R-25	8"
R-30	9"
R-38**	12"

**Two insulation layers and stand-off brackets may be required to provide necessary insulation depth.

Other combinations are available upon request. Installed performance is currently under study.

Call Thermal Design at 800-255-0776 for analysis of your specific application.

EnergyCraft® Insulation System vs. Traditional Methods

With today's high energy costs and the potential for continued increases, owners, designers, builders and the government are all focusing their attention on more energy efficient buildings. **Improving the building envelope design and maximizing your installed insulation performance will return more value to the owner than any other building material going into the project.** The EnergyCraft® Insulation System is designed to solve the defects of "traditional" compression insulating methods. Properly placing and sealing the liner system to create the full required insulation space will virtually eliminate insulation compression and assure the ultimate performance.

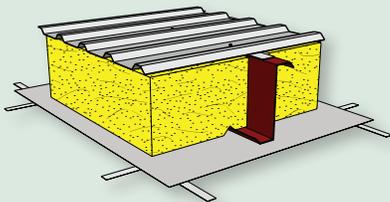


ENERGYCRAFT® INSULATION SYSTEM

- Minimizes Insulation Compression
- Proper Vapor Retarder Placement
- Purlins Fully Encapsulated
- Finished Appearance
- Triple Extrusion Welded Seams
- No Bracing Interference
- Helps Prevent Condensation

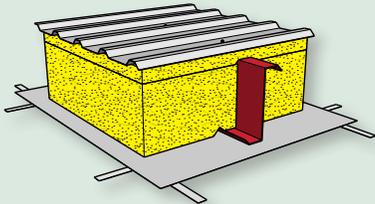
TRADITIONAL METHODS

- Severely Compressed Insulation
- Defective Vapor Retarder Placement
- Voids in Insulation
- Exposed Conductive Structure
- Unfinished Appearance
- Poorly Sealed Seams
- Bracing Interference
- Invites Condensation Problems



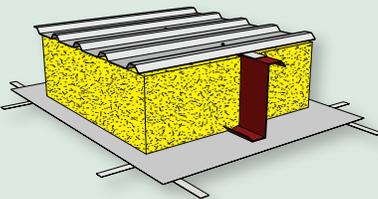
Single Layer Systems

Thermal breaks are recommended between roof decking and the structure to reduce thermal conduction.



Double Layer Systems

The upper layer of fiber glass is installed between roof decking and the structure to reduce thermal conduction.



Blown-in Systems

Blown-in systems fill nearly every crack and crevice for maximum thermal performance.

Thermal spacer blocks may be added to increase insulation space, increase thermal total performance and further reduce conduction.

Notices

All represented and test values are for typical products tested and are not guaranteed values for actual installations.

Specification values are typical data subject to normal manufacturing variations and are not meant to be guaranteed or limiting specifications. Thermal Design, Inc. reserves the right to improve and change component specifications without notice.

States and/or jurisdictions may have a variety of insulation regulations. Check for specific details regarding the insulation regulations that apply in your area.

Trademarks and Licenses

Unauthorized making, using or selling of this technology or trademarks or service marks or copyrighted works shall be each subject to a minimum royalty and lost profit per square foot of surface insulated from such unauthorized acts. Sellers of any component with the knowledge or intent that such component is to be used to evade the purchase of legitimate materials from authorized sources shall be held liable as contributory infringers and otherwise as lawful. All costs of collection, including legal fees and costs, shall be sought as damages for unauthorized use and infringement.

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EnergyCraft® Insulation System manufactured by:



America's Leading Thermal System Technology
1-800-255-0776 | Available Nationwide and Export
www.thermaldesign.com

Contact your Authorized Distributor Below:



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Duluth, GA 30097
P: 888-784-7624 F: 770-325-0119
www.service-partners.com



CAUTION!

This product does not provide fall protection

NOT FALL PROTECTION is labeled repeatedly on the back of the fabric liner. Steel erectors may charge more for products which require workers to be tied-off due to the lower productivity.